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Via E-Filing

Ms. Cynthia T. Brown
Chief, Section of Administration
Office of Proceedings
Surface Transportation Board
395 E Street SW
Washington, DC 20423

RE: ***Supplement to Center for Biological Diversity's Reply to Petition for Exemption,*** **Finance Docket No. 36284, Seven County Infrastructure Coalition—Rail Construction & Operation—in Utah, Carbon, Duchesne, and Uintah Counties, UT**

Dear Ms. Brown:

On July 7, 2020, the Center for Biological Diversity (Center) filed a Reply to the Seven County Infrastructure Coalition's Petition for Exemption in the above-referenced docket. Please find attached a supplement to the Center's Reply, which consists of the references cited in the Reply.

Sincerely,

Wendy Park

CERTIFICATE OF SERVICE

I hereby certify that on this 13th day of July 2020, I caused a copy of the foregoing Supplement to Reply to Petition for Exemption, including a flash drive of references cited in the Reply, to be served on all parties of record by first class mail, postage prepaid.

/s/ Elise Ferguson

STATE OF UTAH
OFFICE OF THE ATTORNEY GENERAL

SEAN D. REYES
ATTORNEY GENERAL

Spencer E. Austin
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Tyler R. Green
Solicitor General

Brian L. Tarbet
Chief Civil Deputy

October 17, 2018

via U.S. Mail and E-mail

Eric Johnson
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Dear Mr. Johnson:

The Permanent Community Impact Fund Board (CIB) received on September 13, 2018, an Application from the Seven County Infrastructure Coalition (SCIC) for a loan of $27,900,000 from the Major Infrastructure Set Aside Fund for Uinta Basin Rail Line planning (Application or Proposed Project). As counsel to the CIB, I have reviewed the Application for compliance with state and federal law. SCIC's Proposed Project raises several serious questions about whether it is an eligible project and whether it constitutes "economic development" and an improper use of public funds for private purposes in violation of federal and state law. In addition, as explained below, before the CIB can properly consider the Application, it requires further information from SCIC.

In 1976 Congress amended the Mineral Leasing Act (MLA), significantly expanding the allowable uses of mineral lease monies to fund planning, construction and maintenance of public facilities, and provision of public services. It explained: "Too many of the revenue sharing provisions restrict the use of funds to only a few governmental services—most often the construction and maintenance of roads and schools."[1] Yet, "local governments are called upon to provide many other services to the federal lands or as a direct or indirect result of activities on the Federal lands. These services include as enforcement; search rescue and emergency; public health; sewage disposal; library; hospital; recreation; and other general local government services."[2] However, local governments must provide these services without the ability to tax

[1] S. Rep. No. 1262, 94th Cong. 2d Sess. 9 (1976); Public Lands and Local Government Funds Act, P.L. 94-565, 90 Stat. 2662 (1976).
[2] *Id.*

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those activities, such as mineral lease development, taking place on federal land. Importantly, in expanding the allowable uses of mineral lease funds, Congress rejected a request from the Department of the Interior to eliminate all limitations and to allow the monies to be used for any public purpose.[3]

In 1993, the State of Utah, Office of the Attorney General (OAG) issued an Opinion analyzing this legislative history and the allowable uses of mineral lease funds under the MLA and Utah law. Since that time, the CIB has relied upon the analyses and legal conclusions of the 1993 Opinion, which explains:

> Congress recognized that local communities need the funds to assist them in building governmental infrastructure and providing local governmental services during the boom and bust cycles that accompany natural resources development. By restricting the use of the funds to planning, construction and maintenance of public facilities, and to the provision of public services, Congress provided a source of funding for traditional local governmental services that are impacted, such as law enforcement, public health, and governmental facilities.[4]

While the legislative history of the MLA does not provide a complete list of all eligible projects, it does provide a methodology to determine eligible projects using the lists of traditional local governmental services in the congressional reports. Utah statutes also offer clear examples: parks, recreation facilities, open space, and trails;[5] public safety facilities;[6] police and fire protection;[7] environmental mitigation;[8] garbage collection and disposal;[9] street lighting;[10] emergency dispatch;[11] cemeteries;[12] animal shelter and control;[13] water rights and water supply, treatment, storage, and distribution facilities;[14] wastewater collection and treatment facilities;[15] storm water, drainage, and flood control facilities;[16] sewage facilities;[17] road facilities;[18] correctional and rehabilitative facilities and programs for prisoners;[19] and health care.[20]

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[3] *Id.*
[4] Utah Attorney General Opinion 92-03 at 4.
[5] Utah Code Ann. § 40-10-25(2)(d); § 63M-5-302(1); § 17D-1-201; § 78B-2-216.
[6] Utah Code Ann. § 17D-1-201; § 11-36a-102(16)-(18).
[7] Utah Code Ann. § 17-27a-403(3)(b).
[8] Utah Code Ann. § 11-36a-102(16)-(18).
[9] Utah Code Ann. § 17D-1-1201.
[10] *Id.*
[11] *Id.*
[12] *Id.*
[13] *Id.*
[14] Utah Code Ann. § 11-36a-102(16)-(18); § 17-27a-403(3)(b); § 73-10d-1; § 78B-2-216.
[15] *Id.*
[16] *Id.*
[17] Utah Code Ann. § 17-27a-403(3)(b).
[18] Utah Code Ann. § 11-36a-102(16)-(18).
[19] Utah Code Ann. § 17D-1-1201.
[20] *Id.*

With this information in mind, the 1993 Opinion concluded—and the CIB has consistently determined—that "economic development" is not a proper or eligible project under the MLA. Economic development usually means assistance to private businesses in their operations. The expectation that economic development activity may provide jobs, taxes, and other benefits that may accrue to benefit the community may justify governmental entities in spending their general fund monies for economic development. However, it is not a proper use of mineral lease monies. Thus, the CIB has limited eligible projects to traditional local governmental facilities and services, like those discussed above and referenced in the legislative history and Utah law.

In addition to the MLA, three legal sources limit the ability of the CIB to fund economic development projects to aid private entities: (a) the Utah Constitution; (b) the CIB statute; and (c) the CIB Rules.

The Utah Constitution prohibits the CIB from funding projects to benefit private entities. The Utah Supreme Court in *Utah Technology Finance Corp. v. Wilkinson* recognized that under the Utah Constitution, it is "the principal of law that public funds cannot be expended for private purposes."[21] And, in *Tribe v. Salt Lake City Corp.*, the Court held "the fundamental test" of constitutionality of the use of public funds is whether the proposed project "is designed to promote the public interest, as opposed to the furtherance of the advantage of individuals."[22] A project should not be rejected "because of the fact that, incidental to the main purpose, there results an advantage to individuals."[23]

This constitutional limitation is discussed in several Utah OAG Opinions. Opinion 84-80 concluded that the CIB could not fund the construction of a city golf course on privately-owned land. Similarly, Opinion 78-297 determined that using state funds for a dry land terrace demonstration on private land was unconstitutional. It offered a simple test: if the benefits of the proposed project to private entities are direct, the project is unconstitutional.[24] If the benefits are merely incidental to the accomplishment of the public purpose of the expenditure, the project might be constitutional.[25]

The Utah Legislature has also directed the CIB to fund only public projects for public entities – state agencies, subdivisions, and interlocal agencies:

> It is the intent of the Legislature to make available funds received by the state from federal mineral lease revenues . . . to be used for the alleviation of social, economic,

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[21] 723 P.2d 406, 412 (Utah 1986).
[22] 540 P.2d 499 (Utah 1975).
[23] *Id. See also Utah Housing Finance Agency v. Smart*, 561 P.2d 1052, 1055 (1977) ("While it is improper to spend public funds for private purposes, such private benefits incidental to a dominant public purpose do not detract from the constitutionality of the legislation.")
[24] Utah Attorney General Opinion 78-297.
[25] *Id.*

and public finance impacts resulting from the development of natural resources in this state, subject to the limitations provided for in [30 U.S.C. §191].[26]

And, as with the MLA, the CIB statute limits the CIB to funding public projects – public planning, construction and maintenance of public facilities, and provision of public services.[27]

The CIB Rule R990-8-3(J) likewise directs the CIB to fund only projects for public entities: "All applicants must demonstrate that the facilities or services provided will be available and open to the general public and that the proposed funding assistance is not merely a device to pass along low interest government financing to the private sector."

Here, SCIC's Application raises many serious questions about whether the Proposed Project is truly a public project as defined under federal and state law, whether expending restricted mineral lease funds outside of Utah is consistent with federal and state law, and whether the Proposed Project constitutes improper economic development.

First, serious questions exist as to whether SCIC's Proposed Project constitutes an eligible public project under the MLA and state law. An application requesting $27.9 million to conduct a variety of preliminary work for a 150- to 180-mile railroad project is inconsistent with the examples of eligible projects found in the MLA's legislative history or in Utah law.[28]

Second, SCIC's Application raises serious questions about whether its requested grant will be used for the MLA's intended purpose: alleviating the burden of impacts from mineral development on local communities. Instead, it appears the Proposed Project may actually exacerbate current burdens and create new burdens associated with increased mineral development. SCIC's economic analysis relies heavily upon a model that will significantly increase oil production in order for the railroad to become economically viable. SCIC representatives have claimed that the railroad will provide a transportation alternative to trucks that are currently used to haul crude oil, which cause pollution, traffic, and accidents.[29] However, the CIB's experts believe that even if the railroad is built, truck traffic to Salt Lake City area refineries will still occur at relatively similar levels to those currently experienced. And, even if truck traffic is reduced, a significant increase in oil production will nevertheless increase burdens to local communities—not alleviate these burdens, as required by the MLA.

Third, serious questions exist as to whether SCIC's Proposed Project constitutes "economic development" because it will improperly aid private entities with public funds. While SCIC claims that a result of the Proposed Project may be more royalties for the CIB to distribute (along with jobs and revenue for the counties),[30] at bottom, the Proposed Project will first and primarily benefit private businesses (i.e., oil companies). For increased royalties to flow to the CIB and local governments, oil companies must first obtain or increase production, thus

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[26] Utah Code Ann. § 35A-8-301(1).
[27] Utah Code Ann. § 35A-8-305(1)(a).
[28] *See supra.*
[29] *See* September 19, 2018 Memorandum provided to the Utah OAG by SCIC, at 3.
[30] App. Addendum at 1.

primarily increasing profits for these private entities. Indeed, SCIC's Application admits as much: "[t]he winners would be the producers, royalty recipients . . . and taxing authorities. . . ."[31] The RL Banks study makes this even more clear: "the ultimate goal of the [Uinta Railroad] is to provide prospective Uinta Basin rail shippers with the lowest cost transportation option between the Uinta Basin and national markets . . . ."[32] Also: ". . . the ultimate goal of constructing the prospective railroad is to advance the economic development of the Uinta Basin . . . ."[33] The MLA expressly forbids this use of mineral lease funds.

Fourth, SCIC's Application raises serious questions about the expenditure of state funds outside of Utah because approximately two-thirds of the mileage for the rail line will be located in Colorado. SCIC has attempted to address this issue in meetings and communications with the OAG. Specifically, SCIC has mentioned a 2016 meeting with Assistant Attorneys General Susan Eisenman and Wade Farraway about the Swinging Bridge, a proposed project located in Colorado, a few miles across the border from Daggett County.[34] SCIC applied to the CIB for mineral lease funds to replace the bridge in Colorado. SCIC withdrew its application when the OAG advised that the CIB could not fund the project because it had no nexus to Utah. SCIC's communications claim the OAG based its opinion on the CIB statute, Utah Code Ann. 35A-8-301(1), which states:

> It is the intent of the legislature to make available funds received by the state from federal mineral lease revenues under Section 59-21-2, bonus payments on federal oil shale lease tracts U-A and U-B, and all other bonus payments on federal mineral leases to be used for the alleviation of social, economic, and public finance impacts resulting from the development of natural resources in this state, subject to the limitations provided for in Section 35 of the Mineral Leasing Act of 1920.

The OAG focused on the above phrase, "in this state," concluding it restricts the CIB from using mineral lease funds for projects outside of Utah.[35] SCIC's communications claim that the OAG stated that mineral lease funds can only be used for "a public facility having a 'nexus'" to Utah.[36] This appears to extend the OAG's opinion beyond the advice given at the 2016 meeting regarding the Swinging Bridge. It is located entirely outside of the State of Utah, and therefore, the OAG offered advice only about the project before it: a project with no nexus to Utah. No evidence exists that the OAG offered an opinion or advice regarding a hypothetical project not under consideration: one with at least some nexus to Utah.

In addition to the argument above, SCIC's communications have also offered a contrary argument about the CIB statute: "the phrase '*in this state*' indicates that the mineral lease revenues Utah receives only come from the development of natural resources '*in this state*' and

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[31] *Id.*
[32] RL Banks study at 66.
[33] *Id.* at 67.
[34] *See* June 1, 2018 Memorandum provided to the Utah OAG; Sept. 19 Mem.; April 10, 2018 email from Eric Johnson to Utah OAG.
[35] June Mem. at 1-2; Sept. 19 Mem. at 2.
[36] Sept. Mem. at 2.

are to be used to alleviate the '*impacts resulting from*' the development of natural resources in this state."[37] And the phrase merely exists to mirror language in the federal MLA.[38]

This argument is flawed for several reasons. It focuses on one phrase in a single subsection of the CIB statute and ignores the remainder of the statute and its greater context, which make clear that the CIB's mineral lease funds should be used within Utah. For example, the following subsection in the CIB statute states:

> The purpose of this part is to maximize the long term benefit of funds derived from these lease revenues and bonus payments by fostering funding mechanisms which will, consistent with sound financial practices, result in the greatest use of financial resources *for the greatest number of citizens of this state*, with priority given to those communities designated as impacted by the development of natural resources covered by the Mineral Leasing Act.[39]

In addition, and as discussed above, the legislative history of the federal MLA makes clear Congress' intent was to alleviate impacts from mineral development in those communities where the development takes place.

SCIC's communications have also claimed that a "narrow construction" of the language in Utah's statute "would arguably prohibit the CIB from funding an array of projects that it has been funding in areas of Utah that are not heavily impacted by mineral development. . . ."[40] However, no such projects have been identified. To the extent the argument refers to projects in Utah counties with little mineral production, this argument is flawed because the CIB statute provides criteria for determining an applicant's eligibility for mineral lease funds. And importantly, it states: "The impact board shall make grants and loans from the amounts appropriated by the Legislature out of the impact fund *to state agencies, subdivisions, and interlocal agencies* that are or may be socially or economically impacted, *directly or indirectly*, by mineral resource development. . . ."[41].

Similarly, SCIC's communications have asserted that the CIB may fund SCIC's Proposed Project because SCIC's request for $27.9 million is a small portion of the overall cost of the rail project (approximately $1.5 billion).[42] SCIC has claimed that the planning funds "can be allocated to the Utah side of the project."[43] However, SCIC's communications have not offered any explanation for how this could be accomplished, and it seems quite difficult in practice. For example, SCIC's request seeks funding for National Environmental Policy Act planning, which must analyze the entire project area, not separate out the Utah and Colorado portions.[44] Likewise,

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[37] June Mem. at 1-2 (emphasis in Mem.).
[38] *Id.*
[39] 35A-8-301(2).
[40] June 1 Memo at 2.
[41] Utah Code Ann. 35A-8-305 (emphasis added).
[42] June 1 Mem. at 4.
[43] *Id.*
[44] *See* 42 U.S.C. §§ 4321, *et seq.*

studies such as engineering, modeling, and freight analysis, which all appear to apply to the entire project, and are not easily apportionable by state boundary.

Fifth, SCIC's Application raises questions as to whether it qualifies as "planning" as defined by statute or the CIB's general practices. SCIC's Application requests funding to: conduct studies, environmental and regulatory permitting, rail line engineering and design, right-of-way planning, revenue analyses, grant procurement, legal services, public involvement, and administrative/program management.[45] Traditionally, the CIB has not considered these items as "planning" under the MLA or Utah's statute. For example, engineering and design services are generally paid as part of project costs, not as part of a planning grant. Likewise, the CIB has not generally funded environmental and regulatory permitting as part of a planning grant.[46] Thus, SCIC's characterization of its Application as "planning" seems inconsistent with law and practice.[47]

In addition to the serious concerns raised above about compliance with federal and state law, SCIC's Application raises additional concerns with the CIB's rules. SCIC's Application requests the CIB suspend its rules and fund the Proposed Project immediately. Utah Admin. Code R990-8-4 states: "In instances of bona fide public safety or health emergencies or for other compelling reasons, the Board may suspend the provisions of this section and accept, process, review and authorize funding of an application on an expedited basis." SCIC has not met the burden required under this rule. It has not cited any bona fide public safety or health emergency, nor has it offered "other compelling reasons." SCIC's Application merely states that "the project needs to be approved and built as soon as possible to capitalize on current positive momentum and support."[48] [49] Any applicant could offer the same reasoning for any project. Thus, under the CIB's rules, SCIC's Application should be considered submitted for review in the second trimester, with a funding meeting in February 2019.[50]

Finally, to properly consider SCIC's Application, the CIB requires the following information:[51]

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[45] App. Addendum at 4-7.

[46] With few limited exceptions, the CIB has not funded legal services (except for bonding services) for any type of project or planning grant or loan.

[47] In addition, the CIB Rules state: "Planning grants and studies normally require a fifty percent cash contribution by the applicant." R990-8-3(D). SCIC does not have any cash match for this application.

[48] App. Addendum at 10.

[49] The Application also erroneously states that it was submitted on February 1, 2018. While SCIC submitted an application on that date, it was, by SCIC's own admission, incomplete, and lacking the studies and information required under the law. The CIB considers that application withdrawn. Thus, to clarify: the application under consideration by the CIB was received on September 13, 2018.

[50] Utah Admin. Code R990-8-4(2).

[51] Consistent with the CIB Rule R990-8-3(A), the CIB staff reserves it right to hold SCIC's Application until this information is received.

- SCIC's Application lacks a detailed description of costs. The CIB staff and the OAG have repeatedly asked for greater detail in a cost breakdown.[52] SCIC representatives have agreed to provide this information on several occasions, but have not done so. Please provide this information immediately.
- SCIC's Application mentions discussions with county and local officials in Colorado. Has SCIC held discussions with officials in Colorado state government? If so, please provide written documentation. If not, please explain why.
- SCIC's Application mentions discussions with the Ute Tribe of the Uintah & Ouray Reservation. Please provide further information about these discussions, including any written agreements or other documentation.
- SCIC's Application states that SCIC may seek appropriations to cover its anticipated $75 million credit risk premium for a U.S. Department of Transportation loan. What is the status of this appropriations request?

In sum, the Utah Office of the Attorney General has serious questions about SCIC's September 13, 2018 Application for $27,900,000 for Uinta Rail Line planning. The CIB and its staff require further information from SCIC to properly consider this application.

Please do not hesitate to contact me should you have any questions.

Sincerely,

Alison Garner

Alison D. Garner
Assistant Attorney General
Counsel to CIB

cc: Jonathan Hardy, CIB Chair
CIB Staff

[52] For example, at meetings at the Department of Workforce Services on April 19, and 26, 2018.

STATE OF UTAH
OFFICE OF THE ATTORNEY GENERAL

SEAN D. REYES
ATTORNEY GENERAL

Spencer E. Austin
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Tyler R. Green
Solicitor General

Brian L. Tarbet
Chief Civil Deputy

October 30, 2018

via E-mail

Eric Johnson
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Salt Lake City, Utah 84123
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Dear Mr. Johnson:

Thank you for your letter of October 23, 2018,[1] which responds to the Office of the Attorney General (OAG) letter of October 17, 2018[2] regarding the Application to the Permanent Community Impact Fund Board (CIB) from the Seven County Infrastructure Coalition (SCIC) for a loan of $27,900,000 for Uinta Basin Rail Line planning (Application or Proposed Project). The purpose of the October 17 letter was to raise important questions and legal concerns about the Application. It is possible—perhaps likely, even—that the CIB's decision on the Application will be challenged in court. Therefore, it is critical that the CIB members and SCIC are fully aware of the potential claims and legal risks that may arise during judicial review. The CIB's decision must be supported by substantial evidence, and so, it is imperative for the CIB members to be fully informed of all legal and factual issues because thorough analysis of these issues is essential to its decision. Should the CIB grant the Application, it is in the CIB's interest—as well as SCIC—to have a well-supported, well-documented decision. Moreover, it is the duty of the CIB, as a steward of public funds, to closely examine each application it receives, including SCIC's application. With this in mind, the response below to the October 23 letter follows the numbered sections in that letter.

1. Previous CIB approvals "for rail" may be distinguishable from SCIC's Application. The October 23 letter states that the CIB has previously approved applications "for rail," and therefore SCIC's Application can be funded.[3] The primary example discussed involves a 2014

[1] Letter from E. Johnson to S. Reyes, October 23, 2018.
[2] Letter from A. Garner to E. Johnson, October 17, 2018.
[3] Oct. 23 letter at 1-2.

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application from SCIC's predecessor. There the CIB approved a $50 million grant to begin saving for a credit scoring amount for a future possible loan application from the U.S. Department of Transportation for a railroad. This money was to be set aside and reserved as part of what was planned to be a larger amount of money used to secure that loan, with UDOT acting as the permitting sponsor for the project. That application did not request funding for planning, permitting, legal fees, or engineering/design costs.

The October 23 letter is correct that CIB has approved funding in the past for small studies, mostly for analyzing potential rail routes. However, those studies are much more like the studies SCIC commissioned from HDR, Inc. or RL Banks than SCIC's Application. Because previous approvals can be distinguished from SCIC's Application, the October 17 letter raised the issue.

2. Will the requested grant be used for the Mineral Lease Act's (MLA) intended purpose? The October 17 letter raised questions about whether the proposed Uinta Rail Line might exacerbate impacts from mineral development, rather than mitigate burdens, consistent with the purposes of the MLA and state statute.[4] SCIC's Application and supporting materials do not appear to adequately address this question. Importantly, the CIB's expert consultants have raised factual questions about whether the rail will truly alleviate truck traffic if oil production is increased exponentially.[5] SCIC's supporting studies do not offer much (if any) evidence to support the claim that truck traffic will decrease, addressing this question in a single page of the RL Banks study. As explained by the CIB's expert consultants a typical study of this kind would include far more reaching analysis on this key question.[6]

The cases cited in the October 23 letter are not relevant.[7] They recognize that state legislatures may, within their discretion and with few limitations, direct the use of mineral lease funds. The Utah legislature did so with the Community Impact Alleviation statute.[8] The question of state legislative authority to draft a statute for use of mineral lease funds is not at issue here.

The October 17 also letter raised questions about the impact of mineral development to make the CIB aware of the issue and so that SCIC could have the opportunity to respond. Raising questions does not attempt to "determine priorities" or "direct [] political priorities."[9]

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[4] Oct. 17 letter at 4.

[5] *See* Zions Public Finance on the RL Banks Pre-Feasibility Study, at 3, provided to SCIC on October 23, 2018.

[6] *Id.*

[7] October 23 letter at 3 (*Cuba Soil and Water Cons. Dist. v. Lewis*, 527 F.3d 1061 (10th Cir. 2008); *Bradford v. Iron Cnty. C-4 Sch. Dist.*, 1984 WL 1443 (E. D. Mo. 1984) (unreported); *United States ex rel. Hogan v. Uintah Special Svs. Dist.*, 395 F. Supp. 2d 1088 (D. Utah 2005)).

[8] Utah Code Ann. 35A-8-301, *et seq.*

[9] Nor does the October 17 letter "argue[] that if mineral production might increase from a project, then it becomes ineligible because it would 'exacerbate' impacts rather than alleviate them." Oct. 23 letter at 3.

Whether a project is consistent with the fundamental purpose of the MLA and state statute is an obvious question, and one that any applicant to the CIB should be able to answer and support.

3. **Is the Proposed Project an eligible public project?** The October 17 letter cited examples of eligible projects found in federal and state law.[10] The October 23 letter notes that one of those statutory examples[11] includes "transportation," defined as: "including the receipt of federal secure rural school funds under Section 51-9-603 for the purpose of constructing, improving, repairing, or maintaining public roads."[12] It is silent on rail, specifically freight rail. Likewise, none of the cases cited in the October 23 letter specifically reference freight rail, but instead are about passenger rail or public transit, not freight rail.[13]

The arguments in the October 23 letter conflate public transit/passenger rail with freight rail, and general funds with mineral lease funds. A court may ultimately determine that the MLA statutory language encompasses freight railroads, but it does not appear that the question has been addressed. Therefore, questions exist as to whether SCIC's Proposed Project constitutes an eligible public project under the MLA and state law.

4. **Does the Proposed Project constitute "mere economic development" as the primary purpose?** Relying on a 1993 Utah Attorney General Opinion, the October 23 letter argues that economic development may be a goal or intended benefit of a project.[14] This is an accurate interpretation of the 1993 Opinion. However, that Opinion also explains that "use of mineral lease monies for 'mere' economic development – usually meaning assistance to private businesses and enterprises in their operation -- raises Utah Constitutional Issues."[15] The October 17 letter raised the question of mere economic development, in part, because SCIC's application and its supporting studies place the issue at the forefront: "the ultimate goal of the [Uinta Rail Line] is to provide prospective Uinta Basin rail shippers with the lowest cost transportation option between the Uinta Basin and national markets . . . ."[16] "[T]he ultimate goal of constructing the prospective railroad is to advance the economic development of the Uinta Basin . . . ."[17] And "[t]he winners would be the producers, royalty recipients . . . and taxing authorities. . . ."[18] Because the MLA expressly forbids the use of mineral lease funds for mere economic development, the issue is one SCIC must address.

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[10] Oct. 17 letter at 4.
[11] Utah Code Ann. § 17D-1-201.
[12] *Id.* at -201(7).
[13] *Salt Lake on Track v. Salt Lake City*, 939 P.2d 680 (Utah 1997) involved an initiative petition for light rail public transit in Salt Lake City. The case does not mention § 17D-1-201, nor does it discuss freight rail. Likewise, *Rich v. Salt Lake City Corp*, 437 P.2d 690 (Utah 1968) also relates to public transit or "street railways."
[14] Oct. 23 letter at 5-8.
[15] A. G. Opinion 92-03 at 6.
[16] RL Banks study at 66.
[17] *Id.* at 67.
[18] App. Addendum at 1.

5. SCIC's Application is considered submitted on September 13, 2018, not in February. The October 23 letter expresses frustration at "delays" or "postponements" in hearing the Application.[19] However, the application SCIC submitted on February 1, 2018, was incomplete. In meetings with CIB staff following submission of its application, SCIC representatives volunteered that SCIC had commissioned a study from RL Banks that would not be completed until July or August 2018.[20] CIB staff then explained that the CIB would not consider an incomplete application for which supporting materials were not yet ready. This conclusion is consistent with the CIB's rules and common practices. R990-8-3 states: "Applicants submitting incomplete applications will be notified of deficiencies and their request for funding assistance will be held by the Board's staff pending submission of the required information by the applicant." At the time of these meetings, SCIC representatives did not object to waiting for CIB review until the RL Banks study was completed.

CIB staff asked SCIC to file an application for the Major Infrastructure Set Aside Fund, since this is the fund from which it seeks a grant. The CIB received this application on September 13, 2018. Thus, SCIC's application is considered submitted for hearing in the second trimester of FY2019 (October, November, December).

In multiple meetings and phone calls, SCIC was informed that the CIB staff required time to consider the application. The CIB and its staff have an obligation to conduct due diligence on every application submitted. It is only logical that the more complicated an application, or the more money requested, the more time the staff and Board may take to conduct this due diligence. Also, at the May 3, 2018 CIB meeting, the Board discussed the fact that it needed additional support to conduct due diligence for certain major infrastructure project applications it expected to receive this year, including for the Uinta Rail Line.[21] SCIC representatives attended that meeting, and the CIB minutes and audio have been available to the public since that time.

And, regarding CIB staff's request for a new public hearing, the CIB's rules counsel in favor of public disclosure:

> The Board requires all applicants to have a vigorous public participation effort. All applicants shall hold at least one formal public hearing to solicit comment concerning the size, scope and nature of any funding request prior to its submission to the board. In that public hearing, the public shall be advised the financing may in the form or a loan, even if the application requests a grant. Complete and detailed information shall be given to the public retarding the proposed project and its financing. The information shall include the expected financial impact including potential repayment terms and the costs to the public as user fees, special assessments, or property taxes if the financing is in the form of a loan. The Board

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[19] Oct. 23 letter at 8-9.
[20] SCIC provided the RL Banks study to the CIB staff on August 17, 2018.
[21] *See* May 3, 2018 CIB meeting minutes.

may require additional public hearings if it determines the applicant did not adequately disclose to the public the impact of the financial assistance during the initial public hearing.[22]

While SCIC held two public hearings in January and February 2018, it did not advise the public that the financing may be in the form of a loan. Nor did SCIC provide "complete and detailed information" about its Proposed Project. In addition, at the February meeting, the SCIC Board Chair expressed concerns about whether the public had received adequate notice of the subject to be discussed at the meeting. Many months had passed since the public meetings and submission of the Application in September. And, until October 11, no meetings had been held in the Proposed Project area, allowing local residents who will be most impacted by the Proposed Project the opportunity to receive information about it and to provide comments to SCIC. The CIB thanks SCIC for holding a meeting in Uintah County on October 11 for the benefit of those residents who may be most impacted by the Proposed Project. The October 17 letter does not suggest or argue for a delay of the scheduled November hearing date. Whether the Board invokes R990-8-4(F) is a decision for the Board at the hearing.

6. Does SCIC's Application qualify as "planning" as defined by statute and CIB practice? The October 23 letter raises some good points regarding the question of planning. However, none of the letter's citations to Utah Code are found in the CIB's code. The MLA and state statutes are silent on the definition of planning, and no court has directly addressed the issue. Nor has the CIB heard any application that is remotely like SCIC's Application. And, as mentioned in the October 17 letter, the CIB's general practice has been to consider items such as environmental and regulatory permitting, engineering and design, and legal services (outside of bonding) not planning expenses, but as project expenses to be funded with construction. Thus, the CIB members and SCIC should be aware of this outstanding issue.

We hope this letter has narrowed the issues between the October 17 and October 23 letters. The Office of the Attorney General regards these issues as questions for the policy makers on the CIB. We are eager for the CIB to hear this Application. Please do not hesitate to contact me should you have any questions.

Sincerely,

Alison Garner

Alison D. Garner
Assistant Attorney General
Counsel to CIB

cc: Jonathan Hardy, CIB Chair
CIB Staff

[22] R990-8-3(E).

Baker Hughes

Rig Count

Menu

Rig Count Overview & Summary Count

Area	Last Count	Count	Change from Prior Count	Date of Prior Count	Change from Last Year	Date of Last Year's Count
U.S.	2 July 2020	263	-2	26 June 2020	-700	3 July 2019
Canada	2 July 2020	18	+5	26 June 2020	-102	3 July 2019
International	June 2020	781	-24	May 2020	-357	June 2019

Questions? Connect with the rig count team. Oilfield Knowledge Center

Baker Hughes has issued the rotary rig counts as a service to the petroleum industry since 1944, when Baker Hughes Tool Company began weekly counts of U.S. and Canadian drilling activity. Baker Hughes initiated the monthly international rig count in 1975. The North American rig count is released weekly at noon Central Time on the last day of the work week. Starting in February 2020, the international rig count will be released on the last working day of the first week of the month.

The Baker Hughes Rig Counts are an important business barometer for the drilling industry and its suppliers. When drilling rigs are active they consume products and services produced by the oil service industry. The active rig count acts as a leading indicator of demand for products used in drilling, completing, producing and processing hydrocarbons.

Baker Hughes Rig Counts are published by major newspapers and trade publications, are referred to frequently by journalists, economists, security analysts and government officials, and are included in many industry statistical reports. Because they have been compiled consistently for 70 years, Baker Hughes Rig Counts also are useful in historical analysis of the industry.

The working rig location information is provided in part by Enverus Drillinginfo.

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Crude Oil & Natural Gas

INDEX	UNITS	PRICE	CHANGE	%CHANGE	CONTRACT	TIME (EDT)
CL1:COM **WTI Crude Oil (Nymex)**	USD/bbl.	40.92	+0.02	+0.05%	Aug 2020	6:59 PM
CO1:COM **Brent Crude (ICE)**	USD/bbl.	43.29	+0.21	+0.49%	Sep 2020	5:35 PM
CP1:COM **Crude Oil (Tokyo)**	JPY/kl	28,990.00	+190.00	+0.66%	Dec 2020	4:24 PM

NG1:COM **Natural Gas (Nymex)**	USD/MMBtu	1.82	0.00	-0.11%	Aug 2020	6:59 PM

Refined Products

INDEX	UNITS	PRICE	CHANGE	%CHANGE	CONTRACT	TIME (EDT)
XB1:COM **RBOB Gasoline (Nymex)**	USd/gal.	128.81	-0.28	-0.22%	Aug 2020	6:59 PM
HO1:COM **Heating Oil (Nymex)**	USd/gal.	123.53	+0.09	+0.07%	Aug 2020	6:56 PM
QS1:COM **Gasoil (Nymex)**	USD/MT	367.75	-2.75	-0.74%	Jul 2020	4:59 PM
JX1:COM **Kerosene (Tokyo)**	JPY/kl	42,710.00	-190.00	-0.44%	Jan 2021	5:47 AM

Emissions

INDEX	UNITS	PRICE	CHANGE	%CHANGE	CONTRACT	TIME (EDT)
MO1:COM **ECX Emissions (ICE)**	EUR/MT	29.32	-0.07	-0.24%	Dec 2020	11:59 AM

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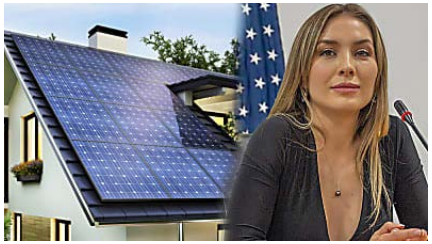

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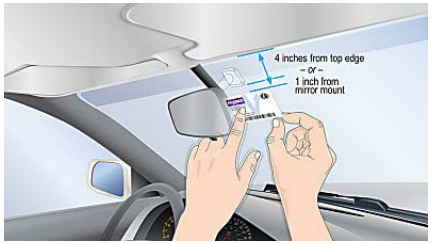

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It's Closing Time: The Huge Bill to Abandon Oilfields Comes Early

June 2020

Carbon Tracker Initiative

About Carbon Tracker

Carbon Tracker is a team of financial specialists making climate risk real in today's markets. Our research to date on unburnable carbon and stranded assets has started a new debate on how to align the financial system in the transition to a low carbon economy.

www.carbontracker.org | hello@carbontracker.org

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Prior to joining Carbon Tracker in 2014, Rob was an assistant attorney general with the New York State Office of the Attorney General and, prior to that, a litigator in the New York City offices of Paul, Weiss, Rifkind, Wharton & Garrison LLP. He is a graduate of The Yale Law School.

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Greg is a practitioner-scholar in accounting for climate change. He wrote the seminal desk book on financial reporting of environmental liabilities and risks. In addition, Greg is a Fellow and Advisor to the Master of Accounting Program at Cambridge Judge Business School. He worked as an advisor to BP and its auditors Ernst & Young on liability estimates and disclosures arising from the Deepwater Horizon disaster. He has consulted/testified as an expert in environmental and climate-related litigation.

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1. Executive Summary

- The industry is legally obligated to Plug and Abandon (P&A) oil and gas wells, but it has not set aside the resources to pay for this. This is because financial assurance requirements for oilfield asset retirement obligations have to date been a race to the bottom.
- States have inadvertently created a moral hazard: it's always in the operator's financial interest to delay permanent abandonment of wells as long as possible, often by selling late-life and marginal assets to weaker companies.
- As a predictable result, inventories of largely self-bonded idle wells, some that have been nonoperational for more than 100 years, have ballooned. This trend will only accelerate as the industry enters a state of permanent decline.
- Covid-19 has temporarily shut-in tens of thousands of producing wells. The energy transition may destroy any chance for the reactivation of these and hundreds of thousands more idle wells.
- The industry's asset retirement obligations (AROs) are accelerating, and the ultimate cost to permanently retire the millions of producing, idle and orphaned wells in the U.S. in accordance with law will be much greater than expected.
- Current liabilities are calculated based on an average cost of $20-40k, but the actual expected cost for a modern shale well is closer to $300k.
- Industry – not just a few insolvent companies but the entire U.S. oil and gas industry – may not have sufficient revenues and savings to satisfy liabilities for hundreds of billions of dollars in self-bonded AROs as they come due. Industry-funded orphan well programs are barely a drop in the bucket.
- Self-bonded AROs have left industry and oil producing states in a deep hole. If millions of wells with no future beneficial value are to be plugged as the law requires, it will mostly be at taxpayer expense. If instead, they are not plugged, the price will be paid by landowners, citizens, and the environment.
- By continuing to extend free unsecured credit for AROs, states are subsidizing oil and gas to the detriment of their citizens, the environment, and the competitiveness of renewable energy needed to combat climate change.
- All oil- and gas-producing states should be asking themselves these basic questions:

- What can I do to obtain cost data and estimates that are reflective of the true costs, for industry to fulfill its obligation to retire producing and idle wells in my state in the ordinary course of operations?
- What will it cost industry to plug and retire the existing inventory of producing, idle and orphaned wells in my state?
- How much of this cost is currently secured by bonds or other collateral?
- What is the total ARO liability exposure (both in and out of state) for operators in my state and what is the likelihood they will be able to satisfy those liabilities over the short, medium and long term?
- What actions can I take now to reduce the financial and environmental risks to my state?

2. Introduction

A. The flip side of stranded assets – stranded liabilities

Carbon Tracker pioneered work on the oil and gas industry's "stranded assets"; as investors increasingly ask whether oil demand is or will soon be in terminal decline, we are turning attention to the flipside of stranded assets – "stranded liabilities." Specifically, the cost of retiring long-lived oil and gas infrastructure. This paper is the first in our series focusing on the dynamics that are driving the acceleration of these risks and a method for assessing the magnitude of the problem.

By law, after production ceases, all oil and gas wells must be permanently plugged and abandoned. In finance, these debt-like legal obligations to Plug and Abandon wells are called "asset retirement obligations" (AROs).[1] They are reported in company financial statements on a discounted present value basis.

Companies typically assume that the bulk of ARO costs will be incurred in the distant future, but the low carbon energy transition will bring them forward – further accelerating the industry's woes brought on by the coronavirus pandemic.

There's no money set aside to cover retirement costs, and lax regulations are to blame.

And this illuminates the problem: regulators have not required the industry to set aside funds to retire these wells. In short, the industry cannot afford to retire. If industry can't pay, then its lenders, investors, creditors and ultimately oil producing states will eventually be forced to foot the bill. Else, landowners and citizens will be left to live with the consequences of millions of unplugged wells.

How did this happen? Going back to the 1800s, the purpose of oil and gas regulation was to promote oil and gas production not to protect the environment. When oil and gas drilling began in the U.S., there was no regulation regarding the treatment of a well at the end of its useful life. Drillers simply "abandoned" unusable wells as gaping holes in the ground. When plugging and abandonment regulations came along, they were designed to protect the production zones from flooding by fresh water. As the number of abandoned wells mounted and the adverse environmental and safety implications of improperly abandoned wells became better understood, states began setting P&A standards designed to protect groundwater resources.

[1] FLIP SIDE: How stranded assets will give rise to stranded liabilities at https://www.carbontracker.org/reports/the-flip-side-stranded-assets-and-stranded-liabilities/. AROs are legal obligations to perform retirement activities when a long-lived tangible asset, such as an oil well, offshore platform, pipeline, or terminal, is permanently retired from service. In this paper, we focus exclusively on AROs associated with oilfield assets – oil and gas production wells, wastewater injection wells, offshore platforms, gathering lines, and related infrastructure. The most common type of oilfield ARO is the legal requirement to plug and abandon oil and gas wells at the end of their useful life. https://www.osha.gov/SLTC/etools/oilandgas/abandoning_well/abandoning.html.

As P&A standards evolved costs increased, and states began to require financial assurance (or "bonding") from oil companies to assure timely completion of permanent well closure and site restoration. Oil companies successfully argued for low bonding levels on the grounds that full bonding – bond amounts equal to 100% of the estimated cost to complete the work – was unnecessary to protect the state's financial interests and would make oil and gas production non-economic.

P&A and related bond carrying costs (annual premiums and collateral) provide no return on investment for oil companies, who want to keep capital expenditures and operating costs as low as possible. If a state proposed to increase bond levels, oil companies could threaten to move their activities elsewhere. Bonding became a race to the bottom.

With industry's support, governments established "orphan" well programs funded by industry to pay for wells orphaned to the state by failed oil companies. The idea was simple: thriving oil companies would pick up the bill for failed ones. Low bonding levels were an acceptable risk, as long as the vast majority of oil companies remained good credit risks.

States, however, failed to realize that they had created a moral hazard: when bonding levels are far below actual P&A costs, it's always in the oil company's financial interest to delay permanent retirement of wells as long as possible.[2]

As a predictable result, inventories of largely "self-bonded" idle wells, including "zombie" wells that have been nonoperational for more than 100 years, have ballooned.

At the same time inventories of idle and orphan wells are sky-rocketing, the oil industry is entering a state of permanent decline. The ratio of thriving oil companies to failing ones is deteriorating and will continue to get worse. The assumption that the strong will pick up the bill for the weak is no longer valid. States must adopt new policies to reflect this new reality. The race to the bottom must be reversed.

As long as it remains financially optimal for companies to defer closure, this is the course they will take. To avoid this outcome, regulators must incentivize industry to fulfill its obligation to promptly retire non-economic wells in the ordinary course of operations, while there are still cashflows available to do so. This will require regulations that force industry to pay a market-based price – in the form of full bonding and fees on idle and marginal wells – for the option to defer permanent retirement. This requires an understanding of the actual costs to close wells.

[2] Idle Oil Wells: Half Empty or Half Full? at p. 7.0 https://www.iaee.org/en/students/best_papers/Muehlenbachs.pdf.

What does it cost to close a well?

Though wells are being closed all the time, data on industry well closure costs is surprisingly scarce. Moreover, damage from wear and tear over decades can complicate P&A and make it difficult to anticipate the cost of retiring any given well. However, to inform appropriate policies it is essential that states obtain reliable estimates of the average expected costs to plug and abandon all wells under their jurisdiction, including producing, marginal, idle and orphan wells.

States cannot expect the willing cooperation of industry, whose self-interest is to downplay P&A costs as negligible. A common industry theme is to imply that costs to close producing and idle wells will be the same as those incurred by states to close orphan wells. But this is a misleading comparison because orphan wells tend to be shallower and because states can time orphan closures to when rig costs are low and multiple wells in the same area can be plugged at the same time – a luxury industry may not always have.

B. The true costs of plugging shale wells may be one of industry's best kept secrets

Reliable estimates of the cost to lawfully retire the oil and gas industry are essential for states but a threat to industry. Lower P&A cost estimates allow industry to argue that existing bond levels are sufficient. Orphan well cost data provides a convenient chimera.

Because industry does not report actual or estimated P&A costs, available U.S. cost data comes entirely from state orphan well programs. This has led the unwary to assume that all wells, shallow or deep, producing or orphaned, will cost in the low tens of thousands of dollars to close. Our research indicates, however, that those expecting the cost of permanently retiring hundreds of thousands of unconventional shale wells to be $20,000 to $40,000 per well are in for sticker shock. A more realistic estimate may be an order of magnitude higher on average, and in extreme cases as much as $1 million per well. This is because shale wells are deep, deep wells are expensive to close, and deep "problem" wells can cost an order of magnitude more than typical ones.

The true costs to plug deep U.S. shale wells may be one of industry's best kept secrets. As many of the newer deep wells become candidates for permanent Covid-induced shut-ins, understanding these costs and assessing state-wide and company-specific exposure is imperative for every oil producing state.

This paper examines the publicly available data to identify what they might expect to find.

3. Covid-19

The coronavirus pandemic has led to the fastest collapse of oil demand and prices in more than a generation. Nowhere have these impacts been more profoundly felt than in the U.S. shale patch. There is now talk of struggling companies being seized and operated by their lenders.[3]

Which brings us to this paper: unlike most other industries, oil and gas is lawfully required to clean up its mess when the music stops. That moment is unavoidable for every well and eventually for the entire industry. The energy transition was already quickening the pace, but for U.S. shale producers, Covid-19 has brought that day of reckoning forward, front and center.

Covid-19 is impacting the short, medium, and long-term outlook for the industry:

- **Short term:** Temporary shut-in of production because there is no place to store excess oil supply. Ironically, this includes many of the newest, most productive wells as these may be considered the most able to withstand the physical impact of being shut-in. It will cost money to restart them – Wood Mackenzie estimates that given restart costs – some portion of current production may never return.[4] While granting leniency on extended shut-in of productive wells, regulators may require many long-term idle "zombie" wells to be permanently plugged. These are wells that have been idle, often for decades, long before Covid-19 struck and now look even less likely to be reopened.
- **Medium term:** The virus is not going away anytime soon. And beyond the U.S. Energy Information Administration (EIA), most analysts believe that oil demand won't be snapping back overnight. Even industry is saying this may result in permanent changes to consumer preferences (i.e. less travel, more working remotely). Meanwhile, an extended reduction in demand for oil will give renewables and EVs time to take market share, leading some analysts to predict that 2019 was peak demand for oil. On the supply side, higher than expected decline curves in the U.S. shale patch were already causing concern about premature well failure. Add to that the risk that an extended shut-down could damage oil formations permanently. As a result, many new and highly productive wells will need to be plugged much sooner than expected.
- **Long term:** Covid-19 puts particular pressure on the U.S. fracking industry, which has never been cash flow positive. Major lenders were backing away before the virus. Worse, the larger backdrop to the current crisis is climate change

[3] https://www.reuters.com/article/us-usa-banks-energy-assets-exclusive/exclusive-us-banks-prepare-to-seize-energy-assets-as-shale-boom-goes-bust-idUSKCN21R3JI
[4] https://www.bicmagazine.com/expansions/upstream/woodmac-how-will-the-oil-price-crash-hit-the-upstream-sector/

and the energy transition, forces that will not recede. Those with oil industry counter-party risk are now thinking about the implications of an industry in terminal decline. The most affected are U.S. petro-states, who are both losing severance tax and royalty revenues and facing likely default on billions of dollars in self-bonded well closure obligations. Fracking could not generate an acceptable return on investment even with free, unsecured credit on closure obligations. As states take long overdue steps to de-risk, the industry's financial situation will only get worse.

4. ARO acceleration

> "We have got to change and change profoundly…. I get it. The world does have a carbon budget, and it is running out fast." –Bernard Looney, CEO BP

A. The energy transition, Covid-19, and maturing liabilities add up to a problem

Even industry leaders agree that some growth plans don't fit in a low carbon world. Were the trend not obvious, it can be seen in the ever more ambitious long-term emissions reduction targets that companies are announcing in response to investor demand.[5]

While climate change was already driving the oil and gas industry toward early retirement, the coronavirus pandemic hit the accelerator. The Covid-19 induced shut-ins[6] are at least an analogue – and perhaps the prologue, of how the industry will be impacted by the energy transition.

[5] https://carbontracker.org/totals-extended-emissions-ambition/; https://carbontracker.org/eni-the-first-oil-company-to-lay-out-a-strategy-of-managed-decline/.
[6] https://www.texastribune.org/2020/04/06/texas-oil-producers-shutting-wells-coronavirus-dispute-plummet-prices/ghgemissions_abandoned_wells.pdf

The looming costs are significant. It will cost hundreds of billions of dollars to close the estimated 3.3 to 4 million active, idle and abandoned but unplugged onshore wells in the U.S. An estimated 2.3 to 3 million of these wells are already abandoned.[7] Only a tiny fraction of that amount is bonded. And this ignores oilfield assets in the rest of the world as well as midstream and downstream assets everywhere.

If the U.S. shale oil industry were to live forever, its failure to save for retirement would not be a matter of immediate concern. Companies could pay retirement obligations as they come due from future earnings. But Covid-19, climate change and the energy transition obliterate the "forever" assumption. It is no longer reasonable, if it ever was, to assume that the U.S. oil industry will survive its longest living assets.

B. Self-preservation drives acceleration

In the first part of our paper series on AROs, we introduce the concept of "ARO acceleration." We define this as a series of self-reinforcing feedback loops that will pull asset retirement costs – both actual closure costs and the carrying costs of financial assurance – forward in time. Today, many regulators are already concerned that some of the temporary "shut-ins" sweeping the industry today may never return to service. This trend will only become more severe as the world transitions away from oil.

There are many types of AROs, but our focus here is on the most common type of oilfield ARO – the legal requirement to plug and abandon (P&A) and reclaim oil and gas wells at the end of their useful lives.[8] (See Appendix 1 for more on oilfield AROs.)

At root, readers should understand this: acceleration of the industry's retirement debt is driven simply by stakeholders protecting their own interests. In other words, ARO acceleration occurs when ARO counterparties demand timely closure of non-economic wells, higher fees for marginal and idle wells, and higher bond levels for new and producing wells.

None of this would be a concern but for the fact that industry was not required to save for retirement, and it didn't do so. The prospect that the industry will not survive long enough to pay its environmental debts will lead other parties, such as equity investors and banks, to protect themselves.

[7] https://www.epa.gov/sites/production/files/2018-04/documents/ghgemissions_abandoned_wells.pdf
[8] https://www.osha.gov/SLTC/etools/oilandgas/abandoning_well/abandoning.html. Although not addressed by this report, midstream and downstream AROs pose additional financial risks. For example, an analysis prepared for the State of Michigan found that, at an estimated cost of $855 per foot to remove pipelines from the ground, it would cost $23 billion to remove all of Enbridge's buried pipes in the U.S. alone. The oil industry generally does not report the estimated value of midstream and downstream AROs on the basis that they are expected to operate indefinitely. For this reason, the current analysis is just a portion of the industry's total liability.

1. Increased oilfield regulation impacts well-level economics, increasing risk of impairments.

Today, the oilfield regulatory system finances the industry's AROs by providing free credit on unsecured AROs – i.e., they don't require industry to fully bond these obligations, as they could. This lack of planning exposes these regulators to credit risk – if industry can't pay, the wells become wards of the state. It is in state interests to not allow this.

Unsurprisingly, even prior to the pandemic, regulators had begun the process of reducing their ARO credit exposure by increasing idle well fees and reducing tolerance for zombie wells. Doing this increases costs on industry.

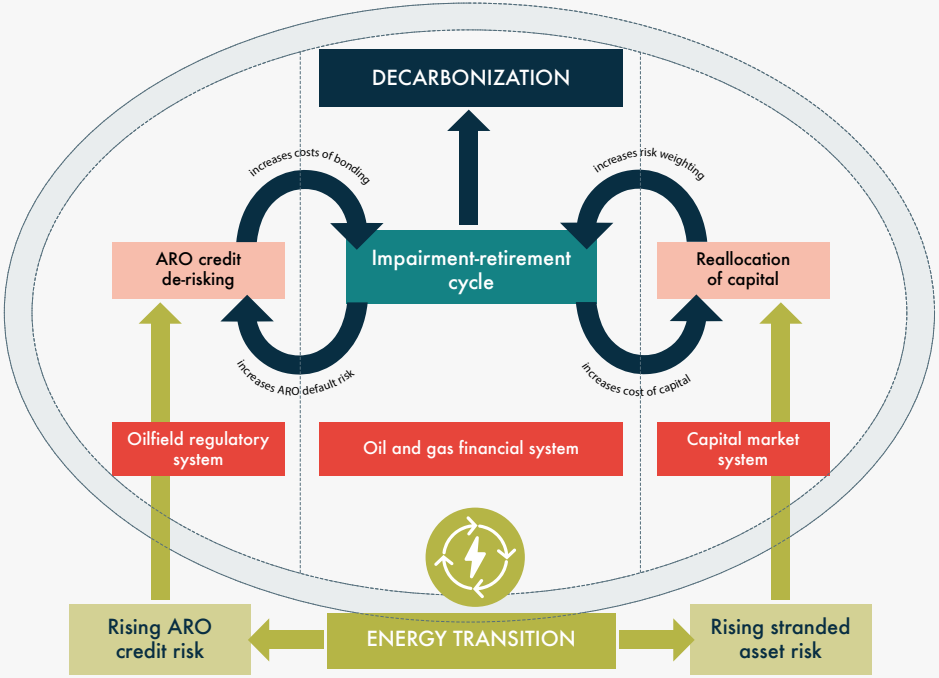
Table 1 lists examples of federal and state government actions and recommendations to mitigate ARO credit risk over the past several years.

Table 1. Government efforts to reduce ARO credit risk

Jurisdiction	Date--Action	Source
U.S. offshore	2014: update regulations and program oversight for Outer Continental Shelf (OCS) financial assurance requirements	Notice of Advanced Rulemaking
Wyoming	2015: set individual bonds at $10 per foot for all wells and increased blanket bonds from $25,000 to $100,000[9]	Legislative memorandum
U.S. offshore	2015: actions needed to better protect against billions of dollars in federal exposure to decommissioning liabilities	GAO-16-40
U.S. offshore	2016: Additional security requirements for OCS leases, pipeline rights-of-way, and rights-of-use and easement	NTL No. 2016-N01
U.S. offshore	2018: timely decommissioning of idle infrastructure on active leases	NTL No. 2018-G03
U.S. onshore	2019: BLM should address risks from insufficient bonds to reclaim wells	GAO-19-615
Alaska	2019: Increased individual bonds from $100,000 to $400,000 and blanket bonds from $200,000 to $30 million	20 AAC 25.025
North Dakota	2019: added limits on blanket bonds for wells idle more than 7 years	NDAC 43-02-03-15
South Dakota	2019: proposal to increase individual bonds from $10,000 to $50,000 and blanket bonds from $30,000 to $100,000 for shallow wells[10]	SDLRC 45-9-15

[9] https://trib.com/business/wyoming-proposes-to-increase-oil-gas-well-bonding/article_7bfb7987-aac4-560e-849c-6a8f220795e3.html.
[10] Proposed increase in bond amounts for shallow wells reported at https://rapidcityjournal.com/news/local/govt-and-politics/regulators-want-bigger-bonds-from-oil-and-gas-drillers/article_f690f105-7660-5332-8c0e-6606d282ddb9.html.

Figure 1. Oil and Gas Finance System



The oil and gas finance system is complex, non-linear and dynamic. Reinforcing feedback loops can accelerate suddenly and unexpectedly. As depicted in Figure 1, the oil and gas finance system has two subsystems – the oilfield regulatory system and the capital market system.

Higher bond levels impact oil companies via the entities that issue bonds. The sureties (i.e., those who "insure" against company default on the P&A obligation) who issue these bonds and are liable if companies cannot or will not pay, set annual premiums and collateral requirements based on the face amount of bonds and the risk of default. As bond amounts increase, so do the bond carrying costs borne by industry.

Higher bond carrying costs and regulatory fees on marginal and idle wells increase operating costs and breakeven prices. This may cause wells to become non-economic resulting in accelerated closures. For example, in its latest 10-K, California Resources Corporation reported accelerated estimated timing of ARO costs following new California idle well regulations.[11]

If retirement dates are brought forward as a result of increased regulatory costs, the combined effect of accelerated asset retirement and higher costs can impact the financial statements triggering the "impairment-retirement" cycle identified in the center of figure 1. Here's how it works.

Under U.S. accounting principles, impairment tests compare the capitalized cost of the asset (book value), which includes capitalized asset retirement costs, against expected undiscounted future cash flows, which consider bond carrying costs and fees on marginal and idle wells. Impairments losses are recognized when book values exceed expected future cash flows.

Impairments can therefore be driven by increased capitalized costs or decreased expected future cash flows, or both. Higher regulatory costs worsen both sides of the impairment equation.

Higher regulatory costs decrease expected future cash flows, as discussed above. Certain regulatory requirements (i.e., surety bonds, idle well fee payments, monitoring and reporting requirements) increase breakeven prices, resulting in lower profit margins at any given price. Lower margins cause some wells to become non-economic immediately and others to have accelerated estimated retirement dates as they age and decline in value.

Accelerating retirements have a less obvious but important reinforcing impact on impairments – it increases the book value of the assets. How? The capitalized asset retirement costs are already included in a well's book value, on a discounted basis. Bringing them forward in time unwinds the discount, which translates to higher book values. Thus, as regulatory costs increase, the useful economic lives of producing wells decrease, and the book values of those wells increase.

Recall that impairments losses are recognized when book values exceed expected future cash flows. If expected cash flows go down (due to increased regulatory costs) and book values go up (due to early asset retirement caused by increased regulatory costs), impairment is more likely.

[11] https://www.sec.gov/ix?doc=/Archives/edgar/data/1609253/000160925320000066/a2019ye10-kdocument.htm.

In sum, increased regulatory costs accelerate asset retirement and increase the probability and severity of asset impairment losses. Rising impairment losses in turn increase ARO credit risk, giving oil producing states more reason to increase bond amounts and fees on marginal and idle wells.

2. There are feedback loops in the capital market system as well.

A similar feedback loop can be seen in the capital market system at the corporate level. Oil and gas exploration and production is capital intensive. Rising regulatory costs, mounting environmental liabilities, recurring impairment losses, and concerns about the industry's long-term viability can cause investors to impose a risk premium on the sector. Investors may de-rate the sector. Banks may charge higher interest rates. These changed expectations can negatively impact the company's weighted-average cost of capital and cash flows.

As equity financing become more expensive or unavailable, companies must borrow more money at higher interest rates to fund new projects. Financing costs are not considered in impairment testing under U.S. accounting standards because they are not expected to arise as a direct result of the use and eventual disposition of the asset. However, financing costs are a factor in determining breakeven points for developing new fields and drilling new wells (the cash flows of which were expected to be used to settle existing AROs). Rising financing costs also reduce available cash to settle asset retirement obligations. This is likely to happen at the same time revenues are suffering from lower demand and prices.

Putting the regulatory and capital market finance systems together, rising regulatory costs to mitigate ARO credit risk increase asset impairments and investment risk, which increases financing costs, which reduces asset valuations and available cash for retirement costs, which increases ARO credit risk, and so on in a downward spiral.

C. Forever is over, costs underestimated, hiding in plain sight

If ARO acceleration risk sounds unfamiliar, it's because it has not been viewed as a systemic, structural risk before now – the default assumption has been that the industry was essential to economic growth and therefore would live forever. That topline assumption began to erode with Mark Carney's 2015 Tragedy of the Horizons speech. With the onset of Covid-19, the implications are now becoming increasingly clear to other stakeholders. Even before the impact of the pandemic was widely understood, CNBC's Jim Cramer captured the emerging zeitgeist, proclaiming on air February 3, 2020 that fossil fuels are "in the death knell phase." BP's CEO would not have put it so bluntly, but his new vision for BP includes producing less oil and gas over time.

Now that the forced early retirement of the oil industry is seen as a matter of when, not if, companies, states, investors and taxpayers need to rethink their ARO exposures. Financial data and analysis on P&A costs that has not been important before is now essential.

5. True costs of retiring producing and idle wells

Oil industry experts estimate that the cost to plug and abandon a modern U.S. shale well is $33,000 per well. Industry cost data from outside the U.S. (there is no available U.S. industry cost data) indicates that actual costs may be an order of magnitude higher on average. The costs to retire thousands of ultra-deep wells and those with wellbore damage or close proximity to sensitive receptors can exceed $1 million.

It's worth repeating that there is no available U.S. industry data on P&A costs. All of the available cost data comes from state orphan well programs.

Google "average well P&A costs" and the top response is likely to be a Wikipedia page on abandonment cost stating that, "The cost of a routine abandonment of a typical well in the United States is about $5,000 (~Texas average cost in year 2000)." Add "Texas" to the search and the top response is likely to be a Well Plugging Primer published by the Railroad Commission of Texas in 2000, stating that "Based on historical well plugging charges, the average well plugging cost in the State is approximately $4,500 per well."

These statements imply that there is such a thing as a "typical well" and that the average cost to plug such a well is $4,500. This is akin to saying the typical commercial building is 50 feet high and costs $4,500 to demolish. If one lives in a small rural town, this might be a useful estimation. If one lives in Manhattan, it is not.

In their 2016 paper published by the Society for Petroleum Engineers (SPE), *Estimating Ultimate Recovery and Economic Analysis of Shale Oil Wells in Eagle Ford and Bakken* (the "SPE Paper"), a team of Baker Hughes petroleum engineers propagated the same fallacy. Based on updated Texas orphan well data, the authors projected an average cost of $33,000 per well to plug producing wells in both basins.

Plug and Abandonment (P&A). This cost bucket accumulates all costs for the abandonment of a well and reclamation of the site. Very often these costs are estimated as a percentage of the drilling costs (e.g. 5% or 10%). It is reported that Texas spent $14.3 million in 2014 to plug and decontaminate 428 orphaned oil wells. This implies a mean P&A cost of $33,000 per well in Eagle Ford. The same value is adopted as the P&A cost for the wells in Bakken.[12]

[12] Darugar, Q., Heinisch, D., Lundy, B. J., Witte, P., Wu, W., & Zhou, S. (2016, November 7). Estimating Ultimate Recovery and Economic Analysis of Shale Oil Wells in Eagle Ford and Bakken. Society of Petroleum Engineers. doi:10.2118/183396-MS.

The authors implicitly assumed that tight oil shale wells in the Eagle Ford and Bakken and orphan wells in Texas are typical (having the same distinctive qualities), and therefore the costs to plug each are comparable. They are not.

There are at least two ways in which existing orphan wells and shale wells differ – depth and design. Both can significantly affect P&A costs. While we believe these issues are understood by industry, they are rarely explicitly discussed, and data is difficult to come by. This is in part because so few deep wells have been plugged and also because regulators have not required industry to report P&A cost data and estimates so that they could be studied.

A. Shale wells are deeper, making them more costly to drill and to plug

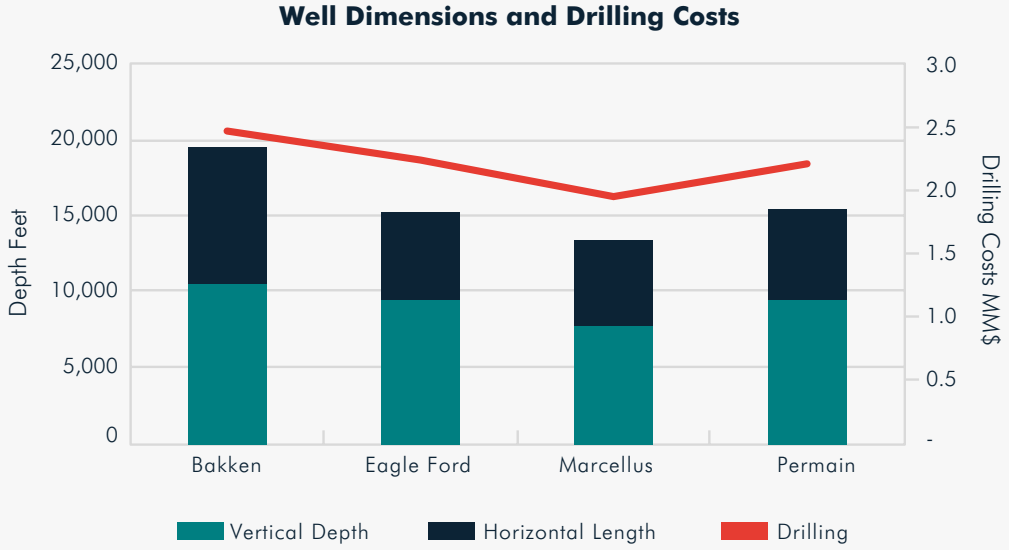
It is intuitive that it costs more to dig (and plug) a deep hole compared to a shallow hole; that depth is a cost factor is acknowledged by the Interstate Oil and Gas Compact Commission (IOGCC). It says that, "[t]he average cost to plug an orphan well varies widely depending on well depth and condition, accessibility, and other factors." The IOGCC also notes that several states set bond amounts based on well depth – an implicit recognition that plugging costs scale with depth.[13]

As a general rule, well P&A costs scale with depth. The problem is that regulators and industry (which benefits from the belief that P&A costs will be low) have too often implied that closure costs for deep wells will be in line with orphan well cost averages that are skewed downward by large numbers of low-cost shallow wells. Typical orphan wells are older and relatively shallow compared to shale wells. Most orphan wells were drilled before there was any regulatory oversight. Typically, these wells were drilled to shallow depths – often just a few hundred feet. Many do not create conduits for oil, gas, or saltwater migration and can be safely abandoned at very low cost.[14] For this and other reasons, the cost to plug the typical orphan well is not representative of the cost to plug typical shale wells.

Modern shale wells in the Western U.S. are deep, averaging 10,000 feet in vertical depth. Figure 2 shows vertical depths for shale wells in the Bakken, Eagle Ford, Marcellus, and Permian basins.[15]

[13] IOGCC. http://iogcc.ok.gov/Websites/iogcc/images/Publications/2019%2012%2031%20Idle%20and%20Orphan%20oil%20and%20gas%20wells%20-%20state%20and%20provincial%20regulatory%20strategies%20(2019).pdf
[14] IOGCC, at p 14. http://iogcc.ok.gov/Websites/iogcc/images/Publications/2019%2012%2031%20Idle%20and%20Orphan%20oil%20and%20gas%20wells%20-%20state%20and%20provincial%20regulatory%20strategies%20(2019).pdf
[15] https://www.eia.gov/analysis/studies/drilling/pdf/upstream.pdf. See Figure 2-2: Depth and drilling cost by play.

Figure 2. U.S. shale well depths

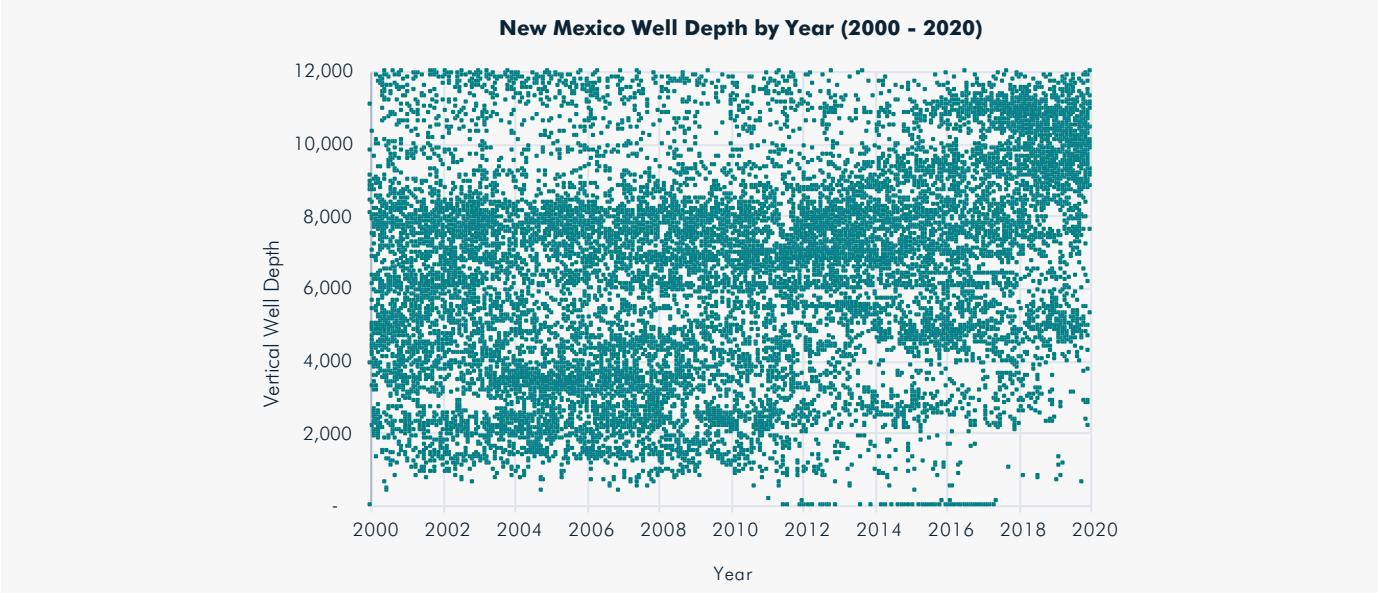


Source: U.S. Energy Information Administration (EIA)

Many shale wells are even deeper, between 10,000 to 12,000 feet, and some wells go much deeper yet, approaching 20,000 feet (see Figure 6, below).[16] Average depth is increasing over time. The average depth of wells drilled in the U.S. from 1949 to 2008 was less than 5,000 feet. Figure 3 shows that oil companies in the New Mexico shale basins are steadily drilling deeper with time, moving toward 12,000 feet. Wells managed by the U.S. Bureau of Land Management have also become deeper over time.[17]

[16] https://business.okstate.edu/site-files/docs/economy/economics_of_deep_drilling.pdf. See Figure 6. Sample of Deep Wells Drilled in OK Since 2000 by County.
[17] Figure 6 at https://westernpriorities.org/wp-content/uploads/2018/02/Bonding-Report.pdf.

Figure 3. Increasing well depths in shale basins



Why is depth a factor in the cost to plug a well?

Deeper wells require more expensive rigs,[18] longer cycle times, more costly materials, and more complicated processes. These all increase average expected costs and the chance that something unexpected may go wrong and will have to be redone.

Plugging deeper wells involves higher pressures, higher temperatures and longer cycle times. According to the National Petroleum Council (NPC), deep wells may require more plugs, more expensive cement, and special cement additives. Different grades of cement are suitable for well depths up to 6,000 feet (API Class A, B and C), between 6,000 and 10,000 feet (API

[18] For example, rigs suitable for shallow wells less than 2,000 feet deep cannot service deeper wells up to 14,000 feet. See e.g., rigs available for different service depths from Continental Services, a contractor used by the Wyoming Oil and Gas Conservation Commission to plug orphan wells, at https://www.wellplugging.com/equipment/workover-rigs.

Class D), and over 10,000 feet (API Class E and F). Plugging deep wells requires long pump times to get cement to the bottom of the well. Long pump times increase the chances that the cement could harden prematurely. This requires special cement retarders to allow for adequate time to place the cement.

In addition to depth, the horizontal orientation of modern shale wells adds a layer of complexity not captured by our available cost data, which only cover vertical wells.

B. The design of horizontal wells makes obtaining a seal more difficult potentially increasing plugging costs

The shale boom began in the Barnett Shale in 2004, employing modern unconventional drilling and completion techniques such as horizontal drilling and hydraulic fracturing (fracking).[19] Most orphan wells are straight hole vertical wells that far predate the shale boom.

Horizontal drilling will be a factor in the cost to plug a well (though not one we have estimated here). According to the National Petroleum Council (NPC), horizontal shale wells, and particularly shale-gas wells, pose technical plugging challenges:

> The horizontal orientations introduce different gravitational effects compared with vertical wells. In a typical vertical well, where there is a large column of cement, some migration of the solids downward or the water upward does not cause a significant change in the cement properties. In a horizontal well, the solids migrating to the bottom of the section and the water migrating to the top can provide areas of the well that do not have a complete seal. If the water in the cement separates from the mixture before the cement is set, it can migrate to the top of the wellbore and form a channel along the top of the wellbore which can allow migration of formation fluids. If the solids in the cement mixture settle to the bottom of the cement before the cement can harden, the solids can cause the cement to not set up correctly and the weakened area along the bottom of the wellbore can fail under pressure during stimulation activities.

The NPC cautions that the eventual retirement of shale-gas wells must address plugging practices that are specific to issues affecting gas wells and especially horizontal gas wells.[20]

Significant differences in vertical depth and well design mean that average P&A costs for orphan wells in Texas do not imply an average P&A cost for shale wells.

[19] EIA at https://www.eia.gov/analysis/studies/drilling/pdf/upstream.pdf.
[20] NPC at https://www.npc.org/Prudent_Development-Topic_Papers/2-25_Well_Plugging_and_Abandonment_Paper.pdf.

C. P&A costs by depth

We previously referenced the SPE Paper projection of $33,000 per well (based on average costs to plug a number of orphan wells in Texas). Similar estimates are echoed and reinforced by oil companies and data providers: Diversified Gas & Oil – $28,400 per well;[21] and Rystad – $20,000 to $40,000 per well.[22] Such estimates are misguided because they fail to account for the fact that plugging costs, like drilling costs, increase with depth.

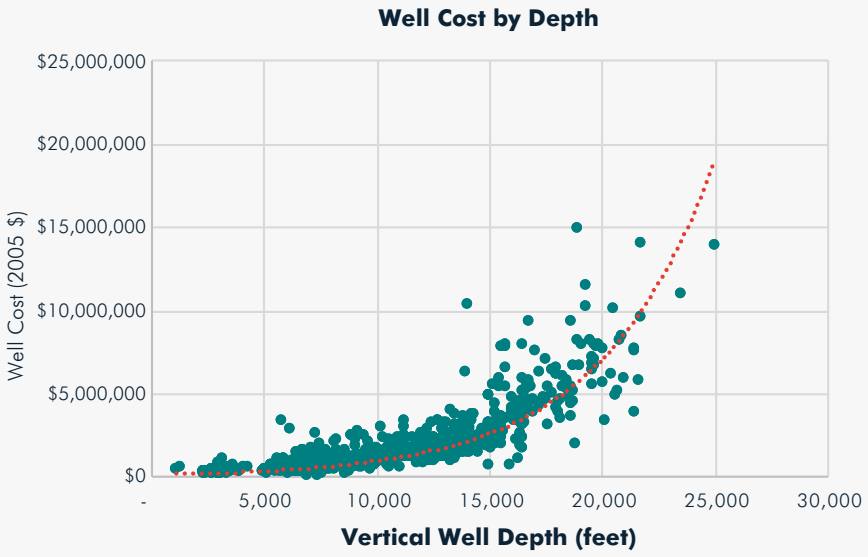
1. Drilling costs and plugging costs

A report examining the economic implications for Oklahoma of the natural gas industry's ongoing shift to deep resources, showed how drilling costs increase with depth (see Figure 4).[23]

P&A costs – like drilling costs – also scale with depth. The correlation is reflected in the industry's practice of estimating plugging costs as a percentage of drilling costs. Applying the rule of thumb referenced in the SPE Paper (estimated plugging costs are 5% to 10% of drilling costs) to the EIA's figures for average shale drilling costs ($1.8 to $2.6 million per well),[24] the industry forecast of average P&A costs for shale wells in the Eagle Ford and Bakken should range from $90,000 (5% of $1.8 million) to $260,000 (10% of $2.6 million).

[21] 2019 Diversified Gas & Oil investor presentation at: https://d1io3yog0oux5.cloudfront.net/_28d9d5529099b5877b9e19aa9798c2da/dgoc/db/557/4323/pdf/DGO+-+Investor+Presentation+-+June+2019_vFinal_updated+slide+13.pdf.
[22] https://www.rystadenergy.com/newsevents/news/press-releases/american-backyard-wells-the-flexible-11pct-of-the-us-onshore-oil-output-now-face-an-inflexible-choice/.
[23] Mark C. Snead, Ph.D., The Economics of Deep Drilling in Oklahoma (2005) at https://business.okstate.edu/site-files/docs/economy/economics_of_deep_drilling.pdf. We want to thank Professor Snead for supplying the raw data used to reproduce this graph.
[24] EIA at p.7. https://www.eia.gov/analysis/studies/drilling/pdf/upstream.pdf

Figure 4. Drilling costs and well depth (Oklahoma State University)



2. Overview of available P&A cost data

We reviewed available data from three data sets. These include data from state orphan well programs in Wyoming and Ohio and industry cost data for P&A well completions in Australia.[25]

While there are differences in the characteristics of each data set, what is striking is that they all demonstrate that costs scale with depth.

[25] Louisiana has reported average plugging costs of $4.76 per foot for 139 shallow onshore wells (< 3,000 feet) plugged in 2019, compared to the average cost to plug six deep onshore land wells (between 3,000 and 10,000 feet) of $35.84 per foot. However, data on individual well costs and depths were not available. http://app.lla.state.la.us/PublicReports.nsf/0/C9D7297FEA93568D86258528006BA4F8/$FILE/0001FA2E.pdf.

Key differences pertain to the party performing the work, the nature and specifications of the work performed, and the source and nature of the available documentation of costs.

The Wyoming and Ohio data sets come from orphan well programs where the state was the party contracting and paying for services. The Australian data comes from industry P&A completions contracted and paid for by oil companies.

The Wyoming data set included 452 orphan wells plugged by the Wyoming Oil and Gas Conservation Commission between 1997 and 2014. The wells were grouped into 80 contracts, some for single wells and others for as many as 83 wells. We adjusted the cost data for inflation.[26] The Wyoming data set included costs to plug a mix of coalbed methane (CBM) wells and conventional oil and gas wells. Compared to conventional wells, such as those in the Ohio and Australian data, CBM wells are relatively easy and inexpensive to plug. The prevalence of CBM wells in the Wyoming data set tends to lower average costs per well.

The Ohio data included proposals received by the Ohio Department of Natural Resources, Division of Oil & Gas Resources Management in 2019 to plug and abandon 356 orphan wells grouped into 103 contracts, some for single wells and others for as many as 33 wells.[27] Where multiple proposals were received, we used the lowest bid.

The Ohio data was accompanied by detailed contract specifications describing the work to be performed. The Wyoming and Australian data are not supported by similar contract documents. Of particular note, the Ohio contracts specify that, "The Contractor shall identify the diameter of the well bore below the surface casing and drill with a full-size bit to total depth. In any case where an obstruction is encountered, and total depth cannot be achieved, the Contractor shall immediately notify the Division." We are not aware of similar requirements in other jurisdictions. Ohio's stringent wellbore preparation requirements may result in higher costs relative to other jurisdictions.

The Australian data set was derived from Well Completion Reports submitted to state governments. These reports, which are described in an academic study, documented work performed and related costs. We did not independently review these reports.

[26] http://insideenergy.org/2015/10/01/the-rising-cost-of-cleaning-up-after-oil-and-gas/.
[27] http://oilandgas.ohiodnr.gov/regulatory-sections/orphan-well-program/scope-of-work. We allocated total costs for multi-well contracts among wells based on relative well depth.

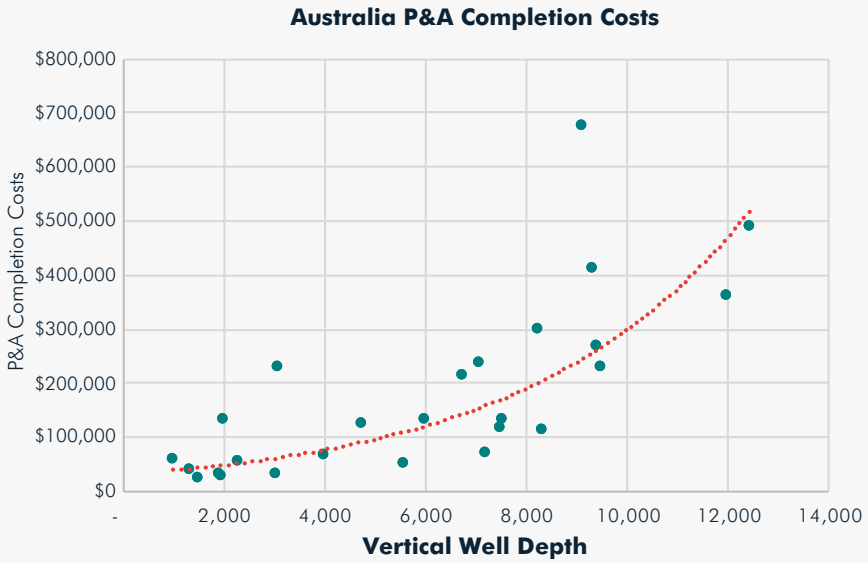
3. Australia P&A completion data

The Australian data set was prepared in connection with a master's thesis for School of Petroleum Engineering at the University of New South Wales. A key conclusion of the thesis is that the relationship between P&A completion costs and depth is exponential.[28] Unlike post-production closures, the Australian P&A completions did not include site preparation and rig mobilization costs (because the drilling rig was already on site), which can be a significant portion of total P&A costs. Although less expensive "workover rigs" are generally used for post-production P&A, the higher day rates for the more powerful drilling rigs used in the Australian P&A completions would have been offset, at least in part, by faster completion times. Separately, as these wells were being plugged immediately after being drilled, there was less risk of wellbore damage and surface contamination associated with decades of production, thereby reducing the risk of atypical costs.

When new wells are drilled, they can either be completed to produce oil and gas or, if the hole is dry, plugged and abandoned. P&A completions are single-well projects that avoid the distortion of well depth and cost averaging for multi-well contracts. Figure 5 shows P&A completion costs for 26 dry holes drilled in Australia from 1996 to 2004.[29] Costs are adjusted for inflation and shown in U.S. dollars.

[28] Leamon, at Section 6.4.4.3. https://www.unsworks.unsw.edu.au/primo-explore/fulldisplay/unsworks_1559/UNSWORKS
[29] https://www.unsworks.unsw.edu.au/primo-explore/fulldisplay/unsworks_1559/UNSWORKS

Figure 5. Australian P&A completion costs by depth



Adjusted for inflation and currency conversion, the cheapest well cost $25,515 to plug. The most expensive cost $675,604. The average cost for wells more than 10,000 feet was $424,000. These costs exclude charges for site preparation and rig mobilization, which are unnecessary in P&A completions where the drilling rig remains on site, but which are incurred when closing post-production wells.

Notably, the one outlier in the Australia data (a 9,000-foot well costing $676,000) shows that outlier deep wells can significantly exceed expected average costs (see Figure 5).

The Australian P&A completion data set offers an undistorted reflection of the correlation between plugging costs and depth. It excludes distortions from fixed costs for site preparation and rig mobilization, costs that are incurred prior to in-hole activity

and are therefore largely unrelated to well depth. The single-well data set eliminates cost and depth averaging distortions for multi-well contracts and is also largely free of outlier wells with costly well-specific factors uncorrelated with depth.

The Australian P&A completion cost data indicate that expected costs for industry to plug a typical 10,000-foot straight hole well in the ordinary course of operations are in the range of $300,000, an order of magnitude higher than oft-cited average orphan well costs. The data also show that outlier deep wells can cost hundreds of thousands of dollars more to abandon than normal wells of comparable depth.

We cannot verify that P&A costs in the U.S. today will be the same as P&A costs incurred in Australia from 1996 to 2004, adjusted for currency conversion and inflation. There are also differences between P&A completions and closures of producing and idle wells that could materially affect costs for individual projects.

However, the Australian industry cost data stand strongly for the proposition that P&A costs increase exponentially with depth and that average P&A costs for deep shale wells will be much higher than average orphan well program costs dominated by shallow wells. Absent evidence to the contrary, which the U.S. oil industry is free to disclose, the Australian data stand as the best and only available proxy for expected industry costs to close deep shale wells.

4. Orphan well data

Table 2 summarizes key findings from the Wyoming and Ohio state orphan well data in comparison to the Australian P&A completion data. In addition to the aggregate Ohio data, which includes multi-well and single-well contracts, the table includes data for 25 single-well contracts.

Table 2. Summary of P&A cost data

	Wyoming		Ohio		Ohio-Single		Australia	
Vertical Depth	#	$/well	#	$/well	#	$/well	#	$/well
>10,000 ft.	3	321,785	0	-	0	-	2	$423,885
7,500 – 10,000 ft.	10	64,202	0	-	0	-	7	$304,452
5,000 – 7,500 ft.	5	59,378	10	$122,101	0	-	6	$136,690
2,500 – 5,000 ft.	15	66,873	68	$114,691	7	$139,832	4	$112,512
1,000 – 2,500 ft.	19	23,175	158	$77,737	8	$114,899	6	$51,681
<1,000 ft.	21	8,381	123	$56,619	10	$69,132	1	$57,671
All	**73**	**48,270**	**359**	**$78,737**	**25**	**$103,573**	**26**	**$177,572**

Table 2 shows that the orphan well data is dominated by wells less than 2,500 feet, that average costs tend to increase with depth, and that costs for deep wells are significantly higher than average costs for all wells.

The orphan well data also indicate that costs range widely from state to state. Ohio's average cost per well is nearly twice that of Wyoming. The Ohio data also indicate that current P&A costs in the U.S., at least for wells with depths less than 7,500 feet, are comparable to P&A completion costs in Australia. Further research is needed to understand the variance between P&A costs in Ohio and Wyoming.

That said, both the Wyoming and Ohio data indicate an exponential correlation between depth and costs. Other researchers have cited the Wyoming data for the proposition that P&A costs are correlated with depth.[30] They concluded the relationship was linear when in fact the data indicate it is exponential. We expect the exponential relationship would be even stronger if the data excluded multi-well contracts.

It is important to note that the orphan well data sets all suffer to some extent from multi-well campaign averaging that distorts the relationship of depth and cost. For example, the Wyoming data included total costs and depth per multi-well contract but not individual well depths and P&A costs. The Ohio data included individual well depths but not individual well costs for multi-well contracts. In these cases, we allocated well depths and costs ratably based on the number of wells (e.g., we allocated 20% of the total cost to each well in a 5-well contract).

The grouping of wells of widely varying depth into single contracts with an aggregate cost to plug all wells has the effect of dampening the correlation between depth and cost. For example, one of the Ohio contracts included three wells with depths of 685, 700 and 3,669 feet. Another grouped two wells with depths of 1,528 and 6,054 feet. In this case, the deepest well in the set was averaged with a much shallower well. Separate pricing for individual wells likely would have resulted in a stronger correlation between depth and cost. When total costs scale exponentially with depth, the expected average cost to plug a 1,500-foot well and a 6,000-foot well may be higher than the expected average cost to plug two 3,750-foot wells.

For these reasons, it is important to consider the cost differences between the aggregate Ohio cost data, which includes multi-well and single-well contracts, and the cost data for the 25 single-well contracts.

D. The importance of time flexibility

The authors of the SPE Paper assumed that industry's costs to plug comparable wells of similar depth in the ordinary course of operations are the same as those incurred by state orphan well programs. This may not be true.

The conclusion that average orphan well closure costs incurred by states are a good proxy for the average costs industry will incur to retire producing and idle wells of comparable depth in the ordinary course of operations assumes that companies and state orphan well programs will pay equivalent prices for equipment and labor costs to plug a well. This is not necessarily the case.

Rig-related costs – daily rental rates and the costs to transport the rig to and from the site – are by far the largest component cost of well abandonment. The workover rigs typically used for well plugging are also used to service producing and idle wells. Demand for these rigs is largely determined by oil prices and drilling/workover activity. Rig day rates can vary widely

[30] http://insideenergy.org/2015/10/01/the-rising-cost-of-cleaning-up-after-oil-and-gas and https://westernpriorities.org/wp-content/uploads/2018/02/Bonding-Report.pdf.

over time and across regions, depending on regional supply and demand. When oil prices are high and exploration and production activity is surging, rig rates are high, and plugging is relatively expensive. When oil prices are low, and exploration and production activity is contracting, as is the case now, rig rates are low, and plugging is relatively cheap – but, of course, at such times industry has little desire to expend scare financial resources to plug idle wells.

The key to minimizing P&A costs is to minimize rig-related costs. There are several ways to do this, if the party contracting for the work has timing flexibility. Ways to minimize rig-related costs, individually or in combination, include:

- Timing projects when regional rig rates are relatively low in order to reduce rental costs
- Timing projects when rigs are available in close proximity to the well(s) to be plugged in order to reduce rig mobilization and transport costs
- Organizing campaigns to plug multiple wells in the same geographic area in order to spread rig mobilization and transport costs over multiple wells

State orphan well programs have flexibility to exploit these cost saving opportunities that operators plugging wells in the ordinary course of operations – i.e., promptly upon wells being deemed non-economic – often do not. The variation in costs can be significant.

To gauge the degree to which costs can vary depending on current market conditions, we compared multiple bids for P&A projects submitted by contractors in response to Ohio's request for proposals (RFPs). Ohio received multiple bids on 97 of 103 RFPs. For one third of the contracts the high bid was more than twice the low bid. For one contract, the high bid was 8.5 times higher than the low bid. On average, high bids exceeded low bids by 89%. The RFPs were identical in terms of scope of work, number of wells, project specifications, and timing. The large variation in quoted prices therefore appears to be attributable largely to the contractors' availability of rigs in the area at the time. The Ohio cost proposal data suggests that P&A costs can vary 200% or more depending on regional availability alone.

A key to achieving these kind of savings is time flexibility. Table 3 describes three abandonment scenarios. In the first scenario, the state plugs an orphan well after the operator defaults. In the second scenario, the operator plugs a producing or idle well following a determination that it is no longer economically beneficial and thus must be permanently abandoned according to state law. In the third scenario, the operator plugs a dry hole immediately after the well is drilled and before the drilling rig leaves the site. In this scenario, there are no rig transport and mobilization costs because the same rig used to drill the well is also used to plug it.

Table 3. Abandonment scenarios

Rig-related cost factor	Orphan well	Producing or idle well	Dry hole
Day rates	Rates for workover rigs vary widely based on regional supply and demand	Rates for workover rigs vary widely based on regional supply and demand	Rates for (more costly) drilling rigs vary widely based on regional supply and demand
Transport and set up	Varies with distance, equipment and number of wells in campaign	Varies with distance, equipment and number of wells in campaign	n/a – rig already on site; no ability to plug multiple wells in campaign
Timing flexibility	High ability to schedule work to minimize day rates and transport costs	Varying ability to schedule work to minimize day rates and transport costs	No timing flexibility as work must commence immediately following drilling
Average cost	**Lowest average cost** due to flexible timing	**Higher than orphan costs** due to less flexible timing	**Higher than orphan costs** due to low timing flexibility

The scenarios in Table 3 show that states have greater flexibility than operators to minimize P&A costs – assuming operators complete timely retirement of producing and idle wells in the ordinary course of operations in accordance with applicable law. This does not imply that states should require operators to permanently abandon wells immediately upon being shut-in. However, it does assume that bond amounts and fees on idle and marginal wells effectively incentivize operators to permanently retire wells when there is no viable potential for future profit.

E. Oil's deep hole dilemma

There are more than 900,000 active oil and gas wells in the United States, and more than 130,000 have been drilled since 2010 during the U.S. shale boom.[31] The correlation of plugging costs and depth raises an important question: how much will it cost on average to plug more than a hundred thousand deep shale wells?

[31] https://www.washingtonpost.com/graphics/national/united-states-of-oil/.

We repeat that the Australian P&A completion cost data indicate that expected costs for industry to plug a typical 10,000-foot straight hole well in the ordinary course of operations are in the range of $300,000, an order of magnitude higher than oft-cited average orphan well costs.

The average cost to plug unconventional tight-oil wells and shale-gas wells could be significantly more. We could find only one example of reported costs to retire a modern shale well. Pursuant to a regulatory order, in 2008 Cabot Oil & Gas plugged three Marcellus Shale vertical gas wells drilled the same year at a reported cost of $2,190,000. Adjusted for inflation, this is $2.9 million today, or about $1 million per well. The vertical depth of the three wells ranged from 6,950 to 7,450 feet.[32] Insufficient information is available to know whether these wells are representative of unconventional shale wells or if they are outliers due to the circumstances surrounding their retirement.

Well depth is not the only factor that determines plugging costs. As discussed above, it matters who is paying and when. Other random factors affecting P&A costs include the type of well (oil or gas), the applicable plugging standards,[33] the existence of wellbore damage, proximity to surface water, schools, homes, and businesses, the presence of hydrogen sulfide gas, access limitations, and the extent of required soil remediation and surface restoration. When present, these factors can significantly increase P&A costs above the trend line for wells of the same depth. Whereas, the average cost for industry to plug a typical 10,000-foot shale well may be $300,000, the cost to retire a problem well of the same depth could easily exceed $1 million.

Variability due to well-specific random variables will tend to push P&A costs up not down. Low probability, high severity risks mean that that the probability distribution of costs for comparable wells of the same depth will be fat-tailed and right-skewed rather than a bell curve. Stated simply, most surprises will be unpleasant.

[32] http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/OilGasReports/Determination_Letters/EAST/CO258482-11_Redacted.pdf and http://www.cabotog.com/pdfs/ExhibitB.pdf.

[33] For example, some state regulations require oil and gas horizontal wells to be plugged at total depth, while others do not specify standards for plugging such wells. For horizontal wells, Wyoming requires a continuous cement plug to be placed from at least one hundred feet (100') into the lateral back to one hundred feet (100') into the vertical portion of the wellbore. https://cellartech.com/wp-content/uploads/2016/03/Wyoming-Chapter-3-Operational-Rules-Drilling-Rules.pdf.

F. Summing it up

In summary, here is what we know with reasonable certainty and what we don't know about the industry's expected costs for oilfield retirement:

- The average depth of modern shale wells approaches 10,000 feet and many existing, producing and idle wells are much deeper.
- On average P&A costs increase exponentially with depth. The expected cost for industry to plug a 10,000-foot vertical straight hole well based on the most relevant available data is in the proximity of $300,000, an order of magnitude higher than forecasts of $20,000 to $40,000, based on average orphan well costs.
- Industry data is unavailable to confirm whether the costs for U.S. companies to retire producing and idle wells in the ordinary course of operations will align closely with the Australian P&A completion data. Actual costs may be higher or lower.
- The only known example of documented costs to plug a modern vertical shale well is $2.9 million (adjusted for inflation) reportedly spent to plug the three Cabot wells in 2008. The average cost to plug horizontal shale wells may significantly exceed the average cost to plug vertical shale wells of the same depth.
- Conditions unrelated to depth can increase the costs to plug individual wells by an order of magnitude, raising the prospect of million dollar orphans. Data is not available to determine the frequency of such conditions.

Appendix 1. Characteristics of oilfield AROs

Asset retirement obligations (AROs) are legal obligations to perform retirement activities when a long-lived tangible asset, such as an oil well, offshore platform, pipeline, or terminal, is permanently retired from service. In this paper, we focus exclusively on AROs associated with oilfield assets – oil and gas production wells, wastewater injection wells, offshore platforms, gathering lines, and related infrastructure.

The most common type of oilfield ARO is the legal requirement to plug and abandon (P&A) and reclaim oil and gas wells at the end of their useful life.[34] Federal and state laws and regulations require that following a determination that a well is no longer usable for beneficial purposes operators are required to plug the well in a manner that permanently confines all oil, gas and water in the separate strata in which they are originally found, and take other measures necessary to restore the location to a safe and clean condition.[35]

As the demand for energy and the complexity of wells, particularly offshore wells, increased over time the term "decommissioning" became used to include the myriad list of tasks necessary to reclaim the land or sea to its condition prior to drilling. Throughout this paper, we use the term "oilfield AROs" to encompass the full range of legally mandated oilfield asset retirement activities, including reclamation and remediation of the surrounding environment.

Although not addressed by this report, midstream and downstream AROs pose additional financial risks. For example, an analysis prepared for the State of Michigan on matters related to the pipeline operations of Enbridge found that at an estimated cost of $855 per foot to remove pipelines from the ground, it would cost $23 billion to remove all of Enbridge's buried pipes in the U.S. alone. The oil industry generally does not report the estimated value of midstream and downstream AROs on the basis that they are expected to operate indefinitely and therefore have "indeterminate useful lives." Companies are not required to report retirement costs for such assets. For this reason, the current analysis addresses just a portion of the industry's total ARO liability.

Oilfield AROs are regulated by each of the 33 oil and gas producing states in the U.S. State roles in regulating oil and gas drilling and production were formalized by the Interstate Oil & Gas Compact Commission (IOGCC), which formed in 1935 to set standards for oil and gas drilling and develop production regulations that the states agreed to enact.[36]

[34] https://www.osha.gov/SLTC/etools/oilandgas/abandoning_well/abandoning.html.
[35] New Mexico Administrative Code at NMAC 19.15.25.
[36] https://www.americangeosciences.org/geoscience-currents/us-regulation-oil-and-gas-operations

Appendix 2. Financing oilfield AROs

Oilfield companies finance oilfield retirement costs from current earnings and cashflows on a pay-as-you-go basis. When they "provision" for AROs by recognizing an accrued liability on the balance sheet, they do not at the same time set aside funds to settle these obligations and typically there is minimal reporting requirements for anticipated well closures aside from regimes to identify active and idled (or "temporarily abandoned") wells. This lies in contrast with nuclear power companies, which establish sinking funds to cover retirement costs and which provide decommissioning funding status reports to the U.S. Nuclear Regulatory Commission on multi-year and annual bases.[37]

Because these liabilities are not due until wells are closed – long after they are drilled – states often require companies to post bonds. Such bonds are not often rationally related to the actual costs of plugging the wells.

A. Bonding

The objective of state bonding regimes is to ensure that taxpayers are not left picking up retirement costs when operators default. These typically require companies to post surety bonds to assure fulfillment of AROs as they come due. Bond amounts are typically set on a per well and blanket basis, as shown in Table 4 (overleaf).

[37] For information on financial assurance requirements for nuclear power plants, see https://www.nrc.gov/waste/decommissioning/finan-assur.html.

Table 4. Oilfield ARO bonding regimes

State	Bonding - Single Well	Bonding - Blanket
Alaska[38]	$400,000	$400,000 (1-10 wells) $6,000,000 (10-40 wells) $10,000,000 (40-100 wells) $20,000,000 (100-1,000 wells) $30,000,000 (>1,000 wells)
California[39]	$25,000 (<10,000') $40,000 (>10,000')	$200,000 (1-50 wells) $400,000 (50-500 wells) $2,000,000 (500-10,000 wells) $3,000,000 (>10,000 wells)
Colorado[40]	$10,000 (<3,000') $20,000 (>3,000')	$60,000 (<100 wells) $100,000 (>100 wells)
Idaho[41]	$10,000 + $1/ft	$50,000 (1-10 wells) $100,000 (10-30 wells) $150,000 (>30 wells)

Table continued overleaf

State	Bonding - Single Well	Bonding - Blanket
Montana[42]	$1,500 (<2,000') $5,000 (>2,000'<3500') $10,000 (>3500')	$50,000 (unlimited)
New Mexico[43]	$25,000 plus $2/ft	$50,000 (1-10 wells) $75,000 (10-50 wells) $125,000 (50-100 wells) $250,000 (>100 wells)
North Dakota[44]	$50,000	$100,000 (unlimited)
Oregon[45]	$25,000 (<10,000') $50,000 (>10,000')	Sum of individual bonds (minimum $150,000)
South Dakota[46]	$10,000 (<5,500') $50,000 (>5,500')	$30,000 (unlimited wells <5,500') $100,000 (unlimited wells >5,500')
Texas[47]	$2/ft depth for onshore wells $60,000 for bay wells $100,000 for offshore wells	$25,000 (1-10 wells) $50,000 (10-100 wells) $250,000 (>100 wells)

Table continued overleaf

State	Bonding - Single Well	Bonding - Blanket
Utah[48]	$1,500 (<1,000') $15,000 (1,000'-3,000') $30,000 (3,000'-10,000') $60,000 (>10,000')	$15,000 (unlimited wells <1,000') $120,000 (unlimited wells >1,000')
Wyoming[49]	$10,000 (<2,000') $20,000 (>2,000')	$75,000 (unlimited wells of any depth)
BLM[50]	$10,000	**Statewide:** $25,000 **Nationwide:** $150,000

[38] https://casetext.com/regulation/alaska-administrative-code/title-20-miscellaneous-boards-and-commissions/chapter-25-alaska-oil-and-gas-conservation-commission/article-1-drilling/section-20-aac-25025-bonding.

[39] https://www.conservation.ca.gov/index/Documents/DOGGR%20Statutes%202018%20%20updated%204-4.pdf.

[40] https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=7546&fileName=2%20CCR%20404-1.

[41] https://adminrules.idaho.gov/rules/current/20/200702.pdf.

[42] http://www.mtrules.org/gateway/ruleno.asp?RN=36%2E22%2E1308.

[43] https://casetext.com/regulation/new-mexico-administrative-code/title-19-natural-resources-and-wildlife/chapter-15-oil-and-gas/part-8-financial-assurance/section-191589-categories-and-amounts-of-financial-assurance-for-well-plugging.

[44] https://www.legis.nd.gov/information/acdata/pdf/43-02-03.pdf.

[45] https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=2886.

[46] https://sdlegislature.gov/Statutes/Codified_Laws/DisplayStatute.aspx?Type=Statute&Statute=45-9-15.

47 https://www.rrc.state.tx.us/media/8216/bondi.pdf.

[48] https://rules.utah.gov/publicat/code/r649/r649-003.htm#T1.

[49] https://cellartech.com/wp-content/uploads/2016/03/Wyoming-Chapter-3-Operational-Rules-Drilling-Rules.pdf.

[50] 43 Code of Federal Regulations §§ 3104.1 to 3104.3 at https://www.law.cornell.edu/cfr/text/43/3104.1.

In a 2019 report, the U.S. Government Accountability Office (GAO) found that the average value of bonds held by the Bureau of Land Management (BLM) for oil and gas wells in 2018 was only $2,122 on a per well basis. GAO stated:

> Bonds generally do not reflect reclamation costs because most bonds are set at their regulatory minimum values, and these minimums have not been adjusted since the 1950s and 1960s to account for inflation. Additionally, these minimums do not account for variables such as number of wells they cover or other characteristics that affect reclamation costs, such as well depth. Without taking steps to adjust bond levels to more closely reflect expected reclamation costs, BLM faces ongoing risks that not all wells will be completely and timely reclaimed, as required by law.

The GAO findings are broadly similar to those from a 2020 report prepared by the California Council on Science and Technology (CCST). The CCST found that the state held only $107 million in bonds for estimated ARO costs of $9.2 billion to retire 106,687 wells, leaving the state exposed to $9.1 in ARO credit risk. This means that the liabilities are substantially underfunded.

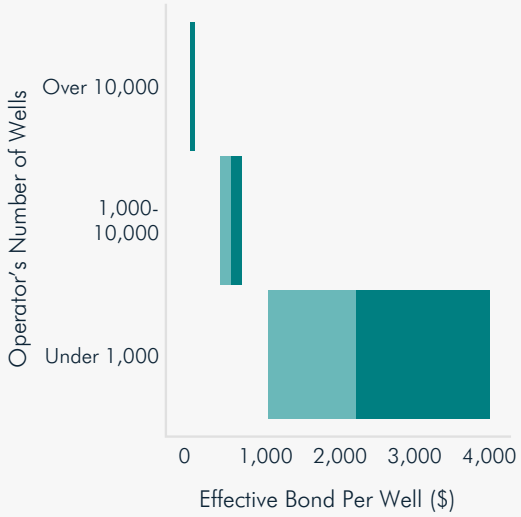
B. Self-bonding

Where there is no collateral set aside to cover P&A costs, oil and gas companies effectively 'self-bond' the difference between the estimated costs to complete retirement activities and the value of bonds held by the regulator. Figure 6 from the CCST report shows how blanket bonds increase California's ARO credit risk exposure by concentrating self-bonded ARO credit in those companies operating a large number of wells. The implicit assumption is that companies with a large number of wells are inherently low credit risks. However, regulators have no procedures like those used by credit ratings agencies to assess credit worthiness, either at the time of initial permitting, at the time of permit transfer, or periodically during the life cycle of a field or well.

The assumption that companies with a large number of wells are inherently low credit risks is also undermined by the industry's practice of large companies selling late-life, low production wells to smaller, less well capitalized companies. To mitigate this risk, North Dakota in 2019 limited blanket bonds to include no more than six of the following in aggregate: unplugged or improperly properly dry holes; plugged wells where the site has not been properly reclaimed; abandoned wells not properly plugged and reclaimed; and wells temporarily abandoned for more than seven years.[51]

[51] https://www.legis.nd.gov/information/acdata/pdf/43-02-03.pdf.

Figure 6. Available California bond funds per well, by size of operator



This figure shows the median, 25th percentile, and 75th percentile of effective bond amount for wells with operators of different sizes. Effective bond amount is calculated by dividing each operator's total bond amount by the operator's total number of active and idle wells.

Source: California Council on Science and Technology (CCST)

Bonding at the state and federal level is insufficient to prevent wells being "orphaned" to the state.[52] Indeed, the failure to require full bonding presents a moral hazard. Companies with good credit are incentivized to transfer assets to those with worse credit in order to avoid these liabilities. Those companies with worse credit are less likely to ultimately have to actually pay for reclamation and will more heavily discount the value of the liability and will therefore be willing to pay a higher amount for the remaining cash flows from the well. This phenomena helps explain the growth in orphaned wells.

[52] https://www.gao.gov/assets/710/701450.pdf.

C. Orphan well programs

To pay for cleanup of abandoned unplugged wells, most oil producing states have created orphan well funds financed by taxes, fees and penalties charged to companies.[53] In the past, dealing with orphan wells has been a cyclical issue – more wells become the state's responsibility after a downturn – but it's getting worse over time, as states struggle with a backlog of wells that dates back decades. Moreover, in aging fields, the rate of abandonment may be increasing.

For example, in Texas the agency responsible for plugging orphaned wells can't close them as quickly as they're being abandoned. According to the agency, "We have 440,000 wells in the state of Texas today and we have about 130,000 that aren't producing." That means "you have a lot of old vertical wells that will get abandoned. … They're going to be coming in greater and greater numbers."[54]

Before wells become orphaned, they often sit idle for long periods. Growing inventories of idle wells therefore may foreshadow future growth in orphaned wells. Warning signs are flashing. For example, California Resources Corporation saw an increase from 4,742 onshore idle wells in 2017 to 5,897 idle wells in 2018 (a year over year increase of 24%) to 7,100 idle wells to 7,100 idle wells in 2019 (a year over year increase of 20%).

D. Bond premiums and collateral

When governments require companies to post bonds rather than allowing them to self-bond, they shift responsibility for pricing ARO credit risk to the financial markets. Bond sureties price ARO credit risk in two ways – annual bond premiums and collateral requirements. Both annual premiums and collateral requirements are subject to change on outstanding bonds to reflect changes in credit risk.

A typical bond indemnity agreement contains the following terms relating to premiums and collateral:

> **Premiums.** The Indemnitors agree to pay to Surety all premiums, renewal premiums, costs and charges due for any Bonds requested from and/or issued by Surety, until Surety, in its sole discretion, shall receive satisfactory evidence of its discharge or release from all liability under any Bonds. It is agreed that all premium is fully earned upon issuance of the Bond and is not refundable.

[53] http://iogcc.ok.gov/Websites/iogcc/images/Publications/2019%2012%2031%20Idle%20and%20Orphan%20oil%20and%20gas%20wells%20-%20state%20and%20provincial%20regulatory%20strategies%20(2019).pdf.
[54] https://www.kut.org/post/texas-isnt-plugging-abandoned-oil-and-gas-wells-fast-enough.

Collateral Security. Immediately upon demand by Surety, the Indemnitors shall deposit with Surety funds, as collateral security, in an amount Surety, in its sole and absolute discretion, deems necessary at the time of said demand to protect Surety from actual or anticipated Loss. Surety shall have no duty to invest, or provide interest on, any collateral security. The Indemnitors acknowledge and agree that their failure to immediately deposit with Surety any sums demanded under this section shall cause irreparable harm to Surety for which it has no adequate remedy at law.[55]

While information on the cost of oil and gas closure bonds is hard to come by, during the bankruptcy proceedings of coal companies like Peabody, Arch and Cloud Peak, the debtors were forced to provide such information to the bankruptcy court, revealing annual premium payments in the range of 1% of the bond face value. In addition, the bankruptcy filings revealed that the coal companies were required to post collateral ranging from 9%-50% (as a percentage of the face value of the bonds). On average Peabody's sureties required 35.3% of the face value of its bonds in collateral, Arch's sureties required 23.7% on average, and Cloud Peak's sureties a mere 15%.

[55] http://www.colonialsurety.com/wp-content/uploads/2017/03/Short-Form-Indemnity-Agreement-Specimen.pdf.

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PERMANENT COMMUNITY IMPACT FUND BOARD MEETING

Department of Workforce Services
Housing and Community Development Division
Salt Lake City, Utah

MINUTES

Thursday, June 13, 2019

Members Present

Jonathan Hardy	Chairman
Bruce Adams	Southeastern Utah Association of Local Governments
Gregg Galecki	State Board of Water Quality
Kyle Stephens	State Board of Water Resources
Naghi Zeenati	State Transportation Commission
Garth “Tooter” Ogden	Six County Association of Governments
Jack Lytle	Uintah Basin Association of Governments
Michael Dalton	Five County Association of Governments
Dean Baker	Uintah County
Ron Winterton	Duchesne County

Audio Attendance

David Damschen	State Treasurer

Staff and Visitors

Keith Heaton	Housing and Community Development
Candace Powers	Housing and Community Development
Gayle Gardner	Housing and Community Development
Cristine Rhead	Housing and Community Development
Alison Garner	Attorney General’s Office
Lisa Nelson	Division of Drinking Water
Skyler Davies	Division of Water Quality
Jenny Fairey	Diamond Valley Fire Department
Bill Jackson	Grand County Roads Department
Justin Atkinson	Sunrise Engineering
Nick Tatton	Price City
Russell Seeley	Price City
Miles Nelson	Price City
Gary Zabriskie	Five County Association of Governments
Nate Wiberg	Five County Association of Governments
Clint Johnson	Jones & DeMille Engineering
Rodney Rowley	Duchesne City
Casey Hopes	Carbon County
Jordan Merrell	Uintah County GIS
Greg Todd	Duchesne County
Eric Johnson	Blaisdell, Church and Johnson
Jennifer Hall	Encore Land Services, Inc.

Brian Gorum	State Farm Insurance
Chris Gamble	Patriot Real Estate
Alyson Measel	State Farm Insurance
Garrett McMullen	WW Clyde Co.
Jason Blankenagel	Sunrise Engineering
Dickson Taylor	Johnson Water Improvement District
Michael Hawley	Jones & DeMille Engineering
Jason Dean	Basin Western Inc.
Tony Baumgardner	Norco
Greg Tseng	Project Finance Advisory Ltd (PFAL)
Ross Watkins	Uintah County
Cody Evans	Goodrich Mud and Quick Sand
Marcus Keller	Zions Public Finance
Conae Black	Green River City
Kathy Ryan	Green River City
Matt Memmott	Alpha Tech Research Corp
Keith Despain	CRS Engineers
Bill Kremin	Utah Trucking Association
B. J. Peters	Epic Engineering
Clay Crozier	Eastern Utah Director ~ Senator Mitt Romney
Jeff Samuels	Anadarko Vernal
Quinn Bennion	Vernal City
Aaron Averett	Sunrise Engineering
David Brinkerhoff	Crescent Point Energy
Stephanie Steed	Escalante City
Melani Torgerson	Escalante City
Lee Moon	East Duchesne Water District
Clinton Moon	East Duchesne Water District
Willard Wood	Fountain Green
Jade Powell	Southeastern Utah Association of Local Governments
Michael Bryant	Southeastern Utah Association of Local Governments
Mike Logan	Logan Welding
Mark Logan	Logan Welding
Jose *Gastelum*	Logan Welding
Sarah Stock	Living Rivers
Al Peacock	Earth First
Ryan Beam	Center for Biological Diversity
Jordan Katcher	Community Development Office
Skye Sieber	Community Development Office
Bart Haslem	Uintah County
Devin Caldwell	Goodrich Mud & Quick Sand
William Merkley	Uintah Water Conservancy District
Jason Brown	Beaver City
Rich Mahoney	Naples City
Bergan Eskildsen	Office of Energy Development
Gil Conover	Emery County
Kent Wilson	Emery County

Christina Davis	Department of Workforce Services
Bill Prater	Bond Counsel
David Hinkins	Emery County
Lynn Sitterud	Emery County

Citizens present:

Joel Yellowhorse	Matt Williams
Caro Norton	Al Peacock
Louise Thompson	Carol Moosman
Brady Thompson	Seth Cauman
Sonja Norton	Patty McCourt
Ralph McPhersen	Kortinee Bacon
Lionel Trepanier	Gordon Evans
Greg Tseng	Carolyn Evans
Micky Kiever	John Harlan
Alan Bird	Rocky Engleholm
Cindy Bryson	Phil Daspatt
Keith Foley	Mark Fole
Troy Slaugh	Vera Martinsher
Jim Boren	Katherine S. Fryer
Kelly Boren	Byron S. Fryer
Joel Percival	Courtney Fryer
William Percival	LaRae Summers
Novella Lynn Percival	Ryatt Summers
Darrell Fordham	Kelli Summers
Rebecca Fordham	Mi Mole

WELCOME

The Permanent Community Impact Fund Board (CIB) Meeting was held on Thursday, June 13, 2019 at the Uintah Conference Center, 313 East 200 South, Vernal, Utah and called to order at 8:30 a.m. by Chairman Jonathan Hardy.

Chairman Hardy indicated that today's meeting is open to the public but is not a public hearing to receive public comment. The priority projects on today's agenda have been discussed during the past three months and at this meeting, the Board may award funding for those projects. Other projects on the agenda will be discussed with the applicant and upon Board approval may also receive funding. This is the final funding meeting of FY2019.

ADMINISTRATION ITEMS

Briefing

1. Upcoming Meeting Dates and Locations

July 11, 2019 – Salt Lake City

2. Financial Review

Candace Powers reviewed the status of the funds for today's meeting.

3. Review of Agenda Items

There are nineteen projects listed on the Priority List, with 17 Priority Projects ready for final funding consideration, one new project, one Large Infrastructure Funding Project, two Supplemental Requests, two Special Consideration Requests, and Board Member Discussion and/or Action Items.

I. INTRODUCTIONS *[*9:57]*

Chairman Hardy welcomed everyone and asked the Board members and staff to give introductions.

II. APPROVAL OF MINUTES

Chairman Hardy requested a motion to approve the minutes of the May 2, 2019 Board Meeting.

Naghi Zeenati made and Tooter Ogden seconded a motion to approve the minutes from the May 2, 2019 meeting. The motion carried with Jack Lytle abstaining.

III. PRIORITY PROJECTS

All projects advanced to the Priority List were reviewed by the Board at previous meetings. The information below is a summary of the requests as advanced to the Priority List.

1. Town of Koosharem (Sevier County)

The Town of Koosharem's funding request was advanced to the Priority List as a $168,000 loan for 10 years at 2.5% interest and a $500,800 grant (total $668,800) to chip seal all town roads with the exception for state maintained roads. The project consists of 9 – 12 miles borrow ditch; 23 miles of 18" culvert, 2.05 miles of single chip seal; and 4.3 miles of double chip seal.

Total Funding Request: $668,800 (($168,000 loan for 10 years at 2.5% interest and a $500,800 grant).

The applicant is requesting an addition $10,000 to accommodate the issuance of bonds.

Jack Lytle made and Gregg Galecki seconded a motion to fund this project as a $178,000 loan for 10 years at 2.5% interest and a $500,800 grant. (Total $678,800). The motion carried unanimously.

2. Duchesne City (Duchesne County)

Duchesne City's funding request was advanced to the Priority List as a $347,100 grant for the 1200 North water line and River Road water line project. This project consists of installing 1,000 LF of 8" water line to connect River Road to Victory Pipeline and 2,700 LF to connect the 1200 North line to Old Farm and Scotch Pine subdivisions, and appurtenances to complete the connections.

Total Funding Request: $347,100 grant.

Ron Winterton made and Mike Dalton seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

3. East Duchesne Culinary Water Improvement District (Duchesne County)

East Duchesne's funding request was advanced to the Priority List as a $3,683,000 loan for 30 years at 1% interest for water system improvements. This project consists of installing an additional 300,000 gallon tank at Utahn and 35,400 LF of 8" PVC C900 pipe and appurtenances to connect to existing water lines, including valves, pressure reducing valve vault, fire hydrants, a river crossing, a bore under the state highway and easement acquisition.

Total Funding Request: $3,683,000 loan for 30 years at 1% interest.

Naghi Zeenati made and Tooter Ogden seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

4. Price City (Carbon County)

Price City's funding request was advanced to the Priority List as a $750,000 loan for 15 years at 1.5% interest and a $250,000 grant (total $1,000,000) for a 2019 Street/Water/Sewer project on 700 East and 4th Avenue. This project consists of reconstructing 700 East between 100 S to 400 S with 2,400 CY road base, 2,600 tons of hot asphalt, 900 LF curb & gutter, storm drains and ADA corners; on 300 east, 900 CY road base, 1,000 tons hot asphalt, 50 LF curb & gutter, storm drains, ADA corners, 1,200 LF water main, 3 water main connections, 3 fire hydrants, 5 service connections and a traffic loop replacement; on 4th Avenue, 125 CY road base, 250 tons hot asphalt, 600 LF water main, 1 water connection, 1 fire hydrant, 20 service connections and 15 sewer connections.

Total Funding Request: $1,000,000 ($750,000 loan for 15 years at 1.5% interest and a $250,000 grant).

Bruce Adams made and Jack Lytle seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

5. Green River City (Emery County)

Green River City's funding request was advanced to the Priority List as a $120,000 loan for 10 years at 2.5% interest for the purchase of equipment. This project will consist of purchasing a mini excavator, a full tilt trailer, a F250 ¾ ton super cab truck with a utility bed and a ½ ton F150 crew cab truck.

Total Funding Request: $120,000 loan for 10 years at 2.5% interest.

Ron Winterton made and Dean Baker seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

6. Grand County (Grand County)

Grand County's funding request advanced to the Priority List as a $166,000 grant for SITLA Easements. This project will consist of obtaining permanent easements on 60 miles of Class D roads across SITLA property.

Total Funding Request: $166,000 grant.

Bruce Adams made and Mike Dalton seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

7. Fountain Green (Sanpete County)

Fountain Green's funding request advanced to the Priority List as a $1,100,000 loan for 30 years at 1% interest and a $2,155,000 grant (total $3,255,000) for the construction of the Fountain Green Public Safety Building. This project consists of building an 18,300 square foot facility that will include 3 fire truck bays, training space, kitchen, storage room, men's locker room, women's locker room, restrooms with decontamination appurtenances, city offices, meeting room, law enforcement office, library and multi-media space, city council and justice court.

Total Funding Request: $3,255,000 ($1,100,000 loan for 30 years at 1% interest and a $2,155,000 grant).

Jack Lytle made and Kyle Stephens seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

8. Escalante City (Garfield County)

Escalante City's funding request advanced to the Priority List as a $326,000 grant for the purchase of a type one aerial fire truck. The purchase will be a Rosenbauer 78' Viper aerial type one truck with an onboard extendable 78' ladder and includes a built-in waterway with a remotely controlled nozzle.

Total Funding Request: $326,000 grant.

Bruce Adams made and Naghi Zeenati seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

9. Panquitch City (Garfield County)

Panguitch City's funding request advanced to the Priority List as an $80,000 grant for recreational lighting. The project consists of purchasing lights for the baseball field and the outdoor rodeo arena. At the baseball field there will be two 70' poles with 5 light fixtures and 1 ball tracker light per pole, four 70' poles with 7 light fixtures and 1 ball tracker light per pole, and two 60' poles with 4 light fixtures per pole. Also included are the pre cast bases for the poles, electrical component boxes, electrical wire inside of the poles, cross arms, and a wireless control system.

Total Funding Request: $80,000 grant.

Mike Dalton made and Tooter Ogden seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

10. Beaver County Fire District #2 (Beaver County)

Beaver County Fire District #2's funding request was advanced to the Priority List as a $664,000 loan for 30 years at 1% interest and a $221,108 grant (total $885,108) for a fire service office at Milford. The project consists of the demolition of an existing structure and building a 75'4"x

41'3-1/4" (3,091 sq. ft.) office and storage building in Milford that has 2 offices, a restroom, a break room, a conference room, a reception area, fire storage and a two bay garage with storage attached.

Total Funding Request: $885,108 ($664,000 loan for 30 years at 1% interest and a $221,108 grant).

Ron Winterton made and Jack Lytle seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

11. Beaver County Municipal Building Authority (Beaver County)

Beaver County MBA's funding request advanced to the Priority List as a $4,695,000 loan for 30 years at 2.5% interest and a $2,499,146 grant (total $7,194,146) for the Beaver Equestrian and Event Center. The project consists of a 71,363 square foot steel building , footings and foundation, lighting, sound, heating and ventilation systems, concrete bleacher platforms, 1,800 retractable and stationary bleachers, restrooms, kitchen, concession stand, livestock paneling system, and extending the transmission line and the existing water well.

The applicant requested to be placed on the Pending List to review project cost and scope.

Naghi Zeenati made and Bruce Adams seconded a motion to place this project on the Pending List. The motion carried unanimously.

12. Diamond Valley Fire Special Service District (Washington County) *[19:21]*

Diamond Valley Fire SSD's funding request advanced to the Priority List as a $138,000 loan for 15 years at 2.5% interest and a $136,500 grant (total $274,500) for the purchase of an International 4x4 Cummins diesel Model 14 Type III Wildland 6-man Crew Cab with a 500 GPM waterous pump and a Darley Auxiliary water pump.

Total Funding Request: $274,500 ($138,000 loan for 15 years at 2.5% interest and a $136,500 grant).

Naghi Zeenati made and Kyle Stephens seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

13. Salina City (Sevier County) *[19:00]*

Salina City 's funding request advanced to the Priority List as a $1,000,000 loan for 20 years at 1.0% interest for swimming pool renovations. This project will consist of demolishing the interior building and remodeling the pool building with ADA ramps and railing, all new plumbing and fixtures, framing, flooring, electrical, cabinets and countertops, metal roofing, new mechanical room and control systems, lighting, masonry fencing, landscaping, resurface and improvements to the pool area, and remove existing water slide and install new water slide and appurtenances.

Total Funding Request: $1,000,000 loan for 20 years at 1.0% interest.

The Board asked the applicant If they are requesting to extend the loan term to 30 years.

The applicant is fine with a 20 year term.

Michael Dalton made and Tooter Ogden seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

14. Town of Elmo (Emery County) *[21:00]*

Elmo Town's funding request advanced to the Priority List as a $199,000 loan for 30 years at 1.0% interest and a $198,000 grant (total $397,000) for town hall/fire station modifications. The project will consist of increasing the size of the fire station 1,800 sq. feet to accommodate a fire engine, ambulance, firefighter laundry facilities, office space and equipment storage. The modifications to the town hall will repurpose a restroom into a kitchen and an office and storage area will be repurposed into a restroom.

Total Funding Request: $397,000 ($199,000 loan for 30 years at 1.0% interest and a $198,000 grant).

Gregg Galecki made and Jack Lytle seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

15. Town of Tropic (Garfield County) *[21:50]*

Tropic Town's funding request advanced to the Priority List as a $1,450,000 loan for 30 years at 2.5% interest and a $1,450,000 grant (total $2,900,000) for new sewer lagoons. This project will consist of deepening, relining and repairing existing lagoon cells, replacing existing inlet, transfer and conveyance structures and the addition of a new containment lagoon including property purchase. There will also be repair or replacement of broken or damaged manholes and collection lines throughout the existing sewer collection system.

Total Funding Request: $2,900,000 ($1,450,000 loan for 30 years at 2.5% interest and a $1,450,000 grant).

Naghi Zeenati made and Michael Dalton seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

16. Beaver City Municipal Building Authority (Beaver County) *[22:19]*

Beaver City MBA's funding request was advanced to the Priority List as a $200,000 loan for 20 years at 1.0% interest and a $200,000 grant (total $400,000) for upgrades to the Beaver City Opera House. This project will consist of seismic upgrades to the roof and walls, electrical and mechanical renovations, kitchen upgrades, and a new sound system, lighting, seating and space for productions in the theater area. The senior center will be a CDBG project.

Total Funding Request: $400,000 ($200,000 loan for 20 years at 1.0% interest and a $200,000 grant).

The applicant requested that the funding be directed to Beaver City and the loan term be increased to 30 years.

Total Funding Request: $400,000 ($200,000 loan for 30 years at 1.0% interest and a $200,000 grant).

Michael Dalton made and Naghi Zeenati seconded a motion to fund this project as a $200,000 loan 30 years at 1.0% interest and a $200,000 grant (total $400,000) with funding to Beaver City. The motion carried unanimously.

17. Town of Leeds (Washington County) *[23:45]*
The Town of Leeds funding request was advanced to the Priority List as a $35,000 grant for a master plan. The project will consist of a general plan to anticipate future land use development, management, tourism demands and future growth. This will also include a transportation master plan that will analyze impacts due to tourism, residential and commercial growth, determine local roads data in conjunction with UDOT roads and create a GIS map.

Total Funding Request: $35,000 grant

Ron Winterton made and Jack Lytle seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

18. Town of Charleston (Wasatch County) *[24:10]*
The Town of Charleston's funding request advanced to the Priority List as a $1,165,000 loan for 15 years at 2.5% interest for the Winterton Road project. The project consists of removal of current asphalt, road base and any road preparations to a depth of 18", then the addition of clay free road base with 2' shoulders and 3" asphalt to meet engineering specifications to ¾ mile of Winterton Road and Winterton Circle.

Total Funding Request: $1,165,000 loan for 15 years at 2.5% interest.

The applicant requested a reduction of the interest rate to 1.5% and indicated they are in the process of establishing a special service area in the next two months.

The Board referred to the guideline for funding non impacted areas with regard to the interest rate.

Gregg Galecki made and Tooter Ogden seconded a motion to fund this project at 2.5% as advanced to the Priority List. The motion carried unanimously.

19. Town of Brian Head (Iron County) *[27:15]*
Brian Head Town's funding request advanced to the Priority List as a $734,000 15 year loan at 2.5% interest for the Steam Engine Meadows Phase 1-C streets and utilities project. This project consists of street improvements to include paving approximately .75 mile of dirt/gravel roadway with asphalt, 100 feet of 36 inch culvert, 60 feet of 18 inch culvert, rock wall stacking and 27 manholes on Highland Drive, Paddington Circle, Steam Engine Drive, Peak Avenue and Autumn Drive.

The applicant requested to be placed on the Pending List to review project cost and scope.

Naghi Zeenati made and Dean Baker seconded a motion to place this project on the Pending List. The motion carried unanimously.

V. NEW PROJECTS

1. Spring City (Sanpete County) *[27:45]*

Spring City presented a funding assistance request for a $35,000 grant for a water and sewer master plan. This project consists of a water master plan to identify future water supply and demand, develop a capital improvement plan to correct deficiencies and demands, hydraulic modeling requirements report and a system capacity and expansion report. The sanitary sewer master plan will analyze current and future demands and capacity and develop a capital improvement plan to accommodate growth. A GIS map will also be created for the City. The applicant is contributing $35,000 cash.

The Board indicated that applications requesting under $50,000 from the CIB for planning were to be reviewed by the Community Development Office.

Chairman Hardy indicated that is correct starting in FY2020.

Ron Winterton made and Kyle Stephens seconded a motion to approve a $35,000 grant for a Water and Sewer Master Plan.

The Board complimented the applicant on their minutes and discussion of the project in the public hearing and expressed appreciation for the work of Spring City on improving their water sources and their continued planning.

The Chairman called the question.

Ron Winterton made and Kyle Stephens seconded a motion to approve a $35,000 grant for a Water and Sewer Master Plan. The motion carried unanimously.

VI. LARGE INFRASTRUCTURE FUNDING REQUEST

1. Seven County Infrastructure Coalition (Daggett County, Carbon County, San Juan County, Emery County, Uintah County, Duchesne County, Sevier County) [31:52]

Seven County Infrastructure Coalition presented a funding assistance request for a $21,400,000 grant for Phase II and Phase III of the Uintah Basin Rail Study to include engineering, environmental including NEPA, mapping, operation and maintenance planning, right-of-way planning and negotiation, STB regulatory and legal support, commercialization planning, program management, federal agency cost recovery including federal staff review of the EIS and right-of-way permitting process, financial advisory services and administrative travel expenses.

The Chairman indicated that the Coalition would be reporting on the funding and progress of Milestone 1 which was funded November 8, 2018.

Commissioner Horrocks, co-chair of the Seven County Coalition, stated the Coalition has made a great deal of progress this past year. He expressed appreciation for all who have worked on the various projects.

Mike McKee, Executive Director, referred to the prior funding awarded on November 8, 2018 and said they are ahead of schedule. He reviewed the progress utilizing a power point presentation noting that the Colorado routes had at that time, been the suggested routes. The Coalition hired HDR, a firm which had also worked on the 2014 UDOT study analyzing twenty six different routes. Three more routes were added to the study for a total of twenty nine possible routes. The list of routes was reduced to three

routes chosen to be sent to the Service Transportation Board as the lead agency who makes the record of decision as to the best route. The Coalition has identified the preferred route to be Indian Canyon. CIB has provided a portion of the funding to begin the planning and EIS in Phase I. The SCIC is requesting the remaining budget amount at this meeting to complete the planning for regulatory approval. The SCIC reviewed different proposals to help commercialize the project and have selected Drexel Hamilton which is an infrastructure fund out of New York City.

Mark Michele, of Drexel Hamilton, indicated their company is partly comprised of disabled service veterans. They invest in container terminals, bridges, highways, and airport terminals. Their military training and experience is valuable in taking on large, complex projects such as the Basin rail. The hydrocarbon industry in the Basin has been stranded because of transportation and all Basin industries including agriculture would benefit from a common carrier railroad. Drexel Hamilton is fortunate to be partners with the Rio Grande Pacific Corporation which is a second generation railroad company to operate this railroad. Rio Grande Pacific Corporation has committed to be part of this project with Drexel Hamilton to service all commodities. Drexel Hamilton is committing $5,000,000 to $15,000,000 to commercialize the project.

Mr. Zeenati stated that working in Louisiana there are marsh lands and it is flat and asked if they could meet the challenges of elevation in the Basin.

Mr. Michele stated that there were challenges in Louisiana and they worked with environmental agencies in the state to make sure they did not do anything to damage the environment. They will work with State agencies on the Uintah Basin project. HDR has indicated they will work through the rights of way to ensure what will be the least intrusive and have determined how to navigate the 2 ½ % grade and preserve the environment.

Mr. Zeenati referred to the tunnel and asked how many tunnels and what size.

Mark Hemphill, Vice President HDR Engineering, indicated that the Wells Draw and Indian Wells routes have a 3.1 mile tunnel and possibly shorter tunnels. The Craig route does not have tunneling.

Mr. Galecki asked for an explanation of the NEPA process and public input.

Mr. McKee stated they have been in the pre-NEPA stage. The Surface Transportation Board, which is the lead agency for rail, will issue a notice of intent and will lead the meetings. Public meetings will be scheduled for the public to engage.

([52:50] Interruption – out of order)

Mr. McKee referred to a third party contactor (ICF) that does the environmental work; very transparent and independent. He assured the Board that this is a planning document which is an eligible use of mineral lease funds. They have contacted UDOT and utilized their previous studies and a private entity has also provided information to the SCIC for use in this effort. [57:18]

Mr. Michele stated that in addition to their monetary investment, they are providing outward awareness of the project and engaging customers. Currently, markets are positive in the gas industry and there is excitement about a railroad in the Basin. Permitting takes a significant amount of time and Drexel Hamilton is firmly committed to this project noting the support from potential customers. This is the type of transaction Drexel Hamilton frequently does and the price of this project does not exceed similar projects. [1:02:05]

Mr. McKee again stated they are ahead of schedule and are requesting the additional funds to finish out this planning effort.

Chairman Hardy asked legal counsel for the Board to address the Board. [1:03:17]

Alison Garner, Assistant Attorney General again admonished the Board to be aware of the potential legal risks and vulnerabilities that may arise in deciding this Phase II application. There are a lot of unknowns and should a legal challenge be filed, a court will scrutinize the record to determine whether the Board's decision was arbitrary and capricious; did the Board ask questions, seek supporting evidence and require answers to difficult questions. Regardless of any possible challenge, the Board has a duty to closely examine each application that appears before it including this one and the Board was strongly advised to do so today.

Ms. Garner referred to two specific issues. Does this project constitute mere economic development? Referring to the 1993 Attorney General's office opinion, *mere* economic development is not an eligible project under the Mineral Lease Act which usually means assistance to private business. The expectation that this activity may provide jobs, taxes and other benefits that may accrue to the local communities can be justified using general funds. Does the project primarily benefit private businesses? Will the requested funding be utilized for the intended purpose to alleviate the burden of mineral development impacts on local communities and advised the Board to consider those issues?

Chairman Hardy asked the Board's financial consultant to address the Board concerning financial liability and completion of the project. [1:06:46]

Marcus Keller, Zion's Public Finance noted the Board had questioned who would finance the project which has been partially answered in bringing in private partnerships discussed today. Unresolved concerns include if the funds are spent according to the scope of work and if the planned project is viable with a long term financing commitment for the project. Unresolved concerns to address:

1. The public acceptance by the Ute Tribe for this project
2. The final contracts with Drexel Hamilton.
3. The notice of intent from the Surface Transportation Board.

Chairman Hardy asked Mr. McKee to respond to the three issues Marcus Keller sighted. [1:10:34]

Mr. McKee stated there is a Memorandum of Understanding with the Ute Tribe listing items the Coalition needs to do and they have signed a surface use agreement with the Tribe. The Coalition, Tribal Vice Chairman, and their attorney met with the Surface Transportation Board in Washington wherein a term sheet was signed. He noted the Ute Tribe is a sovereign nation but the Coalition is encouraged with what has been done. The Drexel Hamilton MOU is in place and a more formal contract will be forthcoming. The Surface Transportation Board *Notice of Intent* will be published in the federal register soon with a schedule of public meetings. Mr. McKee stated that this project has a public benefit indicating the rail is a common carrier and there are legal decisions made concerning rail at the Attorney General's office and that can be provided.

Mr. Michele *[1:16:45]* reiterated this is a common carrier and is not specific to one industry or one business. He stated it's like a highway or road where anybody can use it and it is not limited to the hydrocarbon industry but is a transportation logistics effort. They are working toward a contract. New transportation infrastructure is greatly needed. Rail is a critical component in moving goods and services throughout the country and Drexel Hamilton would not invest in this project if they did not think it was needed and would be successful. [1:19:58]

Mr. McKee noted that Governor Herbert, Senator Lee, Senator Romney, Rob Bishop and Senator Stuart Adams all support this project. He acknowledged people in the audience who attended or provided correspondence in support of the project locally as well as elected officials.

Senator Winterton *[1:22:18]* responded to the reference of economic development. Part of the job of elected officials is to provide infrastructure including water, sewer, highways, emergency services airports, roads and bridges which contribute to the economic development of any county, city or state. Economic development will expand on what government provides. Highway 191 and Highway 40 provide for commerce. *[1:23:23]* Rail is needed to mitigate the impacts of maintenance cost, crowding of the roadways and safety on the road. All commodities are currently transported by truck. He acknowledged that community planning does not make everyone happy and all questions and concerns have not been addressed but they will be. He asked the Coalition who is going to own the rail.

Mr. McKee: *[1:27:25]* indicated it will be a Public/Private partnership with Drexel Hamilton, the Coalition and the Ute Tribe.

Mr. Michele *[1:27:56]* stated that typically with a P3, the public body will own either the land or some of the infrastructure or all the infrastructure for a period of time and will give concession rights back to the private operator in a lease. There will be a cooperative endeavor agreement (CEA) which is the contractual guidelines on transfer of ownership and title for the terms and usage which has not yet been discussed. It shall depend on the expense of the railroad etc. Drexel Hamilton as the investor will take on operational risk. Union Pacific Railroad manages railroads across the United States which is accommodated through a fee structure to service and maintain the railroad and allow common access to all industries involved. Lease payments will go to the State of Utah and the Infrastructure Coalition.

Mr. Lytle *[1:30:35]* noted for the record he is on the Seven County Coalition Board. NEPA is a big part of this but there has not been a notice of intent yet, so everything up to this point has been anticipatory to NEPA. At what stage is the NEPA process? No decisions have been made until the STB makes their decision based on the NEPA process, is that correct?

Mr. McKee *[1:32:28]* stated that SCIC is ready to do the NEPA with today's funding. The decision will be made by the Surface Transportation Board though SCIC can indicate a preferred alignment and the STB will issue a license to proceed.

Gregg Galecki *[1:34:24]* asked if revenue from the lease would be brought to the County.

Mr. McKee *[1:35:11]* stated a revenue stream is anticipated in this project.

Mr. Michele *[1:36:10]* stated that there is a lease payment for access to the land and the use of the infrastructure owned by the public entity and because it is improvement on the land, ad velorem taxes would be generated for the Counties it runs across. Each county decides the distribution of the taxes. Rail will increase the volume of commodities with an increase of royalties. Lease payments, royalties and ad velorem taxes will provide revenue.

Naghi Zeenati *[1:37:25]* referred to the options of Craig and Riley, Colorado which in November were the options to consider. Now it has changed to Indian Canyon and he asked why the change? He also asked what is the deadline to accommodate the appropriate due diligence in regard to the necessary studies.

Mr. Michele *[1:38:54]* stated the choice of locations to make the project viable took into account access to two railroad lines; the BNSF and Union Pacific railroads which go West making this project more viable.

The Colorado route had only one rail carrier. The due diligence will be accommodated in one year to make this a commercially viable project and either party has ninety days to terminate the Memo of Understanding. It is advantageous at this time due to politics and the world market, to commercialize this project quickly with letters of intent which will translate into contractual obligations from shippers prior to the new year. The current calculation is approximately 3 unit trains a day of commodities to achieve commercial viability.

Mr. McKee *[1:41:44]* stated in the NEPA process the decision makers prefer three or four alternatives and a *no action* alternative. HDR engineering has labeled the three best routes from an engineering standpoint and the Indian Canyon is the preferred route.

Mark Hemphill, HDR *[1:42:45]* stated the Indian Canyon route has the lowest cost with the least environmental impact in regard to what NEPA considers are no impacts. Routes were ranked for engineering feasibility, operational feasibility and acres of impact and three routes were proposed to the STB.

Commissioner Horrocks stated a rail line will also create jobs in Duchesne County, Carbon County and Uintah County to build and operate it and the tax revenue will be beneficial.

Mr. Zeenati *[1:44:42]* asked if any cultural challenges are anticipated with the Indian Canyon route.

Mr. McKee indicated they are working with the Tribe and cultural resource people.

Mr. Hemphill with HDR *[1:45:10]* stated the tribe has set up a steering committee to look at each of these resource areas: natural resources, water resources, wildlife resources, cultural resources etc. to ensure they are satisfied that these routes are viable.

Mr. McKee indicated the Tribe signed a service use agreement allowing needed access.

Mr. Galecki *[1:46:07]* referred to the $6.5 million Phase I allocation of which $1.4 million was spent on NEPA studies and asked what studies were submitted? During the winter not much can be accomplished so were those studies previous studies? He asked if a study had been done as to a reduction of traffic to mitigate air quality problems.

Mr. Hemphill with HDR *[1:47:05]* stated the $1.4 million was for desk-top research on each of the 29 alignments to categorize and quantify the environmental impacts of each of the 29 and for gathering baseline environmental data mostly on wetland resources and endangered species. This data will be provided to STB's 3rd party contractor who will write the EIS. Their people have also been out in the field to make sure that the appropriate data has been gathered. The STB will look at the air emissions created by the railroad versus a no-build case. STB will make their decision in consultation with other Federal agencies during the scoping process. They will look at the railroad emissions versus the trucking alternative.

Commissioner Adams *[1:48:58]* asked about the rights-of-way on public and private land.

Mr. McKee *[1:49:35]* indicated the Indian Canyon route is the only route that goes through Tribal land and also goes through private and Forest Service Land. SCIC has had discussions with the Forest Service, has sent out letters to the private land owners and has had two meetings with landowners discussing the project. The STB is also having correlation/coordination meetings. They have talked with BLM offices in Colorado and in Utah.

Mr. Zeenati *[1:51:32]* asked about the process and review of other investment firms before selecting Drexel Hamilton and what sources of funding has been considered at the State or Federal level.

Commissioner Horrocks indicated he participated in three interviews.

Mr. McKee stated they sent an RFI which was converted to an RFQ in the process of selecting Drexel Hamilton. All sources of funding will be considered and the best fit will be selected. The Tribe may wish to be involved.

Mr. Michele stated that until a full understanding of what contractual, underlying assets exist to support debt service and/or return basis for an equity instrument, there aren't answers or variables. As the financial arm of this project, when there is finality on what contracts look like on a term basis and a rate basis, the best financial engineering to make this as viable as possible will be determined.

Mr. Lytle *[1:54:47]* asked if this rail is this going to be a short line and is there an example where local governments or local entities are engaged in this type of project.

Mr. Michele *[1:55:49]* stated it is a short line. The STB regulates railroads for economics and classifications. This would likely be a class 2 or class 3 rail line. There are more than 600 in the United States and many of them are leased or owned or concessioned by public agencies. It is not unusual for a public/private partnership between a county or port or a city or state that owns the underlying right of way or underlying asset and leases it for operation on a revenue split with a private operator who is solely responsible for the operation of the rail.

Ron Winterton *[1:58:14]* indicated that with every applicant, a public hearing is required and asked if SCIC has had their public hearings and when did they take place.

Mr. McKee *[1:58:52]* stated they have had two public hearings; one in February 2018 and then CIB requested a second public hearing and a second hearing was held.

Mr. Zeenati *[1:59:37]* asked if the Seven County bylaws require each of the seven counties to have a separate public hearing before any decisions.

Mr. McKee *[1:59:49]* said the structure of the Coalition is made up of seven counties with an elected official that comes from each county and they are authorized to speak on behalf for their county. The Board meets monthly.

Chairman Hardy *[2:00:40]* asked if this is exacerbating impacts. There is not a regulatory barrier to increasing production; the wells exist and the permits exist so it is a matter of turning the flow on to get increased production as opposed to having to drill new wells. He asked what percentage of the calculations on increased production exists with permits already issued versus what would have to happen with new oil gas leases.

Mr. McKee *[2:01:30]* stated that technology is much more efficient. In 2006 the maximum number of wells in Uintah Basin was just over 50 and today there are 4 rigs which are more efficient with horizontal drilling. Environmentally it is much better today.

Commissioner Horrocks *[2:00:40]* indicated some oil companies say they can only get 80 – 90,000 barrels a day *out of the Basin*. It is reported that production can increase 30% just by opening up the existing wells.

Mr. Michele *[2:03:12]* stated this Basin has been limited by the Salt Lake City Refinery market because a finite number of barrels can be processed; 75,000 - 80,000 a day. This railway will open up this stranded Basin to be able to access the chief refinery market in Louisiana. There are close to 7 million barrels a day processed in the Gulf Coast area. The Gulf Coast markets are excited to access crude from the Basin because of its unique characteristics.

Mr. McKee *[2:06:21]* stated the project the Board is considering today is the NEPA document – the planning document. The rail project itself will be a private enterprise.

Jon Hardy *[2:06:57]* stated there is an economic side and a regulatory side. In regard to public benefits if the commodity price increased there could be a lot of trucks traveling on every single one of these roads taking products out as opposed to a rail line without ever having to issue a new permit for oil and gas. The Board is considering a planning document, not the project itself. But there are scenarios in the future when the price of oil is different when there would be truck after truck going down Indian Canyon or going to Craig or going anywhere else to get oil onto a rail line somewhere else. Studying the impacts of a rail does help alleviate the public transportation issue of having all those trucks on the road even without additional gas and oil leases permitted.

Mr. Michele *[2:09:20]* indicated that is a correct assumption. If oil prices go higher, producers would be inclined to increase production and get it to an end user market. There are four ways to move the crude: ship, train, truck or pipeline. Ship is not an option, and a pipeline will not work due to the wax nature of the crude. That leaves rail and truck. If the oil price is high, it will be trucked to an available rail. It is much more efficient and safe to bring the rail to where the oil is.

Mr. McKee *[2:10:33]* stated that when the STB came out to look at the project, they drove the Indian Canyon route on a day when there was a blizzard and trucks were at a standstill.

Commissioner Horrocks *[2:11:27]* indicated that an increase of 300,000 gallons per day would be approximately 1300 more trucks on the road.

Commissioner Dalton *[2:11:43]* referred to the application for the requested funds of $21,400,000 and asked what the time frame would be for spending that amount. Perhaps part of the funding could be allocated now and part later.

Brian Barton, Jones & DeMille Engineering, *[2:12:50]* stated that the STB has requirements for the NEPA process that need to be answered as well as commercialization questions. A lot of progress has been made in each category and it is necessary to keep things moving forward.

Mr. Michele *[2:14:44]* indicated both the public and the private entities have invested capital with common end results. This funding will finish out the permitting and the engineering and help mitigate any concerns that the project is viable.

Mr. Dalton *[2:16:07]* clarified the manner the funding is provided which is to commit the $21,400,000 which is allocated through reimbursement when contractor invoices for work performed are submitted and if the project is not viable, the remaining funding can be recaptured.

Mr. Hardy *[2:16:40]* stated there would be a contract between Workforce Services and the Seven County Infrastructure Coalition detailing what they can spend money on and then they would have to have approved invoices within the scope of work and budget to be reimbursed. Funding is not allocated outside that.

Mr. Zeenati *[2:17:10]* asked if there is any commitment from the railroads that they will allow a connection to their railroad.

Mr. Michele *[2:17:50]* indicated that under Federal Law they have to offer a connection as a common carrier railroad, to any short line railroad that comes to them. The Surface Transportation Board regulates that closely.

Mr. McKee *[2:19:33]* noted that Craig, Colorado has only one Class I carrier along that route which has been a bit of a challenge.

Mayor Baker *[2:20:18]* commended SCIC on their progress since November and would like to make a motion.

Chairman Hardy *[2:20:40]* stated there are still further questions from the Board.

Commissioner Ogden *[2:20:53]* disclosed his affiliation with the Seven County Coalition Board and he expressed concern with the amount of the requested funding thus far. Accountability is of real concern with $6.5 million allocated in November and the $21,400,000 request today. He suggested this should be the last request from SCIC to this funding source.

Mr. McKee *[2:22:00]* acknowledged the CIB assistance with this project planning. This funding should be enough to accomplish the planning components and encourage other funding for the rail. He anticipates no further requests from the CIB on this project.

Mr. Michele *[2:22:43]* stated from a capital partner standpoint after this allocation they should have commercial viability and commit the rest of the funds for finalization of construction.

Commissioner Lytle *[2:23:50]* indicated that in terms of CIB's public purpose and ability to disperse this kind of funding, could there be a succinct statement to support why SCIC is coming to ask for CIB funding relative to the public purpose.

Mr. McKee *[2:24:45]* stated this is a planning document and planning was anticipated by the Federal Government, stated in statute as an appropriate use of Mineral Lease funds and referred to a court case that addresses this public side of the question.

Mr. Eric Johnson *[2:26:10]* referred to the 1993 opinion from the Attorney General' Office regarding the use of Mineral Lease funds for economic development which states: *"Economic development may be a goal or intended benefit of a particular project as long as the project qualifies as planning, construction and maintenance of public facilities or provision of public services." "Grants or loans "merely" for economic development are not authorized under the state and federal acts. However, a grant and loan for the construction and maintenance of a public facility or the provision of public service, which may have economic development as an additional goal or benefit would be authorized."* The 1993 opinion cited a railroad case as to what is a public purpose. *"If the Impact Board is funding: (1) a project which is a public facility, i.e. owned and operated by a public entity or to which the public has a right to use that cannot be denied at the pleasure of the owner…" "A project that provides a traditional local governmental service, such as public safety or public health, funding the project would be a lawful use of the mineral lease monies even if economic development were one of the primary anticipated results"* (Union Pac. R.R. v. Public Service Commission 211 P.2d 851, 895 (Utah 1949). This was a Utah case dealing with a railroad.

David Damschen *[2:30:03]* (via phone) expressed support of the project as long as it can be professionally, competently and legally accomplished with a minimum of taxpayer costs and a minimum of adverse impacts from the project. He noted improvements in the quality of the Coalition's efforts. He also referred to the public comments received by the Board which he has reviewed. He thanked the members of the Utah public for taking the time to organize and communicate their concerns. He expressed appreciation for the high level of participation from private capital and the potential for partnership with the Ute Tribe though tentative. *[2:33:44]* He noted the opportunity to meet with the professionals from Drexel Hamilton who are committed to this great nation and are distinguished financial professionals with impressive credentials. His concern is the process seems a bit rushed, involving this amount of money for a large and complex project. The Board has had this information for a relatively short time and he understands the need to move quickly to ensure this project is viable and can succeed. *[2:35:21]* His primary concern is based on the magnitude and technical nature of the project and members of the Coalition lack the level of experience, noting the importance of engaging all the right kinds of contract professionals with the needed expertise. Robust procurement procedures are important and expressed concern about the Coalition procurement process. *[2:36:24]*

Mr. McKee *[2:37:29]* indicated that through the procurement process, two entities responded.

Mr. Damschen *[2:37:00]* commented that public funds should be safeguarded and only entrusted to safe, industry leading providers. The individuals he met from Drexel Hamilton are impressive, but noted that Drexel Hamilton is not found in PitchBook which is a technology application used as an initial check on asset managers.

Mr. Michele *[2:40:31]* indicated Drexel Hamilton filed for their fund which was established in December 2017. Last year Drexel Hamilton executed their first two assets. The Basin rail would be the third asset to be developed through this fund. Drexel Hamilton has been an investment bank and broker dealer since 2006. From an energy standpoint, the 2018 pipeline and liquid bulk terminal was done in a P3 construct which provides the requisite experience for this project.

Mr. Damschen *[2:42:18]* listed a selection of companies that would be expected to bid on this project but did not and requested comment.

Mr. Michele *[2:44:17]* stated their joint partner in the Louisiana project is Blackstone. He is familiar with the firms listed by Mr. Damschen. Those funds do not do 'green field' developments. They don't have development teams and rely on firms such as Drexel Hamilton to assemble the financial, contractual level.

Mr. Damschen *[2:45:18]* stated that Drexel Hamilton may bring in those firms as a capital partner, not a competitor.

Mr. Michele *[2:42:18]* indicated that is the way other projects have been constructed as a wise risk of capital. Drexel Hamilton is an originator/packager of a project to a point where asset managers participate.

Mr. Damschen *[2:46:50]* noted that with a project of this scope and size, it is a concern there were only two bidders with Drexel Hamilton being one. He asked about Drexel Hamilton's involvement in other projects.

Mr. Hemphill of HDR, *[2:49:55]* indicated they worked with Drexel Hamilton on the TallGrass project in Louisiana – the terminal seahorse project. HDR has checked with 4 rail companies concerning Drexel

Hamilton with the response that they are good partners and would like to see Drexel Hamilton as the commercializer on this project.

Mr. Michele *[2:50:48]* added that Drexel Hamilton recruited TallGrass energy as the terminal operator. They have a good working relationship.

Mr. Damschen *[2:51:50]* indicated that very large procurements are to be posted on an electronic system that is tracked nationally by firms. RFP's and RFQ's are generally posted on BidSynk or other sites to the broadest possible market, maximizing transparency and competition and improving the outcome of procurements. He asked if the RFQ was posted on an electronic system.

Mr. Johnson *[2:54:50]* indicated that their RFP was not posted on the two sites mentioned, but there was an effort to reach out to those in the industry roles in the selection of a financial advisor with PFAL as well as with the commercialization with Drexel Hamilton. 14 firms were contacted and Drexel Hamilton was selected. There were responses from some not directly contacted.

Mr. Damschen *[2:56:23]* stated that firms may not bid on certain things because it is not a good fit, not a good partner or the procurement is built to favor an entity. He referred to the committees within SCIC procurement and commercialization processes and asked if that was the evaluation committee.

Mr. McKee *[2:58:47]* indicated the names listed by Mr. Damschen were involved in the evaluation and the full Board made the selection based on the committee recommendations.

Mr. Hemphill *[2:59:29]* indicated that a railroad project is complicated from regulatory, commercial and operating standpoints. A financing interest would need railroad expertise and the RFI was sent to Union Pacific, BNSF, Florida East Coast Railway, the Shortline Holding Companies, etc. These have financial Partners and a list can be furnished.

Mr. Damschen *[3:00:56]* asked why the PFAL financial advisor was not involved with the commercialization procurement.

Mr. Johnson *[3:01:31]* stated the final approval of PFAL occurred at the same meeting as Drexel Hamilton.

Mr. Damschen *[3:01:31]* suggested that PFAL should serve the Coalition as a fiduciary, committed to the best interest of the Coalition and be at the table during the evaluation process.

Mr. McKee *[3:03:18]* stated that at the meeting in Provo there were issues and only the financials were approved. The approval of PFAL was delayed a month but PFAL did participate in the approval of Drexel Hamilton.

Greg Tseng [3:05:36] PFAL, indicated they focus on all types of rail and are financial advisors to the Coalition to protect the Coalition and public interests. PFAL was consulted before the selection was made for the commercialization entity. They are familiar with BidSync and other procurement methods and track them as well as the rail industry firms. Larger investment firms usually wait until there is more development in a project.

Mr. Damschen *[3:09:31]* stated that the Coalition procurement process is troubling and also expressed more confidence in the Office of the Attorney General than the analysis of the Coalition's counsel. The grant requested of the Board is speculative. The return on investment could be significant or could be zero. The Board has to decide the degree to which they are willing to allocate public resources to an

organization that may not be able to deliver on promises. This grant is very different from everything this Board does with public resources and risk taking with public funds should be very limited.

Chairman Hardy *[3:13:28]* thanked Treasurer Damschen and asked if there were any further questions.

Mr. Galecki *[3:13:43]* asked if phase 2 and phase 3 could be funded separately. What is the timeline for the rest of this project and the use of the funding? Normally the Board requires a 50% match and suggested the seven counties contribute $1.5 million each. It is easy to be supportive when you don't have any money in it.

Mr. McKee *[3:15:21]* indicated the anticipated timeline is to have a record of decision by December 2020. He referred to the last request which had some matching funds. Drexel Hamilton has indicated they will be providing between $5,000,000- $15,000,000 in tandem with the planning portion. And the $4,000,000 UDOT study has provided a lot of information.

Mr. Galecki *[3:17:49]* asked about contributions from the Counties.

Mr. McKee *[3:17:57]* indicated the question was asked in Moab of the County representatives and they said no.

Mr. Zeenati *[3:18:30]* referred to Mr. McKee's service on the CIB where he asked the hard questions making sure that the CIB money was spent on a properly planned project. The money must be used for planning only; not rights-of-way, property or construction and asked for assurance of that fact. He asked what would happen to SCIC and the other projects if CIB chooses not to fund this.

Mr. McKee *[3:19:48]* indicated that the Coalition won't be coming back to CIB for additional funding. This is for planning. In the application, land purchase is indicated but they don't plan on coming to CIB. If the funding is rejected, the project may not move forward.

Chairman Hardy *[3:22:15]* expressed concern with the right-of-way issue to make a clear delineation between planning and the project. The intent is to complete the project and to insure all the rights of way, but that is part of the project itself. He asked for clarity concerning the rights of way, the planning and the project.

Mr. McKee *[3:23:07]* indicated there is uncertainty in reaching out to land owners and there is usually a small amount of money put forward to hold the right-of-way option.

Chairman Hardy *[3:24:06]* suggested it would be better for the Coalition to have a private partner working on the optioning portion. It is hard to draw a line on where the planning ends and the project begins when you talk about right-of-way. Even the options are part of the project. It should be determined what right-of-way options or acquisitions will be rather than including it with the planning scope of work.

Mr. McKee *[3:24:44]* stated the Coalition wants to make sure that everything is in compliance. This is a planning document and is separate. It can be looked at several ways but the CIB needs to make sure they are comfortable.

Commissioner Dalton *[3:25:33]* stated that Drexel Hamilton said this project is being accepted in the commercial area very strongly, but are those partners willing to fund this project to completion? Drexel Hamilton is funding the contracting, but is there any other money besides CIB to help obtain right-of-ways and help with some of this NEPA?

Mr. Michele *[3:26:19]* reiterated the project has been commercially and robustly perceived by the producer community which will be the fundamental customers for the rail road. They are going to invest in the contract to move this, and Drexel Hamilton will build, operate and maintain the railroad.

Michael Dalton *[3:26:19]* suggested that if producers think this is such a good project and can see additional production getting to market, they should want to invest.

Mr. Michele *[3:26:19]* stated that typically the producers are uniquely drillers and their capital is put into wells. The midstream is the transportation, downstream are the refineries. Indirectly, the producers do invest through shipping the product.

Chairman Hardy *[3:31:07]* noted no other questions and called for any proposed actions or motions. *[3:31:19]*

Dean Baker made and Ron Winterton seconded a motion to fund this project as a $21,400,000 grant for the planning of Phase II and Phase III of the Rail Study.

Chairman Hardy asked if there were any caveats concerning the right-of-way acquisition.

Mayor Baker *[3:32:04]* suggested the understanding is there will be place holders with some of the landowners. The purchase will come later. This is the planning of the right of way.

Gregg Galecki made a substitute motion to fund this project as a $10,000,000 grant and an $11,400,000 loan with the opportunity to generate additional funding. The motion failed with no second.

Mr. Zeenati *[3:31:19]* commented that it is a lot of money, but we cannot widen enough roads or build enough bridges. This is a community effort. There aren't enough resources; no other ideas and if nothing is done, there will be no roads because there will be double the tankers. This is one answer.

Bruce Adams *[3:35:36]* commented that the Basin area has contributed millions of dollars in revenue royalties to the CIB and the community has dealt with the impacts of oil production for 50 years. He suggested the community is contributing by dealing with the impacts.

Mr. Galecki *[3:36:28]* indicated he is in support of the project but was considering the funding for the project.

Ron Winterton *[3:31:19]* indicated the State leadership is in full support of the rail project. The funds could be given to UDOT to build roads which encounter the same issues with acquiring rights of way to widen the roads. If CIB does not fund it, the Legislature will face a decision to accommodate it another way with tax payer money.

Keith Heaton *[3:37:57]* stated this is a lot of money in anyone's opinion. He referred to his term as Chairman several years ago and there was a little more money coming in. Some was put aside as the Major Infrastructure Fund. That money has been waiting for a major infrastructure project and that is where this funding will be coming from. There is uncertainty, but this is a way to put funding to work and planning is appropriate. This money is not coming out of other community's pockets at this time.

The Chairman called the question and proceeded with a roll call vote.

Dean Baker made and Ron Winterton seconded a motion to fund this project as a $21,400,000 grant for the planning of Phase II and Phase III of the Rail Study. The motion carried with Gregg Galecki opposed.

[Audience applause … Lunch Break [3:40:39]]

VII. SUPPLEMENTAL REQUESTS

1. Price River Water Improvement District (Carbon County)

On October 4, 2018 Price River Water Improvement District was awarded a $2,000,000 loan for 20 years at 2.5% interest for a project consisting of replacing 2000 linear feet of sewer pipe including excavation, placement, backfill and pavement repair and repair and rehabilitation of 5000 linear feet of sewer line with "cure-in-place pipe" lining, cleaning, placement, and curing.

The Price River Water Improvement District requested time at the June 13, 2019 CIB meeting to discuss supplemental funding as a $1,100,000 loan for 20 years at 2.5% interest.

Bruce Adams made and Michael Dalton seconded a motion to fund the supplemental request of a $1,100,000 loan for 20 years at 2.5% interest. The motion carried unanimously.

2. Town of Brian Head (Iron County)

On October 4, 2018 the Town of Brian Head was awarded a $732,648 grant for a new waterline in the Cedar Breaks Mountain Estates fire protection project. This project consists of approximately 8,600 lineal feet of 8" waterline with gate valves, air/vac valves, fittings, tie-ins and modifications to the existing pump station booster pump and 8" transmission pipeline project from the One Million tank to the Salt Pile Tank, and 4,500 lineal feet of 8: distribution line and gate valves, pipeline fittings, air/vac valves, fire hydrant assemblies and road base and asphalt replacement in Mountain View Drive and Forest Drive. Brian Head is contributing $732,648 cash to the project.

The applicant indicated that the bids were higher than expected and is asking for a supplemental loan of $147,000 for 15 years at 2.5% interest and a $146,326 grant (total $293,326).

Naghi Zeenati made and Jack Lytle seconded a motion to fund the supplemental request of a $147,000 loan for 15 years at 2.5% interest and a $146,326 grant (total $293,326). The motion carried unanimously.

VIII. SPECIAL CONSIDERATION

Chairman Hardy requested a motion to hear two projects for Special Consideration.

Gregg Galecki made and Kyle Stephens seconded a motion to hear two projects for Special Consideration. The motion carried unanimously.

1. Emery County Local Building Authority (Emery County)

Emery County LBA presented a funding assistance request for a $2,625,000 grant for the San Rafael Energy Research Facility. This project consists of renovating a portion of the industrial warehouse building to meet NQA-1 clean room standards to house the energy research equipment, secure permits, and initiate operations; and improvements to accommodate coal combustion testing unit, including demolition, engineering, enclose and finish existing building unit, water cooling system and tank, utilities connection, hydrants, meters, walls, ceilings, electrical, plumbing, finishing and paint, new concrete floor, HVAC and a coal storage bin and pad for delivery of coal.

The applicant indicated this project was originally meant to be a research center for molten salt, thorium research; not an emergency, but the University of Utah and Brigham Young University visited the

property and offered a coal combustion research machine which was in Salt Lake City. The lease on the building was up and needed another location. Senator Hinkins arranged funding to provide transportation of the machine, but funding is needed to reassemble the machine. A company out of England has expressed interest in a contract to use the machine if it is running by January 1, 2020. The facility is a good building, away from town but gas and electricity were needed. Questar Gas and Rocky Mountain Power have provided quotes to accommodate adequate power and gas to run the facility. There may also be a coal gasification research facility if there is sufficient power. There is also consideration of utilizing the facility to do hydrogen research and carbon fiber research.

The Board asked if the molten salt was part of the project.

The applicant indicated it is the largest part of the project but the accommodation of the coal combustion research machine is the imminent need.

The Board stated it is a great project for Emery County and the area but asked if there was any ability to take part loan for the project noting some retiring debt.

The applicant indicated the County is the landlord but would not operate the research facility and the County would prefer not to incur debt for this facility. The professor who originated the machine is committed to reassembling the unit.

Gregg Galecki made and Tooter Ogden seconded a motion to fund this project as a $2,625,000 grant as requested.

Chairman Hardy asked who determines who gets to use the research facility and under what conditions. Could lease payments be utilized to support a loan?

The applicant stated they are in contact with a company in Alabama that operates five research facilities to possibly manage the research facilities. Currently, any university can use the facility for research and testing at cost. It is a nonprofit facility but revenue would help maintain the facility.

The Board asked what a coal combustion machine is.

The applicant indicated it is similar to a power plant, 106 feet long. It is heated and the coal is injected to test and facilitate cleaner technology used by the University of Utah, and when they lost their lease, they were going to scrap the machine. The system is 10 years old and will be maintained.

Chairman called the question.

Gregg Galecki made and Tooter Ogden seconded a motion to fund this project as a $2,625,000 grant as requested. The motion carried unanimously.

2. Duchesne County Municipal Building Authority (Duchesne County)

Duchesne County MBA presented a funding assistance request for a $558,000 grant for a salt shed in the Fruitland area. This project consists of the purchase and installation of a pre-engineered metal building to utilize as a salt shed and office including excavation, concrete, electrical, plumbing, utilities, fending, office area , appurtenances and finishes for the purpose of storing equipment and asphalt millings for the west side of the county. The applicant is contributing $120,000 in-kind land.

This project was on the Capital Improvement List anticipating an application submission, but in March 2019, the contractor for UDOT offered Duchesne County 100,000 tons of asphalt millings which will be

salvaged from a nearby project that will start in early summer and a place is needed to store the millings which will be used to help repair 232.4 miles of road on the west side of the county.

In 2018 the Dollar Ridge fire destroyed 70,000 acres of vegetation and numerous structures. Since that time there have been two floods that caused extreme debris flow and culinary water contamination. The floods also affected county bridges, roads and residents. Over 50 homes and a water treatment facility have been impacted by the floods due to the fire.

The county is obligated to have 8 trucks immediately available to receive the materials so that the road work would not be delayed; The materials must be moved this summer and before the end of this calendar year before the snow comes.

There is the potential for more flooding when runoff starts due to the above average snowpack. This shed will also store the needed road equipment in the event of additional natural disasters in this area. The area will be fenced and the millings will be fully contained.

Senator Winterton asked for an explanation of the project.

The applicant stated the reason they are doing this is to have a place close to the Dollar Ridge fire which is accessible to the situation but away from the community. This is along Highway 40 and will house vehicles, accommodate the tailings and be fenced. It is 32 miles from Duchesne City and will accommodate the West side of Duchesne County.

Jack Lytle made and Dean Baker seconded a motion to fund this project as a $558,000 grant.

The Board asked the applicant if they could take a partial loan for this project.

The applicant said that right now they could not as they are trying to find $2,000,000 as a match for the NRCS grant for flood mitigation. There are still two families that are not back in the homes from the previous fire and flooding and even today, the main road is being flooded with two to three feet of water and the road cannot be repaired.

The Chairman called the question.

Jack Lytle made and Dean Baker seconded a motion to fund this project as a $558,000 grant. The motion carried unanimously.

IX. BOARD MEMBER DISCUSSSION and/or ACTION ITEMS

1. Board Packet Tool Discussion.
   The new Board packet tool will be iLegislate / Peak Agenda. This will be the final meeting utilizing BoardDocs. The CIB will receive information prior to the July 11, 2019 meeting.

ADJOURNMENT

The next meeting of the Permanent Community Impact Board will be July 11, 2019 at the DWS South Office, 1385 South State Street, Salt Lake City, Utah at 8:00 a.m.

This meeting adjourned at 1:15 p.m.

Submitted by:
Candace Powers
Cristine Rhead

PERMANENT COMMUNITY IMPACT FUND BOARD MEETING

Department of Workforce Services
Housing and Community Development Division

MINUTES

Thursday, November 8, 2018

Members Present

Jonathan Hardy	Chairman
David Damschen	State Treasurer
Bruce Adams	Southeastern Utah Association of Local Governments
Garth "Tooter" Ogden	Six County Association of Governments
Steve Farrell	State Board of Water Resources
Ron Winterton	Duchesne County
Gregg Galecki	State Board of Water Quality
Dean Baker	Uintah County
Michael Dalton	Five County Association of Governments
Jack Lytle	Uintah Basin Association of Governments

Excused Members

Naghi Zeenati	State Transportation Commission

Staff and Visitors

Keith Heaton	Housing and Community Development
Candace Powers	Housing and Community Development
Gayle Gardner	Housing and Community Development
Brenda Brown	Housing and Community Development
Cristine Rhead	Housing and Community Development
Paul Moberly	Housing and Community Development
Skye Sieber	Housing and Community Development
Alison Garner	Attorney General's Office
Debi Carty	Department of Workforce Services
Christina Davis	Department of Workforce Services
Skyler Davies	Division of Water Quality
Lisa Nelson	Division of Drinking Water
Mike Langston	Richfield City
Matthew Creamer	Richfield City
David Ogden	Richfield City
Greg Todd	Duchesne County
Kary Monroe	Jones & Demille Engineering
Gary Petty	Town of Emery
Mike Stengel	KVEL News – Vernal
James Costello	KVEL News – Vernal
Marc Eckels	Consultant
Sylvia Wilkins	Uintah County Economic Director
Mark Hemphill	HDR Engineering
Cheryl Meier	Uintah County Public Lands Specialist
Ryan Clerico	Enefit American Oil
Kendrick Thomas	Jones & DeMille Engineering
Art Adair	Monticello Cemetery District

Steve Evans	Uintah County
Troy Ostler	CIVCO Engineering
Zach Leavitt	Six County Association of Governments
Doug McMurdo	Moab - The Times Independent
Michael McKee	Seven County Infrastructure Coalition
Mary Ann Wright	Town of Emery
Kevin Yack	Uintah Basin Association of Governments
Joel Linares	Moab City
David Everitt	Moab City
Alex Buxton	Zion's Bank Public Finance
Wes Adams	School Institutional Trust Lands Administration
Ruland Gill	Utah Board of Oil, Gas and Mining
Tim Donaldson	School Institutional Trust Lands Administration
Mike Hansen	Rural Community Consultants
Michael Walter	TYR Energy
Pamela Juliano	Juliano Consulting
Dave Avery	East Carbon City
Barbara Robinette	East Carbon City
Scoot Flannery	Jones & DeMille Engineering
Danny Fleming	Mexican Hat Special Service District
Clark Hawkins	San Juan County Road Department
Ben Musselman	San Juan County Public Works Director
Karen McKee	

WELCOME
The Permanent Community Impact Board (CIB) meeting was held on Thursday, November 8, 2018 at the Red Cliffs Lodge, Mile Post 14, Highway 128, Moab, Utah. The meeting was called to order at 8:30 a.m. by Chairman Jonathan Hardy.

I. ADMINISTRATIVE ITEMS

Up-coming Meeting Dates and Locations
Thursday, December 13, 2018 – DWS Office, 1385 South State Street, Salt Lake City
Friday, January 11, 2019 - DWS Office, 1385 South State Street, Salt Lake City.

Financial Review
Candace Powers reviewed the status of the funds for today's meeting.

Review of Agenda Items.
There are six new projects, one project seeking Large Infrastructure Set-Aside funds and one Request for Special Consideration.

Chairman Hardy stated that we also have the obligation to make whole the Communities Transportation Development Restricted Account. This has been discussed with the Legislative Fiscal Analyst. Consideration should be given to this Trimester as well as the future through the accommodation of loan funding for projects.

II. WELCOME

Chairman Hardy welcomed everyone and asked Board members and staff to give introductions. Chairman Hardy welcomed Commissioner Michael Dalton from Beaver County to represent the Five County Association of Governments on the Board. He is replacing Commissioner Jim Matson. Naghi Zeenati was excused from this meeting as he is out of the country at this time.

III. APPROVAL OF MINUTES

Chairman Hardy requested a motion to approve the minutes of the October 4, 2018 meeting.

Tooter Ogden made and Jack Lytle seconded a motion to approve the minutes from the October 4, 2018 meeting. The motion carried unanimously.

IV. NEW PROJECTS

1. Richfield City (Sevier County)

Richfield City presented a funding assistance request for a $1,620,000 loan for 10 years at 2.5% interest and a $2,430,000 grant (total $4,050,000) for 2019 Street Improvements to include 18 miles of Micro-Seal treatment, approximately 2 miles of Mastic-Seal treatment, 1 mile of HMA overlay, 1/4 mile of roto-mill placement, and 1/3 mile of full reconstruction on Flying J Drive, Terminal Way and 1000 South.

The applicant stated the larger project would be more cost effective versus several smaller projects each year. The new product is a micro seal and has been utilized quite a bit by UDOT. It is an alternative to chip seal; a smaller chip blended with asphalt as it is laid down which condenses the process, is much cleaner and levels uneven surfaces

The Board noted that Richfield City has not approached this Board for road improvements for several years but expressed concern over the high cost of pre-construction engineering.

The applicant referred to issues to be corrected on Flying J Drive which was not designed for a truck stop but approximately 800 semis a day utilize that corridor. The road is damaged and needs to be engineered and reconstructed. The other two roads have some drainage problems that need to be addressed. The 18 miles that will be micro sealed have pot holes, broken shoulders, culvert repairs, etc. which will require measurement and documentation which is an engineering component of the project.

The Board indicated that the public hearing minutes did not refer to various funding options but asked if this project could be accommodated through a loan and paid with road funds.

The applicant stated that if all the road funds were utilized for this project there would not be funds for routine maintenance on other roads. They have spent approximately $45,000 this year on crack sealing and street lighting is also accommodated through road funds.

The Board suggested reversing the grant and loan amounts.

Chairman Hardy also suggested deferring the first payment as other loans are retired.

The applicant stated that the existing request is preferred but alternatives would certainly be considered.

The Board suggested a 60% loan and 40% grant with a 2 year deferral of the first payment.

The CIB staff indicated that B & C road revenue could only be pledged for a term of 10 years and the final payment must be made within 10 years of the loan closing. Any deferral would increase the annual payment amounts.

The Board referred to awarded funding from this Board in Sevier County being more grant than loan suggesting half grant and loan on this project.

Bruce Adams made and Ron Winterton seconded a motion placing this project on the Priority List for funding consideration at the February 7, 2019 funding meeting as a $2,025,000 loan for 10 years at 2.5% interest and a $2,025,000 grant (total $4,050,000). The motion carried unanimously.

Chairman Hardy took a brief moment to acknowledge Councilman Curtis Wells of Grand County and deferred time to him to officially welcome the Board to Grand County.

Councilman Curtis Wells officially welcomed the Board to Grand County, and Red Cliffs Lodge referring to it as a gem of the community. He expressed appreciation to the Board for funding projects recently in the region including the airport project, which has helped all southeastern Utah, and other vital projects. He believes it is helpful for the Board to hold meetings like this in a rural setting in a rural county with a rich natural resource development background. He thanked the Board for their service.

2. East Carbon City (Carbon County)

East Carbon City presented a funding assistance request for a $74,200 grant for the purchase of a 2019 Ford F-350 2wheel drive 6.7L diesel coach ambulance. Other funding includes $10,000 from the Ashton Foundation and $110,000 as a Federal Grant from USDA**.**

The applicant indicated that the other funding is pledged with the requirement of matching funding and there is flexibility in the grant request.

Chairman Hardy asked about the status of the CIB funding for the East Carbon City sidewalk improvements.

The applicant indicated that the project has been withdrawn. They would like to upgrade the request to a 4 wheel drive and add a grill to the front of the vehicle. The total request with those changes would be approximately $79,000. The ambulance service is a volunteer service serving Carbon County as far as Green River. Most residents are elderly and very low income – many without insurance.

Bruce Adams made and Gregg Galecki seconded a motion placing this project on the Priority List for funding consideration at the February 7, 2019 funding meeting as an $80,000 grant. The motion carried unanimously.

3. Town of Emery (Emery County)

The Town of Emery presented a funding assistance request for a $323,000 grant for the restoration of the Old Church Community Center. The project will consist of repairing the foundation by constructing concrete forms and placing reinforced concrete placed as the perimeter foundation of the building and restoring the wooden siding and paint on the building.

The State Historic Preservation Office has been consulting with the applicant and stated, ”The Emery Church is a historic building and we appreciate the City looking for options to renovate the building that also takes into account its significant historical and architectural character.”

The Board referred to the public hearing discussion where the cost was indicated to be $179,000 and the application request is $323,000 and asked about operation and maintenance.

The applicant indicated they had an engineering review wherein additional expenses were noted. This grant is to stabilize the ‘envelope’ of the building. To complete the building, there have been fund raising efforts. This request is for the building stabilization only.

The Board responded that this work will not make the building useable but to keep the building standing until financially ready to renovate

The applicant indicated this is a community center and the idea is to stabilize the envelope. It is currently not useable due to deterioration but they hope to eventually restore it for activities and as an information center for tourists. The Town owns the building and maintains it. It has electricity and hopefully future activities will pay the maintenance for the building. The roof is good but the tiles need conditioning, and the tower is not straight. Only siding and foundation will be accommodated with the CIB funds.

The Board stated the structure was formerly an LDS meeting house and asked if they had approached the LDS church for restoration support.

The applicant is in the process of setting up meetings with the LDS Foundation, Eccles Foundation, Sorenson Foundation and other resources. The soil around the building is poor and saturated. The structure is 6 -8 inches un-level.

The Board asked if there was an estimate for the cost of a complete renovation to restore functionality and would that amount obtainable so the $323,000 is a good investment and asked when the building was last used.

The applicant stated an engineer study, done in July of 2018 suggested the building be torn down and totally rebuilt for $2,000,000. The restoration after to stabilization is estimated to be around $750,000 and there is confidence that funding will come through once this stabilization occurs. People of Emery County have volunteered to help restore it. Use of the site was suspended in 2001 when groundwater seepage caused sinking of the foundation.

Chairman Hardy referred to other restorations which have been funded by the Board. He suggested that CIB might be able to give a smaller grant to the project to encourage a match in fund raising.

The Board indicated this project would be best served if other funding was accommodated and the CIB application was for the matching funding to complete the restoration.

The applicant stated the building will keep getting worse and cost more if nothing is done. The canal by the church is in the process of being piped which will help stabilize the soil. The non-profit organization wants to lease the building from the Town and rent out the building for various activities and use the revenue from those activities for maintenance. Stabilizing the building will provide the impetus for other funding to complete the project.

The Board suggested seed funding as Phase 1 to begin the process.

Gregg Galecki made and Steve Farrell seconded a motion placing this project on the Priority List for funding consideration at the February 7, 2019 funding meeting as a $250,000 grant.

After further Board discussion a substitute motion was made.

Michael Dalton made and David Damschen seconded a substitute motion placing this project on the Priority List for funding consideration at the February 7, 2019 funding meeting as a $250,000 grant contingent upon the town raising an additional $500,000 to complete the project. The motion carried unanimously.

4. Mexican Hat Special Service District (San Juan County)

Mexican Hat SSD presented a funding assistance request for a $255,000 grant for a sewer pump Replacement consisting of removing and replacing two lift stations including two wet well manholes, two bypass pumps, two pump assemblies and two retrofit generator switches.

The applicant indicated that Mexican Hat is an unincorporated area which has 17 sewer connections and no room for growth being surrounded by BLM lands. There is only one place for the effluent to go which is in the river.

The Board asked if the SSD had a revenue source.

The applicant indicated the revenue comes from services provided. Lift stations must lift water to where there are lagoons. If they fail, there is only one place for the effluent to go which is in the river.

Keith Heaton asked how many connections are commercial and do they pay a commercial rate.

The applicant stated the rate is based on the ERU on the number of units they have. Most commercial structures are also living quarters. There are approximately 3 connections which are residence only. The other connections are trailer parks, restaurants and motels.

Commissioner Adams stated the area offers services to traveling public and others. The connection rates are high. Danny Fleming does a great job managing the remote system.

The Division of Water Quality indicated they have hardship grant funds which are limited. Mexican Hat has not applied to the Division of Water Quality.

The applicant spoke with Water Quality and the best they could do was 50% grant 50% loan.

Ron Winterton made and David Damschen seconded a motion to place this project on the Pending List allowing the applicant to talk with the Water Quality Board about possible funding with the option of coming back to CIB.

The applicant indicated they have come to the CIB to expedite funding before tourism begins. One of the pumps stopped working recently and needed repair and the deterioration was discovered. If the upper lift station receives high flows, it backs up into a hotel. They have two lift stations and one has been patched together and is temporarily working. The Division of Water Quality is a possibility but that meeting is in December.

The Board inquired about the inclusion of engineering costs.

The applicant indicated that the pump stations will be reviewed for possible relocation which requires engineering.

Bruce Adams made and Jack Lytle seconded a substitute motion to suspend the rules and fund this request as a $255,000 grant. The motion carried unanimously.

5. San Juan County Local Building Authority (San Juan County)

San Juan County presented a funding assistance request for a $935,000 grant for the construction of a road department office, maintenance and warehouse building. The project consists of building an 80' x 180' building with 3 offices, a reception office, a conference room, a file room, a unisex restroom, 2 change rooms, mechanical area, warehouse, maintenance area and a wash bay. The applicant is contributing $874,000 cash.

Currently the office, maintenance and warehousing area are located in five separate buildings.

The applicant stated that if the road department moving into a new building, the existing facilities could accommodate the fire control and EMS departments which are in multiple buildings. The existing shop building has had several additions but does not meeting the necessary efficiencies. The equipment is too long for the doors to close to secure the equipment inside the building. Warehousing of parts is in several buildings. They have purchased new lifts for the equipment and now there is concern about the strength of the concrete floor to support the equipment.

The Board discussed funding options including $875,000 as a loan and the applicant keeps their cash. The total CIB funding would then be $1,810,000 to be considered by the Board.

Tooter Ogden made and Ron Winterton seconded a motion placing this project on the Priority List for funding consideration at the February 7, 2019 funding meeting as a $905,000 loan for 20 years at 2.5% interest and a $905,000 grant (total $1,810,000) and the applicant would keep their cash.

The applicant indicated that the loan revenue source would be B & C road funds which are limited to a 10 year term. The cash they have saved is from that fund.

The Board suggested they bring in some cash, so the grant amount was reduced by the $130,000 as suggested in the prior project motion.

Mike Dalton made and Gregg Galecki seconded a substitute motion to place this project on the Priority List for funding consideration at the February 7, 2019 funding meeting as a $905,000 loan for 20 years at 2.5% interest, a $775,000 grant and $130,000 applicant cash (total $1,810,000). The motion carried unanimously.

10:12 am Break – Reconvene at 10:30 am
The Chairman indicated that the Special Consideration project could be discussed more quickly than the Seven County Infrastructure Coalition Projects and brought that project forward.

Chairman Hardy called for a vote to hear the Special Consideration request.

Jack Lytle made and Tooter Ogden seconded a motion to hear the Special Consideration request. The motion passed unanimously.

VI. SPECIAL CONSIDERATION

October 4, 2018

1. Monticello Cemetery Special Service District (San Juan County)

Monticello Cemetery Special Service District's funding request was advanced to the Priority List as an $180,000 loan for 30 years at 2.5% interest and an $180,000 grant (total $360,000) for cemetery improvements. This project consists of demolishing the existing equipment shed and constructing a new 3,200 square foot equipment shed with three 12 foot garage doors, a 40 foot by 80 foot office space and an asphalt parking lot,. A smaller building located at the entrance of the property will be converted into a public restroom and indoor kiosk. The applicant is contributing $50,000 in-kind land.

Total Funding Request: $360,000 ($180,000 loan for 30 years at 2.5% interest and $180,000 grant).

Naghi Zeenati made and Ron Winterton seconded a motion to fund this project as advanced to the Priority List. The motion carried unanimously.

Bond Counsel inquired as to what the revenue source is for the Cemetery. The application indicates the revenue source to be general funds. Pledging general funds or taxes requires a bond election.

Commissioner Adams indicated the plan is to increase taxes for this project through a bond election.

Kelly Pehrson spoke to the project and indicated that the cemetery district chairman discussed this at a commission meeting and requested a tax raise in 2018 for this project. The Commissioners have to approve the tax increase and they did which will be the revenue source.

Bond Counsel noted that a general obligation bond requires a vote and the next option for getting on a ballot would be in the spring unless they have another revenue source such as selling plots in the cemetery.

Chairman Hardy indicated it will be an administrative item.

Subsequently, the Monticello Cemetery Special Service District requested time at the November 8, 2018 CIB meeting to discuss reconsideration of funding for the project.

Chairman Hardy indicated that this request is for the Board to consider authorizing the **$180,000 grant** funding only and omitting the **$180,000 loan for 30 years at 2.5% interest.** San Juan County will be the lender to the Monticello Cemetery Special Service District for the additional $180,000 to expedite the project. The general obligation bond necessary to accommodate the CIB loan would delay the project up to 12 months.

Tooter Ogden made and Steve Farrell seconded a motion to authorize the $180,000 grant and withdraw the $180,000 loan to expedite the project.

Commissioner Lytle made a substitute motion to have the applicant keep their cash and still provide a loan.

Chairman Hardy indicated it was the revenue source that was the issue. A general obligation bond requires a ballot election to accommodate the loan which may take up to a year.

Commissioner Lytle withdrew the motion.

Chairman Hardy called the question.

Tooter Ogden made and Steve Farrell seconded a motion to approve the $180,000 grant and withdraw the $180,000 loan to expedite the project. The motion passed unanimously.

IV. NEW PROJECTS CONTINUED

6. Seven County Infrastructure Coalition (Daggett County, Carbon County, San Juan County, Emery County, Sevier County, Uintah County, Duchesne County)

The Seven County Infrastructure Coalition presented a funding assistance request for a $3,000,000 grant for planning, administrative and operational expenses.

History
($5,000,000) Eastern Utah Infrastructure Study September 3, 2014

The project consists of technical support to collect and compile a database of infrastructure resources for multiple counties within eastern Utah to include highways, pipelines, rights of way, and railroad lines; cataloging all existing utility infrastructure (gas, sewer, electric, telephone) to include current and future capacity; cost/benefit analysis of future increased energy extraction, mineral exportation and delivery, current and future tax revenues, mineral lease revenues, etc.; environmental studies, petroleum, industry studies, testing and laboratory equipment and development of infrastructure projects. (Funding broadly based on a study of rail by UDOT in excess of $5,000,000 reviewing rail through Indian Canyon.)

Revised Scope of Work - April 2, 2015

The project consists of administration and technical support to collect and compile a database of infrastructure resources for multiple counties within eastern Utah to include highways, pipelines, rights of way, coal terminals, electrical, railroad lines, etc. Cataloging all existing utility infrastructure (gas, sewer, electric, telephone) to include current and future capacity; cost/benefit analysis of future increased energy extraction, mineral exportation and delivery, current and future tax revenues, mineral lease revenues, etc.; environmental studies, transportation studies, petroleum and mineral extraction industries studies, testing and laboratory equipment, administration and development of infrastructure projects.

Revised Scope of Work - December 14, 2017

The project is for SCIC to identify, administer, and plan for, procure the funding for, permit, secure rights-of-way, own, and operate revenue producing infrastructure assets, or public facilities, or services that will benefit the region. Potential infrastructure projects include, but are not limited to, roads that may include tolling, rail, terminals to secure foreign markets for Utah's coal and potentially other Utah products, pipeline projects, electrical projects, etc. The project consists of the identification and development of such infrastructure projects, including, but not limited to, administration and technical support to collect and compile a database of infrastructure resources for multiple counties within eastern Utah to include, highways, pipelines, rights-of-way, coal terminals, electrical, railroad lines, etc. Cataloging all existing utility infrastructure (gas, sewer, electric, telephone) to include current and future capacity; cost benefit analysis of future increased energy extraction, mineral exportation and delivery, current and future tax revenues, mineral lease revenues, etc.; environmental studies, transportation studies, petroleum and mineral extraction industries studies, testing and laboratory equipment, etc. This includes administration and the potential development of infrastructure projects.

The CIB Staff referred to the Board policy concerning studies requiring a 50% cash match from the applicant.

Mike McKee, executive director of the Seven County Infrastructure Coalition, stated that the SCIC was funded for technical support to collect and compile the database of infrastructure resources, including highways, pipelines, right of ways, railroad lines, cataloguing all existing utility infrastructure; gas, sewer, electric, telephone and also environmental studies, petroleum studies, testing, laboratory equipment, developing infrastructure projects etc. They looked at revenue generating projects with a goal to be self-sustaining. They are at the back end of the initial funding, so this is to prevent running out of funding.

Brian Barton with Jones and DeMille Engineering referred to a slide containing a map of the data gathered and projects prioritized.

Mr. McKee mentioned that the counties have been utilizing the data base and continued with various slides. He referred to vital rights of way they have been able to obtain and in contemplation of the rail project there are two locations being considered, but the exact location has not been determined. He referred to the Eastern Utah Regional Connection Corridor study and the plan is complete. SCIC has received an appropriation from the State Legislature of $3.2 million to complete the EIS on that project. He referred to other studies through the initial funding and other grants from CIB. Mr. McKee has been executive director of SCIC for 1 ½ years. Prior to that there was a lot data gathering. SCIC is now focused on the revenue generating types of projects. It was noted that monies from the participating counties in the SCIC going to the Permanent Community Impact Fund is 93%. As to the requirement for matching funds, he referred to the Regional Planning Program which does not require a match. *The Board considered the initial $5 million to be approximately matched by the UDOT study of the rail corridor.* Mr. McKee referred to the $3.2 million legislative pass through to the Coalition courtesy of Senator VanTassel would be considered match.

Chairman Hardy indicated that it is the planning, operating and administration funding being discussed at this time. The rail funding will be the next agenda item of discussion.

Commissioner Dalton asked if the Coalition had any revenue sources other than grants and if any projects had come to construction.

Mr. McKee indicated there is no other funding but they are seeking revenue projects.

Mr. Barton indicated there has been a significant effort in 2014-2016 to do data gathering and project prioritization and regional projects that cross county lines, seeking the best strategic direction for the Coalition.

David Damschen, State Treasurer indicated that of the $3 million requested, $1.92 million is projected to go to administration and legal over four years of operation which would be $750,000 per year. He asked about the remaining balance of the original funding.

Mr. McKee stated there is approximately $550,000 remaining and administration covers a lot of items.

Mr. Damschen referred to the 'scale of projects' being pursued, and asked about the Coalition personnel's experience in regard to completing large projects exceeding $1 billion dollars in total cost.

Eric Johnson, Legal Counsel to the Seven County Infrastructure Coalition stated the largest projects he has been involved in would be approximately several hundred thousand.

Mr. McKee stated that as a county commissioner they worked on multi-million dollar projects.

Gregg Galecki referred to Phase I of the original $5,000,000 wherein the Board requested a report concerning all that has been done and asked about the status of that report, and have those completed studies been shared with the Board and/or staff and the various AOG's.

Mr. McKee referred to the pipeline study that has been completed and some of the database has been shared, and information not shared is available to the CIB on a thumb drive because some information should be guarded.

Mr. Galecki suggested that the CIB request that information, and asked if the GIS, costing tools, etc. had been shared throughout the state. The SCIC contract will end with deliverables in August of 2020 with no reference to a Phase 2. If SCIC is not funded additionally, what is the status of the deliverables for 2020.

Mr. Barton stated that the Coalition website is the clearinghouse for all the information. Counties are aware of how to access publicly available data. But there are sensitive and proprietary elements; different levels of data security.

Mr. McKee believed it was always intended that the organization would continue, looking forward to revenue generating projects. The UDOT funding starts in 2020 with $1.6 million each year for a total of $3.2 million for the EIS and engineering concerning the Eastern Connection Roadway project.

Mr. Damschen inquired about the legal counsel billing rates.

Mr. Johnson indicated that his billing rate for the first 75 hours is a flat rate. Work beyond that is an hourly billing.

Mr. McKee indicated the SCIC did put out an RFP for legal counsel and the Board selected Mr. Johnson at a significant saving compared to the other applicant. The results of the procurement were not provided directly to CIB, but it was public.

Chairman Hardy referred to the Board suggestion at the policy retreat to engage in-house counsel. The expenditures charged by legal would not be considered specialized, but administrative and asked about that request.

Mr. McKee indicated the Coalition discussed in-house counsel. There is quite a bit of legal work. They have looked at it, and will look at it deeper.

Mr. Damschen indicated that the Treasurer's office utilizes bond counsel frequently, but only through the constitutional authority of the Attorney General. The Coalition is an agency of and funded by the CIB. SCIC has hired their own attorney and it may be technically legal but it's functionally problematic. The Board should think carefully about future agreements and the degree of control and discipline that might be required for organizations that are solely funded by the CIB. There should be a high level of discipline around meeting practices, compliance with the open and public meetings act, governmental records and access. Procurement practices are insufficient as a lot of money goes to and through SCIC and there should be a level of adherence and compliance with the law in all that SCIC does.

Mr. McKee stated the level and the type of work that is being done is beyond what most legal counsel is involved in. Concerning the open meetings act, the Coalition goes into closed session frequently, but he believes they can do that. Much of their business is done out in the open and they are working to get procurement policies closer to State policy.

Mr. Damschen referred to procurement and one of the firms that will be bidding is CRS engineering. In reviewing the rail study, the State's municipal advisor Zions Public Finance, consulted with Mr. Eyre from CRS Engineering to evaluate the RL Banks document . CRS is working for this Board today and we're counter parties with the Coalition in this regard. Does SCIC have the funds to procure the engineer without receiving today's funding request?

Mr. McKee stated that when they put forward a procurement they can't prohibit any group from submitting a proposal.

Mr. Damschen asked why their procurement would be open now.

Mr. McKee stated the procurement would be discussed in the rail application but they believe it is important to accomplish the EIG under *this administration*. It is contingent on funding from the CIB.

Chairman Hardy acknowledged Commissioner Ogden.

Commissioner Ogden referred to the pie chart of the $5 million dollar original funding and asked where or to whom the $2,261,904 dollars went. (Referred to a visual on the screen)

Commissioner Lytle asked who prepared the pie chart.

Mr. McKee indicated the chart was prepared by HCD and might be categorized a little bit different than their accountant but it is close enough.

The CIB Staff explained the pie chart, acknowledging small differences in categorization.

Chairman Hardy asked for clarification of the $2,261,904 study expense.

Mr. Barton stated it was to figure out what and where the existing infrastructure was and the existing needs and identify regional projects that the Coalition could pursue. This is the majority of the initial study expense. Jones & DeMille was selected to do the engineering and planning work for the Coalition and had some consultant firms including an archaeologist, HDR, traffic planners, GIS specialists and a number of people as part of the team. The initial authorization was undefined but included determining the initial planning and GIS today and in 5 to 10 years.

Commissioner Ogden referred to Phase II – Plan Administration and Operation and referenced the Green River study for which Commissioner Brady indicated that study was already done. And Castle Dale City and a natural gas project and asked why the Coalition would be doing those projects that have in-house expertise or that have already been studied.

Mr. Barton stated there was a need indicated by county government and discussions with PacifiCorp about continuing the life of the Hunter Power Plant. We do as much as we can to understand a project and make a go, no go decision as quickly as possible.

Mr. McKee interjected this was a request to look at utilizing natural gas.

Commissioner Ogden referred to a statement that 'UDOT performed a multimillion dollar study demonstrating the inadequacy of transportation in the Uintah Basin' and asked why UDOT is not doing these studies if they are so vital. They've been studying this for years and nothing is being done. Why isn't the Coalition getting funding from UDOT?

Mr. McKee interjected they hope to get a little funding out of UDOT to help with this but he believes UDOT sees their mission as building roads. The UDOT Board indicated they might help.

Commissioner Ogden asked what Coalition projects are ready to move forward.

Mr. McKee said this rail project is and the Ute Tribe may be involved, a refinery needs some utility services the Coalition may be involved in and a project that will help bring manufacturing into the Coalition boundaries looks favorable.

Commissioner Ogden stated these are questions many might ask. The Coalition is doing engineering and consulting work with public money and the CIB has also given $50,000 more to each one of the AOG's for planning. It appears there is redundancy in working for the same people; counties, cities etc.

Mr. McKee indicated this is a different type of work and deferred to Mr. Barton.

Mr. Barton stated project development and identifying infrastructure needs takes a certain level of engineering expertise. They work with AOG planning staff. When looking at projects and costs and implementation and environmental, it tends to be outside of the realm of the expertise of the planners that the AOGs employ or the rural planning group.

Commissioner Ogden referred to the Coalition acquiring 15 miles of right of way and asked if the Coalition actually owned that right of way.

Mr. McKee stated the Coalition is working with the private sector which has turned the right of way to the Coalition.

Commissioner Ogden stated the rights of way are worth quite a bit of money; estimated at about $2 million dollars and asked if the Coalition could borrow against that to help with their costs.

Mr. Johnson clarified 'to use that as collateral' and indicated they would see if they could.

Commissioner Ogden asked how providing utilities and water resources works with the Coalition versus public funds.

Mr. McKee interjected he thinks the Board wants them to find a project to generate revenue instead of coming to CIB for funding. There is a project the Coalition is working on that will be a revenue generating project through the Board of Water Resources.

Mr. Farrell stated the application to Water Resource Board would be a loan, not a grant.

Mr. McKee recognizes it will be a loan but they will have a revenue source to accommodate that and provide a revenue source for the Coalition.

Commissioner Ogden indicated that for $5 million dollars, the Coalition was to have a project at the end but this is a request for additional funding so where are we?

Mr. McKee stated they have a project that will move forward shortly. Most of the projects 'fell off the table'. This last year and half they have come a long way. The value of this Coalition is to do regional activities which wouldn't be possible with a single county and the rail is an example. Union Pacific is not going to build it.

Chairman Hardy observed this is going to take a while and requested those people asking questions and answering them to be brief and to the point of the question. He acknowledged the desire speak about ideology and philosophy but please try to keep it concise. The Chairman acknowledged Mr. Galecki.

Mr. Galecki asked for clarity concerning the $2.2 million dollars that went through Jones and DeMille with another $120,000 dollars for Jones and DeMille administration expenses for SCIC; for the Seven County Coalition. Is Jones & DeMille staff?

Mr. McKee indicated they are the Coalition engineers.

Mr. Galecki stated there was not a procurement; they are staff.

Mr. McKee stated in part 8 within the contract for Jones & DeMille it was a 5 year contract.

Mr. Galecki again stated they're on staff.

Mr. McKee indicated they are.

Mr. Galecki indicated that most of the planning requests come in with matching funds and then the Board looks at the scale of that specific project and determines whether to fund it. Phase II should be coming in project by project with matching funds and the Board can determine merit. The Coalition still has half a million dollars to spend and after that it should come in project by project.

Mr. McKee asked if Mr. Galecki felt the same way about the regional planning role.

Mr. Galecki stated there is more accountability as state employees that come for funding each year. He was on the CIB when SCIC was originally funded and does not remember a Phase I or a

continuous spending. It was a project to see what could be done to support large infrastructure for $5 million dollars.

Mr. McKee acknowledged Mr. Galecki's recollection but the $3.2 million dollars from UDOT should be discounted. An earlier UDOT study was for Seep Ridge … for the eastern regional connection. The $3.2 million dollars from UDOT is to study the exact same road which is being used for match today.

Mr. Galecki asked why the standard planning procedure utilized by CIB doesn't work for SCIC.

Mr. McKee stated the Coalition is different. They are not a taxing entity but will get to the point to be self-generating.

Mr. Galecki stated there are seven counties and if they are in support they should be able to contribute as in every other town project; every other municipality.

Mr. McKee stated the Counties would say they don't have that kind of funding.

Mr. Damschen acknowledged financial constraints but further suggested city and county fiscal practices are more careful.

Commissioner Lytle asked what Mr. Damschen's point was.

Mr. Damschen stated that the cities and counties invest in critical public services and infrastructure as stewards of the public funds which result in a benefit to the public.

Commissioner Lytle stated that it is by constitution.

Mr. Damschen asked for clarity and expressed concern that much of what the Coalition is doing is speculative.

Commissioner Lytle disclosed that he sits on the CIB and the Seven County Coalition Boards and this is an anomaly in what CIB has created with SCIC. This line of questioning reflects some distrust and feels [the Coalition] they are being very professional in their approach. The SCIC is out of the box of public and private and the challenge with SCIC is, 'how do we make that work.' He asked if there are things that can be done better to make this more manageable from the perspective of the State or the commercial world looking in from their sides. How might this anomaly work relative to the economy of the State?

Chairman Hardy asked that comments be run through the Chair in order for the record to reflect who was speaking and for the benefit of those in attendance.

Mr. McKee requested to make a comment.

Chairman Hardy deferred to Commissioner Adams.

Commissioner Adams referred to an SCIC tool identifying right of ways within the counties and across county borders so companies could access that tool to consider projects and locations. That was delivered to every county and is and will be very useful.

Chairman Hardy acknowledged Brian Barton.

Mr. Barton referred to the initial study stating it was to understand Coalition project needs as well as help the counties and local governments to manage systems and compile data which has become very valuable for local governments. It goes above what the State maintains and is applicable to the local issues identifying gas lines, electric corridors, ditches, highways, bridges, dams, reservoirs, classifications of roads, service levels of those roadways and broadband.

Commissioner Adams asked if that information is publicly available and asked if Jones & DeMille bid on the contract.

Mr. Barton stated most of the information is public but some is private if the information came from private entities requesting they protect that data; password protected. He also stated it was a competitive selection for which Jones and DeMille interviewed in December of 2014 and were awarded shortly thereafter.

Chairman Hardy acknowledged Treasurer Damschen.

Mr. Damschen referred to the procurement of counsel and asked the Coalition to *provide the RFP related to acquiring counsel to indicate there was an evaluation and selection process; all the proposals received and the final selection and the resultant contract.* Counsel is reimbursed to debate with CIB staff and the CIB counsel whose job it is to administer the work of this Board in accordance with the law, policy and procedure. The written communications from counsel use hyperbole in terms like 'without question' 'clearly', with respect to the rail project 'the proposed rail was plainly public' and speaking to something that is clearly arguable from a strict legal analysis standpoint. The Board requires sound legal analysis and not persuaded by hyperbole and sales tactics. He referred to written communications from counsel of the Coalition. (Quotes in italics) *"After 10 months it is high time that the Community Impact Board be presented with the Coalition's rail application to make a funding decision without further delay"*. He suggested the delays are tied to the provision of adequate documentation as is required by law and policy of CIB. *"The coalition requests the Office of the Attorney General to withdraw the October 17, 2018 letter".* The October 17, 2018 letter contained detailed legal analysis from CIB's counsel. *"That letter stands in opposition to prior opinions of your office. In addition the Coalition invites the Office of the Utah Attorney General to write a letter supporting the Coalition's rail application and acknowledging that at various times rail has been deemed an eligible project for CIB funding."* The CIB staff and Attorney General and his staff are overworked, underpaid public servants and a contractor to an agent of the State should show professionalism and respect. These concerns factor into funding the Coalition. Everyone who works for the Coalition, whether staff or by contract is interacting with CIB and utilizing public funds in all that they do and there should always be respect and the professionalism especially for those responsible for the prudent and legal administration of these funds which he takes seriously.

Mr. Johnson asked the Chairman if he could respond.

Chairman Hardy acknowledged Mr. Johnson.

Mr. Johnson indicated that he respects each and every one of the CIB tremendously and felt it to be unfortunate that his attempts to phrase things as clearly and in as stark a legal clarity as he could would be construed that way. He stated there was absolutely no intent [along those lines]. He also noted it is important that each person have the opportunity to be fully represented, and to have their voice heard. It would be improper to try and bully someone down to not fully express what they feel are their legal rights in these issues. He wanted to be clear and stated it is okay to make requests of the Attorney General's office by anyone in the State.

Chairman Hardy stated if there is no further discussion necessary to have an opinion one way or the other he would entertain a motion.

Gregg Galecki made and Tooter Ogden seconded a motion to place this on the pending list with a request for a specific project and matching funds.

Chairman Hardy stated the motion is to put this request on the pending list with instructions to the applicant to return with a project and matching funds.

Mr. Damschen indicated that the Coalition is involved in many ongoing things and this motion is unclear possibly distracting them from what they're doing.

Gregg Galecki withdrew the motion.

Chairman Hardy stated that the motion was withdrawn. This may take some time and apologized to those in the audience. He indicated the Board could break to get their lunch and return for a working lunch.

BREAK. – (Audio 3:25:54)

Chairman Hardy stated some Board members may need to leave. The first motion was withdrawn and asked if there are other questions or a new motion. He acknowledged Commissioner Dalton.

Commissioner Dalton stated he has not been familiar with this issue and projects they are working on are very sensitive, but they haven't verified any project. He asked if there are any projects that are ready to go and are they contingent on the funding today.

Mr. McKee referred to the Eastern Utah Regional Connection which will finalize the EIS in two years. That funding is to the Seven County Infrastructure Coalition. There are utility type projects that are in the works and projects of 'these magnitudes'; just to do the environmental takes time.

Commissioner Dalton indicated that he had not answered the question; they have been in existence for approximately four years. Is there a project that is under construction today?

Mr. McKee stated there is a project that is a little bit more indirect but wouldn't have happened without SCIC referring to the Daggett broadband and the trail project in Daggett County phase I.

Commissioner Dalton asked if it was planning or construction?

Commissioner Lytle interjected it was for planning

Mr. McKee said it is planning and the Swinging Bridge has been constructed.

Commissioner Dalton asked if it's the one in Colorado.

Mr. McKee said yes.

Chairman Hardy asked if there were other questions, comments, motions. The Chairman acknowledged Mr. Farrell.

Mr. Farrell acknowledged this has great impact on the eastern side of the State but asked if members of any of the counties pay administration costs so that the money from CIB can go into the projects rather than administration.

Mr. McKee indicated he doesn't see that happening.

Commissioner Winterton interjected they have $2.2 million in their budget.…

Chairman Hardy acknowledged Commissioner Winterton to continue.

Commissioner Winterton stated that Duchesne County has cut their budget as the projected revenue is $2.2 million 'under-funded'. The mineral lease revenue is just shy of $2 million dollars barely covering the loan payments for projects

Mr. Farrell indicated the same situation in his county and stated Duchesne County is fortunate to receive mineral lease money. In regard to the Coalition, it would be different if the counties 'had a dog in the fight'.

Commissioner Winterton felt the contribution is that they send somebody to the Board meetings every month and contribute resources, personnel and GIS. He referred to it as in-kind. Each county is into this $400,000 or $500,000 dollars since the creation and there's a lot of value in the coalition.

Chairman Hardy acknowledged Mr. Damschen.

Mr. Damschen referred to the level of oversight, control, and accountability that most governments are subject to and expressed concern over funding 4 years of operation. It should be on an annual basis. One year would be about $750,000 and that's what this Board should consider.

Mr. Galecki indicated his motion was for them to come with a project, but that doesn't fit with the whole structure and offered a new motion.

Gregg Galecki made and Tooter Ogden seconded a motion to fund Seven County Infrastructure Coalition for $750,000 grant for one year with quarterly updates.

Mr. Damschen suggested accountability for what is being accomplished to increase the understanding of productivity and the ultimate progress being achieved.

Commissioner Lytle indicated he feels everything has been visible. The face to face conversation is important.

Chairman Hardy acknowledged Commissioner Adams.

Commissioner Adams asked Mike McKee if getting the annual amount was acceptable. He felt a quarterly discussion was not necessary.

Mr. McKee stated they would make it work.

Commissioner Ogden indicated the Board ought to know what is being accomplished.

Chairman Hardy stated there is a different meaning in knowing what they're doing and having a very long discussion. The Chairman acknowledged Mr. McKee.

Mr. McKee said they appreciate the Board's considerations. He thanked Mr. Damschen for recognizing the Coalition's efforts. They want to accomplish what they need to do while watching the funds.

Chairman Hardy acknowledged Commissioner Dalton.

Commissioner Dalton concurred with the offer of annual funding but suggested setting guidelines or goals to meet in order to receive additional funding. What standards do they need to get the next $750,000? Is that going to be totally a decision by the Board? They need to have a goal to support getting the next $750,000.

Chairman Hardy appreciated the comment because anything that exists outside of the application does need to be specified by the Board and incorporated into contract and expectation and invited comment. The Chairman acknowledged Commissioner Lytle.

Commissioner Lytle suggested that some projects are multi-year projects so it should be renewable up to four years, but does not encumber the entire amount. His recommendation is for a four year project, funded unless otherwise stated.

Mayor Baker: ……

Chairman Hardy asked if that was a substitute motion.

Commissioner Lytle suggested that the project be a four year project funded in annually approved increments of $750,000.

Chairman Hardy reiterated the substitute motion to approve $3,000,000 with $750,000 on an annual basis and at any annual checkpoint the Board could terminate the next year's commitment. It would continue unless the Board acted on early termination. And all state contracts have a 60 day non-recourse clause to terminate. The substitute motion is on the table.

Jack Lytle made and Bruce Adams seconded a substitute motion to approve the $3,000,000 with $750,000 allocations on an annual basis and at any annual checkpoint the Board could terminate the next year's commitment.

The Chairman acknowledged Mayor Baker.

Mayor Baker stated he was going to make a similar motion; 4 years with progress reports.

Chairman Hardy asked if there was further discussion on the substitute motion.

Commissioner Dalton stated it is just like giving them the $3,000,000 without any guidelines for the Board to consider termination.

Chairman Hardy indicated it would take a separate action of the Board to terminate the contract. The Chairman acknowledged Mr. Galecki.

Mr. Galecki concurred with Commissioner Dalton that there should be guidelines to avoid the problems in the original funding. What are those milestones?

Chairman Hardy asked if the applicant could suggest milestones.

Mr. McKee suggested they would work with staff to provide milestones before final approval in February.

Chairman Hardy stated the Board would consider a draft in February as part of the funding meeting on the deliverables. He indicated there are two concepts that should be discussed as a State Board.
1. There are state funds paying for 100% of the work product in many cases which will apply to the rail discussion as well. CIB is the sole funder so who owns the work product? If the Board provides the funding of an EIS for the rail, who owns the work product and do we have ownership rights to the work product since CIB is paying for 100% of it.
2. It makes no sense to pay our legal counsel out of CIB funds and also pay other legal counsel to argue with our CIB legal counsel out of CIB funds. This has happened and is a troubling issue as we manage CIB funds. We should not be paying to argue amongst ourselves with those funds. It is important to provide clarity on what shows up in the contract with Seven County for everybody's benefit and everyone is clear on what the deliverable is. He asked Mike to address this. The first issue came up as a result of the Coalition selling a study that was paid for as part of the initial $5 million and using the proceeds for their own purposes.

Mr. McKee indicated it was before he became the director, but that was his understanding.

Chairman Hardy stated that if the Board provides funding for the rail EIS, there is a valuable product that, if at any point somebody else needs to continue with the project, those rights should be retained as a State to help move the project forward. It isn't known where this Board will fit into credit guarantees or whether the Board will have the funds to do that. It's important to delineate who has ownership rights of the product and how to commit to moving that project forward. He admonished the Board to consider that seriously. The Chair acknowledged Commissioner Lytle for comment to the substitute motion on the table.

Commissioner Lytle expressed uncertainty in terms of the ownership and the State monies or CIB administered monies. He asked when the ownership issue is applied since the Board has other projects that are 100% grant. Has CIB ever chosen ownership in those projects?

Chairman Hardy stated the project is always collateral for a loan that gets issued by the Board. (When 100% grant funds are awarded, the project cannot be sold for 10 years without Board approval.) Using the rail example, completion of the EIS, which is approximately $30 million dollars is necessary to get to the next step and apply for the rail funding. Then 5 to 7 percent is required on the guarantee and this Board doesn't have that money, Seven County doesn't have that money, and another funding source may have a different idea on how that project proceeds forward. It is valuable to make sure that as steward of the State funds the State's rights to a valuable work product are maintained. There may be different ways in which the ultimate project could proceed and there's value in the products that have been produced. This GIS mapping has been very valuable and it is publicly available. It should be stated that the State shall retain rights of work products that have been publicly funded at any time. This leaves options to move forward independent of any one organization. The Chairman acknowledged Commissioner Dalton.

Commissioner Dalton clarified that the funds are not allocated today and suggested a second substitute motion to award $750,000 grant per year based on goals, initiatives and results indicated by the milestones established between the applicant and staff and presented and approved <u>prior</u> to the February 7, 2019 funding meeting. $750,000 and possibly ongoing.

Commissioner Lytle said it's an amendment…

Chairman Hardy asked if it was an amendment to the substitute motion.

Commissioner Dalton indicated the applicant and the staff would come up with this 'goals and guidelines' and wanted it specifically in the motion.

Mr. McKee agreed.

Chairman Hardy indicated Commissioner Adams was the second on the substitute and asked if he accepted that amendment.

Commissioner Adams consented.

Jack Lytle made and Bruce Adams seconded a substitute motion to approve $3,000,000 grant distributed over four years in annual $750,000 increments with deliverables to be put forward at the February funding meeting as established by SCIC and CIB staff.

Mayor Baker questioned the motion and suggested that on legal, the counsel from the staff could do it and if not, they would go out to bid for that work.

Chairman Hardy indicated the Board cannot obligate the Attorney General's office to represent Seven County but they should go out to bid and they shouldn't be using CIB funds to pay both sides of a legal discussion. That doesn't preclude Seven County to use their own funds to hire legal counsel for any other purpose or for a project related basis that they would employ legal counsel to represent them for a project.

Commissioner Lytle reiterated those funds should not be used adversarily against the funding source.

Chairman Hardy referred the comment to Alison Garner. Typically attorneys don't represent two sides. They are representing a side in the discussion and whether we're paying for one side of the discussion or both sides of the discussion is all I really wanted to clarify.

Commissioner Adams stated that in the legal system, we pay for the defendant and we pay for the prosecutor.

Ms. Garner clarified the Chairman's comments stating this Board always pays for the Attorney General's office time with regard to the Community Impact Board issues. Here, there are times when the Board is also paying for the Coalition's attorney; every communication Mr. Johnson has with me is billed. CIB is paying for me and for him and we're trying to avoid that.

Commissioner Lytle stated it also gets driven by the questions asked, who responds, and how it's responded to from SCIC if they choose to use a response. I understand why there would be the question raised 'Why are we paying to be argued."

Chairman Hardy noted this is the only organization that has this issue. Typically other organizations, counties, special service districts have their own funding sources and pay their own legal counsel. I'm not discouraging the discussion for trying to gain understanding but there is an inherent conflict with using CIB funds on both sides of the coin on that particular discussion.

Commissioner Lytle reiterated that CIB created this anomaly that some things don't fit the same box and are somewhat justifiable in the conversations.

Chairman Hardy acknowledged Commissioner Dalton and then Commissioner Adams.

Commissioner Dalton indicated that this issue can be answered in the agreement between staff and applicant. If they come up with the suggestions that are generally liked, the Board can look at it in January and approve it in February. We're talking about the same things for an hour and half, not getting anywhere.

Commissioner Adams said this group is out working in the field to feed the chickens so more money can be produced in mineral lease for the Board to administer. If they come to us and make a report and we have questions, they can answer them. If we like what they're doing we'll continue to fund what they're doing.

Chairman Hardy acknowledged Treasurer Damschen and then Mr. Galecki.

Mr. Damschen made a quick comment on the substitute motions that have a couple of things that are similar.

Chairman Hardy indicated there is one substitute and it was amended; one substitute on the table.

Mr. Damschen stated that his constituents and legislators have a reasonable expectation that I and my team are working on many initiatives that don't start and end in one years' time, but I go before my appropriations sub-committee once a year and my budget is fully renewable on an annual basis. This Board meets ten or eleven times a year and there is ample opportunity to revisit this on an annual basis with no need whatsoever to make a long term commitment. It should be $750,000 for a year as with everyone else, subject to a budget and oversight.

Commissioner Lytle indicated legislators meet for 45 days and we're working on 8 hours.

Mr. Galecki stated he agrees with Treasurer Damschen having an off ramp every year; an annual review.

Chairman Hardy called the question on the substitute motion which is $750,000 for four years. Staff and SCIC can work together on specific deliverables and some legal stuff. We'll draft a memo for consideration at or before the funding meeting.

Jack Lytle made and Bruce Adams seconded a substitute motion placing the project on the Priority List as a $750,000 grant annually for each of four years contingent on a list of deliverables on or before the February funding meeting. The motion passed with Jack Lytle, Dean Baker, Ron Winterton, Bruce Adams and Mike Dalton in favor and Gregg Galecki, David Damschen, Steve Farrell and Tooter Ogden opposed.

Chairman Hardy noted that rail has been referenced in the previous discussion and suggested focusing on anything that has been missed to get to a decision as quickly as possible. There is a lot of information including letters of support, the RL Banks study, the Zions Bank analysis, the Attorney General's letters, and the letters from Eric Johnson which has been available for over a week. He acknowledged time to Mr. McKee and the Coalition recognizing there are other people. Then to Zions Bank, then the Attorney General's office, then questions and answers. Be semi brief in your comments.

Mr. McKee referred to the yellow and black wax vials passed to the Board provided by Duchesne County and talked about the pour point which provides the challenge. Utah refineries are limited to 70,000 to 90,000 barrels a day so it needs to get to outside markets. A 2014 UDOT study indicated 26 different routes. According to UDOT there will be $30,000,000 dollars of lost revenue in a 30 year period if transportation issues are not addressed. By putting the rail in and using the more conservative numbers in the RL Banks study there would be $3.2 billion dollars in additional taxes coming to the

State and to CIB. He invited Mr. Donaldson to speak but he had left. He invited Ruland Gill, Chairman of the Utah Board of Oil, Gas and Mining to speak.

Ruland Gill indicated there's a billion or two in funds available to CIB through what his Board is doing. His purpose is to display what the asset is, how it compares to other states, what the economics are and how those compare to other states giving an idea of the magnitude of what is being done. (…having PowerPoint issues)

Mr. McKee noted the PowerPoint issues and invited Mark Hemphill, the National Director of Rail Consulting for HDR to speak.

Mr. Hemphill stated that HDR has done six studies on the Uintah Basin for either Utah DOT or for the Seven County Infrastructure Coalition. In 2013 and in 2014 they did a road capacity study for UDOT demonstrating the highway network in the Basin is constrained. In 2015 they did a rail study feasibility for Utah DOT. A route was chosen with too high of a price point. In 2016 the Infrastructure Coalition asked HDR to reassess that study and came up with a substantial cost saving by looking harder at the routes with more time available. In 2017a major producer in the Basin had HDR look at the study again and provide a private rail feasibility study in the Basin. Also in 2017 HDR did an oil pipeline study for the feasibility of a pipeline serving the Basin. All those rail studies found that rail is commercially viable. The oil pipeline was NOT commercially feasible and would not pay for itself. The risk on rail is if oil is simply no longer produced in the US economy or a general economic collapse.

Mr. McKee asked Charlie Banks of RL Banks from Virginia to speak. He did the RL Banks study.

Charlie Banks stated he has worked in the rail space since he was 18 and Mr. Hemphill's firm is well known and well thought of with a focus on engineering and design of rail and other modes. RL Banks is 100% in the rail space focusing primarily on economics. He indicated that small loans for railroading are very difficult to obtain. They have been objective and independent on this study.

Mr. McKee returned to Mr. Gill.

Chairman Hardy encouraged brevity to get whatever they have planned completed in 5 minutes or less.

Mr. Gill indicated he has not discussed an issue of this magnitude given this short of time and apologized for making his presentation short. He stated that he created the SITLA Board and program. When he started they had $32,000,000 after 96 years. When he left they had $432,000,000. When he became chair of the Board of Oil, Gas & Mining, the drilling was about $50,000,000 a year. They weren't drilling in Utah because they didn't know what's down there and the rules only allowed one mile horizontal wells. Today they are authorizing drilling down vertically two to three miles, turning the pipe at a 90 degrees and drilling another two miles in these formations. About $600 million is being spent drilling these kinds of wells and with 8 drill rigs they have swamped the refining capacity of the State of Utah 200 percent. There is between 5.5 and 8 billion barrels out of recoverable oil that is known with a gross revenue stream of about $275 to $400 billion. The problem is getting the product to outside markets.

Chairman Hardy requested that all the presentations be done before questions. He indicated that Commissioner Winterton will need to leave at 2:00 o'clock.

Mr. McKee introduced Ryan Clerico from Enefit and indicated that people from Crescent Point were invited but didn't make it. He introduced Mark Eckels, who is the Coalition's oil and gas expert. He asked Steve Evans to speak briefly.

Steve Evans is from Evans Family Media, a broadcast media company in northeastern Utah since 1983. He presented a petition of support from local businesses, civic leaders, ecclesiastical leaders, health care providers; 1632 signatures in the 10 days since they have known about this project. He has witnessed the social consequences to families and individuals in the wake of the energy driven boom and bust economy with sharp increase in domestic violence, drug abuse, crime, teenage truancy, teenage suicide; these are real problems facing the community. This project will help mitigate those issues and on behalf of the community he asked the Board to strongly consider helping mitigate these problems in the community.

Mr. McKee invited Senator Van Tassel to speak.

Senator VanTassel stated that May 10, 2019 we will celebrate the driving of the Golden Spike at Promontory Utah when 150 years ago the railroad came to Utah and without that, Utah wouldn't be what Utah is. The Eastern side of Utah is the only part of the State that has never had a railroad. It was very expensive to build that railroad. The refineries in Salt Lake will never be enlarged to take more product and there are air quality constraints. Railroad is the solution for the next 100 years to bring diversification to the Uintah Basin for construction, manufacturing and other elements. This is a big deal for the State of Utah and the Uintah Basin. He referred to the inland port in Salt Lake City which is to be a huge economic driver and this [rail] is as big. He encouraged the Board's support to move forward and supported CIB control and access to the project components because this needs to get done. It will generate CIB funds and mineral impact is the reason and the way that it should come.

Chairman Hardy invited Alex Buxton from Zions Public Finance to do a quick synopsis of their review of the RL Banks study done for and supplied by Seven County Infrastructure Coalition. And on behalf of the Board, raise any questions that Board should be asking.

Alex Buxton stated Zions Public Finance, as consultants to the CIB reviewed the RL Banks feasibility study and the SCIC rail funding application submitted. They included CRS to view the technical aspects of the rail. Memos were prepared. In the summary many questions were raised and CIB should get answers to those questions as they consider funding this project. In the application the breakout for the request for funding was for three different phases, or milestones. He suggested a breakout of each of those costs included in those milestones. It was suggested that in consideration of funding, the incremental amount that would be distributed could be done in smaller amounts; particularly the EIS should be prepared and completed. When that is done, a lot of the questions would be then be answered. An initial question concerns the lack of private partnership or participation, at least initially. The CIB is the sole source of investment so is it possible to bring any other monies so that CIB isn't taking all of the initial risk? It came to light that TYR energy has a project for bringing oil out of the Basin. Two of the gentlemen that work for TYR were invited to discuss their projects.

Chairman Hardy again stated questions will be at the end and invited TYR Energy up for a brief overview to inform the Board of what private industry is planning, that isn't in production already, but possibly on the cusp.

Michael Walter, TYR Energy, stated that TYR was asked to share what the private sector is doing in Utah. TYR energy is a privately held company. He talked about transportation possibilities which are in the works to convey Uintah Basin product and rail is among the possibilities. TYR is also working in Carbon County. The TYR plan is to provide producer assurances and have two contracts with local producers for an additional 60,000 barrels of waxy crude to start shipping January 1 as phase 1. The goal is to increase to almost 300,000 barrels with capabilities of 500,000 barrels. The basin is going to grow and that needs to occur responsibly. TYR is a proponent of rail and in their master plan, they're going to build a rail from Duchesne County to Carbon County as the private sector. The opportunities and strategies are available to every current producer and every possible producer.

Chairman Hardy thanked TYR and acknowledged Alison Garner to sum up the information which she has provided to the Board. The Board has the memorandum which was directed toward Eric Johnson, but it's information that the Board should have.

Ms. Garner referred to the correspondence between the Attorney General's office and the Coalition. Through that correspondence and other meetings, other communications, the goal was to resolve some concerns and questions, or narrow those concerns. She gave background about the need to exchange correspondence, as the application is unusual. It is her opinion this Board should be aware of the potential legal risks and vulnerabilities that might arise in deciding this application. There is very little case law addressing the questions this application presents leaving a lot of unknowns and if there is a legal issue over the decision, a court will scrutinize the record to determine whether the decisions are arbitrary and capricious. Did the Board ask questions, seek supporting evidence, and demand answers to tough questions? If the Board avoids difficult questions and accepts flimsy explanations or excuses acting as a rubber stamp, the decision will be struck down by a court. The decision should withstand scrutiny and regardless of any court challenge this Board has a duty to closely examine every application that appears in front of it. She gave a very brief overview of some of the outstanding legal issues and concerns that still exist.

1. Is this project an eligible public project under the Mineral Leasing Act and State law? It is not necessarily consistent with the examples that exist in Utah Statute, or with past practices of this Board.
2. Will the grant be used for the Mineral Leasing Act's intended purpose, which is to alleviate impacts and burdens to communities from mineral development?
3. Will there be alleviation of truck traffic along highways?
4. Significant expenditures of State funds are outside of the State of Utah and the AG correspondence goes into detail.
5. How does the project qualify as planning as defined by statute or by CIB's general past practices as this application requests items like engineering and design; right of way planning; grant procurement; legal services; administrative services which are not generally things this Board funds as part of a planning application.

Chairman Hardy indicated the discussion was open to the questions *not yet resolved* to get to a place where an informed decision can be made. He asked for the Board to specify to whom the question is directed. The Chairman acknowledged Treasurer Damschen.

Mr. Damschen directed his comments to Mr. Banks and asked who their primary competitors are and how was RL Banks selected to perform the analysis that they've compiled.

Mr. Banks indicated he is not specifically the corporate person to answer the question about the selection process, but it seemed to be a normal procurement with a pre-proposal conference then they submitted a proposal. He considered RL Banks to be the best qualified to do the job and are 100% in the rail space. They have competitors, but none who compete across all lines of business. Parsons Brinkerhoff, HDR, L.E. Peabody and Associates, AE Com, and two boutique railroad economics firms do similar work. There are plenty of other people that could have bid, and there were more people on the initial conference call...

Mr. McKee added it came down to the top five which the Board interviewed.

Chairman Hardy noted the time, indicating that Commissioner Winterton would soon have to leave. The Chairman acknowledged Mr. Galecki.

Mr. Galecki referred his question to TYR Energy first clarifying they are a private company, there has been discussion about doing public private partnerships and asked if TYR had interacted with the Seven County Coalition to form a private public partnership?

Mr. Walter stated there was a brief conversation at the Governors Energy Summit this last year where TYR suggested a non-disclosure agreement (NDA) but they were unable to come to an agreement on that.

Mr. Galecki referred to the mention of getting a rail out of Carbon County and asked if the various studies have been shared with TYR, or are they aware of those studies?

Mr. Walter indicated they have reviewed every study that's been available within public forum and they are getting ready to move into the next step of their railroad plan.

Mr. McKee interjected in connection with Mr. Walter and Mr. Galecki's discussion he felt those are complimentary efforts. Oil companies want to move product and don't want to wait four to five years for this rail to be built.

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Chairman Hardy indicated that Treasurer Damschen had questions for Mr. McKee.

Mr. Walter interjected to state their plans on rail don't align with the Coalition plans on rail but that doesn't mean they can't be complimentary. The TYR plans on rail are driven by customers and contracts

Commissioner Lytle interjected to ask how long are the TYR contracts?

Chairman Hardy returned to order and acknowledged Treasurer Damschen.

Mr. Damschen asked Mr. Walter if he felt they were responding to him as a complimentary, potential partner, or if he thought they viewed him as competition.

Mr. Walter indicated in the private sector, they look at every opportunity and reached out, but if there can't be an NDA it lends itself more to a competitive than a complimentary nature.

Mr. Damschen asked if he needed significant government support to access capital or to finance some of these major infrastructure projects that the company is pursuing?

Mr. Walter stated there is money and opportunities in private public relationships where it's good for everyone and would never discount the opportunity to work together, but he could call half a dozen folks with billions of dollars to spend and his projects are supported economically moving forward. The risk he will take on the railroad big picture is to spend a million dollars initially and if he was wrong, he was wrong, but it's his checkbook and not the State's

Chairman Hardy noted the time and was uncertain if the Board was close to a motion. He asked if Commissioner Winterton had some comments prior to leaving.

Commissioner Winterton stated his thoughts might be selfish, but this is Duchesne County's economy. They had the lowest unemployment rate and now have the highest and the cycle goes on. This project alone will stop that cycle. Uintah County and Duchesne County have a lot of public land and [all] of the mineral lease money comes out of those counties. If we can't help ourselves by investing in our future, then we're wasting our time here today. This project is one of the largest plans that he's seen. He is 100% behind this project. The private sector knows there's money here but they've not been willing to

put the infrastructure in. *"As a government entity, that's our responsibility. We do it with roads as tax payers, we're the ones paying that bill to rebuild that road. And yet we're going to kick the tires about $28 million dollars in a rail that's going to be safer. This product is the safest product that you could put down the road right now if it's in solid form. So as far as the environmental concerns, I think people read more into this than what's here. But it's our opportunity to make a difference. I want to be here for the motion; I want to be here to vote. But I've got to leave, and that's where I stand on this project. And I hope that everybody else will too."*

Chairman Hardy asked if Commissioner Winterton would like to make a motion.

Commissioner Winterton stated he would make a motion that we accept the project as presented, and fund the EIS. It will get us there. They're sometimes very painful. The railroad study that we did before with UDOT; that didn't come from CIB, that came from Uintah and Duchesne County and UDOT. We have invested in this. I'll make a motion that we accept it as presented, fully funded, and let's get this going. Because the longer we wait… we could change administrations and then we're going to have problems.

Mr. McKee asked if the motion could include suspending the rules and funding.

Ron Winterton made and Bruce Adams seconded a motion to suspend the rules and fund this project at today's meeting as a $27,900,000 grant from the Major Infrastructure Set Aside Fund.

Chairman Hardy stated the motion on the table is to approve a $27,900,000 grant, Suspend and Fund. $27,900,000 as requested. Seconded by Commissioner Adams. Discussion on that motion.

Mr. Damschen expressed concern that the Board would rush to approve $28 million after Counsel's comments.

Chairman Hardy acknowledged Commissioner Ogden.

Commissioner Ogden referred to the advice of legal counsel but then the Board ramrods it through not knowing what partnerships are going to be, etc. Is this a public rail line or a private railroad? Are we able to use these funds across State lines? This needs more discussion.

Mr. McKee asked the Chairman to say one thing real quick. "As far as the study itself, CIB, mineral lease money was used to fund… this is only study money. Mineral lease money was used to fund the 2001 study that contemplated 15 different routes; 11 of them in Colorado. It also helped fund the 26 routes that HDR did. So that's mineral lease money that's funded… It also funded, from CIB funds, the EIS that was done in Sevier County as well. …EIS… So, you know, …"

Chairman Hardy tabled Mr. McKee and acknowledged Mayor Baker.

Mayor Baker stated he'd like to call a vote on the motion.

Chairman Hardy called a vote on the motion to approve a $27,900,000 grant.

Ron Winterton made and Bruce Adams seconded a motion to suspend the rules and fund this project at today's meeting as a $27,900,000 grant from the Major Infrastructure Set Aside Fund. The motion failed in a tie with Ron Winterton, Jack Lytle, Dean Baker, Steve Farrell, and Bruce Adams in favor and Gregg Galecki, David Damschen, Mike Dalton, Tooter Ogden and Jonathan Hardy opposed.

Ron Winterton left the meeting.

Chairman Hardy stated the Chair may vote to cause a tie. Phasing would be the more appropriate approach to get to more certainty on a number of questions and expressed support of the project in a phased approach. That motion failed. The Chairman acknowledged Treasurer Damschen.

Mr. Damschen expressed concern that most of the project will be done in the State of Colorado with policy and politics that are very different than Utah bringing significant uncertainty. The Coalition should provide something from high levels of Colorado indicating support of this project. Projects done within the State would be within the State's control wherein going through Colorado introduces uncertainty. He too, supports the project, but if up to $50 million is invested and then Colorado stops it because of the politics of Colorado; that is an unknown but important consideration requiring more information.

Mr. McKee stated they did have an opportunity to meet with commissioners in Western Colorado and there was unanimous support. They met with Kathleen Stacks, energy advisor from Colorado and also sent a letter to inform Colorado of the rail planning. He also stated there is an alternative that stays completely in Utah which looks viable. It would not cost a lot to have Mr. Banks or someone else look at the viability to that alternative which is a shorter distance. If this Board authorizes funding, they want to move forward quickly during this administration. The RFP includes looking at a route that would keep the project in Utah.

Commissioner Adams asked about the result of the vote.

Chairman Hardy indicated he voted and it was a 5 to 5 tie.

The Chairman acknowledged Commissioner Lytle.

Commissioner Lytle asked for clarification concerning the Chair's vote. Typically the Chair votes if there is a tie and otherwise not.

Chairman Hardy indicated the chair can vote to break a tie or to cause a tie.

Ms. Garner stated the CIB's own rules are silent on this issue.

Commissioner Lytle asked if the Board had adopted Robert's Rules?

Ms. Garner stated they have not.

Chairman Hardy noted he is a member of the Board.

Commissioner Lytle said he understands; the Chair and a member.

Chairman Hardy stated he is supportive of this project. The Board has a financial advisor that has referred to unanswered questions and the Board should get answers to the questions utilizing a smaller funding amount. There's been a little bit of discrepancy between what has been indicated by the applicant and what's been indicated by the CIB financial advisor concerning the amount necessary to move the project forward in this next phase with more certainty. I think that's currently where I'm at. I hope that's the feeling felt here and I'd love to have more discussion around that. But I don't want to prohibit any other discussion because we've had four nay votes that probably have more questions.

Commissioner Adams stated it is confusing because Chairman Hardy has not voted except when it was a tie.

Chairman Hardy noted that's typically been the practice as the Board has not had many close votes. At this meeting there is a different number of members here at the time and he is uncomfortable with $27.9 million dollars and unanswered questions. It's worthy of a vote to get more answers to the questions. There is a way to proceed incrementally and he will not be opposed if the Board gets the answers to the questions after an initial investment and it indicates to go forward. The project should be phased. He acknowledged Brian Barton.

Mr. Barton stated the total request is $27,900,000 but has been broken into three milestones. The first milestone could be achieved for $6.5 million, the second milestone is at $15 million, and the third would be the final amount. They don't have to spend the $27.9 million to know whether it's a feasible project. The first $6.5 million includes $2.6 million for concept engineering and environmental; baseline environmental, not a completed EIS but enough environmental baseline data that to make a decision about the viability on the environmental side. $1.2 million for mapping, $300,000 for preliminary operating and maintenance planning, $200,000 for right of way planning, $300,000 for public involvement and STB regulatory; STB is the Surface Transportation Board which is the federal agency in Washington DC that will have oversight over the NEPA and all regulatory processes with rail projects which involves specialized legal services, $200,000 for revenue and freight modeling and gathering contracts. It's been mentioned earlier that it all comes down to a likelihood of being able to have suppliers and producers saying yes to shipping on the rail which is how the project gets paid for. There is $500,000 for program management, $700,000 contingency adding to $6.5 million. Having the STB regulatory approval by December of 2020 which is the goal – all these tasks would need to be significantly completed by the first part of July.

Chairman Hardy asked about the timeframe to have answers in milestone one, sufficient for milestone two.

Mr. Barton indicated it could be discussed in June.

Chairman Hardy acknowledged Mr. Galecki.

Mr. Galecki referred to Mr. McKee's remarks about an in-State rail corridor which would be significantly less miles and was uncomfortable spending $6.5 million without seeing more specifics. He supported phasing.

Chairman Hardy indicated the financial advisor had a different amount for the initial phase of the study but may not have analyzed exactly that milestone. The Chairman asked for clarification from Alex Buxton.

Alex Buxton stated he appreciated Brian's breakdown. He indicated it appeared to only add up to $6 million so there's $500,000 that still needs to be discussed. He referred to the number he provided as a ballpark in order to get an EIS done which was $2 million to $4 million and suggested SCIC might want to discuss that.

Mr. McKee stated that the Coalition has bids for the study that are greater than $6.5 million dollars and asked Brian Barton to address that.

Chairman Hardy asked if there was an RFP based on the $27.9 million or the first phase.

Mr. Barton stated the current RFP is a part of the $27.9 million project which included the engineering, baseline environmental and right of way planning elements; those three. There are other elements including right of way, the STB, legal, public involvement, revenue and freight, modeling, program management, etc. that add up to $27.9 million in the application. In order to move the entire project forward they have to have all of these other elements to start so they are not behind.

Mr. McKee stated there will be several alternatives evaluated to get to a preferred alternative which is part of this process.

Chairman Hardy summarized that Zions and SCIC are looking at two different milestone points regarding phase 1 estimates. But assuming everything is positive, where is SCIC planning to come up with the money for the credit premium or credit guarantee for the federal rail money?

Mr. McKee stated it isn't their intent to get everything from the CIB. He then reminded the Board of the previous $50 million award which was subsequently withdrawn. They might pursue legislative support and/or a combination of several sources including CIB and the Treasurer may have suggestions.

Chairman Hardy indicated there may not be enough money available to consider it within current financials. Whoever is going to come up with that amount of money is going to push the project forward or have control over it.

Mr. McKee stated that the Ute Tribe has some very strong interest and the Coalition will be discussing the project with the Tribe and their attorneys.

Chairman Hardy acknowledged Alison Garner.

Ms. Garner referred to the cost breakdown discussed for milestone one which only totaled $6 million, noting the cost was not stated for the STB and legal.

Mr. Barton indicated $500,000 was budgeted for STB and legal so that is the additional amount.

Ms. Garner indicated that it was stated that STB would be the lead agency for the NEPA process. And they're intending to seek a loan from the Department of Transportation so have they discussed whether that agency or the Federal Railroad Association might be the lead agency?

Mr. McKee stated that on rail projects, the Surface Transportation Board will be the lead agency. Other cooperating agencies include the Bureau of Land Management and US Fish and Wildlife. The federal borrowing rate on this is less than 2% and there have been some initial discussions with the 'Build' folks. They've had initial legal counsel with Venable in Washington D.C.

Chairman Hardy acknowledged Commissioner Dalton.

Commissioner Dalton asked if he understood correctly that the private sector was building a rail from Duchesne to Carbon.

Mr. Walter indicated yes.

Commissioner Dalton asked why the Coalition was not working a public private partnership with TYR if they are building that rail. Are they not willing or are you not willing to form a partnership?

Mr. McKee stated the reason the 2014 rail up Indian Canyon was dropped was not because there wasn't great interest in the project. The problem was the cost which was $67 billion dollars. Rail

generally needs to stay within a 2.5% grade and this corridor required a lot of tunneling and other restrictions. The costs coming out of UDOT were not very accurate numbers.

Chairman Hardy acknowledged Commissioner Lytle.

Commissioner Lytle asked if it is correct that TYR is going to build a railroad.

Mr. Walter said 'That's correct.' It's in our master plan and we're through the first phase of engineering, moving on into full feed and …

Commissioner Lytle asked when it was expected to be complete.

Mr. Walter indicated they'll be constructed in less than two years.

Commissioner Lytle asked about the expected cost.

Mr. Walter indicated it is less than $1.5 - $1.7 billion. They don't believe the studies and the cost estimates in the corridor were accurate. The private sector has different plans in the way they connect and move and they don't study the hell out of everything.

Commissioner Lytle asked about the agreement with the oil companies.

Mr. Walter indicated they just signed two producers to a five year contract on 60,000 barrels beginning to move on January 1.

Commissioner Lytle asked if rail would be primary carrier.

Mr. Walter indicated 'With whatever way I want to move it to market.' …

Commissioner Lytle stated there's no commitment to rail unless or until you get it done. It is in your master plan, but it doesn't necessarily mean it'll get done because it is the private sector and you can say 'It doesn't wash'.

Mr. Walter said if he has contracts for 60,000 barrels to move to the rail position, but he believes they'll meet the master plan of 300,000 barrels of commitment by January 19, after Christmas. The plan is to move oil through the existing Carbon County facilities until his facility is up and running, and then a combination…. Beginning in Carbon County and then phased into Duchesne County.

Commissioner Lytle asked how many years they have been in the planning process.

Mr. Walter indicated not years, months.

Commissioner Lytle asked how many NEPA and public land projects he has been involved in.

Mr. Walter indicated it is all private.

Commissioner Lytle stated you cannot get to Price on private land.

Mr. Walter said there are stake holders involved that have land. It depends on which direction we go and how we get to where we need to be. He has strategic economic investments in the private sector here today to tell you there's alternatives that the private sector is pursuing. The difference is that if we're wrong, it was our checkbook.

Commissioner Lytle said TYR energy paints a picture as an alternative but expressed concern that TYR could do NEPA in two years. It is uncertain what TYR is doing relative to rail. Their story is uncertain without more depth.

Chairman Hardy stated he supports the phasing approach of the current project on the table. There are questions that will be answered in this first phase. It is important to have fully verified information. There are a lot of concepts that have been talked about and he is supportive of moving this project forward in a phased approach.

Chairman Hardy acknowledged Mayor Baker.

Mayor Baker said we can discuss this all day and not know, and expressed support to commit at least that $6.5 million to get started.

Dean Baker made a substitute motion to approve $6,500,000 for phase 1 of the rail study.

Chairman Hardy asked if the motion was to suspend the rules and fund.

Dean Baker made and David Damschen seconded a substitute motion to suspend the rules and approve a $6,500,000 grant to accomplish phase 1 of the Uintah Basin Railway Planning Project.

Mr. Galecki asked to include answering the questions indicated in the Zions Bank Study.

Chairman Hardy suggested a response to questions that can be answered in written form in the next 30 days and note when the Board can get the rest of the answers in phase 1.

Mayor Baker accepted the amendment.

Commissioner Lytle asked if there are specific questions that we want answered or the whole list?

Mr. Galecki indicated two questions he would like to be included; has the trucking alternative been completely exhausted and what happened with the Book Cliffs Corridor Study.

Chairman Hardy called the question.…

Dean Baker made and David Damschen seconded a substitute motion to suspend the rules and fund Phase 1 of the Uintah Basin Railway Planning Project as a $6,500,000 grant to include the Board's request for written documentation answering questions posed in the Zions Public Finance review of the RL Banks Pre-Feasibility Study. The motion carried with Ron Winterton absent from the vote.

Chairman Hardy indicated staff will work with the Coalition on that particular contract.

Mr. McKee thanked the Board for their deliberate thoughts.

Commissioner Adams said no more trucks in Wasatch County.

Chairman Hardy referred the discussion concerning small planning requests to be handled by staff instead of bringing those before the Board to Keith Heaton.

Mr. Heaton referred the Board to the documents in the packet which explains the proposal. It was discussed in June at the policy meeting in Richfield. This will avoid spending an hour talking about small planning projects then rush through the multi-million dollar projects. And the proposal is to better help the communities with planning; to get the State and the Association of Governments more involved. The Board would allow those projects with a request up to $50,000 to come before staff for review. Staff would report to the Board on a regular basis and communicate concerning possible issues.

Commissioner Lytle asked if it was $50,000 total for the planning.

Mr. Heaton indicated it would be a $50,000 grant request per applicant and would require the Board policy of 50% cash match. All the rules apply plus the criteria listed in the packet for plan applications. The match would be required for Board staff to approve it.

Dean Baker made and Tooter Ogden seconded a motion to approve review of planning grant requests up to $50,000 by the Community Development Office beginning July 1, 2019. The motion carried with Ron Winterton absent from the vote.

ADJOURNMENT

The next regularly scheduled meeting of the Permanent Community Impact Fund Board will be on Thursday, December 13, 2018 in the DWS Office, 1385 South State Street, Salt Lake City, Utah at 8:00 a.m.

This meeting adjourned at 2:45 p.m.

Submitted by:
Candace Powers
Cristine Rhead

2019

A REPORT ON NATURAL GAS MARKETS FOR THE WESTERN STATES AND TRIBAL NATIONS

Written by The Research Partnership to Secure Energy for America (RPSEA) and Mercator Energy

GOVERNOR'S OFFICE OF ENERGY DEVELOPMENT
Advancing Utah's Energy Future

The Great Seal of The Ute Indian Tribe
Uintah and Ouray Reservation

Garfield County

MESA COUNTY

Moffat County
Colorado's Great Northwest
Est. 1911

Rio Blanco County
Colorado

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DEVELOPMENT AND EXPORT OF NATURAL GAS RESOURCES FROM THE PICEANCE-UINTA BASIN

EXECUTIVE SUMMARY

The Piceance and Uinta basins of Colorado and Utah have abundant natural gas resources that can benefit the rural communities in these basins, the region, the nation, and the world. While there are several challenges to taking that gas to market, there are many advantages that these basins have regarding geology, infrastructure, regulatory, social and business environments. The purpose of this study, commissioned by the Colorado Energy Office under the Administration of former Governor Hickenlooper, the Utah Governor's Office of Energy Development and Colorado Mesa University's Unconventional Energy Center, is to better understand those challenges and advantages, recognize the opportunities for marketing that gas in the U.S. and globally, and identify the economic, geopolitical, environmental and societal benefits that could be realized.

Operators in the Piceance-Uinta Basin region are uniquely situated to take advantage of its abundant natural gas resources along with existing and proposed transport infrastructure to supply energy to Asian markets. Demand for exports of liquefied natural gas (LNG) is soaring as more countries are using this resource as a fuel for power generation to improve their environment and reduce emissions.

Natural gas exports offer several benefits both abroad and domestically. As mentioned above, natural gas is sought after as a lower-emitting fuel source for power generation. LNG exports should also benefit the U.S. from a geopolitical perspective. By supplying clean energy to the world, the U.S. can engage in energy diplomacy, developing allies and strategic alliances with much of the world. LNG exports are also poised to benefit local, regional and national economies in the form of jobs and economic growth associated with increased industry and consumer spending.

The data and information compiled in this report will aid in developing a proactive framework for facilitating conversations between a diverse group of stakeholders including the natural gas industry, LNG exporters, conservation groups, tribes, outdoor recreation groups, and other

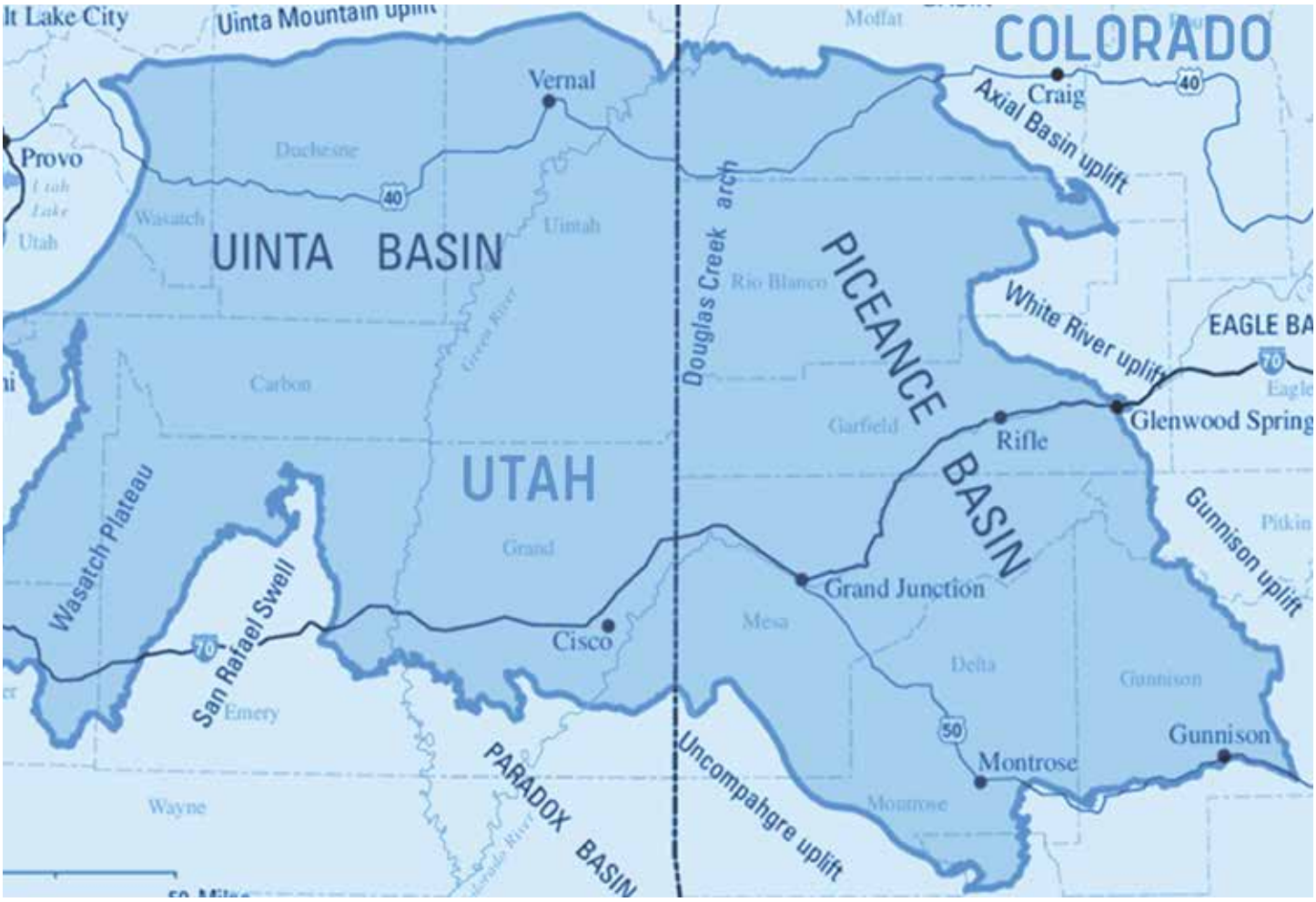
BACKGROUND AND INTRODUCTION

The Colorado Energy Office under the administration of former Governor Hickenlooper, the Utah Governor's Office of Energy Development partnered with Colorado Mesa University's Unconventional Energy Center for completion of a report that would build on the Grand Junction Economic Partnership / Colorado Mesa University "Piceance Basin to the Pacific Rim" report completed in 2015 and updated in 2017. Five years ago, a consortium of Western Colorado public and private entities sponsored a study designed to highlight and emphasize the economic advantage that makes the Piceance Basin of Western Colorado unique to the natural gas industry. That study clearly described the exceptional characteristics of Piceance production and regional and western U.S. pipeline infrastructure.

The analysis also emphasized Western Colorado's capacity to attract investment in its reserves and potential long-term markets for its production. This collaborative effort between the Hickenlooper administration's energy office and the state energy office of Utah was born out of a panel discussion at the Uinta Basin Energy Summit in August 2017, which focused on common approaches toward natural gas and infrastructure development in Utah and Colorado. The panel recognized that the United States Geological Survey (USGS) considers the Piceance-Uinta Basin (see Figure 1) a single, priority province with significant natural gas resource potential for its National Oil & Gas Assessment.

The panel also established that a common approach toward developing markets for Piceance-Uinta natural gas between the states of Utah and Colorado would help strengthen and benefit the rural economies of both states. Dubbing this new collaboration the "Western States Rural Natural Gas Initiative" (WSRNGI), the Colorado Energy office under the Hickenlooper administration and the Utah energy office signed a Memorandum of Understanding to formalize their joint efforts.

This new report provides an assessment of the natural gas resource base as well as related natural gas development and transportation infrastructure in the Piceance-Uinta Basin. It describes the benefits that development of the natural gas resources in these basins, coupled with successful transport and delivery to markets, will have on local communities and the region as a whole. The report also identifies potential new markets for Piceance and Uinta Basin natural gas. Additional public and private sponsors



have joined the effort. This joint effort is logical since the "geologic province" border is more meaningful than the political one.

This report, at a fundamental level, seeks to establish the value proposition for the Piceance and the Uinta basins. Put another way, in this energy era described by many as the "shale revolution," this report seeks to describe: how this geologic region stands out; how the Piceance and Uinta basins "measure up" against the other world-class gas producing basins in North America; and most importantly, how the Piceance-Uinta Basin natural gas finds international markets.

The Piceance-Uinta Basin has a unique advantage when compared to other U.S. and Canadian conventional and shale production areas: abundant and available pipeline export capacity for natural gas that currently exists in the region and throughout the Western U.S.

The thesis of this update remains the same as the original report. The strong and growing demand for liquefied natural gas (LNG) in the Pacific Basin should result in new markets for (and investment in) Piceance-Uinta Basin natural gas production. This study analyzes the Piceance-Uinta Basin in the greater context of the U.S. shale revolution and the ever-increasing worldwide demand for U.S. LNG. Its results demonstrate that a Piceance-Uinta Basin natural gas producer can access West Coast U.S. markets and potential LNG export facilities in a more efficient, cost-effective manner than nearly any other conventional or shale natural gas producer in the U.S.

THE WSRNGI IS SPONSORED BY:

BACKGROUND ON UTE INDIAN TRIBE

As a significant natural resource owner in the Uinta Basin, the Ute Indian Tribe was engaged in the process of writing this report and agreed to participate as a key stakeholder and advisor to the process.

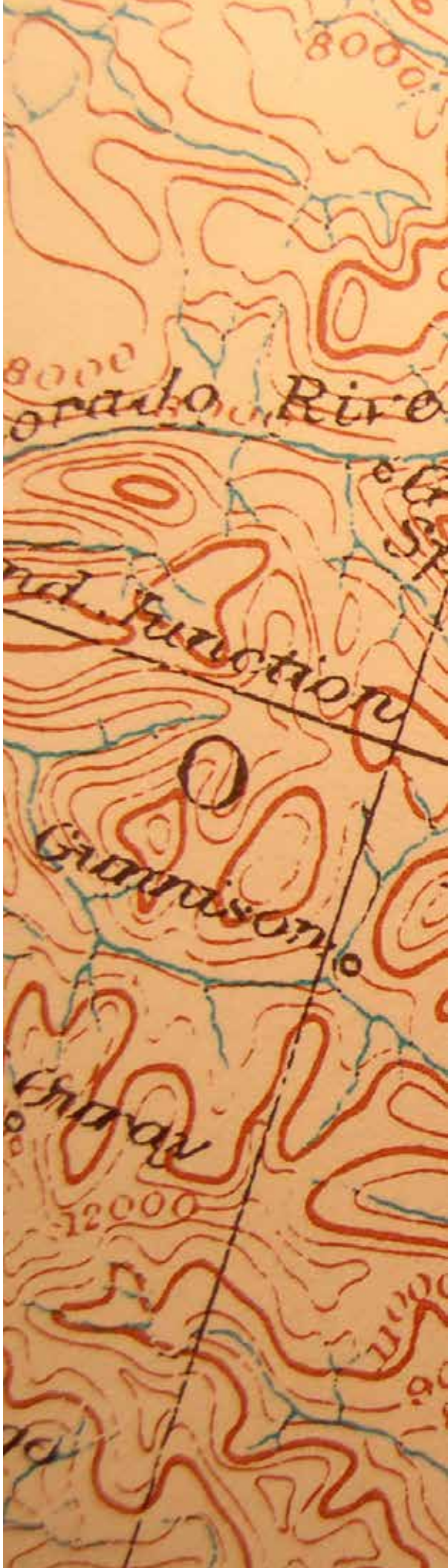
The Ute Indian Tribe of the Uintah and Ouray Reservation develops its natural resources, located on its Reservation, through Ute Energy, LLC and its subsidies, which the Ute Indian Tribe has interest in as the sole owner and shareholder. The Uintah and Ouray Reservation is located in northeastern Utah in the Uintah Basin and it is the second largest reservation in the United States, covering more than 4.5 million acres. The Uintah Basin is home to the third largest oil and gas formation in the lower United States. The Ute Indian Tribe primarily funds its government through its oil and gas revenue, and its government provides essential services to Ute tribal members through the government's 60 departments and agencies, including land, fish and wildlife management, housing, education, emergency medical services, public safety, and energy and minerals management.

The Ute Indian Tribe also uses its oil and gas revenue to invest in other tribal businesses, and it is a major employer and engine for economic growth in the Uintah Basin. Tribal businesses include a bowling alley, a supermarket, gas stations, a feedlot, a manufacturing plant, Ute Oil Field Water Services, and Ute Energy. The Tribe's governmental programs and tribal enterprises employ approximately 450 people, 75% of whom are tribal members. Each year the Tribe generates tens of millions of dollars in economic activity in northeastern Utah. The Ute Indian Tribe has been developing oil and gas on its Reservation since the 1940's. Today, the Ute Indian Tribe leases nearly 400,000 acres for oil and gas development, with some 2,059 wells producing 35,000 barrels of oil a day and about 900 million cubic feet of gas per day.

Ute Energy is an independent oil and natural gas company that engages in the acquisition, exploration, development, and production of oil and natural gas reserves in the Uinta Basin in northeastern Utah. All of Ute Energy's mineral interests in oil and gas properties are located on the Uintah and Ouray Reservation.

Ute Energy operates exclusively in the isolated Uinta Basin and it only has access to one consumer market—Salt Lake City, Utah. This monopsonistic market structure creates marketing and sales inefficiencies for oil and gas producers in the Uinta Basin. Accordingly, Ute Energy must sell its oil and gas at the prices offered, which typically are ten to fifteen percent (10-15%) below the West Texas Intermediate benchmark price.

Through the construction of liquefied natural gas pipelines and a west coast export terminal, such as the proposed Jordan Cove LNG export terminal, Ute Energy can gain access to new energy markets that will alleviate the ongoing marketing and sales inefficiencies. This would also increase the Ute Indian Tribe's income and assist in its ongoing efforts of economic development and providing essential services for its tribal members.



THE WORLDWIDE RACE FOR MARKET SHARE

The U.S. has a tremendous natural gas resource base. Total resource estimates increase each year as technologies and methods for recovering natural gas improves. According to the U.S. Energy Information Administration, the U.S. has enough natural gas reserves to meet the nation's current demand for the next 90 years in addition to providing the ability for significant exports. U.S. natural gas production can provide stability for foreign markets, including key U.S. allies, by meeting the significant and continued growth in worldwide demand for natural gas.

The race is on from producing region to producing region in the U.S. as to who can best take advantage of this unprecedented export opportunity for U.S. natural gas. The impediment to production growth in many producing regions is the need for midstream pipeline (regional and interstate) infrastructure. For some emerging shale plays, the lack of regional pipeline takeaway capacity may determine who wins and who loses in the competition to capture U.S. LNG export market share.

Meanwhile, energy demand is soaring in Asia, led by China, Japan, South Korea, Taiwan, and India. Natural gas can play a key role in meeting those energy needs, providing reliable, cleaner baseload for increasing renewable energy. China and India are using more natural gas as a fuel for power generation to meet the demands of growing populations. They are also using it to mitigate air pollution in the generation. All of these countries are using natural gas as a way to decrease their greenhouse gas (GHG) emissions.

The European continent is also increasing its consumption of natural gas to meet its energy needs and reduce its GHG emissions. As European counties begin to implement renewable sources of energy, natural gas can pave the way by acting as a transition fuel source. Perhaps more importantly, from a geopolitical perspective, imported LNG is enabling European countries to reduce their dependence on natural gas imports from Russia, which has shown willingness to use energy exports to achieve its own geopolitical goals. LNG exports will also meet growing demand in many emerging economies around the world such as Malaysia, Vietnam, Pakistan, and countries in Africa and Latin America.

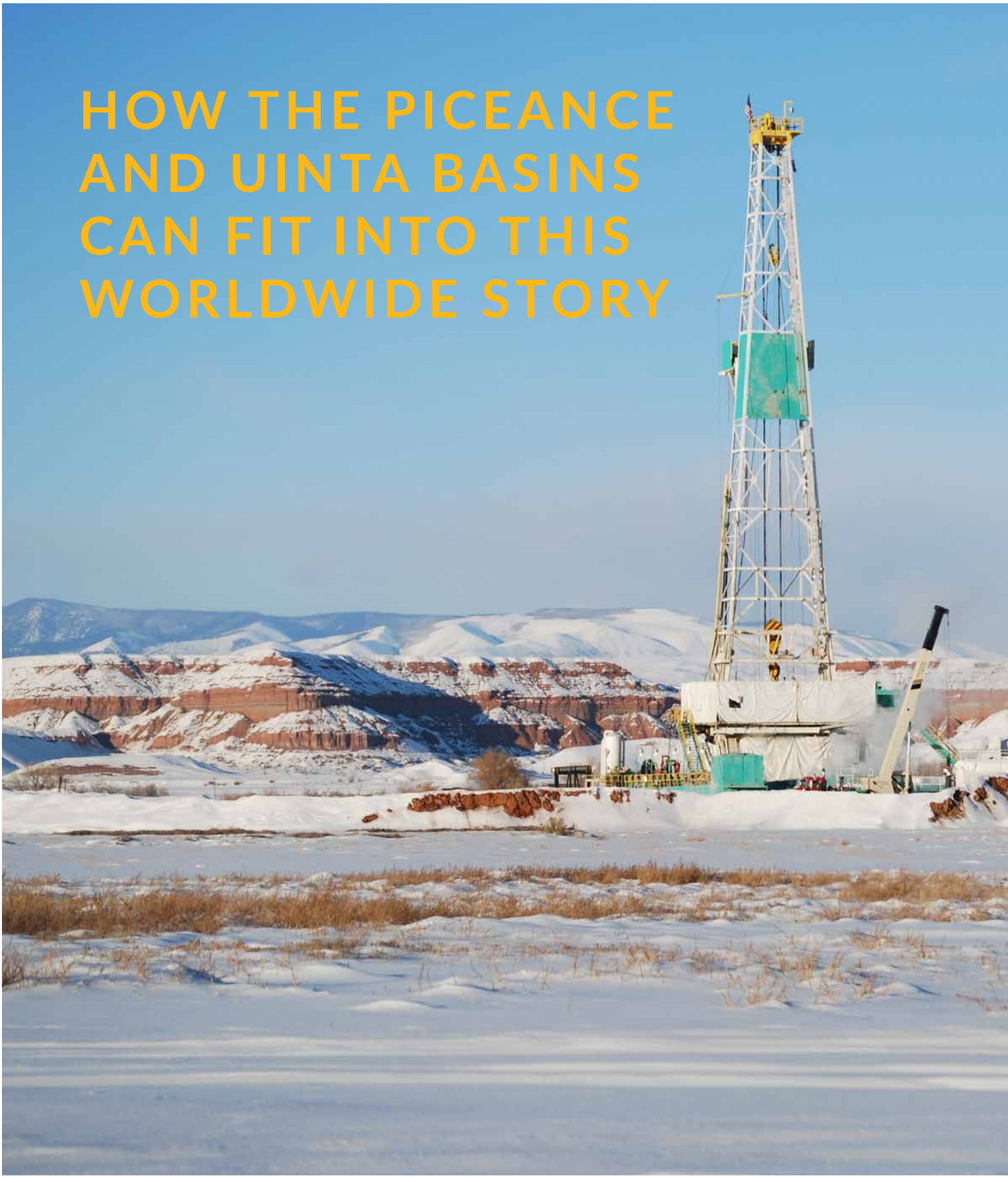
The U.S. is currently exporting LNG via the U.S. Gulf Coast and Mid-Atlantic. There are additional LNG export facilities planned on the Gulf Coast, the Atlantic Coast, Alaska, and the Pacific Coast.

LNG export projects also appear to be moving ahead on the Canadian Pacific Coast in British Columbia and on Mexico's Pacific Coast.

Due to its unique attributes (the most important being proximity), Piceance-Uinta Basin natural gas production is the logical first choice for any Western North America LNG export project. Long-term purchasers of LNG or the associated reserves should recognize the Piceance-Uinta Basin's inherent advantages in predictable production, cost and price security, and immediately available production-to-market pipeline infrastructure. By acquiring Piceance-Uinta Basin reserves, long-term purchasers of natural gas can minimize price uncertainty. Piceance-Uinta Basin natural gas producers can access West Coast U.S. markets and potential West Coast LNG export facilities in a more efficient, cost-effective manner than most natural gas producers in the U.S.

The most promising U.S. LNG export option on the U.S. Pacific Coast is the proposed Jordan Cove LNG liquefaction facility located in Coos Bay, Oregon. The Jordan Cove LNG project, if completed, will become the best-positioned LNG export terminal in the U.S. to serve markets in Asia. The key advantage that Jordan Cove enjoys is a significantly shorter shipping distance to Asia relative to other LNG export terminals in the U.S.

HOW THE PICEANCE AND UINTA BASINS CAN FIT INTO THIS WORLDWIDE STORY



The U.S. "shale revolution" has advanced the U.S. from a position of dependence on oil and gas imports to a position of abundance. The U.S. is now the world's largest producer of natural gas.

The U.S. can meet its domestic demand, but perhaps more importantly, it has become an increasingly important exporter of natural gas (via pipeline and LNG tanker) to global markets.

The U.S. Energy Information Administration (EIA) estimates U.S. dry natural gas production will grow to 84.5 billion cubic feet per day (Bcf/d) in 2019. According to the Potential Gas Committee, the U.S. has 2,817 trillion cubic feet (Tcf) of technically recoverable natural gas resources (in addition to about 324 Tcf of proved gas reserves estimated by the EIA). As stated previously, this is enough gas to meet current U.S. demand for 90 years, allowing for significant export capability. Global natural gas production reached 355 Bcf/d in 2017; the U.S. accounts for 20 percent of this production.

This resource abundance, coupled with growing global demand, is allowing the U.S. to export these commodities and products in ever-increasing numbers, growing its economy and helping to reduce its trade deficit. The Piceance-Uinta Basin, from a potential resource perspective, is primed to usher in the next wave of shale, conventional and unconventional, U.S. natural gas production. Expediting the development of those reserves would create massive economic benefits for the states of Colorado and Utah, and tribal nations. The limiting factor for development in the Piceance-Uinta Basin is not geologic potential but the lack of market access for incremental gas supplies beyond the Rockies.

RESERVE BASE AND PRODUCTION POTENTIAL

Many oil and gas analysts would consider the Piceance and Uinta basins to be two separate and distinct producing basins primarily due to the products that they are known for. The Uinta Basin is generally considered as an oil producing basin with associated natural gas and significant non-associated natural gas resources. The Piceance Basin is generally considered to be a natural gas producing basin with complimentary natural gas liquids. Each of these basins will be considered individually in this report. However, the most important factor is not what makes these two basins different but rather their combined productive potential in tandem with their specific regional location's proximity to potential west coast LNG export projects.

The Piceance Basin

The Piceance Basin is one of the more mature producing basins in the U.S., with a mixture of vintage natural gas production out of the Williams Fork formation (lower member of the Mesaverde formation) and new natural gas production out of the Mancos Shale formation. It is the combination of those two natural-gas-bearing reservoirs - one old, one new - that should be of interest to any party looking for an investment in predictable long-term natural gas reserves.

The Piceance Basin's Williams Fork formation made the Piceance Basin what it is today. More than 12,000 wells have been drilled to date in the Williams Fork/Mesaverde formation. The largest production growth in the Piceance Basin occurred from 2000 to 2008. That growth can be seen in the annual numbers displayed in Figure 1. The year-over-year production growth during that period averaged 20 percent or more while implementation of best environmental practices has limited impacts to the region's environmental resources.

Figure 2 shows Piceance Basin production. Both oil/liquid and gas volumes have declined from their highs in 2011/2012. Production growth was significantly curtailed when natural gas prices decreased in the first quarter of 2009. That same year also marked the period of peak production for the basin.

Although the drilling rig count has declined substantially over the last seven years, the basin currently makes up approximately 2 percent of U.S. natural gas production and just under 20 percent of all production in the Rocky Mountains. The decline in the drilling rig count correlates directly with the decline in natural gas prices as can be seen in Figure 3.

Annual Natural Gas Production in Counties That Contain the Piceance Basin

County	2000	2001	2002	2003	2004	2005	2006
Delta	0.001	0.005	0.006	0.002	0.025	0.401	0.065
Garfield	70.305	88.285	116.868	149.824	209.714	270.231	351.613
Gunnison	0.121	0.110	0.040	0.079	0.079	0.007	0.556
Mesa	5.668	5.027	7.695	9.345	7.807	10.755	15.478
Moffat	19.544	17.489	19.178	18.527	19.557	19.5821	19.742
Pitkin	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Rio Blanco	31.240	31.414	35.936	34.159	33.622	37.579	48.159
TOTAL (Bcf)	126.878	142.330	179.723	211.935	270.804	338.495	435.612
TOTAL (MMcf/d)	346.7	389.9	492.4	50.6	739.9	927.4	1193.5
Y/Y % Change	**N/A**	**12.5%**	**26.3%**	**17.9%**	**27.4%**	**25.3%**	**28.7%**
County	2007	2008	2009	2010	2011	2012	TOTAL
Delta	0.019	0.026	0.010	0.009	0.015	0.061	0.646
Garfield	443.400	565.152	610.868	648.453	676.333	702.767	4903.811
Gunnison	1.183	1.475	1.410	2.078	1.901	1.974	11.012
Mesa	30.651	42.788	38.476	37.992	41.662	47.134	300.477
Moffat	16.150	20.169	17.082	19.345	18.252	17.011	241.567
Pitkin	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Rio Blanco	48.119	54.468	76.041	99.841	106.274	90.586	727.438
TOTAL (Bcf)	539.522	684.079	743.887	807.718	844.436	859.534	6184.952
TOTAL (MMcf/d)	1478.1	1869.1	2038.0	2212.9	2313.5	2348.5	N/A
Y/Y % Change	**23.9%**	**26.4%**	**9.0%**	**8.6%**	**4.5%**	**1.5%**	**N/A**

Figure 1
Annual Natural Gas Production in Counties that Contain the Piceance Basin (Source: COGCC)

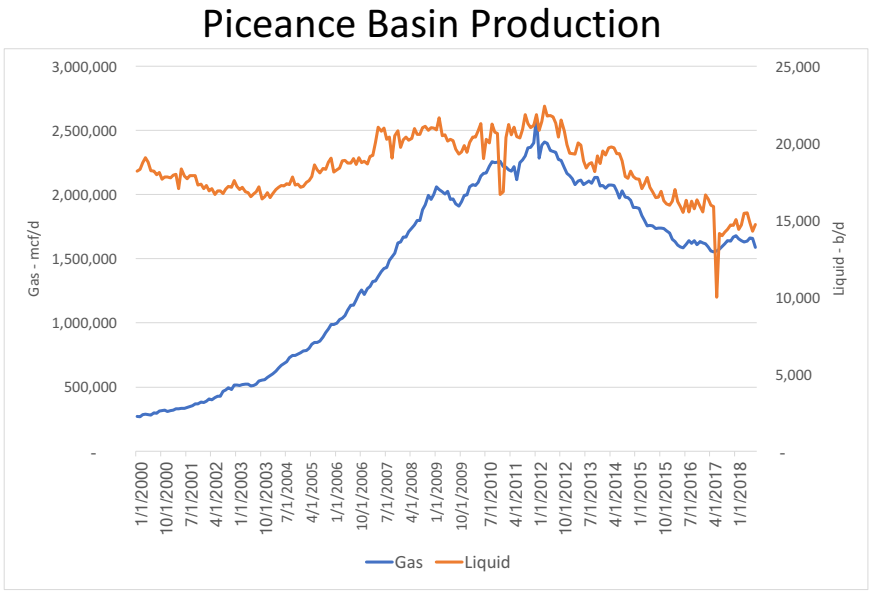


Figure 2
Piceance Basin Production (Source: PetroNerds, DrillingInfo)

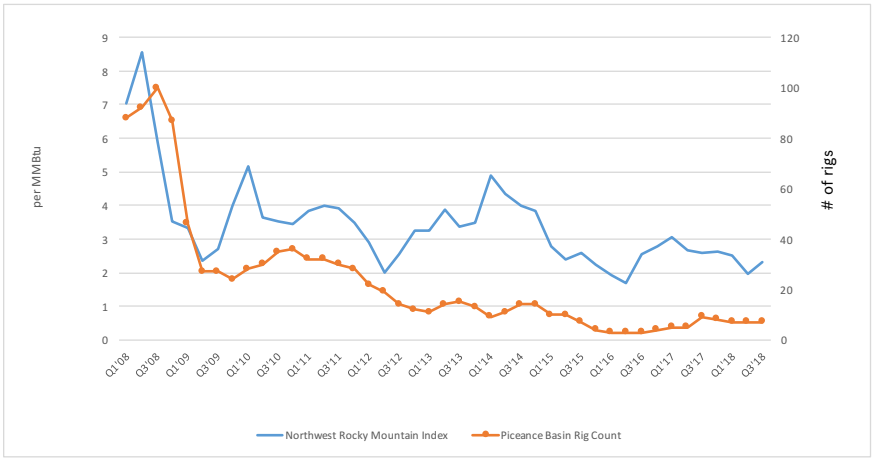


Figure 3
The decline of Natural Gas Price Index Since 2008 and Piceance Basin Rig Count 2008-Present - By Quarter (Source: Inside FERC's Gas Monitoring Report, S&P Global Platts Publication, and Tudor Pickering Holt & Co. data)

In addition to historical production in the Williams Fork, some operators in the Piceance Basin are pursuing vertical and horizontal drilling, and hydraulic fracturing to explore the Mancos Shale, reducing surface impacts of natural gas development. The 800-foot thick Niobrara section of the Mancos has been the primary target for shale development. The geologic relationship between the Williams Fork and the Mancos can be seen in Figure 4.

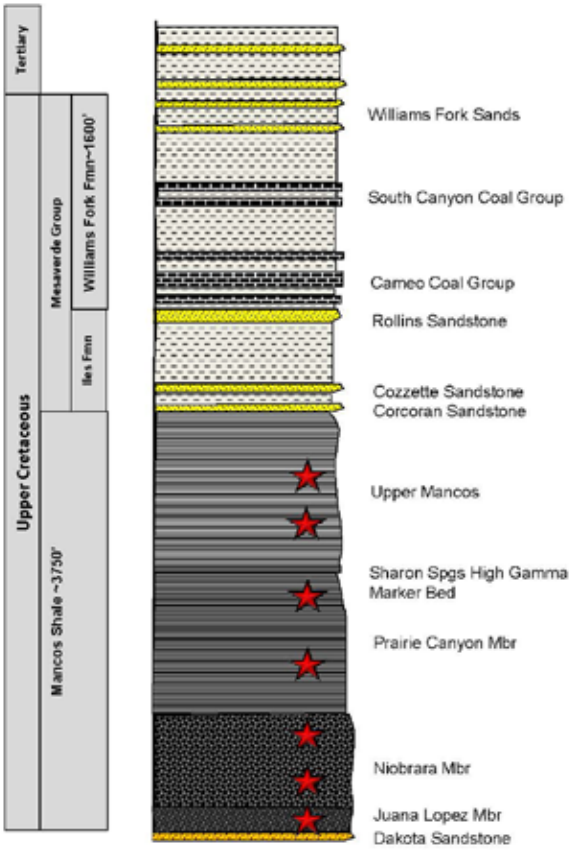


Figure 4
Geologic Cross-Section of the Piceance Basin (Source: Presentation to Garfield County Energy Advisory Board, December 1, 2016)

The Mancos Shale lies directly above the Dakota sandstone, and below the Corcoran sandstone. The gross thickness of the Mancos Shale formation can exceed 4,000 feet. It is one of the thickest shale deposits in the world. The Mancos is considered an emerging giant when comparing gas in place (GIP) estimates as seen in Figure 5.

Resource estimates indicate twice the amount of natural gas in place in the Mancos Shale as compared to its more famous relative on the East Coast of the U.S., the Marcellus Shale. The Mancos GIP estimate is greater than 3,000 Tcf. That GIP number ranks the Piceance as the largest U.S. natural gas shale deposit.

In an interview published by Energy Pipeline, former Colorado Oil and Gas Association, West Slope Chapter Executive Director, David Ludlam, discussed the amended Potential Gas Committee report: "The survey (Potential Gas Committee) looked only at the Mancos. When you

consider there are 30 years of locations left to drill in the Mesaverde formation, some in the industry believe there are more than 100 Tcf of recoverable gas reserves."

"For 2016, the net change in the Potential Gas Committee's assessment for (essentially) Piceance Basin, +18,958 Bcf (31.3 percent), was the largest volumetric and percentage change in all the Rocky Mountain provinces. This includes a 20,000 Bcf upward revision in shale gas resources over the 2017 assessment."

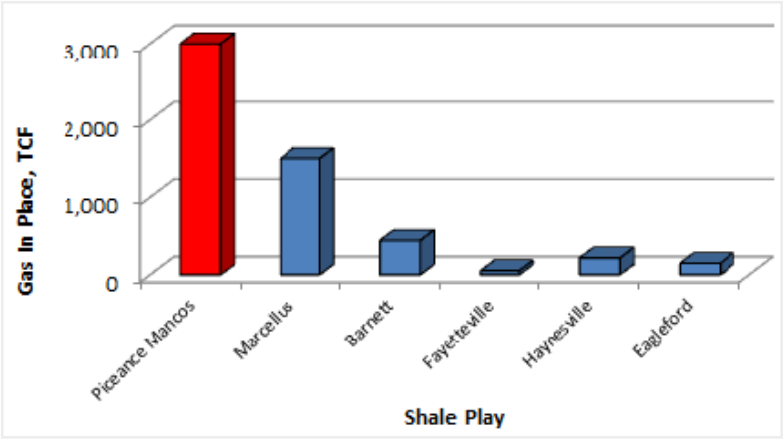


Figure 5
U.S. Major Shale Plays In Place (Source: Presentation to Garfield County Energy Advisory Board, December 1, 2016

Table 1. Comparison of Potential Gas Committee's Biennial Assessments of Total Traditional Natural Gas Resources, 2014 and 2016 ["Most Likely" values in Bcf]

	2014 Assessment				2016 Assessment				Change in Total	
Province	Probable M. Likely	Possible M. Likely	Speculative M. Likely	Total M. Likely	Probable M. Likely	Possible M. Likely	Speculative M. Likely	Total M. Likely	Most Likely, Bcf	2014-16 %
Piceance, Eagle and Park Basins	38,110	15,755	6,670	60,535	43,111	24,715	11,667	79,493	18,958	31.3
Uinta Basin	44,300	35,550	31,130	110,980	44,300	35,550	31,130	110,980	0	0

(Source: Potential Gas Committee. "Potential Supply of Natural Gas in the United States." July 2017.)

The Piceance Basin has the combined benefit of significant existing production, plus tens of thousands of additional locations yet to be drilled in the Williams Fork, all on top of the emerging Mancos Shale development.

The Uinta Basin

The Uinta Basin (see Figure 6) has its own strong history of gas production, including trillions of potential cubic feet of gas in largely untapped unconventional resources. The basin is currently poised for a significant increase in horizontal wells with almost 550 new permits approved or in the approval process.

Current USGS estimates of undiscovered oil and gas and remaining reserves in the Uinta Basin are dated. The most recent data from 2002 states that there were 13,086 Bcf of undiscovered gas. The USGS further estimates that 2002 remaining reserves in the Uinta Basin amounted to 1,324 Bcf of natural gas.

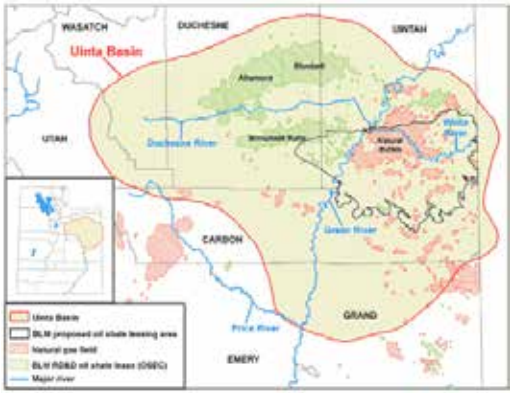


Figure 6
Utah and Uinta Basin Map (Source: Utah Geological Survey)

Figure 7 shows Uinta Basin production. While dry gas production has declined from highs of over 1.2 Bcf/d in late 2011, oil or liquid production has risen to over 80,000 b/d in recent years.

The impact of the natural gas price decline and a commensurate decline in the rig count realized in the Piceance Basin was also seen in the Uinta Basin. See Figure 8.

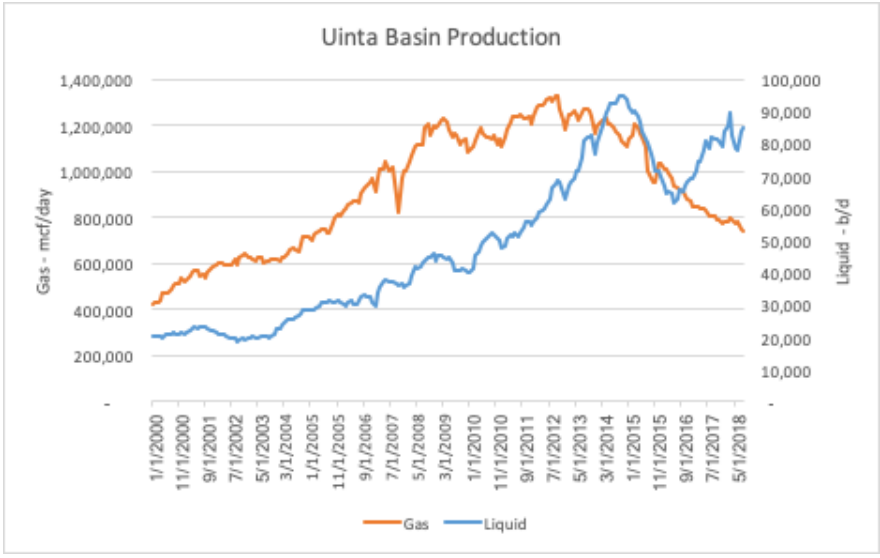


Figure 7
Uinta Basin Production (Source: PetroNerds, DrillingInfo)

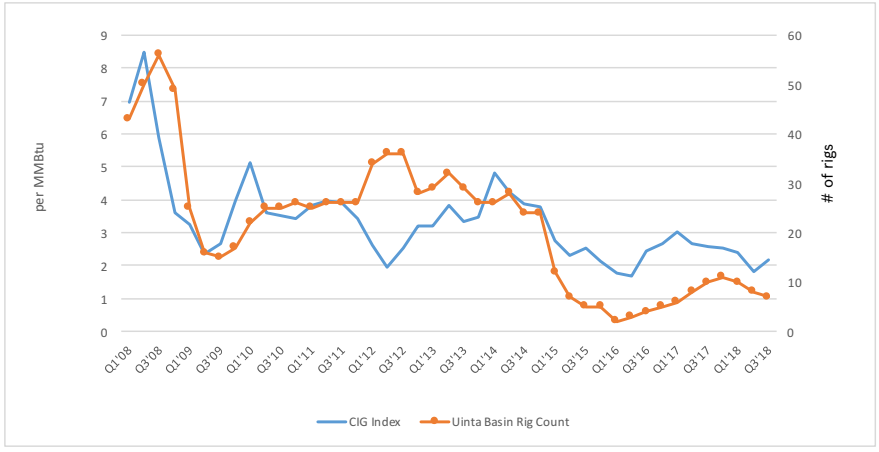


Figure 8
The decline of Natural Gas Price Index Since 2008 and Uinta Basin Rig Count 2008-Present - By Quarter (Source: Inside FERC's Gas Marketing Report, S&P Global Platts Publication, and Tudor Pickering Holt & Co. data)

PICEANCE-UINTA BASIN AND WESTERN U.S. MIDSTREAM INFRASTRUCTURE

To access competitive, global LNG markets, Piceance-Uinta Basin natural gas must first exit Eastern Utah and Western Colorado. There is an overwhelming volume of available pipeline capacity to transport gas out of Eastern Utah and Western Colorado. The interstate pipeline corridors that allow Piceance Basin gas to exit Western Colorado are shown in Figure 9.

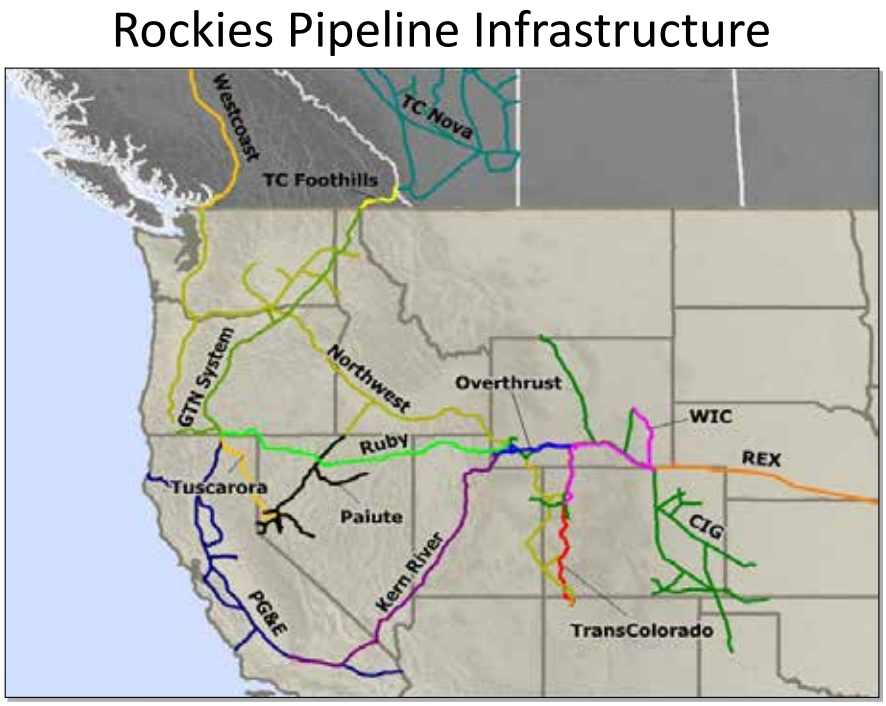


Figure 9
Rockies Pipeline Infrastructure (Source: Bentek Rockies Observer)

From 2007 to 2011, significant interstate natural gas pipeline export capacity was constructed and put into service exiting the Central Rockies, Utah, Colorado, and Wyoming. Those export pipeline expansions have had a significant positive effect on the negative Rockies basis differential, narrowing it dramatically.

Piceance-Uinta Basin producers have access to extensive and under-utilized natural gas pipeline and natural gas processing capacity. That capacity allows Piceance-Uinta Basin producers unrestricted access to markets from the West Coast to Midwestern and Mid-Atlantic States.

Brian Jeffries, former Executive Director of the Wyoming Pipeline Authority, analyzed the total available pipeline capacity exiting the Rockies (10.2 Bcf/d) and then compared it to the actual total flows of natural gas moving through those pipelines exiting the Rockies on a given day (December 14, 2016). See Figure 10.

According to the Jeffries analysis, 61 percent of the westward total available pipeline capacity was being utilized. Only 39 percent of the eastward total available pipeline capacity was being utilized. It is worth noting that this analysis was done during a winter month when no known production freeze-offs were occurring, and as a result, all available markets outside of the Rocky Mountain region were able to receive natural gas from the Rockies without the threat of wellhead or pipeline curtailments. No other production area in the country has anywhere near that total excess available pipeline capacity.

The relative drop in the Rocky Mountain region rig count, as compared to the Marcellus and Utica shale plays can be seen in the decline in natural gas production and downstream transportation volumes throughout the Rocky Mountain region. While the drop in the rig count has been viewed by some as a negative development, the silver lining in that cloud is that a minor uptick in natural gas prices (i.e., through additional West Coast LNG demand) can be met with new production, unhampered by pipeline capacity constraints. downstream transportation volumes throughout the Rocky Mountain region. While the drop in the rig count has been viewed by some as a negative development, a minor uptick in natural gas prices (i.e., through additional West Coast LNG demand) can be met with new production coupled with available pipeline capacity.

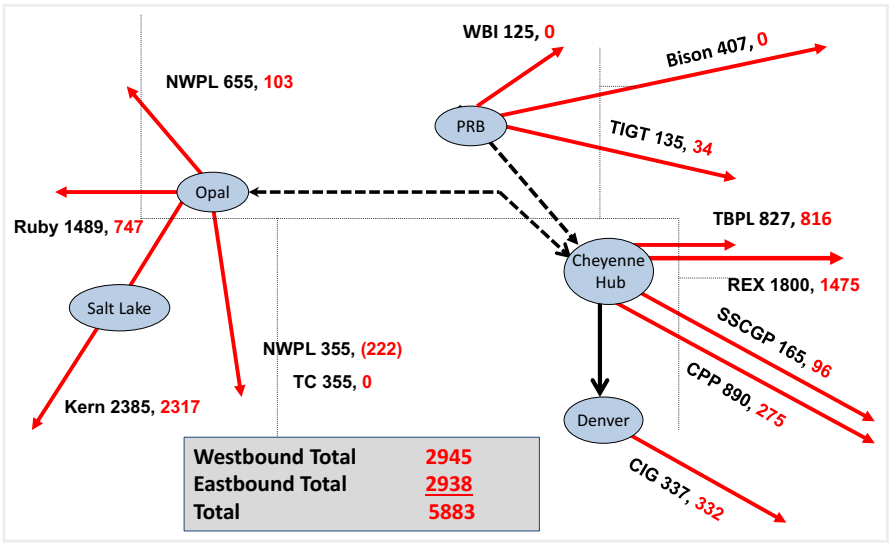


Figure 10
Rockies Pipeline Infrastructure (Source: Brian Jeffries, Wyoming Pipeline Authority (WPA), Individual pipeline websites under Informational Postings for Operationally Available Capacity, [1000s MMBtu per day])

REX Pipeline (Entrega Segment)

One of the key regional export pipelines for the Piceance-Uinta Basin is the Rockies Express (REX) segment of pipeline that runs from the White River Hub (near Meeker, Colorado) northward to Wamsutter, Wyoming. This segment has a design capacity of 1.437 Bcf/d. In November 2016, the average daily flow in this segment of REX was only 800,000 MMBtu per day. Consequently, there are over 640,000 MMBtu per day of available pipeline export capacity out of the Piceance-Uinta Basin on REX alone.

Williams Interstate Company System

In addition to the REX pipeline expansion, the Williams Companies built a new processing plant connected to an extensive large diameter pipeline that transported Williams production northward out of the heart of the Piceance Basin during the same general period as the REX (Entrega) build-out. The Williams Company's Willow Creek Processing Plant is tied into a significant, 142-mile, 24-inch diameter natural gas pipeline, owned and operated by the Wyoming Interstate Co., Ltd. (WIC, a KinderMorgan Company).

The WIC "Piceance Lateral" expansion transports gas northward from the Greasewood Hub (near Meeker) in Colorado's Rio Blanco County to the Wamsutter Compression Station in southwest Wyoming. The WIC Piceance Basin lateral expansion is capable of transporting 580,000 MMBtu per day out of the Piceance Basin. The Williams Companies determined at an early stage of development that they would build their own pipeline system northward to Wyoming, refusing to join with Encana on a long-term commitment to REX/Entrega. (See Figure 11.)

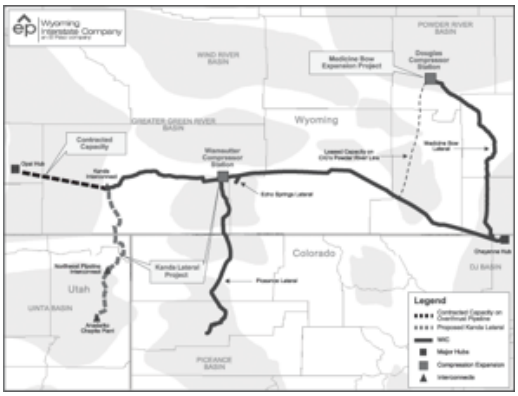


Figure 11
Wyoming Interstate Company (WIC) System (Source: El Paso Pipeline Partners, L.P. Form S-1)

Ruby Pipeline (Westbound)

Another key interstate pipeline for Piceance-Uinta Basin producers is the Ruby Pipeline. (See Figure 13). Ruby is a 42-inch diameter, 680-mile long pipeline that can handle a maximum volume of 1.5 Bcf of gas per day. The pipeline flows westward from Opal, Wyoming to Malin, Oregon traversing northern Utah and Nevada. Ruby went into service on July 28, 2011. During the last four years, Ruby Pipeline has only seen an average 61 percent capacity utilization rate. Stated another way, nearly 40 percent of the capacity on Ruby Pipeline is unused and available.

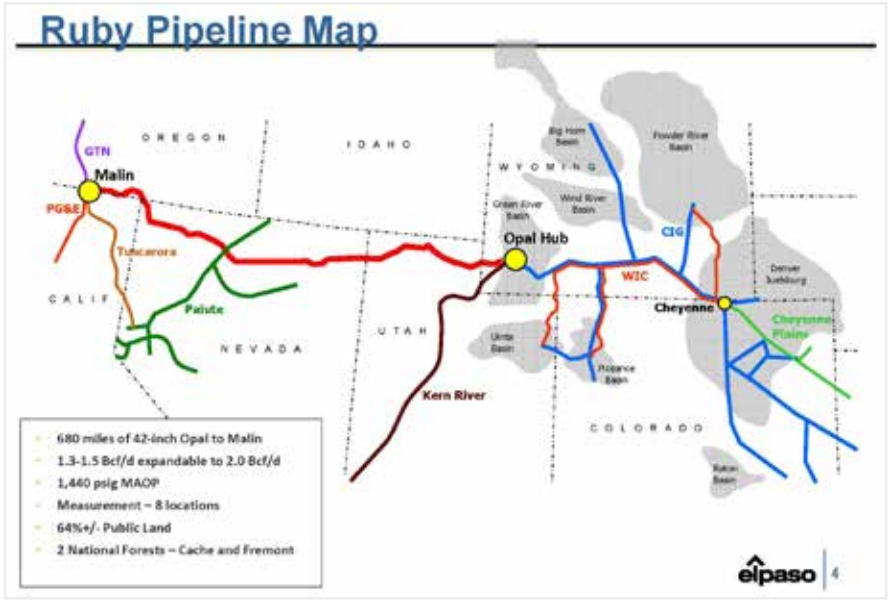


Figure 12
Ruby Pipeline Map (Source: El Paso Energy)

Pacific Connector Pipeline

Jordan Cove LNG is currently the only LNG export terminal proposed for the U.S. West Coast. To transport natural gas volumes from regions such as the Piceance-Uinta Basin, Jordan Cove LNG has proposed to build a 230-mile Pacific Connector Pipeline from the existing Ruby Pipeline located in Malin, Oregon to the Oregon Coast, thus connecting Jordan Cove to the Rocky Mountain supply basins and creating one of the most advantageous export hubs in the world.

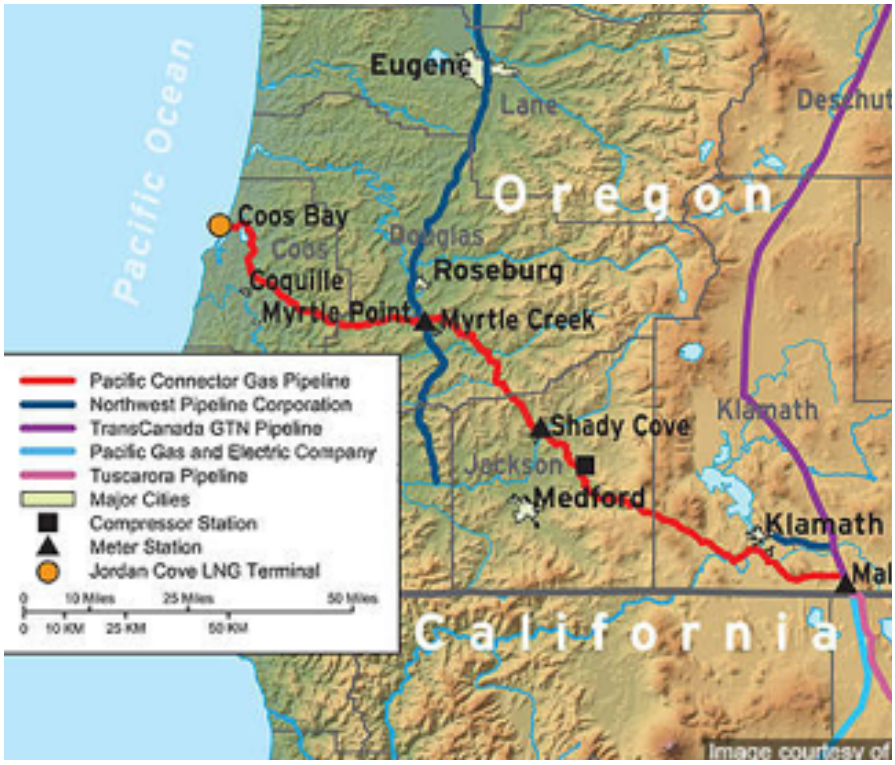


Figure 13
Pacific Connector Pipeline (Source: Williams)

Available Piceance-Uinta Basin Pipeline Export Capacity

Table 2 shows the total existing (design capacity) and underutilized pipeline capacity for all pipelines exiting Western Colorado and Eastern Utah. All volumes are shown in million British thermal units per day (MMBtu/d). It is important to note that pipeline flows vary seasonally. The flow date of December 15, 2016, was picked as an anticipated "high flow" date. This table underscores the considerable underutilized pipeline capacity exiting the Piceance Basin.

Table 2. Pipeline Export Capacity: Piceance-Uinta Basin Design versus Average Utilization (As of 12/15/2016)

	Design Capacity	Utilization*	Available
CIG (North)	203,000	33,000	170,000
CIG (West)	276,000	30,000	246,000
Northwest Pipeline*	877,000	64,000	813,000
Questar Pipeline (Net)	480,000	91,000	389,000
TransColorado	375,000	80,000	295,000
WIC Piceance Lateral	580,000	290,000	290,000
REX / Entrega (Segment 1)	1,437,000	625,000	812,000
Total Pipeline Export Capacity	4,228,000	1,213,000	3,015,000

* There are currently six Piceance Basin delivery points into Northwest Pipeline

Each of the pipelines identified in Tables 2 and 3 represents critical paths for the flow of Piceance-Uinta Basin gas volumes to downstream markets, particularly West Coast U.S. markets.

The collective efforts by producers, gathering companies, processing companies, and interstate pipelines have resulted in world-class facilities that resolved any regional pipeline takeaway capacity issues in Western Colorado and Eastern Utah. These efforts were so significant that midstream natural gas processing and interstate pipeline capacity in Western Colorado and Eastern Utah is currently over-built.

Table 3. Growth in Piceance-Uinta Basin Pipeline Takeaway Design Capacity ***(all figures in MMBtu/d)***

	Winter 2005	Winter 2016
CIG (North)	90,000*	203,000
CIG (West)	276,000	276,000
Northwest Pipeline	440,000	877,000
Questar Pipeline (Net)	25,000	480,000
TransColorado	350,000	375,000
WIC Piceance Lateral	30,000	580,000
REX / Entrega (Segment 1)		1,437,000
Total Pipeline Export Capacity	1,211,000	4,228,000

A table that displays the Winter 2005 versus Winter 2016 pipeline export takeaway capacity out of the Piceance Basin is shown here.

Between 2005 and 2008, the net export capacity of interstate natural gas pipelines out of Western Colorado and Eastern Utah nearly tripled, from 1.265 million MMBtu/d to 3.370 million MMBtu/d. Natural gas processing facilities experienced a similar growth pattern.

THE CRITICAL NATURE OF U.S. LNG EXPORTS

What is LNG?

LNG is a liquefied version of natural gas, consisting primarily of methane. It is a clear, odorless, non-toxic liquid that forms when natural gas is cooled to minus-260°F (minus-162°C). The cooling or liquefaction process shrinks the volume of the methane by 600 times, making the methane easier and safer to store and ship. In its liquid state, methane will not ignite as it does in its gaseous state. When it reaches its destination port, it is warmed back into its gaseous state, a process known as regasification.

The U.S. shale revolution of the 2000s transformed the nation's energy outlook. Abundant new domestic production created global markets for U.S. natural gas and oil production. Laws and regulations were already in place that enabled international natural gas exports, including the permitting of LNG export facilities.

With so much domestic supply in place, companies began looking at options for LNG export. Previously, LNG export markets had been dominated by other countries such as Algeria, Qatar, Nigeria, Trinidad & Tobago, and Australia in recent decades. No LNG exporting/liquefaction facilities existed in the lower U.S. 48 states until 2016.

Currently, there is an enormous and growing global demand for natural gas. In 2016, global gas demand grew by 1.5 percent, but in 2017, global natural gas demand grew by 3 percent because of abundant and relatively low-cost supplies, along with fuel switching in key economies, according to the International Energy Agency (IEA).

In 2017, global natural gas consumption amounted to around 130.66 Tcf (3.7 trillion cubic meters or 357 Bcf/d). That same year, global production reached 355 Bcf/d with the U.S. accounting for 90.9 Bcf/d. Global natural gas consumption is expected to increase by an average of 1.4 percent per year through 2040.

POTENTIAL ECONOMIC IMPACT OF PICEANCE-UINTA NATURAL GAS EXPORTS

Global LNG Markets and Economics

Currently, the primary global markets for LNG consist of the Asia-Pacific Region, the European Region, and Central and South America.

Historically, the Asia-Pacific Region has been the largest market for LNG. Japan is the world's largest LNG importer, followed by South Korea and Taiwan. China and India are rapidly growing LNG markets. Europe has experienced a more gradual LNG growth as pipeline gas from Russia, and the North Sea have supplied it for decades. North America has a unique pipeline infrastructure that allows gas to move between Canada, the U.S., and Mexico.

The chart below shows the economics of LNG exports, regarding the cost to deliver LNG from these three locations to Asia and Europe. The cost includes feedstock cost, operating cost, shipping cost, and CapEx recovery cost. Some component costs such as feedstock and shipping costs depend on multiple variables such as access to natural gas supply, ship charter rates, utilization levels, canal costs, and voyage times. This analysis is based on current and projected pipeline transportation expenses on the U.S. West coast. Because there is no current interconnecting pipeline system, the logistics of the West Coast infrastructure result in a higher feedstock charge compared to that on the U.S. Gulf coast. For LNG shipments to Europe, the U.S. East Coast projects have a marginal advantage due to lower shipping costs to projected European markets.

At the end of April 2018, the average global LNG price was around $7.00 per MMBtu, which was up as much as 35% from the previous year. The price of U.S. (Gulf Coast) LNG future contracts was about $6.50 per MMBtu. However, until additional export facilities are completed, most natural gas produced in the U.S. stays in the U.S. Therefore, domestic prices are less expensive relative to global prices.

The economics are dependent upon the export contribution margin (ECM). ECM equals the overseas landed price for LNG minus Henry Hub price, minus export cost (liquefaction cost + freight rate).

Japan is the biggest importer of LNG in the world; and despite the 34 percent decrease in Japan's LNG price from its recent highs, the U.S. ECM for that market is still positive - around $2.80 per MMBtu. U.S. ECMs are some of the best in the world (if not the best) because of their strategic geographical location between two major consumers (Europe and Asia), and also because of inexpensive and abundant natural gas.

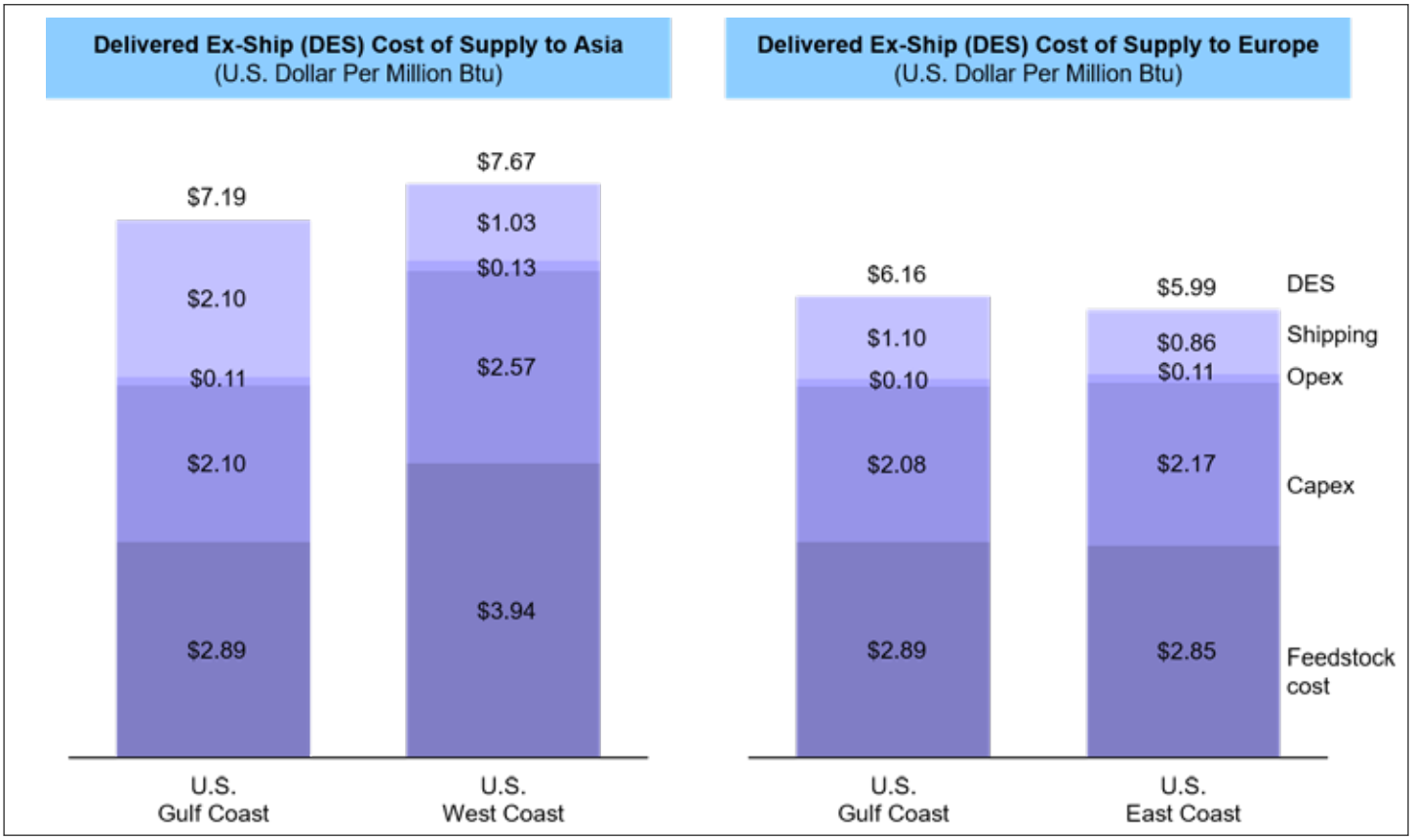


Figure 14
The Cost to Deliver LNG Exports to Asia and Europe (Source ADI Analytics, July 2018)

LNG Exports' Impact on the U.S. Economy

Regions with natural gas production experience direct economic impacts from resource development via jobs and labor income. These direct economic impacts will indirectly lead to increased benefits outside of the oil and gas value chain (i.e., the oil and gas industry's purchases of goods and products from other sectors such as manufacturing or transportation). Additionally, as a result of higher household incomes, induced economic impacts will occur due to increased consumer spending.

For the U.S., LNG exports could add as much as $92.7 billion in annual U.S. GDP through 2050 and as much as $3.26 trillion in cumulative benefits through 2050. LNG exports could help sustain as many as 432,900 U.S. jobs annually through 2050.

State and Local Benefits of Exporting Piceance-Uinta Natural Gas

There are substantial local and regional economic benefits to be realized by greater development of the Piceance and Uinta basins, in research from Dr. Nathan Perry at Colorado Mesa University on oil and gas employment in the Piceance. By creating new markets for gas in these basins, the number of drilling rigs will increase and with each drilling rig will come additional jobs. Assuming that new rigs are added, employment will increase on a cumulative basis as demonstrated in the chart below. The long run impact will total 208 jobs added per rig.

Table 4. Cumulative Impact of One Rig on Local Employment

Months	Jobs Added (Five Counties)	Jobs Added (Three Counties)
	Mesa, Garfield, Rio Blanco, Delta, Moffat	Mesa, Garfield, Rio Blanco
Month rig is employed	21.41	22.73
1st month (cumulative)	37.54	39.52
2nd month (cumulative)	63.24	65.29
3rd month (cumulative)	69.06	71.27
4th month (cumulative)	82.80	85.83
5th month (cumulative)	89.93	91.98
6th month (cumulative)	79.53	78.94
Long Run Impact on Employment	208.00	203.17

(Source: Dr. Nathan Perry, "The economic contribution of the oil and gas industry in the Piceance Basin")

The next table shows the impact of increased natural gas prices on employment. Based on Opal Hub prices, a $1.00 increase in natural gas prices results in an additional 1,183 jobs.

Table 5. Impact of Increased Natural Gas Prices on Employment (Based on Opal Hub Natural Gas prices)

Months	Jobs Added (Five Counties)	Jobs Added (Three Counties)
	Mesa, Garfield, Rio Blanco, Delta, Moffat	Mesa, Garfield, Rio Blanco
Month of Rig Employment	-21.08	-19.99
1st month (cumulative)	79.35	79.74
2nd month (cumulative)	4.65	42.46
3rd month (cumulative)	-26.55	66.61
4th month (cumulative)	152.46	212.04
5th month (cumulative)	284.47	339.62
6th month (cumulative)	390.27	427.91
Long Run Impact on Employment (per $1 change in natural gas price)	1183.05	1415.74

(Source: Dr. Nathan Perry, "The economic contribution of the oil and gas industry in the Piceance Basin")

A 2013 study by consulting firm ICF International estimated the value of LNG exports to each state. This included producing and manufacturing returns from natural gas industries. Utilizing their formula, Colorado may expect an estimated $6 billion in revenue and 38,000 jobs. Utah could see $4 billion in revenue and 15,000 jobs.

ENVIRONMENTAL AND SOCIETAL BENEFITS OF PICEANCE-UINTA NATURAL GAS DEVELOPMENT

Reduced Greenhouse Gas Emissions

Increased use of natural gas is helping to lower the emissions of carbon dioxide (CO2), a primary greenhouse gas (GHG). As a fuel, the combustion of natural gas produces negligible amounts of sulfur, mercury, and particulates. Utilization of natural gas for power generation also supports the integration of renewable energy resources, such as wind and solar. Natural gas-fueled generators can ramp up or down to shape the intermittency of these resources and support expanded utilization of wind and solar, further reducing CO2 and other emissions related to power generation.

While natural gas combustion accounts for approximately 10 percent of global nitrogen oxides (NOx) emissions, petroleum products utilized for transportation are the largest NOx emitters. Additionally, natural gas produces negligible amounts of other emissions such as sulfur dioxide (SO2) and fine particulate matter. Overall, natural gas provides a pathway to lower global emissions of criteria pollutants and CO2. Further emissions reductions can occur as additional renewable resources are integrated into the system, providing for clear air and mitigating climate impacts.

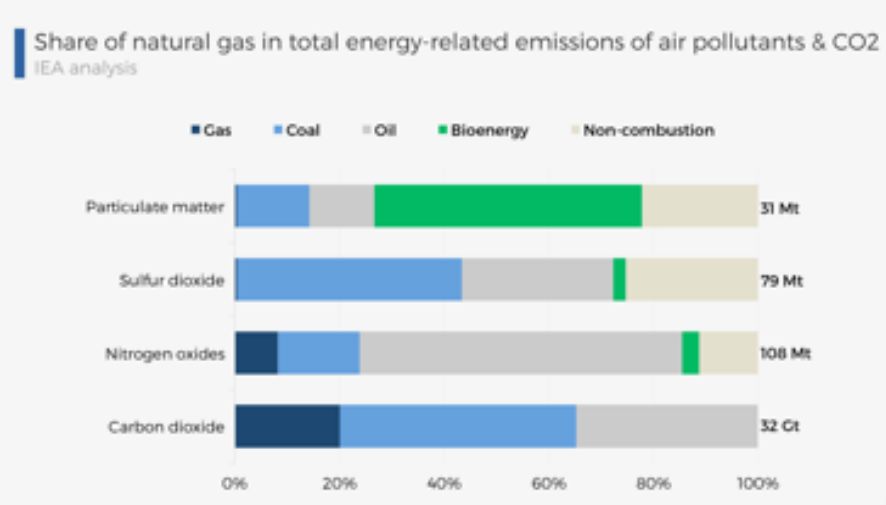


Figure 15
The Share of Natural Gas in Total Energy-Related Emissions (Source: International Energy Agency)

Global Coal Demand and Emissions

In 2017, worldwide CO2 emissions increased 1.4 percent. This increase is largely attributed to energy demand in Asia, China, and India. China's GHG emissions increased by 1.7 percent. China's power demand continues to grow. The country's coal power generation increased by 7.3 percent in the first seven months of 2018. During the past five years, China has added 230 gigawatts of coal-fired generation capacity. The U.S. stands in stark contrast to these trends, leading the world in reductions by lowering carbon emissions by 0.5% in 2017. This reduction was in large part due to U.S. access to natural gas.

LNG has the potential to assist the rest of the world in meeting its GHG emission reduction goals. While natural gas combustion accounts for approximately 10 percent of global NOx emissions, petroleum products utilized for transportation are the largest NOx emitters. Additionally, natural gas produces negligible amounts of other emissions such as SO2 and fine particulate matter. LNG can help other nations reduce their GHG emissions just as it has done in the U.S. LNG exports from the U.S. can be a truly transformative force for the entire world. Natural gas power can be incorporated into power grids to complement offset the intermittent nature of solar or wind resources.

A 2018 joint university study by the University of Calgary, Johns Hopkins University, the Massachusetts Institute of Technology and Southern Methodist University found that LNG exported from Canada's west coast (British Columbia) would feasibly decrease global greenhouse gas emissions. The study looked at electricity generation from five selected Asian countries (China, India, Japan, South Korea, and Taiwan) and examined LNG's potential displacing coal-fired electricity generation. See Figure 16.

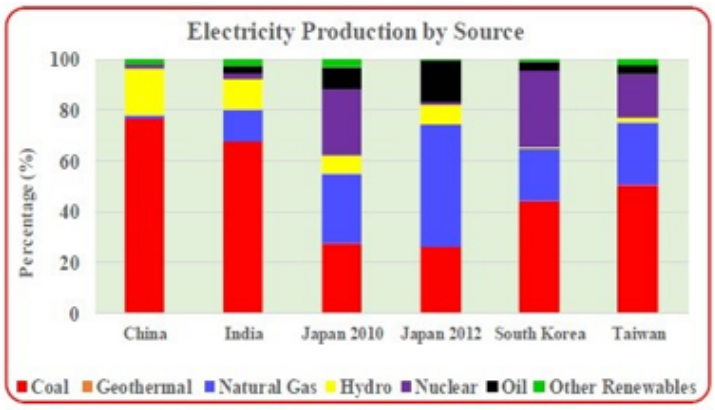


Figure 16
Electricity Generation Mix in Selected Asian Countries (Source: Country-level Life Cycle Assessment of Greenhouse Gas Emissions from Liquefied Natural Gas Trade for Electricity Generation. American Chemical Society. January 29, 2018)

LNG has great potential to also serve as a transition or backstop for renewable energy sources. Natural gas can assist with the integration of renewable energy sources for the grid. Intermittent energy sources such as wind or solar cannot currently be relied upon for around the clock power without large-scale battery storage. Natural gas is a logical fuel for integration into the power mix. Johns Hopkins University researcher Sarah Jordan further notes, "You can imagine (natural gas) provides a more flexible grid, which can be lower-carbon overall if this renewable-natural gas combo is coming in and displacing…coal-fired power plants."

Societal and Health Benefits of Natural Gas

The impact of air quality on public health in China is notable. A World Health Organization study noted in 2010, outdoor atmospheric pollution was the fourth leading cause of death for Chinese citizens, while indoor atmospheric pollution was ranked fifth. Put another way, an average of 80–90 Chinese citizens per 10,000 died of various diseases caused by atmospheric pollution from 1990 through 2010. This data underscores the fact that pollutants associated with the burning of coal for power generation impact the quality of life for the public. Researchers have attempted to quantify this loss by estimating that air pollution in China results in an economic loss equivalent to between 3 and 12 percent of the country's GDP. In 2014, this loss translated to a loss of up to $1.2trillion.

Exporting gas to developing nations will also aid to reduce energy poverty by providing an abundant and affordable fuel resource. In 2017, 992 million people worldwide did not have access to electricity. Moreover, almost 40 percent of the earth's population (nearly 3 billion people) currently cook and heat their homes with open fires or stoves fueled by kerosene, wood, animal dung or crop waste. These energy sources are responsible for fine particulate matter emissions and pose a significant health risk.

Clean Natural Gas Technologies

In recent years, researchers have made significant strides in developing and implementing some innovative technologies designed to address environmental concerns across the natural gas life cycle (from production to combustion). Teams are working on advancements for small-footprint drilling rigs that are more efficient, require less fuel, produce fewer emissions and are quieter. Additionally, equipment and techniques are being identified to minimize risks from spills (drilling fluids, lubricants or other devices) during production. Work is also underway on technologies that treat and reuse water for drilling operations. A recent technology announced in January 2019 removes CO2 emissions from the atmosphere to be utilized to increase oil recovery in the field. All CO2 used for this process is then safely sequestered underground in the resource reservoir.

WEST COAST LNG EXPORT OPPORTUNITIES AND CHALLENGES

Just three years ago, there were no LNG exports from the contiguous United States. LNG exports makeup almost a third of total natural gas exports from the United States and are now greater than pipeline exports into Canada. By the end of 2019, the U.S. is expected to increase its LNG exports to approximately 10 Bcf/d or 25 percent of the global market. Some models predict the U.S. could export as much as 20 Bcf/d of LNG within the next 15 years.

The U.S. is currently positioning itself to become the world's third-largest LNG exporter by around 2020. Currently, there are two terminals exporting LNG in the U.S. (Nikiski, Alaska and Sabine Pass, Louisiana) with another four under construction and another four approved and likely to undergo construction. All told, these new terminals would add another 14.92 Bcf/d of LNG export capacity.

Energía Costa Azul

A facility of note and that could potentially serve as an outlet for Piceance-Uinta gas supplies is Sempra Energy's existing regasification facility located off of the West Coast at Ensenada, Baja California. The Energía Costa Azul receipt terminal recently signed a memorandum of understanding with its Mexican subsidiary, IEnova, and a subsidiary of Mexico's state-owned company, PEMEX, for the cooperation and coordination in the development of a natural gas liquefaction project at the project site.

A company called DKRW, LLC has proposed piping gas from the Permian across southern New Mexico and Arizona and down to the Mexican state of Sonora to an LNG liquefaction facility at Puerto Libertad on the Gulf of California. Additionally, the proposed Western Energy Storage and Transportation Header Project is designed to move natural gas from Utah south to potentially connect with Costa Azul.

Figure 17
Map of Energía Costa Azul and Proposed Western Energy Storage and Transportation Header Project (Source: Western Energy Storage and Transportation Header Project)

Jordan Cove

Jordan Cove is an LNG terminal that has been proposed on the U.S. West Coast in Oregon's Coos Bay. This proposed facility is positioned to receive natural gas supplies from the U.S. Rockies via the Ruby Pipeline or from the Gas Transmission Northwest pipeline via British Columbia, both of which terminate in the Malin hub in Oregon. Natural gas from Malin, Oregon would feed into the proposed Pacific Connector Gas Pipeline, which would go directly to Jordan Cove.

The Pacific Connector Gas Pipeline project, if completed, might become the best-positioned terminal in the U.S. to serve markets in Asia because of its shorter shipping distance to Asia compared to other terminals in the U.S.

Jordan Cove has filed its third application to the Federal Energy Regulatory Commission (FERC) for its proposed LNG export facility in Coos Bay, Oregon. FERC did not approve the facility's first application stating that the application did not demonstrate demand for the facility's LNG. Pembina Pipeline Corporation, which owns the majority share of the proposed facility addressed the issue by securing supply agreements with Japanese buyers Itochu International and JERA. It has also addressed some environmental issues by eliminating a power plant and making adjustments to 50 sections of the natural gas pipeline. It has reapplied for the permit and is hopeful for approval in early 2019, followed by a final investment decision in 2019, and project completion in 2024.

Figure 18
Jordan Cove Project and pipeline system. (Source: Mountain West News)

THE IMPORTANCE OF STAKEHOLDER ENGAGEMENT IN NATURAL GAS PROJECT

The concept of stakeholder engagement is a means of describing a wide-reaching and inclusive, continuous process between project developers and those stakeholders that are potentially impacted by the project. As it pertains to the Piceance-Uinta Basin and West Coast LNG development, stakeholders are comprised not only of the local communities impacted by oil and gas development and infrastructure buildout, but also state governments, operators, tribes and other groups such as universities and conservation groups.

Building an engagement dialogue with these entities will allow them to have some authority to drive the project's decision-making strategy and success. Stakeholder engagement ensures the right people are at the table, with a voice to be heard and considered throughout the project. It is crucial to identify the stakeholders that are directly and indirectly impacted, prioritize interaction by impact and vulnerability, and bring stakeholders to leadership and oversight positions when and where appropriate.

WSTN acknowledges that this process is a journey to communicate the need for and benefits of natural gas development and transport. This report is intended to provide data and information to connect with groups and individuals throughout the project area.

WSRNGI Stakeholder Groups

It is essential early in the project process to identify impacted stakeholder groups, including elected officials and regulatory agencies, to ensure successful environmental results through the production, transportation, export, and use of natural gas. The WSRNGI Steering Committee has had conversations about this report and has set the stage for potential stakeholder engagement with the following entities:

- Anadarko
- BP
- Caerus
- Colorado Building and Construction Trades – AFL/CIO
- Colorado Department of Natural Resources
- Colorado Farm Bureau
- Colorado Oil & Gas Association
- Conservation Colorado
- Crescent Point
- Denver Business Journal
- Duschesne County, Utah
- Enterprise Products
- Environmental Defense Fund
- EOG
- Garfield County, Colorado
- Governor Polis Transition Team
- Jonah Energy
- Laramie Energy
- LiUNA – Colorado Laborers
- National Fish and Wildlife Federation
- The Nature Conservancy
- Navajo Tribe
- Outdoor Industry Association
- Pipefitters Local 208
- QEP
- Terra Energy Partners
- Uintah County, Utah
- United Brotherhood of Carpenters and Joiners of America
- Ursa Energy
- Ute Energy
- Ute Tribal Business Committee
- U.S. Department of Energy
- U.S. Department of Interior
- Western Energy Alliance
- Western Resources Advocates

Outreach and Engagement

Communication with stakeholders should foster a dialogue between stakeholders and project developers. Additionally, it is crucial for project developers to communicate facts about the proposed project and evaluate stakeholder input to address any stakeholder concerns and educate participants in the dialogue. Some key topics that operators should be able to address include:

- Oil and gas development best practices that are already implemented;
- Economic benefits of energy development to rural Colorado and Utah communities;
- Global benefits of enhanced natural gas utilization in Asian countries; and
- Natural gas export projects as a complement to the use and integration of renewable energy resources in Asian counties.

CONCLUSION AND RECOMENDED NEXT STEPS

This report demonstrates the abundant energy resource capacity from the Piceance-Uinta Basin, particularly in added reserves, to supply global markets with LNG.

The recommended next steps include initiating a process of regional collaboration to explore new end markets through a western states gubernatorial and tribal MOU.

This process will develop a proactive framework for facilitating conversations between a diverse group of stakeholders including the natural gas industry, LNG exporters, conservation groups, tribes, outdoor recreation groups, and other relevant stakeholders. This MOU will provide the blueprint for Phase II of the WSRNGI and will cover three primary areas of focus:

- Education – build a platform of engagement for policymakers, public officials and the general public to better understand the full resource potential of the Piceance and Uinta basins and the western states more broadly, and the potential role they can play in domestic and international energy markets, geopolitics, economic expansion and in addressing air pollution and greenhouse gas emissions.

- Advocacy – communicate the opportunity and benefits of providing natural gas, produced under the highest regulatory standards, for domestic and international markets.

- Collaboration and Engagement - develop a framework for stakeholder engagement where interest groups and stakeholders can convene, provide input and help steer the WSTN process and future project development.

Establishment of WSTN as a Non-Profit Entity

It is recommended that WSRNGI establishes itself as a 501(c)(4) non-profit entity with accompanying articles of incorporation, bylaws, and other additional items that will outline the vision/mission/values of the group and provide structure to the organization.

In recognition of tribal interests, it is also recommended that WSRNGI rename itself Western States and Tribal Nations Natural Gas Initiative (WSTN).

Establishment of WSTN Board of Directors and Advisory Board

WSTN will establish a Board of Directors to serve on the 501(c)(4) consisting of the participating state energy offices, county governments, and tribal organizations to provide the governance and strategic direction of the organization.

An Advisory Board will be established with representatives from various stakeholder groups including outdoor recreation, conservation, tribes, academia, the natural gas industry, LNG exporters and other impacted peripheral groups to provide expertise and counsel to the state energy offices under WSTN.

Other groups and individuals with specialty expertise or relevant background may be invited to provide counsel to the state energy offices under WSTN.

Stakeholder Engagement

- Tribal Engagement - WSTN will actively engage tribal organizations such as the Ute Tribe and Navajo tribe for membership on the WSRNGI Board along with the state energy offices. It also aligns with international guidelines to establish 'best in class' FPIC due diligence.

- State Engagement - WSTN recognizes that the state of Wyoming has contributed significantly to past efforts to develop markets for its natural gas producers, including the Wyoming Pipeline Association who filed as an intervenor in the FERC permit for Jordan Cove. WSTN will solicit membership from the state of Wyoming to join the Board of Directors. Other recommendations:

WSRNGI will engage the energy offices of New Mexico and Texas for membership on the WSTN Board.

Recognizing the goal of North American West Coast LNG export capabilities, WSTN may expand its focus to include British Columbia, Canada, and Baja, Mexico.

WSTN recognizes that there are legitimate environmental and social concerns over resource extraction processes and industry. WSTN will initiate an in-depth stakeholder engagement process to map out impacted stakeholders and develop a communications strategy around these groups. The goal is to create a transparent, engaged process that builds a wide-reaching coalition of support.

Table 6: Western Coast LNG Export Stakeholders

Stakeholder Group	Entity
Federal Government	Example: Dept. of Interior
State Governments	State Energy Offices
International Govs	Purchasers of US commodity exports
E&P Operators	Operators in E&P (insert specific company)
Midstream Operators	LNG Exporters
Trade Associations	Example: Wyoming Pipeline Association
Indigenous	Sovereign Tribes in Western States
Agriculture	Farmers
NGO/ Civil Society Orgs	Example: Environmental Defense Fund
Academic	Universities
Other	Outdoor recreation groups

Report Expansion to include other Western State Natural Gas Basins

WSTN should expand the initial report to include Wyoming (Green River Basin), New Mexico (San Juan Basin and Permian Basin) and Texas (Permian) economic and technical data as well as an advocacy and marketing strategy for those states.

Colorado Mesa University was a significant and important part of the conception of WSRNGI and funding the Phase I Report. WSTN should continue to work with the CMU Center for Unconventional Energy to build its capacity as a Center of Excellence for natural gas production, transportation, and LNG exports. WSTN will build working relationships with universities in relevant states to be covered by the report.

WSTN Engagement on Behalf of West Coast LNG and Petrochemical Projects

Realization of East Asian markets for western gas producers will play a strategic part of WSTN's mission. WSTN will support such projects as Jordan Cove in their regulatory dockets and public proceedings. WSTN should convene public policy forums between officials from Washington, Oregon, and California and western gas producing states to develop a comprehensive dialogue addressing the technical, economic, environmental and geopolitical issues addressed in the WSRNGI Phase I Report.

WSTN will support the Utah Governor's Office of Energy Development in the long-term Memorandum of Understanding it has recently signed with the state of Baja, Mexico's Ministry of Economic Development that focuses on opening up East Asian markets for Utah energy exports.

Development of a North American/Asian LNG Forum

WSTN should partner with the Utah Office of Energy Development and the Colorado Energy Office to build on to the Utah Governor's Office of Energy Development's Annual Conference (to be held May 30, 2019) to convene a comprehensive forum with participation of East Asian LNG stakeholders including utilities/LNG buyers, public officials and industry.

The forum would allow stakeholders from Asian markets to connect with their counterparts in North America and understand the policy, regulatory and advocacy vehicles that exist.

Communications and Media

WSTN should develop a robust and sophisticated education and outreach capacity capable of producing including educational and marketing materials; press and media advocacy pieces for local, state and national press; and digital and social media.

ADDITIONAL RESOURCES

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AN ORDINANCE AMENDING UTE ORDINANCE No. 17-004 ESTABLISHING THE UTE TRIBAL EMPLOYMENT RIGHTS OFFICE (UTERO) ORDINANCE.

37 SECTION 1. SHORT TITLE

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SECTION 1. SHORT TITLE

The short title of this ordinance shall be the Ute Tribal Employment Rights Office Ordinance ("UTERO Ordinance").

SECTION 2. FINDINGS AND PURPOSE

2.1 Findings. The Tribal Business Committee of the Uintah and Ouray Reservation hereby makes the following findings regarding the need for and purpose of the UTERO Ordinance:

(A) The Ute Tribe has the inherent sovereign power to pass laws to implement and enforce special employment rights on behalf of Indians; and

(B) Jobs, subcontracts and contracts in the private sector within the territorial jurisdiction of the Ute Tribe are important resources for Indian people and Indians must use their rights to obtain their share of such opportunities as they become available; and

(C) Indians have unique and special employment, subcontract and contract rights, including Congressional recognition of the power of Indian tribes to impose preferential requirements on the grounds that the exemption is consistent with the federal government's policy of encouraging Indian employment and with the special legal position of Indians; and

(D) Indians are entitled to the protection of federal laws concerning prevention of employment discrimination, and the Ute Tribe can and should play a role in the enforcement of such laws; and

(E) The Tribal Business Committee of the Uintah and Ouray Reservation recognizes that it is important to establish an employment rights program and office in order to use the aforementioned laws and powers to increase employment of Indian workers and businesses and to eradicate discrimination against Indians; and

(F) Enterprises doing business with the Ute Indian Tribe on and within the Uintah and Ouray Indian Reservation are generally obligated by contract, lease or other agreement to employ, to the greatest extent possible, tribal members and to contract and subcontract with businesses owned and operated by tribal members; and

(G) For a variety of reasons, tribal members and businesses owned and operated by tribal members and Indians have not shared in the economic development of tribal resources within the Tribe's reservation; and

(H) The survival of the Reservation as a homeland for members of the Ute Indian Tribe is, in part, dependent upon the development of economic opportunities for tribal members on and within the Reservation.

2.2 Purpose. The purpose of the Ute Tribe Employment Rights Office Ordinance is to promote the self-sufficiency of the Tribe, its members and families, and address the employment needs of other Indian residents of the Uintah and Ouray Reservation. This Ordinance provides guidance for assisting in the fair employment of Ute tribal members and others Indians residing on and within the Uintah and Ouray Reservation, and for preventing discrimination against Ute tribal members and/or Indians in the employment, promotion, and training practices of those employers operating on and within the Uintah and Ouray Reservation. This Ordinance is separate and distinct from any other tribal employment programs administered for federal grants and/or contract programs. In carrying out these purposes, the Tribal Business Committee shall oversee employment activities according to this Ordinance. The Tribe exercises its authority to implement this Ordinance under its inherent sovereign powers as a federally recognized tribe, under the authority of the Ute Tribal Constitution and under any powers specifically delegated by the U.S. Congress.

SECTION 3. DEFINITIONS

3.1 "Business Day" means all Days, except Fridays, Saturdays, Sundays and official federal and tribal holidays.

3.2 "Certified Firm" means a firm which has been certified as a Ute Tribal or Indian-owned business by the UTERO Commission.

3.3 "Commerce" shall include all trade, traffic, distribution, communication, transportation, provision of services, manufacturing, production, agricultural production, building, maintenance, construction, banking, mining and energy production.

3.4. "Compliant Company" means an employer that has met all the requirements of the UTERO Ordinance to conduct business on and within the Reservation as determined by the UTERO Commission.

3.5 "Contract" means an agreement in writing between two or more persons which creates an obligation enforceable by law to perform work, supply service, labor, or material(s).

3.6 "Contractor" means any person, employer, or entity that enters a contract as defined herein to perform work, services, or other obligations where the person, employer, or entity has the primary responsibility for providing the work or services under the contract or Master Services Agreement.

3.7 "Development Agreement" means an agreement entered into between an employer and the UTERO Commission that implements the requirements of this Ordinance.

3.8 "Director" means the Director of the Ute Tribe Employment Rights Office.

3.9 "EEOC" means the Equal Employment Opportunity Commission of the United States.

3.10 "Employee" shall mean any employee, any applicant for employment, and any former employee whose employment has ceased as a consequence of or in connection with a current labor dispute or because of an unfair labor practice. The term "employee" shall not include any individual employed in the domestic services of any family or person at his home, or any individual employed by any other person who is not an employer as herein defined.

3.11 "Employer" means any person, company, prime contractor, contractor, subcontractor or entity located or engaging in commercial or employment activity on and within the exterior boundaries of the Uintah and Ouray Indian Reservation, and which employs two or more persons.

3.12 "Engaged in Work on and within the Reservation" means any employer who or whose employees or agents spend(s) any time performing work on and within the exterior boundaries of the Reservation pursuant to a contract with the Tribe or through a lease, permit or other authorization from the Tribe.

3.13 "Entity" means any person, partnership, corporation, joint venture, government, enterprise, or any other natural or artificial person or organization. The term "entity" is intended to be as broad and encompassing as possible to ensure applicability of this Ordinance to all employment and contract activities within the Tribe's jurisdiction, and the term shall be so interpreted by the UTERO Commission and the Courts.

3.14 "Government Commercial Enterprise" means any entity or enterprise, chartered under the Tribe's LLC Ordinance that is 100% owned by the Ute Indian Tribe and that is engaged in commercial activity that is not a traditional government function as defined by the Internal Revenue Service.

3.15 "Immediate family" means brother, sister, son, daughter, mother, father, husband, wife, step-brother, step-sister, half-brother, half-sister, or brother, sister, son, daughter, mother or father by adoption.

3.16 "Indian" means any member of any federally recognized tribe, or any person who furnishes documentary proof that he or she is recognized as an Indian by the United States pursuant to its trust responsibility to American Indians.

3.17 "Indian-Owned Firm" means an entity, firm or business certified by the UTERO Commission as eligible for Indian preference in contracting and subcontracting; provided that Indians hold at least 51% ownership interest in such entity, firm or business and exercise majority management control.

3.18 "Indian Preference" shall mean that qualified Ute Tribally owned businesses certified by the UTERO Commission shall be hired before qualified Indian and non-Indian owned businesses, and qualified Indian-owned businesses certified by the UTERO Commission shall be hired before qualified non-Indian owned businesses.

3.19 "Local Indian" means any member of a federally-recognized tribe who resides on and within the exterior boundaries of the Uintah and Ouray Reservation of the Ute Tribe.

3.20 "Master Service Agreement" means a single document that defines the overall relationship between an oil and gas exploration and production company and its providers of goods and services.

3.21 "Minimum Threshold" means a minimum level that any job applicant shall be required to meet. Criteria to establish a minimum threshold may be established by but are not limited to the following:

(A) Job Descriptions;

(B) Interview Committees;
(C) Skills Tests;
(D) RFP's and License Requirements;
(E) Other Job Requirements.

3.22 "Prime Contractor" means any person, employer, or entity that enters into an oil and gas Master Service Agreement as defined herein to perform oil and gas work, services, or other obligations where the person, employer, or entity has the primary responsibility for providing the oil and gas work or services under the Master Service Agreement.

3.23 "Sub-Contractor" means any entity, usually a third party, hired or retained by a contractor or prime contractor, to perform work, supply services, or provide materials under a contract or Master Service Agreement.

3.24 "Tribal Business Committee" means the Uintah and Ouray Tribal Business Committee

3.25 "Tribe" shall mean the Ute Indian Tribe of the Uintah and Ouray Reservation, Utah.

3.26 "Tribe's District Court" means the District Court as defined in Title 5, §103(f) of the Code of Laws of the Ute Tribe.

SECTION 4. ESTABLISHMENT OF UTERO COMMISSION AND OFFICE

4.1 Establishment of UTERO Commission. The Uintah and Ouray Tribal Business Committee does hereby amend the name of the Ute Employment Commission established in Ordinance No. 92-07 and reestablishes it as the Ute Tribal Employment Rights Commission ("UTERO Commission") for the purposes of implementing and enforcing the provisions for Indian Preference in employment contained in this Ordinance, and disseminating information regarding lawful employment and unlawful discrimination by employers who are operating on and within the Uintah and Ouray Indian Reservation.

4.2 Composition of the UTERO Commission

(A) The UTERO Commission shall consist of a six (6) member administrative review board, with two (2) members selected from each of the three (3) Bands of the Tribe; namely, the Whiteriver Band, Uintah Band and Uncompahgre Band. Each Tribal Business Committee member shall select one (1) member of their respective Band or a non-Tribal Member to serve on the UTERO Commission subject to confirmation by resolution duly approved by the Tribal Business Committee. The appointed UTERO Commission member shall serve a term consistent with the term of his/her appointing Tribal Business Committee member beginning on the date of amendment and ending as provided in the Appointments Ordinance, Ord. No. 10-003, as may be amended from time to time. Upon enactment of this Ordinance, the existing terms of UTERO Commission members appointed by Tribal Business Committee members that are no longer in office shall terminate. The existing terms of UTERO Commission members appointed by Tribal Business Committee members that are in office shall continue serving their respective terms in accordance with this Section. The Tribal Business Committee or the UTERO Commission shall have the authority to remove a UTERO Commission member before the expiration of the term of office of the member for neglect of duty, or malfeasance in office, or for other good cause shown. Removal of a UTERO Commission member may be accomplished by the appointing member of the Tribal Business Committee notifying the Tribal Business Committee in writing that he/she wishes to withdraw such appointment, whereupon the appointment shall be immediately withdrawn and terminated.

(B) The Commissioners shall elect a Chairman from among them, whose duty it shall be to call for and preside over all meetings and hearings and to execute official documents of the UTERO Commission. In addition, the Commissioners shall elect a Vice-Chairman who shall perform the duties of the Chairman in the Chairman's absence.

(C) Commissioners shall serve in such capacity until his/her respective successor shall be duly appointed and qualified unless removed in accordance with this Ordinance prior to the expiration of a term. The UTERO Director shall notify the Tribal Business Committee of any vacancies within ten (10) working days after he/she becomes aware of such vacancy. Vacancies occurring on the Commission shall be filled in the same manner as the original appointment.

(D) Decisions of the UTERO Commission shall be made by a majority vote. A quorum shall consist of any four of the six Commission members.

(E) Recusal of UTERO Commission Members.

(1) No member of the UTERO Commission shall participate in any action or decision by the UTERO Commission directly involving himself/herself, or a member of his/her immediate family, or any person, business or other entity of which he/she or a member of his/her immediate family is an employee, or in which he /she or a member of his/her immediate family has a substantial ownership interest, or with which he/she or a member of his/her immediate family has a substantial contractual relationship.

(2) Nothing in this section shall preclude a Commissioner from participating in any action or decision by the UTERO Commission which:

a. Generally affects a class of persons, regardless of whether the Commissioner or a member of his/her immediate family is a member of the affected class; or

b. Affects the Tribe, a tribal enterprise, or a person or entity in a contractual relationship with the Tribe or a tribal enterprise, regardless of whether the Commissioner is a member of the Tribe.

(3) A Commissioner may voluntarily recuse himself/herself and decline to participate in any action or decision by the UTERO Commission when the Commissioner, in his/her discretion, believes:

a. that he/she cannot act fairly or without bias; or

b. that there would be an appearance that he/she could not act fairly or without bias.

(F) Compensation, Mileage and Per Diem. Members of the UTERO Commission shall be reimbursed for their services at the rate of $75.00 per day. Members of the UTERO Commission that are in the employ of the Tribe must take leave without pay from their respective jobs to receive the compensation provided under this Ordinance. Members of the UTERO Commission shall also be entitled to receive, upon presentation of proper vouchers, such mileage and per diem payments as are in effect for members of other Commissions of the Tribe or such other compensation as the Tribal Business Committee may provide.

(G) Commissioner Qualifications. Each candidate for Commissioner must meet one (1) of the following two (2) requirements:

(1) A high school diploma; and at least six (6) years' work experience in business or industry, preferably in the field of business management, compliance, or regulation; OR

(2) A Bachelor's degree from an accredited university or college, preferably in Business Administration, Management, Accounting, Marketing, Law, or another relevant field, with a preference given to candidates with a relevant graduate degree; and at least two (2) years' work experience in business or industry preferably in the field of business management, compliance or regulation.

(H) No member of the UTERO Commission shall serve simultaneously as a member of the Tribal Business Committee.

(I) No member of the UTERO Commission may own or possess an interest in a certified firm.

4.3 General Powers of the UTERO Commission

(A) Organizational Authority. The UTERO Commission may hire UTERO staff, including a UTERO Director, UTERO Assistant Director, and four (4) Compliance officers, obligate funds appropriated by the Tribal Business Committee, and secure and obligate funding from Federal, State or other sources to carry out its duties and functions under this Ordinance. The UTERO Commission is further authorized and directed to adopt such organizational bylaws, rules or regulations, and structure as are necessary to enable it to carry out its duties and functions under this Ordinance. The UTERO Commission shall report directly to the Tribal Business Committee.

(B) UTERO Director; Qualification; Staff; Duties.

(1) The UTERO shall consist of the UTERO Director and other personnel hired by the UTERO Commission to assist in the administration of the UTERO Commission's duties.

(2) The UTERO shall be headed by a Director who shall serve as the chief executive officer of the UTERO, who shall be hired by the UTERO Commission, and shall report directly to the UTERO Commission and operate under its direction.

(3) The UTERO Commission shall have the primary authority to hire, direct, suspend and remove the Director, but the Business Committee reserves the right to review any such decision of the UTERO Commission and otherwise affirmatively act to hire, direct, suspend and remove the Director on its own authority. Any such action by the Business Committee shall be final and not subject to further review or determination by the UTERO Commission. The UTERO Commission shall conduct annual evaluations of the Director. If at any time the Tribal Business Committee or the UTERO Commission believes the Director is failing to properly carry out his/her responsibilities, the Tribal Business Committee or the UTERO Commission shall take such action as it deems necessary to direct, suspend or remove the Director.

(4) The Director shall have such administrative ability, education and training as the UTERO Commission determines.

(5) The Director shall have authority to hire staff, to expend funds appropriated by the Tribal Business Committee pursuant to a budget submitted to the Tribal Business Committee by the Director after review and comment by the UTERO Commission, and approved by the Tribal Business Committee, and, subject to the approval of the Tribal Business Committee, expend funding from federal, state and other sources to carry out the purposes of this Ordinance.

(6) The Director shall enforce all decisions and orders duly adopted by the UTERO Commission.

(7) The Director shall be the investigating agent for the UTERO Commission responsible for investigating, researching, reporting and documenting any relevant information required by the UTERO Commission. The Director shall monitor and investigate complaints, concerns and inquiries regarding Indian preference.

(8) The Director shall have the authority to approve and issue temporary UTERO licenses valid for fifteen (15) calendar days from the date of approval not to exceed one temporary permit per company each year. Temporary UTERO licenses shall be subject to a fifty dollar ($50.00) processing fee. All other UTERO licenses must be approved by the UTERO Commission. The Director shall notify the UTERO Commission at the next regularly scheduled meeting of any temporary licenses that have been issued.

(9) The UTERO Assistant Director shall serve as the Dispatcher of the UTERO Office, shall assist the Director to implement the UTERO Ordinance as directed by the Director and shall maintain close communications with the UTERO Director at all times. The UTERO Assistant Director shall serve as the Director in the absence of the Director.

(C) UTERO Compliance Officers; Duties and Responsibilities. The Compliance Officers main function is to make sure that all covered employers operating on and within the exterior boundaries of the Reservation are in compliance with the UTERO Ordinance. Compliance Officers are primarily responsible for providing compliance enforcement support for the UTERO Commission, UTERO Office and the UTERO Director. Duties of Compliance Officers shall include conducting inspections of employers, employees, contractors and prime operators to ensure proper compliance with the UTERO Ordinance and issuing citations for non-compliance. Compliance Officers are also responsible for conducting investigations as may be assigned by the UTERO Director and/or UTERO Commission and performing all further duties as may be directed by the UTERO Director and/or UTERO Commission in accordance with this Ordinance.

(D) Regulatory Authority. The UTERO Commission shall promulgate rules, regulations, interpretations of law, and guidelines for Indian preference that are necessary to implement this Ordinance. Such rules, regulations, interpretations of law, and guidelines for Indian preference shall become effective upon Tribal Business Committee approval of a resolution adopting said rules, regulations, interpretations of law, and guidelines for Indian preference. Tribal Business Committee approved rules and regulations shall be codified in the Code of the Uintah and Ouray Tribe, and the UTERO Commission shall take other reasonable steps to insure that the general Reservation community is on notice of all Indian preference and applicable employment related laws.

(1) The UTERO Commission shall maintain an Indian Skills Bank as a means of providing qualified Indian employees to employers, contractors, and subcontractors. The UTERO Commission shall actively recruit Indians for listing in the Skills Bank. The UTERO Commission shall also actively recruit and certify Ute Tribal and Indian firms as eligible for Indian Preference in contracting and sub-contracting. The Indian Skills Bank shall be shared monthly with the Tribal Human Resources Department.

(2) The UTERO Commission is authorized to certify Ute Tribal and Indian firms located on or off the Reservation, for purposes of Indian preference, and to establish regulations governing Indian firm and minority small business contract eligibility, exemption from state taxation and wage performance bond requirements, and other purposes. The UTERO Commission shall develop administrative rules to implement this authority, which shall include provisions and procedures for revocation of such certifications.

(3) The UTERO Commission may register off-reservation contractors and sub¬contractors and approve Indian Preference Plans.

(4) The UTERO Commission is further authorized and directed to investigate complaints regarding any violation of the provisions of this Ordinance or any other tribal law the UTERO Commission is authorized to enforce. The UTERO Commission may also investigate possible violations of this Ordinance if there is reasonable cause to believe a violation of this Ordinance has occurred or is occurring. Neither the UTERO Commission nor any of its employees shall have the authority to investigate or assist any Uintah and Ouray Tribal employee in pursing any employment related claim not within its authority under this Ordinance.

(5) The UTERO Commission is authorized to issue access permits to employers seeking access to Reservation Lands in accordance with the requirements of the Ordinance to Establish Access Permits for Access to Land and Through Lands of the Reservation, as amended. The Tribe's Energy and Minerals Compliance Officers, Fish and Game law enforcement and other law enforcement officers of the Tribe and of the Bureau of Indian Affairs shall assist the UTERO Commission in the enforcement of such access permits.

(E) Adjudicatory Authority. The UTERO Commission may hold hearings on and determine any matter under its authority, including but not limited to hearings necessary to the issuance, modification, and revocation of any permit, license, certification, or assessment authorized hereunder, as well as any adjudicatory hearing regarding violations of the provisions of this Ordinance. The UTERO Commission shall have no authority or jurisdiction to hear or adjudicate complaints brought by Uintah and Ouray Tribal employees that are not specifically authorized under this Ordinance. The UTERO Commission shall promulgate simple and fair rules to govern its adjudications, and is authorized to issue compliance orders and impose civil penalties in the form of fines.

(F) Cooperative Agreements with Other Governments. The UTERO Commission, is authorized to enter into cooperative relationships with federal employment rights agencies, such as Equal Employment Opportunity Commission and Office of Federal Contract Compliance Programs, in order to eliminate discrimination against Indians on and off the Reservation and to enter into cooperative relationships with federal agencies, such as the Bureau of Indian Affairs, Department of Housing and Urban Development, Federal Highway Administration and Indian Health Service, in order to implement any federal Indian preference employment or contracting requirements as such agency may lawfully delegate to the Tribe.

(G) Cooperative Agreements. The UTERO Commission may also enter into cooperative agreements with agencies of state government in order to implement the intent of this Ordinance and eliminate unlawful discrimination against Indians.

(H) Training by UTERO Commission. The UTERO Commission is hereby authorized to provide basic life/work skills training consistent with the needs of the community and implementation of the Tribal, state, or federal program; to establish a Tribal Employment Rights training center; to enter into agreements with labor unions and other persons or entities to provide work skills training and education opportunities; and to generally provide employment training to members of the Tribe and residents of the Uintah and Ouray Indian Reservation through means deemed appropriate by the Tribal Business Committee.

(I) Employment Rights Fee. The UTERO Commission shall be allocated sufficient funds as determined by the Uintah and Ouray Tribal Business Committee derived from the Employment Rights Fee as described in Section 6 of this Ordinance for implementation, conduct, and fulfillment of the UTERO Commission's purposes.

SECTION 5. INDIAN EMPLOYMENT PREFERENCE POLICY AND PROCEDURES

The requirements set forth in this Ordinance shall apply to any employer engaged in work on and within the Reservation, including work performed on non-tribal fee lands to develop tribal minerals within the Reservation, pursuant to a contract with or lease, permit, development agreement or other authorization issued by the Tribe. In those cases where a contract, lease, development agreement or other document requires that preference be given in subcontracting with Indians, the requirements set forth below and the rules, regulations and directives of the UTERO Commission shall define the minimum obligations of said employer under such contract, lease or other document, unless the content of such contract, lease, development agreement or other document clearly requires otherwise.

All employers shall extend a preference to qualified Indians, as provided herein and in accordance with any contract, lease, permit, or development agreement entered into by and between the Tribe and the Employer in all aspects of employment, including but not limited to recruitment, hiring, promotion, lateral transfers, retentions, training, contracting, and subcontracting. No employer may recruit, hire, or otherwise employ any non-Indian for any employment position covered by this Ordinance; unless and until the UTERO Commission has furnished written notice to such employer that no qualified Indians are available for such position.

All employers, contractors, subcontractors and employees shall comply with all laws of the Ute Indian Tribe.

5.1 Applicability. Unless clearly and expressly prohibited by federal and other tribal laws or Tribal Business Committee action, this Ordinance shall apply to all employers, including but not limited to: The Tribal Business Committee and all its programs, departments, and chartered entities or enterprises; Indian-owned employers, private employers and independent contractors and subcontractors, including those performing work for the Tribal Business Committee, the State of Utah, or the United States.

5.2 Covered Positions. The Indian Employment Preference Policy of this section shall apply to each and every job classification, skill area, or craft recognized or utilized by an employer, including administrative, supervisory, and professional classifications.

5.3 Qualified Indians; Employment Criteria. An Indian shall be qualified for employment in a position if he or she meets the minimum threshold requirements for such position, and such Indian shall be accorded the preferences to which he or she is entitled under this Ordinance. No employer may utilize any employment criterion that is not legitimately related to the performance of the position.

5.4 Eligible Indians

(A) Uintah and Ouray Tribe, its Entities, and Private Employers Contracting with the Tribe. The Uintah and Ouray Tribe, its programs, departments, chartered entities and enterprises, and private employers contracting with the Tribe, shall extend a preference to qualified Indians according to the following priorities:

(1) Enrolled members of the Uintah and Ouray Tribe;
(2) Indian spouses of enrolled members of the Uintah and Ouray Tribe;
(3) Indians residing on and within the exterior boundaries of the Uintah and Ouray Indian Reservation.
(4) Indians not residing on and within the exterior boundaries of the Uintah and Ouray Indian Reservation.

If this section conflicts with any applicable federal laws or regulations, the Uintah and Ouray Tribe and its programs, departments and chartered entities and enterprises, and private employers contracting with the Tribe shall extend Indian preference according to the requirements of said federal laws and regulations.

(B) Private Employers Not Contracting with the Uintah and Ouray Tribe. Private employers not contracting with the Uintah and Ouray Tribe and doing business on and within the exterior boundaries of the Uintah and Ouray Indian Reservation shall not be subject to the priority requirements of Section 5.4(A), but shall extend a preference to qualified Indians residing on or near the exterior boundaries of the Uintah and Ouray Indian Reservation. Private employers operating under contracts with the Uintah and Ouray Tribe shall be required to provide Indian Preference according to the requirements of Section 5.4(A).

5.5 Notice of Employee Rights. All employers subject to this Ordinance shall prominently display a notice to all employees and applicants for employment of their rights under this Ordinance.

5.6 Employer Retaliation Prohibited. It shall be a violation of this Ordinance for any employer to take any adverse personnel or hiring action, or to retaliate in any way, against any person who attempts to enforce the requirements under this Ordinance. Employers found by the UTERO Commission, pursuant to an adjudicatory hearing, to have engaged in retaliation shall be subject to appropriate sanctions to be imposed by the UTERO Commission. The UTERO Commission may in its discretion either hold a hearing or file an action in Tribal Court to review an allegation of unlawful retaliation. The Tribal Court is authorized to issue temporary injunctions for enforcement of this provision to prevent unlawful conduct.

(A) Indian Preference

(1) Any employer engaged in work on and within the Reservation shall give preference in awarding all contracts and subcontracts to be performed on and within the Reservation to Ute Tribal and Indian owned businesses certified by the UTERO Commission according to the specific terms and requirements of the regulations adopted by the UTERO Commission implementing this Ordinance.

(2) In all instances an employer engaged in work on and within the Reservation shall give first preference to Ute Tribal Firms and then to other qualified Indian Owned Firms. An employer engaged in work on and within the Reservation may not enter into a contract or subcontract with a firm that is not certified by the UTERO Commission.

(3) Once an employer has entered into a contract with a certified firm, the UTERO Commission may not intervene in any way in the relationship between the parties unless a certified firm demonstrates, by a preponderance of the evidence, that action taken against it by an employer is primarily designed to circumvent the provisions or intent of this Ordinance.

(4) Any employer planning to issue a bid, request for proposal, or other action leading to the employment of a contractor/subcontractor who would be covered by this Ordinance shall notify the UTERO Director of its plans no fewer than twenty (20) calendar days prior to issuing notice to bidders or other potential contractors/subcontractors. The employer shall also obtain from the UTERO Director a list of Indian preference certified firms and shall send a copy of the bid notice or other notice setting out the contract/subcontract opportunity to each Indian preference certified firm engaged in the field of commerce in which the contract/subcontract work will take place. The UTERO Director shall identify such firms according to the order of preference set out in this section. An employer that fails to comply with this requirement shall be subject to the sanctions set out in Section 11.6 of this Ordinance.

(5) Any employer planning to hire a contractor/subcontractor for hourly work or on a time and material (T&M) basis without following the bidding process must first contact the UTERO Director to obtain a list of Indian preference certified firms and shall contact each firm engaged in the field of commerce in which the contract/subcontract hourly work or T&M will take place. The UTERO Director shall identify such firms according to the order of preference set out in this section. An employer that fails to comply with this requirement shall be subject to the sanctions set out in Section 11.6 of this Ordinance.

(B) Evaluation of Technical Qualifications of Certified Firms

(1) The UTERO Commission shall certify Ute Tribal and Indian-owned businesses based upon their technical qualifications. An employer may challenge the UTERO Commission's findings regarding technical qualifications; provided, that before challenging that an Indian-owned firm is technically qualified, the employer must first:

a. interview the principles in all available certified firms to determine their knowledge and expertise in the area; provided, that for certified firms that do not yet have an established record, the employer shall evaluate the basis of the individual qualifications of the principles in the firm(s), their equipment and other factors which provide guidance on the firm(s) ability to perform the work; and

b. provide to the UTERO Commission and to each certified firm that is thought to lack the technical qualifications to perform the work a description, in writing, of the area(s) in which it believes the firm is weak and the steps it could take to upgrade its qualifications.

(C) Determination of Reasonable Price

(1) An employer may use any non-discriminatory process it chooses for determining a reasonable price, including, but not limited to, competitive bidding (open or closed) or private negotiations; provided, that:

a. before an employer may reject a certified firm on the basis of price, it must offer the certified firm an opportunity to negotiate price; and

b. if there is only one technically qualified certified firm, an employer must enter into negotiations on price with such firm and contract with that firm if a reasonable price can be negotiated.

(2) No employer may reject a certified firm on the basis that a reasonable price could not be negotiated and then contract with a non-certified firm at the same or higher price.

(3) If the lowest bid from a technically qualified, certified firm is not more than 20 percent higher than the bid from a non-certified firm, the employer must permit the certified firm an opportunity to meet the non-certified firm's price. If the certified firm is willing to meet the bid of the non-certified firm, the employer must contract with the certified firm.

(4) The UTERO Commissioners, the UTERO Director and/or the UTERO staff shall be allowed to be present at bid openings but shall act solely as independent observers to ensure that the bidding process does not violate the requirements of this Ordinance. The UTERO Commissioners, the UTERO Director and/or the UTERO staff shall not otherwise interfere with the administration of the bidding process by any company.

(5) In the event a bid changes after a firm is selected by an employer following the bidding process, the employer must notify the UTERO Office of the change immediately. Deliberately under-bidding to secure an award of a contract and changing such bids through revised change or work orders following the award of a contract or subcontract is strictly prohibited and such activity shall be subject to oversight and enforcement by the UTERO Commission.

5.7 Development Agreement; UTERO License. No new employer may commence work on and within the Reservation until it has consulted with the UTERO Office to meet the obligations under this Ordinance by entering into a Development Agreement with the UTERO Commission and obtaining a UTERO license to work on and within the Reservation.

SECTION 6. EMPLOYMENT RIGHTS FEE

6.1 Establishment of Employment Rights Fee. There is hereby established an Employment Rights Fee, to raise revenue for the operation of the UTERO, UTERO Commission and Ute Tribal Court. The Employment Rights Fee shall be paid to the Uintah and Ouray Tribal Business Committee by each prime contractor or by each employer, and contractor(s) and subcontractor(s), other than those engaging in oil or gas production, exploration or development, operating on and within the exterior boundaries of the Uintah and Ouray Reservation, whose total contract or annual gross revenues is $1,000.00 or more. Prime contractors or Employers engaging in oil or gas production, exploration or development ("Producers") shall pay to the Tribal Business Committee as set forth in Section 6.2 below. Contractor(s) and subcontractor(s) engaging in oil or gas production, exploration or development for and on behalf of a Producer shall pay to the Tribal Business Committee as set forth in Section 6.3 below.

For all other prime contractors and employers, other than those engaging in oil or gas production, exploration or development, the Employment Rights Fee shall be calculated according to the total gross value of any contract performed on and within the Reservation or of the total annual gross revenues, whichever is less. The following shall be the percentage rates owed by prime contractors and Employers on the gross value of any contract performed or of the total annual gross revenues generated on and within the exterior boundaries of the Reservation, whichever is less:

Gross Value/Gross Revenue	Percentage Owed
$0.00-$999.99	0%
$1,000.00-$199,999.99	.50%
$200,000.00-$499,999.99	.75%
$500,000.00-$1,999,999.99	1.0%
$2,000,000.00 and up	2.0%

The amount of Employment Rights Fees owed shall be calculated by using the gross value of a contract or the total annual gross revenues, whichever is less, on a yearly cycle beginning September 1 and ending August 31.

The Employment Rights Fee shall be paid in full by October 31 of each year, however installment payments may be paid upon prior written approval of the Tribal Business Committee. The proceeds of the Employment Rights Fee shall be used in implementing this Ordinance, financing the costs associated with operating the UTERO and providing funding for the Uintah and Ouray Tribal Court's processing and hearing of employment termination cases. The Tribal Business Committee shall authorize the appropriate amounts of the Employment Rights Fee to be utilized by the UTERO Commission, UTERO and the Tribal Court according to proof of budgetary needs provided by each department. The Employment Rights Fee shall be governed under guidelines approved by the Tribal Fiscal Department. A contractor or employer failing to pay the Employment Rights Fee shall be subject to sanctions imposed by the Commission. The Uintah and Ouray Tribal Business Committee when it is determined to be in the interests of the Uintah and Ouray Tribe reserves the right to waive the Employment Rights Fee for any contract or contracts.

6.2 Oil and Gas Employment Rights Fee. Prime Contractors engaged in oil or gas production, exploration or development shall pay an Employment Rights Fee in accordance with this Section 6.2; provided that, in no event shall a Prime Contractor be required to remit to the Tribal Business Committee an Employment Rights Fee exceeding $500,000.00 annually. The oil and gas Employment Rights Fee paid by the Prime Contractor shall be the only Employment Rights Fee incurred by the Prime Contractor.

(A) New Oil or Gas Wells. For each well drilled by a Prime Contractor (a "New Well"), the Prime Contractor, as applicable, shall remit to the Uintah and Ouray Tribal Business Committee a one-time per New Well Employment Rights Fee of $5,000.00. Such New Well Employment Rights Fee shall be due and payable by a Prime Contractor upon the commencement of actual drilling operations for a New Well.

(B) Existing Oil or Gas Wells. For each oil or gas well existing upon the date of this Ordinance (an "Existing Well"), a Prime Contractor, shall remit to the Uintah and Ouray Tribal Business Committee a one-time per Existing Well Employment Rights Fee of $2,500.00. Such Existing Well Employment Rights Fee shall be due and payable by a Prime Contractor, upon the commencement of any form of drilling, reworking or other activities intended to enhance or increase oil or gas production from an Existing Well.

(C) Effect of New Well or Existing Well Employment Rights Fee Payment. Payment of the Employment Rights Fee for a New Well or Existing Well shall thereupon relieve, as applicable, a Prime Contractor performing future work on the New Well or Existing Well from the payment of any further or additional Employment Rights Fee for any and all work, construction or other activities reasonably related to such New Well or Existing Well.

6.3 Contractors and Subcontractors. The Employment Rights Fee shall be paid to the Tribal Business Committee by each contractor(s) and subcontractor(s), engaging in oil or gas production, exploration or development, for a Prime Contractor operating on and within the exterior boundaries of the Uintah and Ouray Reservation, whose total contract or annual gross revenues is $1,000.00 or more. The Employment Rights Fee that applies to contractor(s) and subcontractor(s) shall not be passed onto the Prime Contractor.

The following shall be the percentage rates owed by contractor(s) and subcontractor(s), engaging in oil or gas production, exploration or development, on the gross value of any contract performed or of the total annual gross revenues generated on and within the Reservation, whichever is less:

Gross Value/Gross Revenue	Percentage Owed
$0.00-$999.99	0%
$1,000.00-$199,999.99	.50%
$200,000.00-$499,999.99	.75%
$500,000.00-$1,999,999.99	1.0%
$2,000,000.00 and up	2.0%

The Employment Rights Fee shall be paid in full by October 31 of each year, however installment payments may be paid upon prior written approval of the Tribal Business Committee. The Tribal Business Committee when it is determined to be in the interests of the Tribe reserves the right to waive the Employment Rights Fee for any contract(s) or subcontract(s).

6.4 The Uintah and Ouray Tribal Business Committee and the UTERO Commission can amend the fee structure of the Employment Rights Fee based on market rates and any other economic interests.

6.5 Government Commercial Enterprises and Ute Tribally Owned Firms shall be exempt from the application of the 2% Employment Rights contract based fee set forth in this section.

SECTION 7. SPECIAL REQUIREMENTS FOR CONTRACTORS AND SUBCONTRACTORS

The requirements of this Section apply to all employers engaging in commercial or employment activities on and within the exterior boundaries of the Reservation pursuant to public or private contracts/subcontracts. If this section's contracting requirements conflict with applicable federal law or regulations, the applicable federal laws or regulations shall supersede this section. If this section or other terms and requirements relating to Indian Preference set forth in this Ordinance conflict with the specific terms and requirements set forth in any applicable leases, contracts, subcontracts or agreements with a Governmental Commercial Enterprise, the terms and requirements set forth in such agreements shall control and supersede the terms of this Ordinance.

7.1 Certification by UTERO Commission. Any contractor or subcontractor claiming eligibility for Indian preference under this Ordinance shall submit documentation acceptable to the UTERO Commission, pursuant to its authority under Section 14 that it is a Ute Tribal or Indian-owned firm as defined in Section 3.

7.2 Requirements in Contracting/Subcontracting. Preference shall be given to Ute Tribal or Indian-owned certified firms in the award of all contracts/subcontracts. An employer may select its contractor/subcontractor in any manner or procedure it so chooses. Provided that:

(A) Competitive Award:

(1) If the employer uses competitive bidding or proposals, competition shall be limited to Ute Tribal and Indian-owned certified firms. If the employer is unsure if there are any qualified Ute Tribal or Indian-owned certified firms, it may first publish a prior invitation for Ute Tribal and Indian-owned certified firms to submit a Statement of Intent to respond to such a limited advertisement when published and to furnish, with the Statement of Intent, evidence sufficient to establish their technical qualifications.

(2) If the employer fails to receive any Statement of Intent from a technically qualified Ute Tribal and Indian-owned certified firm, it may, after so notifying the UTERO Director, advertise for bids or proposals without limiting competition to Ute Tribal or Indian-owned certified firms and may award to the low bidder, provided that, if the bid submitted by a Ute Tribal or Indian-owned certified firm is within 10% above the low bid, award shall be made to that firm if it is technically qualified to perform the work.

(3) If only one Ute Tribal or Indian-owned certified firm submits a bid or Statement of Intent, the employer (unless otherwise prohibited by federal law or regulation) shall enter into negotiations with that firm for a period not to exceed ten (10) calendar days and shall award the contract to that firm so long as the firm is technically qualified and is willing to perform the work at a reasonable price.

(B) Negotiated Award: If the employer selects its contractor/subcontractor through negotiations or other informal process, it may not enter into a contract with a non-certified firm unless it has contacted every Ute Tribal and Indian-owned certified firm in the relevant field and has determined that there is no certified firm available that is technically qualified to perform the work required at a reasonable price. So long as a certified firm meets the minimum threshold qualifications, no non-certified firm may be selected.

(C) Sole Source Negotiations with Tribal Contracting Firms by Tribal Entities and Programs: Notwithstanding subsections (a) and (b) of this Section, all tribal programs and tribal entities shall give a right of first refusal for the work on any project funded by tribal or Tribal entity dollars and/or PL 93-638 funds to a Tribally-owned contracting firm qualified to perform the work on the project (unless otherwise prohibited by federal law or regulation). The Tribal program or entity that is letting the contract on the project shall engage in negotiations with the qualified Tribally-owned contracting firm to negotiate a price and terms of a contract for the work. If good faith negotiations do not result in a contract within thirty days after commencement of negotiations, the Tribal entity letting the contract may put the contract out for competitive bid in a manner consistent with subsections (a) and (b) of this Section.

(D) The term "reasonable price" as used in this Section shall mean as a general rule, a price that is within ten percent (10%) of the amount the awarding employer has estimated it would spend on that contract or subcontract.

7.3 Indian Preference Plan. Each employer shall include in its bid an Indian Preference plan for the master contract and any subcontracts. The plan shall indicate the name of the proposed contractor(s) and subcontractor(s), whether it is a Ute Tribal or Indian-owned certified firm and if not, information on the good faith steps taken to identify Ute Tribal or Indian-owned certified firms for the contract/subcontract. A contractor may not refuse to employ a certified firm for the reason of price so long as the Ute Tribal or Indian-owned certified firm's price is within ten percent (10%) above the lowest bid, calculated by multiplying the lowest bid by 110%. An employer may not refuse to employ a Ute Tribal or Indian-owned certified firm for the reason that a non-Indian firm is more qualified so long as the Ute Tribal or Indian-owned certified firm satisfies the threshold requirements for technical qualifications.

7.4 Failure to Submit Indian Preference Plan. An apparent successful bidder who fails to submit an Indian preference plan prior to award of the contract shall be considered a non-responsive bidder for the purpose of awarding the contract.

7.5 Amendments to Plan. If awarded the bid, the contractor may not deviate from the plan or add or delete any existing new subcontracts or subcontractors without the written consent of the Contracting Officer or his designee and notice to the UTERO Commission. Any amendments to the Indian Preference Plan must be in writing and approved prior to the date of implementation.

7.6 Bid Shopping Prohibited. An employer is prohibited from engaging in bid shopping as a means of avoiding its Indian contract/subcontract preference obligations. Bid shopping is defined as any practice which an employer informs a prospective contractor/subcontractor that it will receive a contract/subcontract only if it offers a price lower than that proposed by another firm.

SECTION 8. JOB CATEGORIES

Employers or subcontractors employed by a primary contractor under one or more contracts totaling at least $10,000 shall not participate in more than one area of the overall project for which such employer or subcontractor is employed. A superintendent or any person in a similar capacity employed by the primary contractor shall not be employed in any other aspect of said project.

8.1 Identification of Regular, Permanent Employees. Prospective contractors and bidders shall identify regular, permanent employees, including those included in subcontractors, in the bid package. Such employees may be employed on the project whether or not they are Indian. A regular, permanent employee is one who is and has been on the contractor's or subcontractor's annual payroll, or is an owner of the firm. The fact that an individual has worked for the contractor on previous projects shall not of itself qualify that individual as a regular, permanent employee. Exceptions for superintendents and other key personnel may be granted by the UTERO Commission on a case-by-case basis. Any contractor or subcontractor which fills vacant employment positions in its organization immediately prior to undertaking work pursuant to a contract on and within the exterior boundaries of the Uintah and Ouray Reservation shall provide evidence acceptable to the Contracting Officer and the UTERO Commission that such actions were not intended to circumvent the provisions of this Ordinance.

8.2 Lay-Off. In all lay-offs and reduction in force, no Indian worker shall be terminated if a non-Indian worker in the same job classification is still employed; the non-Indian must first be terminated if the Indian possesses the qualification for the position at question. Qualified Indian workers shall be transferred to a crew to be retained so long as non-Indians in the same job classification are employed elsewhere on the job site.

8.3 Promotion. Every employer shall give Indian preferential consideration for all promotion opportunities and shall encourage Indians to seek such opportunities. For every supervisory position filled by a non-Indian, the employers shall file a report with the UTERO Commission stating what efforts were made to inform Indian workers about the position, how many Indians applied for the position, and the reason why an Indian was not hired for the position.

8.4 Summer Students. Every employer shall give Indians preferential consideration for summer student employment. The employer shall make every effort to promote after-school, summer and vacation employment for Indian students.

8.5 Existing Contracts, Employers. Any existing contracts or other work presently operating under an existing agreement with the Ute Employment Commission will continue under the same written guidelines and rules. Each employer shall provide to the UTERO Commission a list of employees and their Indian affiliation, if any, as part of the implementation of this Ordinance.

8.6 Reporting Requirements. Each employer shall submit reports and other information requested by the UTERO Commission. The reports and information may include monthly reports to the UTERO Commission on a form provided indicating the number of employees, including a separate tally of Indians, it has on its work force, monthly hires and fires, contractors/subcontractors, hourly work and time and material contracts awarded to Indian preference certified firms, and other information as may be identified on the form. An employer who fails to submit reports shall be subject to sanctions provided under this Ordinance. The UTERO Commission may inspect and copy all relevant records and job-sites of all employers or entities engaged in business on and within the exterior boundaries of the Reservation pursuant to a lease, contract or other authorization during normal business hours in order to ensure compliance-with this Ordinance and may talk to any employee and conduct investigations on-job sites, so long as it does not pose a safety hazard or interfere with the operations of the business.

SECTION 9. IMPLEMENTATION

In implementing the requirements of this Ordinance, the UTERO Commission may:

9.1 Hiring Goals and/or Hiring Directives. Enforce any and all terms and provisions addressing hiring goals and/or hiring process in any contract, lease, development agreement or other document executed by and between Employers subject to this Ordinance and the Uintah and Ouray Tribal Business Committee, including any timetables that specify the minimum number or percentage of Indians an Employer must hire. In the absence of such terms, Employers shall ensure that at least 50% of their new hires performing work on and within the exterior boundaries of the Reservation are enrolled members of any federally recognized tribe. A specific process to hire Tribal Members may be implemented, but only upon mutual agreement by and between an Employer and the UTERO Commission.

9.2 Training Programs. Require employers to establish or participate in such training programs as the Commission determines necessary in order to increase the pool of qualified Indians on the Uintah and Ouray Reservation. Such training programs must have prior approval from the Contracting Officer and should preferably be included in the bid package. If training programs are not included in the bid package, the UTERO Commission shall give due consideration to the increase in cost, if any, for performing the program.

9.3 Attend and monitor all job interviews as a non-voting participant.

9.4 Prohibit an employer from establishing extraneous qualification criteria or other requirements that serve as barriers to Indian employment.

9.5 Enter into agreements, subject to approval by the Uintah and Ouray Tribal Business Committee, with unions and other employers to insure compliance with this Ordinance.

9.6 Require employers to give preference in the award of contracts and subcontracts first to qualified Ute Tribal-owned firms and businesses as defined in Section 3 and then to other Indian-owned firms and businesses according to the terms and provisions of regulations implementing this Ordinance established by the UTERO Commission.

9.7 Establish programs to provide counseling and support to Indian Workers to assist them to retain employment. Employers may be required to participate in and/or cooperate with such support and counseling programs.

SECTION 10. ENFORCEMENT BY UTERO COMMISSION

In implementing this Ordinance the UTERO Commission shall have the following powers of enforcement:

10.1 Issue Notices of Non-Compliance and Compliance Orders. To issue notices of non-compliance and compliance orders with the Indian preference provisions of this Ordinance and other applicable provisions of this Ordinance.

10.2 Citations, Subpoenas, and Penalties. To issue citations and subpoenas to employers regarding violations of the Indian preference provisions of this Ordinance, and to impose such civil penalties, including fines, as may be reasonably necessary to remedy the consequences of a violation of the Indian preference provisions of this Ordinance or to deter future violations.

10.3 Hearings. To hold such hearings as may be necessary to resolve complaints, enforce the provisions of this Ordinance, and hear concerns regarding issues pursuant to the UTERO Commission's authority under this Ordinance.

10.4 File and Defend Cases in Tribal Court. To bring or defend a complaint or other action in Ute Tribal Court for enforcement of the Indian preference provisions of this Ordinance, against any employer on and within the exterior boundaries of the Uintah and Ouray Reservation.

SECTION 11. GRIEVANCE AND HEARING PROCEDURES

11.1 Individual Complaints. Any certified firm, group of certified firms, or other person or entity which believes that an employer has failed to comply with the requirements of this Ordinance or any rules or regulations promulgated hereunder by the UTERO Commission may file a complaint with the UTERO Commission, whether or not the complaining party can demonstrate that it has been personally harmed by the alleged noncompliance.

(A) If, in the discretion of the UTERO Commission, the complainant makes an adequate showing of cause, then the UTERO Commission shall notify the employer, in writing, of the specific allegations.

(B) If the complaint is lodged against a contractor or subcontractor, notice of the allegations shall also be provided to the entity which holds the permit, lease or authorization under which the contractor or subcontractor is operating, and such entity shall be a party to all further negotiations, hearings, and appeals.

(C) The complainant and the notified parties shall have twenty (20) days from notification to pursue an informal voluntary resolution of the problem. If no resolution is reached within the allotted time, the complainant shall notify the UTERO Commission. The UTERO Commission shall hold a formal hearing on the matter within twenty (20) days of receipt of such notice.

11.2 Commission Complaints.

(A) When, based upon its own investigation, the UTERO Commission believes any employer is or may be in violation of this Ordinance, any rules or regulations promulgated hereunder, or any permit, lease or other authorization to engage in business on and within the exterior boundaries of the Reservation, it shall so notify the employer in writing of the alleged violations.

(B) The employer shall have twenty (20) days to reach an informal resolution with the UTERO Commission.

(C) If no resolution is reached, the UTERO Commission shall set a formal hearing date.

11.3 Rights of Parties Before UTERO Commission. At all formal hearings before the UTERO Commission, all participants shall have the following rights:

(A) to be represented by counsel, at their own expense;

(B) to be present at the hearing;

(C) to present relevant sworn testimony and documentary evidence; and

(D) to call and to cross-examine witnesses.

11.4 Rules of Evidence. All hearings before the UTERO Commission shall be conducted in an orderly manner, but formal rules of evidence need not be observed.

11.5 Decision of the UTERO Commission. Based on a preponderance of evidence presented at the formal hearing, the UTERO Commission shall decide, by majority vote, if an employer is in violation of this Ordinance, any lease, permit or other authorization by which the employer is conducting business on and within the exterior boundaries of the Reservation, or any rules and regulations promulgated under this Ordinance.

11.6 Sanctions. If the UTERO Commission finds that an employer is not in compliance with this Ordinance, rules and regulations promulgated pursuant to it, or any lease, permit or other authorization by which an employer is conducting business on and within the exterior boundaries of the Reservation, the UTERO Commission may impose any or a combination of the following sanctions upon the non-complying employer:

(A) award attorneys' fees to the complaining party;

(B) fine of $10,000.00 to $20,000.00 per calendar day of noncompliance;

(C) suspension of the contract letting process, or the work on the contract until the employer is in compliance, or until a plan for compliance is developed;

(D) ban the employer from eligibility to receive a lease, contract or other authorization to engage in work on and within the exterior boundaries of the Reservation indefinitely or for a specified time, including suspension or revocation of access permits; and

(E) award monetary relief against the employer in favor of any Indian or contractor who was harmed by the employer's violation.

The UTERO Commission shall send written notice of sanctions to by certified mail, to the employer and any individual complainant.

11.7 Seizure of Property and Security.

(A) Any equipment, motor vehicle, construction equipment, or other property in the actual or constructive possession of an employer cited for violation of this Ordinance may be seized and held to secure payment of any fine and/or damage assessment, to secure such person's appearance before the UTERO Commission, or to be forfeited as provided in Section 11.8. Unless a forfeiture proceeding is initiated as provided in Section 11, property seized as security shall be released to its owner upon payment of any fine and/or damage assessment imposed by the UTERO Commission and applicable impoundment fees or upon a finding by the UTERO Commission that the person in possession of the seized property at the time of the seizure did not violate this Ordinance.

(B) Persons Authorized to Seize Property. Property subject to seizure under this Section may be seized by any UTERO Compliance Officer, Energy and Minerals Compliance Officer, by any Fish and Game law or Police Officer of the Tribe, by any law enforcement officer of the Bureau of Indian Affairs or upon an order by the UTERO Commission or without an order of the UTERO Commission if the seizure is incident to a sanction under this Ordinance.

(C) Custody of Seized Property. Property seized under this Section shall be held in the custody of the Tribe's Fish and Game Department, subject only to the Orders of the UTERO Commission, which may include orders for the sale of the seized property at public auction to collect fines and damages imposed under this Ordinance, and orders issued in a forfeiture proceeding.

11.8 Forfeiture of Property

(A) Property Subject to Forfeiture. Property seized under this Ordinance, including any liens or other interests in such property, shall be subject to forfeiture when the property is used to facilitate the commission of the actions in violation of this Ordinance, whether or not the owner of the property or holder of an interest in the property participated in, had knowledge of or consented to the use of such property on Tribal land in violation of this Ordinance.

(B) Innocent Owners of Interests in Forfeited Property. The UTERO Commission may deny forfeiture of an interest in seized property held by a person who did not participate in, or have knowledge of or consent to the prohibited use of the property if the person demonstrates to the Commission that he/she took all reasonable measures to prevent the prohibited use of the seized property, or demonstrates to the Court that the person performing the prohibited action obtained possession of the property without his/her consent.

(C) Civil Forfeiture Proceedings.

(1) Complaint. Forfeiture proceedings shall be initiated by the Tribal Prosecutor filing a civil complaint in the Court in an in rem proceeding against the property. The complaint shall describe with reasonable specificity the property at issue and the basis for forfeiture, and must be filed within thirty (30) days after the property is seized.

(2) Notice to Owners of Interests in Property. The Tribal Prosecutor shall give written notice of the forfeiture proceeding to all persons known to have an interest in the property, including a lien interest, and all persons whose interest is reasonably ascertainable. All such persons shall be required to answer the complaint and file any claim to the property within twenty (20) days after notice is given. Notice under this Subsection shall also be given by:

a. Publication in a newspaper of general circulation within the State of Utah for a period of not less than three (3) days; or

b. In the event the person cited for violation of this Title is a non-resident of the State of Utah, in a newspaper of general circulation within the area of such person's residence for a period of not less than three (3) days.

(3) Hearing and Judgment. Upon notice as required under Subsection 2, above, the Court shall conduct a hearing to determine whether the property and any known interests in the property should be forfeited to the Tribe, and shall enter an appropriate Judgment.

(4) Disposition of Forfeited Property. Property forfeited to the Tribe, or the proceeds from the sale of forfeited property, shall be retained by the Tribe and used to equip and finance enforcement activities under this Ordinance.

11.9 Third Party Collection Agent/Impoundment.

(A) Collection Agent. The Business Committee shall engage, or authorize the Tribal Court and/or any of its Departments to engage, a third party collection agency to collect any amounts due the Tribe from any person issued a citation hereunder

(B) Impound Facility. The Business Committee shall, as it sees fit, either engage a third party impound facility or establish a tribal impound facility for the purposes of carrying out the duties and obligations set forth in this Ordinance.

11.10 Appeal. Notwithstanding any other provision of tribal law, any party may appeal the decision of the UTERO Commission in Ute Tribal Court in an action captioned {plaintiff} v. Ute UTERO Commission.
(A) A notice of appeal must be filed within ten (10) business days of receipt of the UTERO Commission's decision. Appellant/plaintiff's initial brief shall be filed within twenty (20) business days of filing of the notice of appeal, and the UTERO Commission's reply brief shall be filed within twenty (20) business days of receipt of the initial brief. Regardless of any other law, rule or precedent, the notice of appeal and brief deadlines shall not be extended or enlarged by the Ute Tribal Court for any reason whatsoever.
(B) Notice of appeal shall be personally served upon all members of the UTERO Commission and the UTERO Director.
(C) On appeal, the UTERO Commission shall represent the interests of the Tribe.
(D) The Ute Tribal Court, for purposes of this Ordinance, shall not have any sua sponte powers, nor shall the Court assume any powers not expressly and specifically herein granted.
(E) The Ute Tribal Court shall not reverse the decision of the UTERO Commission unless it finds the decision arbitrary and capricious.
(F) With the exception of ordering the return of fines or penalties collected by the UTERO Commission improperly or illegally, decisions of the Ute Tribal Court shall not award monetary damages of any kind (i.e., attorneys' fees) against the Tribe, its officers, agents or employees or against the UTERO Commission, its officers or employees.
(G) The decision of the Ute Tribal Court shall be final and shall not be appealable to any other body.

11.11 Statute of Limitations. Any complaint filed under this Section must be filed in writing with the UTERO Commission and stamped by the UTERO Secretary within two years after the date on which the action upon which the complaint is based occurred.

SECTION 12. LEGAL REPRESENTATION

In carrying out its responsibilities under this Ordinance, the UTERO Commission may consult with the General Counsel of the Tribe.

SECTION 13. PRINCIPLES OF CONSTRUCTION; SEVERABILITY; JURISDICTION; LIMITED WAIVER OF SOVEREIGN IMMUNITY

13.1 This Ordinance is remedial legislation intended to rectify the long-standing problems of severe under-employment of Ute tribal members and other Indians living on and within the exterior boundaries of the Uintah and Ouray Reservation. Accordingly, it is to be construed liberally to achieve its purposes.

13.2 If any part of this Ordinance is found to be invalid for any reason, it is the intent of the Tribal Business Committee that the remaining provisions remain in force to the maximum extent possible, and that they continue to be construed according to the provisions of this Section.

13.3 The Tribe hereby authorizes a limited waiver of the sovereign immunity of the UTERO Commission for the sole and limited purpose of permitting the Ute Tribal Court to hear appeals filed under Section 11 of this Ordinance. This waiver is expressly limited to prospective declaratory relief with respect to appeals under Section 11 of this Ordinance and does not include monetary damages. No suit under this section shall be combined with any other cause of action, nor shall it name as a respondent any person or entity other than the UTERO Commission. This limited waiver is not, and should not be construed as a blanket waiver of the Tribe's sovereign immunity and shall not be construed as a waiver of the sovereign immunity of any other instrumentality of the Tribe. Nor shall any such waiver be construed as consent to the encumbrance or attachment of any trust property of the Tribe, or of any other instrumentality of the Tribe, based on any action, adjudication or other determination of liability of any nature incurred by the Tribe. Under no circumstances shall the tribal funds of the Tribal Treasury be subject to any award for damages. This limited waiver of immunity shall: not apply to any arbitration or judicial proceeding brought by any third party against the Tribe.

SECTION 14. CERTIFICATION POLICIES AND PROCEDURES

14.1 Criteria for Indian Contract Preference Certification. The UTERO Commission shall be responsible for certifying both Ute Tribal and Indian Owned Firms. To receive certification as a business eligible for Indian preference, an applicant must satisfy all of the following criteria.

(A) Ownership. The proprietorship, firm or joint venture must be fifty-one percent (51%) or more Ute Indian Tribe, Tribal Member or Indian owned. The applicant must demonstrate the following:

(1) Formal Ownership. That the Tribe, an Enrolled Member of the Tribe or an Indian or Indians owns fifty-one percent (51%) or more of the sole proprietorship, partnership, corporation, joint venture, or other arrangement for which the application is being submitted. Such ownership must be embodied in the firm's organic documents, such as its stock ownership or partnership or joint venture agreement, or, in the case of a sole proprietorship, such documents as the UTERO Commission may require.

(2) Financial Ownership. An Indian(s), the Tribe, or an Enrolled Member of the Tribe must own fifty-one percent (51%) or more of the assets and equipment, and must receive fifty-one percent (51%) or more of the firm's assets upon dissolution.

(3) Profits. The Tribe, an Enrolled Member of the Tribe or an Indian owner(s) must receive fifty-one percent (51%) or more of all profits. If there is any provision that gives the non-Indian owner a greater share of the profits, in whatever form and under whatever name, such as through management fees, equipment rental fees, bonuses tied to profits or other vehicles, certification will be denied, unless the applicant can demonstrate that such costs, fees or payments are necessary to reimburse the party receiving the same for activities directly related to the reasonable costs and expenses of the business or are acceptable practice in other businesses of a similar nature. Salary scales will be reviewed to ensure the relative salaries being paid Indian and non-Indian owners are consistent with the skills of the parties and are not being used to circumvent the requirement that Indian owners receive fifty-one percent (51%) or more of the profits.

(B) Integrity of Structure. There must be good reason to believe that the firm was not established solely or primarily to take advantage of the Indian preference program. In evaluating an applicant under this criteria, the UTERO Commission will consider the factors set out below. The UTERO Commission shall exercise broad discretion in applying these criteria in order to preserve the integrity of the Indian preference program and, in questionable cases, shall deny certification.

(1) History of the Firm. Whether the history of the business provides reason to believe it was established primarily to take advantage of the Indian preference program; particularly, whether the business, a portion of the business, or key factors of the business originally associated with a non-Indian owned business gained little or no business value in terms of capital, expertise, equipment, etc., by adding Indian ownership or by merging with a Ute Tribal or Indian Owned firm.

(2) Employees. Whether key non-Indian employees of the applicant are former employees of a non-Indian business with which the Indian business is or has been affiliated through a joint venture or other arrangement, such that there is reason to believe the non-Indian business is controlling the applicant. Whether Tribal Members and other Indians are employed in all or most of the positions of the business for which qualified Tribal Members or Indians are available. A high percentage of non-Indian employees in such positions will provide reason to believe the business was established primarily to benefit non-Indians.

(3) Relative Experience and Resources. Whether the experience, expertise, resources, etc., of the non-Indian partner(s) is so much greater than the Ute Tribe, Tribal Member or Indian partners that there is little sound business - reason for- the non-Indian to accept a junior role in the firm or venture other than to take advantage of the Indian preference program.

(C) Minimum Insurance Requirements for All Contractors and Subcontractors. Applicant shall comply with all Federal and tribal safety rules and regulations, which shall be more particularly identified and discussed in the UTERO regulations, and shall take all precautions to prevent injury to persons or property during the progress of work conducted on and within the exterior boundaries of the Uintah and Ouray Reservation. Any contractor and/or subcontractor meeting the minimum requirements of this section are hereby deemed qualified for insurance coverage purposes to conduct work on and within the exterior boundaries of the Uintah and Ouray Reservation. To ensure proper compliance with this section, applicants shall provide certificates of insurance to the UTERO Commission along with the Indian preference application required under this Ordinance as follows:

(1) General Liability: Including Contractual and Pollution Liability with limits of not less than $1,000,000;

(2) Automobile Liability: With limits of not less than $1,000,000 combined single limit;

(3) Workers' Compensation: With limits of not less than: $1,000,000 each accident; $1,000,000 disease policy limit; and $1,000,000 disease each employee;

(4) Umbrella Liability and additional insurance as may be required at the sole discretion of the Tribal Business Committee.

14.2 Certification Procedures

(A) A business seeking certification as a firm eligible for Indian preference shall submit a completed application to the UTERO Commission on a form provided by the UTERO Commission. Within thirty (30) days after receiving an application, the UTERO Commission shall review the application, request any additional information it believes to be appropriate (computation of the 30-day period shall be stayed during the time any request for additional information is outstanding), conduct any investigation it deems appropriate, and submit an analysis and disposition to the applicant. The UTERO Commission shall issue a decision on the certification no later than thirty (30) days following submission of the application.

(B) An applicant granted certification shall be issued a six (6) month probationary certification. During that period, the UTERO Commission shall monitor the business's activities to ensure that it is operating in the manner described in its application. During the probationary period, the UTERO Commission shall have the right to request and receive such information and documents as it deems appropriate.

(C) At the end of the probationary period, the UTERO Commission shall either, grant full certification, continue the probationary period for up to an additional six (6) months, or deny certification.

14.3 Withdrawal of Certification. From information provided in the change notices or annual reports, on the basis of written grievances filed by any other business or person, or on its own initiative, the UTERO Commission may initiate proceedings to withdraw or suspend certification for any firm. The UTERO Commission shall notify the firm, specifying allegations in writing. There shall be a twenty (20) day period to reach an informal resolution. If no resolution is achieved, the UTERO Commission shall hold a formal hearing within forty (40) days of the original notification. At the hearing, the firm shall have the opportunity to present witnesses and evidence as to why certification should not be withdrawn or suspended. After the hearing, the UTERO Commission may:

(A) withdraw certification;
(B) suspend certification for up to one (1) year;
(C) put the firm on probation; and/or
(D) order corrective action be taken within a fixed period of time.

The decision of the UTERO Commission may be appealed in accordance with the appeals process outlined under Section 11 of this Ordinance. A firm whose certification is withdrawn may not reapply for certification for a period of one (1) year from the effective date of the withdrawal of certification.

14.4 Firms Certified Prior to the Adoption of These Criteria. Each firm holding Indian preference certification from the Tribe at the effective date of these requirements shall submit an application as required under these criteria to the UTERO Commission within thirty (30) days after the effective date of this Ordinance. If the UTERO Commission determines that such firm qualifies under the new criteria, it shall, within twenty one (21) days of receipt of the application, certify that firm. If the UTERO Commission requires additional information from the firm, or time to conduct a further investigation, the twenty-one (21) day period may be extended. If the UTERO Commission determines the Firm is ineligible for certification, there shall be a fifteen (15) day grace period within which the firm may demonstrate to the UTERO Commission that it has made such changes as are necessary to come into compliance. If, after the fifteen (15) days grace period, the UTERO Commission finds the firm has not come into compliance, then the firm's prior certification shall be withdrawn.

14.5 Change Notices and Annual Reports. Each certified firm shall report to the UTERO Commission, in writing, any change in its ownership status within sixty (60) days after such change has occurred. Each certified firm, on the anniversary of its receipt of permanent certification, shall update the information provided in its initial application on the Annual Report form provided by the UTERO Commission. Failure to provide information pursuant to these requirements shall constitute grounds for withdrawal of certification.

SECTION 15. REPEAL OF INCONSISTENT ORDINANCES

Resolution No. 02-088 providing for the monitoring and enforcement of Ute preference in contracting by the Jurrius Group, L.L.P. is specifically repealed as are all other resolutions and ordinances inconsistent with this ordinance. This Ordinance supersedes and amends in part the Amended Ordinance to Establish a Procedure Governing Appointments of Persons to Boards, Committees and Commissions of the Ute Indian Tribe, Ord. No. 10-003.

Enacted this 12th day of June, 2018.

ABSENT
Luke Duncan, Chairman

Tony Small, Vice-Chairman

Ron Wopsock, Member

ABSENT
Shaun Chapoose, Member

ABSTAINED
Edred Secakuku, Member

Sal Wopsock, Member

CERTIFICATION

I HEREBY CERTIFY THAT THE FOREGOING Amended Ordinance was adopted by the Tribal Business Committee of the Ute Indian Tribe of the Uintah and Ouray Reservation pursuant to the Constitution and By-Laws of the Ute Indian Tribe of the Uintah and Ouray Reservation at a duly called meeting in Ft. Duchesne, Utah, on the 12th day of June, 2018, at which time a quorum was present and votes 3 for, 0 against, 1 abstaining and 2 absent.

Tribal Business Committee - Secretary

Feasibility Report
for the
Isolated Empire Rail Project

DMJM HARRIS

Prepared for:
Utah Department of Community and Economic Development

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Project Purpose

From the original conception of a transcontinental railroad there has been an interest in identifying feasible rail routes through the Rocky Mountains which would facilitate the transportation of goods and services not only from coast to coast but to and from population and resource centers throughout the country. At various times during the development of the existing national rail network, numerous alternatives have been studied to provide rail service into and out of the resource rich area of the Uintah and White River Basins. These efforts resulted in the construction of a single rail route – the ill-fated narrow-gauge Uintah Railroad.

In the 1990's increased interest was generated in developing the significant mineral products in this area. Following conceptual evaluation for the development of these resources and continuing interest to stimulate local industry, the need for a more efficient transportation system into the area was identified.

The Isolated Empire Rail Project proposes the extension of heavy-duty commercial railroad freight service to access remote sections of the states of Colorado and Utah. It is being undertaken jointly by the states of Colorado and Utah to achieve three primary objectives:

- The development of a new heavy-duty short line railroad that would link the resource rich areas of Northwestern Colorado and Northeastern Utah to the national railway system.
- The commercial development of the largest phosphate deposit in the United States, located near Vernal, Utah.
- The development of new coal and shale oil reserves, as well as extensive soda ash and trona reserves, all located in Northwestern Colorado. The development of these coal and shale oil reserves will help increase our energy self-reliance and reduce our dependence on foreign oil, both of which have once again become national priorities.

This remote region of the country does not now have the transportation infrastructure by either rail, highway or waterway that is required to link its deposits of rich natural resources to the markets located throughout the rest of the United States.

The Isolated Empire Rail Project will do more than any other single undertaking to bring needed economic development and employment to the region while preserving the area's natural beauty and ecosystem.

This route evaluation is the beginning of several studies to be prepared assessing the feasibility of construction and operation of railroad service connecting this area to the national rail network. The objective of the study is to evaluate all reasonable corridors for railroad routes that connect to a proposed industrial complex to be built adjoining the Deseret Generating and Transmission (DGT) station near Bonanza, Utah. All of the corridors that extend to the east from this site utilize the existing Deseret Western Railroad (DWR). A key assumption of this study is that the appropriate agreement can be reached with Blue Mountain Energy, which owns the DWR, for operating rights and permission to make any changes necessary to use the existing track if a route is ultimately selected which connects to the eastern end of the line.

Identification of Alternatives

Three sources were used for generating routes that are considered in this initial screen. The first source of information was the team member's knowledge of the region, and previous experience as employees of the freight railroads. The other two sources of information were from previous studies. URS Engineers prepared the first study entitled "Meeker-Piceance Basin Rail Feasibility Study" in 1981. Uintah Engineering and Land Surveying prepared the second study entitled "Possible Rail Road Routes into the Uintah Basin" in 1995. A total of nine routes were incorporated into the study from previous reports.

The study purpose was slightly different for each of these past studies. The URS study primarily considered mineral development in Northwestern Colorado. The Uintah study was undertaken primarily for mineral access to western markets (California and the West Coast for export).

Sixteen routes have been reviewed as part of the project and are listed below with there original numbering from the previous studies. A route map is included on page 4, Figure 1 to illustrate to locations of the corridors:

Routes that Connect with the Former D&RGW RR Main Line

1. Kyune, UT. – Bonanza via Indian Creek Canyon (parallel US. 191)
2. Kyune, UT. – Bonanza via Nine Mile Canyon[1]
3. East of Crescent Jct., UT. North[1]
4. Mack, CO. – Bonanza via Baxter Pass[1]
5. Mack, CO. – Rangely via Douglas Pass
6. DeBeque, CO. North[2]
7. Parachute, CO. North via Piceance Creek
8. Rifle, CO. North via Meeker Area[2]
9. Newcastle, CO. Northwest
14. Parachute, CO. North via Meeker Area
15. Rifle, CO. North via Piceance Creek
16. Mack, CO. – Rangely via Baxter Pass

Routes that Connect with the Union Pacific in Utah, Wyoming, or Vicinity of Craig Colorado, but do not Connect with the Former D&RGW RR main line.

10. Craig, CO. West via Elk Springs[1]
11. Craig/Axial, CO. West via Meeker[2]
12. Wamsutter, WY. South[1]
13. Wolf Creek (Utah) East[1]

1 Routes included in the Uintah Study
2 Routes included in the URS Study

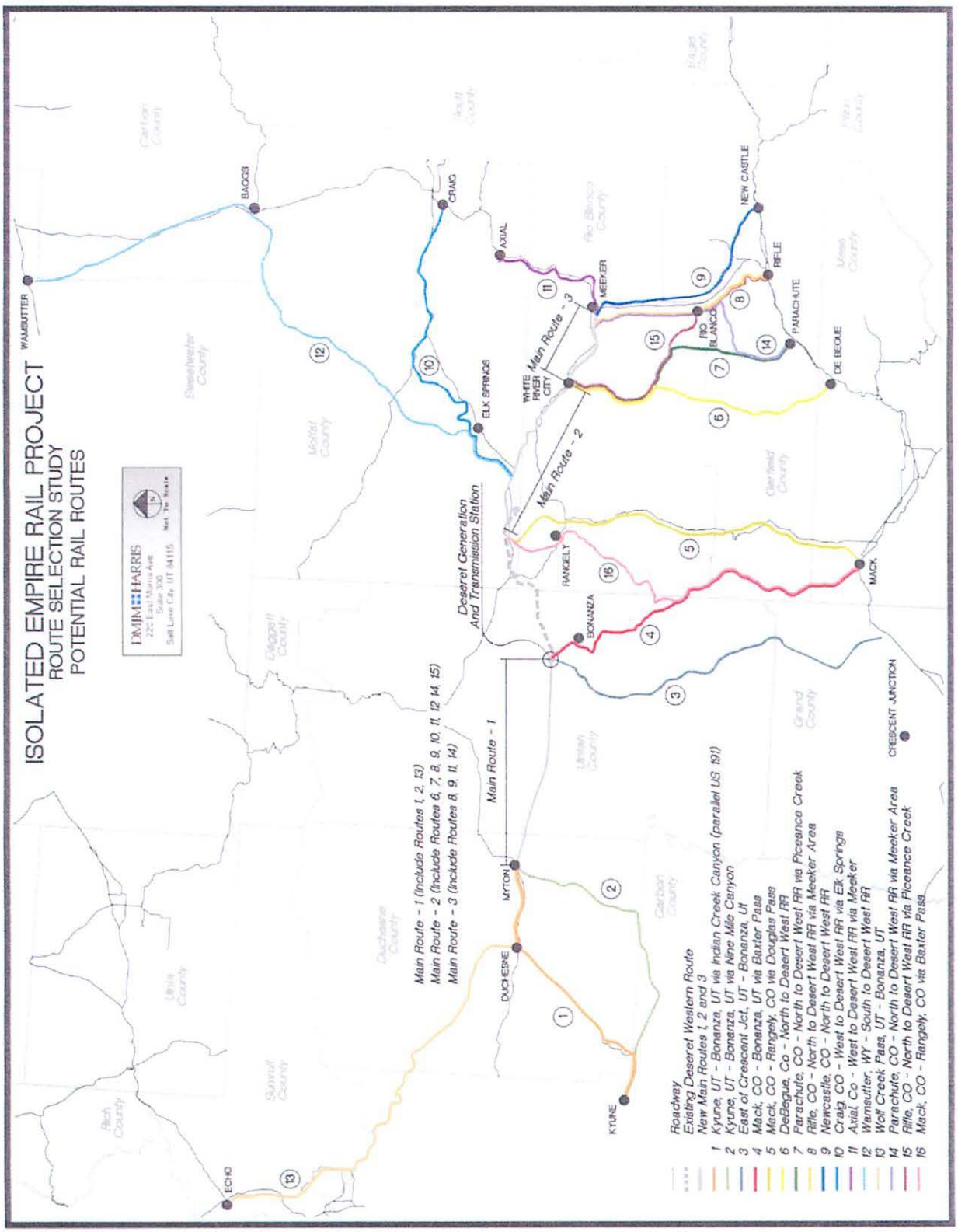


Figure 1 Potential Rail Routes

Initial Route Screening

The initial screen of possible routes is grouped into two categories – those routes that connect with the former Denver and Rio Grande Western Railroad (D&RGW RR) mainline, and those routes that connect to Union Pacific mains in Utah, Wyoming, or the vicinity of Craig, Colorado. These two categories have been created based on service competitive characteristics. The first group has two-carrier competition capability and the second, only one.

The routes have been screened primarily for engineering issues, which have major impacts on operational and capital construction costs. These issues include such criteria as excessive grades, the need for significant tunnels, and tight narrow canyons, which would result in severe track curvature and potential flood damage. A preliminary scan of environmental issues was performed to identify significant impacts to designated cultural resources such as historic districts and scenic byways.

The following is a general description of each route and the reasons why each is recommended or eliminated for further in depth analysis. This information was reviewed by the Isolated Empire (IERP) Project Team along with information presented from the previous studies to identify routes for further analysis.

Routes Connecting to the Former Main Line of the D&RGW RR

1. From the rail station at **Kyune, Utah** (east of Soldier Summit) the line would extend through Emma Park to US 191 and then generally follow the highway through **Indian Canyon** to Duchesne and thence east to **Bonanza**. A tunnel approximately 5.7 miles long would be built at an elevation of approximately 8200 feet. A highway inspection of Indian Canyon reveals difficult construction conditions for considerable length. In addition, it is estimated that the ruling grade westbound would be in excess of 3% and impact the ability of trains to pull the grade.

   This route was **eliminated** due to excessive grade, difficulty of construction, and general length.

2. From **Kyune, Utah** east the line would extend through Emma Park, Whitmore Park, **via Nine Mile Canyon**, up Gate Canyon, and down Wells Draw to the northeast. Uintah Engineering estimated the grade traveling up Gate Canyon would be in excess of 5%. They did not consider using a tunnel due to the large variation in elevation between the north and south ends of the canyon. Even though the north slope drops gently towards the Duchesne River, it does not create a clearly defined ridge for a tunnel to pierce. If a 6.4-mile tunnel were built, the eastbound grade could be reduced to less than 2%, but because of the gradual north slope, does not result in an appreciable reduction in line length.

   This route was **eliminated** due to excessive grade, cost and general length of construction.

3. Uintah Engineering identified a line from approximately 35 miles east of **Crescent Junction, Utah**, up the Westwater Creek drainage, east along East Canyon, through a proposed 5200 ft. tunnel, and then followed the Sweetwater Canyon northward. Sweetwater Canyon, East Canyon, and the other connecting canyons appear tight and therefore will be subject to damage from frequent flash flooding.

A route was examined, using a longer tunnel at the divide (7.7 miles) and a second tunnel (5.2 miles long) that pierces a ridge between the Sweetwater Creek and White River drainages. Although this choice reduces the grades to below 2%, the cost for tunneling makes the construction of this alternative too expensive.

This route was **eliminated** due to excessive grade, cost, and general length of construction.

4. From **Mack, Colorado** north **via Baxter Pass** the rail line would generally follow the old Uintah Railroad grade with a 4-mile tunnel beneath the Book Cliff Ridge. Uintah Engineering chose a tunnel site to breach the Book Cliffs at an elevation of approximately 8000 feet and thus kept their tunnel length to 5100 feet. The approach grades for this proposed site are considered too steep. Siting a longer tunnel (about 4 miles in length) at an elevation of about 7000 feet, will allow approach grades between 2.0 and 2.4 %. This range of ruling grade is permissible.

   This route has been **selected** for further analysis.

5. From **Mack, Colorado** north **via Douglas Pass** following SH 139 to **Rangely**, continuing north to intercept the DWR in the vicinity of Blue Mountain. This route requires a 5.5-mile tunnel beneath Douglas Pass at an elevation of approximately 7200 feet. The route north from the tunnel would follow Douglas Creek on approximately a 2% descending grade into Rangely. The canyon is tight with a wash that meanders back and forth, a parallel state highway, and buried gas/petroleum lines. In addition, it passes through the Canyon Pintado Park, which raises environmental concerns.

   This route was **eliminated** due to cost of construction and considerable cultural and environmental concerns.

6. Beginning at **DeBeque, Colorado** and traveling north up Clear Creek, beneath the Book Cliffs through a 9.5-mile tunnel to Willow Creek and into **Piceance Creek**. The route was included in the URS report, but was the most expensive of the various routes they considered due to the high cost for the tunnel.

   This route was **eliminated** due to cost.

7. From **Parachute, Colorado** extending the existing American Soda Rail Spur from the plant northward to Piceance Creek with a long 10.2-mile tunnel. This route does not appear feasible because of approach grades, drainage considerations, and most importantly cost.

   This route was **eliminated** due to cost and severe operating conditions.

8. Beginning at the rail line west of **Rifle, Colorado**, the route skirts around the west side of town and north **via Rio Blanco Pass** and Sheep Creek. Near Meeker, the route turns west along the White River and connects to the DWR near Blue Mountain. This line would require approximately 94 miles of new track construction. The eastern half of the route was studied by URS in its report.

   This route has been **selected** for further analysis.

9. From **Newcastle, Colorado** in a northwest direction, a route would follow the Grande Hogback west past Rifle Gap State Recreation Area and thence north **to Piceance Creek** or beyond toward Meeker along Flag Creek. This route is considered less feasible than the parallel route 8 since the rail line passes through a state recreation area and requires a longer distance to a connection with the DWR.

   This route was **eliminated** due to the higher cost compared with Route 8 and identified environmental concerns.

14. From **Parachute, Colorado** the route extends the existing American Soda Rail Spur from the **American Soda Plant** northward and eastward along the Book Cliffs to Government Creek. This route crosses the Rio Blanco divide at the same place as Route 8 and continues similarly toward the Meeker area then west to Blue Mountain. This route does not appear feasible because of grades and overall route length.

    This route was **eliminated** due to cost and severe operating conditions.

15. Beginning at the railroad west of **Rifle, Colorado**, skirting around the west side of town then running north **via Rio Blanco Pass**. At the top of the pass the route either follows Piceance Creek west and north to White River City then west along the White River, connecting to the DWR near Blue Mountain. This line would require approximately 97 miles of new track construction.

    This route has been **selected** for further analysis.

16. From **Mack, Colorado** this route runs north **via Baxter Pass** generally following the old Uintah Railroad grade with a 4-mile tunnel beneath the Book Cliff Ridge. North of the pass the route travels along Evacuation Creek a short distance before swinging northeasterly along Rio Blanco County Highway 23 to Rangely. West of Rangely this route runs along the Blue Mountain Highway to connect to the DWR near Blue Mountain.

    This route was **eliminated** due to cost of construction.

Routes that do not Connect to the Former D&RGWRR Main Line

10. A rail line from **Craig, Colorado west via Elk Springs** would connect to the UP line southwest of town and then extend west approximately 84 miles to a connection with the DWR. This route generally parallels highway US 40 along Lay Creek, through Maybell where it crosses the Yampa River and thence westward over the divide at Elk Springs to the DWR connection just south of Blue Mountain, CO. This route was previously studied by both the D&RGW RR in the 70's and later by Uintah Engineering. A 2% grade in both directions appears to indicate a viable route.

    This route has been **selected** for further analysis.

11. From **Craig/Axial, Colorado west via Meeker,** a route would connect to the existing railroad system at the ColoWyo Mine at Axial, Colorado, and extend southward over the divide to Meeker and thence west along the White River to a connection with the DWR. This route was studied by URS and appears feasible for further study.

This route has been **selected** for further analysis.

12. A route from **Wamsutter, Wyoming via Elk Springs** would extend south via Baggs, following the Little Snake River to its junction with the Yampa River, and then swing west at the top of the divide to a connection with the DWR (just south of Blue Mountain). This is one of the longer (155 miles) routes in the initial screening and would be expensive to construct and operate.

    This route was **eliminated** due to cost of construction.

13. **Wolf Creek Pass, Utah** is a route studied by Uintah Engineering. It extends south from the UP at **Echo**, through the Kamas Valley, up the Provo River, beneath the divide at Wolf Creek in an 11,500-foot tunnel at 9000 feet elevation, and down the Duchesne River valley eastward. The approaches to the tunnel, especially from the west, are very steep (4 – 6 % grades) with a series of switchbacks to gain elevation. The route would also pass through two state parks and has an overall length in excess of 160 miles. This route is considered infeasible.

    This route was **eliminated** due to steep grades, route length, and environmental concerns.

Summary of Feasible Routes

A total of 16 alternative rail routes were reviewed as a part of the current project. Five of those route alternatives were then selected for further analysis. A route map is included on page 9, Figure 2 to illustrate to locations of the routes:

- Route 4 Mack-Bonanza via Baxter Pass
- Route 8 Rifle-Blue Mountain via Meeker
- Route 10 Craig-Blue Mountain via Elk Springs
- Route 11 Axial-Blue Mountain via Meeker
- Route 15 Rifle-Blue Mountain via Piceance Creek

Alternatives Analysis

With the identification of the five routes, an analysis was conducted of the most critical operating characteristics for each rail line including operation grades, track mileage, tunnel constructability, and utility impacts. The process also assessed any environmental impacts that may be associated with the construction of the rail line.

A separate Operating Plan was development to provide a preliminary analysis and evaluation of the operational aspects of the five route alternatives. It also addresses each of the issues contained in Section 60 of the Detail Work Plan requirements that are a part of the scope of work for this Primary Route Selection Report. It includes a significant amount of detailed operating information that would be required to submit an application for the "Certificate to Construct, Acquire, or Operate Railroad Lines". Several elements of the report including the engineering analysis and

revenue/operating expenses have been extracted and added to this section of the report so a complete assessment of the corridors could be conducted.

Description of Selected Routes

Routes connecting to the former main line of the D&RGW RR

Route 4 - Mack. This route begins at the UP railroad near Mack Colorado. Proceeding northwesterly, it generally follows the old Uintah Railroad grade with a 4-mile tunnel beneath the Book Cliff Ridge (Baxter Pass) and then down Evacuation Creek to the Utah boarder, continuing in a northwesterly direction to the Bonanza Power Plant.

Route 8 – Rifle. Beginning at the UP railroad west of Rifle at Interstate 70, the route skirts around the west side of the town and heads north along government creek and SH13 to Rio Blanco Pass. It continues north along Sheep Creek and SH13 to a junction near SH 64 west of Meeker. The route then turns west and runs along the White River and SH64. Several miles east of Rangely the route turns north and travels overland, to its connection with the Deseret Western Railroad near Blue Mountain and US40.

Route 15 - Piceance Basin. Beginning at the railroad west of Rifle, the route skirts around the west side of the town and heads north along SH 13 to Rio Blanco Pass. At Rio Blanco, it turns west and follows Piceance Creek west and north to White River City. The route then turns west and runs along the White River, to its connection with the Deseret Western Railroad near Blue Mountain.

Routes that do not connect to the former D&RGWRR main line.

Route 10 – Craig. The route connects to the UP southwest of Craig and then extends to the west, roughly paralleling US 40 along the south side to Maybell. At Maybell the route follows SH318 toward the Yampa River, then follows the Yampa River through Elk Springs Pass. At Elk Springs, it roughly parallels US 40 again to tie in with Deseret Western Railroad near Blue Mountain.

Route 11 – Axial. This route connects to the existing railroad system at the ColoWyo Mine at Axial, Colorado. From there, it runs south along SH 13 over the divide near Nine-Mile Gap toward Meeker. The route swings east around Meeker Dome and skirts the city to the east and south. From Meeker, it continues west along the White River to a connection with the Deseret Western Railroad near Blue Mountain.

Individual maps have been generated for each of the five feasible alternatives and can be found in the attached Appendix.

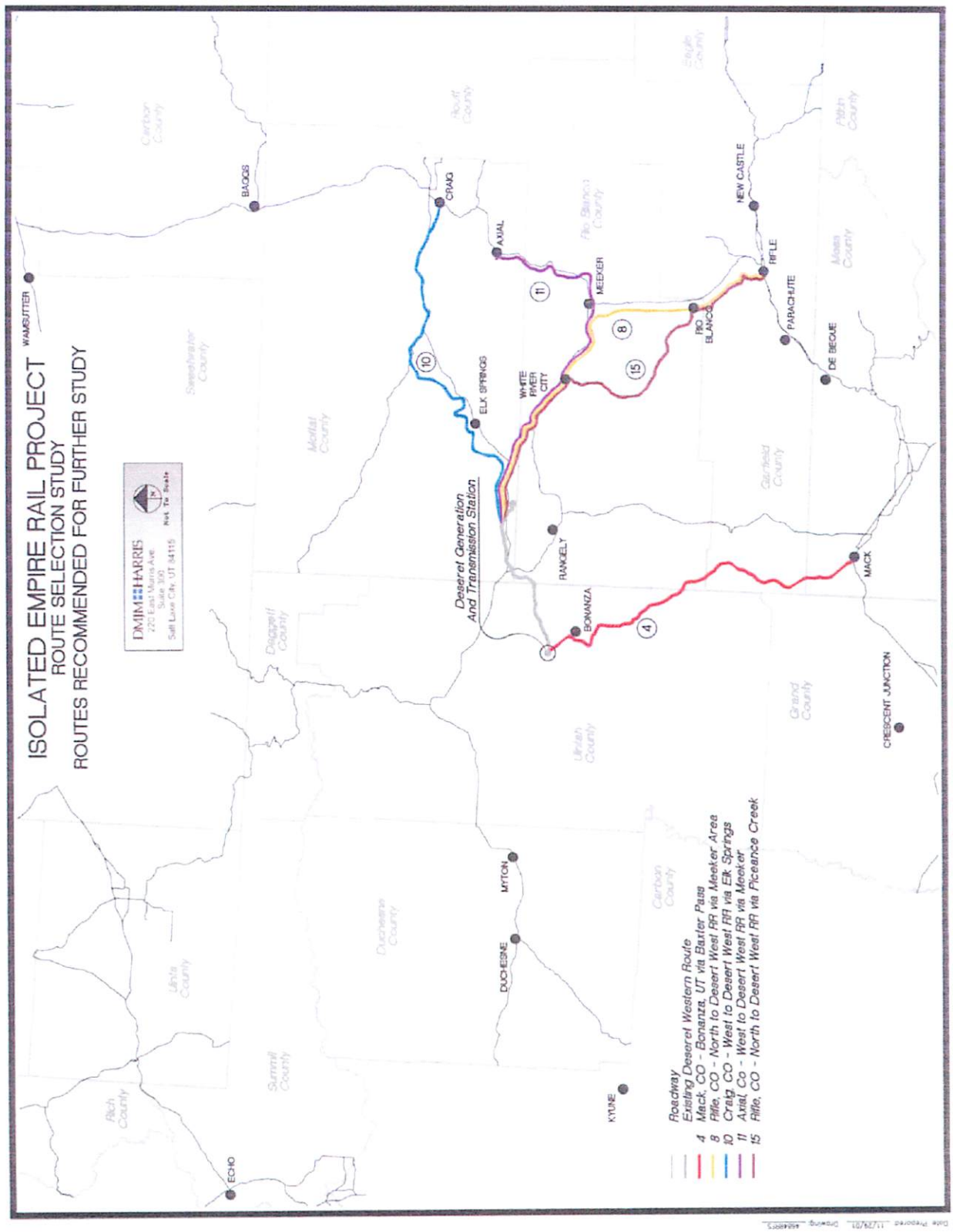


Figure 2 Feasible Rail Routes

Engineering Assessment

Routes connecting to the former main line of the D&RGW RR.

Route 4 - Mack. This route begins at the UP railroad near Mack Colorado. Proceeding northwesterly with a 4-mile tunnel beneath the Book Cliff Ridge (Baxter Pass). This route is 75 miles long and has 7° curves maximum. The tunnel is sited at approximately 6621 feet, resulting in approach grades of 2.5% from either side. The 2.5% grade runs through the tunnel, and the transition from one approach to the other accomplished with a long vertical curve. The inbound 2.5% grade is the ruling grade for the route, all other grades are 2.0% or less.

Near Mack Colorado US 6/50 is intersected by this route, this is the only major highway crossed by this alignment, however there are approximately another 34 smaller road crossings. Towards the northern terminus, it is necessary to cross the White River with a high bridge. Additionally there are smaller creeks and streams that are crossed, approximately 22 of these crossings appear to be of sufficient size to require a bridge instead of a culvert. In addition to crossing roads and waterways, the route crosses over some underground petroleum product pipelines.

Initial estimates indicate there would be approximately 17,090,000 cubic yards of material cut, with and additional 487,800 cubic yards of material excavated from the tunnel. 18,010,000 cubic yards of fill material would be needed, resulting in shortage of approximately 432,500 cubic yards of fill that would need to be imported. These estimates presume that all excavated material could be used as fill.

Geologically this route encounters not only the shale and expansive clays associated with the Book Cliffs, but some historic landslides as well.

This route does not impact any National Park, Indian or Department of Defense land, and does not appear to have extensive conflicts with privately owned land.

Route 8 - Rifle. This route would require 94 miles of new track and would have an operating length of 124 miles. As the route nears Rio Blanco Pass, it contains 9° curves and switchbacks to gain elevation, making the grade 2.5% for approximately nine miles. Other segments of the route are at 2.5% grade for 1 to 1.5 miles. The inbound 2.5% grade is the ruling grade for the route.

Near Rifle, this route crosses US 6; further north, near Rio Blanco Pass, it crosses SH 13 twice, and it crosses SH 64 west of White River City. There are approximately 51 more smaller road crossings. The alignment crosses the White River once, toward Blue Mountain. In addition to the one river crossing there are numerous streams and creeks crossed, including Government Creek, Sheep Creek, Thirteen Mile Creek and Fourteen Mile Creek. Seventeen of these crossings appear to be large enough to require a bridge instead of a culvert. This alignment also crosses over some underground petroleum product pipelines and under power lines.

Initial estimates indicate there would be approximately 44,394,000 cubic yards of cut material along this route and 20,372,000 cubic yards of fill required, leaving an excess of 24,022,000 cubic yards of material to be wasted. This estimate assumes that sufficient of the cut material would be suitable to meet the fill requirements.

This route encounters the shale and expansive clays associated with the Book Cliffs, but does not appear to have any other geologic hazards associated with it.

While this route does not impact any National Park or Indian lands, it does impact Department of Defense lands. This occurs near Rifle where the Naval Oil Shale Reserve is located. There are numerous impacts to privately owned land.

Route 15 - Piceance Creek. This route would require 97 miles of new track and would have an operating length of 127 miles. As the route nears Rio Blanco Pass, it contains 9° curves and switchbacks to gain elevation, making the grade 2.5% for approximately nine miles. Other segments of the route are at 2.5% grade for 1 to 1.5 miles. The inbound 2.5% grade is the ruling grade for the route.

Near Rifle, this route crosses US 6; further north, near Rio Blanco Pass, it crosses SH 13 twice, and it crosses SH 64 west of White River City. There are approximately 46 more smaller road crossings. The alignment crosses the White River once, toward Blue Mountain. In addition to the one river crossing there are numerous streams and creeks crossed, including Government Creek, and Piceance Creek. Nineteen of these crossings appear to be large enough to require a bridge instead of a culvert. This alignment also crosses over underground petroleum product pipelines and under power lines.

Initial estimates indicate there would be approximately 43,591,000 cubic yards of cut material along this route and 17,080,000 cubic yards of fill required, leaving an excess of 26,511,000 cubic yards of material to be wasted. This estimate assumes that sufficient of the cut material would be suitable to meet the fill requirements.

This route encounters the shale and expansive clays associated with the Book Cliffs, but does not appear to have any other geologic hazards associated with it.

While this route does not impact any National Park or Indian lands, it does impact Department of Defense lands. This occurs near Rifle where the Naval Oil Shale Reserve is located. There are numerous impacts to privately owned land. The alignment cuts across several ranches in the Piceance Creek Valley. In addition, this route runs near a cemetery, but does not appear to conflict with it.

Routes that do not connect to the former D&RGWRR main line.

Route 10 – Craig. This route requires 84 miles of new track and has an operating length of 114 miles, with 6° curves maximum. The ruling grade for this route is 2.0%, with most grades at 1.8% or less. The 2.0% sections occur at the Craig end of the route and just to the west of Elk Springs.

West of Maybell, the route crosses US 40, it crosses US 40 two more times near Cross Mountain and one last time west of Elk Springs. There are approximately 31 smaller road crossings in addition to the four highway crossings. Just west of the Craig tie in, the route

crosses the Yampa River. It crosses the Yampa River again just east of Maybell. In addition to these two river crossings there are numerous creek and stream crossings. Approximately 14 of these additional waterway crossings appear to be large enough to require a bridge instead of a culvert. The route also crosses under some power lines and over some underground pipelines.

Initial estimates indicate approximately 19,904,000 cubic yards of cut material would be created and 13,763,000 cubic yards of fill material would be required. There would be approximately 6,141,000 cubic yards of excess material to be wasted. This estimate assumes that sufficient of the cut material would be suitable to meet the fill requirements.

Geologically this route appears to cross several fault lines. These occur in three main areas of the alignment, near Elk Springs, just east of Maybell and just west of Craig.

There is no impact to Indian or Department of Defense Lands. West of Cross Mountain, the route is close to, but does not cross, a road into Dinosaur National Park Service owned by the National Park Service. Additionally, there is substantial conflict with privately owned land along the route.

Route 11 – Craig/Axial. This route would require 82 miles of new track and would have an operating length of 112 miles, with 6° curves maximum. The ruling grade for this alignment is 2.5%. The 2.5% grade occurs in several locations along the route, the longest section being 6 miles in length near Nine-Mile Gap. All other sections are 1 to 1.5 miles in length.

To the south of Axial, the route crosses SH 13. As the route skirts Meeker, it crosses SH 8 and SH 4, and SH 13 again. West Of White River City, the route crosses SH 64. In addition to these main road crossings, there are about 42 smaller road crossings. As the route comes around the Meeker Dome and heads toward Meeker, it crosses the White River. It crosses the White River again further west, as it approaches the connection to the Deseret Western Railroad. The route also crosses several other streams and creeks, including Curtis Creek and Spring Creek. Fourteen of the stream crossings appear to be large enough to require bridges instead of culverts. This route crosses under some power lines as well.

Initial estimates indicate approximately 51,447,000 cubic yards of material would be cut along this route and 18,782,100 cubic yards of fill required. This would leave 35,664,900 cubic yards of excess material to be wasted. This estimate assumes that sufficient of the cut material would be suitable to meet the fill requirements.

This route presents no special geologic conditions. There is no impact to National Parks, Indian, or Department of Defense lands. However, there are several impacts to privately owned lands. In addition, there is a cemetery near the route, but there does not appear to be a direct conflict.

The most critical operating characteristics of each of these routes are shown below and are also listed in the Route Evaluation Matrix discussed later in the report. A mileage table and map shown on the following page have been generated to illustrate route distances between major terminals for each of the five feasible routes.

Alternative Route Characteristics

Route	Route Description	New Miles	Route Miles	Grade Outbound %	Grade Outbound Miles	Grade Inbound %	Grade Inbound Miles
4	Mack-Bonanza via Baxter Pass	75	75	2.0	3.3	2.5	4.7
8	Rifle-Blue Mountain via Meeker	94	124	1.9	5.1	2.5	9.4
10	Craig-Blue Mtn. via Elk Springs	84	114	2.0	4.8	2.0	4.8
11	Axial-Blue Mtn. via Meeker	82	112	2.5	6.0	2.0	3.4
15	Rifle-Blue Mtn. via Piceance Crk.	97	127	1.5	6.2	2.5	9.4

The percent and length of the ruling grade on each route are critical factors in determining the economic viability of that route.

The Union Pacific Railroad currently uses helper locomotive consists to assist trains over the 2.4% ruling grade between Helper and Soldier Summit, Utah. The ruling grades on the Union Pacific (former D&RGW Railroad) mainline routes are as follows:

Class I Railroad Grades	%	Length of Ruling Grade
Westbound to Salt Lake City	2.4	12 miles between Helper and Kyune
Eastbound from Salt Lake City	2.0	33 miles west from Soldier Summit
Eastbound via Moffat Tunnel	2.0	9 miles between Tabernash and Winter Park
Westbound from Denver	2.0	38 miles to E. Portal, 10 miles from East Bond

Besides designing the new railroad with the minimum practical ruling grades, attention must also be given to design and track geometry criteria to reduce potential curve and grade combinations that might create undesirable train handling characteristics, such as short reverse grade profiles in combination with sharp curves on ruling grades.

Various physical characteristics of the railroad may limit the maximum height railroad car that can be handled over each of the route alternatives. Some of the restrictions, such as tunnels and certain bridge structures, are on the Class I railroad mainlines beyond the new railroad. But the catenary system of the Deseret Western Railway poses the most severe limitation and prohibits the movement of high-profile cars over DWR trackage due to the need to maintain the prescribed safe distance from the energized electrical wire. The catenary structure precludes the movement of multi-level automobile cars, Trailer-On-Flat-Car (TOFC) service, and all double stack container movements over the Deseret Western Railway as presently configured. Single-stack container cars could be handled on all routes, including under the catenary system of the Deseret Western Railroad.

Environmental Analysis

The potential for five proposed rail routes to affect threatened, endangered, and sensitive (TES) species, riparian/wetland areas, and cultural resources was evaluated from a database search. These data are tabulated in order to facilitate comparisons of the proposed routes. The results of this initial analysis are provided for each of the environmental subjects in the following text.

To facilitate comparisons among all the resource categories, the alternatives have been analyzed as five continuous routes. Because four of the routes use parts of the same alignment and eventually merge into one, some of the same resource sites or issues will show up more than once.

Riparian/Wetland Areas

The potential for riparian areas and wetlands to be affected by the rail routes was based on perennial and named intermittent streams data from the U.S. Census Bureau (2000) and overlaying proposed rail lines. National Wetland Mapping has not been done for the proposed project areas, and because of the large area under consideration, aerial photographic interpretation was deemed impracticable. Rail crossings of stream systems would cause the most impact to riparian and wetland areas from construction of bridge abutments and piers. In addition, Colorado Natural Heritage Program (CNHP) locational data on sensitive wetland communities were included as part of the analysis, summarized in Table 1.

Table 1 Summary of Stream Crossings and Sensitive Wetland Communities

Stream Crossings	Route 4	Route 8	Route 10	Route 11	Route 15
Named Perennial	4	10	5	13	15
Named Intermittent	9	5	6	4	5
Total Stream Crossings	13	15	11	17	20
CNHP Sensitive Wetland Communities[1]	1	5	3	10	1

[1] Source: Colorado Natural Heritage Program. 2001. Colorado State University, Fort Collins, CO.

For specific names of streams crossed by alternatives, see Appendix B. These data indicate that, although quite close in number, Route 10 has the least number of total stream crossings; Route 4 has the least perennial stream crossings. Regarding crossings of sensitive wetland communities, Route 4 and Route 15 have the potential to affect only one community each.

In summary, according to information available from a database search, Route 10 would affect the least total number of stream crossings. As for the total stream crossings plus sensitive wetland communities, Route 4 and 10 would affect 14 each.

Threatened, Endangered, and other Sensitive Species (TES)

Utah Natural Heritage Program and CNHP most current data on plant and animal species listed as federally-threatened and endangered, candidates for such listing, state-listed and species of concern, and BLM-sensitive were plotted on the GIS maps along with the five project routes to identify potential conflict areas. Occurrences of TES species within one mile of the proposed routes were located with reasonable accuracy because the data were recorded on a Township, Range and Section level. These TES species occurrences are presented in Tables 2 and 3. Also tabulated separately were the occurrences of rare plant communities and non-listed species considered "imperiled" by the Natural Heritage network.

Table 2. Threatened, Endangered, and other Sensitive Plant and Animal Species (Colorado occurrences recorded within one mile of the project routes)

Species Common Name/ Scientific Name	Status	Route 4	Route 8	Route 10	Route 11	Route 15
Birds						
Bald eagle (*Haliaeetus leucocephalus*)	FT, ST	3	12		11	10
Greater sandhill crane (*Grus canadensis tabida*)	ST, FS			1		
Mammals						
Black-footed ferret[2] (*Mustela nigripes*)	FE, SE			1		
Reptiles						
Longnose leopard lizard (*Gambelia wislizenii*)	SC, BLM	4				
Midget faded rattlesnake (*Crotalus viridis concolor*)	SC, BLM		1			1
Amphibians						
Great Basin spadefoot (*Spea intermontana*)	SC, BLM		2			3
Fish						
Colorado pikeminnow (*Ptychocheilus lucius*)	FE, ST		4	5	4	3
Razorback sucker (*Xyrauchen texanus*)	FE, SE		1		1	1
Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*)	SC, BLM, FS		3			3

FE – federally endangered, FT – federally threatened, FC – federal candidates, PT – proposed threatened, SE – state endangered, ST – state threatened, SC – state species of concern, BLM – BLM listed as sensitive, FS – U.S. Forest Service listed as sensitive

Table 2. (Continued)

Species Common Name/ Scientific Name	Status	Route 4	Route 8	Route 10	Route 11	Route 15
Plants						
Grand buckwheat (*Eriogonum contortum*)	BLM	4				
Ferron milkvetch (*Astragalus musiniensis*)	BLM	1				
White River penstemon (*Penstemon scariosus* var. *albifluvis*)	FC					2
Debris milkvetch (*Astragalus detritalis*)	BLM		2		2	
Piceance bladderpod (*Lesquerella parviflora*)	BLM		1		1	
Piceance twinpod (*Physaria obcordata*)	FT					6
Dudley Bluffs bladderpod (*Lesquerella congesta*)	FT					3
Utah fescue (*Argillochloa* [*Festuca*] *dasyclada*)	BLM, FS		3			34
Colorado Totals						
Federal species		3	17	6	15	25
State species		4	6	1	0	7
BLM and FS species		5	6	0	3	34
CNHP imperiled species		8	5	20	1	5
CNHP rare plant communities		9	16	3	14	29

FE – federally endangered, FT – federally threatened, FC – federal candidates, PT – proposed threatened, SE – state endangered, ST – state threatened, SC – state species of concern, BLM – BLM listed as sensitive, FS – U.S. Forest Service listed as sensitive

[2] Historic range and recently reintroduced population (11-15-01) along Wolf Creek near Highway 40.

Source: Colorado Natural Heritage Program. 2001. Colorado State University, Fort Collins, CO.

Table 3. Threatened, Endangered, and other Sensitive Plant and Animal Species (Utah occurrences recorded within one mile of project Route 4)

Species - Common Name/ Scientific Name	Status	Number of Occurrences
Birds		
Blue grosbeak *(Guiraca caerulea)*	*SC*	*2*
Short-eared owl *(Asio flammeus)*	*SC*	*1*
Mammals		
Brazilian free-tailed bat *(Tadarida brasiliensis)*	*SC*	*1*
Fringed myotis (bat) *(Myotis thysanodes)*	*SC, FS*	*1*
Fish		
Roundtail chub *(Gila robusta)*	ST, BLM	4
Flannelmouth sucker *(Catostomus latipinnis)*	SC, BLM	4
Bluehead sucker *(Catostomus discobolus)*	SC	1
Colorado pikeminnow *(Ptychocheilus lucius)*	FE, SE	4
Plants		
Uinta Basin hookless cactus *(Sclerocactus glaucus)*	*FT*	*1*
White River penstemon *(Penstemon scariosus* var. *albifluvis)*	*FC*	3
Graham's penstemon *(Penstemon grahamii)*	*FC*	1
Federal Occurrences for Route #4 (Utah portion)		*9*
Total Federal Occurrences Route #4		*12*
State Listed Occurrences Route #4 (Utah portion)		*14*
Total State Occurrences Route #4		*18*

FT – federally threatened, FC – federal candidates, ST = state threatened, SC = state species of concern, FS – U.S. Forest Service listed as sensitive, BLM – BLM listed as sensitive,

To discern which alternative has the potential to affect the least number of federally-listed species, the Utah data in Table 3 must be added to the total for Route 4 from Colorado (Table 2). Total numbers of species and their ranks (federal, state, etc.) affected by each alternative are presented in Table 4. In cases where a species shares two or more status listings, the count was made for the highest ranking only, using the order: federal as highest, state, BLM/FS, then CNHP imperiled. From these data it can be seen that Route 10 has the potential to affect 6 federally-listed species, which is the lowest number for alternatives. Overall, Route 10 likely affects the least total number of TES species and rare plant communities added together (30 total). Generally, environmental assessments place the most importance on federally-listed species; therefore, Route 10 would be the preferred alternative with regard to potentially affecting the least total number and the least federally-listed threatened, endangered and other sensitive plant and animal species.

Table 4. Total Threatened, Endangered, and other Sensitive Plant and Animal Species

Occurrences	Route 4	Route 8	Route 10	Route 11	Route 15
Federal species	12	17	6	15	25
State species	18	6	1	0	7
BLM and FS species	5	6	0	3	34
CNHP imperiled species	8 [3]	5	20	1	5
CNHP rare plant communities	9 [3]	16	3	14	29

[3] Heritage Program imperiled species and rare plant community information was not available for the Utah portion of Route 4.

Cultural Resources

Each of the proposed rail routes crosses public and private lands in northwestern Colorado and eastern Utah. For at least the last 20 years, investigations for cultural resources have been conducted in these areas, mostly on public lands, in response to a variety of undertakings, ranging from energy explorations to land exchanges. Numerous cultural resource localities have been recorded, including sites and isolated artifacts with prehistoric or historic components. The primary purpose of this study is to compile a list of all previously recorded cultural resource localities for each of the alternative routes. This information will be used in combination with other environmental studies to establish a ranking of the routes based upon the magnitude of impacts to significant resources, a process that has been called a "fatal flaw" analysis.

The project archaeologist visited the Office of Archaeology and Historic Preservation, Colorado Historical Society, in Denver, and the Utah State Historical Society in Salt Lake

City, Utah, to inspect the site records of each institution. Copies of the appropriate USGS topographic quadrangle map were inspected first to identify those sites that lie within or close to each route. Because each route has not been precisely plotted on USGS maps, the archaeologist used some judgment to determine if a site was potentially within or outside the proposed route. If any doubt existed, the site was included versus excluded. The number of sites included within an individual route may have been slightly inflated by this approach, but potential biases were minimized if not eliminated because all routes were treated in the same manner.

From these data, two tables were compiled listing known cultural resources for each route (Tables 5 and 6). Table 5 presents the totals of the known cultural resources recorded along the five alternative rail routes – ranked from most to least - by total numbers of sites and numbers of sites both listed with and eligible for the National Register of Historic Places (NRHP). As indicated in Table 5, the number of recorded cultural resource sites along the proposed rail routes is variable, ranging from 61 for Route 11 (Axial) to 139 for Route 4 (Mack). The second column depicts the number of NRHP listed and eligible sites by alternative, which would be considered the most sensitive sites. Table 5 indicates that both Route 11 (Axial) and Route 8 (Rifle) have the least number of listed and eligible cultural sites (12).

Table 5. Totals of Known Cultural Resources by Routes

Total Number of Cultural Resource Locations	Number of NRHP Listed and Eligible Locations
Route 4, Mack (n = 139, 28.9%)	Route 4, Mack (n = 23, 31.5%)
Route 10, Craig (n = 110, 22.9%)	Route 10, Craig (n = 15, 20.5%)
Route 8, Rifle (n = 102, 21.2%)	Route 15, Piceance Basin (n = 14, 17.8%)
Route 15, Piceance Basin (n = 69, 14.3%)	Route 11, Axial (n = 12, 15%)
Route 11, Axial (n = 61, 12.7%)	Route 8, Rifle (n = 12, 15%)

Table 6 summarizes the known cultural resources by alternative, site types and their NRHP status. Besides the eligible locations, the Rifle, Axial, and Piceance Basin routes each have one location that is listed on the National Register. In contrast, the majority (nearly 60 percent) of the locations have been either determined or recommended as <u>not</u> eligible for the National Register. Additional data are needed for about 12 percent of the locations before their eligibility status can be determined, while the eligibility of about 14 percent of the locations has not yet been determined.

Results of the records search indicated that of the five proposed rail route alternatives, the Mack Route (Route 4) has both the highest number of cultural resource locations (n = 139

or 28.9 percent) and the greatest number of sites (n = 23 or 31.5 percent) that are recommended or determined eligible for the NRHP. The Axial Route (Route 11) has the fewest cultural resource locations (n = 61 or 12.7 percent), and shares the least number of eligible locations (n = 11 or 15 percent) with the Rifle Route (Route 8).

These results illuminate only part of the picture. None of the proposed routes have been completely surveyed for cultural resources, so the results presented here are incomplete. When and if a preferred route is selected, it is strongly recommended that trained cultural resource specialists inspect it thoroughly by pedestrian survey.

Environmental Summary

Sensitive natural and cultural resources are scattered throughout all of the alternative rail routes, and reflect the natural setting and remoteness of the area. The number of sensitive resources located along the proposed routes varies among wetland, Threatened, Endangered and Sensitive species, and cultural resources, and no single route appears to have less impact when they are compared.

Of the data obtained for the analysis, species that have been listed through the U.S. Fish and Wildlife Service as threatened or endangered, and cultural resources that are listed, or are eligible to be listed on the National Register of Historic Places are considered to be the most sensitive. On this basis, the Craig Route 10 has the least locations of federally-listed species (as well as least number of sensitive species overall), whereas the Rifle (8) and Axial (11) have the least number of listed and eligible cultural sites at 12 sites each. At this point in the analysis, no fatal flaws for any of the routes were identified. The potential for critical resources (e.g., a federally-listed threatened or endangered plant or animal species, or highly significant cultural resource sites) to be directly affected requires field investigations in relation to specific route locations.

Once an alternative is chosen, on-the-ground surveys will be required to assure the location of sensitive natural and cultural resources so that avoidance or mitigation measures can be effectively implemented.

Table 6. Summary of Known Cultural Resources

ROUTE	SITE TYPE*					NRHP STATUS					TOTALS	%
	P	H	P/H	Paleo.	Unknown	Listed	Eligible	Not Eligible	Need Data	Undetermined		
Mack (4)--Colorado	47	36	6	0	3	0	13	61	14	4	92	19.1%
Mack (4)--Utah	37	9	1	0	0	0	10	32	0	5	47	9.8%
Rifle (8)	62	32	0	8	0	1	11	64	11	15	102	21.2%
Craig (10)	85	20	3	2	0	0	15	66	13	16	110	22.9%
Axial (11)	31	29	0	1	0	1	11	31	9	9	61	12.7%
Piceance Basin (15)	38	30	0	1	0	1	13	28	10	17	69	14.3%
TOTALS	*300*	*156*	*10*	*12*	*3*	*3*	*73*	*282*	*57*	*66*	481	
%	*62.4%*	*32.4%*	*2.1%*	*2.5%*	*0.6%*	*0.6%*	*15.2%*	*58.6%*	*11.9%*	*13.7%*		100.0%

*Notes: Site Type: P = prehistoric; H = historic; P/H = prehistoric and historic; Paleo. = paleontological

Operating Expenses and Revenues

As a part of the project, a description of the proposed railroad operations, revenue traffic projections, operating expenses and a net income summary for the first five years of operation for each of the five alternative routes have been prepared.

While the initial capital requirement to plan and build a new line of railroad is significant, it is a one-time investment. The operating cost, however, is an annual expense and continues for the life of the railroad. To be successful, the new railroad must satisfy four important requirements:

- The project must be feasible and affordable from a construction standpoint.
- The line must preserve the environmental balance of the region.
- The new railroad must provide its customers with an efficient transportation system that enables them to market their commodities profitably.
- The annual operating revenues of the railroad must be sufficient to cover not only the line's annual operating and maintenance costs, but they must also contribute sufficient cash flow to pay interest, reduce debt and generate the additional funds required for future capital investment in the railroad.

This evaluation also includes the identification of significant variations in operating revenues, operating costs and competitive factors for each of the five alternative routes being considered.

Traffic Revenue Projections

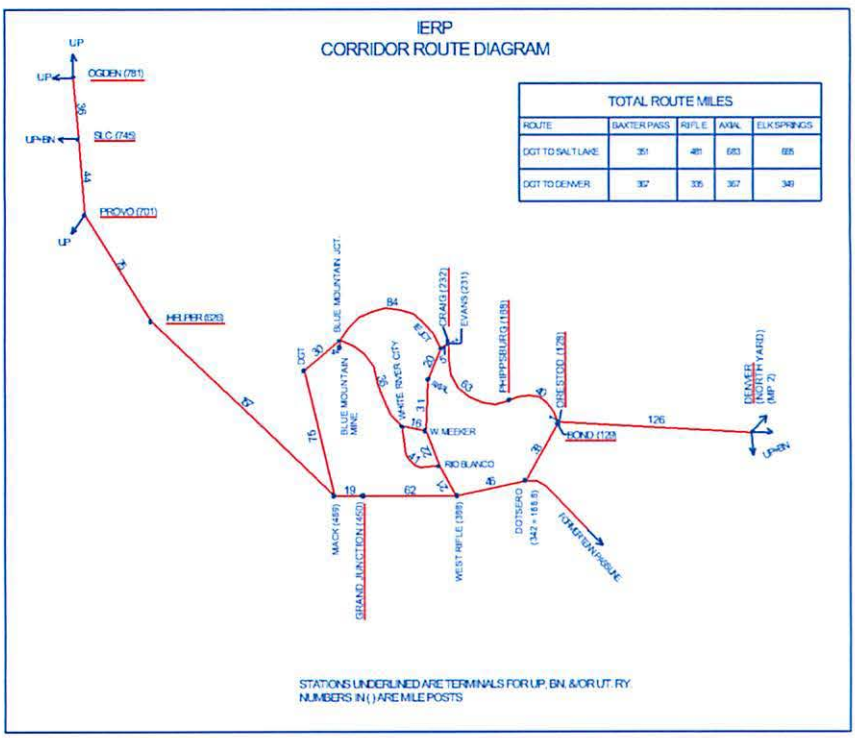
For each of the five route alternatives, the projected freight revenue is based on a flat $500/car figure. Normally, revenue is calculated based on the number of Revenue Ton Miles to be moved. (A Revenue Ton-Mile is defined as one ton of revenue freight traffic transported one mile.) However, in this study, we have simplified it by using just the $500 Average Revenue Per Car (ARPC) figure. To determine the total quantity of Revenue Ton-Miles, the total route mileage has been used for each commodity to be transported, regardless of where the industry might actually be located on the line. The following one-way route mileages are shown for information only:

• Route 4	Mack-Bonanza via Baxter Pass	75	miles
• Route 8	Rifle-Blue Mountain via Meeker	124*	miles
• Route 10	Craig-Blue Mountain via Elk Springs	114*	miles
• Route 11	Axial-Blue Mountain via Meeker	112*	miles
• Route 15	Rifle-Blue Mountain via Piceance Creek	127*	miles

* The distance for this route includes the new route miles to be constructed as a part of this project as well as the 30 additional one-way route miles that would be operated over the trackage of the Deseret Western Railway.

To properly evaluate the revenue potential of one potential route versus another it is necessary to evaluate the total mileages, generated between major rail destinations. The map shown in Figure 7 illustrates the mileage for each of the primary corridors to Salt Lake City and Denver. In future studies of the economic issues of this project, it will be necessary to evaluate the potential of each route to generate additional revenue taking into account the full travel distance from source to destination.

Figure 3 Major Destination Mileage Map



Using the revenue traffic projections from the Operations Plan, and reducing them to reflect the start-up of mining and production along the railroad as described earlier in this section, the following revenue traffic projection summary has been made for each route alternative for each of the first five years of operation:

Revenue Traffic Projection Summary
By Route By Year
Year 2001 Dollars

Route	Year 1	Year 2	Year 3	Year 4	Year 5
4	$5,449,200	$5,449,200	$10,989,400	$10,898,400	$18,164,000
8	$8,398,950	$8,398,950	$16,797,900	$16,797,900	$27,996,500
10	$5,374,200	$5,374,200	$10,748,400	$10,748,400	$17,914,000
11	$8,323,950	$8,323,950	$16,647,900	$16,647,900	$27,746,500
15	$8,398,950	$8,398,950	$16,797,900	$16,797,900	$27,996,500

Reflecting an assumed 3% compounded annual rate of inflation, the Year 1 revenue traffic projections for each route shown above have been used as a base in making the adjusted revenue traffic projections for later years. They have been adjusted for inflation, including the projected traffic growth described in the Operations Plan, to produce an adjusted revenue summary for each of the first five years. While it is recognized that railroad freight traffic contracts may provide for a different means of freight rate adjustment, this method was used to simplify the calculations and provide for ease of analysis. The following table shows the Adjusted Revenue Traffic Projections that have been used in calculating the Operating Budget:

Revenue Traffic Projection Summary
By Route By Year
Adjusted For 3% Annual Inflation

Route	Year 1	Year 2	Year 3	Year 4	Year 5
4	$5,449,200	$5,612,676	$11,562,113	$11,908,976	$20,447,882
8	$8,398,950	$8,650,919	$17,820,892	$18,355,519	$31,510,938
10	$5,374,200	$5,535,426	$11,402,978	$11,745,067	$20,162,768
11	$8,323,950	$8,573,668	$17,661,756	$18,191,609	$31,229,553
15	$8,398,950	$8,650,919	$17,820,892	$18,355,519	$31,510,938

Based on the table above, the gross freight revenue for each route for the first five years would be as follows:

- Route 4 Mack-Bonanza via Baxter Pass $54,977,116
- Route 8 Rifle-Blue Mountain via Meeker $84,737,218
- Route 10 Craig-Blue Mountain via Elk Springs $54,220,439
- Route 11 Axial-Blue Mountain via Meeker $83,980,536
- Route 15 Rifle-Blue Mountain via Piceance Creek $84,737,218

When additional revenue traffic information is made available, these preliminary projections can be revised to reflect the addition of new mines or plants along the line as well as any updated rates of inflation and other economic factors that may require consideration at the time.

Summary of Operating Budget

Based on the above revenue traffic projections, the following Summary Operating Budget has been developed to assist in the evaluation of the five alternative routes. For the purposes of this discussion, Net Income is defined as the difference between Revenue and

Expense. The Operating Ratio is defined as that percent of annual operating revenue that is consumed by operating expense. A lower Operating Ratio, less than 1.0, is desirable. For this budget, principal and interest payments have been reflected in the Cash Flow requirements.

Summary Operating Budget

Alternative	Year 1	Year 2	Year 3	Year 4	Year 5
Route 4					
Revenue	$5,449,200	$5,612,676	$11,562,113	$11,908,976	$20,444,151
Operating Expenses	9,967,000	9,767,000	10,319,000	10,319,000	11,123,000
Operating Income	-4,517,800	-4,154,324	1,243,113	1,589,976	9,321,151
Operating Ratio	1.83	1.74	0.89	0.87	0.54
Debt Service	39,327,000	39,327,000	39,327,000	39,327,000	39,327,000
Cash Flow	(43,844,800)	(43,481,324)	(38,083,887)	(37,737,024)	(30,005,849)
Route 8					
Revenue	$8,398,950	$8,650,919	$17,820,892	$18,355,519	$31,510,938
Operating Expenses	11,117,000	10,917,000	11,911,000	11,911,000	13,274,000
Operating Income	-2,718,050	-2,266,081	5,909,892	6,444,519	18,236,938
Operating Ratio	1.32	1.26	0.67	0.65	0.42
Debt Service	42,112,000	42,112,000	42,112,000	42,112,000	42,112,000
Cash Flow	(44,830,050)	(44,378,081)	(36,202,108)	(35,667,481)	(23,875,062)
Route 10					
Revenue	$5,374,200	$5,535,426	$11,402,978	$11,745,067	$20,162,768
Operating Expenses	10,048,000	9,848,000	10,174,000	10,174,000	11,052,000
Operating Income	-4,673,800	-4,312,574	1,228,978	1,571,067	9,110,768
Operating Ratio	1.87	1.78	0.89	0.87	0.55
Debt Service	26,129,000	26,129,000	26,129,000	26,129,000	26,129,000
Cash Flow	(30,802,800)	(30,441,574)	(24,900,022)	(24,557,933)	(17,018,232)
Route 11					
Revenue	$8,323,950	$8,573,668	$17,661,756	$18,191,609	$31,229,553
Operating Expenses	11,433,000	11,233,000	12,184,000	12,184,000	13,487,000
Operating Income	-3,109,050	-2,659,332	5,477,756	6,007,609	17,742,553
Operating Ratio	1.37	1.31	0.69	0.67	0.43
Debt Service	31,110,000	31,110,000	31,110,000	31,110,000	31,110,000
Cash Flow	(34,219,050)	(33,769,332)	(25,632,244)	(25,102,391)	(13,367,447)

Route 15					
Revenue	$8,398,950	$8,650,919	$17,820,892	$18,355,519	$31,510,938
Operating Expenses	11,787,000	11,587,000	12,593,000	12,593,000	13,976,000
Operating Income	-3,388,050	-2,936,081	5,227,892	5,762,519	17,534,938
Operating Ratio	1.40	1.34	0.71	0.69	0.44
Debt Service	37,615,000	37,615,000	37,615,000	37,615,000	37,615,000
Cash Flow	(41,003,050)	(40,551,081)	(32,387,108)	(31,852,481)	(20,080,062)

Because definitive traffic projections for the project are not yet available, later years budgets have not been estimated. However, based on the operating scenarios described above, and the capital costs associated with each route, a Break-Even Point for revenue traffic has been estimated for each of the routes. The Break-Even Point is defined as the point where the level of revenue traffic equals the level of expense required to operate, maintain and sustain the line. The Break-Even Point is expressed in the total revenue required at the end of the fifth year, the number of carloads that would be needed to earn that revenue, and the increase in carloads over the present projections. The Break-Even Point is shown below for each of the five route alternatives. An Average Revenue Per Car (ARPC) of $500 has been used in this calculation.

The differences in the income between the routes are directly related to both the revenue traffic that would move over that route as well as to the construction and operating costs for that route. The traffic projections are route-specific and include only those commodities and origin-destination pairs that could move competitively via that route. A route's distance, and the construction and operating costs associated with that distance, directly affect the operating expense estimate for that route.

Break-Even Point By Route
Year Five Adjusted For Inflation

Route		Revenue	Carloads	Increase
4	Mack-Bonanza via Baxter Pass	$50,450,000	100,900	64,572
8	Rifle-Blue Mountain via Meeker	$57,386,000	114,772	58,779
10	Craig-Blue Mountain via Elk Springs	$37,181,000	74,362	38,534
11	Axial-Blue Mountain via Meeker	$44,597,000	89,194	33,701
15	Rifle-Blue Mountain via Piceance Creek	$51,591,000	103,182	47,689

Evaluation Matrix

A summary of the important features and construction cost estimate of each alternative is shown on Table in the Route Evaluation Matrix. The matrix contains the construction and operational length

of each segment, as well as the maximum degree of curve required on the alignment. The grade shown in the matrix is the maximum uphill grade encountered on the alignment, and is not direction specific. Earthwork quantities shown were used to develop the cost estimate in the matrix. These quantities are representative of only one option for each alignment. There may be other economically feasible options that could reduce earthwork quantities through the use of short tunnels. Each stream crossing identified in the environmental section is shown as a bridge in the matrix. In estimating grade-crossing costs, it was assumed that all minor roads would be crossed at grade with standard active/passive control devices. Only major highways would be considered for grade separation. The environmental criteria are shown in the matrix to allow at-a-glance comparison of the various routes.

Table 7 Route Evaluation Matrix

Route Name	DG&T to Blue Mountain	Mack to Bonanza via Baxter Pass	Rifle	Craig via Elk Springs	Axial via Meeker	Rifle via Piceance Creek
Route Number		4	8	10	11	15
Route Description	Existing DWR Corridor	Baxter Pass to Bonanza	Rifle to Blue Mountain via Meeker	Craig to Blue Mountain via Elk Springs	Axial to Blue Mountain via Meeker	Rifle to Blue Mountain via Piceance Creek
Waterways	None	West Salt Creek, Evacuation Creek	White River, Sheep Creek, Government Creek	Lay Creek	White River	White River, Sheep Creek, Government Creek
Roadways	None	RB Co 25	CO 64, 13	US 40	CO 64, 13	CO 64, 13; RB Co 5
Engineering Criteria						
Terrain		Historic landslides, some river washes.	Steep Mountain Grades, River Valley	Rolling, River Valley	Steep Mountain Grades, some river washes.	Steep Mountain Grades, Narrow Canyon, River Valley
Construction segment length (miles)		75	94	84	82	97
Operated segment length(miles)	30	75	124	114	112	127
Grade	2.0%	2.5%	2.5%	2.0%	2.5%	2.5%
Curves	3 Degrees or less	7 Degrees or less	9 Degrees or less	6 Degrees or less	6 degrees or less	9 degrees or less
Earthwork						
Excavation (cubic yards)		17086953	42614708	19903759	29307820	35606134
Embankment (cubic yards)		18009840	20514933	13762916	12983226	17742334
Tunnels						
Required?	No	Yes	No	No	No	No
Total Length (miles)		4.2				
Structures						
Bridges						
Number of Low Bridges		12	15	11	17	20
Length of Low Bridges (feet)		700	1080	940	1230	910
Number of High Bridges		1	0	0	0	0
Length of High Bridges (feet)		150	0	0	0	0
Corrugated Metal Pipe (avg. 24") (feet)		2600	2900	200	800	2800
Major Road Crossings		2	5	5	6	5
Minor Road crossings		34	50	30	41	45
Utilities - Above grade	Catenary - (Electrified Railroad)	Overhead power lines	Overhead power lines	Overhead power lines	Overhead power lines	Overhead power lines
Utilities - Below grade		Petroleum product pipelines	Petroleum product pipelines			Petroleum product pipelines
Geology		Shales and expansive clays along Book Cliffs	Shales and expansive clays along Book Cliffs			Shales and expansive clays along Book Cliffs
Construction Cost Estimates						
Track @ $600,000/Mile		$ 45,000,000.00	$ 56,400,000.00	$ 50,400,000.00	$ 49,200,000.00	$ 58,200,000.00
Excavation @$5.00/Cubic Yard		$ 85,434,765.00	$ 213,073,540.00	$ 99,518,795.00	$ 146,539,100.00	$ 178,030,670.00
Embankment @$3.25/Cubic Yard		$ 58,531,980.00	$ 66,673,532.25	$ 44,729,477.00	$ 42,195,484.50	$ 57,662,585.50
Tunnels @ $6,000/Foot		$ 133,056,000.00	$ -	$ -	$ -	$ -
Low Bridges @ $2500/TF		$ 1,750,000.00	$ 2,700,000.00	$ 2,350,000.00	$ 3,075,000.00	$ 2,275,000.00
High Bridges @ $5000/TF		$ 750,000.00	$ -	$ -	$ -	$ -
Corrugated Metal Pipe @ $350/LF		$ 910,000.00	$ 1,015,000.00	$ 70,000.00	$ 280,000.00	$ 980,000.00
Road Crossings @ $15,000/EA		$ 540,000.00	$ 825,000.00	$ 525,000.00	$ 705,000.00	$ 750,000.00
Road Crossings Protection / Separations		$ 500,000.00	$ 4,000,000.00	$ 4,000,000.00	$ 3,750,000.00	$ 5,500,000.00
Sub-total		$ 326,472,745.00	$ 344,687,072.25	$ 201,593,272.00	$ 245,744,584.50	$ 303,398,255.50
Contingency @ 40%		$ 130,589,098.00	$ 137,874,828.90	$ 80,637,308.80	$ 98,297,833.80	$ 121,359,302.20
TOTAL		**$ 457,061,843.00**	**$ 482,561,901.15**	**$ 282,230,580.80**	**$ 344,042,418.30**	**$ 424,757,557.70**

Route Name	DG&T to Blue Mountain	Mack to Bonanza via Baxter Pass	Rifle	Craig via Elk Springs	Axial via Meeker	Rifle via Piceance Creek
Environmental Criteria						
Threatened/Endangered Animals (Occurrences recorded within one mile of the routes)		Bald Eagle, Blue Grosbeak, Short-eared Owl, Brazilian Free-tailed Bat, Fringed Myotis (bat), Longnose Leopard Lizard, Bluehead Sucker, Colorado Pikeminnow, Flannelmouth Sucker, Roundtail Chub,	Bald Eagle, Midget Rattlesnake, Great Basin Spadefoot, Colorado Pikeminnow, Colorado River Cutthroat trout, Razorback Sucker	Greater Sandhill Crane, Black-footed Ferret, Colorado Pikeminnow	Bald Eagle, Colorado Pikeminnow, Razorback Sucker	Bald Eagle, Midget Faded Rattlesnake, Great Basin Spadefoot, Colorado Pikeminnow, Colorado River Cutthroat trout
Federal Species		12	17	6	15	25
State Species		18	6	1	0	7
BLM & FS Species		5	6	0	3	34
CNHP imperiled Species		8	5	20	1	5
Threatened/Endangered Plants (Occurrences recorded within one mile of the routes)		Grand Buckwheat, Ferron Milkvetch, Uinta Basin Hookless Cactus, White River Penstemon, Graham's Penstemon	Debris Milkvetch, Piceance Bladderpod, Utah Fescue		Debris Milkvetch, Piceance Bladderpod	White River Penstemon, Piceance Twinpod, Dudley Bluffs Bladderpod, Utah Fescue
CNHP Rare Plant Communities		9	16	3	14	29
Wetlands						
Perennial stream Crossings		4	10	5	13	15
Intermittent stream Crossings		9	5	6	4	5
CNHP Sensitive Wetland Communities		1 (Saline Bottom Shrublands)	5 (Beaked Sedge Montane Wet Meadows, Narrow-leaf Cattail March, 2 Narrowleaf Cottonwood Riparian Forest, Coyote Willow)	3 (Emergent Wetlands, Western Slope Salt Meadows, Coyote Willow - Bare Ground)	10 (3 Narrow Leaf Cottonwood Riparian Forests, Narrowleaf Cattail Marsh, Coyote Willow / Mesic Graminoid, 2 Beaked sedge Montane Wet Meadows, Thinleaf Alder - Mixed Willow, Coyote Willow - Bare Ground)	1 (Saline Bottomland Shrublands)
Cultural Resources		n=139, 28.9%	n=102, 21.2%	n=110, 22.9%	n=61, 12.7%	n=69, 14.3%
NRHP Listed and Eligible Locations		n=23, 31.5%	n=14, 17.8%	n=15, 20.5%	n=12, 15%	n=12, 15%
Operations/Revenue Criteria						
Projected Annual Revenue		$ 20,444,151.00	$ 31,510,938.00	$ 20,162,768.00	$ 31,229,553.00	$ 31,510,938.00
Annual Operating Expense		$ 11,123,000.00	$ 13,274,000.00	$ 11,052,000.00	$ 13,487,000.00	$ 13,976,000.00
Annual Operating Income		$ 9,321,151.00	$ 18,236,938.00	$ 9,110,768.00	$ 17,742,553.00	$ 17,534,938.00
Operating Ratio		0.54	0.42	0.55	0.43	0.44
Debt Service		$ 39,327,000.00	$ 42,112,000.00	$ 26,129,000.00	$ 31,110,000.00	$ 37,615,000.00
Cash Flow		$ (30,005,849.00)	$ (23,875,062.00)	$ (17,018,232.00)	$ (13,367,447.00)	$ (20,080,062.00)
Break-Even Revenue		$ 50,450,000.00	$ 57,386,000.00	$ 37,181,000.00	$ 44,597,000.00	$ 51,591,000.00
Break-Even/Projected Revenue		2.47	1.82	1.84	1.43	1.64

Preliminary Recommendations

Consultant Assessment

In determining which of the five route alternatives would be the most advantageous from an operating perspective, the following criteria have important effects on the economic health of the railroad over the life of the project and should be taken into consideration:

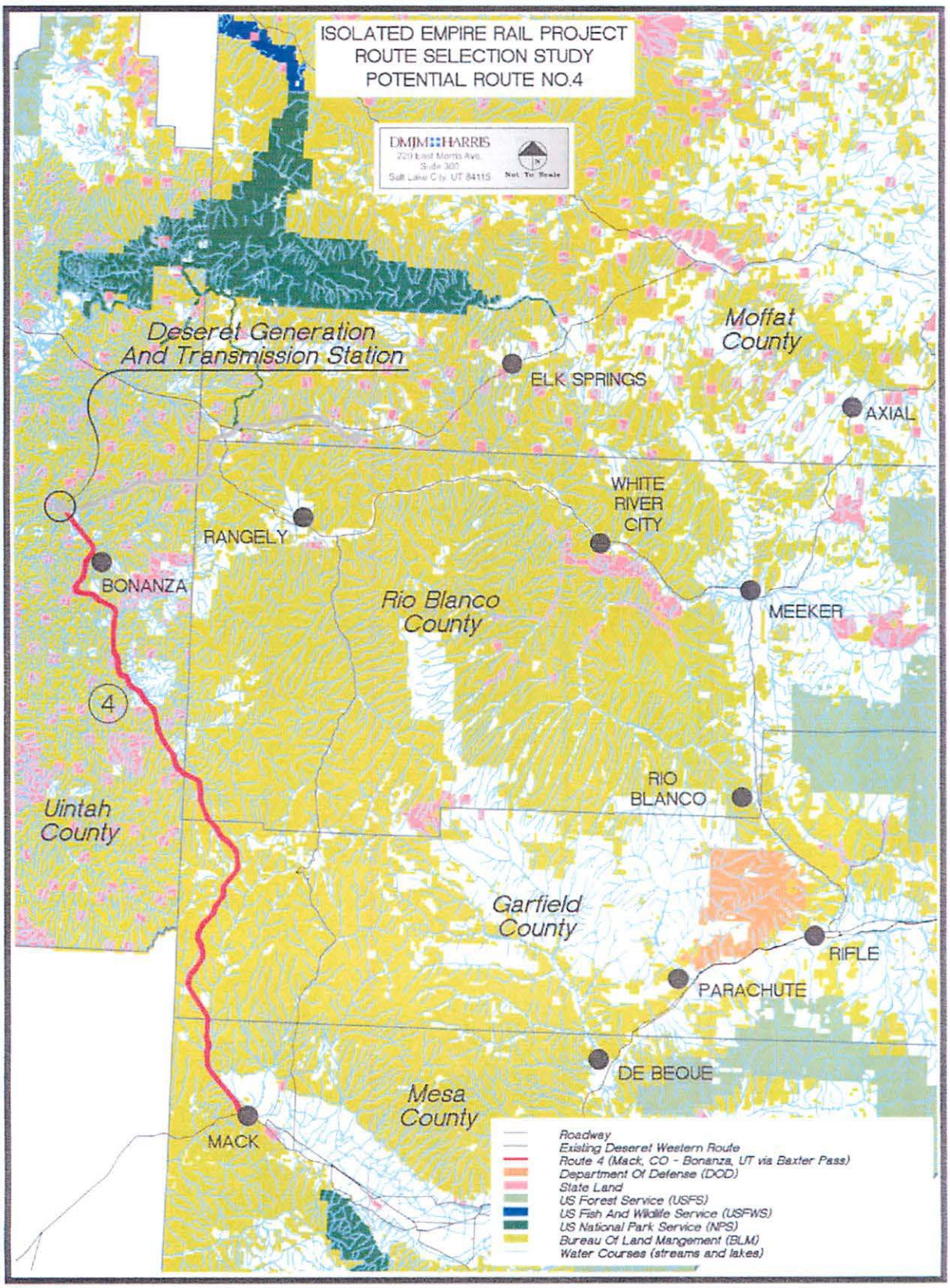
1. Annual cash flow requirement (Debt service cost per mile).
2. Operating ratio (% of revenue that is consumed by operating expense).
3. Revenue carloads per mile of new railroad to be constructed.
4. Shortest overall railroad distance to destination (weighted by carloads). Refer to the Corridor Route Diagram for comparative mileages to Denver and Salt Lake City. Refer to Exhibits 1-5 for carload origin/destination information.
5. Ruling grade and physical characteristics of the line.
6. Competitive aspects (Can both Union Pacific and BNSF access the traffic?).

When all of these considerations are taken into account, the three most favorable alternatives appear to include the two routes via Meeker and Axial via Meeker. However, Route 11(Axial via Meeker) does not offer two-railroad competition because BNSF does not have access to the new traffic originating on Union Pacific branch lines. Between the two routes (8 and 15) that connect with the mainline at Rifle, the significantly lower cash flow requirement, and the more favorable ruling grade of Route 15 (Rifle-Blue Mountain via Piceance Creek) would appear to favor this alternative.

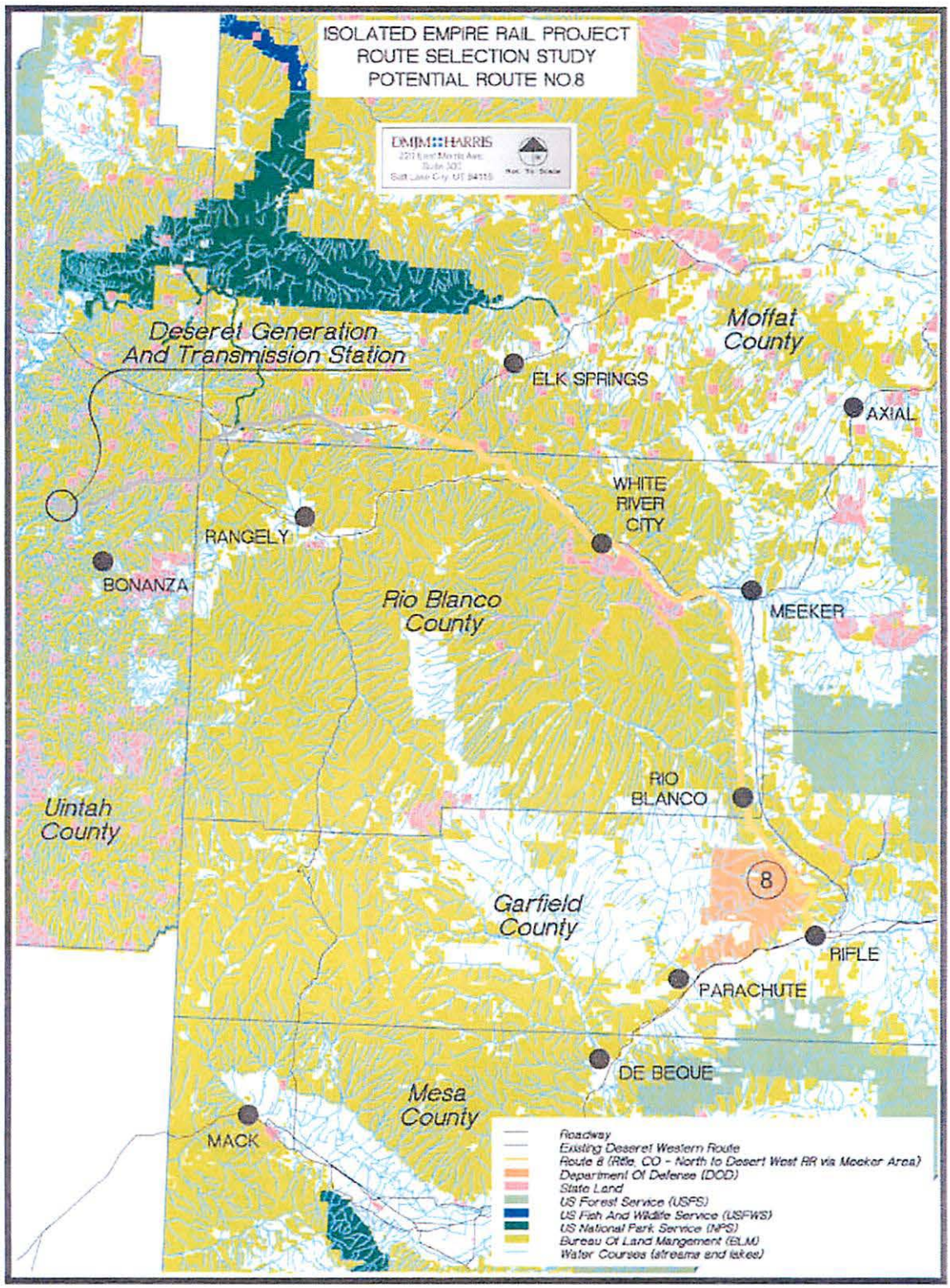
Feasibility Report
Appendices

Appendix A
Feasible Route Corridor Maps

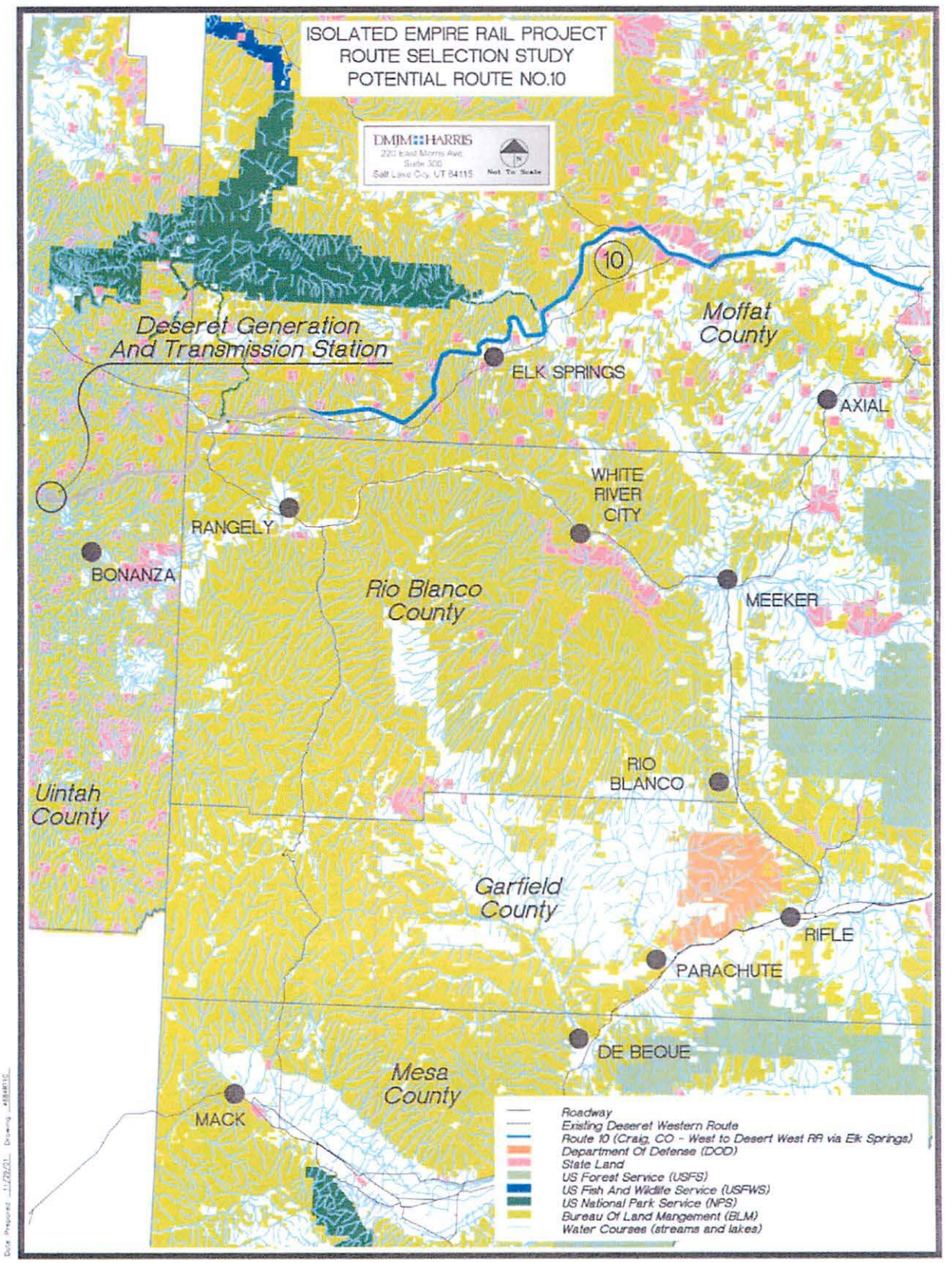
Route 4 Corridor Map



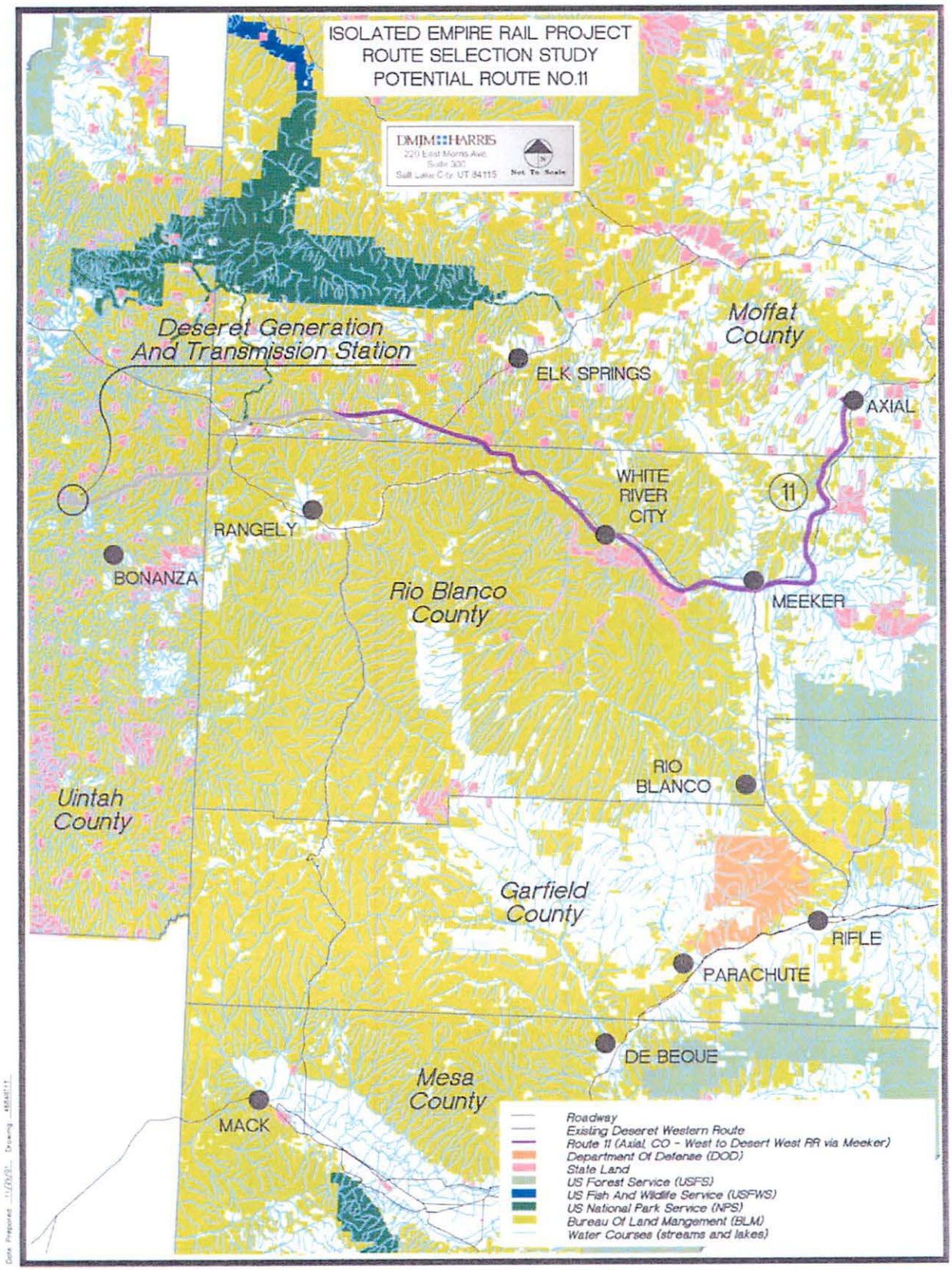
Route 8 Corridor Map



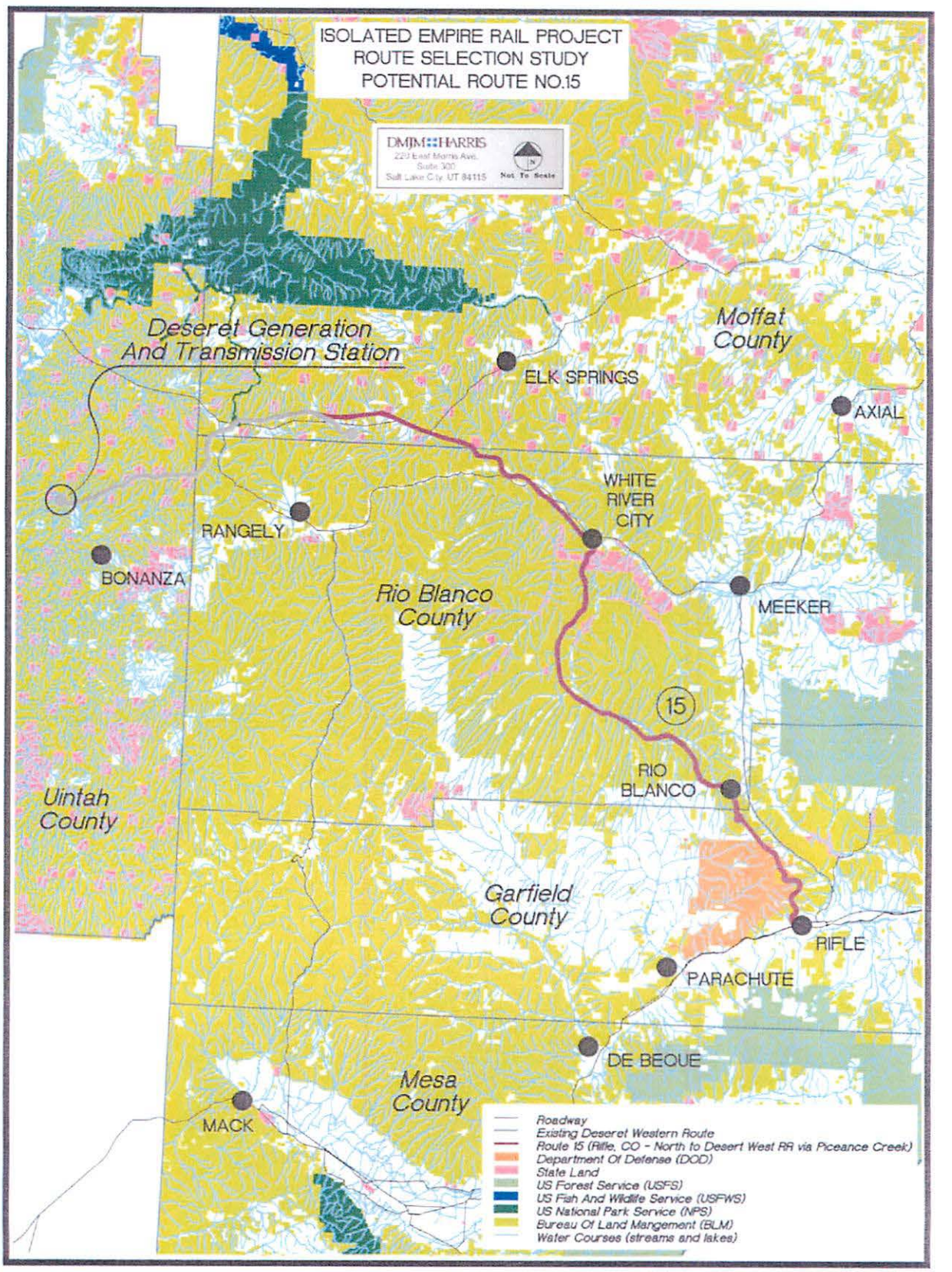
Route 10 Corridor Map



Route 11 Corridor Map



Route 15 Corridor Map



Appendix B
Detailed Stream and Wetland Summary

Stream Crossings and Sensitive Wetland Communities Summary

Alternative 4

Perennial Streams Crossed

East Salt Wash
West Evacuation Creek
White River
Tributary to West Salt Creek

Named Intermittent Streams Crossed

Badger Wash
East Evacuation Creek
Evacuation Creek (5 times)
West Salt Creek
Coyote Wash

Sensitive Wetland Communities

Saline Bottom Shrublands

Alternative 8

Perennial Streams Crossed

Rifle Creek
Piceance Creek
North Fourteenmile Creek
White River (5 times)
Piceance Creek at White River confluence
Upper Wolf Creek

Named Intermittent Streams Crossed

Upper Sheep Creek
Box Elder Creek
Skull Creek
Jones Twist
Red Wash

Sensitive Wetland Communities

Beaked Sedge Montane Wet Meadows
Narrow-leaf Cattail Marsh
2 Narrowleaf Cottonwood Riparian Forest
Coyote Willow

Alternative 10

Perennial Streams Crossed

Yampa River (2 times)
Wolf Creek (3 times)

Named Intermittent Streams Crossed

Bogenschutz Creek
East Fork Wolf Creek
Box Elder Creek
Skull Creek
Jones Twist
Red Wash

Sensitive Wetland Communities

Emergent Wetlands
Western Slope Salt Meadows
Coyote Willow – Bare Ground

Alternative 11

Perennial Streams Crossed

Upper Good Spring Creek
Curtis Creek
White River (9 times)
Piceane Creek at White River confluence
Upper Wolf Creek

Named Intermittent Streams Crossed

Box Elder Creek
Skull Creek
Jones Twist
Red Wash

Sensitive Wetland Communities

3 Narrowleaf Cottonwood Riparian Forests
Narrowleaf Cattail Marsh
Coyote Willow/Mesic Graminoid
2 Beaked Sedge Montane Wet Meadows
Thinleaf Alder – Mixed Willow
Coyote Willow – Bare Ground

Alternative 15

Perennial Streams Crossed

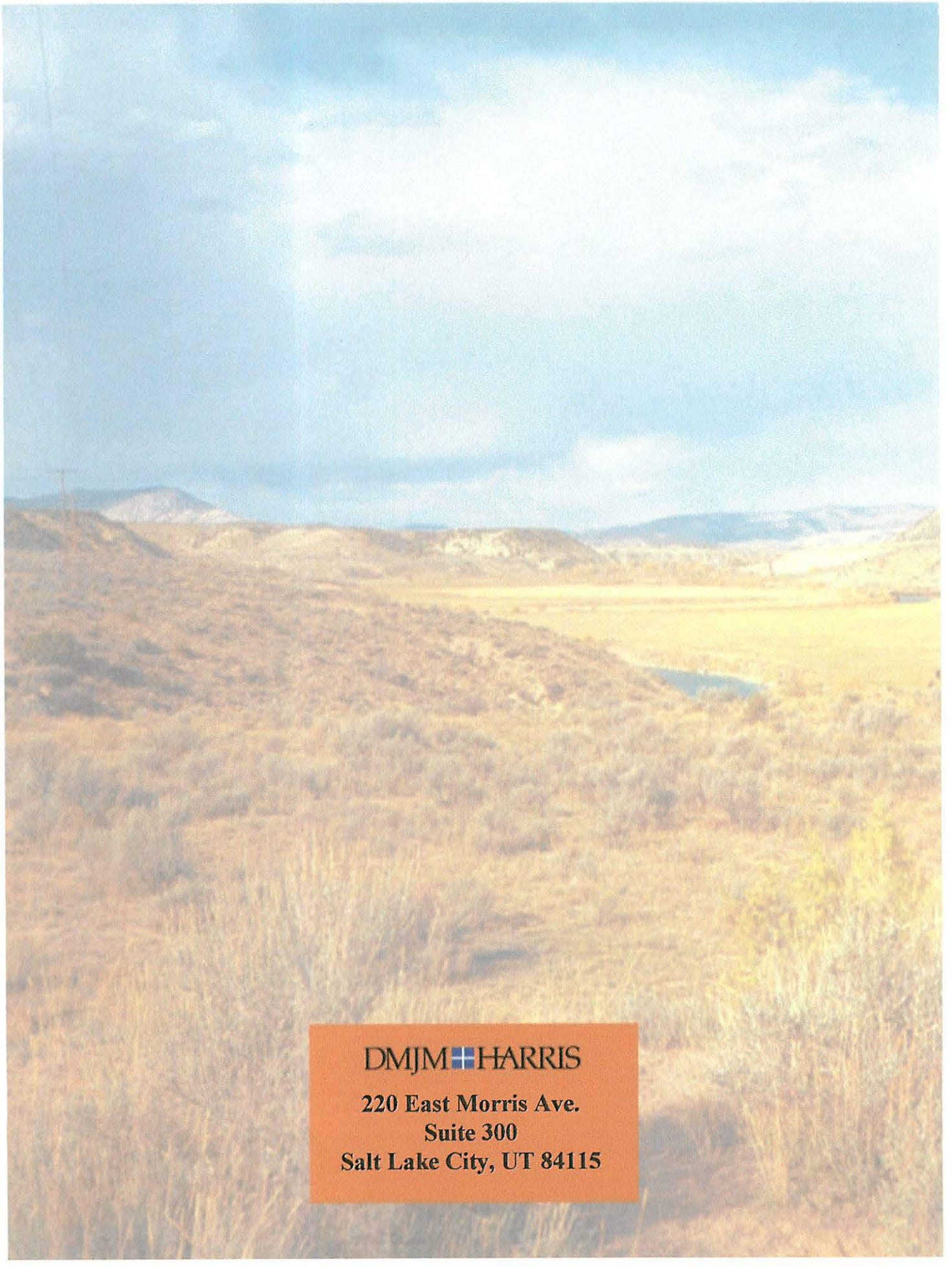
Rifle Creek
Piceance Creek (5 times)
Piceance Creek at Thirteenmile Creek confluence
Piceance Creek at Willow Creek confluence
Piceance Creek at Hunter Creek confluence
Fawn Creek/Black Sulphur Creek
White River (4 times)
Upper Wolf Creek

Named Intermittent Streams Crossed

West Switzer
Box Elder Creek
Skull Creek
Jones Twist
Red Wash

Sensitive Wetland Communities

Saline Bottomland Shrublands


DMJM HARRIS
220 East Morris Ave.
Suite 300
Salt Lake City, UT 84115

DREXEL HAMILTON
INFRASTRUCTURE PARTNERS, L.P.

RIO GRANDE PACIFIC

11 April 2019

Request for Information (RFI) Response for the Commercialization, Financing, Construction, Operation, and Maintenance of the Uinta Basin Railway by the Seven Counties Infrastructure Coalition of Utah

In concert with the Rio Grande Pacific Corporation (RGPC), Drexel Hamilton Infrastructure Partners, LP, (DHIP), a New York based private equity financial sponsor principally investing in infrastructure assets throughout North America is pleased to respond to the Seven Counties Infrastructure Coalition (The Coalition) RFI dated March 29th, 2019.

Members of the DHIP team have previously been involved in the structuring, development and financing of many Public-Private Partnerships (P3) throughout the United States and Canada over the past decade, to include All Aboard Florida (aka Florida Brightline or the Virgin Train), Port of Baltimore Seagirt Terminal, Montreal Gateway Terminals, Kitimat Marine Liquid Bulk Terminal, the Louisiana International Gulf Transfer Terminal, NOLA Oil Terminal and most recently, the Plaquemines Liquids Terminal (PLT) in Louisiana.

The RGPC, a Fort Worth based railroad operator is well-known and respected throughout the railroad industry and owns and operates short line railroads throughout the United States. Most notably, RGPC operates the Nebraska Central Railroad, the New Orleans & Gulf Coast Railway, Wichita Tillman & Jackson Railway, and Idaho Northern & Pacific Railroad.

Utah Cultural Understanding:

DHIP and RGPC believe the path to success in any region we enter is to partner with local stakeholders. In our experience, local and regional political stakeholders and local population is critical to our project's success. It is imperative that our local stakeholders not only have a seat at the table and a voice within our projects, but are partners with us to ensure all parties involved are rowing in the same direction because that develops shared vested interests. Therefore, our success is dependent on the local community's success.

We have demonstrated our commitment to our local partners in other states, most recently in Louisiana. At PLT, we incorporated local interests and provided economic development, most importantly jobs, to a parish and local population in dire need for economic assistance following the disasters of Hurricane Katrina and the BP Oil Spill. We partnered with a Louisiana state agency in a P3 structure making the Port Authority at PPHTD a stakeholder in our project. We enjoyed joint success due to this approach.

In our experience, existing local relationships need to be leveraged. Our vision is that we would continue to work with the Coalition in any business structure that is chosen between the Coalition and Drexel Hamilton / RGPC. Our goals in this relationship would be to work with the Coalition to strengthen and leverage the Coalition's existing, local relationships -- with the Ute Tribe, with the counties of the Coalition, and the municipalities, business interests, and landowners of the Uinta Basin and the Coalition counties -- to continue the development and successful operation of the railway.

CONFIDENTIAL AND NON-BINDING – FOR DISCUSSION PURPOSES ONLY

Demonstrated Previous Success as a Model for the Uinta Basin:

As a matter of a demonstrated background on how to structure a P3, we would like to use our most recent success working with PPHTD in Louisiana. Much like the Coalition, PPHTD is a political subdivision and state agency and published a Master Plan in 2010 that highlighted a road map of how to develop the Port and grow its industry verticals throughout Plaquemines Parish, Louisiana.

In 2013, the Port hired Major General Maynard "Sandy" Sanders, US Army (Retired) as the first Executive Director for PPHTD. Between 2013 and 2017, the Port continued to acquire land and seek terminal operators under the leadership of General Sanders. In 2017, the Port engaged DHIP as the exclusive concessionaire and financial sponsor as well as commercial arranger. DHIP was successful in structuring a P3 with the Port as well as working with the local government in Plaquemines Parish, as well as the state government in Baton Rouge, to push forward our proposed terminal at PLT. Our plan with the Port included the following items:

1. Develop a liquid bulk terminal to respond to the current market demand for US light sweet crude exports. This proposed project ultimately became PLT.
2. Utilize the liquid bulk terminal to increase the demand for the utility and rail capacity and build to respond.
3. Utilize the improved rail and utilities to develop the previously identified container terminal, air cargo terminal, and warehousing infrastructure.
4. Expand the development of the Port to include agriculture, dry-bulk, automotive, specialty chemical, and other verticals in accordance with the Master Plan.

PLT Project Success Overview:

PLT is a project conceived of and originated by DHIP and is being jointly developed together as a P3 with Tallgrass Energy, LP (Tallgrass), a leading midstream oil & gas pipeline and terminal operator and portfolio company of Blackstone Infrastructure Partners (Blackstone), Louisiana 23 Development Company (LA23), our engineering and permitting specialists on the ground in Louisiana, and PPHTD.

The PLT project is a liquid bulk export terminal facility located on the Mississippi River in Plaquemines Parish, Louisiana and is permitted for 20 million barrels of liquids storage. PLT will have the ability to fully load and unload Post-Panamax vessels on its deep-water docks without the need for lightering or reverse lightering. The 55-mile Pelican Pipeline will run south from PLT down to the mouth of the Mississippi River where it will go off-shore approximately 1.5 miles into the Gulf of Mexico in deep-water and will be able to fully load and unload the world's largest crude oil transport vessels at a Single Point Mooring (SPM) in Louisiana state and Plaquemines Parish waters.

Unique Challenges:

Multiple projects are currently proposed to provide export optionality for movement of US crude to the Gulf of Mexico for direct loading onto very large crude carriers (VLCCs). The geographic location of PLT allows for natural advantages of deep water and access to one the nation's largest refinery complexes located in South Louisiana, with near shore support services

for offshore loading. DHIP was successful in co-opting political support from the governor and the Louisiana state government to coexist alongside the largest coastal protection project in Louisiana.

Project Structure:

The project was structured as a P3 to establish the government as a partner and advocate which has enabled an expedited regulatory process and access to both private and public funding mechanisms. DHIP selected Tallgrass Energy as a reliable and credible terminal and pipeline operator, given their history of operating terminals and pipelines in the Rocky Mountain, Plains and Midwestern states and their desire to expand their footprint to the U.S. Gulf Coast and become a leader in the crude oil export market.

Successful Outcome:

An exclusive Memorandum of Understanding (MOU) was executed between DHIP and PPHTD on December 28, 2017 to allow DHIP to proceed forward with establishing and developing PLT. Final approval to enter into the lease and Cooperative Endeavoring Agreement (CEA) by the PPHTD board and Plaquemines Parish government was approved on October 25, 2018 and the joint venture between DHIP and Tallgrass was executed on November 5, 2018, less than a year from when DHIP was granted exclusive development rights in December 2017. This complex transaction was approved by the state and parish government to move forward and took less than a year for DHIP to bring the PLT project to fruition.

Industry Justification for the Uinta Basin Railway:

DHIP is well versed and experienced in developing oil & gas infrastructure assets and understands the Uinta Basin is a stranded basin due to the waxy nature of the Uinta crude. Uinta crude is unable to be transported via pipelines over long distances, which is the primary reason midstream companies have yet to build pipeline takeaway capacity in Utah for transportation to U.S. Gulf Coast markets where the crude would attract a much better net-back and more competitive price for Uinta producers.

Black and yellow waxes are thick crude oils with a higher paraffinic content than most crude oils found in North America. These waxy crudes are viscous and have a high pour point, which means they become semi-solid at lower temperatures which makes the crude incapable of being transported via pipelines. The process for refining waxy crudes presents some challenges. Although black wax is well suited for making gasoline, lubricants, and diesel fuel, refining must occur close to the source, because waxy crudes solidify quickly. The way around this problem is crude-by-rail takeaway to PLT in Louisiana which will be able to process this waxy crude and the U.S. Gulf Coast refineries will easily be able to run Uinta crude through their catalytic hydrocrackers.

Currently, black and yellow waxy crudes must be heated in the field and transported in insulated trucks. The Uinta Basin contains significant black and yellow wax crude oil reserves and the Salt Lake City refineries are purchasing these waxy crudes at a steep discount since they are located relatively close to the Uinta Basin, which thus serves as a captive and stranded market disadvantaging Utah producers.

As a result, refining heavier crudes has become more economically attractive. The U.S. Gulf Coast refinery market typically prefers to run a blend of heavier Venezuelan and Canadian crudes in order to blend these barrels up into a medium sour crude look-a-like such as Mars and Thunderhorse, which originate in the Gulf of Mexico. The U.S. Gulf Coast refineries are currently lacking heavier crude options due to import sanctions against Venezuela and Iran, so Uinta waxy crudes will be a natural fit in refinery markets in Louisiana and Texas. The yellow Altamont waxy crude has a typical API gravity of 42 degrees, which is lighter than the Gulf Coast benchmark West Texas Intermediate (WTI). WTI typically runs around 40 degrees. The Green River black wax crude is heavier with a lower typical API of 32 degrees. This is an especially attractive crude type for the U.S. Gulf Coast that prefers a medium barrel and typically has to blend heavier and lighter barrels together to achieve the target crude gravity of 30-32 API. Uinta crude is already in the gravity "sweet spot" as we like to say.

Path Forward in Utah:

Currently, Uinta producers are lifting approximately 80,000 bpd solely for use in the Salt Lake City refinery market. Assuming Uinta crude producers wish to stimulate their incremental production and increase it to at least an additional 130,000 bpd (capacity for up to two unit trains per day to be sent to the U.S. Gulf Coast) in addition to the current 80,000 bpd they produce (a total of 210,000 bpd), the Uinta Basin Railway will make sense financially and operationally.

DHIP proposes a similar structure to what we successfully accomplished in Louisiana. Whereas previously DHIP selected Tallgrass Energy, a well-known oil & gas midstream operator, as the operator at PLT, DHIP will bring RGPC, a world-class short-line operator and leader in the railroad industry, into this P3 arrangement as the operator of the Uinta Basin Railway. DHIP would also need to build crude rail loading terminals in the Uinta Basin for trains to be loaded prior to being moved on the railway. DHIP will select a midstream terminal operator for the efficient loading of these incremental barrels. RGPC is the owner and operator of the New Orleans & Gulf Coast Railway and DHIP has previously worked with RGPC in Louisiana and has the utmost respect and faith in their abilities going forward on this project.

Furthermore, DHIP would suggest the following structure to move the Uinta Basin Railway forward:

1. DHIP will be granted a five-year exclusivity development agreement through a Memorandum of Understanding (MOU) between DHIP and the Seven Counties Infrastructure Coalition. In this MOU, the Coalition will grant the exclusivity period as well as municipal bonding authority, giving DHIP the proper timeframe to structure, commercialize, finance, and build the contemplated project.
2. Upon successful execution of the MOU, DHIP will proceed to register a new holding and development company (aka "NEWCO") in which DHIP will assign the development rights to as a portfolio company within Drexel Hamilton Infrastructure Fund II, LP. NEWCO will function as the official "private" partner of the P3 arrangement.
3. The Coalition will serve as the public "landlord" and permitting will be processed and executed in the name of the Coalition. The Coalition will ultimately own all land and

rights of way in which the Coalition will provide a long-term lease to the Uinta Basin Railway.

4. NEWCO will use a combination of sponsor equity and debt (i.e. municipal conduit private activity bonds, bank credit facilities or corporate back leverage) to finance the construction of the contemplated railroad and crude loading terminals based on the successful execution of guaranteed "take-or-pay" offtake contracts and terminal services agreements (TSA) from the various Uinta Basin exploration and production companies. DHIP will be responsible for arranging and negotiating these take-or-pay contracts with the crude producers and will obligate users of the railroad to pay a railroad and terminal services fee robust enough to support the debt service and operational costs in order to operate the railroad.
5. In return for providing municipal conduit financing as well as the potential use of municipal condemnation rights and eminent domain capabilities granted to it under the laws of the United States as a political subdivision of the state of Utah to acquire right-of-way land access for the railroad to benefit the public good, the Coalition shall be afforded a lease payment and either an ad valorem tax or PILOT payment which shall be paid annually to the tax assessors or local governments or the governing body of the Coalition's choosing for use toward the public good. Legal teams licensed to practice in the state of Utah will be engaged in order to properly construct these legal arrangements within the letter of the law of the United States, the state of Utah and the Ute Nation.

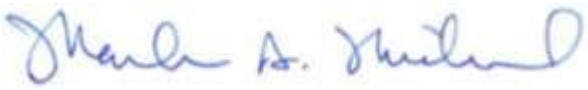
The five steps and provisions set forth above are the basis of a P3 between DHIP and the Coalition in which the public and private sides of the partnership both prevail and benefit jointly.

The terms and conditions contained in this RFI response are for discussion purposes only and are subject to review, modification and approval by DHIP and its potential joint venture and public partners. This RFI response does not constitute a contract, commitment, undertaking or other binding obligation or limitation on any named parties, it being understood and agreed that no such binding obligations shall exist with respect to the potential transaction unless and until a binding definitive agreement or MOU has been executed by authorized representatives of each party. None of the parties named herein shall be bound, obligated or liable, directly or indirectly, as a result of any discussions, correspondence, or course of conduct (including reliance and changes of positions), and each party hereby reserves unrestricted discretion in negotiating a mutually acceptable definitive agreement. The parties named herein acknowledge and agree that terms set forth in this RFI response may omit some material terms, is based on certain material conditions and is solely meant to express the interest and intent of the parties and their basic understanding of the potential transaction so that further negotiations may take place.

This RFI response is confidential and cannot be shared with any third party without the prior written consent of DHIP. Each party will be responsible for its own costs, fees and expenses incurred in connection with its evaluation of the potential transaction and the negotiation of a definitive agreement. All matters relating to or arising out of this RFI response will be governed by and construed and interpreted under the laws of the State of New York, without regard to conflicts of laws principles that would require the application of any other law. In no event shall any party named herein be liable under this RFI response for any consequential,

special, exemplary, or punitive damages, and each party hereto expressly waives any claims for such damages.

We appreciate the opportunity to submit this RFI response.



Mark A. Michel
Managing Partner
DREXEL HAMILTON INFRASTRUCTURE PARTNERS, LP

MARK A. MICHEL, Managing Partner at Drexel Hamilton Infrastructure Partners, LP, an independent infrastructure fund manager and equity sponsor that combines deep industry expertise with industrial best practice operational management. Mr. Michel directs equity investments in high quality infrastructure assets in the energy, transport and waste/water asset classes where we possess deep experience and strong industry and political relationships bringing above-average returns and value to our limited partners by custom tailoring financing solutions across a breadth of capital needs, including greenfield and brownfield projects, acquisition finance, liquidity and growth, restructuring and secondary purchases.

Prior to forming Drexel Hamilton Infrastructure Partners and moving to the "buy-side," Mr. Michel was Managing Director and Head of Project & Structured Finance at Drexel Hamilton, a full service institutional investment banking and financial advisory firm providing capital solutions to large cap and middle market companies and assisting them to structure and raise equity and debt for a variety of purposes including M&A, working capital, capital expenditures, and refinancings. Mr. Michel predominately focused on infrastructure and energy project financings while on the "sell-side." Moreover, Drexel Hamilton is the largest service disabled and veteran owned financial institution in the United States where Mr. Michel was responsible for raising capital as well as structuring financial products designed for distribution in the independent broker/dealer channel as well as the RIA and institutional channels. Prior to his time at Drexel Hamilton, Mr. Michel raised capital and worked to structure transactions at Corporate Capital Trust, a $6bn Business Development Company (BDC) owned and operated by KKR & CNL.

Previously to his career in financial services, Mr. Michel served in the White House and was the Navy's Representative to the National Security Council in the White House Situation Room and was a member of the National Security Council staff. He crafted and conducted daily intelligence briefings with the President, and senior West Wing principals and liaised with global heads of state. Prior to his White House service, Mr. Michel was a career naval officer achieving the rank of Commander and has served in the United States Navy for 26 years focusing his service within Naval Special Warfare (SEALs) and the Special Operations and Intelligence Communities, and held many senior-level positions throughout the Intelligence Community and National Security establishment. While serving on active duty, Mr. Michel was stationed and deployed across the globe and held significant leadership assignments not only in Washington, but also in Europe, Asia and the Middle East.

Since departing the White House, Mr. Michel has served as an Independent Director at the Babel Street Corporation, a data and text analytics company based in the Northern Virginia technology corridor outside Washington, DC as well as on the Board at the Studio VC Fund, an early stage venture capital fund based in New York. Mr. Michel also works closely with the Special Operations Warrior Foundation (SOWF) to raise scholarships to support the educational needs for the children of fallen special operators. In addition, Mr. Michel was appointed to the Board for the Central Florida Modeling, Simulation & Training (MS&T) Blue Ribbon Commission, which was established to protect defense industry jobs in Florida.

Mr. Michel earned a bachelor's degree in political science from Auburn University and an MBA in finance from the University of Miami Graduate School of Business.

TIMOTHY J. FISHER, Managing Partner at Drexel Hamilton Infrastructure Partners, LP, is responsible for originating equity investments in a variety of infrastructure assets for the independent fund and alongside operating or co-investment partners. He also works to optimize the capital structure of portfolio companies on an ongoing basis and develops new business for portfolio companies.

Tim started his finance career in equity research at UBS and JP Morgan, launching coverage on over 40 Master Limited Partnerships ("MLPs") in a variety of energy verticals. He was also responsible for creating, writing and updating a widely distributed monthly report analyzing MLPs on a historical and forward-looking basis.

Mr. Fisher moved to the buy-side as an assistant MLP portfolio manager at Parker Global Strategies ("PGS") in 2013. His fund, PGS Energy Opportunities Trust, returned +30.20% with hedges and leverage in 2013 (vs +18.55% for its benchmark) and +16.69% with hedges and leverage through July 2014 (vs +7.16 for its benchmark). In July 2014, Tim left to help a family office invest a proprietary pool of capital, raise outside capital and develop new business for lower middle market private companies in the oil & gas, transportation and specialty finance sectors.

Mr. Fisher was a U.S. Army Artillery Officer, serving three tours in Iraq where he earned two Bronze Stars and an Army Commendation Medal with V-Device. During his second tour, he oversaw and coordinated with a governing district in eastern Baghdad to plan, implement, build and pay for all its U.S. funded public works projects.

Mr. Fisher earned a bachelor's degree from the United States Military Academy (West Point) and an MBA from the New York University (NYU) Stern School of Business.

RICHARD D. BERTEL, Chairman and Chief Executive Officer of the Rio Grande Pacific Corporation, a company he founded in 1986 as a privately held Texas based railroad and railroad services company following the deregulation of the railroad industry under the Staggers Act passed by Congress in 1980.

Rio Grande Pacific owns and operates four regional short line railroads throughout the Gulf Coast, Plains and Rocky Mountains regions across 700 miles of track and in six separate states. Rio Grande Pacific railroads serve more than 140 different freight customers, including many Fortune 500 companies, and move a diverse mixture of commodities across the agricultural, energy, chemical, lumber, mineral and recycling industries. Additionally, Rio Grande Pacific is under contract to provide the operations & maintenance (O&M) for the Denton County Transportation Authority (DCTA) for their commuter rail line between Carrolton and Denton Texas.

In addition to freight railroads, Rio Grande Pacific includes wholly-owned subsidiaries in freight and transit signal engineering design, transit commuter operations, OEM for manufacturing for specialty railroad equipment and train control, dispatching, and third-party crew calling services.

Mr. Bertel has led, participated in, or been responsible for a multitude of domestic and international rail consulting, development and engineering projects and foreign government rail privatizations. In addition, he has acted as a consultant for the U.S. Department of Transportation's Federal Railroad Administration (FRA), numerous short line and regional railroad start-ups, turn-arounds, and has provided transition management to both public and private railroad owners.

Prior to founding the Rio Grande Pacific, Mr. Bertel helped co-found Trax Engineering & Associates, Inc., a regional railroad track rehabilitation and construction firm which operates throughout Texas, Oklahoma and the southwestern United States. Mr. Bertel served as its President and Chief Operating Officer.

Mr. Bertel earned a bachelor's degree from Texas Wesleyan University and an MBA in economics and finance from Texas Christian University (TCU) Graduate School of Business.

ROBERT L. BACH, President and Chief Operating Officer of the Rio Grande Pacific Corporation, a position he has held since 2011. Prior to joining Rio Grande Pacific, he was an attorney and shareholder in the Felhaber Larson, a Minneapolis-based law firm for over 30 years.

While practicing law at Felhaber Larson, Mr. Bach developed and represented a client base of regional and short line railroads. In that role, Mr. Bach managed a multitude of legal issues that short line and regional railroads faced on a regular basis. Mr. Bach brought a breadth of railroad experience to Rio Grande Pacific which has assisted in its growth and expansion, including the ongoing development of rail service for the Plaquemines Liquid Terminal in Myrtle Grove, Louisiana in cooperation with Drexel Hamilton Infrastructure Partners, LP, Tallgrass Energy and the Plaquemines Port Harbor & Terminal District.

Mr. Bach is an honors graduate of the University of Iowa and earned a Juris Doctor degree cum laude from the University of Minnesota Law School.

Deb Evans, Ron Schaaf, Bill Gow and Evans Schaaf Family, LLC
affected landowners
Comments on Certificate Policy Economic Benefits Test does not meet U.S. Public Interest
CORRECTED COPY with Additional Information and EXHIBITS, particularly pertaining to Point 4
FERC Docket CP17-494-000 and CP17-495-000

January 30, 2020

EFILED: January 30, 2020
Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street N.E.
Washington, D.C. 20426
Re: Pacific Connector Gas Pipeline L.P. Docket No. CP17-494-000
Jordan Cove Energy Project L.P. Docket No. CP17-495-000

Ms. Bose and Federal Energy Regulatory Commissioners,

We are writing to share with you some recent developments that we believe have bearing on the outcome of the economic benefits test and FERC's determination of whether the Jordan Cove LNG terminal (CP17-495-000) and Pacific Connector Gas Pipeline (CP17-494-000) applications should be granted. These comments contain new evidence and are supplemental to our previously submitted comments[1] and pertain to FERC's careful weighing of whether the economics benefit test rises to a declaration that this project is in the public interest. We believe it does not. Additionally, approval of this project would be a direct violation of our constitutional rights as evidenced by new information provided here.

We, Ron Schaaf, Deb Evans, Bill Gow and Evans Schaaf Family, LLC, as directly affected landowner interveners, respectfully ask FERC Commissioners to determine after a public review of the facts, whether a foreign government (Canada) has a "partnership" relationship with Pembina Pipeline Corporation (Pembina), the 100% parent owner of Jordan Cove Energy Project (JCEP) and Pacific Connector Gas Pipeline (PCGP) and other gas producers in Canada regarding the Jordan Cove FERC proceedings. This partnership, reflected in multiple actions including the Aug 29th, 2019 signing of Memorandum of Understanding between the Governments of BC and Canada[2], convey this foreign government's allocation of federal and provincial tax dollars, loans and grants to the private sector directly financially supporting Pembina and gas producers, while their application for public convenience and necessity is being decided by the commission. Landowners assert that this wholly unique set of circumstances, whereby the foreign government is in essence an "applicant" along with Pembina for the conveyance of the use of eminent domain authority over USA sovereign citizens, is unlawful. Landowners further assert that landowners do not have constitutional due process rights in Canada and have no voice in that country's sovereign affairs. We therefore ask FERC commissioners to determine, **prior to** applying the balancing test weighing public benefit versus adverse effects of a FERC decision, the constitutional question as to whether we are being deprived of Life, Liberty and Property with a public convenience and necessity approval.

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[1] Previous comments we've submitted to FERC:
10-3-2017 Landowner Filing - http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20171003-5105
11-7-2017 Landowner Filing - http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20171107-5040
6-1-2018 Landowner Filing - http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20180601-5038
7-5-2019 Landowner Filing - http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20190705-5198

[2] *Memorandum of Understanding between the Government of Canada and the Government of British Columbia on the electrification of the natural gas sector.* August 29, 2019.
https://pm.gc.ca/en/news/backgrounders/2019/08/29/memorandum-understanding-between-government-canada-and-government. [EXHIBIT 1]

Canadian government subsidies to prop up Canada's struggling oil and gas industry have created an unequal playing field giving an unfair market advantage to Canada that is damaging to US citizens and U.S natural gas interests.

A decade ago, Canada's West Coast had over 20 proposed LNG export projects. Canadian government regulation, global circumstances, high infrastructure cost and bottoming oil prices have been blamed for Canada currently having only one of those projects, *LNG Canada*, reach FID and begin construction, compared to 10 LNG export projects and 5 expansion projects either operating or under construction in the United States.[3]

In 2018, the Natural Gas Advisory Panel in Alberta—after holding meetings and conducting more than 100 surveys with over 50 natural gas stakeholders, including Pembina—published a report titled *Roadmap to Recovery: Reviving Alberta's Natural Gas.* The report identifies that "[W]we must intentionally and aggressively grow the natural gas industry in Alberta and pay particular attention to market access."[4] Further stating:

> LNG represents the best opportunity for western Canadian demand growth and diversification, and is regarded as the only option that will make a material difference in western Canadian natural gas markets.[5]
>
> . . .
>
> The global liquefied natural gas (LNG) opportunity is complex but it is the one big prize for Western Canada's natural gas sector. Our LNG development projects must be globally competitive, visionary, sophisticated, and large in scale. LNG Canada's decision to proceed is great news, but we need to move quickly and assertively to bring subsequent phases and projects forward. The time to act is now."[6]

The report then lists the following four areas that give the best opportunities for Canadian gas to reach world-scale markets.

- Direct LNG exports to Asia via the B.C. West Coast, in the greater Kitimat/ Prince Rupert region, on Vancouver Island, and at Howe Sound.
- **Direct LNG exports to Asia via sites in the U.S. Pacific Northwest region.** [emphasis added]
- Indirect LNG exports to various markets via the U.S. Gulf Coast.
- Indirect LNG exports to Europe via the Canadian Maritime provinces.

> **Western Canada's best option for large, high-value LNG exports is via ports along the Pacific coast in B.C., Washington, or Oregon.** LNG export to Asia appears to be Western Canada's best strategic

[3] Maps of *North American LNG Export Terminals - Existing* and *North American LNG Export Terminals - Approved*. December 31. 2019. [EXHIBIT 8 & 8A]
[4] *Roadmap to Recovery: Reviving Alberta's Natural Gas Industry*. Natural Gas Advisory Panel Report to the Minister. 2018 at page 9. [EXHIBIT 2]
[5] Id. at 39
[6] Id. at 6

option for marketing large, long-term volumes from the Montney, Deep Basin, and other tight gas formations."[7]

To reach these goals, "[T]the Government of Alberta should more actively collaborate with both the federal government and other provinces to advance LNG export projects. In particular, Alberta and B.C. have significant common interests in LNG exports."

The report concludes with 48 recommendations including these under the heading *Grow the pie – Improve Market Access*:

> **In conjunction with adjacent provinces, support LNG projects and maximize producer access to these projects by ensuring interconnection with the AECO-C/NIT hub. Secure a second world-scale West Coast LNG project that achieves its final investment decision by December 2020 (Recommendation 1).**
>
> **Enhance the financial ability of small producers to make long-term pipeline commitments by launching aggregate credit support pools (Recommendation 2).** Contract term guarantees or letters of credit need not involve government support, however, Alberta can conduct reverse auctions on behalf of producers for third parties to provide these services.
>
> **Consider direct Government of Alberta participation as a long-term shipper or credit provider (Recommendation 3).**
>
> - Alberta is a large economic stakeholder in the Western Canada natural gas business. Even though Alberta's economic interests can equal or exceed those of producers, Alberta has traditionally relied on producers and commodity traders to underpin or otherwise make arrangements for the shipment of Alberta gas to North American markets.
> - The unprecedented change requiring the immediate need to diversify away from traditional gas markets is a policy imperative and Alberta (preferentially in conjunction with B.C.) should consider maximizing its own interests and supporting the broad Alberta economy by taking out capacity on major new pipeline or liquefaction initiatives. Ideally, this would be in the form of latter year commitments – for example, shippers commit to the near-term portion of a long-term contract (i.e. a three-year rolling renewable commitment) and Alberta provides a commitment backstop for years four through ten. Should shippers wish to renew their initial three-year term, then Alberta would assign their space on an auction basis. Shippers would not receive a free option and Alberta would be paid for taking the latter-term shipping commitment. This risk-sharing reduces shipper balance sheet risk, does not require a provincial cash outlay, provides Alberta with capacity resale upside in the future, and fulfills the requirement for longer-term shipping contract certainty. Commercial market and financial discipline is maintained through the exposure of shippers to primary term risk.
> - Alternatively, Alberta and B.C. could contract for long-term transportation and liquefaction capacity for resale on a short-term basis. Not ownership in the projects, but shipping commitments that underpin such projects.
> - These are not radical concepts. LNG and major pipeline projects are underpinned by government-sponsored shipping positions in many jurisdictions. Governments and society are

[7] Id. at 40

> major beneficiaries of such projects and government involvement would send a powerful and supportive signal to industry.[8]

While we understand that this is a wish list of what Canadian gas industry wants, it raises some significant questions as to who Pembina is holding a precedent agreement for 96% of the capacity on the Pacific Connector Gas Pipeline to the Jordan Cove Project for? And just how monetarily involved is the Canadian Provincial or National governments in securing LNG export access on the West Coast for their natural gas? If, as they state, it is too risky for most gas producers in Canada to hold long term contracts for pipeline capacity and they are asking for the direct underpinning of the Canadian and/or provincial governments' help to secure long-term pipeline capacity agreements, then the Pembina-owned Jordan Cove project has become a joint partnership venture with the Governments of Canada. In December 2018, Pembina reported they have 11 million tons per annum (mtpa) of non-binding agreements that include "20-year, 100 percent take-or-pay tolling commitments with investment grade counterparties" for LNG off-take.[9]

The collaboration of the Canadian governments to directly, or indirectly, step in to fulfill the wishes of Canadian gas producers to access global markets through Jordan Cove and our properties, using eminent domain if necessary, is exactly what is happening.

After BC announced its CleanBC Plan in 2018 and with the downturn of oil prices, the Governments of Canada have increased support for oil and gas interests. In 2018 The Canadian government stepped in to offer $1.6 billion dollars to the struggling oil and gas industry. Almost $1 billion of that money has been delivered, but it is not clear where it all landed. $37 million was given by Natural Resources Canada for nine projects to help oil and gas companies reduce their carbon footprints under its Green Growth Program. Other monies went to credit loans to keep businesses afloat. [10]

> Canada's $1.6-billion bailout for Alberta's battered oil industry is well underway, but with little transparency about who is getting the money and for what.
>
> Almost $1 billion of the package of loans, guarantees and government grants announced last December is in the hands of companies, but details are available for just a small fraction of the spending and the industry says it has not helped much.
>
> Export Development Canada's $1-billion package has lent or guaranteed $629 million to 37 companies, though the agency's website does not distinguish which loans went through this program. Some company websites do mention transactions, including natural-gas company Painted Pony Energy Ltd., which reported receiving a $25-million credit facility in May.[11]

What assurance do we have that some of this $1-billion package from *Export Development Canada* hasn't gone directly to purchase easements along the Pacific Connector Pipeline route and support Pembina in their bid to secure this project for Canadian gas export and Canadian public interest?

On August 29, 2019, the National Government of Canada signed a Memorandum of Understanding (MOU) with the Province of British Columbia recognizing the funds of $83.6 million and $205.4 million already committed in April, 2019 and promising more money to follow to begin 'greening up' the upstream gas fields. The MOU action includes electrifying extensive numbers of gas processing plants, first in the Peace

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[8] *Id.* at 50-51

[9] *Pembina Pipeline Corporation Announces 2019 Capital Program and Guidance*. Mon, 10 Dec 2018. http://www.pembina.com/media-centre/news-releases/news-details/?nid=135415

[10] *Most of Ottawa's $1.6B bailout for Alberta oil and gas industry has been handed out*. Nov 15, 2019. https://globalnews.ca/news/6174247/federal-bailout-oil-and-gas-alberta/ [EXHIBIT 3]

[11] Ibid.

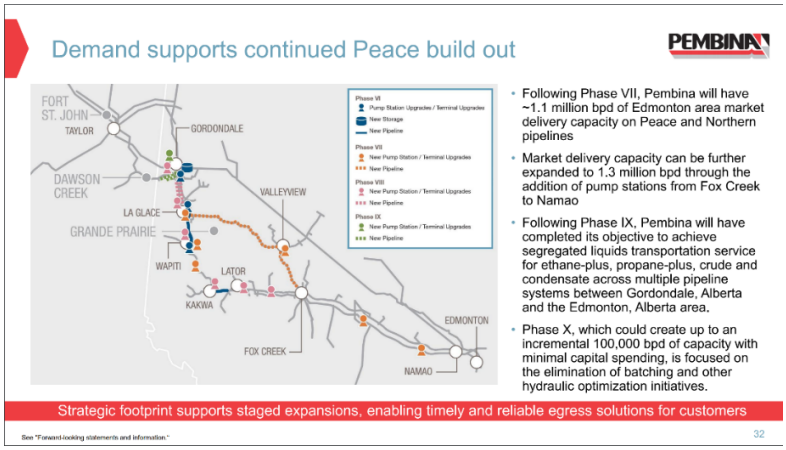
River Basin and later in the Bear Mountain to Dawson Creek Voltage Conversion project and the North Montney Power Supply project, with the mandate to look at other natural gas electrification opportunities identified by the participants. It is believed that further appropriated government funds will underpin the electrification of the coastal gas link pipeline corridor from the Peace River Region to Kitimat—another indication that Canada is nationalizing their "clean" LNG brand.

> This has spurred the building of one new major transmission line known as the Dawson Creek/Chetwynd Area Transmission Project, or DCAT. That line now powers a number of gas processing plants, including the Sunrise gas plant near Dawson Creek, one of the largest such plants built in western North America in 30 years.
>
> DCAT was built with the natural gas industry exclusively in mind. Now, a second line is slated for the same region. Known as the Peace Region Electricity Supply line (PRES), it too will supply the gas industry.[12]

Ongoing government monies will be used to bring existing hydro power from W.A.C Bennett dam and the Peace River dam, and eventually from the currently under construction $10.7 billion dollar Site C dam—all located on the Peace River--to areas where Pembina and Shell and other gas producers have large natural gas infrastructure holdings.

> British Columbia has already been making investments in its grid to enable electrification of the natural gas industry, and as part of this, in April 2019, the Government Canada announced that it is providing up to $83.6 million towards the Peace Region Electricity Supply project through the Investing in Canada Plan, with BC Hydro providing the remaining $205.4 million.[13]

The investment to electrify in the Peace River Basin is precisely where both Pembina and Shell operate, further confirming that Pembina and the Jordan Cove project, if approved, is being directly supported by the Canadian and Provincial governments in Canada. The map below shows Pembina's interests in Peace River.[14]



[12] *Ben Parfitt: Site C dam to electrify LNG industry is far from clean.* March 4, 2019. [EXHIBIT 4] https://vancouversun.com/opinion/op-ed/ben-parfitt-site-c-dam-to-electrify-lng-industry-is-far-from-clean

[13] *Memorandum of Understanding between the Government of Canada and the Government of British Columbia on the electrification of the natural gas sector*. August 29, 2019

[14] *Pembina's January 2020 Corporate Update*. Slide 31. http://www.pembina.com/investor-centre/presentations-and-events/ [EXHIBIT 22] (new Exhibit)

To get an idea of how much Government and tax payer money in Canada will be underpinning this electrification, below is a 2018 estimate of the amount of power needed to supply electricity for Phase 1 of Shell's LNG Canada:

> Only about 20 per cent of LNG Canada's power needs will be supplied by the electrical grid. The rest — including the energy necessary to compress, chill and convert natural gas to its liquid form — will be supplied by the gas itself. LNG Canada will burn fossil fuels to convert natural gas to liquid form. (CBC)
>
> The province has estimated the company's operations would initially add about 2,000 gigawatt hours to B.C.'s annual electrical load — for comparison, the average household uses about 0.01 gigawatt hours per year.
>
> That means LNG Canada would use about 40 per cent of the energy produced by Site C, which is expected to produce about 5,100 gigawatt hours every year.[15]

The Site C Dam has been called "the most expensive publicly funded infrastructure project in B.C.'s history".[16] LNG Canada's portion of the total output would cost Canadians an estimated $4.3 billion dollars.

The MOU makes clear that both BC and the National Government are committed to doing what is necessary to provide electricity along the natural gas supply chain in order for Canada to try and capture being the cleanest LNG in the world. Prime Minister Justin Trudeau had this to say at the announcement of the MOU last August.

> "Today we have even more exciting news to build on. This morning the Federal and Provincial governments signed a memorandum of understanding for the electrification of the B.C natural gas sector. What this means is that we are taking another major step forward in the fight against climate change and for clean economic growth to create good middle class jobs. Our homes and businesses need power, and it's up to us to make sure we are producing it responsibly. **Today's agreement is not only crucial to B.C. meeting their climate change commitments on time, it will also position Canada as the supplier of the world's cleanest natural gas.** This is important progress, and it's no coincidence that we are seeing it here on the west coast—after all British Columbians have long been leaders when it comes to combining environment responsibility with sustained economic growth. Take the price on pollution, something B.C. has had in place for more than a decade, the results speak for themselves. Pollution is down and the economy here continues to grow. Unlike Andrew Shear, who has no credible plan for the environment, we know that a better today and a brighter tomorrow depend on fighting climate change. As Premier Hogan and I often say, what's good for the environment is good for the economy. So, just like the LNG electrification will mean cleaner air for everyone, it will also create new jobs across the province."[17] *[emphasis added]*

The signing of this MOU, suggests that the government of Canada has crossed the Rubicon, leaving us to believe that the North American LNG export market is trending towards bifurcation.

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[15] *Does B.C. need Site C to power massive LNG project?* Oct 03, 2018. https://www.cbc.ca/news/canada/british-columbia/does-b-c-need-site-c-to-power-massive-lng-project-1.4849501 [EXHIBIT 5]
[16] *Ben Parfitt: Site C dam to electrify LNG industry is far from clean.* March 4, 2019. https://vancouversun.com/opinion/op-ed/ben-parfitt-site-c-dam-to-electrify-lng-industry-is-far-from-clean
[17] PM Justin Trudeau's Full Speech || UbiQ TV. Aug 29, 2019. youtube at 1.47. https://www.youtube.com/watch?v=4zoBnrHxLuM

Several new reports out at the end of 2019 reveal an aggressive plan by the Canadian government and provinces of British Columbia and Alberta to begin branding their LNG as "the cleanest LNG in the world" and working collaboratively with producers to get Canada's "green" natural gas to world markets.

This effort perfectly aligns with Canada's interest in Jordan Cove and comes at a time when Canada has seen a shrinking US gas market, a collapse in pricing at the AECO hub and is desperate to get their gas to the more lucrative global market.

> The world is hungry for natural gas, creating for Canada a once-in-a-generation opportunity to develop a liquefied natural gas industry to supply its gas to the world. The country's operators produce more gas than is needed for domestic markets. Our traditional foreign buyer, the U.S., has less demand for supplies from north of the border since the shale revolution flooded that market with cheap, reliable natural gas. As such, Canada is in need of new markets that can only be served by oceangoing tanker.
>
> The country is a latecomer to the LNG marketplace, however, having missed the previous opportunity a decade ago when two dozen projects dotting the B.C. coastline were proposed, but none built. Instead, countries like Australia, Qatar and the upstart U.S. filled the void. Round two, though, could be Canada's turn — if it plays its cards well.[18]
>
> By leveraging abundant renewable energy, Canada stands to produce some of the cleanest liquefied natural gas (LNG) in the world. That could provide a competitive advantage that grows over time, as increasingly stringent emissions policies come into play in the years ahead.[19]

As we have pointed out in earlier comments to FERC, Canadian gas is almost guaranteed to undercut the pricing of U.S.-sourced gas. Another reason this is likely is, in Canada, natural gas is a by-product of their higher priced and in demand condensate and diluent (condensate + pentanes-plus) used in tar sands production. They have far more natural gas coming up from their wells than they have a market to sell it to. This, of course, has helped keep Pacific Northwest prices low.

> Demand for locally produced diluent has shielded the balance sheets of Canadian gas producers (at least those not beholden to dry gas production) from solvency challenges and *will continue to enable production of natural gas at remarkably low, potentially even negative prices over coming decades. (Negative prices have been seen on some days recently)*. Most WCSB gas-focused producers are moving towards the production and revenue profile of Seven Generations, one of the basin's larger gas producers. Summarized in Figure 5, its profile shows that in the quest for profitable condensate, NGLs and natural gas drive a disproportionately small amount of their netbacks. *That said, like several other producers in the Montney, Seven Generations aims to market as little gas as possible off the AECO index, stressing instead that their price points are Dawn, Chicago, **Malin**, Henry Hub, etc*.[20] [emphasis in bold added]

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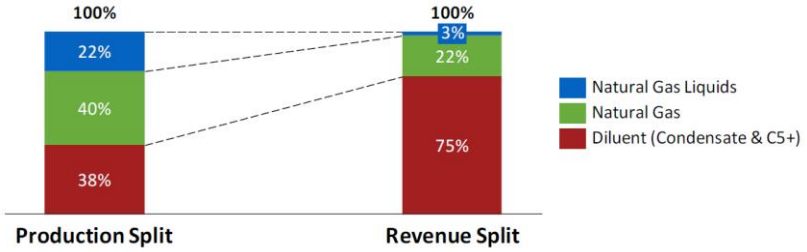
[18] *Canada's Green LNG Advantage - Extensive electrification offers critical low-emissions advantage in the global pursuit of clean growth.* Canada and the Natural Gas Economy Special Report 2 | November 2019 [EXHIBIT 6]

[19] Ibid at page 3

[20] *Canadian LNG Competitiveness - Beyond LNG Canada, will the country overcome self-inflicted regulatory uncertainty and high projected capital costs to become a global player*? The Oxford Institute for Energy Studies. December 2019 [EXHIBIT 7]

Figure 5: Production vs. revenue split for Seven Generations Energy (Q2 2019)



Source: Seven Generation Financial Reporting[44]

With the weight of the Canadian Government propping up the industry and their determination to have their gas reach new markets, a private/public partnership in Canada further creates an unequal playing field at Jordan Cove. As we have previously explained, the current price of Canadian gas at the Malin Hub Gas Transmission Northwest (GTN) pipeline pricing already out competes gas coming from the Ruby Pipeline. With these new and significant subsidies from the Canadian governments to directly support companies like Pembina—who have extensive gas processing facilities that stand to directly and significantly benefit from off-loading large volumes of Canadian generated natural gas as LNG for their customers—it gives an unfair advantage and further increases the likelihood that the precedent agreements conducted singularly between Jordan Cove and PCGP will carry Canadian gas for export through Jordan Cove. Nothing in the current application prevents that from happening and Canadian reports reiterate over and over Canada's strong desire to export Canadian Gas out of a West Coast port.

Landowners would like to further note, that we did not create the Canadian policy that has led to the constriction of getting gas to market for Canadian interests. Nor have we had any say in the fact that they have an abundance of gas that they will stop at nothing—including using our Government's policies—to try and get their gas to world markets. We have no representation in the country that created this contrived market and that has led to the current dynamic. Additionally, we see this as government interference in a market and a "subsidy" that directly harms U.S. citizens and U.S. existing gas interests alike—including U.S. existing infrastructure that would otherwise be shipping U.S. natural gas to those very markets that Canada will take via Jordan Cove.

FERC Statement of Policy in Dockets PL99-3-000, PL99-3-001 and PL99-3-002 requires a denial of this project because building a pipeline to support 'green' Canadian gas reaching coveted global markets is not in the US public interest.

Pembina purchased Jordan Cove and Pacific Connector days after Veresen filed applications on Sept 21, 2017 for National Gas Act Section 3 and Section 7 authorization. At that time, we asked FERC to do an economic benefits test with the information they had to determine if this project met the test before moving on to look at NEPA. FERC declined to do this and chose, instead, to give the company time over the course of the NEPA process to determine if the project meets the criteria of being in the public interest, or not, prior to approval. With the issuance of the FEIS on November 15, 2019, we are now in the window where FERC weighs the adverse effects against the benefits to determine if the facts of this particular project warrant a public interest determination and approval.

The FERC policy statement in Docket No. PL99-3-001, issued on February 9, 2000, specifically says:

> The Policy Statement sets out the analytical steps the Commission will use. It provides that when a certificate application is filed, the threshold question applicable to existing pipelines is whether the project can proceed without subsidies from their existing customers. The next step is

to determine whether the applicant has made efforts to eliminate or minimize any adverse effects the project might have on the existing customers of the pipeline proposing the project, existing pipelines in the market and their captive customers, or landowners and communities affected by the route of the new pipeline. If the proposed project will not have any adverse effect on the existing customers of the expanding pipeline, existing pipelines in the market and their captive customers, or the economic interests of landowners and communities affected by route of the new pipeline, then no balancing of benefits against adverse effects would be necessary. The Commission would proceed to a preliminary determination or a final order**. If residual adverse effects on the three interests are identified, after efforts have been made to minimize them, then the Commission will proceed to evaluate the project by balancing the evidence of public benefits to be achieved against the residual adverse effects. The Policy Statement sets forth in detail the considerations that the Commission will apply to each of these steps. At the end of the analysis, the Commission will approve an application for a certificate only if the public benefits from the project outweigh any adverse effects.**[21] [emphasis added]

This proposed project does have significant adverse effects described in detail below that make it impossible for FERC to issue an appro val decision.

Point 1 – **Can the project "proceed without subsidies from their existing customers."** - Because this is a new pipeline being proposed, there are no existing customers and therefore no associated adverse effects.

Point 2 - Are there adverse effects on "existing pipelines in the market and their captive customers"?

At the time FERC's policy statements were announced in 1999 and 2000, the United States was importing, not exporting LNG. This portion of the policy was aimed at pipelines within the United States that were serving the same market to protect existing pipelines serving that market and their customers from being harmed if a second new pipe was to be built. It was a condition FERC wanted to look at to encourage the right balance of competition to help keep consumer prices low and at the same time not create a situation where pipelines would be overbuilt and underutilized when serving that market.

b. Interests of existing pipelines that already serve the market and their captive customers
Pipelines that already serve the market into which the new capacity would be built are affected by the potential loss of market share and the possibility that they may be left with unsubscribed capacity investment. The Commission need not protect pipeline competitors from the effects of competition, **but it does have an obligation to ensure fair competition.** Recognizing the impact of a new project on existing pipelines serving the market is not synonymous with protecting incumbent pipelines from the risk of loss of market share to a new entrant, but rather, is a recognition that the impact on the incumbent pipeline is an interest to be taken into account in deciding whether to certificate a new project. The interests of the existing pipeline's captive customers are slightly different from the interests of the pipeline. The interests of the captive customers of the existing pipelines are affected because, under the Commission's current rate model, they can be asked to pay for the unsubscribed capacity in their rates.[22] [emphasis added]

Now, 20 years later, we have a vastly different scenario with the expansion of shale plays and the billions of dollars that have been invested to get that U.S. gas to global markets through LNG export terminals. Instead of a single region of the U.S. being the "market", the proposed Pacific Connector pipeline would

[21] FERC statement of policy Docket No. PL99-3-001 at page 2
[22] FERC statement of policy Docket No. PL99-3-000 at page 24

end at the coast, with 100% of the gas being slated for Asian Markets. These very same Asian markets currently make up over 70% of the LNG market world-wide.[23] Every approved US LNG Export terminal on the Gulf Coast and the Mexico west coast, Alaska and Canada are vying for this market.

FERC's and DOE's approved projects in the Gulf Coast and Mexican west coast are hoping to serve this market. The following chart shows the total Bcfd of U.S LNG export projects and infrastructure that have been built, are under construction or are approved, but waiting for contracts and FID.[24]

UNITED STATES EXISTING AND APPROVED LNG EXPORT TERMINALS	
EXISTING	**Total Bcfd: 7.48**
1. Kenai, AK:0.2 Bcfd(Trans-Foreland)	
2. Sabine, LA: 3.5 Bcfd(Cheniere/Sabine Pass LNG –Trains 1-5)	
3. Cove Point, MD: 0.82 Bcfd(Dominion–Cove Point LNG)	
4. Corpus Christi, TX: 1.44 Bcfd(Cheniere –Corpus Christi LNG Trains 1,2)	
5. Hackberry, LA: 0.71 Bcfd(Sempra–Cameron LNG, Train 1)	
6. Elba Island, GA:105 MMcfd(Southern LNG Company Units 1, 3, 4)	
7.Freeport, TX: 0.71 Bcfd(Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction Train 1)	
APPROVED - UNDER CONSTRUCTION -FERC	**Total Bcfd: 12.03**
1. Hackberry, LA: 1.43 Bcfd(Sempra–Cameron LNG, Trains 2 & 3) (CP13-25)	
2.Freeport, TX: 1.43 Bcfd(Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction Trains 2&3) (CP12-509) (CP15-518)	
3. Corpus Christi, TX: 0.72 Bcfd(Cheniere–Corpus Christi LNG Train 2) (CP12-507)	
4. Sabine Pass, LA: 0.7 BcfdTrain 6(Sabine Pass Liquefaction) (CP13-552)	
5. Elba Island, GA: 0.245 Bcfd(Southern LNG Company Units 2, 5-10) (CP14-103)	
6. Cameron Parish, LA: 1.41 Bcfd(Venture Global Calcasieu Pass) (CP15-550)	
7. Sabine Pass, TX: 2.1 Bcfd(ExxonMobil –Golden Pass) (CP14-517)	
8. Calcasieu Parish, LA: 4.0 Bcfd(Driftwood LNG) (CP17-117)	
APPROVED –NOT UNDER CONSTRUCTION -FERC	**Total Bcfd: 21.01**
A. Lake Charles, LA: 2.2 Bcfd(Southern Union –Lake Charles LNG) (CP14-120)	
B. Lake Charles, LA: 1.08 Bcfd(Magnolia LNG) (CP14-347)	
C. Hackberry, LA: 1.41 Bcfd(Sempra -Cameron LNG) (CP15-560)	
D. Port Arthur, TX: 1.86 Bcfd(Port Arthur LNG Trains 1 & 2) (CP17-20)	
F. Freeport, TX: 0.72 Bcfd(Freeport LNG Dev Train 4) (CP17-470)	
G. Pascagoula, MS: 1.5 Bcfd(Gulf LNG Liquefaction) (CP15-521)	
H. Jacksonville, FL: 0.132 Bcf/d (Eagle LNG Partners) (CP17-41)	
I. Plaquemines Parish, LA: 3.40 Bcfd(Venture Global LNG) (CP17-66)	
J. Brownsville, TX: 0.55 Bcfd(Texas LNG Brownsville) (CP16-116)	
K. Brownsville, TX: 3.6 Bcfd(Rio Grande LNG –NextDecade) (CP16-454)	
L. Brownsville, TX: 0.9 Bcfd(AnnovaLNG Brownsville) (CP16-480)	
M. Corpus Christi, TX: 1.86 Bcfd(Cheniere Corpus Christi LNG) (CP18-512)	
APPROVED –NOT UNDER CONSTRUCTION –MARAD/Coast Guard	
MC. Gulf of Mexico: 1.8 Bcfd(DelfinLNG)	
.	**TOTAL APPROVED PROJECTS: 40.52 Bcfd**

Each of these projects are designed to ship gas from U.S. gas shale plays and each have submitted in their applications the significant benefits of jobs and revenue that would be generated should these projects capture market share and be built. Using the Mexico West Coast Energia Costa Azul Project, for example, which is located outside of the United States but will be exporting 1.74 Bcfd of U.S.-sourced gas shows an

[23] *IGU 2019 World LNG Report.* https://www.igu.org/sites/default/files/node-news_item-field_file/IGU%20Annual%20Report%202019_23%20loresfinal.pdf. Asia was the only region to increase its share of global imports, rising by 5.3 percentage points to **27.1%** of total trade. (page 11) Asia Pacific remained the largest importing region by a wide margin in 2018, although its share of global trade fell under 50% for the first time since the mid-1970s, to **48%**. (page 15) It is expected that gas demand will continue its robust growth in the coming years, mostly driven by Asian markets that account for **two thirds of overall LNG demand**. (page 45)

[24] Maps of *North American LNG Export Terminals - Existing* and *North American LNG Export Terminals - Approved*. December 31. 2019 [EXHIBIT 8 & 8A]

estimated benefit to the United States of **27,566 jobs per year**[25] and **$2.186 billion dollars per year**[26] in local, state and Federal government revenue. These are the jobs and revenue created from only the fuel and feedstock of U.S. natural gas, and don't include the benefit of the terminal which would be located in Mexico. Additionally, utilizing U.S.-sourced natural gas, according to the ICF economic report is estimated to **reduce** the United States balance of **trade deficit by $3.6 billion dollars annually**.[27] In comparison, Jordan Cove and Pacific Connector in their EcoNorthwest economic analysis would create a **total of 43,233 construction full year equivalent (FYE) jobs**[28] and once operating **1782 FYE jobs annually**.[29] Local and State revenue for JCEP and PCGP and Federal Revenue for PCGP during operation are estimated to be **$170** million annually.[30] Federal revenue for the JCEP terminal was not available. The chart below compares revenue and employment numbers between the two West Coast projects, with the last rows showing Costa Azul LNG figures levelized to 1.08 Bcfd.

Comparison of Jordan Cove/Pacific Connector LNG Export Terminal and Engeria Costa Azul LNG Export Terminal Economic Benefits

	Construction Employment (No. job-years)	**Years in operation**	**Operation Jobs** (No. job-years)	**Total Lifetime Employment per project** (No. job-years)	**Operation Govt. revenue (local, State, Fed)** (2016$ million)	**Lowering Trade Deficit** (2016$ billion)	**% difference between Jordan Cove LNG & Costa Azul LNG** Jobs	Revenue
JCEP LNG Export Terminal and Pipeline Project		2025-2045 ave/yr	1,782	1,782	170^			
LNG Capacity = 1.08 Bcfd	43,233*	2025-2045 lifetime	35,640**	78,873	3,400^	NA^^	1	1
Combined Costa Azul LNG Export Terminal ~	0	2025-2045 ave/yr	27,566	27,566	2,186	3.6		
LNG Capacity = 1.74 Bcfd	0	2025-2045 lifetime	689,142	689,142	689,142	89.2		
Combined Costa Azul LNG Export Terminal	0	2025-2045 ave/yr	17,091	17,091	1,355	2.2		
capacity adjusted to 1.08 bcfd (x.62) for comparison	0	2025-2045 lifetime	427,268	427,268	427,268	55.3^^	5.4	N/A^

*Total Local Economic Impacts from Project Construction over 5 years, includes direct, indirect and induced jobs in year-jobs. Source: *Jordan Cove Energy Project and Pacific Connector Gas Pipeline: An Economic Impact Analysis for Construction.* September 2017. Prepared by EcoNorthwest at Page 10 **[EXHIBIT 14]**

Total Local Economic Impact from Operation. Includes Direct, indirect and induced jobs in job-years. Source: Jordan Cove Energy Project and Pacific Connector Gas Pipeline: An Economic Impact Analysis for Operations. September 2017. by EcoNorthwest at page 12. **[EXHIBIT 14]

^ Includes $60 million local, $50 million state (per Mckeown and Roblan comments to FERC January 2020) and approximately $60 million Federal Taxes for PCGP per Exhibit L, Schedule 3 (updated 2/16/18), **missing Federal revenue for Terminal.** Based on 1st year taxes and not adjusted over 20 year period. **[EXHIBIT 15 & 16]**

^^If Jordan Cove ships all Canadian gas there is no trade deficit benefit to the US versus $55.3 billion in lowered trade deficit over 20 year lifetime with Costa Azul if shipping the levelized amount of gas of 1.08 Bcfd. **[EXHIBIT 9]**

~*ICF Economic Impacts of the Proposed Energía Combined Costa Azul Liquefaction Project: Information for DOE Non-FTA Permit Application.* Sept. 11, 2018 **[EXHIBIT 9]**

[25] *Economic Impacts of the Proposed Energía Combined Costa Azul Liquefaction Project: Information for DOE Non-FTA Permit Application*. September 11, 2018. At digital page 200. Note that one job in this report refers to a job-year. [EXHIBIT 9]

[26] *Id* at digital page 201.

[27] *Id* at digital page 203.

[28] RR5 for JCEP, EcoNorthwest Studies: *Jordan Cove Energy Project and Pacific Connector Gas Pipeline: An Economic Impact analysis for Construction.* Sept 2017. At digital page 46. [EXHIBIT 14]

[29] RR5 for JCEP, EcoNorthwest Studies: *Jordan Cove Energy Project and Pacific Connector Gas Pipeline: An Economic Impact analysis for Operations*. Sept 2017. At digital page 65. [EXHIBIT 14]

[30] Includes $60 million local, $50 million state (per Mckeown and Roblan comments to FERC January 2020) and approximately $60 million Federal Taxes for PCGP per Exhibit L, Schedule 3 (updated 2/16/18), missing Federal revenue for Terminal. Based on 1st year taxes and not adjusted over 20 year period. [EXHIBIT 15 & 16]

Similarly, LNG Canada, has posted that Canada's economy will benefit from the creation of 38,000 jobs and the economic output is estimated by the authors of the Oxford Institute of Energy Studies' December 2019 Canadian LNG Competitiveness Report to be between $320 and $560 billion dollars in present value for phase 1 and expansion (total of 28 mtpa) over its projected 40 year life.[31]

The point we are making is that these numbers support the evidence published in an ICF's *Calculating the Economic Benefits of U.S. LNG Exports* prepared to LNG Allies April 17, 2018 report which states that the U.S. LNG Export Terminals account for 25% to 30% of impact to the US economy and that the 70% to75% of economic impacts from exporting LNG come from U.S. Natural Gas Supplied for LNG Fuel and Feedstock. In other words, as much as 75% of the economic benefit **goes to the country that extracts the gas**.[32]

If you apply the intent of the FERC policy statement to protect existing pipelines serving the same market and their customers to the Jordan Cove and Pacific Connector Gas Pipeline proposal, there is no question that pipelines and LNG export terminals that utilize US natural gas supply provide far greater benefit. And when you couple that with the number of approved U.S. Gulf Coast projects still struggling to capture global contracts and make FID, then it makes no sense to hand this Canadian project, that intends to compete with these U.S. projects for market share, approval.

As pointed out above, Pembina is a Canadian company, eligible to receive significant subsidies from their own government to capture global markets for Canadian gas. In their December 9, 2018 press release on 2019 Capital Guidance Pembina stated they had 11 mpta of non-binding agreements and would 1) be converting these non-binding contracts for LNG off-take to binding contracts in the 1st Q of 2019, 2) they would announce the nominal capacity of gas relegated to U.S. Rockies producers and 3) were seeking equity partners for between 40-60% of the terminal and pipeline by 3rd quarter of 2019. The conversion to binding contracts was reiterated again by Pembina in March 2019.

> Jordan Cove has signed to sell about 11 million tonnes per year of LNG to buyers in initial contracts, said Stuart Taylor, senior vice president of marketing and new ventures for Pembina Pipeline Corp, owner of the project.
>
> Capacity for the LNG plant is set at 7.5 million tonnes a year.
>
> "There is a good chance that some of it (the sales volume) is Chinese," Taylor said on the sidelines of LNGA 2019 conference held in Singapore, when asked if any of the potential buyers included Chinese companies.
>
> He said the company expects to convert some of the deals into binding ones in a few months.
>
> "We think in a couple of months, we could be well into announcing some signatures. They take time, and we are in detailed negotiations exchanging drafts of the agreements ... and then we will lock agreements down," he said.

[31] *Canadian LNG Competitiveness - Beyond LNG Canada, will the country overcome self-inflicted regulatory uncertainty and high projected capital costs to become a global player*? The Oxford Institute for Energy Studies. December 2019. At page 24.

[32] *Calculating the Economic Benefits of U.S. LNG Exports.* Prepared for LNG Allies April 17, 2018. ICF. [EXHIBIT 10]

> Pembina Pipeline was reported to have been seeking a partner on the Jordan Cove project, but the company has yet to start any equity sale conversations, Taylor said.[33]

As of January 2020, none of this has come to fruition.

There are two possible explanations. One – under the current oversupply of LNG on the world market, there is no demand for gas at a price point that Jordan Cove can deliver it for. Or two – the 11 million tons of LNG per annum of preliminary agreements Pembina announced they had in December 2018, are for cheaper and greener government-backed Canadian gas. This would not necessarily be something they would want to announce for fear that it might sway FERC and the U.S. Department of Energy (DOE) to deny the project on the grounds that shipping Canadian gas is not in the US public interest. FERC commissioners can not ignore that this project, serving the very same market that the United States LNG export projects are all hoping to serve, will significantly harm US-sourced gas LNG terminals that are already operating, are in the process of being constructed or are still hoping for contracts and FIDs. They are the existing pipelines and customers that will be adversely affected when you apply FERC's policy statement.

It should further be noted that Heads of Agreements (HOA), preliminary agreements and non-binding agreements for LNG off-take are all **non-binding**, meaning that they can be terminated by either party if circumstances change.

> Despite a strong consensus that the global LNG market is headed into a period of considerable oversupply, developers continue [to] seek every opportunity to garner commercial momentum for their proposed LNG projects.
>
> **Binding offtake contracts remain a necessity for new LNG projects.** Given the scale of the investment and length of the construction timeline, proposed projects have little hope of moving forward without first securing buyers for all or at least most of project capacity.[34] [emphasis added]

In contrast non-binding agreements do not always convert to binding contracts as noted in Pembina's prediction that they would convert non-binding to binding agreements in 2019 and prior announcements for HOAs the Jordan Cove Project had in 2014 through 2016. And they are not alone.

> Over the last several years, the conversion rates of HOAs into binding SPAs have been quite low. The Jordan Cove project in Oregon announced HOA with unidentified buyers as far back as 2014, but has yet to finalize them. Magnolia LNG also has a series of HOAs, originally signed in 2015, which have made little progress (though the company does have a binding agreement with Meridian LNG). HOAs at several other projects appear to have met a similar fate.
>
> There is certainly value in sitting at the table with any potential buyer and discussing terms, even if that buyer does not eventually sign on the dotted line. Cheniere did this for its first phase of Sabine

---

[33] *Jordan Cove LNG project signs non-binding sales deals exceeding capacity.* March 6, 2019. https://www.reuters.com/article/singapore-lng-conference-jordan-cove-idCNL3N20Q02O [EXHIBIT 11]

[34] *More Than a Headline? A closer look at non-binding HOA offtake contracts.* January 24, 2017. https://www.evainc.com/energy-blog/headline-closer-look-non-binding-hoa-offtake-contracts/ [EXHIBIT 12]

> Pass, announcing several HOAs shortly after proposing the project in 2011. Ultimately, all of those HOAs were abandoned, but the experience likely allowed the company to hone its marketing strategy and was a valuable precursor to the eventual raft of SPAs signed in advance of FID in 2012.

The one sure sign that a project has committed buyers and a market for its product is binding agreements for off-take LNG. **In 15 years, Jordan Cove has failed to garner a single binding contract for LNG off-take.**

Point 3 – Adverse effects of "landowners and communities affected by the route of the new pipeline."

Protection of U.S. citizens' private property rights under the Constitution is not to be taken lightly and, according to FERC's policy statement, falls into a different level of scrutiny besides harms that are revealed in the NEPA process.

> c. Interests of landowners and the surrounding communities
> Landowners whose land would be condemned for the new pipeline right-of-way, under eminent domain rights conveyed by the Commission's certificate, have an interest as does the community surrounding the right-of-way. The interest of these groups is to avoid unnecessary construction, and any adverse effects on their property associated with a permanent right-of- way. In some cases, the interests of the surrounding community may be represented by state or local agencies. Traditionally, the interests of the landowners and the surrounding community have been considered synonymous with the environmental impacts of a project; however, these interests can be distinct. Landowner property rights issues are different in character from other environmental issues considered under the National Environmental Policy Act of 1969 (NEPA).[35]

Landowners and communities along the pipeline have expressed great concern over what will happen to their properties and the current way they utilize them to make their living. In our July 2019 comments to the DEIS, we asked FERC to do a data request and look closely at how many people would be adversely affected by the use of eminent domain. This is now 15 years and 3 project proposals of money, time and stress for landowners trying to protect what we have for our livelihoods against pressure from people hired by the company to use a variety of tactics to get easements. Families have additionally suffered by not being able to sell their properties in locations that will be severely impacted by the pipeline construction. One such family left the area a year ago, due to the constant stress. They had built their dream home and thought they had it sold last summer until the whole deal fell through once the buyers learned about the pending potential pipeline impacts. In many cases, these are secluded properties where buyers are looking for peace, quiet and natural beauty. These impacts to landowners have been significant and not the least of which is in not being able to even sell their properties to leave the area.

We have continued to track any and all recorded easements that the company has secured and have found discrepancies in what they have previously reported to FERC. With the selection in the FEIS of the Blue Ridge Variation Route, to our knowledge, the company has not been asked by FERC, nor have they reported what the total numbers and signed numbers are for parcels, acreage and unique landowners affected on the entire route when using the FEIS selected Blue Ridge Variation route in Coos County. In determining adverse effects of eminent domain, knowing these numbers would be critical to accurately applying whether benefits outweigh adverse effects of a given project. This becomes even more relevant when trying to apply the use of eminent domain on an American citizen for a Canadian gas project, especially

[35] Docket No. PL99-3-000 at page 24

when one of the problems Canada is facing is getting permission from indigenous communities and landowners in BC to access their own coast.

According to our records based on recorded easements in each of the four counties, as of January 9, 2020, PCGP has recorded 172 easements out of 268 total unique private and timber company landowners on the FEIS selected Blue Ridge Variation Route, which comes to 64% of the total unique landowners. PCGP has recorded 164 easements out of 248 total unique private and timber company landowners on the Blue Ridge Route, which is 66% of all total unique landowners. This leaves between 84-96 unique landowners, (one third of the total), that do not have a signed and recorded easement agreement with PCGP.

As landowners who understand and agree with the use of eminent domain for roads, schools, etc. that are for a **public use**, we are utterly failing to see how an approval of this project, granting permission for Canada to benefit at the expense of our fellow landowners and fellow citizens, is not a blatant violation of our rights.

Point 4 – When doing the economic benefits there is one more category of "existing customers" that stands to be harmed—Pacific Northwest and California natural gas ratepayers.

The three pillars of FERC's policy statement include making sure new pipelines are not subsidized by existing ratepayers, that they do not unduly harm existing pipelines serving the same market and that they take into account the adverse effects to landowners and communities. This project, as explained previously, is a new pipeline without existing customers. However, the pipelines upstream of Malin, namely the Gas Transmission Northwest (GTN) pipeline on which the gas from Canada would need to travel, could well harm the current customers of that pipeline in Idaho, Washington, Oregon and California as the Western Export Group (WEG)[36], which included many U.S. gas suppliers, argued up in Canada during 2017 and 2018 when the North Montney Mainline expansion was being discussed at Canada's National Energy Board (NEB). The worry was that this new 1.485 Bcfd of capacity that 11 Canadian gas producers were asking for, did not have a final destination after Petronas dropped their proposed Pacific Northwest LNG project, leaving open the possibility that they were planning to send it south to Jordan Cove or other markets.[37] WEG was arguing that existing longtime shippers should not be held responsible for the cost of pipeline expansion that would be needed to move this new volume of gas, and the cost burden should fall to those shippers asking for the needed expansion, especially since there was no certainty provided of a market. NEB agreed.

> When it comes to adding new capacity, it is difficult to achieve consensus on solutions due to competing cost and revenue models. Shippers with market diversification and sufficient (often excess) firm capacity do not need additional capacity and oppose paying for something they do not need. Legacy producers are already cost-challenged and are resistant to paying for service additions

[36] The Western Export Group (WEG) was mentioned in our earlier comments. They are a consortium of US gas suppliers that engaged Canada's National Energy Board (NEB) in 2017 and 2018 over the North Montney Mainline ask by 11 Canadian Gas Producers to ship 1.485 Bcfd of gas potentially south into the United States. The WEG group, which included PGE, Avista and others, was concerned that this approval should not include increased cost to the current firm transportation shippers buying Canadian gas for the US market and instead the new gas producer shippers should have to foot the bill for any expansion needed on the NGTL TC Energy pipelines in Canada. NEB agreed and asked the Canadian producers for a different pay schedule for any expansions required.

[37] North Montney Mainline Project Application for a Variance. March 20, 2017. At Page 11. https://docs2.cer-rec.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90550/554112/915551/1060220/2982347/3338452/3210868/A82147-1_NMML_Variance_Application_-_A5J5W6.pdf?nodeid=3210303&vernum=-2

in areas they would not use. This is stretching at the fabric of the "rolled-in" tolling principle. A recent example of this is the NEB North Montney decision.

Producer dissension exists regarding adding incremental transportation capacity based upon:

- Who pays (not all parties support "rolled-in" tolling).
- The magnitude of the expansion costs and shipper fears that transporters are not being cost effective.
- Doubt that adding capacity to existing but shrinking and increasingly lower margin continental markets will be rendered obsolete by potential West Coast LNG markets requiring different pipe infrastructure.[38]

The same logic applies to potential harm to existing customers and ratepayers on the GTN pipeline that runs from Kingsgate, ID on the Canadian border to Malin, Oregon. GTN has asked for, and received, FERC permission in Docket No. RP19-1546-000 for a 36-month lead time prior to contract terminations to get renewed firm transportation commitments from their current customers in anticipation of doing an open season for new capacity on the GTN.

I. GTN's Filing

GTN states that its system moves predominately Western Canadian Supply Basin production to markets in the U.S. Northwest and West**. GTN states that as the availability of firm capacity on its system becomes more constrained, its ability to serve expanding gas markets with Western Canadian Supply Basin production is inhibited.** GTN states that to properly plan for and size a possible expansion project, it is proposing to modify section 6.33 of the GT&C of its tariff to add a new provision allowing it to provide shippers with an accelerated ROFR notice in certain instances when GTN is proposing an expansion to its system.[39] [emphasis added]

GTN, owned by Calgary-based TC Energy[40] is already asking for an increase in capacity on the GTN.[41] This expansion, known as the GTN Express will increase capacity of the GTN by approximately 300 million cubic feet per day using increased compression and will be directly linked to an expansion project in Canada called the West Path Delivery Program.

Together the projects will enhance market access and reliability for growing Western Canadian natural gas production, and allow additional market penetration along GTN's system in the Pacific Northwest, the company said.[42]

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[38] *Roadmap to Recovery: Reviving Alberta's Natural Gas Industry*. Natural Gas Advisory Panel Report to the Minister. 2018. at page 34.

[39] *ORDER ACCEPTING TARIFF RECORD SUBJECT TO CONDITION* for Gas Transmission Northwest LLC FERC Docket No. RP19-1546-000. Issued October 4, 2019. Accession Number: 20191004-3014 [EXHIBIT 17]

[40] TC Energy, formerly TransCanada Corporation, is based in Calgary, Alberta and also a company that will benefit directly from the Canadian Government's subsidies targeted to get "green" Canadian gas to global markets.

[41] *$1.2B Alberta natgas pipeline expansion to grow connection to Pacific Northwest*. Nov. 4, 2019. https://www.jwnenergy.com/article/2019/11/12b-alberta-natgas-pipeline-expansion-grow-connection-pacific-northwest/ [EXHIBIT 18]

[42] *Ibid*

This proposed expansion, according to GTN is driven 60% by Canadian gas shippers and 40% by U.S. utilities wishing to buy less expensive Canadian gas.[43] We bring this up as an example of how FERC's policy statement can be applied to help keep costs to U.S. consumers low, **if** this new capacity is serving the U.S. market.

But when an expansion on an existing pipeline is sought for Canadian gas to reach global markets, and not U.S consumers, benefits of competition disappear. The shoe to fall that will **harm U.S. interests** is TC Energy's and Canada's strong push to access world markets that is setting up a bidding war between U.S. customers and Canadian LNG exporters for the GTN pipeline capacity—all of which would come to fruition if Jordan Cove is approved.

The recent tariff adjustment is precisely the mechanism by which they hope to expand the GTN system to accommodate shipping Canadian gas to Jordan Cove. TC Energy will be using their findings of *new shipper interest* and *current shippers' future capacity needs* to determine if an expansion is needed. Significant interest for GTN capacity from Canada to serve Jordan Cove would result in current ratepayers having to match bidding rates of new Canadian government-subsidized customers and, thus share the cost of a pipeline expansion to feed the Jordan Cove project with Canadian gas.[44]

> Specifically, GTN proposed to add language to Section 6.33 that would allow GTN to provide a shipper notice no more than 36 months prior to the termination of a shipper's service agreement that such shipper's capacity is subject to the ROFR election and ROFR process. Such notice would only require that a shipper inform GTN of its intent to either exercise its ROFR right or to terminate its service agreement. A shipper electing termination of its service agreement will provide GTN the opportunity to make use of the turned back capacity to ensure that its proposed expansion project is correctly sized.
>
> . . .
>
> Under GTN's original proposal, in the event GTN had initiated an accelerated ROFR process and then immediately conducted a ROFR open season, shippers would have had, at a minimum, 30 business days' notice before having to determine whether to match a third-party best bid in order to retain their capacity.[45]

As of January 28, 2020, there are 39 unique shippers contracted on the GTN holding a total of 130 firm transportation contracts for 3.0 Bcfd of capacity.[46] 35 of these shippers are holding contracts that terminate by October 31, 2023. Breaking it down further, .83 Bcfd (833,841 dekatherms) of natural gas contracts are now within 36 months of the termination of their contracts and an additional 1.02 Bcfd (1,016,974 dekatherms) of contracts will reach the 36-months-ahead-of-contract-termination mark on October 31, 2020. This means that if Jordan Cove is approved, and 1.2+ Bcfd of competing capacity contracts for firm transportation are garnered in an open season by TC Energy for the GTN, all 35 of these current shippers, should they want to renew their contracts, would have to be willing to match the price of Alberta, BC and Canadian Government-subsidized interests in getting Canadian gas to world markets through Jordan Cove. Prices will rise for U.S ratepayers, and create a scenario where U.S. consumers will be

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[43] *TC Pipelines L P (NYSE:TCP) Q3 2019 Earnings Call Nov 7, 2019*, Motley Fool Transcribers. https://www.fool.com/earnings/call-transcripts/2019/11/08/tc-pipelines-l-p-tcp-q3-2019-earnings-call-transcr.aspx

[44] *Gas Transmission Northwest Corporation Fourth Revised Volume No. 1-A Tariff*. Accessed January 28, 2020. At section 6.33. [EXHIBIT 19]

[45] TC Energy's answer to FERC on docket RP19-1546-000. Accession Number: 20191021-5099 [EXHIBIT 20]

[46] Spreadsheet of current Firm Transportation Shippers on the GTN. January 28, 2020. http://tcplus.com/GTN/Tariff/EntireTariff. [EXHIBIT 21]

subsidizing costs of expansion of the GTN to benefit the Canadian public interest and to the detriment of the U.S. public interest.

Couple this information with the dollars flowing from the Governments of BC, Alberta and Canada National to Canadian companies like TC Energy, Pembina, Seven Generations Energy and others to get their "green" LNG to world markets, the same unfair playing advantage occurs not just on the PCGP, but also on the GTN should Jordan Cove get approval.

The ultimate goal of Canada and Canadian gas producers can be summed up by this interview with Marty Proctor, CEO, Seven Generations Energy, based in Calgary, Alberta and one of 10 gas producers partnering to find or create LNG export access on the West Coast.

> Egress has been core to our strategy and as we evolved our understanding of how prolific the Montney resource was, we felt that it was imperative to ensure adequate takeaway capacity out of the basin. This approach has created meaningful options for transporting our natural gas into key consumer markets and has driven significantly higher realizations for our gas prices compared to local AECO pricing. As we think about egress into the next decade, we see LNG being a key outlet for natural gas in the WCSB that will help diversify consumer markets and ultimately bring domestic prices closer in line with global natural gas prices. Given the importance of LNG, we feel the best opportunity to participate is to partner with like-minded producers to aggregate meaningful volumes.
>
> We expect LNG access will support higher prices for the basin, or prices that are more closely linked to global natural gas prices. Ultimately sales prices will be based on the market clearing price, less transportation and shipping and the liquefaction/re-gasification tolls.[47]

The Canadian goal to reach export markets in order to increase Western Canada Sedimentary Basin prices and equalize them to world prices means that the lower gas prices, that U.S. citizens in the Pacific Northwest have benefitted from, will rise. A direct dollar impact of a rise in Canadian exported gas prices to the United States was reported in the December 2019 Oxford Institute for Energy Studies Report.

> The value of Canadian gas production exports in 2017 was C$10.3 billion. If Canadian gas exports were to be valued at the same average value as U.S. gas imports to serve the eastern Canadian market, this would rise to $12.3 billion per year (roughly equal to the value of Canadian aluminum exports at $12.5 billion per year).[48]

This reported increase from C$10.3 to C$12.3 billion dollars would result from their getting access to global markets while also competing directly with the U.S. to access the same global markets. This would have a direct bearing on U.S. Pacific Northwest gas prices that could be **the full $2 billion dollars higher cost annually for U.S. ratepayers**. For natural gas users in Washington, Idaho, Oregon and California this is a significant additional adverse effect of allowing Canada access to global markets through the United States.

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[47] *Alberta Oil & Gas Quarterly Fall 2019*. Seven Generations is one of 10 gas producers involved with a proposed Rockies LNG Project. This was his response to the question: Why is Seven Generations involved in Rockies LNG Partners, and how do you expect to benefit from LNG access? [EXHIBIT 13]

[48] *Canadian LNG Competitiveness - Beyond LNG Canada, will the country overcome self-inflicted regulatory uncertainty and high projected capital costs to become a global player*? The Oxford Institute for Energy Studies. December 2019

CONCLUSION

As intervenors who have experienced a positive certificate policy decision previously and believe the FERC policy statement has the breadth and depth to take into consideration the substantive comments we have made today, unique to this particular application, we believe a denial of this project is justifiable and correct.

Uinta Basin Oil Pipeline Study

Final Report

September 2017

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1 Study Objectives

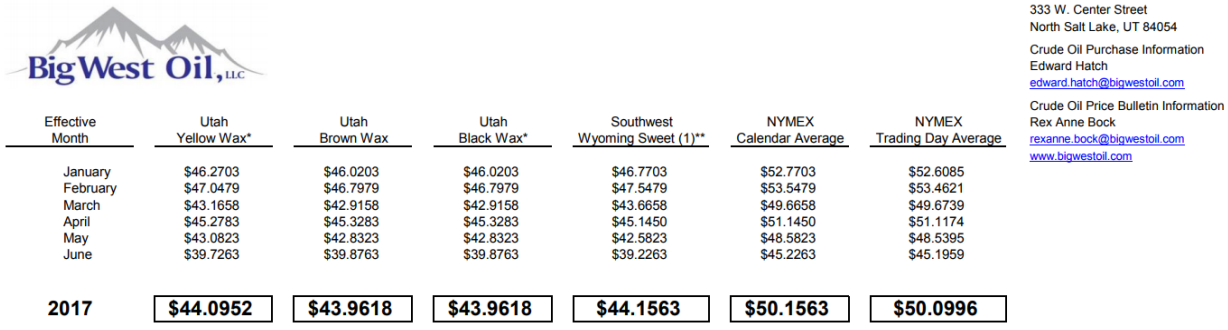
- Provide a fully informed estimate of the market potential for waxy crude outside the Salt Lake City (SLC) refinery complex.
- Provide stakeholders with a full understanding of the implications of historical and future waxy crude discounts on the tax and royalty streams to Federal, State, County, Tribal, and other recipients.
- Estimate the financial and social cost of crude oil transportation alternatives from Uinta Basin to Salt Lake City refineries.

2 Waxy Crude Pricing Analysis

2.1 Pricing Bulletins

- Prices published in Big West and Chevron crude oil pricing bulletins are for merchantable crude oil delivered to refinery gate which represents offer to purchase.
- Merchantable crude oil is oil free of contamination or any added chemicals.
- Truck transportation costs borne by the producer.
- Prices are for oil at 40 degrees API with deductions of $0.015 for each 0.1 degree below 40. A similar deduction is in place if oil exceeds 45 API.
- Not all the Uinta Basin crude oil that moves into the SLC market is priced at the values published in refiner pricing bulletins - bulletins are not entirely representative of Uinta waxy crude oil market value.

Figure 1: Example of a Salt Lake City Refiner Pricing Bulletin



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Effective Month	Utah Yellow Wax*	Utah Brown Wax	Utah Black Wax*	Southwest Wyoming Sweet (1)**	NYMEX Calendar Average	NYMEX Trading Day Average
January	$46.2703	$46.0203	$46.0203	$46.7703	$52.7703	$52.6085
February	$47.0479	$46.7979	$46.7979	$47.5479	$53.5479	$53.4621
March	$43.1658	$42.9158	$42.9158	$43.6658	$49.6658	$49.6739
April	$45.2783	$45.3283	$45.3283	$45.1450	$51.1450	$51.1174
May	$43.0823	$42.8323	$42.8323	$42.5823	$48.5823	$48.5395
June	$39.7263	$39.8763	$39.8763	$39.2263	$45.2263	$45.1959
2017	**$44.0952**	**$43.9618**	**$43.9618**	**$44.1563**	**$50.1563**	**$50.0996**

2.2 Crude Oil Quality Discount Background

- Most world crude oils are priced in relationship to a marker crude such as Dubai, North Sea Brent, or in the case of Uinta waxy crudes, West Texas Intermediate (WTI).
- The differential between any given crude oil and its marker may be narrow or wide, but typically differentials widen when the general level of oil prices rises. Also relevant are changes in refined petroleum product prices in the refiner's local market.
- Crude oil differentials are driven by differences in both quality and location of the crude's production source.

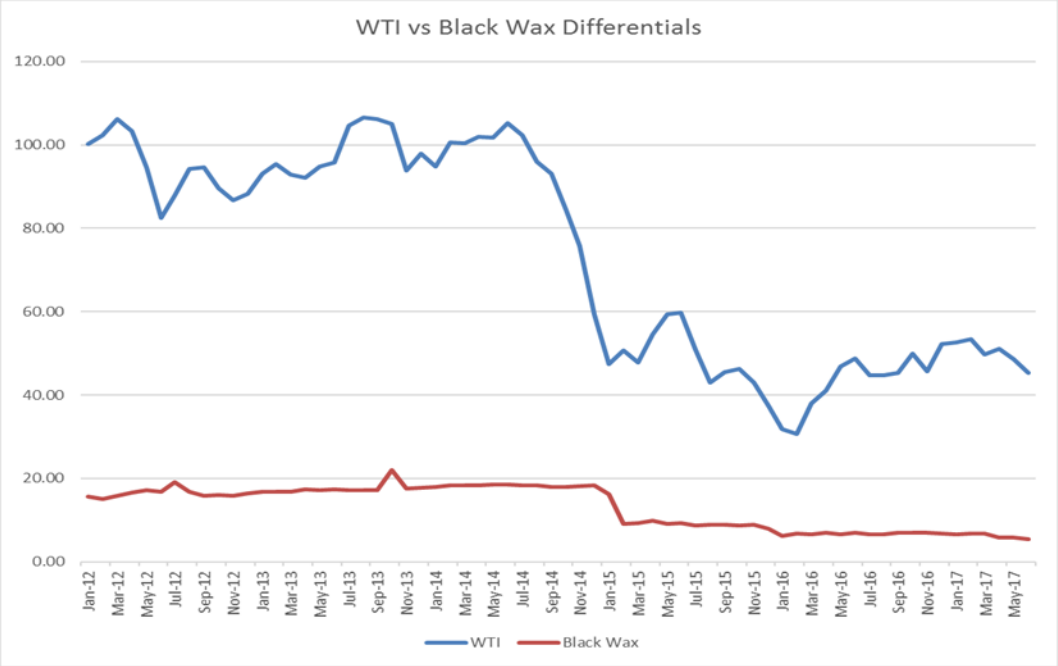
- API, sulphur content, and acid content are three significant quality factors influencing a crude's price differential.
- In order to process a particular crude oil feedstock into high value refined petroleum products, sophisticated, or higher complexity, processing equipment may be required in order to extract that crude's full potential.
- Refiners invest in sophisticated or high complexity refining kit when they feel the feedstock they are planning to run will price in the future at a differential level that justifies capital investment. Sometimes it's only after many years of the right differentials that a refiner will approve new capital spend.
- Refiners optimize monthly crude runs by running a linear programming (LP) model, basing their analysis on variable operating costs, available slate of crude oils and their market prices, and the refinery's potential refined product output slate along with anticipated pricing for those products. The LP model reveals the optimal feedstocks and the resultant optimal refined petroleum product output slate.
- Armed with this knowledge, the refinery crude buyer enters the market and acquires desired feedstocks at the lowest possible price knowing from the LP the maximum price he can afford to pay. The buyer will only pay what he has to in order to obtain the desired feedstock barrels.
- Conditioning this enthusiasm to pay as little as possible however, is the recognition that once in possession of a higher complexity refinery kit, the refiner does not wish to have their investment in expensive new processing equipment idled for lack of the desired feedstock to run through it.
- When a crude oil is pipeline connected, or on tidewater, that crude's location is typically a lesser factor influencing the accorded differential.

2.3 Uinta Basin Crude Oil Quality Discount

- Uinta Basin waxy crudes measure well relative to WTI on the above three quality factors – API, sulphur content, and acid content. However, other non-typical quality factors come into play which makes it more difficult to assess the reasonableness of a refiner's offer to purchase Uinta Basin waxy crude.
- Due to difficult Uinta transportation logistics, the location portion of the differential is nonstandard.
- Uinta Basin waxy crude oils may be processed into high value refined products, but the refineries that run it need relatively sophisticated (higher complexity) processing equipment in order to extract that potential.
- The historical differentials, or quality discounts, for Uinta yellow and black wax crudes published by SLC refiners are remarkably static, showing little if any correlation to changes in WTI prices, save for when WTI prices went from $100/bbl to less than $50/bbl over the course of the second half of 2014.
- Aside from a large adjustment in February 2015, SLC refiners have taken an almost "set it and forget it" approach towards Uinta price bulletin crude oil pricing

- This was especially problematic for producers who sold at refiner pricing bulletin prices in late 2014. WTI prices had dropped by 50%, but Uinta pricing differentials remained stubbornly high, even widening slightly in late 2014.

Figure 2: Uinta Basin Historical Crude Oil Quality Discounts



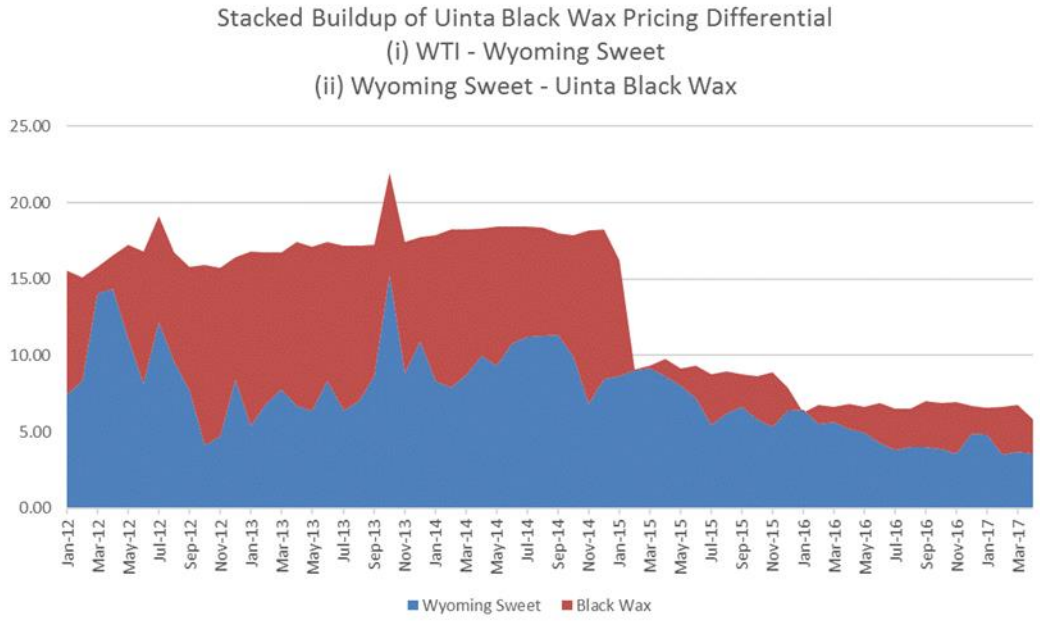
Source: Big West price bulletins. Note, no API price adjustment shown. At 32 API, this would widen the above Black Wax differentials by another $1.20/bbl

- It is because of this apparent non-responsive pricing embodied in the SLC refinery price bulletins that Uinta waxy crude oil producers sought to:
    - Sell their crude oil to SLC refiners at monthly negotiated prices instead, and;
    - Look to alternate markets to sell their crude oil. Uinta Basin producers would benefit from having their crude's value tested in other markets – in a meaningful way.
- As SLC supply agreements expire, the number of transactions done at monthly negotiated prices is expected to rise. The act of negotiating each month provides the producer some comfort that the price they receive is more market responsive.
- Thus, while refiner pricing bulletins are a bona fide offer to purchase at said price, those prices cannot purport to represent the pricing of all, or even the majority of, the Uinta Basin crude oil sold to SLC refiners.
- Anecdotal evidence suggests that monthly negotiated prices range from $1 to $4 per barrel higher than published refiner pricing bulletin prices.

2.4 Comparison of Uinta Basin and Wyoming Sweet Price Discounts

- An alternate approach to examination of the Uinta Basin quality discount is to contrast the Uinta Basin pricing with a nearby crude oil that is close to WTI in quality.
- Wyoming Sweet crude oil (37 API & 0.3% sulphur) is similar to WTI. Since WTI has an API of 40 API, the Wyoming Sweet quality discount should be $0.50/bbl, at most.
- The Energy Information Administration (EIA) publishes actual market transactions for Wyoming Sweet. The calculated WTI less Wyoming sweet differentials (blue area in Figure 3) are essentially a Wyoming versus Cushing location differential.
- Accepting that Wyoming and Utah location differentials vis-a-vis WTI are similar, the graph indicates that during the high price era of 2012-2014, half of the WTI less Uinta Black Wax pricing differential could be explained by a location discount and half because of quality considerations.

Figure 3: Uinta Basin Crude Oil Price Discount Analysis



Sources: EIA for Wyoming Sweet prices; Big West price bulletins for Uinta black wax

- Since the fall in WTI, price differentials for both Wyoming Sweet and Uinta Black Wax have narrowed. Now, nearly three quarters of the WTI less Uinta Black Wax pricing differential can be explained by a location adjustment, the remaining one quarter because of quality.
- Since January 2016, that quality differential between Wyoming Sweet and Uinta Black Wax averaged $2.17/bbl. Since SLC refiner price bulletins also adjust prices down for API less than 40, it is appropriate to subtract $1.20/bbl (40 API minus 32 API times $0.15).
- Therefore, excluding location discounting, the best approximation of the current Uinta Basin Black Wax quality discount is $3.37/bbl = $2.17 + $1.20.

- Either way, the significant discounting of Uinta Black Wax crude oil prices because of location and quality merits the testing of its value in alternate markets.

2.5 Refiner Perspectives

- The following refining backgrounder on desirability of Uinta Basin black waxy crude oil, explains advantages and potential disadvantages.

Uinta Crude Oil Advantages

- Less low octane naphtha and a higher proportion of good quality gas oil content in Uinta Basin waxy crude oil versus other sweet grades.
- Uinta waxy is well suited to hydroprocessing, particularly hydrocracking. When hydrocracked, a refiner will see a roughly 25% volume increase when cracking Uinta crude oil.
- No deleterious nitrogen, metals, acids, or sulphurs.
- Cetane index of diesel fraction is 68.5, well above the minimum requirement of 40.0 to make ultra-low sulphur diesel.
- Very good for production of base oil for manufacture of lubricants.
- Residuum is suitable for anode grade coke due to low metals content.
- 64 refineries in the continental U.S. have the capability to run some Uinta Basin waxy crudes, not considering rail offload capability.
- Including SLC, 18 of those 64 locations are relatively close to the proposed Price River crude rail load terminal – less than 1,000 mile rail trip.
- Three of those plants are large scale California based refineries.
- Belying their small scale, SLC refiners are relatively complex facilities well-suited to process waxy crude. This comes from these refiners making significant capital investment to upgrade their process infrastructure.

Uinta Crude Oil Disadvantages

- Uinta waxy crudes are non-fungible, meaning there are no ready substitutes. This is because of Uinta crude's unique storage and transportation logistics requirements. In contrast, many U.S. crude oil streams are fungible, meaning that oil of different grades or points of origin are largely interchangeable.
- Resulting from small stream size, the Uinta waxy crude oils are also a relatively illiquid crude grade making price discovery difficult.
- In an effort to recoup their investments, SLC refiners exploit these above attributes and pay producers only what they need to in order to prevent Uinta Basin crudes from leaving the state.
- 15 out of the 18 close proximity refineries capable of running some Uinta Basin waxy crudes are disproportionately smaller than the 46 more distant refining locations.
- Half of the close proximity refineries are in California, a region especially hostile to receipt of crude oil by rail:
    - Tesoro's Martinez plant is no longer to receive crude by rail after Kinder Morgan mothballed their Richmond rail offload terminal.
    - Phillips 66 and Valero's San Francisco based refineries have both been denied permits to construct crude by rail offload terminals.

- High pour point owing to high wax content – 46 wt % on whole crude basis.
  - Eagle Ford's light tight oil wax content at 15 wt % is known to cause some refiners processing issues.
  - Other crudes comparable in API such as Louisiana Light Sweet are ~5%.
- Storage tanks need to be heated and insulated.
- Trucking requires short haul in order to avoid set up of the crude.
- Challenging crude rail logistics and handling.
  - Requires use of coil and insulated railcars
  - Like heavy crude oil, steam required at destination in. order to offload railcars carrying Uinta waxy crude.
  - Unlike with heavy crude oil, all rail rack gathering and transfer lines must also be heat traced in order to handle Uinta waxy crude.
  - It is not possible to offload Uinta Basin waxy oil and other crude oils at the same time. When the Uinta Basin waxy crude oil comes in contact with other crudes it has the potential to precipitate asphaltenes.
- Anecdotal evidence suggests a delivery commitment as high as one unit train a day may be required in order to secure a new Uinta crude by rail destination.
- Barging requires use of heated asphalt type vessels.
- Uinta Basin diesel fraction has issues meeting cloud point (crystal formation at low temperature) and pour point specifications.
- Paraffin content in naphtha cut (74%) is higher than other crude oils of similar API such as Louisiana Light Sweet or WTI (50-60%).
- Need catalytic reforming capability to reduce the high paraffin content in the naphtha and increase the octane number for the gasoline product.
- When Uinta waxy crudes are hydrocracked, additional hydrogenation is often needed to convert waxy normal paraffins to more desirable isoparaffin structures needed to meet octane specifications and satisfy gasoline environmental requirements.
- Though Uinta crude is well suited for lubricant production the total lubricants market in the US is small – out of the over 16 million bpd of U.S. refinery crude runs, less than 1% of that total refinery output is production of lubricant.

3 Alternative Markets Analysis

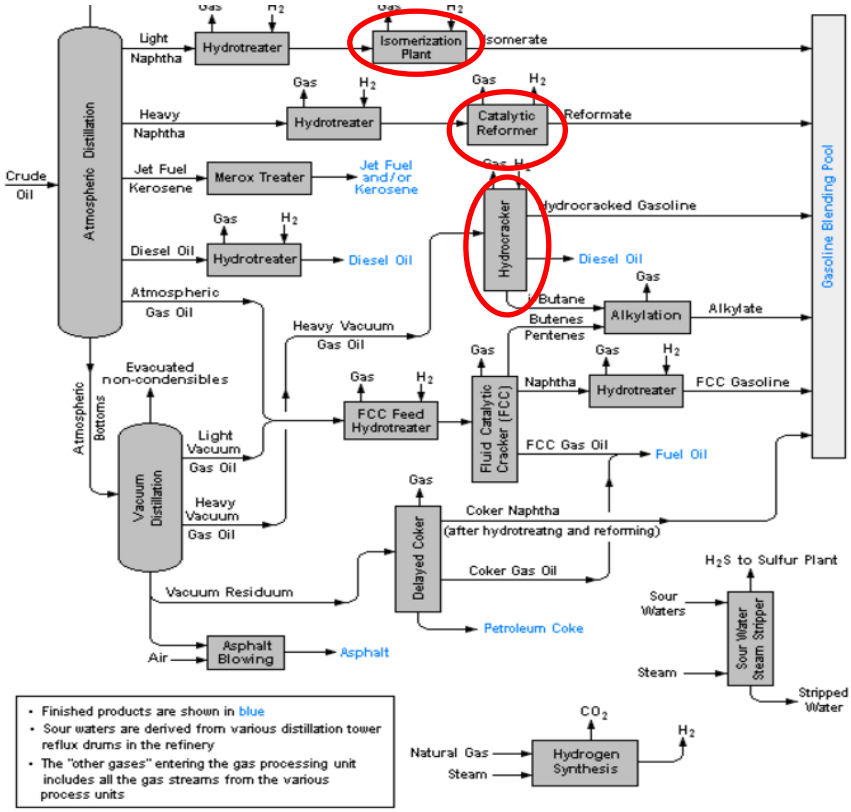
- The following documents alternate market refinery screening criteria and provides rationale for the selection of prospective alternate waxy crude oil markets.

3.1 Screening Criteria

Refinery Complexity

- Refinery complexity is a key criteria.
- Complexity is determined by the presence of one or more of the following pieces of refining hardware:
  - Catalytic reformer – high pressure – used to make refined petroleum products.
  - Fuels solvent deasphalter – used to make extracted base oil.
  - Hydrocracker – distillate, gas oil and/or residual – used to make converted base oil.
  - Lubricants production – using base oil as a feedstock.

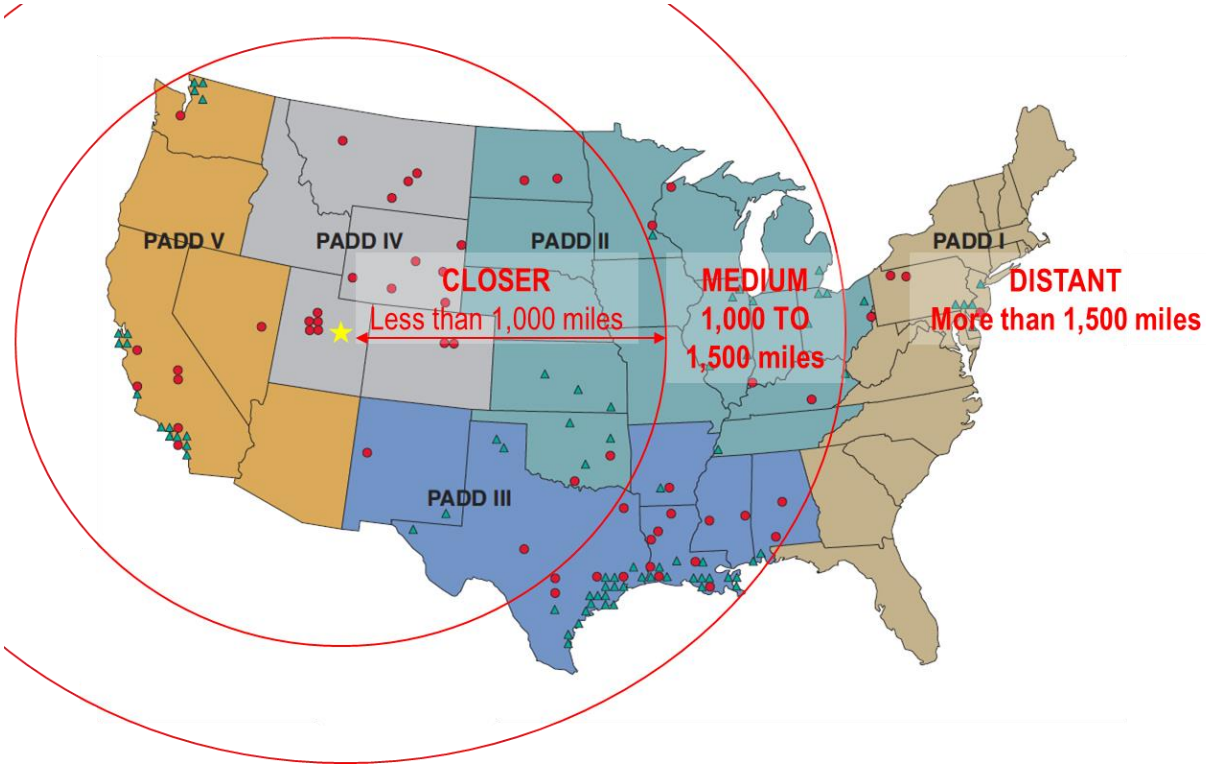
Figure 4: Refinery Hardware Important To Processing of Uinta Crude



3.1.1 Rail Distance

- Rail distance from Uinta Basin is another criteria.
- Rail distance is defined by distance from the site of the proposed Uinta crude by rail load terminal to the target refining region.
  - Closer – less than 1,000 miles.
  - Medium – between 1,000 and 1,500 miles.
  - Distant – more than 1,500 miles.
- Note: Conventional wisdom is that rail is economic only when the haul distance exceeds 400 miles.

Figure 5: Rail Distance from Uinta Basin



Source: American Fuel & Petrochemical Manufacturers website.
Yellow Star = Location of proposed Uinta crude by rail load terminal
Green Triangles = Refineries with distillation capacity greater than 75,000 barrels per day
Red Circles = Refineries that are less than 75,000 barrels per day

Refinery Scale & Rail Offload Capability

- Refinery scale, as measured by atmospheric distillation capacity is a third criteria
    - Small – less than 125,000 barrels per day.
      Examples: SLC refineries; Phillips 66 Santa Rosa, California; Calumet Shreveport, Louisiana.
    - Medium – between 125,000 and 250,000 barrels per day.
      Examples: BP Cherry Point, Washington; PBF Torrance, California; Valero St Charles, Louisiana
    - Large – more than 250,000 barrels per day.
      Examples: ExxonMobil Baton Rouge, Louisiana, Shell Deer Park, Texas; Valero Port Arthur, Texas.
- Also important is whether the refinery has crude by rail offload capability and whether or not the rail rack has the required steam capabilities.

3.2 Refiner Interviews

Interview Process

- Refiner interviews were conducted either in person, by telephone and/or via e-mail
- Purpose of the interviews was to ultimately identify:
    - Alternate market locations for Uinta waxy crude oil.
    - Rank those alternate market locations by 'Higher Priority' and 'Lower Priority'.
    - Identify refinery locations and/or regions where there is significant local opposition to receipt of crude oil by rail.
    - Identify refinery locations where Uinta waxy crude oil is NOT a good fit.
- Refiner interview questions included the following:
    - How waxy crude oils are captured in refiner linear program runs.
    - Views on prospective Uinta waxy crude oil pricing differentials vis-a-vis WTI.
    - Potential demand for Uinta crude oil.
    - Potential opportunities to blend Uinta Basin waxy crude oil with other crude oils in order to obtain a price uplift.
    - Other commercial considerations

Findings Summary

- There are nine top rated refinery targets outside the SLC refining region.
- Seven of the nine are in the USGC:

Louisiana	Calumet Shreveport ExxonMobil Baton Rouge Marathon Garyville Valero St Charles
Texas	ExxonMobil Baytown Shell Deer Park Valero Port Arthur

- The other two top rated refinery targets are both BP refineries.

Indiana	BP Whiting
Washington	BP Ferndale

- Six of the nine top rated refineries have rail offload. The three that do not are all interested in adding rail offload capability.
- There are no top rated California refineries owing to significant local opposition to crude by rail – of any kind.

In all, there are 64 refining locations with the capability of processing some Uinta waxy crude oil in meaningful quantities. See Table 8 and Table 9 in Appendix 1 for a complete list.

Refiners Interviewed

- 12 refining companies outside of the SLC area were contacted. The contacted refineries represent an aggregate distillation capacity equal to 80% of the total distillation capacity of all 64 refineries with Uinta crude processing capability.
- 10 of the 12 refiners were interviewed – BP, Calumet, ExxonMobil, Flint Hills, Marathon, PBF, Phillips 66, Shell, Sinclair, Valero.
- Uinta Basin oils are understood as a crude grade with many refiners citing their experiences in running Uinta waxy crude.
- Two of the 12 refiners did not respond – CHS and Citgo.
- One SLC refiner was contacted, Tesoro, who did not respond.

Refiner Linear Program (LP) and Pricing Perspectives

- Uinta waxy crude oil is desirable because:
  - Uinta waxy is a light crude oil.
  - Balanced distribution across the boiling range cut points.
  - No sulphur, acid, nitrogen or metals.
- However, Uinta Basin waxy crudes chew up a disproportionate amount of a refinery's catalytic reformer and hydrocracker capacities in addition to any hydrogenation capability.
- Diesel make has cloud point and pour point issues.
- The above considerations more than offset Uinta's positives.
- Uinta waxy crudes are expected to price in line with heavies such as Mayan or Western Canadian Select or at a slight discount to these grades.
- Refiners cited that running Uinta waxy would mean backing out a heavy barrel.

Potential Demand for Uinta Crude Oil

- Some refiners outside of the local SLC market area expressed skepticism about prospects for consistent supply of Uinta waxy crude deliveries by rail.
- Doubts expressed about economic viability of the proposed Myton pipeline and Price River Terminal rail load development – seen as hypothetical only.
- Belief that future Uinta Basin waxy crude oil output must outstrip SLC local refiner capabilities by a sizeable margin before it makes sense to talk about supply of Uinta waxy crude by rail.
- Most refiners felt that at today's differentials there are no economics to support rail to destinations outside of SLC.

Uinta Blending Potential

- In general, refiners have no interest in having a supplier blend crude oil on their behalf and that belief carries forward with respect to Uinta waxy crude oil.
- RBN Energy cites that using lighter hydrocarbons as a diluent, the same way that Canadian heavy crude shippers do with bitumen to make pipeline specification dilbit, does not work with waxy crudes. Chevron has pipeline transported some Uinta waxy crude oil but only when the Uinta proportion is very low – less than 5%.
- As stated previously, refiners are generally not supportive of blending activities, especially if they find that the crude oil that they purchased causes fouling in their crude preheat train and

other heat exchangers. Other paraffin related issues cited by refiners are asphaltene instability, sludge formation in the desalter, and fouling in processing equipment.

Other Commercial Considerations

- Non-fungible, illiquid grade – refiners will discount Uinta waxy because it is a more difficult feedstock to trade out when refinery crude runs do not go as planned.
- Need rail offload with steam at the refinery gate in order to take Uinta waxy crude.
  - There are only eight refineries that meet this criteria and have capability to run Uinta waxy crude.
  - In order for a refiner to construct such facilities, a unit train per day supply commitment would be required; approximately 50,000 barrels/day.
  - However, if transport capacity for Canadian heavies remains constrained, refiners may add more rail offload capacity with steam.
  - Due to asphaltene precipitation, rail offload capability is effectively sterilized for use by any other crude type while offloading Uinta Basin waxy crudes.
- Several California refiners would like to run Uinta waxy crude but there is significant local opposition to rail/trucks/barges.
- Need for a term agreement cited by many of the refiners.

3.3 Crude Trader Interviews

- Crude oil trading companies make a business of turning low value crude types into higher value crudes by blending. Cushing, OK is a major center for this type of activity.
- In order to blend at Cushing, heated and insulated tankage is needed since otherwise paraffins will form sludge, solids, and waxes in crude storage tanks and lines. Without heat, terminals handling high-wax tight oil can find as much as 5.0 feet of sludge buildup in a storage tank.
- Evidence provided by one trading company is that Uinta blend proportions of 20-25% can be routinely achieved; the resultant product achieving WTI value. There may also be potential to blend into an intermediate product like gas oil, rather than into another crude oil stream.
- A major trading company railed 6,000 barrels per day of Uinta crude oil into Cushing in 2014, 7,700 barrels per day in 2015, achieving WTI pricing for their barrels.
- Producers did not engage in this activity directly, instead selling their crude oil to the trading company in the field.
- The trading company believes that more volume could be blended in this way without issue.

3.4 Break Even WTI Prices

USGC Sale – Refiner as Customer Scenario

- When selling direct to USGC refiners, $81.10 per barrel is an estimated “break-even” WTI price by which Uinta Basin crude may be profitably shipped to those alternate markets.
- This approach reflects most typical producer behavior and their more conservative approach to crude oil commercial activities.
- Producers are generally reluctant to pursue Cushing, OK blending, leaving those activities (and their associated arbitrage risks and rewards) to crude oil trading companies.

Table 1: WTI "Break-Even" Price – USGC Sale – Refiner as Customer Scenario

WTI "BREAK-EVEN" PRICE - USGC SCENARIO
UINTA BLACK WAXY CRUDE OIL
All figures $/barrel

					Break-Even	
Market Destination	**SLC**	**USGC**	**SLC**	**USGC**	**SLC**	**USGC**
Pricing:						
WTI Case	**50.00**	**50.00**	**100.00**	**100.00**	**81.10**	**81.10**
Differential	7.90	5.75	18.44	7.42	14.46	6.79
Price at Refinery	42.10	44.25	81.56	92.58	66.64	74.31
Transport:						
Rail offload	0.50	0.67	0.50	0.67	0.50	0.67
Rail fee	1.15	8.50	1.15	8.50	1.15	8.50
Railcar lease	0.10	0.40	0.10	0.40	0.10	0.40
Rail load - Price River	0.50	0.30	0.50	0.30	0.50	0.30
Pipeline fee	2.10	2.10	2.10	2.10	2.10	2.10
Myton terminal fee	0.25	0.30	0.25	0.30	0.25	0.30
In basin trucking	1.50	1.50	1.50	1.50	1.50	1.50
Sub-total	6.10	13.77	6.10	13.77	6.10	13.77
Field Price	**36.00**	**30.48**	**75.46**	**78.81**	**60.54**	**60.54**

USGC Assumptions

- Differential for $50 WTI & SLC sale - 2016 average Big West differential + 32 API quality adjustment.
- Heavy value for Uinta crudes delivered to USGC - Mexican Maya equivalent.
- Differential for $50 WTI and USGC sale - WTI Cushing - Maya USGC = $5.75.
- Differential for $100 WTI & SLC sale - Average Big West differential 2012 through mid-2014 + 32 API adjustment.
- Differential for $100 & USGC sale
  - Used Maya USGC prices 2011 through 2014
  - Cannot use historical WTI prices from this time period because of transport congestion which no longer exists.
  - LLS did not suffer from congestion – used to create no congestion WTI
  - WTI Cushing - Maya USGC = $7.42.
- Break-even WTI differential straight line data point between $50 and $100 WTI cases.
- Bakken crude by rail all in cost from field to USGC used as reference. ~$10.00 – Fitch.
- Bakken to USGC, or Price River to USGC, same distance ~1,500 miles.
- RBN Energy estimates $12 per barrel rail only fee from Hardisty, Alberta, Canada to USGC - 2,300 miles.
- Bakken to USGC at two thirds the distance equates to ~$8.50 rail fee.
- Estimated disaggregated cost ~$10.00 = load $0.50, railcar lease $0.50, unload $0.50, rail fee $8.50.
- Rail offload at SLC per Azure of $0.50.

- Rail offload at USGC - rail offload fee estimates vary widely. RBN Energy estimates $1.50 versus a Bakken estimated offload (no steam) = $0.50. Need steam, therefore = $0.67.
- Rail fee from Price River to SLC = $1.15 per Azure. 125 miles. Much debate around whether this fee is too high / too low.
- Rail fee from Price to USGC - based on fee backed out of Bakken rail cost $8.50.
- Railcar lease for SLC deliveries $0.10 per Azure – estimate one turn every 1-2 days.
- Railcar lease for USGC deliveries will be higher because not as many turns per month = $0.40 – estimate one turn every 10-12 days.
- Fees for Price Terminal rail load, pipeline, Myton terminal, and in-basin trucking per Azure.

Cushing Sale – Trader as Blender Scenario

- When blending with other light crude oil in Cushing and selling Uinta waxy as WTI a $40.75 per barrel “break-even” WTI price is the result.
- That is to say, there is currently an advantage to the sale and blending of Uinta waxy crude oil into the Cushing market.
- It is difficult to predict how much Uinta waxy could be blended in this way, nor for how long. The trader as blender pricing scenario in this sense is not without risk.

Table 2: WTI "Break-Even" Price – Cushing Sale – Trader as Blender Scenario

WTI "BREAK-EVEN" PRICE - CUSHING WTI BLENDING SCENARIO
UINTA BLACK WAXY CRUDE OIL
All figures $/barrel

					Break-Even	
Market Destination	**SLC**	**Cushing**	**SLC**	**Cushing**	**SLC**	**Cushing**
Pricing:						
WTI Case	**50.00**	**50.00**	**100.00**	**100.00**	**40.75**	**40.75**
Differential	7.90	0.00	18.44	0.00	5.95	0.00
Blending Fee		0.58		0.58		0.58
Price at Refinery	42.10	49.42	81.56	99.42	34.80	40.17
Transport:						
Rail offload	0.50	0.67	0.50	0.67	0.50	0.67
Rail fee	1.15	6.25	1.15	6.25	1.15	6.25
Railcar lease	0.10	0.40	0.10	0.40	0.10	0.40
Rail load - Price River	0.50	0.30	0.50	0.30	0.50	0.30
Pipeline fee	2.10	2.10	2.10	2.10	2.10	2.10
Myton terminal fee	0.25	0.25	0.25	0.25	0.25	0.25
In basin trucking	1.50	1.50	1.50	1.50	1.50	1.50
Sub-total	6.10	11.47	6.10	11.47	6.10	11.47
Field Price	**36.00**	**37.95**	**75.46**	**87.95**	**28.70**	**28.70**

Cushing Assumptions

- No differential for Cushing sale as Uinta crude oil is assumed to receive WTI pricing
- Blending fee was obtained from trading company that railed into Cushing in 2014-2015.

- Price River to Cushing backed out of Bakken light crude oil rail cost as above
- Distance ~1,000 miles. Equates to $5.67 unit train rail fee
- 70 car unit trains instead of 100 due to tunnel restrictions increases rail fee by 10% = $6.25

4 Utah Oil Royalty and Tax Revenue Analysis

- Waxy crudes are, more or less, posted at a fixed discount to WTI to relatively higher production, processing, and transportation costs.
- This results in decreased tax and royalty revenues to various recipients.
- The objective was to provide stakeholders with a full understanding of the implications of historical and future waxy crude discounts on the tax and royalty streams to Federal, State, County, Tribal and other recipients

4.1 Data Sources

- Public sources in the analysis included:
  - Utah State Tax Commission; Annual Revenue Summary.
  - Utah State Legislature; Related Legislation.
  - Utah Department of Natural Resources - Division of Oil, Gas and Mining; Production Data.
  - Utah Department of Workforce Services - Housing and Community Development Division; Legislative Report of the Permanent Community Impact Fund.
  - UDOT Mineral Lease Funds; Mineral Lease Fund Distributions.
  - US Energy Information Administration; Utah Crude Oil First Purchase Price.
  - Big West Oil LLC; Crude Oil Bulletin.

4.2 Key Assumptions

- Certain assumptions were made for each revenue tool in order to guide calculations.
- **Severance Tax**
  - County and Ute Tribe receipts are capped and distributed based on research from best publicly available sources.
  - Taxable value of oil determined based on actual tax receipts as a ratio of potential receipts using the total value of oil produced.
- **Utah Conservation Fee**
  - Fair market value of oil determined based on actual tax receipts as a ratio of potential receipts using the total value of oil produced.
- **Ad-Valorem Property Tax**
  - Change in oil price is assumed to carry through re-assessments of future production values in assigning property values.
  - Fair market value of oil determined based on actual tax receipts as a ratio of potential receipts using the total value of oil produced.
- **Mineral Lease Funds**
  - Community Impact Board (CIB) receipts estimated at a total of 46.5% of state revenues based on FY 2016 CIB revenue data (includes 32.5% of mineral lease royalty money and 70% of bonus).

- **Royalty Payments**
  - Royalty amounts were based on weighted average percentages from various sources: 12.5% Federal (of which 49% disbursed to State), 14% State, 18% Tribal, and 15% Private.

4.3 Fiscal Impact Calculator

- The calculator developed allows a user to view, in monetary terms, the revenue impact arising from changes to pricing and production.
- Tax and royalty rates, as well as revenue allocation inputs can be modified
- A dollar change in the waxy crude discount to WTI results in a +/- $6.2M impact.

Figure 6: Fiscal Impact Calculator Dashboard

Calculator Instructions

All user inputs are marked in blue font
1) Modify custom values under 'Inputs' below
2) Adjust tax rates, royalty rates, and revenue allocation allocation inputs in the 'Revenue Allocation' tab

Inputs

Variables	2015 Actuals	Custom Inputs
Pricing ($/bbl)		
Wtd. Avg. Wax Crude Prices	$38.66	$39.66
Avg. WTI Price	$48.66	$48.66
Discount vs. WTI	$10.00	$9.00
Production (bopd)		
Duchesne County	46,887	46,887
Uintah County	34,937	34,937
Uinta Basin	**81,824**	**81,824**

2014-2015 Discounts were much higher than recent 2016 priced with discounts around $5-7

Key Assumptions

Severance Tax

* County and Ute Tribe receipts are capped and distributed based on research from sources including the "Performance Audit on the Use of Mineral-Related Funds in Uintah Basin" carried out for Utah Legislature in 2008.

* Taxable value of oil determined based on actual tax receipts as a ratio of potential receipts using the total value of oil produced.

Utah Conservation Fee

* Fair market value of oil determined based on actual tax receipts as a ratio of potential receipts using the total value of oil produced.

Ad-Valorem Property Tax

*Change in oil price is assumed to carry through re-assessments of future production values in assigning property values.

* Fair market value of oil determined based on actual tax receipts as a ratio of potential receipts using the total value of oil produced.

Mineral Lease Funds

*CIB receipts estimated at a total of 46.5% of state revenues based on FY 2016 CIB revenue data (includes 32.5% of mineral lease royalty money and 70% of bonus).

Royalty Payments

* Royalty amounts were based on weighted average percentages from various sources: 12.5% Federal (of which 49% disbursed to State), 14% State, 18% Tribal, and 15% Private.

Results - Revenues Attributable to Uinta Basin Crude Oil Production

Revenues by Recipient	Revenues ($M) at 2015 $10.00 Price Discount	Revenues ($M) at a $9.00 Price Discount	Revenue Impact ($M) from a $1.00 Change in Discount
Severance Tax			
Duchesne County	$1.36 M	$1.36 M	+$0.00 M
Uintah County	$1.36 M	$1.36 M	+$0.00 M
Ute Tribe	$1.75 M	$1.75 M	+$0.00 M
State of Utah	$13.90 M	$14.44 M	+$0.54 M
Total	**$18.37 M**	**$18.91 M**	**+$0.54 M**
Utah Conservation Fee			
Utah DOGM	$2.00 M	$2.05 M	+$0.05 M
Total	**$2.00 M**	**$2.05 M**	**+$0.05 M**
Ad-Valorem Property Tax			
Duchesne County	$12.68 M	$13.01 M	+$0.33 M
Uintah County	$14.72 M	$15.10 M	+$0.38 M
Total	**$27.40 M**	**$28.11 M**	**+$0.71 M**
Mineral Lease Funds			
Duchesne County	$3.90 M	$4.00 M	+$0.10 M
Uintah County	$7.51 M	$7.71 M	+$0.19 M
Community Impact Board	$19.64 M	$20.14 M	+$0.51 M
State of Utah and State Agencies	$11.16 M	$11.45 M	+$0.29 M
Total	**$42.21 M**	**$43.31 M**	**+$1.09 M**
Royalty Payments			
Federal Government	$27.09 M	$27.79 M	+$0.70 M
State of Utah	$9.96 M	$10.21 M	+$0.26 M
Ute Tribe	$71.01 M	$72.85 M	+$1.84 M
Private	$39.62 M	$40.65 M	+$1.02 M
Total	**$147.68 M**	**$151.50 M**	**+$3.82 M**

Total Revenues			
Federal Government	$27.09 M	$27.79 M	+$0.70 M
State of Utah	$35.01 M	$36.10 M	+$1.09 M
Duchesne County	$17.94 M	$18.37 M	+$0.43 M
Uintah County	$23.59 M	$24.17 M	+$0.58 M
Ute Tribe	$72.76 M	$74.60 M	+$1.84 M
Utah DOGM	$2.00 M	$2.05 M	+$0.05 M
Community Impact Board	$19.64 M	$20.14 M	+$0.51 M
Private	$39.62 M	$40.65 M	+$1.02 M
Total	**$237.66 M**	**$243.88 M**	**+$6.22 M**

5 Analysis of the Social Cost of Crude Oil Transportation Alternatives

- The objective was to estimate the financial and social cost of crude oil transportation in Utah for each supply chain alternative.
- Alternatives considered include:

1) The current, "***truck-only***" supply chain defined by:
    a. Trucking crude oil an average of 150 miles from the Uinta Basin to SLC refineries.
2) Proposed "***truck-pipe-rail-pipe***" supply chain described as:
    a. Truck crude oil an average of 20 miles from the Uinta Basin to the Myton Pipeline header.
    b. Transload from truck to pipeline.
    c. Pipe 61 miles from the Myton Terminal to the Price River Rail Terminal.
    d. Transload from pipeline to rail.
    e. Transport crude via rail 125 miles from the Price River Rail Terminal to the SLC Rail Terminal/Refinery Pipeline header then transload to pipe.
    f. Pipe an average of 3.2 miles from the SLC Terminal to various SLC refineries.

- The following impact categories were monetized in the public benefit-cost analysis:

    - ***Pavement maintenance cost savings*** from reduced truck movements.
    - ***Improved safety and avoided accident costs*** from diverting trucks to pipeline and rail.
    - ***Reduced truck operating costs*** from reduced truck movements.
    - ***Truck congestion cost savings*** from reduced truck movements.
    - ***Emission cost savings*** from diverting trucks to pipeline and rail/
    - ***Travel time impacts*** from diverting trucks to pipeline and rail.
    - ***Shipper cost impacts*** arising from an increase in transportation cost for the proposed "truck-pipe-rail-pipe" supply chain, and;
    - ***Pipeline land degradation impacts*** due to pipeline implementation.

5.1 Key Assumptions

Table 2: Key Assumptions for Benefit-Cost Analysis

Variable Name	Unit	Source
Avg. Cost of Shipping Crude Oil to SLC by Truck	$5.00/bbl	Producer interviews
Avg. Cost of Shipping Crude Oil to SLC via "Truck-Pipe-Rail-Pipe"	$6.11/bbl	Provided by project proponent and validated through interviews
Avg. Truck Crude Oil Capacity	285 bbl/truck	HDR estimate
Avg. Rail Car Crude Oil Capacity	600 bbl/railcar	HDR estimate assuming 286K coiled, insulated tank cars
Avg. Rail Cars per Train	100 railcars /train	HDR estimate assuming unit crude oil trains of 120 cars and average load of mixed manifest freight trains of 80 cars
Pipeline Capacity	70 mbd	Provided by project proponent
Estimated Pipeline ROW Width	50 ft	HDR assumption

5.2 Results

Detailed Project Impacts

Table 3: Benefit-Cost Analysis Results by Impact Category

NPV Over 40 Years of Operations ($M 2016)	Undiscounted	3%	7%
Pavement Maintenance Costs Savings from Reduced Truck Movements	$340	$178	$89.70
Improved Safety and Avoided Accident Costs from Diverting Trucks to Pipeline and Rail	$753	$379	$183
Reduced Truck Operating Costs from Reduced Truck Movements	$436	$227	$114
Truck Congestion Cost Savings from Reduced Truck Movements	$111	$58.20	$29.40
Emission Cost Savings from Diverting Trucks to Pipeline and Rail	$108	$56.90	$51.60
Travel Time Impacts From Diverting Trucks to Pipeline and Rail	$486	$254	$128
Capital Costs	($250)	($231)	($208)
Total Incremental O&M Costs	($624)	($327)	($166)
Pipeline Land Degradation Impacts	($4.04)	($2.13)	($1.10)
Shipper Cost Impacts	($246)	($214)	($155)
Net Present Value	**$1,109**	**$378**	**$65.70**

- The majority (31%) of all cost savings arise from improved safety and avoided accident costs
- Other key impacts include travel time impacts (22% of total) and reduced truck operating costs (19% of total).

Project Costs

Table 4: Project Capital, Operations, and Maintenance Costs

Total Capital Expenditures (CAPEX) - $M 2016	
Snowboard Pipeline	$107
Myton Facility	$49.80
Price River Terminal (PRT) Facility	$30.70
Salt Lake City (SLC) Terminal Facility	$44.80
Pipeline Header Infrastructure	$18.10
Total CAPEX	**$250**
Annual Operations and Maintenance Expenditures (OPEX) - $M 2016	
Snowboard Pipeline	$1.80
Myton Facility (Including Transloading)	$1.50
PRT Facility (Including Transloading)	$1.08
SLC Rail Terminal/Refinery Pipeline Header (Including Transloading)	$1.62
Railroad	$9.81
Total OPEX	**$15.80**

- The top three CAPEX items are the Snowboard Pipeline (42.8% of total), Myton Facility (19.9% of total), and the SLC Terminal Facility (17.9% of total)
- Similarly, the top OPEX items include Railroad (62.0% of total), Snowboard Pipeline (11.4% of total), and the SLC Rail Terminal/Refinery Pipeline Header (10.2% of total)

Benefit-Cost Analysis

Table 5: Benefit-Cost Analysis Results

Millions of 2016$	**7% Discount Rate**	**3% Discount Rate**
Total Discounted Benefits	$596	$1,152
Total Discounted Costs	$530	$774
Net Present Value	**$65.7**	**$378**
Benefit Cost Ratio	1.12	1.49
Internal Rate of Return (%)	8.16%	
Payback Period (years)	14.7	

- At a 7% discount rate, the project results in a net benefit of $65.7 million from a societal standpoint and informs a Benefit-Cost Ratio (BCR) of 1.12.
- The payback period is approximately 14.7 years, while the Internal Rate of Return (IRR) is estimated at 8.16%.

Pertinent Quantified Project Impacts

- To provide additional insight into project outcomes, quantified (non-monetized) impacts were estimated as provided in Table 3.
- Shipments by rail are associated with lower levels of emissions, apart from SO_2.

Table 6: Pertinent Quantified Impacts over the 40 Year Study Period

Project Life Cycle Impact	
Truck-miles Diverted from Public Roads to Rail	915M miles
Reduced Truck Travel Time	18.3M hours / 2088 days
Avoided CO_2 Emissions	1,346,063 tons
Avoided NO_x Emissions	645 tons
Avoided VOC Emissions	29 tons
Avoided $PM_{2.5}$ Emissions	55 tons
Increase in SO_2 Emissions	48 tons
Fatalities Avoided by Diverting Trucks from Public Roads to Rail	42 fatalities
Injuries Avoided by Diverting Trucks from Public Roads to Rail	1030 injuries

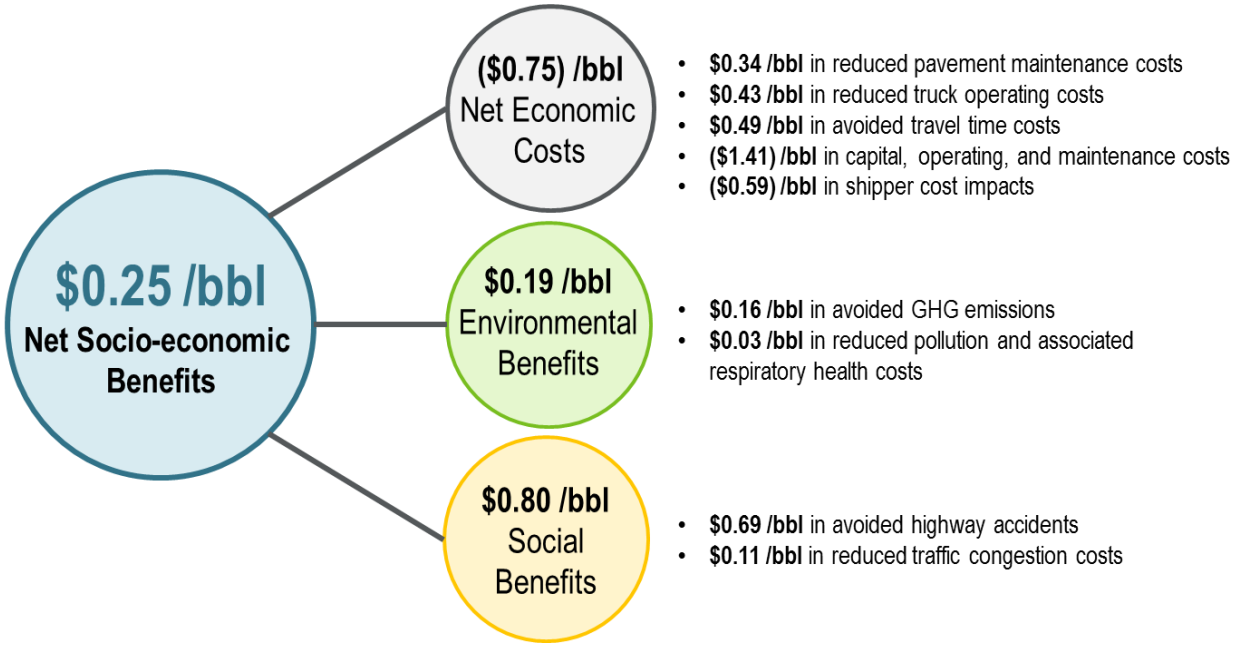
5.3 Levelized Impacts

- Levelized impacts represent project outcomes on a per-barrel-of-oil basis in today's dollars, capturing the full life cycle impacts of the project.

Table 7: Benefit-Cost Analysis Levelized Results per Barrel Transported

Impact - 2016 $/bbl	No-Build	Build	Net Benefits
Capital, O&M Costs	$0.00	$1.41	($1.41)
Pavement Maintenance Costs	$0.39	$0.05	$0.34
Truck Operating Costs	$0.50	$0.07	$0.43
Travel Time Impacts	$0.58	$0.09	$0.49
Shipper Cost Impacts	$5.52	$6.11	($0.59)
Total Economic Impacts	**$6.99**	**$7.73**	**($0.75)**
Greenhouse Gas (GHG) Impacts	$0.29	$0.13	$0.16
Criteria Air Contaminant (CAC)/ Respiratory Health Impacts	$0.08	$0.05	$0.03
Total Environmental Impacts	**$0.37**	**$0.18**	**$0.19**
Safety and Accident Impacts	$0.91	$0.22	$0.69
Traffic Congestion Impacts	$0.13	$0.02	$0.11
Land Degradation Impacts	$0.00	$0.00	$0.00
Total Social Impacts	**$1.04**	**$0.24**	**$0.80**
Total Socio-Economic Levelized Impacts	**$8.40**	**$8.15**	**$0.25**

Figure 7: Levelized Socio-economic Impacts



Appendix 1

Table 8: Refinery Targets

Refiner	Location	State	Atmospheric Distillation	Catalytic Reforming High Pressure	Fuels Solvent Deasphalting	Distillate Hydro-cracking	Gas Oil Hydro-cracking	Residual Hydro-cracking	Total Hydro-cracking	Lubricant Capacity	Potential Products Produced From Running Uinta Basin Waxy Crude	Distance from Uinta basin	Scale	Distance	Rail Offload	Steam Capability	Notes
Salt Lake City Refineries - Presently Served by Trucks																	
Big West Oil	North Salt Lake	Utah	32,000	8,500					-		RPPs	124	Small	Closer	N	N	
Chevron	Salt Lake City	Utah	56,000	8,500					-		RPPs	119	Small	Closer	N	N	
HollyFrontier	Woods Cross	Utah	26,400	8,400	6,000		9,000		9,000		RPPs, Extracted Base Oil, Converted Base Oil	126	Small	Closer	N	N	
Tesoro	Salt Lake City	Utah	63,000	11,400					-		RPPs	119	Small	Closer	N	N	
			177,400	**1%**													
Top-Ranked Alternate Market Locations																	
BP Cherry Point	Ferndale	Washington	236,000				65,000		65,000		Converted Base Oil	1,048	Medium	Medium	Y	N	May be difficult to reconfigure rail rack to add steam - designed for Bakken offload
BP Products	Whiting	Indiana	430,000	65,000					-		RPPs	1,347	Large	Medium			Considering rail rack with steam for offload of Canadian underdiluted bitumen blend
Calumet Specialty Products	Shreveport	Louisiana	60,000						-	12,500	Base Oil User	1,310	Small	Medium	Y	Y	Uinta yellow wax is an approved crude. Shreveport will NOT take in black wax crude.
ExxonMobil	Baton Rouge	Louisiana	523,200			27,000			27,000	16,500	Converted Base Oil, Base Oil User	1,581	Large	Distant	Y	Y	Genesis Energy Terminal, Baton Rouge 60,000 bbls/d
ExxonMobil	Baytown	Texas	584,000		47,000	29,500			29,500	28,000	Extracted Base Oil, Converted Base Oil, Base Oil User	1,412	Large	Medium	N		Better fit from refinery perspective than Baton Rounge, but have not created rail offload capability at Baytown
Marathon Petroleum	Garyville	Louisiana	574,000		38,000		117,000		117,000		Extracted Base Oil, Converted Base Oil	1,622	Large	Distant	N	N	Proposed Pinoak terminal in Garyville would be a potential fit.
Shell / PEMEX	Deer Park	Texas	340,000	24,500			60,000		60,000		RPPs, Converted Base Oil	1,338	Large	Medium	Y	Y	Kinder Morgan Deer Park rail terminal is immediately to the west of the refinery site.
Valero	Port Arthur	Texas	415,000				123,000		123,000		Converted Base Oil	1,475	Large	Medium	Y	Y	Rail offload at Valero's Lucas terminal in Beaumont
Valero	St Charles	Louisiana	220,000			28,000	70,000		98,000		Converted Base Oil	1,640	Medium	Distant	Y	Y	30,000 bbls/d rail offload at the refinery.
			3,382,200	**24%**													
Lower-Ranked Alternate Market Locations																	
Marathon Petroleum	Catlettsburg	Kentucky	292,000	31,000	13,000				-		RPPs, Extracted Base Oil	1,654	Large	Distant	N	N	
Marathon Petroleum	Galveston Bay	Texas	481,000		17,000	69,000		75,000	144,000		Extracted Base Oil, Converted Base Oil	1,439	Large	Medium	N	N	
PBF	Paulsboro	New Jersey	166,000						-	12,000	Base Oil User	2,091	Medium	Distant	Y	N	No rail at Paulsboro refinery, but can rail to PBF's Delaware City refinery and barge the oil to Paulsboro.
PBF	Delaware City	Delaware	190,200				22,300		22,300		Converted Base Oil	2,093	Medium	Distant	Y		70,000 bbls/d rail offload servicing PBF's Delaware City and Paulsboro refineries
PBF	Toledo	Ohio	188,000	51,800		52,000			52,000		RPPs, Converted Base Oil	1,636	Medium	Distant			
Phillips 66	Linden (Bayway)	New Jersey	251,000		22,000				-		Extracted Base Oil	2,106	Large	Distant	Y		75,000 bbls/d rail offload
Motiva	Port Arthur	Texas	635,000				82,000		82,000	39,000	Converted Base Oil, Base Oil User	1,475	Large	Medium	Y	N	Have own rail offload? Can be served by Jefferson (Beaumont) or GT Logistics (Port Arthur) rail terminals
Motiva	Norco (St Charles)	Louisiana	250,000				44,000		44,000		Converted Base Oil	1,640	Large	Distant			Potential rail service by IMTT (St Rose), LBC (Geismar), EnLink (St Gabriel)
Motiva	Convent	Louisiana	255,000	40,000				52,000	52,000		RPPs, Converted Base Oil	1,617	Large	Distant			Potential rail service by IMTT (St Rose), LBC (Geismar), EnLink (St Gabriel)
Valero	Corpus Christi	Texas	300,000	10,000			50,000		50,000		RPPs, Converted Base Oil	1,406	Large	Medium	Y		Trafigura Terminal in Corpus Christi 30,000 bbls/d offload
Valero	Ardmore	Oklahoma	88,000			14,000			14,000		Converted Base Oil	1,065	Small	Medium	Y		Sovereign Development rail offload in Ardmore 40,000 bbls/d offload
Valero	Meraux	Louisiana	128,000		22,000		48,700		48,700		Extracted Base Oil, Converted Base Oil	1,667	Medium	Distant			Potential rail service by IMTT (St Rose), LBC (Geismar), EnLink (St Gabriel)
Valero	Sunray	Texas	172,000	18,000	14,500		27,000		27,000		RPPs, Extracted Base Oil, Converted Base Oil	745	Medium	Closer			
Valero	Memphis	Tennessee	195,000			28,500			28,500		Converted Base Oil	1,499	Medium	Medium			
Valero	Texas City	Texas	231,000		33,500				-		Extracted Base Oil	1,402	Medium	Medium			
Valero	Houston	Texas	103,000		18,000	71,900			71,900		Extracted Base Oil, Converted Base Oil	1,389	Small	Medium			
Valero	Three Rivers	Texas	91,000	10,000	10,500		28,000		28,000	1,900	RPPs, Extracted Base Oil, Converted Base Oil, Base Oil User	1,337	Small	Medium			
			4,016,200	**29%**													

Table 9: Refinery Targets Cont'd

California Refineries - Significant Local Opposition to Crude Oil by Rail																
Chevron	El Segundo (LA)	California	290,500				53,200		53,200		Converted Base Oil	689	Large	Closer			Q's: Offload at Plains terminal in Taft, CA, ~30 miles S of Bakersfield? Could oil then go into San Joaquin Valley p/l for delivery to LA area refiners?
Chevron	Richmond (SF)	California	257,200		56,000		103,400		103,400	34,000	Extracted Base Oil, Converted Base Oil, Base Oil User	836	Large	Closer	N	N	No rail potential. Nearby Kinder Morgan Richmond crude by rail terminal mothballed. Formerly served Tesoro.
PBF	Torrance (LA)	California	157,800	18,000		23,000			23,000		RPPs, Converted Base Oil	688	Medium	Closer	Y	N	Q's: Offload at Plains terminal in Taft, CA, ~30 miles S of Bakersfield? Could oil then go into San Joaquin Valley p/l for delivery to LA area refiners?
Phillips 66	Santa Rosa	California	44,500						-			795	Small	Closer	Y	Y	SRosa processes CA heavies into intermediates piped to Rodeo (SF). Have railed black wax to Delta offload facility in Paloma and trucked from there
Phillips 66	Wilmington (LA)	California	147,000	36,200		27,500			27,500		RPPs, Converted Base Oil	764	Medium	Closer	Y	N	Q's: Offload at Plains terminal in Taft, CA, ~30 miles S of Bakersfield? Oil can then go into San Joaquin Valley p/l into LA area refiners?
Phillips 66	Rodeo (SF)	California	128,000	34,000			65,000		65,000		RPPs, Converted Base Oil	843	Medium	Closer	N	N	Phillips 66 denied refinery based crude offload facility by San Luis Obispo commission. Potential to rail & barge to refinery
Shell Oil Products	Martinez (SF)	California	158,000			42,300			42,300		Converted Base Oil	842	Medium	Closer	N	N	Nearby Kinder Morgan Richmond crude by rail terminal mothballed. Formerly served Tesoro.
Tesoro	Carson (LA)	California	276,000	43,000		55,000			55,000		RPPs, Converted Base Oil	764	Large	Closer	Y	N	Q's: Offload at Plains terminal in Taft, CA, ~30 miles S of Bakersfield? Could oil then go into San Joaquin Valley p/l for delivery to LA area refiners?
Tesoro	Wilmington (LA)	California	107,000	33,000		10,000	23,000		33,000		RPPs, Converted Base Oil	764	Small	Closer	Y	N	Q's: Offload at Plains terminal in Taft, CA, ~30 miles S of Bakersfield? Could oil then go into San Joaquin Valley p/l for delivery to LA area refiners?
Tesoro	Martinez (SF)	California	170,000				37,000		37,000		Converted Base Oil	842	Medium	Closer	N	N	Nearby Kinder Morgan Richmond crude by rail terminal mothballed. Formerly served Tesoro.
Valero	Benicia (SF)	California	149,000	37,200		34,000			34,000		RPPs, Converted Base Oil	840	Medium	Closer	N	N	Valerio denied refinery based crude offload facility by Benicia city council. Kinder Morgan Richmond crude by rail terminal mothballed
			1,885,000	**13%**													
Refinery Locations Where Uinta Crude is NOT a good fit																
BP-Husky Refining	Toledo	Ohio	160,000				31,000		31,000		Converted Base Oil	1,636	Medium	Distant	N	N	Not considering rail at Toledo
ExxonMobil	Beaumont	Texas	359,200			65,500			65,500	10,000	Converted Base Oil, Base Oil User	1,435	Large	Medium	Y	Y	XOM says this refinery not a good fit with Uinta. Rail offload available at Jefferson's crude by rail terminal across Neches River.
Fint Hills Resources	Corpus Christi	Texas	304,000			15,000			15,000		Converted Base Oil	1,406	Large	Medium			Trafigura Terminal in Corpus Christi 30,000 bbls/d offload
Fint Hills Resources	St Paul	Minnesota	339,000	13,800		50,000			50,000		RPPs, Converted Base Oil	1,321	Large	Medium			
Marathon Petroleum	Robinson	Illinois	225,000				38,000		38,000		Converted Base Oil	1,349	Medium	Medium	N	N	
Shell Oil Products	Anacortes	Washington	149,000	21,700					-		RPPs	1,030	Medium	Medium			Shelved plans for Anacortes refinery crude by rail offload in October 2016
Sinclair	Rawlings	Wyoming	90,000	14,500		15,600			15,600		RPPs, Converted Base Oil	340	Small	Closer			No crude by rail facilities. Prefer heavy sour crude diet. Does not run Uinta.
			1,626,200	**12%**													
Others - Not Evaluated or Rated																
Chevron	Pascagoula	Mississippi	360,000	34,000			117,500		117,500	25,000	RPPs, Converted Base Oil, Base Oil User	1,764	Large	Distant			Rail is nearby, short line MSE
CHS	McPherson	Kansas	89,000				38,500		38,500		Converted Base Oil	871	Small	Closer			
Citgo Petroleum	Lake Charles	Louisiana	440,000	53,200			47,400		47,400		RPPs, Converted Base Oil	1,492	Large	Medium	Y		20,000 bbls/d rail offload
PDV Midwest Refining	Lemont	Illinois	185,200	34,900					-		RPPs	1,321	Medium	Medium			
CVR	Wynnewood	Oklahoma	75,000		4,850		18,200		18,200		Extracted Base Oil, Converted Base Oil	1,049	Small	Medium			
Delek Refining	El Dorado	Arkansas	85,000		7,400				-		Extracted Base Oil	1,345	Small	Medium	Y	Y	25,000 bbls/d of light crude oil offload; or up to 12,000 bbls/d of heavy crude oil offload
HollyFrontier	El Dorado	Kansas	141,000	23,500					-		RPPs	936	Medium	Closer	Y		Savage Services transload to HollyFrontier 20,000 bbls/d
HollyFrontier	Tulsa West	Oklahoma	90,000						-	10,000	Base Oil User	1,097	Small	Medium	Y		
Hunt Refining	Tuscaloosa	Alabama	40,000				18,500		18,500		Converted Base Oil	1,728	Small	Distant	Y		$11 million crude by rail project announced in 2012
Monroe Energy	Trainer	Pennsylvania	208,000			23,000			23,000		Converted Base Oil	2,139	Medium	Distant	Y		Via barge from Enbridge's Eddystone rail terminal
Phillips 66	Ponca City	Oklahoma	218,747	53,593					-		RPPs	1,008	Medium	Medium			
Phillips 66 Excel Paralubes	Westlake	Louisiana					43,000		43,000	30,000	Converted Base Oil, Base Oil User	1,490	Small	Medium			Joint venture between Flint Hills Resources and Phillips 66
Phillips 66 WRB	Wood River	Illinois	330,000				54,000		54,000		Converted Base Oil	1,217	Large	Medium			
Philadelphia Energy Solutions	Philadelphia	Pennsylvania	355,000	86,000					-		RPPs	2,131	Large	Distant	Y		
Total Petrochem & Refining	Port Arthur	Texas	245,000		15,500				-		Extracted Base Oil	1,475	Medium	Medium	Y	Y	Can be served by Jefferson (Beaumont) or GT Logistics (Port Arthur) rail terminals
Western Refining	St Paul Park	Minnesota	97,800	24,500					-		RPPs	1,321	Small	Medium			
			2,959,747	**21%**													
Total Refining Capacity			**14,046,747**	**100%**													

Proposed Railway Access to the Uinta Basin: A Reassessment

Six County Infrastructure Coalition

Uinta Basin Rail Report

August 19, 2016

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1 Executive Summary

1.1 Background

This document describes a high-level reassessment of the potential capital cost, traffic and revenue, and operating income of constructing a standard-gauge, freight-only rail line into the Uinta Basin of northeast Utah. This new rail line would connect the basin to the national rail network, allow movement of trains from the national network into and out of the basin, and potentially reduce freight transportation costs for shippers and receivers in the basin. This reassessment builds on work conducted for the Utah Department of Transportation (UDOT) in 2015 that investigated the feasibility of constructing a rail line (the Uinta Basin Railroad, or UBRR) into the Uinta Basin. To differentiate from the previous study, this new rail line is named the Uinta Basin Railway (UBRY).

The elements of this reassessment are:

1. A brief description of potential structures for financing, owning, operating, and maintaining a new rail line; the regulatory requirements for construction and operation; and a potential sequential pathway for implementation of the rail line
2. Development of new rail alignments and operating and construction criteria with the goal of achieving the least feasible construction cost commensurate with reasonable operation and maintenance costs
3. Selection of a single alignment that best fits the criteria
4. Development of new construction cost estimates based on the new best-fit alignments
5. Reassessment of likely freight traffic the rail line would carry, based on the prior work for UDOT
6. Development of a high-level income statement for the rail line showing its ability to pay for its construction, operation, maintenance, and financing costs

The major difference in this reassessment, compared to the prior UBRR study, is that the rail line was relocated to connect with the national rail network near Craig, Colorado, instead of near Soldier Summit, Utah, and to run westward from Craig into the Uinta Basin instead of northeast from Soldier Summit. This change was made in order to reduce construction cost; it eliminates an approximately 9-mile-long tunnel and considerable earthwork in Indian Creek Canyon southwest of Duchesne, Utah.

Three different western termini were considered for the extended UBRY rail line that begins at Craig: near Jensen, near Roosevelt, and near Duchesne. The length of the new rail line would be about 107 miles, 135 miles, or 178 miles, respectively. The rationale for terminating the rail line at Jensen or Roosevelt instead of Duchesne is that the goods and commodities that would likely the rail line are highly dispersed in the Uinta Basin. Regardless of where the rail line terminates, a truck haul would be necessary between the rail line and the location where the freight originates or terminates for almost all of the freight that is likely to be hauled by the rail line. The cost to construct the additional rail line length from Jensen to Roosevelt might not be recoupable either by

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additional volume of freight tendered to the railroad or in economies of transportation cost that could be captured by the railroad in the form of higher rates charged to shippers.

The net result of the UBRY rail line is a substantially reduced capital cost than what was previously estimated in the UBRR study. Depending on how deeply into the Uinta Basin the rail line penetrates, the capital cost would range from $769 million to $1,408 million (for a capital cost breakdown, see Appendix A), inclusive of contractor mobilization, design, permitting, construction management, right-of-way acquisition, and a 25% contingency. The range of construction cost depends on the rail line's length, as follows:

- Craig to Jensen: $768,658,755
- Extension from Jensen to Roosevelt: $265,956,690 additional
- Extension from Roosevelt to Duchesne: $373,420,100 additional

For comparison, the capital cost estimate in the UBRR study was $2.955 billion.

Constructing the rail line from Craig to Jensen would substantially reduce truck hauls that currently are required to move freight between the national rail network and locations where commodities and goods are produced or consumed in the Uinta Basin. At present, truck hauls ranging from 100 to 170 miles are required between the Uinta Basin and shipping points on the national rail network at Salt Lake City, Ogden, and Price, Utah; Rock Springs, Wyoming; and Craig, Colorado. Constructing the UBRY line to Jensen would reduce truck hauls to a 10-to-60-mile range, while construction from Craig to Duchesne would reduce truck hauls to a 10-to-40-mile range.

Extending the rail line from Jensen to Roosevelt and/or Duchesne would reduce truck hauls and thus increase the economic utility of the rail line. However, to specifically understand the tradeoffs of the additional capital cost for extending the rail line westward, deeper into the basin, versus increased traffic and revenue for the rail line, there would need to be a detailed discussion with the potential customers of the rail line and a formulation of a detailed freight traffic and revenue forecast.

The traffic forecast conducted for the UBRR study was also reassessed, and a new income statement was developed based on the updated traffic forecast plus the updated construction, operation, and maintenance costs. The traffic forecast adopted as the baseline for the UBRR study was found to not have changed materially. The income statement projects that the rail line would be cash-flow positive upon implementation, including debt service, and would continue to be cash-flow positive for at least the next 20 years. The income statement is provided in Table 1 in Section 6 of this document.

The UBRR traffic forecast found that the rail line would be competitive with existing long-haul truck transportation of combined truck-rail transportation for freight movements between the Uinta Basin and points beyond the immediate circumference of the basin; that is, the rail line would be competitive with existing modes as long as the freight did not originate or terminate at near-basin locations such as Salt Lake City, Ogden, Price, Rock Springs, or Craig. For freight that terminates in Salt Lake City (such as crude oil hauled to refineries in the North Salt Lake area) or freight that originates in Salt Lake City (such as consumer goods and food that are processed in the Salt Lake City area or flow through distribution centers located there), the rail line would not be competitive with existing truck hauls.

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From a transportation utility perspective, the UBRY would act more as a method of reducing the length and cost of truck hauls that are a component of existing long-haul, combined truck-rail transportation of goods and commodities, rather than as a replacement for existing truck-only transportation. Thus, the selection of a terminus in the Uinta Basin would probably not have a large effect on the earning value of the rail line or its utility to shippers. However, the selection of a terminus in the Uinta Basin does have a large effect on the capital cost of the rail line, if it is a terminus that requires the least amount of construction of new rail line. Accordingly, the terminus near Jensen was selected as the terminus for the purposes of capital cost and the income statement.

1.2 Results

The construction costs for the Craig-to-Jensen (only) rail line were estimated at $763,803,000. A 20-year net cash flow projection was developed based on the existing freight volume and revenue forecast prepared for the UBRR study, but with the lower capital cost of this reassessment. The cash flow projection assumes that the rail line will open for operation in 2026 following a 10-year period to organize, finance, permit, and construct the UBRY. The cash flow projection indicates that the rail line will be cash-flow positive and will cover its debt service for at least the 20-year period of the forecast. Net cash flow (after debt service on the construction cost) is forecasted to be $189 million (positive) in the first year of operation and to increase to $282 million by the 20th year of operation.

2 Financing, Construction, Operation, Ownership, and Regulatory Approvals

Financing, construction, operation, ownership, and obtaining the required regulatory approvals for the UBRY can occur through several methods. Rail lines can be constructed, owned, and operated by private initiative, by public initiative, or through a public-private partnership, in any combination. There are numerous examples in the United States of the various combinations. Regardless of ownership structure, for construction, operation, and ownership of a rail line intended to offer freight services to the general public, regulatory approval is solely under the authority of the U.S. Surface Transportation Board (STB). Application for construction is granted if the rail line is deemed to be within the public interest; generally, this is specifically defined as a judgment by STB if the rail line is economically viable and would tend to reduce the cost of transportation. STB also must approve the ownership and operation plan of a new rail line, which is a determination whether the proposed ownership structure is financially responsible and the operation plan is economically feasible.

Railroads in the United States are construed as either common-carrier railroads or private industrial railroads. Common-carrier railroads offer freight services to the general public without preference or unreasonable discrimination, and their track makes up the national rail network. Private industrial railroads, in contrast, do not offer freight services to the general public, and their track is separate from the national rail network (even though it might connect and transfer freight) and serves solely to carry the freight of its owner. Both types of railroads are under the safety regulatory authority of the Federal

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Railroad Administration (FRA), but only common carriers are under the economic regulatory authority of STB. Because a rail line to the Uinta Basin would likely provide freight services to a broad variety of customers, its owner would be construed as a common carrier by STB.

A specific financing, construction, operation, ownership, and regulatory approval plan is beyond the purview of this document, since it requires inquiry into the preferences of the parties that might be interested in promoting the rail line as a business entity. However, general requirements and potential implementation structures are described below.

2.1 Financing

Generally, private financing of new common-carrier rail lines in the United States in the last 50 years has occurred mostly by existing Class 1 railroads, either through their own capital accounts or through a combination of debt and equity financing. Generally, this financing occurred only after contractual volume commitments ("take-or-pay") with multiple customers. In the absence of volume commitments, Class 1 railroads have generally financed capital projects only when there was compelling evidence that the recovery period for the investment was 24 months or less. Public financing, on the other hand, does not have similar risk profiles and can undertake bond issues or borrowing with much longer payback periods. Bond purchasers would likely require a guarantee for public bonds issued for construction of a rail line (for example, a lien on property tax revenues).

Federal loans for new rail lines are available to either public or private borrowers through the Railroad Rehabilitation and Investment Financing (RRIF) program, administered by FRA, which has up to $35 billion in lending authority. RRIF loans have up to a 35-year repayment period, can cover 100% of the capital cost of the project, and have an interest rate equal to the cost of borrowing to the federal government. Financial qualification requirements for an RRIF loan are similar to those for private loans; that is, the business case for the project must compellingly demonstrate that the capital cost and interest can be repaid through economic operation of the project. Federal grant programs, such as FASTLANE and TIGER, are available to projects such as the UBRY but are too limited in size to fund more than a fraction of the estimated capital cost.

2.2 Construction

For construction to occur, an application must be made to STB for approval that the rail line is in the public interest. This application must demonstrate the economic case for the rail line; must describe the ownership, operation, and maintenance structure of the rail line; and must provide the business plan for the rail line. Environmental clearance is required by STB prior to its granting approval for construction. The environmental clearance for a large project such as the UBRY is generally in the form of an Environmental Impact Statement (EIS) with STB as the federal lead agency and a third-party contractor as the document's author.

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2.3 Operation and Maintenance

Operation and maintenance of rail lines such as the UBRY can be conducted by the connecting Class 1 railroad, conducted by a contractor with rail experience, or self-performed by the owner. These types of operation and maintenance agreements are not unduly complex to design or perform; however, the form of the agreement, and, if contractual, the conclusion of the agreement, must be determined prior to STB's approval of construction.

2.4 Prospective Implementation Structure

A potential structure for financing construction, operation, and ownership of the UBRY proposed in this document is a public-private partnership between (1) a public entity with authority to construct a rail line and (2) a private partner with technical know-how and capacity to administer the project's process through regulatory approval, construction, and implementation of operation. Because of the volatile nature of energy markets, which provide the majority of the prospective traffic in the Uinta Basin for a rail line, a purely private initiative is probably unlikely to attract private parties. Because Union Pacific Railroad (UP) is the sole connecting railroad, it would be a potential private partner; however, one of the several large short-line holding companies in the United States could also be a potential private partner.

A flexible and relatively simple-to-implement structure would be public ownership and a long-term lease for operation and maintenance to a railroad such as UP or a short line, and financing through public bonds backed by tax revenues. Marketing would be by the lessee. Generally, lessees of rail lines are reluctant to guarantee revenues. Accordingly, the lease would require an allocation formula for revenue to ensure that freight originated or terminated on the rail line would pay a fixed share toward the railroad, and a preferential marketing requirement so that the lessee preferentially marketed the rail line instead of alternate transportation methods or modes. The structure could include a buyout provision transferring ownership to the private entity to enable early repayment of financing. Construction could be delegated to the lessee, leveraging its skills, or to a design-build consortium.

This structure avoids the challenge of the operation and maintenance directly by a public entity, which requires the public entity to become expert and proficient at railroad regulatory requirements, marketing, engineering, and other complex skills. It does, however, require the public entity to carefully construct its agreements for construction, operation and maintenance, and revenue recovery.

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A prospective process for initiating implementation of the rail line would potentially follow these steps.

1. Determine the public entity that would promote the rail line. This would likely require formation of an entity and obtaining legislative authority both for the formation of the entity as well as to pursue construction, operation, ownership, and financing of a rail line, and to enter into partnerships or contracts with private entities.
2. Conduct a pre-feasibility study including a traffic and revenue forecast, business plan, operating plan, regulatory requirements analysis, financing options, and conceptual engineering.
3. Determine the structure of the rail line. This would include determining the proposed ownership structure, proposed financing plan, and proposed operating and maintenance structure.
4. Select the private partner. The flexibility to determine a private partner without a complex request-for-proposal (RFP) process would be an important aspect of the legislative authority of a public entity.
5. Develop a business plan jointly with the private partner. This would require a detailed traffic and revenue forecast as well as a detailed construction, design, and permitting plan; a financing plan; and a plan for obtaining regulatory authority for construction and operation from STB.
6. Apply for authority for construction and operation to STB. This would require an EIS.
7. Obtain financing.
8. Construct the rail line.
9. Begin operation.

3 Criteria and Parameters of the Study

This assessment uses the prior work conducted for UDOT and completed in 2015 but uses different criteria in order to achieve the least possible capital cost of constructing the rail line. The criteria used in this assessment, and their comparison with the UBRR study, are as follows:

- Connecting the Uinta Basin to the national rail network at the point that appears to offer the lowest cost of construction, regardless of where that point might be. Previously, the UBRR study included a criterion that the rail line would need to provide access to both of the western U.S. Class 1 networks, which are owned and operated by BNSF Railway (BNSF) and UP. This new assessment requires access to only one of these networks. The rationale used in the UBRR study was that competition between BNSF and UP would be enhanced if the new rail line had equal access to both carriers. However, because the BNSF and UP networks are not identical (that is, the two networks do not “map” identically), the lowest-cost-of-construction connection point was at Soldier Summit, but this is not the lowest-cost-of-construction connection point overall. This rationale was not used in this reassessment because (1) its high cost of construction required a very high amount

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of traffic and revenue to repay the construction cost, and this very high amount of traffic and revenue is unlikely to occur, and (2) STB policy is now expressing disapproval of rate structures that disfavor "captive" shippers (that is, shippers that have access to only one Class 1 railroad).

- Deferral of features of the rail line that would be necessary for its ultimate long-term capacity and functionality, and instead constructing only those features that would be necessary for the capacity and functionality it would need at initial anticipated traffic levels. Features that would be deferred include the signaling system and some of the sidings (where trains moving in opposite directions meet and pass) that would be necessary for full capacity of the rail line. These features could be added at a later time if traffic volumes on the rail line require them. This deferral is a common practice in the rail industry.
- No provision for railroad-owned terminal trackage and facilities at the end point and likely intermediate rail customer service points; instead, it is assumed that rail customers would construct their own terminal trackage and facilities specific to their needs. Customer development, ownership, and operation of customer-specific terminal trackage is a common practice in the rail industry.
- Adoption of construction and performance standards for the rail line suitable for its long-term economical operation and maintenance, but not those that achieve the lowest possible operating and maintenance costs if it would result in much higher initial capital cost than could otherwise be achieved. Major elements of these standards are:
    - Maximum gradients of 2% and curvature of 10 degrees: the same maximum gradient as the UP rail line with which it would connect, and similar maximum curvature (the UP rail line has curvature of up to 15 degrees but generally does not have curves tighter than 10 degrees)
    - 136-pound rail and concrete ties
    - Embankment profiles following UP main track standards
    - Other details of main track design following UP main track standards
    - Single main track
    - 10,000-foot sidings at 25-mile intervals
    - Loading gauge (a term used to describe the weight and clearance capacity of a railway line) following UP main track standards
- Avoid tribal land. This criterion, also adopted in the UBRR study, was continued because of the complexities and uncertainties associated with obtaining regulatory approval to cross tribal land with a rail line, acquiring tribal land, and negotiating agreements with tribal authorities.

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4 Description of Railway Alignments Developed

The rail alignments developed in this study used Google Earth following the engineering and operating parameters described in Section 3. This approach uses the terrain elevation features of Google Earth to broadly balance earthwork cut-and-fill; however, the limitation of accuracy of Google Earth requires a relatively high contingency in quantities. The alignments are depicted in the attached appendices that were extracted from the Google Earth KMZ file. Alignments are selected for their compliance with the engineering and operating parameters described in Section 3 and for the lowest cost of construction.

A sequential approach was taken to developing the alignment from east to west, in recognition of the traffic resource potential of the Uinta Basin. Three potential termini in the basin were identified, based on (1) their ability to capture freight potential in the basin, (2) whether a rail line could be constructed to that point relatively economically, (3) their proximity to U.S. Highway 40 (U.S. 40), the principal highway in the Uinta Basin, and (4) the availability of land of sufficient size and flatness to be economically graded for a terminal.

These three termini, from east to west, are near Jensen, near Roosevelt, and near Duchesne. These are identified on the Google Earth map in Appendix B. A rail line could be constructed to just Jensen, or extended from Jensen to Roosevelt, or extended farther to Duchesne. Construction costs and operating and maintenance costs would increase, mostly in linear fashion, as the rail line was extended farther west and mileage increased. Revenue would also increase but in a less linear relationship to mileage increase. This is further discussed in Section 5.

The sequential approach to extension of the rail line was used because virtually all prospective freight traffic in the basin at the present time is geographically dispersed instead of concentrated at a few locations. As a result, most of the traffic that the rail line would potentially haul into or out of the basin requires truck haulage for the last miles from the end of the rail line to the actual point of consumption or production. (For comparison, a traffic source such as a coal mine, electric power generating station, or factory is typically a point-source traffic generator, and the rail line would be built into that facility to eliminate secondary handling of freight, or at least reduce it to highly efficient methods such as conveyor belts.) The oil-and-gas production industry is by nature disseminated, thus a rail line serving it needs to be built into a convenient central point so that truck hauls are reduced as much as possible.

The modal competitor for a rail line into the Uinta Basin is at present truck haulage to one of the existing rail lines that lie outside the basin. The compelling economic question for a rail line constructed into the basin is whether it would effectively reduce the total truck haulage between railhead and oil or gas well enough that freight shippers would find it more economical to use the new rail line and reduce their relatively expensive truck haulage.

Accordingly, three different terminals were identified in order to (1) identify the capital cost of capturing more of the existing freight moved at present by truck to existing rail

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lines and (2) compare that capital cost to the potential increase in freight revenue obtained as the railhead moves farther west. Additionally, all three termini were selected to have adjacency to U.S. 40 and be as close as possible to existing centers of population. This will reduce truck haulage costs, travel on local connector roads, and costs of developing and operating truck-rail transload facilities at the termini. The alignments avoid known tribal lands; however, to verify this, survey and land title research would be required.

Within this general alignment, three alternatives between Craig and Jensen and between Jensen and Roosevelt, and two alternative alignments between Roosevelt and Duchesne, were developed in an effort to reduce construction costs while adhering to the criteria. This number of alternative alignments was determined through a preliminary screening that ruled out routes that would require extensive tunneling, lengthy bridges, or excessively difficult terrain.

The alignment alternatives that were developed are described below.

- Sections 4.1 to 4.3 describe the three alignment alternatives that were developed between Craig and Jensen. Section 4.4 describes a sub-alternative that uses part of the Deseret Power Railway (DPRY) in order to reduce construction costs on the Craig-to-Jensen alignment.
    - Section 4.5 describes the Craig-to-Jensen alignment alternative that best fits the criteria: Craig-Jensen Alternative 1 plus the DPRY sub-alternative.
- Sections 4.6 through 4.8 describe the three alignment alternatives that were developed between Jensen and Roosevelt.
    - Section 4.9 describes the Jensen-to-Roosevelt alignment that best fits the criteria: Jensen-Roosevelt Alternative 3.
- Sections 4.10 and 4.11 describe the two alignment alternatives that were developed between Roosevelt and Duchesne.
    - Section 4.12 describes the Roosevelt-to-Duchesne alignment alternative that best fits the criteria: Roosevelt-Duchesne Alternative 3.

The alignment alternatives in total that best fit the criteria are:

- **From Craig to Jensen, Alternative 1 incorporating the DPRY sub-alternative.** This alignment would connect with the UP line near Axial, Colorado, 20 miles southwest of Craig and would terminate at a location adjacent to U.S. 40 just east of its crossing of the Green River near Jensen.
- **From Jensen to Roosevelt, Alternative 3.** This alignment terminates near the U.S. 40 and Utah State Route (S.R.) 88 intersection east of Roosevelt.
- **From Roosevelt to Duchesne, Alternative 2.** This alignment terminates about 2 miles east of Duchesne adjacent to U.S. 40.

All alternatives are illustrated in Appendix B (attached).

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4.1 Craig-Jensen Alternative 1

Craig-Jensen Alternative 1 is shown in blue on Map 1 in Appendix B (see Map 2 for a detailed map). It connects with UP's Craig Subdivision about 4 miles northeast of the Colowyo Coal mine at Axial, Colorado, which is about 20 miles southwest of the city of Craig. The alignment initially heads southwest, ascending the Jubb Creek valley, before turning west and crossing the flanks of Coal Mountain to reach a pass between Coal Mountain and Juniper Mountain at milepost 19. From the pass, the route turns northwest, descending to Cedar Springs Draw before sharply ascending to reach Cross Mountain, where the route turns south and follows the flank of Elk Springs Ridge. At milepost 44, the terrain forces the alignment to cross over U.S. 40, and the summit of this route is attained at milepost 45 atop 12-Mile Mesa.

From this point, the route begins to descend toward Elk Springs. Avoidance of unfavorable terrain results in another crossing of U.S. 40 at milepost 46 and a third crossing at milepost 47.5. These crossings (along with all crossings of paved, public highways) would require grade separations. The route cuts through Elk Springs Ridge about one-half mile southwest of the city of Elk Springs and immediately turns to descend the flank of the ridge for 2 miles before turning southwest. The route crosses U.S. 40 near milepost 56, negotiates a right-hand curve, and comes up to and parallels the south side of U.S. 40 near milepost 57. From this point to the proposed terminal southeast of Jensen, the route follows U.S. 40, deviating only where settlements or terrain dictate. The proposed Jensen Terminal is located on a plateau about 2 miles east of Jensen, where Alternative 1 terminates at 107 miles in length.

4.2 Craig-Jensen Alternative 2

Craig-Jensen Alternative 2 is shown in orange on Map 1 in Appendix B (see Map 3 for a detailed map). It connects with UP's Craig Subdivision at the same location as Alternative 1, about 4 miles northeast of Axial, Colorado. Alternative 2 shares a common route with Alternative 1, ascending Jubb Creek, then turning west to the pass between Coal Mountain and Juniper Mountain at milepost 19. From the pass, Alternative 2 deviates from Alternative 1, continuing west along the flank of Coal Mountain, crossing Deception Creek and S.R. 59 on a large bridge. The route continues west along the north flank of Wolf Mountain before turning sharply south to ascend Freeman Gulch near milepost 27. From this point, the route begins to ascend the Danforth Hills, reaching a maximum elevation of 7,000 feet at milepost 34, located just northeast of Escarpment Peak.

From this point, the route sharply descends and will require significant earthwork to maintain an acceptable grade. This earthwork includes a loop arrangement and a tunnel of about 2,000 feet in length near milepost 38. Once milepost 40 is reached, the route requires only conventional engineering as it descends to the White River, following Deep Creek Channel. The White River is crossed at mileposts 58 and 61 as the route seeks the easiest terrain to follow. At milepost 64, the route departs the White River valley and turns northwest toward Massadona, Colorado, following Wolf Creek. At milepost 72, Alternative 2 rejoins Alternative 1 and follows the same route to the terminal at Jensen, for a total of 116 miles in length.

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4.3 Craig-Jensen Alternative 3

Craig-Jensen Alternative 3 is shown in maroon on Map 1 in Appendix B (see Map 4 for a detailed map). It connects with UP's Craig Subdivision about 4 miles southwest of Craig. The route immediately turns northwest, bridging the Yampa River and ascending the Bogenshutz Creek drainage to reach U.S. 40 near milepost 7. From this point, the route follows the south side of U.S. 40 for the next 23 miles to Maybell, deviating only to avoid existing settlements. At milepost 26, the Yampa River is again bridged. The route then follows the Yampa Valley for a further 14 miles before turning south and ascending Cedar Springs Draw to reach the top of 12-Mile Mesa. At milepost 50, Alternative 3 joins Alternative 1 and follows the same route to the terminal at Jensen, for a total of 117 miles in length.

4.4 Deseret Power Railway Sub-Alternative

The DPRY sub-alternative is shown in yellow on Map 1 in Appendix B. This sub-alternative was developed because all three Craig-Jensen alternatives run in the vicinity of this rail line near Blue Mountain, Colorado. The DPRY is a private industrial railroad; its track runs between the Deserado Coal mine near Blue Mountain and the Bonanza Power Plant in Utah. The railroad uses electric power for its locomotives as opposed to diesel fuel like most other North American railroads. The electric power is supplied to locomotives via an overhead catenary system.

In order to reduce construction costs for Craig-Jensen Alternatives 1 to 3, use of the DPRY was considered. Because the beginning and end of the DPRY deviate considerably southward of all three proposed Craig-Jensen alternatives, only 11.2 miles of the DPRY were deemed feasible for dual-purpose use with the UBRY. The DPRY's overhead catenary system would clear the highest freight cars that are likely to be used for freight on the UBRY (boxcars that comply with Association of American Railroads' clearance Plate F). Because rail traffic on both the DPRY and the UBRR would be low, it would likely be feasible to use the DPRY for UBRY traffic without adverse effect on the DBRY's utility, cost of operation, or safety.

4.5 Best-Fit Craig-Jensen Alternative: Alternative 1 + DPRY Sub-Alternative

Alternative 1 combined with the Deseret Power Railway Sub-Alternative is the Craig-Jensen route that best fits the criteria. The shorter distance of the route combined with the fact that no major river crossings or tunnels would be required make it the least expensive alternative. Other significant benefits are that it would have the least impact to settled areas and would not encounter very many wetlands along its route. Using the DPRY allows a further cost savings by reducing by 11 miles the amount of new alignment to be constructed. The total length of the best-fit Craig-Jensen Alternative, including the DPRY Sub-Alternative, is 107 miles.

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4.6 Jensen-Roosevelt Alternative 1

Jensen-Roosevelt Alternative 1 is shown in cyan on Map 1 in Appendix B (see Map 5 for a detailed map). It departs from the Craig-Jensen alignments about 9 miles east of the Jensen Terminal location. Initially the route heads south, then southeast, following Powder Springs Wash and Old Bonanza Road to ascend to the top of Deadman Bench. The route then turns west, travelling through open country, and crosses S.R. 45 at milepost 10. Alternative 1 takes advantage of the gently sloping terrain to wind down to a crossing of the Green River at milepost 38, crossing via a high bridge. The route then ascends westward to the top of the canyon before turning northwest for the final 7 miles to the proposed Roosevelt Terminal. The proposed Roosevelt Terminal location is on the west side of S.R. 88, about 2 miles south of the junction with U.S. 40. The total mileage for Jensen-Roosevelt Alternative 1 is 47.7 miles.

4.7 Jensen-Roosevelt Alternative 2

Jensen-Roosevelt Alternative 2 is shown in magenta on Map 1 in Appendix B (see Map 6 for a detailed map). It departs from the south side of the proposed Jensen Terminal, heading southwest through some badlands to Kane Hollow. Upon reaching Kane Hollow, the route turns west, steadily descending to a crossing of the Green River about 2.5 miles southwest of Jensen. The route then turns west, following the north bank of the Green River for about 12.5 miles. At milepost 16, the route enters a short tunnel about 1000 feet long (built for the UBRY) at Horseshoe Bend. On the west side of the tunnel, the route crosses to the south bank of the Green River at milepost 16.5 and follows the south bank of the river to milepost 20, where the route crosses the river for a third and final time. From this point, the route leaves the river valley, using a single switchback to ascend to the top of the plateau. At milepost 26, the route joins Alternative 1 and follows the same route as it runs the final miles northwest to the proposed Roosevelt Terminal. The total mileage for Jensen-Roosevelt Alternative 2 is 28.3 miles.

4.8 Jensen-Roosevelt Alternative 3

Jensen-Roosevelt Alternative 3 is shown in green on Map 1 in Appendix B (see Map 7 for a detailed map). It departs from the south side of the proposed Jensen Terminal and initially follows the same route as Alternative 2, crossing the Green River 2.5 miles southwest of Jensen and following the north bank of the river west of there. At milepost 11.5, Alternative 3 deviates onto its own alignment. Using a pair of switchback curves, the route begins to ascend out of the Green River valley. The route runs westward, crossing under S.R. 45 at milepost 14, and continues to the top of the plateau at McCoy Flat. This section traverses badlands and other rugged terrain and will require significant engineering, but this is preferable to the tunnel and extra bridges of Alternative 2. From McCoy Flat, the route continues westward and steadily descends to milepost 24, where the route joins the south side of U.S. 40. The route follows U.S. 40 for just over 2 miles before crossing S.R. 88 and turning south to reach the proposed Roosevelt Terminal. The total mileage for Jensen-Roosevelt Alternative 3 is 28.1 miles.

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4.9 Best-Fit Jensen-Roosevelt Alternative: Alternative 3

Alternative 3 is the Jensen-Roosevelt alternative that best fits the criteria. Although Alternatives 1 and 2 both traverse more forgiving terrain, both have factors that add significant cost. Alternative 1 requires 19 extra miles to reach Roosevelt. Its lower per-mile cost of construction is more than offset by the longer distance. Alternative 2 requires a tunnel and two additional bridges across the Green River, which would add a significant cost to its construction. Therefore, the higher per-mile cost of building Alternative 3 through rougher terrain ends up being less expensive than the easier but greater length of Alternative 1 and the tunnel and major bridges of Alternative 2. The total length of the best-fit Jensen-Roosevelt Alternative is 28.3 miles.

4.10 Roosevelt-Duchesne Alternative 1

Roosevelt-Duchesne Alternative 1, which was previously evaluated in the UBRR study, is shown in dark blue on Map 1 in Appendix B (see Map 8 for a detailed map). Its original alignment was shaped by the UBRR study's need to tie it into other alignments entering the Uinta Basin from the southwest. This forced the alignment into unfavorable terrain, which drove its per-mile cost higher than what could be obtained with other alignments.

From east to west, Alternative 1 begins 2.5 miles south of the S.R. 88 and U.S. 40 intersection at the proposed Roosevelt Terminal location. The route initially proceeds north, then turns west, cutting through a ridge and passing under the Ouray Valley Canal. The route continues west, passing 1.5 miles south of Fort Duchesne before turning southwest, proceeding through gaps between Uintah-Ouray tribal lands to reach Sand Pass and Pleasant Valley. The route then heads west through Pleasant Valley to Antelope Canyon, which it crosses on a bridge, then turns north through rugged terrain, descending to meet U.S. 40 1 mile southwest of Bridgeland. The route then parallels the south side of U.S. 40 westward to the Duchesne Terminal location, which is 1.5 miles east of Duchesne along U.S. 40. The total mileage for Roosevelt-Duchesne Alternative 1 is 50.6 miles.

4.11 Roosevelt-Duchesne Alternative 2

Roosevelt-Duchesne Alternative 2, which was previously evaluated in the UBRR study, is shown in dark green on Map 1 in Appendix B (see Map 9 for a detailed map). Compared to Alternative 2, it takes a more direct route between the Roosevelt and Duchesne terminal locations and follows more favorable terrain.

Alternative 2 follows the same alignment as Alternative 1 to milepost 15, passing 1.5 miles south of Fort Duchesne before deviating to head nearly due west. The route crosses U.S. 40 near milepost 24, 1.75 miles north of Myton, Utah, and turns southwest. The route passes near the south shore of Lake Boreham, then passes 0.5 mile southeast of Bridgeland before crossing U.S. 40 again at milepost 35. The route then turns west and follows the south side of U.S. 40 to the Duchesne Terminal location, 1.5 miles east of Duchesne. The total mileage for Roosevelt-Duchesne Alternative 2 is 42.9 miles.

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4.12 Best-Fit Roosevelt-Duchesne Alternative: Alternative 2

Alternative 2 is the Roosevelt-Duchesne alternative that best fits the criteria. Although Alternative 1 runs in open country, the significant terrain obstacles it faces combined with longer mileage make Alternative 1 a much more expensive route. Alternative 2 is not only shorter but also traverses more favorable terrain, making it less expensive than Alternative 1. Alternative 2 is also near developed areas, which allows the opportunity to develop additional terminals or industrial developments along it, such as in the area near Myton. A potential drawback of Alternative 2 is that is passes through a considerable amount of private land and near more residences than Alternative 1,

5 Railway Traffic Assessment and Forecast

Freight traffic that uses the UBRY would consist of existing traffic that is carried by truck between origin and destination points in the Uinta Basin and truck-rail transloads outside the basin. It would also attract traffic that is induced through a general lowering of transportation costs that is likely to occur with the construction of the UBRY.

This traffic assessment and forecast uses a forecast developed for the *Draft UBRR Commercial Analysis* dated July 13, 2014. The basic assumption of the *Draft UBRR Commercial Analysis* was that freight shippers would be incentivized to use the new rail line instead of existing truck modes solely through greater perceived financial value. That is, there would be no regulatory directive requiring shippers to use the new rail line instead of truck. Accordingly, the *Draft UBRR Commercial Analysis* was formulated solely through the following steps:

1. Forecasting the total quantity of freight that is likely to move
2. Estimating the cost of truck transportation to shippers in the future
3. Discounting the cost of truck transportation by a factor sufficient to make up the less flexible nature of rail service (fewer shipping frequencies, larger shipment sizes, more handling difficulties) and additionally discounting the cost of truck transportation slightly, below the point of indifference (the price point at which shippers are indifferent to which mode they choose)
4. Multiplying the quantity of freight times the discounted truck rate to determine the net revenue

The *Draft UBRR Commercial Analysis* projected five potential freight traffic and revenue scenarios for the UBRR, each scenario more aggressively forecasting oil and gas extraction rates in the Uinta Basin. The UBRR freight forecast determined that oil and gas extraction would be the principal drivers of freight traffic in the Uinta Basin in the future. Freight traffic that results from oil and gas extraction includes oil production inputs such as tubular steel products (for example, drill casings, drill stems, and gathering pipelines); oil and gas production machinery and wellhead machinery (for example, drilling platform components, pump jacks, and compressors); fracturing sand and drilling fluids; and outbound crude oil, wellhead condensates, and natural gas liquids that are not amenable to pipeline transportation. Additionally, oil and gas extraction drives secondary freight flows that are rail-divertible such as construction materials for housing and

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general commercial buildings, new private and commercial motor vehicles, and petroleum fuels.

Each of the five scenarios included only the traffic for which shippers would be more likely to use the UBRR than the existing transportation mode that the UBRR was likely to replace (existing truck long-hauls to existing rail lines). The five scenarios were developed through interviews with potential shippers in the conventional oil and gas production industry, the gilsonite and phosphate mining industry, and the unconventional oil production industry (oil sands and oil shale). The five scenarios in the *Draft UBRR Commercial Analysis* were as follows:

- **Scenario 1**
  - Crude oil is produced from conventional crude oil (that is, drilled wells), today's proven reserves only. Crude oil in excess of requirements of Salt Lake City–area refineries is transported by rail directly from the Uinta Basin to distant refining centers.
  - Inbound oil- and gas-drilling materials required for development and recovery of proven reserves of both oil and natural gas.
  - Gilsonite (an asphaltum-like mineral, essentially only found in appreciable commercial quantities worldwide in the Uinta Basin, used for numerous industrial purposes).
- **Scenario 2**
  - Crude oil is produced from conventional oil, proven reserves + potential reserves (potential reserves is crude oil produced by secondary means such as horizontal drilling and fracturing, waterflood, and acidification). Crude oil in excess of requirements of Salt Lake City–area refineries is transported by rail directly from the Uinta Basin to distant refining centers.
  - Inbound oil- and gas-drilling materials for development and recovery of proven + potential oil reserves and potential gas reserves.
  - Gilsonite.
- **Scenario 3**
  - Same as Scenario 2 + crude oil produced from the oil sand resource in the Uinta Basin, plus the required material inputs for oil sand extraction.
- **Scenario 4**
  - Same as Scenario 3 + crude oil produced from kerogen (oil shale) resource in the Uinta Basin, plus required input materials.
- **Scenario 5**
  - Same as Scenario 4 + phosphate concentrate produced at proposed new mines in the Uinta Basin and transported by rail to phosphorus fertilizer, acid, and metal refineries.

A particular challenge of the UBRR freight forecast was that oil extraction is likely to occur in a nonlinear, step-wise fashion. According to production firms interviewed for the UBRR study, current and near-future oil extraction uses a low-cost, primarily vertical-

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well-only primary extraction method that is likely to peak and then decline as oil amenable to extraction by these methods is exhausted. Subsequently, a secondary extraction period is likely to occur as oil prices rise and are able to cover the additional cost of secondary extraction methods such as horizontal drilling and extensive fracturing, waterflood, or acidification.

This volatility in the oil and gas extraction peaks can be seen in Figure 1 below. The opening of the rail line to freight traffic is likely to result in an initial surge in oil extraction followed by rapid depletion, then a later recovery of oil volumes as secondary extraction techniques are used. These peaks and valleys are reflected in railroad revenue peaks and valleys.

5.1 Changed Conditions

The first goal of this reassessment was to review whether conditions have changed that would affect the basic assumptions of the *2014 Draft Commercial Analysis*. The second goal was to choose which of the five scenarios was most likely to occur. Two conditions of the *2014 Draft Commercial Analysis* have changed. First, the connection point to the national rail network shifted from a point near Soldier Summit, Utah, to a point near Craig, Colorado. Second, the crude oil market in the United States and globally has transformed from a condition of historically high demand relative to supply, and a resulting high price per barrel, to a condition of production capacity overwhelming demand, and a resulting low price per barrel. As a result, production replacement activity—that is, drilling and completion of new wells—has rapidly declined in the United States, particularly in higher-cost fields and in fields that are remote from markets.

To address the first change in conditions, the relocation of the rail network connection from Soldier Summit to Craig, traffic patterns for oil and gas inputs, and outputs in the western United States were reviewed to determine any substantial effect that might occur in traffic volumes by changing the connection point from Soldier Summit to Craig. It was concluded that the primary likely traffic of the rail line would not be materially affected by moving the connection point. The primary likely traffic of the rail line is oil and gas drilling inputs such as fracturing sand, tubular steel products, machinery, construction materials, and crude oil. Oil and gas drilling and production input materials are obtained mostly from the central United States. Tubular steel is manufactured in steel mills principally in the Chicago area, while fracturing sand is mined principally in Wisconsin and surrounding states. Relocating the connection point eastward from Soldier Summit to Craig would reduce the rail mileage for these input materials, thus making the rail haulage of these materials less costly, but the connection point would not shift so far to the east that it would tend to make truck haulage more economical; that is, truck haulage from the origin points of these materials would still be prohibitively expensive compared to rail haulage from the origin points.

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Figure 1. EIA Projected Crude Oil Prices

North Sea Brent Benchmark, crude oil prices in three cases, 2005–2040

Crude oil, in contrast, typically moves by pipeline; however, because the crude oil produced in the Uinta Basin is waxy, it is not amenable to pipeline transportation. Currently, waxy crude produced in the basin is trucked either to refineries in the North Salt Lake City–Woods Cross, Utah, vicinity, where it is refined, or to truck-to-rail transloads in Price, Salt Lake City, or Ogden, Utah, where it is carried by rail to refineries in other parts of the United States, principally refineries on the Gulf Coast or on the West Coast in California and Washington State. Moving the rail line connection from Soldier Summit to Craig would lengthen rail hauls to the West Coast and would tend to make the rail line uncompetitive with existing truck haul-to-transload patterns. However, it would shorten rail hauls to the Gulf Coast and would tend to make rail haulage more competitive.

The second changed condition—the substantial drop in oil prices and decrease in drilling activity—would materially affect traffic on the rail line were it to be opened for commercial service at the present time. However, even with the most optimistic construction schedule, the rail line could not be opened for commercial service for 10 years, or in 2026. Forecasts of oil prices from the U.S. Energy Information Administration (EIA) were reviewed. Figure 1 above, from EIA's 2015 energy forecast (EIA 2015), indicates that, in the reference case (the most likely case), oil prices increase to their median price during the 2005–2015 period by year 2020, then continue to climb. In other words, while oil production in the Uinta Basin has declined from its peak due to current low oil prices, the EIA forecast indicates that low oil prices are unlikely to be a permanent condition.

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Accordingly, as oil prices return in the reference case by 2020 to their recent peak in 2014, oil (and gas) extraction activity in the Uinta Basin is also likely to return to the level experienced in the 2010–2014 period.

The following conclusions were reached:

- The traffic assessments in the UBRR study, in general, remain valid and useful.
- No substantial loss or increase of traffic volumes or revenues are likely to result from changing the connection point from Soldier Summit to Craig.

5.2 Likely Traffic Scenario

The second major goal of this reassessment was to determine which of the five traffic scenarios of the *Draft UBRR Commercial Analysis* was most likely to still occur. To do this, the original documentation for the 2014 analysis was reviewed in reference to a literature review of recent oil and gas industry news and analysis from EIA, *Journal of Commerce*, *RBN Energy Reports*, and other publicly available sources. This review concluded the following:

- Scenario 1, in the UBRR traffic forecast dated July 13, 2014, remains a likely initial traffic scenario.
- Economic results from Scenario 1 can be inflated to 2016 dollars and used for a new income statement.
- Scenario 2 is likely to occur by 2025.

In Scenario 1, the existing proven oil and gas reserve is produced to depletion. This results in an initial traffic surge represented by a portion of the existing proven crude oil transferring to the new rail line until it is exhausted. This is seen by the railroad revenue peak and trough in Figure 2 on page 22. Oil and gas inputs—fracturing sand, tubular steel, drilling fluids, etc.—continue to be carried by the rail line into the basin until the existing proven natural gas resource is also exhausted. The natural gas resource lasts longer than the oil resource because it is larger and it is anticipated to be developed more slowly. Its production inputs are largely independent from oil production inputs, and continue to grow. Gilsonite continues to be produced. This traffic revenue is quantified in Table 1 on page 22 and depicted graphically in Figure 2. The sharp spike and dip in revenue is driven by the capture of remaining conventional, proven crude oil output of the Uinta Basin to the new rail line upon the anticipated opening of the rail line in 2024, followed by depletion of this resource in 2028, followed by an increase in gas production and the inception and growth of secondary oil production.

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5.3 Summary Railway Traffic Forecast

Freight traffic is the rail industry's term for the goods and commodities presented by shippers to a railroad for transportation. Freight traffic is measured in terms of tons, barrels, gallons, or other volume units when loaded into freight cars and in terms of carloads once loaded.

For the purpose of this freight traffic forecast, the following assumptions were used:

- Conventional oil (that is, drilled wells) will be produced, in response to oil market demand, until the economically recoverable resource currently forecasted by EIA is consumed.
- Oil and gas well drilling materials for the wells that produce the oil and gas for the economically recoverable resource currently forecasted by EIA will be consumed until the resource is consumed.
- Secondary oil production will occur subsequently, tracking EIA's reference case forecast for rising oil prices.
- Gilsonite will continue to be produced, increasing in volume in response to the general growth of the economy. Between 2014 and 2019, the amount of gilsonite produced in the Uinta Basin is projected to increase from 82,125 tons per day to 147,460 tons at an annual average rate of 12.41% (Boden 2014). An upper limit of 147,460 tons was established based on a 100% production expansion of American Gilsonite Company (American Gilsonite Company 2013).

The traffic forecasts estimated the quantity of these three commodity groups that are likely to be available for transportation. This estimate used information provided in interviews with potential shippers, existing transportation patterns, and desktop research to establish a likely production maximum and to determine the quantity of these groups that are likely to be diverted by shippers from trucks to the UBRY. The estimates were capped by the likely quantity of the natural resource that was available for production. Depending on the good or commodity, the limiting cap was (1) the amount believed to be economically recoverable at present, (2) the amount believed to be economically recoverable in the future, or (3) the amount believed to be economically recoverable in the future and also located on land controlled by the resource producers.

Of the goods and commodities listed above, at present, only conventionally produced crude oil, oil and gas well drilling materials, and gilsonite are trucked in substantial volumes out of or into the Uinta Basin. For this reason, and in order to be conservative, no estimates of future input and output volumes associated with oil sands development, kerogen (oil shale) development, or phosphate mining and concentrating expansion (which phosphate producers indicated might be produced in the future) are included.

(Oil shale and oil sands production will require commercialization of techniques that at present are being tested in the Uinta Basin as well as production costs that are competitive with other crude oil types and sources. Phosphate concentrate production will require sufficient market demand for phosphate fertilizer to make extracting, refining, and transporting this resource economically viable.)

Some traffic, particularly crude oil that is currently trucked from the Uinta Basin to refineries in the Salt Lake City area, is forecasted to continue to be trucked to these

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refineries after the UBRY is constructed. The lack of a pipeline gathering system from broadly dispersed wells in the basin and the relatively short length of haul between the basin and Salt Lake City will tend to render trucking more economical than a combination of truck plus rail, for the oil that has a market in the Salt Lake City area refineries.

A freight traffic forecast was used as the basis of the revenue forecast for the UBRY. This forecast was translated into revenue by using the avoided cost of trucking, less 5%. This revenue calculation was based on typical railroad-industry pricing practice, which prices transportation service on a “value of service” basis as a ceiling and a marginal “cost of service” basis as a floor. Because truck transportation is available for all of the goods and commodities produced and consumed in the basin that were identified as potentially available for rail haulage, the cost of truck transportation between the basin and existing transloads in the Salt Lake City, Utah; Price, Utah; and Evanston–Rock Springs, Wyoming, areas becomes the ceiling.

Pricing rail transportation at this ceiling would render the shipper indifferent to truck or rail, so railroads typically discount slightly. Pricing is typically not discounted by railroads below the point of indifference, since this would not extract the maximum value of the rail transportation to the shipper. The “cost of service” floor is met in all cases for the forecasted goods and commodities forecasted to move by rail. Goods and commodities for which the UBRY would not be likely cover its marginal operating and maintenance costs for that transportation service are excluded.

6 Financial Results and Income Statement

The financial results shown in Figure 2 on page 22 and the income statement shown in Table 1 on page 22 were developed using the following inputs:

- Capital costs estimated for the rail line’s construction.
- Operating and maintenance costs: BNSF and UP current operating and maintenance costs were extracted from their financial reports and reports to STB, then modified to reflect the new construction of the rail line, the low complexity of the rail line (very little switching, traffic aggregation, or traffic classification expense), and the dry climate (low deterioration rates for track structure).
- Revenue forecasts described above.

Capital costs that are amortized through debt service in this Income Statement consist of the $768,658,755 estimated for the Craig-Jensen portion of the rail line only. Amortization of capital costs for extending the rail line from Jensen to Roosevelt and Duchesne would modify the Income Statement. (Note that capital costs are not typically directly included in an income statement, except through debt service.)

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Unfinanced development costs would be required to progress the rail project sufficiently to obtain the regulatory approvals that would typically be required to obtain financing of construction. These development costs would likely range from $25,000,000 to $50,000,000 based on projects of similar scope, complexity, and size. Development work would include:

- Organization of the rail line's owner, and for public agencies that own a railroad, obtaining legal authority to construct, own, and operate a railroad (generally, obtaining this authority for sub-state-level agencies in most states requires legislative action)
- Obtaining STB authority to construct and operate a rail line (this authority is called the Certificate of Public Convenience and Necessity)
- Preliminary Engineering and Development of Preliminary Operating and Maintenance Plans, and Development of Construction, Operating, and Maintenance Cost Estimates
- Traffic forecast, revenue forecast, business plan, and financial projections
- Interchange, car supply, and revenue agreements with connecting railroads
- Freight traffic memorandums of understanding with shippers
- Environmental documentation and permitting (generally, a new rail line will require an Environmental Impact Statement)
- Obtaining financing
- Solicitation of construction and/or operating contractors
- Operation of the railroad organization during the construction phase
- Commissioning, training, and start-up activities

The income statement is graphed below in Figure 2. Note that the rail line becomes cash-positive immediately after construction is completed and remains largely cash-positive into the future. Revenue dips as the existing conventional oil resource is consumed (crude oil described in Scenario 1), then recovers as secondary oil extraction begins (crude oil described in Scenario 2). Natural gas extraction steadily expands throughout these years, and gilsonite traffic grows slowly, tracking the general growth in the U.S. economy.

Capital costs prior to construction (estimated at $25 million to $50 million) are assumed to be internally funded (that is, not through the construction debt instrument) and are excluded from the income statement summary, while costs incurred during construction are assumed to be fully debt-funded on a 30-year 5% amortization, with a level payment structure. Preconstruction development costs would be at-risk costs prior to acceptance of the project's financial projections by a lender.

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Table 1. Uinta Basin Railway Income Statement

Cash Flows	2025	2030	2035	2040	2045
Revenue					
Conventional oil	99,301	0	0	0	0
Gilsonite	5,269	6,193	7,279	8,555	10,055
Frac sand	40,792	36,498	57,614	90,371	137,880
Bentonite	1,627	1,456	2,298	3,605	5,500
Steel and pipe	25,607	24,132	38,093	59,752	91,164
Total revenue	**172,596**	**68,278**	**105,284**	**162,282**	**244,598**
O&M costs	-9,755	-3,569	-5,502	-8,480	-12,779
Net revenue	**162,841**	**64,709**	**99,781**	**153,803**	**231,819**
Debt service	-66,440	-66,440	-66,440	-66,440	-66,440
Net cash flow	**96,401**	**-1,731**	**33,342**	**87,363**	**165,379**

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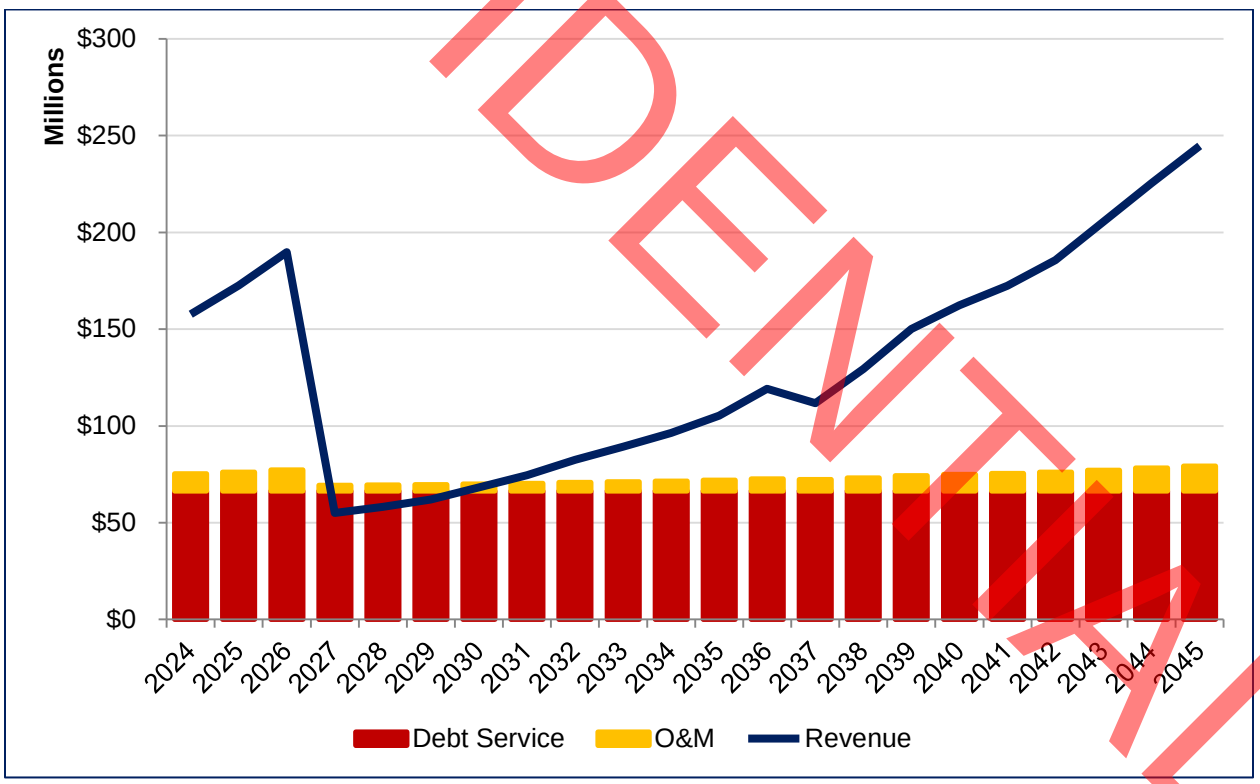
Figure 2. Uinta Basin Railway Revenue vs. Costs



7 Further Steps

This section describes additional steps necessary for a potential developer of the UBRY to better understand the feasibility of the project.

1. Develop a pre-feasibility-level revenue forecast. This forecast would use interviews with potential shippers and UP, development of an improved forecast for oil and gas production in the Uinta Basin, and a better understanding of global oil and gas production and cost trends that would greatly influence Uinta Basin oil and gas production. The estimated cost of a pre-feasibility-level revenue forecast is $78,000.
2. Develop a pre-feasibility-level engineering alignment and cost estimate using the preferred alignment selected in this reassessment. The improved alignment study would introduce terrain mapping to reduce uncertainty in earthwork quantities, verify whether tribal lands are intersected, and reduce contingency in the construction cost estimate. The estimated cost of a pre-feasibility-level engineering alignment study and cost estimate is $32,000.
3. Develop a draft plan for the rail line's regulatory, engineering, permitting, construction, and financing requirements. This plan would include a cost estimate for taking the UBRY from concept through to commissioning, including "soft costs" such as legal, design, and advisory fees. The estimated cost of a draft regulatory, engineering, permitting, construction, and financing plan is $84,000.

8 References

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Appendix A. Cost Estimate

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Sheet 1: Summary Of Estimated Cost Of The Preferred Alternatives

Total Route Costs								
Route	Route Miles	Track Structure Construction	Mobilization (5.5%)	Engineering And Construction Management (7%)	Contingency (25%)	Right-Of-Way Acquisition	Total Inclusive Of Right-Of-Way	Notes
Craig-Jensen Alternative 1	97.2	$541,295,000	$29,772,000	$39,975,000	$152,761,000	$4,855,755	$768,658,755	
Jensen-Roosevelt Alternate 3	28.1	$187,783,000	$10,329,000	$13,868,000	$52,995,000	$981,690	$265,956,690	Jensen-Roosevelt segment has 1.2 multiplier due to more rugged terrain than Craig-Jensen segment
Roosevelt-Duchesne Alternative 2	42.9	$262,796,000	$14,454,000	$19,408,000	$74,165,000	$2,597,100	$373,420,100	Roosevelt-Duchesne has 1.1 multiplier due to higher expected number of Road and other community impacts than Craig-Jensen segment.
Total	168.2	$991,874,000	$54,555,000	$73,251,000	$279,921,000	$8,434,545	$1,408,035,545	

Sheet 2: Average Per-Mile Track Estimate

Item Number	Item Description	UB Common Segment Value	UB Common Segment Per Mile-Average	Units	UB Unit Cost	UB Per-Mile Cost	6-Counties Modifier	6-Counties Per-Mile Cost
1.0	ROW	Not Considered For This Exercise						
2.0	Erosion Control	1	0.02	Lump Sum	$2,230,500	$44,081	1.0	$44,081
3.0	Fencing	530,854	10491.19	LF	$6	$62,947	1.0	$62,947
4.0	Clear And Grub	1,195	23.62	Acre	$500	$11,808	1.0	$11,808
5.0	Excavation	13,103,788	299173.24	Cubic Yard	$9	$2,692,559	0.6	$1,615,536
6.0	Embankment	6,275,862	143284.52	Cubic Yard	$4	$573,138	1.0	$573,138
7.0	Culverts	1	0.02	Lump Sum	$34,215,000	$676,186	1.0	$676,186
8.0	Retaining Walls	1	0.02	Lump Sum	$5,092,500	$100,642	0.0	$0
9.0	Road Realignment	1	0.02	Lump Sum	$10,297,340	$215,877	0.5	$107,939
10.0	Road Intersections	1	0.02	Lump Sum	$1,290,000	$25,494	1.0	$25,494
11.0	At-Grade Crossings	1	0.02	Lump Sum	$112,632	$2,226	4.0	$8,904
12.0	Channel Shifts	21,361	422.15	Lineal Feet	$350	$147,754	0.0	$0
13.0	Subballast	391,731	8943.63	Cubic Yard	$35	$313,027	1.0	$313,027
14.0	Track	265,427	5245.59	Track Feet	$200	$1,049,119	1.1	$1,154,030
15.0	Misc. Track (TO's Etc.)	11	0.22	Lump Sum	$200,800	$43,652	0.6	$26,191
16.0	Rail Bridges	1	0.02	Lump Sum	$86,962,000	$1,718,617	0.5	$859,308
17.0	Road Bridges	1	0.02	Lump Sum	$9,136,800	$180,569	0.5	$90,285
18.0	Tunnels	Not Considered For This Exercise						
19.0	Communications & Signal	Not Considered For This Exercise						
20.0	Facilities	Not Considered For This Exercise						
21.0	Utilities	Not Considered For This Exercise						
	Subtotal For Per-Mile Track Costs					$7,857,696		$5,568,874

Sheet 3: Estimated Right-Of-Way Requirement

Craig-Jensen Alternate 1		
Owner	Acres	Cost ($3000/Acre For Non-Federal Land)
Federal	1272.94	$0
State	255.84	$767,505
Private	1362.75	$4,088,250
		$4,855,755

Jensen-Roosevelt Alternate 3		
Owner	Acres	Cost ($3000/Acre For Non-Federal Land)
Federal	356.18	$0
State	183.08	$549,225
Private	144.16	$432,465
		$981,690

Roosevelt-Duchesne Alternate 2		
Owner	Acres	Cost ($3000/Acre For Non-Federal Land)
Federal	150.78	$0
State	0.00	$0
Private	865.70	$2,597,100
	Total	**$2,597,100**
	Grand Total	**$8,434,545**

Sheet 4: Summary Of Construction Complexity by Track-Miles, per Alternative

Route	Light-Grading Miles	Heavy-Grading Miles	*DPR Miles	Total Miles	Notes
Craig-Jensen Alt 1	49.7	47.5	11.2	108.4	Light Grading: 0-5.5, 26.5-33.5, 47.5-50.0, 60.8-74.9, 84.7-107
Jensen-Roosevelt Alt 3	10.4	17.7	0	28.1	Light Grading: 4-11.0, 22.0-25.4
Roosevelt-Duchesne	20.6	22.3	0	42.9	Light Grading:9.3-10.7, 16.3-17.5, 21.2-24.9, 27.0-29.6, 30.7-33.3,
			Total	179.4	

* The existing Deseret Power Railway (DPR) track is used for this alternative

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Appendix B. Maps of Alignment Alternatives

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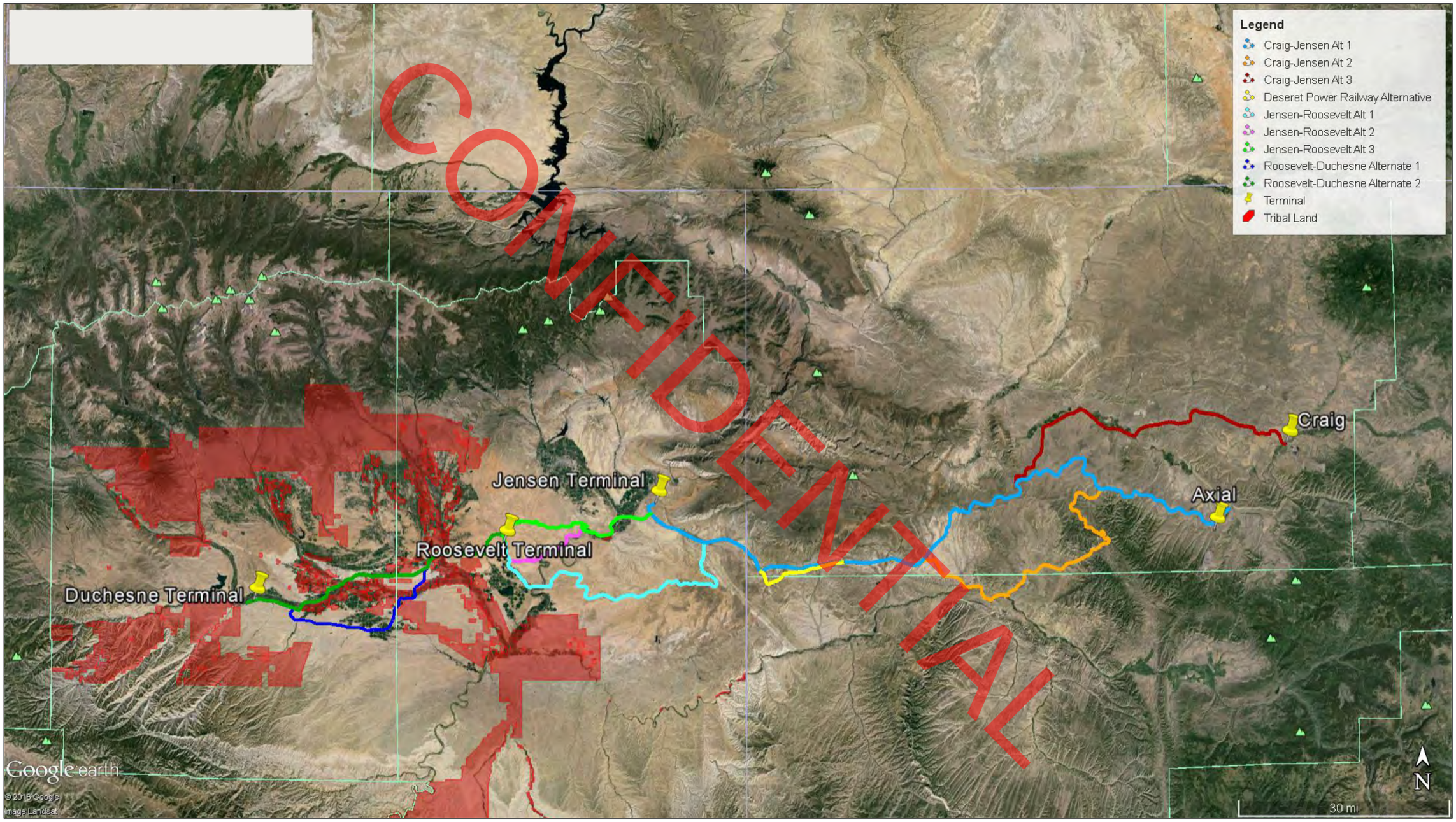
Map 1. Uinta Basin Railway Alignments Overview



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Red-shaded areas indicate tribal land.

Map 2. Craig-Jensen Alternative 1

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Red-shaded areas indicate tribal land.

Map 3. Craig-Jensen Alternative 2

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Map 4. Craig-Jensen Alternative 3

Red-shaded areas indicate tribal land.

Map 5. Jensen-Roosevelt Alternative 1

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Red-shaded areas indicate tribal land.

Map 6. Jensen-Roosevelt Alternative 2

Red-shaded areas indicate tribal land.

Map 7. Jensen-Roosevelt Alternative 3

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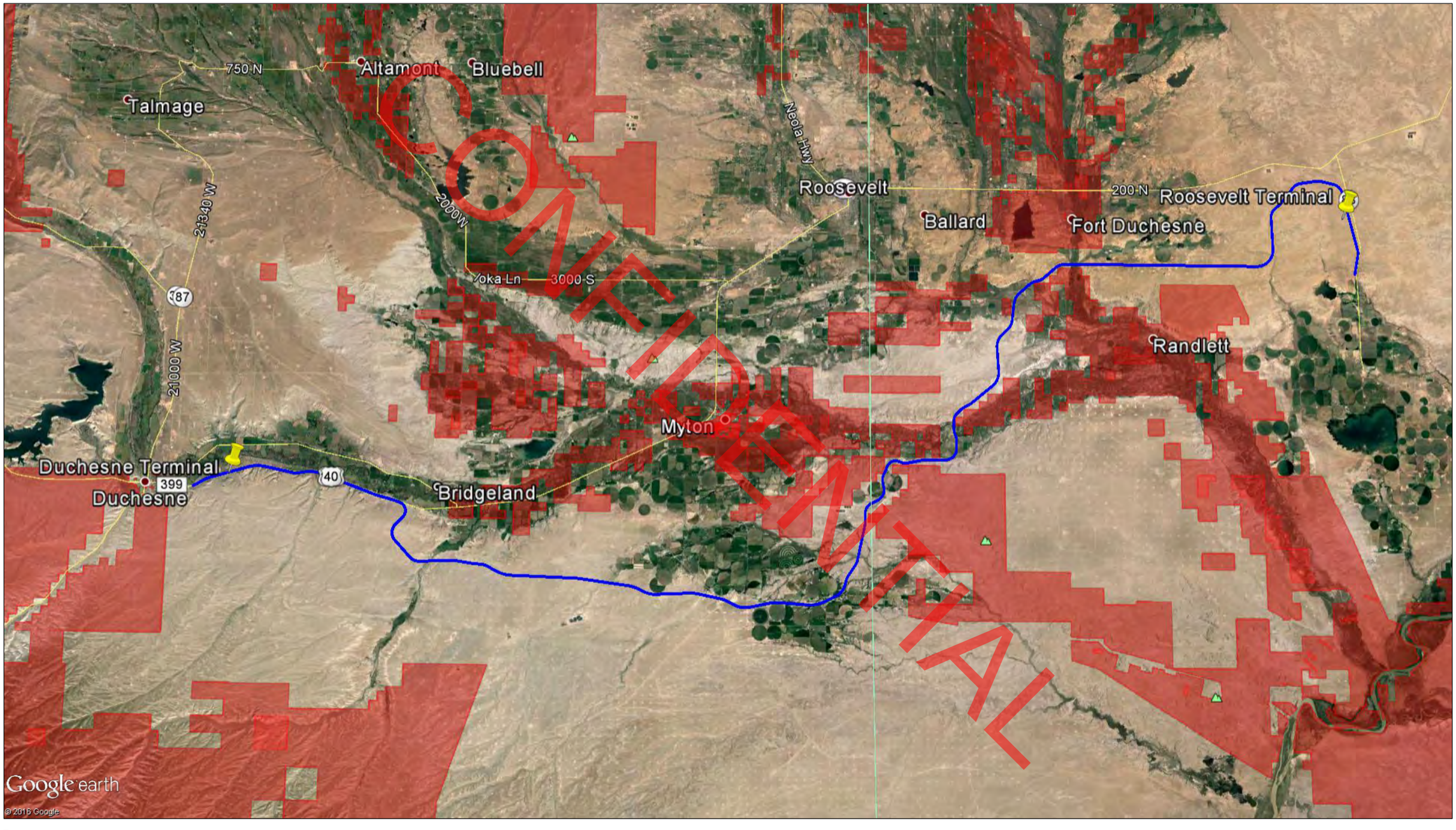
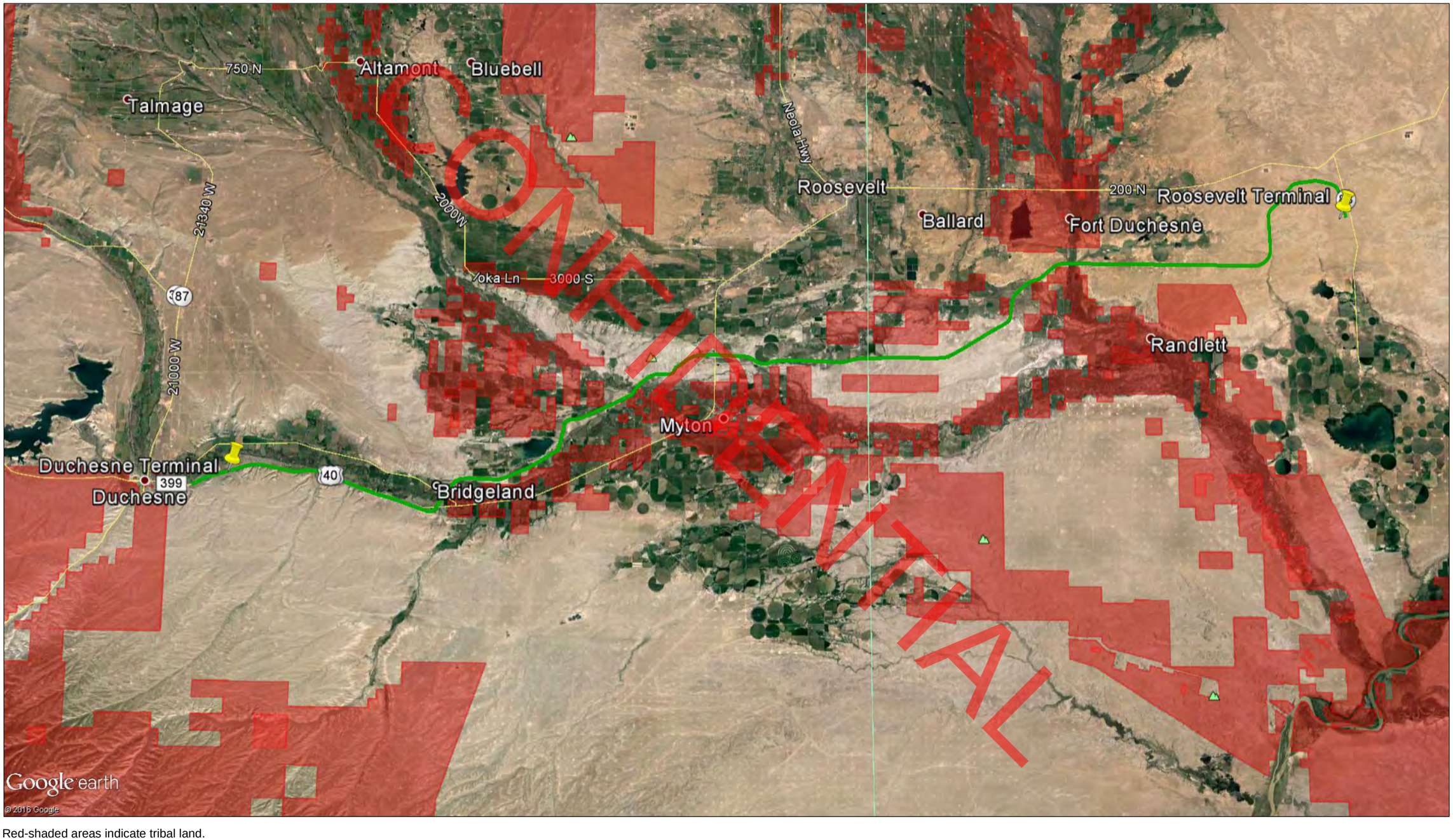
Map 8. Roosevelt-Duchesne Alternative 1



Red-shaded areas indicate tribal land.

Map 9. Roosevelt-Duchesne Alternative 2



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Press Release, Clark Williams-Derry, Kathy Hipple and Tom Sanzillo | March 19, 2020

IEEFA update: Fracking companies' 2019 performance signals ongoing crisis

Disappointing results cap "Lost Decade" for North America's shale industry

March 19, 2020 (IEEFA U.S.) – The U.S. fracking industry in 2019 continued its unsuccessful decade-long quest to produce positive free cash flow, according to a briefing note released today by the Institute for Energy Economics and Financial Analysis (IEEFA).

Looking at a cross-section of 34 North American shale-focused oil and gas producers, IEEFA analysts found that the companies spent $189 billion more on drilling and other capital expenses over the past decade than they generated from selling oil and gas.

These results included a disappointing $2.1 billion in negative free cash flows in 2019.

"We have been saying for a long time that Exploration & Production (E&P) companies have created an oil and gas glut that has not been rewarded by anticipated earnings," said IEEFA

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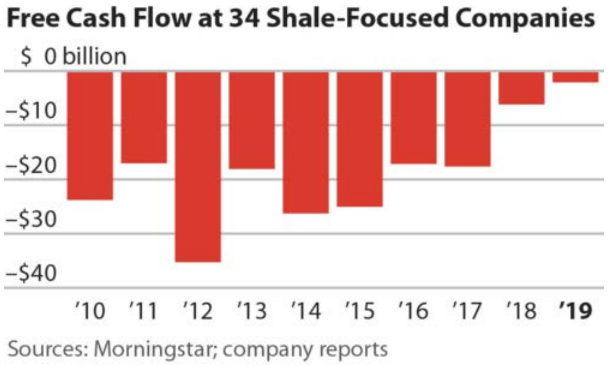

financial analyst and briefing note co-author Kathy Hipple. "In what world could this be considered a successful business model?"

The sector's dismal financial performance in 2019 came despite rapid growth in North American production of both oil and gas. The shale revolution has, in fact, propelled the U.S. into becoming the world's most prolific oil producer.

"In financial terms, fracking has been an unrelenting money loser for at least a decade, and investors are taking notice," said IEEFA analyst and co-author Clark Williams-Derry. "It is getting harder and harder for these companies to raise the capital they need to stay afloat."

The oil and gas industry's financial underperformance began long before the advent of the coronavirus crisis or the recent Saudi-Russia oil price war. The sector has been facing mounting financial pressures and a deteriorating outlook for most of the last decade. Cash flow losses were just one of many signs of distress among IEEFA's sample:

> **High and rising debt**. Total long-term debt rose to $106 billion at the end of 2019, an increase of $1.5 billion from the prior year, and the highest level since 2015. If these companies are unable to produce significant cash flows over the next several years, they may be unable to pay off their debts as they mature—which could trigger debt write-downs or bankruptcies.
>
> **Disappointing revenue.** Despite higher production levels, total 2019 revenues among this cross-section of companies fell by $5.6 billion year-over-year.
>
> **Significant net losses**. Collectively, these companies reported net losses of $6.7 billion in 2019, largely due to accounting impairments and write-downs of oil and gas assets.
>
> **Declining cash balances**. The 34 companies spent down their cash reserves by $14.4 billion from 2016 through the end of 2019. At the end of 2019, cash reserves among these companies were at their lowest level since 2012.

Looking at quarterly results, IEEFA's cross-section of fracking-focused enterprises achieved modest positive free cash flows in the second and fourth quarters of 2019. But those gains were outweighed by the losses in the first and third quarters.

Only six companies in IEEFA's sample reported cumulative positive free cash flows from 2017 through 2019. Even in 2019, when negative free cash flows narrowed to their lowest levels of

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the decade, only 12 of the 34 companies managed to report positive free cash flows.

Moving forward, the oil and gas sector's financial distress will likely accelerate.

"Even after a decade of technical improvements and increasing investor scrutiny, most shale-focused companies still burn through more cash than they produce," said IEEFA's director of finance Tom Sanzillo. "The truth is undeniable: fracking is a failed experiment."

Kathy Hipple is an IEEFA financial analyst.
Tom Sanzillo is IEEFA's director of finance.
Clark Williams-Derry is an IEEFA energy finance analyst.

Briefing Note: Shale Producers Spilled $2.1 Billion in Red Ink Last Year

Media Contact

Vivienne Heston, vheston@ieefa.org tel: +1 (914) 439-8921

About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) conducts global research and analyses on financial and economic issues related to energy and the environment. The institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy.

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Table 6. Breakeven Oil Prices
(U.S. dollars per barrel)

	Average 2000–2016	2017	2018	2019	Projections 2020	2021
Fiscal Breakeven Oil Price[3]						
MENAP oil exporters						
Algeria	...	91.4	101.4	104.6	157.2	109.3
Bahrain	76.0	112.6	118.4	106.3	95.6	84.4
Iran, I.R. of	56.1	64.8	67.8	244.3	389.4	319.5
Iraq	...	42.3	45.4	55.7	60.4	54.0
Kuwait[1]	...	45.7	53.6	52.6	61.1	60.3
Libya	80.7	102.8	68.6	48.5	57.9	70.3
Oman	...	96.9	96.7	92.8	86.8	79.8
Qatar	45.5	51.3	48.0	44.9	39.9	36.5
Saudi Arabia	...	83.7	88.6	82.6	76.1	66.0
United Arab Emirates	48.0	62.0	64.1	67.1	69.1	60.6
Yemen[2]	...	125.0	...	...	...	...
CCA oil and gas exporters						
Azerbaijan	51.6	60.9	56.3	44.6	78.5	68.4
Kazakhstan	...	105.2	37.9	68.4	88.5	65.7
Turkmenistan	...	55.9	60.9	55.2	42.0	40.5
Uzbekistan	...	...	...	...	...	...
External Breakeven Oil Price[4]						
MENAP oil exporters						
Algeria	81.4	90.1	101.7	96.0	112.2	91.1
Bahrain	47.2	73.1	98.1	76.5	80.8	74.3
Iran, I.R. of	40.7	33.5	42.4	44.7	79.3	84.1
Iraq	67.4	45.4	53.0	60.7	59.1	52.7
Kuwait	35.3	43.1	48.6	50.5	50.6	50.3
Libya	54.6	43.5	65.8	57.4	59.1	70.4
Oman	45.5	85.8	78.3	74.5	62.1	56.3
Qatar	50.2	45.7	52.0	56.4	37.6	40.0
Saudi Arabia	57.2	49.9	47.2	50.1	44.2	45.3
United Arab Emirates	52.2	28.7	27.3	31.0	32.0	25.7
Yemen[2]	145.0	...	...	...	...	...
CCA oil and gas exporters						

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Demand Growth for Oil Products Has Peaked, Citigroup Says

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Demand growth for refined oil products will never return to the levels it reached before the coronavirus outbreak, Citigroup said.

As the global economy restarts, fewer people will fly and use their cars, analysts including Ed Morse wrote. With meetings going virtual and business no longer needing to move employees around the world in the same way as before, there will be powerful forces pushing a transition away from oil, they wrote in a report.

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▼ -4.90 -1.59%

At its peak, the virus wiped out as much as 30% of total oil demand, and the market is still recovering. The report comes just days after Royal Dutch Shell warned of a record writedown to the value of its assets after it reduced its view for long-term oil and gas prices, while BP Plc has also taken similar steps. Citi said that oil is more likely to be at $45 than $60 a barrel in the long-term.

“Oil product demand growth will falter significantly, change its contours and never return to pre-covid-19 rates of growth,” they said.

With its more pessimistic take on demand, Citi also cast a warning to those hoping for a return of $100 crude.

Some in the market have been gearing up for such a possibility, they said, driven by spending reductions from major energy companies following the oil price rout and geopolitical risks in some of the world’s major producing nations.

But with production returning at $45 a barrel, longer-term supply costs falling in recent years and plenty of supply already offline with political risks, triple-digit crude “has far more fantasy than reality at its heart.”

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Markets

Oil Traders Staying Away From Market With Prices Going Nowhere

By Alex Longley
July 8, 2020, 5:00 AM PDT

- Brent trading volumes fell by a third in first week of July
- Global benchmark stuck near $43 for the last few weeks

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40.90 USD/bbl.
▲ +0.28 +0.69%

BNP
BNP PARIBAS
36.35 EUR
▼ -0.89 -2.39%

In the first week of July, volumes for the Brent global crude benchmark have fallen by a third as traders shun a market that's been moving sideways for weeks. The number of contracts changing hands has fallen by 32% versus the average in June, and is down almost two-thirds from when prices were collapsing in March.

Calm After the Storm
Average Brent futures volumes have tumbled so far in July

It's a stark contrast with March and April, which saw frenzied trading of both major oil benchmarks as West Texas Intermediate crashed below zero for the first time on record. Though huge output cuts from OPEC and its allies have since helped re-balance the market, prices have stalled as coronavirus cases continue to spread across the globe. The cooling has hit market volatility, which is now at its lowest level since February.

"We have come to a natural pause," said Harry Tchilinguirian, head of commodities strategy at BNP Paribas. With lower volumes and volatility, traders are waiting for further signs that demand will recover or be hampered by the outbreak, he said.

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So far in July, prices have traded in a range of less than $3. It's unlikely, but if Brent were to stay in that range for the rest of the month, it would be the smallest monthly band since 2004, according to an analysis of ICE Futures Europe data. The lower volumes also come at a time when holdings of U.S. crude futures have plunged sharply.

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Utah’s oil industry is paying a heavy price for all that cheaper gas as demand plunges

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(Tribune file photo | Brian Maffly) The pandemic-induced crash in oil prices has hit Utah producers hard. Operators of wells, like this one near the Strawberry River outside Duchesne, could soon be forced to shut down production because there is nowhere the oil can shipped or stored.

By Brian Maffly

Published: April 25
Updated: April 26, 2020

That $2 you’re paying at the pump for gasoline exacts a hefty toll on Utah’s oil and gas companies, whose industry has been turned upside down from the historic crash in oil prices because of the coronavirus pandemic.

With transportation nearly at a standstill, the collapse in demand for gasoline and jet fuel has sent shock waves to the wellheads in the Uinta Basin, where Utah’s oil producers are running out of options for what to do with the oil they extract. There is now almost nowhere to ship this oil, said Rikki Hrenko-Browning, president of the Utah Petroleum Association.

“There is a real domino effect,” Hrenko-Browning said. “I don’t think the industry has experienced this type of double shock from both the supply and demand sides at the same time. The response to COVID-19 has reduced demand at the same time we have this supply shock with OPEC and Russia flooding the market.”

Given that oil-storage facilities have reached capacity, Uinta Basin producers have little choice but to turn off producing wells and shelve drilling projects.

“It won’t be relieved until the economy gets back to normal and demand starts to pick up again,” said Kathleen Sgamma, who heads the Western Energy Alliance, a regional trade group representing oil and gas producers. “People are being laid off, and companies are going bankrupt.”

While officials suspect Utah’s oil production is already in steep decline, they can’t say by how much until producers report their monthly numbers for March, which won’t be posted until mid-May, according to John Baza, director of the Utah Division of Oil, Gas and Mining.

Before the price crash, five to seven drill rigs were operating in the Uinta Basin, he said, but by Thursday only three were still sinking wells.

“The immediate impact is a drastic slowdown in drilling,” he said. But, more significantly, producers must now cope with ongoing production that could get stranded on the way to glutted markets. Shutting down this production carries risks to well integrity and to the oil reservoir itself.

“At some point, they will choose not to transport oil to the refineries and shut in wells,” Utah’s top oil and gas regulator said. “We will be monitoring to see how many operators are doing that. It’s a difficult business choice for operators. Oil economics have fallen off a cliff. It will be long, slow climb back to where they were.”

Storage space

Hrenko-Browning said she believes the Salt Lake City area’s five oil refineries, which typically process around 90,000 barrels a day, can scale back fuel production by 50% to 60% to match shrinking demand. That could eventually leave 50,000 barrels of daily production without a destination.

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“The dust is just settling,” she said. “There is going to be a significant reduction in production out of the Basin.”

All around Utah and the rest of the world, facilities that store oil are reaching capacity, and now oil is being held in tankers, trucks and rail cars.

“We don’t take the decision to shut in wells lightly,” Sgamma said, “but when there is no physical space to put oil and when it cost more to sell than holding on to it, producers are left with no choice but to shut in production.”

Oil wells don’t come with an on-off switch or even a dimmer that conveniently paces output to match the market. Shutting down or stanching a well’s flow requires additional work and careful monitoring to ensure no oil or production water is released into the environment.

“It is costly to shut in a well and extremely costly to bring it back online,” Sgamma said. “This is not unique to the Uinta Basin but affects it more because they are already paid a [discounted] differential.”

The waxy texture of Uinta crude puts Utah producers at a disadvantage because there are fewer refiners that can accept it, so those that do pay several dollars less per barrel for it.

Oil and gas royalties represent a key revenue stream for the Utah School and Institutional Trust Lands Administration, which is bracing for a painful decline in profits from its energy holdings.

“We won’t really know for another month. We won’t get the April royalty reports until June 1,” said Wes Adams, SITLA’s assistant director over oil and gas. “Because of of the lag, it’s hard for us to get a read on the drop. We expect it to be pretty dramatic.”

Adams figures this quarter will see a 22.5% decline in oil production from SITLA holdings, along with a 60% plunge in the prices its producers fetch for that oil. He anticipates revenues for the current quarter will be half what they were over the same quarter last year, when the agency reaped $6 million off oil and gas.

SITLA is looking at policy changes to give operators some relief, Adams said, such as waiving the standard penalty on those who shut in wells and extending the terms of leases.

Seeking relief

For now, Utah oil producers are seeking regulatory relief to help weather the crisis.

For example, the Utah Petroleum Association, in a March 25 letter to Gov. Gary Herbert, asked his administration to relax bonding requirements, extend time periods for approved drilling permits from one to two years, stretch the deadlines for reclaiming shut-in wells from five to seven years, pause inspections, extend reporting deadlines, and defer royalty and rent payments.

“We request you postpone those tasks in which a delay will not jeopardize human health or

the environment and extend deadlines that are now virtually impossible,” Hrenko-Browning wrote to the governor, “except, again, for those few instances where doing so would cause identifiable harm to human health or the environment.”

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Mark Gulbrandsen

No surprise here! Fossil fuel is an industry that's going to go away in some sectors a lot sooner than you think and this is likely to speed it up. If you think it's bad now just wait till round two of the virus hits in the fall and we have to go through a second and longer round of closures. Herbie's false economy will completely collapse then. Utah never really had any other staples of industry to speak of, and no real long term manufacturing to build a solid economy on. But you…

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MEMORANDUM OF UNDERSTANDING AMENDMENT NO. 2 REGARDING THE DEVELOPMENT OF THE UINTA BASIN RAILWAY

This Memorandum of Understanding Amendment No. 2 (the "AMEND NO. 2") Regarding the Development of the Uinta Basin Railway is dated as of ~~[insert date]~~ May 27th, 2020 (the "Effective Date"), hereby amends the Memorandum of Understanding Regarding the Development of the Uinta Basin Railway entered into as of May 10, 2019 (the "Original MOU"), as previously amended on October 31, 2019 by the Memorandum of Understanding Amendment No. 1 Regarding the Development of the Uinta Basin Railway ("AMEND NO. 1" and collectively with the Original MOU, the "MOU"), by and between the Seven Counties Infrastructure Coalition (the "Coalition") and Drexel Hamilton Infrastructure Partners, L.P., a Delaware limited partnership ("Drexel"), Rio Grande Pacific Corporation ("Rio Grande" and collectively with Drexel, the "Developer"), and the Ute Indian Tribe of the Uintah and Ouray Reservation.

Recitals

A. In May 2019, the Coalition and Drexel entered in the Original MOU for development of the Uinta Basin Railway which was amended in October 2019, pursuant to AMEND NO. 1 and made Rio Grande a signatory party to the entire MOU.

B. In the MOU, the Coalition and Developer agreed, in paragraph 5, that among other things, the Coalition: would have a right to terminate the MOU if Developer did not present a proposal "reasonably acceptable to the Coalition Board to finance the purchase of Right of Way for the alternate route to be approved by the Surface Transportation Board coupled with Development Rights to finance development of Facilities by June 1, 2020."

C. Both the Coalition and Developer have expended substantial efforts to advance the Project.

D. The Coalition has proposed to Developer an amount that it would expect to receive annually if the Project is completed and trains operate on the railroad and the Parties continue to negotiate in good faith to reach a long term arrangement.

E. The coronavirus pandemic has been an unforeseen and significant adverse intervening event for these Parties and the businesses involved in the oil industry which are intended to be the principal customers of the Uinta Basin Railway. In particular, the oil producers in the Uinta Basin have been negatively impacted by the pandemic and its consequent adverse economic effect on the oil markets. These events have created a delay in the ability of oil producers in the Uinta Basin to be able commit to future delivery of crude oil for the proposed railway.

NOW, THEREFORE, the Coalition and Drexel and Rio Grande, in consideration of what each has determined in its best interest, which consideration each of them acknowledges is sufficient, hereby agree and covenant as follows:

1. In recognition of the Ute Indian Tribe's participation in this project and the provisions of the Agreement between the Ute Indian Tribe and the Coalition as recognized in Recital C and Paragraph 3 of the MOU, Paragraph 3 of the MOU is amended and restated as follows:

The parties to this MOU understand and agree that the Ute Indian Tribe will have the right to a 5% ownership interest in the rail line and terminal(s) in exchange for its non-monetary contributions of value as a sovereign nation to advance the project as of the execution of this MOU. The Parties further understand and agree that the Tribe will have an option but not an obligation to invest in an additional ownership stake in the project, for up to a 25% total ownership interest in the rail line and up to a 49% total ownership interest in the terminals. The Tribe's pro rata right to participate in project financing and returns on capital from the projects shall be *pari passu* in all material respects with Developer's pro rata participation in project financing and returns on capital from the projects. Nothing in this MOU shall be construed as restricting or conditioning any party's ability or authority to communicate with the Tribe or any other party to this agreement in relation to this Project.

2. In recognition of the factors and events described in the Recitals above and in order to continue to advance the Project in a reasonable manner, the date of June 1, 2020 set forth in paragraph 5 of the MOU should be amended , and therefore, paragraph 5 of the MOU is amended to strike the first sentence thereof and insert in lieu thereof the following:

The term of this MOU will be for five years from the Effective Date (May 10, 2019) unless extended or terminated by agreement of the Parties; provided however, that if the Developer has not been successful in presenting a proposal reasonably acceptable to the Coalition Board to finance the purchase of the Right of Way for the alternate route to be approved by the Surface Transportation Board coupled with Development Rights to finance development of the Facilities by March 31, 2021, then the Coalition will have the right to terminate the MOU, with thirty days written notice to the Developer, and to work with other parties to finance the purchase of the Right of Way and to develop it for any purpose the Coalition deems in its best interest.

3. In recognition of the Ute Indian Tribe's status as a sovereign nation whose jurisdiction is defined, in part, by federal law, Paragraph 9 is amended and restated as follows:

This MOU is to be interpreted and enforced in accordance with federal law, and absent applicable federal law, in accordance with Utah law, without the application of any jurisdiction's conflicts of law principles.

4. All capitalized terms used, but not otherwise defined in this AMEND. NO. 2, have the meaning ascribed to them in the MOU as amended by that certain AMEND NO. 1 thereto dated as of October 31, 2019. The Original MOU and AMEND NO. 1 are incorporated herein by reference as if fully set forth herein.

5. This AMEND NO. 2 is to be interpreted and enforced in accordance with Utah law, without the application of any jurisdiction's conflicts of law principles.

6. This AMEND No. 2 is not assignable without the written consent of the other Party.

7. The foregoing recitals are incorporated herein by reference and are made a part hereof in their entirety.

IN WITNESS WHEREOF, the Parties have caused their duly authorized representatives to execute this AMEND NO. 2 as of May 27, 2020.

Seven Counties Infrastructure Coalition

By: Michael J McKee

Name: Michael J. McKee
Title: Executive Director

SEVEN COUNTY INFRASTRUCTURE COALITION SEAL UTAH

Attested:

By: E. T. Johnson

Eric Todd Johnson, Legal Counsel
Approved as to form

Drexel Hamilton Infrastructure Partners Fund II, LLC
f/k/a Drexel Hamilton Infrastructure Partners, L.P.

By: Mark A. Michel

Name: Mark A. Michel
Title: Managing Partner

Rio Grande Pacific Corporation

By: Rick Bertel

Name: Rick Bertel
Title: Chief Executive Officer

Ute Indian Tribe

By: Luke Duncan

Luke Duncan, Chairman
Ute Indian Tribe Business Committee

MEMORANDUM OF UNDERSTANDING AMENDMENT NO. 1 REGARDING THE DEVELOPMENT OF THE UINTA BASIN RAILWAY

This Memorandum of Understanding Amendment No. 1 (the "AMEND NO. 1") Regarding the Development of the Uinta Basin Railway dated as of October 31, 2019 (the "Effective Date"), hereby amends the Memorandum of Understanding Regarding the Development of the Uinta Basin Railway entered into as of May 10, 2019 (the "MOU"), by and between the Seven Counties Infrastructure Coalition (the "Coalition"), and Drexel Hamilton Infrastructure Partners, L.P., a Delaware limited partnership ("Drexel").

Recitals

A. In May 2019, Drexel submitted a proposal and response to a Request for Qualifications published by the Coalition and as part of their proposal, Drexel included Rio Grande Pacific Corporation ("Rio Grande Pacific") as a co-respondent and Drexel and Rio Grande Pacific presented a joint response to the Coalition which was ultimately chosen by the Coalition as the preferred proposal and which resulted in the original MOU.

B. As set forth in the MOU, the Coalition has determined that it is in the best interest of the Coalition to acquire certain railroad Rights of Way and develop the Uinta Basin Railway with all associated improvements. The Coalition has obtained a docket number with the U.S. Surface Transportation Board and proposed four alternative routes. Consistent with this determination, the Coalition has expended public funds to identify owners of property along these routes and to otherwise prepare to secure railroad Right of Way.

C. In the MOU, Drexel agreed, among other things, to develop the Facilities (as defined in the MOU), including: financing the purchase by the Coalition of the property for the Right of Way for the alternate route to be approved by the Surface Transportation Board (the "Right of Way").

D. In this AMEND NO. 1, the Coalition and Drexel, along with Rio Grande Pacific, a short line rail owner and operator that has entered into certain agreements with Drexel, desire to more clearly define their respective roles with respect to the acquisition of certain railroad Rights of Way with respect to the Uinta Basin Railway.

E. For purposes of this AMEND No. 1 and the MOU, "Right of Way" shall mean any property right useful for a common carrier railroad right of way, including, but not limited to, a purchase option, an easement option, fee simple title, a perpetual easement, etc.

F. For purpose of this AMEND No. 1, the term "Development Rights" shall have the same definition as set forth in the MOU.

G. For purpose of this AMEND No. 1, the term "Developer" shall refer to Drexel and Rio Grande Pacific, collectively.

NOW, THEREFORE, the Developer and Coalition hereby mutually agree and covenant, as follows:

1. In furtherance of the MOU, in the event that the Developer purchases a Right of Way from private property owners, the Parties agree that Developer shall transfer the Right of Way to the Coalition as set forth hereafter. The Developer agrees to pay for all costs and expenses to be paid and delivered to the various property owners in association with the acquisition of the Right of Way. Any agreement entered into by the Developer to obtain an interest in the Right of Way shall contain an express provision providing for assignment of such interest in the Right of Way to the Coalition. Developer acknowledges that the Coalition, in its own name, has applied or will apply for permits from appropriate federal agencies.

2. The Parties agree that all Right of Way and every Right of Way acquired by the Developer shall be transferred to the Coalition and shall be exclusively in the name of the Coalition in documents that are recordable with the appropriate county recorders, upon the first to occur of either of the following conditions:

   a. Drexel and the Coalition have entered into, each in its sole discretion, a definitive long-term agreement(s) whereby Drexel or Drexel's affiliates will have long term rights to arrange for the

Development Rights of the proposed railway. Such agreement may include a professional services agreement and/or a cooperative endeavor agreement; or

b. By and no later than June 1, 2020, provided that reimbursement has been paid in full as specified in Paragraph 3 below.

3. The Developer's obligation to transfer all Right of Way to the Coalition by June 1, 2020, shall be binding regardless of whether Drexel and the Coalition have entered an agreement giving Drexel or Drexel's affiliates long term rights to arrange for the Development Rights of the proposed railway and shall be transferred to the extent permitted by law and without violating the rights of third parties from which or whom the Developer acquired such Right of Way. In the event the Right of Way is transferred to the Coalition as set forth in Paragraph 2(a) above, such transfer shall be made at no cost to the Coalition. In the event the Right of Way is transferred to the Coalition as set forth in Paragraph 2(b) above, the Coalition shall reimburse the Developer in full at the time of transfer for the amounts paid by the Developer to property owners to acquire the Right of Way. The Coalition has no obligation to reimburse Developer under paragraph 2(b) above in the event the Coalition elects to not proceed with the Uintah Basin Railway or the route for which Right of Way has been purchased. However, in the event the Coalition elects not to proceed with the Uinta Basin Railway or the route for which the Right of Way has been purchased, the Coalition has a 60-day first right of refusal to reimburse Developer for the Right of Way commencing on June 1, 2020, and ending at midnight on July 30, 2020, after which time Developer has no further obligation to make the Right of Way available to the Coalition, and Developer at its sole choosing may retain, sell, or otherwise transfer the Right of Way to any third party.

4. The Coalition agrees to pay for the cost of agents to act as subcontractors to the Coalition's engineer of record, Jones and DeMille Engineering, to acquire Right of Way for the proposed railway and the Coalition further agrees in consultation with the Developer to develop alternate alignments and routes as may be deemed beneficial or desirable as determined by the Coalition and to provide the Developer access to the alignments and routes the Coalition may develop.

3. In carrying out their obligations hereunder the Parties shall comply with all applicable laws. Except as amended herein, the Memorandum of Understanding Regarding the Development of the Uinta Basin Railway dated May 10, 2019, remains in full force and effect and is in all respects reaffirmed hereby, and terms thereof are to be read as part of the terms of this AMEND NO. 1.

4. This AMEND NO. 1 is to be interpreted and enforced in accordance with Utah law, without the application of any jurisdiction's conflicts of law principles.

5. This AMEND NO. 1 is not assignable by either Party without the written consent of the other Party.

6. The foregoing recitals are incorporated herein by reference and are made a part hereof in their entirety.

SIGNATURES ON FOLLOWING PAGE

IN WITNESS WHEREOF, the Parties have caused their duly authorized representatives to execute this AMEND NO. 1 as of the Effective Date.

Seven Counties Infrastructure Coalition

By: Michael J. McKee

Name: Michael J. McKee
Title: Executive Director

ATTESTED:

E. T. Johnson

Eric Todd Johnson, Legal Counsel

(Coalition Seal) SEAL — SEVEN COUNTY INFRASTRUCTURE COALITION — UTAH

Drexel Hamilton Infrastructure Partners, L.P.

By: Mark A. Michel

Name: Mark A. Michel
Title: Managing Partner

Rio Grande Pacific Corporation

By: Richard Q. Bertel

Name: Richard Bertel
Title: Chief Executive Officer

[Signature Page to Memorandum of Understanding Amendment No. 1 Regarding the Development of the Uinta Basin Railway Development]

Lynn Sitterud
Coalition Co-Chair

Brad C. Horrocks
Co Chair

MEMORANDUM OF UNDERSTANDING REGARDING THE DEVELOPMENT OF THE UINTA BASIN RAILWAY

This Memorandum of Understanding (the "MOU") regarding the development of the Uinta Basin Railway, an infrastructure development project conceived of and to be developed under the jurisdiction and mandate of the Seven Counties Infrastructure Coalition (the "Coalition"), an independent political subdivision of the State of Utah, is entered into as of May 10, 2019 (the "Effective Date").

Recitals

A. The Coalition has determined that it is in the best interest of the Coalition to acquire certain railroad Rights of Way and develop the Uinta Basin Railway with all associated improvements. The Coalition has obtained a docket number with the U.S. Surface Transportation Board and proposed three alternative routes. The preferred route is approximately 80 miles in length which is roughly from crude oil production centers near Roosevelt, Utah to Soldiers Summit, Utah, which is described with more particularity in **Exhibit A** ("Preferred Route"). A map showing all three alternative routes is attached hereto.

B. The Coalition has determined that it would be in the best interests of the Coalition to develop a short line railroad and associated terminal/s with capacity to gather and load up to approximately 500,000 barrels per day of crude oil product or other bulk commodities, such as agricultural products, and the infrastructure associated therewith or to serve such terminal, including railroad facilities, handling facilities, tank batteries, rail track, roads, buildings and handlings facilities (collectively, the "Facilities"). The Coalition has obtained funds and commenced the design, financing and development of the Facilities, including the commercial facilitation and development thereof.

C. The Coalition has entered into an agreement with the Ute Indian Tribe with respect to the proposed railway and the Facilities and the Coalition and the Ute Indian Tribe are negotiating additional agreements related thereto. The Coalition's Preferred Route crosses trust lands of the Ute Indian Tribe and the agreement of the Ute Indian Tribe is necessary for the Preferred Route.

D. Drexel Hamilton Infrastructure Partners, L.P., a Delaware limited partnership (" Developer") desires to develop the Facilities, including: (i) financing the purchase of the property for the Right of Way for the alternate route to be approved by the Surface Transportation Board (the "Right of Way"), and then (ii) undertaking thereafter, pursuant to a long term arrangement for the use of the Facilities by the Developer, which arrangement shall be acceptable to the Coalition and Developer, to finance, construct, own, operate and maintain the Facilities.

NOW, THEREFORE, the Developer and Coalition hereby mutually agree and covenant, as follows:

1. The Developer (Drexel Hamilton Infrastructure Partners, L. P.) agrees to develop the Facilities by (i) financing the purchase of the property for the Right of Way, and then (ii) undertaking, pursuant to a long term arrangement for the use of the Facilities by the Developer, which arrangement shall be acceptable to the Coalition and Developer to finance, construct, own, operate and maintain the Facilities. Developer agrees to use commercially reasonable efforts and shall not engage in any projects touching the State of Utah that may compete with the rail or the Facilities or with the Coalition. This non-compete covenant shall survive the termination of this agreement by two years.

2. The Coalition shall during the term of this MOU, negotiate in good faith with the Developer, and the Developer shall negotiate in good faith with the Coalition, to agree upon an arrangement (which may include a professional services agreement and/or a cooperative endeavor agreement), to be coordinated with the Developer, to finance the purchase by the Coalition for the Right of Way, for development of the Facilities, which financing may include tax exempt or other municipal conduit bonds issued by the Coalition, or other loan or credit arrangements, all subject to the Coalition Board's review and approval. The Coalition further agrees and pursuant to a resolution of the Coalition's Board dated May 10, 2019, hereby selects the Developer to be its exclusive commercial facilitator to assist and advise the Coalition and to develop the Facilities by (i) financing the purchase of the property for the Right of Way, and then (ii) undertaking, pursuant to a long term arrangement for the use of the Facilities by the Developer, which arrangement shall be acceptable to the Coalition and Developer to finance, construct, own, operate

and maintain the Facilities. The Developer may develop the Facilities either directly or indirectly (acting through Developer's Affiliate, which is defined as a portfolio entity of Developer and assigns and their respective contractor).

3. The Developer understands and agrees that the Coalition intends to cooperate with the Ute Indian Tribe and that the Ute Indian Tribe has been extended an invitation by the Coalition to participate in the Preferred Route for the rail and the Facilities (irrespective of the route) to the extent it so desires. Any and all participation by the Ute Indian Tribe or any interest in the rail, the transloading facilities, or any other Facilities shall be in the sole, unfettered discretion of the Ute Indian Tribe. The Developer agrees to the term sheet between the Coalition and the Ute Indian Tribe that the Coalition Board approved on May 10, 2019, recognizing that the Ute Indian Tribe may not agree to such terms, and the Developer further agrees that all negotiations and agreements related to the participation by the Ute Indian Tribe in the rail and Facilities shall be within the purview and under the direction of the Coalition, however the Coalition agrees to consult with the Developer and seek their input and consent prior to any agreement.

4 In connection with any financing of a purchase of the Right of Way for the anticipated development of the Facilities, the Parties shall also negotiate in good faith for a long term arrangement between the Coalition and the Developer, which arrangement shall be acceptable to the Parties (and may include, without limitation, a lease, a concession, a license and/or a right of use), whereby the Developer, the Developer's Affiliates will have long term rights to arrange for and coordinate the financing, construction, ownership, operation and maintenance of the Facilities (with such agreement or agreements being referred to herein as the "Development Rights"), subject to the Board's approval.

5. The term of this MOU will be for five years from the Effective Date unless extended or terminated by agreement of the Parties; provided however, that if the Developer has not been successful in presenting a proposal reasonably acceptable to the Coalition Board to finance the purchase of the Right of Way for the alternate route to be approved by the Surface Transportation Board coupled with Development Rights to finance development of the Facilities by June 1, 2020, then the Coalition will have the right to terminate the MOU, with thirty days written notice to the Developer, and to work with other parties to finance the purchase of the Right of Way and to develop it for any purpose the Coalition deems in its best interest. The Coalition, however, shall not enter into any agreement with any third party to finance the purchase of the Property or to grant any Development Rights to any such third party with which the Developer materially negotiated to reach an agreement to finance the purchase of the Right of Way or to exercise the Development Rights (each such third party being referred to hereinafter as a "Prohibited Third Party"), or with or to any Affiliate of any Prohibited Third Party, provided that the Developer has given written notice, within the later of thirty days (1) of the execution of this MOU or (2) the initiation of such material negotiation, to the Executive Director identifying any such Prohibited Third Party. For purposes of this MOU, an "Affiliate" is, with respect to the Developer or any Prohibited Third Party, any other person directly or indirectly controlling, controlled by or under common control with Developer or any Prohibited Third Party. For the purposes of this definition: (a) the term "control" (including with correlative meaning, the terms "controlled by" and "under common control with") as applied to the Developer or any Prohibited Third Party, means the possession, directly or indirectly, of the power to direct or cause the direction of the management of the Developer or that Prohibited Third Party whether through ownership of 50% or more of the Developer's or such Prohibited Third Party's voting securities, by contract, or otherwise; and the term "person" means any individual, corporation, partnership, limited liability company, trust, unincorporated association or other entity.

6. Except as is acceptable to the Developer, the Coalition shall not, through the Executive Director or any other person, directly or indirectly, negotiate any: (a) financing, lease, right of use, license, concession or purchase of the Right of Way or the Development Rights; (b) financing or other agreement regarding any development thereof; (c) other encumbrance of the Right of Way, with any person or entity other than the Developer during the term hereof without the Developer's prior consent.

7. Any agreement reached between the Coalition with regard to financing a purchase of the Right of Way, coupled with a long-term arrangement for the use of the Facilities by the Developer (or other arrangement acceptable to the Parties) and the Development Rights, will be subject to the Coalition Board's review and approval. The Parties intend Development Rights to include the transportation of bulk commodities to and from the Uinta Basin to and from markets outside the State of Utah, which transportation may commence prior to construction of the Uinta Basin Railway.

8. In carrying out their obligations hereunder both Parties shall comply with all applicable laws.

9. This MOU is to be interpreted and enforced in accordance with Utah law, without the application of any jurisdiction's conflicts of law principles.

10. This MOU is not assignable by either Party without the written consent of the other Party.

11. The foregoing recitals are incorporated herein by reference and are made a part hereof in their entirety.

[Signed on Next Page]

IN WITNESS WHEREOF, the Parties have caused their duly authorized representatives to execute this MOU as of the Effective Date.

Seven Counties Infrastructure Coalition

By: Michael J McKee

Name: Michael J. McKee

Title: Executive Director

ATTESTED:

Eric Todd Johnson, Legal Counsel

Drexel Hamilton Infrastructure Partners, L.P.

By: _____

Name: Mark A. Michel

Title: Managing Partner

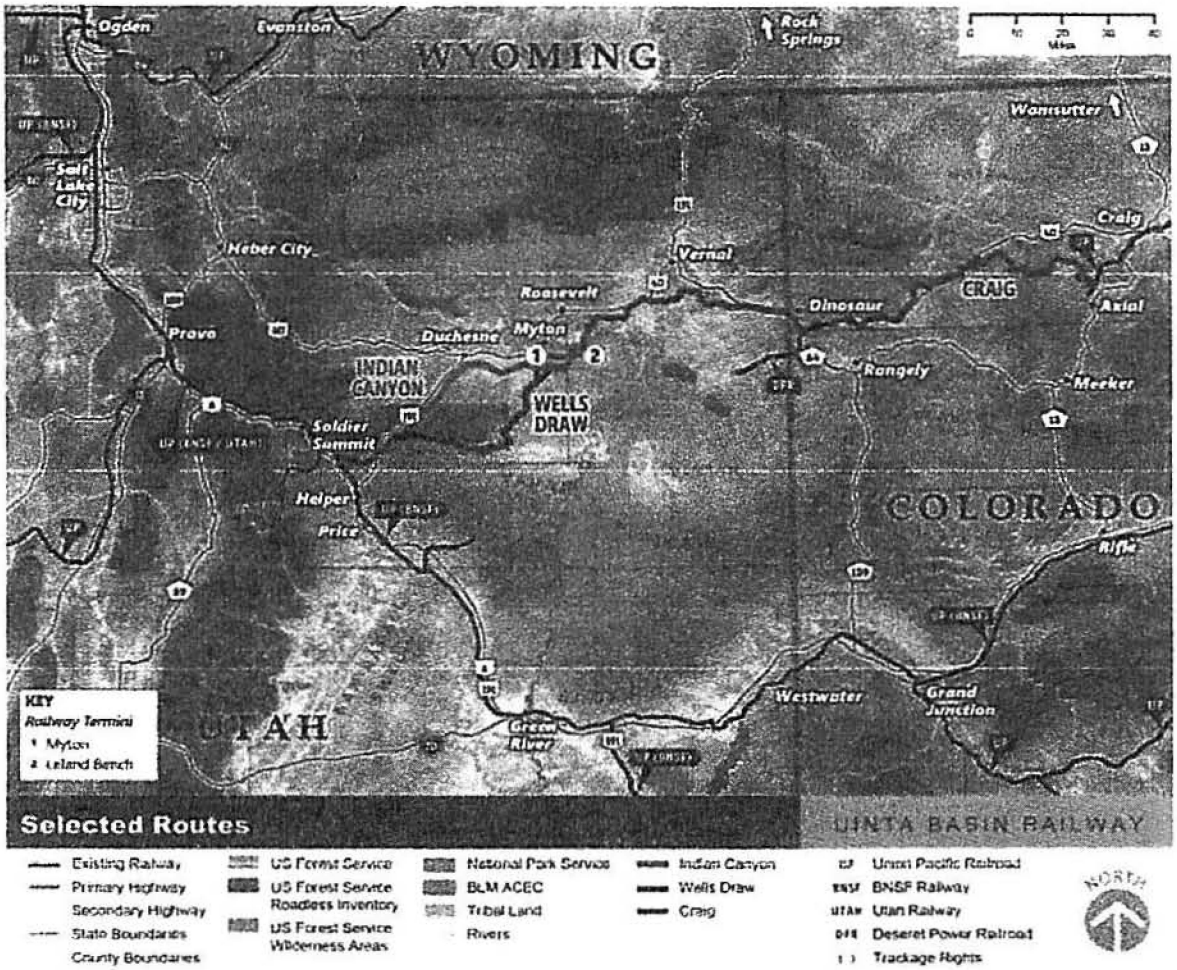
[Signature Page to Memorandum of Understanding Regarding the Utah Seven Counties Infrastructure Coalition Uinta Basin Railway Development]

EXHIBIT A

The need for the Uinta Basin Railway is to enable the residents and industries in the Uinta Basin to have the same economic opportunities and access to markets that are enjoyed by most of the residents and industries elsewhere in the United States. The economic burden on residents and industries in the Uinta Basin through their current costly, truck-mediated access to railway service prevents them from enjoying the same economic opportunities that are available to most of the residents and industries elsewhere throughout the country.

The Uinta Basin Rail project is a proposed railroad in the Uinta Basin region of eastern Utah. In 2012, the Utah Department of Transportation, working with the regional Six-County Infrastructure Coalition, began studying transportation in the basin. After examining 26 potential routings, the determination of three routes were superior, (1) a proposed longer route east through eastern Utah connecting to the Union Pacific branch line in Craig, Colorado, (2) a proposed 80 mile long railway route through the Indian Canyon west from the basin to near Soldier Summit, and finally (3) a proposed 100 mile long route to Soldier Summit through a more southern route via Wells Draw.

The right of way would largely follow existing roadways, including US Route 40 and US Route 191. There are intended to be one or two terminals established in the basin for crude oil loading and to receive the importation of frac-sand and other commodities needed for the extraction of natural resources in the state of Utah. See the image below for greater illustration of the preferred routes and locations.



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Utah’s oil industry crumbling under coronavirus pressure

All drill rigs have left the state

By Amy Joi O'Donoghue | @Amyjoi16 | May 5, 2020, 10:22am MDT

SHARE

An oil rig is pictured in the Uinta Basin in the Red Wash area near Vernal. | Scott G. Winterton, Deseret News

SALT LAKE CITY — A new report looking at the state of energy in Utah details a grim picture for the oil industry, with the price per barrel for Uinta Basin waxy crude dropping by 90% since January.

As of May 1, all drilling rigs had left Utah and many current wells are being shut in, according to the Utah Geological Survey.

Utah’s Energy Landscape, released Monday, describes the significant changes to the oil industry, with predictions of declining production by as much as 6 million barrels this year due to lack of demand in the wake of the COVID-19 pandemic.

Travel restrictions and a price war between Saudi Arabia and Russia are resulting in dramatic consequences for the oil sector across the United States and in Utah, which had a $4 billion energy production value prior to the pandemic — the majority derived from the oil and gas sector, the agency said.

The report said it anticipates those consequences to stretch into next year, severely impacting the industry’s workforce and the coffers of government, with nearly $159 million generated from property taxes and another $150 million in conservation fees paid to the state.

Those energy sector employees earn nearly double the statewide annual wage and many are now idled in unemployment lines as the industry sputters amid the severe contraction in prices.

Those prices may bode well for the consumer at the pump, with the average gasoline price in Utah per gallon sitting at $1.98. The glut of oil on the market will result in a production decline in Utah by 20% or more and an additional decline of 10% in 2021, the agency predicts.

Natural gas production was on the decline in Utah but will drop more as associated gas from oil wells decreases.

If, and when, it recovers is anybody’s guess.

“At this point it is so hard to predict because we don’t know how long the lockdown will be,” said Michael Vanden Berg, who oversees the survey’s energy and minerals program. “We don’t know how long it is going to take before people start getting out and driving around. The big question is how long it is before we get back to a normal level of activity when it comes to using petroleum products.”

The report did note that coal production rebounded in 2019 due to a growing foreign export market, and despite the pandemic, production is expected to remain steady for the next few years.

There is also good news on the renewable energy front, with the state adding 914 megawatts of new utility-scale solar between 2015 and 2019 and experiencing a tremendous surge in residential solar, jumping from just seven megawatts in 2013 to more than 212 megawatts in 2018.

A megawatt is a unit of energy that generally can power 1,000 homes.

Additional activity is happening with renewable natural gas coming online in Utah from sources that include sewer districts and other waste facilities.

Correction*: An earlier version of this story incorrectly said decreased oil production could reach 6 million barrels per day. The Utah Geological Survey is predicting a decrease of 6 million barrels for this year.*

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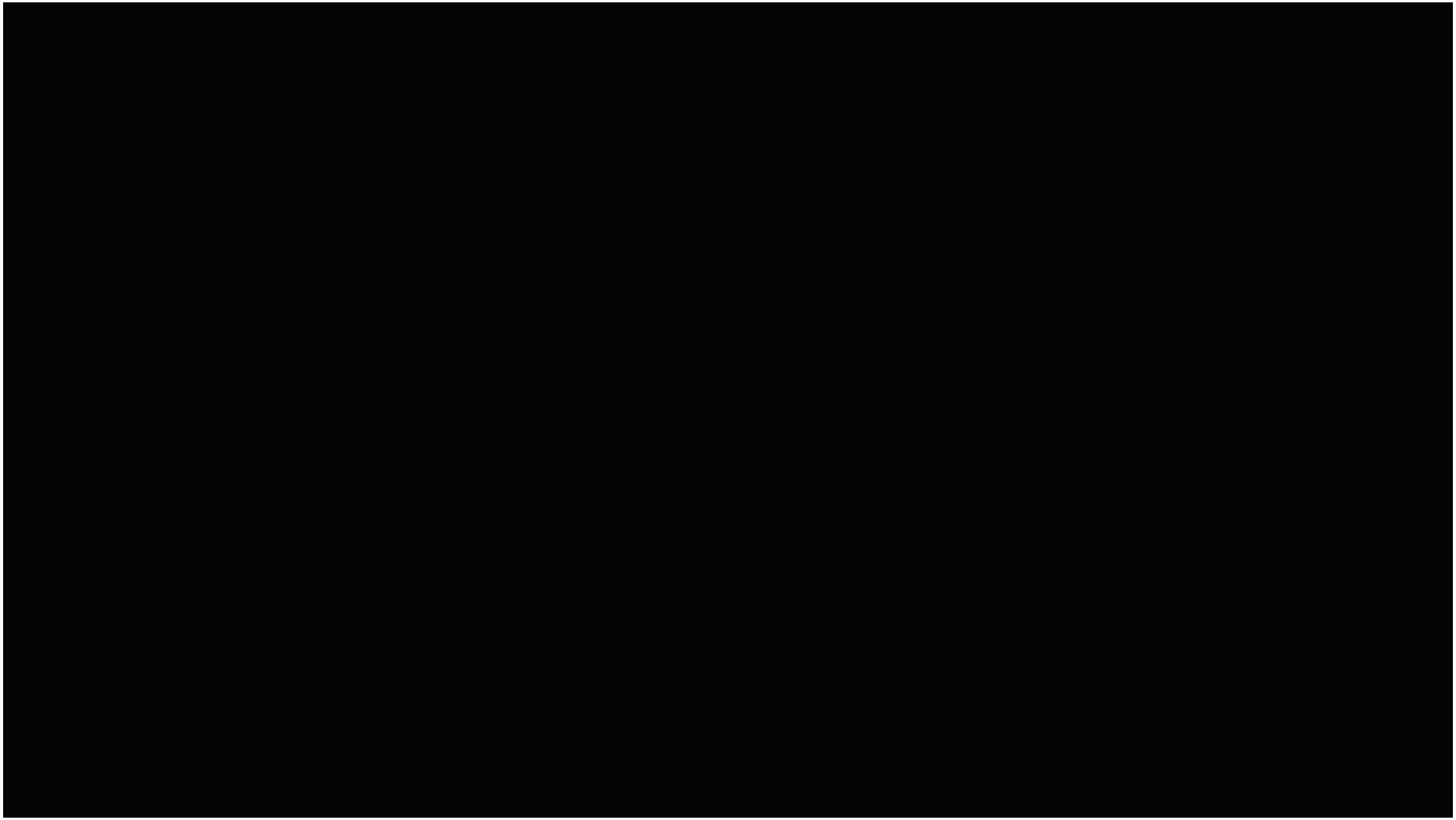

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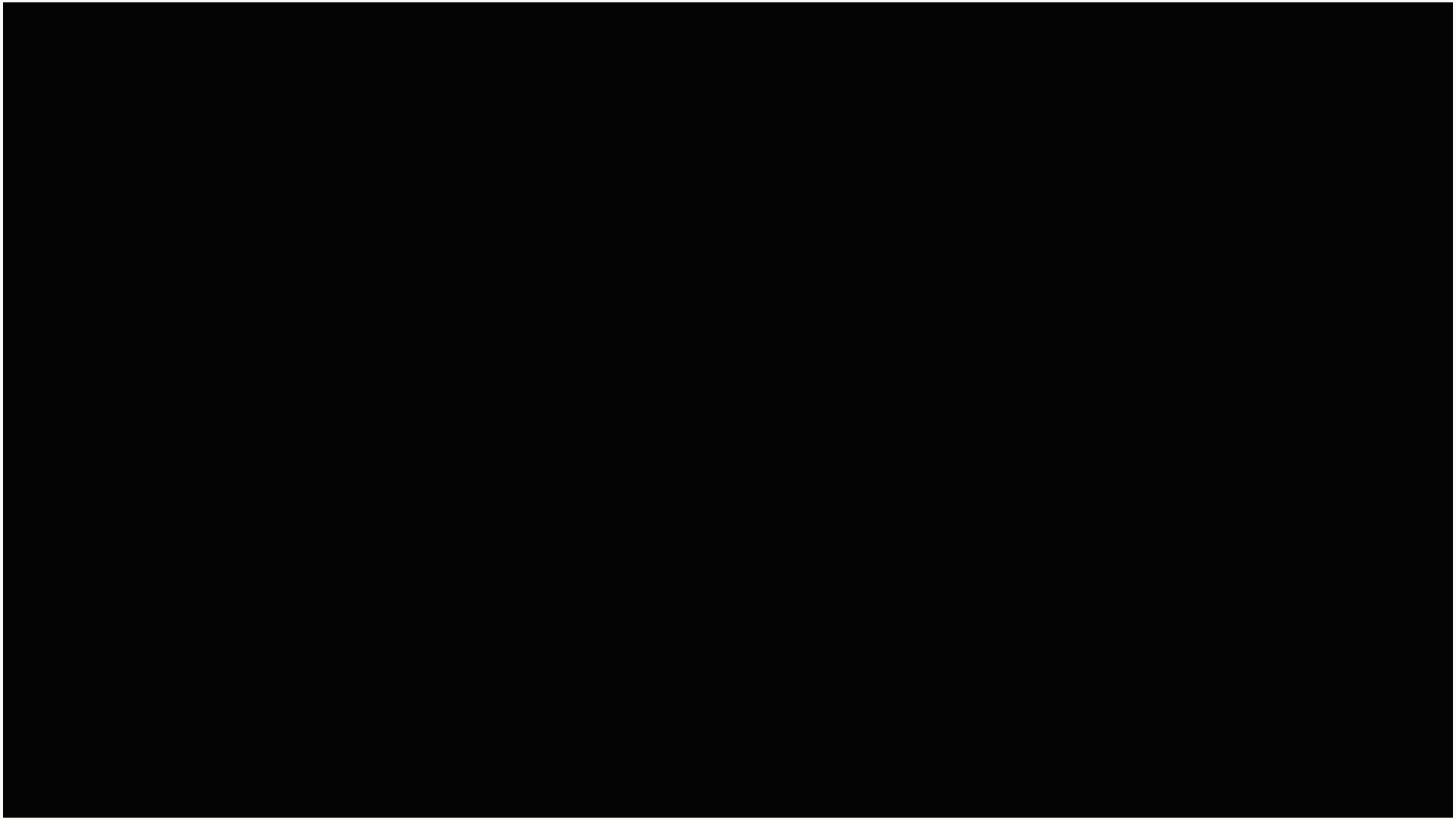

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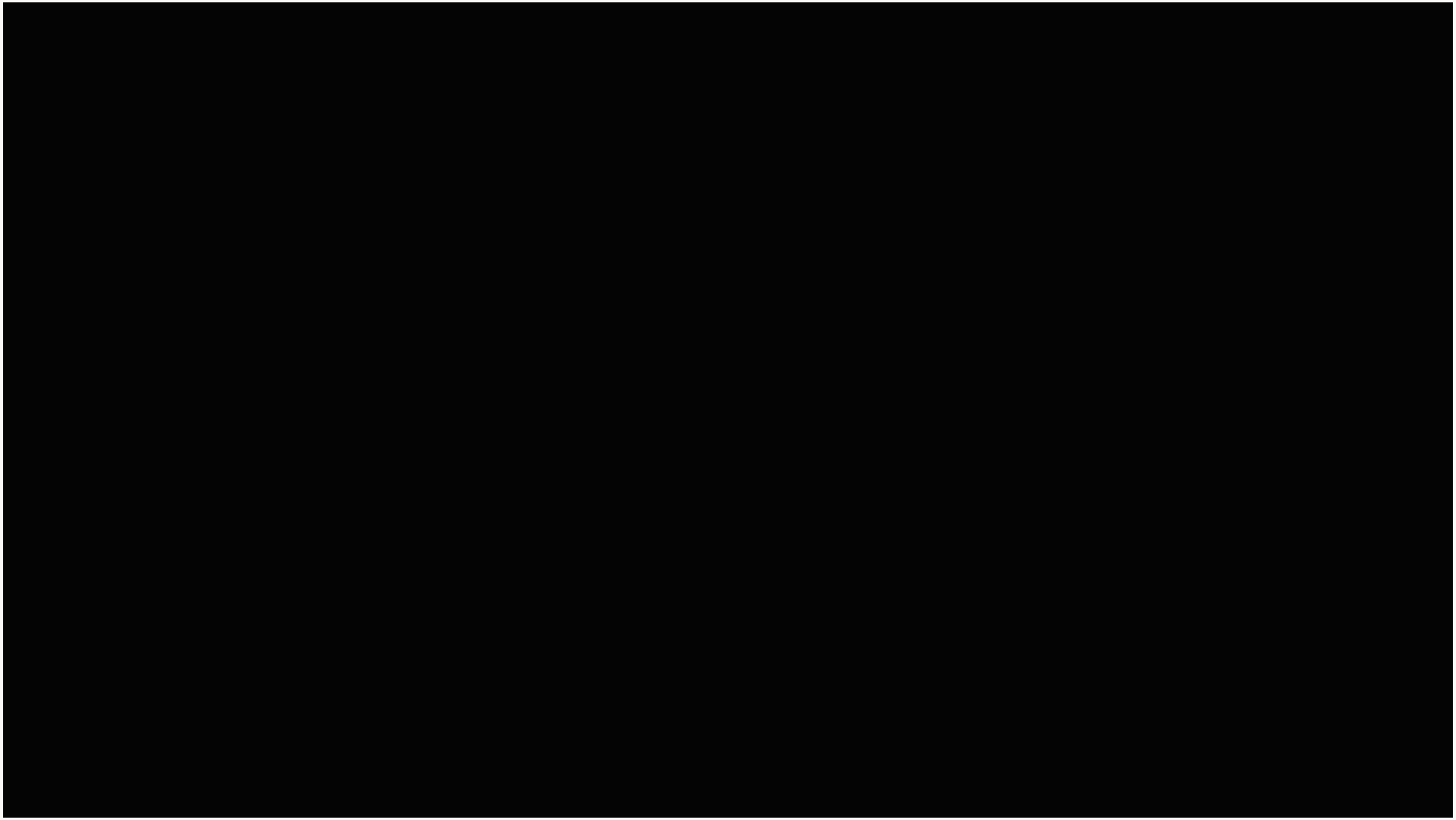

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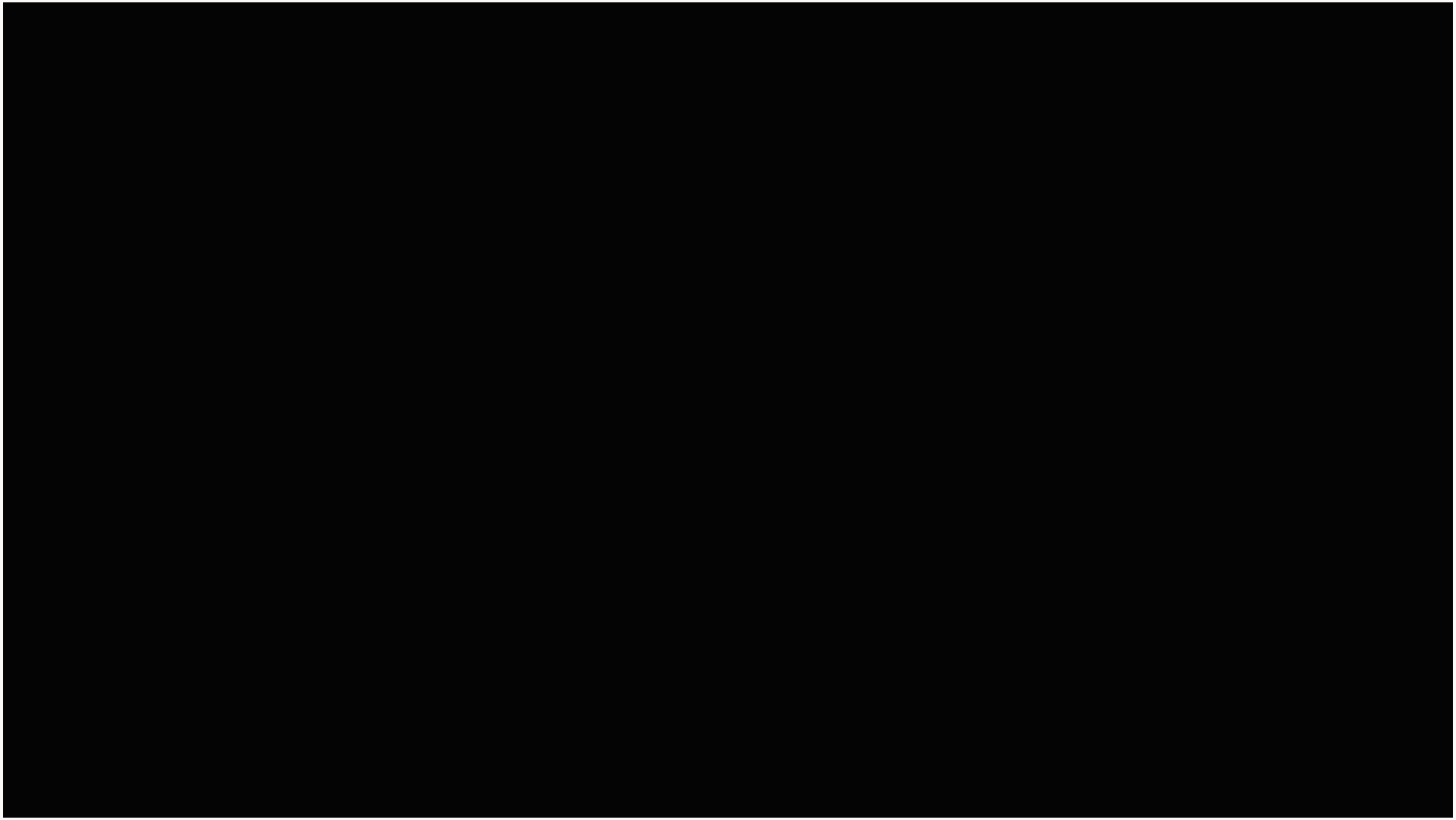

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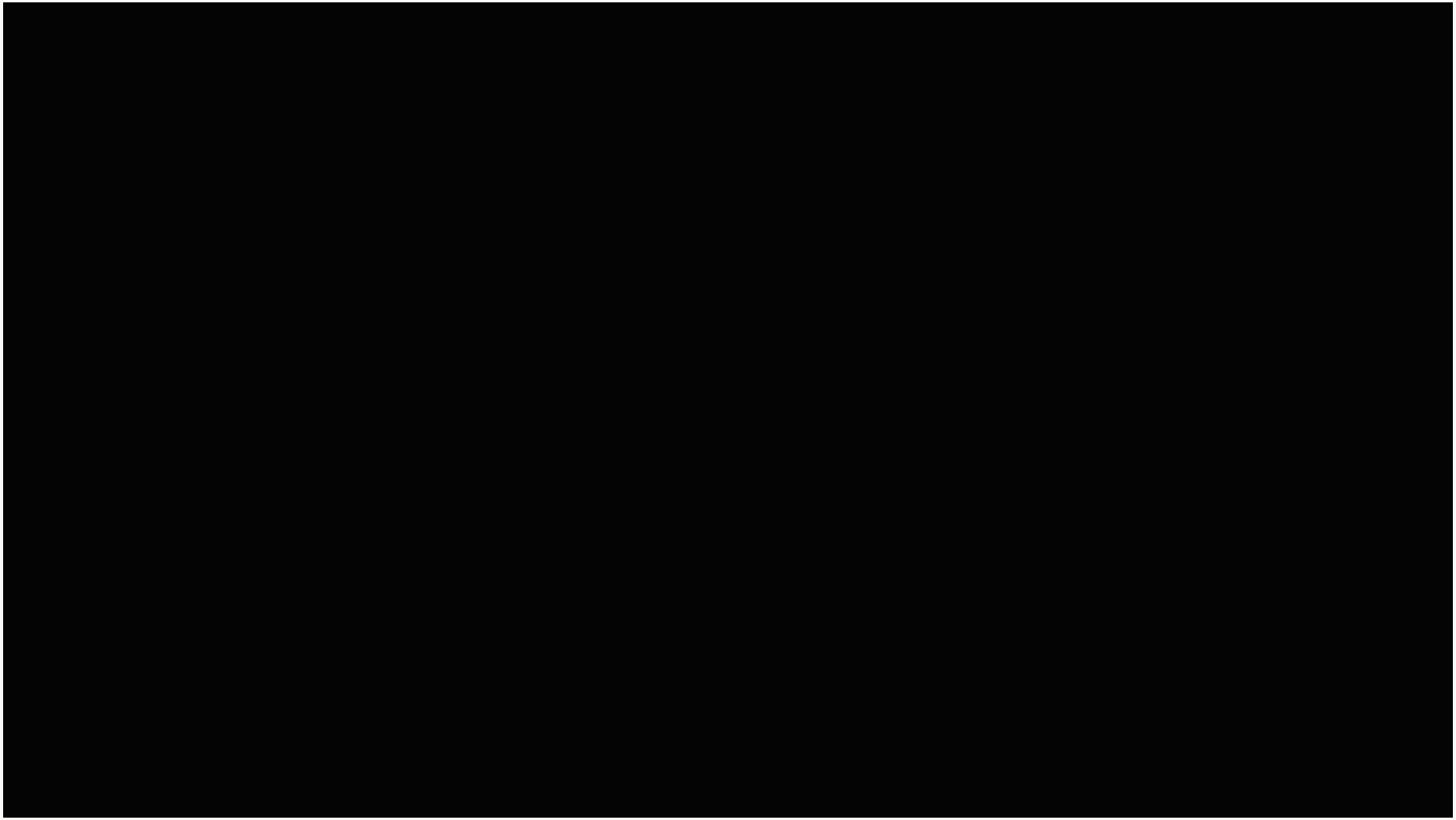
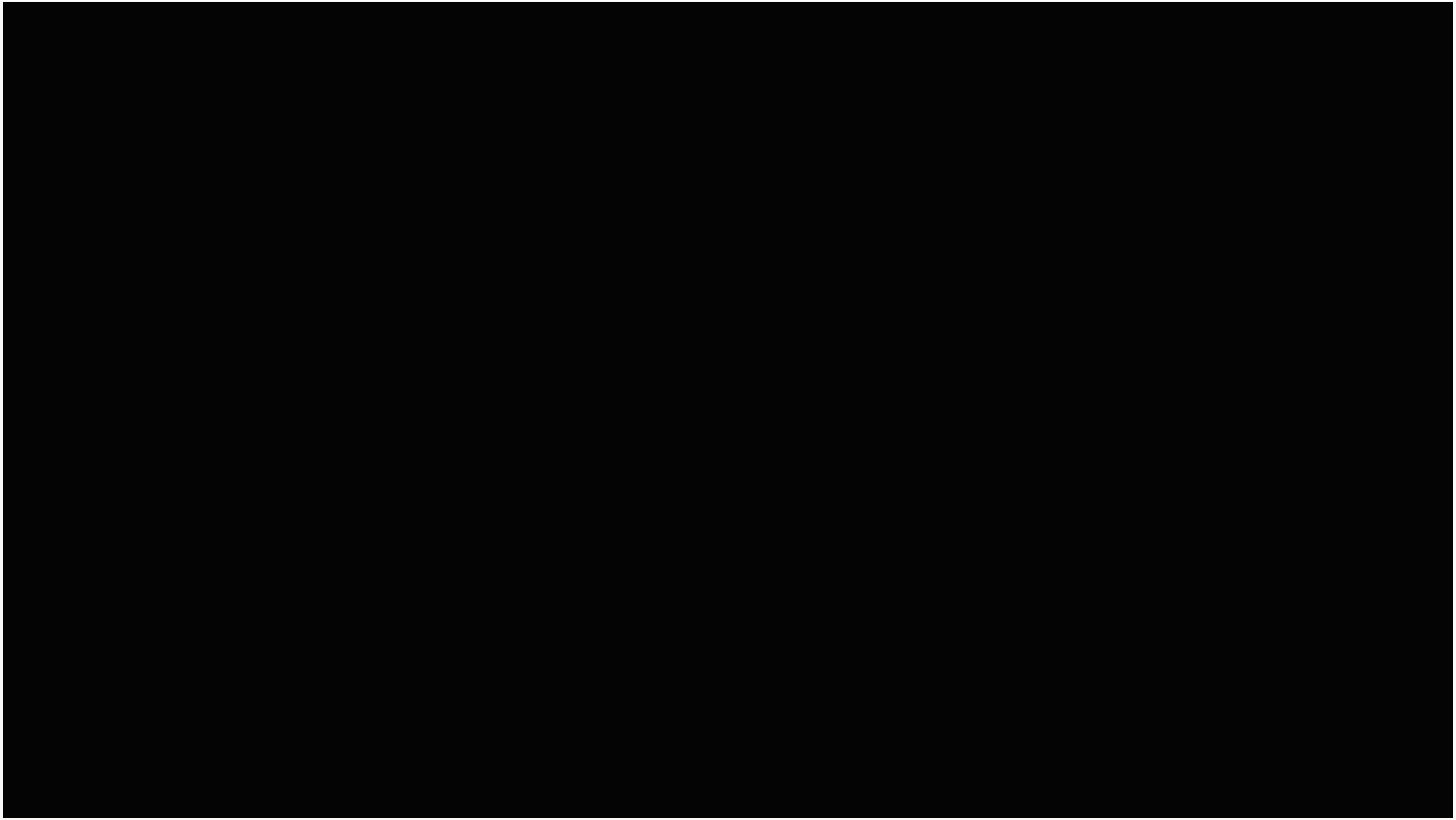


Police looking for man suspected of taking officer’s gun from overturned patrol car

By Pat Reavy



Utah Jazz haven’t had any positive COVID-19 results since mandatory testing began, Dennis Lindsey says

By Deseret News

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American Oil Drillers Were Hanging On by a Thread. Then Came the Virus.

Energy companies were major issuers of junk bonds to finance expansion. But now they are in trouble as capital has dried up and oil prices have cratered.

An oil pump jack and a flare burning excess gas at a drill pad in the Permian Basin in Texas. Angus Mordant/Reuters

By Matt Phillips and Clifford Krauss

Published March 20, 2020 Updated March 23, 2020

Wall Street supercharged America's energy boom of the past decade by making it easy for oil companies to finance growth with cheap, borrowed money. Now, that partnership is in tatters as the coronavirus pandemic has driven the fastest collapse of oil prices in more than a generation.

The energy sector has buckled in recent weeks as the global demand for oil

suddenly shriveled and oil prices plunged, setting off a price war between Saudi Arabia and Russia. Oil prices are now one-third their most recent high, trading as low as $24 a barrel, and could fall further.

The crisis has been a body blow to the American oil and gas industry. Already heavily indebted, many companies are now struggling to make interest payments on the debt they carry and are finding it challenging to raise new financing, which has gotten more expensive as traditional buyers of debt have vanished and risks to the oil industry have grown. Companies are increasingly turning to restructuring advisers to work through their finances, and the weaker businesses could end up filing for bankruptcy.

Collectively, the energy companies in the S&P 500 stock index are down roughly 60 percent this year. Prices of bonds issued by U.S. energy companies — both the safer investment-grade kind and riskier junk bonds — have plummeted, while their yields have skyrocketed.

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Even once-unassailable energy giants appear fragile. On Monday, S&P

Global Ratings cut the oil behemoth Exxon Mobil's credit rating, citing the impact of lower oil prices on cash flows, and some analysts are questioning whether it will be able to keep paying its current dividend. A week after Occidental Petroleum slashed its dividend, Moody's Investors Service downgraded its rating of the company. Occidental is stretched by its acquisition of Anadarko last year, which required it to take on $40 billion in debt, and is now expected to make severe payroll cuts.

A trader on the floor of the New York Stock Exchange on March 9 as oil prices started a rapid descent. Timothy A. Clary/Agence France-Presse — Getty Images

“The shale players were already stretched to their limits, and the virus has just broken every thread they were holding on by,” said Ed Hirs, an energy economics lecturer at the University of Houston.

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The American shale revolution began around 2008 as oil prices flirted with $150 a barrel and when the U.S. faced chronic shortages of energy and dependence on Saudi Arabia and unstable producers like Venezuela and Nigeria. In the decade that followed, investors — and the Wall Street bankers who catered to them — were more than happy to provide financing for upstarts like Oklahoma-based Chesapeake Energy and Devon Energy.

Interest rates were low, and investors embraced the riskier debt that energy companies typically issued with the promise of higher returns. In the last 18 years, energy companies were among the largest issuers of junk bonds on Wall Street, according to analysis from JPMorgan Chase. In 10 of the last 11 years, energy companies were the single largest junk bond borrowers.

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That borrowing binge meant that by 2014, almost all investors in junk bonds were heavily exposed to the fate of these companies. Since 2016, when oil prices began to drop, 208 North American producers have filed for bankruptcy involving $121.7 billion in aggregate debt, according to the Haynes and Boone's Oil Patch Bankruptcy Monitor report released in late January. That means many investors in those bonds lost their principal. But debt offered by the companies that did survive the bust still accounts for more than 10 percent of the junk bond market.

"The main technology innovation there was financial innovation," said Roman Rjanikov, a portfolio manager at DDJ Capital Management in Waltham, Mass. "Somehow they were able to convince investors that never generating cash was cool."

The problem with that model, he said, is that "when you lose access to that capital, things break down."

Oil companies were already under pressure from lower oil and natural gas prices because of a warm winter even before the coronavirus outbreak and the price war between Saudi Arabia and Russia. Also, margins for refining and chemical production have been shrinking. And with analysts at Citi projecting that the global Brent oil benchmark price will go as low as $17 a barrel, things could get much worse.

The Coronavirus Outbreak

Frequently Asked Questions

Updated July 7, 2020

• **Is the coronavirus airborne?**

The coronavirus can stay aloft for hours in tiny droplets in stagnant air, infecting people as they inhale, mounting scientific evidence suggests. This risk is highest in crowded indoor spaces with poor ventilation, and may help explain super-spreading events reported in meatpacking plants, churches and restaurants. It's unclear how often the virus is spread via these tiny droplets, or aerosols, compared with larger droplets that are expelled when a sick person coughs or sneezes, or transmitted through contact with

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In recent days, oil companies have cut their capital spending sharply. In Texas, the epicenter of the shale drilling boom, companies have axed at least $8 billion in the last few days from their 2020 capital budgets, pulling drilling rigs and canceling hydraulic fracturing crews. The job losses that follow will likely be significant, worsening what's expected to be a deep recession in the United States.

Parsley Energy in Texas is cutting its capital budget by more than 40 percent. Tamir Kalifa for The New York Times

At the same time, major bills are coming due. North American oil exploration and production companies have $86 billion in debt that will mature between 2020 and 2024, and pipeline companies have an additional $123 billion in debt coming due over the same period, according to Moody's.

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Chesapeake Energy has $192 million of bonds coming due in August. With debt of $9 billion, the company is almost out of cash and has hired restructuring advisers, Reuters reported. Another company at risk is Whiting Petroleum, focused on the North Dakota Bakken shale, which has roughly $1 billion of debt coming due over the next year.

Among those hit hardest from the latest oil price plunge and pullback in exploration and production activity will be oil service and drilling companies such as Halliburton, Schlumberger and General Electric's Baker Hughes, along with hundreds of smaller companies. The oil field services sector in North America faces high financing risk with $32 billion of debt maturing between 2020 and 2024 — roughly two-thirds of which was issued by smaller, more speculative companies — according to Moody's Investor Service.

But the entire energy industry is adjusting. Parsley Energy, a leading West Texas oil and gas producer, has devised its 2020 capital budget assuming that oil prices will be in the range of $30 to $35 for the remainder of the year. It is reducing its capital budget by more than 40 percent to under $1 billion and reducing salaries of its executive officers by at least 50 percent compared with last year. It has already reduced drilling and fracking crews

and it plans to cut some more.

Parsley refinanced its debt in February and won't face a crunch for at least five years. Matt Gallagher, Parsley's chief executive, said his company would survive, but he expects multiple bankruptcies in the industry. "There's not a rosy long-term picture for the debt out there," he said.

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SEVEN COUNTY INFRASTRUCTURE COALITION

PRE-FEASIBILITY STUDY OF A PROSPECTIVE RAILROAD CONNECTING THE UINTA BASIN TO THE NATIONAL RAIL NETWORK

A SUBMISSION TO:

SEVEN COUNTY INFRASTRUCTURE COALITION

SUBMITTED BY:

R.L. BANKS & ASSOCIATES, INC.

IN ASSOCIATION WITH:

HELIOS GROUP INC.

AUGUST 9, 2018

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ES.1 Executive Summary

Over the last decade the domestic oil industry has experienced an immense resurgence. Technological breakthroughs and advancements, combined with the repeal of the Federal ban on oil exports in 2015, have resulted in record domestic oil production. According to the US Energy Information Administration, since surpassing the previous monthly production record in November 2017, domestic oil production has continued to increase as of June 2018 to 10.9 million barrels per day (bpd), with many experts expecting that number to surpass 11 million bpd by late 2019. Most signs suggest that this trend is poised to continue. According to the International Energy Agency, worldwide demand for oil also will continue to grow over the next five years and the United States will supply most of the production to answer that growing demand.

While this significant growth has led to widespread exploration and development in select, domestic oil reserves, most notably in the Permian Basin, the Eagle Ford Group and the Bakken Formation, there still exists the need to support expanded production. One such example is the Uinta Basin. Despite substantial oil resources – estimated to be between 50-321 billion barrels – the geographically isolated Uinta Basin currently produces less than 90,000 bpd, the vast majority of which are transported to local refineries in Salt Lake City by truck at relatively high cost, resulting in major road congestion, safety issues, low efficiency and concerns that the production volumes are bumping up against these refineries' capacity to refine the oil.

Recognizing the intrinsic economic benefits of shipping large volumes of bulk commodities long distances, the Seven County Infrastructure Coalition (SCIC) contracted with a team led by R.L. Banks & Associates, Inc. (RLBA), to perform a pre-feasibility study examining the economic and operational feasibility of constructing and operating a railroad which would connect the Uinta Basin via one of three alignments with the national railroad network at one of two junctions in Colorado, as detailed later. This report is the culmination of that effort.

ES.2 Overview of Assignment

To better understand the transportation options available to Uinta Basin oil producers and other potential users of the prospective railroad, RLBA was asked to address several issues, including:

1. Determine commodities, volumes and destinations which could be expected to be shipped into or out of the Uinta Basin by rail if a rail transportation option existed;

2. Determine the cost to transport commodities between the Uinta Basin and a connection with the national rail system, given the results of the previous task, assuming the construction of the prospective railroad built on one of three previously identified rail alignments:

    - Myton/Leland Bench Area, UT - Rifle, CO, via Meeker Area;
    - Myton/Leland Bench Area, UT - Rifle, CO, via Piceance Creek and
    - Myton/Leland Bench Area, UT - Craig, CO.

3. Compare the rail transportation cost developed in the previous task to the cost of alternative transportation options to a connection with the national rail system, including:

    - Trucking between the Myton/Leland Bench Area and a rail transload facility at Price, UT, and
    - Pipelining between the Myton/Leland Bench Area and a rail transload facility at Price, UT;

4. Compare the cost to transport crude oil between the Uinta Basin and Salt Lake City area refineries via the five (three potential rail alignments, trucking/transloading and pipelining/transloading), alternative transportation options previously identified and trucking directly from the Myton/Leland Bench Area;

5. Determine the cost to transport commodities between the Uinta Basin and distant, national markets reached on the national rail system via the three, identified connections (Rifle, CO, Craig, CO and Price, UT) and

6. Offer recommendations based on the conclusions reached through the performance of the above-described tasks.

In the following sections this Executive Summary provides a synopsis of the methodologies, findings and conclusions regarding these tasks. Additional explanation and analysis is provided in the accompanying Final Report and supporting documentation.

ES.3 Conclusions Regarding Volume of Commodities Originating and Terminating in the Uinta Basin

To serve the needs of this study, RLBA developed forecasts of the number of carloads it believes are reasonable to assume would be carried by the prospective railroad during the period 2022 through 2044. To produce these forecasts, RLBA conducted multiple, extensive interviews with Uinta Basin producers/prospective rail shippers and receivers, prospective end users of Uinta Basin commodities, impacted railroads and other stakeholders. To best define the potential volumes, RLBA developed "Lower" and "Higher" forecasts in connection with crude oil and seven other commodities it believes might be hauled on that railroad. These forecasts yielded the following results.

Table ES-1
Estimated Annual Carloads Originating/Terminating in Uinta Basin, 2022-2044

Higher "Other Outbound" carload volumes in the 2022 Lower forecast are due to the prospective Leland Bench Uintah Advantage refinery which, if built and operated, would result in fewer Crude Oil and Total carloads moving over the subject railroad (please see section 2.9).

The carloads in the Higher forecast reflect assumptions made by RLBA consistent with a theme that decisions would be made which would result in actions that would be favorable to the prospective railroad's viability: the primary assumption made is that market conditions will enable and motivate Uinta Basin oil producers to extract no less than 350,000 bpd (roughly [redacted] rail carloads per year) on a consistent basis. The carloads in the Lower forecast reflect a more conservative adoption of the prospective railroad. Both forecasts reflect a 'ramp up' period in their early years, driven by gradually increased production of crude oil in the Uinta Basin and an assumed greater acceptance of the Uinta Basin's crudes at various refineries, primarily located in Gulf Coast states.

ES.4 Conclusions Regarding the Viability of a New Railroad along the Three, Proposed Alignments in Light of the Forecasted Volumes Originating and Terminating in the Uinta Basin

Transportation costs into and out of the Uinta Basin consist of two components: 1) the cost to transport commodities from the Uinta Basin to a connection with the national rail network or in the opposite direction, a component which would be addressed by the construction of the proposed railroad and 2) the cost to transport commodities from said connection with the national rail network to a final destination via the Class One railroad(s) or in the opposite direction, providing the connection to the national rail network.

To determine the first component, the cost to transport commodities between the Uinta Basin and the national rail network, RLBA determined the break-even rate – or the lowest rate which the prospective railroad could charge prospective Uinta Basin rail shippers and still not operate at a loss – in connection

with each of the three potential rail alignments. Specifically, RLBA: 1) developed an operating and maintenance plan appropriate to host the types and volumes of commodities identified by RLBA between the Myton/Leland Bench Area, UT, and the national rail network connection with either UP and/or BNSF at Rifle, CO, or Craig, CO, depending on the specific alignment; 2) employed an updated, initial capital cost required to build each route developed in previous studies, provided by Jones & DeMille Engineering, Inc.; 3) applied real world costing data to said operating and maintenance plans, and 4) determined what rate prospective Uinta Basin rail shippers would be charged to make the prospective railroad on each of the alignments viable.

The three alignments, collectively determined to be the most feasible out of over the 20 plus routes originally considered, included:

1. Myton/Leland Bench Area, UT - Rifle, CO, via Meeker Area, providing a connection to both Union Pacific (UP) and BNSF Railway (BNSF) via a 183.31-mile route (including 152.97 new-build miles[1]), operating through predominately rolling hills and mountainous terrain;

2. Myton/Leland Bench Area, UT - Rifle, CO, via Piceance Creek, providing a connection to both UP and BNSF via a 185.13-mile route (including 154.80 new-build miles), operating through predominately rolling hills and mountainous terrain and

3. Myton/Leland Bench Area, UT - Craig, CO, providing a connection only to UP via a 157.27-mile route (including 126.93 new-build miles), operating through predominately rolling hills and flat terrain.

The application of the above-described methodologies yielded the results seen in table ES-2 regarding the Higher and Lower forecast volumes, respectively.

RLBA's results indicated that using the potential rail alignment to Craig would provide the lowest rates to shippers on the prospective railroad between the Myton/Leland Bench Area and a connection with the national rail network (in this case, at Craig, CO, with UP). It is important to note that this assessment does not consider or account for the cost which would be incurred by prospective Uinta Basin rail shippers to pay UP to transport commodities to and from Craig on the national rail system; it is simply the cost prospective shippers could expect to pay the prospective railroad to reach the national rail system from the Myton/Leland Bench Area.

Because the prospective railroad was assumed to handle the same amount of traffic regardless of alignment (all traffic in and out of the Uinta Basin area was assumed to have been loaded and off loaded in the Myton or Leland Bench Area), the cost savings associated with the Craig rail alignment can be attributed to: 1) the lower initial capital costs to construct the line, largely due to the shorter mileage, and 2) lower operating and maintenance costs on that route, again, largely due to its the shorter mileage and more favorable physical characteristics.

1 All three alignments assume the integration of the existing Deseret Power Railroad.

Table ES-2
Rail Transportation Break-Even Rate per Carload and Barrel;
Myton/Leland Bench Area - Connection with the National Rail Network, Lower and Higher Volume Forecast, 2022-2044

Lower

	Rifle Via Meeker Area				Rifle Via Piceance Creek				Craig			
			Break Even Rate				Break Even Rate				Break Even Rate	
Year	Expense	Carloads	Carload	Barrel	Expense	Carloads	Carload	Barrel	Expense	Carloads	Carload	Barrel
2022												
2023												
2024												
2025												
2026												
2027												
2028												
2029												
2030												
2031												
2032 +												
Average												

Higher

	Rifle Via Meeker Area				Rifle Via Piceance Creek				Craig			
			Break Even Rate				Break Even Rate				Break Even Rate	
Year	Expense	Carloads	Carload	Barrel	Expense	Carloads	Carload	Barrel	Expense	Carloads	Carload	Barrel
2022												
2023												
2024												
2025												
2026												
2027												
2028												
2029												
2030												
2031												
2032 +												
Average												

ES.5 Conclusions Regarding the Transportation Cost to Reach the National Rail Network across the Various Transportation Options Potentially Available in the Uinta Basin (Rail, Pipe and Truck)

To understand the full spectrum of transportation options potentially available to existing and prospective Uinta Basin shippers, RLBA compared the transportation rates of what were previously identified as the two most viable alternatives to the prospective railroad between the Myton/Leland Bench Area and a connection with the national rail network. These alternatives are:

1. Contracting a third party entity to truck crude oil to a rail transload facility at Price, UT, using rates developed by RLBA and

2. Constructing and operating a dedicated, crude oil pipeline to a rail transload facility at Price, UT, using rates developed by HDR, Inc. in previous studies.

This comparison yielded the following results.

Table ES-3
Alternative Transportation Rate Comparison per Barrel;
Myton/Leland Bench Area - Connection with the National Rail Network

RLBA's results indicated that in both the Higher and Lower forecasts, the prospective railroad, the UBRR, would provide the lowest transportation cost between the Myton/Leland Bench, UT area and a connection with the national rail network. These results were due to the fact that: 1) the high volumes of commodities estimated to ship via rail, including those other than crude oil, greatly amplify the superior economics of scale intrinsic to the rail mode, and 2) the additional cost of transloading or 'double handling' crude oil into railcars at the connection to the national rail network negatively impacts the competitiveness of non-rail transportation options. On the other hand, the rail mode offers economic development and other benefits to the Uinta Basin economy that are unlikely to be realized in the event a pipeline was constructed in the alternative. Specifically, the prospective railroad would be both more flexible (featuring the ability to transport multiple types of commodities in both directions and scalable (in that additional infrastructure could be added, as needed, at an economical cost), compared to a pipeline.

ES.6 Conclusions Regarding the Total Transportation Cost to Ship to National Markets

While important, determining the transportation cost between the Uinta Basin and the national rail network is only one of the two components of the true transportation cost into and out of the Uinta Basin. Once commodities have reached the national rail network, a Class One railroad – either UP or BNSF, depending on the junction location – must be engaged to perform final delivery. Because the Class Ones will handle Uinta commodities over the majority of the miles to/from distant markets, Class One rates likely will be the single largest cost component.

To determine the above-referenced Class One rates, RLBA estimated rates which prospective Uinta Basin rail shippers would have to pay to transport Uinta Basin commodities via UP and/or BNSF routings across the national rail system to eleven, target refineries identified as part of the study process. RLBA also estimated prospective rates on seven other commodities involving eleven potential destinations/origins. Additionally, RLBA calculated and included the cost associated with leasing rail cars to transport Uinta Basin commodities across the UBRR and the national rail system.

The application of this methodology yielded the following results, amended here to show only results regarding crude oil.

Table ES-4
Rail Transportation and Equipment Lease Rates per Barrel;
Connection with the National Rail Network - National Markets

RLBA's results indicated that the Class Ones' rates are greatly influenced by the length of haul between origins and destinations. The closer a candidate terminal is to each of the three potential connections to the national rail network, the lower the rates it would logically enjoy, generally because the haul lengths are shorter. In general, BNSF appears to be able to provide lower rates than UP to southeastern refineries, likely in part due to a shorter routing on BNSF, suggesting that the net benefits for prospective Uinta Base rail shippers of building the prospective railroad along one of the more expensive Rifle alignments may outweigh the lower construction and operating cost of the Craig option.

To offer a final opinion regarding what the total transportation cost which prospective Uinta Basin rail shippers might pay to ship via the prospective railroad between the Myton/Leland Bench Area and national markets, RLBA synthesized the following values, including:

1. The average annual break-even rate for each of three prospective rail alignments at both the Higher and Lower forecast volumes;
2. The estimated freight rate across the national system to the various identified destinations/originations and
3. The estimated equipment lease rates.

This comparison yielded the results shown on the next page, amended here to show only results regarding crude oil.

RLBA's results indicated that at the Higher forecast volume the Rifle via Meeker alignment, allowing for interchange with both UP and BNSF, offers prospective Uinta Basin rail shippers the lowest total rail transportation cost on all 33 identified shipping lanes. RLBA's results also indicate that at the Lower forecast volume the Rifle via Meeker alignment, allowing interchange with both UP and BNSF, offers prospective Uinta Basin rail shippers the lowest total rail transportation cost on 30 of the 33 identified shipping lanes (90%).

ES.7 Conclusions Regarding the Transportation Cost to Reach Salt Lake City Refineries across the Various Transportation Options Out of the Uinta Basin

While the primary objective of this study was to determine transportation rates/costs to distant markets, the Salt Lake City markets are currently, and figure to remain under any expansion scenario, a major market for Uinta Basin crude oil. As such, RLBA compared the cost of the various transportation options previously identified against the real world cost paid today to transport Uinta Basin crude oil to Salt Lake City via contract trucking. To do so, RLBA: 1) applied the same methodology to determine the costs incurred to reach national markets; 2) considered real world contract trucking rates as reported in a previous study performed by HDR, Inc., and 3) considered costs regarding a dedicated, crude oil pipeline to a rail transloading facility at Price, UT, developed in a previous study performed by HDR, Inc.

This methodology produced the results seen on Table ES-6.

Table ES-5
Rail Transportation and Equipment Lease Rate per Barrel;
Myton/Leland Bench Area - National Market, Lower and Higher Volume Forecasts

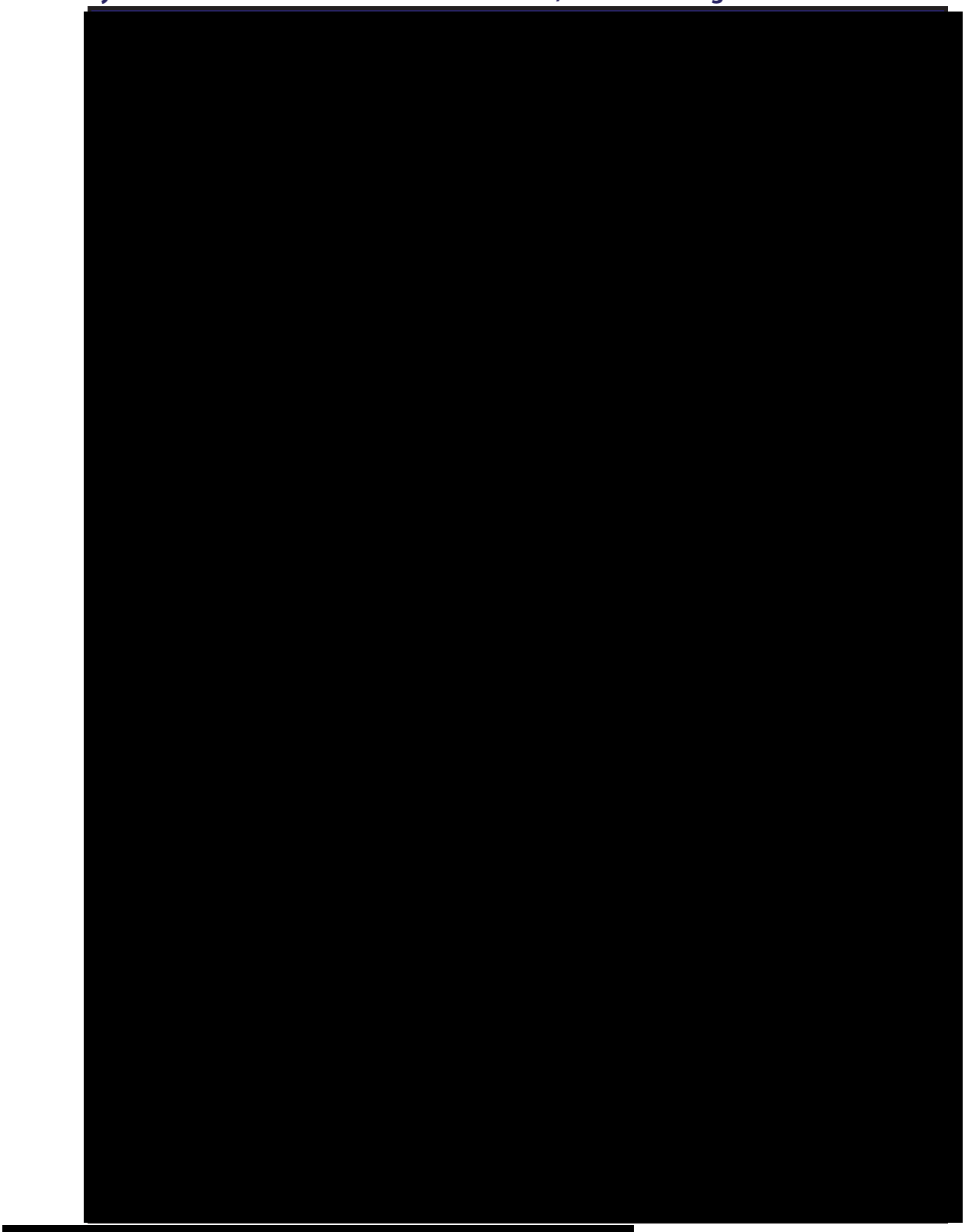
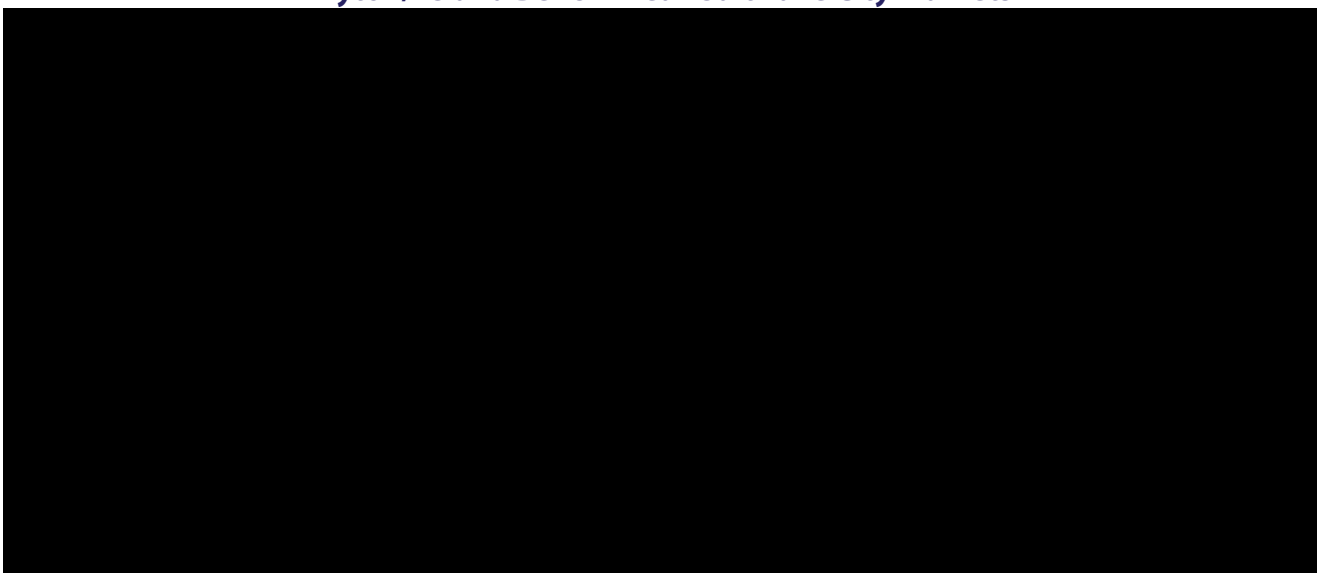


Table ES-6
Alternative Transportation Rate Comparison per Barrl;
Myton/Leland Bench Area - Salt Lake City Markets



RLBA's results indicated that at the Higher forecast volume estimates an all-rail routing assuming interchange with UP at Rifle, CO, provided the most competitive transportation cost. However, at the Lower forecast volume estimates the current practice of trucking directly to Salt Lake City offered the most competitive cost. Additionally, the estimated rate charged by UP to handle traffic from the most distant connection - the Craig, CO, interchange - negated any cost savings prospective Uinta Basin rail shippers would realize thanks to the lower construction, maintenance and operating costs associated with the Craig, CO, rail alignment. Not captured in RLBA's results is the cost to construct the required facilities to accept and handle railcars at Salt Lake City area refineries.

ES.8 Recommendations based on Conclusions

1. **Volumes** - To reiterate the importance and impact of the four challenges described earlier, the viability and competitiveness of the prospective railroad is directly related to the volumes of traffic which would be shipped over the line.

2. **Feasibility of the Proposed Railroad** - Assuming the forecasted volumes can be achieved, it appears that the proposed railroad can offer cost competitive transportation to prospective Uinta Basin rail shippers, as compared with the most practical identified transport alternatives. Beyond the immediate quantifiable monetary benefits, the proposed railroad also would offer more flexibility to transport into and out of the Uinta Basin secondary and tertiary commodities related to both crude oil extraction and other industries.

3. **Multiple Class One Connections** - The Class One rate estimation work conducted by RLBA suggests that the additional construction costs necessary to reach Rifle, CO, may be justified by the savings potentially realized by prospective Uinta Basin rail shippers due to the advantages of being served by two Class One carriers instead of being 'captive' to only one. To this point RLBA

estimates that BNSF Railway, the second Class One reached via a connection at Rifle, CO, in general, may offer lower rates to and from the distant locations which are markets for Uinta Basin commodities and sources of commodities consumed in the Uinta Basin. Furthermore, prospective Uinta Basin rail shippers might be able to leverage the two Class Ones against one another in negotiations to receive even more favorable rates than those estimated by RLBA. Similarly, shippers should be able to secure better service than would be the case if only one of those railroads provided service.

4. **Alignment Selection** - While the Craig rail alignment appears to be significantly less costly to both construct and operate than either Rifle alignment, the Craig alignment: 1) is generally farther from the markets for Uinta Basin commodities; 2) lacks a second Class One connection, and 3) is located at the end of relatively isolated UP branch line. As a result, the total rail transportation cost, the sum of the costs to reach the national rail network and then to ship over the national rail network, incurred by prospective Uinta Basin rail shippers would likely be higher using the Craig rail alignment, both to distant markets and Salt Lake City. As such, if the ultimate goal of constructing the prospective railroad is to advance the economic development of the Uinta Basin, it would appear as though the Rifle via Meeker Area rail alignment would be the most prudent selection.

5. **Salt Lake City** - The short haul length (by rail standards) to Salt Lake City makes an all-rail transportation option utilizing a combination of the prospective railroad and a Class One intrinsically less competitive, though potentially still feasible. If the prospective railroad can obtain the High forecast volumes, the economies of scale are such that rail may be the most cost competitive option. If said High forecast volumes cannot be obtained, the Salt Lake City market may not be competitive for rail. In either case, as regards the prospective railroad, RLBA would consider Salt Lake City to be a secondary market to more distant markets.

1.0 Introduction

Despite substantial known natural petroleum resources and record growth in the domestic oil industry, to date, oil production in the Uinta Basin region of northeastern Utah consistently remains substantially lower than that of similar, large oil plays across the United States – approximately 70,000 to 90,000 bpd. What's more, essentially all this production is transported almost entirely by truck to five small-to-midsize refineries located in the north Salt Lake City metro area. Despite significant national demand for the specific type of crude oil found in the Uinta Basin, producers in the Basin have been unable to find national markets willing to purchase their production at prices which would facilitate widespread economical oil extraction in the region.

Chief among the issues thwarting the penetration of Uinta Basin crude oil and other petroleum resources into national markets is the lack of sufficient transportation infrastructure to bring products to market. While a main line of the nation's largest railroad – Union Pacific – passes within 100 miles of the Uinta Basin, to date the rugged topography of the region has limited transportation options between the oil producers of the Uinta Basin and the national rail network to expensive, inefficient and publically burdensome trucks. These high costs have decreased significantly the profit margins Uinta Basin producers have realized on their products, often approaching a 17% discount. The aforementioned five Salt Lake City refineries - which currently constitute essentially the entire market for Uinta Basin crude oil – remain very aware of the constrained markets into which Uinta Basin producers can sell, manifesting that awareness by insisting on paying prices that represent a substantial discount to West Texas Intermediate ("WTI"), the primary onshore benchmark against which domestic U.S. oil prices are quoted.

As long as the transportation infrastructure into and out of the Uinta Basin remains status quo, discounted returns and constrained production capability can be expected to continue. As such, both public sector leaders and the managers of private sector oil production companies in the Uinta Basin are convinced of four things:

1. that Uinta Basin producers will remain both captive to the five refineries and perpetually captive to the discount that those refineries impose upon them unless and until something is done to significantly change the status quo;

2. that a significantly larger volume of oil is available and could be produced quickly if additional markets were available in which to sell Uinta Basin oil;

3. that there are a number of markets, both refineries and intermediate storage/blending locations, which would be receptive enough to the region's oil that not only would production in northeast Utah increase significantly, but those producers would be able to reduce significantly, if not eliminate, the discount to WTI (even in Salt Lake City) that is their fate so long as no alternatives exist by which to sell their oil; and

4. that the best option available to take advantage of the Uinta Basin's abundant oil and shale reserves is to construct a pipeline or railroad to connect the subject region with already-built transportation infrastructure ready to carry oil to distant markets.

In light of these revelations, it should not be surprising that public and private sector leaders in northeast Utah have spent the last several years examining the feasibility and economic viability of constructing and operating a pipeline to reach northeastern Utah. Indeed, a pipeline might well become the economic salvation sought by both public sector economic development leadership in northeast Utah and the oil producers on whom they hope to rely to achieve an improved economy in the region over the long term. That said, aside from its extremely high initial capital cost, the potential pipeline solution suffers from one major disadvantage, which is that a pipeline only can move one product in one direction at any one time. In contrast, a railroad could be used both to move oil and other commodities out of the region, and other commodities, significantly including materials to facilitate the drilling of oil and gas wells, into the region at the same time. Nor is a pipeline scalable in the sense that it can be expanded readily to handle more traffic.

Understanding the advantages inherent to railroads and disadvantages inherent to pipelines, the public sector, specifically the SCIC, in consultation with private sector producers, commissioned a team lead by R.L. Banks & Associates (RLBA), in association with Helios Group Inc., to conduct a pre-feasibility study to examine the potential viability of constructing a railroad on one of three potential alignments between the Uinta Basin and two different terminals, Rifle and Craig, Colorado. This report is the culmination of that effort.

1.1 Description of Assignment

To better understand the feasibility of the prospective railroad connecting the Uinta Basin with the national rail network, RLBA was asked to address several issues, including to:

1. Determine commodities, volumes and destinations which could be expected to be shipped into or out of the Uinta Basin by rail if a rail transportation option existed;

2. Determine the cost to transport commodities between the Uinta Basin and a connection with the national rail system, given the results of the previous task, assuming the construction of the prospective railroad built on one of three previously identified rail alignments:

    - Myton/Leland Bench Area, UT - Rifle, CO, via Meeker Area;
    - Myton/Leland Bench Area, UT - Rifle, CO, via Piceance Creek; and
    - Myton/Leland Bench Area, UT - Craig, CO.

3. Compare the rail transportation costs developed in the previous task to the cost of alternative transportation options to a connection with the national rail system, including:

    a. Trucking between the Myton/Leland Bench Area and a rail transload facility at Price, UT, and
    b. Piping between the Myton/Leland Bench Area and a rail transload facility at Price, UT;

4. Compare the cost to transport crude oil between the Uinta Basin and Salt Lake City area refineries via the five (three potential rail alignments, trucking/transloading, piping/transloading), al-

ternative transportation options previously identified and trucking direct from the Myton/Leland Bench Area;

5. Determine the cost to transport commodities between the Uinta Basin and markets reached on the national rail system via the three, identified connections (Rifle, CO, Craig, CO and Price, UT); and

6. Offer recommendations based on the conclusions reached through the performance of the above-described tasks.

1.2 RLBA Approach to the Scope of Work

To address these tasks, RLBA developed and applied a three-part approach, including:

1. Determining Potential Rail Traffic Volumes, Destinations and Origins;
2. Determining Costs to Reach a Connection with National Rail Network and
3. Determining Costs to Ship Across the National Rail Network to/from Distant Markets.

1.3 Approach Part 1 - Determining Potential Rail Traffic Volumes, Destinations and Origins

For any new build rail project in the Uinta Basin to be successful, there must be a clear and accurate understanding of the commodities and volumes likely to be transported out of or into the Uinta Basin. While crude oil is likely to constitute the majority of volume shipped on any prospective railroad in the Uinta Basin, the flexibility offered by rail affords opportunities to ship other commodities both related and not related to crude oil production which could greatly improve the economic feasibility of the prospective railroad. To determine both the volume of crude oil, as well as to identify and gauge the volumes of other commodities that could potentially ship via rail, RLBA undertook a two-step process. First, leveraging data supplied by the SCIC, RLBA compiled a comprehensive list of potential rail customers and other important stakeholders. RLBA then conducted both over–the-phone and on-site interviews with said potential customers and stakeholders to identify: 1) their potential interest in shipping via rail; 2) their anticipated rail volumes should a connection be built; 3) ideal origin/destination points of shipments via rail; 4) current trucking rates; and 5) any other relevant information. Second, RLBA took the information gathered from potential rail customers and stakeholders and developed a detailed volume forecast of commodities to be transported both into and out of the Uinta Basin in the event the prospective railroad was constructed.

The methodologies, findings and conclusions regarding this step are detailed in section 2 of this report. Additionally, conclusions regarding Task 1 (determination of commodities, volumes and destinations which could be expected to be shipped into and out of the Uinta Basin by rail if a rail transportation option was built) are also addressed in section 2 of this report.

1.4 Approach Part 2 - Determining Costs to Reach the National Rail Network

Transportation cost into and out of the Uinta Basin consist of two components: 1) the cost to transport commodities between the Uinta Basin and a connection with the national rail network, a component which would be addressed by the construction of the proposed railroad; and 2) the cost to transport commodities between this connection with the national rail network and a final destination/origin via the major national railroad(s) providing the connection to the national rail network.

Once the commodities and volumes potentially coming into and out of the Uinta Basin were understood, RLBA used this data to determine the cost to transport said commodities in and out of the Uinta Basin area on the prospective railroad – the first of the two components constituting the cost of transportation. To determine said transportation costs on the prospective railroad, RLBA undertook a two-step process. First, regarding each rail alignment option, RLBA developed an operating plan unique to the specific characterization of that alignment. Second, RLBA applied real world costing data to said operating plan, drawn from proprietary databases maintained by RLBA, to provide highly accurate cost estimations in connection with each rail option based on the characteristics of each potential alignment provided to RLBA. Beyond determining the transportation costs associated with the prospective railroad, these estimations also were used to compare transportation costs associated with alternative transportation options into and out of the Uinta Basin.

The methodologies, findings and conclusions regarding this step are detailed in section 3 of this report. Additionally, conclusions regarding Task 2 (determination of the cost to transport commodities between the Uinta Basin and a connection with the national rail system, assuming the construction of the prospective railroad entity), Task 3 (comparison of the rail transportation costs to the costs of alternative transportation options to/from a connection with the national rail system), and Task 4 (comparison of the costs to transport crude oil between the Uinta Basin and Salt Lake City), are also addressed in section 3 of this report.

1.5 Approach Part 3 - Determining Costs to Ship across the National Rail Network to/from Distant Markets

While important, determining the transportation cost between the Uinta Basin and the national rail network is only one of the two components of the true transportation cost into and out of the Uinta Basin. Once commodities have reached the national rail network, a major national railroad – either Union Pacific or BNSF Railway, depending on the junction location – must be engaged to perform final or interchange delivery. Because a major railroad will handle Uinta commodities for the majority of the trip to/from distant markets, a major railroad's rates likely will be the single largest cost component encountered by prospective rail shippers to and from the Uinta Basin.

The final 'piece of the puzzle' in determining the feasibility of a new rail line to the Uinta Basin is understanding what the major railroads – either Union Pacific or BNSF Railway – will charge to transport any material into or out of the western Colorado. Combining information from proprietary databases maintained by RLBA, industry leading third-party rate estimation software to which RLBA subscribes and real-world rail rate data maintained and provided by the Surface Transportation Board ("STB") – the fed-

eral entity tasked with economic oversight of the railroad industry – RLBA developed estimated shipping rates specific to the origins and destinations of the specific commodities potentially being shipped into and out of the Uinta Basin. Additionally, RLBA determined lease rates associated with the rail equipment required to ship Uinta Basin's outbound and inbound freight commodities over the national rail network.

The methodologies, findings and conclusions regarding this step are detailed in section 4 of this report. Additionally, conclusions regarding Task 5 (determination of the costs to transport commodities between the Uinta Basin and distant markets) are also addressed in section 4 of this report.

1.6 The Prospective Railroad

For purposes of this report, RLBA has identified the prospective railroad as the "Uinta Basin Railroad" (herein referred to as the "UBRR"). It is assumed that the UBRR would open as a regulated, common carrier in 2022. Per the request of SCIC, this study focuses on a twenty year period spanning from the commencement of operations in 2022 until 2042.

There have been a variety of studies regarding the potential construction of a railroad in the Uinta Basin dating back to at least 1981. Most pertinent of these studies to RLBA's work is the study entitled "Feasibility Report for the Isolated Empire Rail Project," completed in 2001 by DMJM Harris (herein referred to as the "2001 DMJM Harris Study"). This study, among other things, considered 16 potential rail alignments between the Uinta Basin and a connection with the national rail network, ultimately recommending five alignments for further study. For purposes of this report, RLBA was instructed by SCIC to consider three of these five rail alignments. In part to support RLBA's work, SCIC engaged a third party engineering firm, Jones & DeMille Engineering (herein "Jones & DeMille"), to provide updated conceptual level engineering plans and construction cost estimates in connection with each of the three alignments identified in the 2001 DMJM Harris Study and selected for inclusion in this study.

The following is a description of the important elements of these alignments, illustrated in Map 1-1.

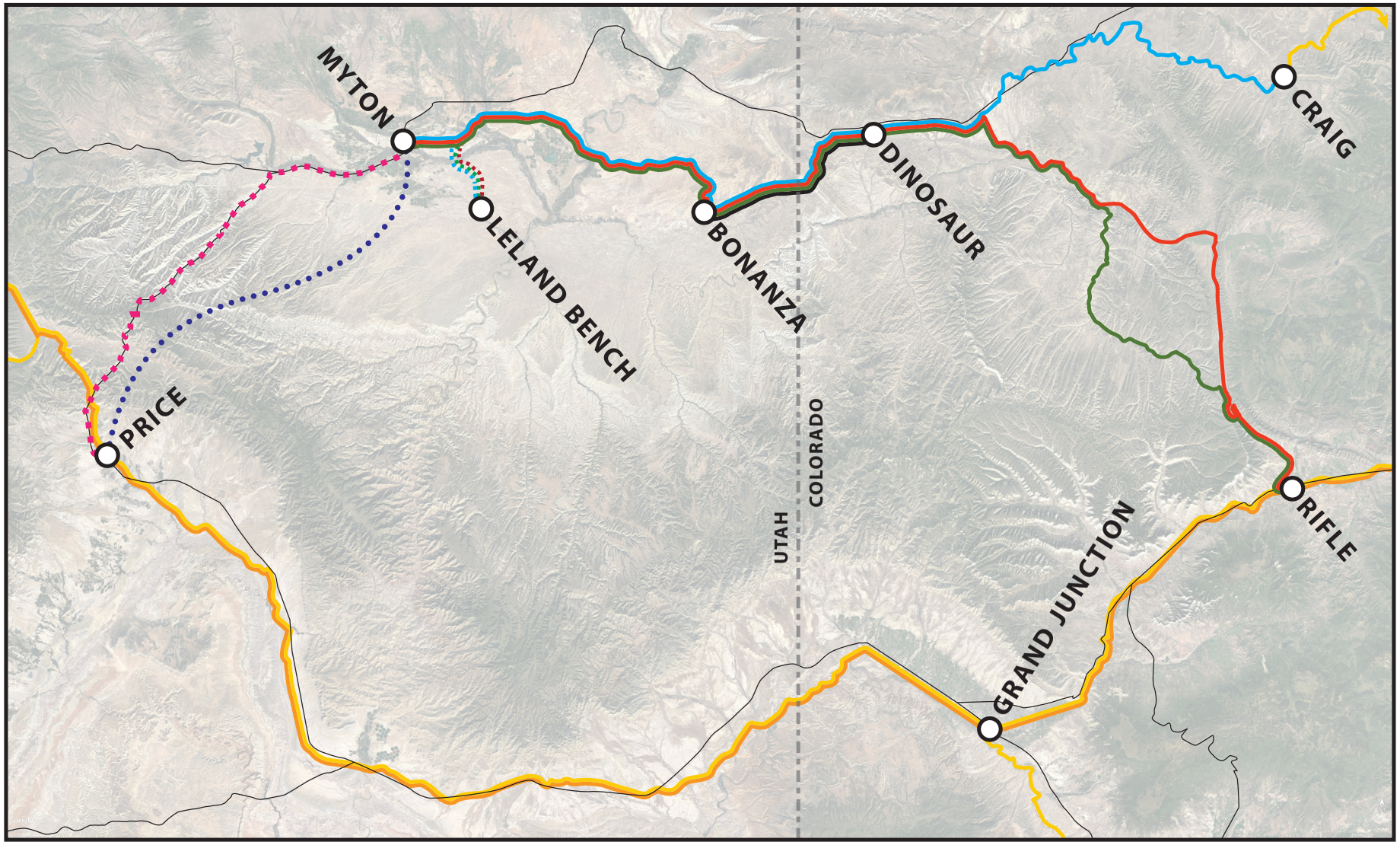
1.7 Western Terminus - Uinta Basin

Through conversations with SCIC and interviews with various stakeholders it was determined that the western end of UBRR would be located in one of two (but not both) locations:

1. **Myton, UT** - A small community of approximately 600, located within the Uinta Basin along U.S. Routes 40 and 191. Due to its location on U.S. 40 and 191, Myton features reasonably developed road infrastructure. The community is an important hub for the Utah oil industry; the regional headquarters of Newfield Exploration Company, a leading crude oil producer in the region, is located in Myton. Additionally, Chevron Corporation's Rangeley, CO – Salt Lake City, UT pipeline passes several miles to the south of Myton. Myton was identified as the western terminus in the 2001 DMJM Harris Study and

2. **Leland Bench, UT** - An unincorporated community approximately 12 miles southeast of Myton. Leland Bench currently features very limited road infrastructure and no industrial or rail infra-

Map 1-1
Map of Proposed Rail Alignments in the Uinta Basin



structure. However, Uintah Advantage (see section 2.9) has expressed interest in developing a refinery at Leland Bench. Additionally, Uintah Advantage has suggested land could be made available for the construction of rail facilities at the Leland Bench site at little or no cost to the railroad. As such, Leland Bench was identified as a potential alternate location as the western terminus of the UBRR by SCIC.

The values advanced in this study regarding capital costs as well as operating and maintenance costs were developed assuming that the UBRR terminated in Myton, However, Jones & DeMille determined that the difference in construction cost to build the proposed railroad to either Myton or Leland Bench would be negligible. Specifically, it would cost approximately $13 million more to build to Leland Bench – which correlates to an approximately 1.15% increase in the overall initial construction cost. To reach Leland Bench, the prospective rail alignment would remain largely the same as that to reach Myton, the only difference being that the alignment would turn due south in the vicinity of Randlett, UT to reach Leland Bench. RLBA also determined that, in general, the mileages and physical characteristics of the railroad to either Myton or Leland Bench would be comparable. As such, it reasonably can be assumed that the conclusions reached in the study are valid regardless of which location is ultimately selected as the railroad's terminus and, therefore, are used interchangeably throughout this report.

Regardless of which location is assumed to be the western terminus of the railroad, both would require substantial investment in both transportation and petroleum production-related infrastructure to adequately meet the needs of the proposed railroad. This study only considers the investment required to construct and operate the required rail infrastructure.

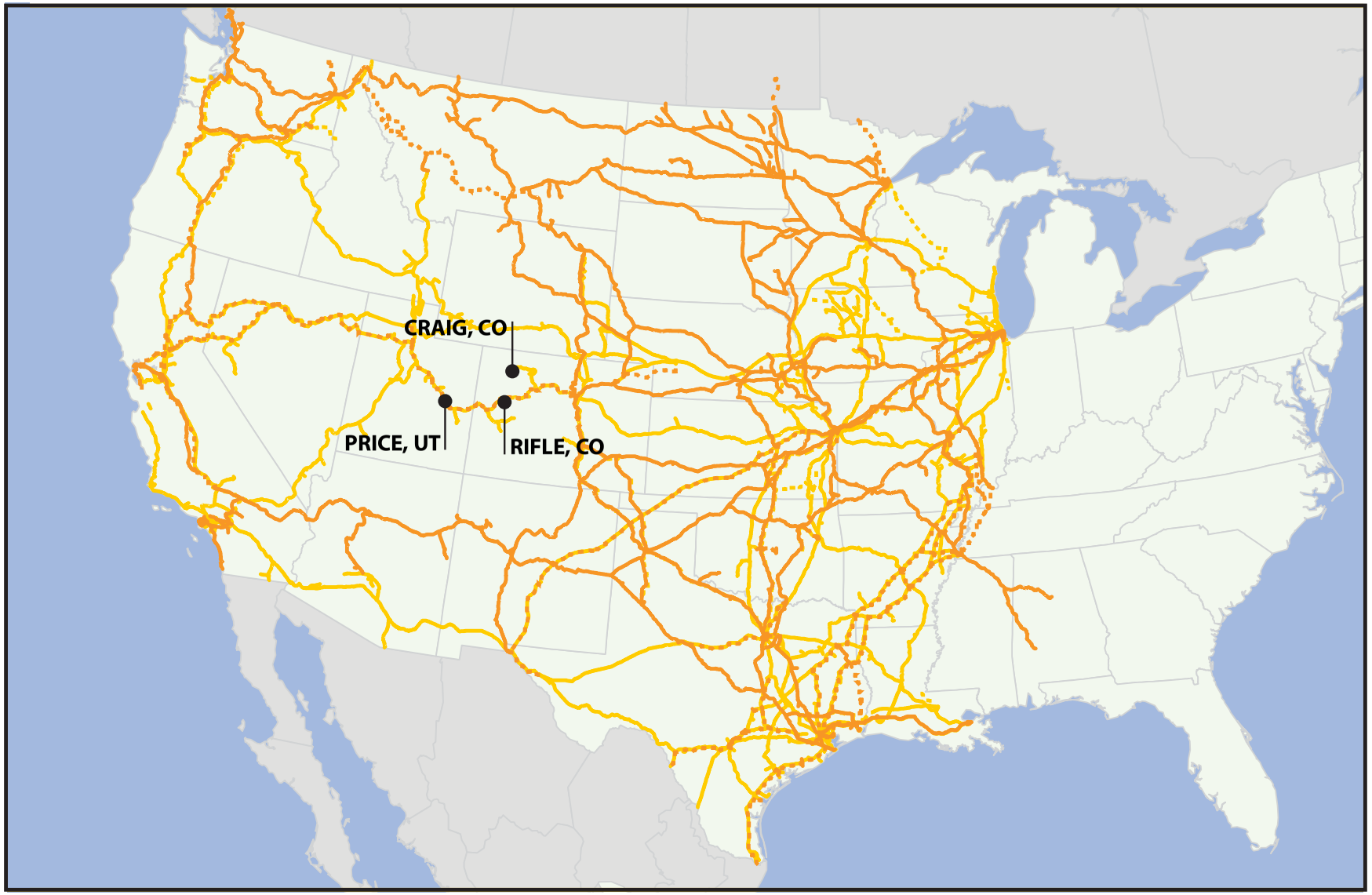
1.8 Eastern Terminus - Connection with the National Rail Network

The three, potential rail alignments ultimately selected by SCIC from the 2001 DMJM Harris Study all terminate at a connection with the national rail network at one of two locations. Depending on the location, the terminus would allow for a connection with the national rail network with one or two, major, national railroads –Class One railroads, as defined by the STB - either via Union Pacific or Union Pacific (herein referred to as the "UP") and BNSF Railway (herein referred to as the "BNSF"). UP is the largest railroad in the United States in terms of revenue, operating a 32,100 mile network in 23 western states. BNSF is the second largest railroad in the United States in terms of revenue and UP's largest competitor, operating a 32,500 mile network in 28 western states. Their vast networks are illustrated in Map 1-2.

Thest two locations are:

1. **Rifle, CO** - A community of approximately 9,000, located along the UP Central Corridor. The Central Corridor is a secondary mainline extending between Denver, CO and Winnemucca, NV by way of Salt Lake City, UT. Previously the mainline of the Rio Grande & Western Railroad, and subsequently the Southern Pacific Transportation Company, since being acquired by Union Pacific in 1998, the majority of rail traffic on the line has been shifted to Union Pacific's original mainline through Wyoming. Today, the majority of traffic on this portion of the Central Corridor through Rifle consists of unit coal trains, limited general freight and Amtrak's California Zephyr. Of note, coal traffic volume on the line has been significantly and negatively impacted by the

Map 1-2
Map of Union Pacific and BNSF Railway Networks



national downturn in both coal production and consumption. Additionally, as part of the Union Pacific's acquisition of the line, BNSF retains the right to both operate trains over and to directly serve new railroads and select customers along the Central Corridor according to its representatives interviewed by the study team. As such, were the UBRR constructed to Rifle, Uinta Basin shippers would have the luxury of connecting with two, major railroads instead of one.

2. **Craig, CO** - A community of approximately 9,000, located along the UP Craig. The Craig Branch is a tertiary feeder line, connecting Craig with the aforementioned Central Corridor at Bond, CO, a distance of approximately 100 miles. Historically, the Craig Branch served an important coal producing territory, connecting several mines to power plants in Denver and beyond. However, much as on the larger Central Corridor, recent downturns in the national coal market have led to a significant reduction in the volume of coal being transported over the line. While coal still accounts for the majority of traffic on the line, there are some customers in the Craig area who receive general freight service. Importantly, unlike Rifle, BNSF does not have the ability to reach or serve customers or new railroads on the Craig Branch. If the UBRR were constructed to Craig, rail customers would have no alternative but to ship on UP.

Through conversations with SCIC and interviews with various stakeholders, RLBA determined that one of the driving forces behind the consideration of Rifle as one of the potential eastern termini of the UBRR was the desire to connect to both UP and BNSF instead of only with UP. Interviewed stakeholders repeatedly stated that connections to both railroads could result in significantly improved service and pricing. RLBA's extensive experience in railroad economics corroborates those expectations.

There are at least two major ways in which connections with any two Class One railroads are likely to result in lower railroad rates (transportation costs) and better service than a connection with only one railroad would yield. First, while UP is the largest railroad in the United States - which suggests that it reaches many of the destinations to which oil and other commodities found or mined in the Uinta Basin will be destined – there are destinations not directly accessed by UP but which are served by BNSF. What's more, BNSF may offer better, more direct routing to certain destinations served by both railroads, an advantage which could result in lower transportation rates paid by prospective Uinta Basin rail shippers. Second, there is the potential to create some price competition between UP and BNSF to and from those locations that are served directly by both, as well as those that are served by another railroad but which third party can and does interchange with both UP and BNSF. One would expect the presence of a second, major rail carrier to result in more vigorous price competition, again, resulting in prospective Uinta Basin rail shippers realizing lower rail transportation rates and therefore higher profits than would be the case in the event the UBRR connected with only one carrier.

1.9 Potential Alignments

The three rail alignments considered for the UBRR include:

1. **Myton/Leland Bench Area, UT - Rifle, CO via Meeker Area** - This alignment heads roughly due east from Myton/Leland Bench, crossing the Green River before connecting to the Deseret Power Railroad at Bonanza, UT (see section 1.11). The alignment continues along the existing Deseret

Power Railroad until Dinosaur, CO, then continues east to the Massadona, CO area, at which point the alignment heads south to White River City, CO. The alignment then follows the White River eastward to Meeker, CO, where the alignment heads south over the Rio Blanco Pass before arriving at Rifle, CO and a connection with the Union Pacific Central Corridor.

The total length of the alignment would be 183.31 miles (including 152.97 new-build miles), operating through predominately rolling hills and mountainous terrain. According to the 2001 DMJM Harris Study, the alignment "contains 9° curves and switchbacks to gain elevation, making the grade 2.5% for approximately nine miles. Other segments of the route are at 2.5% grade for 1 to 1.5 miles. The inbound 2.5% grade is the ruling grade for the route." These characteristics suggest the alignment would be demanding, challenging, and therefore more expensive to construct, maintain and operate than a typical rail line.

2. **Myton/Leland Bench Area, UT - Rifle, CO via Piceance Creek** - This alignment heads roughly due east from Myton/Leland Bench, crossing the Green River before connecting to the Deseret Power Railroad at Bonanza, UT. The alignment continues along the existing Deseret Power Railroad until Dinosaur, CO, then continues east to the Massadona, CO area, at which point the alignment heads south to White River City, CO. The alignment then continues southeast along Piceance Creek before crossing Rio Blanco Pass, arriving at Rifle, CO and a connection with UP's Central Corridor.

   The total length of the alignment would be 185.13 miles (including 154.80 new-build miles), operating through predominately rolling hills and mountainous terrain. According to the 2001 DMJM Harris Study, the line "contains 9° curves and switchbacks to gain elevation, making the grade 2.5% for approximately nine miles. Other segments of the route are at 2.5% grade for 1 to 1.5 miles. The inbound 2.5% grade is the ruling grade for the route." These characteristics suggest the alignment would be demanding, challenging and therefore more expensive to build, maintain and operate than a typical rail line.

3. **Myton/Leland Bench Area, UT - Craig, CO** - This alignment heads roughly due east from Myton/Leland Bench, crossing the Green River before connecting to the Deseret Power Railroad at Bonanza, UT. The alignment continues along the existing Deseret Power Railroad until Dinosaur, CO, then continues east, roughly paralleling U.S. Route 40 until reaching the Yampa River. The alignment then follows the Yampa River through Elk Springs Pass before arriving in Craig and a connection with UP's Craig Branch.

   The total length of the alignment would be 157.27 miles (including 126.93 new-build miles), operating through predominately rolling hills and flat terrain. According to the 2001 DMJM Harris Study, the line features "6° curves maximum. The ruling grade for this route is 2.0%, with most grades at 1.8% or less. The 2.0% sections occur at the Craig end of the route and just to the west of Elk Springs." While presenting challenges to the operating and maintenance of the line, these characteristics are significantly less extreme than those observed on either Rifle alignment, resulting in likely lower costs to build, maintain and operate the line.

1.10 Shared Alignments

All three potential rail alignments share a common alignment between Myton and/or Leland Bench, UT and in the vicinity of Massadona, CO. At Massadona, CO, the two potential Rifle rail alignments turn southeast, continuing on the same, shared alignment, while the potential Craig rail alignment continues eastward on a unique alignment. The two potential Rifle rail alignments continue on a shared alignment between Massadona, CO and White River City, CO, before splitting, with one alignment heading southward towards Piceance Creek and the other continuing eastward towards Meeker, CO, before turning southward. The two alignments then rejoin in the vicinity of Rio Blanco Pass, where both again share the same alignment over the remainder of the distance to the end of the line/proposed interchange location at Rifle, CO.

1.11 Deseret Power Railroad

Built in 1983 and owned by Blue Mountain Energy, the Deseret Power Railroad (DPR) was constructed to transport coal between the Deserado Coal Mine outside of Dinosaur, CO, and the Bonanza Power Plant outside of Bonanza, UT. The integration of the DPR right-of-way would result in significant cost savings to the overall project. To that end, RLBA interviewed DPR management to, among other topics, determine the company's level of interest in cooperating with any effort to construct the proposed UBRR. While no specifics terms or requirements were discussed, in general the management of the DPR expressed a willingness to cooperate with any such efforts, assuming that: 1) the company's rail operations could continue unimpeded; 2) any required infrastructure improvements would be paid for the UBRR; and 3) some agreement was reached regarding the maintenance of the railroad.

As a result of the interview, this study reflected the assumption that approximately 32 route miles of the existing DPR right-of-way, between Bonanza, UT and Dinosaur, CO, would be integrated into the construction of the UBRR, regardless of which alignment was chosen. A unique feature of the DPR is the use of electric locomotives and an accompanying overhead catenary system, which limits overhead clearance on the railroad to 22 feet. RLBA determined that all railcars used to transport the commodities likely to be transported on the UBRR would not exceed this 22foot limit. As such, integration of the DPR would not negatively impact operations on the UBRR or vice versa. Given the preliminary nature of the discussions with DPR management, RLBA made no assumptions regarding the nature of any commercial arrangement or agreement involving potential use of the DPR. RLBA, however, did assume that all costs associated with infrastructure improvements on the DPR and all maintenance expense on the integrated portions of the DPR would be borne by the UBRR.

2.0 Approach Part 1 - Determining Potential Rail Traffic Volumes, Destinations and Origins

2.1 Summary of RLBA Approach

RLBA employed a two-step process to determine the potential rail traffic volumes, destinations and origins, including:

1. Conducting interviews with prospective Uinta Basin rail shippers and other stakeholders; and
2. Developing Higher and Lower forecast volumes.

2.2 Conducting Interviews with Prospective Uinta Basin Rail Shippers and Other Stakeholders

The foundation of the forecast volumes used in this report was a series of interviews conducted by RLBA based on a preliminary list assembled by SCIC. RLBA acknowledges the significant effort SCIC's Executive Director went through to contact those interviewed, to create an aggressive but efficient interview schedule and to attend and take notes during almost all of the interviews discussed below. The interviews are best understood as falling into three categories:

1. **Non Shipper, Stakeholder Informational Interviews** - These interviews were conducted at a higher and more generic level than the others. They were designed to familiarize RLBA staff with both the opportunities potentially available were a rail solution found to be viable as well as the potential challenges to such a rail solution, both now and in the future. These interviews were conducted during a relatively short time frame via individual conference calls, primarily in the week before May 6. Included among the entities interviewed were representatives of both UP and BNSF. There were 11 such interviews.

2. **Prospective Uinta Basin Rail Shipper Customer/Commodity Interviews** - These interviews largely took place during a single, intensive week between May 6 and May 11 and were conducted in person in Denver, CO, Vernal, UT, Salt Lake City, UT and the Houston, TX metropolitan area. Additional, follow up interviews to seek clarification of issues related to forecast volumes were conducted as necessary. The information gathered in these interviews proved the most critical to development of rail traffic volume forecasts. There were 14 such interviews.

3. **Prospective End User Interviews** - End user interviews were conducted in person by Marc Eckels, an independent consultant (see section 2.4) under contract to SCIC and took place in the Houston, TX metropolitan area during one week in the middle of June. These interviews were focused entirely on potential consumers of the Basin's crude oil, as RLBA decided during the course of the study that the end product would be enhanced by detailed discussions with potential purchasers of the Uinta Basin's oil since the oil has not had a chance to prove itself to most of its potential customers. There were 5 such interviews, covering 11 potential end user refineries.

A comprehensive list of the interview type, interview location, company interviewed, refinery location (where relevant) and the name of the individual interviewed, is included in Table 2-1.

While all three types of interviews provided valuable information, the interviews with prospective Uinta Basin rail shippers' customers formed the primary basis of the rail traffic volumes forecasted by RLBA. From the perspectives of methodology and approaches, the prospective Uinta Basin rail shipper interviews are best understood as falling into three categories, including:

Table 2-1
List of Interviews Conducted by RLBA

1. **Prospective Uinta Basin Rail Shippers Currently Using Existing Rail Transportation Options** - Consisting of prospective Uinta Basin rail shippers that are already transporting commodities to or from the Uinta Basin for their own account, in competition with other suppliers via trans-load between rail and truck. In this category, RLBA sought to understand the total volume of that commodity moving today by truck to or from the Basin and to understand how that volume might change in the future, especially if oil production increased significantly. Frac sand and steel pipe are excellent examples of commodities in this category.

2. **Prospective Uinta Basin Rail Shippers Currently Not Using Rail** –Consisting of prospective customers that hope to generate or consume freight volume that would move by rail in the future.

Because of the more speculative nature of these prospects, RLBA used Higher and Lower forecasts, with Lower forecasts reflecting lower, later developing or no forecasted rail carloads and Higher forecasts reflecting the dates and volumes presented by the interviewee, translated into carloads.

3. **Prospective Uinta Basin Rail Shippers with Limited Traffic Volume Forecasting Ability** - Forecasts of conventional oil production were handled a third way that RLBA deemed more appropriate to the situation. More specifically, attempts to use a more conventional approach to forecasting potential use of the UBRR by crude oil producers would have been thwarted by the fact that producers don't tend to forecast as far into the future as required to support prospective railroad carloads and that production is distributed across a large number of producers. So, in the alternative, RLBA decided to discuss potential total Uinta Basin production with almost all of the largest producers currently in the Basin and to use the extremes manifest in their estimates to drive its Lower and Higher carload forecasts. Further detail on RLBA's Higher and Lower forecasts for each commodity can be found in the following sections.

2.3 Developing Higher and Lower Forecast Volumes

The railroad industry is different from most other industries in two major ways: 1) it requires a small cost of materials relative to revenues earned to produce its outputs; and 2) it also requires a high capital investment relative to revenues. However, once a railroad achieves a break-even level of freight traffic, a surprisingly large percentage of incremental revenue drops to the "bottom line" as traffic is added and a railroad can become highly profitable when measured against just about any metric except return on invested capital. A common expression of this phenomenon is that the railroad industry is said to manifest extremely high operating leverage. As a result, for a railroad to succeed, it must attract and keep a significant volume of traffic on which it can charge competitive rates. The need to achieve and sustain a high volume of traffic and revenue is even more critical in the case of a railroad such as that investigated herein because the financial performance of the Uinta Basin Railroad will be tested further by the need to overcome the extremely high capital costs that are a necessary element of a railroad being constructed in excess of 126 miles.

As a consequence of the above, it is absolutely essential that the SCIC be provided one or more traffic volume and associated revenue forecasts in which it can repose confidence. Through the course of the study, RLBA determined there to be four significant potential challenges to the achievement of the projected volumes forecasted herein, including:

1. **Stability of the Future Price of Oil** - The World oil market has been anything but stable since 1973, and there is every reason to think that such volatility might continue. The viability of the UBRR is grounded on the assumption that oil markets will be stable or favorable, which is a reasonable assumption to make. However, a significant and long-term downturn in the price of WTI, particularly in the early years of the prospective railroad, could result in significant shortfalls from the performance indicated herein;

2. **Barriers to Timely Construction of the UBRR** - There are risks that permits or financing as-

sociated with the UBRR might be denied or delayed significantly, to the point that prospective Uinta Basin rail shippers might seek alternative "take away" capability or divert investment dollars to other regions, thereby diverting or postponing volumes of crude oil and other commodities which otherwise might traverse the UBRR;

3. **Reluctance to Commit** - While the economics of the UBRR may be promising, the region's producers might be reluctant or otherwise unable to make the commitments necessary to secure financing, even if such assurances are ultimately required to advance the project and;

4. **Unknown Demand** - The demand for Uinta Basin's waxy crude, which is not well known outside of Utah, in large part due to lack of transportation infrastructure to ship product out of the Uinta Basin, may not be as readily accepted as initial indications would suggest. While there appear to be a large number of refineries at least prospectively interested in Uinta Basin crude, additional work should be undertaken to increase the likelihood that sufficient demand will manifest itself by the time the UBRR is about to be constructed. Ideally, that demand will manifest itself not only in interest expressed by out-of-state refineries that the Basin's waxy crudes have been modeled successfully by the refineries, but also that the volumes desired are significant enough in total to consume the supply side at pricing at or near WTI taking into consideration the need to unload unit trains at or nearby refineries to keep rail transport costs to a minimum, and that arrangements already have been or can be made to provide sufficient heating to prevent the waxy crude from "setting up."

In light of these challenges, to best define the potential volumes, RLBA developed forecasts of the carloads it believes are reasonable to assume would be carried by the prospective railroad during the period 2022 through 2034 (and every year beyond) were it built, managed and operated at a reasonable cost. More specifically, RLBA developed "Lower" and "Higher" forecasts in connection with crude oil and seven other commodities it believes might be hauled on that railroad in its early years.

A summary of estimated annual Higher and Lower forecasts of various commodities is shown in Table 2-2.

The carloads in the Higher forecast reflect assumptions made by RLBA consistent with a theme that decisions would be made that would result in actions that would be favorable to the prospective railroad's viability. Primary among those favorable assumptions is that Basin oil producers will be able and motivated to extract, and market conditions will encourage the extraction of, no less 225,000 bpd on a consistent basis if the railroad is built and operated as presently envisioned. That threshold volume has been articulated by several major oil producers in the Basin even though it represents almost a tripling of recent production volumes there. The application of those assumptions results in a forecast of [redacted] carloads over the prospective railroad in its first full year, 2022, in the Higher case and [redacted] carloads hauled by that railroad in the Higher case in 2034 and beyond. As a sensitivity test, RLBA also developed a Lower case in which [redacted] carloads were forecast to be carried in 2022 and [redacted] were assumed to be hauled in 2034 and beyond.

Table 2-2
Estimated Annual Carloads Originating/Terminating in Uinta Basin, 2022-2044

In both the Higher and Lower cases, railroad volumes were assumed to ramp up in the early years of the forecast, driven by increased production of crude oil in the Basin and the inputs that enable same, as well as greater and greater acceptance of the Basin's crudes at various refineries, primarily located in Gulf Coast states. Similarly, and perhaps more importantly, the viability of the prospective railroad is extremely dependent upon and sensitive to assumptions made about the ramp up rate and total production of crude oil in the Basin. Not only is crude oil by far the largest single commodity moved on the prospective railroad, but frac sand and steel pipe movements into the Uinta Basin, supporting the production of crude oil are obviously equally dependent upon how much oil is extracted in the Basin and are also significant contributors to the prospective railroad's viability.

2.4 Additional Study Contributions

To further assist in the study, the SCIC contracted with Marc Eckels, an experienced oil and gas consultant based in Park City, UT, to interview representatives of select refineries primarily in the Gulf Coast and discuss with them in detail, to the extent possible, the prospective interest of those refineries in the Basin's oil. After interviewing in person representatives of five companies operating eleven refineries believed to be possible consumers of Basin crudes, Mr. Eckels concluded that demand exists today for at least somewhere between 320,000 and 340,000 bpd of Basin oil.

Several caveats should be taken into consideration in digesting that forecast. First, and most importantly, the work performed by Mr. Eckels is not complete, as he was only able to meet with officials representing eleven of the nineteen refineries he originally targeted. It is the intent of Mr. Eckels to make a good faith effort to complete interviews with representatives of the remaining eight refineries. As such, the results of this report are subject to change pending the outcome of said interviews.

Second, although most of the representatives expressed few reservations about taking Basin crude, no large and sophisticated refinery is going to commit to actually adding new crude into its mix until it runs the characteristics of that crude through its proprietary model. And while there are several characteristics of the Basin's crude oil that should make it extremely attractive to many large refiners, most are still a long way from signing a contract committing them to taking significant volumes of Uinta Basin crude.

Additionally, the volumes of crude that the Basin's oil producers have been able to market have been highly constrained by the region's transportation infrastructure limitations, particularly the absence of a railroad or pipeline. These transportation limitations are the primary cause of the unique market factors present in the region. Regarding price, Mr. Eckels concluded that it was extremely likely that the refineries he targeted would be willing to pay no less than a small discount to WTI and that some refineries might be willing to pay either WTI or perhaps even a slight premium to it, depending upon their marketing objectives and other factors. It is important to note for the record that no refinery representative explicitly promised or suggested that Basin producers absolutely would realize WTI from that refinery or close to it. It is equally important to note that the individuals interviewed are or previously were crude traders and traders could not reasonably be expected to "tip their hand" or reduce their negotiating leverage by agreeing in advance to pay WTI parity. While representatives of most refineries did not provide indicative pricing relative to WTI, one offered an indication at a $3 to $5 discount to WTI. This discount would compare favorably to the one realized today by most major Basin producers, which recently has been in the neighborhood of WTI minus 17%.

2.5 Methodologies Used to Determine Potential Rail Traffic Volumes, Destinations and Origins

The following section provides a synopsis of the methodologies employed by RLBA to determine the potential rail traffic volumes, destinations and origins which would likely utilize the UBRR, if constructed.

2.6 Outbound Commodities

2.7 Crude Oil

RLBA employed separate assumptions about six, different factors to develop its Lower and Higher crude oil carload forecasts. Specifically, RLBA made assumptions about:

1. **Intermediate Term Crude Oil Production Potential** - Annual crude oil production in the Uinta Basin was assumed to be 225,000 bpd in the Lower forecast as a sensitivity test of the viability of the railroad hypothesized in this study. In contrast, a much higher figure, 350,000 bpd was employed in the Higher forecast, based on the oft-repeated pronouncements made by at least one of the leading oil producers in the Basin and other knowledgeable experts during interviews conducted in connection with this study effort;

2. **Volume of Production to Existing Salt Lake City Customers** - As regards the volume of total production destined to Salt Lake City refineries by truck and existing truck/rail transloading facilities after the prospective Uinta Basin railroad might become operational, 80,000 bpd was used

in the Lower forecast to approximate the volume that is usually destined to those five refineries largely by use of tanker trucks loaded in the Uinta Basin when the refineries are operating normally and the oil markets, likewise, are operating normally. In contrast, a lower figure, 40,000 bpd was assumed destined to the Salt Lake City refineries by truck in the Higher forecast. The lower truck diversion of crude oil to in-state refineries and away from potential new railroad haulage, results in a higher amount of crude available to be handled over the prospective railroad;

Although RLBA recognizes that its 40,000 bpd assumption of crude destined to the five in-state refineries would upset the status quo and could only come into play to the extent that long term supply contracts were not in place between Uinta Basin suppliers and the five refineries, RLBA, nevertheless believes that the lower diversion might arise for any one or more of at least three reasons. First, it might become less expensive to use the railroad to haul the oil to the Utah refineries than to continue to use trucks. Second, even if rail were not to prove less expensive to use than trucks to get to the five refineries, political pressure from the State of Utah and/or local governments, both in the Basin and between the Uinta Basin and refineries, might cause half of the volume to move by rail anyway because of the road congestion caused by the trucks, the safety and environmental issues caused by such extensive truck use and the maintenance costs incurred by Utah taxpayers to support continued use of the hundreds of daily truck movements necessary to handle the 80,000 bpd to those refineries. Finally, the oil producers in the Uinta Basin are fond of using the term "optionality" to describe their need to have optional markets other than Salt Lake City into which they can sell their oil if they are to expand production and escape from or improve upon the status quo WTI discount pricing they are currently forced to bear;

3. **Volume of Production Potentially Diverted to the Uintah Advantage Refinery (see section 2.9)** - It is difficult to argue that if the Uintah Advantage refinery comes into existence and consumes 40,000 bpd as forecast, it would be anything besides a big plus for oil producers in the Basin as they would immediately enjoy a decent sized, local consumer of their production and a refinery whose products would lower the overall cost of oil production by reducing the price of diesel oil products purchased locally while paying WTI or close to it. That said, the local consumption of Basin oil essentially translates into lower crude oil production available to be hauled on the prospective Uinta Basin Railroad to the extent the oil is refined into products consumed locally or not moved via the subject railroad. Therefore, in the Lower forecast, the refinery was assumed to be built and 40,000 bpd were diverted to that refinery although a lesser volume of products produced through the refinery were reflected in the Lower rail carload forecast, to capture refined products that would move by rail from the refinery; volumes that decline when Phase 2 of the project is assumed to come on line and result in an adjusted, refined product mix. In contrast, the Higher crude oil carload forecast reflects the assumption that the refinery is never completed and, therefore, no crude oil is diverted from local production into the local refinery and, likewise, no local refinery products are shipped via the subject railroad because the refinery was assumed to never be completed;

4. **Time Period of Production "Ramp Up" in Anticipation of the UBRR** - RLBA made assumptions about the year in which Basin oil production would begin to ramp up in anticipation of the prospective railroad's imminent start-up. In the Lower forecast, RLBA assumed that crude oil

producers in the Basin would not start to ramp up their production until the railroad was built and scheduled to commence operations in 2022. In contrast, in the Higher forecast, RLBA assumed that crude oil producers in the Basin would not wait to start ramping up their production until the railroad was scheduled to commence operations and started ramping up in 2020 in anticipation of same so that they could advance their respective enhanced sales volumes as soon as possible. Although RLBA acknowledges that oil producers are unlikely to act in complete unison, the assumptions employed to represent this factor were applied as if all producers acted uniformly across both Lower and Higher crude oil production forecasts;

5. **Rate of Production "Ramp Up" in Anticipation of the UBRR** - The fifth variable taken into consideration in the crude oil production forecasts was the rate of increase in production once ramping up of production commenced. In both the Lower and Higher crude oil production forecasts, RLBA's assumptions pivoted off of the net actual increase of [redacted] bpd that [redacted] drilling rigs accomplished in the 12 months between July 2016 and June 2017, or an increase of [redacted] bpd per month. RLBA's Lower forecast reflects a doubling of the rig count to about [redacted] and a concurrent approximate doubling of the growth to ([redacted] bpd x [redacted]=) [redacted] bpd/month. Applying that rate of growth to [redacted] bpd growth in Basin bpd production inherent in the Lower forecast yields [redacted] months, which RLBA equated to four years in that forecast. While the tripling of the rig count may seem aggressive, that results in approximately the rig count in effect in the Basin in 2014. The Higher forecast incorporated the same approach but applied different numbers more appropriate to that scenario. Specifically, RLBA's Higher forecast reflects a quadrupling of the rig count to [redacted] and a concurrent quadrupling of the rate of growth to ([redacted] bpd X [redacted] =) [redacted] bpd increase per month. Applying that rate of growth to the [redacted] bpd growth inherent in the 350,000 bpd overarching forecast in the Higher scenario equates to [redacted] months which, again, RLBA equated to four years. In other words, the ramp up period would be approximately the same in the two forecasts because the higher ramp up rate in the Higher forecast accomplished the ramp up to a higher ceiling in approximately the same time period as a slower ramp up to the Lower forecast production ceiling and

6. **Rate of Production After "Ramp Up" Period** - The sixth variable taken into consideration in the crude oil production forecasts was the rate of increase in production assumed once the initial ramping up period largely leveled off. In its Lower forecast, RLBA assumed a 1 % increase in production occurred each year as compared to that achieved in the previous year. In its Higher forecast, RLBA assumed a 2 % increase in production occurred each year as compared to that achieved in the previous year. RLBA believes that both assumptions are practical, achievable and, in fact, conservative (low) given the increases in production that have occurred in the last few years.

The application of these assumptions resulted in the following carload volumes and prospective destinations in the Higher and Lower forecasts, respectively.

Table 2-3
Crude Oil Carload Volumes, 2022-2042

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034 +
Lower	[redacted]												

2.8 Shale Oil - Enefit

Enefit USA is the US subsidiary of a company based in Estonia that operates a mining enterprise in that country, using proprietary technology to mine shale there and turns it into heavy crude oil. After considering other geographic opportunities in which to expand its operations, the parent company elected to establish a US headquarters in Salt Lake City and make substantial investments both in property in the Uinta Basin as well as in commencing the permitting processes necessary to enable it to begin to mine shale in the Basin in the short-term.

In its Lower carload forecast, RLBA reflected the assumption that the project either stalled or never resulted in producing sufficient volumes to warrant inclusion in the subject forecast. Estimating when the permits might be obtained and production might commence is always challenging, but based on the interview RLBA had with the company's top U.S. executive its Higher forecast reflected the assumption that the plant would commence operations in mid-to-late 2025 and would generate approximately [redacted] carloads per year for three years, beginning in 2026, after which time volume would increase to a doubling of production, or [redacted] carloads per year, beginning in 2030.

The application of these assumptions results in the following carload volumes and prospective destinations in the Higher and Lower forecasts.

Table 2-4
Shale Oil Carload Volumes, 2022-2042

[redacted]

2.9 Refined Oil Products - Uintah Advantage

Uintah Advantage is the name of an organization seeking to develop a small refinery within the Uinta Basin. At [redacted] bpd, that refinery would represent a significant growth opportunity for crude oil producers in the Basin, approximately a [redacted]% increase over the [redacted] bpd now sent on average between Basin producers and Salt Lake City refineries. But, in contrast with the volume to Salt Lake City refineries, the Uintah Advantage refinery would provide a destination to which Basin crude oil producers always would enjoy a significant, competitive, geographic advantage and, presumably, WTI pricing or close to

it, as opposed to the heavy WTI discounts historically imposed by the Salt Lake City area refineries on Uinta Basin producers of crude. Although the refinery would consume [redacted] barrels per day of Uinta oil produced locally, if built, it would not ship all of those barrels via the UBRR because approximately half of that volume would be consumed locally. So, the operation of the Uintah Advantage refinery, should it come into existence, would have the effect of limiting the volume of oil and refined oil products that would use the prospective railroad.

As a result of the above, the Lower forecast reflects the assumption that the Uintah Advantage refinery does come into existence and consumes [redacted] barrels per day beginning in 2022 and continuing throughout the forecast period. That consumption translates into [redacted] carloads of refined products assumed to be moved in roughly equal proportion to Houston, TX and Oakland, CA by rail through the year 2024, which date constitutes the assumed conclusion of Phase 1 of that project. Phase 2 of that project is assumed to commence in 2025 but results in a smaller volume of annual carloads, [redacted], destined to the same locations but based on an assumed upgrading of the refinery to the production of higher-value commodities, which upgrade would have the effect of reducing the volume of products shipped by rail. In contrast, counterintuitively, the Higher forecast reflects the assumption that the local refinery is not built and a higher volume of locally-based crude oil production, therefore, is available to traverse the prospective railroad, equating to [redacted] carloads annually.

The application of these assumptions results in the following carload volumes and prospective destinations in the Higher and Lower forecasts.

Table 2-5
Refined Oil Products Carload Volumes, 2022-2042

[redacted]

2.10 Sodium Bicarbonate

The Piceance Basin, somewhat north of Rifle, CO, contains North America's only known, significant deposits of nahcolite – a soft, colorless or white carbonate mineral with the composition of sodium bicarbonate. Sodium bicarbonate is used in a variety of products and industries including food and baking, personal care, pharmaceutical, animal nutrition, agriculture, pool and water treatment and industrial markets. Natural Soda, the second largest producer of sodium bicarbonate in North America, is currently the only company taking advantage of this world class resource as its major competitor uses non-natural ingredients. Natural Soda's operation is a sophisticated, reliable and efficient process for recovering pure, naturally-occurring, sodium bicarbonate from the largest known nahcolite deposits in the world. The plant's location could provide easy access to the prospective railroad via a to-be-constructed spur in the event economic and other factors resulted in the construction of the prospective railroad on an alignment that traversed the Piceance Creek Basin. The plant's production today is shipped both in bulk and in bags. All of the bagged materials move by truck. In contrast, the bulk material moves both via truck and truck-to-rail. It is important to note that this potential movement is the only shipment of significant size that has been identified to date that would originate or terminate on the prospective railroad in Colorado, although additional rail users may be identified once the route alignment issue is settled.

The Lower forecast reflects the assumption that the selected alignment of the subject railroad is too far from the plant to make service by the prospective railroad competitive, which would certainly be the case if the Craig alignment were chosen. In contrast, currently bulk material is moved by rail via a transload operation in Rifle, Colorado, which was served by Union Pacific prior to its acquisition of Southern Pacific. So, in addition to replacing higher truck costs with a direct-to-rail shipment at its plant, Natural Soda might benefit from the establishment of the prospective railroad, assuming that the railroad gained access directly also to BNSF at or near Rifle. That said, RLBA's Higher forecast employs the same number of carloads, approximately [redacted] annually, regardless of year, because even though the vast majority of current shipments are to markets distant enough from Colorado to make rail service competitive, a combination of customer convenience, shipment size and customer preference for bagged materials limits the upside potential to increase traffic from this rail shipper on the prospective rail line. The Higher forecast could prove to be too conservative in the long run given that the plant's production capability was doubled as recently as 2013. However, the executive interviewed by RLBA at Natural Soda indicated that the company did not have any plans under consideration to expand production further and, therefore, it was deemed prudent to not increase the carload forecast in the out years of this forecast.

The application of these assumptions results in the following carload volumes and prospective destinations in the Higher and Lower forecasts.

Table 2-6
Sodium Bicarbonate Carload Volumes, 2022-2042

2.11 Fly Ash - Enefit

As discussed above in the context of Shale Oil - Enefit, plans are proceeding to finish the permitting and commence construction of an shale oil mining operation in the Uinta Basin. Were the mining to commence along the scale of operations currently contemplated, the most valuable and voluminous commodity to be produced would be the shale oil described above. However, the mining operation also would yield a significant volume of fly ash as a byproduct of the mining of the shale. Consistent with the treatment of Shale Oil – Enefit, above, in its Lower forecast volumes, RLBA assumed that the plant would not commence operations during the forecast period. And, therefore, no rail carloads of Enefit fly ash are shown. In contrast, in its Higher forecast, RLBA forecasts that [redacted] carloads of fly ash per year will be transported on the subject railroad during the first phase of the project, specifically, commencing in 2026 and ramping up through 2028. That forecast also reflects the assumption that that volume will double in 2029, commensurate with the assumed startup of the second phase of that operation. Destinations to which that fly ash might be delivered have not been identified, but are believed to be sufficiently distant from the Uinta Basin to make use of the prospective railroad economic.

2.12 Fly Ash - Deseret Power Electric Cooperative

Deseret Power Electric Cooperative (DPEC) provides electrical power to industries and residents in the Uinta Basin and parts of five states. Deseret's primary generating resource is the Bonanza Power Plant. As previously discussed, the Bonanza Power Plant is the western terminus and sole destination of Deseret Power Railroad (DPR), the right-of-way of which is presumed would be largely integrated into the UBRR. The amount of electricity generated by the power plant is relatively constant from year to year al-

though there are variations from the norm. As previously discussed in the context of the Fly Ash - Enefit carload forecast, generation of power from the use of coal results in a substantial volume of fly ash which today moves by truck from the plant to the Salt Lake City area, where it is transloaded to rail and moved in roughly equal proportion to markets in the Sacramento and Houston metropolitan areas. Historical volumes average approximately [redacted] carloads per year. This volume is set to continue until at least until 2030, by which time, as the result of an agreement between DPEC and the Environmental Protection Agency, the Bonanza Plant must install specific emission control equipment to continue operating. At this point, it is unknown if DPEC will install said equipment or decide, instead, to decommission the plant.

Beyond fly ash, DPR management suggested that, if built, the UBRR could serve to meet additional future transportation needs, including inbound heavy equipment and both periodic inbound (to the Bonanza Power Plant) and outbound (from the Deserado Mine) coal shipments. As a result, the carload forecasts employed in this analysis may potentially understate potential traffic volume available to the subject railroad associated with this prospective rail customer, although such uses are both too speculative and too far in the future to be appropriate to include in this study.

The application of these assumptions results in the following carload volumes and prospective destinations in the Higher and Lower forecasts.

Table 2-7
Fly Ash Carload Volumes, 2022-2042

[redacted]

2.13 Gilsonite

Gilsonite, also known as "uintahite," "asphaltum" and asphaltite, is a naturally occurring solid hydrocarbon and an extremely pure form of asphalt (or bitumen) with a relatively high melting temperature which, given its unique chemical properties and physical characteristics, gilsonite is particularly valuable in improving the performance of many critical materials and applications. Although the substance has been historically mined and its only large-scale production occurs in the Uinta Basin of Utah and Colo-

rado, resources are being discovered and mined more recently in other countries such as Colombia and Iran.

While the price of oil stimulates the production of gilsonite in any given year, ironically, oil production volumes in the Uinta Basin do not affect gilsonite production because it is not used in the Basin's oil production. Gilsonite is distributed to just about every state in the U.S., but the prospective railroad primarily would be involved in the export of gilsonite, with about equal volumes passing through Oakland, CA and Houston, TX. RLBA employed a constant volume of [redacted] carloads annually in its Lower case forecast, commencing immediately and twice that amount, [redacted] annual carloads, in every year of its Higher forecast. Those forecast volumes are in line with average relatively poor and good years, respectively.

The application of these assumptions results in the following carload volumes and prospective destinations in the Higher and Lower forecasts.

Table 2-8
Gilsonite Carload Volumes, 2022-2042

	Oakland, CA		Houston, TX		Total	
Year	Lower	Higher	Lower	Higher	Lower	Higher
[redacted]						

2.14 Inbound Commodities

2.15 Frac Sand

Frac sand, particularly inbound from Wisconsin and Illinois, to support the development of oil and gas wells, is the largest inbound commodity identified thus far, and while it is not as significant as outbound crude oil to the potential viability of the subject railroad, it is projected to generate more carloads, by far, than any other commodity on the prospective railroad except crude oil.

The volume of frac sand and equated projected carloads are related to the total amount of oil produced

in the Uinta Basin forecast in a given year, not just the amount of crude oil or refined oil products that moves over the prospective railroad. Specifically, it is related to the projected oil production that underlies the Lower and Higher carload forecasts, namely 225,000 and 350,000 bpd, respectively, and grows proportionately as projected volumes ramp up to those amounts. Frac sand volumes in the Higher forecast, increase from [redacted] carloads in 2022 to [redacted] in 2024, constituting the ramp up period, before increasing by [redacted]% per annum after that to [redacted] in 2034 and beyond. Similarly, frac sand volumes in the Lower forecast increase from [redacted] carloads in 2022 to [redacted] in 2026, constituting the ramp up period, before increasing by [redacted]% per annum after that to [redacted] in 2034 and beyond.

Not captured in either the Lower or Higher carload forecasts are the volumes of frac sand which could be shipped via the UBRR in the event that gas exploration increased in the Uinta Basin. At this time, the prospect of such exploration remains too speculative to advance any volume forecast. However, it should be noted that if said exploration did occur, the carload volumes of frac sand advanced in the Higher forecast could potentially be understated, perhaps even significantly.

The application of these assumptions results in the following carload volumes and prospective originations in the Higher and Lower forecasts.

Table 2-9
Frac Sand Carload Volumes, 2022-2042

[redacted]

2.16 Steel Pipe

Steel pipe and other tubular products are significant and necessary contributors to modern oil production methods. Today, Colorado Tube and Pipe (CTAP) is the dominant supplier of such products into the Uinta Basin. Based on a telephone interview with its Senior Vice President, Operations, Quality Assurance and Technical Sales, RLBA believes that a very large share of inbound tubular products would be transported there via the UBRR, were it built. In fact, the individual interviewed volunteered that of the 12 supply yards in 8 states for which he is responsible, Vernal, UT (located in the Uinta Basin) is the only yard that is not rail-served. Instead, the Uinta Basin is generally supplied by yards CTAP operates in

Craig and Rifle, Colorado, exactly the two endpoints being studied in this report as possible junctions of the prospective railroad with one or more major railroads. CTAP would be strongly inclined to move the maximum amount of its products possible via the prospective railroad for a variety of reasons including economics. However, that would not translate into all of its volume due to customer preferences and the inability, so far, of the rail industry to provide sufficiently reliable service to make CTAP comfortable that its customers will not suffer stock outs due to failed deliveries by rail.

As was the case with several of the above-discussed commodities, the volume of tubular goods forecast to move via the UBRR is related to the total amount of oil production in the Uinta Basin.. In the Higher case, the forecast equates to [redacted] carloads in 2022, rising steadily to [redacted] in 2024 and then more modestly to [redacted] carloads in 2034 and beyond. In the Lower case, the forecast equates to [redacted] carloads in 2022, rising steadily to [redacted] in 2026 and then more modestly to [redacted] carloads in 2034 and beyond.

The application of these assumptions results in the following carload volumes and prospective originations in the Higher and Lower forecasts.

Table 2-10
Steel Pipe Carload Volumes, 2022-2042

[redacted]

3.0 Approach Part 2 - Determination of Costs to Reach the National Rail Network

3.1 Summary of RLBA Approach

RLBA employed a three-step process to determine the cost to reach the national rail network, including:

1. Developing an Operating Plan Unique to Each Proposed UBRR Alignment;
2. Developing Costs Associated with Each Operating Plan for Each, Proposed UBRR Alignment and
3. Amending and Including the Initial Capital Investment to Build Each, Proposed UBRR Alignment.

3.2 Developing an Operating Plan Unique to Each Proposed UBRR Alignment

RLBA developed two operating plans in connection with each of the three, proposed alignments; one reflecting the Higher forecast volumes and another reflecting the Lower forecast volumes. These operating plans primarily reflected consideration of: 1) the volumes of freight forecasted to be shipped both inbound to and outbound from the Uinta Basin; and 2) the physical characteristics of the alignment. The operating plans were critical to the determination of the manpower, material, equipment and physical plants required to adequately support the movement of the forecasted volumes over the railroad. The specifics of each operating plan are defined in the following sections.

3.3 Developing Costs Associated with Each Operating Plan for Each, Proposed UBRR Alignment

The manpower, material, equipment and physical plant requirements of each operating plan were putt into RLBA's short line costing model. This costing model draws on real world costing data drawn from proprietary databases maintained by RLBA to provide highly accurate cost estimations. The RLBA costing model considers six major inputs: the four major operating expense cost centers associated with railroad operations and capital expenses regarding Maintenance of Equipment and Maintenance of Way. For purposes of this study, RLBA defines each of these inputs as follows:

1. **Transportation** - Alternatively known as the as the Train and Engine (T&E) Department on a railroad, encompasses the manpower and material necessary to operate trains over the railroad;

2. **Equipment** - Alternatively known as the Mechanical Department, encompasses the manpower and materials required to maintain the rolling stock of a railroad. Equipment expenses captured in operating costs are considered "routine maintenance" costs and encompass the day-to-day upkeep and repair activity required to ensure that equipment is available to support railroad operations;

3. **Maintenance of Way (MOW)** - Alternatively known as the Engineering Department, encompasses the manpower and materials to maintain the physical plant of a railroad (i.e., the track structure, grading, bridges, road crossings and signals). MOW expenses captured in operating costs are considered "routine maintenance" costs and encompass the day-to-day upkeep and repair activity required to ensure that the track structure is available to support railroad operations;

4. **General and Administrative** - Spans several departments of most railroads, and encompasses the expenses other than those attributed to train operations or maintenance of a railroad's equipment or physical plant. These activities generally include 'back office' functions and the executives of the railroad and other departments such as Human Resources, Marketing, Legal etc.;

5. **Equipment Capital Expense (Capex)** - Also referred to as "Program Maintenance" encompasses the expenses to acquire railroad equipment (sometimes referred to as "Expansion Capital Expense") and the expenses to perform major overhauls or repairs to same with the goal of extend-

ing the useful life of the equipment, or the outright replacement of existing equipment (sometimes referred to as "Maintenance Capital Expense") and

6. **Maintenance of Way (MOW) Capital Expense (Capex)** - Also referred to as "Program Maintenance" encompasses the expenses to build new railroad right of way and track structure and the expenses to preform major renewal projects with the goal of extending the useful life of the track structure or the outright replacement of existing railroad right of way and track structure (sometimes referred to as "Expansion Capital Expense").

3.4 Amending and Including the Initial Capital Investment to Build Each Proposed UBRR Alignment

Conceptual engineering costs to construct each of the three, proposed UBRR alignments prepared by Jones & DeMille were integrated into the cost model. RLBA understands that: 1) Jones & DeMille was only engaged to prepare 'high level' estimates regarding the level of effort and associated cost to construct the three rail alignments; 2) information regarding the physical characteristics of the three proposed rail alignments through Colorado was largely based on a 2001 DMJM Harris Study; and 3) limited information was prepared regarding the physical characteristics of the shared alignment through Utah.

The Jones & DeMille cost estimates reflect the construction of a single track railroad, with no additional support infrastructure. As such, RLBA included additional costs to reflect, as necessary, additional infrastructure not captured in the conceptual costs developed by Jones & DeMille, including side and yard tracks, signal and train traffic control systems and maintenance facilities. The specific additional costs added by RLBA are defined in the following sections.

3.5 Comment Regarding Assumptions Regarding the Physical Characteristics of the Railroad

It is important to note that the physical characteristics of a specific railroad have wide reaching implications as to the level of effort and associated cost to both operate and maintain any railroad. As prepared, the Jones & DeMille conceptual engineering plans included limited, if any, specific physical characteristics regarding the three potential rail alignments. In the absence of specific information regarding the physical characteristics of the potential UBRR alignments, RLBA professionals were required to employ a significant amount of professional judgment and estimation in developing the costing information required by this assignment. Because of the these limitations in the conceptual level engineering data, RLBA stresses that values advanced in this report are to be considered high level estimations; more accurate operating and maintenance cost estimations would require a much more detailed understanding of the physical characteristics and profile of the railroad.

3.6 Consideration of Institutional Arrangements

To determine a more exact estimate of the costs associated with the UBRR, RLBA considered three discrete institutional arrangements by which service could be provided on the UBRR:

1. A public entity, or a consortium of public entities, constructs the UBRR and leases or enters into an operating agreement regarding the new railroad with UP or BNSF to operate;

2. A public entity, or a consortium of public entities constructs the UBRR and leases or enters into an operating agreement regarding the new railroad with a short line to operate; and

3. A public entity, or a consortium of public entities, constructs the UBRR and creates a new railroad entity, thus operating the line itself.

These three arrangements represent the most likely methods by which the UBRR would operate, based on current standards and trends in the industry. It is important to note that in all three arrangements considered by RLBA, RLBA assumed that construction of the railroad would be the responsibility of SCIC, another public entity, or a consortium of public entities. While private/public partnerships ("3Ps") are not unprecedented in the freight rail industry, there has never been such a partnership approaching the size and scope of the UBRR. Furthermore, given the generally conservative nature of the rail freight industry, RLBA believes any railroad which may eventually service the line has relatively little incentive to invest in the construction of the line, especially given the high associated capital costs projected and lack of current production levels sufficient to justify construction.

The following describes the pros and cons of each railroad institutional arrangement.

1. **Public entity(s) constructs the UBRR and leases or enters into operating agreement with UP or BNSF** - The most recognizable advantage of leasing the line directly to UP or BNSF is that such an agreement would eliminate the need for an additional railroad to transport freight to and from either Rifle or Craig, resulting in possible time and cost savings realized by both the carrier and its customers. Conversely, there are two significant problems with leasing the line to UP or BNSF. First, due to the significant size of the two railroads, the quality of service may not be up to that delivered by a much smaller customer-focused short line. Second, like all the major Class One railroads, UP and BNSF have continually emphasized investment in major, high-capacity mainlines over the last few decades, while at the same time aggressively reducing the number of branch lines along their systems , either by divesting operations to short lines or outright abandonment. As much was confirmed during conference calls with BNSF, during which representatives from the railroad stated their preference to service the UBRR via interchange with a Class Two or Class Three operator at Rifle;

2. **Public entity(s) constructs the UBRR and leases or enters into operating agreement with a short line operator** - The pros and cons of entering into an operating agreement with a short line operator are essentially the inverse of those associated with UP or BNSF operating the line. The hallmark of even the largest short line holding companies is customer service. Most short lines are headquartered along the rights-of-way they own or operate, allowing direct access to railroad managers by local customers and vice versa. Short lines are generally much more flexible to work with regarding such key commercial terms as service, billing and operating agreements, often working one-on-one with customers to tailor solutions to meet their individual needs. Additionally, many Class Ones, including UP and BNSF, enjoy working with short lines, to feed the larger

railroad traffic while leaving the more labor and cost intensive "last miles" to short line operators. The disadvantages of a short line operator in this situation are the potential loss of time and money associated with another party handing traffic between the Uinta Basin and either Rifle or Craig, although the above-mentioned flexibility and high level of customer service may more than offset these potential losses. As such, RLBA considers these disadvantages to be minimal given the improved customer service and general direction in which the industry has been heading regarding the role of short lines; and

3. **Public entity(s) constructs the UBRR and creates and operates a new railroad** - The most obvious advantage of this arrangement is that the public entity that built the line would enjoy total control over railroad operations and, as such, could ensure the railroad provided near optimal service to meet the needs of its customers. There are, however, several serious negative aspects to consider as well. First, acquiring the necessary manpower and equipment to operate the railroad would dramatically increase the initial capital investment, as well as expose the subject public entity(s) to additional financial and liability considerations. Secondly, significant effort would have to be made by the subject public entity(s) to assemble an experienced staff to stand up railroad operations. Both these issues would result in the subject public entity(s) committing huge resources to issues that are most likely well outside respective scope(s) and mission(s).

Table 3-1
Third Party Operator Profit Margin, 2022-2042

While all three methods have merits, RLBA believes the most practical option in this instance is to have a public entity(s) enter into an operating agreement or lease with an established short line operator. A short line operator should provide the 'personalized' servicing of Uinta Basin customers. This would allow the public entity to focus on its core function and mission with only an oversight role over rail operations, such as receiving regular reports and holding regular meetings with the carrier's management. For proposes of this cost comparison exercise, RLBA assumed that all rail operations would be conducted by a third party, contract operator. Furthermore, it was assumed that the third party operator would expect to

realize a 15% profit margin above the operational expense associated with the operation of the railroad.

3.7 Explanation of Methodologies Used in Determining Costs to Reach the National Rail Network

The following section provides a synopsis of the methodologies employed by RLBA to determine the cost to reach the national rail system.

3.8 Operating Plan

In all three alignments, RLBA assumed that railroad operations on the UBRR were based at the western end of the railroad at either Myton or Leland Bench, hereafter, the "West End Yard." Facilities at the western end of the railroad would include the UBRR's primary yard facility, maintenance facilities and administrative offices. The only other major facilities on the railroad are located at the eastern end of the line at either Rifle or Craig, CO, respectively, hereafter the "East End Yard." Facilities at the eastern end would include a second yard to facilitate interchange with UP and/or BNSF and a minor maintenance facility.

With the expectation of sodium bicarbonate produced by Natural Soda at a location north of Rifle (only in the Higher forecast scenarios) and fly ash produced at the Bonanza Power Plant, all outbound traffic on the railroad was assumed to originate at the West End Yard, where commodities were assumed to be loaded onto railcars via privately owned and operated transloading facilities located adjacent to West End Yard. Due to the preliminary status of the UBRR project, no information regarding the location of potential shipper's facilities was available to consider. The cost to transport commodities to the transloading facilities and load on railcars is not reflected in this study. Conversely, RLBA further assumed that all inbound traffic on the railroad would be received via interchange at the East End Yard and transloaded off of rail at West End Yard for final disposition. Again, the cost of transporting inbound commodities to their final destinations, likewise, is not reflected in this study.

Because the vast majority of rail traffic is either loaded or unloaded at West End Yard and interchanged or received from interchange at East End Yard, operations on the UBRR are relatively simple. The vast majority of trains were assumed to traverse the entire length of the line. Train crews are assumed based out of West End Yard. Due to Federal law limiting the number of hours a crew member can work, it is assumed that train crews spend the night at a local hotel near East End Yard before returning back to their base on an inbound train and vice versa.

3.9 Transportation

Transportation costs primarily consist of two, major components, labor and fuel. To determine these costs on the UBRR, RLBA developed a per-train cost associated with each of the most prominent train types on the UBRR. Because of the simplistic nature of UBRR operations, trains on the line can be categorized into four types:

1. **Loaded Unit Trains** - The majority of trains on the UBRR are unit trains – or trains consisting entirely of a single commodity loaded at a single location and destined to a single location, thus

resulting in significant cost and time savings. There are four types of unit trains on the UBRR: 1) outbound, loaded unit oil trains (consisting of both crude oil and shale oil carloads); 2) outbound, loaded unit refined oil product trains (only in Lower forecast); 3) inbound, loaded unit frac sand trains; and 4) inbound, loaded unit steel pipe trains. Side track length on the UP Central Corridor between Salt Lake City and Denver limits trains on the UBRR to 6,200 feet in length. This makes the maximum train length on the UBRR 95 cars. To maximize equipment utilization and efficiency, for the purposes of this study, RLBA assumed that outbound, unit crude trains were held at West End Yard until a full, 95-car train was ready to interchange with the UBRR's Class One partner.

2. **Empty Unit Trains** - Because unit trains are designed to handle a single commodity, the majority of unit trains, including those on the UBRR, would return to their point of origin empty, at which point they are assumed to be reloaded with this commodity. Because of the simplistic nature of the UBRR's operations, RLBA assumed that every loaded unit train resulted in a corresponding empty unit train, consisting of the same number of cars. The four types of empty unit trains on the UBRR include: 1) inbound, empty unit oil trains; 2) inbound, empty unit refined oil product trains (Lower forecast only); 3) outbound, empty unit frac sand trains and 4) outbound, empty unit steel pipe trains.

3. **Outbound, Loaded, Manifest Trains** - As opposed to unit trains, manifest trains consist of cars containing a variety of commodities and freight car types, from one or more origins, bound to a number of different destinations. These cars are brought from their various origins to a yard and assembled into a single manifest train. Once a manifest train reaches its destination yard, the cars are disassembled and delivered to their respective destinations. On the UBRR, manifest trains handle commodities which do not project enough volume to warrant dedicated, unit trains, including: 1) outbound sodium bicarbonate, 2) outbound fly ash and 3) outbound gilsonite. To maximize equipment utilization and efficiency, for the purposes of this study, RLBA assumed that manifest trains were held at West End Yard until a full, 95-cartrain was ready to interchange with the UBRR's Class One partner. Like unit trains, outside of yard facilities manifest trains are ultimately transiting from one terminus of the UBRR to the other. However, unlike unit trains, manifest trains make periodic, stops to pick up loads of fly ash from the Bonanza Power Plant in Bonanza, UT, as well as loads of sodium bicarbonate from Natural Soda. Additionally, outbound, loaded manifest trains require additional time in West End Yard to collect the various cars and assemble them into a single train consisting of bunches of cars "blocked" by final destination region. At the East End interchange, the train was assumed delivered to the UBRR's Class One partner in the same manner as a unit train.

4. **Inbound, Empty, Manifest Trains** - While the nature of manifest traffic means that most such trains are carrying both loaded and empty railcars, all inbound traffic on the UBRR is handled by unit trains (frac sand and steel pipe). As such, the only manifest traffic on the UBRR consists of empty cars returning to West End Yard to be reloaded. Consistent with its treatment of empty unit trains, RLBA assumed that every outbound loaded manifest train resulted in a corresponding inbound empty manifest train. At the East End interchange, the train was assumed to be received from the UBRR's Class One partners in the same manner as a unit train. However, these trains

require additional time once arriving at West End Yard to disassemble the train and deliver the cars to specific locations to be reloaded.

Table 3-2
UBRR Number of Trains by Type, 2022-2042

To determine the per train cost of each of these four types of trains, RLBA: 1) developed train physical characteristics; 2) determined unit costs of labor and fuel; 3) completed rudimentary performance simulations to determine train performance; and 4) applied unit costs based on train performance.

RLBA's train performance calculations were based on the conceptual level engineering data provided by Jones & DeMille, which, due to the 'high level' nature of the data, required a significant amount of professional estimation by RLBA professionals. Because of the aforementioned limitation in the conceptual level engineering data, RLBA stresses that these train performance and resulting per-train cost amounts are to be considered high level estimates. More accurate train costs would require a much more detailed understanding of the physical characteristics and profile of the railroad.

Table 3-3
Per Train Cost by Train Type on the UBRR

3.10 Equipment

RLBA assumed that all railroad cars traversing the UBRR are privately owned or leased by shippers and, as such, no railroad cars beyond those required to support railroad maintenance are owned or operated by the carrier. The cost to lease railcars borne by shippers was included as a separate line item outside of the short line model but included in the transportation option cost comparison detailed in section 4.6 of this report.

RLBA assumed that the UBRR owns, operates and maintains its own locomotives on all trains operated over the railroad. UBRR locomotives on outbound trains were assumed to be removed at East End Yard and attached to inbound trains to complete the return trip to West End Yard. Due to the scale of UBRR operations, RLBA elected to assume that the UBRR provides its own locomotives. It should be noted that an alternative arrangement known as "run-through power," in which the Class One railroad interchanging with a short line railroad provides its locomotive to said short line at a price, is commonly employed and also could be realistically employed in the situation of the UBRR as it improves locomotive utilization, reduces costs and improves service.

RLBA further assumed that the main locomotive on the UBRR are GE ES44AC locomotives, built new for the UBRR, supplemented by rebuilt, EMD SD40-3 locomotives. The ES44AC is a 4,400 horsepower locomotive commonly found in mainline service on major heavy haul railroads around the country, including UP and BNSF. The SD40-3 is a 3,300 horsepower upgraded version of the SD40-2 locomotive, originally built between 1972 and 1989. A highly popular and reliable locomotive, the SD40-3 is a completely rebuilt locomotive regularly assigned to secondary or back up service. Both locomotives are compliant with current environmental regulations.

Based on the aforementioned simulations performed, RLBA determined that five, ES44AC locomotives (three on the front of the train, two on the rear of the train but controlled remotely) would be required to successfully power a 95-car loaded train between West End Yard and Rifle, while four, ES44AC locomo-

tives (two on the front of the train, two on the rear of the train) would be required to successfully power a 95-car loaded train between West End Yard and Craig. While unloaded trains are significantly lighter than their loaded counterparts, to ensure that locomotive utilization is maximized, all the locomotives used on a loaded train were assumed by RLBA to return on the accompanying empty train. In such cases on empty trains to/from Rifle, three locomotives are required to power the train over the railroad, while the other two locomotives are hauled dead in tow ("DIT"). On empty trains to/from Craig, two locomotives are required to power the train over the railroad, while the other two locomotives are hauled DIT.

Table 3-4
Locomotive Requirements of the UBRR, 2022-2042

[redacted]

Locomotive maintenance costs were calculated by considering per-locomotive unit costs reported by Class One railroads. While locomotive maintenance costs are generally lower on short line railroads, equipment and operations on the UBRR more closely resemble that of a Class One mainline, and, as such, Class One costs were deemed more appropriate. RLBA used a value of [redacted] annually per unit.

3.11 Maintenance of Way

The level of routine maintenance activity required on UBRR is primarily driven by the physical condition the railroad is to be maintained to and the level of traffic expected to operate over the line. RLBA determined that the railroad should be maintained to Class 3 Track Class Standards, as defined by the Federal Railroad Administration, thus allowing for a maximum safe operating speed of 40 MPH by freight trains. While not specifically required by Class 3 Track Class Standards, RLBA also assumed that the new-build portions of the railroad would feature 136-pound continuously welded rail and concrete, cross ties, materials considered industry standards on heavily used railroads. RLBA assumed that the track on the Deseret Power Railroad portion of the line, 32 miles, which was assumed to be integrated into all three, rail alignments, would consist of the track materials currently installed, which is understood to be 136-pound continuously welded rail and wooden cross ties.

RLBA assumed that the majority of routine maintenance activities would be addressed by a full time,

MOW Department employed by the UBRR or its contractor. To adequately perform the routine maintenance activities on the UBRR as defined above, RLBA determined that a labor force of 28 employees would be required on either Rifle rail alignment and 25 employees would be required on the Craig rail alignment, assuming the Higher forecast volumes. The shorter length of the Craig alignment, and therefore, lower maintenance requirements, explains the difference in the labor requirements across the proposed rail alignments. A labor force of 22 employees would be required on either Rifle rail alignment, as well as the Craig rail alignment assuming Lower forecast volumes were realized. The lower annual carloads, and thus tonnage over the line, in the Lower forecast volumes makes a full second section gang unnecessary in those scenarios.

In addition to the maintenance activities performed by the UBRR MOW Department, RLBA assumed that certain specialty tasks and services were performed by third-party contractors on a regular basis. These services include: 1) periodic weed spraying along the right-of-way; 2) third party bridge inspection and bridge maintenance plan development and recommendations; 3) periodic ballast cleaning (ballast is a layer of crushed rock, which both stabilizes the track structure and provides proper drainage); and 4) ultrasonic rail flaw detection inspections. The outsourcing of these activities is consistent with current industry practices on a railroad of similar size and scope as the UBRR.

RLBA's estimated routine maintenance cost calculations were based on the conceptual level engineering data provided by Jones & DeMille, which, due to the 'high level' nature of such data, required a significant amount of professional estimation by RLBA professionals as well as the employment of a contingency factor. Because of such limitations in the conceptual level engineering data, RLBA stresses that these maintenance costs are to be considered high level estimations. More accurate maintenance costs would require a much more detailed understanding of the physical characteristics and profile of the railroad.

3.12 General and Administrative

Because General and Administrative (G&A) activities encompass the non-transportation aspects of a rail operation (i.e., Marketing, Law, etc.), the level of manpower associated with G&A is not directly impacted by the length of a railroad or the volume of trains operating over a railroad, as are the other major cost centers. Instead, G&A manpower is driven largely by the number of customers doing business with the railroad (marketing and accounting considerations) and the number of employees employed by the railroad (human resources). As such, RLBA determined that in the Higher forecast scenarios, the UBRR would require a G&A work force of 25 employees, regardless of alignment. In the Lower forecast scenarios, the UBRR would require a work force of 17, again, regardless of alignment.

In addition to the G&A staff, RLBA assumed that a number of specialty tasks and services were performed by third-party contractors on a regular or as-needed basis, as appropriate. These services include: 1) legal services (specifically, supporting the activity of the General Counsel's office); 2) rail accident clean-up and repair services; 3) office services; 4) train crew services, including managing efforts to contact and inform train crew members of upcoming assignments, overnight lodging at the East End Yard for crews coming off duty, and transportation to and from trains as required and 5) IT services (including both in offices and the field). The outsourcing of these activities is consistent with current industry practices on a railroad of similar size and scope as the UBRR.

3.13 Equipment Capital Expenses

RLBA assumed that new locomotives were purchased as traffic volume levels warranted. Locomotives were assumed to have a useful life of 25 years, after which they would be sold and replaced. The cost to perform major overhaul or upgrade work to all UBRR locomotives was captured in the locomotive maintenance operating cost. The only capital expense associated with equipment relates to the periodic acquisition of new locomotives as traffic volumes on the railroad demand. RLBA assumed that the capital cost of such acquisitions would be amortized over a 25-year period.

3.14 Maintenance of Way Capital Expenses

Typically, renewal programs, or program maintenance activities, are designed to be performed in an on-going, cyclical nature. Only a small portion of the railroad, on which the target material has reached the end of its useful life, is addressed during a specific program year. On a typical railroad, installed materials along a railroad are at various points along their respective useful life cycles and, therefore, renewal programs are, at least theoretically, always on-going on some portion of the railroad to replace material at the end of its useful life. Because the majority of all three rail alignments would be new-build construction (the exception being the 32 miles of the Deseret Power Railroad which RLBA assumed to be integrated into the route), and because the tonnage shipped over the line gradually increases during the ramp-up period, the physical track structure of the UBRR would require significantly less than typical renewal over the first ten years of the railroad and essentially no renewal at all on the new-build portions of the railroad over the first seven years. As a result, RLBA assumed that program maintenance of the UBRR would consist of three discrete periods, including:

1. **2022 – 2028** - during this period, RLBA assumed that program maintenance activities on UBRR operations are limited to the approximately 32 miles of line which consist of the Deseret Power Railway, which existed prior to the construction of the UBRR and, thus requires regular asset renewal. During this period the material on the rest of the railroad, which was installed new, does not require any sort of replacement program;

2. **2029 – 2031** - during this period, 1) surfacing, 2) some track replacement (starting with curved track on areas with high vertical grades, thus incurring the most wear and tear from passing trains), 3) grade crossing; and 4) turnout renewal programs begin along the entire railroad; and

3. **2032 and Beyond** - during this period, 1) cross tie, and 2) structure renewal programs begin along the entire railroad.

RLBA's program maintenance calculations were based on the conceptual level engineering data provided by Jones & DeMille, which, due to the 'high level' nature of the data, required a significant amount of professional estimation by RLBA professionals. Because of limitations in the conceptual level engineering data, RLBA stresses that these maintenance costs are to be considered high level estimates. More accurate costs would require a much more detailed understanding of the physical characteristics and profile of the railroad.

3.15 Initial Construction Costs

Initial construction costs, as prepared by Jones & DeMille, were accepted 'as-is' by RLBA. Additionally, certain physical characteristic elements of the three, alignments developed by Jones & DeMille also were accepted by RLBA, specifically, route miles and, to some extent, the general terrain types of the three routes.

Table 3-5
Physical Characteristic Assumptions of UBRR Alignments Provided by Jones & DeMille Engineeering, Inc.

[redacted]

3.16 Additional Initial Construction Costs Determined by RLBA

RLBA determined that additional infrastructure items would be required to begin rail operations on the UBRR beyond the construction costs developed by Jones & DeMille, as these costs only reflected the assumption of a single track railroad. These additional items include:

1. Structures - RLBA determined instances in which bridges would be required beyond the major river crossings identified by Jones & DeMille, either over minor waterways or over physical features over which a fill would be impractical;

2. Grade Crossings - RLBA determined instances in which the alignment crossed a road at grade, with a distinction made between major, 'improved' crossings featuring active crossing protection (cross gates and bells) and minor, 'unimproved crossings, featuring passive crossing protection (warning signs only);

3. Siding and MOW Tracks - RLBA assumed that a signal-controlled, 8,000 foot siding would be constructed every 20 miles, to allow trains to pass one another. Additionally, a MOW track was constructed at each siding, to allow MOW equipment to either be stored or temporarily moved on to so that trains might pass on the main track;

4. Train Traffic Control System - RLBA assumed that train movement on the line would be governed by a Centralized Traffic Control (CTC) system, a modern automated system which allows a dispatcher to remotely control signals and switching trains, and thus, train movements, from a single location;

5. Positive Train Control (PTC) - RLBA assumed the new railroad would built with PTC, a federally mandated safety system which, given the volumes and type of traffic moving over the UBRR, would be required by law to be installed on the railroad;

6. Yard Facilities - RLBA determined an approximation of the linear footage of yard track which would be required at both ends of the railroad to temporarily store both loaded and empty trains between trips over the railroad. No effort was made to identify or determine the cost to acquire real estate underlying said facilities but, as previously stated, Uinta Advantage has indicated a willingness to provide real estate in the Leland Bench area at little or no cost to the railroad and

7. Maintenance and Office Facilities - RLBA estimated the cost to build a central facility at West End Yard, at which all locomotive maintenance and general administrative activities required to manage the entire operation would be performed. No effort was made to identify or determine the cost to acquire real estate underlying said facilities.

RLBA determined costs specific to both the Higher and Lower forecast volume scenarios. Regardless of the volume scenario, RLBA assumed that the railroad was built to handle the maximum volume forecasted under each scenario. The physical infrastructure of the railroad was not 'scaled up' to match the increasing volumes experienced during the 'ramp-up' period of the Higher and Lower forecasts. To be consistent with the initial construction cost developed by Jones & DeMille, a 30% contingency was added to construction budgets developed in connection with the above improvements regarding the additional initial construction cost determined by RLBA.

Table 3-6
Additional Initial Construction Costs Determined by RLBA

3.17 Financing of Initial Construction Costs

Given the large capital investment required to construct the UBRR within any of the three proposed rail alignments, RLBA assumed that construction of the railroad would be financed through the issuing of bonds. Specifically, RLBA assumed that the entire cost to construct the UBRR would be financed with capital generated from issuing 30-year bonds, yielding an assumed 3.13%, the published yield on a 30-year bond as reported by the U.S. Department of the Treasury as of May 1st, 2018.

Table 3-7
Annual Average Initial Capital Debt Servicing Obligation of the UBRR

3.18 Feasibility of the UBRR

Using the above-described cost assumptions, RLBA determined what it has characterized as the 'annual cost obligation' associated with each of the three, potential rail alignments, assuming both the Higher and Lower volume forecasts. For purposes of this study, RLBA defines annual cost obligation as the sum of the following four values:

1. Annual Operating and Maintenance (O&M) and capital expense costs to operate the UBRR;
2. A 15% profit margin (based on O&M costs) paid to the contract short line operator assumed to operate the UBRR;
3. A 30% contingency applied to the O&M cost, capital expense cost and short line operator profit margin; and
4. Annual debt servicing obligation, assuming the entire construction cost of the railroad was financed with 30-year bonds with a 3.13% yield.

This comparison yielded the following results.

Table 3-8
Annual UBRR Cost Obligations, 2022-2042

Year	Rifle Via Meeker Area		Rifle Via Piceance Creek		Craig	
	Lower	Higher	Lower	Higher	Lower	Higher
[redacted]						

RLBA's cost model suggests that in both the Higher and Lower forecast volumes, total annual cost obligations of the UBRR would be the lowest utilizing the Craig alignment. This is due to three reasons:

1. **Lower Initial Construction Cost** - The Craig alignment requires 26.04 fewer miles of new-build track as compared to the Rifle via Meeker Alignment, resulting in a cost savings of $319.2 million on the new-build construction cost alone;

2. **Less Equipment and Infrastructure Required** - Because the Craig alignment is both shorter and enjoys more benign physical characteristics than either Rifle alignment, the Craig alignment requires less equipment and infrastructure. This most noticeably manifests itself in the number of locomotives required to successfully operate the railroad, as trains operating over the Craig alignment require one less locomotive than those operating over the Rifle alignment.

3. **Lower Operating and Maintenance Costs** - Because the Craig alignment is both shorter and features more benign physical characteristics compared to either Rifle alignment, it requires a shorter amount of time for trains of any kind to transit that alignment, resulting in both fuel and train crew labor savings. Additionally, and for the same rationale, fewer MOW crews are required to adequately maintain the railroad.

3.19 'Break-Even' Transportation Rate on the UBRR

Once the annual cost obligation of each proposed alignment was determined to assess the feasibility of the UBRR as a competitive transportation option linking the Uinta Basin with the national rail network, RLBA determined the 'break even' rate on the UBRR. For purposes of this study, RLBA defines the 'break even' rate as the lowest rate which the URR could charge prospective Uinta Basin rail shippers and not operate at a loss. This value was determined by dividing the annual cost obligation by the total number of estimated annual carloads originating/terminating (including all carloads of all commodities, not limited

to crude oil) in the Uinta Basin. Because almost all rail traffic on the UBRR originates and/or terminates at either Myton or Leland Bench, carload totals remain the same within both the Higher and Lower forecasts regardless of which potential rail alignment is considered.

This comparison yielded the results shown on Table 3-9.

3.20 Lower Forecast Volume Scenarios Cash Flow upon Start Up

Theoretically, and all things being equal, for the projected volumes to move over the UBRR the transportation rates offered by the UBRR must be equal to, or, ideally, lower – a concept frequently characterized as a 'competitive rate' - than the transportation rates offered by the next best alternative transport option between the Uinta Basin and the national rail network. While transportation costs likely aren't the only consideration a shipper would weigh when selecting a transportation option – quality of service also would likely be a factor – it is probably fair to assume it would be the single most important consideration. With this in mind, it should be noted that before the completion of the ramp up period in carload volume in the Lower forecast scenarios, the breakeven rate on the UBRR regardless of alignment may be so high as to no longer be competitive against trucking, which would presumably be the next and only alternative in the event the UBRR is constructed. (SCIC is also considering a pipeline but it is the understanding of RLBA that either a railroad or pipeline would be built, but not both. Please see section 3.21). These high rates, assuming the Lower forecast volumes, may necessitate that the UBRR offer a rate lower than that which would allow the railroad to 'break even,' thus the railroad would operate cash flow negative for a period of time up upon the initial ramp up of UBRR commercial operations. This is only an issue in the Lower forecast volume scenarios; carloads are such that under the forecasted volumes in the Higher forecast, the UBRR would be able to offer competitive rates and achieve a positive cash flow immediately upon commencement of operations.

3.21 Comparing the UBRR to Alternative Transport Options beween the Uinta Basin and the National Rail Network

To quantitatively determine what, if any, transportation cost benefit the UBRR may provide to prospective Uinta Basin rail shippers, RLBA attempted to 'compare' the transportation rates of what were previously identified as the two most viable alternatives to the prospective railroad between the Myton and Leland Bench Area on the west end of the railroad and a connection with the national rail network on the east end. The values advanced below should not be considered direct comparisons of the actual transportation cost which could be achieved assuming volumes projected in either the Lower or Higher forecast. In actuality, limitations inherent to both alternatives (described below in greater detail) would preclude either from achieving the necessary capital to transport the volumes projected by RLBA.

These alternatives included:

1. **Trucking and Transloading-to-Rail Between the Uinta Basin and Price, UT** - This alternative reflects the assumption that one or more third-party trucking entities would be engaged to transport crude oil from well sites in the Uinta Basin to truck-to-rail transloading facilities in the vicinity of Price, UT, a community of approximately 9,000 located on the Union Pacific Central

Table 3-9
Rail Transportation Break-Even Rate per Carload and Barrel; Myton/Leland Bench Area - Connection with the National Rail Network, 2022-2044

Corridor, approximately 225 miles west of Rifle. Price was selected as the terminus due to the fact that much of the Uinta Basin crude oil previously shipped out of the state of Utah by rail has been transloaded and shipped from facilities in the Helper, Price and Wellington area. RLBA assumed that transloading occurs at a hypothetical, unnamed transloading facility near Price. Values related to trucking and transloading costs under this alternative were developed by RLBA team member, Helios Group, Inc., based on data collected during stakeholder interviews and proprietary information maintained by Helios Group.

As referenced above, it is important to note that RLBA does not believe that it is practical or reasonable to assume that the truck-to-rail transloading alternative realistically could move the volumes of traffic projected in the later years of either the Lower or Higher forecast. Research suggests that the maximum volume of crude oil moved by truck from the Uinta Basin to rail transloading facilities peaked at [redacted]. This value represents only approximately [redacted]% and [redacted]% of the daily production projected in the Lower and Higher forecasts, respectively, beyond 2034, nor does it include any volume associated with the other commodities coming into and out of the Uinta Basin. Increasing transloading volume beyond [redacted] bpd is unlikely due to: 1) the challenging, mountainous characteristics of the road connecting the Uinta Basin and the Price area; 2) hazardous driving conditions on said roads during winter months and 3) the inability to expand or improve existing roads, due to, among other factors, said roads passing through the Ashley National Forest. As such, the values advanced in this study are provided only to attempt to quantify the potential transportation cost-benefit the UBRR may provide to prospective Uinta Basin rail shippers

2. **Piping and Transloading-to-Rail Between the Uinta Basin and Price, UT** - This alternative reflects the assumption of the construction and operation of a dedicated, 70,000 bpd crude oil pipeline between Myton, UT and the aforementioned Price River Terminal, at which crude oil would transload from pipe to rail. Values associated with this alternative were determined by subtracting RLBA Team-developed transloading and rail shipping costs from a baseline, all-in, per barrel cost, developed previously and independently of this study by HDR, Inc. in 2017, as part of a study entitled "Uinta Basin Oil Pipeline Study."

   As with the truck-to-rail transloading alterative, it is important to note that, as currently defined, the pipe-to-rail alterative also could not realistically move the volumes of traffic projected in the later years of either the Lower or Higher forecast. The 70,000 bpd crude oil pipeline defined in the HDR study could only handle approximately 45% and 20% of the daily production projected in the Lower and Higher forecasts, respectively, beyond 2034, nor does it include any volume associated with the other commodities coming into and out of the Uinta Basin. Since a pipeline cannot be 'scaled up' if oil volumes increase beyond its capacity, a proposed pipeline would need to be larger than the version previously investigated. This is particularly true in light of the fact that previous studies determined that there is not enough available right-of-way for a second pipeline to be constructed along the same corridor. As such, the values advanced in this study are provided only to attempt to quantify the potential transportation cost-benefit the UBRR may provide to prospective Uinta Basin rail shippers.

To provide a fair comparison between the UBRR and the above-described transportation alternatives, RLBA included a pro-rated value to capture the cost of leasing a railcar in which to ship commodities between the Uinta Basin and a connection with the national rail network (rail car leasing costs are addressed in more depth in section 4.6).

This comparison yielded the following results.

Table 3-10
Alternative Transportation Rate Comparison per Barrel;
Myton/Leland Bench Area - Connection with the National Rail Network

RLBA's results indicated that in both the Higher and Lower forecast, the UBRR would provide the lowest transportation cost between the Myton/Leland Bench, UT, area and a connection with the national rail network. These results were due to the fact that: 1) the high volumes of commodities estimated to ship via rail, including those other than crude oil, greatly amplify the superior economics of scale intrinsic to rail; and 2) the additional cost of transloading or 'double handling' crude oil into railcars at the connection to the national rail network negatively impacts the competitiveness of non-rail transportation options.

While transportation cost is the most important factor in the determination of a particular transportation option's competitiveness, it is not the only consideration. The flexibility that a railroad provides in comparison to a pipeline – the ability to transport multiple types of commodities, in both directions – offers a significant non-monetary service advantage over a pipeline. The next best alternative as regards cost, which can only transport one type of commodity, in a single direction at a time. This flexibility was cited by several prospective Uinta Basin rail shippers whom expressed a preference towards a rail connection serving the Uinta Basin rather than a pipeline. Additionally, unlike a pipeline which essentially cannot be significantly altered or expanded upon, a rail option would be relatively 'scalable,' in that additional infrastructure could be added as needed, at an economical cost.

3.22 Comparing the UBRR to Alternative Transport Options between the Uinta Basin and Salt Lake City

While the primary objective of this study was to determine transportation rates/costs to distant markets, the Salt Lake City markets are currently, and figure to remain under any expansion scenario, a major, market for Uinta Basin crude oil. As such, RLBA compared the cost of the various transportation options previously identified against the real world cost paid today to transport Uinta Basin crude oil to Salt Lake City via contract trucking. RLBA considered six transportation options, including:

1. **All Rail Between the Uinta Basin and Salt Lake City, UT** - Considering the three prospective rail alignments address earlier in this report;

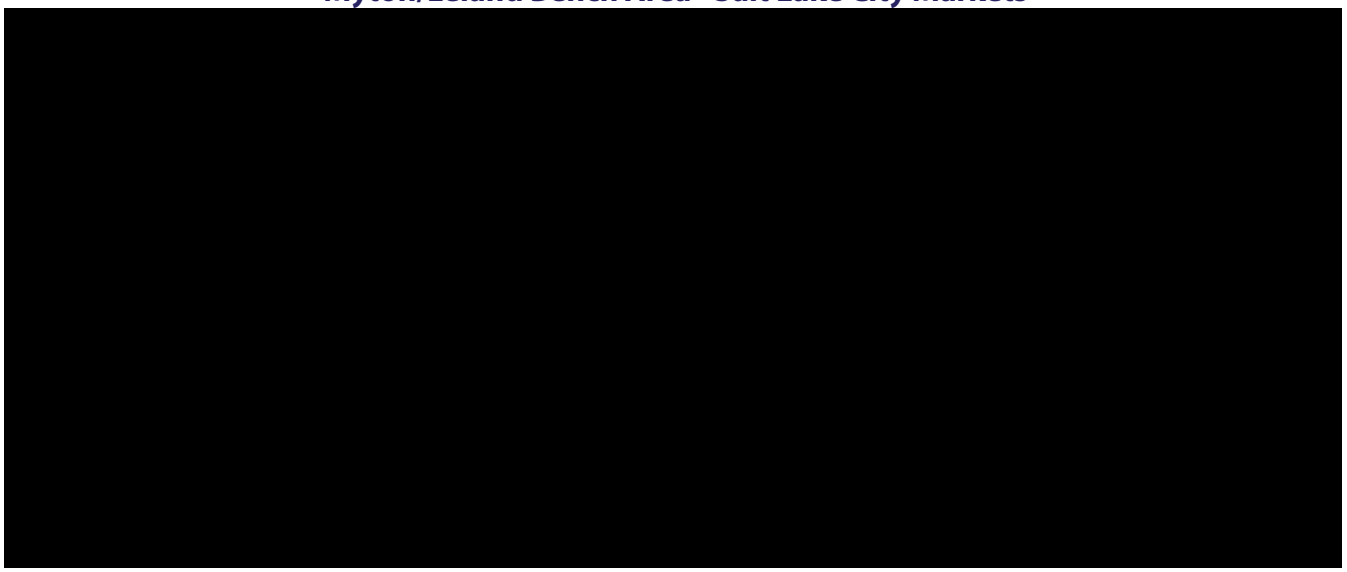
2. **Trucking and Transloading-to-Rail between the Uinta Basin and Salt Lake City, UT via Price, UT** - As addressed earlier in this report;

3. **Piping and Transloading-to-Rail between the Uinta Basin and Salt Lake City, UT via Price, UT** - As addressed earlier in this report; and

4. **All Truck between the Uinta Basin and Salt Lake City, UT** considering the current, real world cost to transport crude oil from a central location in the Uinta Basin (defined as Myton, UT to facilitate a fair comparison to transport cost of the other options) directly to Salt Lake City, UT refineries. These costs were developed in conjunction with Mr. Eckels.

This comparison yielded the following results.

Table 3-11
Alternative Transportation Rate Comparison per Barrel;
Myton/Leland Bench Area - Salt Lake City Markets



UP and BNSF rates to Salt Lake City represent an average of all estimated rates to all Salt Lake City area refineries

RLBA's results indicated that at the High forecast volume estimates, an all-rail routing assuming interchange with Union Pacific at Rifle, CO, provided the most competitive transportation cost. However, at the Low forecast volume estimates, the current practice of trucking directly to Salt Lake City offered the most competitive cost. Not captured in RLBA's results is the cost to construct the required facilities to accept and handle railcars at Salt Lake City area refineries, nor the cost to the taxpayers of Utah to maintain U.S. Route 40 (and associated routes between the Uinta Basin and Salt Lake City), which are not reflected in the trucking rates.

4.0 Approach Part 3 - Determination of Costs to Ship across the National Rail Network to/from Distant Markets

4.1 Summary of RLBA Approach

RLBA employed a two-step process to determine the cost to ship across the national rail network to/from distant markets, including:

1. Determining Estimated Freight Rates across the National Rail Network;
2. Determining Rail Equipment Lease Rates and
3. Determining the 'All-In' Transportation Cost across the National Rail Network.

4.2 Determining Estimated Freight Rates across the National Rail Network

The national network (UP and BNSF) rail rates are particularly important to prospective Uinta Basin rail shippers and the viability of the UBRR because said rates are likely to be the single largest transportation cost component involved in moving Uinta Basin commodities to/from markets/sources. These rates, and those on the other seven commodities, also are important because they influence the rates which the UBRR would be able to charge on its portion of the overall rail haul and, thus, influence the economic feasibility of the UBRR.

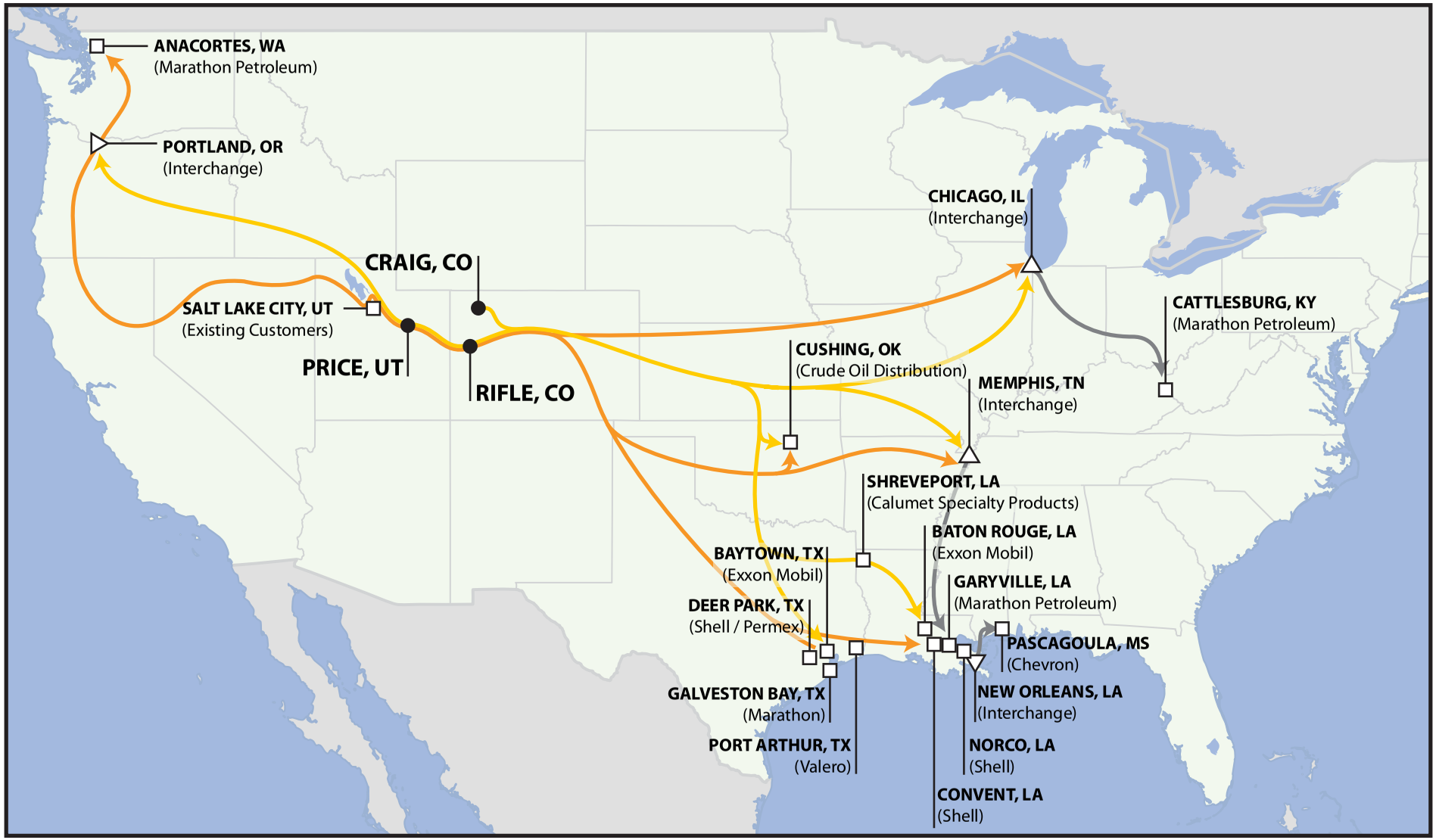
Estimated rates which prospective Uinta Basin rail shippers might pay to transport Uinta Basin crude oil via UP routings and BNSF routings across the national rail system to eleven target refineries were determined by RLBA from both proposed eastern termini – Rifle, CO and Craig, CO – as well as the proposed terminus of the two previously identified alternative transport options – Price, UT. At the request of SCIC, RLBA also provided estimated rates to the closest railhead to Cushing, OK. Finally, RLBA estimated prospective rates on seven other commodities involving eleven potential destinations (of shale oil, refined oil products, etc.) and four potential origins (of frac sand and pipe), also from Rifle, CO, Craig, CO and Price, UT.

The rates which either UP or BNSF may charge prospective Uinta Basin shippers are determined by five factors which are briefly described below.

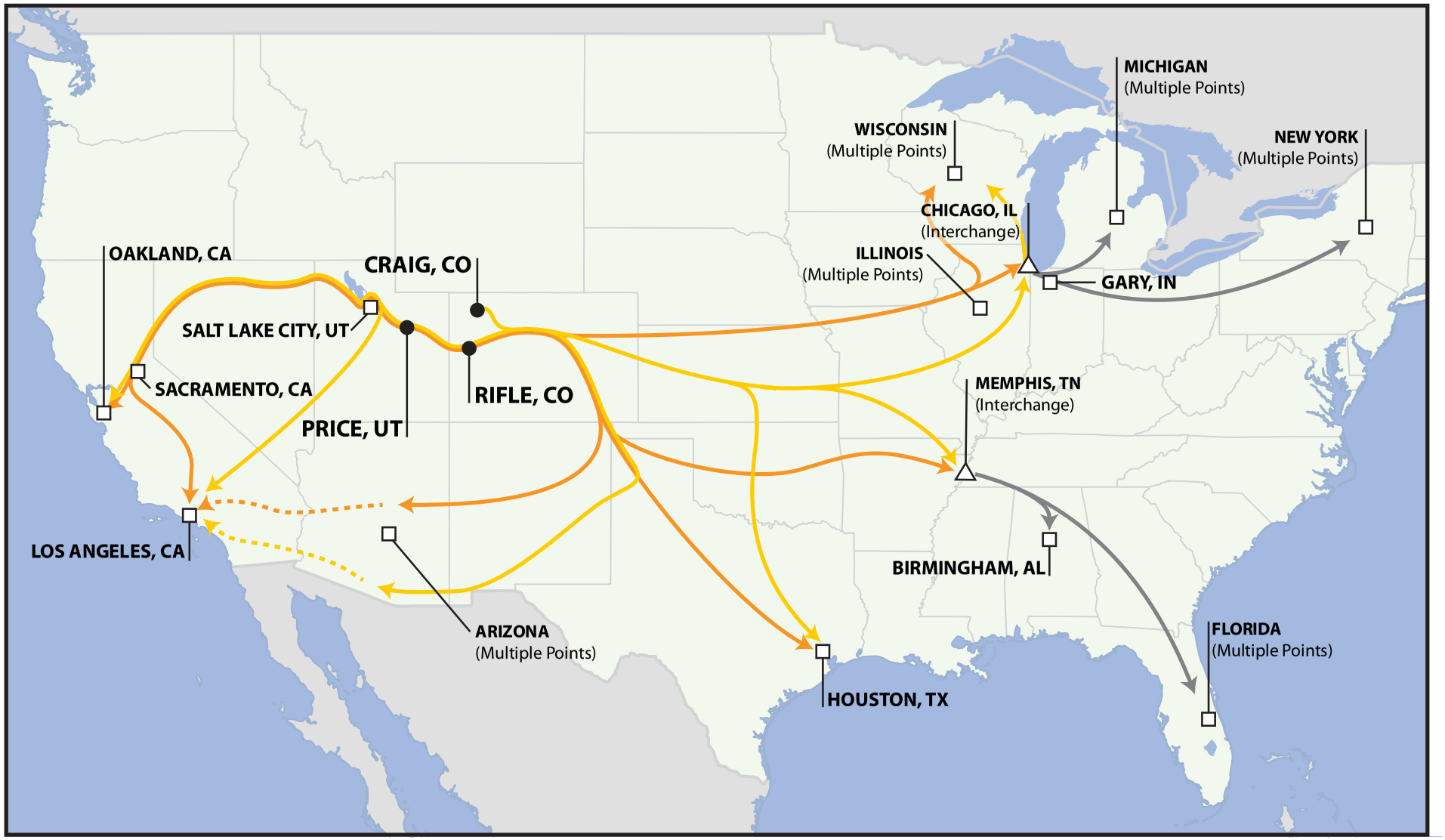
1. **Demand for Products** - Demand for the products and raw materials being sold in the economy determine the demand for rail transportation, as is the case with all modes of transportation. Hence, rail transportation is referred to as a 'derived-demand industry' in economics circles. At the individual rail customer level, this translates into the amount (barrels, tons or carloads) of product or raw material which a freight generator thinks it can sell or purchase and then ship. The volume of a customer's demand provides the customer with some leverage in its rate negotiation with a railroad.

2. **Profit Goals of the Railroad** - Profit goals of a railroad determine the degree to which it exercises its market power to mark-up its cost per carload to the rate which it feels will maximize its profitability. RLBA evaluated the profit goals of BNSF and UP, the railroads with which the Uinta

Map 4-1
Proposed National Destinations and Routings for Uinta Basin Crude Oil



Map 4-2
Proposed National Origins/Destinations and Routings for Other Uinta Basin Commodities



Basin traffic would be interchanged, by reviewing estimated revenue/variable cost (R/VC) ratios of the railroads. R/VC ratios are a common metric by which railroads measure the profitability of individual shipments.

3. **Cost Per Carload** - A railroad's cost to transport a carload is the baseline against which the profitability of a given carload is measured by a railroad. The average cost per carload is calculated in terms of long-term variable costs, which include the costs of items such as: owning and maintaining mainline track network and switching yards, owning and maintaining locomotives and rail cars and recruiting and paying its workforce. The extent to which such costs are allocated against a given carload is determined by the number of times the railroad must switch (handle) it during the course of its trip, its length of haul and its weight.

4. **Alternative Transportation Options** - A shipper's access to competing transport options is the most important factor in attempting to manage the level of rates charged by a railroad. In addition to securing access to competing carriers at a specific location, such as Rifle, CO or Price, UT, access to transport options includes a customer's ability to shift production and raw material sourcing among multiple facilities and vendors to leverage shipping volumes and carrier competition at those locations where feasible. RLBA considered the specific location level of access in its rate analysis by producing prospective rates which reflected assumed routings via two competing rail carriers, BNSF and UP. RLBA also evaluated modal competitive options (truck and pipeline) between the Uinta Basin and Price, UT.

5. **Level of Service** - The level of service required by a customer can influence the rate charged by a railroad because it might impact a railroad's cost of providing service. The most prominent level of service element is the frequency (daily vs. Monday – Wednesday – Friday) with which a customer's facility is switched by a railroad. Daily service might require a railroad to incur overtime on a crew while the three-day-a-week service could be accomplished within a crew's normal eight-hour day. Where a customer relies upon a railroad to provide rail cars into which it loads its product, the ability of the railroad to reliably provide a sufficient supply of rail cars is a metric on which customers measure a railroad's level of service. For purposes of determining prospective rates, RLBA assumed that daily service would be provided at the Uinta Basin locations and that a sufficient supply of rail cars would be provided by railroads to move the commodities which would require railroad-supplied equipment.

The application of this methodology yielded the following results.

Table 4-1
Rail Transportation Rate per Carload and per Barrel, Oil; Connection with the National Rail Network - National Markets

Per Carload
[redacted]

Table 4-2
Rail Transportation Rate per Carload, Other Commodities;
Connection with the National Rail Network - National Markets

Red highlight indicates the highest rate and green, the lowest rate, to each destination listed above

Railroad rates are greatly influenced by the length of haul between origins and destinations. Twelve of the thirteen target refineries are located to the southeast and east (in Kentucky, Louisiana, Mississippi and Texas) of the three candidate terminal/junction locations (Craig, CO; Price, UT and Rifle, CO). Another target refinery is located in Anacortes, WA, to the northwest (opposite direction) of most candidate terminals. The closer a candidate terminal is to those southeastern and south-central states, the lower the rates it would logically enjoy, generally because the lengths of haul are shorter. This is the case with the prospective Uinta Basin crude oil rates, resulting in the following findings:

1. **Rifle, CO** - Produces the lowest rates of the three candidate terminals on the Uinta Basin crude oil to the twelve target refineries. Prospective rates via UP and its connections (UP routings) are $ – lower than rates from Craig, CO. Prospective rates via BNSF and its connections (BNSF routings) suggest that the spread between Rifle and Craig rates has the potential to be larger – in the range of $ – . As would be expected, prospective rates on Uinta Basin crude oil from Rifle, CO are lower than from Price, UT because Price is farther from the twelve target refineries: $ – via UP routings and generally $ – lower via BNSF routings.

2. **Price, UT** - Produces the lowest rates to the target refinery in Anacortes, WA. The prospective rates are at least $ lower than the rates from next closest candidate terminal, Rifle, CO, via BNSF and UP routings. This is not surprising because Price, UT is significantly closer to Anacortes, WA.

3. **Prospective rates on the seven, non-crude oil Uinta Basin commodities** generally display the same pattern as illustrated above: commodities moving to or from destinations and origins located in the South, Southeast and East find the lowest rates at Rifle, CO while those located in the West and Northwest find the lowest rates at Price, UT.

4. **Comparison of BNSF routings with UP routings at Rifle, CO and Price, UT** - Indicates that most BNSF routings produce shorter lengths of haul than UP routings. For instance, BNSF's operating mileages between Rifle, CO and four of the target refineries in Texas are between 168 and 332 miles shorter than UP's. This is largely because BNSF's mainline network provides a shorter, more direct route between the candidate terminals and the Gulf Coast region of Texas, Louisiana and Mississippi. The shorter mainline network routing provides BNSF with a somewhat lower operating cost structure to many of the target refineries, which has resulted in lower rates in RLBA's analysis.

4.3 Explanation of Methodology Used in Determining Estimated Freight Rates across the National Rail Network

The rates presented by RLBA in this analysis are characterized as "prospective rates" because they are estimates of rates which a rail shipper might achieve through negotiations with BNSF and UP or through access to BNSF and UP rate tariffs. They have been developed by RLBA's lane-by-lane analysis of the following data available through RSII Logistics' USRail rail rate and traffic analysis software, a third-party rail rate and costing software employed by RLBA:

1. Long-term variable costs per carload which the railroads would incur in transporting unit trains or individual carloads across their lines;
2. Benchmark Revenue/Variable Cost (R/VC) ratios calculated from government databases on a commodity-specific and car-type specific basis;
3. Operating miles and
4. Average revenue per car for individual commodities hauled on BNSF and UP.

As previously mentioned, R/VC ratio is another key element which RLBA considered in determining prospective Class I rail rates in its analysis. RLBA reviewed R/VC benchmarks regarding each lane which it generated with RSI's US Rail Impact tool. US Rail Impact's R/VC benchmarks are developed from RSI's analysis of revenues and variable costs by commodity and equipment (rail car) type which appear in a database maintained by the U.S. Surface Transportation Board (STB).

4.4 Union Pacific Rates

RLBA considered R/VC's on crude oil rates found in a current UP tariff which apply on shipments from Utah in manifest train service. Manifest train service is general freight train service in which one carload to 30 or 40 carloads of crude might be shipped as part of a larger train hauling various commodities. RLBA found rates in the tariff which apply to destinations relevant to this study, such as Louisiana, Mississippi and Texas and entered them into the US Rail Impact tool to calculate their R/VC's (profit margins). While not directly applicable to unit train service in which Uinta Basin crude would be transported, these R/VC's provided another set of benchmarks against which RLBA tested the appropriateness of its prospective crude oil rates.

4.5 BNSF Railway Rates

This analysis reflects the assumption that rail shippers and public officials would be able to convince BNSF to establish Price, UT and Rifle, CO as stations on its network. Both locations already are stations on UP. BNSF's willingness to publish competing rates and services at existing UP stations will be either tempered or encouraged by a variety of factors, including its existing commercial relationships with producers, marketers, other rail shippers and transload operators at existing BNSF stations which are proximate to the candidate terminals. Wellington, UT (BNSF) and Price, UT (UP) are only six miles apart. Parachute, CO (BNSF) and Rifle, CO (UP) are fifteen miles apart. Such concerns might be overcome, of course, by the prospect of significant amounts of new traffic.

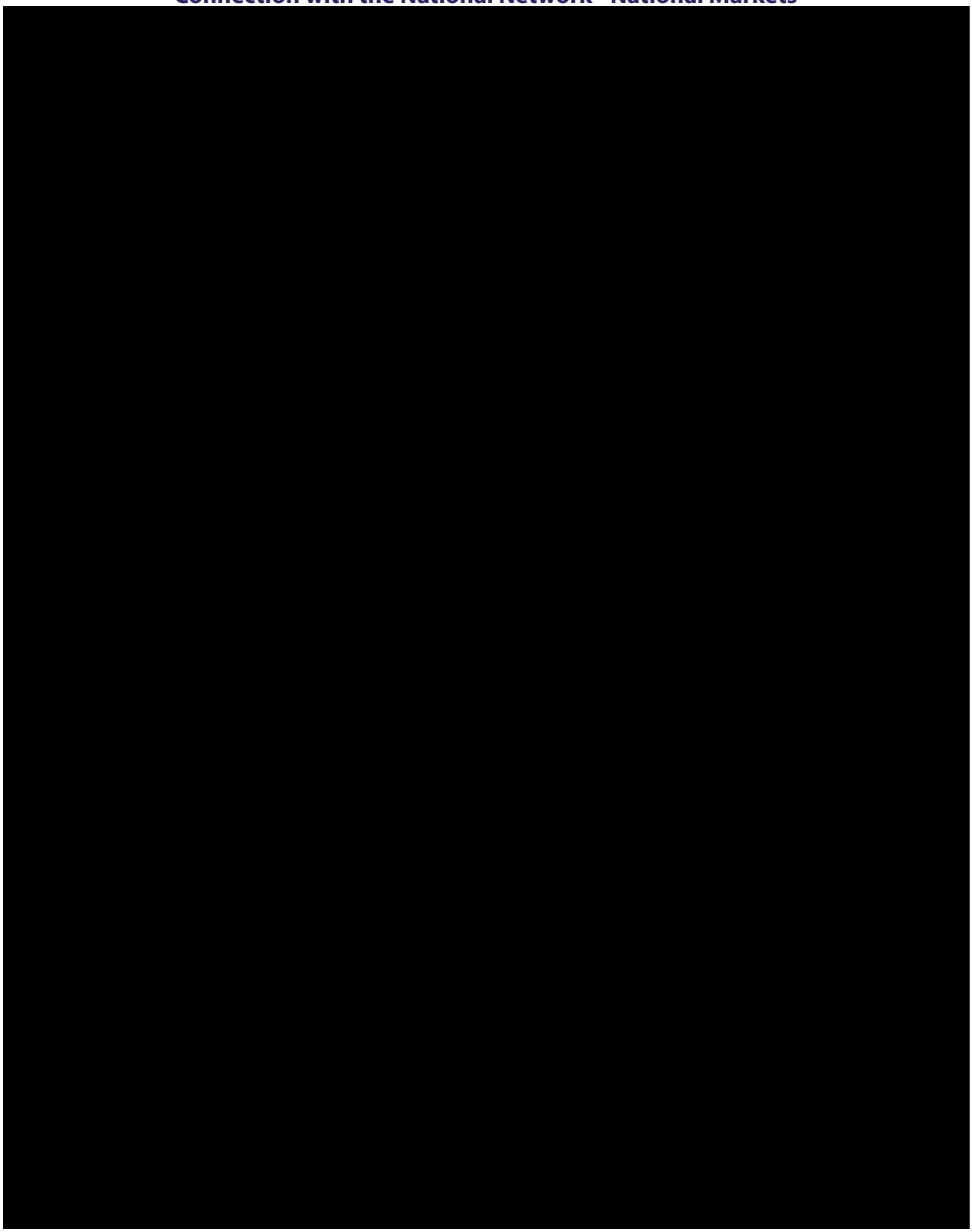
4.6 Determining Rail Equipment Lease Rates

Freight rates charged by the railroads are only one of the two rail-related charges which a rail customer commonly must pay if the serving railroad does not provide rail cars and the shipper must acquire them, generally by leasing.. Railroads generally do not provide tank cars, such as those which would be required to transport Uinta Basin Crude, shale oil and refined oil products, due to the wide variety of specifications (capacity, lining, pressure, loading/unloading fixtures, etc.) required to safely carry a wide variety of commodities and the volatility in demand for such cars. Covered hopper cars, such as those required to transport frac sand, sodium bicarbonate and fly ash, are predominantly provided by the shippers as well. Class I railroads have frac sand-capable cars in their fleets but most of the frac sand shipments observed in RLBA's research moved in shipper-leased (private) rail cars.

This gives rise to equipment (rail car) lease costs which, generally, must be borne directly by the shipper who tenders the freight at origin, such as a Uinta Basin crude oil marketer. Lease costs are commonly thought of in terms of an average equipment cost per load and effectively become an add-on to the freight rate paid by the rail shipper (lessee). Rail equipment lease costs also are borne – indirectly - by a rail receiver such as a prospective Uinta Basin rail customer who supplies frac sand arriving by rail. The price which said prospective customer pays for a carload of frac sand typically will include the supplier's average cost of leasing the fleet of covered hopper cars in which the frac sand is transported.

With that in mind, RLBA determined the following estimates of the average private equipment costs per carload (lease cost per carload) by each of the commodity groups and traffic lanes in the analysis.

Table 4-3
Equipment Lease Rate Per Carload and per Barrel, Crude Oil; Connection with the National Network - National Markets



Red highlight indicates the highest rate and green, the lowest rate, to each destination listed above

Table 4-4
Equipment Lease Rate per Carload, Other Commodities;
Connection with the National Rail Network - National Markets

Red emphasis indicates highest rate, green emphasis indicates lowest rate

4.7 Explanation of the Methodology Used in Determining Rail Equipment Lease Rates

RLBA estimated the total equipment cost per carload of traffic moving over the UBRR destined to thirteen target refineries as a group – so they all have the same five values - because RLBA assumed that the oil marketer (shipper) likely would sell and ship its crude to multiple refineries over the course of a year or years based on changing market conditions. Such an approach would take advantage of the flexibility afforded by rail transportation to switch among multiple markets and would maximize the utilization of its leased tank car fleet. The different equipment utilization rates in each target refinery lane were captured by calculating a weighted average transit time in connection with all thirteen lanes by weighting the transit time in each lane by the annual carloads (high-end) in each lane. With regard to crude oil shipments to the refineries in Salt Lake City, the transits across the four destinations were nearly identical and the projected volumes to each were assumed to be equal, so the same five equipment costs per carload appear regarding each of the four refineries.

The equipment cost per carload for crude oil and frac sand shipments reflect equipment utilization, which results from the faster round-trip transit times afforded by equipment operating in 100-car unit trains, as opposed to single or multiple-car blocks in regular manifest freight trains, where total transit time is inflated as cars are switched into and out of trains headed in the correct direction. Unit train service has been assumed throughout the UBRR operating plan as it typically provides faster transit times and average load-to-load times than does manifest train service. The cars in a unit train remain together during the trip from load-out to refinery and avoid delays associated with being switched from one train to another at intermediate rail yards.

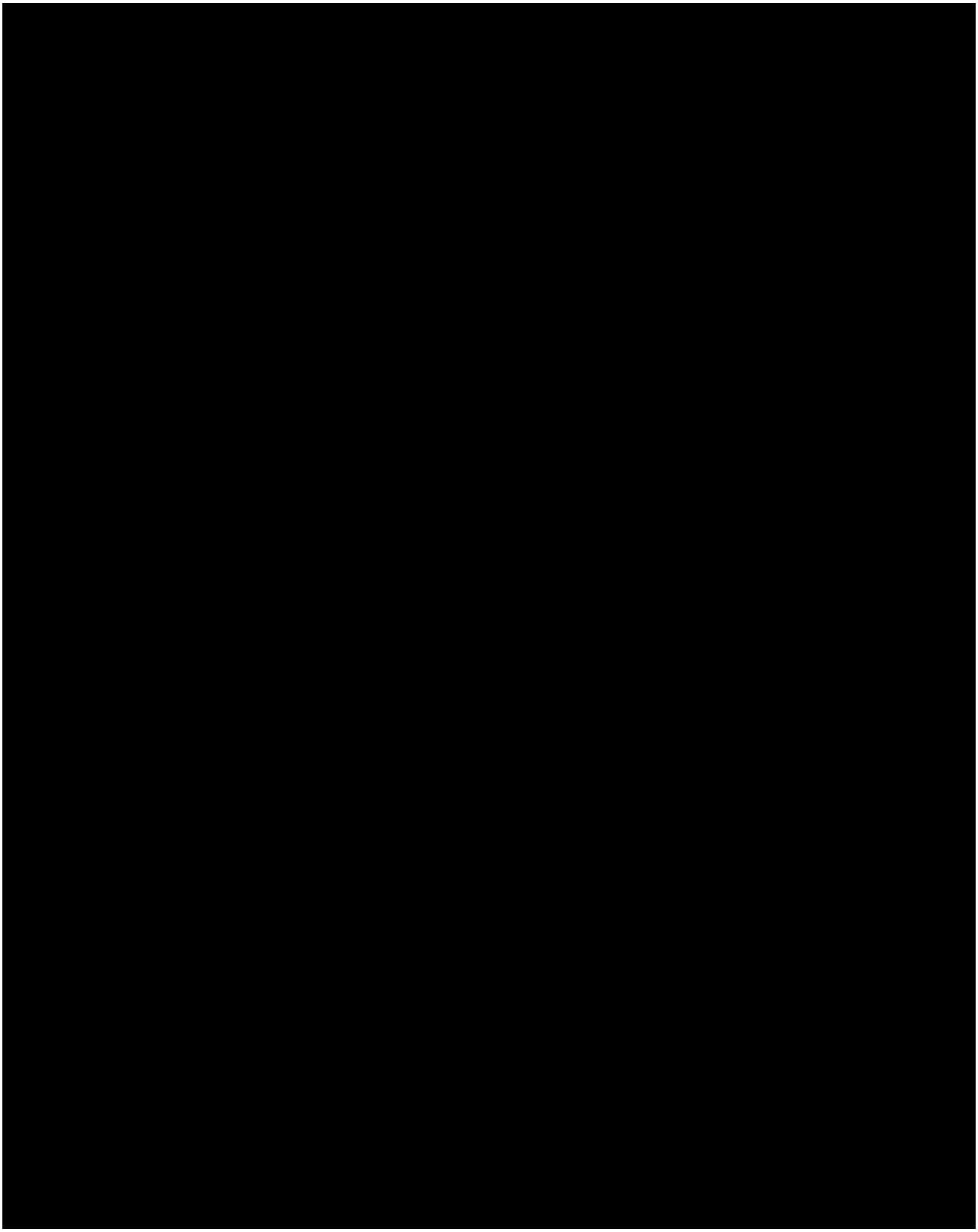
4.8 Determining the 'All-In' Transportation Cost across the National Rail Network

To provide an estimate of the total cost to ship across the national rail system, RLBA combined the estimated freight rates and equipment lease rates developed above into a single value. The application of this methodology yielded the following results as regards crude oil.

Table 4-5
Rail Transportation and Equipment Lease Rate per Carload, Other Commodities; Connection with the National Rail Network - National Markets

**Equipment lease rate included in freight rate*
Red highlight indicates the highest rate and green, the lowest rate, to each destination listed above

Table 4-6
Rail Transportation and Equipment Lease Rate per Carload and per Barrel, Crude Oil; Connection with the National Rail Network - National Markets



Red highlight indicates the highest rate and green, the lowest rate, to each destination listed above

5.0 Conclusion

The following section addresses the ultimate conclusions reached by RLBA.

5.1 Total Rail Cost to Ship Uinta Basin Commodities on the Proposed UBRR

To offer a final opinion regarding what the total transportation cost which prospective Uinta Basin rail shippers might pay to ship via the UBRR between the Myton/Leland Bench, UT Area and national markets, RLBA synthesized the following values, described in detail earlier in this report, including:

1. The average annual break even rate for each of three prospective rail alignments at both the Higher and Lower forecast volumes;
2. The estimated freight rate across the national system to the various, identified destinations; and
3. The estimated equipment lease rates.

This comparison yielded the following results.

Table 5-1
Rail Transportation and Equipment Lease Rate per Carload;
Myton/Leland Bench Area - National Markets
Assuming Lower Volume Forecast

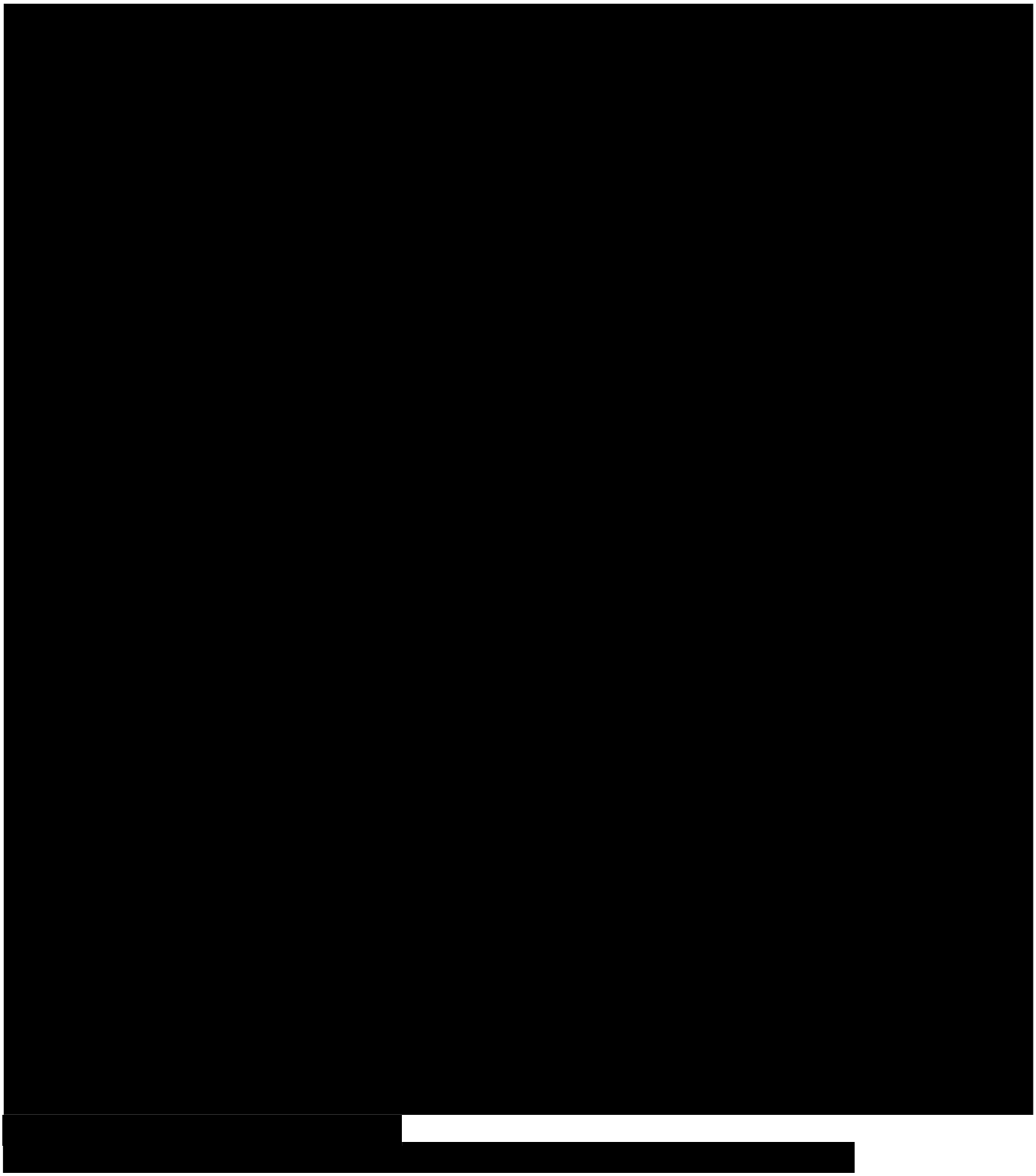


Table 5-2
Rail Transportation and Equipment Lease Rate per Carload;
Myton/Leland Bench Area - National Markets
Assuming Higher Volume Forecast

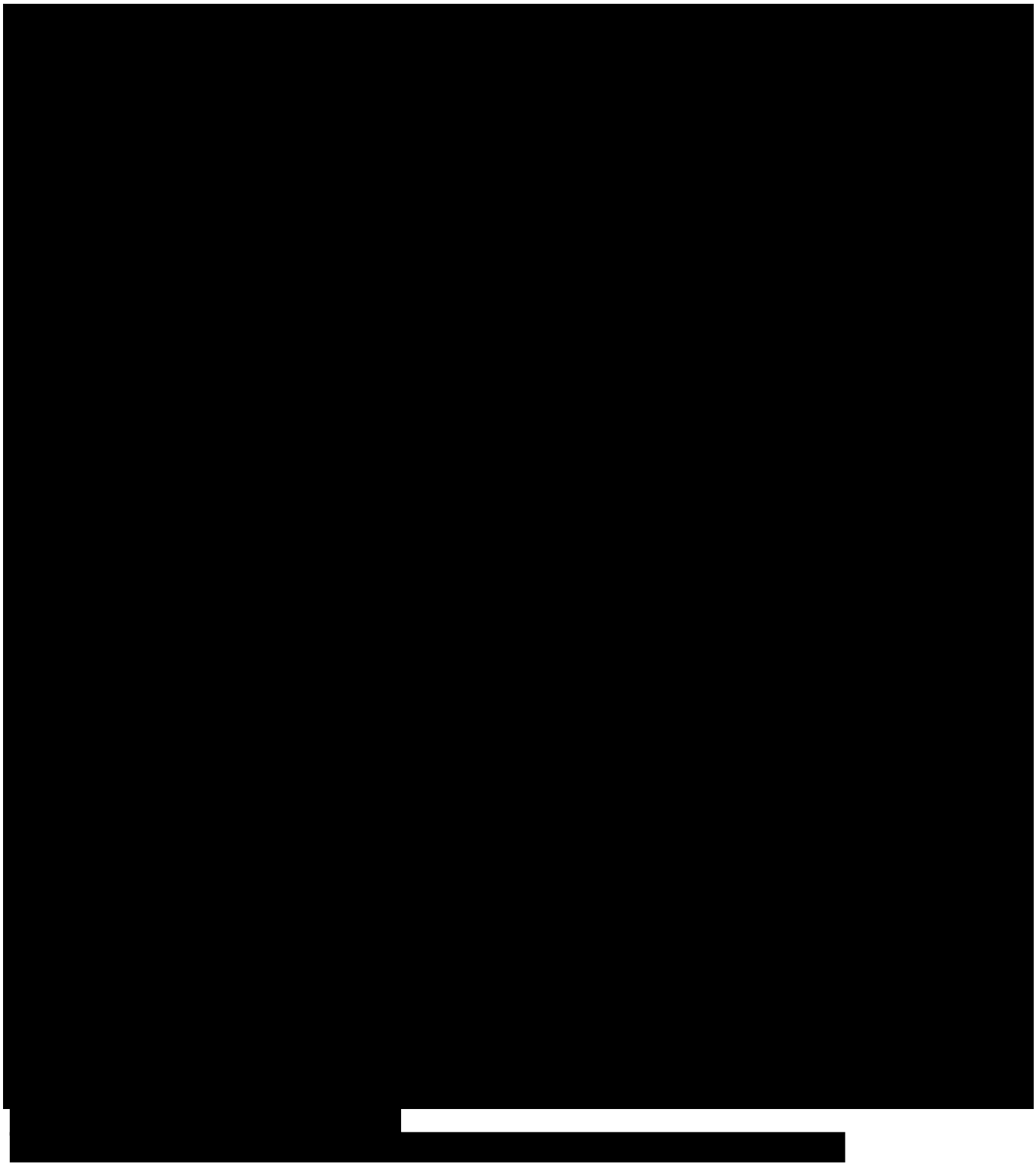
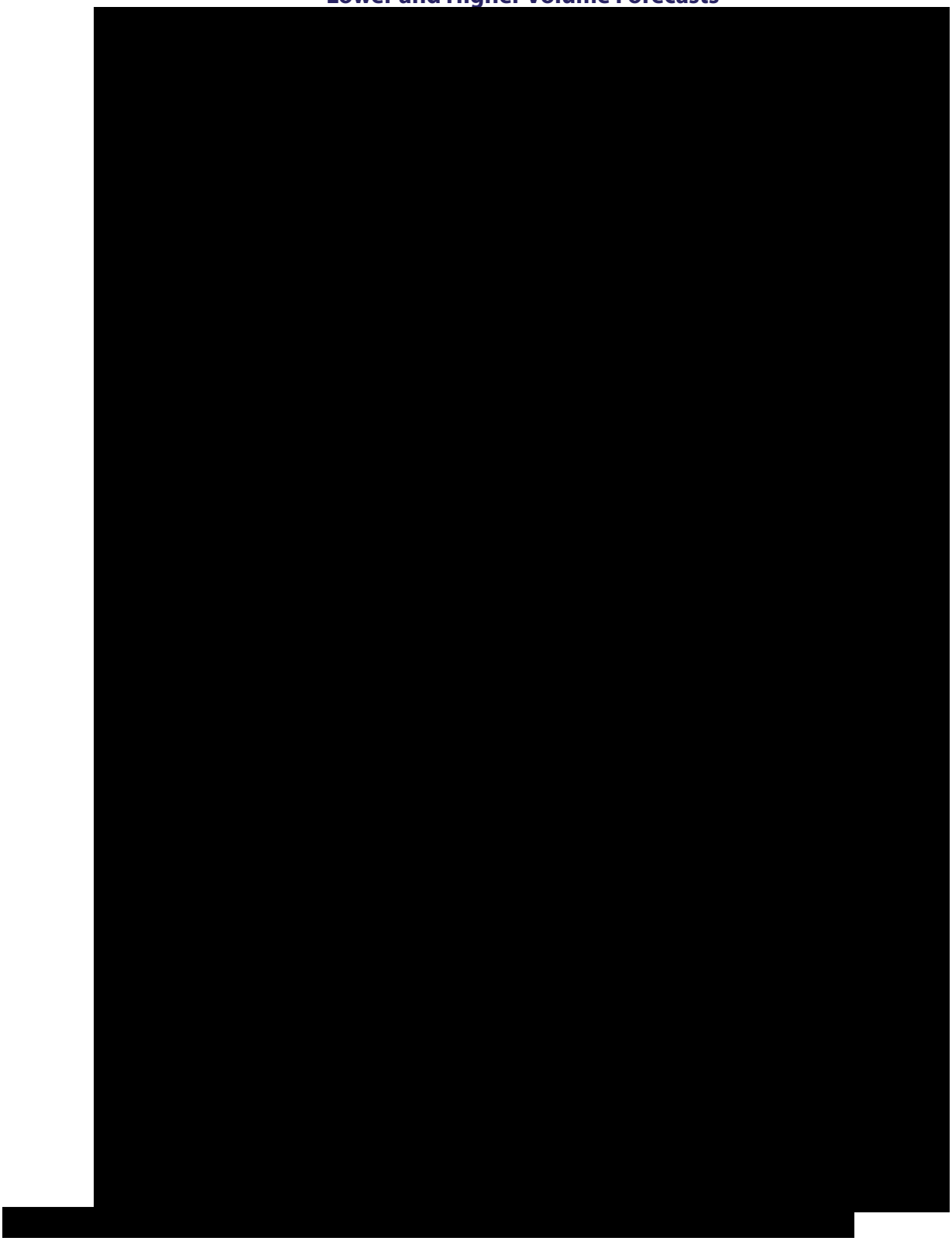


Table 5-3
Rail Transportation and Equipment Lease Rate per Barrel, Crude Oil; Myton/Leland Bench Area - National Markets
Lower and Higher Volume Forecasts



RLBA's analysis suggests the following conclusions:

1. Assuming the Higher forecast volume, the Rifle via Meeker alignment, allowing for interchange with both UP and BNSF, offers prospective Uinta Basin rail shippers the lowest total rail transportation cost on all 33 identified shipping lanes;

2. Assuming the Higher forecast volume, the Rifle via Piceance Creek alignment, allowing for interchange with both UP and BNSF, offers prospective Uinta Basin rail shippers the highest cost on 25 of the 33 identified shipping lanes (76%);

3. Assuming the Higher forecast volume, the Craig alignment, allowing for interchange with UP, offers prospective Uinta Basin rail shippers the highest cost on 8 of the 33 identified shipping lanes (24%);

4. Assuming the Lower forecast volume, the Rifle via Meeker alignment, allowing for interchange with both UP and BNSF, offers prospective Uinta Basin rail shippers the lowest total rail transportation cost on 30 of the 33 identified shipping lanes (90%);

5. Assuming the Lower forecast volume, the Rifle via Piceance Creek alignment, allowing for interchange with either UP or BNSF, offers prospective Uinta Basin rail shippers the highest cost on 24 of the 33 identified shipping lanes (73%) and

6. Assuming the Lower forecast volume, the Craig alignment, allowing for interchange with UP, offers prospective Uinta Basin rail shippers the lowest cost on 3 of the 33 identified shipping lanes (10%) and the highest cost on 9 of the 33 identified shipping lanes.

Given that the ultimate goal of the UBRR is to provide prospective Uinta Basin rail shippers with the lowest cost transportation option between the Uinta Basin and national markets, it would appear that the Rifle via Meeker Area rail alignment would be the most prudent selection.

5.2 Recommendations

1. **Volumes** - To reiterate the importance and impact of the four challenges described earlier, the viability and competitiveness of the prospective railroad is directly related to the volumes of traffic which would be shipped over the line.

2. **Feasibility of the Proposed Railroad** - Assuming the forecasted volumes can be achieved, it appears that the proposed railroad can offer cost competitive transportation to prospective Uinta Basin rail shippers, as compared with the most practical identified transport alternatives. Beyond the immediate quantifiable monetary benefits, the proposed railroad also would offer more flexibility to transport into and out of the Uinta Basin secondary and tertiary commodities related to both crude oil extraction and other industries.

3. **Multiple Class One Connections** - The Class One rate estimation work conducted by RLBA suggests that the additional construction costs necessary to reach Rifle, CO may be justified by the savings potentially realized by prospective Uinta Basin rail shippers due to the advantages of being: 1) a shorter length of haul, and 2) served by two Class One carriers instead of being 'captive' to one. To this point, RLBA estimates that BNSF, a "second" Class One reached via a connection at Rifle, CO, in general, may offer lower rates to and from the distant locations which are markets for Uinta Basin commodities and sources of commodities consumed in the Uinta Basin. Furthermore, prospective Uinta Basin rail shippers might be able to leverage the two Class Ones against one another in negotiations to receive even more favorable rates than those estimated by RLBA. Similarly, shippers should be able to secure better service than would be the case if only one of those railroads provided service.

4. **Alignment Selection** - While the Craig rail alignment appears to be significantly less costly to construct and operate than either Rifle alignment, the Craig alignment: 1) is generally farther from the markets for Uinta Basin commodities; 2) lacks a second Class One connection; and 3) is located at the end of relatively isolated Union Pacific branch line. As a result, the total rail transportation cost, the sum of the cost to reach the national rail network and then to ship over the national rail network to prospective Uinta Basin rail shippers ultimately would likely be higher using the Craig rail alignment, both to distant markets and Salt Lake City. As such, if the ultimate goal of constructing the prospective railroad is to advance the economic development of the Uinta Basin, it would appear as though the Rifle via Meeker Area rail alignment would be the most prudent selection.

5. **Salt Lake City** - The short length of haul (by rail standards) to Salt Lake City makes an all-rail transportation option utilizing a combination of the prospective railroad and a Class One intrinsically less competitive than shipments to/from more distant markets, though potentially still feasible. If the prospective railroad can obtain or even approach the Higher forecast volumes, the economies of scale are such that rail may be the most cost competitive option. If the Higher forecast volumes cannot be achieved or approached, the Salt Lake City market may not be competitive for rail. In either case, as regards the prospective railroad, RLBA would consider Salt Lake City to be a secondary market to the more distant markets.

SIX COUNTY INFRASTRUCTURE COALITION

OPERATING RULES, REGULATIONS AND BYLAWS

Amended as of January 8, 2016

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1 GENERAL

1.1 Mission Statement

1.1.1 Six County Infrastructure Coalition, hereinafter referred to as "Coalition," was created pursuant to an Interlocal Cooperative Agreement for joint or cooperative planning, development, ownership, management, and operation of projects, infrastructure, improvements, etc. to benefit the Coalition Members and the citizens represented by the Members. The Coalition is a separate legal entity and political subdivision and operates as an independent body to the extent allowed by Utah law.

1.2 Seal

1.2.1 The seal of the Coalition shall be a circular seal with the name of the Six County Infrastructure Coalition, Utah and its place of business around the border and the word "Seal" in the center.

1.3 Rules of Construction

1.3.1 The singular number includes the plural.

1.3.2 Words used in the present tense include the future.

1.3.3 Words used in the masculine gender comprehend, as well, the feminine and neuter.

1.3.4 The word "person" includes bodies politic and any individual, partnership, association, corporation or group of individuals, however styled or designated.

1.4 Conflicts and Invalidity Clause

1.4.1 If any provision, paragraph, word, section, or chapter hereof is invalidated by any court of competent jurisdiction or by any state or federal statute, the remaining provisions, paragraphs, words, sections, and chapters hereof shall not be affected and shall continue in full force and effect.

1.5 Amendments

1.5.1 These Operating Regulations and Bylaws may be amended by a majority vote of the Boardmembers in favor of such amendment at any duly noticed meeting of the Board. Notice of the proposed amendments shall be posted at the Coalition's offices and two other public places within the Coalition at least 14 days prior to said Board meeting and shall state that a copy of the proposed amendments is available for review during normal business hours at the Coalition's offices. Until the Coalition obtains its own offices, the primary administrative office of any and every Member County shall be considered to be the Coalition's office. A copy of the proposed amendments shall be

made available at the Coalition's offices during this 14-day period. The Board may also publish notice of the Board's resolution adopting the amendments in a newspaper having general circulation in the Coalition in accordance with U.C.A. § 11-13-219 in order to limit any challenges of thereof after 30 days.

2 BOARD

2.1 Coalition Government Vested in the Board

2.1.1 The Governing Board (the "Board") of the Coalition shall be as set forth in Section 5.4 subparagraphs A through L of the Interlocal Cooperation Agreement Establishing the Six County Infrastructure Coalition (the "Creating Agreement") with all rights, powers, and authority to govern the Coalition and be its policy making body, to the fullest extent permitted by law.

2.1.2 The Board is composed of six Boardmembers as set forth in Section 5.4 of the Creating Agreement.

2.1.3 The Coalition Executive Director and the subordinate officers and employees will execute the will of the Board as expressed by Board policy and direction.

2.2 Functions of the Board

2.2.1 Generally speaking the Board exercises all powers and duties in the operation of the properties of the Coalition as are ordinarily exercised by the governing body of a political subdivision, and has the final responsibility and authority in the administration of the affairs of the Coalition, to the extent permitted by law. Consistent with Section 5.4(f) of the Creating Agreement, the Member Counties have agreed to advance infrastructure projects or enterprises extending from one county jurisdiction into another, or involving more than one county, through the Coalition. Where assets or rights of one or more Member Counties will benefit a Coalition project or enterprise, then such Member Counties shall receive compensation for the Coalition's use of such assets or rights consistent with paragraph 6.4(C) of the Creating Agreement, unless otherwise agreed by Supplemental Contract (as defined in the Creating Agreement).

2.2.2 In every case, the will of the Board shall be expressed by at least a majority vote (four votes) of the Board. A simple majority means four votes. No statement or act of any individual member of the Board, including the Chair, shall be viewed as the will of the Board or as binding the Board or the Coalition. No statement or act of any Member County to the Coalition shall be viewed as the will of the Coalition Board or as binding the Coalition nor its Board. As provided in the Creating Agreement, certain actions of the Board, such as amending the Creating Agreement, must be approved by a super-majority of the Board. Except for where a super-majority of the Board is required by the Creating Agreement or by law, or by these bylaws, all other approvals by the Board shall only require a simple majority of the Board.

2.2.3 The Board shall appoint, as the need arises, qualified persons to function as Executive Director of the Coalition, and other appropriate staff to carry out the day-to-day operations and administration of the Coalition. The Governing Board may retain professionals and consultants for various matters as deemed appropriate by the Board.

A clerk shall keep records for the Board consistent with the Utah Government Records Access Management Act. Meetings of the Board shall be conducted as set forth in the Creating Agreement and as is consistent with the Utah Open and Public Meetings Act. The Board shall also create any other offices as may be deemed necessary for the good government of the Coalition and shall regulate and prescribe the powers and duties of all officers of the Coalition, except as provided by law. The Member Counties may assign employees of the Member Counties to assist the Coalition as provided by U.C.A. 11-13-222.

2.2.3.1 Consistent with the Creating Agreement, the Coalition Executive Director administers the policies and directives of the Board and manages the day-to-day operations and affairs of the Coalition. The Board will review the Executive Director's performance. At times that the Coalition does not have an Executive Director, the Chair or Co-Chairs of the Board shall act as the Executive Director. When a non-Boardmember is hired to fill this position, the Board will review the Executive Director's compensation level annually.

2.2.3.2 The responsibilities of the Executive Director shall be to (A) operate the funds and assets of the Coalition consistent with prudent business practices, (B) ensure there are adequate standard operating procedures for the types of assets and infrastructure owned by or in which the Coalition has an interest, (C) ensure the finances are properly maintained consistent with the Creating Agreement and Utah law for public bodies, (D) ensure compliance with State and Federal regulations, as applicable, (E) be sensitive to natural features and resources within the Member Counties, (F) manage employees of the Coalition consistent with best practices and under direction of the Board, (G) provide leadership and guidance to employees and enterprises of the Coalition, and (H) act for the public welfare of the Member Counties and their residents.

2.2.4 The Board shall not approve any contract in a closed meeting.

2.2.5 The Board will review this document from time-to-time to ensure that it is pertinent and current.

2.3 Board Committees

2.3.1 The Board may from time to time appoint committees of its own members to conduct investigations into the conduct of any officer, of Coalition government, or any matter relating to the welfare of the Coalition, and delegate to those committees such powers of inquiry as the Board may deem necessary.

2.4 Chair of the Board

2.4.1 The January following every general election (November elections in even numbered years), the Board shall select one of its members to act as Chair. Initially, the Board shall be directed by Co-Chairs as selected by the Board.

2.4.2 The Chair or Co-Chairs shall:

2.4.2.1 Preside at all meetings of the Board and shall control the agendas and orderly conduct of Board meetings.

2.4.2.2 Execute, on behalf of the Coalition, all bonds, resolutions of the Board, and, where required, contracts, other written obligations, and countersign disbursement checks.

2.4.2.3 Attend and, if appropriate, preside at ceremonial activities (including, but not limited to ribbon cutting, open houses, and receptions) in which ceremonial representation is needed or sought.

2.4.2.4 Be a spokesperson for the Board, unless the Board directs otherwise. When the Chair acts as a spokesperson for the Board or the Coalition, he should speak for the majority of the Board. When speaking for himself or in his capacity as an individual member of the Board, he should clearly identify that limited capacity.

2.4.2.5 Assume the duties of the Coalition Executive Director until such time as there is a non-Boardmember hired to act as the Coalition Executive Director. The Chair may not also be the Coalition Clerk or the Treasurer.

2.4.2.6 Represent the will of the Board.

2.4.3 The Chair shall have no duties other than those specified in this section, except as a general Boardmember.

2.4.4 The Chair has the right to vote as a Boardmember.

2.4.5 The Chair shall conduct public meetings in an orderly fashion and if requested, consistent with Robert's Rules of Order.

2.5 Boardmember Responsibilities

2.5.1 Each member of the Board is expected to familiarize themselves with the issues and items confronting the Coalition or items on a meeting agenda, and to act in the best interests of the Coalition.

2.5.2 Any two or more members of the Board may request that an item or matter be placed on a meeting agenda, and if so requested, the Chair shall place such item or matter on the agenda for the next Board meeting.

2.5.3 The Board may only take action on items that are on a properly noticed agenda as provided by the Utah Open and Public Meetings Act.

2.5.4 Each member of the Board shall receive reimbursement for necessary traveling and other expenses actually expended while engaged in the performance of their official duties.

2.5.5 The Board may not compensate its members for their service as Boardmembers beyond the compensation they receive from their elected office, other than reimbursement expenses.

2.6 Vacancy in the Board and Offices

2.6.1 In the case of a vacancy in the Board which vacancy shall be occasioned by reason of death, disability, removal, or resignation, the vacancy shall be filled by the Member County to which the vacant seat corresponds.

2.7 Qualifications of Boardmembers

2.7.1 Each Boardmember shall be an elected official within the Member County appointing such Boardmember.

2.8 Attendance at Board Meetings

2.8.1 Each Boardmember is expected to make reasonable efforts to attend each meeting of the Board. When unable to attend, the Boardmember should make reasonable efforts to notify the Coalition Clerk, or any other officer or Boardmember. If the Coalition Clerk cannot be reached, in advance of the meeting, another Boardmember should be notified of the expected absence and the reason for the absence. A Member County may be represented by a substitute Boardmember, as provided in the Creating Agreement, if the standing Boardmember for such County is absent.

3 COALITION ADMINISTRATION

3.1 Structure of Coalition Administration

3.1.1 Coalition administration consists of the Coalition Executive Director and other officers as needed.

3.1.2 The administrative powers of the Coalition are vested in and exercised by the Executive Director.

3.1.3 Each officer of the Coalition shall have such authority as is necessary to enable him to carry out duties and responsibilities assigned to him by this document or by direction of the Executive Director. The designation of a duty or responsibility shall constitute such authority as is necessary to affect the duty or responsibility so imposed.

3.2 Appointment of the Coalition Executive Director

3.2.1 Until such time as the Board elects by a majority vote of its full membership to hire an employee to serve as the Coalition Executive Director, the Chair shall perform the duties of the Coalition Executive Director. At such time as the Board elects to hire an employee to serve as the Coalition Executive Director, the Board shall appoint a Coalition Executive Director solely on the basis of his or her ability, integrity, and prior experience relating to the duties of the office, including but not limited to managerial capabilities that, in the opinion of the Board, befit him or her to provide professional direction to the Coalition.

3.3 Power and Duties of Coalition Executive Director

3.3.1 The Coalition Executive Director shall:

3.3.1.1 Faithfully execute and enforce all applicable laws, rules and regulations and see that all franchises, leases, permits, contracts, licenses, and privileges granted by the Coalition are observed;

3.3.1.2 Carry out the policies and programs established by the Board;

3.3.1.3 Establish standards, qualifications, criteria, and procedures to govern the appointment of employees within the Coalition, subject to any applicable provisions of the Personnel Rules and Regulations and this Document.

3.3.1.4 Submit to the Board plans and programs relating to the development and needs of the Coalition, and annual or special reports concerning the financial, administrative and operational activities of the Coalition;

3.3.1.5 Attend all meetings of the Board and take part in its discussions and deliberations;

3.3.1.6 Recommend to the Board for adoption such measures as deemed necessary or expedient;

3.3.1.7 With the assistance of the Coalition Treasurer and Coalition Clerk, prepare a financial estimate of the annual budget and advise the Board of the financial condition and needs of the Coalition;

3.3.1.8 With the assistance of the Coalition Clerk, schedule public hearings before the Board as required by law, including, but not limited to, budget hearings, and cause notice thereof to be published as required by law.

3.3.1.9 Execute such contracts, as authorized by the Chair (for example, contracts for less than $10,000), as are necessary for the good order and functioning of the Coalition, provided the expenditures pursuant to such contracts are within the appropriations contained within the appropriate budget, as adopted by the Board;

3.3.1.10 Implement and administer such plans as approved by the Board for the compensation of Coalition employees;

3.3.1.11 Approve such expenditures made for official Coalition business, provided such expenditures are within the appropriations contained within the appropriate budget as adopted by the Coalition;

3.3.1.12 Act as the HIPAA Privacy Officer and the HIPAA Security Officer under the Health Insurance Portability and Accountability Act of 1996 and any federal regulations enacted thereunder and shall be responsible for complying with said Act and regulations.

3.3.1.13 Discharge any other duties specified by statue or designated by the Board.

3.4 Removal of the Coalition Executive Director

3.4.1 The Coalition Executive Director serves at the pleasure of the Board. The Board may, at its pleasure, by a five-sixths vote, remove the Coalition Executive Director. When the Chair is performing the duties of the Coalition Executive Director, he may be removed by a four-sixths majority vote of the full Board, in which case he is also removed as Chair and the Board shall elect a new Chair who will take over the duties of the Coalition Executive Director. At times the Board designates Co-Chairs, the Co-Chairs shall coordinate and act in harmony when acting as the Coalition Executive Director.

3.5 Coalition Clerk

3.5.1 The Board shall appoint a Coalition Clerk to attend to the Coalition's administrative and secretarial duties, including record keeping. The Coalition Clerk shall attend the

Board's meetings and keep a record of the proceedings of the Board as required by the Utah Open and Public Meetings Act. The Coalition Clerk shall act as the Records Officer for the Coalition. (U.C.A. § 63-2-103(18).) The Coalition Clerk shall also maintain the financial records of the Coalition in coordination with the Treasurer. Until such time as there is an employee of the Coalition who can act as the Coalition Clerk, the Board shall appoint one of the Boardmembers or an employee of a Member County to serve as the Coalition Clerk, but such individual shall not receive additional compensation from the Coalition above what the individual receives for their service to a Member County. The Coalition Clerk may not also be the Chair, or Executive Director, or the Treasurer. The Coalition Clerk shall prepare Board agendas and shall be responsible for posting all notices related to Coalition operations. Board agendas shall be prepared and provided to the Chair for review and approval ten (10) days prior to regular Board meetings. Board agendas, as approved, should be posted seven (7) days prior to regular Board meetings, but in all events within the requirements of the Utah Open and Public Meetings Act. Board agendas should be provided to all Boardmembers seven (7) days prior to Board meetings, along with all documents and information intended for review by or information of the Board. Only items approved by the Board Chair may be placed on the agenda. The Board may only take action on items that are on an agenda as provided by the Utah Open and Public Meetings Act. The Coalition Clerk shall be responsible for the posting of agendas and minutes as required by the Utah Open and Public Meetings Act.

3.6 Treasurer

3.6.1 The Board shall appoint a Treasurer who shall be the custodian of the funds of the Coalition and to prepare and maintain financial records for the Coalition. Until such time as there is an employee of the Coalition who can act as Treasurer, the Board shall appoint one of the Boardmembers, or an employee of a Member County, to serve as Treasurer, but such individual shall not receive additional compensation from the Coalition above what the individual receives for their service to a Member County. The Treasurer may not be the Chair, the Executive Director or the Coalition Clerk.

3.6.2 In the event money is potentially appropriated by the Coalition in aid of a private enterprise, the Board shall require a study, provide notices, hold a public hearing and otherwise comply with U.C.A. § 17-50-303(4) as required for its Member Counties, such that the Coalition receives adequate value in return for the money appropriated, and so that the Coalition measures the net value received by the Coalition for money appropriated by the Coalition to a private entity on a project-by-project basis over the life of a project.

3.7 Fidelity Bonds

3.7.1 The Board Chair, Coalition Executive Director, Coalition Clerk, Treasurer, and any other Boardmember or Officer responsible for the safekeeping or investment of public funds (U.C.A. § 51-7-3) shall obtain a position fidelity bond effective as of the date

each such official assumes office and issued by a corporate surety licensed to do business in Utah and having a current A.M. Best Rating of "A" or better (R628-4-2). The Coalition shall pay the premium of the surety bond. The coverage and amount shall be at least the minimum required by law (see R628-4, as amended or re-codified), by the courts, or by financing obligations of the Coalition. (U.C.A. § 51-7-15.)

3.8 Indemnification of Employees

3.8.1 Boardmembers, officers, and employees of the Coalition shall be indemnified for acts and omissions occurring during the performance of their duties, within the scope of their employment or under color of authority pursuant to the provisions of the Utah Governmental Immunity Act.

3.9 Ethical Conduct

3.9.1 The purposes of this section are to establish standards of conduct for Boardmembers, officers and employees and to require these persons to disclose actual or potential conflicts of interest between their public duties and their personal interests.

3.9.2 The conduct of Coalition Boardmembers, officers and employees shall be consistent with, among other things and not by way of limitation, the Utah Public Officers' and Employee's Ethics Act (U.C.A. § 67-16-1, *et seq.*, as amended); Utah law prohibiting employment of relatives (U.C.A. § 52-3-1, *et seq.*, as amended), U.C.A. § 10-6-146; and U.C.A. §§ 76-8-105, 201, 202, 203 and 402. In addition to the foregoing statutes, a Boardmember, officer or employee who has or may have a conflict of interest, as identified in any of the foregoing statutes, shall be required to declare such conflict in writing submitted to the Chair, or in open and public meeting of the Board, and to recuse themselves from all discussion or consideration by staff or the Board of such matter(s).

3.9.3 The Board considers it a conflict of interest for a Boardmember, officer, or employee of the Coalition or of a Member County to leave their position and immediately accept employment with either the Coalition or a private company or enterprise conducting any business with the Coalition. The Coalition shall not do business with a private company or enterprise if it employs a Boardmember, officer or employee of the Coalition or of a Member County within 24 months after such individual leaves his or her position with the Coalition or a Member County, unless such person does not engage in any negotiations or work involving the Coalition. If a private company or enterprise doing business with the Coalition employs someone as proscribed in this paragraph 3.9.3, it shall be considered to be a breach of agreement and grounds for immediate termination of agreement for cause. An individual who contracts with the Coalition or a Member County for employment type services shall be treated as if an employee for purposes of this paragraph 3.9.3. The conflicts of interest in this paragraph 3.9.3 may be waived by a majority vote of the Board.

4 COALITION MEETINGS

4.1 Types of Meetings

4.1.1 Regular Meeting: A regularly scheduled meeting of the Board for which notice of the date, time and place has been given in the Annual Meeting Schedule.

4.1.2 Special Meeting: Any meeting of the Board that replaces or is held in addition to a regular meeting.

4.1.3 Emergency Meeting: A special meeting held as a result of unforeseen circumstances to consider matters of an urgent or emergency nature.

4.2 Date and Location of Meetings

4.2.1 The Boardmembers shall hold regular meetings monthly, and special meetings and emergency meetings as they shall deem necessary, to conduct the affairs and transact the business of the Coalition.

4.2.2 The regular meetings of the Board shall be held at such place and time as the Board shall by resolution appoint.

4.3 Public Notice of Meetings

4.3.1 Annual Schedule: An annual schedule of the regular meetings of the Board shall be posted at all times in a conspicuous place at the Coalition's principal office and posted on the Utah Public Notice Website, and printed in a newspaper of general circulation in the Coalition. Initially, the Board designates the Carbon County administrative offices as the Coalition's principal place of business, with meetings of the Board to be held at the Carbon County Event Center at 310 S. Fairground Road, in Price, Utah.

4.3.2 Regular Meeting Notice: Notice of the date, time, place and agenda for each regular meeting shall be posted at the Coalition's principal office, posted on the Utah Public Notice Website, and sent (but not necessarily printed) in a newspaper of general circulation in the Coalition not less than 24 hours before the beginning of each meeting.

4.3.3 Special Meeting Notice: The notice described above in section 4.3.2 shall be given for special meetings; however, when unforeseen circumstances require an emergency meeting, such notice requirements may be disregarded and the best practicable notice given. An attempt shall be made to notify all member of the Board of such emergency meeting and a majority of the Board must approve holding such emergency meeting.

4.4 Conduct of Meetings

4.4.1 If requested by a member of the Board, a meeting of the Board shall be conducted according to Robert's Rules of Order.

4.4.2 The Chair shall control the agenda. Any two or more members of the Board shall have the right to place any matter on the agenda, if a reasonable notice is given before the agenda is distributed. The meeting shall follow the agenda unless otherwise agreed. The Board may only take action on items on the agenda. The Board may not approve any action that is not on the agenda.

4.4.3 Any meeting of the Board may be called and held electronically provided such meeting is called in conformance with the Utah Open and Public Meetings Act found in Utah Code Annotated 1953, as amended, Title 52, Chapter 4, and consistent with the procedures set forth herein.

4.4.4 The location where the Board would normally meet if it was not holding an electronic meeting, currently is located at 310 S. Fairgrounds Rd, Price, UT 84501, and the phone number to arrange for electronic connection is (435) 636-3214, and the above address shall be the anchor location for all electronic meetings and the Board finds that such location proves space and facilities so that interested persons and the public may attend and monitor the open portions of the meeting, whether such meeting is a public hearing or otherwise.

4.4.5 A member of the Board may request an electronic meeting upon notice to the Board Chair and Coalition Clerk at least three (3) days prior to the meeting to allow for arrangements to be made for the electronic meeting. However, the Chair may waive the three day notification requirement.

4.4.6 To call an electronic meeting, public notice of such meeting must be given at least 24 hours before the meeting by (i) posting written notice at the anchor location; and (ii) providing written or electronic notice to (a) at least one newspaper of general circulation within the boundaries of the Coalition; (b) to a local media correspondent; (c) posted on the Utah Public Notice Website and (iii) providing notice of the electronic meeting to the members of the Board at least 24 hours before the meeting so that they may participate in and be counted as present for all purposes, including the determination that a quorum is present; and (iv) providing a description to the members of the Board of how the members will be connected to the electronic meeting.

4.4.7 If comments from the public will be accepted during the electronic meeting, the Coalition shall provide facilities at the anchor location so that interested persons and the public may attend, monitor, and participate in the open portions of the meeting.

4.5 Quorum

4.5.1 Four or more Boardmembers shall be required to be present, in person or by electronic participation, to constitute a quorum. A minimum of four affirmative votes shall be required to approve any motion, resolution or action of the Board.

4.6 Presumption of Assent

4.6.1 A Boardmember who is present at a meeting of the Board at which action on any matter is taken is be presumed to have assented to the action taken unless: (1) his dissenting vote is recorded in the minutes of the meeting at the time of the vote; or (2) he submits a written statement to the Chair or the Coalition Clerk before the adjournment of the meeting indicating his dissenting vote (in the event that he believes his dissenting vote may not have been correctly recorded in the minutes at the time of the vote). A Boardmember who voted in favor of the action may not later submit a written statement indicating a dissenting vote.

4.7 Proxy

4.7.1 A Member County may appoint or allow a substitute Boardmember selected by the regularly appointed Boardmember to sit and act in place of its regularly appointed Boardmember, if the regularly appointed Boardmember is unable to attend a Board meeting.

4.8 Open and Closed Meetings; Actions Taken

4.8.1 Open Meeting: All meetings of the Board, except closed meetings as defined below, shall be open to the public.

4.8.2 Closed Meetings:

4.8.2.1 Purposes of Closed Meetings. Closed meetings may be held:

4.8.2.1.1 To discuss the character, professional competence, or physical or mental health of an individual;

4.8.2.1.2 To discuss deployment of security personnel, devices or systems;

4.8.2.1.3 To investigate allegations of criminal misconduct;

4.8.2.1.4 As strategy sessions to discuss collective bargaining;

4.8.2.1.5 As strategy sessions to discuss threatened, pending or reasonably imminent litigation;

4.8.2.1.6 As strategy sessions to discuss the purchase/exchange/lease or real property if public discussion would disclose the valuations or would prevent the public body from getting the best possible terms; or

4.8.2.1.7 As strategy sessions to discuss the sale of real property if (a) public discussion would disclose the valuations or would prevent the public body from getting the best possible terms; (b) prior public notice has been given that the property would be offered for sale; and (c) the terms of the sale are publicly disclosed before the sale is approved.

4.8.2.2 Procedures for Calling a Closed Meeting;

4.8.2.2.1 The proposal for a closed meeting must be made in a properly noticed open meeting

4.8.2.2.2 A quorum must be present at the open meeting.

4.8.2.2.3 The proposal for a closed meeting must be approved by two-thirds of the members present.

4.8.2.2.4 The vote of each member on the proposal must be recorded in the minutes.

4.8.2.2.5 The general reason(s) for the proposed closed meeting must be recorded in the minutes (e.g., to discuss a land purchase).

4.8.2.3 Except as otherwise directed by the Board, participation in closed meetings shall be limited to the Board, the Executive Director, Coalition Clerk, and other invited Coalition staff.

4.8.2.4 No resolution, rule, regulation, contract, or appointment shall be approved in a closed meeting.

4.9 Minutes of Meetings to be Kept by Coalition Clerk

4.9.1 Open Meeting: An audio recording and written minutes shall be taken of all open meetings. The written minutes, once approved, shall signed by the Chair and the Coalition Clerk and shall become the official record of the meeting. Such minutes shall include:

4.9.1.1 the date, time, and place of the meeting;

4.9.1.2 the names of Boardmembers present and absent:

4.9.1.3 the names of all matters proposed, discussed, or decided, and a record, by individual member, of votes taken;

4.9.1.4 the names of all citizens who appeared and the substance in brief of their testimony or statements;

4.9.1.5 any other information that any member of the Board requests be entered in the minutes.

4.9.2 Closed Meetings:

4.9.2.1 In closed meetings held to discuss the character, professional competence, or physical or mental health of an individual or to discuss deployment of security personnel, devices or systems, the presiding official in the closed meeting shall sign a sworn statement affirming that the sole purpose of the meeting was to discuss the character, professional competence, or physical or mental health of an individual or to discuss deployment of security personnel, devices or systems.

4.9.2.2 In all other closed meetings, an audio recording and written minutes shall be taken of the discussions.

4.9.2.3 The written minutes, once approved, shall signed by the Chair and the Coalition Clerk and shall become the official record of the meeting.

5 COALITION FINANCE

5.1 Budget Officer

5.1.1 The Finance Director, under the direction of the Executive Director shall function as the Budget Officer. The Finance Director is authorized to make expenditures in accordance with the budget and consistent with Generally Accepted Accounting Principles for:

5.1.1.1 Payroll;

5.1.1.2 Repetitive contractual obligations such as utility bills; and/or

5.1.1.3 All items approved by the Board in the annual budget or by specific Board action.

5.2 Preparation of Budget

5.2.1 On or before the first regularly scheduled meeting of the Board in November of each year, the Budget Officer shall prepare for the ensuing fiscal year (on forms provided by the state auditor, if appropriate), and file with the Board, tentative budgets setting forth actual revenues and expenditures for the last completed fiscal year, estimated total revenues and expenditures for the current fiscal year; and the Budget Officer's estimates of revenues and expenditures for the budget year together with specific work programs and any other supporting data required by the Board. The budget and accounting for income and expenses shall be made in accordance with Generally Accepted Accounting Principles.

5.2.2 The tentative budgets shall be reviewed and considered by the Board at any regular meeting or any special meeting called for that purpose. The Board may make any changes considered advisable in the tentative budgets, pursuant to statute. At the meeting at which the tentative budget is adopted, the Board shall establish the time and place of a public hearing to consider its adoption and order that notice of the hearing be published once each week for two consecutive weeks in a newspaper of general circulation in the Coalition and posted on the Utah Public Notice Website at least 10 days prior to the public hearing and posted at the Coalition’s principal office.

5.2.3 At the time and place advertised, or at any time or any place to which the public hearing may be adjourned, the Board shall hold a public hearing on the budgets tentatively adopted and give all interested persons in attendance an opportunity to be heard on the estimates of revenues and expenditures or any item in the tentative budget of any fund.

5.2.4 The Board shall adopt operating and capital budgets which shall be in effect for the budget year, subject to later amendment. The Budget Officer shall certify a copy of the final budget for each fund and file it with the state auditor within thirty days after

adoption. During the budget year, the Board may, in any regular meeting or special meeting called for that purpose, review the operating and/or capital budget for the purpose of determining if the total should be increased.

5.2.5 The budget may be reopened at any time during the fiscal year by properly noticing the meeting in accordance with statute.

5.2.6 The budget shall contain a Coalition contingency to pay for any unanticipated expenses or to cover budget line items over-runs. The Board may only use the contingency upon approval.

5.2.7 When a total line item appropriation is exceeded, the over-run may be covered by a transfer from another line item in the budget with the approval of the Finance Director and the Coalition Board.

5.3 Financial Reports

5.3.1 The Executive Director with the assistance of the Treasurer or Finance Director, shall prepare, and present to the Board, quarterly or more frequent summary financial reports showing the financial position and operations of the Coalition for that quarter and the year-to-date status of the Coalition.

5.3.2 Within one hundred and twenty days after the close of each fiscal year, the Executive Director shall present to the Board an annual financial report prepared in conformity with generally accepted accounting principles, as prescribed in the Uniform Accounting Manual for Counties. This requirement may be satisfied by presentation of the appropriately prepared and reviewed report with the Board.

5.4 Independent Auditor

5.4.1 When revenue or expenses of the Coalition shall exceed $100,000, an independent auditor or certified public accountant has the responsibility of reporting whether the Coalition's financial statements are prepared in conformity with generally accepted accounting principles. Copies of the annual financial report or of the audit report furnished by the independent auditor shall be filed with the state auditor and shall be filed as a public document in the office of the Coalition. (U.C.A. § 51-2a-201.) Until an independent auditor is required, the Coalition may prepare and submit a fiscal report on forms provided by the state auditor.

5.4.2 The Executive Director, with the consent of the Board, shall select the Coalition's independent auditor.

5.5 Checks

5.5.1 All checks shall be signed by two people whose signatures are on record at the banking institution of the Coalition. Initially two Boardmembers shall be signators. If non-

Boardmembers are appointed to act as Coalition Executive Director and/or Treasurer then the Coalition Executive Director and/or Treasurer may also be appointed by majority vote of the Board to be signators on checks. However, at least one signature on every check must be a Boardmember. Initially, the Chair (or Co-Chairs) is authorized to be a signator on checks.

5.6 Fiscal Year

5.6.1 The fiscal year of the Coalition shall be the calendar year.

6 PURCHASING

6.1 Scope

6.1.1 This chapter shall, except where otherwise noted, govern the acquisition of real or personal property, supplies or services, and disposal or property, whether real or personal, by the Coalition.

6.1.2 No purchase shall be made and no encumbrances shall be incurred for the benefit of the Coalition except as provided in this Chapter.

6.1.3 No purchase shall be made and no encumbrance shall be incurred unless funds sufficient to cover the purchase or encumbrance have been budgeted and are available within the approved budget or unless the purchase or encumbrance is approved by the Board by a vote at a regular Board meeting.

6.2 Chief Procurement Officer

6.2.1 Designation: The Executive Director shall act as and is herein designated to be the Chief Procurement Officer (CPO) of the Coalition with Board approval.

6.2.2 The Executive Director is hereby the authorized officer charged with the responsibility of staying within the budget and authorizing no expenditures in excess of said budget.

6.3 Purchasing and Contracting Procedures

6.3.1 A purchase of goods and services for greater than $5,000.00 requires the solicitation of price quotations from enough prospective vendors or suppliers to reasonably ensure that the Coalition received the best price. Such quotations in excess or $5,000.00 shall be in writing.

6.3.2 Whenever the total service of a contract or purchase exceeds $10,000 the contract shall be awarded through competitive bidding or proposal process.

6.3.3 Funds designated for the purchase of goods or services under a particular budget line item may not be used for the purchase of goods or services under a different budget line item without the prior approval of the CPO.

6.3.4 All purchases shall be reported to the Board for review at the next regular Board meeting.

6.3.5 Bond Construction Fund and Other Capital Fund Expenditures:

6.3.5.1 Projects shall be submitted to the Board for authorization of funding.

6.3.5.2 Construction Change Orders of 5% or less or less than $100,000, which ever is less, may be approved by the CPO and submitted to the Board for review at its next regular Board meeting.

6.3.5.3 Construction Change Orders exceeding 5% or more than $100,000, whichever is less, shall be submitted to the Board for approval.

6.3.5.4 Upon completion of each project, a final summary of costs shall be submitted to the Board for review.

6.3.6 Other Expenditures or Fund Transfers: All other expenditures or fund transfers shall be submitted to the Board for review.

6.3.7 The Board may waive the above requirements at such time as the public good justifies such action and shall not be prohibited by the terms of this section from awarding contracts or purchase orders without advertisement or other solicitation if the item to be procured is a brand-name type product that can be procured from only one source. No contract or purchase order in excess of $10,000.00 may be awarded for such brand-name type of product without the review of the Board.

6.3.8 An official copy of each awarded purchase order or contract, together with all necessary attachments, including assignments, shall be retained by the Executive Director in an appropriate file open to the public for such period of time after termination of the contract as an action against the Coalition might ensue under applicable statutes of limitations. After such period of time, purchase orders, contracts and attachments may be destroyed by the direction of the Executive Director.

6.3.9 Any contractor or vendor that has a familial relation with any Boardmember, officer or employee of the Coalition or of a Member County of grandparent, parent, child, grandchild, aunt, uncle, or first cousin shall declare such relationship in writing to the Board. The Board shall avoid procurement, contracts and business relationships with such family relations.

6.4 Emergency Procurements

6.4.1 Notwithstanding any of the provisions of these rules and regulations, when there exists a threat to public health, welfare, or safety under emergency conditions, the CPO may make or authorize others to make emergency procurements; provided that emergency procurements shall be made with as much competition as practicable under the circumstances.

6.4.2 A written determination of the basis for the emergency and the selection of the particular contractor shall be included in the contract file.

6.5 Exceptions to Competitive Bidding

6.5.1 Contracts which by their nature are not adapted to award by competitive bidding, such as contracts for the services of individuals possessing a high degree of professional skill, where the ability of the fitness of the individual plays an important part, shall not require competitive bids.

6.5.2 Products for services currently defined and contracted for open purchase by the State of Utah shall not require competitive bids.

7 AUDIT COMPLIANCE

7.1 Cash Management

7.1.1 All funds are to be deposited on a daily basis where possible, or at least every three business days (U.C.A. § 51-4-2(2)).

7.2 Investments

7.2.1 Investment transactions are to be conducted only with institutions authorized by the Utah Money Management Counsel (U.C.A. § 51-7-1, et seq).

7.2.2 Funds may not be invested for terms which exceed the anticipated rate of the expenditure of the funds. (U.C.A. § 51-7-11 (2)).

7.2.3 Funds may only be invested in instruments and assets authorized by the Money Management Act (U.C.A. § 51-7-11(3)).

7.2.4 All securities are to be delivered to an authorized safekeeping custodian within fifteen days of the transaction (U.C.A. § 51-7-7).

7.2.5 Selections of investments shall be made with the exercise of that degree of judgment and care which persons of prudence exercise in the management of their own affairs, not for speculation but for investment, considering the probable safety for their capital, as well as the probably benefits to be derived. (U.C.A. § 51-7-14).

7.2.6 All public funds invested in deposit instruments should be invested with qualified depositories within Utah, unless national market rates on instruments of similar quality and term significantly exceed those offered by qualified depositories within the state.

7.3 Public Debt

7.3.1 The Coalition shall have the power to incur indebtedness, however, it shall contract no debt secured by property taxes as the Coalition has no power to impose or collect a property tax.

7.4 Other General Compliance

7.4.1 Abandoned Property: Any tangible or intangible property which is presumed abandoned over one year will be submitted to the State Treasurer's Office. The annual abandoned property report (ST-2) will be filed regardless of whether or not the Coalition holds any abandoned property.

7.4.2 The Coalition shall provide, annually, its name, telephone number, and address to the telephone directory publishers serving the geographical area within the Coalition.

7.4.3 No Coalition Boardmember or officer or employee may employ, appoint, vote for, supervise, evaluate, or set the salary for a relative, when the salary, wages or compensation of that relative will be paid from public funds. (U.C.A.52-3-1). However, this does not preclude the Board from employing or appointing a relative of a Boardmember or officer or employee if that Boardmember or officer or employee abstains from participating in the employment, appointment, supervision, evaluation, and salary setting processes, and the Board makes a finding and determination that there are no other suitable candidates for such position and prepares a written explanation of why there are no such suitable candidates to include in the Coalition's files.

8 ENTERPRISE POLICIES

8.1 General Policies

8.1.1 When the Coalition obtains an interest in any enterprise or endeavor, the Board shall adopt standard operating procedures for such enterprise or endeavor consistent with best practices applicable thereto.

9 RECORDS MANAGEMENT

9.1 General Purpose

9.1.1 It is the Coalition's policy to establish and implement guidelines for open government information recognizing the need to maintain and preserve accurate records, provide public access to public records and preserve the right of privacy of personal data collected or received by the Coalition.

9.2 Coalition Policy

9.2.1 In adopting this policy, the Coalition recognizes the enactment of Government Records Access and Management Act (U.C.A. § 63-2-101 *et seq.*) and the application of that Act to the Coalition records. The purpose of these policies is to conform to U.C.A § 63-2-701 which provides that each political subdivision may adopt an ordinance or a policy relating to information practices including classification, designation, access, denials, segregation, appeals, management, retention and amendment of records. The intent of this policy is to provide modification to the general provision of State law, where allowed, to best meet the public needs, operation, management capabilities and resources of the Coalition.

9.3 Compliance with State Law

9.3.1 In adopting the policy, the Coalition recognized the following sections of the Government Records Access and Management Act (U.C.A. § 63-2-101, *et seq.*) applies to the Coalition and adopt by reference these provisions as part of this policy. Any inconsistency or conflict between this policy and the following reference statutes shall be governed by this statute.

9.3.1.1 General Provisions

§ 63-2-101	Short title
§ 63-2-102	Legislative intent
§ 63-2-103	Definitions
§ 63-2-104	Administrative Procedure Act not applicable
§ 63-2-105	Confidentiality agreements

9.3.1.2 Access to Records

63-2-201	Right to inspect records and receive copies of records
§ 63-2-202	Access to private, controlled and protected documents
§ 63-2-205	Denials
§ 63-2-206	Sharing records

9.3.1.3 Classification

§ 63-2-301 Records that must be disclosed
§ 63-2-302 Private records
§ 63-2-303 Controlled records
§ 63-2-304 Protected records
§ 63-2-306 Procedure to determine classification
§ 63-2-307 Segregation of records
§ 63-2-308 Business confidentiality claims

9.3.1.4 Accuracy of Records

§ 63-2-601 Rights of individuals on whom data is maintained
§ 63-2-602 Disclosure to subject of records – Context of use
§ 63-2-603 Request to amend

9.3.1.5 Applicability to Political Subdivisions

§ 63-2-701 Ordinance in compliance with chapter

9.3.1.6 Remedies

§ 63-2-801 Criminal penalties
§ 63-2-802 Injunction – Attorneys' Fees
§ 63-2-803 No liability for certain decisions of governmental entities
§ 63-2-804 Disciplinary action

9.3.1.7 Archives and Records Service

§ 63-2-904 Records declared property of the State – Disposition
§ 63-2-907 Right to replevin

9.3.1.8 Other

§ 63-30-10.6 Attorneys' fees for records request

9.4 Definitions

9.4.1 As used in this ordinance, the following definitions shall be applicable.

9.4.1.1 "Act" shall refer to Government Records Access and Management Act (U.C.A. § 63-2-1, *et seq.*)

9.4.1.2 "Coalition" shall refer to the Six County Infrastructure Coalition, Utah or any public or private entity which pursuant to contract with the Coalition has agreed to produce and maintain public Coalition records.

9.4.1.3 "Computer software program" means the series of instructions or statements that permit the functioning of a computer system in a manner designed to provide storage, retrieval, and manipulation of data from the computer system, and any associated documentation, manuals, or other source material explaining how to operate the software program.

"Software" does not include the original date or record which is manipulated by the software.

9.4.1.4 "Controlled" records shall be those defined as controlled under the provisions of the Act.

9.4.1.5 "Data" shall refer to individual entries (for example, birth date, address, etc.) in records.

9.4.1.6 "Dispose" means to destroy, or render irretrievable or illegible, a record of the information contained in it by any physical, electronic, or other means, including unauthorized deletion or erasure of electronically recorded audio, visual, non-written formats, date processing or other records.

9.4.1.7 "Non-public" records shall refer to those records defined as private, controlled, or protected under the provisions of the Act.

9.4.1.8 "Private" records shall refer to those records classified as private under provisions of the Act.

9.4.1.9 "Protected" records shall refer to those records which have not been classified as non-public in accordance with the provisions of the Act.

9.4.1.10 "Record" means all books, letters, documents, papers, maps, plans, photographs, films, cards, tapes, recordings, or other documentary materials, and electronic data regardless of physical form or characteristics, prepared, owned, used, received or retained by the Coalition where all the information in the original is reproducible by some mechanical, electronic, photographic or other means.

9.4.1.11 "Record" does not mean temporary drafts of similar materials prepared for the originator's personal use or repaired by the originator for the personal use of a person for whom he is working; materials that are legally owned by an individual in his private capacity; materials to which access is limited by the laws of copyrights or patent; junk mail or commercial publications received by the Coalition or by an officer or employee of the Coalition; proprietary computer software programs as defined in subsection 9.4.1.3 above that are developed or purchased by or for the Coalition for its own use.

9.5 Public Right to Records

9.5.1 Members of the public shall have to right to see, review, examine and take copies, in any format maintained by the Coalition, of all Coalition governmental records defined as "public" under the provisions of this Policy, upon the payment of the lawful fee and pursuant to the provisions of this Policy and the Act.

9.5.2 The Coalition has no obligation to create a record series in response to a request from a member of the public, if the record requested is not otherwise regularly maintained or kept;

9.5.3 When a record is temporarily held by a custodial Coalition agency; pursuant to that custodial agency's statutory functions, such as records storage, investigation, litigation or audit, the record shall not be considered a record of the custodial agency for the purposes of this Policy. The record shall be considered a record of the Coalition and any requests for access to such records shall be direct to the Coalition, rather than the custodial agency, pursuant to these procedures.

9.6 Public, Private, Controlled, and Protected Records

9.6.1 Public records shall be those Coalition records as defined in the Act. Public records shall be made available to any person. All Coalition records are considered public unless they are (1) expressly designated, classified, or defined otherwise by the Coalition in accordance with policies and procedures established by this Policy, (2) are so designated, classified or defined by the Act, or (3) are made non-public by other applicable law.

9.6.2 Private records shall be those Coalition records classified as "private", as defined in the Act and as designated classified, or defined in procedures established pursuant to this Policy. Private records shall be made available to the following persons: The subject of the record, the parent or legal guardian of a minor who is the subject of the record, the legal guardian of an incapacitated individual who is the subject of the record, any person who has power of attorney or a notarized release form the subject of the record of his legal representative, or any person possessed of or serving a legislative subpoena or a court order issued by a court of competent jurisdiction.

9.6.3 Controlled records shall be those Coalition records classified as "controlled" as defined in the Act and as designated, classified, defined in procedures established in this Policy. Controlled records shall be made available to a physician, psychologist, or licensed social worker who submits a notarized release form the subject of the record or any person presenting a legislative subpoena or a court order signed by a judge of competent jurisdiction.

9.6.4 Protected records shall be those Coalition records classified as "protected", as defined in the Act and as designated, classified or defined in procedures established in this Policy. Protected records shall be made available to the person who submitted the information in the record, to a person who has power of attorney or notarized release from any persons or governmental entities whose interests are protected by the classification of the record, or to any person presenting a legislative subpoena or a court order regarding the release of the information and signed by a judge or competent jurisdiction.

9.7 Privacy Rights

9.7.1 The Coalition recognizes and upholds the personal right of privacy retained by persons who may be the subject of governmental records.

9.7.2 The Coalition may, as determined appropriate by the Executive Director, notify the subject of a record that a request for access to the subject's record has been made.

9.7.3 The Coalition may require that the requester of records provide a written release, notarized within thirty days before the request, from the subject of the records in question before access to such records is provided.

9.8 Designation, Classification and Retention

9.8.1 All Coalition records and record series, of any format, shall be designated, classified and schedule for retention according to the provisions of the Act and this Policy. Any records or record series generated in the future shall also be so designated, classified and scheduled for retention. Records designation classification and scheduling for retention shall be conducted under the supervision of the Coalition Records Officer.

9.9 Procedures for Records Request

9.9.1 Under circumstances in which the Coalition is not able to immediately respond to a records request, the requester shall fill out and present to the Coalition a written request on forms provided by the Coalition. The date and time of the request shall be noted on the written request form and all time frames provided under this Policy shall commence from that time and date. Requesters of non-public information shall adequately identify themselves and their status prior to receiving access to non-public records.

9.9.2 The Coalition may respond to a request for a record by approving the request and providing the records, denying the request, or such other appropriate response as may be established by the Board.

9.9.2.1 In most circumstances and expecting those eventualities set out below, the Coalition shall respond to a written request for a public record within ten business days after that request.

9.9.2.2 Extraordinary circumstances shall justify the Coalition's failure to respond to a written request for a public record within ten business days and shall extend the time for response thereto that time reasonably necessary to respond to the request, as determined by the Coalition Executive Director. Extraordinary circumstances shall include but not be limited to the following:

9.9.2.2.1 Some other governmental entity is currently and actively using the record;

9.9.2.2.2 The record requested is for either a voluminous quantity of records or requires the Coalition to review a large number of records or perform extensive research to locate the materials requested;

9.9.2.2.3 The Coalition is currently processing either a large number of record requests and/or is subject to extraordinary seasonal work loads in the processing of other work;

9.9.2.2.4 The request involves an analysis of legal issues to determine the proper response to the request;

9.9.2.2.5 The request involves extensive editing to separate public data in a record from that which is not public; or

9.9.2.2.6 Providing the information request required compute programming or other format manipulation.

9.9.2.3 When a record request cannot be responded to within the ten day period, the Coalition Executive Director shall give the requester an estimate of the time required to respond to the request.

9.9.3 The failure or inability of the Coalition to respond to a request for a record within the time frames set out herein, or the Coalition's denial of such a request, shall give the requester the right to appeal as provided in subsection 9.11

9.10 Fees

9.10.1 Applicable fees for processing of information requests under this Policy shall generally be set at actual costs or as otherwise established by policies adopted under this Policy. The Coalition will charge the following fees for requests relating to the Act

9.10.1.1 Reviewing a record to determine whether it is subject to disclosure - No Charge

9.10.1.2 Inspection of record by requesting person . . . . . No Charge

9.10.1.3 Compilation Fees . . . . . $25 per hour

9.10.1.4 Copy Fees $0.35/page
(for Coalition prepared copies)

9.10.1.5 Computer Disk . . . . . Actual Cost
(including overhead and time of Coalition staff in preparation of information request, with a minimum of $5.00)

9.10.1.6 Other Forms including Maps . . . . . Actual Cost
(including overhead and time of Coalition staff or outside consultant in preparation of information request, with a minimum of $1.00 per page)

9.10.1.7 Miscellaneous Fees . . . . . Actual Cost
(same as 9.10.1.5 above)

9.11 Appeal Process

9.11.1 Any person aggrieved by the Coalition's denial or claim of extraordinary circumstances as determined by the Coalition Clerk may appeal the determination within thirty days after notice of the Coalition's action to the Coalition Executive Director by filing a written notice of appeal. The notice of appeal shall contain the petitioner's name, address, phone number, relief sought and if petitioner desires, a short statement of the facts, reasons and legal authority for the appeal.

9.11.2 If the appeal involves a record that is subject to business confidentiality or affects the privacy rights of an individual, the Coalition Executive Director may send a notice of the requester's appeal to the affected person.

9.11.3 The Coalition Executive Director shall make a determination on the appeal within five days after receipt of the appeal. During the thirty day period, the Coalition Executive Director may schedule an informal hearing or request any additional information deemed necessary to make a determination. The Coalition Executive Director shall send written notice to all participants providing the reasons for the Coalition Executive Director's determination.

9.11.4 In addition, if the Coalition Executive Director affirms the denial in whole or in part, the denial shall include a statement that the requester has a right to appeal the denial to the Coalition's Board within thirty days at the next scheduled meeting.

9.11.5 The person may file a written notice of appeal to the Board to be heard at the next scheduled meeting of the Board. If there is no meeting scheduled in the next thirty days the Board shall schedule a meeting for the purpose of hearing the appeal. The final decision of the Board shall be by majority vote of a quorum of the Board. The Board shall prepare a written decision outlining their final determination and reasons for the final determination.

9.11.6 If the Board affirms the denial, in whole or in part, the person may petition for judicial review in Coalition court as provided in U.C.A. § 63-2-404.

9.12 Reasonable Accommodation

9.12.1 Reasonable accommodations regarding access to governmental records shall be provided to persons with disabilities in accordance with the Americans with Disabilities Act upon request of the applicant.

9.13 Records Amendments

9.13.1 Government records held by the Coalition may be amended or corrected as needed. Requests for amendments, corrections, or other changes shall be made in writing to the Coalition having custody of the records and setting forth, with specificity, the amendment or correction requested. When an amendment or correction of a

government record is made, only the amended or corrected record shall be retained, unless provided otherwise by the Act or other State or Federal law.

9.14 Penalties

9.14.1 Coalition employees who knowingly refuse to permit access to records in accordance with the Act and this Policy, who knowingly permit access to non-pubic records, or who knowingly, without authorization or legal authority, dispose of, alter, or remove records or allow other persons to do so in violation of the provisions of the Act, this Policy or other law or regulation may be subject to criminal prosecution and disciplinary action, including termination.

9.14.2 In accordance with the Act, neither the Coalition nor any of its officers or employees shall be liable for damages resulting from the release of a record where the requester presented evidence of authority to obtain the record, even if it may be subsequently determined that the requester had no such authority.

9.15 Records Officer

9.15.1 The Coalition Chief Administrative Officer shall be the Coalition Executive Director.

9.15.2 The Coalition Records Officer shall be the Coalition Clerk. The Records Officer shall oversee and coordinate records access, management and archives activities. The Records Officer shall make annual reports of records services activities to the Board.

9.16 Records Maintenance

9.16.1 Records maintenance procedures shall be developed to ensure that due care is taken to maintain and preserve Coalition records safely and accurately over the long term. The Records Officer shall be responsible for monitoring the application and use of technical processes in the creation, duplication and disposal of Coalition records. He/she shall monitor compliance with required standards of quality, permanence, and admissibility pertaining to the creation, use and maintenance of records.

9.16.2 All Coalition records shall remain the property of the Coalition unless federal or state legal authority provides otherwise. Property rights to Coalition records may not be permanently transferred from the Coalition to any private individual or entity, including those legally disposable obsolete Coalition records. This prohibition does not include the providing of copies of Coalition records produced for release or distribution under this chapter.

9.16.3 Custodians of any Coalition records shall, at the expiration of their terms of office, appointment or employment, deliver custody and control of all records kept or received by them to their successors, supervisors, or the Coalition Records Officer.

9.17 Series Classifications

9.17.1 [To be determined at later date by resolution.]

9.17.2

9.17.3 **4818-8130-4096, v. 1**

Large Infrastructure Set-Aside Fund

FY2019 Application

FY2019

Permanent Community Impact Fund Board

1385 S. State Street, 4th Floor
Salt Lake City, UT 84115

Office: 801-468-0043
Fax: 801-468-0211

WORKFORCE SERVICES
HOUSING & COMMUNITY DEVELOPMENT

PART ONE: RESPONSIBILITIES AND POLICIES

Applicant Responsibilities
The applicant is responsible for facilitating the coordination of all activities necessary for the implementation of the project. The applicant will:
Hold scheduled project meetings with Board staff and/or corresponding experts as needed.
Perform project close-out audit to ensure contractual compliance and issue close-out report.
Submit to Board all project deliverables and documentation pertinent to the project.
Comply with all Board project reporting requirements including but not limited to: 1. Status of project by task breakdown and percent complete (quarterly). • Changes if any in scope, schedule and/or budget. (specify) • Description of issues and probable resolutions • Summary of work completed to date • Projected completion schedule
2. Annual meeting with Board staff to review project and recipient finances.

Fund Policies
Fund allocation
Per Utah Administrative Code Rule R990-8-8 (2) The Purpose of this Fund is to allow the Board to participate and fund major transportation and other significant infrastructure studies and projects where the Board participation may exceed five million dollars ($5,000,000).
Projects financed in whole or in part by Fund grants must be owned by the applicant for a minimum of ten (10) years. In the event that the applicant terminates its ownership within ten (10) years applicant will repay the Fund for the full grant amount. Projects funded with loan funds must be owned and operated by the applicant for the term of the loan.
Loans made from the Fund must have a *maximum* maturity of THIRTY(30) years.
Projects must be on the one year CIB Capital Improvement List.
Applications must be **complete** at time of submission. Incomplete applications will be rejected and will not be considered by the Board.
Fund will not reimburse the applicant for costs incurred prior to written funding authorization from the Board.
Applicant must have and utilize an authorized procurement policy.

DRAFT

The Large Infrastructure Set Aside Fund (Fund) was created in Utah Administrative Code in 2015 and is managed by the Permanent Community Impact Fund Board (Board). The Fund is intended for use on major infrastructure projects that improve transportation infrastructure.

R990-8-8. MAJOR INFRASTRUCTURE SET ASIDE FUND.

A. Creation of Fund

1. There is hereby created within the Permanent Community Impact Fund the Major Infrastructure Set Aside Fund.

2. The Purpose of this Fund is to allow the Board to participate and fund major transportation and other significant infrastructure studies and projects where the Board participation may exceed five million dollars ($5,000,000).

B. Transfer of Monies to the Fund

1. At each funding meeting, after action is taken on all projects on the prioritization list, the Board shall consider whether to transfer any money in the Permanent Community Impact Fund to the Major Infrastructure Set Aside Fund. The Board may transfer such amounts as it deems appropriate, in its discretion, based on motion and a majority vote of the Board.

2. When money is transferred to the Major Infrastructure Set Aside Fund the Board shall identify whether the money being transferred is Bonus or Mineral Lease money. The status of the money as Bonus monies or Mineral Lease monies shall continue while the monies are in the Major Infrastructure Set Aside Fund and may only be granted or loaned in accordance with that status.

3. The Division shall maintain an accounting of the funds in the Major Infrastructure Set Aside Fund as bonus funds or mineral lease funds and shall separately identify the status of the money in the Major Infrastructure Set Aside Fund in its briefings to the Board.

C. Use of the Fund

1. Money in the Major Infrastructure Set Aside Fund may only be used to fund major transportation and other significant infrastructure studies and projects. These projects would include pipelines, roadways, rail lines, and other major infrastructure activities where the cost may exceed five million dollars ($5,000,000) and where the project is within the purposes for the creation and use of the Fund. The Board, on motion and majority vote, shall designate and allow the use of the money from the Fund, specifying whether the money comes from the Bonus or Mineral Lease monies in the Fund.

2. Repayment on any loans from the Major Infrastructure Set Aside Fund shall be credited to and placed in the Major Infrastructure Set Aside Fund. Payments on Bonus money loans shall maintain their status as Bonus monies. The Division shall maintain a separate accounting of all loan payments in the Major Infrastructure Set Aside Fund.

D. Reconversion of Monies from the Fund

1. The Board may, at any time on motion and majority vote, reconvert and transfer funds from the Major Infrastructure Set Aside Fund back to the general Permanent Community Impact Fund. The motion and action of the Board shall specify if the money being transferred back to the general Permanent Community Impact Fund is Bonus or Mineral Lease money, and that status of the money shall continue in the general Permanent Community Impact Fund.

PART THREE: GENERAL INFORMATION

Infrastructure Project Information	
Project Title:	Uinta Basin Railway Planning (Addendum to Original Application)
Project Location:	Duchesne & Uintah Counties, UT / Moffat, Rio Blanco, Garfield Counties, CO.
Est. Completion Date:	2023

Applicant Agency					
Federal ID	47-1899055				
Legal Name:	Seven County Infrastructure Coalition				
Mailing Address:	751 East 100 North #100				
City:	Price	County:	Carbon	Utah ZIP:	84501

*Contact Person (must be within applicant agency)			
Name:	**Mike McKee**	Title:	**Executive Director**
Phone:	**435-8236-5010**	Fax:	
Email:	**mmckee@7county.utah.gov**		

Project Staff					
***Presiding Official**					
Name:	**Jae Potter**	Title:	**Co-Chair**		
Phone:	**435.637.3273**	Fax:			
Email:	**Jae.potter@carbon.utah.gov**				
***Treasurer**					
Name:	**Smuin Rich & Marsing**	Title:	**Accountants**		
Phone:	**435-637-1203**	Fax:			
Email:	**srmr@emerytelcom.net**				
***Engineer/Architect**					
Name:	**Jones & DeMille Engineering**	Title:			
Mailing Address:	1535 South 100 West				
City:	**Richfield**	State:	**UT**	84701	
Phone:	**435-896-8266**	Fax:	**435-896-8268**		
Email:	**Brian@jonesanddemille.com**				
***Project Manager**					
Name:	**Mike McKee**	Title:	**Executive Director**		
Mailing Address:	751 East 100 North #100				
City:	**Price**	State:	**UT**	ZIP84501	
Phone:	**435-8236-5010**	Fax:			
Email:	**mmckee@7county.utah.gov**				
***Legal Counsel**					
Name:	**Eric Johnson**	Title:			
Mailing Address:	5995 South Redwood Rd.				
City:	**Salt Lake City**	State:	**UT**	ZIP	84123
Phone:	**801-261-3407**	Fax:	**801-261-3503**		
Email:	**eric@bcjlaw.net**				

Bond Counsel					
Name:	**Eric Johnson**	Title:			
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Financial Consultant					
Name:	**Lewis Young Robertson & Burningham**	Title:			
Mailing Address:	41 North Rio Grande St.# 101				
City:	**Salt Lake City**	State:	**UT**	ZIP	84101
Phone:	**801-596-0700**	Fax:			
Email:					

Feasibility Consultant					
Name:	**R.L. Banks & Associates, Inc.**	Title:			
Mailing Address:	2107 Wilson Boulevard, Ste. 750				
City:	**Arlington**	State:	**VA**	ZIP	22201
Phone:	**703-276-7522**	Fax:			
Email:					

FY2019

PART FOUR: FUND REQUEST & INFORMATION

Fund Request		
Loan: $	Maturity Date:	Terms
Grant $:28,400,000		

Long-Term Operation & Maintenance	
What entity will be responsible for long term maintenance Operation and Maintenance?	Coalition will own the corridor and contract with a Short-line rail operator for O&M.

Contract Risk Assessment	
What is the applicant credit risk?	**Not applicable**

Loan Security Debt Capacity	
Annual Revenue:	Debt capacity:

Applicant Debt $0

Project Eligibility		
Please select project category – please specify		
Major Infrastructure Type		
Pipeline		
Roadway		
Rail line	X	
Study / Planning		
Other (specify)		

Project Ownership or Interest	
Please explain ownership and specify the level of interest in the project to be funded	
X	Ownership (full)
	Ownership (partial)
	Projects financed in whole or in part by Fund grants must be owned by the applicant for a minimum of ten (10) years. In the event that the applicant terminates its ownership within ten (10) years applicant will repay the Fund for the full grant amount. Projects funded with loan funds must be owned and operated by the applicant for the term of the loan.

Public Outreach						
Public outreach in project area	Yes	X	No			
Public hearing held in project's immediate jurisdiction	Yes	X	No		Scheduled	

PART FIVE: PROJECT TERMS, CONTRACTS, AND ASSETS

The Permanent Community Impact Fund Board prefers shovel-ready projects. The project should have acquired and completed all necessary permits, studies, and contracts for a construction application prior to submission. *Commentary to be added below each question.*

Land Owner Agreement				
Has applicant acquired rights to all necessary property?	*Yes*		*No*	X

Right-of-Way				
Has applicant acquired all necessary rights-of-way & easements?	*Yes*		*No*	X

Permits				
Has applicant acquired all necessary permits?	*Yes*		*No*	X

Studies				
Has applicant completed all necessary studies?	*Yes*		*No*	X

Service/User Agreements (i.e. water systems, sewer systems etc.)				
Has applicant accommodated necessary service agreements or letters of intent with **users/customers?**	*Yes*		*No*	X
Has applicant signed all service agreements or letters of intent with **suppliers?**	*Yes*		*No*	X

Memorandum of Understanding with governments				
Has applicant accommodated all necessary MOUs with proper public entities?	*Yes*		*No*	X

Procurement Policy				
Applicant has a procurement policy	*Yes*	X	*No*	

FY2025

PART SIX: DESCRIPTION AND ATTACHMENTS

Please provide the following requested documents as attachments to the application. Clearly label each attachment properly. Applicants must meet **ALL** of the requirements listed below. Incomplete applications will be rejected.

1.	**Project Objective-** Please clearly describe the issue that the project will address; the work that will be accomplished by the applicant; the end-state of the project; and the public benefits that the project is intended to achieve. (complete below or state information attached)
	Information attached.
2.	**Project Background-** Please provide a high-level overview of the project and the applicant's interest in the project. (complete below or state information attached)
	Information attached.
3.	**Project Location-** Provide information to provide information related to the geographic scope of the project. Be specific and detailed. (complete below or state information attached)
	Information attached.
4.	**Description of Work-** Describe the primary phases, tasks, and steps necessary to complete the project. (complete below or state information attached)
	Information attached.
5.	**Project Ownership or Interest-** Provide relevant documents for ownership/interest terms and contracts for eligibility. (complete below or state information attached)
	Information attached.
6.	**Project Partners-** List other funding sources and partners in the project. *Describe their participation.* (complete below or state information attached)
	Information attached.
7.	**Project Benefits-** List the reasonable benefits of the project. (complete below or state information attached)
	Information attached.
8.	**Timeline-** Provide project timeline. (complete below or state information attached)
	Information attached.
9.	**Project Budget-** Provide project budget. (complete below or state information attached)
	Information attached.
10.	**Operating Budget-** Provide the estimated operating budget of the completed project (complete below or state information attached)
	Information attached.
11.	**Applicant Budget-** Provide the applicant budget for the most recent fiscal year (complete below or state information attached)
	Information attached.
12.	**Applicant Debt:** Provide a **complete listing** of applicant debt, organized by loan security. (complete below or state information attached) *Applicant must include:* Bond holder — Security Remaining principle balance — Annual payment Interest rate — Maturity Date
	None.
13.	**Procurement Policy-** Please provide copy of applicant procurement policy **and** evidence of compliance with said policy. *Include all RFPs, RFQs, relevant contracts, etc.*

14. **Studies-** Please provide copies of completed studies.
15. **Permits-** Please provide copies of acquired permits. *Include acquisition date and proof of acquisition.*
16. **Right-of-Way-** Please provide list of acquired ROW. *Include acquisition date and proof of acquisition.*
17. **Impact-** Please describe the local impact of the project on:
    - Community
    - Local/Regional Economy
    - Local Infrastructure
    - Environment
18. **Public Outreach-** Please provide evidence of applicant public outreach. *Include public hearing notice and minutes of said meeting.* (please attach)

* PRESIDING OFFICIAL SIGNATURE *

I, Michael McKee, the Executive Director

(typed name) *(typed title)*

Of The Seven County Infrastructure Coalition

The Seven County Infrastructure Coalition **does hereby certify the information presented in this application is accurate and correct to the best of my knowledge and this application has been authorized by the applicant agency**

Michael J McKee — *(signature)*

Sept 6, 2018 — *(date)*

FY2019

Attachment A: Project Description

Seven County Infrastructure Coalition

Uinta Basin Rail Line Planning

Addendum to Project Description

Background

The Uinta Basin is rich in mineral resources, producing crude oil, natural gas, phosphate, and gilsonite, along with many other resources. This production requires a network of transportation options to export the products to areas outside of the Basin. Importing materials and supplies is also critical to the development of these resources. Currently, the primary method for exporting products is via truck transport along US-40 and US-191. This method of transportation limits the distance products can be shipped and remain economical to the producers in the Basin.

Uinta crude is stranded in the Basin, resulting in a loss (due to discounts created by limited access to outside markets) to oil producers of more than $3 billion over the last decade.

Despite generally desirable quality, the Basin's waxy, high pour point crude oil has always presented a transportation challenge in the absence of pipeline or rail options. Trucking is not an economic option for reaching alternate markets beyond Utah. The Salt Lake City refineries are the most sensible choice under present circumstances. The lack of competition for the product has resulted in a significant price discount compared to West Texas Intermediate (WTI), the U.S. onshore benchmark crude oil. The discount has averaged 17.5% over the past decade.

It is believed access to alternate markets will raise the price paid for the Uinta Basin waxy crude and allow significant increases in oil production. The winners would be the producers, royalty recipients (Ute Tribe, producing counties, CIB, SITLA, federal agencies, and fee landowners), and taxing authorities (producing counties, Utah, and Ute Tribe).

Benefits of Rail

The most recent planning and efforts to communicate with the major producers in the Basin have resulted in significant excitement about the possibilities that local rail would bring to the Basin, region, state, and nation. Primary considerations include:

- Industry participants indicate that oil production would double, at a minimum, if they had adequate access to markets outside of Utah.
- Access to multiple markets is the best market force to reduce or eliminate the loss/discount on the Uinta crude. Rail can access multiple markets with easily expandable capacity.
- In addition to allowing efficient transport of non-energy goods into and out of the Uinta Basin, rail can haul in frack sand and oil field tubular goods and haul out crude and refined lube oil feedstock.
- There are options to construct a railway that costs on the order of as little as $1 billion by going east rather than the $6 billion price tag required to go west. A recent HDR study conducted indicates that the rail could be cash-positive in its first year of operations.

- Lost taxes and royalties to public bodies over a decade are estimated by HDR to be $563 million over the past decade due to the Uinta crude discount relative to WTI.
- A study developed by the Utah Department of Transportation (UDOT) in 2013 determined that without additional transportation options, the Uinta Basin would potentially lose approximately $30 billion in economic opportunities over a 30-year period.
- Affected Colorado counties are supportive of the rail concept.

Prior Rail Planning

As referenced above, several planning projects have been completed over the past 20 years, each aimed at understanding the potential benefits, costs, and implications of constructing a rail facility into the Basin. The CIB participated in a study in the early 2000s to evaluate the options to alleviate the "Isolated Empire," also known as the Uinta Basin. Rail options were considered before the oil and gas production increased significantly.

The most recent studies include the 2014 UDOT Transportation Study that showed an estimated cost of $6 billion to construct a rail line to the southwest, through Indian Canyon, and tying into the rail network at Soldier Summit along Highway 6.

A 2016 study completed by HDR Engineering and Jones & DeMille Engineering showed that rail through Colorado would be profitable for all 20 years that were projected.

HDR Engineering completed an independent study for a primary energy company in the Basin. The study was finished in early 2018 and indicated a need for the railway and demonstrated that it could be completed with a return on investment.

Additionally, petroleum pipeline options have been investigated in detail. However, the pipeline concept is thought to be a break-even option under conservative conditions, assuming the common boom and bust cycle in the industry. There isn't enough projected revenue, at present, to attract private investment. However, a pipeline may become part of the suite of transportation options to move resources out of and into the Basin.

Project Support and Partners

The concept of a railway connecting the Uinta Basin to the national rail network has created significant excitement in the region, states, and nation. Several meetings have been held in Colorado in which the local leadership has expressed their excitement about an infrastructure project that could provide significant economic improvements and transportation enhancements. For example, the Associated Governments of Northwest Colorado, comprised of six Colorado counties, has been a strong partner in the development of the concept and evaluating the potential benefits to rural communities.

It is safe to say that key players in Utah who are aware of the project concept are fully supportive. The Coalition has had significant support and assistance from officials representing the State of Utah. Utah's local government leaders in Eastern Utah are thrilled about the concept and have expressed interest in assisting in any way possible. Energy producers, midstream companies, service companies, and refineries are anxious to be able to move more crude oil more efficiently. Agriculture and manufacturing entities have expressed their interest in such a facility.

Initial CIB Application

The Coalition submitted an application for this planning project on *February 1, 2018*. Coordination meetings were held with CIB leadership to review the strategies and approach for the rail planning project. As a result, CIB leadership assigned a planner to work with the Coalition staff to review the scope of the project and provide additional information.

Communication with CIB staff has been ongoing for several months. This Addendum to the initial application should clarify the request.

Pre-Feasibility Study Conclusions (RL Banks & Associates)

In an effort to allow the Coalition to understand the opportunities and risks of such a project and to answer important questions from funding partners, the Coalition pursued a second initial financial feasibility study that would evaluate the many elements required to determine a potential return on investment. The "Pre-Feasibility Study of a Prospective Railroad Connecting the Uinta Basin to the National Rail Network" was completed by RL Banks & Associates and resulted in the following conclusions:

1. The RL Banks report believes that rail is viable as a government project, but that with a lower return on investment it would have difficulty attracting private investment.
2. Rail to Rifle from Myton/Leland Bench plus transloading is roughly estimated to cost $1.5 Billion. Refining the routes selection may reduce the cost.
3. Rail to Rifle is the preferred route because it allows shipping on two major rail carriers, Union Pacific and Burlington Northern, once it reaches the rail mainline along Interstate 70.
4. The RL Banks report believes that rail would facilitate increased oil production in the Uinta Basin increasing from approximately 80,000-85,000 bopd to 225,000 to 350,000 Bopd (Bopd = barrels of oil per day) [current production for Salt Lake City (SLC) refineries is capped near 80,000-85,000 Bopd]
5. Rail has been found to be viable in multiple studies.
6. This RL Banks report reaffirms the viability of rail, seconding the 2016 HDR study on rail.
7. The cost to transport oil by unit trains to the gulf coast would be 20% to 25% less than what was previously believed.
8. Generally, Uinta Waxy Crude should sell at approximately West Texas Intermediate (WTI) prices less the price of transportation to gulf coast refineries.
9. It is believed the discount in SLC on Uinta Waxy Crude would be reduced to the difference between transporting to SLC vs. transporting to the Gulf Coast refineries and is approximately $5 per barrel depending on location of Gulf Coast refinery. The discount has been as high as $20 per barrel during the last 5 years.
10. Rail into the Uinta Basin would lower the cost of transporting oil to Gulf Coast refineries more than trucking oil to a rail head or transporting oil to rail via an oil pipeline.

11. At higher ranges of oil production (350,000 Bopd), transporting oil to SLC is cost competitive with trucking and could get oil trucks off highway.

12. It is much easier to scale rail to transport more oil than it is for an oil pipeline.

13. Rail carries products into and out of the Basin, and can haul all types of commodities, like Gilsonite, Soda, Fly Ash, Frac Sands, tubular goods, etc. It would lower the overall cost of producing oil and increase the price of crude oil produced in the Uinta Basin.

14. Rail would have a greater economic impact on the Uinta Basin and the State of Utah than other transportation alternatives. This has been confirmed in several studies on rail since 2001.

The Next Steps – Railway Planning

The concept of the Uinta Basin Rail should be pursued aggressively. Studies conducted in recent years have identified the need for a rail line from northeastern Utah into northwestern Colorado. The proposed line would connect to an existing rail in Colorado, which would then tie into the national rail network, allowing producers in the Basin to access markets throughout North America. A rail facility would overcome the transportation-based limitations referenced above.

The Coalition is seeking funding to complete pre-construction planning, design, regulatory approval process, and grant and loan procurement for such a rail line. Completion of these important steps are required in order for the Coalition to quality for the available construction grants.

Environmental and Regulatory Permitting

The Surface Transportation Board (STB) would oversee the NEPA and regulatory permitting of the proposed rail line due to its congressionally-delegated authority over railway facilities.

1. Complete the environmental review process, which is anticipated to include preparation of an Environmental Impact Statement (EIS), to support a decision by the STB.
2. Acquire the environmental, land use, and construction permits required for the construction, operation, and maintenance of the railway.
3. Implementation of the NEPA process, including public outreach, for environmental review of the proposed railway, including preferred and alternate routes.
4. Preparation of an appropriate environmental review document, anticipated to be an Environmental Impact Statement, through the NEPA process and in accordance with STB policy and regulation. This would include the base-line studies to support the environmental analysis.
5. Preparation, submittal, and acquisition of environmental, land use, and construction permit applications required to construct, operate, and maintain the railway.

Rail Line Engineering

The proposed railway would require extensive planning and engineering. The primary goals of the engineering efforts are as follows:

1. Obtain from the U.S. Surface Transportation Board (STB) a license to construct and operate a common-carrier railroad.
2. Perform engineering of the railway including main line and side tracks, terminals, earthwork, tunnels, bridges and drainage structures, roadway crossings and grade-separations, train control and communications systems, and maintenance and operations facilities.

3. Prepare the construction contractor procurement plan and construction bid package.
4. Prepare the real-estate acquisition plan and upon obtainment of construction financing for the railway perform real-estate acquisition services, but not including real-estate purchase costs
5. Develop the railway's operating and maintenance plan.
6. Prepare the operation and maintenance contractor procurement plan and bid package.
7. Develop cost estimates for construction inclusive of professional services, legal, and program management, and cost estimates for operation and maintenance of the railway
8. Perform legal services related to the STB license, construction plan and procurement, environmental clearance and permitting, operation and maintenance plan and procurement, and financing of construction and working capital.
9. Develop commercial contracts for shipments on the railway with shippers and connecting railroad companies, and develop revenue and income forecasts.
10. Program management services to oversee the execution and coordination of all technical elements.
11. Preparation of an operating and maintenance plan.
12. Preparation of a complete bid package for the operations and maintenance of the railway by a contractor, including financial and commercial requirements, specifications, terms and conditions, and selection of a contractor.
13. Development of a long-term management plan

Revenue Analyses

Revenue plays a major role in determining whether to continue forward with the implementation of a project. Capital, operating, and maintenance costs must be compared to the revenue that could be generated by the railway. Primary tasks include:

1. Development and negotiation of transportation services contracts with shippers and connecting railways for freight transportation services.
2. Development of a financing plan and financial proformas and other documents necessary to support obtaining financing for the railway's construction, operation, and maintenance.
3. Preparation of freight traffic, revenue, and income forecasts, and preparation of anticipated operating and maintenance cost forecasts.
4. Freight Traffic Market Study
    a. Macro-economic analysis of the macro-economic factors that are likely to affect the future transportation demand and the economic and financial viability of the project.
    b. Freight traffic demand would be evaluated over short and long-term horizons
    c. Existing and future freight traffic supplies will be evaluated
5. Development of a financing plan that ensures the long-term viability and risk management of the railway

Right-of-Way Planning

The right-of-way planning process is critical. It can have significant implications on all other aspects of the project delivery process. Primary tasks include:

1. Identify property ownership and management agencies along the railway route
2. Professional services required to prepare instruments and legal documents

3. A real-estate acquisition plan, and after financing of the railway the necessary real-estate acquisition services (but not actual cost of real estate).
4. Secure options or other agreements required to secure right-of-way with long-term financing

Grant Procurement

Upon completion of the above tasks, potential funding partners and agencies will be identified to find the best method for funding the construction of the rail line. Significant effort will be required to plan and procure the funding packages.

These steps set the stage for the following funding plan:

1. The Seven County Infrastructure Coalition is eligible for Federal funding (RRIF) for 100% of the cost of construction at Federal borrowing rates, which are currently less than 3%. The Coalition can qualify for a 50% reduction of the interest rate because the project is located in a rural region.
2. Transportation Infrastructure Finance & Innovation Act (TIFIA) funds will be explored.
3. Railroad Rehabilitation & Improvement Financing (RRIF) can fund all 100% cost of construction, but with a estimated Credit Risk Premium, which for planning purposes is estimated to be 5%.
4. The federal funding sources are flush with available funds for large rail projects.
5. If the process to obtain federal funding for rail would delay construction, then the Coalition intends to seek traditional underwriting to initially fund rail construction and after construction, it would anticipate obtaining a RRIF loan to refund the market loan for construction.
6. It is assumed the Credit Risk Premium will be approximately $75 million.
7. Cost of construction estimated between $1.2-1.5 billion, depending on length and final routing.
8. The Coalition will seek grants, such as CIB grants, and appropriations, including legislative appropriations, to fund the Credit Risk premium and provide a reserve fund needed to qualify for financing.

At present, short-line rail operator is intended to be selected to operate and maintain the railway, with potential to participate as an equity investor.

Legal Services

Legal services will be a primary element of the planning effort. There are several complex issues to consider and resolve as the project is delivered.

1. Legal assistance for environmental clearance
2. Application for RRIF Loan and grants, including meetings in Washington DC
3. Direction and review for rail regulatory attorneys, currently, Venable LLP.
4. Rail regulatory attorneys will help with environmental and STB common-carrier license and provide legal guidance on developing plans of operation, etc.
5. Resolution of ROW challenges, including environmental and regulatory
6. Proposals for State and Federal funds, including Colorado participation
7. Coordinate with funding underwriters
8. RFQs and negotiate contracts with shortline carriers

9. Negotiate contracts with Class One carriers
10. Negotiate LOIs and contracts with potential shippers
11. RFQ and negotiate contracts regarding transloading operations
12. Negotiate contracts/ROW with Ute Indian Tribe
13. Negotiate or coordinate with potential refineries to take Uinta Basin Waxy Crude (key to increasing shipping)
14. Coordinate with State and Federal Government officials and legal offices.

Public Involvement

Public involvement is one of the most important elements of the project. The Coalition intends to work carefully within the public arena to proactively distribute facts and promptly address rumors and non-factual information.

1. Development of a strategic communications plan including public and tribal outreach.
2. Perform strategic communications to inform the public, tribes, elected officials, and the media, to engage the public and tribes and perform public outreach, including public meetings, websites, and solicitation and review of public comment.
3. Support regulatory processes

Administrative & Program Management

This is a complex project, requiring significant effort to proactively manage the planning, engineering, surveys, multiple consultants and scientists, public involvement, financial evaluations, funding procurement, and many other tasks. Administrative efforts will be required to manage the process so that it fits into the strategic goals of the Coalition. Program management services will be required to navigate the technical tasks mentioned above.

Milestones – Key Decision Points

The Coalition has evaluated the project delivery process to identify the decision points that will trigger go/no-go decisions. These key points and supporting factors to be considered are summarized as follows:

1. *Milestone 1 – Completion of Conceptual Engineering, Environmental Baseline, and Operating Plan (Approximate budget of $6,500,000)*
    a. Conceptual operating plan and operating basis of engineering design rejected by prospective shippers and/or connecting railroads as uneconomic or impractical.
    b. Proposed connection location with Class I railroad(s) rejected as uneconomic or impractical.
    c. Environmental clearance lead agency expresses substantial doubts about reasonableness of purpose and need.
    d. Conceptual CAPEX cost estimates significantly above anticipated cost and/or failure to meet commercial objectives.
    e. Environmental initial screening reveals fatal flaws that are unlikely to achieve mitigation.
    f. Right-of-way across private lands cannot be optioned or appears that condemnation would have successful court challenge by landowner, and/or federal or state agency or tribe owning needed land indicates it will refuse transfer or easement.
    g. It is assumed that the environmental and NEPA processes will be initiated immediately following funding approval.

2. *Milestone 2 – Completion of Preliminary Engineering and NEPA (An additional $8,500,000 after completion of Milestone 1)*
    a. Preliminary cost estimates too high.
    b. Satisfactory commercial agreements with connecting Class I railroads cannot be reached.
    c. Operator bids too high or would require subsidy.
    d. Draft EIS comments or cooperating agency comment indicate that project would not achieve environmental clearance or would not survive court challenge.
    e. Final EIS rejected by lead agency.
    f. Court challenge to Final EIS that appears to have significant chance of success.
    g. STB does not issue construction license (Certificate of Public Need and Convenience).
3. *Milestone 3 – Completion of Final Design and Bid Package Prep (An additional $5,500,000 after completion of Milestone 2)*
    a. Construction financing cannot be obtained.
    b. Construction bids significantly above estimates.

Of course, an extreme change in commercial, market, or economic conditions that render business plans invalid, or indications of excessive CAPEX or OPEX, could create a key decision point that may affect the progress of the project.

Schedule

Based on technical analysis and discussions with several industry professionals, it is believed that the planning, regulatory, and design processes could be completed in less than 3 years. Construction would take a minimum of two seasons. The bottom line is that this railway could be operational in 5 years – by the end of 2023.

Costs

The level of effort required to address all preconstruction activities for a long railroad spur is significant. The typical cash outlay for similar rail projects is on the order of $30M. The estimated costs are as follows:

Category	Budget Amount
Environmental & Regulatory Authorization	$8,200,000
Rail Line Engineering	$11,200,000
Revenue Analyses	$1,100,000
Right-of-Way Planning	$1,500,000
Grant and Appropriation Procurement	$800,000
Legal Services	$2,500,000
Public Involvement	$1,000,000
Administrative & Program Management	$1,600,000
TOTAL	**$27,900,000**

Primary Risks to Budget and Schedule

There are a few keys areas that have the highest likelihood to negatively affect the budget. These risks are summarized below:

Environmental

The STB requires the project sponsor to pay for the services of a 3rd party environmental contractor. However, the level of effort and overall efficiency of the process is not controlled by the project sponsor. Mitigation of this cost risk is making special efforts to define the project up-front and to eliminate obvious pitfalls that can add effort to the process.

Right-of-Way Letters of Intent

As with any major infrastructure project, 90-95% of the property owners will work with the project sponsor. There may be a few property owners who are concerned enough to significantly increase the costs of these negotiations. Alignment adjustments call have significant impacts on the design and construction costs.

Public Involvement

Large projects always create excitement as well as concern. Proactive public involvement will be key to reducing cost and schedule risks.

Geotechnical Analyses

Geotechnical engineering investigations are required to understand the soil structure, strength, and design parameters. Complex analyses and investigations may be required, depending on what is discovered during the initial research and investigations.

Cash Flow/Phasing of Funding

Due to the size of the project budget request, the Coalition desires to coordinate closely with the CIB to phase the cash flow over a two-year period. It is recommended that $15,000,000 be budgeted in Year 1 with the remainder coming in Year 2.

As outlined in the Milestones section, there will be key decision points along the way that may affect the cash flow requirements. Coalition leadership and staff is committed to working closely with CIB staff to navigate the cash flow demands in a concerted manner.

Additional Requested Information

The Large Infrastructure Set-Aside Fund application requests information in several categories. Most of these topics have been addressed in the forgoing pages. The topics that have not been addressed above will be discussed below:

Property Ownership

The railway corridor options include a broad mix of private, state, federal, and tribal lands. The planning effort will further quantify the right-of-way needs and result in an acquisition plan.

Overall Schedule

The Coalition is aware that there is significant interest in moving the project forward as efficiently as possible to begin positively impacting the quality of life in the Basin. There are several risks to the

schedule but completing construction within five years is reasonable based on conversations with several political and regulatory personnel.

Significant milestones and the associated target dates follow:

Schedule Milestone	Completion Date
Begin Planning Project	November 15, 2018
Conceptual Engineering, Environmental Baseline, Operating Plan *(Milestone 1)*	November 1, 2019
Completion of NEPA, Preliminary Engineering *(Milestone 2)*	October 1, 2020
Completion of Final Design and Bid Package Prep *(Milestone 3)*	April 1, 2021
Select Contractor and Begin Construction	June 1, 2021
First Train	November 1, 2023

Operating Budget

The operating budget will be calculated and confirmed as part of the planning project.

Applicant Debt

The Coalition has no debt.

Procurement Policies

The Coalition's procurement policy is attached.

Permits

The Coalition is not required to obtain permits for a planning project.

Impacts

The planning project would identify and evaluate the impacts, both positive and negative.

Request to Suspend Rules and Fund Immediately

The schedule for the rail planning project is urgent. The initial CIB application was submitted on February 1, 2018. CIB and Coalition staff have been coordinating closely during the past several months to ensure that any significant questions have been answered and that there is a clear path forward. Additionally, the project needs to be approved and built as soon as possible to capitalize on current positive momentum and support. Several of the elements that will be addressed by the planning project are on the "critical path" schedule, including the environmental approvals, STB permitting, right-of-way planning, and funding procurement. The sooner the project is started, the sooner the significant benefits will be realized.

The Coalition respectfully requests that the rules be suspended and that the project be funded immediately.

Attachment B: Proc re ent Po ic

6 PURCHASING

6.1 Scope

6.1.1 This chapter shall, except where otherwise noted, govern the acquisition of real or personal property, supplies or services, and disposal or property, whether real or personal, by the Coalition.

6.1.2 No purchase shall be made and no encumbrances shall be incurred for the benefit of the Coalition except as provided in this Chapter.

6.1.3 No purchase shall be made and no encumbrance shall be incurred unless funds sufficient to cover the purchase or encumbrance have been budgeted and are available within the approved budget or unless the purchase or encumbrance is approved by the Board by a vote at a regular Board meeting.

6.2 Chief Procurement Officer

6.2.1 Designation: The Executive Director shall act as and is herein designated to be the Chief Procurement Officer (CPO) of the Coalition with Board approval.

6.2.2 The Executive Director is hereby the authorized officer charged with the responsibility of staying within the budget and authorizing no expenditures in excess of said budget.

6.3 Purchasing and Contracting Procedures

6.3.1 A purchase of goods and services for greater than $5,000.00 requires the solicitation of price quotations from enough prospective vendors or suppliers to reasonably ensure that the Coalition received the best price. Such quotations in excess or $5,000.00 shall be in writing.

6.3.2 Whenever the total service of a contract or purchase exceeds $10,000 the contract shall be awarded through competitive bidding or proposal process.

6.3.3 Funds designated for the purchase of goods or services under a particular budget line item may not be used for the purchase of goods or services under a different budget line item without the prior approval of the CPO.

6.3.4 All purchases shall be reported to the Board for review at the next regular Board meeting.

6.3.5 Bond Construction Fund and Other Capital Fund Expenditures:

6.3.5.1 Projects shall be submitted to the Board for authorization of funding.

6.3.5.2 Construction Change Orders of 5% or less or less than $100,000, which ever is less, may be approved by the CPO and submitted to the Board for review at its next regular Board meeting.

6.3.5.3 Construction Change Orders exceeding 5% or more than $100,000, whichever is less, shall be submitted to the Board for approval.

6.3.5.4 Upon completion of each project, a final summary of costs shall be submitted to the Board for review.

6.3.6 Other Expenditures or Fund Transfers: All other expenditures or fund transfers shall be submitted to the Board for review.

6.3.7 The Board may waive the above requirements at such time as the public good justifies such action and shall not be prohibited by the terms of this section from awarding contracts or purchase orders without advertisement or other solicitation if the item to be procured is a brand-name type product that can be procured from only one source. No contract or purchase order in excess of $10,000.00 may be awarded for such brand-name type of product without the review of the Board.

6.3.8 An official copy of each awarded purchase order or contract, together with all necessary attachments, including assignments, shall be retained by the Executive Director in an appropriate file open to the public for such period of time after termination of the contract as an action against the Coalition might ensue under applicable statutes of limitations. After such period of time, purchase orders, contracts and attachments may be destroyed by the direction of the Executive Director.

6.3.9 Any contractor or vendor that has a familial relation with any Boardmember, officer or employee of the Coalition or of a Member County of grandparent, parent, child, grandchild, aunt, uncle, or first cousin shall declare such relationship in writing to the Board. The Board shall avoid procurement, contracts and business relationships with such family relations.

6.4 Emergency Procurements

6.4.1 Notwithstanding any of the provisions of these rules and regulations, when there exists a threat to public health, welfare, or safety under emergency conditions, the CPO may make or authorize others to make emergency procurements; provided that emergency procurements shall be made with as much competition as practicable under the circumstances.

6.4.2 A written determination of the basis for the emergency and the selection of the particular contractor shall be included in the contract file.

6.5 Exceptions to Competitive Bidding

6.5.1 Contracts which by their nature are not adapted to award by competitive bidding, such as contracts for the services of individuals possessing a high degree of professional skill, where the ability of the fitness of the individual plays an important part, shall not require competitive bids.

6.5.2 Products for services currently defined and contracted for open purchase by the State of Utah shall not require competitive bids.

Attachment C: Public tre c

SEVEN COUNTY INFRASTRUCTURE COALITION

SEVEN COUNTY INFRASTRUCTURE COALITION
MEETING MINUTES
January 12, 2018 at 10:00 a.m.
751 E. 100 N., Price, Utah
(435) 738-1144

Present: Phil Lyman, Jae Potter, Jack Lytle, Ken Burdick, Brad Horrocks, Lynn Sitterud.
Also in attendance - Mike McKee, Brian Barton, Seth Oveson, Eric Johnson.
Absent: None.
Attended telephonically: None.

1. Welcome/Pledge of Allegiance (Jae Potter)
   All Present

2. Meeting Minutes of December 2017 meeting (Jae Potter)

   Motion to approve by Commissioner Horrocks, seconded by Commissioner Burdick. Unanimously approved 7-0.

3. Public Comment (Jae Potter)
   No Comment

4. Finance Director Report and approval of Expenses (Seth Oveson)
   The following invoices were presented for approval.

San Juan Record	$229.60
UBS Media	$1,675.50
Richfield Reaper	$765.00
Sun Advocate	$1,146.00
Emery County Progress	$780.00
Hatch, James and Dodge	$1,830.00
Utah Counties Indemnity Pool	$6,383.00
ETJ Law Inc.	$114,525.71
Executive Director Reimbursement	$130.38

Marc Eckels	$9,282.84
Civco Engineering	$44,828.77
Carbon County	$60.00

Change in CIB personnel projects but other than I-70 project everything is up to date.

Motion to approve by Commissioner Lytle, seconded by Commissioner Burdick. Unanimously approved 7-0

5. Resolution approving amendment to UCIP Contract (Seth Oveson)

Motion to approve by Commissioner Horrocks, seconded by Commissioner May. Unanimously approved 7-0

6. Selection of new Finance Director (Mike Mckee)

Seth Oveson fee - $1,250 per month. Jeremy Redd fee - $2,166 per month. Seth Oveson was selected to continue as the Finance Director/Treasurer.

Motion to approve by Commissioner Horrocks, seconded by Commissioner Lytle. Unanimously approved 7-0

7. Selection of Municipal Advisor (Mike Mckee)

There were four respondents, Blue Rose Capital, which is a national advisor. In state respondents were Zions Public Finance, Lewis Young Robertson & Burningham, and EFG, Inc headed by Cody Deeter. Mike Mckee recommended Lewis Young (LYRB). Commissioner Horrocks said he has had good experiences with Zions only but would follow other's recommendations. Commissioner May also has experience with Zions only. Commissioner Lyman - EFG has been good and others cost much more. Mr. Johnson said this selection is not exclusive and the Coalition may use other advisors moving forward, in addition to the advisor selected today. Commissioner Potter said that Carbon County has had experiences with Lewis Young and always good and responsive. Seth Oveson indicated that Zions cannot purchase bonds and also be the Municipal Advisor. Lyman asked about reputation of in-state respondents. Mr. Johnson responded that Zions and Lewis Young are both highly regarded. Zions was selected as Municipal Advisor.

Motion to approve by Commissioner Burdick, seconded by Commissioner May. Unanimously approved 7-0

8. Ratification of Trails Study selection (Mike Mckee)

Three teams responded, Sunrise/Civco, and Horrocks from Utah, and DHM Design from Colorado. Mr. McKee said that all respondents were outstanding but that the Sunrise/Civco team was the unanimous choice of the selection committee, which consisted of Mr. McKee, Commissioner Horrocks and Commissioner Lytle.

Motion to approve selection of Sunrise/Civco Engineering by Commissioner Lyman, seconded by Commissioner Horrocks. Unanimously approved 7-0

9. Report on Daggett County & San Juan County Broadband (UEN)

Jeff Egly with UEN reported on Daggett County Broadband - Really encountered challenges at FCC. Thanks to the Coalition and Mike McKee for their work at the Utah delegation in Washington D.C. UEN filed an appeal of the original FCC denial. Between Christmas and New Year's UEN received word that the Daggett project was approved. Approximately 70 miles of Broadband, including Dutch John and Manila will be involved. Letter of gratitude from Dr. Ray Timothy of UEN was presented.

San Juan Broadband - First Phase goes to Montezuma Creek at Emery Telcom. Second Phase to Navajo Mountain. Gathering match dollars. Working with key partners. Commissioner Lytle thanked UEN for their efforts.

McKee - We visited with CIB staff about funding for San Juan project.

10. Public Hearing on CIB rail funding application (Eric Johnson)

McKee and Johnson presented a power point overview of the limited transportation in the Uinta Basin and its impact on oil prices for waxy crude, resulting in more than $500 million in lost taxes and royalties over the last decade alone. This loss compared the posted prices for Uinta waxy crude to the posted prices for West Texas Intermediate crude. The loss to oil producers in Utah exceeded $3Billion. The Coalition has considered an oil pipeline as a solution. However, Mr. McKee has meet with the largest oil producers in the Uinta Basin and also Ute Indian Tribe representatives and they all expressed interest in rail as a superior transportation solution. After the presentation, the public hearing was opened at 11:29 a.m.

Motion to enter Public Hearing by Commissioner Lytle, seconded by Commissioner Lyman. Unanimously approved 7-0

No comments from public.

Motion to exit Public Hearing at 11:30 a.m. by Commissioner Lytle, seconded by Commissioner Lyman. Unanimously approved 7-0

11. Resolution on CIB Rail funding application (Eric Johnson)

Mr. Johnson reported that a rail regulatory attorney in Washington DC indicated that it would take three to five years to obtain regulatory approval for rail. Three years is an aggressive schedule. Potter asked if this project is on the regular capital improvement list. McKee answered yes. Potter asked about the impact on oil pipeline.

Marc Eckels: We have learned that the time horizon for rail is shorter than expected and that oil operators are more interested in rail. Also, other products like hay cubes can be shipped. Rail has more flexible capacity than oil pipeline. Upgrader or Specialty Oil Refinery will be added value to oil if constructed. Cushing, Oklahoma can take Uintah crude without capacity constraint. Lytle asked if there is capacity elsewhere. Eckels answered yes. He also said that the Specialty Oil Refinery needs rail. May - if a company can make rail viable the benefit to everything else is huge. Craig, Colorado as a rail access point could be huge for Gilsonite which has great opportunities. Lytle asked whether Moffat is getting DOLA money like our CIB? Moffat has committed $25,000 and is seeking DOLA money to match.

Motion to approve CIB application for $10,000,000 for rail by Commissioner Lytle, seconded by Commissioner Lyman. Unanimously approved 7-0

12. Closed (executive) Session pursuant to §52-4-205 (Eric Johnson)

No closed session.

13. Executive Director Report (Mike McKee)

Potential Projects: Report Eastern Utah Regional Road Connection presentation in Moab with BLM. CIVCO team was very well prepared and turned out outstanding. Community responsive and was encouraging.

There have been meetings with Tribe representatives and industry leaders which are encouraging. Potter - Question on Thorium. Mckee - Southern Nuclear hasn't provided as much as hoped. May wants Thorium to stay on the list. Johnson - Alpha Tech and Utah Thorium have both approached the Coalition. Utah Thorium may be ready to present to Coalition to in February.

Broadband: Lytle - on Broadband in San Juan and wants Coalition to proceed helping in San Juan.

14. Monthly Infrastructure Report/Study Update (Jones & DeMille)

    Pipeline summary is being prepared. Ridge road being evaluated. McKee mentioned it to CIB staff. Hunter power plant remains a possible project but no significant work this past month.

15. CIB Contract amendment approval (Mike McKee)

    Motion to approve extension of contract with CIB on $5,000,000 grant by Commissioner Lyman, seconded by Commissioner Horrocks. Unanimously approved 7-0

16. Motion to adjourn (Jae Potter)

    Motion to adjourn by Commissioner Lyman. Meeting closed by acclimation.

Motion to approve meeting minutes by Commissioner Lytle, seconded by Commissioner Herrocks.

SEVEN COUNTY INFRASTRUCTURE COALITION VOTING:

Carbon	Board Member	Yea ✓	No ___
Daggett	Board Member	Yea ✓	No ___
Duchesne	Board Member	Yea ✓	No ___
Emery	Board Member	Yea ✓	No ___
San Juan	Board Member	Yea ✓	No ___
Sevier	Board Member	Yea ✓	No ___
Uintah	Board Member	Yea ✓	No ___

Co-Chair Phil Lyman

Co-Chair Jae Potter

(COALITION SEAL)

ATTEST:

Eric Johnson

SEVEN COUNTY INFRASTRUCTURE COALITION

SEVEN COUNTY INFRASTRUCTURE COALITION
MEETING MINUTES
February 9, 2018 at 10:00 a.m.
1385 S. State Street, Salt Lake City, UT 84115
(435) 636-3214

Present: Phil Lyman, Jae Potter, Jack Lytle, Ken Burdick, Ken May, Brad Horrocks, Lynn Sitterud.
Also in attendance - Mike McKee, Brian Barton, Seth Oveson, Eric Johnson.
Absent: None.
Attended telephonically: None.

1. Welcome (Phil Lyman)
   All Present

2. Meeting Minutes of January 13, 2018 meeting (Phil Lyman)

   Motion to approve January 13, 2018 minutes by Commissioner May, seconded by Commissioner Horrocks. Unanimously approved 7-0.

3. Public Comment (Phil Lyman)

   Pam Juliano introduced Randy Parker. Randy Parker, Rural Development Director for Utah USDA, he invited everyone to meet and familiarize themselves with USDA and its programs that provide support the rural communities.

4. Finance Director Report and approval of Expenses (Seth Oveson)
   The following invoices were presented for approval.

Vendor	Invoice #	Amount	Description
ETJ Law Inc	1301	$2,250.00	Legal I-70 Extension
ETJ Law In	1300	$812.50	Legal Pipeline Project

ETJ Law Inc	1295	$750.00	Legal I-70 Extension
ETJ Law Inc	1294	$4,875.00	Legal Pipeline Project
ETJ Law Inc	1293	$18,670.00	Legal – not project specific
ETJ Law Inc	1299	$18,875.00	Legal – not project specific
Jones & DeMille Eng	0117620	$1,111.20	Transportation Corridor mgmt.
Jones & DeMille Eng	0117619	$2,555.30	Pipeline project
Jones & DeMille Eng	0117618	$1,821.10	Leland Bench Utilities
Jones & DeMille Eng	0117617	$18,699.74	Category 8 Planning
Jones & DeMille Eng	0117482	$180.00	Transportation Corridor mgmt.
Jones & DeMille Eng	0117483	$54,825.77	Upgrader Utility Project
Jones & DeMille Eng	0117484	$23,028.51	Category 8 Planning
Jones & DeMille Eng	0117485	$2,983.00	Pipeline Project
Jones & DeMille Eng	0117486	$6,667.50	Sevier County documentation & planning
CIVCO Engineering Inc	2018104	$90,266.34	I-70 Transportation Corridor Engineering
San Juan Record	153541	$21.00	Coalition meeting schedule notice
KNJ Consulting	1802	$2076.07	Pipeline Consultant
Mike McKee	Jan 2018	$309.21	Travel Reimbursement – Director
ETJ Law Inc	1331	$8,812.50	Legal – not project specific
ETJ Law Inc	1330	$4,125.00	Legal Pipeline project
ETJ Law Inc	1329	$21,576.96	Legal Rail-Uinta
Marc T. Eckels	SCIC 2-6-2018	$7,692.84	Pipeline Consultant

Hatch, James and Dodge	31312	$1, 581.11	Leland Bench Utilities

Motion to approve by Commissioner Lytle, seconded by Commissioner Horrocks. Unanimously approved 7-0.

5. Introduction of Municipal Advisor (Eric Johnson / Zions)
   Marcus Keller and Alex Buxton introduced themselves. Coming up to speed on Coalition projects. Zions team will attend meetings as invited. Zions team is excited to work with the Coalition and support as needed.

6. Public Hearing on CIB Rail funding application - $30Million (Eric Johnson)

   Jae Potter clarified this application for funding is a $30Million total, which includes the $10Million previously approved for application in the January 2018 meeting. This amends, and not rescinds, the previous CIB application.

   Motion to enter Public Hearing by Commissioner Horrocks, seconded by Commissioner Sitterud. Unanimously approved 7-0.

   No Public Comment

   Motion to exit Public Hearing by Commissioner Lytle, seconded by Commissioner Potter. Unanimously approved 7-0.

7. Resolution on CIB rail funding application for $30Million (Eric Johnson)

   Motion to approve by Commissioner Potter, seconded by Commissioner Burdick. Unanimously approved 7-0.

8. Presentation on Green River Natural Gas (Mike Mckee/McCandless)

   Mike McCandless was introduced by Mike Mckee. Mr. McCandless is the utility consultant to Green River. Green River City worked with Questar from 2004-2010. Since 2010 the City has been working on natural gas on its own. Sunrise is the engineering firm for this project. Phase 1 study is done. Phase 2 study is underway to get rights of way. The project distance is 16 miles to get gas to city and then a distribution system in city. EPA and CIB helped fund the study. EPA may be able to fund half of $7.5Million project. The city is interested in managing the natural gas distribution. The Coalition may be interested in the natural gas pipeline to the city. Looking at funding options. EPA process should be done by April.

9. Resolution to support Green River Natural Gas (Mike McKee)

   Motion to approve by Commissioner Horrocks, seconded by Commissioner May. Unanimously approved 7-0.

10. Presentation by Utah Thorium (Eric Johnson/Edouard Saget)

    Edouard Saget indicated that Utah Thorium is a combination of scientists and entrepreneurs working on a Molten Salt Reactor (Thorium).

    Dr. Sheldon Hansen (Scientist): A molten salt reactor cannot melt down like traditional nuclear reactors. Fukushima Japan (nuclear facility) is very interested in Dr. Hansen's inventions. Molten salt reactors have no carbon emissions. Plasma gasification for coal industry. CO2 is a by-product of a molten salt reactor/power plant.

    Commissioner May: Thorium energy has great potential for low cost power and in smaller generation units. Technology first developed in 1940's. Medical isotope potential. Thorium is fairly plentiful.

    Mike McKee: The other Thorium company is also Utah based.

11. Resolution creating Thorium subcommittee (Mike McKee)

    Sub-committee consisting of Executive Director Mike McKee, Commissioner Ken May, Commissioner Phil Lyman and Commissioner Lynn Sitterud.

    Motion to approve by Commissioner Lyman, seconded by Commissioner Sitterud. Unanimously approved 7-0.

12. Resolution approving RFQ on Rail pre-feasibility level engineering alignment and cost estimate (Mike McKee)

    HDR study from 2016/2017 outlined next steps. This RFQ is to pursue these next steps / options. The RFQ will be published in rail publications to connect with appropriate candidates in the Rail industry. The RFQ will also be provided to others that we know.

    Motion to approve by Commissioner Horrocks, seconded by Commissioner Burdick. Unanimously approved 7-0.

13. Resolution approving RFQ on waxy crude consultant (Mike McKee)

Marc Eckels has done a great job working with the Coalition on the oil pipeline. This RFQ is for a waxy crude consultant with experience with the Ute Tribe and technical data regarding waxy crude.

Motion to approve by Commissioner Horrocks, seconded by Commissioner Burdick. Unanimously approved 7-0.

14. Executive Director Report (Mike McKee)

Oil Pipeline: Met with Chevron. Chevron has removed heaters from the pipeline and has no interest in reactivating the heated pipeline.

Lube Oil Refinery: Met with Uintah Advantage. Uintah Advantage assigned rights of way to Coalition, and signed Master Agreement. Uintah Advantage's business model is to pay WTI prices on up to 40,000 Bopd. The goal is to be in production by first quarter 2021.

Resolution to approve LOI with Uintah Advantage.

Motion to approve by Commissioner Horrocks, seconded by Commissioner Burdick. Unanimously approved 7-0.

Other Utilities: Found 1,500 acre feet of water. Potential revenue project for the Coalition.

SR-88 to I-70: Troy Ostler, CIVCO Engineering, met with BLM and stake holders in Moab and San Juan & Grand Counties. Alignment to be finalized. Legislature approving and $3.5Milliion over two years to complete EIS is in process. This also puts this project on the State Roads priority list.

Broadband: Broadband in Daggett is a go and moving forward. Funding is approved. Will start this summer. Contract duration will need to be extended to get it all done.

Trails: Awaiting signatures from the CIB. Per Brian Barton, Jones and DeMille is creating a regional trails plan for all of the counties in the Coalition.

Update on Thorium Energy: The subcommittee will work more closely w/Alpha Tech.

Resolution to approve NDA with Alpha Tech.

Motion to approve by Commissioner Lytle, seconded by Commissioner May. Unanimously approved 7-0.

Other: Mike Thanked the CIB for everything.

15. Monthly Infrastructure Report/Study Update (Jones & DeMille)

Getting Zion's Bank up to speed on projects & existing financial tools. Ridge Road moving forward. Sevier County coming to a conclusion. Winding down petroleum pipeline. Dashboard sheet available to all commissioners. Teeing up next steps for projects. The Coalition board has access to the data via passwords provided by JDE.

16. Miscellaneous

The Coalition's March 9th meeting will also be held in Salt Lake City at this same location (CIB Building), 1385 S. State Street, Salt Lake City, UT 84115.

17. Closed (executive) Session pursuant to §52-4-205 (Eric Johnson)

(potential real estate acquisition, trade secret related to procurement, personnel competency)

Motion to enter closed session by Commissioner May, seconded by Commissioner Lytle. Unanimously approved 7-0.

Motion to leave closed session by Commissioner Lytle, seconded by Commissioner Horrocks. Unanimously approved 7-0.

18. Motion to adjourn (Phil Lyman)

Motion to adjourn by Commissioner Horrocks. Meeting closed by acclimation.

Motion to approve meeting minutes by Commissioner Burdick, seconded by Commissioner Horrocks.

SEVEN COUNTY INFRASTRUCTURE COALITION VOTING:

Carbon	Board Member	Yea ✓	No ___
Daggett	Board Member	Yea ___	No ___ absent
Duchesne	Board Member	Yea ✓	No ___
Emery	Board Member	Yea ✓	No ___
San Juan	Board Member	Yea ___	No ___ absent
Sevier	Board Member	Yea ✓	No ___
Uintah	Board Member	Yea ✓	No ___

ABSENT
Co-Chair Phil Lyman

Co-Chair Jae Potter

ATTEST:

Eric Johnson

(COALITION SEAL)

SEVEN COUNTY INFRASTRUCTURE COALITION

SEVEN COUNTY INFRASTRUCTURE COALITION
MEETING MINUTES
February 21, 2020 at 1:00 p.m.
Carbon County Commission Chambers
751 East 100 North, Price, UT
(435) 219-1362

Board Members Present: Casey Hopes (Carbon County), Jack Lytle (Daggett County), Greg Miles (Duchesne County), Lynn Sitterud (Emery County),Willie Grayeyes (San Juan County), Garth (Tooter) Ogden (Sevier County), and Brad Horrocks (Uintah County)
Also, in attendance: Mike McKee, Eric Johnson, Brian Barton, Mike Hawley, Doug Rasmussen, Kristi Sharp, Heather Hoyt, Andrew Browning, Melissa Cano, and Kevin Keller.
Attended telephonically:
Absent:
Others Present: Commissioner Bart Haslem, Commissioner Greg Todd, Troy Ostler, Ted Johnston, Stan Holmes, Ocean Patel, Roy Patel, Lee Stanhope, Jane Doe, Ingrid Griffee, Rae Batney, Ken Kraus, Deeda Seed, Joe Holdon, Chris Braynir, Larry Dead, Tracey Bushman, R. King, J. Schmidt, Cari Moore, Tess Carson. Brooke Larsen, Andrew Kurish, Diego Carroll, Ryan Beam, Jill Merritt, Cheryl Meier, Gaylen Stewart, Skip McDonnell, Alair Emory, Michele Pasker, Mack McDonald, Ken Kohler, Pegasus Blaise, Erwin McPherson, Jr., Jeff Cochran, James Dixon, Keith Heaton, Gayle Gardner, Pamela Sjostrom, Lindsay Beebe, Craig Provost, Monica Hilding, Garrett McMullin, Heather Dorrell, Jonny Vasic, Reed Page, Seth Common, Reed Allen, Bonnie Bowman, Kevin Leecaster, Darrell Fordham, Leroy Anderson, Ari Grace

1. **Welcome** (Brad Horrocks)

   Commissioner Horrocks welcomed all in attendance. The Pledge of Allegiance was recited.

2. **Public Comment** (Brad Horrocks)

   Darrell Fordham – Mr. Fordham stated that he represented himself and the Argyle Canyon Wilderness Preservation Alliance. He believes that Seven County's mission statement contradicts the role of government. The mission statement says, in part, it is to "plan infrastructure corridors, procure funding, permit, design, secure rights-of-way and own such facilities". He would propose that government's role is to do the people's business not to own and profit from projects that are paid for by the public's money and that compete with private industry. Millions of dollars of public money are being spent on projects like the Uinta Basin

Railway and Seep Ridge Road. These are projects that will benefit private fossil fuel energy companies. This is not the role of government. Rather than listening to the public and making decisions based on public comment, he proposes that the board makes deliberations in secret, behind closed doors, and perpetuates an adversarial relationship with the public, especially anyone who opposes these projects. He stated that they feel like legal counsel has been rude to them. They are not paid to be at these meetings. They had hoped that their voices and concerns might be taken seriously. When they are negatively impacted by these projects their only recourse is to use their own money to fight in court. He stated that Seven County gets to defend its case using public money. They feel like the truth has been withheld from the public and their concerns have been ignored. They feel like the Seven County Board should be ashamed.

Leroy Anderson – Mr. Anderson introduced himself as a retired Salt Lake City physician. He stated he is an advocate for clean air. His wife suffers from a chronic pulmonary condition. Her health deteriorates with poor air quality. He sees discussions being made that are going to increase the amount of traffic, in terms of semis, burning coal, and the amount of fracking statewide. He sees these decisions as impacting his wife's health and thousands of others with vulnerable health conditions. His is a plea for this board to consider clean air and health as they make the important decisions they are about to make.

Ari Grace – She began by thanking the board for allowing them to come and talk. She stated that she is 17 years old and a striker up at the Capitol every Friday for climate justice. Discussions about phasing out fossil fuels are widespread. It seems like here it is completely ignored. The science is clear that phasing out fossil fuels is essential to preventing a 1.5-degree Celsius additional warming. Fossil fuels have broken communities and are tearing them apart by increasing pollution, causing cancer, drying up rivers and other things. These are destroying communities around the globe. You cannot step over and talk over people in rural communities. The money you have control over should go to assist those negatively impacted by the transition to clean energy (like truck drivers, miners, etc.). We need infrastructure for change to be built around the needs and wants of those to be impacted. You thwart this progress when you continue to give money to the fossil fuel industry. The lives of future generations are being eaten away at. But she believes in our State. She believes they are making changes and getting better. A long-term climate plan has just been made which means if we are to honor it, no more money can be spent on the fossil fuel industry. The time for a just transition is now and this board has the means to make it happen. Thank you.

Stan Holmes – Mr. Holmes stated that he is a volunteer board member with the Utah Chapter of the Sierra Club. Sierra Club supports a livable future through reduced greenhouse gas emissions that are causing climate change. Fossil fuels, coal, oil and gas, are the primary culprits. They are enemies of a sustainable future. The Sierra Club supports a just transition for rural Utah communities depending on fossil fuels. They want to see a lifeline to a sustainable economy not another set of life support give-a-ways for companies like Wolverine Coal and the Uinta Basin Railway Project. They support initiatives like the Coal Country Strike Team and the Utah Road Map to provide pathways forward for rural Utah and for all of Utah. They oppose fossil fuel welfare subsidies that the SCIC and the CIB support directly or indirectly from their individual County Commissions to the SCIC to the CIB and to the Inland Port Authority. Specifically, they oppose the $53 million dollars set aside to help Wolverine Coal get more coal to the West Coast.

They oppose $30,000 for Sevier County's feasibility study that will likely favor Wolverine Coal. They oppose the $500,000 for a lawsuit to sue Richmond, California for protecting its citizens. They oppose the $28 million dollars for a new railroad to increase oil, gas and ozone production in the Uintah Basin and thousands more dollars pending before the legislature for new tax breaks for oil and gas mining. He would urge the Commissioners to take action as individuals and as County Commissioner to put Utah on a fresh track to a sustainable future. Thank you for this time.

3. **Natural Gas Presentation by Andrew Browning –** Executive Director McKee introduced Andrew Browning who had flown in from Colorado to address this board. He came to talk about the Western States Rural Natural Gas Initiative formed between the Colorado Energy Office, the Utah Governor's Office of Energy Development and the Ute Indian Tribe. They are working to analyze and get a better understanding of the Piceance and Uintah Basins and how they might fit into global gas markets. The report they have just produced identifies policy and how these might participate in supplying Asian markets which are trying to reduce coal and increase Liquid Natural Gas (LNG). The study was released in April of 2019. One need identified was to build an education platform for the public, policy makers and officials to better understand the potential role they can play in the use of Rockies Natural Gas to replace Asian coal, particularly in China and India. The plan laid out how to communicate these benefits and build a framework for Western States to advocate on these issues. The Colorado School of Mines has estimated Rocky Mountain gas at 437 trillion cubic feet. Currently, there are underutilized natural gas pipelines and processing capacities. There is the possibility to avoid the congested Panama Canal and transport gas through Coos Bay, Oregon which would allow transit to Tokyo in 9 days.

   The Rocky Mountain producers are at an advantage to supply these Asian markets as they look to phase out coal. They are working on the Jordan Cove Project which would take gas from the Rockies and Canadian Basins. They are looking to build a 220-mile Pacific Interconnector Pipeline to export 6 million tons of LNG a year. They have sent a delegation to Oregon to educate people about the project and they are working to get other states to join the coalition. They have recently added the State of Baja, Mexico and New Mexico. They are looking, also, at other export opportunities.

   Executive Director McKee asked Andrew Browning if he had said there were 437 trillion cubic feet of gas from the Rockies? Andrew confirmed that number. Executive Director McKee went on to say that the use of that much gas (to replace coal) would surely go a long way to clean up air globally. Andrew confirmed that thought and added that all of the efforts in the U S. to clean up emissions is dwarfed by the coal fired energy in China and India. He went on to say that they are adding 3 to 5% per year and are completely overwhelmed. LNG imports to replace coal would have a significant impact.

4. **Approval of January 17, 2020 Minutes**

   Motion to approve January 17, 2020 meeting minutes by Commissioner Lytle, seconded by Commissioner Ogden. Unanimously approved. 7-0-0 absent.

5. **Report on San Rafael Research Lab.**

Commissioner Sitterud began by stating that at the last meeting he had reported that the natural gas was in, hooked up, and they were waiting for the substation switch gear. The switch gear arrived and that part of the electrical is complete. Over the past couple of days, Rocky Mountain Power has been installing power poles and connecting the power to the buildings. After this week the electrical and gas will be 100% ready to go. The cooling tower has arrived and is installed. The earthquake upgrades that had to be done to the Molten Salt Lab are complete. They are just about ready to begin constructing the actual labs in the buildings.

6. **Report on the Satellite Transportation Hub.**

Commissioner Ogden reported that they are still in discussions with the Inland Port Authority Board about how these rural hubs might fit within the whole project. They are trying to create a plan that fits the whole state. There is recognition that these satellite hubs could help eliminate some additional traffic and air quality concerns for the Salt Lake City area. These satellite hubs would also help rural Utah counties to increase their economic base. So, at this point, everyone is still in discussion and planning.

7. **Report on the Uinta Basin Railway Project.**

Commissioner Miles reported that information was still being gathered and sent to the Surface Transportation Board for the draft EIS. Not a lot else to report at this time.

8. **Discussion and approval of the Phase 2 contract with CIVCO for the Eastern Utah Regional Connection Project.**

Executive Director McKee began by reminding everyone that CIVCO had performed the work on Phase 1 of the Eastern Utah Regional Connection Project which was funded by the legislature. They are now ready to move on to Phase 2, with CIVCO, and need to get the contract authorized. He went on to inform the Board that there were a couple of changes from the draft they reviewed. The total amount of the contract is the same, $3,200,000, but there is a little bit more added to the contingency. There was some legal work to be done on the draft MOU and that has been changed from $25,000 to $10,000. Then, under Task No. 3, where it talks about strategic communications, the contingency is changed from $200,000 to $475,000. Both CIVCO and Jones & DeMille are good with these changes.

Motion to adopt Resolution 2020-02A approving the Phase 2 contract with CIVCO with the understanding that the contingency can be used only after a recommendation from the Engineer of Record, and approved by the Executive Director, was made by Commissioner Lytle, seconded by Commissioner Ogden. Unanimously approved. 7-0-0 absent.

9. **Discussion and consideration for a contract with the Forest Service for cost recovery on the Uinta Basin Railway Project.**

Executive Director McKee began by stating that he had recently met with the Forest Service. As the board is aware there is a cost to federal agencies for work they do processing data for the environmental. Their costs must be recovered. The Forest Service has estimated their cost recovery to be around $166,491.88, although it should come in less than that. Today, the Executive Director is asking for authorization to sign the Forest Service contract so the work can begin. Unlike the BLM the Coalition will not be billed until the work is complete, but they are unable to begin until the contract is signed.

Motion to sign Resolution 2020-02B authorizing the Executive Director to sign the cost recovery contract with the Forest Service was made by Commissioner Miles, seconded by Commissioner Ogden. Unanimously approved. 7-0-0 absent.

10. **Executive Director's Report**

Executive Director McKee informed the board that the work was completed on the State's Fraud and Risk Self-Assessment. Thank you to Doug Rasmussen, our accountant, for all of the work he and his team has done to submit this assessment. When we began the process, we were considered as high fraud risk by the State. After all of the modules were submitted, we ended up as a low fraud risk. This is a great accomplishment.

We received a letter from Governor Herbert letting us know that he supports the Eastern Utah Regional Connection Project. The State of Utah is excited to collaborate on the development of this road connecting the Seep Ridge Road to Interstate 70 close to Moab.

11. **Engineers Report.**

Brian Barton reported that they are providing ongoing coordination with the Surface Transportation Board (Uinta Railway EIS). They've also been coordinating regional transportation planning with Commissioner Grayeyes and the Navajo Nation in southern Utah.

Commissioner Grayeyes stated that the President of the Navajo Nation, during his tenure, began building the vision for a regional transportation plan. Now, he has picked it up and is carrying it up the canyon!! Hopefully, this will soon be realized. This will open up tourism and economic development for this region. There are a lot of people who visit Page, Arizona and Monument Valley during the year. If a road can be opened up through this area, many of them will come and visit the beautiful, interesting canyons. This will be great for this area.

Brian Barton finished by saying they continue to work on the San Rafael Research Lab.

Executive Director McKee took a minute to recognize Kevin Keller with HDR and all of the work he has done to keep the environmental moving forward on the Uinta Basin Railway Project. He, also, recognized Melissa Cano and thanked her for the great job she did with public communications on this project and keeping the website updated.

12. Discussion and consideration of monthly expenses.

Doug Rasmussen began by reviewing the payment approval chart for February in the amount of $926,345.30. He pointed out one minor correction that needed to be made. The second expense up from the bottom of the chart, Emery County LBA for $3,720.86, shows it being paid out of the General Grant. Actually, this will be paid out of the Energy Research Center Grant. This does not affect the total of the monthly expenses.

(Continued on next page.)

SEVEN COUNTY INFRASTRUCTURE COALITION PAYMENT APPROVAL
February 21, 2020 at 1:00 p.m.
1385 South State Street, Salt Lake City, UT 84115

Vendor	Check #	Invoice #	Amount	Description	Grant
CIVCO Engineering, Inc	1602	2020102	11,147.50	I-70 Transportation Corridor - Engineering	Book Cliffs Transportation Corridor
Jones & Demille	1603	0121919	115.00	I-70 Transportation Corridor - Engineering	Book Cliffs Transportation Corridor
ETJ Law	1604	1590	350.00	I-70 Transportation Corridor - Legal	Book Cliffs Transportation Corridor
Smuin, Rich & Marsing	1605	41107	5,421.47	Consulting Per Contract - January 2020	General
Mike McKee	1606	Dec. 4 - Dec. 31, 2019	371.56	Director's Travel/Expenses	General
Heather Hoyt	1607	February 7, 2020	1,808.39	Office Supplies, Administrative Hours	General
Jones & Demille	1608	0121922	30,133.45	Engineering, Planning, Coordination	General
ETJ Law	1609	1594	3,192.25	Leland Bench Utilities - Legal and Travel	General
ETJ Law	1609	1595	3,368.23	General - Legal Services and Travel	General
HDR	1610	1200245298	175,000.00	Uinta Rail Line - Engineering	Uinta Basin Railway Project - Engineering Services - Phase 2
HDR	1610	1200245298	200,000.00	Uinta Rail Line - Engineering	Uinta Basin Railway Project - Baseline Environmental Services - Phase 2
HDR	1610	1200245299	49,000.00	Uinta Rail Line - Engineering	Uinta Basin Railway Project - Strategic Communication Services - Phase 2
HDR	1610	1200245336	5,520.00	Uinta Rail Line - Engineering	Uinta Basin Railway Project - O&M Planning - Phase 2
Jones & Demille	1611	0121921	128,390.00	Uinta Rail Line - Engineering	Uinta Basin Railway Project - Program Management Services - Phase 2
Jones & Demille	1611	0121921	185.00	Uinta Rail Line - Engineering	Uinta Basin Railway Project - Engineering Services - Phase 2
Jones & Demille	1611	0121921	59,840.00	Uinta Rail Line - Engineering	Uinta Basin Railway Project - Mapping Services - Phase 1
Jones & Demille	1611	0121921	19,400.00	Uinta Rail Line - Engineering	Uinta Basin Railway Project - Mapping Services - Phase 2
Venable LLP	1612	2188147	53,590.29	Uinta Rail Line - Legal Services	Uinta Basin Railway Project -STB Regulatory and Other Legal Services - Phase 2
ICF Jones & Stokes, Inc	1613	0144697	145,746.72	Uinta Rail Line - NEPA Consulting	Uinta Basin Railway Project - Baseline Environmental Services - Phase 2
ETJ Law	1614	1597	8,181.15	Uinta Rail Line - Legal Services and Travel	Uinta Basin Railway Project -STB Regulatory and Other Legal Services - Phase 2
ETJ Law	1615	1596	20,265.25	Molten Salt/Research Center Facility - Legal Services and Travel	Energy Research Center
ETJ Law	1616	1596	1,076.00	Molten Salt/Research Center Facility - Travel	General
Emery County - LBA	1617	12-19-208, 011720	3,270.86	Molten Salt/Research Center Facility - Utilities	Energy Research Center
Jonathan A. Stearmer	1618	02/18/2020	972.18	Uinta Rail Line - ROW Planning	Uinta Basin Railway Project - Right-of-Way Planning - Phase 2
Total Payment Approval			**$ 926,345.30**		

Motion to approve the monthly expenses in the amount of $926,345.30, including the change in the Emery County-LBA grant fund from General to Energy Research Center, was made by Commissioner Miles, seconded by Commissioner Grayeyes. Unanimously approved. 7-0-0 absent.

Roll call vote for expenses for payment was as follows:

SEVEN COUNTY INFRASTRUCTURE COALITION VOTING:

Carbon	Board Member	Yea X	No ___
Daggett	Board Member	Yes X	No ___
Duchesne	Board Member	Yea X	No ___
Emery	Board Member	Yea X	No ___
San Juan	Board Member	Yea X	No ___
Sevier	Board Member	Yea X	No ___
Uintah	Board Member	Yea X	No ___

Next, there were two payments made during the month of February that need to be ratified by the board. Attorney Eric Johnson stated that in January there had been a hearing before the Utah Records Committee brought by the Center for Biological Diversity. They had requested records from Seven County for which they were charged a $250.00 records fee. They believed they should not have been charged for these records and the Utah Records Committee found in their favor. A check had to be cut to reimburse them the $250.00.

Motion to ratify this expense paid back to the Center for Biological Diversity in the amount of $250.00 was made by Commissioner Lytle, seconded by Commissioner Miles. Unanimously approved. 7-0-0 absent.

Mr. Rasmussen next directed the board to an expense for printer toner and office supplies in the amount of $465.90 paid to Heather Hoyt, Staff to the Board, in advance allowing her to purchase these supplies.

Motion to ratify this expense paid in advance to Heather Hoyt for toner and office supplies in the amount of $465.90 was made by Commissioner Lytle, seconded by Commissioner Miles. Unanimously approved. 7-0-0 absent.

Doug Rasmussen next directed the board to the financial reports to include the Balance Sheet, followed by the Profit and Loss sheet thru 12-31-2019. The Profit and Loss is also provided by class, showing individual operating revenue and expenses associated with the various funding sources. This is the end of the year and the audit will be based on these financials. There are still a couple of other 2019 invoices yet to come that will be added to these prior to the audit.

Motion to accept the financials as presented was made by Commissioner Ogden, seconded by Commissioner Hopes. Unanimously approved. 7-0-0 absent.

Mr. Rasmussen next took the board through the sheets depicting each grant project and how much had been spent and how much remained in each fund. This is solely for the board's information and does not require board approval.

Finally, he asked to board to look at the General Ledger Detail for the last quarter. This shows all of the expenditures by category for October, November, and December. Utah State Code requires this be provided to the board for its review quarterly.

13. **Motion to enter closed (executive) session pursuant to Section 59-1-404 for pending and reasonably imminent litigation, potential real estate acquisition, trade secrets related to procurement, and/or character and professional competency** was made by Commissioner Lytle, seconded by Commissioner Ogden.

Roll call vote was as follows:

SEVEN COUNTY INFRASTRUCTURE COALITION VOTING:

Carbon	Board Member	Yea X	No ___
Daggett	Board Member	Yes X	No ___
Duchesne	Board Member	Yea X	No ___
Emery	Board Member	Yea X	No ___
San Juan	Board Member	Yea X	No ___
Sevier	Board Member	Yea X	No ___
Uintah	Board Member	Yea X	No ___

Motion to leave closed/executive session made by Commissioner Hopes, seconded by Commissioner Miles. Unanimously approved. 7-0-0 absent.

14. **Authorization for the Co-Chairs and Executive Director to sign a commercial agreement with Drexel Hamilton/Rio Grande Pacific.**

Motion to table Resolution 2020-02C made by Commissioner Miles, seconded by Commissioner Hopes. Unanimously approved. 7-0-0 absent.

15. **Authorization and consideration to retain professional services.**

The Coalition's attorney, Eric Johnson, took the lead on this discussion concerning pro forma financial modeling and rail operator procurement commercialization (Uinta Basin Railway Project). Initially, HDR was selected based on its RFQ response. L.R. Banks also responded. At that time, HDR was selected, but they now find themselves unable to follow through providing these services. So, this resolution is to approve requesting R. L Banks step in and perform these services, since they were a respondent to the original RFQ.

Executive Director McKee stated that he would like to broaden the request to include being able to utilize legal services for the pro forma modeling and rail operator procurement commercialization project.

Commissioner Lytle asked if broadening this was covered in the initial procurement documents. Both legal counsel, Eric Johnson, and accountant, Doug Rasmussen concurred that this was acceptable.

Motion to approve Resolution 2020-02D requesting R. L Banks provide pro forma financial modeling and rail operator procurement commercialization services was made by Commissioner Lytle, seconded by Commissioner Ogden. Unanimously approved. 7-0-0 absent.

16. A motion to adjourn was made by Commissioner Miles.

A motion to approve the February 21, 2020 meeting minutes was made by Commissioner Lyman, seconded by Commissioner Ogden.

SEVEN COUNTY INFRASTRUCTURE COALITION VOTING:

Carbon	Board Member	Yea ✓	No ___
Daggett	Board Member	Yes ✓	No ___
Duchesne	Board Member	Yea ✓	No ___
Emery	Board Member	Yea ✓	No ___
San Juan	Board Member	Yea ✓	No ___
Sevier	Board Member	Yea ✓	No ___
Uintah	Board Member	Yea ✓	No ___

Co-Chair: Brad Horrocks

Co-Chair: Lynn Sitterud

(COALITION SEAL)

ATTEST:

Eric T. Johnson (Legal Counsel)

A motion to approve the February 21, 2020 meeting minutes was made by Commissioner Lyle, seconded by Commissioner Ogden.

SEVEN COUNTY INFRASTRUCTURE COALITION VOTING:

Carbon	Board Member	Yea ✓	No ___
Daggett	Board Member	Yes ✓	No ___
Duchesne	Board Member	Yea ✓	No ___
Emery	Board Member	Yea ✓	No ___
San Juan	Board Member	Yea ✓	No ___
Sevier	Board Member	Yea ✓	No ___
Uintah	Board Member	Yea ✓	No ___

Co-Chair: Brad Horrocks

Co-Chair: Lynn Sitterud

(COALITION SEAL)

ATTEST:

Eric T. Johnson (Legal Counsel)

SEVEN COUNTY INFRASTRUCTURE COALITION

AGENDA

February 9, 2018 at 10:00 a.m.

1385 S. State Street, Salt Lake City, Utah 84115

Main Conference Room (Rm #157)

(435) 636-3214

1.	Welcome/Pledge	Phil Lyman
2.	Minutes	Phil Lyman
3.	Public Comment (limit 3 minutes)	Phil Lyman
4.	Finance Director Report and approval of expenses	Seth Oveson
5.	Introduction of Municipal Advisor	Eric Johnson/Zions
6.	Public Hearing on CIB rail funding application $30Million	Eric Johnson
7.	Resolution on CIB rail funding application	Eric Johnson
8.	Presentation on Green River Natural Gas	Mike McKee/McCandless
9.	Resolution to support Green River Natural Gas	Mike McKee
10.	Presentation by Utah Thorium	Eric Johnson/Edouard Saget
11.	Resolution creating Thorium subcommittee	Mike McKee
12.	Resolution approving RFQ on pre-feasibility level engineering alignment and cost estimate	Mike McKee
13.	Resolution approving RFQ on waxy crude consultant	Mike McKee
14.	Resolution approving RFQ on pre-feasibility level revenue forecast	Mike McKee
15.	Closed (executive) session pursuant to §52-4-205 (potential real estate acquisition, trade secret related to procurement, personnel competency)	Eric Johnson
16.	Executive Director Report	Mike McKee
	a. Potential projects	
	i. Oil Pipeline	
	ii. Lube Oil Refinery Utilities	
	iii. Other Utilities	
	iv. SR-88 to I-70	
	v. Rail	
	vi. Broadband	
	vii. Trails	
	viii. Update on Thorium Energy	
	b. Other	
17.	Monthly Infrastructure Report/Study Update	Jones and DeMille
18.	Motion to adjourn	Phil Lyman

*In accordance with the Americans with Disabilities Act, the Coalition will make reasonable accommodations to participate in the meeting. Requests for assistance can be made by contacting Carbon County Administrative Offices at (435) 636-3214 at least 48 hours in advance of the meeting to be held.

*The order of agenda items may change to accommodate the needs of the Coalition Board, the staff, and the public.

*This meeting may be held electronically via telephone to permit one or more of the Coalition Board members to participate

SEVEN COUNTY INFRASTRUCTURE COALITION

SEVEN COUNTY INFRASTRUCTURE COALITION
MEETING MINUTES
October 11, 2018 at 1:30 p.m.
152 E. 100 N., Vernal, UT 84078

Present: Jae Potter, Brad Horrocks, Lynn Sitterud & Greg Todd
Also in attendance - Mike McKee, Eric Johnson, Doug Rasmussen, Kristi Sharp, Brian Barton, Mike Hawley
Absent: Phil Lyman, Jack Lytle, Ken May
Attended telephonically: N/A

1. Welcome / Pledge of Allegiance (Jae Potter)

2. Meeting Minutes of September 14, 2018 meeting (Jae Potter)

   Motion to approve September 14, 2018 minutes by Commissioner Horrocks, seconded by Commissioner Todd. Unanimously approved 4-0-3 absent.

3. Public Comment (Jae Potter)

   No comments from public.

4. Finance Director Report and approval of Expenses (Smuin, Rich & Marsing)
   The following invoices were presented for approval.

Vendor	Invoice #	Amount	Description	Grant
CIVCO Engineering, Inc	2018409	40,186.66	I-70 Transportation Corridor - Engineering	Book Cliffs Transportation Corridor
ETJ Law	1395	2,447.42	Legal Services	General
ETJ Law	1397	1,435.00	Utilities - Legal Services	General
ETJ Law	1398	14,512.58	Uinta Rail Line - Legal Services	General
Smuin, Rich & Marsing	38424	1,950.00	Consulting Per Contract - Sept 2018	General
Mike McKee	Sep 6 - Oct 3, 2018	192.80	Director's Travel/Expenses	General
Jones & Demille	0118931	7,403.75	Engineering, Planning, Coordination	General
Jones & Demille	0118932	7,994.44	Leland Bench Utilities - Engineering	General
Jones & Demille	0118933	13,640.78	Uinta Rail Line - Engineering	General
Marc T. Eckels	SCIC 10-3-2018	3,675.00	Crude Oil Consultant	General
Total Payment Approval		**$ 93,438.43**		

Doug highlighted Kristi Sharp's diligent efforts with the CIB on reimbursements. Mike McKee offered his thanks for the Smuin Rich Marsing team efforts in obtaining timely reimbursements from the CIB. Mike McKee also asked to review the profit and loss summary prior to the monthly meetings with Doug. Brad Horrocks noted that Mike McKee is doing a great job with all the travel he does on so little expenses. Thanks!

Commissioner Horrocks confirmed the dollar amount of $93,438.43 and then made a Motion to approve, seconded by Commissioner Sitterud. Unanimously approved 4-0-3 absent.

Commissioner Horrocks exited the meeting at this point.

5. Executive Director Report (Mike McKee)

Rail Study Update:
The Coalition's Rail application will be heard in the CIB's November 8th meeting in Moab.

Leland Bench:
Discussions with Uintah Water Conservancy District and Ouray Park Improvement District on coordinating Green River water rights..

Thorium Energy Center of Excellence:
A meeting will be held next week at the Governor's office regarding getting this project in the legislative budget.

Eastern Connector Road:
Moving forward and legislative appropriation was received.

Western States Rural National Gas Initiative:
Bergen Eskildsen, of the Governor's Office of Energy Development, provided an update. He indicated that they are working on opening markets for local natural gas. Commissioner Potter asked if there is a timeframe. No known timeframe at this time. Both Duchesne and Uintah Counties also contributed.

6. Public Hearing on Rail CIB Application for $27,900,000 (Mike McKee)

Mike McKee provided background that the Coalition previously applied for $30,000,000 for Rail. This application revises the value to $27,900,000, to be utilized over a 2 year timeframe. The Coalition is on the CIB's agenda for the November 8th meeting regarding this application. Eric Johnson provided further background that several studies were done by HDR and R.L. Banks with routes to Colorado. Both studies indicated the Rail is viable, however, not at a rate of return that would entice private industry. Therefore, it would be appropriate for a public body to proceed with the Rail project for the public good. Eric Johnson indicated that a meeting was held with the Build America Bureau earlier this year. The Coalition will seek federal funding for the Rail project, which is estimated at $1.4B and the Coalition qualifies for an interest rate of approximately 1.7%, half of the current federal interest rate, which would be locked in at the start of construction of the project. The Build America Bureau that administers the federal funding also indicated that $35B in funding has been set aside for rail projects such as this.

Commissioner Horrocks re-joined the meeting at this point in time.

Motion to go into Public Hearing by Commissioner Todd, seconded by Commissioner Horrocks. Unanimously approved 4-0-3 absent.

Public comment:
Scott Hagman asked how Colorado feels about this project.

Mike McKee stated that meetings have been held with leaders and commissioners in Craig and Rifle Colorado, as well as a meeting with Kathleen Stacks of the Colorado Governor's Office of Energy. All of the Colorado participants seemed excited. Mr. McKee indicated that Ms. Stacks sent a letter to all government agencies in Colorado, to which no objections were received.

Brad Horrocks indicated overwhelming support from industry.

Motion to close Public Hearing by Commissioner Todd, seconded by Commissioner Horrocks. Unanimously approved 4-0-3 absent.

7. Resolution 2018-10A Approving Cody Deeter as Municipal Advisor for Utilities for Lube Oil Refinery (Mike McKee)

   Discussion of agenda item #6 was postponed until Commissioner Horrocks could re-join the meeting. The Coalition Board proceeded to introduce the background and purpose of agenda item #7, the Public Hearing (see more below).

   Mike McKee indicated his confidence in Cody Deeter as well-suited for this project. In order for the Board of Water Resources to fund the water utility for the Lube Oil Refinery, they require the entity to fund 15%. Mike McKee indicated the Coalition is in a position to meet the Board's requirements. Approving this resolution includes approving Mike Mckee to sign the agreement with Mr. Deeter.

   Motion to approve by Commissioner Horrocks, seconded by Commissioner Todd. Unanimously approved 4-0-3 absent.

8. Resolution 2018-10B Approving CIB Rail application (Mike McKee)

   Motion to approve by Commissioner Todd, seconded by Commissioner Horrocks. Unanimously approved 4-0-3 absent.

9. Finalizing Rail Planning Selection Committee (Mike McKee)

   Selection Committee will include: Executive Director, Engineer, Attorney, Uintah, Duchesne & Sevier county commissioners.

10. Monthly Infrastructure Report/Study Update (Jones and DeMille)

    Additional information on the utilities for Lube Oil Refinery.

11. Legal report on Rail (Eric Johnson)

    Prior practice of CIB and prior position of the Attorney General's office indicate that the

CIB can fund the rail project from general CIB funds and not draw on Throughput funds.

12. Closed (executive) Session for (**potential real estate acquisition**, trade secret related to procurement, **personnel competency**) pursuant to §52-4-205 (Eric Johnson)

    Motion to enter closed session at 2:52 p.m. by Commissioner Sitterud, seconded by Commissioner Todd. Unanimously approved 4-0-3 absent.

    Motion to re-enter open session by Commissioner Sitterud, seconded by Commissioner Horrocks. Roll call vote and unanimously approved 4-0-3 absent.

13. Motion to adjourn (Jae Potter)

    Motion to adjourn by Commissioner Horrocks, seconded by Commissioner Sitterud. Adjourned by acclimation.

Motion to approve meeting minutes by Commissioner Horrocks, seconded by Commissioner Burdick.

SEVEN COUNTY INFRASTRUCTURE COALITION VOTING:

Missed last mtg

Carbon	Board Member	Yea ___ No ___	abstained
Daggett	Board Member	Yea ___ No ___	abstained
Duchesne	Board Member	Yea ✓ No ___	
Emery	Board Member	Yea ✓ No ___	•
San Juan	Board Member	Yea ✓ No ___	
Sevier	Board Member	Yea ___ No ___	absent
Uintah	Board Member	Yea ✓ No ___	

Co-Chair Phil Lyman

Co-Chair Jae Potter

SEVEN COUNTY INFRASTRUCTURE COALITION SEAL UTAH

(COALITION SEAL)

ATTEST:

Eric Johnson

Welcome to the Utah Public Notice Website: Your central source for all public notice information in Utah

Seven County Infrastructure Coalition: Governing Board

Search again

Entity: Seven County Infrastructure Coalition

Body: Governing Board

Subject: Public Works

Notice Title: Public Hearing

Notice Type: Hearing

Event Start Date & Time: October 11, 2018 01:30 PM

Description/Agenda:

The Seven County Infrastructure Coalition will hold a Public Hearing to receive input from the public with respect to an application to the Community Impact Board for the Rail project for $27,900,000, and related matters. The public is invited to attend and provide comments.

Notice of Special Accommodations:

In compliance with the Americans with Disabilities Act, individuals needing special accommodations (including auxiliary communicative aids and services) during this meeting should notify Lori Perez at 435-636-3228.

Notice of Electronic or telephone participation:

Contact Lori Perez at 435-636-3228.

Other Information

This notice was posted on: October 09, 2018 04:53 PM
This notice was last edited on: October 09, 2018 04:53 PM

Board/Committee Contacts

Member	Email	Phone

Please give us feedback

Meeting Location:

152 E. 100 N.
Vernal , 84078

Map this!

Contact Information:

Heather B. Hoyt
7CountyUtah@gmail.com
(435)219-1362

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The Coalition is a public implementation and ownership entity, allowing its members to build essential regional infrastructure elements that span across county lines.

The Coalition's main roles are to identify revenue-producing infrastructure assets that will benefit the region. Its mission is to plan infrastructure corridors, procure funding, permit, design, secure rights-of-way and own such facilities. Operation and maintenance of these assets will likely be outsourced to third parties. It is contemplated that arrangements with private sector partners will be made in order to share risks and bring specialized expertise to various portions of proposed projects.

All of the seven counties are located in resource rich Eastern Utah. Coming together as a Coalition gives the counties economic and political strength. Within the member counties there are significant challenges that will impact the implementation of vital infrastructure corridors in the future.

These challenges include:

- Limited transportation connectivity
- Environmental issues, such as:
  - National parks
  - National Monuments
  - Wide streams, lakes and other wetlands
  - Archeological artifacts and sections
  - Protected wildlife areas
- Topographic constraints, including:
  - Steep grades
  - Impassable mountain ranges
  - Deep canyons and other difficult terrain features
  - Long distances between resources
- Political differences
- Market volatility
- Public safety

Potential projects may include but are not limited to:

- Roads and highways
- Railroad spurs
- Joint ventures on dry bulk terminals to secure foreign markets for Utah's mineral resources

MAILING ADDRESS:

Seven County Infrastructure Coalition
294 East 100 South
Price, UT 84501
(435) 637-1203

Fraud Hotline:

1-435-636-3224

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BOARD & STAFF

Brad Horrocks

Board Co-Chair, Uintah County Commission

Lynn Sitterud

Board Co-Chair, Emery County Commission

Tooter Ogden

Board Member, Sevier County Commission

Jack Lytle

Board Member, Daggett County Commission

Greg Miles

Board Member, Duchesne County Commission

Casey Hopes

Board Member, Carbon County Commission

Willie Grayeyes

Board Member, San Juan County Commission

Mike McKee

Executive Director

Smuin Rich & Marsing

Treasurer

Eric Johnson

Legal Services

Jones & DeMille Engineering

Planning, Engineering, Implementation

MAILING ADDRESS:

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October 10, 2019

Kathryn Kusske Floyd

T 202.344.4000
F 202.344.8300
kkfloyd@venable.com

VIA EMAIL

Ms. Victoria Rutson
Surface Transportation Board
Office of Environmental Analysis
395 E Street, SW
Washington, DC 20423-0001

Re: Finance Docket No. 36284 – Seven County Infrastructure Coalition – Uinta Basin Railway Project Proposal – Response to Information Request No. 2

Dear Ms. Rutson:

I am enclosing SCIC's response to the OEA's Information Request No. 2. If there are any questions regarding this response, please do not hesitate to contact me.

Sincerely,

Kathryn Kusske Floyd

encl.

cc: Danielle Gosselin
Joshua Wayland
Debi Rogers
Mike McKee
Eric Johnson
Kevin Keller

Seven County Infrastructure Coalition Response to
OEA's September 25, 2019 Information Request No. 2
FD 36284
October 10, 2019

OEA requests further explanation of the Seven County Infrastructure Coalition's estimate that rail traffic along the proposed rail line would be approximately 7 trains, loaded and empty, per day on average (3.5 in each direction), with approximately 110 cars per train. Please provide the information specified below:

OEA Request: Provide the estimated number of manifest trains, averaged per day and per year, and the approximate number and weight of cars and locomotives assumed for manifest trains, both maximum and on average.

Response:

The number of manifest trains operated by the Uinta Basin Railway (UBRY) is anticipated to be zero. Most UBRY freight is expected to move in unit trains. Instead of operating manifest trains separately, manifest carloads received from connecting carriers Union Pacific Railroad (UP) or BNSF Railway (BNSF) are expected to be added to UBRY unit trains. Manifest trains are not anticipated to be separately operated on the UBRY because the expected volume of manifest carloads is relatively low. Thus, the operation of dedicated manifest trains would likely be uneconomical.

Manifest carloads are expected to range, on average, from a lower estimate of 12 carloads per day (4,380 per year[1]) to an upper estimate of 18 carloads per day (6,233 per year).The total number of empty manifest rail cars per day and per year is expected to be identical in number to full carloads because most freight cars are designed and dedicated to specific commodities or are provided by shippers, or both, and thus are unsuitable for other commodities or are not available for other shippers to use. Thus, the number of empty manifest cars is also expected to range, on average, from 12 to 18 cars per day.

The maximum weight of loaded manifest cars is expected to be 143 tons.[2] When empty, the maximum weight of manifest cars is anticipated to be between 22 and 45 tons, depending upon the type of car. It is anticipated that common, dense

[1] Unless otherwise stated, it is assumed that operations would occur 365 days per year.
[2] Depending upon the density of the commodity, and the type of commodity, a "carload" may not reach the maximum allowed weight limit of the rail car. Many commodities such as machinery have dimensional, packaging, or shipping characteristics that prevent loading a rail car to its maximum weight capacity. Other commodities have density characteristics that would exceed the maximum weight capacity of the rail car if loaded to the full volume capacity of the rail car.

granular commodities normally shipped by rail such as fracking sand, cement, fertilizer, and animal feed will typically be loaded in 143-ton capacity rail cars and that gross car weight including lading will be at or near to 143 tons. Common liquid and non-granular bulk commodities such as hay, lumber, petroleum fuels, liquified petroleum gas, pipe, oilfield tubular steel products, bagged animal feed, and building products and industrial materials are expected to be loaded in 143-ton or 131.5-ton capacity rail cars, and gross car weights may vary broadly but not exceed 143 tons. Machinery, motor vehicles, and other manufactured products may have highly variable gross car weights but will not normally exceed 143 tons.

The estimated maximum weight of locomotives used by the UBRY will range from approximately 380,000 to 432,000 pounds, and will vary based on fuel loading at a given time and design of locomotives.[3] Information regarding the number of locomotives and rail cars per train is provided below.

OEA Request: Provide the estimated number of crude oil unit trains, averaged per day and per year.

Response:

Depending on market conditions, it is estimated that the number of loaded crude oil unit trains operated on the UBRY each day will range, on average, from 1.84 to 4.96 trains per day each way (672 to 1,809 trains per year). It is anticipated that each train will contain, on average, 110 tank cars, and each tank car will contain, on average, approximately 642 barrels of oil. Thus, 1.84 unit trains per day each way would have the capacity to ship a lower estimate of 130,000 barrels of oil on average each day, while 4.96 unit trains would have the capacity to ship a higher estimate of 350,000 barrels of oil on average each day.[4] Levels of oil production are subject to a number of independent variables and factors including, but not limited to, general domestic and global economic conditions, commodity pricing, and the strategic and capital investment decisions of oil producers and their customers. Based on the uncertainty regarding these variables and factors, it is not reasonably foreseeable that the UBRY will ship more than 350,000 barrels of oil per day. While the capacity of the rail line could potentially accommodate

[3] For reference, the EMD SD70ACe-T4, a currently cataloged heavy-haul locomotive, has a typical diesel fuel oil capacity of 4,800 gallons, or 33,326 pounds using a common diesel fuel blend.

[4] R.L. Banks & Associates, Inc., Pre-Feasibility Study of a Prospective Railroad Connecting the Uinta Basin to the National Rail Network at 17 (Aug. 9, 2018) (projecting a "higher forecast" production level of 350,000 barrels per day for the period 2022 through 2044). While this study assumed that 40,000 barrels of the 350,000 barrel total production level would be transported to the Salt Lake City by truck, we have assumed for purposes of this response that all 350,000 barrels would be transported by rail. It is not anticipated that development of the UBRY will divert truck to rail for purposes of serving Salt Lake City refiners.

increased production, when and if that would happen is unknown and speculative at this time.

It is anticipated that number of empty crude oil unit trains operated on the UBRY each day will generally equal the number of loaded crude oil unit trains. Thus, when loaded and empty trains are combined, it is estimated that an average of 3.68 to 9.92 total crude oil unit trains will be operated on the UBRY each day.

Depending on market conditions, the average number of loaded fracking sand unit trains operated by the UBRY is expected to range from 0 to 0.3 trains per day and 0 to 110 trains per year. The number of empty fracking sand unit trains is expected to be the same (0 to 0.3 trains per day and 0 to 110 trains per year).

OEA Request: For crude oil unit trains, provide the assumed number and weight of cars per train, crude oil capacity (in barrels), and number of locomotives assumed for each train, both maximum and on average.

Response:

Crude oil unit trains are expected to have, on average, 110 rail cars per train regardless of whether the train is loaded or empty.[5] The typical weight of loaded crude oil rail cars operating over the UBRY is expected to be 143 tons, or 286,000 pounds, per car. The typical weight of empty crude oil rail cars operating over the UBRY is expected to be 42.15 tons.

It is expected that 29,000 gallon coiled and insulated tank cars will be utilized on the UBRY. The estimated capacity of these tank cars is 625 barrels, if carrying black waxy crude, and 650 barrels, if carrying yellow waxy crude. The ratio of black waxy crude to yellow waxy crude that will be shipped via the UBRY may vary depending on market conditions. At present, the ratio of yellow waxy crude to black waxy crude produced in the Uinta Basin is approximately 2:1. Assuming this ratio continues, each tank car in crude oil unit trains operated on the UBRY is anticipated to have the capacity to carry, on average, 642 barrels of oil.

Each unit train operated over the UBRY is expected to utilize eight locomotives.[6] While it is expected that only three of the eight locomotives would be required for empty trains to achieve desired operational results, empty trains are expected to have eight locomotives per train due to the need to balance locomotives between the end points of the railroad.

[5] Note that manifest cars are anticipated to be added to unit trains. Thus, the total length of some unit trains may be greater than the basis of the cars dedicated to the particular commodity of the unit train.

[6] Because the ruling grades and change in elevation are similar between the three alternative routes, the number of locomotives required is expected to be the same regardless of which route is used.

OEA Request: If it is assumed that "helper" locomotives would be used on the proposed rail line, provide the estimated number of helper locomotives that would be used on a train, the type of train (manifest or oil), and where along the proposed rail line they would be used, with references to mileposts.

Response:

The use of "helper" locomotives is not anticipated on the UBRY. Trains are expected to operate with eight 4,300 to 4,400-horsepower locomotives without addition or subtraction en route between the railroad's proposed interchange with the national railroad network at Kyune, and the loading terminal(s) proposed at South Myton Bench and Leland Bench. It is expected that a 110-car loaded train will require 30,000 horsepower, or seven 4,300-horsepower locomotives, to overcome gravity and rolling resistance. It is anticipated that an eighth locomotive will be added to reduce the risk of train stalling should a locomotive experience mechanical failure.

OEA Request: Indicate whether the estimated average number of crude oil trains per day assumes that crude oil currently trucked to Salt Lake City refiners would continue to move by truck or whether it would be transported as part of the 3.5 loaded trains per day estimate.

Response:

The estimated average number of crude oil trains per day assumes that rail transportation will not displace truck transportation for purposes of shipping crude oil to Salt Lake City refiners. Based on recent analysis, rail shipment from the Uinta Basin to Salt Lake City refiners is not economically viable for several reasons including (1) the lack of infrastructure to receive and unload crude oil unit trains in the vicinity of the Salt Lake City-area refineries and then transport that oil via pipeline to the refineries and additional costs associated with constructing and operating such infrastructure; (2) the operating and capital cost of transloading oil from truck to rail within the Uinta Basin, which is not required for the existing all-truck haul; and (3) the relatively short haul by a connecting carrier (either UP or BNSF) to the Salt Lake City area, which reduces the economies of rail transportation. Thus, it is not anticipated that crude oil will be shipped by rail from the Uinta Basin to Salt Lake City refiners.

OEA Request: Provide any assumptions made regarding the number of new oil and gas wells that would be drilled to provide production sufficient to supply the anticipated number (trains/day, plus trucking, if applicable) of crude oil transport.

Response:

Oil production in the Uinta Basin is expected to continue transitioning from a historic pattern of vertical wells with a single completion per well and each well on a single well pad, to vertical wells with multiple laterals per well ("horizontal wells") at various depths and in various directions radiating from the vertical well. This transition is expected to result in multiple completions per well and multiple wells on a single well pad. Laterals are typically completed sequentially, i.e., after the oil from the first lateral completed for a given well is extracted, the second lateral is completed and its oil resource extracted, and so forth. "Completion" consists of the activity of hydraulically fracturing the lateral.

- To produce 130,000 barrels of oil per day, it is anticipated that 130 new lateral completions will be required initially, and 26 new lateral completions will be required per year to sustain that production level to account for the gradual decline in production of the initial 130 lateral completions.
- To produce 350,000 barrels of oil per day, it is anticipated that 350 new lateral completions will be required initially and 70 new lateral completions will be required per year to sustain that production level to account for the gradual decline in production of the initial 350 lateral completions.

At present, new oil well completions in the Uinta Basin are initially producing between 500 and 3,000 barrels per day, with an average of 500 barrels per day for wells producing from the Green River Formation, and 1,000 barrels per day for wells producing from the Wasatch Formation.

As of October 2019, five oil rigs were drilling oil wells in Uintah and Duchesne Counties, sustaining a production of approximately 90,000 barrels of oil per day. Accordingly, each rig is sustaining approximately 18,000 barrels per day of production. Of the approximately 90,000 barrels of oil produced each day, approximately 70,000 to 80,000 barrels of oil are trucked to refineries in the Salt Lake City area each day. The balance of the oil produced in Uintah and Duchesne Counties is trucked to rail transload facilities outside of the Uinta Basin and then transported by rail to refineries or export terminals in areas other than Salt Lake City. Assuming oil rig productivity neither declines nor improves, a total of 11.66 oil rigs would be required to produce 130,000 barrels of oil per day in addition to the maximum of 80,000 barrels per day that can be consumed by Salt Lake City refineries. Assuming oil rig productivity neither declines nor improves, a total of 23.66 oil rigs would be required to produce 350,000 barrels per day in addition to the maximum of 80,000 barrels per day that can be consumed by Salt Lake City refineries. Regardless of whether the UBRY is developed, it is anticipated that new oil production in the Uinta Basin will be driven by market factors and will continue to be transported by truck.

No assumptions have been made about the number of gas wells that could be drilled in the future. While natural gas has historically been produced in the Uinta Basin, it is not expected that natural gas, in either its gas or liquid form, will be shipped via the UBRY. Natural gas produced in the Uinta Basin is currently being transported by pipeline on a regional basis; this practice is expected to continue regardless of the UBRY project.

OEA Request: Indicate if it was assumed that most new oil and gas wells would be drilled in Duchesne and Uintah counties, given that is where most of the current oil and gas production occurs.

Response:

It is assumed that all crude oil shipped on the UBRY will come from known oil resources and reserves in Duchesne and Uintah counties. At present, there are no other known significant sources of crude oil that would be economically available for railway transportation, as opposed to pipeline or truck transportation, in the area of the UBRY. No gas (e.g., liquified natural gas) is expected be shipped on the UBRY, regardless of location of production.

OEA Request: Provide assumptions used in estimating the number of manifest trains, including assumptions about the quantity of fracking sand, well pipe and equipment, and other goods that would be needed for new wells and the production of crude at the assumed/forecast level. Also provide assumptions about the number of carloads, averaged per day and per year, of such commodities that would be transported to the Uinta Basin on the proposed rail line.

Response:

As stated previously, no manifest trains are expected to be operated on the UBRY. Thus, no such assumptions have been made.

IRINA SLAV

Irina is a writer for Oilprice.com with over a decade of experience writing on the oil and gas industry.

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Last week, Tellurian said it would make the final investment decision on the Driftwood LNG project next year. On the one hand, the news is good: Tellurian had stopped making updates on the project after its long-term supply deal with India's Petronet fell through. On the other hand, the announcement makes it the latest in a string of LNG companies pushing their FIDs back by a year, and this does not bode well for the industry. It is enough to look at the reason why Tellurian postponed its final investment decision, as explained by the chief executive: the company needs gas prices--specifically, Asian spot market prices--to be over $5 per million British thermal units (mmBtu). Right now, LNG trades at about $2 per mmBtu. Can it climb more than 100 percent within a year?

According to Shell, prices will rise by next year because new supply will be slow in coming this year. But that forecast was made in the supermajor's LNG Outlook 2020, which was released in February. Since then, Shell has pulled out of the Lake Charles LNG project and is reportedly mulling over the sale of a stake in its Australian LNG business. While the latter is likely part of a divestment program running from before the crisis, the exit from the Lake Charles project is interesting, especially in light of the company's continued optimism about the LNG market.

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TRENDING DISCUSSIONS

The company cited market conditions in its decision to pull out from Lake Charles LNG. India's Petronet must have had the same market conditions in mind when it let its preliminary long-term agreement with Tellurian expire. Right now, LNG is much cheaper on the spot market than in long-term supply contracts. It is this price disparity that is changing timelines and pushing back FID dates. And ironically enough, it is U.S. LNG producers that contributed to this situation, though not willingly.

LNG has not been spared by the coronavirus. Demand for the so-called bridge fuel also slumped when the national lockdowns began. Pressed for buyers in a situation of oversupply that was only going to get worse, U.S. producers had to dump their product on the spot market. No wonder then that LNG spot prices, which have been on a persistent slide since April, reached an all-time low of $1.85 per million British thermal units at the end of May.

The International Energy Agency earlier this month published a new report on gas and LNG in which it said that "natural gas is expected to experience its largest demand shock on record in 2020 as the Covid-19 pandemic hits an already weakened market."

This shock will cause a 4-percent drop in global gas demand. The IEA said the lost demand would start returning next year, but it added that the shock will still lead to lost demand of some 75 billion cu m of natural gas in the period to 2025.

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Remember all those forecasts that said new LNG production capacity was not coming fast enough to satisfy growing demand? Those forecasts are proving worthless, at least for the medium term. But things look uncertain for the long term as well. Because while it's good to rule the spot market, it's long-term supply contracts that U.S. LNG producers need.

GlobalData earlier this month warned that after Tellurian—and Sempra Energy, and Pieridae Energy before it—more LNG hopefuls may delay their final investment decisions.

"Due to a sharp fall in oil prices, spreads between oil-indexed long-term LNG contracts and spot contracts have reduced considerably," GlobalData analyst Haseeb Ahmed said, as quoted by LNG Industry. "As a result, LNG producers might struggle to leverage higher value long-term contracts for weaker spot prices that can keep their revenues up. As uncertainty still looms large, several companies in North America may rethink their spends on upcoming multibillion-dollar gas projects and delay final investment decisions (FIDs)."

And the long-term prospects? These are not particularly good, according to GlobalData, again because of that now apparently chronic discrepancy between supply and demand.

“While the short-term impact of the current crisis on North American LNG sector may result in limiting LNG production or uncertainty over new investments, the long-term impact can be supply overhang that can make it difficult for North American producers to remain cost competitive,” Ahmed said.

This means some final investment decisions may never be made, and some plans for new LNG export capacity may never reach the FID stage.

A recent outlook for the LNG industry projected that the United States will add the largest share of new LNG export capacity over the next five years, at 145.1 million tons per year, followed by Russia and Mexico. But that may never happen if prices don’t rise sharply and strongly. With analysts predicting LNG fundamentals to only begin to recover in mid-2021, the chances of a sharp, substantial rise in prices are slim.

By Irina Slav for Oilprice.com

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Irina is a writer for Oilprice.com with over a decade of experience writing on the oil and gas industry.

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James Hilden-Minton on June 29 2020 said:

Tellurian needs a $5/MMBtu long-term commitment. But this is unlikely to materialize. Solar and wind are quite competitive below these prices. It is a big problem that LNG is now a global market, because this means LNG is now competing with the lowest prices of solar and wind anywhere on the planet. Gas analysts seem to be ignoring this competitive challenge. It basically implies a cap on long-term contract pricing. LNG may need to find some niche markets away from competition with the cheapest wind and solar, and for these safe markets there may already be too much LNG capacity. Reporters should be asking who are these buyers that need to lock in LNG at $5/MMBtu.

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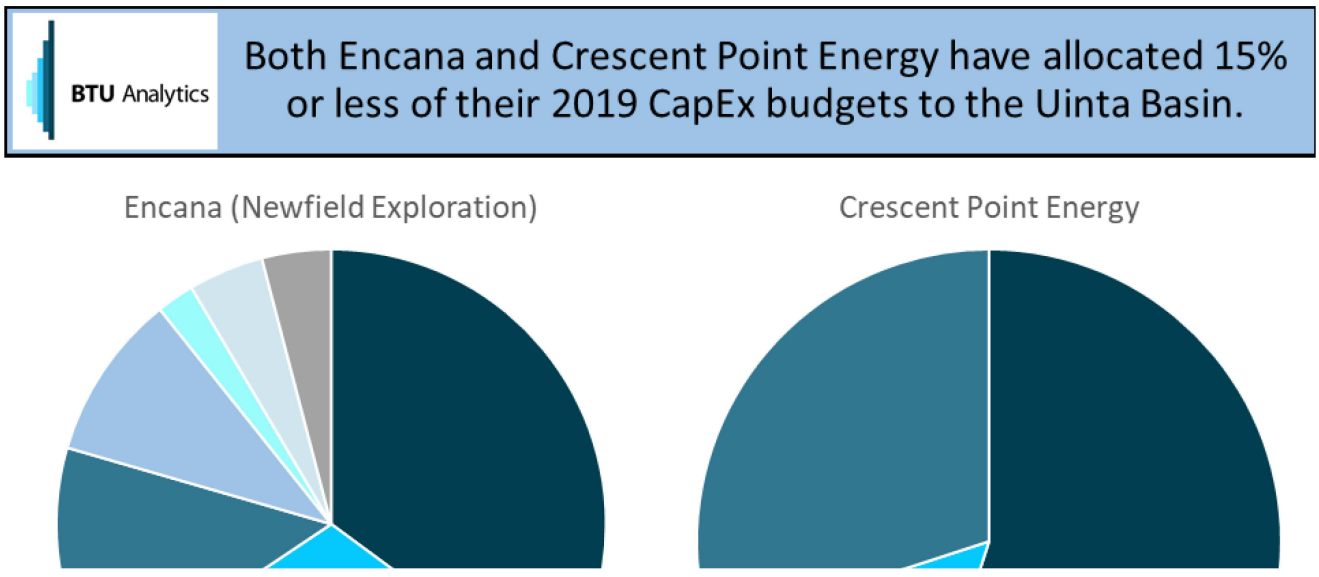
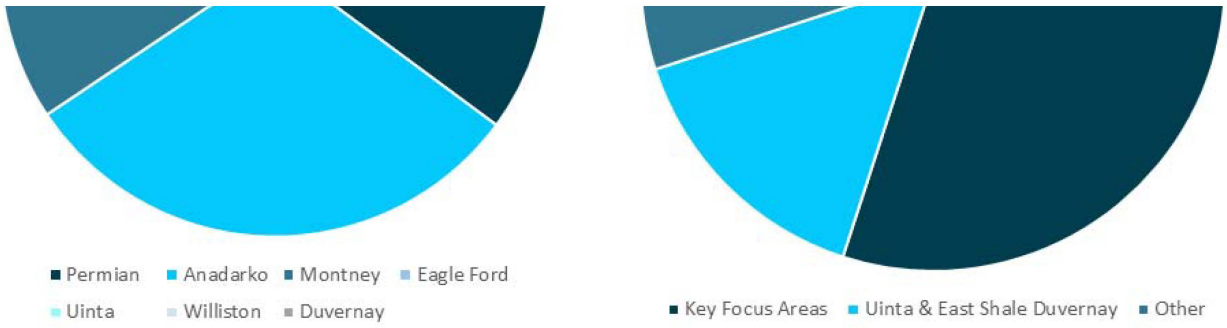
Uinta Basin Economics: Horizontal or Bust?

Last June, BTU Analytics examined the outlook of horizontal drilling in the Uinta Basin. As oil prices recovered, total annual drilling activity increased in the Uinta Basin. As drilling increased, producers shifted towards horizontal activity rather than vertical. Despite initial production rates exceeding 1,000 BOE/d, the basin's viability remains challenged. First, the high paraffin content of Uinta oil contributes to higher transportation and refining costs. As a result, producers receive steep discounts for the waxy crude. Second, BTU Analytics estimates breakevens for the wells are marginal in today's $60 WTI environment. With producers focused on trimming capital budgets, marginal plays continue to see dwindling capital.

Encana, which acquired Newfield Exploration last month, and Crescent Point Energy combined for 62% of horizontal drilling in the Uinta during 2018. Despite their positions as leaders in Uinta horizontal drilling, neither operator currently prioritizes investment in Utah. The chart below shows 2019 CapEx budgets for the top two drillers.





Note: Crescent Point Energy groups Uinta and East Shale Duvernay together as "Emerging and Early-Stage Resource Plays" in their 2019 capital budget.
Source: Crescent Point Energy, Encana

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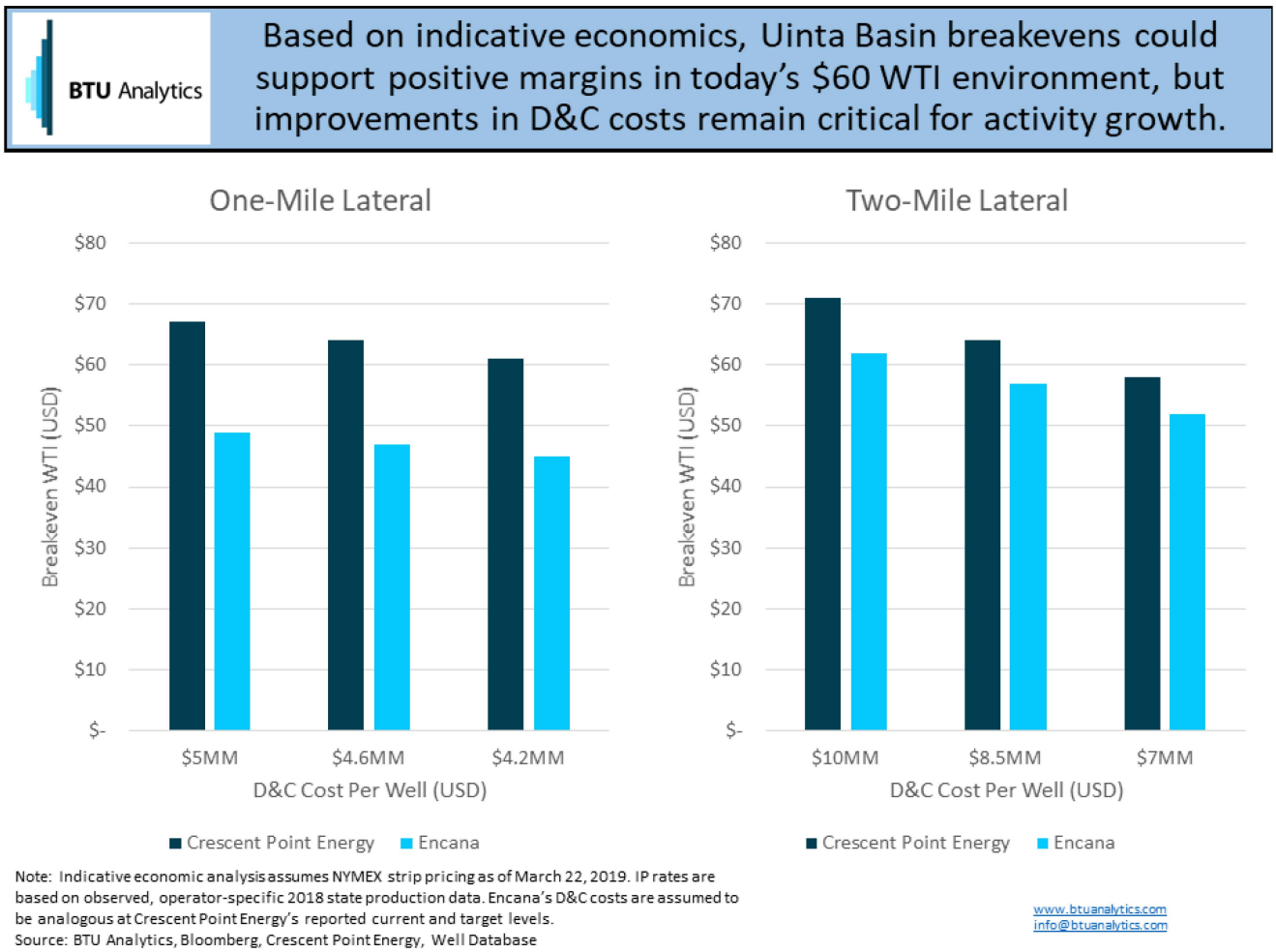
Encana listed the Permian, Anadarko, and Montney plays as its core assets. Thus, a majority of its $2.7-2.9 billion capital budget for 2019 will be directed to these plays. Among its four "other" regions, the Uinta Basin will see the least investment this year of just $50-70 million. Similarly, Crescent Point Energy failed to designate the Uinta Basin or East Shale Duvernay as focus areas for 2019. In 2018, Crescent Point allocated 25% of its capital budget to the two plays. However, in 2019, the two plays will split 15% of Crescent Point's $1.25 billion capital budget. Between all basins, Crescent Point and Encana will spend 30% and 20% less in 2019 than 2018. The producers are keeping in-line with the basin-transcending trend of reducing capital expenditures in 2019.

Another active operator in the Uinta Basin, EP Energy, recently started drilling horizontal wells after years of focusing on vertical activity. However, EP Energy's investment in the basin will also be challenged in 2019. EP Energy recently disclosed concerns regarding liquidity in their 2018 10-K. These recent announcements beg the question- what are the breakeven economics for new wells in the Uinta Basin?

BTU Analytics' reviewed the well results for the two most active horizontal drillers in the Uinta Basin to develop indicative well economics.



Note: Indicative economic analysis assumes NYMEX strip pricing as of March 22, 2019. IP rates are based on observed, operator-specific 2018 state production data. Encana's D&C costs are assumed to be analogous at Crescent Point Energy's reported current and target levels.
Source: BTU Analytics, Bloomberg, Crescent Point Energy, Well Database

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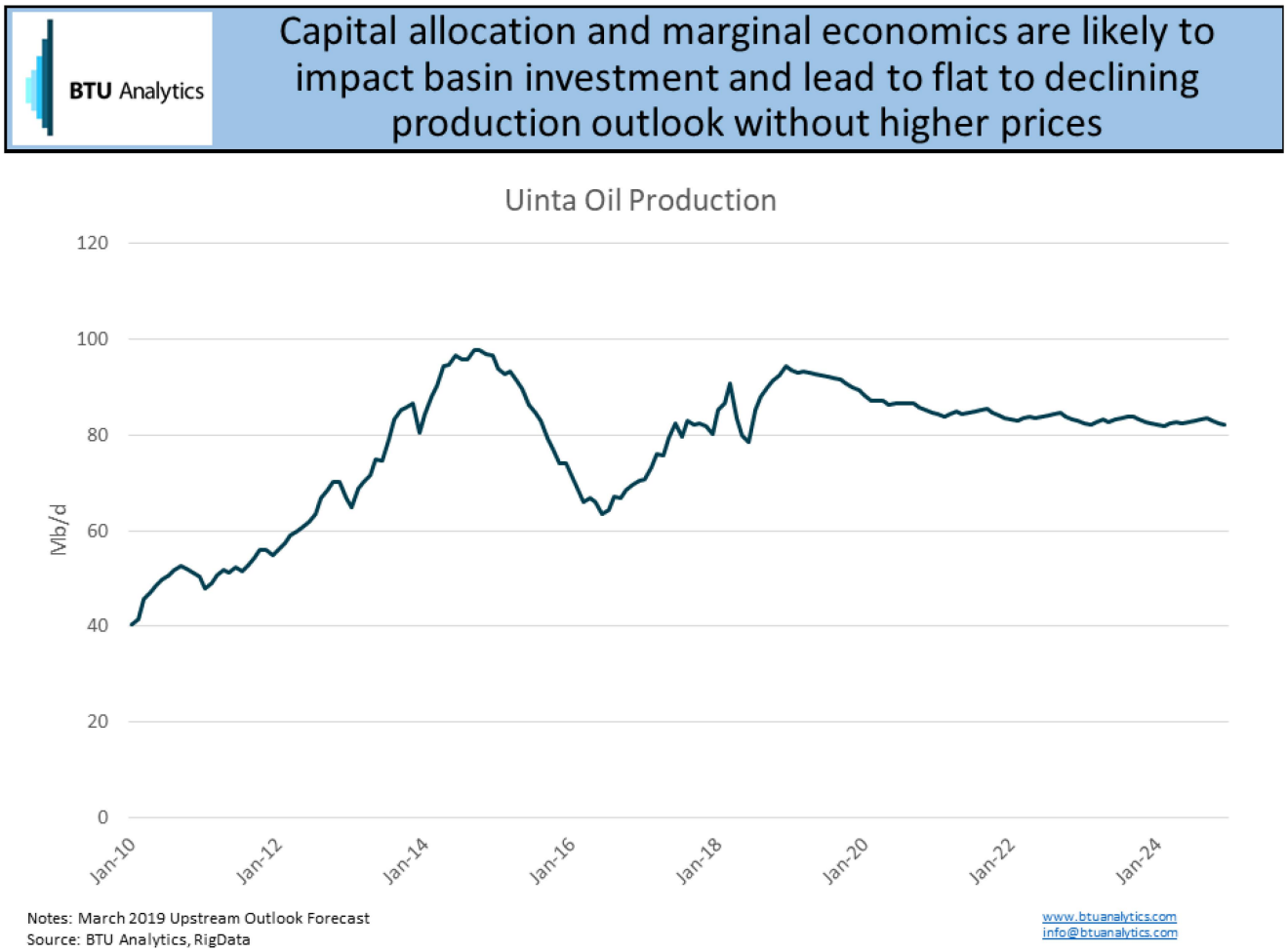
In 2017 and 2018, Crescent Point Energy's drilling and completion (D&C) costs were $5 million for one mile lateral wells. Additionally, Crescent Point indicated 2 mile laterals cost between $8.5 and $10.0 million. From the same investor presentations, Crescent Point Energy's planned development wells were aiming for targets of $4.2 million and $7-8.5 million. The decline represents an approximate 15% decrease in D&C costs per well. Encana has yet to disclose updated D&C cost estimates for the Uinta Basin. Due to a lack of disclosure on costs from Encana or prior by Newfield Exploration, BTU Analytics

benchmarked well costs to Crescent Point's D&C costs. While the wells now operated by Encana had higher production rates than Crescent Point's, neither operator appears to be achieving high margins in the Uinta Basin compared to their key focus plays.



As a result, BTU Analytics expects activity in the region to fall from current levels and production to decline. As evidenced by this analysis' indicative economics and operator budget declines, significant production growth would require stronger crude prices in conjunction with additional D&C efficiencies. Uinta Basin economics have improved in recent years, but will it be enough to secure future investment from a capital discipline-minded market? To learn more about BTU Analytics' viewpoint on Uinta Basin production outlook, investigate our Upstream Outlook. For more thorough well-level economic analysis, request a sample of our E&P Positioning Report.

March 26, 2019

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HAMP SMITH

Hamilton (Hamp) Smith is an Energy Analyst at BTU Analytics, focusing on the publication of BTU's E&P Positioning Report. He also oversees oil and gas production forecasting for the Rockies. Prior to joining BTU Analytics, he was a hydraulic fracturing field engineer at BJ Services. Hamp holds a B.S. in Petroleum Engineering and M.B.A. in Energy Management, both from the University of Wyoming.

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December 19, 2019

ANN K. BROWN
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GRAMA request regarding Seven County Infrastructure Coalition's Applications for funding for the Uintah Basin Railway

To Whom It May Concern:

Enclosed are the documents you have requested in the above-entitled matter, with the exception of information withheld as described below.

From July 1, 2017 to the date the CIB conducts this search all:
1. Records generated in connection to the Seven County Infrastructure Coalition's ("SCIC") applications for funding for the Uinta Basin Railway ("Railway"), including but not limited to:

a. SCIC's February and September 2018 applications;
b. Materials provided in support of the applications or funding requests;
c. Meeting notes and agendas; AGENDA'S AND MINUTES ARE POSTED ON THE PUBLIC NOTICE WEBSITE. https://www.utah.gov/pmn/sitemap/notice/495191.html
d. Memos, studies, and/or findings; and/or minutes: https://www.utah.gov/pmn/sitemap/notice/495191.html **SCIC has claimed all studies as Protected documents under UT CODE 63G-2-305(1,2,8,9,**
e. Public notices. Public notices are available at: https://www.utah.gov/pmn/index.html#
2. Records generated in connection to the CIB's payment of Railway expenses pursuant to its grant contracts with SCIC, including invoices, expense approvals or denials, and/or expense payment records; **Note: Certain communications made from legal counsel are privileged and classified as protected under UT CODE 63G-2-305(17).**
3. Draft legislation about the Railway or the CIB, and/or the funds that the CIB manages; **DWS is not the owner of any records responsive to this issue.**

4. Other applications and supporting materials for CIB funding submitted by SCIC to CIB. **DWS does not know of any other responsive documents beyond what is already provided.**

The cost for producing the records is outlined below:

1	disk @ $10 per disk	$ 10.00
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We would appreciate remittance, payable to Utah Department of Workforce Services, tax identification number 87-6000545, at your earliest convenience. Please list "Information Disclosure Office-GRAMA request" in the memo field. Send payment to the address on this letter. PLEASE DO NOT SEND CASH.

If you disagree with the denial of any information as described in this response, or of your request to waive the fee, you have the right to appeal the denial within thirty (30) days of this letter to Jon Pierpont, Workforce Services' chief administrative officer. Further information about your appeal rights can be found under Section 63G-2-401 of GRAMA. You may mail your appeal to the following address:

Jon Pierpont, Executive Director
Department of Workforce Services
140 East 300 South 5th Floor
Salt Lake City, UT 84111

Thank you for your cooperation in this matter. We hope this information will be of help to you.

Sincerely,

Wes Stapley
Information Disclosure Officer

Enclosure – 1 CD

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KEY POINTS

- The U.S. shale industry is about to enter a period of "great compression" as low oil prices hammer the sector, according to Deloitte.
- The firm believes that exploration and production companies could write down the value of their assets by $300 billion, with significant impairments expected in the second quarter.
- "As COVID-19 impacts amplify pressures on shale companies through 2020, a wave of impairments may prompt the deepest consolidation the industry has ever seen over the next six to 12 months," said Duane Dickson, vice chairman at Deloitte.

A derrick man secures a length of drill pipe during drilling on a natural gas drill rig near Montrose, Pennsylvania, U.S., on Monday, April 5, 2010.

Daniel Acker | Bloomberg | Getty Images

The U.S. shale industry is about to enter a period of "great compression" as low oil prices hammer the sector, according to a Deloitte study released Monday.

The firm believes that exploration and production companies could write down the value of their assets by as much as $300 billion as they struggle to breakeven in a lower-for-longer oil price environment. Significant impairments are expected in the second quarter. Based on this, the firm envisions a wave of bankruptcies followed by mass consolidation.

"The oil industry is currently experiencing a 'great compression' in which companies' room to maneuver is restricted by low commodity prices, reduced demand, capital constraints, debt loads, and health impacts of COVID-19," the report said. "Unlike in previous downturns, these effects are now simultaneous — creating a higher level risk of technical insolvencies and building intense pressure on the industry."

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The coronavirus pandemic sent oil prices tumbling in March and April as billions of people around the world stayed home in an effort to slow the spread of the virus. By some estimates, global fuel demand dropped by a third as businesses shut their doors, cars remained parked and airplanes stayed grounded.

At one point in April, West Texas Intermediate crude plunged into negative territory for the first time as demand remained depressed and oil storage quickly filled.

Since then, the U.S. oil benchmark has gained more than 200% due to production cuts as well as improving demand. Still, on Monday the benchmark traded around $39 per barrel, far below the more than $60 it fetched at the beginning of the year. As recently as 2014, WTI traded above $100.

According to Deloitte, 30% of shale operators are technically insolvent with oil prices at $35 and 20% have “stressed financials.”

While some of the $300 billion in write-downs and impairment charges that the firm envisions is due to accounting practices, it’s also indicative of the fact that these companies are becoming riskier for equity holders. The charges signify a reduction in future earnings power, and with debt levels staying the same, a company’s leverage ratio immediately increases.

“As COVID-19 impacts amplify pressures on shale companies through 2020, a wave of impairments may prompt the deepest consolidation the industry has ever seen over the next six to 12 months,” said Duane Dickson, vice chairman at Deloitte.

Whiting Petroleum, once a big player in the Bakken shale region, was the first casualty of the coronavirus-induced drop in oil prices when the company filed for bankruptcy protection on April 1. And others are reportedly on the way.

The impacts will be felt across the oil and gas sector, as well as throughout the financial markets more broadly, Deloitte said.

“The reverberations of the pandemic will extend beyond the US shale industry. Although US shale is less than 10 percent of global oil and gas production, it accounts for 40 percent of the global drilling activity and explains nearly 100 percent of the growth in US midstream and export-oriented refining and petrochemical sectors over the past 10 years. Thus, any major developments in US shales will likely have a domino effect on the global oil and gas industry,” the report concluded.

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NEWS

Lawsuit Challenges FERC on Latest Jordan Cove LNG Approval

by Bertie Melinda Taylor | Rigzone Staff | Thursday, June 04, 2020

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Various conservation groups filed a lawsuit late last week challenging FERC's approval of the Jordan Cove LNG export terminal and Pacific Connector fracked gas pipeline. FERC's approval of Jordan Cove back in March hinged on the project qualifying for key permits from the state of Oregon and three of those permits have been denied or withdrawn.

The project is supposed to feature a liquefied natural gas export terminal in Coos County, Oregon, and a pipeline for the transportation of natural gas sourced from the United States and Canada.

The LNG terminal will be on the North Spit at the Port of Coos Bay, on a site zoned for industrial development, about seven nautical miles from the entrance of the federally controlled and maintained navigation channel. The LNG terminal will be on 240 acres of land owned by Jordan Cove.

The 36-inch diameter pipeline is designed to transport gas approximately 229 miles from interconnections with the Ruby Pipeline and the Gas Transmission Northwest Pipeline near Malin, Oregon, to the LNG Terminal in Coos County. The pipeline will cross 40 miles of BLM-managed lands, approximately 30.58 miles of Forest Service managed lands in the Umpqua, Rogue River-Siskiyou, and Fremont-Winema National Forests, and approximately

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0.31 mile of lands managed by the Bureau of Reclamation, according to the project website.

The conservation groups' lawsuit, filed in the U.S. Court of Appeals for the D.C. Circuit, challenges FERC's approval of the project under the National Environmental Policy Act and Natural Gas Act. The groups argue FERC failed to consider critical information about the proposed facility and that it is not in the public interest.

To contact the author, email bertie.taylor@rigzone.com.

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Diana Hurst | June 04, 2020

Good for them! Can't believe our federal government agencies are giving authority to a foreign energy company to condemn the private property of United States citizens and authorize Pembina to claim eminent domain!

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NEWS

Ovintiv's Head of Exploration Exits

by Bertie Melinda Taylor | Rigzone Staff | Monday, June 22, 2020

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Ovintiv Inc.’s head of exploration is leaving the company, according to a June 19 SEC filing. The departure is on the heels of announced plans for **a deep cut to company headcount** from offices in Calgary, Denver and The Woodlands, Texas, as well as from field staff.

The filing said David G. Hill will leave the company on June 30. He will also cease to serve as executive vice president of land and exploration at that time.

In the role, Hill was accountable for leading his team in identifying and securing a top-tier resource portfolio for the company through exploration of new and emerging plays. He joined Ovintiv in November 2002 and assumed a variety of leadership roles, including his previous position as vice president, operations, Encana Natural Gas Inc. Prior to joining Ovintiv, Hill was president of TICORA Geosciences.

The filing did not provide additional details around Hill’s departure.

In late May, the company had additional people moves at the executive level when its president, Michael McAllister, announced plans to retire after 20 years with the company. Peter A. Dea will also succeed Clayton H. Woitas as board chairman upon the latter’s retirement. CEO Doug Suttles is set to assume the responsibilities of

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president on June 30.

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Ovintiv announced company-wide layoffs on June 17. The number of local job losses was not released.

Ovintiv announces company-wide layoffs

Jun 17, 2020 1:00 PM

John Thompson
jthompson@ubmedia.biz

An Ovintiv official confirmed Wednesday that company-wide layoffs are proceeding.

Ovintiv Director of Communications Cindy Hassler said she could not provide details on the number of Uinta Basin job losses.

"We are experiencing layoffs across the company at all levels from executives to field locations," she said. "It's deeply unfortunate but we had to take steps to right-size the organization to what we foresee as future activity levels."

Ovintiv is an energy production company based in Denver, Colo. Formerly Encana, the company serves clients throughout the United States and Canada. The company moved its headquarters location to Denver from Calgary, Alberta, Canada in January.

Prior to this week's layoffs Ovintiv employed about 2,600 people. It's stock price was listed at $10 per share on Wednesday. It's 52-week high share price is $28.75 and its 52-week low is listed at $2.10.

Hassler said Ovintiv does not expect its future oilfield activity levels to match the pre-COVID-19 levels in the

near term. "Our decisions were not based on the short-term reaction, they are based on what we felt would be the long-term strategy and that is for lower production levels," she said.

According to the company's first-quarter 2020 financial report, second-quarter capital investment was reduced by 60 percent. So far this year Ovintiv has reduced its number of operating drill rigs from 23 to seven, Hassler said. Completed well costs are expected to be 20 percent lower this year than last year driven by sustainable efficiency gains. According to the report, the company is fully hedged on second-quarter benchmark oil price risk at an average price of $42.09 per barrel.

West Texas Intermediate Crude was listed at $38.09 on June 17. Further, the company's first-quarter highlights include liquidity at approximately $3.4 billion, a repurchase of $100 million in long-term debt in the open market at an 11 percent discount, and investment-grade credit ratings.

"In the first quarter, we built on our track record of industry-leading efficiency and once again significantly drove down costs and delivered strong corporate-level results," said Doug Suttles, Ovintiv CEO. "These are challenging times, but we are using the flexibility we purposely built into our business to maintain financial strength and set our company up to thrive in whatever new environment emerges in the coming months and years. Our focus on cost reductions is making a huge difference today and for the future. We are confident we can deliver both $200 million in cash cost reductions and a 20% improvement in capital efficiencies. Most of these savings will carry into 2021.

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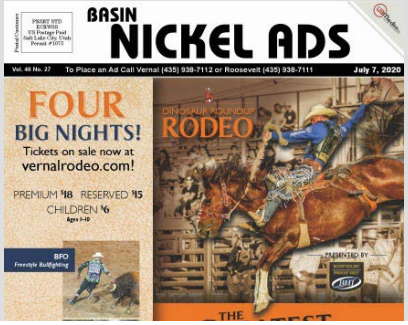

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Ute Tribe chastises Seven County Coalition, demands inclusion in railway decision-making

John Thompsonjthompson@ubmedia.biz

Ute Tribe chastises Seven County Coalition, demands inclusion in railway decision-making

Although the Ute Tribe is a partner in the Uinta Basin Railway project (UBR), tribal officials say they are being left out of important decisions related to the commercialization of the project.

A letter dated May 11 from the Ute Tribe Business Committee to the Seven County Infrastructure Committee (SCIC), the main sponsor of the estimated $1.2 billion project, requests the Tribe is recognized as a partner in a Memorandum of Understanding (MOU) that governs ownership of the right-of-way for the 80-mile-long railway, and other financial and operational aspects of the project.

Devan Pearson, an attorney representing the Tribe's oil and gas interests, attended an SCIC meeting held on May 22. Although the Ute Tribe has not attended any SCIC meetings over the past several months, they made a special request that their letter be read into the meeting record.

"This MOU explicitly recognizes the Tribe as a partner in this project," the letter states. "In fact, the MOU provides for Drexel Hamilton's agreement to the May 10, 2019 Term Sheet between the Tribe and Coalition outlining not only the Tribe's ownership options in the project but also the uniquely important role the Tribe will play in facilitating project development. Yet the Tribe has not been included as a party to the MOU or otherwise involved in the negotiations surrounding this MOU or any other related agreement that may be in development in furtherance of this project."

Drexel Hamilton is a New York financial firm and private partner in the Uinta Basin Railway. Rio Grande Pacific is a Fort Worth, Texas railroad company and also a private partner in the project. The MOU in place between the two private firms and SCIC stipulates Drexel Hamilton will purchase the land for the railroad right-of-way and they have until June 1, to negotiate a transaction changing ownership of the right-of-way to SCIC.

That deadline created an arduous negotiation between Drexel Hamilton Managing Partner Mark Michel, Pearson, representing the Ute Tribe, and SCIC officials during the May 22 meeting. The private partners in the project cannot meet the June 1 deadline to transfer ownership of the right-of-way to SCIC. The negotiation centered on extending the right-of-way ownership transfer deadline until March 31, 2021 and finding a way to include the Ute Tribe in the MOU.

A special SCIC meeting was scheduled for May 29.

During a meeting held last October, SCIC Attorney Eric Johnson explained that if Drexel Hamilton remains a partner in the UBR, the right-of-way will be transferred without cost to SCIC. But if Drexel Hamilton pulls out, SCIC is on the hook to reimburse the firm for its out-of-pocket costs associated with buying the railway easement.

The Ute Tribe signed a term sheet last fall that stipulates their option to own up to 25 percent of the proposed Uinta Basin Railway and 49 percent of the terminals along the line. Further, the term sheet states the Tribe will assume interest in the rail line and up to three terminals as "separate and distinct assets."

If the project comes to fruition and according to the term sheet, the Tribe will assume five percent ownership of the rail line with an option to purchase another 20 percent. Regarding terminals, one of which includes plans for a refinery capable of processing 40,000 barrels of crude oil per day, the Tribe assumes a five percent baseline interest with an option to assume another 44 percent.

In exchange for those assets, the Tribe grants an easement for the rail line across parts of the Uintah and Ouray Reservation and access for construction of the project at "fair market rates," according to the term sheet.

SCIC Executive Director Mike McKee said the project's private partners have run into COVID-19-related problems in their work to commercialize or procure the oil contracts that will allow the railway to operate. Pushing the deadline in the MOU back to 2021 provides some breathing room, he said.

The Ute Tribe's letter, signed by Business Committee Chairman Luke Duncan, states that they appreciate the recognition of the partnership that exists but they would rather see it expressed in actions rather than words.

"In order to maintain this partnership for the betterment of the rail project, the Tribe must be meaningfully involved in all negotiations and discussions surrounding the commercial development of this project from this point forward," the letter states.

ENERGY

Whiting Petroleum is just the 'first domino' to fall in US shale wipeout, strategist says

PUBLISHED THU, APR 2 2020•9:45 AM EDT | UPDATED THU, APR 2 2020•9:46 AM EDT

Natasha Turak@NATASHATURAK

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KEY POINTS

- The U.S. shale patch bears some of the highest production costs in the world, requiring a breakeven price of between $50 and $55 per barrel.
- Now, with Saudi Arabia and Russia's planned production increases to battle for market share exacerbating the price crash brought on by the coronavirus pandemic, the sector faces what may well be a bloodbath.
- "U.S. shale is now economically unviable," Chris Midgley, global head of analytics at S&P Global Platts, told CNBC.

A pumpjack operates above an oil well at night in the Bakken Formation on the outskirts of Williston, North Dakota, U.S., on Thursday, March 8, 2018.

Bloomberg | Bloomberg | Getty Images

Wednesday's Chapter 11 bankruptcy filing for Colorado-based Whiting Petroleum is a grim omen of things to come, experts say, as oil prices face historic collapse amid the coronavirus crisis and the Saudi-Russia oil price war.

The company is the first U.S. shale producer to go under since the start of the year, when oil prices began to fall.

"I don't want to be a doomsayer, but I think Whiting is just simply the first domino that's going to fall," John Driscoll, chief strategist at JTD Energy Services, told CNBC's Capital Connection on Thursday. "It's a fairly substantial company, but the smaller producers, if they don't have the hedging in place, it's going to be a tough route — Chapter 11 might be the only way to go."

The shale industry, responsible for America's vault to become the world's largest oil producer in 2018, already faced problems generating cash and holding investor support. In 2019, 42 oil companies with more than $25 billion in cumulative debt filed for U.S. bankruptcy protection, according to restructuring law firm Haynes & Boone.

The U.S. shale patch also bears some of the highest production costs in the world, requiring a breakeven price of between $50 and $55 per barrel.

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VIDEO 01:35
Shale industry is a victim of its own success: Lipow Oil Associates

Now, with Saudi Arabia and Russia's planned production increases to battle for market share exacerbating the price crash brought on by the coronavirus pandemic, the sector faces what may well be a bloodbath: U.S. benchmark West Texas Intermediate is now trading at around $22 per barrel, down more than 60% year-to-date, and forecasters expect it to fall further.

"U.S. shale is now economically unviable," Chris Midgley, global head of analytics at S&P Global Platts, told CNBC. "Some areas will come back as prices return. First hit will be the more capital intensive crudes."

Just 16 U.S. shale firms operate fields where production costs are less than $35 a barrel, according to research firm Rystad Energy. Producers have scrambled to close rigs, lay off staff and cut capital spending. Oil major Chevron is cutting its 2020 capex budget by 20% and is halving its spending in Texas's Permian Basin.

"I do suspect there's a wall of these issues about to hit the market," said Daniel Hynes, senior commodity strategist at ANZ. "And clearly banks are going to be running the ruler over a lot of these clients now and looking at credit limits and the like. So I do think (Whiting) is the tip of the iceberg."

'No one's ever seen this'

This isn't the first time shale has fallen victim to a Saudi-led price war. In 2014, when the kingdom and its OPEC allies refused to cut output amid falling prices in order to undermine shale and expand market share, more than 100 small independent shale companies in the U.S. were forced into receivership.

But the scale of today's market shock — a global economy on lockdown amid a pandemic, prompting an estimated oil demand drop of as many as 20 million barrels a day in April and a projected 20% demand contraction this year — is unprecedented.

"There are guys here that have done this for 20, 30 years — no one's ever seen this. They could never have imagined this," a Houston-based commodities trader, who asked to remain anonymous due to the sensitive nature of the situation, told CNBC. "You couple a global pandemic with Saudi Arabia and Russia walking away from the OPEC+ table... you can't make this stuff up. It's crazy."

A deal between OPEC and non-members led by Russia — known as OPEC+ — to cut oil production in order to stabilize prices collapsed in early March when Moscow refused to agree to Riyadh's terms. This set off the dramatic U-turn in Saudi oil policy and an "each man for himself" race to pump more crude to more customers.

VIDEO 02:13
US banks' exposure to shale industry defaults are minimal: Analyst

Demand for oil is currently so low that refiners reduced their utilization rates — the refining activity compared to the refinery's capacity — by 5% to 82.3% last week, according to PVM Oil Associates, a level of inactivity not seen since 2017.

"Crude oil inventories grew by a massive 13.8 million barrels," Stephen Brennock of PVM wrote in a note this week. "The U.S. has not consumed so little gasoline for 26 years."

Yet U.S. producers continue to pump at near-record highs, cranking out 13 million barrels per day last week, according to the Energy Information Agency. They're now running up against fast-disappearing storage space and prompting calls in Texas for state regulatory action to curtail production, something that hasn't been done in 50 years.

“Production shut-ins and another brutal wave of spending cuts are all but guaranteed,” said Brennock, amid the expectation that the U.S. will lose its top-producer spot to Saudi Arabia and possibly Russia this year. “This sharp pullback in U.S. upstream spending could see total oil production fall by 1 million bpd before the current year is out.”

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Uinta Basin Railroad Feasibility Study
Summary Report

Uinta Basin Rail

Utah Department of Transportation
UDOT Project Number S-R399(169)

January 9, 2015

Prepared by
HDR Engineering, Inc.
3949 South 700 East, Suite 500
Salt Lake City, UT 84107

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Acronyms and Abbreviations

APE	area of potential effects
AREMA	American Railway Engineering and Maintenance-of-Way Association
BLM	Bureau of Land Management
BNSF	BNSF Railway
CAPEX	capital cost
CEVP	Cost Estimating Validation Process
CTC	Centralized Traffic Control
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FRA	Federal Railroad Administration
HDR	HDR Engineering, Inc.
mph	miles per hour
OPEX	operating and maintenance cost
PBA	public benefit analysis
PTC	Positive Train Control
PV	present value
RTC	Rail Traffic Controller (RTC) software
S.R. 88	State Route 88
SHPO	State Historic Preservation Office
STB	Surface Transportation Board
SUWA	Southern Utah Wilderness Alliance
U.S. 191	U.S. Highway 191
U.S. 40	U.S. Highway 40
U.S. 6	U.S. Highway 6
UBETS	Uinta Basin Energy and Transportation Study
UBRR	Uinta Basin Railroad
UDOT	Utah Department of Transportation
UDWR	Utah Division of Wildlife Resources
UP	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

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1.0 Introduction

In 2013, the Utah state legislature funded a study by the Utah Department of Transportation (UDOT) to explore potential transportation improvements in the Uinta Basin. Uintah and Duchesne Counties directed the effort and identified the need to explore the feasibility of a new freight rail line (Uinta Basin Railroad, or UBRR) in and out of the basin and requested that UDOT use the funding to provide technical support to determine the feasibility. If a freight rail line was found to be feasible, the Counties requested that UDOT support development of an Environmental Impact Statement (EIS) that would evaluate the expected impacts and obtain the necessary approvals to build the rail line.

What is the UBRR team?

The UBRR team consists of Uintah and Duchesne Counties, UDOT, and rail and environmental planning consultants.

This summary report provides the history of the Uinta Basin Rail Feasibility Study and summarizes the work that was completed to determine the feasibility of the project. The Uinta Basin Rail Feasibility Study evaluated a proposed 100-mile rail line designed to provide freight rail service between the Uinta Basin and the two national freight rail lines that pass through Utah about 50 miles to the south (Figure 1). The results of the feasibility analysis showed that two alignments are feasible to construct, with one alignment being preferred (Alternative 2 along U.S. Highway 191). However, on December 1, 2014, Uintah and Duchesne Counties informed UDOT of their determination that the return on investment for the rail line was insufficient to justify the expense of construction. Consequently, a notice of intent to prepare an EIS was never released.

2.0 History

The Uinta Basin—known since pioneer times as the Isolated Empire—contains extensive deposits of economically valuable minerals, including large deposits of soda ash and phosphate. Also found within this region are substantial deposits of crude oil, natural gas, oil shale, oil sands, gilsonite, natural asphalt, limestone, bentonite, heavy clay, aggregate materials, bauxite, and low-sulfur coal. Agriculture is also an important part of the Uinta Basin's economy and includes cattle, alfalfa, corn, potatoes, and other field and orchard crops. At present, the Uinta Basin is isolated from the national rail network.

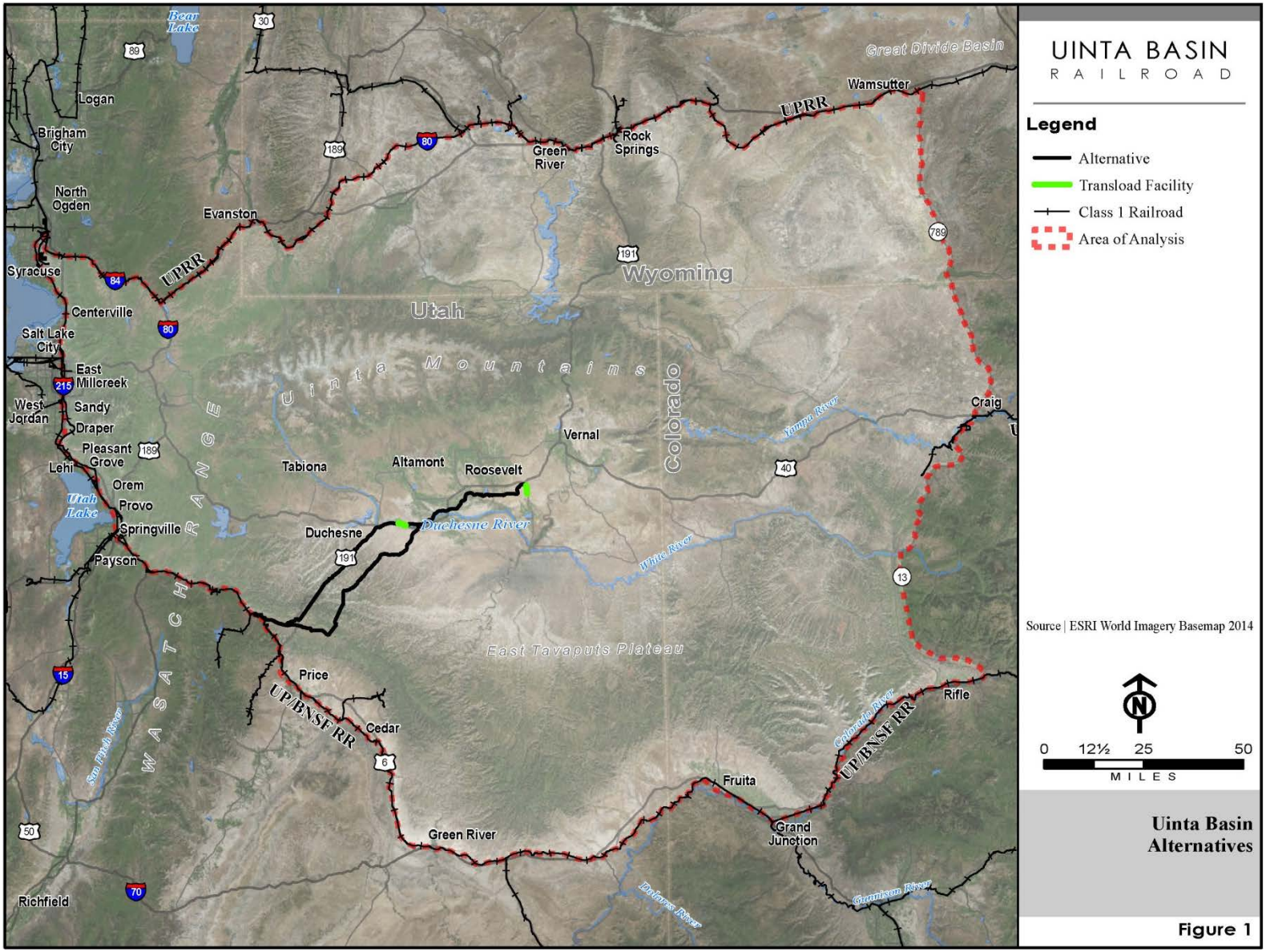
What are Class 1 railroads?

Class 1 railroads are carriers with annual carrier operating revenues of $433.2 million or more.

Past studies evaluated the potential for rail alignments into the basin. In 2001, the Utah Department of Community and Economic Development studied the feasibility of constructing a freight rail line (the Isolated Empire Rail) into northeastern Utah (Uinta Basin) and northwestern Colorado (DMJM Harris 2001). The primary need identified for a new rail line was that northeastern Utah and northwestern Colorado do not have the rail, highway, or waterway transportation infrastructure that is required to link their natural resources to markets in the rest of the United States. Although feasible rail alignments that connected to competing Class 1 railroads were identified in the DMJM Harris report, no rail line was constructed.

With the more recent increase in gas and oil production, the State of Utah again began to investigate transportation options into the basin starting with the Uinta Basin Energy and Transportation Study in 2013 and the Uinta Basin Rail Feasibility Study in 2014. These studies are described in more detail below.

Figure 1. Uinta Basin Alternatives



2.1 Uinta Basin Energy and Transportation Study (UBETS)

In 2013 and prior to the Uinta Basin Rail Feasibility Study, UDOT prepared the Uinta Basin Energy and Transportation Study (UBETS). UBETS was needed to understand the effect of transportation limitations in Duchesne and Uintah Counties on future oil and gas production in the Uinta Basin. The study was sponsored by Duchesne County, Uintah County, the Uintah Transportation Special Service District, and UDOT. It sought to answer three questions:

- What is the likely path of growth for energy production in the basin?
- Is transportation capacity limiting future energy production?
- If so, what is the opportunity cost of failing to address transportation system limitations?

UBETS was designed to ensure a rigorous, credible, conservative estimate of future production value as well as the potential loss to the state's economy due to transportation constraints. Additionally:

- The study was based on data collected from the U.S. Geological Survey, the Utah Geological Survey, the U.S. Energy Information Administration, UDOT, and respected academic institutes.
- The study included multiple rounds of stakeholder workshops and engaged a large number of producers and other industry participants through an extensive interview process.
- The results were a product of quantitative risk analysis, including assessment of a wide variety of production constraints, price uncertainty, production input requirements, and mode substitution.

The study showed that 2012 basin-area oil and gas production was worth about $2.5 billion; extraction was expected to grow quickly. The product of the study was an estimate of the value of potential extraction lost due specifically to transportation constraints—more than $30 billion of lost oil and gas production over 30 years (undiscounted). The study also estimated the opportunity cost resulting from the constrained transportation system in terms of tax revenue, private rents and royalties, jobs, transportation user cost savings, and environmental and safety effects to be a present value of more than $10 billion of net benefits and almost 27,000 long-term, high quality jobs (Table 1).

Table 1. Opportunity Cost of Constrained Oil and Gas Transportation Capacity in the Uinta Basin, Present Value[a] (over 30 Years)

Revenues and User Benefits (millions)		Environmental and Social Costs (millions)		Macroeconomic Impact	
Profit, rents, dividends, and private royalties [b]	$3,784	Site emissions and ecological impacts	($1,246)	Total regional output (millions)	$34,794
State and local tax revenue	$2,756	Vehicle emissions	($24)	Total labor income (millions)	$11,791
User cost savings	$4,943	Safety impacts	($101)	Long-term jobs [c]	26,802
Total	**$11,483**	**Total**	**($1,371)**		

[a] 3% discount rate.
[b] Represents the portion of total macroeconomic output that is additional private citizen/corporate "profit" net of expenses and resource depletion.
[c] Assumes a 10-year term of employment.

The study indicated potentially significant returns resulting from additional strategic investment in transportation infrastructure in the basin. The added annual oil and gas production represents about 7% of the state's gross domestic product (GDP). Of the $180 million average annual added tax revenues, the Utah School and Institutional Trust Lands Administration royalties alone would add about $25 million

per year directly to public education. The study noted that, in order to capture these opportunities and realize the lost revenues, further assessment of transportation investment options, production regulation and policies, and environmental impact mitigation strategies would be necessary.

2.2 Uinta Basin Rail Feasibility Study

Motivated by the results of UBETS, the Utah state legislature funded an environmental study to look at transportation investment options and the associated environmental impacts. The funds were directed through UDOT to support Duchesne and Uintah Counties in looking at potential options. Based on the need to reduce energy transportation cost, expand transportation capacity, and improve market reach, the Counties decided to undertake the Uinta Basin Rail Feasibility Study.

The study was designed to determine whether it is feasible to construct a rail line into and out of the basin. It included a cost-benefit analysis to determine the rail line's return on investment. If the rail line were determined to be feasible, a notice of intent to start an EIS process would be issued. The Surface Transportation Board (STB), which responsible for approving any freight rail connection to the existing national rail network, was invited to lead the EIS effort. STB confirmed that it would be the lead federal agency if an EIS process were initiated.

The feasibility process started in November 2013 and concluded in December 2014.

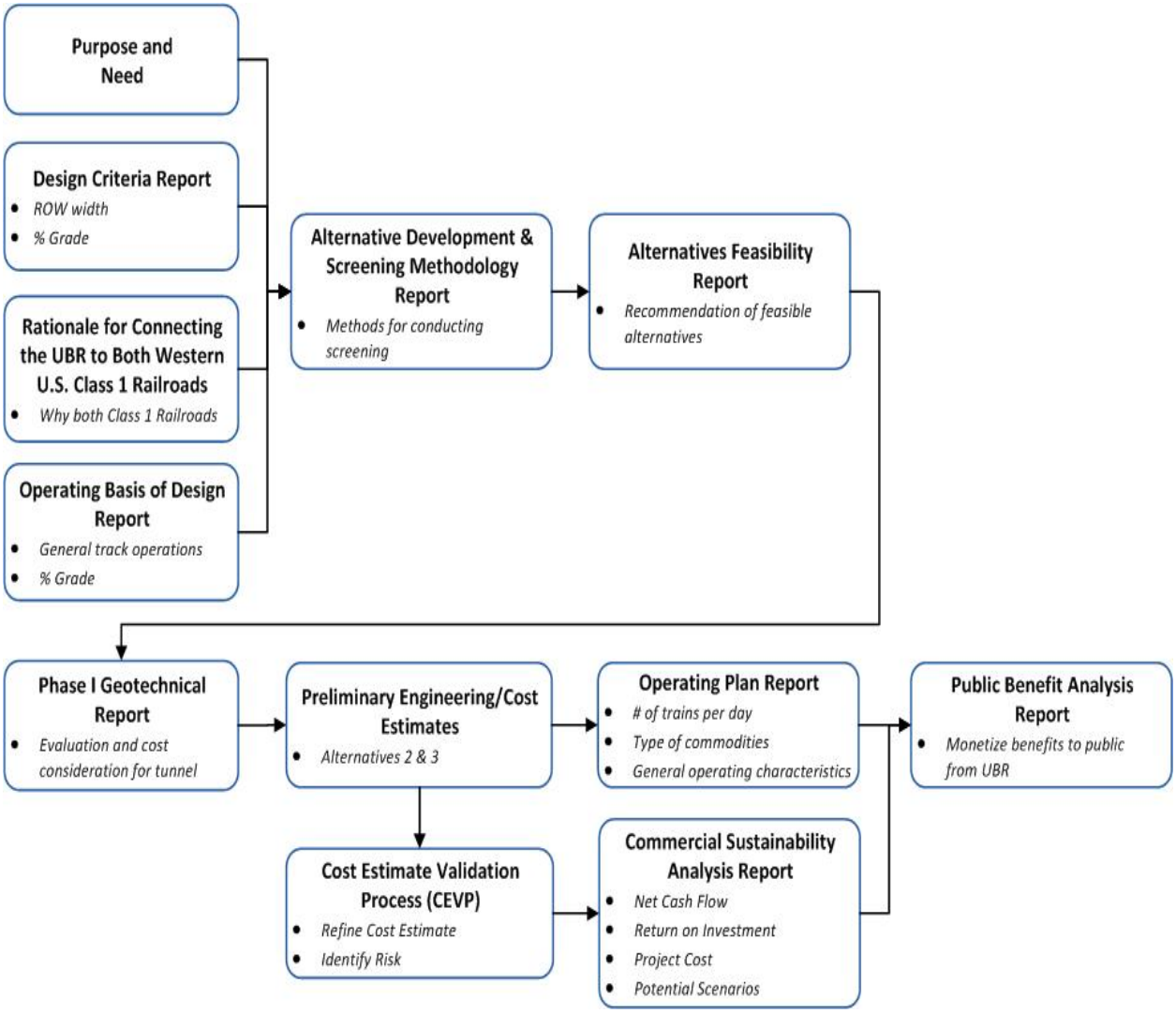
3.0 Overview of the Uinta Basin Rail Feasibility Study Process

For the Uinta Basin Rail Feasibility Study, a series of studies and technical reports were prepared to assist decision-makers in evaluating the proposed rail project and to make a decision regarding the feasibility based on the information provided. This section provides a summary of each report.

The technical reports are divided between Phase 1 (Alternatives Development and Feasibility) and Phase 2 (Field Studies and Environmental Discipline Reports). The primary purpose of the technical reports was to determine the engineering feasibility of the project and, if feasible, to provide information to STB so that an EIS could be prepared for the UBRR. During Phase 1 (April 2014), UDOT determined that two alternatives were feasible from an engineering standpoint (economic evaluation was not completed until November 2014). UDOT decided to conduct environmental field surveys of those alignments prior to the winter of 2014 so that, if an EIS were started, there would be no schedule delay due to missing a summer field survey season.

The technical reports for Phase 1 are shown in Figure 2 below. The primary purpose of Phase 1 was to determine whether there are feasible rail alternatives into the Uinta Basin and, if so, to develop preliminary engineering and cost estimates for those alternatives. In addition, Phase 1 provided a preliminary evaluation of how the rail line would be operated, the commercial analysis or return on investment, and what would be the public benefit of the rail line.

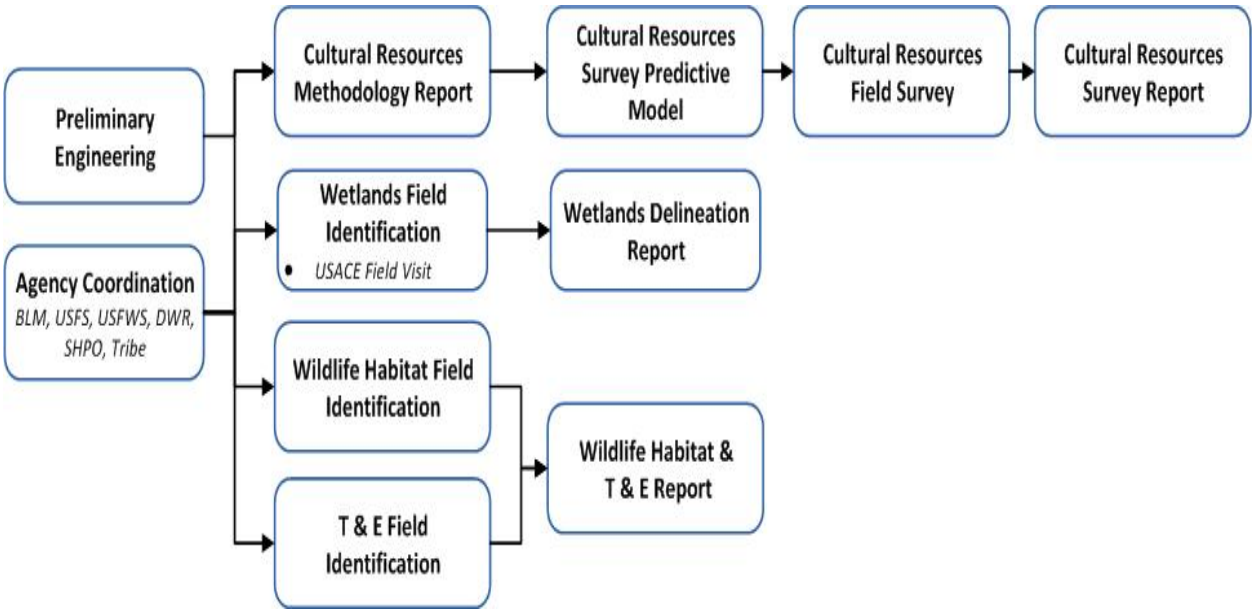
Figure 2. Phase 1 Alternative Development and Feasibility Reports



Phase 2 included conducting the environmental field surveys for the feasible alternatives and developing the baseline environmental discipline reports. Figure 3 below shows the process for developing this information.

During Phases 1 and 2, UDOT collected a substantial amount of data in GIS (geographic information systems) format from resource agencies and during the field surveys to help prepare the technical reports. The technical reports are provided in the appendices of this summary report.

Figure 3. Phase 2 Field Surveys and Resource Reports



3.1 Phase 1 Reports

3.1.1 Purpose of and Need for the Uinta Basin Railroad

This report identified why the UBRR is needed and the purpose of the project. The purpose of and need for the project are summarized below.

Need for the Project

The Uinta Basin is a geographical area in east-central Utah that includes the communities of Vernal, Duchesne, Roosevelt, Altamont, Myton, Ballard, Naples, and Tabiona as well as smaller, unincorporated communities. The basin contains extensive deposits of economically valuable minerals, including large deposits of soda ash and phosphate. Also found within this region are substantial deposits of crude oil, natural gas, oil shale, oil sands, gilsonite, natural asphalt, limestone, bentonite, heavy clay, aggregate materials, bauxite, and low-sulfur coal. Agriculture is also an important part of the Uinta Basin's economy and includes cattle, alfalfa, corn, potatoes, and other field and orchard crops. The above types of commodities benefit from being transported in large bulk shipments to market by rail, which provides transportation efficiency and reduces cost.

The needs for the project include the need for reduced shipping rates for commodities transported to and from the Uinta Basin and the need for expanded market access for the commodities produced in the Uinta Basin. The Uinta Basin does not have access to rail service except via lengthy intermediate truck or pipeline haulage between the basin and the national rail network beyond the basin. The cost of the intermediate truck haulage combined with the commodity, network, and capacity limitations of pipelines result in higher costs of transportation for commodities transported to and from the Uinta Basin and limit the access to markets for commodities produced in the basin (commodities such as oil, gilsonite, and grain) compared to the access that would be expected if the basin had direct access to the national rail network.

In general, as transportation costs increase, economic competitiveness decreases, economic potential is reduced, and economic activity decreases. Freight rail service provides producers with cost-effective transportation, especially for heavy and bulky commodities. The need for the project is summarized below.

- **No rail service.** There is no rail service to the Uinta Basin.
- **Higher cost to ship by truck.** Commodities are transported into and out of the basin primarily by truck. The average revenue per ton-mile for rail-hauled freight in the United States is $0.0376, whereas the average revenue per ton-mile for truck-hauled freight in the United States is $0.1654 (U.S. Department of Transportation, Bureau of Transportation Statistics 2007). The lower cost of rail transportation means that a producer can transport a commodity 4.3 times farther by rail than by truck for the same cost.
- **Distance to the national rail network.** Transportation of commodities that are not suitable for pipeline transportation between the Uinta Basin and national markets requires either a truck haul between the commodity's origin and destination or a truck haul for the portion of the commodity's route between the Uinta Basin and a transload facility on the national rail network. The nearest rail lines are between 112 and 154 miles on rural highways from Vernal, the largest city in the basin.
- **Limited ability for pipelines to ship all commodities.** Pipelines are not suitable for transporting the wide variety of commodities, such as aggregate and agricultural products, produced and consumed in the Uinta Basin. In addition, the capacity and market reach of the existing pipeline network is limited by having relatively fixed origins and destinations. Pipelines are technically limited in the variety of commodities they can carry.
- **Limited market access.** The use of trucks to ship many commodities into and out of the Uinta Basin limits large-scale access to the national market because of the higher transportation cost of trucks and the reduced technical ability to ship some commodities.
- **Limited capacity to ship by truck.** Truck shipments into and out of the basin are capacity-constrained to the size of the truck. This constraint can be overcome only by using more trucks to ship the commodity, which increases the transportation cost. A rail line would enable commodities to be moved without being subject to the same capacity constraints and at a reduced transportation cost.

Purpose of the Project

Based on the need, the purpose of the UBRR project is to reduce shipping costs and expand market access for commodities transported to and from the Uinta Basin by constructing a freight rail line that connects the Uinta Basin to the national common-carrier freight railroad system, with direct access to the two western U.S. Class 1 railroads (BNSF Railway and Union Pacific Railroad).

The project purpose was used to assist the UBRR team in screening potential alternatives to determine which alternative(s) would be feasible.

The complete report is provided in Appendix A, Purpose of and Need for the Uinta Basin Railroad.

3.1.2 Design Criteria Report

This report described the design standards that were used to develop the proposed UBRR. The design standards informed the refinement of alternatives and the conceptual engineering. The track components conformed to the latest version of the American Railway Engineering and Maintenance-of-Way Association's (AREMA) standards. The design of track components was compatible with existing components whenever appropriate. Track design at a minimum met or exceeded Federal Railroad Administration (FRA) Class 4 track safety standards. Communications and signal design took into account the best practices in the AREMA *C&S Manual* and would comply with FRA standards.

The report described the design requirements for horizontal and vertical alignments, turnout requirements, clearances, roadbed, at-grade crossings, access and maintenance roads, yard design, sidings, train control, signaling and communications, drainage and bridge structures, and tunnels. The complete report is provided in Appendix B, Design Criteria Report.

3.1.3 Rationale for Connecting the Uinta Basin Railroad to Both Western U.S. Class 1 Railroads Report

This report described why the purpose of and need for the UBRR states that the UBRR should connect to both of the western U.S. Class 1 railroads. There are two Class 1 railroads that serve the majority of the western United States: BNSF Railway (BNSF) and Union Pacific Railroad (UP). The rationale for connecting to both of the western U.S. Class 1 railroads was that this would enable the UBRR to have competitive access to the national rail network. If the UBRR were to connect to only one of the two railroads, there would be no competition for rail service to the UBRR, and the single railroad to which the UBRR would connect would, if it chose, be able to dictate terms and conditions of service that could be economically damaging to the UBRR.

Access to only one Class 1 would create a substantial risk that shippers on the UBRR would pay greater costs for rail transportation than if it were to connect to both of the two western Class 1 railroads. This would conflict with another principle of the purpose and need for the UBRR: that it must enable shippers to reduce transportation costs.

Figure 4 below shows the Class 1 railroads that surround the basin. Figure 5 below shows the proposed UBRR connection to the UP rail line adjacent to U.S. 6.

Figure 4. Area of Analysis

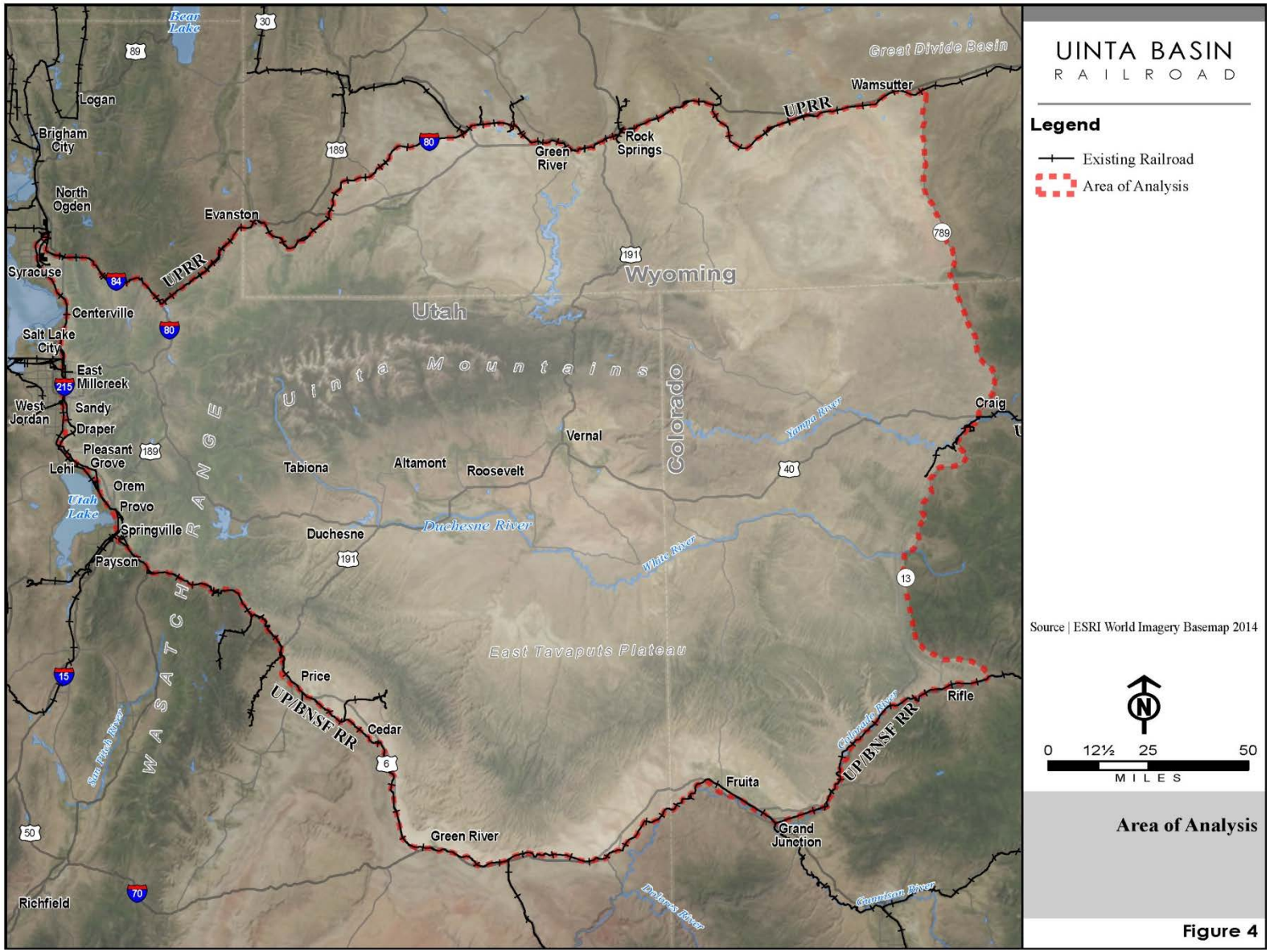
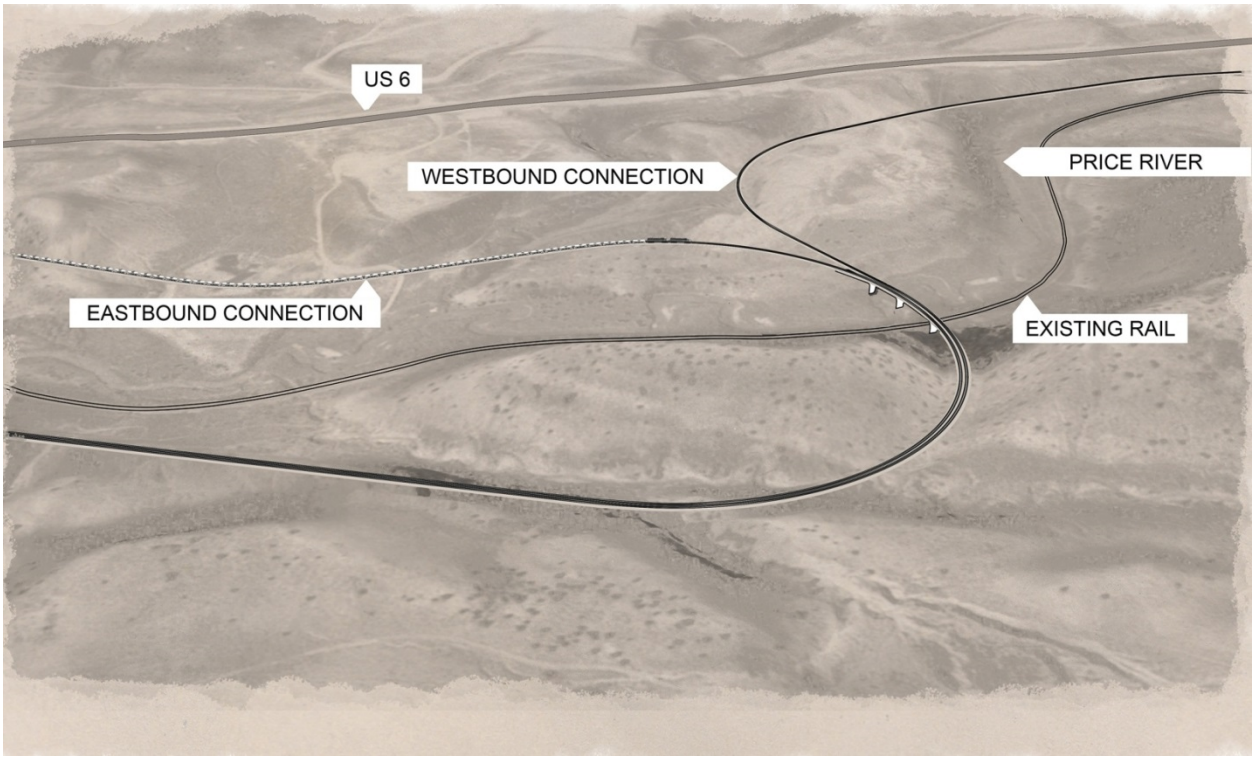


Figure 5. UBRR Connection to the Class 1 Rail Network



The complete report is provided in Appendix C, Rationale for Connecting the Uinta Basin Railroad to Both Western U.S. Class 1 Railroads.

3.1.4 Operating Basis of Design Report

This report described the Operating Basis of Design for the proposed UBRR. An Operating Basis of Design is a statement of the functional and operating requirements of a railroad that influences engineering design decisions. Examples of functional and operating requirements include ruling grade, average speed of trains, typical maximum length of trains, and number and type of trains per day. Engineering decisions based on these functional and operating requirements include maximum grades, maximum degree of curvature, length and number of sidings, and number of main tracks.

The UBRR team determined that the UBRR would be a freight-only railroad (no passenger-rail service) based on the project's need to reduce freight-rail transportation cost. The two freight train types anticipated for the UBRR were (1) unit (or bulk) trains that haul a single commodity in one uniform car type for a single shipper between one origin-and-destination pair and (2) manifest (or mixed freight) trains that haul many commodities in carload volumes, each carload with its own shipper and origin-and-destination pair. No intermodal, automotive, or perishable trains were anticipated.

Based on the potential commodity shipments, the UBRR team determined that up to 11 trains a day would use the UBRR, which meant that it would require only a single-track railroad. The maximum ruling grade was determined to be 2.4%, with the main track design speed on the basis of curvature not less than 25 miles per hour (mph) in mountainous terrain and 60 mph in non-mountainous terrain.

The complete report is provided in Appendix D, Operating Basis of Design Report.

3.1.5 Alternatives-Development and Screening Methodology Report

The purpose of this report was to describe the proposed alternatives-development and screening process and methodology that was used for the UBRR alternatives feasibility process (see Section 3.1.6, Alternatives Feasibility Report). The report was provided to stakeholders prior to the alternatives-development and screening process to get buy-in on the methods used to develop and screen alternatives. The process consisted of the following five basic phases:

1. Developing preliminary project railroad alternatives
2. Applying first-level (Level 1 – Purpose and Need) screening criteria, identifying alternatives that will move to the next level (Level 2), and refining alternatives that pass the first-level screening
3. Applying second-level (Level 2 – Construction and Operation Feasibility) screening criteria based on initial desktop review of constructability and rail operations feasibility to identify alternatives that pass Level 2 screening and will be analyzed in Level 3 screening
4. Applying third-level (Level 3 – Natural and Built Environment) screening criteria based on impacts to the natural and human environment to identify alternatives that will under go a final field verification constructability review (Level 4)
5. Applying a field review (Level 4 – Alternative Feasibility) of the potential constructability of the alternatives to determine which alternatives are feasible and practicable

The report describes the screening criteria that were established for each of the five phases to determine the feasible alternatives and the data and tools used. Figure 4 above shows the study area used to develop feasible alternatives. The area is defined by the existing Class 1 railroads that surround the Uinta Basin as follows:

- **North border:** The UP main track between its intersection with Wyoming State Highway 789 and Ogden, Utah
- **East border:** Wyoming State Highway 789 between its intersection with the UP main track east of Wamsutter, Wyoming, and the Colorado border, and Colorado State Highway 13 between the Wyoming border and its intersection with the UP main track near Rifle, Colorado
- **South border:** The UP[1] main track between Rifle, Colorado, and Provo, Utah
- **West border:** The UP main track between Provo, Utah, and Ogden, Utah

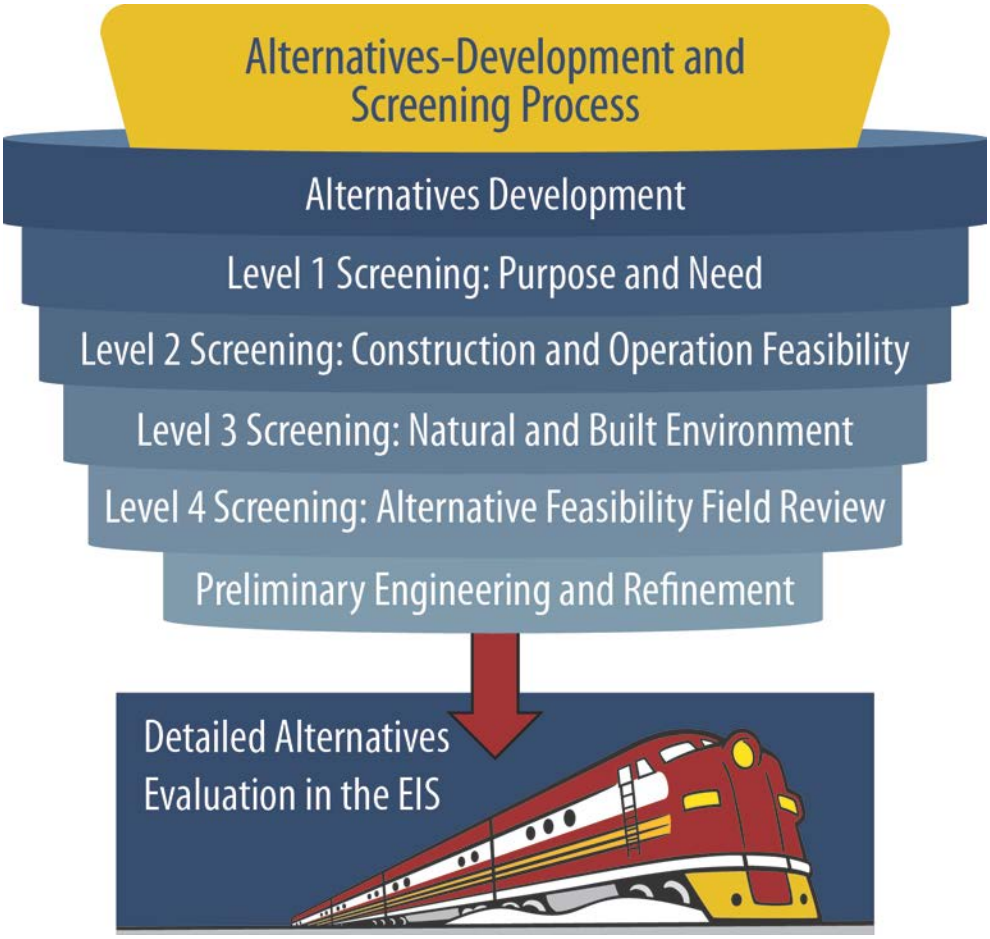
The complete report is provided in Appendix E, Alternatives-Development and Screening Methodology Report.

3.1.6 Alternatives Feasibility Report

This report documented the alternatives feasibility evaluation process using the screening criteria developed in the Alternatives-Development and Screening Methodology Report. The report documented the processes and conclusions from each step of the screening process shown in Figure 6 below.

[1] BNSF maintains track rights with the UP main track on the southern and western borders of the analysis area.

Figure 6. Alternatives-Development and Screening Process

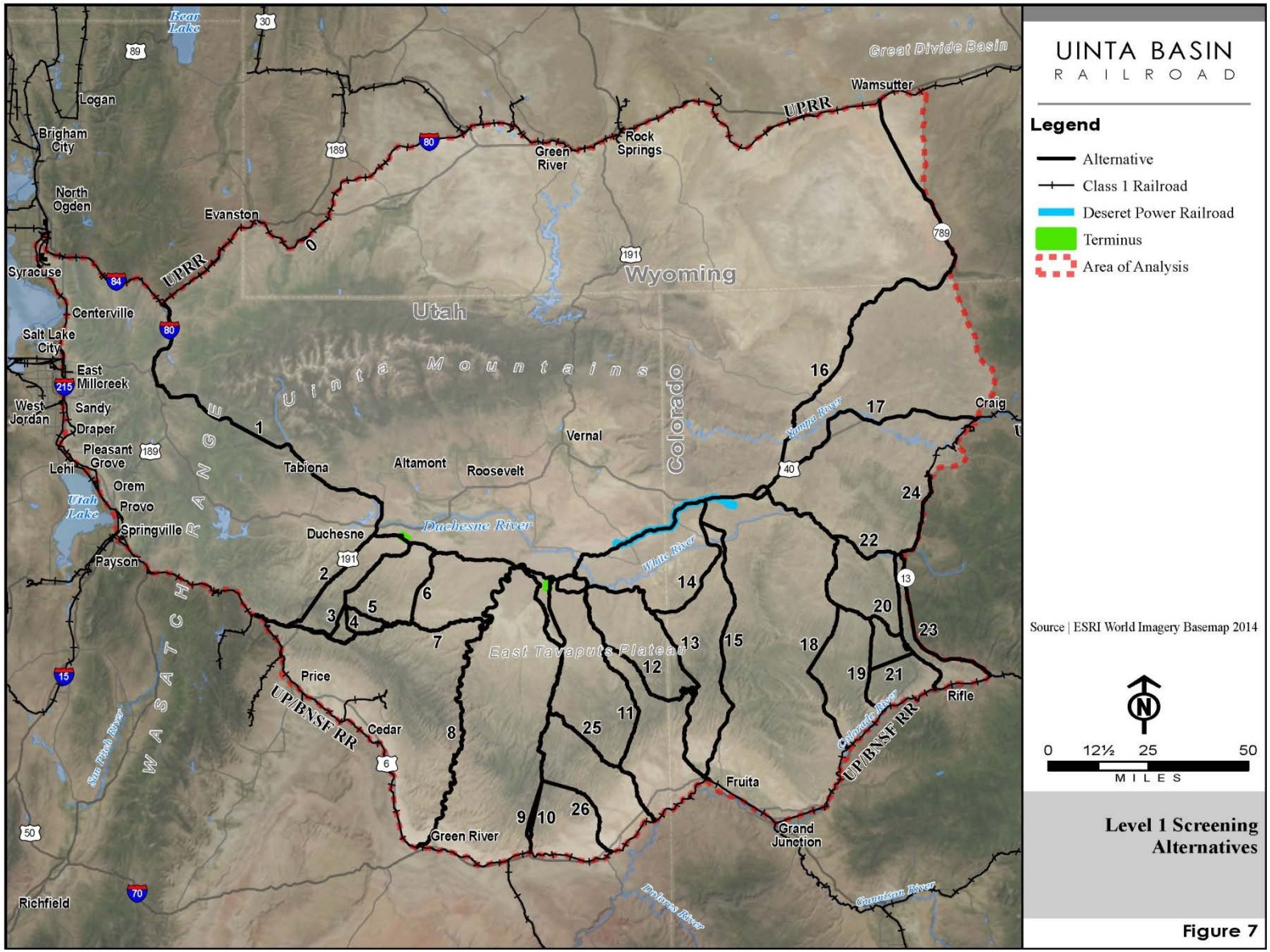


Alternatives Developed

In all, 26 alternatives were developed within the area of analysis to evaluate in the screening process (Figure 7 below). First, the UBRR team included the alternatives developed as part of the Isolated Empire Rail Project (DMJM Harris 2001). The purpose of this project was to review the feasibility of extending a heavy-duty commercial freight rail line to connect the remote areas of northwestern Colorado and northeastern Utah to the national rail network. The project evaluated 16 alignments, all of which were included in the alternatives-development and screening process for the UBRR project. After reviewing these alternatives, the UBRR team developed 10 additional alternatives. The main criteria used to develop these alternatives are as follows:

- The freight rail alternatives must connect to an existing rail line within the area of analysis in order to provide a connection to the national rail network.
- The freight rail alternatives must meet basic topography requirements such as minimizing the need to traverse steep terrain.
- The freight rail alternatives must reduce local truck travel distances to the rail line to the greatest degree economically practical with acknowledgement that future development could occur in different locations in the Uinta Basin. The alternative must also provide a range of access across the basin to support the economic viability of the railroad for all commodities.

Figure 7. Level 1 Screening Alternatives



Alternatives-Screening Process

During the alternatives-screening process, the four levels of screening were applied to the 26 alternatives. The two criteria that had the greatest effect on screening were:

- **The Level 1 criterion that the alternative must provide the Uinta Basin with two-carrier access by connecting to existing rail lines served by both UP and BNSF.** This will provide the opportunity for competitive pricing between railroads by providing competitive freight transportation services to the shippers and receivers in the Uinta Basin. This criterion eliminated four alternatives: 1, 16, 17, and 24.
- **The Level 2 criterion that the UBRR have a grade of no more than 2.4%.** For main-track railways in North America intended for heavy and frequent trains, a grade of 2.4% has historically been considered the steepest grade that is economically and safely operable. The *de facto* standard ruling grade in the United States is slightly less, at 2.2% (for more information, see the Alternatives-Development and Screening Methodology Report). This criterion eliminated 13 alternatives: 6, 9, 10, 11, 13, 14, 15, 19, 20, 21, 22, 23, and 26. In order to maintain the 2.4% grade, all of the alternatives that passed Level 2 screening required tunnels between 7 and 9 miles long.

In addition to the alternatives eliminated by the above criteria, two were eliminated because they were within the Green River canyon, and the floodplain and steep canyon walls would make it impracticable to build a rail line (Alternatives 7 and 8). During Level 3 screening, Natural and Built Environment, three alternatives were eliminated. Two alternatives were eliminated because they were within Nine Mile Canyon, which is known for its extensive rock art and other cultural resources created by the Fremont culture and the Ute people. They also had greater wetland impacts than another nearby alternative (Alternatives 4 and 5). The final alternative was eliminated from consideration for having the greatest wetland impacts, the greatest impacts on sensitive wildlife habitat, the greatest impacts on irrigated prime and unique farmland, and the highest cost (Alternative 18).

From February 24 to February 26, 2014, the UBRR team conducted Level 4 screening (alternative feasibility field review) on the four alternatives that passed Level 3 screening (Alternatives 2, 3, 12, and 25). After the field review, the team developed more-refined digital maps and determined that one of the remaining four alternatives had a grade of 2.8% (Alternative 25). This grade would not pass the Level 2 grade criterion of 2.4%, so the alternative was eliminated. When considering the remaining three alternatives, the UBRR team determined that the steep slopes and loose material in the Baxter Pass area would make construction and operation of Alternative 12 not feasible or practicable.

Feasible Alternatives

Using the four-level screening process, the UBRR team determined that Alternatives 2 and 3 were both feasible and practicable alternatives and would be evaluated (see Figure 1 above, Uinta Basin Alternatives). Of the seven alternatives that met both the project purpose and the 2.4%-grade requirements from Level 1 and 2 screening, Alternatives 2 and 3 would have the least amount of impacts to wetlands, sensitive wildlife habitat, drainages, wilderness areas, Section 4(f) resources, and cultural resources.

Using the four-level screening process, the UBRR team determined that Alternative 2 (about 96 miles long with one 8-mile tunnel) and Alternative 3 (about 113 miles long with three tunnels totaling 9 miles) were the only feasible and practicable alternatives of the original 26 alternatives evaluated. Based on the alternatives-refinement process that was conducted on the two alternatives; the UBRR team

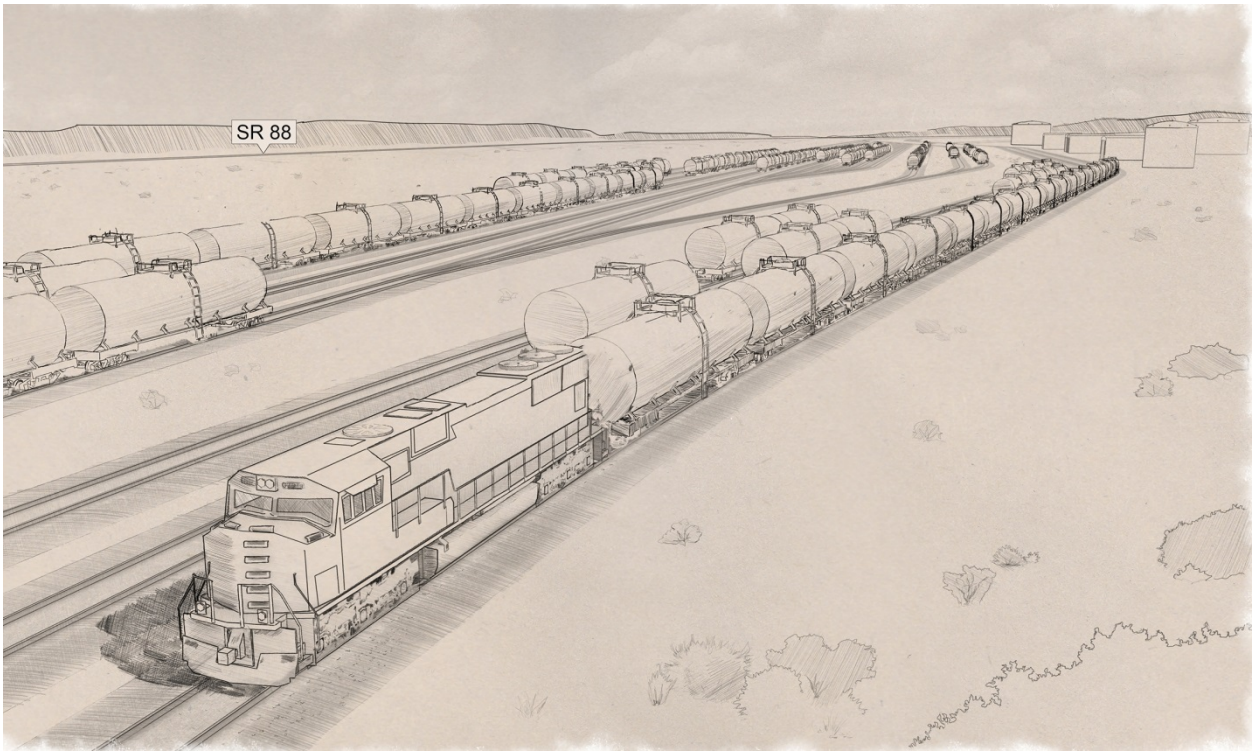
recommended that Alternative 2 be carried forward for consideration and that Alternative 3 be eliminated from detailed consideration based on its additional impacts to the natural environment and the alternative's higher cost.

Both alternatives would use similar alignments except for the portions in Indian Canyon and Sowers Canyon and would provide the same operational benefits. However, Alternative 3 would have greater impacts on wetlands (9 more acres), sensitive wildlife habitat (214 acres), and cultural resources (one more site). In addition, Alternative 3 would involve developing a new transportation facility in a relatively undisturbed canyon, whereas Alternative 2 would be built in a canyon with an existing highway that already causes transportation-related impacts to the natural environment. Finally, Alternative 2 would affect about 196 fewer acres of federal, state, tribal, and private land.

Both alternatives included rail terminals within the Uinta Basin as shown in Figure 8 and Figure 9 below.

Figure 8. Duchesne Terminal

Figure 9. U.S. 40 and S.R. 88 Terminal



The complete report is provided in Appendix F, Alternatives Feasibility Report.

3.1.7 Phase 1 Geotechnical Report

To assist with the preliminary engineering and cost estimate, a geotechnical review of the two alignments was conducted using existing literature. The main purpose of the evaluation was to look at the feasibility of the proposed tunnels and to assist in reviewing potential tunnel options.

The complete report is provided in Appendix G, Phase 1 Geotechnical Report.

3.1.8 Preliminary Engineering/Cost Estimate

Preliminary Engineering

The primary challenge for developing a feasible UBRR alignment was topography. The Uinta Basin is bounded on the north by the Uinta Mountains and on the east by the Douglas Creek Arch, with portions of the Wasatch Range and the Roan Cliffs forming its southern and western boundaries. The basin is a high desert with elevations that range from about 4,632 feet in the eastern part near the Green River to about 6,867 feet in the southwestern part near Gilsonite Draw. The Uinta Basin—known since pioneer times as the Isolated Empire— does not have an existing rail line because the mountains that surround the basin make finding a route with an acceptable grade difficult.

For the UBRR project, the criterion for the ruling grade was 2.4%. For main-track railways in North America intended for heavy and frequent trains, a grade of 2.4% has historically been considered the steepest grade that is economically and safely operable. The *de facto* standard ruling grade in the United States is slightly less, at 2.2%. A 2.4% ruling grade is at present encountered on only two major rail lines

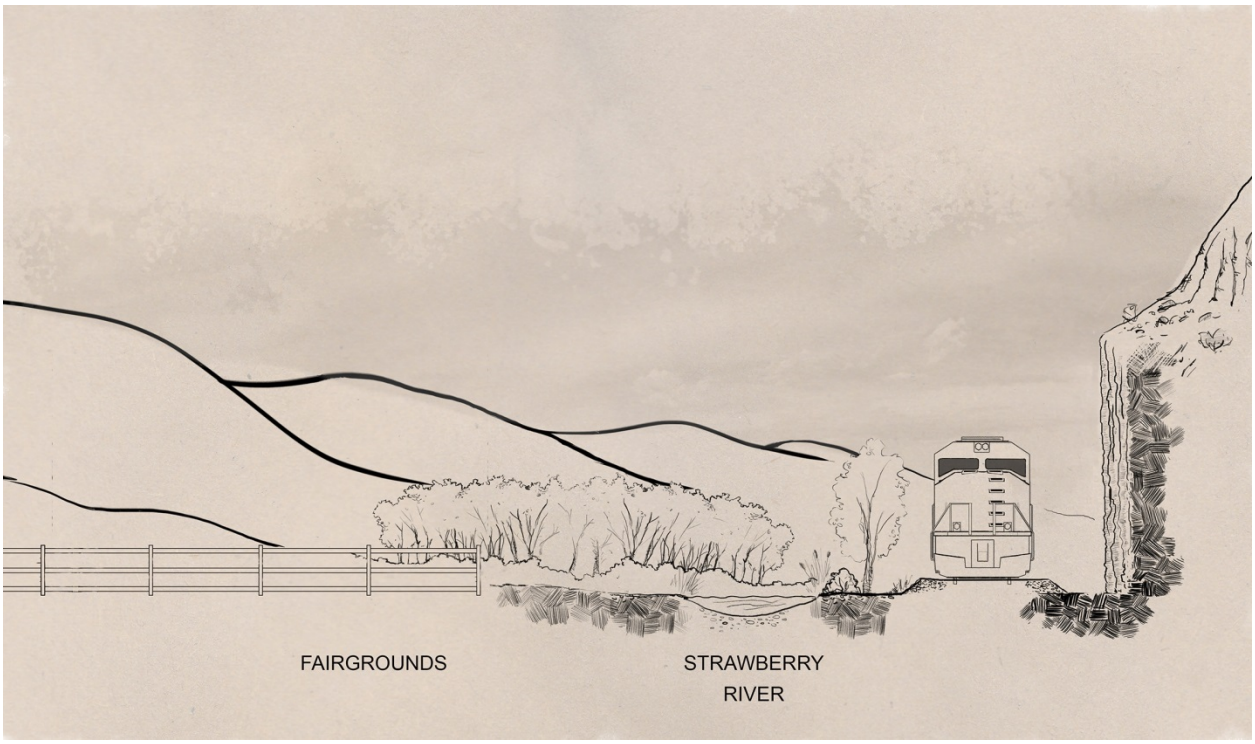
in the United States: eastward on UP's ascent of Donner Pass in California, which lies on UP's main track between northern California and Chicago, and westward on UP's ascent of Soldier Summit in Utah, which lies on UP's main track between Denver and Salt Lake City via Grand Junction, Colorado.

Trying to maintain a ruling grade of 2.4% was the limiting factor on most of the 26 alternatives evaluated. As a result, most of the alternatives required long tunnels in order to maintain the 2.4% ruling grade. Even with tunnels, 13 of the 26 alternatives were eliminated because they could not meet the 2.4% criterion.

Another engineering challenge that also contributed to high cost was the walls needed to shore up the steep terrain and loose material in many of the canyons. In many locations, avoiding the steep walls of a canyon meant placing the rail line in the bottom of the canyon, which would require relocating streams in several locations. The associated cut-and-fill requirements meant that large amounts of soil would need to be disposed of (for example, for Alternative 2).

In addition, in order for Alternative 2 to avoid tribal land near Duchesne, the rail alignment would have to be located between a steep bluff and the Strawberry River, a configuration that required an extensively high and long wall. Figure 10 shows this proposed concept. Some of the walls proposed for the project were 50 to 60 feet high and over 100 feet long.

Figure 10. Duchesne Fairground Alignment



Preliminary engineering was conducted for the two feasible alignments only (Alternatives 2 and 3). Because the project did not progress beyond the initial feasibility evaluation, the amount of preliminary engineering was conceptual (less than 5% of final engineering) and was based on available low-resolution topographical information (±15-foot contours) and approximate locations of land ownership. The process of acquiring geotechnical data consisted of reviewing existing literature on the terrain surrounding the basin. Although several tunneling techniques were discussed, because there was no detailed geotechnical information, a final technique was never developed.

The proposed tunnels were the primary reason for the high cost of the project and for extending the proposed construction schedule from 2016 to 2025. The evaluation showed that a 29-foot-diameter rail tunnel between 8 and 9 miles long could take 2 years to complete, require long lead times (a year or more) to obtain the necessary equipment, and require a large number of skilled laborers. During peak construction periods for the project, projections of 3,000 workers were estimated. This size of workforce would overwhelm the existing city infrastructure of the local small communities, requiring separate camps with upgraded infrastructure to be built to house the workers. Figure 11 and Figure 12 below show the proposed tunnel concepts.

Figure 11. South Tunnel and U.S. 191 Crossing

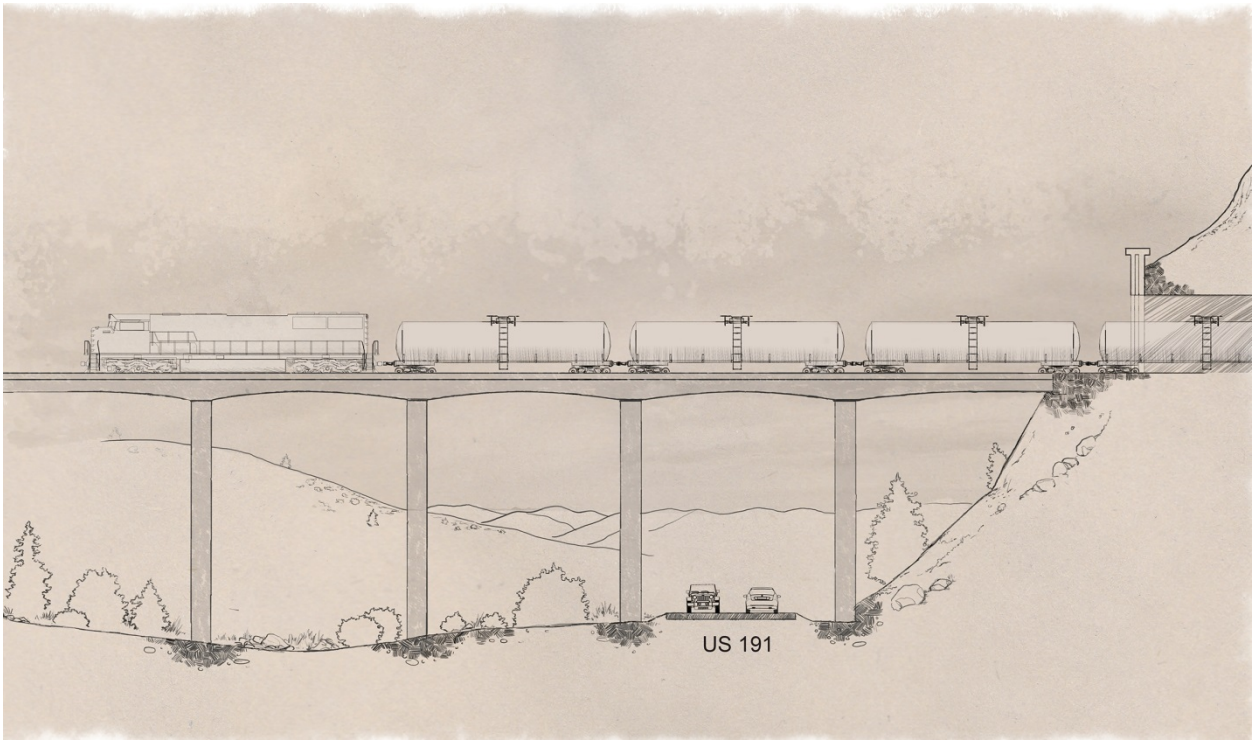
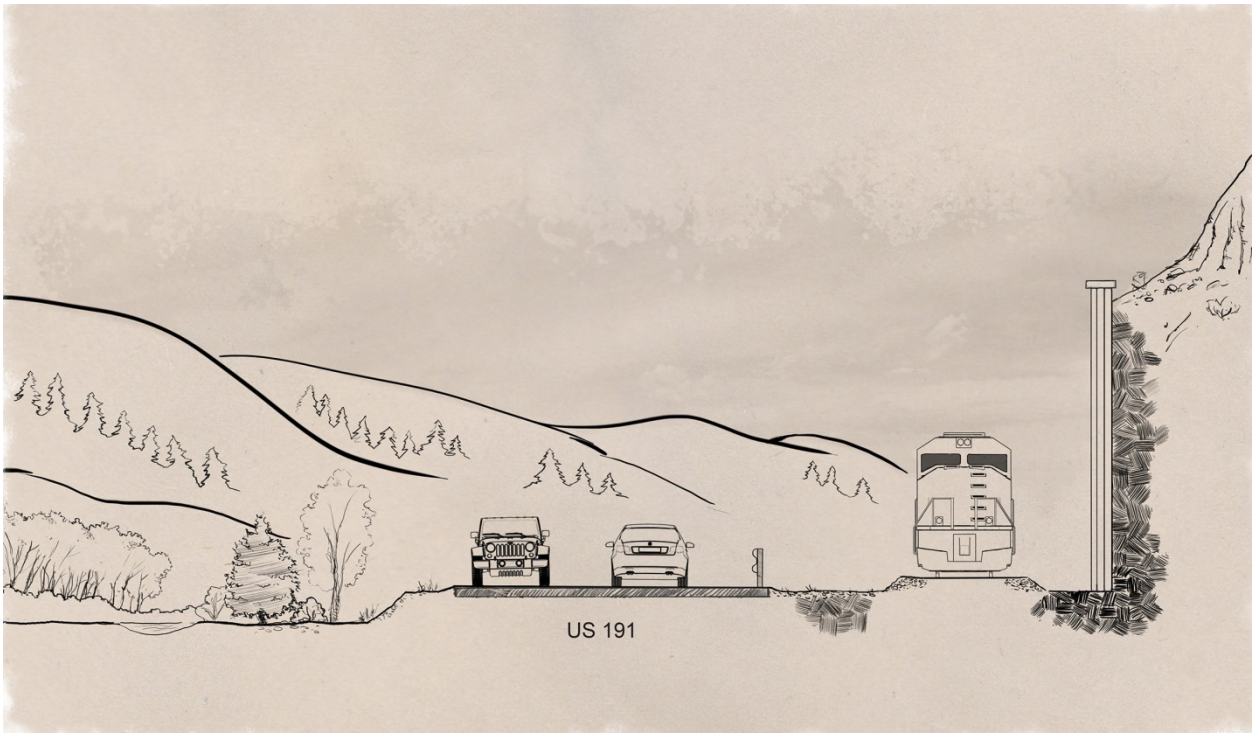


Figure 12. North Tunnel and U.S. 191 Crossing

For Alternative 2 in Indian Canyon, the UBRR team determined that UDOT owned about 100 feet of the right-of-way for U.S. 191. This included UDOT having a quick claim deed for the 100-foot right-of-way across tribal land. To avoid impacts to tribal land and private property, UDOT developed the alignment so that the rail line and highway could be co-located within the 100-foot right-of-way. Using this approach minimized impacts to adjacent properties, wetlands, farmland, stream channels, and wildlife habitat. Figure 13 below is a diagram of this approach.

Figure 13. U.S. 191 Corridor Proposed Design



Appendix H, Cost Estimates and Design Maps, provides the preliminary engineering plan sheets.

Cost Estimates

Based on the conceptual engineering, the UBRR team developed a cost estimate for Alternatives 2 and 3. Because of the conceptual nature of the engineering, a 25% contingency was added to the cost estimate. The estimates were later revised as part of the Cost Estimating Validation Process (CEVP) described in Section 3.1.10, Cost Estimating Validation Process (CEVP). The initial cost estimate for Alternative 2 was $2.97 billion and for Alternative 3 was $3.05 billion. Appendix H, Cost Estimates and Design Maps, provides the preliminary cost estimates.

Operational Planning

Operational planning for the UBRR consisted of a preliminary plan based on initial conversations with potential shippers and the connecting railroads: UP, BNSF, and Utah Railway. The Operating Plan projected tentative freight commodities, volumes, and the service need of shippers based on these conversations and comparable operations on other railways in the United States. The Operating Plan selected tentative locations for shipper facilities, types of facilities, how shippers might interact with facilities, and the tentative method of interchange with UP, BNSF, and Utah Railway, but without any definite agreement by shippers and the connecting railroads that these locations and methods would actually be implementable. In particular, the Operating Plan could not project the most important aspect of all for a rail line—who would own, operate, maintain, and market its services—since these factors were not established at the time the Operating Plan was prepared.

To advance an Operating Plan beyond the preliminary stage, commercial agreements would need to be made with shippers and connecting railroads and for a definitive plan for who would own, operate, maintain, and market the rail line.

Because the Operating Plan did not have definitive agreements in place—these agreements had not even been discussed (beyond the fact that the connecting railroads stated they would be required)—certain technical aspects of the Operating Plan remained tentative and based on comparables. These technical aspects would need to be finalized and validated before selecting a final connection point with the UP line and before selecting and designing any terminals or shipper facilities. The technical aspects could even affect the alignment and ultimate extent of the UBRR within the Uinta Basin. UP, the owner of the main track to which the UBRR was proposed to connect, stated that the following technical documentation must be prepared prior to its agreeing to interchange with or physically connect with the UBRR:

- A train dynamics study demonstrating that the in-train forces on the UBRR, and through the connection with UP, were equal to or less than the in-train forces on the UP main track between Helper and Provo, Utah. This study would baseline the UP main track's train dynamic forces for the same trains proposed to operate on the UBRR and would compare them to what would be experienced on the UBRR.
- An operations simulation model, using the Rail Traffic Controller (RTC) software, of the UP main track between Helper and Provo in conjunction with the UBRR, including a baseline model of the UP main track between Helper and Provo demonstrating that trains connecting to the UBRR would not delay or cause capacity or fluidity loss to UP, particularly at the connection, and that trains could operate on the proposed UBRR alignment and its main track/siding configuration, with adequate running speed. This model would also demonstrate running times and train delay on the UBRR, enabling a commercial agreement to be made with UP for run-through locomotives, trains, or crews, thereby avoiding a costly and inefficient interchange yard at the connection.
- Commercial agreements with shippers sufficiently advanced to describe the car supply, volumes, commodities, origin-destination pairs, trans-shipment points on the UBRR, and the nature, ownership, and configuration of shipper and receiver facilities on the UBRR.
- A formal interchange agreement with UP and a formal construction and maintenance agreement for the connection with the UP line.
- Detailed engineering documentation of the UBRR, showing:
    - Quality of track that would be constructed and maintained
    - Specification of track materials
    - Specification of engineering standards that would be followed, such as geometry, turnout size, track centerline spacing, and clearances and loading gauge
    - Signalization type, standards that would be followed, and equipment that would be used
    - Positive Train Control (PTC) and Centralized Traffic Control (CTC) systems interface with UP's systems
    - Communications systems interface with UP's systems
    - Data transfer systems interface with UP's systems
    - Interoperability of track, signalization, and Positive Train Control systems

These studies and agreements would be necessary to advance the UBRR to construction and operation. Upon development of these studies and agreements, a final Operating Plan and a System Safety Plan could be developed. These plans could change the UBRR's proposed physical plant, such as location of the main track and shipper facilities, the configuration of the main track and the locations of sidings, the vertical and horizontal alignment, the locations and configuration of terminals, and the locations and configuration of the connection with the UP line. Submission of the Operating and System Safety Plans to FRA, and approval by FRA, would be required before the UBRR could begin operation. Prior approval of FRA would be desired by UP to avoid rework or redesign.

3.1.9 Operating Plan Report

This report described the preliminary Operating Plan for the proposed UBRR. The purpose of the preliminary Operating Plan was to describe how the UBRR would be operated as a functioning railroad and to summarize the anticipated metrics of the railroad's operations in order to inform the development of the engineering design, environmental analysis, and economic and commercial analysis of the UBRR. Metrics of operations include maximum train length, anticipated train frequency, maximum and average speeds, and other basic facts that inform the analysis of the railroad's performance and its means and methods of providing transportation services. The report described the general characteristics of the UBRR, provided a detailed freight forecast for five different scenarios, described the capacity of the rail line, described its general maintenance plan, and noted special considerations for the proposed tunnel(s) that would likely be incorporated into the railroad's alignment.

Some key elements addressed in the plan include:

- The length of train would be up to 120 cars, but the UBRR would be able to handle 150 cars.
- The typical 120-car unit train on the UBRR would be 7,564 feet long (including two buffer cars), the typical 80-car manifest train would be 4,960 feet long, and the maximum 150-car manifest train would be 9,300 feet long, exclusive of locomotives. Allowing six locomotives per train at 75 feet each, manifest train lengths would normally not exceed 9,750 feet.
- The average number of trains per day forecasted for the UBRR could range from a low of 4 trains per day in Scenario 1 (low oil and gas production level) to a maximum of 10.6 trains per day in Scenario 5 (maximum oil and gas production level). This is "both ways" train volumes, so the total train trips per day. Typical peak daily train volumes might be 50% higher than the yearly average, which would equal 6.0 trains per day for Scenario 1 and 15 trains per day for Scenario 5.
- The UBRR would need only one main track with sidings located at suitable intervals for meet-and-pass events.
- The minimum clear length of sidings should be 10,000 feet.
- Operating speeds would be between 10 and 40 mph depending on grade, with a maximum allowable speed of 60 mph in flat terrain.
- UBRR's main track Method of Operation would be Centralized Traffic Control (CTC) with a Positive Train Control overlay. CTC is the U.S. standard method for operating trains on all but low-density lines; it uses signals adjacent to the track to provide instructions from dispatchers in a central office to engineers operating the trains. PTC is a system that automatically prevents trains from exceeding speed limits or exceeding their authorized track limits.
- Two terminals were proposed: one 2 miles east of Duchesne immediately south of U.S. 40 and the other south and west of the intersection of U.S. 40 and S.R. 88.

The complete report is provided in Appendix I, Operating Plan Report.

3.1.10 Cost Estimating Validation Process (CEVP)

Following the 5% preliminary engineering and cost estimate process for the feasibility study noted in Section 3.1.8, Preliminary Engineering/Cost Estimate, UDOT undertook a Cost Estimating Validation Process (CEVP) to better define the cost and risk associated with project construction. CEVP is an intense workshop where transportation projects are examined by a team of top engineers and risk managers from local and national private firms and public agencies. For the UBRR CEVP process, the participants had extensive first-hand experience with large-project programming and delivery, including freight railroad, tunneling, construction methods, and large-project program management. The CEVP workshop participants used systematic project-review and risk-assessment methods to evaluate the quality of the information and to identify and describe cost and schedule risks. Importantly, the process examined how risks could be lowered and cost vulnerabilities managed or reduced.

The UBRR team reviewed the current base cost estimate during the CEVP workshop on October 6–10, 2014. The purposes of the CEVP workshop were to:

- Quantify uncertainty in project cost and schedule
- Identify and quantify cost and schedule risks and opportunities
- Identify potential risk-mitigation strategies to set the stage for risk management

Base Cost Estimate

The UBRR team reviewed the current cost estimate during the October workshop. The "base" cost estimate resulting from the workshop was $2,665 million in 2014 dollars. This base cost reflected the cost of the UBRR if everything were to go as planned—without risk, opportunity, contingency, or inflation. The base estimate reflected the best available information concerning project scope and cost and was considered by the workshop participants to be the most appropriate estimate of the UBRR's cost.

Key Results

The CEVP results indicated, at an 80% confidence level, that the UBRR could be constructed at a total project cost of $3,146 million in 2014 dollars and $4,476 million in year-of-expenditure dollars, compared to the base cost estimate of $2,665 million in 2014 dollars.

The three largest risks associated with project cost were (1) the potential need to change the alignment in the Emma Park vicinity (mean cost impact of $121 million in 2014 dollars), (2) challenges associated with managing a project of this size and complexity (mean impact of $117 million in 2014 dollars), and (3) having to avoid or relocate oil wells for construction (mean impact of $67 million in 2014 dollars).

Cost-saving opportunities were dominated by using a tunnel-boring machine in tunnel construction (mean cost savings of $176 million in 2014 dollars). Other cost-saving opportunities were optimizing earthwork across the alignment (mean cost savings of $32 million in 2014 dollars) and modifying the alignment through Indian Canyon (mean cost savings of $25 million in 2014 dollars).

The CEVP results indicated, at an 80% confidence level, that the UBRR could be completed by September 2026 compared to the base schedule estimate (that is, without schedule risk) of September 2022. The most critical schedule risks were delays in completing the EIS (average delay to the project of 22 months) and legal challenges to the project's Record of Decision (average delay to the project of 10 months). The largest schedule opportunity could result from changing the tunneling method from using all drill-and-blast to using a tunnel-boring machine (average savings of over 6 months).

The complete report is provided in Appendix J, Cost and Risk Analysis for the Uinta Basin Rail Project.

3.1.11 Commercial Sustainability Analysis Report

The purpose of this report was to summarize the commercial sustainability and commercial feasibility of the proposed UBRR. *Commercial sustainability* is defined as the capability of the UBRR to develop sufficient revenue to internally fund its ongoing operating and maintenance cost (OPEX). *Commercial feasibility* is defined as the capability of the UBRR to develop sufficient revenue to internally fund the debt service required to repay its capital cost (CAPEX).

Traffic Forecast

In order to determine UBRR's commercial sustainability and commercial feasibility, the UBRR team developed a freight traffic forecast. *Freight traffic* is the rail industry's term for the goods and commodities presented by shippers to a railroad for transportation. The UBRR team developed five different traffic forecast scenarios using different assumptions about the future freight potential of the Uinta Basin. The freight traffic forecast was used to develop a revenue forecast. An OPEX forecast was developed for each scenario, and a CAPEX was separately determined through conceptual engineering. CAPEX was defined solely as the physical infrastructure of the UBRR rail line: its track, structures, signals and communications, and fixed facilities. Rolling stock—the locomotives and freight cars that would equip the UBRR's trains—would be provided by connecting railroads or shippers. Maintenance machinery is included in the OPEX forecast (Table 2).

Table 2. Freight Traffic Scenarios

	Revenue Scenario				
Revenue	1	2	3	4	5
Crude oil produced from conventional oil, proven reserves only	✓	✓	✓	✓	✓
Inbound oil- and gas-drilling materials required for development of proven reserves only	✓	✓	✓	✓	✓
Gilsonite	✓	✓	✓	✓	✓
Crude oil potential reserves		✓	✓	✓	✓
Inbound oil- and gas-drilling materials for recovery of potential oil reserves		✓	✓	✓	✓
Crude oil produced from oil sands			✓	✓	✓
Crude oil produced from oil shale				✓	✓
Phosphate concentrate produced from newly developed mines					✓

Return on Investment

Given the uncertainty in the UBRR's financing method, the UBRR team made various simplified assumptions to analyze the potential cost of the capital required to build the rail line. The project was assumed to be fully debt-financed by a tax-exempt issuer through 30-year bonds with a 5% coupon issued at par and a level payment structure with all proceeds received in 2018 when construction for the UBRR would begin. The interest during construction was assumed to be capitalized and pre-funded in the bond issue, which would result in higher debt service costs but would delay payments until the project started generating cash, thereby reflecting a typical revenue bond structure. Other likely pre-funded costs such as the cost of issuance and a debt reserve fund were omitted. The bond yield was assumed to be conservatively higher than current historically low market rates, but a detailed and focused analysis of financing methods would be needed to identify a true expected cost of capital.

Under these simplified financing assumptions, the total project capital costs of nearly $4.5 billion (includes $ 300 million in upfront owner cost not included in the bond par value) and capitalized interest of $1.4 billion result in a bond par value of $5.6 billion and an annual debt service of $395 million. An inflation rate of 4.6% was applied to revenues, as well as operating and maintenance costs based on the inflection factor used for the cost estimate.

As shown in Figure 14 through Figure 16 and Table 3 below, only Scenarios 4 and 5 would have a positive return on investment and net cash flow.

Figure 14. Net Present Value

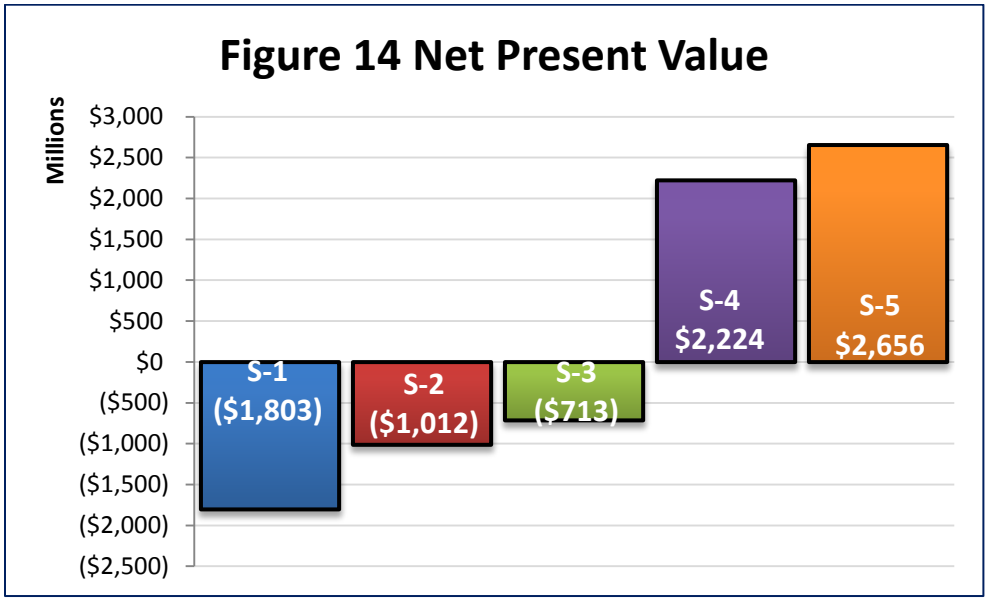


Figure 15. Return on Investment

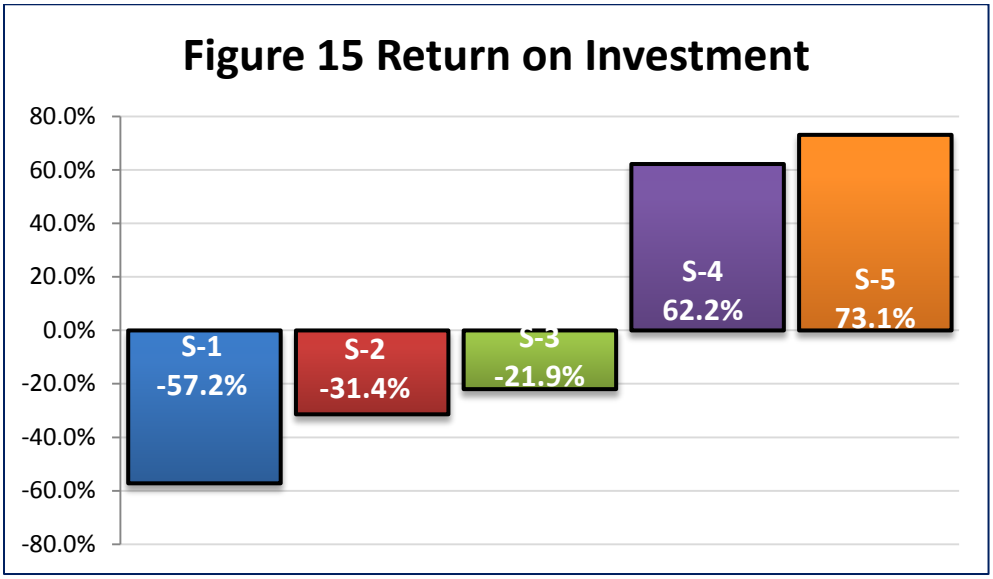
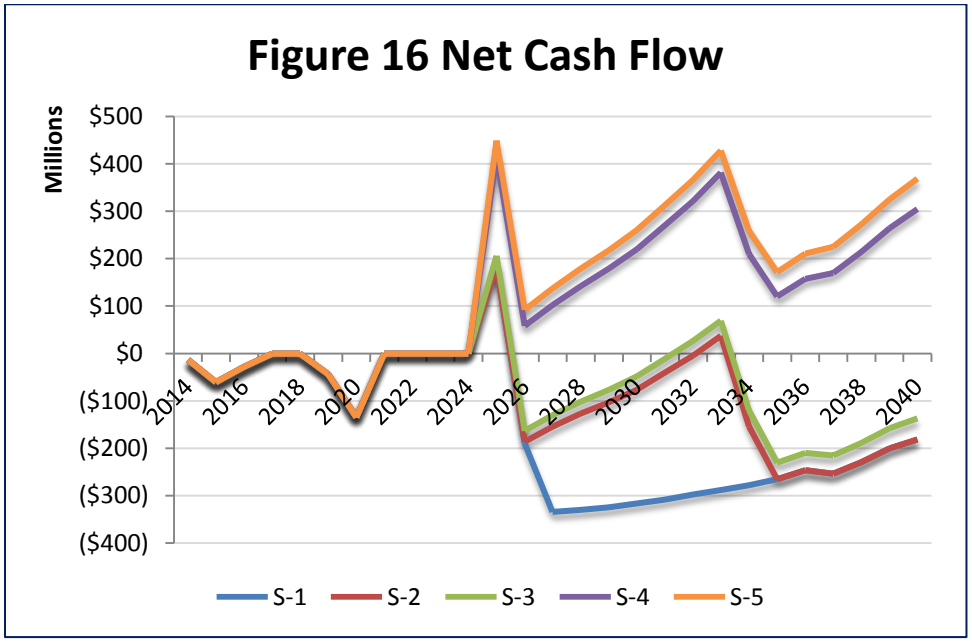


Table 3. Financial Metrics of the UBRR for Five Traffic Scenarios, 2020–2040

Scenario	Net Present Value (millions $)	Return on Investment (%)	Internal Rate of Return (%)
1	($1,803)	–57.2%	N/A
2	($1,012)	–31.4%	N/A
3	($713)	–21.9%	N/A
4	$2,224	62.2%	22.1%
5	$2,656	73.1%	23.7%

N/A = not applicable

Figure 16. Net Cash Flow



The complete report is provided in Appendix K, Commercial Sustainability Analysis Report.

3.1.12 Public Benefit Analysis Report

This report describes the methodology, data inputs, and results of a public benefit analysis (PBA) conducted for the UBRR. The purpose of a PBA is to quantify and monetize benefits that would accrue to the general public in the future from the construction of a project. Typically these are benefits that are not captured by the project itself through user fees, tolls, or use charges, but instead are outcomes that provide broad social benefits. For example, a transportation infrastructure project that avoids highway congestion due to a lower volume of heavy truck traffic provides a public benefit that is not captured by the strict financial viability of the project.

Public benefits can also be outcomes that result in avoided public expenditures. For example, a project that results in reduced highway maintenance costs—a public expenditure which is collected in part through general income tax revenues—provides a public benefit.

The following tables and figures summarize the public benefits results. The results of the PBA are expressed in terms of present value (PV) by discounting the public benefits into present-day (year 2013) dollars using both 7% (Table 4 and Figure 17 below) and 3% (Table 5 and Figure 18 below) discount rates.

Table 4. Overall Results, Benefit-Cost Analysis of Alternatives Relative to Base Case – PV (7%)

in millions of 2013 dollars

Variable	Public Benefit Analysis for Years 2014–2049 – PV (7%)				
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Transportation cost savings	$21	$38	$42	$87	$94
Congestion cost savings	$17	$29	$32	$58	$63
Pavement maintenance cost savings	$52	$90	$97	$178	$193
Accident cost savings	$19	$33	$35	$64	$69
Emission cost savings	$29	$42	$45	$73	$78
Incremental inventory costs	($0.02)	($0.06)	($0.07)	($0.29)	($0.30)
Net public benefits	**$139**	**$231**	**$250**	**$460**	**$498**

Scenario 1: Conventional Oil, Proven Reserves + Gas Materials + Gilsonite
Scenario 2: Conventional Oil, Potential Reserves + Gas Materials + Gilsonite
Scenario 3: Conventional Oil, Potential Reserves + Gas Materials + Gilsonite + Oil Sands
Scenario 4: Conventional Oil, Potential Reserves + Gas Materials + Gilsonite + Oil Sands + Oil Shale
Scenario 5: Conventional Oil, Potential Reserves + Gas Materials + Gilsonite + Oil Sands + Oil Shale + Phosphate

Figure 17. Overall Results, Benefit-Cost Analysis of Alternatives Relative to Base Case – PV (7%)

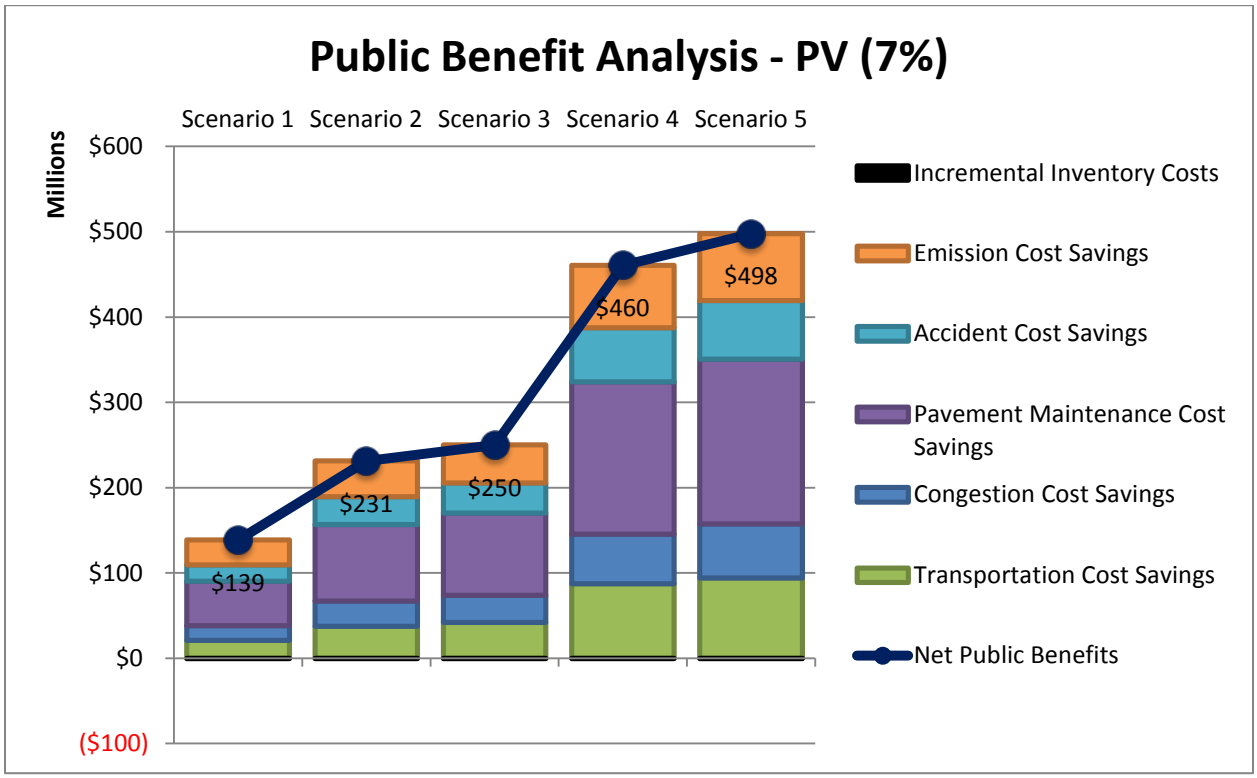


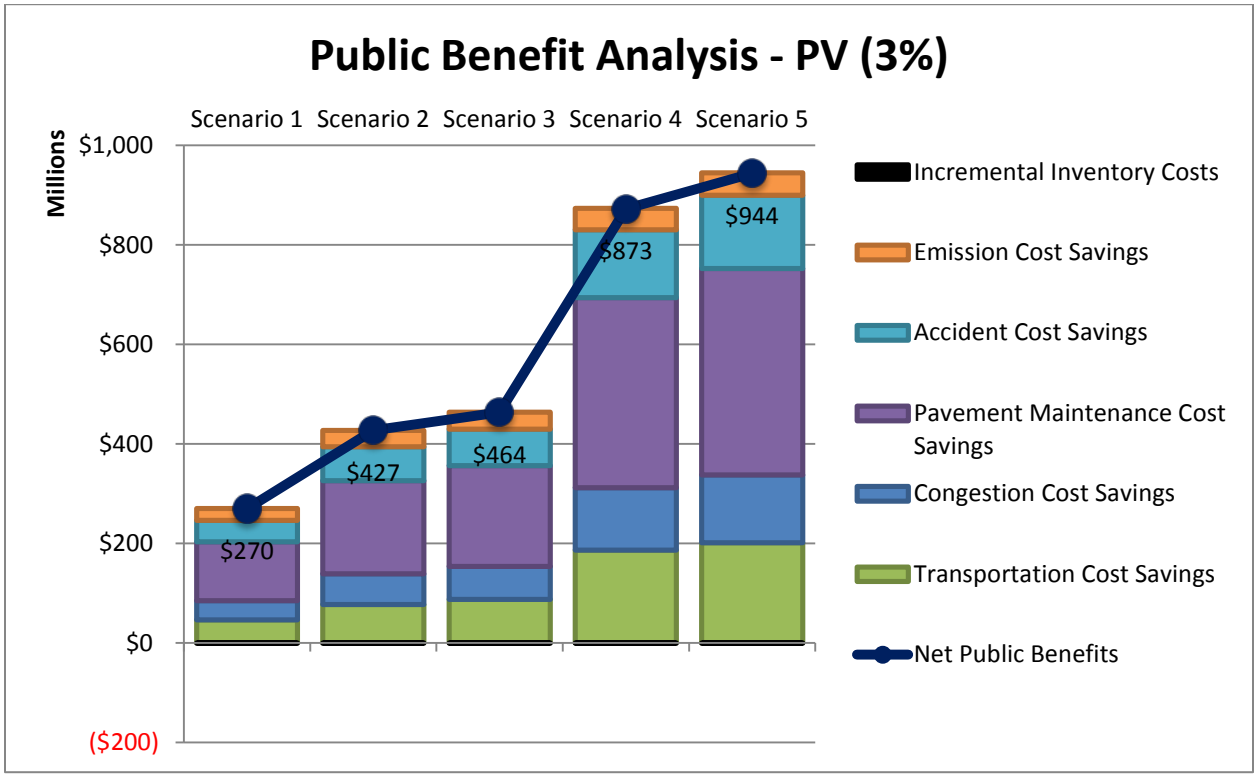
Table 5. Overall Results, Benefit-Cost Analysis of Alternatives Relative to Base Case – PV (3%)

in millions of 2013 dollars

Variable	Public Benefit Analysis for Years 2014–2049 – PV (3%)				
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Transportation cost savings	$47	$78	$87	$187	$202
Congestion cost savings	$39	$61	$66	$125	$136
Pavement maintenance cost savings	$118	$187	$202	$382	$415
Accident cost savings	$43	$68	$73	$136	$147
Emission cost savings	$24	$33	$34	$43	$45
Incremental inventory costs	($0.04)	($0.11)	($0.14)	($0.62)	($0.63)
Net public benefits	**$270**	**$427**	**$464**	**$873**	**$944**

Scenario 1: Conventional Oil, Proven Reserves + Gas Materials + Gilsonite
Scenario 2: Conventional Oil, Potential Reserves + Gas Materials + Gilsonite
Scenario 3: Conventional Oil, Potential Reserves + Gas Materials + Gilsonite + Oil Sands
Scenario 4: Conventional Oil, Potential Reserves + Gas Materials + Gilsonite + Oil Sands + Oil Shale
Scenario 5: Conventional Oil, Potential Reserves + Gas Materials + Gilsonite + Oil Sands + Oil Shale + Phosphate

Figure 18. Overall Results, Benefit-Cost Analysis of Alternatives Relative to Base Case – PV (3%)



The complete report is provided in Appendix L, Public Benefit Analysis Report.

3.2 Phase 2 Reports

3.2.1 Cultural Resources

As part of the feasibility evaluation, an archaeological, architectural, and paleontological resources survey was conducted in the summer and fall of 2014. Because of the sensitive nature of the material in these reports, they are not included in this summary report.

Cultural Resources Methods Report

The purpose of this report was to document the process proposed by UDOT to identify historic properties in the study area for the UBRR project. The report explained the methods proposed by UDOT to identify historic properties as part of the project's feasibility study process. The report was reviewed by the Utah State Historic Preservation Office (SHPO), STB, the Bureau of Land Management, and the U.S. Forest Service. All of the agencies approved the methods identified in the report for use in the feasibility process and the National Environmental Policy Act process if the project were to proceed to that phase.

Archaeological Resources Report

Archaeologists conducted a Class II, reconnaissance-level pedestrian archaeological survey of two proposed routes for the UBRR. The archaeological analysis consisted of a Class I background records search and a Class II survey of selected portions of the two proposed routes based on a predictive model created specifically for the project.

Prior to the survey, a records search and literature review was conducted. Records from the Utah SHPO in Salt Lake City indicated that numerous previous cultural resource surveys were conducted near or within the UBRR's area of potential effects (APE). In addition, multiple previously recorded archaeological sites were also located with the project's APE.

Also, as part of the UBRR project, a predictive model was created to guide the archaeological survey because completing a 100% survey of both alternatives was not feasible for this stage of the project. The predictive model for the UBRR project had a goal of identifying areas with high probabilities of containing unrecorded sites and therefore guiding future archaeological surveys to be conducted at a later stage.

Between September 9 and October 23, 2014, archaeologists conducted a Class II reconnaissance-level archaeological survey consisting of revisiting several previously recorded archaeological sites and conducting a pedestrian archaeological survey of approximately 669 acres in northeastern Utah aimed at evaluating the efficacy of the predictive model.

A total of 33 previously recorded archaeological sites were revisited. Archaeologists attempted to revisit 4 additional previously recorded sites, but were not successful. The archaeological survey resulted in the discovery and documentation of 1 new archaeological site and 20 isolated finds. In total, 19 archaeological sites were recommended eligible for the National Register of Historic Places.

Architectural Resources Report

In November 2014, a survey of architectural resources was conducted following the Utah SHPO Reconnaissance-Level Survey Standard Operating Procedure. The boundary for the survey was 0.5 mile in each direction from the centerline of Alternatives 2 and 3. During the survey, 47 properties were identified.

Of the 47 buildings of historic age that were surveyed for this project, 14 dated to 1900–1912, 18 dated to 1913–1945, and 15 dated to 1946–1972. Nearly all of the early properties (1905–1912) were vernacular log homestead cabins or log barns in rural areas, whereas those from the middle period were more commonly single-family Bungalows or Period Revival cottages in Duchesne. The Post-World War II– era properties were seven single-family dwellings, one church/meetinghouse, two bridges, and three commercial buildings. Stylistically, the post-war dwellings were dominated by single-family Ranch and Split-Level residences. More than half of the historic properties were documented in Duchesne. The early log cabins and barns were found primarily on tribal land in Uintah County and in Sowers Canyon in Duchesne County.

Of these 47 properties, six were recommended eligible/significant (ES). One of these is presently listed on the National Register of Historic Places: the Indian Canyon Guard Station at about 30000 South and U.S. 191. Of the remaining properties, 35 were recommended eligible/contributing (EC), and six were recommended ineligible/non-contributing (NC) due to loss of integrity.

Twelve properties were identified in a Preservation Pro search prior to survey. Of the 12 properties, five properties were observed to have been demolished and new structures built in their place: 205 South 500 East, 215 South 300 East, 400 East 400 South (a bridge), 510 East 400 South, and 590 East 400 South. All of the demolished properties are located in Duchesne, Utah, and the UBRR team recommends that their eligibility status be changed to ineligible. The eligibilities for the remaining 7 previously documented properties remain the same.

Paleontological Resources Report

For the UBRR project, a literature review of paleontological resources was conducted. No field survey was performed for the project. Fossil locality data for the study area were requested from the Utah Geological Survey, and known researchers in the Uinta Basin were contacted. Requests for existing paleontological records were sent to the Utah State Paleontologist, Dr. James Kirkland; Dr. Randy Irmis at Natural History Museum of Utah; Dr. Steven Sroka at the Utah Field House of Natural History State Park Museum; Martha Hayden at the Utah Geological Survey; Brooks Britt at Brigham Young University; Alex Dutchak at the University of Alberta; Gabriel Bowen at the University of Utah; and Ben Burger at Uinta Basin Applied Technology College.

The purposes of these requests were to (1) determine whether any previously recorded fossil localities were present in the study area, (2) assess the potential for disturbing these localities during construction, and (3) evaluate the paleontological sensitivity in the APE. No current research areas were discovered during the inquiry in the study area. Only Dr. Randy Irmis and Dr. Gabriel did not respond. The Utah Geological Survey database has 966 recorded fossil localities within 1 mile of the study area. Due to the high number of localities, only those within 0.5 mile of Alternatives 2 and 3were identified in the paleontological resources report. A total of 136 paleontological resources were identified within this area.

3.2.2 Wetlands Report

UDOT conducted a survey and delineation of all potential waters of the U.S., including wetlands, within the project wetland survey area. The survey area was about 12,608 acres and extended northward and eastward from the proposed Price River UP connection point east of Soldier Summit near U.S. 6 to the proposed siding next to the intersection of U.S. 40 and S.R. 88 between Roosevelt and Vernal, Utah.

All areas within the wetland survey area were assessed to the degree necessary to determine the presence or absence of jurisdictional wetlands and other waters of the U.S. per the guidelines established by the U.S. Army Corps of Engineers. Seventy wetlands totaling 96.69 acres within the survey area were delineated and mapped as potentially jurisdictional wetlands. All of these wetlands have been classified as either palustrine emergent marsh or palustrine scrub-shrub.

Other waters of the U.S. were categorized as perennial and intermittent, ephemeral, canals and ditches, and open water. Twenty-seven perennial and intermittent features totaling 172.62 acres within the survey area were mapped, and 199 ephemeral drainages totaling 19.58 acres were mapped. In terms of constructed features, 24 canals and ditches totaling 3.01 acres were mapped, along with 8 open-water ponds totaling 2.68 acres.

The complete report is provided in Appendix M, Waters of the U.S. Delineation Report.

3.2.3 Biological Resources Report

This report described the baseline environmental conditions for biological resources (excluding wetlands) within the proposed UBRR alignments. The report described the environmental setting along the rail alignments and the field methods that were sued to map land cover and evaluate habitat. The report also described the vegetation communities and other land cover types that were mapped along the UBRR alignments during field surveys conducted during 2014, the noxious-weed infestations that were observed, and the availability of potential habitat to support federally listed threatened and endangered species.

As part of the process, UBRR representatives met with representatives with the Bureau of Land Management (Vernal and Price Offices), the U.S. Forest Service, the Utah Department of Natural Resources, the Utah Division of Wildlife Resources, and the U.S. Fish and Wildlife Service to identify areas of concern. Below is a list of those concerns:

What is a lek?

A lek is a sage-grouse strutting ground used during breeding season.

- Potential impact to sage-grouse habitat and lek in the Emma Park area from temporary construction activities, and noise and visual impacts from operation.
- Potential impacts to Barneby ridge-cress in Indian Canyon from construction activity. Associated dust from operation could also be a concern.
- Potential impacts to Uinta Basin Penstemon flower, Uinta Basin hookless cactus, and Pariette cactus near the eastern portion of the alignment near the Green River from construction activity. Associated dust from operation could also be a concern.
- Potential impacts to Ute ladies'-tresses in the Duchesne River from construction and operation activities.

The UBRR would be located within the Intermountain Desert Province, which covers the physiographic section called the Great Basin and the northern Colorado Plateau in Utah. Although much of this area is

made up of separate basins with no external drainage, the project area would be within the drainage basin of the Green (and Colorado) River. The lower parts of many basins have heavy accumulations of alkaline and saline salts. Many mountains rise steeply from the semiarid, sagebrush-covered plains. These mountains are generally well covered by vegetation, and their upper elevations usually have sparse conifer forests.

Sagebrush is typical in broad basins between mountain ranges, plains, and foothills between 5,000 and 7,500 feet. Other important plants in the sagebrush belt are antelope bitterbrush (*Purshia tridentata*), shadscale (*Atriplex confertifolia*), fourwing saltbush (*Atriplex canescens*), rabbitbrush (*Ericameria* spp.), spiny hopsage (*Grayia spinosa*), and horsebrush (*Tetradymia* spp.). These shrubs tolerate alkali to varying degrees, and this tolerance is essential to their survival on the poorly drained soils widespread in the region. On soils with the highest concentrations of salt, even these shrubs are unable to grow; they are replaced by plant communities dominated by greasewood (*Sarcobatus* spp.) or saltgrass (*Distichlis spicata*).

Above the sagebrush belt at elevation 5,000 to 8,000 feet lies a woodland zone dominated by pinyon pine (*Pinus edulis*) and juniper (*Juniperus* spp.), similar to the pinyon-juniper woodland of the Colorado Plateau. In the montane belt above the woodland zone, ponderosa pine (*Pinus ponderosa*) generally occupies the lower and more exposed slopes and Douglas fir (*Pseudotsuga menziesii*) the higher and more sheltered ones. These areas range from 8,000 to 13,000 feet in elevation within the Uinta Basin. In the subalpine belt, the characteristic trees are subalpine fir (*Abies lasiocarpa*) and Engelmann spruce (*Picea engelmannii*). Only a few mountains rise high enough to support an alpine belt.

This region supports a great variety of wildlife species. In winter, seasonal changes force many birds and mammals to move from the mountains into the sagebrush semidesert, where they find suitable habitat alongside the area's permanent residents.

Common mammals are coyotes (*Canis latrans*), pronghorn antelopes (*Antilocapra americana*), mountain lions (*Puma concolor*), bobcats (*Lynx rufus*), and badgers (*Taxidea taxus*). Smaller species include whitetail prairie dogs (*Cynomys leucurus*), deer mice (*Peromyscus maniculatus*), whitetail jackrabbits (*Lepus townsendii*), and porcupines (*Erethizon dorsatum*). During severe winters, elk (*Cervus canadensis*) and mule deer (*Odocoileus hemionus*) move into the lower-elevation basins.

Bird species range from burrowing owls (*Athene cunicularia*) to such specialized species as sage sparrows (*Amphispiza belli*) and sage thrashers (*Oreoscoptes montanus*), both found only in sagebrush habitat. Common raptors include American kestrels (*Falco sparverius*) and golden eagles (*Aquila chrysaetos*) along with ferruginous hawks (*Buteo regalis*) and other species of western hawks.

The complete report is provided in Appendix N, Biological Resources Report.

4.0 Overview of the Stakeholder-Involvement Process

Internal communication among the UBRR team started before the launch of the project, with UDOT regularly meeting with key elected officials in the Uinta Basin throughout the summer of 2013. The project officially kicked off on December 17 and 18, 2013, in HDR's Salt Lake City offices with meetings that included officials from Uintah and Duchesne Counties and representatives from UDOT and HDR.

The kickoff meeting participants decided that the project's Steering Committee would meet monthly at a location in the basin. For several months, this meeting was rotated between the Uintah County offices and the Duchesne County offices. Eventually, the UBRR team decided that the Duchesne County offices were the most central location for everyone, so the monthly project coordinating meetings were held there during the last 6 months of the project.

4.1 Executive and Steering Committees

The organizational structure of the UBRR team consisted of two committees: an Executive Committee, which was given decision-making authority, and a Steering Committee, which was the larger group that attended monthly meetings with UDOT and HDR staff. The Executive Committee consisted of:

- Sen. Kevin Van Tassell (State Senate District 26)
- Commissioner Mike McKee (Uintah County Commissioner)
- Commissioner Ron Winterton (Duchesne County Commissioner)

The Steering Committee included the Executive Committee members plus the following:

- Commissioner Darlene Burns (Uintah County commissioner)
- Commissioner Mark Raymond (Uintah County commissioner)
- Commissioner Kent Peatross (Duchesne County commissioner)
- Commissioner Kirk Wood (Duchesne County commissioner)
- Tammie Lucero (Uintah County economic development director)
- Cheri McCurdy (Uintah Transportation Special Service District)
- Adam Massey (Vernal Area Chamber of Commerce)
- Bill Stringer (Uintah County land-use planner)
- Troy Ostler (Uintah County engineering, with CIVCO Engineering)
- Irene Hansen (Duchesne County economic development director)
- Mike Hyde (Duchesne County Planning and Zoning)
- Don Winterton (Duchesne Transportation Special Service District)
- John Thomas (UDOT project manager)
- Brandon Weston (UDOT environmental manager)
- Vince Izzo (HDR)
- Joanna Alvord (HDR)
- Joe Walker (HDR)

4.2 Uinta Basin Stakeholder Meetings

As a matter of communications strategy, Executive Committee members asked that team members try to keep the project low key until after a notice to intent to prepare the UBRR EIS was issued. Still, a number of meetings were held with key constituent groups in the Uinta Basin to provide project information and updates. In all of these meetings, UDOT took the lead. UDOT discussed project background, explained the methodology being used to screen the 26 alternatives, and described the preferred alternative that emerged through the feasibility process. These presentations included:

- Ute Tribe Cultural Resources (July 10, 2014)
- Uinta Basin Energy Summit (September 4, 2014)
- Vernal Area Chamber of Commerce (September 16, 2014)
- Roosevelt City Council (September 16, 2014)
- Ute Tribe Business Committee (September 17, 2014)
- Vernal City Council (September 17, 2014)
- KVEL Radio Energy Today program (September 19, 2014)
- Myton City Council (October 9, 2014)
- Duchesne City Council (October 14, 2014)

4.3 Nongovernmental Organization Meetings

A number of meetings were held with nongovernmental organizations (NGOs) that have special interest in projects such as the UBRR. Those meetings included:

- **April 22, 2014 – Meeting with the Southern Utah Wilderness Alliance (SUWA).** UDOT described the process that the project was following in establishing rail alternatives and screening for feasibility. SUWA officials asked about possible road and pipeline options. UDOT made a commitment to keep SUWA apprised of project progress.
- **May 15, 2014 – Meeting with the Salt Lake Chamber of Commerce.** A representative from UDOT made a presentation to the Chamber similar to other presentations UDOT had been giving. Building on the foundation of the UBETS, the representative spoke to the Chamber about the alternatives being explored, the screening methods being used, and the two alternatives being considered by the UBRR team.
- **June 24, 2014 – Meeting with the Sierra Club.** UDOT described the process that the project was following in establishing rail alternatives and screening for feasibility. Sierra Club officials expressed concerns about air quality issues and the risks associated with transporting crude oil by rail. UDOT made a commitment to keep the Sierra Club apprised of project progress.
- **August 7, 2014 – Follow-up meeting with SUWA.** UDOT updated SUWA officials on project progress. UDOT stated that Duchesne and Uintah County officials and UDOT agreed that there was one feasible option for the UBRR (Alternative 2). SUWA officials asked who will build the rail line. UDOT pointed out that no money for construction had been identified. UDOT determined that future discussions with SUWA would be held as the project proceeds.

4.4 Agency Meetings

During the UBRR feasibility process, UDOT held a series of meetings with resource agencies to collect data, identify areas of concern with the development of the UBRR, and seek assistance in developing methodologies in conducting field surveys for wildlife, wetlands, and cultural resources. Below is a summary of those meetings. In addition to these meetings, there were numerous conference calls with the agencies.

- May 1, 2014 – Meeting with STB and FRA in Washington, DC. Items discussed included lead and cooperating agencies for an EIS, the STB EIS process, the project applicant, federal funds, the EIS schedule, and the need for a third-party contractor.
- July 1, 2014 – Meeting with the U.S. Army Corp of Engineers (USACE) to discuss wetland survey methodologies. USACE concurred with the proposal to conduct a full wetland delineation along proposed alignments.
- July 1, 2014 – Meeting with the Utah SHPO. Purpose of the meeting was to review the cultural resources survey methodology provided to the SHPO for review. The SHPO approved the field methodology.
- July 2, 2014 – Meeting with the U.S. Fish and Wildlife Service (USFWS) to discuss threatened and endangered species. Main issues identified were air quality and noise impacts on sage-grouse, listed fish species, Ute ladies'-tresses, raptors, clay phacelia, and Uinta Basin hookless cactus.
- July 10, 2014 – Meeting with the U.S. Forest Service and the Bureau of Land Management (BLM) Vernal Office to provide an overview of the project. Issues discussed included land transfers, roadless area impacts, scenic byways, visual assessments, cultural resources, special-use permits, sage-grouse, and sensitive species.
- July 17, 2014 – STB, USACE, and Utah Division of Wildlife Resources (UDWR) field review of the UBRR alignments. Key issues discussed included sage-grouse, construction requirements, rail operations, connection to the Class 1 railroads, and river crossings.
- July 21, 2014 – Meeting with UDWR to discuss potential issues with the UBRR. Issues discussed included sage-grouse, wildlife fencing, and sensitive fish species in the Strawberry and Duchesne Rivers.
- August 11, 2014 – Meeting with the BLM Price Office to provide an overview of the project. Issues discussed included sage-grouse, cultural resources, and visual assessment.
- September 9, 2014 – Meeting with the U.S. Environmental Protection Agency (EPA) in Denver to discuss the UBRR. Issues identified included cumulative and indirect impacts, air quality, tribal permits and boundaries, and EPA permitting authority on tribal land.
- October 2, 2014 – Meeting with USFWS, BLM, and UDWR in the field at Emma Park, Utah, to discuss potential impacts and avoidance measures to sage-grouse from the UBRR.
- November 13, 2014 – Meeting with USFWS to discuss survey protocol for the Uinta Basin hookless cactus, Barneby ridge-cress, and Uinta Basin Penstemon flower.

4.5 Project Website

4.5.1 Website Structure

As part of the UBRR communications plan, a project website was created. Hosted on the UDOT server, the website (www.udot.utah.gov/uintabasinrail) was launched on September 4, 2014, with the Six-County Infrastructure Coalition identified as the project owner. The website included:

- A home page presenting project background information along with a prominent link to an interactive map of the coalition's preferred feasible alternative
- A Process page that described the study process and the environmental process that would eventually be initiated
- A Library page with links to project technical documents and maps
- An FAQ page, with answers to frequently asked questions about the project
- A Comments page, where visitors to the website could fill out a form to leave comments or ask questions about the project

4.5.2 Website Comments

Comments and questions submitted through the website went to the UBRR team via iRealm comment-tracking software. The UBRR team responded to the questions and filed the comments for future inclusion in the public record. Website comments that were processed included:

- Requests for information about how to secure work on the UBRR project
- Requests to be added to the project email update list
- Several requests for clarification of a letter from UDOT to property owners in the area informing them that engineers would be on their property to conduct environmental research
- Two comments expressing concerns about the proposed project alignment:

> Unbelievable that you would choose the route in which you did. First of all Indian Canyon is very narrow as is, adding a railroad is crazy! Yes, I grew up in Indian Canyon and the thoughts of cement walls holding up the hillside infuriate me. What about the open range, on the National Forest. Livestock are allowed by permits to graze on both sides of SR. 191, now they will have to stay out of the way of vehicle's and a train. You say that the rail will stay inside of the existing right of way, not sure how you can build such a thing without disturbing private property. One more thing is there are several roads and property access's on the proposed side of the canyon, how will I be able to access them? Now to Duchesne, we have one of the best Fairgrounds in the state. Your railroad is going to completely destroy the back drop of our grounds. When this is done all you will be able to see is a cement wall. Not to mention the homes you will be traveling by on east side of town, I am sure property values next to the rail will decrease. I know there are other options, options that don't include removing half of a canyon's hillside, and half of Duchesne City's backyard. There are miles of unoccupied land east of Indian Canyon, and east of Duchesne City. It seems east is the direction your heading. WHY NOT?

> As the recent deadly accidents with moving oil by rail has shown that Oil should be moved by pipelines not by rail or trucks. Increase your fees for moving oil by trucks. As it is the oil development companies should pay 100% for any freight transportation method. The resources can be held in reserve until they can raise their own funds to pay for all aspects of the resources development.

4.3 Media

At the request of the Executive Committee, media efforts for the UBRR were primarily reactive. There were, however, several media stories that required project-wide coordination:

- In June, UDOT made a presentation to the Utah Transportation Commission. As a result of that presentation, the *Salt Lake Tribune* asked for an interview with UDOT, and the resulting story was picked up and circulated by national news services.
- In July, KUER Radio decided to do a radio version of the UBRR story. KUER interviewed UDOT at the KUER studio and also spoke to Commissioner Mike McKee.
- In August, the *Vernal Express* did a story about the UBRR with Sen. Kevin Van Tassell as the story's primary source.
- Beginning in September, newspapers in Moab began covering the question of whether Grand County should join other counties to make what would be called the Seven-County Infrastructure Coalition. During the next couple of months, the coverage of this issue was fairly intense, as the political season turned up strong and outspoken opposition to the move. The UBRR project was often mentioned as a driver for the Coalition.
- In late September, UDOT spent an hour on the air in Vernal as part of radio station KVEL's Energy Today radio program. UDOT explained the status of the UBRR, with discussion of the feasibility studies, the process of screening through 26 railway alternatives, and the current focus on one or two primary alternatives.
- In early October, the *Salt Lake Tribune* picked up on the Seven-County Infrastructure Coalition story and published a story plus an editorial expressing reservations about the Coalition and the UBRR.
- On December 8, 2014, the *Salt Lake Tribune* reported on a letter sent from Uintah and Duchesne County officials to UDOT stating that "it appears that the return on investment is insufficient to justify the expense of a railroad project," essentially announcing the end of the UBRR study.

5.0 Conclusion

The purpose of the UBRR feasibility process was to determine whether there were viable alignments that could be constructed into the Uinta Basin, and, if so, whether they were financially feasible to construct based on resource production levels in the basin. After evaluating 26 potential alignments, UDOT determined that two alignments of about 100 miles each, Alternatives 2 and 3, could meet construction and operation requirements.

Preliminary engineering and cost estimates were developed for these two alternatives so that the return on investment could be evaluated. As part of the return-on-investment evaluation, five resource-development scenarios were developed. Based on the project's construction cost, UDOT determined that only two high-production scenarios would result in a positive return on investment. The two high-production scenarios would require that oil shale and sands technology be proven, that the price of oil remain above $85 a barrel, and that no pipeline would be constructed that would compete with oil transportation by rail.

The feasibility study showed that two alignments would be feasible to construct, with Alternative 2 through along U.S. 191 being preferred by UDOT. Nonetheless, on December 1, 2014, Uintah and Duchesne Counties informed UDOT of their determination that the return on investment for the rail line was insufficient to justify the $4.5-billion construction cost. The Counties also concluded that the $300 million in upfront cost to the owner to plan and implement construction was too costly. Consequently, a notice of intent to prepare an EIS for the UBRR was never released.

6.0 References

DMJM Harris

2001 Feasibility Report for the Isolated Empire Rail Project. Prepared for the Utah Department of Community and Economic Development.

U.S. Department of Transportation, Bureau of Transportation Statistics

2007 National Transportation Statistics, Table 3-21: Average Freight Revenue Per Ton-Mile. www.bts.gov/publications/national_transportation_statistics/html/table_03_21.html. Accessed November 27, 2013.

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PETROLEUM & OTHER LIQUIDS

Crude Oil Proved Reserves, Reserves Changes, and Production (Million Barrels)

Area: Utah Period: Annual

Download Series History Definitions, Sources & Notes

Show Data By: Data Series | Area

Graph | Clear

	2013	2014	2015	2016	2017	2018	View History
Proved Reserves as of 12/31	613	555	389	372	285	401	1977-2018
Changes in Reserves During Year							
Adjustments (+,-)	2	-7	14	-8	-64	31	1977-2018
Revision Increases (+)	51	231	15	80	23	54	1977-2018
Revision Decreases (-)	80	292	197	63	11	42	1977-2018
Sales (-)	27	13	11	12	54	40	2000-2018
Acquisitions (+)	41	18	0	0	19	39	2000-2018
Extensions and Discoveries (+)				15	32	109	2016-2018
Extensions (+)	46	46	47	--	--	--	1977-2018
New Field Discoveries (+)	0	0	0	--	--	--	1977-2018
New Reservoir Discoveries in Old Fields (+)	0	0	0	--	--	--	1977-2018
Estimated Production (-)	33	41	34	29	32	35	1977-2018

Click on the source key icon to learn how to download series into Excel, or to embed a chart or map on your website.

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Notes: W -- Individual state volumes are withheld to avoid disclosure of operator-level reserves data, due to statistical precision requirements, or due to other data quality reasons. The individual state volumes are included in the U.S. Total volume. The volumes in the table above are crude oil ONLY (aka Black Oil), excluding lease condensate. The production estimates in this table are based on data reported on Form EIA-23L, "Annual Survey of Domestic Oil and Gas Reserves." They may differ from the official Energy Information Administration production data for crude oil contained in the "Petroleum Supply Annual." See Definitions, Sources, and Notes link above for more information on this table.

Release Date: 12/12/2019
Next Release Date: 11/20/2020

PETROLEUM & OTHER LIQUIDS

Crude Oil Production

Period-Unit: Annual-Thousand Barrels per Day

Download Series History | Definitions, Sources & Notes

Production	Graph / Clear	2014	2015	2016	2017	2018	2019	View History
U.S.		8,787	9,439	8,839	9,352	10,990	12,232	1859-2019
PADD 1		54	58	44	50	55	68	1981-2019
Florida		6	6	5	5	5	5	1981-2019
New York		1	1	1	1	1	1	1981-2019
Pennsylvania		19	19	17	18	18	17	1981-2019
Virginia		0	0	0	0	0	0	1981-2019
West Virginia		28	32	21	26	32	45	1981-2019
PADD 2		1,743	1,901	1,678	1,732	2,032	2,208	1981-2019
Illinois		26	26	24	23	23	23	1981-2019
Indiana		7	6	5	5	5	4	1981-2019
Kansas		136	125	104	98	95	91	1981-2019
Kentucky		7	8	7	7	6	7	1981-2019
Michigan		20	18	15	15	15	14	1981-2019
Missouri		1	0	0	0	0	0	1981-2019
Nebraska		8	8	6	6	6	5	1981-2019
North Dakota		1,081	1,177	1,032	1,070	1,264	1,404	1981-2019

Ohio	41	73	59	55	64	77	1981-2019
Oklahoma	410	455	421	449	550	580	1981-2019
South Dakota	5	5	4	4	3	3	1981-2019
Tennessee	1	1	1	1	1	1	1981-2019
PADD 3	5,216	5,658	5,433	5,861	7,058	8,077	1981-2019
Alabama	27	27	22	19	16	13	1981-2019
Arkansas	19	17	15	14	14	13	1981-2019
Louisiana	190	178	156	143	134	120	1981-2019
Mississippi	67	68	56	49	46	47	1981-2019
New Mexico	343	405	400	473	682	931	1981-2019
Texas	3,174	3,448	3,185	3,483	4,408	5,069	1981-2019
Federal Offshore (PADD 3)	1,397	1,515	1,599	1,680	1,758	1,883	1981-2019
PADD 4	664	755	669	723	889	958	1981-2019
Colorado	262	338	323	364	487	514	1981-2019
Idaho	0	0	1	0	0	0	2007-2019
Montana	82	78	63	57	59	63	1981-2019
Utah	112	102	83	94	102	103	1981-2019
Wyoming	209	237	198	207	241	279	1981-2019
PADD 5	1,109	1,066	1,016	986	956	921	1981-2019
Alaska	496	483	490	495	479	466	1973-2019
South Alaska	18	18	15	14	15	14	1981-2019
North Slope	478	464	475	480	464	451	1981-2019
Arizona	0	0	0	0	0	0	1981-2019
California	561	551	508	475	463	442	1981-2019
Nevada	1	1	1	1	1	1	1981-2019
Federal Offshore (PADD 5)	51	31	17	16	13	13	1981-2019

Click on the source key icon to learn how to download series into Excel, or to embed a chart or map on your website.

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Notes: Year-to-date totals include revised monthly production estimates by state published in Petroleum Navigator. Crude oil production quantities are estimated by state and summed to the PADD and the U.S. level. State production estimates reported by EIA are normally different from data reported by state agencies. For example, production estimates for Texas reported on table 26 are different from production reported by the Railroad Commission of Texas. See EIA Today In Energy article released on July 10, 2015 for an explanation of differences in production data for Texas. Totals may not equal sum of components due to independent rounding. See Definitions, Sources, and Notes link above for more information on this table.

Release Date: 6/30/2020

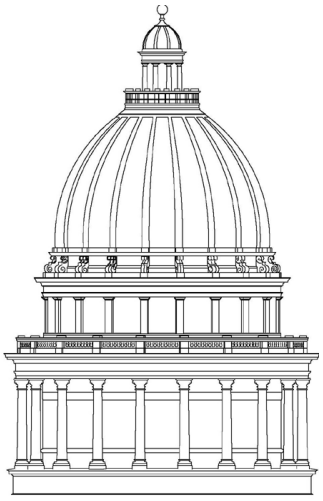
Next Release Date: 8/31/2020

U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

REPORT TO THE

UTAH LEGISLATURE

Number 2020-03



A Performance Audit of the Permanent Community Impact Fund

May 2020

Office of the
LEGISLATIVE AUDITOR GENERAL
State of Utah

STATE OF UTAH

Office of the Legislative Auditor General

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KADE R. MINCHEY, CIA, CFE
AUDITOR GENERAL

May 2020

TO: THE UTAH STATE LEGISLATURE

Transmitted herewith is our report, **A Performance Audit of the Permanent Community Impact Fund** (Report #2020-03). An audit summary is found at the front of the report. The objectives and scope of the audit are explained in the Introduction.

We will be happy to meet with appropriate legislative committees, individual legislators, and other state officials to discuss any item contained in the report in order to facilitate the implementation of the recommendations.

Sincerely,

Kade Minchey

Kade R. Minchey, CIA, CFE
Auditor General

UTAH STATE LEGISLATURE

AUDIT SUMMARY

REPORT #2020-03 | MAY 2020

Office of the Legislative Auditor General | Kade R. Minchey, Auditor General

PERFORMANCE AUDIT

Permanent Community Impact Fund

AUDIT REQUEST

We were asked to evaluate whether Community Impact Board (CIB) funds are used effectively and in accordance with the funds' intended purpose and CIB's project prioritization process.

BACKGROUND

The federal government collects revenues from private producers for the lease of public lands and the extraction of minerals from public lands. A portion of these federal revenues are remitted back to the state where the resource extraction took place. In fiscal year 2019, the Utah CIB received $36.6 million in revenues.

CIB provides loans and grants from these revenues to state agencies and subdivisions of the state that are socially or economically impacted by mineral resource development. Loans and grants can be used for specific provisions allowed in statute which include planning, construction and maintenance of public facilities, and provision of public services. The board is composed of 11 members, of which six are locally elected officials.

KEY FINDINGS

- No CIB policy exists to ensure projects adequately alleviate mineral extraction impact.
- Board members and other stakeholders desire guidance to ensure consistent funding decisions.
- Competitive bidding is not always occurring for CIB-funded projects.
- Internal policies are incomplete and inconsistently followed.

CIB Board Should Implement Policies Ensuring Funds Alleviate Impact

We identified several large projects that highlight the need for improved policy and processes going forward. These projects have substantial economic development elements or provide low-interest government loans to the private sector.

RECOMMENDATIONS

- CIB should implement, formalize, and follow internal policies for how projects will be reviewed and awarded, maximum award size, and grant/loan mix of all projects.
- CIB should continue working with staff to ensure consistency in decision-making.
- CIB should consider providing additional resources towards capital asset inventories and require applicants to complete them.
- CIB should ensure all projects engage in a competitive bid process.

Summary continues on back >>

REPORT SUMMARY

Strengthened Procurement Controls Are Needed for Some Board-Approved Projects

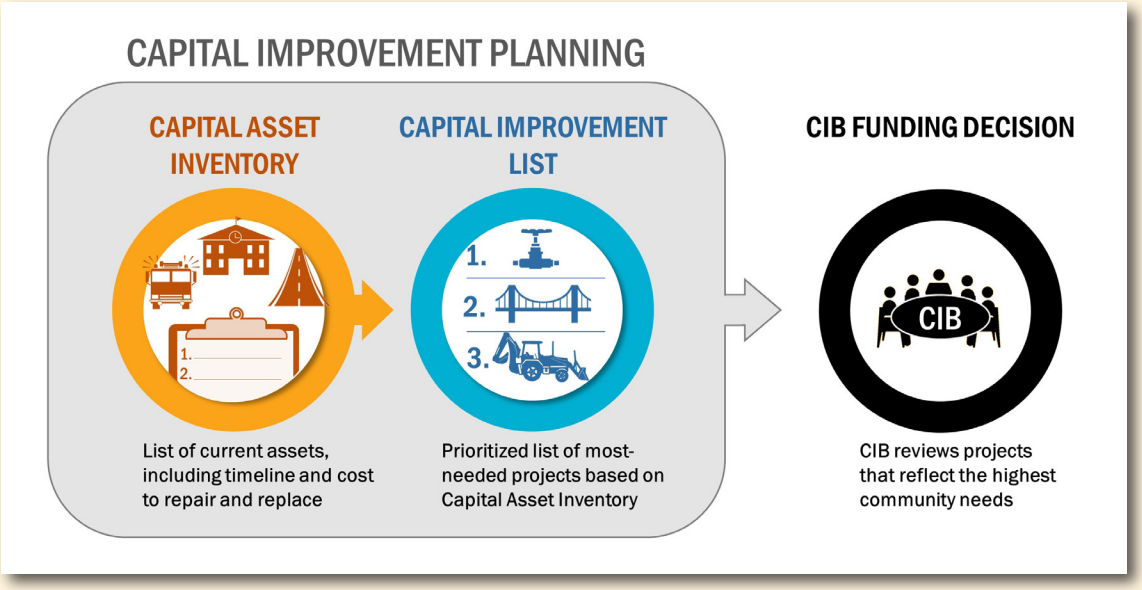
We evaluated the procurement process for a sample of cases to ensure that a competitive bid occurred. Robust competitive bidding was missing from some projects and should be required by the board. Five examples, accounting for $11.9 million in CIB funding, had only one bid. The Utah Division of Purchasing and General Services has resources available at no cost to applicants that could help strengthen the procurement weaknesses we found.

Internal Policies Are Incomplete and Inconsistently Followed

A number of CIB policies are documented but not consistently followed. Adherence to policies safeguards resources and promotes desired outcomes. Moreover, there are informal policies that, if formalized, would provide additional meaningful controls. CIB's internal guidelines state that the maximum award amount is $5 million, but the board has exceeded this 54 times while funding over $500 million in projects. In addition, the board's practice of providing more grants than loans over the last 5 years may not be sustainable.

Enhanced Planning and Consistent Decision-Making Is Needed

Good planning is important to ensure the most-needed, highest-value projects are prioritized and funded by CIB. Planning could improve through the widespread use of capital asset inventories, more meaningful use of capital improvement lists, and stronger public involvement on capital projects. CIB can also improve decision-making through enhanced consistency of award terms.



REPORT TO THE
UTAH LEGISLATURE

Report No. 2020-03

A Performance Audit of the Permanent Community Impact Fund

May 2020

Audit Performed By:

Audit Manager	Benn Buys, CPA
Audit Supervisor	Anndrea Parrish
Audit Staff	Lane Farr

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Chapter I
Introduction

The federal government collects revenues from private producers for the lease of public lands and the extraction of minerals such as coal, oil, and gas from public lands. A portion of these federal revenues are remitted back to the state where the resource extraction took place. Utah's Permanent Community Impact Fund Board (CIB) provides loans and grants to state agencies and subdivisions of the state that are socially or economically impacted, directly, or indirectly, by mineral resource development on federal lands for specific provisions allowed in statute which include planning, construction and maintenance of public facilities, and provision of public services.

CIB provides loans and grants to state agencies and subdivisions that are impacted by mineral resource development.

While local communities cannot collect taxes on federal land, they are required to provide basic public services. CIB returns a portion of mineral lease fees to these impacted communities as a result of activities on the land. Examples of public services provided by local governments for which CIB funds may be requested are shown in Figure 1.1.

Figure 1.1 Mineral Lease Funds May Be Used for a Variety of Services that Alleviate the Impact of Mineral Extraction. While not exhaustive, the following examples highlight some of the government services for which CIB funds may be used.

Source: ***Utah Code*** *40-10-25(2)(d); 63M-5-302(1), 17D-1-201; 78B-2-216; 11-36a-102(16)-(18); 17-27a- 403(3)(b).*

CIB is comprised of 11 members, of which six are locally elected officials.

CIB is comprised of 11 members, of which six are locally elected officials (two members are from the counties with the most mineral lease revenue), and five are government officials from Water Resources, Water Quality, the Department of Workforce Services, the State Treasurer, and the Transportation Commission. We interviewed all board members and the majority of them reported that board composition is balanced and appropriate.

CIB Provides Significant Resources To Utah's Rural Communities

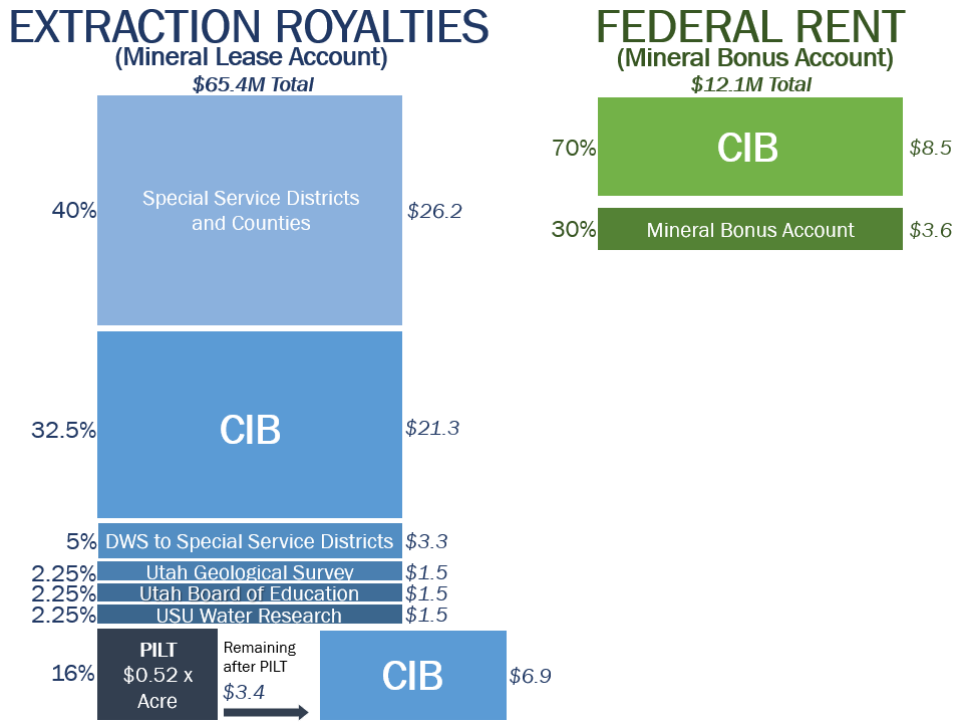
CIB prioritizes funding proposals based on a variety of criteria such as existing facilities and services and the presence of a taxable base.

Mineral lease funds are a significant revenue source for capital projects in rural Utah, both through direct allocations to districts and counties as well as to CIB. CIB prioritizes funding proposals based on a variety of criteria such as the amount of mineral lease money generated by the county, existing public facilities and services, and the presence of a taxable base to fund projects. Funds are disbursed in the form of grants and loans at varying interest rates. Approximately half the funds are distributed as grants and half as loans, although this distribution has shifted towards more grants over the last five years, as highlighted in Chapter V.

Mineral Lease Funds Are Statutorily Allocated to Various Entities

Utah Code requires mineral lease revenues to be allocated to various entities for a variety of statutory purposes as shown in Figure 1.2.

Figure 1.2 Fiscal Year 2019 Mineral Lease Revenues as Allocated in Statute. CIB receives a portion of extraction royalties (money associated with extraction activities) and rent, (money associated with leasing federal land to private entities) along with other distributions of mineral lease funds.



*Source: Office of the Legislative Auditor General, based on FINET revenue data and **Utah Code** 59-21.*
Note: Payments in Lieu of Taxes (PILT) are federal payments to local governments that help offset losses in property taxes due to the existence of nontaxable federal lands within their boundaries.

Extraction royalties can be used for grants, zero percent loans, or interest-bearing loans while federal rent (bonus payments) must be used for interest bearing loans. Special service districts and counties impacted by mineral extraction receive a large portion of mineral lease funds. These districts and counties can apply for additional mineral lease money in the form of CIB grants and loans for eligible projects.

Special service districts and counties impacted by mineral extraction receive a large portion of mineral lease funds.

For fiscal year 2019, we validated that CIB received the correct amount of funds and verified that all mineral lease money was accounted for. Distributions from the Mineral Lease Account and Mineral Bonus Account were matched to information provided by the Department of Workforce Services to verify all distributions were correct.

CIB Funds Are Intended to Benefit the Greatest Number of Citizens of the State

Utah statute states that the intent of mineral lease funds is to:

> Maximize the long term benefit of funds derived from these lease revenues and bonus payments by fostering funding mechanisms which will, consistent with sound financial practices, result in the greatest use of financial resources for the greatest number of citizens of this state.[1]

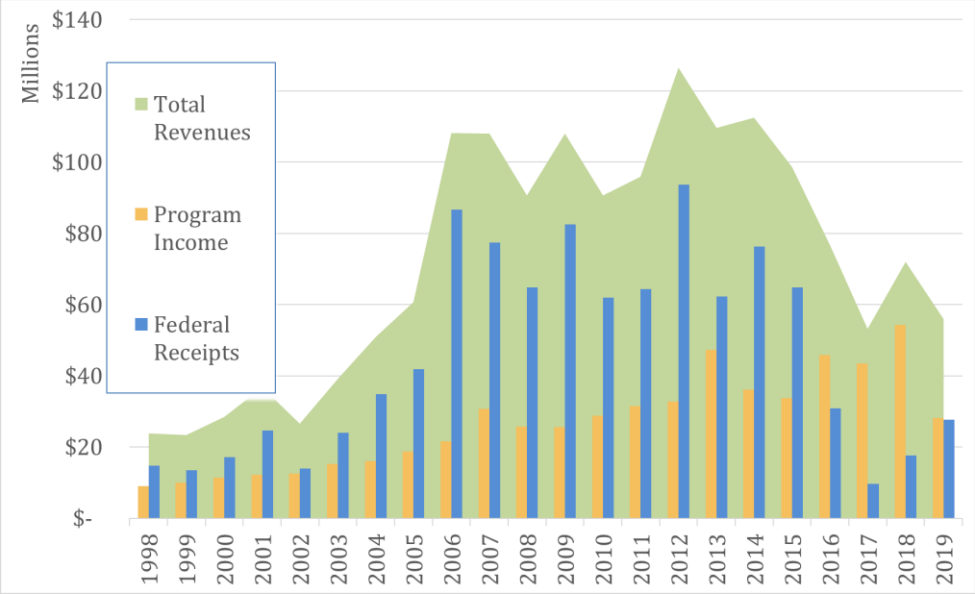
Statute gives funding priority to communities impacted by natural resource development.

Since this statute also states that there is "priority given to those communities designated as impacted by the development of natural resources," marginally impacted and marginally producing communities typically receive more CIB assistance in the form of loans, as stated in funding guidelines.

At the start of fiscal year 2020, the mineral lease fund portfolio totaled approximately $177 million. Approximately $60 million is being held for large infrastructure projects. Figure 1.3 shows the fluctuation in mineral lease revenue over the last ten years.

[1] ***Utah Code*** 35A-8-301

Figure 1.3 Mineral Lease Funds Are Composed of Program Income and Federal Receipts. Program income is composed of loan repayments and earned interest while federal receipts are composed of extraction royalties and federal rent.



Source: Permanent Community Impact Board revenue data from fiscal year 1998 to 2019.

While most CIB revenue has been generated through the federal mineral lease disbursements, based on the price of oil and gas and mineral extraction occurring, the federal receipts can fluctuate greatly, as shown above. An increasing portion of CIB revenue comes from loan repayment income as a result of lending money at interest to communities.

An increasing portion of CIB revenue comes from loan repayment income.

Other States Allocate Mineral Lease Money in a Variety of Ways

We performed a limited review of neighboring western states and found they use their mineral lease revenues in a variety of ways. Utah appears to have one of the most clearly defined mineral lease programs among the western states. Colorado has the program most similar to Utah's CIB called the Energy and Mineral Impact Assistance Fund. The mission of this program is "…to promote sustainable community development and to increase the livability and resilience of communities through strategic investments in asset-building activities." The program funds projects that are urgent, a high priority

for the applicant, and in communities with a demonstrated financial need.

In most states we examined, mineral lease revenues are typically added to existing funds.

In other states we examined, mineral lease revenues are typically added to existing funds and their use is governed by applicable requirements. In Idaho, about 90 percent of the money goes to its Public School Income Fund and the remaining 10 percent goes to the community in which the royalty was generated. Likewise, Wyoming uses most of its mineral lease funds for its School Foundation Program and other state education related programs, with the remainder used for roads, cities and towns, and local governments. In Montana, funds are deposited into the general fund with a portion distributed to affected counties. In California, mineral lease funds are deposited to a renewable resource fund and for a variety of projects related to geothermal resources.

Audit Scope and Objectives

We were asked to evaluate 1) whether CIB funds are used in a way that is consistent with the funds' intended purpose, 2) CIB's project prioritization process, and 3) whether CIB funds are used effectively. This led us to focus on the following chapters:

- Chapter II evaluates the need for enhanced board policies that ensure funded projects align with the Mineral Leasing Act and Utah statute's intended purpose of alleviating impact.
- Chapter III evaluates the need for enhanced planning and consistency in board decision-making.
- Chapter IV evaluates whether funding projects adhere to state procurement code and best practices.
- Chapter V evaluates compliance with board policies and procedures.

Chapter II
CIB Board Should Implement Policies Ensuring Funds Alleviate Impact

Most Permanent Community Impact Board (CIB) projects reviewed align well with the Mineral Leasing Act's (MLA) and state statute's intended purpose of alleviating the impact of mineral development. However, our risk assessment revealed several large projects that illustrate the need for additional policies because they appear to be largely for economic development or provide low-interest government loans to the private sector.

Because the MLA and state statutes are open for interpretation regarding what constitutes impact alleviation and therefore eligibility for public funding, we are unable to directly determine the appropriateness in awarding CIB funds for these projects. In 1993, the Utah Office of the Attorney General issued an opinion clarifying allowable uses of mineral lease funds. While this opinion is helpful, CIB can further improve its processes by establishing clearer policies in selecting and awarding projects. This chapter discusses several CIB-funded projects that highlight the need for improved policy and processes going forward.

Mineral Leasing Act and State Statute Restrict Mineral Lease Funding Uses

Based on a risk assessment, we examined several CIB-funded projects to determine if they were in compliance with the Mineral Leasing Act (MLA) and Utah statute's intended purpose, to alleviate impact. We found that nearly all CIB-funded projects we reviewed align well with this intended purpose and improve the quality of life for Utah residents. However, we identified several large projects that highlight the need for improved policy and processes going forward.

Several large projects highlight the need for improved policy and processes.

Utah Code says CIB projects should result in the "alleviation of social, economic, and public finance impacts resulting from the development of natural resources in this state[2]." The Attorney General's office has advised CIB that an economic development

[2] Utah Code Ann. § 35A-8-301(1)

project "in and of itself, is not eligible for funding with mineral lease monies." Finally, Utah Administrative Rule requires projects to be "available and open to the general public and that the proposed funding assistance is not merely a device to pass along low interest government financing to the private sector."

Our recommendations focus on ensuring projects align with state statute requiring CIB funds alleviate impacts from natural resource development.

We visited many CIB funded projects and interviewed many people who attested to the importance of CIB funds for their communities. The benefits of the MLA funds to communities throughout Utah is clear. Our recommendations in this chapter focus on ensuring that projects going forward clearly align with federal and Utah statutes and that there is a clear standard in policy which can be used to measure projects' compliance with statute.

CIB Funds Are Intended To Alleviate Impact

The Federal Mineral Leasing Act was enacted in 1920, allowing the government to receive compensation for mineral extraction activities on federal public lands. In 1976, the Department of the Interior requested that congress expand allowable uses of MLA funds beyond "the construction and maintenance of public roads or for the support of public schools or other public educational institutions." Congress rejected the Department of the Interior's request to remove all restrictions on the use of the funds but defined allowable uses of the funds which is reflected in the current law. Specifically, the MLA directs states to prioritize the money for:

Eligible projects include planning, construction and maintenance of public facilities, and the provision of public services.

> those subdivisions of the State socially or economically impacted by development of minerals leased under this [Act], for (i) planning, (ii) construction and maintenance of public facilities, and (iii) provision of public services…

State statute closely corresponds with the language in the MLA stating that the Impact Board shall:

> Make [subject to the limitations of the leasing act] grants and loans from the amounts appropriated by the Legislature out of the impact fund to state agencies, subdivisions, and interlocal agencies that are or may be socially or economically impacted, directly or indirectly, by mineral resource development for (i) planning, (ii)

construction and maintenance of public facilities, and (iii) provision of public services.

State Statute adds that the legislature intends to:

> maximize the long term benefit of funds derived from these lease revenues and bonus payments by fostering funding mechanisms which will, consistent with sound financial practices, result in the greatest use of financial resources *for the greatest number of citizens* of this state, with priority given to those communities . . . impacted by the development of natural resources covered by the Mineral Leasing Act (emphasis added).

Use of mineral lease funds should result in the greatest use of financial resources for the greatest number of citizens.

Federal and State statutes provide direction on how these funds can be used but lead us to ask questions that need clarification in board policies. For example:

1. How does the board determine if a project provides a sufficient impact alleviation when it is touted as an economic development project?

2. How does the board determine if a project alleviates or exacerbates the impact from mineral lease development?

3. What criteria does the board use in determining if a project provides a low interest government loan to the private sector?

This report provides examples of projects that demonstrate these questions and shows the need for CIB to adopt a policy in accordance with the Federal Mineral Leasing Act and Utah statute which provides criteria for how projects will be reviewed and awarded.

Attorney General Opinion States that Purely Economic Development Projects Do Not Qualify for Mineral Lease Funding

The Office of the Attorney General (OAG) has relied upon the analysis and legal conclusions of their 1993 opinion in determining whether a project constitutes economic development and an improper use of public funds for private purposes in violation of federal and state law.

According to an AOG opinion, "an economic development project, in and of itself, is not eligible for funding with mineral lease monies."

According to the opinion, "an economic development project, in and of itself, is not eligible for funding with mineral lease monies because it does not qualify as 'planning,' 'construction and maintenance of public facilities' or 'provision of public services.'" In addition, the OAG opinion states, "The use of mineral lease monies for 'mere' economic development—usually meaning assistance to private businesses and enterprises in their operations—raises Utah Constitutional issues." The opinion references the Utah Supreme Court, which has upheld the constitutional principle that "public funds cannot be expended for private purposes" stating:

> [T]he fundamental test of the constitutionality of the statute requiring the use of public funds is whether the statute is designed to promote the public interest, as opposed to the furtherance of the advantage of individuals.

While many projects funded by CIB will result in some economic development, we believe that CIB needs to develop policies that have clear criteria for reviewing and awarding funds for projects that provide substantial economic development or that exacerbate impact.

CIB Funds Cannot Be Used as Low-Interest Government Loans to the Private Sector

The Utah Supreme Court has held that the Utah Constitution bars the State from subscribing (or lending its credit) in aid of any private enterprise. This is made clear in CIB Administrative Rule which states:

Proposed funding should not merely be a device to pass along low interest government funding to the private sector.

> All applicants must demonstrate that the facilities or services provided will be available and open to the general public and that the proposed funding assistance is not merely a device to pass along low interest government financing to the private sector.[3]

Federal and state statute, the Utah Constitution, Utah Administrative Rules, as well as the OAG opinion provide guidance for CIB in making funding determinations. Because many projects will have private, as well as public benefits, we recommend that the board

[3] Utah Admin. Code 990-8-3

develop additional clarity in their policies for determining what factors will be considered when awarding funds.

We also recommend that CIB review the project size, scope, intended beneficiaries, and budget of proposed projects and make a determination that the project is a good value for the community in alleviating impact, in accordance with statute's directive to provide "the greatest use of financial resources for the greatest number of citizens of this state." The Community Development Block Grant, for example, scores applicants based on the proposed project's benefit to their targeted population. Projects that provide the greatest benefit to the target population at the lowest cost are awarded a higher score.

CIB should review project size, scope, intended beneficiaries, and budget of proposed projects and make a determination that the project is a good value.

The following section focuses on several projects that demonstrate the need for CIB policies which can clearly determine if a project is adding rather than alleviating the impacts of mineral extraction, primarily promotes economic development, or provides low interest government financing to the private sector.

Some CIB-Funded Projects Reveal the Need for a Clear Policy Governing Projects with Substantial Economic Development Elements

Using a two-step methodology that included searching meeting minutes and reviewing flagged projects for high dollar amounts, we identified several projects that show a need for clearer policies and criteria in determining the appropriateness of CIB-funded projects. We recommend CIB adopt a policy that clearly outlines how projects with substantial economic development elements will be reviewed and awarded.

Risk Assessment Was Used to Identify Concerning Projects

Early discussions with stakeholders indicated potential concerns with how CIB funds are used. To examine whether Utah's mineral lease funds are used as intended, we conducted a risk analysis review that looked for projects which may have a large economic development purpose. To identify these projects, we searched all CIB meeting minutes over the last three years using terms "economic," "development," "private," "benefit," "legal," and "attorney." This yielded examples of projects across the state where board members,

CIB's assistant attorney general, CIB staff, or other interested parties raised concerns that a proposed project may be misaligned with the fund's intended purpose. Of the projects that were flagged by this search, we identified projects that presented the greatest risk due to their significant dollar amount and reviewed detailed documentation surrounding these projects. The following sections discuss these projects, demonstrate the need for CIB to have clear policies in determining the appropriateness of projects, and offer suggestions for ensuring that CIB funds are used as intended.

The Uintah Basin Rail Line Project's Impact Mitigation Was Questioned by Assistant Attorney General Advising CIB

In 2019, CIB awarded a $27.9 million application from the Seven County Infrastructure Coalition (SCIC) for Uintah Basin Rail Line planning. Prior to the award, the Office of the Attorney General (OAG) raised "questions and legal concerns about the application." SCIC's attorney sent a response letter which resulted in a subsequent OAG letter sent October 30, 2018. Specifically, this letter raised the following primary issues:

- The application and supporting materials do not provide sufficient evidence that the proposed rail line will mitigate impact by alleviating truck traffic.

- The primary purpose of the project appears to be economic development, which is not eligible for funding as clarified by the 1993 Utah Attorney General Opinion of the MLA.

The OAG questioned if the purpose of the SCIC study was primarily economic development.

Notably, the OAG letter quotes a study of the project which states, "[T]he ultimate goal of constructing the prospective railroad is to advance the economic development of the Uintah Basin…." The letter states, "because SCIC's application and its supporting studies place the issue [economic development] at the forefront" and "the MLA expressly forbids the use of mineral lease funds for mere economic development" the proposed project raises Utah Constitutional issues in need of addressing.

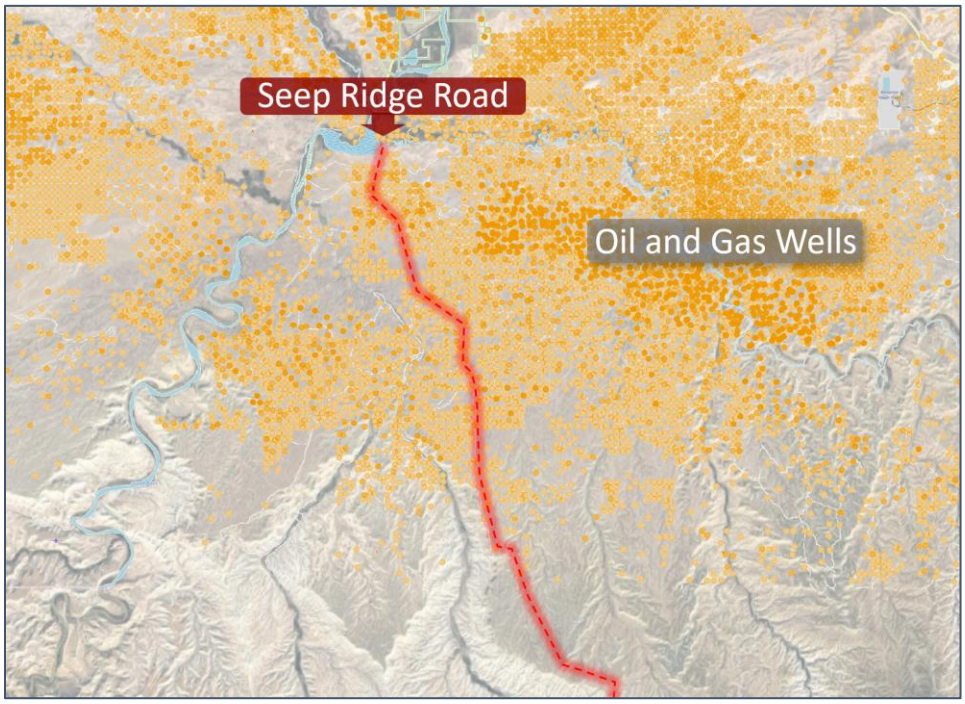
Despite significant OAG review regarding the rail study and warning that, "It is possible—perhaps likely, even—that the CIB's decision on the Application will be challenged in court," the project was funded with one board member opposing.

To provide clear guidance and a legal framework to the board for making funding decisions, we recommend that the board adopt a policy in accordance with the Federal Mineral Leasing Act and state statute that provides criteria for how projects will be reviewed and awarded.

Seep Ridge Road Economic Development Elements Show Need for Clear CIB Policy

Between 2009 and 2019, CIB awarded five grants/loans for contiguous sections of Seep Ridge Road totaling $59.5 million. Over half, or $34 million, was awarded as grants and the remainder as loans; $14 million at 2.5 percent interest and $11.5 million at zero percent interest. Meeting minutes surrounding the project indicate the project was touted primarily for economic development reasons, although public benefits were also mentioned. Further, the road runs through many oil and gas wells, as evidenced in Figure 2.1.

Figure 2.1 A Map of Seep Ridge Road Indicates the Road Was Upgraded and Paved to Facilitate Resource Extraction. Each yellow dot on the map is an oil or gas well.



Source: Office of the Legislative Auditor General, based on Utah Department of Natural Resources Division of Oil, Gas and Mining database.

The Seep Ridge Road project application stated the road was used for oilfield workers, ranchers, hunters, and travelers.

Seep Ridge Road is a 48-mile paved road starting from the end of State Route 88 near Ouray, Utah. The Uintah Transportation Special Service District's (UTSSD) initial application in 2009 explains that the proposed project is to reconstruct, upgrade, and improve the drainage issues on the 48 miles of road known as Seep Ridge Road used by "oilfield workers, ranchers, hunters, and travelers."

Seep Ridge Road's primary purpose appears to be enhancing mineral development.

Seep Ridge Road Application Discusses Increased Mineral Development Possibilities. The Seep Ridge Road application states that because the mining industry generates mineral lease monies, Uintah County and the district support returning, "a large portion of the funding back to the mining industry in the form of road improvements." In their phase two application for CIB funds they state, "This roadway provides access to recreation, hunting, ranching, and the development of abundant natural resources including oil, natural gas, oil sands, and oil shale." The CIB applications also mention public benefits such as enhancing access to recreational and hunting opportunities and enhancing traveler safety. While these public benefits are important to demonstrate, without clear criteria adopted by the board that has been carefully reviewed to ensure it is in compliance with federal and state statute, it is difficult to know whether this project satisfies the MLA's intended purposes of alleviating the burden of impacts from mineral development on local communities. Rather than reducing impacts from mineral development, it appears as though the road's primary intended purpose was to enhance mineral development, which would by extension, increase some impacts on local communities.

Meeting minutes indicate the road was needed to accommodate oil and gas wells.

Meeting minutes indicate that increased energy production was expected from building the road noting that, "if production increases in the Uintah Basin by about 100,000 barrels a day, that will add another 300 to 500 trucks a day." Further, oil and gas companies were reported to be supportive, with one company pledging $100,000 towards the road and issuing a challenge grant to other large oil and gas companies, suggesting the private sector anticipated enhanced production.[4] In meeting minutes from 2019 regarding the most recent installment of the road, the applicant stated the road addition was needed to accommodate 2,864 oil and gas wells, but the oil and gas

[4] Minutes of The Uintah Transportation Special Service District Administrative Control Board - February 6, 2008

companies did not have any money to help with the project at that time.

Given the large percentage of CIB funding awarded to these expensive projects, we are concerned that the money has not benefited the greatest number of citizens, as required by statute. The board should clearly articulate in policy how it will comply with this requirement in the future and provide information supporting it.

Available Information Shows A Strong Economic Development Component for Seep Ridge Road. According to the Transportation, Environmental Quality & National Guard Appropriations Subcommittee meeting minutes that occurred prior to CIB awarding funding:

> The purpose is to get the waxy crude oil from the Uintah Basin to the railroad where it can be shipped to refineries which can handle this kind of crude oil and net a better price per barrel to the suppliers[5].

The Uintah Basin Energy and Transportation Study reveals the extent to which Seep Ridge Road is predicated on economic development in the form of enhancing oil and gas production. The purpose of the study was to identify if transportation infrastructure is a barrier to oil and gas production. Seep Ridge was identified as one of the "major transportation corridors that serve as primary routes for energy-related development in Duchesne and Uintah counties." Likewise, the environmental assessment for the project stated that purpose for building the road was, "a continued substantial increase in light and heavy vehicle traffic on the road, primarily associated with energy development in the Book Cliffs area".[6]

[5] Minutes of The Transportation, Environmental Quality and National Guard Appropriations Subcommittee February 6, 2008

[6] United States Department of the Interior, Bureau of Land Management, "Seep Ridge Road Paving Project Environmental Assessment" (2011). Environmental Assessments (UT). Paper 6. https://digitalcommons.usu.edu/utah_enviroassess/6

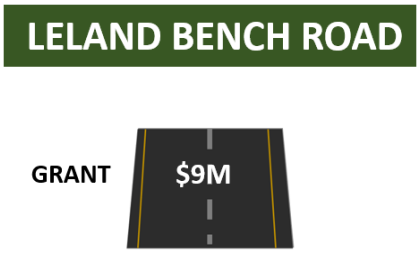
Supporting documentation did not provide evidence of significant impact alleviation benefits of Seep Ridge Road.

The engineering firm that presented the most recent addition to the road called Ouray Bottoms Road emphasized that 45 percent of gas produced in the Uintah Basin comes from this corridor and that it was necessary to raise the road to prevent the oil and gas industry vehicles from taking a 92-mile detour in the event of a flood. Additionally, one board member asked if the applicant had approached the state for economic development money since the project affects the whole state. The board might have believed that that the impact alleviation benefits were compelling enough to fund the projects. But supporting documentation did not provide evidence of this position. In the future, the board should better document their decisions showing the statutory reason for making their decisions.

CIB Board Should Clarify How Private and Public Benefit Is Evaluated. The 1993 Attorney General Opinion stated the intent of the MLA, indicating that economic benefit is not an appropriate use of mineral lease funds. According to the opinion, assistance to "private businesses and enterprises in their operations. . . raises Utah Constitutional issues." The opinion further adds that, "private benefits incidental to a dominant public purpose do not detract from the constitutionality of the legislation." While roads are an expressly permitted use of CIB funds, supporting documents on this road appear to show a dominant private benefit.

We recommend that the board clarify in their policies how they will evaluate applications with significant private benefits to ensure all CIB-funded projects are in accordance with the Federal Mineral Leasing Act and state statute's intended purpose and adequately demonstrate the cost of projects is justified by the value for the community in alleviating impact.

The Leland Bench Road Project Raises Questions That Demonstrate a Need for Improved Policies



In 2019, Leland Bench Road was fully funded with a $9 million CIB grant. The money for this project was initially intended for another project called the South Vernal Truck Route, which was planned to divert heavy truck traffic from main street roads in Vernal. After the project was approved, the applicant determined that there was no longer a need to divert traffic, requesting to use the funding instead for the Leland Bench Road.

The Leland Bench Road project involved realigning and reconstructing the roadway on Leland Bench to utilize, "the soils [that] have a greater capacity and will allow for the continued growth of larger vehicles in this area." In contrast to the original proposal that focused on the alleviation of mineral extraction impacts by diverting heavy truck traffic out of Vernal, the application for Leland Bench focuses more on the promotion of economic development. Meeting minutes indicate that the applicant anticipated that the road would create jobs and benefit the oil and gas industry.

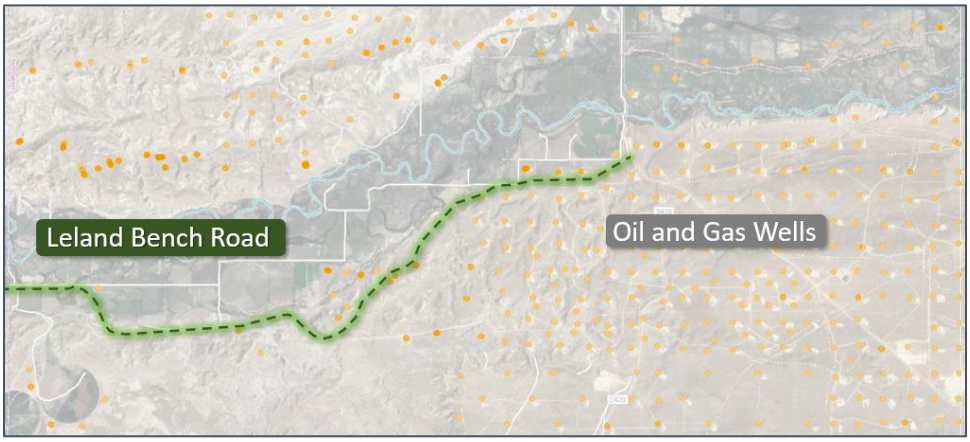
Constructing Leland Bench Road was anticipated to result in job creation, which is not an appropriate use of CIB money according to the OAG.

The OAG advised the SCIC in a 2018 letter that, in their opinion, job creation is not an appropriate use of mineral lease money:

> The expectation that economic development activity may provide jobs, taxes, and other benefits that may accrue to benefit the community may justify governmental entities in spending their *general fund monies* for economic development. However, it is not a proper use of *mineral lease monies* (emphasis added).

In addition to this economic development concern, rural planners who reviewed the project prior to CIB funding stated, "This road in Uintah County is mainly to provide access to oil and gas production" and the existing road "is not in the best condition to handle the amount of heavy oil and gas traffic." The planners favorably recommended the project because, "this road will greatly benefit the energy sector that it feeds." Figure 2.2 illustrates the proximity of the road to oil and gas wells.

Figure 2.2 Leland Bench Road Appears to Promote Economic Development. Each yellow dot on the map indicates an oil and gas well.



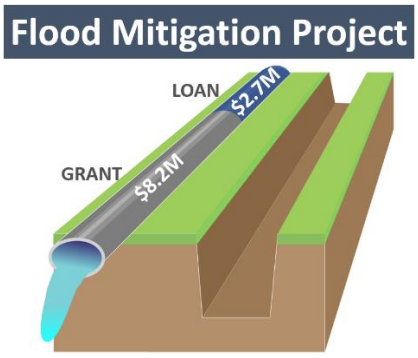
Source: Office of the Legislative Auditor General, based on Utah Department of Natural Resources Division of Oil, Gas and Mining database.

The Leland Bench Road application states the road was needed for heavy truck traffic for the energy industry.

Application documents also suggest that the purpose of the road was enhanced resource extraction, stating that the road was needed, "as a means of providing [truck] access to the southern portions of Uintah and Duchesne Counties for heavy truck traffic for the energy industry."

This project again points to the need for clear criteria to measure and review projects against the Mineral Leasing Act and state statute. In addition, the project was built without securing the right of way, consequently it is unclear if the public will continue to have access to the road.

Flood Mitigation Project May Be An Innapropriate Pass-Through to Canal Companies



In 2016, CIB awarded $10.9M ($8.2M grant and $2.7M loan at zero percent interest) to Uintah County Municipal Building Authority for a flood mitigation project. In 2018, Uintah County Water Conservancy District applied to take over the project which had not yet begun. The project—which is currently underway—will pay canal companies for a 100-year rights-of-way lease to use the canals to channel flood water should a flood occur. Unlike other projects highlighted in this chapter, the canal project application states a clear public benefit which is flood mitigation and does not appear to have been built to enhance mineral extraction. We are concerned, however,

that the money provided for this project may be an inappropriate pass-through to three private canal companies.

CIB may be paying canal companies to pipe their canals when they have already received funding to do so. CIB meeting minutes indicate that the canal companies determined the price for the CIB-funded rights-of-way based on the anticipated cost to purchase pipe for irrigation. Minutes also indicate that canal companies would use the rights-of-way money to purchase the pipe for the project. However, the Bureau of Reclamation awarded the canal companies funding to pipe their canals prior to CIB's decision to fund this project in 2018.

The Bureau of Reclamation provided funding to pipe canals that CIB also awarded funds for.

This project raised additional concerns. For example, county minutes show that the county intended to pursue the loan portion of the CIB award in order to pass along money to canal companies at a lower rate than they could obtain elsewhere. Further, a county commisioner in the area also raised this pass-through concern stating that one of the canal companies had already placed pipe in part of their canal and was preparing to finish the piping project. The commissioner raised thirteen concerns with the project inluding:

CIB funds were pursued to pass along money to canal companies at a lower rate than they could obtain elsewhere.

- A Storm Water Plan for the Area provides more effective flood mitigation measures than the proposed project
- A legal determination, which had not been performed, may show that the county already has a right of way, eliminating the need to lease the canals.

The commisioner stated, "Even though my county is a beneficiary it seems odd to give such generous terms to a project with so many unstated objectives." We share the commissioner's concern and question if the public is getting a benefit that is comparable to the money spent in addition to the potentially improper pass-through concerns raised by the documentation.

In 2017, the OAG's office, CIB bond counsel, and CIB staff cautioned the board to evaluate whether this project represented an improper pass-through to the private sector. They stated that purchasing the easements would be an improper pass-through if there was no determination of fair market value. The applicant proposed a fair market value based on the cost of installing the pipe, but according to a commissioner closely involved with the project, there were no details behind this estimate. The commissioner wrote a letter to the

A county commissioner stated that the canal project appeared to be paying water companies to upgrade their system.

board raising this concern. Meeting minutes document "that there have been concerns from various entities about this project" and that "it appears to be paying the water companies to upgrade their system."

Despite unaddressed concerns raised by various parties, the project was approved. Documentation suggests that part of the purpose of this application may have been to pass along a low-interest government loan to privately owned canal companies to do a project that they mave have planned to do even without CIB funding.

Administrative Rule states that applicants must demonstrate that "funding assistance is not merely a device to pass along low interest government financing to the private sector.[7]" Likewise, CIB policy echos this language in their policies stating:

> The CIB may determine to participate in non-culinary water projects where an eligible applicant can demonstrate that the facilities or services provided would be available to or significantly benefit the general public and that the proposed funding assistance is not merely a device to pass along low interest government financing to the private sector.

The policy uses "lining canals to prevent water loss to agricultural and industrial users," as an example of an inappropriate water project. While the canal project provides a public benefit of flood mitigation, the nearly $11 million cost of this project, combined with the pass-through to private entities that may have completed the projects on their own, raises concerns of the appropriateness of the project. We therefore recommend that CIB review applicant projects to ensure that the project is a good value for the community in alleviating impact.

Other Projects Also Demonstrate a Need For Close Review of Pass-Through Funds to the Private Sector

Clear policies regarding impact alleviation are needed for projects that appear to largely benefit private sector interests.

Our risk analysis led us to identify a number of high dollar projects, which raised concerns since CIB does not have clear criteria for determining the public benefit of projects. The following section provides examples of additional projects we reviewed that share this concern. Due to the relatively small dollar amounts of these projects, our review was limited. We include them to illustrate that the board must ensure their policies are clear on what constitutes impact

[7] Utah Admin. Rule R990-8-3 (J)

alleviation and then carefully weigh the public benefit when funding projects that appear to largely benefit private sector interests or do not demonstrate impact alleviation.

- **Brian Head Water Line.** This $1 million project (mostly grant) pays for a new water line in the Cedar Breaks Mountain Estates, a development in the Brian Head area. While CIB funds will provide important infrastructure for fire protection in the Cedar Breaks area, the applicant acknowledged that future development of the area could also benefit by utilizing the line. It is not clear from current board policies and the application if this project primarily benefitted the public or owners of the future development.

- **Charleston Town Road Paving Project**. This $1,165,000, 15-year loan at 2.5 percent raised several concerns from the board including the OAG. The concern was that the project would benefit only a few private homeowners. Again, better policies and more information is needed to make a determination.

A $1.1 million CIB loan was used to benefit only a few private homeowners.

- **Gunnison City Sidewalks.** This $58,000 grant project was to provide sidewalks and driveways that lead to private homes. The OAG raised the concern that the project appeared to be a pass-through to homeowners who would benefit through increased property values. Clearer criteria in policy would illuminate if this project is appropriate for CIB funds.

The current lack of CIB policies on how these projects should be weighed in conjunction with the private benefits do not give the board clear guidance on how these types of projects should be analyzed. We recommend that the Permanent Community Impact Board adopt a policy in accordance with the Federal Mineral Leasing Act and Utah statute which provides criteria for how projects will be reviewed and awarded.

CIB policies do not give the board clear guidance for projects with substantial private benefits.

Board Members Should Provide Extra Scrutiny To Projects That Lack Clear Public Benefits

Because Mineral Lease funds are limited and the need for these funds is great, as evidenced by the many projects that appear on capital improvement lists promogulated by communities, it is crucial the board develop policies that align with the Mineral Leasing Act.

Collectively, the projects highlighted in this chapter raise concerns surrounding how mineral lease funds are used. Projects that promote economic development rather than public benefit, that do not adequately alleviate impact, or provide low-interest government financing to the private sector should be reviewed with an extra level of scrutiny by the board.

Recommendations

1. We recommend that the Permanent Community Impact Board adopt a policy in accordance with the Federal Mineral Leasing Act and Utah statute that provides criteria for how projects providing substantial economic development or that exacerbate impact will be reviewed and awarded.

2. We recommend that the Permanent Community Impact Board review the project size, scope, intended beneficiaries, and budget of proposed projects and make a determination that the project is a good value for the community in alleviating impact.

3. We recommend that the Permanent Community Impact Board require in policy that all applicants clearly identify their project's intended purpose and impacts to the community and that applicants provide evidence that there is clear impact alleviation.

4. We recommend that the Permanent Community Impact Board staff monitor applications to ensure that each project's intended purpose is clearly stated and demonstrates how the project will alleviate impact before it is presented to the Board.

Chapter III
Enhanced Planning and Consistent Decision-Making Are Needed

Good planning is important to ensure the most needed, highest-value projects are prioritized and funded by the Permanent Community Impact Fund Board (CIB). This is especially true in rural communities which may lack resources to implement effective planning. CIB helps rural communities by providing planners in five regions of the state and by providing grants and loans for planning and infrastructure needs. While this is helpful, we found that planning could be further improved through the widespread use of captial asset inventories, more meaningful use of capitol improvement lists, and stronger public involvement on capital projects.

CIB provides funding for planners in five regions of the state.

We also found inconsistencies in board decision-making resulting in unclear expectations for applicants and potentially subjective decision-making, which can result in the funding of projects that are not the most needed for communities. The board has already begun implementing a new policy for board decision-making that will enhance consistency and transparency. We recommend that the board continue to strengthen and follow its policies for decision-making.

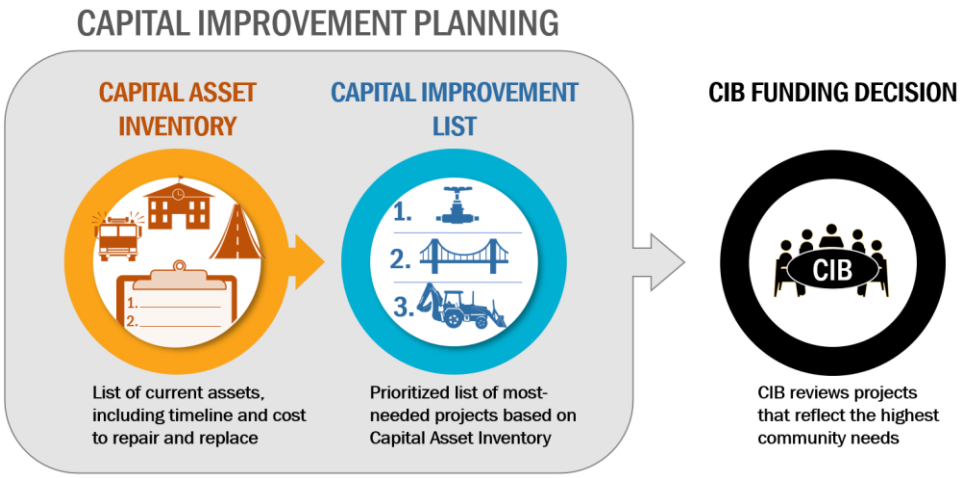
Enhanced Planning Will Optimize Funding By Aligning CIB Projects with Community Needs

CIB is the primary funding source for rural planning in Utah. CIB pays for five full-time regional planners as well as state-level planners with the goal of providing "…stability for continuous quality planning throughout rural Utah." We surveyed and interviewed all five regional planners, which helped us to identify opportunities for improving the planning process.

CIB is the primary funding source for rural planning in Utah.

CIB's current prioritization process requires key components, as shown in Figure 3.1.

Figure 3.1 Capital Improvement Planning and Project Prioritization Process. According to the Department of Workforce Services' (DWS) Capital Improvement Planning Guide, sound community planning, which includes performing a capital asset inventory and prioritizing needed projects, should occur prior to petitioning CIB for project funding.



Source: Office of the Legislative Auditor General, based on the DWS Capital Improvement Planning Guide.

Most rural communities lack capital asset inventories.

Despite this established process for capital improvement planning and prioritization, most of Utah's rural communities lack capital asset inventories (orange), which are essential for planning purposes but not currently required by the board. We also found that required capital improvement lists (blue) do not always reflect a community's planned and prioritized needs. Finally, robust public involvement could not be documented for some projects. Collectively, these planning deficits prevent communities from identifying their capital asset needs and prevent the board from effectively meeting these needs. CIB should consider providing additional resources to ensure this important tracking and planning can occur.

Critical Capital Asset Inventories Are Missing from the Planning Process

Most of Utah's rural communities lack capital asset inventories (CAI) which are essential for capital planning and project prioritization. Capital assets are a community's high-cost assets, such as roads, pipelines, buildings, parks, recreation facilities, and vehicles. CAI's account for every asset's current condition, maintenance and replacement timeline, location, and replacement costs.

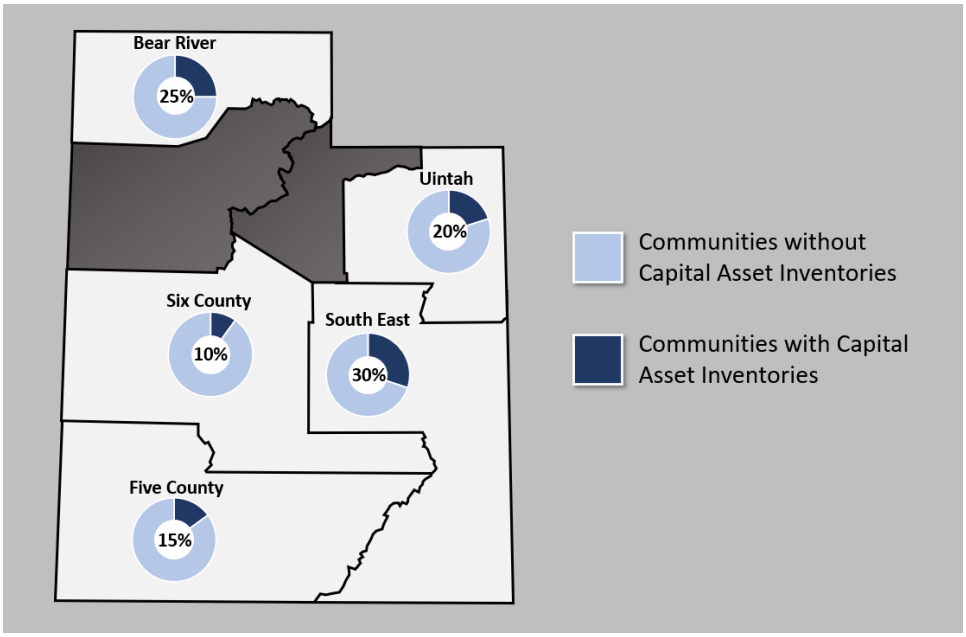
CIB provides funding for five full-time planners in the more rural regions of the state to enhance the development and implementation of local and regional planning goals. Regional planners are responsible for the following activities:

- Consulting entities on their applications for CIB funding prior to submission to CIB
- Coordinating planning activities that use CIB funds
- Coordinating requests for planning funds from other state agencies (such as Community Development Block Grants and Housing)
- Providing planning services for communities, including assistance with creating capital improvement plans and Geographic Information System mapping

CIB-funded planners enhance the development and implementation of local and regional planning goals.

These planners expressed concern that not enough of their communities are tracking assets. According to regional planner estimates, only 20 percent of rural communities manage up-to-date asset inventories, as shown in Figure 3.2.

Figure 3.2 Rural Planner Estimates of the Number of Communities Lacking Up-To-Date Capital Asset Inventories. In the five rural areas that receive CIB funding, planners estimate that approximately 80% of rural communities lack up-to-date capital asset inventories.



Source: This figure shows estimates provided by regional planners. Actual data is not available.

Although it is not included in CIB policy, according to their rural planning guide, communities should conduct capital asset inventories prior to making new capital funding decisions.

> These assets require upkeep to maintain their value to a community—none are free of costs, even when they are ignored. Capital assets should be maintained to ensure financial stability, limit emergencies, and enable long-term strategic planning for cities, counties, and special service districts.[8]

CIB should consider funding additional planners

While there is a cost in terms of time needed for CAIs, it is important that rural communities complete these prior to requesting CIB funding to promote more efficient use of funds. If communities, in conjunction with planners, are unable to complete these inventories, CIB should consider funding additional planners. These planners would cost a fraction of the largest projects funded by CIB each year.

The United States Environmental Protection Agency (EPA) has also issued guidance for asset management for local governments. According to the guidance, comprehensive asset management includes the following:

- Building an inventory of assets
- Scheduling and tracking maintenance tasks through work orders
- Managing budgeted and actual annual expenses and revenue

Comprehensive asset management helps communities determine how much money is needed to fund maintenance and asset investments.

By performing these tasks, local communities can identify the assets that they have, determine how long they will last, determine costs associated with repair, rehabilitation, or replacement, and plan for future needs. This information helps with determining how much money is needed to fund maintenance and asset investments. The information helps local communities determine if rates and other revenue-generating mechanisms are sufficient to cover costs while maintaining agreed-upon levels of service.

[8] Capital Asset Inventory: Helping Community Leaders Learn What's Under Their Feet. The State of Utah's Rural Planning Group is a project of Housing and Community Development, Department of Workforce Services.

By funding capital projects in communities that have not first conducted an asset inventory, CIB may be unknowingly prioritizing projects that do not accurately represent a community's greatest need. Using CAIs, communities could make more informed requests for major infrastructure funding based on the end of the useful life of the asset. This could help prevent emergencies that arise from asset failure. Additionally, when communities do not have access to information about their needs, they may be more susceptible to private interests such as engineering firms directing planning decisions, as will be discussed in Chapter IV.

Communities could make more informed requests for major infrastructure funding based on Capital Asset Inventories.

Capital Improvement Lists May Not Reflect Community Needs

CIB's process for utilizing capital improvement lists may not result in funding projects that represent a community's highest needs. According to administrative rule, applicants should work together with other entities in the county to create "…a consolidated list of the anticipated capital needs."[9] Ideally, prioritization occurs at the county level and is then prioritized at the area level as a cooperative venture. After agreeing upon the list of capital projects, county leaders forward their prioritized lists to the regional planner who submits each county's list to CIB by April 1st of each year. Only those projects that have gone through this coordinated prioritization process are eligible for CIB funding. We identified several concerns with how this process is implemented.

Coordinated project prioritization process is required to receive CIB funding.

Some CIB-Funded Projects Were Not Found on the Capital Improvement Lists. Administrative rule states, "Projects not identified in a county area's or HCD's[10] list, will not be funded by the Board, unless they address a bona fide public safety or health emergency or for other compelling reasons." We found several CIB-funded projects that were not on the capital improvement lists in one region, including a $40,000 grant for a water system and three road improvement projects totaling $4.13 million in grants and $5.6 million in loans. In another region, a project that involved raising a two-mile section of highway was not placed on the capital improvement list because the applicant stated the project was an emergency. As the DWS' Capital Improvement Planning Guide states,

Some large projects funded by CIB were not on capital improvement lists.

[9] Utah Administrative Rule R990-8-5

[10] DWS Housing and Community Development Division

"proper planning will significantly reduce the number of surprises and emergencies communities face, allowing leaders to take charge of the future of their community."

Planning Regions Are Inconsistent in How Capital Improvement Lists are Prioritized and Amended. While regional planners are required by administrative rule to submit a regional capital improvement list to the board annually, we found that planners vary in their practices for prioritizing and amending lists. One region, for example, requires county leaders applying for CIB funds to participate in regional prioritization of capital improvement lists. Other regions appear to have more relaxed standards for creating, prioritizing, and amending lists.

Capital improvement lists are easily amended and not viewed as important by some communities.

Regional planners stated that CILs are easily amended. For example, in one region, county commissioners modify capital improvement lists throughout the year. We were told that the list "…is merely a required step in applying for CIB funds" and that prioritization is not important because "board members do not account for the prioritized rank when funding projects." In addition, we found lists modified after the April 1st deadline. We documented an example of a large project that was added to the capital improvement list after the deadline and just before CIB authorized funding. These examples suggest that capital improvement lists may not be providing the intended control to ensure CIB funds are used for prioritized, planned projects except in emergencies.

Capital Improvement Lists Do Not Reflect Planned Capital Needs. Several regional planners we interviewed raised the concern that the CILs collected from counties and submitted to CIB are not true capital improvement lists because projects have not been vetted through the capital planning process as shown in Figure 3.1. Planners described the capital improvement lists that they submit to CIB as "merely a wish list of projects applying for CIB funding" and as "a hoop to jump through." Instead of current CILs that are not always based on a prioritized list and are easily modified, CILs need to start with capital asset inventories and be part of a planning process that allows communities to identify and prioritize needs.

Public Involvement Requirements Need Enhanced Oversight by the Board

According to rule, all CIB applicants are required to have a "vigorous public participation effort" as a condition of project funding.[11] CIB applicants are required to hold "…at least one formal public hearing to solicit comment concerning the size, scope, and nature of any funding request" and submit meeting minutes documenting that they have informed the public prior to its submission to the board.

Vigorous public participation is a condition of CIB funding.

In our limited review of project applications, we found some applications where meeting minutes lacked documentation that the public has been sufficiently informed about project details and loan possibilities. For example, meeting minutes for the Ouray Bottom Road (the latest segment of Seep Ridge Road) indicate that the public was not sufficiently informed of the size, scope, and loan potential for the project. Proof of adequate public involvement was also missing in the Leland Bench public meeting minutes. While it is unclear how often the public is not sufficiently informed, one board member reported that, frequently applicants' meeting minutes do not demonstrate that the public has been adequately informed about a project's details and potential funding contingencies.

Some meeting minutes lacked documentation of the public being sufficiently informed.

Public involvement is an important component of community capital planning. According to the Utah Rural Planning Group's guidebook, "if decisions such as capital improvement plans are made in a vacuum, long-term plans can separate community direction from collective community desires."

CIB's updated policies reflect an awareness of the need for better community involvement. According to policy, applicants must have a noticed public hearing to thoroughly inform the public concerning the size, scope, nature, and potential financial impact of any project and must provide evidence of that public forum through complete and detailed documentation. We encourage CIB to continue monitoring applications to ensure they follow this requirement.

[11] Utah Administrative Rule R990-8-3(E)

Fifty Percent Match Requirement Is a Barrier to Effective Rural Planning

Proper capital planning is necessary to maximize funds and is especially important in small communities with limited budgets. CIB is an important funding source for planning in Utah's rural communities. CIB contracts for five planners dedicated to promoting planning within participating regional Association of Governments. Utah administrative rule normally requires CIB applicants to contribute 50 percent matching funds for all planning grants and studies.[12] Unfortunately, some rural communities do not have enough revenue to conduct planning grants and studies. CIB staff note that the 50 percent match requirement is important because "…without skin in the game, engineers can end up being the ones driving an expensive plan." While we agree that it is important to prevent private interest from instigating projects and that larger communities are equipped to meet the match requirement, smaller communities may find the match requirement cost prohibitive, resulting in unmet planning needs.

Planners reported that a 50 percent match requirement for planning grants may be too costly for some communities.

Planners from each of the five areas stated that it is difficult for some small communities to afford the 50 percent matching funds, which can exceed $40,000. One regional planner explained that the requirements for "…some communities is very onerous because it would take up most if not all of their budget." Mayors from small communities that we spoke with believe the 50 percent match requirement is difficult given their limited budgets. One mayor from a town of 160 people said they needed a new water master plan and have not been able to afford it. Another mayor said his town (population of 330) cannot afford the 50 percent match for a master plan that they need.

One entity receiving a $27.9 million award was not required to provide 50 percent matching funds.

CIB appears to consistently enforce this requirement, with 94 percent of planning grants meeting the requirement. In one notable exception, the board approved a $27.9 million award to the Seven County Infrastructure Coalition for its railway and oil pipeline studies without requiring 50 percent matching funds. Given the significant need for capital planning in Utah's communities and CIB's requirement to use funds for the greatest number of citizens in the state, we recommend that the Permanent Community Impact Board

[12] Utah Administrative Rule R990-8-3

consider changes to the 50 percent match requirement for planning projects for rural communities with limited funding.

Board Can Improve Decision-Making By Increasing Consistency

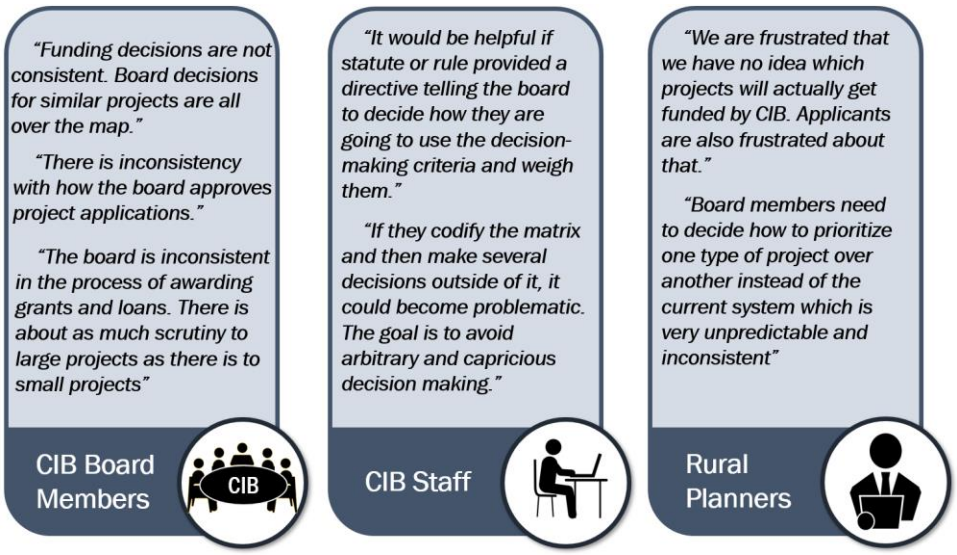
We asked all CIB board members about the decision-making process. Many reported they were inconsistent in their decisions and wanted better guidance for decision-making. This was also a frustration voiced by all the rural planners we met with. We documented several instances of inconsistent board decision-making. Recently, board members and staff have responded to this concern by developing a new funding policy based on applicant and project characteristics, which we believe is a good first step to consistent funding decisions. We recommend that CIB continue to work with its staff to ensure consistency in funding decision-making.

CIB has taken steps to improve the consistency of funding decisions.

Board Members and Other Stakeholders Desire Guidance to Help Ensure Consistency

Board members are tasked with determining which projects receive funding as well as the terms of the funding. This is a difficult task because the variety of projects that come before the board is large and the board is limited by available funding. Discussions with board members and stakeholders reported that board decision-making is inconsistent and that they do not have adequate guidance for making funding decisions.

Figure 3.3 Board Members and Stakeholders Report Inconsistency in Board Decision-Making. The following examples are direct quotes from board members and other stakeholders regarding board decision-making.



Source: Quotes from CIB board members, CIB staff, and rural planners

These quotes demonstrate what we also observed—that board members and stakeholders are aware of inconsistent decision-making and desire further guidance. The following examples document instances of inconsistent board decision-making.

CIB Has Offered Varying Award Terms for Similar Projects

CIB has offered varying loan terms for similar projects to counties in the same producing class.

CIB has offered different loan terms for similar projects. For example, as shown in Figure 3.4, two applicants from different counties in the same producing class[13] received different loan terms for their community centers. Similarly, CIB offered varying loan terms to project applicants for medical clinics in another producing class. These two examples highlight times when CIB has offered inconsistent loan terms to similar projects. These examples support board member, staff, and planner concerns that decision-making is often inconsistent.

[13] Counties are divided into five producing classes based on the amount of mineral lease funds produced in the county.

Figure 3.4 Examples of Varying Loan Terms Awarded for Similar Projects. Two entities from counties in the same mineral production class received different loan terms. Similarly, medical clinic projects in a different production class received varying loan terms.

Community Centers in Class-3 Production Counties						
Class	Project	Grant	Loan	Terms	CIB Funds	Project Cost
3	Community Center	$178,000	$180,000	20y @ 2.5%	$358,000	$748,000
3	Community Center	$350,000	$250,000	30y @ 0%	$600,000	$700,000

Medical Clinics in Class-4 Production Counties						
Class	Project	Grant	Loan	Terms	CIB Funds	Project Cost
4	Medical Clinic	$475,000	$475,000	30y @ 1.5%	$950,000	$1,405,000
4	Medical Clinic	$1,182,000	$3,548,000	30y @ 0%	$4,730,000	$4,850,000
4	Health Building	$3,000,000	$1,500,000	30y @ 1.5%	$4,500,000	$5,000,000
4	Treatment Facility	$0	$350,000	30y @ 2.5%	$350,000	$350,000

Source: CIB data

Consistency enhances transparency and ensures applicants have reasonable expectations.

Consistency in board decision-making is important for enhancing transparency and ensuring that CIB applicants have reasonable expectations about the likelihood of receiving funding and the funding terms.

CIB meeting minutes highlight another example of a time when CIB board members decided to offer an applicant terms that were inconsistent with other decisions they have made for similar projects. In 2017, a county applied to CIB for a $3.5 million loan (at 2.5 percent interest) to build a multipurpose building at its fairgrounds. The applicant contributed $2.7 million to the project. CIB rejected the applicant's terms and offered $3.5 million at 5 percent interest. The board reasoned that the applying county was non-producing and did not contribute to mineral lease funds.

This reasoning is inconsistent with other decisions they have made. Since 2011, interest rates for CIB loans have never exceeded 2.5 percent, indicating that the 5 percent interest rate was an anomaly. Additionally, while CIB prioritizes projects in producing areas, CIB has repeatedly awarded grants and loans to non-producing applicants in contrast to CIB policy, which states that these entities should only receive interest-bearing loans. Figure 3.5 shows examples of projects in non-producing counties that CIB funded in 2017, the same year that CIB rejected the applicants' requested terms of 2.5 percent for a multipurpose building.

Figure 3.5 CIB Funds Awarded to Non-Producing Counties in 2017. CIB awarded $1 million in grants and $4 million in loans to entities that do not contribute to CIB funds through mineral production.

Project Type	ML Grant	Loan	Terms	Total
New Fire Truck	$315,644			$315,644
Water system improvements	515,000			515,000
Remodel community center	83,000			83,000
Multi-purpose Civic Complex	170,000	430,000	30Y @ 2%	600,000
Public Works Expansion		3,500,000	30y @ 1%	3,500,000
TOTAL	**$1,083,644**	**$3,930,000**		**$5,013,644**

Source: Office of the Legislative Auditor based on CIB-provided data.

In addition to examples shown in Figure 3.5, CIB has consistently awarded funding to other non-producing entities.

CIB Is Making Efforts to Improve Consistency of Decision-Making

Board members reported a preference for adopting established criteria to structure funding packages.

Utah statute requires board members to "…establish the criteria by which the loans and grants will be made."[14] Statute further requires 12 criteria for determining funding eligibility.[15] According to a poll conducted by CIB staff, board members reported a preference for adopting "…officially established criteria to structure funding packages" as well as determining the loan to grant mix for applicants.

Consequently, the CIB board, in conjunction with staff, adopted a policy in February 2020 for CIB funding criteria based on existing statute and rules as well as board-established criteria. Among the new changes adopted is a "…methodology wherein similar applicants and projects are reviewed with guidelines defined in statute and noted in policy." Specifically, applicants are assigned minimum and maximum interest rates based on:

- Local mineral production level
- Amount of private, taxable land
- Local population estimates
- Local income levels

[14] ***Utah Code*** 35A-8-305(b)
[15] ***Utah Code*** 35A-8-307(2)

Projects that are considered "essential to the health, safety, and welfare of a community" will be given more favorable award terms. We support these changes and encourage the board to consider additional opportunities to strengthen the transparency and consistency of board funding. Because the new policy justifiably allows discretion within the funding guidelines, we encourage the board to emphasize consistency to ensure similar applications receive similar terms.

Projects considered essential to health, safety, and welfare will be given more favorable terms.

Other Boards in Utah Use Stronger Decision-Making Guidance

In reviewing opportunities to strengthen the board's decision-making process, we reviewed other Utah boards with similar processes. We found that the Community Development Block Grant (CDBG), Wasatch Front Regional Council, and Utah Department of Transportation (UDOT) all have guidelines for their boards' funding decisions.

The CDBG requires that its board adhere to more stringent decision-making criteria than is currently used by CIB. For example, the CDBG has a rating and ranking process for prioritized projects. This process allows the board to rank projects against a predetermined set of criteria to ensure that the projects that best align with the criteria receive funding. Applicants who demonstrate proactive planning receive additional points in the CBDG ranking process.

Other boards rate and rank projects using established criteria.

The Wasatch Front Regional Council uses weights and algorithms in its funding decisions. Projects with the highest rank are prioritized in accordance with available funding. According to the senior transportation engineer who runs the program planning, because funds are limited, applicants are ranked against each other based on a predetermined set of criteria.

Finally, the Utah Department of Transportation provides technical planning assistance grants. Grants are awarded based on how well they align with the programs' goals and are based on a discrete set of selection criteria. These other state boards have taken measures to ensure that projects receive funding based on transparent criteria. Likewise, CIB could benefit from enhanced planning, transparency, and consistency in funding decisions.

Recommendations

1. We recommend that the Community Development Office, in conjunction with regional planners, develop a strategic plan for creating, updating, and implementing capital asset inventories across rural communities. The Permanent Community Impact Board should consider, where appropriate, providing additional resources to assist these efforts.

2. We recommend that the Community Development Office, in conjunction with regional planners in each Association of Government, work with communities to complete asset inventories and further recommend that the board require asset inventories to be completed prior to filing applications for new projects.

3. We recommend that the Community Development Office, in conjunction with regional planners in each Association of Government, coordinate their policies surrounding the process for prioritizing and amending capital improvement lists.

4. We recommend that Permanent Community Impact Board enforce their rule that all applicants document that the public have been thoroughly informed of the size, scope, nature, and potential financial impact of any project prior to awarding funding.

5. We recommend that the Permanent Community Impact Board consider changes to the 50 percent match requirement for planning projects for rural communities with limited funding.

6. We recommend that the Permanent Community Impact Board continue to work with its staff to ensure consistency in funding decision-making.

Chapter IV
Strengthened Procurement Controls Are Needed for Some Board-Approved Projects

We were asked to review whether Permanent Community Impact Board (CIB) funds have been used effectively. To answer this question, we evaluated the procurement process for a sample of cases to ensure that a competitive bid occurred for funded projects and that state or local procurement code was followed. We found that robust competitive bidding was missing from some projects and should be required by CIB. Additionally, the State Purchasing Office offers resources at no cost to procuring entities that could address the following weaknesses we found in the sampled entities' procurement practices:

Competitive bidding was missing from some projects funded by CIB.

- Insufficient solicitation of bids
- Lack of proper criteria for bid scoring
- Insufficient controls to ensure a fair bid process

While Essential, Competitive Bidding Is Not Always Occurring

To maximize the effectiveness of CIB funds, entities receiving these funds need strong procurement practices that include competitive bidding of goods and services. Obtaining competitive bids helps control costs by reducing the risk of overpaying, receiving substandard services, or paying for unneeded services. Additionally, competitive bidding "…reduces the opportunity for favoritism and inspires public confidence that contracts are awarded equitably and economically." [16]

Competitive bids help control costs by reducing the risk of overpaying, receiving substandard services, or paying for unneeded services.

Our review of sampled projects indicates a lack of robust competitive bidding and solicitation of bids. Projects funded with CIB grant funds had fewer controls for ensuring competitive bidding than projects funded with CIB loans. CIB could help ensure the effective

[16] American Bar Association – The 2000 Model Procurement Code Regulations for State and Local Governments, page 50.

use of its funds by requiring proof of competitive bids from all recipients for goods and services purchased using CIB funds.

Some Reviewed Projects Lack Robust Competitive Bid Process

A limited review of CIB-funded projects found examples of little or no competitive bidding. Figure 4.1 highlights some of these examples. Shown below are five examples of projects where entities obtained only one bid. The lack of robust competitive bidding in these cases is troubling, considering the significant funds involved.

Figure 4.1 Sampled Projects with Only One Bid. The five examples of projects lacking competitive bids totaled $11.9 million.

Project	Total	Funding Type
Seep Ridge Road Segment 5	$7,200,000	60% Grant 40% Loan
Leland Bench Road Phases 3 and 4	$2,900,000	100% Grant
Price City Flood Mitigation Project	$1,300,000	75% Grant 25% Loan
SCIC Legal Services	$400,000	Grant
Engineering for Junction Town Municipal Building	$102,900	67% Grant 33% Loan
Total	**$11,902,900**	

Source: Procurement Documentation from Sampled Entities

Multiple bids increase confidence that the procurement process was fair and competitive.

Lack of competitive bidding in these cases may have resulted in higher costs. Notably, the design engineer for the Seep Ridge Road Segment 5 project estimated that the project would cost $5.5 million. The winning (and only) bid for construction was $7.2 million, 30 percent higher than the engineer's estimate. Similarly, the design engineers for the Leland Bench Road (Phase 3) estimated the project would cost $86,000. Procurement documents show that the only bidder secured the project with a $129,000 bid, 50 percent higher than the engineers' estimate. Had the entity secured multiple bids, it would increase confidence that the procurement process was fair and competitive. Further, it would reduce the appearance of favoritism.

Some entities cited exceptions for not following policy to obtain multiple bids. While every entity we examined had a procurement policy that required competitively bidding, entities in our

sample used various exceptions in several circumstances. One entity, for example, experienced an emergency and cited an exception in their policy that allowed for single source procurement during emergencies. The entity contacted one engineering firm to design the project and obtained one bid for the construction portion of the project.

The entity's purchasing policy required as much competition as possible in the event of an emergency and written documentation for the emergency exceptions. Given the three months between the time the emergency took place and the time the entity hired the engineer, there might have been time to obtain competitive bids for engineering services. Six months lapsed between obtaining CIB funding and awarding the project to a construction company. We believe that six months provided enough time for the entity to obtain competitive bids for the construction of the project. The entity was unable to provide required written documentation to explain why the emergency necessitated an exemption from competitive bidding.

One entity cited an exception in their policy that allowed for single source procurement during emergencies but didn't hire a company for three months.

Another entity reported following a policy that required a minimum of three sealed bids for a project. When asked why they obtained two bids through direct phone calls to contractors rather than following policy requiring three sealed bids, the entity representatives responded that they had made an exception in this case because of the small size of the project and the limited number of contractors available in their area. CIB questioned another entity about their lack of competitive bidding for legal services. Initially, the entity claimed an exception and stated that procurement code did not apply to them. After being questioned by CIB about their procurement practices, the entity has since bid out legal services.

Another entity reported that they did not bid out legal services because state procurement code does not apply to them.

Bid Solicitation for Large Projects Can Be Strengthened. One entity that received $68.5 million in CIB funds for three road construction projects claims to have solicited bids for engineering these projects using a local newspaper's online legal notices page. While this legal notice in a local paper may meet the policy requirements for soliciting the bid, further solicitation of bids on a broader scale could have resulted in additional interest among potential vendors.

Another entity in our sample did not publish notice of their project despite the policy requirement to do so. Instead, the entity directly contacted two contractors by phone. While directly targeting potential

bidders through phone calls is allowed, it did not fulfill the policy requirement to publish notice, nor did it fulfill best-practices recommendations to target a large audience.

Entities receiving CIB funding can strengthen confidence in the effective use of those funds by ensuring their bid proposals go out to as many vendors as possible. As discussed later in this report, State Purchasing has offered to post entities' bid proposals on the largest bid solicitation platform in the state at no cost to the entity.

CIB Should Bolster Competitive Bidding Requirements for Grant Recipients

CIB loans have controls for checking procurement policy compliance that grants do not.

When an entity receives CIB grant money, there are fewer controls for ensuring competitive bidding occurs than there are for entities receiving CIB loan money. When CIB awards a loan to a public entity, the borrowing entity is required to supply a legal opinion from its attorney certifying that the borrower complied with all procurement laws with respect to the project. Before the loan is closed, the borrower is required to submit a bid tabulation to CIB showing bids received for the project. These controls are inherent in the bonding process when CIB awards a loan but are not required in the case of grant funding.

Grant recipients have less of an incentive to seek competitive bids.

Additionally, loan recipients who must pay back the money they borrow (often with interest) have incentives to seek multiple bids for projects and to use the funding effectively. Conversely, CIB grant recipients (who are not required to pay back awarded funds) have less of an incentive to seek competitive bids as demonstrated in Figure 4.1. Given an increased trend toward awarding more grant money, especially with larger projects, we believe that CIB should implement additional controls to safeguard funds. We recommend CIB review all projects to ensure entities use a robust competitive bid process.

State Resources Could Strengthen Procurement Processes

The Utah Division of Purchasing and General Services (State Purchasing) has resources available that could help entities strengthen the procurement weaknesses found in our review of CIB-funded projects. State Purchasing would provide these services at no cost to procuring entities. In addition to widely soliciting bids on their

platform, using State Purchasing's services could strengthen other procurement weaknesses we found in procurement practices relating to bid scoring and potential for bid steering.

State Purchasing Has Staff and Resources Available to Aid the Procurement Process

State Purchasing has resources to assist Utah entities with the process of preparing documents for procurement, soliciting competitive bids, tabulating bids, and ensuring entities follow best practices. These resources are available at no cost to procuring entities and could help promote the best use of CIB-awarded funds through the following services:

State Purchasing offers procurement services at no cost to entities.

- Assistance with drafting solicitation documentation
- Reviews to ensure compliance with Utah Procurement Code and to avoid conflicts of interest
- Solicitation reviews
- Posting solicitation documents on the largest bid solicitation platform in Utah
- Assisting a public entity with evaluation of bids and proposals
- Drafting contract documents
- Providing all other procurement-related events

CIB should review its policies and practices regarding procurement by award recipients to ensure they are sufficiently strong. To further strengthen its procurement policies, CIB should consider requiring entities use State Purchasing if projects exceed a certain threshold or if best practices are not required in local procurement policy.

State Purchasing Services Could Strengthen Weaknesses in Bid Scoring

We found examples of weak bid scoring practices in sampled projects. While these practices may not go against their local procurement policy requirements, Utah State Procurement code requires entities to assign weights to each decision criterion for a proposal. ***Utah Code*** and best practices also require entities to inform prospective vendors of the criteria to be used in the decision-making process. Disclosing the relative importance of factors provides transparency to prospective bidders. Figure 4.2 shows an example of

Procurement code requires weighted decision criterion and the informing of prospective vendors of the criteria.

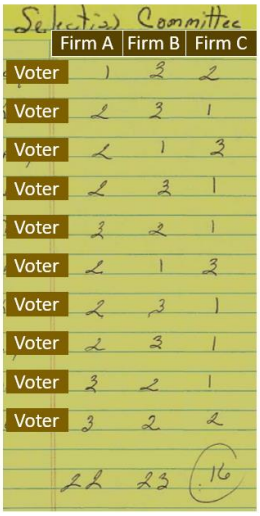
the scoring system outlined in code, along with a scoring sheet from a project in our sample.

Figure 4.2 Example of Model Bid Scoring System Compared to Scoring System from Our Sample. Best practice bid scoring involves attributing points to bidders based on transparent weighted criteria. Our sample revealed a simple scoring sheet that lacked clear weighted criteria.

Best Practice Scoring System
Utah Code 63G-6a-703f

	Selection Criteria	Score (0- 5)	Weight	Maximum Points
1.	Demonstrated Qualifications to meet scope of work (e.g. education, experience, specialized expertise)			
	a. Project Manager & key team members	5	x 3	15
	b. Firm resources	5	x 2	10
2.	Responsiveness of Work Plan			
	a. Clearly defined action and deliverables	5	x 3	15
	b. Availability of key team members to schedule requirements	5	x 2	10
3.	Past Performance (consider original & final fee amounts and construction amounts)	5	x 4	20
4.	Fee Amount Score	5	x 6	30
			Total Score	100

Sampled Scoring System



Source: Utah Association of Special Service Districts procurement training document, and Duchesne Water Conservancy District

We found examples of entities selecting winning bidders without transparent weighted criteria.

We found cases where entities did not select winning bidders based on transparent weighted criteria. One sampled entity obtained three bids for a water master plan funded by a $137,000 grant from CIB. As shown in Figure 4.2, the entity's decision committee rated each bidding firm from 1 to 3 and awarded the contract to the firm with the best rating. In cases like this, competing firms may not understand how their proposals would be evaluated and scored. State Purchasing has services available to evaluate entities' requests for proposals, scoring matrices, and decision-making processes to ensure entities follow these best practices.

State Purchasing Services Could Help Ensure Fair Bid Specifications

Our review also found examples of engineering firms playing a significant role in procuring the construction company for projects. For example, in one of our sample cases, an engineering firm solicited

the town about a project to chip seal the town's roads. The engineering firm prepared the application for funding from CIB. After the entity received CIB funding, the engineering firm conducted the procurement for project construction, including the solicitation of bids and bid tabulation. Representatives from another entity in our sample explained that engineering firms have approached them about potential CIB projects, offering to write up CIB applications for free under the condition that the entity select them as the engineering firm for the project.

Engineering companies have played significant roles in requesting CIB funding for entities.

Situations like this are concerning since engineering firms may not have the level of expertise that State Purchasing has regarding procurement practices. Further, using State Purchasing would help entities in writing specifications according to best practices and procurement code. If entities do not employ proper controls, engineering firms could exercise undue influence on the procurement practice. According to State Purchasing, "the entities should also ensure that the engineer is not writing a specification that is limiting who can participate in the project. This could be considered steering the contract to a particular vendor."

Entities should ensure engineering firms do not limit who can participate in a project.

By using solicitation reviews available through State Purchasing, entities procuring projects with CIB funds would better ensure that all participants in the procurement process are operating according to best practices.

Recommendations

1. We recommend that the Permanent Community Impact Board review all projects to ensure they are engaging in a competitive bid process.

2. We recommend that the Permanent Community Impact Board consider requiring that State Purchasing be used with larger projects and determine a threshold for imposing this requirement.

Chapter V
Internal Policies Are Not Consistently Followed and Are Incomplete

We found that a number of Permanent Community Impact Board (CIB) policies are documented but not consistently followed. Adherence to policies safeguards resources and promotes desired outcomes. Moreover, there are informal policies that, if formalized, would provide additional meaningful controls. CIB's internal guidelines state that the maximum award amount is $5 million, but the board has exceeded this 54 times while funding over $500 million in projects. In addition, the board trend of providing more grants than loans over the last five years may not be sustainable.

We also found that CIB needs to improve how it monitors and oversees its grants. Specifically, some projects lacked sufficient details such as performance expectations and timelines in their scope of work, making it difficult for staff to hold grantees accountable. We also found that some recipients had not requested reimbursements for expenditures in over six months, possibly indicating that the project is complete and can be closed out, but suggesting that ongoing contract monitoring is not occurring.

CIB Policies Should Be Formalized and Enforced

Internal policies are important to help ensure that CIB meets its objective in "…the alleviation of social, economic, and public finance impacts resulting from the development of natural resources in this state"[17] by providing loans and grants for qualified projects and studies. CIB maintains and updates internal policies to document its processes and priorities for funding. However, these policies are routinely disregarded, as evidenced by 54 funded projects that exceeded, sometimes by several times, the policy's stated limit of $5 million per project. There could be valid reasons to fund those

CIB policies are routinely disregarded.

[17] ***Utah Code*** 35A-8-301

projects, but we believe a process needs to be in place to ensure strong controls especially on high-cost projects.

While CIB staff consider these policies to be informal guidelines, we are concerned that deviating from its policies relaxes the internal control environment. According to the United States Government Accountability Office:

> Internal control comprises the plans, methods, policies, and procedures used to fulfill the mission, strategic plan, goals, and objectives of the entity. Internal control serves as the first line of defense in safeguarding assets. In short, internal control helps managers achieve desired results through effective stewardship of public resources.[18]

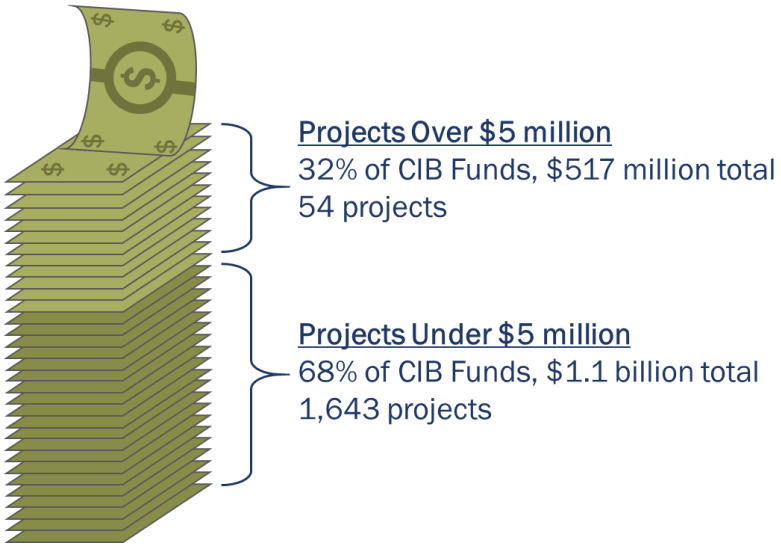
Many Projects Exceed the $5 Million Threshold

We documented 54 projects that exceeded CIB's $5 million limit on award size.

CIB guidelines limit funding for projects to $5 million or less. Specifically, the policy states, "Total CIB participation in any given project will be limited to a maximum of $5,000,000 regardless of grant/loan mix." Other CIB materials, including their website, state that "generally" total participation is limited to $5,000,000. However, the board has routinely deviated from this policy. We documented 54 out of 1,697 projects funded between fiscal year 2000 and 2020 have exceeded the $5 million limit. These projects amounted to nearly one-third of all CIB money awarded for all projects, as shown in Figure 5.1.

[18] United States Government Accountability Office *Standards for Internal Control in the Federal Government*

Figure 5.1 Total Amount and Number of CIB-Funded Projects That Exceeded $5 Million since 2000. While the number of large projects that exceeded $5 million accounts for only 3 percent of approved projects, these projects cost $500 million, or 32 percent of the total CIB funds disbursed.

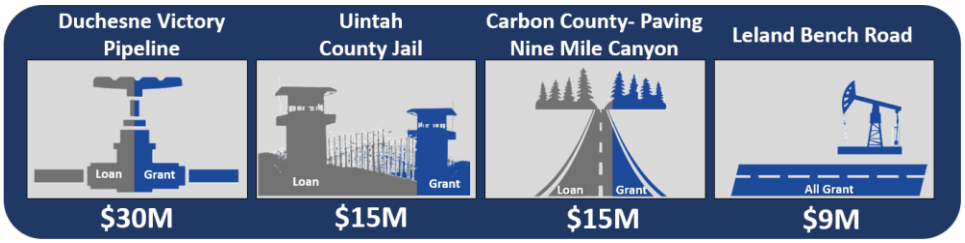


Source: Office of the Legislative Auditor General, based on Permanent Community Impact Board funding data 2000-2020.

32 percent of CIB funds have gone to projects that exceeded $5 million.

While the vast majority of funded projects did not exceed the $5 million limit, there are a number of notable and very large projects that exceeded this threshold. Figure 5.2 illustrates four of these large projects:

Figure 5.2 Examples of Projects That Exceeded $5 Million. Projects that exceeded the $5 million threshold include a pipeline, a jail, and road projects.



Source: Office of the Legislative Auditor General, based on Permanent Community Impact Board funding data 2000-2020.

While we recognize that large, expensive projects are occasionally necessary, they can be problematic without additional controls such as ensuring sufficient public benefit (Chapter II) and strong procurement

practices (Chapter IV). Several projects over the $5 million limit had other concerns that we identified in previous chapters.

Other boards place limits on maximum award size.

Other boards have placed limitations on large projects. For example, Colorado's Energy and Mineral Impact Assistance Fund program, a similar program to Utah's CIB, provides funding for projects over $2 million only when the project involves regional or multi-jurisdictional collaboration to solve multi-jurisdictional problems. Recipients of these awards may also be asked to withdraw from future funding cycles. Utah's Community Development Block Grant, also within the Department of Workforce Services, places a maximum award for any project at $200,000 unless there is multiple entity collaboration or emergency needs. Applicants who receive the maximum award must wait 24 months before applying for a new grant.

We recognize that occasionally projects over $5 million will be justified. However, to ensure that internal controls are followed and these projects maximize the use of CIB funds, we recommend the board modify its policies to allow for projects over $5 million, but require additional justification of the need for the project and ensure best practices are followed.

Fewer Awards Are Being Loaned with Interest

Statute states that the board shall keep a portion of CIB funds revolving.

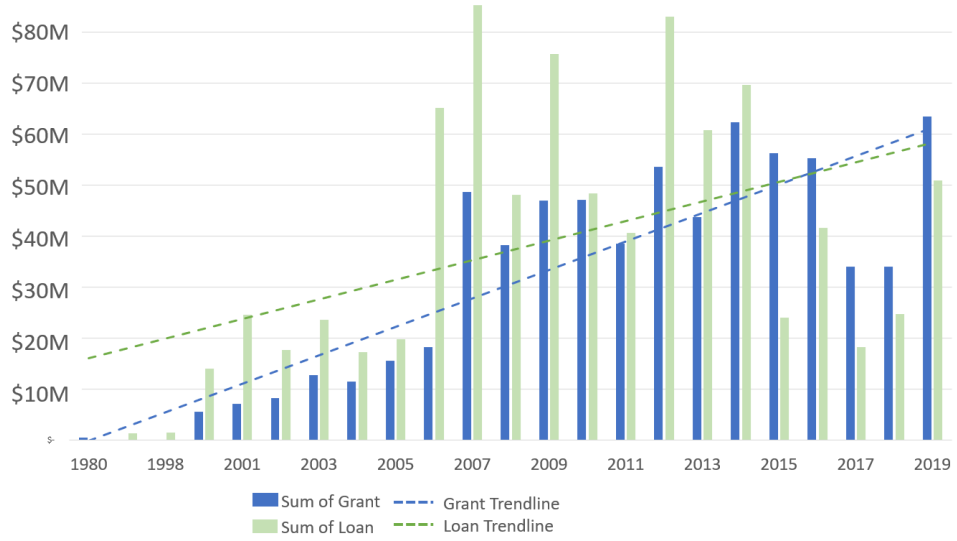
To ensure CIB funds are revolving, statute requires CIB to issue loans at interest. Statute states that the board "…shall administer the impact fund in a manner that will keep a portion of the impact fund revolving."[19] Statute also clarifies that the purpose of CIB funding:

> Is to maximize the long-term benefit of funds derived from these lease revenues and bonus payments by fostering funding mechanisms which will, *consistent with sound financial practices,* result in the *greatest use of financial resources* for the greatest number of citizens of this state (emphasis added).[20]

Historical award data indicates the board is awarding more grants than loans over the last five years, as shown in Figure 5.3.

[19] ***Utah Code*** 35A-8-307
[20] ***Utah Code*** 35A-8-301

Figure 5.3 More Grants Than Loans Have Been Awarded in Recent Years. The board has provided $83 million more in grants than in loans over the last five years.



Source: Office of the Legislative Auditor General, based on Permanent Community Impact Board funding data 2000-2019.

In recent years there has been a growing trend toward an increased use of grant money. We are concerned that over time this trend will be unsustainable. Because the board has a statutory responsibility to keep funds revolving, we recommend the board adopt a policy and controls that ensure adherence to this requirement.

More grants than loans have been issued over the last five years.

Policies on Reimbursements Need to Be Formalized

Award recipients are reimbursed for eligible expenses. Board staff told us that some expenditures are not reimbursable. For example, staff reported that the board does not reimburse legal fees except for bonding and possible project necessities. Despite this, we found instances of CIB funds being reimbursed to entities for legal fees, but since there is not a clear policy governing these reimbursements it is hard to determine the appropriateness of these expenditures. For example, the board reimbursed the Seven County Infrastructure Coalition (SCIC) operational legal fees in the amount of $993,000 as of February 2020. Some of these legal fees do not appear to be bond related or a project necessity, but instead relate to operational aspects, such as attending CIB board meetings, and there is not a clear policy governing the appropriateness of these reimbursements.

CIB reimbursed SCIC almost $1 million in legal fees, some of which do not appear to be bond related or a project necessity.

Administrative and operating expenses are also ineligible for reimbursement, according to CIB general guidance and grant information. Again, we found that the board has overridden this guidance and approved reimbursements for administrative and operating expenditures. The SCIC rail study requested funding for planning, permitting, legal fees, and engineering costs.

CIB policy does not provide specific language about appropriate reimbursements. While CIB staff advised us that this is intentional, it creates uncertainty and potential disparate treatment for recipients. We therefore recommend that further clarification be made regarding eligible reimbursements.

Contract Monitoring Needs to Be Enhanced

CIB should strengthen the monitoring and oversight of issued awards. Our review to sampled projects (see Chapter II), found projects where the scope of work had insufficient detail, such as expectations and timelines, making it difficult for staff to hold recipients accountable. We also found that monitoring needs to be strengthened; 17 projects that had not been finalized or closed out had submitted no requests for expenditure reimbursement in over six months. It is unclear whether the projects are still ongoing or if they are complete and unused funds can be returned to the board to be awarded to another recipient.

Contracts Do Not Provide Sufficient Details for Effective Monitoring

Some projects had a scope of work that lacked sufficient details.

We found a number of projects with a scope of work that lacked details and meaningful expectations that would allow for project monitoring. Sound project monitoring is necessary to ensure projects have been completed within the scope, on budget, and met the specified deadlines. The Department of Administrative Services' (DAS) *Contract Administration and Monitoring Guide* states:

> Tracking the performance of the contractor is the principal function of proper contract monitoring and administration. The purpose is to ensure the contractor is performing all duties in accordance with the contract and for the agency

to be aware of and address any problems or issues promptly.

Project Scope of Work Is Missing Critical Information. Without a clear scope of work that documents timelines, expectations, and outcomes, CIB staff are unable to effectively monitor contracts. While CIB collects detailed information regarding projects when considering them for funding, these details are not always included in a contract's scope of work. The following provides examples of scope of work sections that lack sufficient detail:

Without timelines, expectations, and outcomes, CIB staff are unable to effectively monitor contracts.

- Seep Ridge Road (Phase 1)—The project consists of reconstructing and upgrading the existing dirt road and improving the drainage issues of 48 miles of the roadway known as Seep Ridge Road extending from the end of State Route 88 near Ouray, Utah southeast to the Uintah/Grande County line used by oilfield workers, ranchers, hunters, and travelers.

- Brian Head Public Safety Building—New Public Safety Building.

- Canal Easements—The project consists of purchasing recordable easements from the Highline, Ashley Upper and Rock Point canals and property for a 219,350 cubic yard detention basin.

- Carbon County Senior Center ($8.4 million)—The project consists of constructing a new single story 34,000 sq. ft. building for use as a Senior Center with handicap accessibility to be located on property owned by Carbon County near the County Fairgrounds.

- Victory Pipeline Water System Improvements ($15 million grant)—This project consists of a water transmission line from the Central Water Conservancy District Duchesne Valley Water Treatment Plant in Duchesne and conveys culinary water to Ballard, Myton, and Roosevelt Cities; Cedarview-Montwell, East Duchesne, and Neola Special Districts

Our expectation is that all CIB contracts would have a detailed scope of work, especially for large awards. But, as shown above,

the scope of work sometimes consists merely of a short project description without sufficient detail to determine if projects meet the expected quality and design specifications. We recommend that the board require a detailed scope of work that provides accountability for the award recipient to ensure CIB funds will be used as intended.

Grant Monitoring Needs Strengthening

We found 19 open CIB projects that have had no activity in over six months.

We are concerned that active monitoring is not occurring on grants. Specifically, we found 19 projects with contracts held in the state's Public Treasurers' Investment Fund (PTIF) account are open despite no activity in over six months. At the end of 2019, these projects accounted for over $2.3 million and two had funds in excess of $500,000 each:

- The Duchesne County Special Service District had $1.2 million remaining in the account with no activity since December 2018.

- The Grand County Transportation Special Service District had $608,000 left in the account with no activity since January 2018.

DAS' *Contract Administration and Monitoring Guide* states that tracking performance includes "…verifying all performance measures and reports are completed in a satisfactory manner in accordance with the contract." A failure to withdraw funds in a timely manner from the PTIF account might indicate that a project encountered problems or that the funds would not be needed and could be freed for new CIB-funded projects. In either case, it is important that CIB staff actively monitor contracts to ensure that projects are moving ahead as indicated and the board is fully utilizing available funds.

Recommendations

1. We recommend that the Permanent Community Impact Board formally adopt and follow policies and controls regarding maximum award size, the total grant versus loan mix of all projects, and reimbursable expenditures.

2. We recommend that the Permanent Community Impact Board staff review its contract monitoring procedures to ensure contracts have a clear scope of work with meaningful performance metrics.

3. We recommend that the Permanent Community Impact Board staff ensure completed projects are closed in a timely manner.

Agency Response

State of Utah

GARY R. HERBERT
Governor

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Lieutenant Governor

Department of Workforce Services

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May 5, 2020

Kade R. Minchey, Auditor General
315 House Building
PO Box 145315
Salt Lake City, UT 84114-5315

Mr. Minchey,

I am pleased to respond to the report, **A Performance Audit of the Permanent Community Impact Fund 2020-03**. I appreciate the thoughtful work your staff performed over these many months in reviewing all of the aspects of administering this important program.

I am responding on behalf of the Department of Workforce Services in my role as Division Director. As I am also the chairman of the Board, any recommendations to the board will require further dialogue with them as they have not been party to receiving a copy of these recommendations as of the date of this response. Nevertheless, I anticipate support from the Board in implementing the recommendations and improving the program moving forward.

Our responses are as follows:

Chapter II Recommendations

1. We recommend that the Permanent Community Impact Board adopt a policy in accordance with the Federal Mineral Lease Act and state statute that provides criteria for how projects providing substantial economic development or that exacerbate impact will be reviewed and awarded.

We agree to work with the Board on implementing this recommendation. We would clearly state that every project reviewed, including the few highlighted by the auditors, fully meet the stated eligible purposes of the state and federal statutes. Although in the course of review, applicants at times highlighted the economic benefits of their proposed projects, the staff and board fully vetted these projects to determine they had a public benefit and purpose and met the standards outlined by law. This vetting process is the reason such a robust record exists and is something taken seriously by the staff and Board. However, we recognize that improvements can be made by applicants in clearly defining the public

purposes to these types of projects and look forward to our further discourse on how to enhance our policies in this regard.

2. We recommend the Permanent Community Impact Board review the project size, scope, intended beneficiaries, and budget of proposed projects and make a determination that the projects is a good value for the community in alleviating impact.

We agree to work with the Board on the implementation of this recommendation. As noted in the prior recommendation, we feel the Board has performed this obligation in the past with projects and is reflected in the amount of due diligence applied to these applications. We do see areas of improvement available and look forward to discussing how to implement such a recommendation as a Board.

Contact: Jonathan Hardy, CIB Chair

3. We recommend that the Permanent Community Impact Board require in policy that all applicants clearly identify their project's intended purpose and impacts to the community and provide evidence that there is clear impact alleviation.

We agree with the recommendation. We will have this policy discussion as a Board. As this process has often involved the Board and staff establishing these things as part of its due diligence process, we look forward to discussing how a policy at the application level can enhance the establishment of impact alleviation.

Contact: Jonathan Hardy, CIB Chair

4. We recommend that the Permanent Community Impact Board staff monitor applications to ensure that project's intended purpose is clearly stated and demonstrates how it will alleviate impact before it is presented to the Board.

We agree with the recommendation. Staff will work on modifications to the application so that this purpose is clearly defined by the applicant prior to being presented to the Board.

Contact: Candace Powers, CIB Program Manger

Chapter III Recommendations

1. We recommend that the Community Development Office, in conjunction with regional planners, develop a strategic plan for creating, updating, and implementing capital asset inventories across rural communities. The Permanent Community Impact Board should consider, where appropriate, providing additional resources to assist these efforts.

Staff agrees with the recommendation and will work with regional planners to develop a plan which may include a presentation to the Board for additional resources if warranted.

Contact: Keith Heaton, Assistant Director

2. We recommend that the Community Development Office in conjunction with regional planners in each Association of Government work with communities to complete asset inventories and that the board require asset inventories to be completed prior to filing applications for new projects.

The Community Development Office will work on this recommendation in conjunction with the above highlighted strategic plan. This recommendation will be implemented if resources are sufficient to execute the strategic plan. Timing of this implementation will be determined according to resources.

Contact: Keith Heaton, Assistant Director

3. We recommend the Community Development Office in conjunction with regional planners in each Association of Government coordinate their policies surrounding the process for prioritizing and amending capital improvement lists.

We agree with this recommendation. Staff will work to ensure consistency is applied across all regional areas.

Contact: Candace Powers, CIB Program Manager

4. We recommend that Permanent Community Impact Board staff enforce their rule that all applicants document that the public have been thoroughly informed of the size, scope, nature and potential financial impact of any project prior to awarding funding.

We agree with the recommendation. As highlighted in the report, the CIB has implemented a new matrix tool to clearly define the terms that should be discussed with communities via their public hearing requirement. This will allow the best possible vetting of information prior to the Board's consideration of the project.

Contact: Candace Powers, CIB Program Manager

5. We recommend that the Permanent Community Impact Board consider changes to the fifty percent match requirement for planning projects for rural communities with limited funding.

We agree to working with the Board to consider changes to this requirement. This rule has its pros and cons and we will facilitate a discussion on whether changes should be made.

Contact: Candace Powers, CIB Program Manager

6. We recommend that the Permanent Community Impact Board continue to work with their staff to ensure consistency in funding decision making.

We agree with the recommendation. As mentioned in the report, our new matrix tool that has been adopted by the Board is designed to produce this very outcome. We look forward to utilizing it to ensure consistency.

Contact: Jonathan Hardy, CIB Chair

Chapter IV Recommendations

1. We recommend that the Permanent Community Impact Board review all projects to ensure they are engaging in a competitive bid process.

We agree with the recommendation. Staff will work with the Board to identify the best ways to implement this recommendation.

Contact: Jonathan Hardy, CIB Chair

2. We recommend that the Permanent Community Impact Board consider requiring state procurement be used on larger projects and determine a threshold for imposing this requirement. Agree and Discuss with Board policies.

We agree with the recommendation. Staff will work with the Board to identify the best ways to implement this recommendation.

Contact: Jonathan Hardy, CIB Chair

Chapter V Recommendations

1. We recommend that the Permanent Community Impact Board formally adopt and follow policies and controls regarding maximum award size, the total grant versus loan mix of all projects, and reimbursable expenditures.

We agree with the recommendation. The Board has adopted our new matrix tool to help provide some controls on some of these elements and we will work with the Board to discuss the enhancement of other policies to implement this recommendation.

Contact: Jonathan Hardy, CIB Chair

2. We recommend that the Permanent Community Impact Board staff review its contract monitoring procedures to ensure contracts have a clear scope of work with meaningful performance metrics.

We agree with the recommendation. Staff will work to enhance scopes of work, contract monitoring and performance metrics.

Contact: Candace Powers, CIB Program Manager

3. We recommend that the Permanent Community Impact Board staff ensure completed projects are closed in a timely manner.

We agree with the recommendation. Staff will implement new procedures to ensure timely closeout of projects.

Contact: Candace Powers, CIB Program Manager

We look forward to the successful implementation of these recommendations in order to enhance this critical program. Where recommendations are directed to the Board, we look forward to a collaborative dialogue and would invite your audit team to help review these items at our June 2020 Board Meeting.

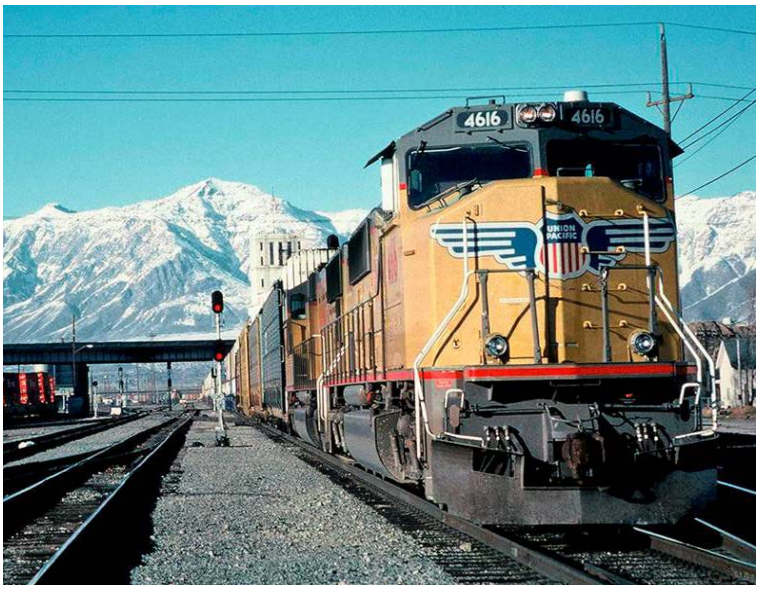
Should you have further questions or concerns, please do not hesitate to contact me directly.

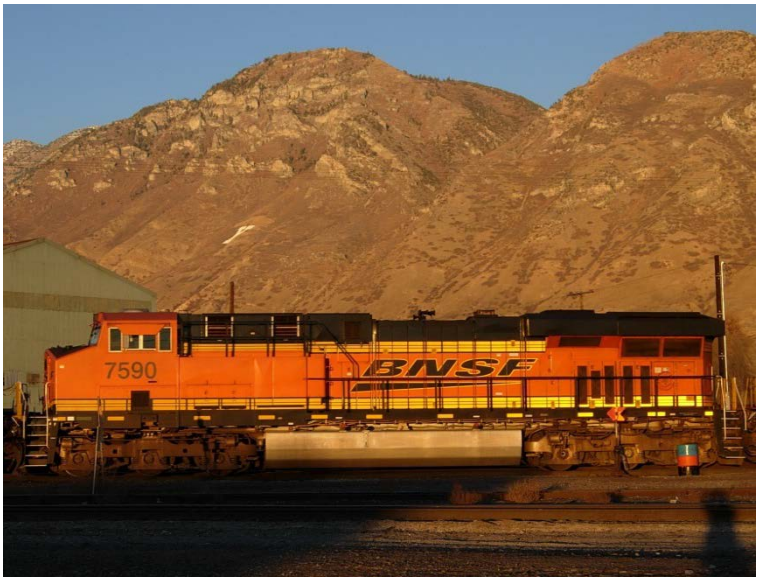
Sincerely,

Jonathan Hardy
Division Director, Housing and Community Development

Utah State Rail Plan

April 2015





Program Development

Planning Division

Acknowledgements

The Utah State Rail Plan (USRP) was developed by the Utah Department of Transportation (UDOT) and cooperatively funded by UDOT and the Utah Transit Authority (UTA). Both agencies' goal was to develop a state rail plan compliant with the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) and accepted by the Federal Railroad Administration (FRA).

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List of Abbreviations and Acronyms

AAR	Association of American Railroads
Amtrak	National Railroad Passenger Corporation
ATK	Amtrak
BNSF	BNSF Railway
bpd	barrels per day
C&NW	Chicago and Northwestern System
CDOT	Colorado Department of Transportation
CMLR	Comstock Mountain Lion Railroad
CP	Central Pacific Railroad
CSI	Customer Satisfaction Index
D&RGW	Denver and Rio Grande Railroad
DOE	Department of Energy
DOT	Department of Transportation
DPRW	Deseret Power Railroad
EIA	Energy Information Administration
EIS	Environmental Impact Statement
FAF	Freight Analysis Framework
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
GDP	Gross Domestic Product
IERP	Isolated Empire Rail Project
HPR	High-performance Rail
HSIP	Highway Safety Improvement Program
HVRX	Heber Valley Railroad
KCC	Kennecott Utah Copper Railroad
LA&SL	Los Angeles and Salt Lake Railroad
LNG	Liquefied Natural Gas
LOS	Level of Service
LRSIP	Long-Range Rail Service Plan
MAG	Mountainland Association of Governments
MPOs	Metropolitan Planning Organizations
NEPA	National Environmental Policy Act
OSL	Oregon Short Line
OTP	On-time Performance
PABs	Private Activity Bonds
PRIIA	Passenger Rail Investment and Improvement Act
P3s	Public-Private Partnerships
RSIA	Rail Safety Improvement Act

List of Abbreviations and Acronyms (continued)

SBG	Savage, Bingham and Garfield Railroad
SCAOG	Six County Association of Governments
SEA	Section of Environmental Analysis
SITLA	School and Institutional Trust Land Administration
SL	Salt Lake City Southern Railroad
SLCIT	Salt Lake City Intermodal Terminal
SLGW	Salt Lake, Garfield and Western Railway
SOP	Sulphate of Potash
SP	Southern Pacific Railroad
SPLA&SL	San Pedro, Los Angeles and Salt Lake Railroad
S.R.	State Route
STB	Surface Transportation Board
SW	Southwest Study
TTI	Texas Transportation Institute
U&N	Utah and North Railroad
UC	Utah Central Railroad
UCRY	Utah Central Railway
UFRC	Utah FrontRunner Commuter Rail
UDOT	Utah Department of Transportation
UMTRA	Uranium Mill Tailings Remedial Action
UN	Utah Northern Railroad
UP	Union Pacific Railroad
USRA	United States Railway Administration
USRP	Utah State Rail Plan
UTA	Utah Transit Authority
UTAH	Utah Railway
VMT	Vehicle Miles Traveled
WFRC	Wasatch Front Regional Council
WHSRA	Western High Speed Rail Alliance
WP	Western Pacific Railroad
WRA	Western Regional Alliance

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Executive Summary

Objective: A summary that highlights key facts and findings of the State rail plan, with an emphasis on the desired outcomes and program effects of the State's vision for rail and how that vision will be achieved through the projects, programs, and policies identified in the Rail Service and Investment Program.

Chapter 1 – The Role of Rail in Statewide Transportation

The railroad industry continues to play a vital role in the movement of freight to and through Utah. The Utah Department of Transportation (UDOT) has a vision, mission, and three strategic goals that form the backbone for defining direction and success within the Department. Specific objectives have been added to UDOT's adopted strategic goals to define Utah's goals for a multimodal transportation system supported by the Utah State Rail Plan (USRP). The majority of freight handled by rail in Utah is either originating or terminating in Utah or passing through the state en route to or from the west coast and the Midwest.

There is one intermodal freight terminal located in Utah, Union Pacific's (UP) Salt Lake City Intermodal Terminal (SLCIT), which was built in 2006 and receives about 500 trailer and container lifts per day. The Ports of Los Angeles and Long Beach, as well as the Port of Oakland, are Utah's primary global gateways. Rail intermodal freight service at SLCIT is focused on UP's Midwest to Southern California mainline. There are 1,343 miles of freight railroad in Utah, and as of 2013 the UP remains the dominant rail carrier. Utah has two forms of passenger railroads, Amtrak's intercity *California Zephyr* line, and *FrontRunner* commuter rail, operated by the Utah Transit Authority (UTA). The Heber Valley Railroad is Utah's one tourist railroad, running from Heber to Provo Canyon.

Chapter 2 – The State's Existing Rail System

As shown in Table 1, there are currently 13 railroads that operate in Utah, 10 freight railroads and three passenger railroads. Figure 1 shows the rail system in Utah.

Table 1: Railroads in Utah

Freight Railroads	Passenger Railroads
BNSR Railway	Amtrak (National Railroad Passenger Corporation)
Comstock Mountain Lion Railroad	Heber Valley Railroad
Deseret Western Railway	Utah Transit Authority Commuter Rail
Kennecott Utah Copper LLC	
Salt Lake City Southern Railroad	
Salt Lake, Garfield and Western Railway	
Savage, Bingham and Garfield Railroad	
Union Pacific Railroad	
Utah Central Railway	
Utah Railway	

The Wasatch Front is the hub for six railroad routes, all of which are owned by UP. The historic Overland Route was the first transcontinental railroad, and the first railroad built through Utah. The completion of the Overland Route culminated with the driving of the golden spike at Promontory, Utah on May 10, 1869. The connection of the two railroads was moved to Ogden in 1874, and Ogden remained the busiest rail center in the state until it was surpassed by Salt Lake City during the 1980's. The historic Overland Route east of Ogden remains the busiest railroad freight mainline in Utah. The Overland Route east remains Utah's most important link for railroad freight with the rest of the United States. Figure 2 shows the current UP system in Utah.

BNSF Railway, originally known as the Burlington Northern and Santa Fe Railway Company, serves the state of Utah via trackage rights over a route that links Denver, Colorado with Stockton, California and throughout the Provo, Salt Lake City and Ogden areas. BNSF's trackage rights over parts of the UP and Southern Pacific (SP) networks were obtained in 1995, when the Surface Transportation Board (STB) granted BNSF the ability to serve customers in Utah via trackage rights in order to maintain freight competition. BNSF, one of America's leading freight railroads, operates in 28 states and two Canadian provinces. In Utah, BNSF currently interchanges with four short line railroads that provide rail served connections to customers, connecting over 400 miles of Utah rail lines to BNSF's extensive network.

The Utah Railway is a Genesee & Wyoming short line railroad that interchanges with BNSF and UP. The Utah Railway also operates over an extensive network of trackage rights assigned to BNSF Railway that resulted from the UP/SP merger. Utah Railway serves customers throughout the Provo, Salt Lake City to Ogden, Wasatch Front population corridor, including the Little Mountain and Weber areas near Ogden, as an agent of BNSF Railway. The Utah Railway's operations range from local freights serving

Wasatch Front oil refineries and other industries to hauling unit trains of coal over the state's highest railroad pass, 7,440 feet Soldier Summit.

Utah Transit Authority's *FrontRunner* commuter rail provides service from Provo to Salt Lake City to Pleasant View, just north of Ogden. UTA was formed in 1970 as the Wasatch Front population corridor's transit bus provider, expanding into light rail in 1999 and commuter rail in 2008. UTA's service area encompasses more than 1,400 square miles and 75 communities in a six county area that includes 80 percent of Utah's residents. Figure 5 shows UTA's *FrontRunner* commuter rail service.

Figure 1: Railroads in Utah

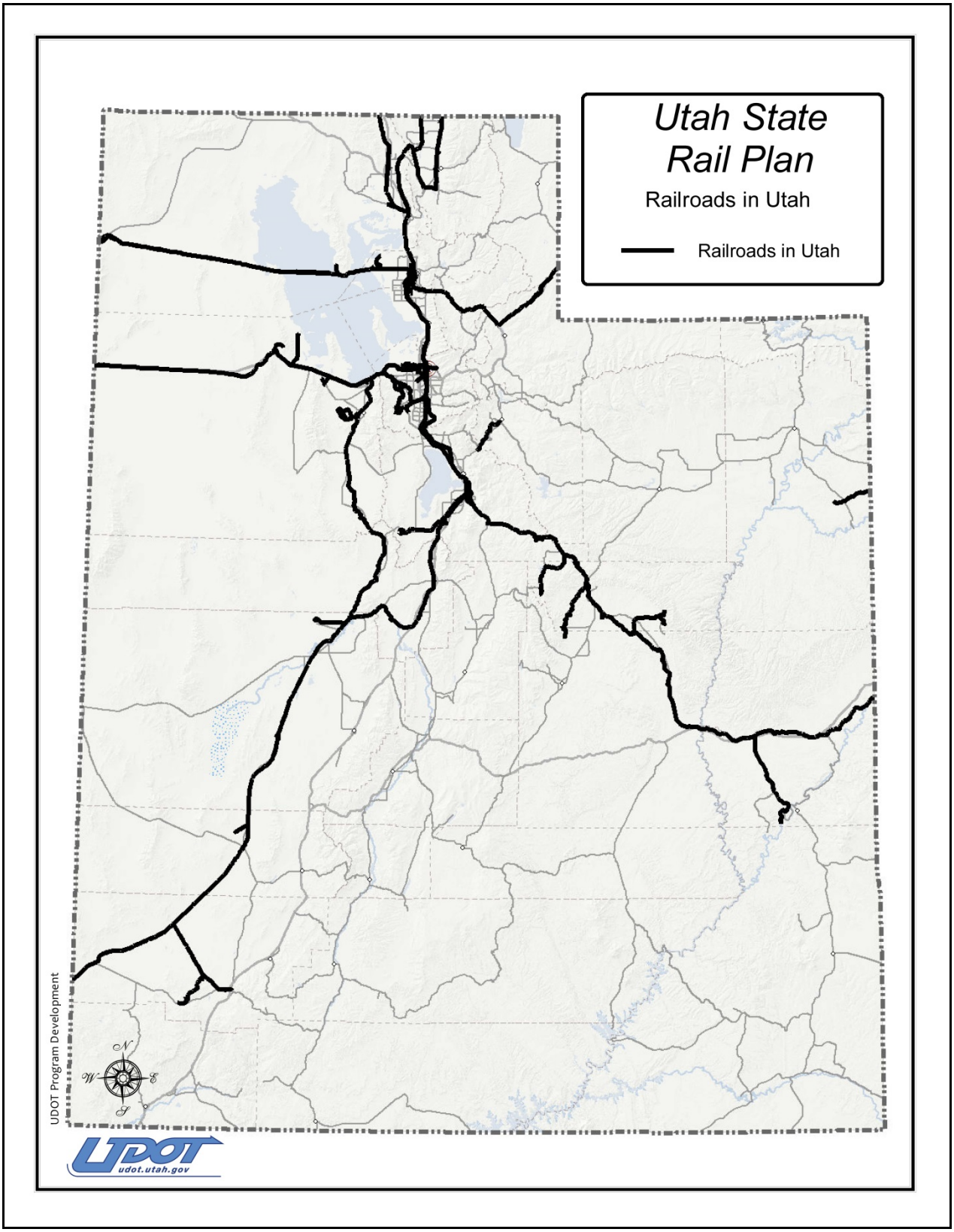


Figure 2: Union Pacific Railroad

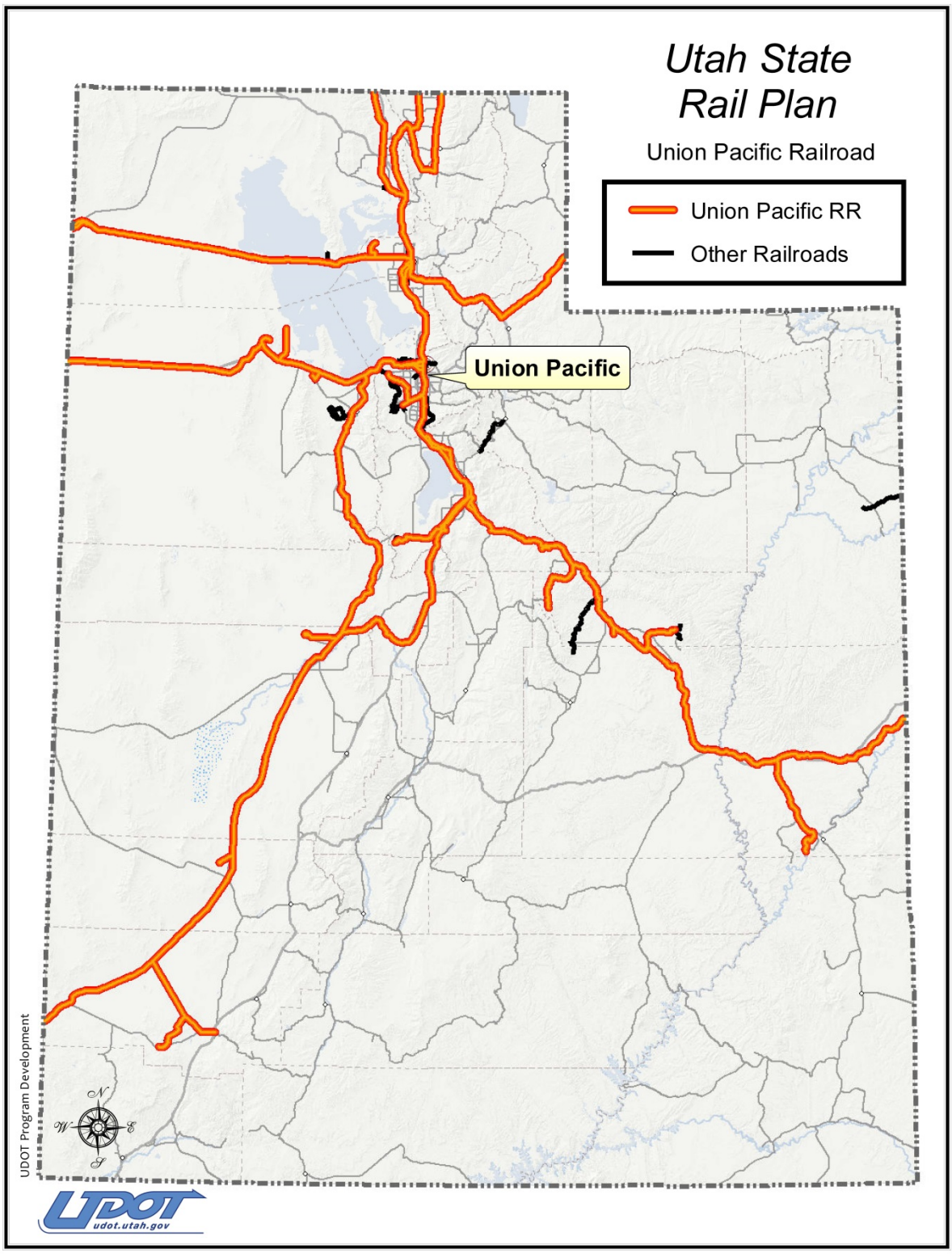


Figure 3: BNSF Railway

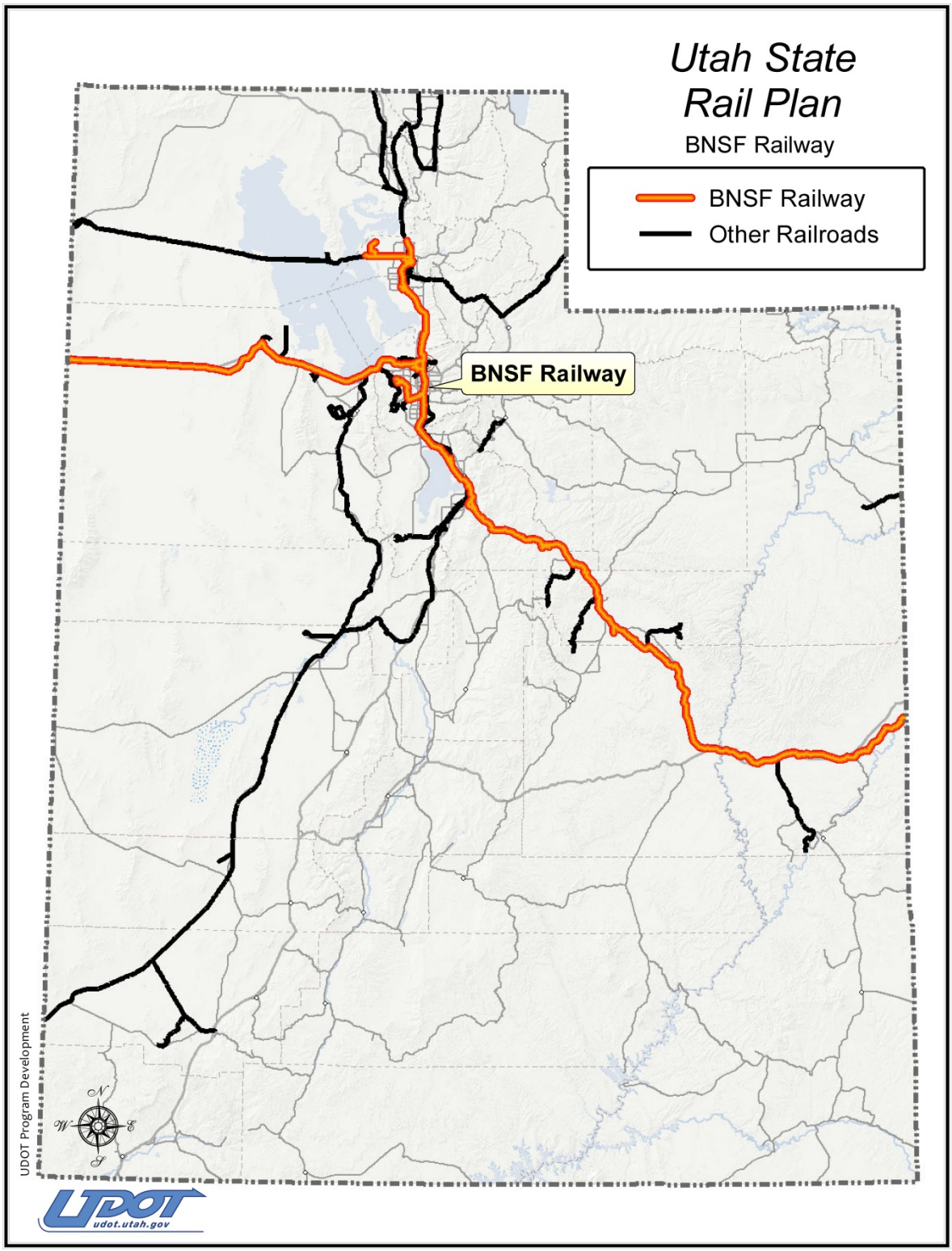


Figure 4: Utah Railway

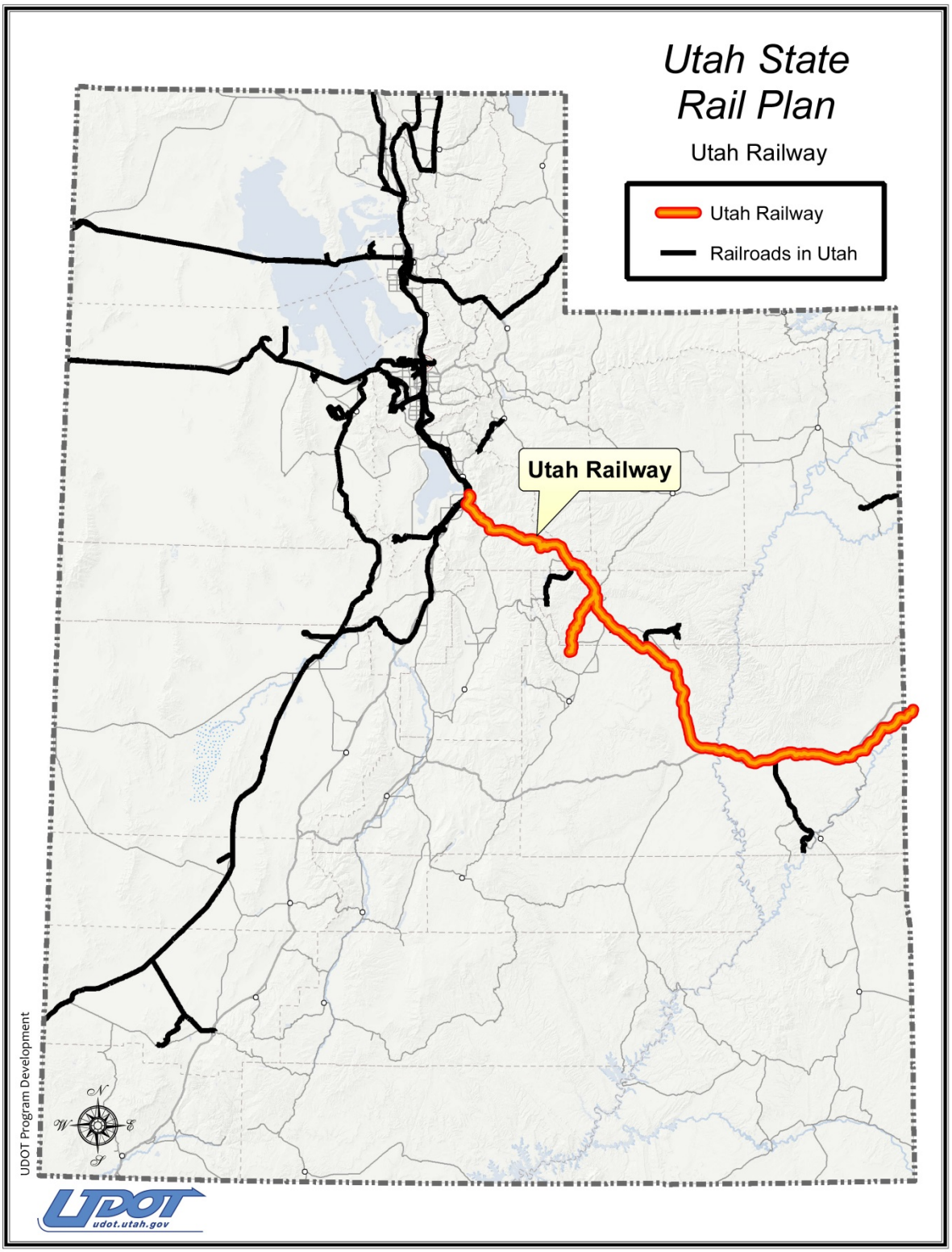
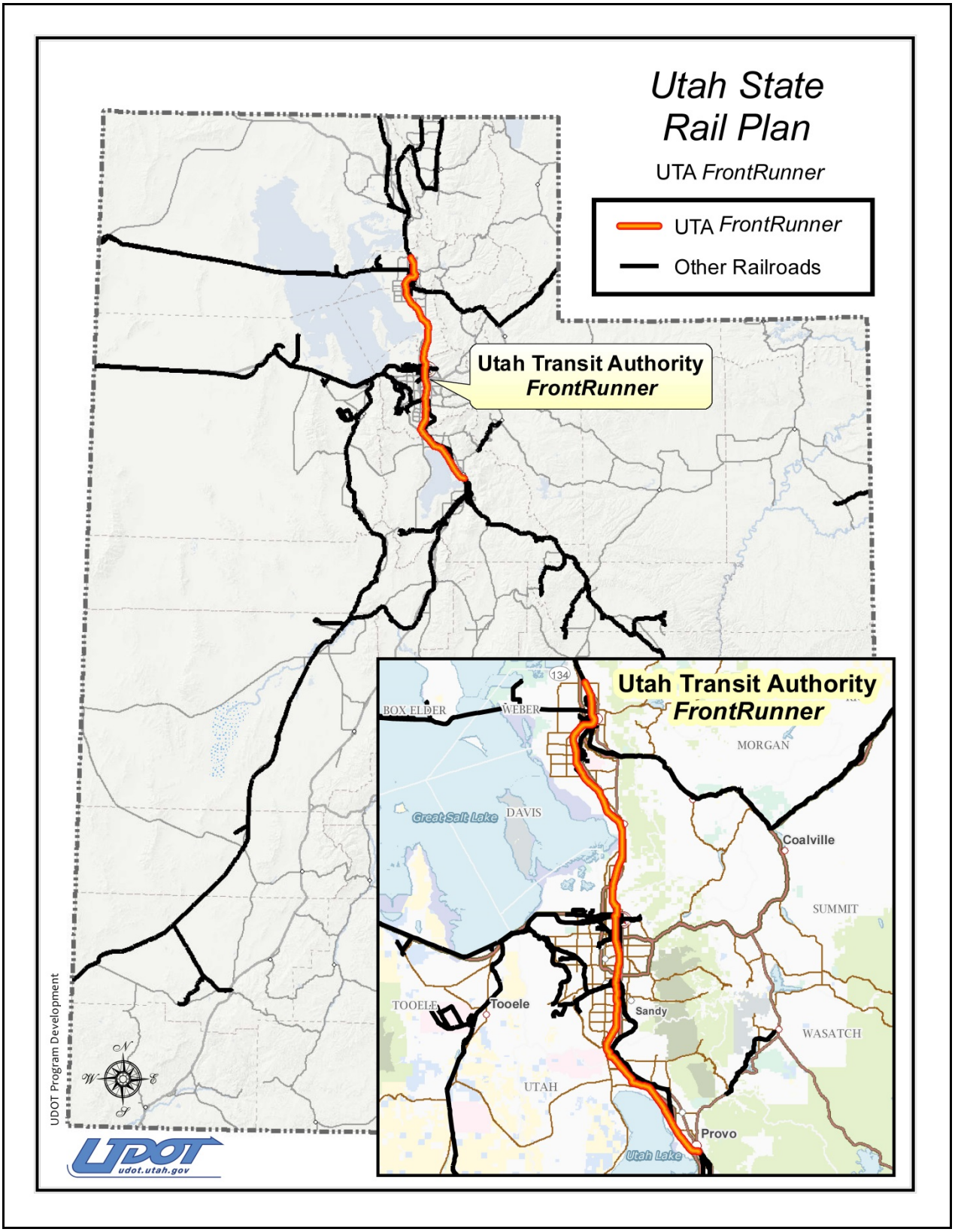


Figure 5: Utah Transit Authority *FrontRunner*



Chapter 3 – Trends and Forecasts

Population growth within the state will drive freight and passenger rail demand over the coming decades. Utah's population is forecast to increase from approximately 2.2 million in 2010 to 3.9 million in 2040. Employment in Utah is expected to increase from 1.6 million jobs to 2.6 million jobs between 2010 and 2040 or an increase of more than 60 percent. The majority of employment growth is anticipated to be within professional services, education/health services and government. Employment growth near existing passenger rail corridors will increase demand for commuter and intercity passenger rail service. Utah was among the lowest ranked states for per capita personal income at 46th with a per capita income of just $33,509 in 2011. The per capita personal income in Utah was $8,000 less than the national average. In 2011, Utah's current-dollar gross domestic product (GDP) was $124.5 billion and it ranked 33rd in the United States. In 2011, rail shipped more than 36 million tons and is expected to increase by almost 17 million tons by 2040. Coal is the top commodity in Utah comprising approximately 28 percent of freight tonnage and 48 percent rail tonnage in 2011. Coal is also the top commodity to terminate in Utah accounting for approximately 25 percent of freight tonnage and 77 percent rail tonnage in 2011. Much of the coal that originates within Utah also terminates in Utah.

Chapter 4 – The State's Existing Rail System: Rail Service Needs and Opportunities

There are several potential rail freight service gaps in Utah, including direct rail freight service to the resource rich Uinta Basin, closer access to the Sufco Mine (coal) near Salina, Utah and the re-introduction of rail service to southwest Utah County for the purposes of agriculture, mining and manufacturing. There are also potential rail service gaps for Amtrak service which include intercity rail passenger service between Salt Lake City and Los Angeles, California and intercity rail passenger service between Salt Lake City and Seattle, Washington as national network passenger trains. Possible needs for commuter rail service include rail service on Sundays, commuter rail service from Pleasant View to Brigham City, and commuter rail service from Provo to Santaquin, Utah. There is potential for growth in rail-based tourism in Utah. Heber Valley Railroad operates as Utah's only tourist railroad line.

Chapter 5 – Proposed Passenger Rail Improvements and Investments

Utah has not involved itself in state-supported intercity rail passenger service because of fiscal and geographic limitations. Amtrak has studied the feasibility of restoring the *Pioneer* line which ran between Chicago and Seattle via Denver and Salt Lake City, but concluded that it would require significant expenditures for capital costs and ongoing operating costs not covered by fare box revenues. The Wasatch Front Regional Council

(WFRC) and Mountainland Association of Governments (MAG) have developed Regional Transportation Plans which include planned commuter rail projects. These projects include:

1. Improvements to the segment of *FrontRunner* between the Ogden and Pleasant View stations (Phase 2 - 2021 to 2030).
2. A new segment of *FrontRunner* from the Pleasant View station north to the Box Elder County line, as part of an extension to Brigham City (Unfunded Phase).
3. A new segment of *FrontRunner* from Provo to Payson (Phase 2, 2021 to 2030).
4. A new segment of *FrontRunner* from Payson to Santaquin (Phase 3, 2031 to 2040).
5. A new segment of *FrontRunner* from American Fork to Santaquin via Cedar Valley (Unfunded Phase).

High speed rail in Utah is not currently in USDOT plans. The Western Regional Alliance (WRA), however, has developed a vision for high-speed rail connections throughout the Intermountain West. Under the WRA vision, Utah would have connections to Reno, Denver and Las Vegas.

Chapter 6 – Proposed Freight Rail Improvements and Investments

There are several freight rail improvement proposals in Utah. The Central Utah Rail Project would bring a proposed railroad closer to Utah's largest coal mine, Sufco Mine, near Salina. The Uinta Basin Project would also bring rail service to the Uinta Basin, possibly through a connection to the main UP line in Carbon County. The proposed Potash Ridge Project at Blawn Mountain is located in southwestern Utah and would provide a rail connection between the proposed mine and the UP Salt Lake Route at a point southwest of Milford, Utah. Crude oil in the Uinta Basin is emerging as an opportunity for proposed rail improvements to the region. Crude oil is currently shipped from the Uinta Basin by truckload to rail transload facilities in Carbon County and along the Wasatch Front. Transporting the oil by pipeline is not currently a viable option because of the nature of the thick, wax-like oil that is found in the Uinta Basin.

Chapter 7 – The State's Long-Range Rail Service and Investment Program (LRSIP)

Utah's rail vision includes five strategic goals: 1) Promote rail safety for everyone, 2) Maintain a state of good repair for rail transportation infrastructure, 3) Develop services for economic competitiveness, 4) Enhance quality of life through livable communities, and 5) Support environmental sustainability. Rail congestion in Utah will become significantly worse by 2035 without continued improvements to capacity and infrastructure. Rail will continue to play a major role in the future for freight and passenger service in Utah.

Chapter 8 – Coordination and Review

Federal, state, and regional agencies were included in the steering committee established to oversee the development of the USRP. Additionally, local governments and other agencies were engaged through a comprehensive outreach effort. Through local government meetings, outreach at metropolitan planning organizations, and industry involvement, issues and concerns specific to agencies and across public and private entities were thoroughly and thoughtfully addressed in the process. Over 200 local officials, including staff and elected personnel, were given the opportunity to provide input on rail conditions and future rail needs around the Wasatch Front region. In addition, the USRP Working Group consisted of private and public sector representatives that met eight times over a two-year period participating in the development of the USRP.

Chapter 1 – The Role of Rail in Statewide Transportation (Overview)

Objective: Illustrate the current and proposed future role of rail in the state's multimodal transportation system. Describe how the state is organized to provide political, legal, and financial support to rail development.

1.1 The state's goals for the multimodal transportation system.

The Utah Department of Transportation (UDOT) has a vision, mission, and three strategic goals that form the backbone for defining direction and success within the Department. Specific objectives have been added to UDOT's adopted strategic goals to define Utah's goals for a multimodal transportation system supported by the Utah State Rail Plan (USRP). UDOT's vision, mission, and three strategic goals, along with specific objectives for the USRP, include:

1.1.1 Vision

UDOT's vision is "Keeping Utah Moving."

1.1.2 Mission

UDOT's mission is "Innovating transportation solutions that strengthen Utah's economy and enhance quality of life."

1.1.3 Strategic Goals

UDOT's three strategic goals are as follows:

1. Zero Crashes, Injuries and Fatalities
    - The USRP will reinforce safety programs as they relate to railroad operations and railroad crossing safety.
    - The USRP will offer and promote opportunities for leveraging funding through public-private partnerships.
2. Optimize Mobility
    - The USRP, as a product of UDOT, will emphasize UDOT's desire to improve mobility and views mobility and mobility choice as important goals.
3. Preserve Infrastructure
    - The USRP will foster an open public process, particularly with respect to policies that support future rail service.
    - The USRP supports private market solutions with respect to long distance travel and shipping choices and rail industry opportunities.

1.2 A conceptual analysis of rail transportation's role within the state's transportation system.

1.2.1 Freight Railroads

The railroad industry continues to play a vital role in the transportation of freight in and through Utah. Currently the railroads are the number two freight carrier in Utah behind trucking and ahead of pipelines. Utah sits astride both Union Pacific Railroad (UP) Central Corridor routes linking northern California and the Midwest, with other routes radiating out from northern Utah rail terminals to Pocatello, Idaho and the Pacific Northwest as well as Southern California.

Given the layout of the state's railroad network and the state's mountainous terrain, there are no railroad freight shipments exceeding 500 miles that remain within Utah's boundaries. Most of the freight handled by rail in Utah is either originating or terminating in Utah or passing through the state en route to or from the west coast and the Midwest.

There are sizeable tonnages of both coal and cement handled totally within Utah by rail. It is interesting to note that more than 80 percent of the electricity generated in Utah comes from coal with the railroads delivering approximately half of that coal. The trucking industry and the railroads work cooperatively to move Utah coal inasmuch as only one of Utah's coal mines has direct rail service.

Most rail shipments of coal mined in Utah travel to power plants within the state or to neighboring Nevada. A modest amount of Utah coal is shipped to power plants in the Midwest, but the relatively small tonnages involved reflect the overwhelming dominance of Wyoming's Powder River Basin coal serving those markets.

Only one intermodal freight terminal is located in Utah. UP's Salt Lake City Intermodal Terminal (SLCIT) is a relatively new (2006) facility. It is located directly adjacent to Salt Lake City's west side warehousing and distribution center and in close proximity to three of Utah's Primary Freight Network highways as well as the Salt Lake City International Airport. Shipments from as far away as Montana are trucked to and from UP intermodal trains at SLCIT. At the current time, the UP averages around 500 container and trailer lifts per day at SLCIT.

Rail intermodal freight service at SLCIT is focused on UP's Midwest to Southern California mainline. The Ports of Los Angeles and Long Beach are Utah's primary global gateways, with the Port of Oakland in northern California sharing in a lesser capacity in Utah's international and Pacific Rim intermodal business. Given the location of UP's main route to the Pacific Northwest, which bypasses Utah through Wyoming and Idaho, the Ports of Portland, Tacoma and Seattle play only a minor role in handling international intermodal shipments to and from Utah by rail.

When the railroads were deregulated in 1980 there were four Class I railroads serving Utah. By 1996 that number had been reduced by mergers to just one, the UP. At that time the Burlington Northern and Santa Fe Railway (BNSF) was directed by the Federal Surface Transportation Board (STB) to provide service via trackage rights over two UP lines serving Utah. As of 2013 the UP remains the dominant rail carrier in Utah.

The Association of American Railroads (AAR) statistics for 2011 also point out that a total of 1,343 miles of freight railroad is in operation in Utah, the majority of which is owned by the UP. BNSF Railway operates over 433 miles of trackage rights on UP and Utah Railway lines, and there are approximately 100 miles of track served by Utah's local, switching and terminal railroad lines via direct ownership of those lines or trackage rights over other railroads.

Utah has long been a major hub for the UP, though the 1996 merger with Southern Pacific (SP) diverted much of UP's Midwest to Southern California freight traffic to former SP lines across the southwest via El Paso, Texas. UP operates two routes between Utah and Northern California, a route east to Midwest via Wyoming and another via Denver, Colorado. There is a line to Southern California via Las Vegas, Nevada, and a route north to Pocatello, Idaho. Three of the six UP routes radiating out from northern Utah railroad yards have been acquired through mergers since 1980.

BNSF provides freight service over one of the longest trackage rights operations in U.S. railroad history. BNSF freight trains originate in either Stockton, California or Denver and use UP lines through Utah via Grand Junction, Colorado; Provo and Salt Lake City, Utah; Reno, Nevada and Roseville, California. Daily freight train service is operated by BNSF between Denver and Provo. Daily service is operated on an as needed basis from Provo to Stockton depending upon business levels.

The Utah Railway is the largest of Utah's non-Class I railroads with both owned tracks and trackage rights over the UP. The Utah Railway is one of 111 railroads of various sizes in the United States, Canada, Australia, and Europe that are owned or operated by Genesee & Wyoming. In addition, Utah Railway acts as BNSF's agent in providing competitive service to many Utah shippers.

1.2.2 Passenger Railroads

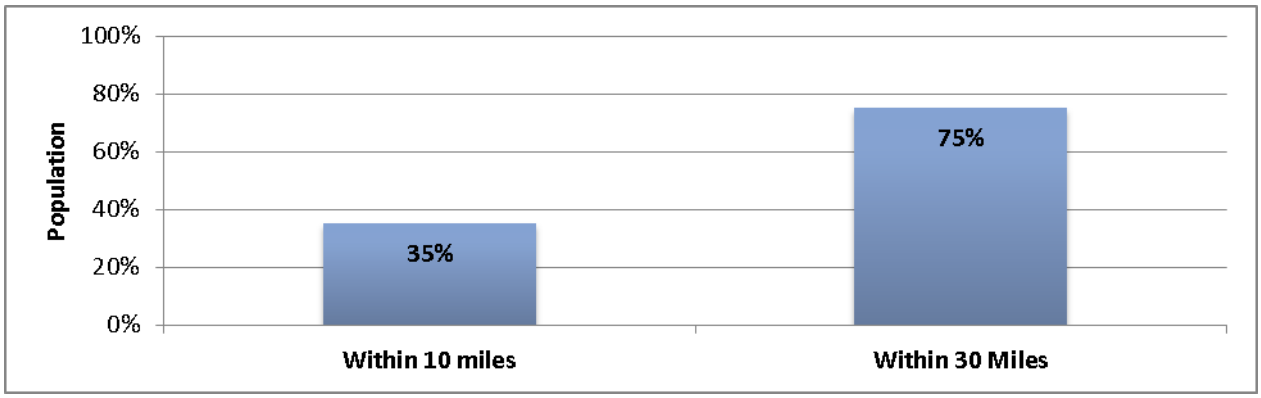
Railroad passenger service comes in two forms in Utah. First, the National Railroad Passenger Corporation (Amtrak) operates a single, long distance, intercity passenger train, the *California Zephyr*, through Utah over two UP routes with station stops in Green River and Helper, Utah; Provo and Salt Lake City. Salt Lake City is the only Amtrak stop which has a manned station selling tickets and providing checked baggage service. Salt Lake City is also a crew change point on the *California Zephyr's* run from Chicago,

Illinois to the San Francisco, California Bay area via Omaha, Nebraska; Denver, Reno, and Sacramento, California.

Utah's other railroad passenger train service is provided by the Utah Transit Authority (UTA). Since 2008, UTA has provided commuter rail service over a dedicated, UTA-owned line between Salt Lake City and Ogden, Utah. Known as *FrontRunner*, UTA's commuter rail service expanded in December 2012 to include service from Salt Lake City south to Provo, again over a UTA-owned and operated mainline. UP has trackage rights on the *FrontRunner* line to serve local industry needs.

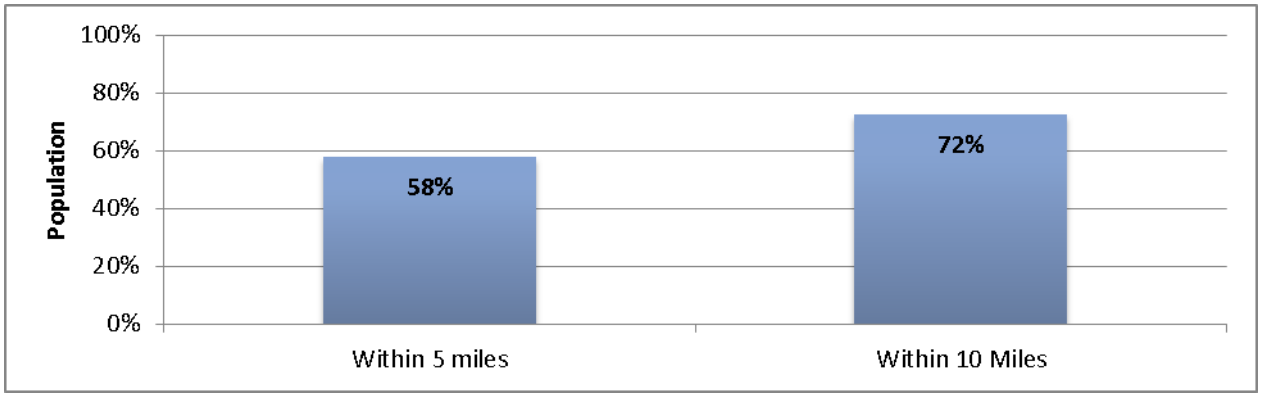
While there are few cities within Utah with Amtrak station stops, a significant share of Utah's population has access to passenger rail service. Most of Utah's population is located along the Wasatch Front where Salt Lake City is centrally located. As a result, 75 percent of Utah's population has a passenger rail station, either Amtrak or *FrontRunner* service, within 30 miles of their home as shown in Figure 6.

Figure 6: Access to Intercity Passenger Rail Service



As with intercity passenger rail, the majority of Utah's population has access to a commuter rail station since *FrontRunner* serves the most populous counties along the Wasatch Front. With the extension of *FrontRunner* to Provo, almost 60 percent of the population lives within five miles of a commuter rail station and over 70 percent live within ten miles of a station as illustrated in Figure 7.

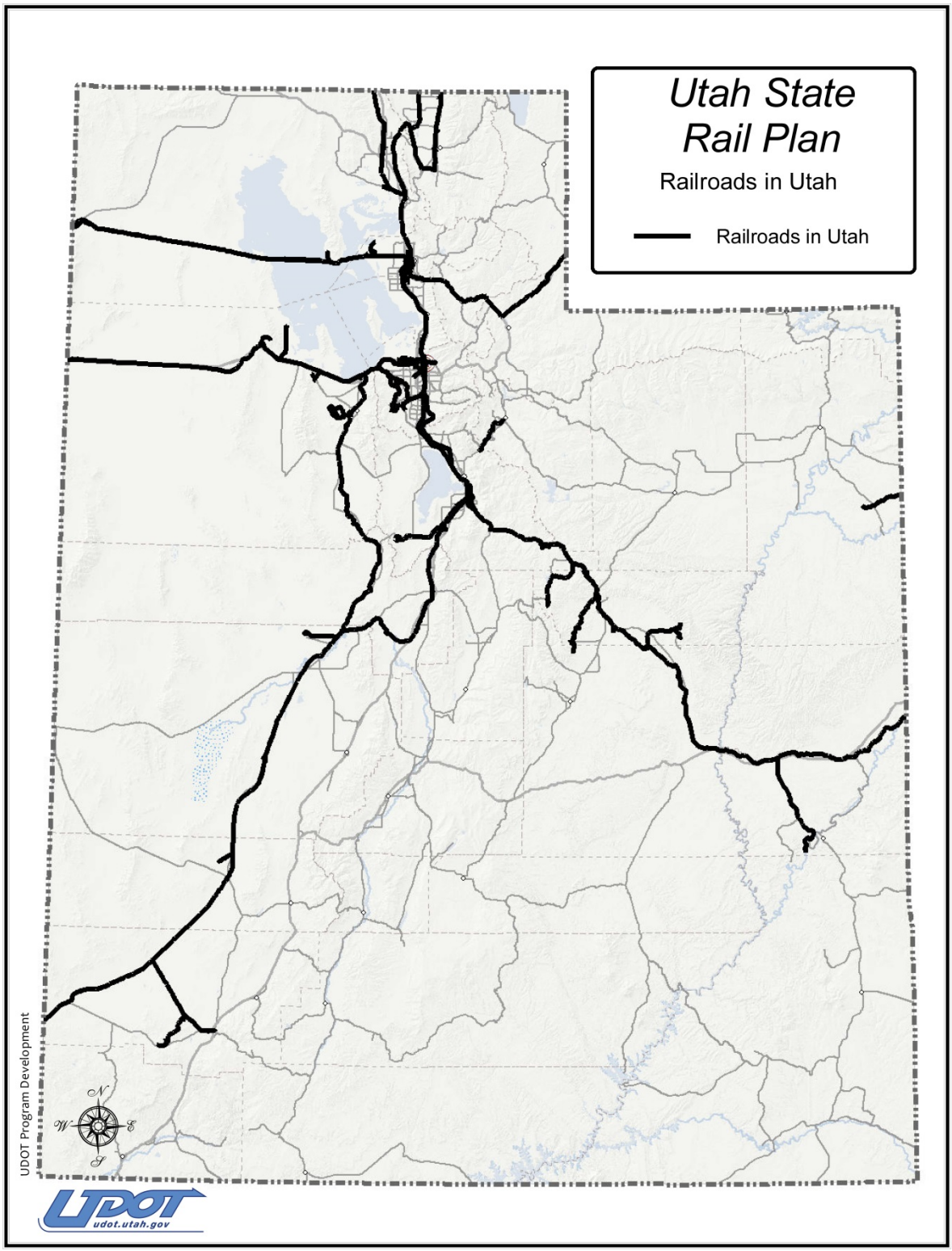
Figure 7: Access to Commuter Rail Service



The *FrontRunner* commuter trains connect with several *TRAX* light rail lines and many bus routes which are also operated as part of a complete system provided by UTA along Utah's Wasatch Front. UTA's Salt Lake Central Station is the ground transportation hub for passenger service in Utah, being served by Amtrak, Greyhound, and UTA's bus, *TRAX* light rail and *FrontRunner* commuter rail services. UTA is also a member of the Western Regional Alliance, an organization that is investigating the feasibility of high-speed rail passenger service in the Mountain West and Southwest, potentially including Salt Lake City.

The railroad industry is an important part of a balanced transportation system in Utah, which serves to make the state an attractive location for business and industry. Railroads join with extensive truck freight operations, a major pipeline system, and air cargo services at Salt Lake International Airport to reinforce Utah's long-standing reputation as "The Crossroads of the West."

Figure 8: Railroads in Utah



1.3 A description of the institutional governance structure of the state rail program(s) including: state rail transportation authorities, state rail plan approval authority, state and local agencies involved in delivering rail services, such as transit agencies and Metropolitan Planning Organizations (MPOs), and state authorizing (and limiting) laws and powers for planning, funding, and operating rail services; and a statement that the state is in compliance with the requirements of Section 22102 (which stipulates eligibility requirements for a long-established Federal Railroad Administration rail freight grant assistance program pertaining to state planning and administration).

The state rail transportation authority is the Executive Director of UDOT and the state rail plan approval authority is also the Executive Director of UDOT as indicated in a letter dated January 3, 2013 to Joseph C. Szabo from John R. Njord: UDOT's Executive Director at the time. The local agency involved in delivering rail service is UTA and includes *TRAX* light rail and *FrontRunner* commuter rail transit operations along the Wasatch Front. Two MPOs in Utah also plan for rail transit, the Mountainland Association of Governments (MAG) and the Wasatch Front Regional Council (WFRC). The state of Utah is in compliance with Section 22102, which includes the following:

A state is eligible to receive financial assistance under this chapter only when the state complies with regulations the Secretary of Transportation prescribes under this chapter and the Secretary decides that:

1. The state has an adequate plan for rail transportation in the state and a suitable process for updating, revising, and modifying the plan;
2. The state plan is administered or coordinated by a designated state authority and provides for a fair distribution of resources;
3. The state authority –

   a. is authorized to develop, promote, supervise, and support safe, adequate, and efficient rail transportation;

   b. employs or will employ sufficient qualified and trained personnel;

   c. maintains or will maintain adequate programs of investigation, research, promotion, and development with opportunity for public participation; and

   d. is designated and directed to take all practicable steps (by itself or with other state authorities) to improve rail transportation safety and reduce energy use and pollution related to transportation; and

   e. the state has ensured that it maintains or will maintain adequate procedures for financial control, accounting, and performance evaluation for the proper use of assistance provided by the United States Government.

1.4 A description of the state's authority for grant, loan, and public/private partnership financing; how the state has used these authorities in the past; state revenue sources that are dedicated to rail funding (if any); and how much the state has provided in funding over the past five years.

As per the state of Utah Constitution and Code, currently UDOT is extremely limited in its ability to participate with grants or loans to railroads in Utah. Therefore, there have not been any past grants, loans, or public/private partnership financing for railroads in Utah in the last five years. While the Utah Constitution and Code limits specific funding sources from being used for non-highway purposes, other funding sources could be explored in the future by the Utah Legislature.

The Utah Constitution prohibits the use of taxes generated from use of motor vehicles and expenditures on non-roadway related issues. Article XIII, Section 5 Use and amount of taxes and expenditures, number six list the following:

> Proceeds from fees, taxes, and other charges related to the operation of motor vehicles on public highways and proceeds from an excise tax on liquid motor fuel used to propel those motor vehicles shall be used for:
>
> a. statutory refunds and adjustments and costs of collection and administration;
>
> b. the construction, maintenance, and repair of state and local roads, including payment for property taken for or damaged by rights-of-way and for associated administrative costs;
>
> c. driver education;
>
> d. enforcement of state motor vehicle and traffic laws; and
>
> e. the payment of the principal of and interest on any obligation of the state or a city or county, issued for any of the purposes set forth in Subsection 6 b and to which any of the fees, taxes, or other charges described in this Subsection 6 have been pledged, including any paid to the state or a city or county, as provided by statute.

The Utah Code also specifies the use of transportation funding exclusively for highway purposes. Title 72-2-102, Transportation Fund, declares the following:

1. There is created a fund entitled the "Transportation Fund."
2. Transportation Fund money shall be used exclusively for highway purposes as provided in this title.

1.5 A summary of the freight and passenger rail services, initiatives and plans sponsored by state rail transportation authorities, regional planning agencies, regional transportation authorities, and municipalities within the state, or in the region in which the state is located, that have been considered while preparing the plan. A summary of services, initiatives, and plans of private sector railroads, as well as connections between rail services and other modes in the state transportation system, to the extent known to the state, are to be included here as well.

1.5.1 Freight Rail Sponsored by the State

1.5.1.1 Isolated Empire Rail Project

The Isolated Empire Rail Project (IERP) study from 1999 to 2001 resulted from interest by the counties and communities in northeastern Utah's resource-rich Uinta Basin in bringing railroad freight service into that area. The counties and communities involved enlisted the help of the now nonexistent Utah Department of Community and Economic Development to spearhead this hoped-for rail project.

Economic development, primarily in the form of a proposed phosphate mine in the Uinta Mountains north of Vernal, Utah, and processing plant to be located near the Bonanza Steam Power Plant southeast of Vernal, were the driving forces behind the IERP. This new phosphate development would have been in direct competition with the existing S & F Phosphate Mine located directly east of the proposed new phosphate facility on the south slope of the Uinta Mountains. It was not projected that this new rail project would be involved more than indirectly in the energy industry, which was in a slump at that time in the Uinta Basin.

Aside from a funding earmark for studying the feasibility of the project, there was no government funding available for the line's construction and operation should it be built. As a result of this lack of major funding support, the railroad was projected to travel into the Uinta Basin via the adjacent state of Colorado, which provided the least expensive route alternative into the Basin. Several route alternatives were studied in the initial feasibility study, with the route from Rifle, Colorado north over Rio Blanco Divide to Meeker, Colorado and then west to the Rangely area where the line would enter Utah just east of the Bonanza plant location, being the preferred route.

Rifle was selected since it provided access to UP's former Rio Grande mainline linking Salt Lake City with Denver over which the BNSF Railway has STB directed trackage rights following the UP/SP merger in 1996. As such the new railroad would have access to both major Class I railroads serving the west.

Once the initial feasibility study and operations study were completed, no further work was done on the IERP. This was the result of the lack of government support and funding for the project, as well as the failure of the proposed new phosphate development to obtain funding to proceed. When the current Uinta Basin Rail Project commenced (see below), the original IERP studies and plans were reviewed as a part of the new project's research. However, owing to the change in project focus, and the desire to keep the new rail line totally within the state of Utah, the IERP and its proposed Colorado alignment did not play more than a minor supporting role in the new project.

1.5.1.2 Central Utah Rail Project

This proposed railroad will bring railroad freight service closer to Utah's largest coal mine. The Sufco Mine is located east of Salina, Utah a few miles north of I-70. This mine has produced over 800 coal truck shipments in a single day, with that coal having to travel west on I-70 to Salina, then north via U.S. Highway 89 and State Route 28 to the nearest railroad loadout facility, near Levan, Utah on UP's Provo line. The proposed new railroad would also serve the underground salt mines of Redmond Minerals north of Salina.

The STB's Section of Environmental Analysis (SEA) released the first Draft Environmental Impact Statement (EIS) for the Six County Association of Governments (SCAOG) proposed 43-mile rail line in Sanpete, Sevier, and Juab Counties, Utah on June 29, 2007. A Supplemental Draft EIS was released for public comment on May 2, 2014. Known as the Central Utah Rail Project, this new line would begin at the connection with the UP's Provo mainline located near Levan, about 16 miles south of Nephi, Utah, and would terminate about half a mile southwest of Salina. The new railroad would cost an estimated $110 million. This railroad would allow industries to access rail transportation for bulk commodities to and from the area.

1.5.1.3 Uinta Basin Rail Project

The state of Utah has identified transportation constraints in the Uinta Basin that limit energy production and community building activities over the next three decades. Transportation constraints in the Uinta Basin were documented in an analysis conducted by UDOT in the Uinta Basin Energy and Transportation Study that was completed in April, 2013.

In this study, the unconstrained estimates of likely-to-be economically feasible energy production were identified with input from government, academic and industry sources of information. The Study concluded that there is the potential that existing and planned transportation capacity is constraining the potential for resource development.

To address the findings in the study, this USRP supports and identifies the need to provide new rail service from existing Class I rail lines to the Uinta Basin. Further study is needed to develop, evaluate and screen alternatives and then initiate the National Environmental Policy Act (NEPA) process to better understand the potential of providing new rail service into the Uinta Basin.

1.5.2 Passenger Rail Sponsored by the State

1.5.2.1 Heber Valley Railroad

The Heber Valley Historic Railroad Authority is an independent state agency formed to operate and maintain a scenic and historic railroad in and around Heber Valley. The Heber Valley Railroad is a tourist railroad that operates from Heber City in Wasatch County to Vivian Park in Utah County.

1.5.2.2 *TRAX* and *FrontRunner*

Both *TRAX* light rail and *FrontRunner* commuter rail transit operations have been planned and constructed, and are currently being operated by the UTA using sales tax dollars. As previously mentioned, UTA is a member of the Western Regional Alliance, an organization that is investigating the feasibility of high speed rail passenger service in the Mountain West and southwest, potentially including Salt Lake City.

Utah's Unified Transportation Plan 2011-2040 is a statewide transportation plan that is a compilation of five transportation plans from UDOT, Cache Metropolitan Planning Organization (Cache MPO), WFRC, MAG, and the Dixie Metropolitan Planning Organization (Dixie MPO). The Unified Transportation Plan shows *FrontRunner* commuter rail in the three future phases of the plan.

Figure 9: Future Commuter Rail Service

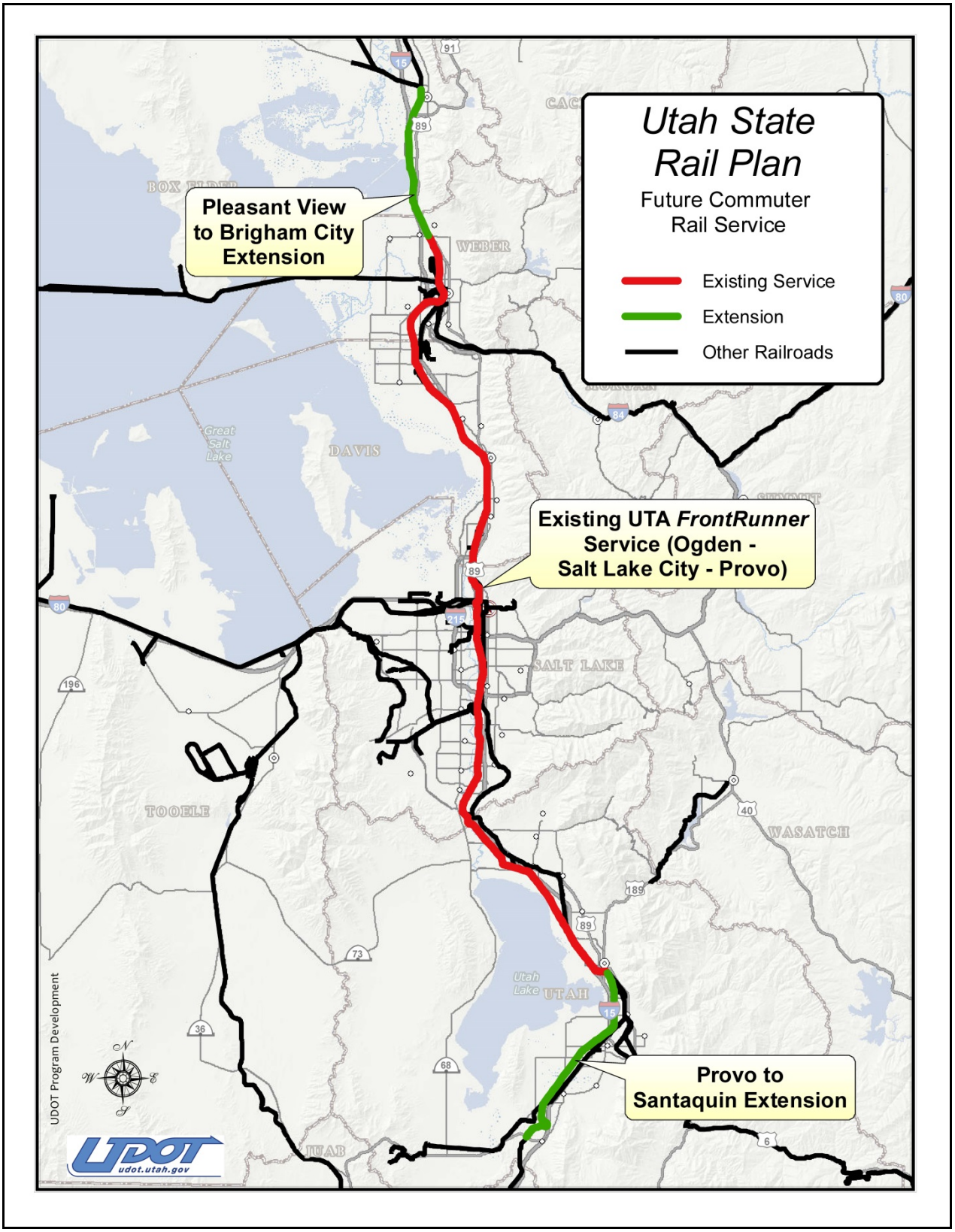


Table 2: Commuter Rail Plans

County	Planning Agency	Project Description	Estimated Cost in Millions	Years
Utah	MAG	Provo to Payson	$495	2021-2030
Weber	WFRC	Ogden to Pleasant View (improvements)	$113	2021-2030
Utah	MAG	Payson to Santaquin	$331	2031-2040

Utah's Unified Transportation Plan 2011-2040, 2011.

While all four metropolitan planning organizations (MPOs) within Utah have transportation plans, only MAG and WFRC are planning for commuter rail.

1.5.3 A summary of the services, initiatives, and plans of the private sector railroads.

The private sector railroads did not provide a summary of services, initiatives, and plans citing proprietary reasons.

1.5.4 Connections

Connections between rail services and other modes in the state of Utah are as follows:

1.5.4.1 Freight Connections and Intermodal

As Utah's dominant railroad freight carrier, UP connects with all other freight rail operators in the state except for the Deseret Power Railway. Most rail freight operates over UP lines via various trackage rights agreements. The primary connection and interchange points in Utah between UP and these other lines are (from north to south), Ogden (Utah Central Railway), Salt Lake City (Salt Lake, Garfield & Western Railway, Savage Bingham & Garfield Railroad), Midvale (Salt Lake City Southern Railroad), Provo (Utah Railway), and Iron Springs (Comstock Mountain Lion Railroad).

In Utah, BNSF interchanges with Utah Railway at Provo. Utah Railway, as BNSF's agent, interchanges with other carriers at Midvale (Salt Lake City Southern Railroad), Salt Lake City (Salt Lake, Garfield & Western Railway), and Ogden (Utah Central Railway).

There is only one rail freight intermodal facility in Utah and that is the Salt Lake City Intermodal Terminal, which is used exclusively by UP. Only UP provides rail intermodal freight service (truck trailers and containers) in Utah. SLCIT is located adjacent to Salt Lake City's rapidly growing west side industrial and distribution warehousing area and is within close proximity of Interstate 80, Interstate 215, and the State Route (S.R.) 201 freeways, all of which are Primary Freight Network routes in Utah, as well as the Salt Lake City International Airport.

Figure 10: Union Pacific's Salt Lake City Intermodal Terminal (Freight)

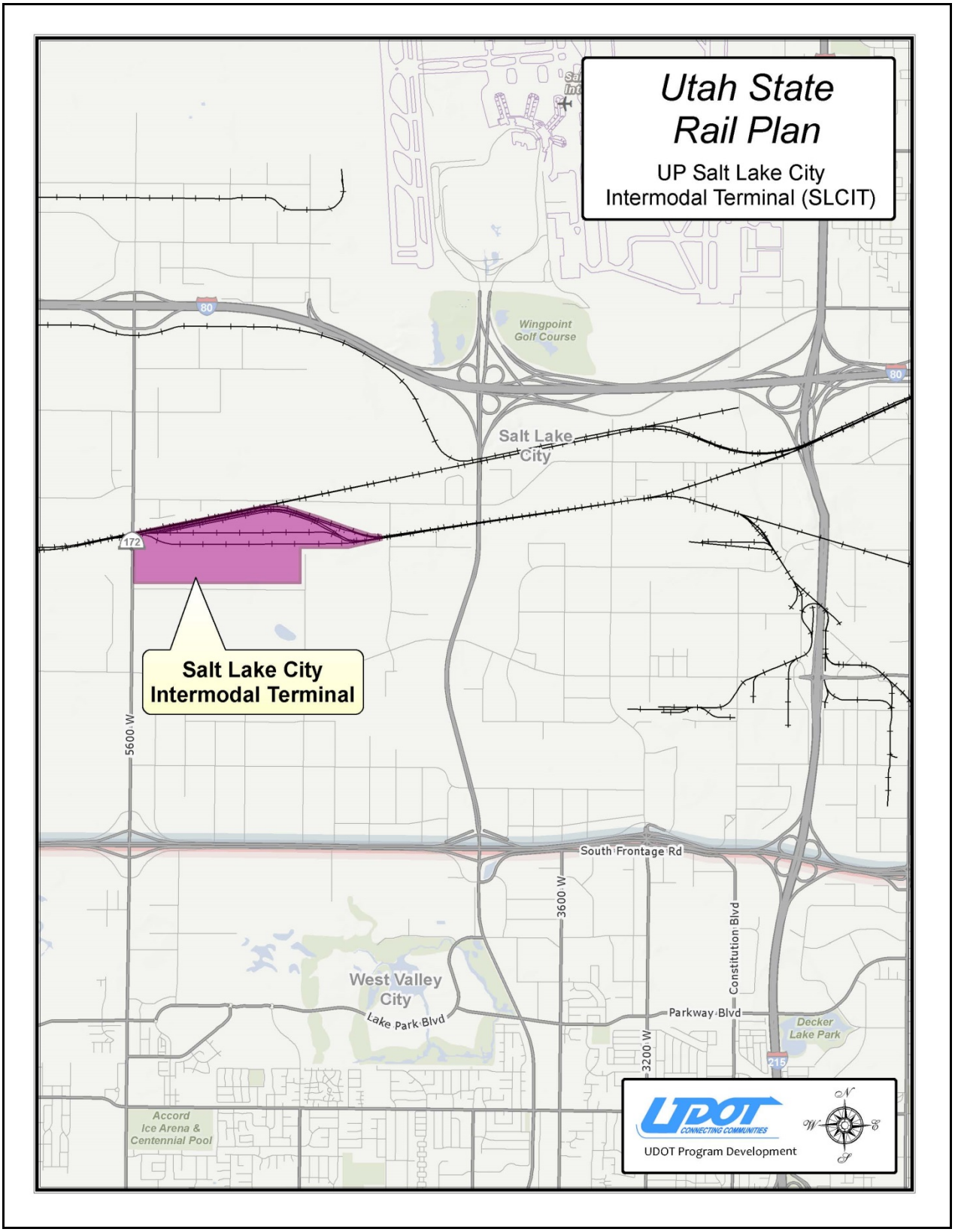
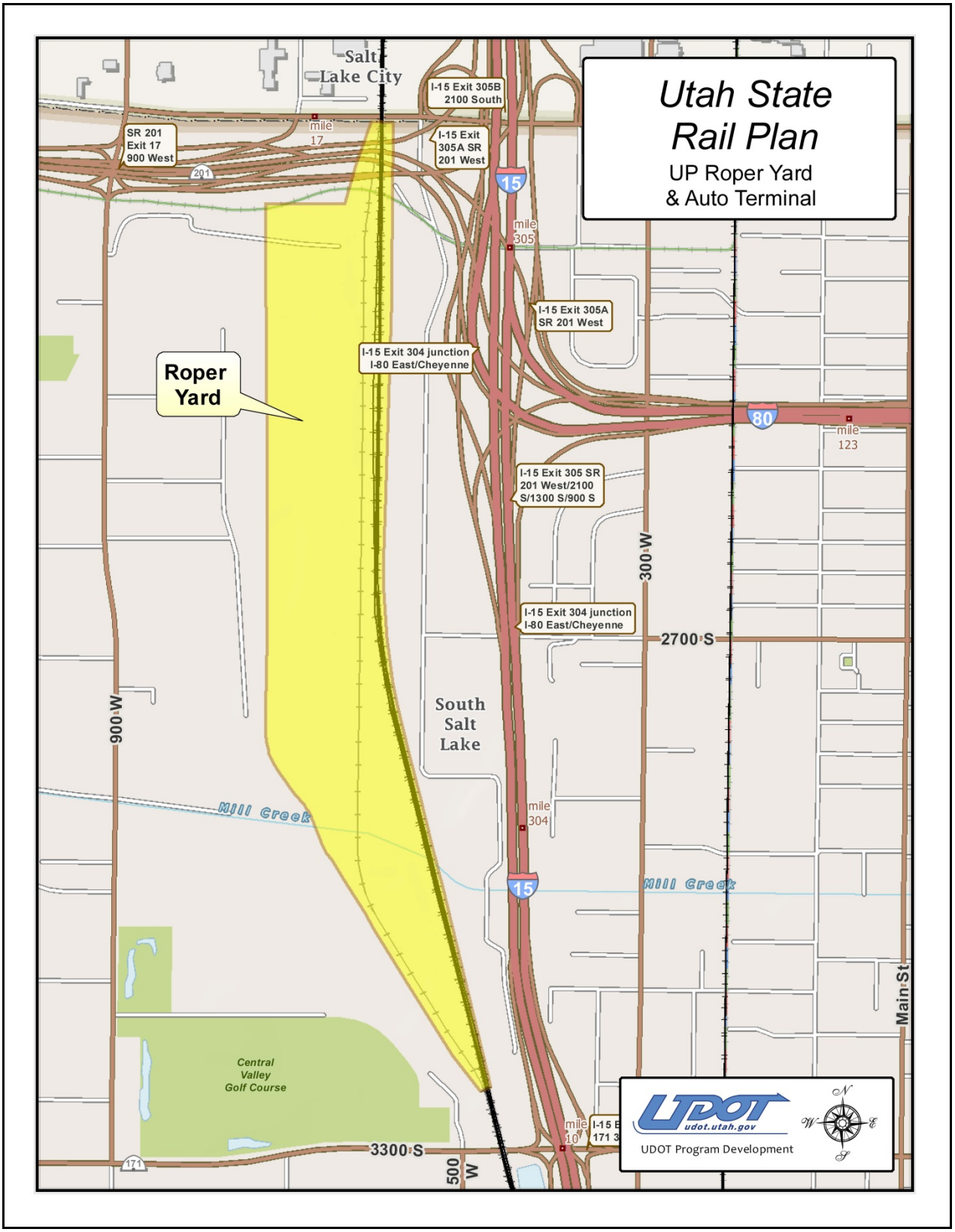


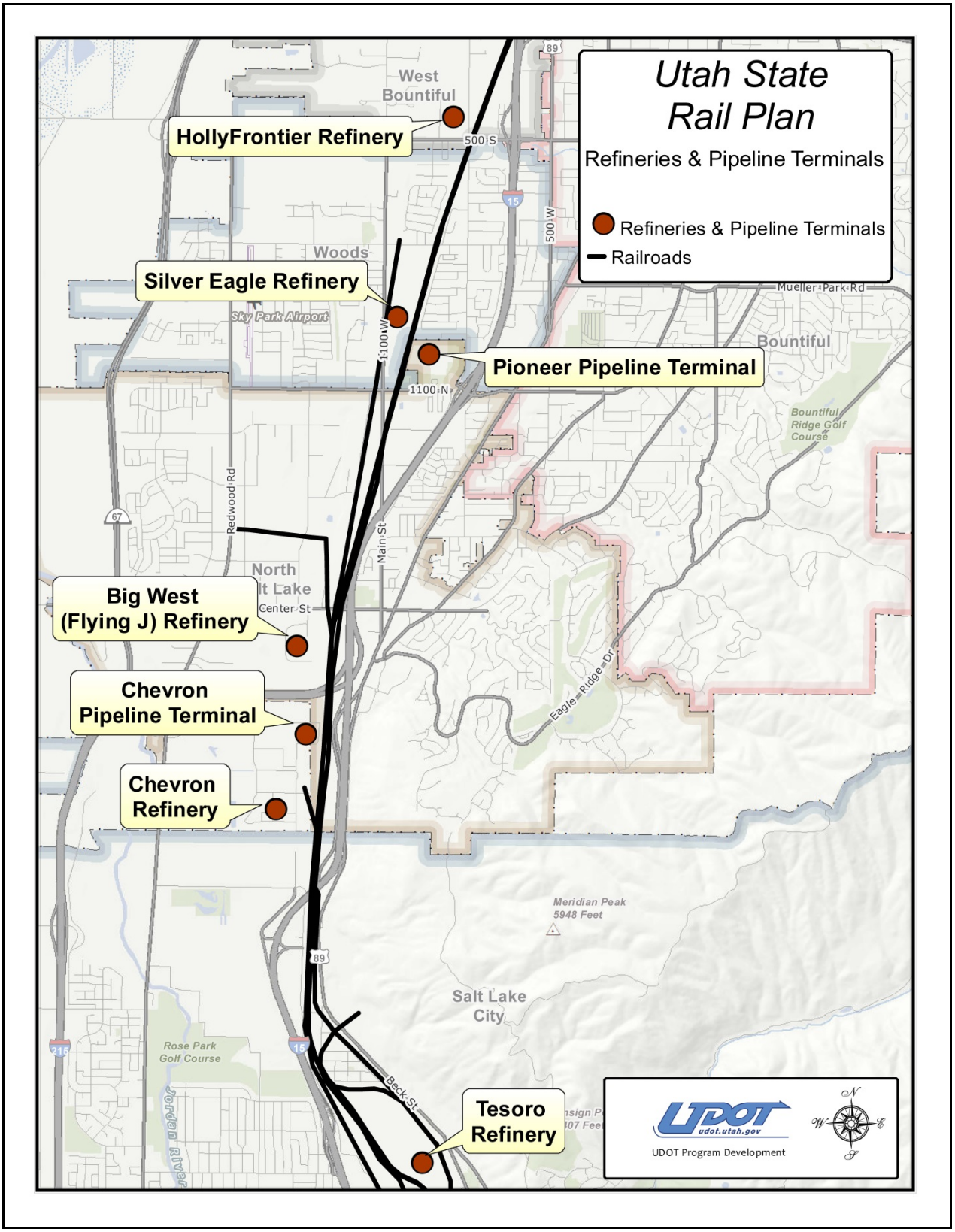
Figure 11: Union Pacific's Roper Yard and Auto Terminal



A facility for new automobiles is maintained by the UP at their Roper Yard, located about three miles south of downtown Salt Lake City adjacent to I-15, I-80, and the S.R. 201 freeways. This facility handles all shipments of new automobiles and vehicles by rail for northern Utah. Southwestern Utah, primarily the communities of St. George, and Cedar City, Utah, receive some of their new vehicle and intermodal freight shipments via I-15 from the modest UP intermodal and auto facilities located in North Las Vegas, Nevada.

There are five oil refineries located between Salt Lake City and suburban Woods Cross, Utah, ten miles to the north. Also in this same energy corridor is the Pioneer Pipeline Terminal for refined petroleum products arriving from out-of-state. All of these facilities provide a multi-modal connection inasmuch as they combine rail freight service with pipelines and trucks.

Figure 12: Oil Refineries and Pipeline Terminals

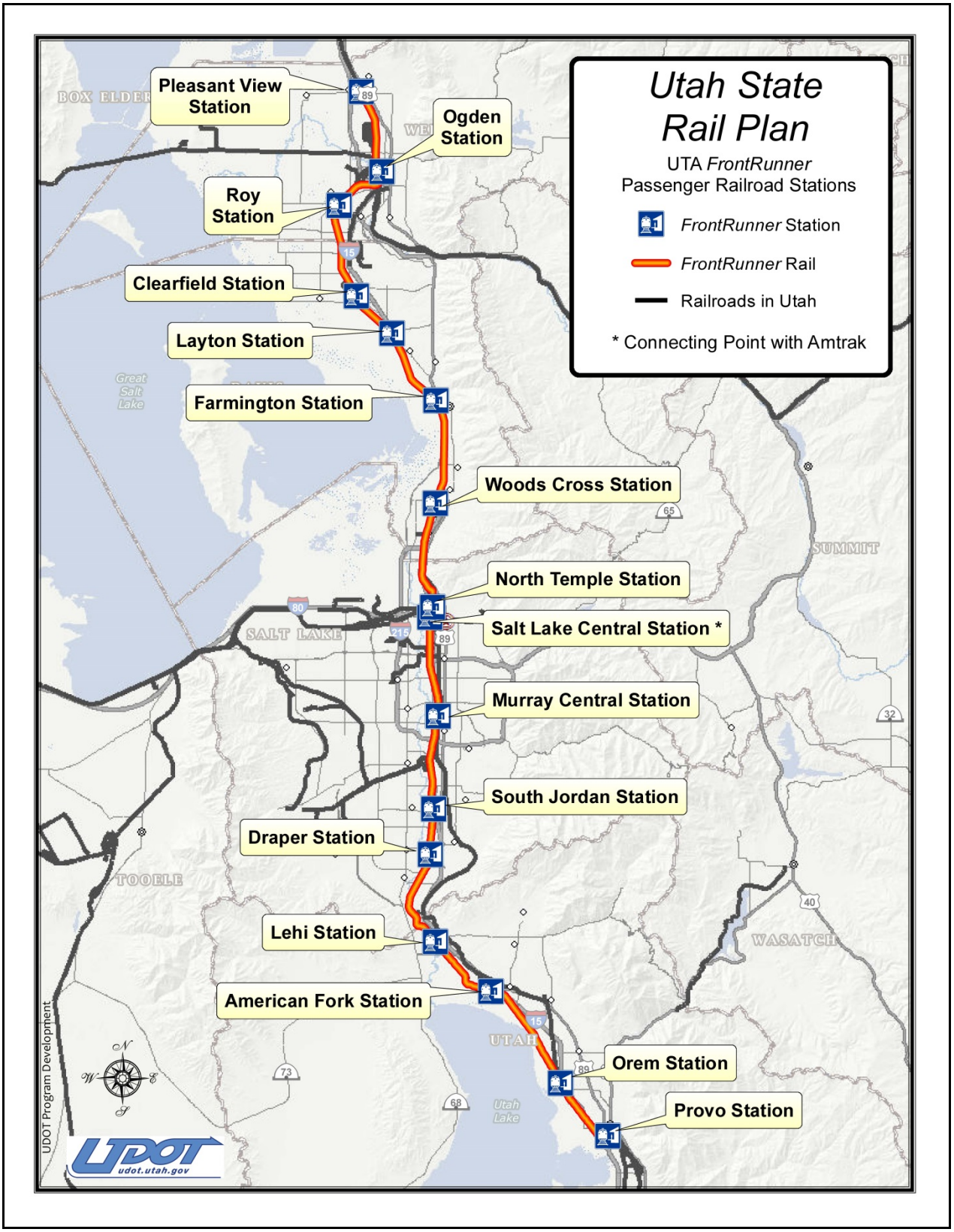


1.5.4.2 Passenger Connections

Amtrak's *California Zephyr* is the only intercity passenger train remaining in Utah since the Salt Lake City/Ogden to the Pacific Northwest *Pioneer* and the Salt Lake City to Southern California *Desert Wind* were discontinued in May of 1997. Amtrak serves the communities of Green River, Helper, Provo, and Salt Lake City with passenger stops, though only Salt Lake City has a manned station selling tickets and providing checked baggage services. The other three Amtrak stops in Utah are unmanned stations with minimal shelter facilities.

Amtrak's Salt Lake City station is a part of the UTA Salt Lake Central Station complex which includes intercity bus service by Greyhound, as well as city buses, *TRAX* light rail and *FrontRunner* commuter rail transit services provided by UTA. A limited multi-modal arrangement is found adjacent to Amtrak's shelter station in Provo where UTA city buses and *FrontRunner* commuter trains use a facility located less than one block from the Amtrak station. UTA *TRAX* and *FrontRunner* stops along those respective systems include connections to UTA's local city bus system.

Figure 13: Intercity and Commuter Rail Connectivity



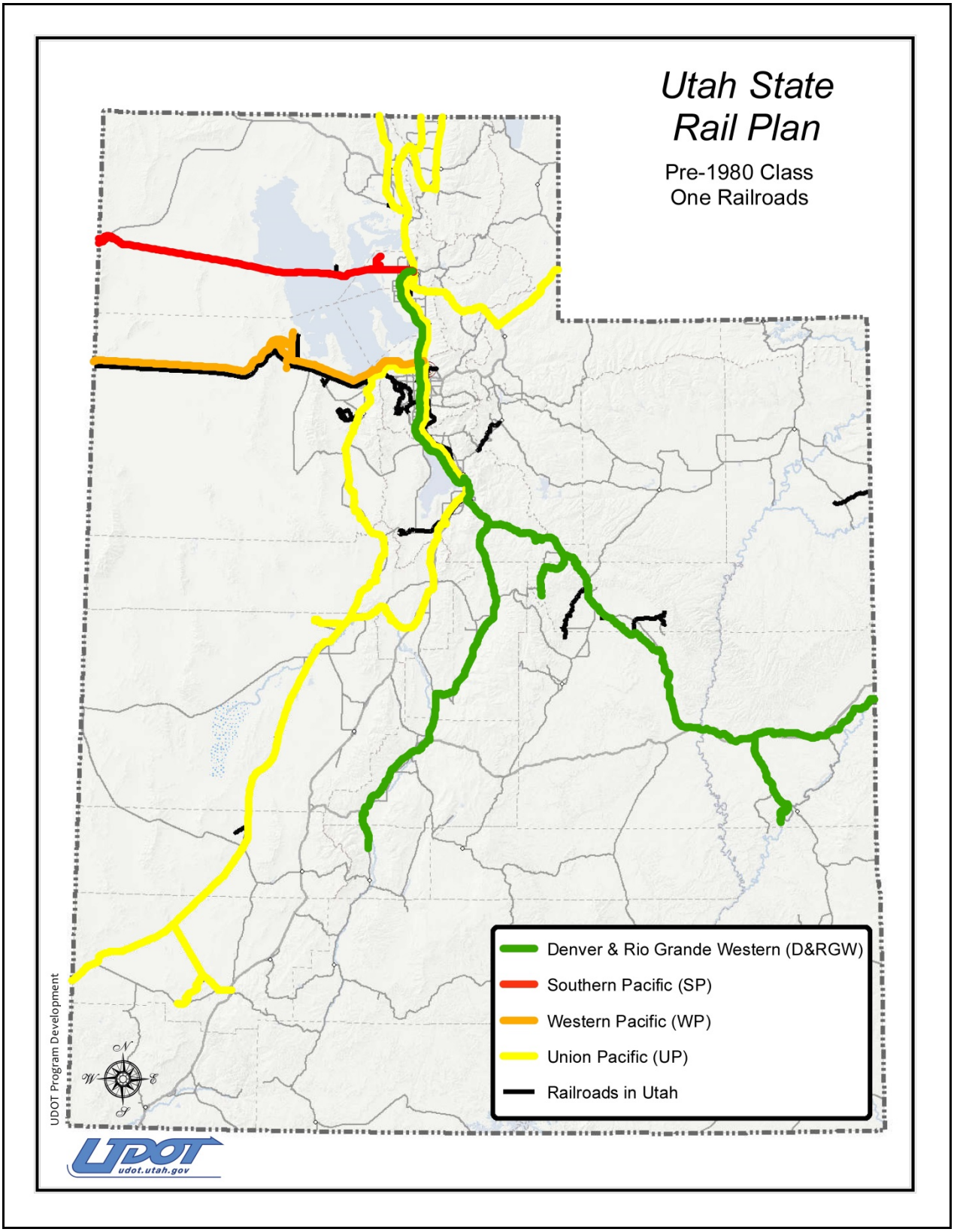
Chapter 2 – The State's Existing Rail System

Objective: Provide an overview and inventory of the state's existing rail system as a baseline for planning and decision making.

2.1 The existing freight, intercity passenger, and commuter rail transportation system, services currently operating, operating objectives, and system performance, including: a review of all rail lines and corridors, existing and proposed for freight, commuter, and intercity passenger service, including high speed lines as well as railway assets currently out of service or rail banked. Ownership of and operating rights over each segment of the railroad network, whether private or public, is to be clearly identified.

The Wasatch Front region in northern Utah is the hub of six railroad routes, all of which are owned and operated by the Union Pacific (UP). The deregulation of the railroad industry in 1980 and subsequent mergers by UP have reduced the number of Class I railroads owning and operating mainline trackage in the state to only one. Several other railroad companies operate over all or a portion of selected UP routes in Utah via trackage rights agreements. Given the geography of Utah and its neighboring states, as well as how the patterns of settlement and development evolved here, there are many areas of Utah which have no railroad service. The following map shows the six major railroad routes in Utah converging on the Wasatch Front. Even though all routes are currently owned and operated by UP, prior to 1982 these routes were owned by four different railroads of which UP was one.

Figure 14: Pre-1980 Class I Railroads in Utah



2.1.1 The following is a historical description and overview of the six UP routes which serve the state of Utah, including other railroads that operate on those lines.

2.1.1.1 The Overland Route, America's First Transcontinental Railroad

Constructed between 1863 and 1869, the historic Overland Route was built by two railroad companies, the UP building west from Omaha and the Central Pacific Railroad (CP) building east from Sacramento. This first railroad across the United States was completed on May 10, 1869 with the driving of the fabled Golden Spike at Promontory, which is located 90 miles northwest of Salt Lake City.

At first UP and CP connected and interchanged both passengers and freight at the remote Promontory location to the north of the Great Salt Lake. After protracted negotiations, and with the added incentive of land provided by Church of Jesus Christ of Latter-day Saints President Brigham Young, the junction point between both railroads was relocated to Ogden, Utah in 1874. Ogden remained Utah's busiest and most strategic rail center until the mergers of the 1980's brought Salt Lake City into that position which changed again with the 1996 merger of UP and SP.

In 1885 the CP became a part of the growing SP Railroad Empire with headquarters in San Francisco. SP and UP came under joint control of railroad magnate Edward H. Harriman in 1900 with both maintaining independent identities. However, the United States Supreme Court forced UP to divest itself of control of the SP in 1912. As already mentioned, the UP reacquired the SP on September 11, 1996, which brought the historic Overland Route mainline under the full control of the UP. For the purposes of this overview, the UP and former SP portions of the Overland Route will be examined as separate lines.

2.1.1.2 UP's Overland Route, today's UP Evanston Subdivision (Ogden to the Wyoming state line)

The historic Overland Route east of Ogden is the busiest railroad freight mainline in Utah. This route begins at the former Ogden Main Yard and nearby Riverdale Yard and extends east to the Wyoming state line near Evanston, Wyoming. This line climbs east through Weber and Echo Canyons in the Wasatch Mountains rising more than 2,000 vertical feet from Ogden to Evanston. The double-tracked UP Overland Route handles not only all through trains en route to and from northern California on the former SP portion of the Overland Route west of Ogden, it also carries all UP trains en route to and from Southern California via Salt Lake City.

The western end of the Overland Route has fewer trains today than it did prior to 2008 when much of UP's Southern California traffic was diverted to the former SP Sunset

Route via El Paso. Traffic on this line picks-up east of Utah where all of UP's transcontinental freight traveling to and from the Pacific Northwest via Idaho connects with the Overland Route at the railroad junction point of Granger, west of Green River, Wyoming. Also, eastbound Powder River Basin coal shipments come onto the Overland Route mainline at O'Fallons, a junction point west of North Platte, NE.

The Overland Route crosses the Continental Divide at an elevation of 7,104 feet on the relatively flat high plateaus of southern Wyoming west of Rawlins, Wyoming. The highest point on any portion of the Overland Route is reached at 8,015 feet Sherman Hill between Laramie and Cheyenne, Wyoming. Over the years UP has reengineered its original portion of the Overland Route, including these high elevations in southern Wyoming, to the highest standards to reduce grades and increase train speeds.

Reflecting the increasing train traffic as one continues east on the Overland Route, it is equipped with four mainline tracks from O'Fallons to North Platte and three tracks from there east to Gibbon, NE, where the mainline to Kansas City and St. Louis, Missouri diverges to head southeast. North Platte is also the location of UP's massive Bailey Yard, the largest railroad yard in the world.

Beyond Gibbon, the Overland Route returns to double track for the rest of the journey to Council Bluffs, IA, where the former Chicago and North Western Railroad (C&NW) (acquired by UP in 1995) has a double track line from there to Chicago. The single track former C&NW line from Fremont, NE to Missouri Valley, IA, which serves as a bypass around Omaha and Council Bluffs is currently in the process of being double tracked to handle more of the trains that today pass through Omaha.

2.1.1.3 UP's Former SP Overland Route, today's UP Lakeside Subdivision (Ogden to the Nevada state line)

This mostly single-track line heads west from Ogden across the flatland bordering the Great Salt Lake, then crosses the lake itself on a series of causeways. Known as the Lucin Cutoff, this line across the lake was completed in 1904 to replace the longer and steeper line that passed around the north end of the lake at Promontory. The Lucin Cutoff crosses first the Bear River arm of the Great Salt Lake, and then passes along the southern tip of the Promontory Peninsula, known as Promontory Point and often misidentified as the location where the Golden Spike was driven.

The main crossing of the Great Salt Lake extends west from Promontory Point to Lakeside, after which the flat Great Salt Lake Desert is crossed on a long stretch of mostly straight track. The Nevada state line is reached at the western end of the desert and from here the rail line crosses Valley Pass and Moor Summit on two of the many north/south trending mountain ranges that make-up the Great Basin.

Beyond Moor Summit the route descends to Wells, Nevada, and soon follows the historic California Emigrant Trail as well as the route of the Overland Stagecoach through the Humboldt River Valley via Elko and Winnemucca, MV. The Humboldt Valley is the only water level route across the Great Basin, and the only route with a reliable source of water, hence it has been the primary transportation corridor through the region since the 1840's. Upon leaving the Humboldt River west of Lovelock, Nevada the railroad crosses the Forty Mile Desert, which was so infamous from pioneer days, to join the Truckee River at Fernley, Nevada for the run into Reno and Sparks, Nevada.

West of Sparks the Overland Route crosses 7,015 feet Donner Pass in the Sierra Nevada Mountains of California on the steepest portion of the entire line. The trip over "The Hill," as the Donner grade is known in railroading, is the steepest portion of the entire Overland Route. Westbound grades reach 1.91 percent while eastbound trains must surmount a steep 2.42 percent grade climbing from near sea level in the Sacramento area. Although recently (2009) modified for the operation of double-stack intermodal trains, little can be done to minimize the steep grades and record snowfalls for which Donner has been famous since the CP was built over the pass in the 1860's.

At the base of the Sierra on the edge of California's Central Valley is the UP's Roseville classification yard from Roseville. Rail lines extend north to Oregon and Washington, south to Southern California and points east via Texas, and west to the San Francisco Bay Area. Roseville has been the gathering point for eastbound freight on the Overland Route for more than a century, serving in the reverse capacity as a distribution point for westbound shipments. As with Bailey Yard in North Platte, the Jerry Davis Yard in Roseville originates many freight trains that serve or pass through Utah.

With the loss of most perishable shipments to the trucking industry operating on the Federal Interstate Highway System in the 1970's, as well as the closure of California's auto plants in the early 1980's, the Overland Route west of Ogden is not as busy as it was in earlier years. However, it remains the primary route to and from northern California and the Port of Oakland on San Francisco Bay.

Both portions of the Overland Route combine with the remaining freight traffic routed via Utah to and from Southern California, as well as UP's heavy traffic in and out of the Pacific Northwest to serve as the strategic middle route across America. Often referred to as part of the Central Corridor, which is a name that originated in the post rail deregulation era, the historic Overland Route remains Utah's most important link for railroad freight with the rest of the United States.

2.1.1.4 The Utah Central Railroad (UC), today's UP Salt Lake Subdivision (Ogden to Salt Lake City)

The busy, double-track UP mainline that links Ogden with Salt Lake City began as the original branch line to connect with America's first transcontinental railroad here in Utah. On May 17, 1869 ground was broken next to the UP depot in Ogden on the UC, which began building south to Salt Lake City. This railroad was constructed under the direction of President Brigham Young of the Church of Jesus Christ of Latter-day Saints with the aim of linking Salt Lake City with the transcontinental mainline. President Young drove the last spike on the UC near 600 North Street in Salt Lake City on January 10, 1870.

As other feeder lines were built south of Salt Lake City, traffic on the UC grew. The UP had an early interest in the line, since it was constructed with railroad materials provided by UP to the Church of Jesus Christ of Latter-day Saints as partial payment on the debt UP owed for services provided in building the first transcontinental line. Formal acquisition of the UC by UP took place in 1881.

Following a realignment of the UC mainline in Ogden in 1906 the railroad left the transcontinental mainline just south (railroad direction east) of the Ogden Union Station at 31st Street Junction and proceeded west for about a mile before angling south toward Salt Lake City. UP would eventually double track this route when it became a part of the Salt Lake Route mainline to Southern California, a line that was completed in 1905.

By the 1930's traffic between the Midwest and Southern California was on the upswing, and World War II greatly increased traffic on this route. When UP took over the Western Pacific Railroad (WP) from Salt Lake City to the San Francisco Bay Area in 1982, the traffic which used to travel over the SP portion of the Overland Route west of Ogden now took the UC line south to Salt Lake City and then the WP west. In 1985 the Denver & Rio Grande Western Railroad (D&RGW) began using the UC line instead of its own route between Salt Lake City and Ogden. The D&RGW/SP merger of 1988 further increased trackage rights movements over the Utah UC line.

As UP's only route to Southern California, the UC and Salt Lake Routes saw considerable train traffic up until the UP merger with SP in 1996. As a result, UP now had a low grade route east out of the Los Angeles Basin on the former SP Sunset Route. However, high traffic levels and lack of capacity on that line kept many trains on the Salt Lake Route/Utah Central mainline. The economic downturn of 2008 gave UP the opportunity to finally divert much of the freight traffic on this route over to the Sunset Route via El Paso.

The UC continues to be a strategic link in Utah's freight railroad network on the UP, though rail traffic is much lower than it was at its peak just prior to the UP/SP merger in 1995-1996. A portion of UP's right-of-way along the east side of the Utah Central

mainline was sold to the Utah Transit Authority (UTA) to allow for the construction of a dedicated route for UTA's *FrontRunner* commuter trains which commenced operations between Salt Lake City and Ogden in 2008.

2.1.1.5 The Los Angeles and Salt Lake Railroad (LA&SL), known as the Salt Lake Route and later the South-Central District of the UP, today's UP Lynndyl and Caliente Subdivisions (Salt Lake City Southwest to Nevada state line via Milford)

The UP's Salt Lake Route mainline was one of the last major segments of the transcontinental railroad network built in the western United States. This route started out as a rural short line built south from Salt Lake City by the Church of Jesus Christ of Latter-day Saints to link farming communities established under the direction of Church President Brigham Young following the Mormon's arrival in Utah in 1847.

The construction of a railroad extending south from Salt Lake City commenced in 1871 with the line reaching Provo in 1873. This line was built by the Utah Southern Railroad, and in 1879 a new UP controlled company was organized under the name of the Utah Southern Railroad Extension. This new railroad continued building south from a connection with the original Utah Southern in 1879, reaching the Horn Silver Mine at the town of Frisco, near present-day Milford, Utah in 1880.

In 1881 the Utah Southern Railroad, the Utah Southern Railroad Extension, and the UC Railroad north of Salt Lake City were consolidated into a new UP controlled company under the name of the Utah Central Railway, which was administered by yet another UP subsidiary, the Oregon Short Line (OSL).

Los Angeles, California was a booming area in the 1880's, and interest in linking Southern California with the UP in Utah was growing. By 1900 Senator William A. Clark of Montana began acquiring railroad lines in Southern California, and in 1901 he and his associates incorporated the San Pedro, Los Angeles & Salt Lake Railroad (SPLA&SL) to build northeast to Utah. The logical connection for this new line was the UP's OSL controlled route into southwest Utah via Milford.

For several years' UP's Edward Harriman and Senator Clark struggled to gain the upper hand in building a rail line across the mountains and deserts of southern Nevada and into California. In 1903 an agreement was reached wherein both Harriman and the UP and Clark and the SPLA&SL would jointly own and control the new line, which allowed construction to begin in earnest. As a part of this agreement, the SPLA&SL purchased all UP (OSL) lines south of Salt Lake City.

A key part of this early 20th century railroad construction project was the establishment of a new, faster and more direct line connecting the route to southern Utah with Salt Lake City. This new line would bypass the congestion and slow trackage through Provo

and along the southern Wasatch Front population corridor, remaining west of the Oquirrh Mountain Range to the west of the Salt Lake Valley. Known as the Leamington Cutoff, this new line opened in 1905 between the old route at Lynndyl and downtown Salt Lake City.

The entire route was completed and put into service in 1905, with the last spike being driven at a point just west of the newly-established railroad town of Las Vegas, Nevada. The railroad was commonly known as the Salt Lake Route, and it maintained a separate identity from the rest of the UP system. In 1916 the name of Senator Clark's railroad was changed from San Pedro, Los Angeles & Salt Lake to Los Angeles & Salt Lake after San Pedro was annexed by the city of Los Angeles. In 1921 Senator Clark sold his remaining half interest in the LA&SL to UP, which quickly moved to fully absorb the route into its overall system. However, the line continued to be known as the Salt Lake Route, a name which endures into 2013.

Until the 1930's there was little on line business for the Salt Lake Route and most passengers and freight on the railroad were traveling to or from Southern California and Utah's Wasatch Front and points east. The building of Hoover Dam near Las Vegas in the 1930's, followed by an explosion in growth in Utah, southern Nevada and in particular Southern California during and after World War II made the Salt Lake Route a mainline of great value to Utah and the UP.

By the late 1960's the almost limitless growth of Southern California combined with rapidly increasing Asian import shipments through the expanding Ports of Los Angeles and Long Beach resulted in large numbers of priority intermodal freight movements on the Salt Lake Route, which by now was known officially as UP's South-Central District.

After deregulation in 1980, the UP itself began to grow rapidly as it took control of a number of railroads in the west and Midwest, which further increased rail freight business between the Midwest and Southern California via Utah. The Salt Lake Route was UP's only access to Southern California and its busy seaports. However, this would change with UP's acquisition of the SP in 1996.

SP operated the lowest grade route serving Southern California on its Los Angeles to El Paso Sunset Route. From 1996 to 2008 UP invested considerable capital in upgrading this route and expanding its capacity. The economic downturn that began in 2008 resulting in a drop in overall rail shipments, particularly imports from Asia, which when combined with increased capacity on the Sunset Route allowed UP to divert much of the freight on the Salt Lake Route over to the line via El Paso. Today, only those trains that need to operate through Utah use the Los Angeles to Salt Lake line with most of UP's Southern California Freight heading east and west via Texas.

Today's Salt Lake Route mainline includes both the Leamington Cutoff between downtown Salt Lake City and Lynndyl, as well as the original Provo Line between those two points over the original Utah Southern route through Provo and Nephi. From Lynndyl trains travel south across the Escalante Desert to the crew change point at Milford, then cross over into the canyon country of southern Nevada en route to another crew change at Las Vegas. From Las Vegas the line angles southwest across Southern California's Mojave Desert to a final crew change point at Yermo just east of Barstow, California.

In pre-SP merger days, UP's Yermo Yard, which had been enlarged in the early 1980's, served as an overflow facility for the railroad's East Los Angeles Yard, which was rapidly being taken over by intermodal shipments. Today, little freight work is done at Yermo since most trains are en route to or from either the Ports or the former SP West Colton classification yard near San Bernardino, California.

To reach the Los Angeles Basin from Utah, UP operates via trackage rights over BNSF for about 100 miles from Daggett near Barstow to Riverside near San Bernardino. A connection at West Colton, California allows UP trains to access the former SP West Colton Yard from the BNSF mainline. Trains bound for the Ports of Los Angeles and Long Beach use either the former SP Sunset Route or the original UP mainline from West Colton or Riverside respectively to a connection with the new Alameda Corridor rail line serving the port area.

The recent completion of the Colton crossing rail-grade separation project near San Bernardino has eliminated the most impactful bottleneck to UP trains on the Salt Lake Route. This $93 million project grade separates BNSF's mainline from the UP Sunset Route.

Although relatively flat in Utah, the Salt Lake Route mainline must surmount several major grades in southern Nevada and Southern California. Previously mentioned Cajon Pass has grades ranging from 2.2 percent to as high as 3.0 percent, though most trains are downhill on the 3.0 percent section. Cima Hill in the Mojave Desert also has grades up to 2.2 percent. These grades, as well as the long climb to over 8,000 feet in Wyoming for trains routed via Utah were high on UP's list of reasons for focusing Southern California rail traffic on the low grade Sunset Route through El Paso.

The complex history of UP's Salt Lake Route mainline reflects how growth, development, mountainous terrain, and changing economic conditions can have a profound impact on rail operations along a particular line or across an entire region. Although still an important part of the overall UP, the Salt Lake Route mainline's strategic position is but a shadow of what it was prior to 1996 and 2008.

2.1.1.6 The Denver and Rio Grande Western (D&RGW), known as the Rio Grande, today's UP's Provo and Green River Subdivisions (Salt Lake City to the Colorado state line via Provo and Helper)

Originally constructed as a narrow-gauge railroad from Denver west to Salt Lake City, the D&RGW was completed near Green River in 1883. The major mainlines of the Rio Grande linking Colorado with Utah were converted to standard gauge by the end of 1890.

The Rio Grande's history is a complex amalgamation of various short line and regional railroads and the original Denver & Rio Grande that first build south from Denver in 1871. Several early short lines were built in Utah that eventually found their way into the Rio Grande system. Today's UP-owned Rio Grande mainline heads south from Salt Lake City to Provo, then southeast over 7,440 feet Soldier Summit in the Wasatch Mountains to Helper and beyond to Green River and points east in Colorado.

The line over Soldier Summit, which is shared with the Utah Railway, has the steepest mainline grades on Utah's rail network. Eastbound trains must climb a 2.3 percent grade to attain the top of Soldier Summit, while westbound trains face a 2.4 percent climb out of aptly-named Helper. Grades along the rest of the line in Utah are more modest, though 2.0 percent grades are encountered on either side of the Continental Divide in Colorado where the line reaches an altitude of 9,239 feet inside the 6.21 mile long Moffat Tunnel. The UP's former Rio Grande mainline is the highest mainline railroad in the United States.

The original Rio Grande built south from Denver to Pueblo, then west via the famous Royal Gorge and over 10,221 feet Tennessee Pass to reach the Colorado River and a route into Utah. In 1934 the 44-mile Dotsero Cutoff was completed linking the original D&RGW mainline with the existing Denver & Salt Lake Railroad that passed through the Moffat Tunnel but dead-ended in Craig, Colorado. This new and much more direct line quickly became the Rio Grande's primary route, although the Tennessee Pass/Royal Gorge Line continued to function until closed by the UP in 1997.

In the 1960's the mostly single track Rio Grande adopted the Short and Fast concept for running freight trains in order to better compete with the relatively flat, double track mainlines of the UP to the north in Wyoming, and the Santa Fe (BNSF today) to the south across Arizona and New Mexico. Most Rio Grande freight was forwarded beyond Salt Lake City by the WP, though two freights per day in each direction connected with the SP in Ogden. The SP connection at Ogden was served by an extension of the Rio Grande mainline until that line was closed and Rio Grande's trains began running north of Salt Lake City on UP's Utah Central line in 1985.

The UP takeover of WP in 1982 put both the Rio Grande and SP in a difficult position as both had lost their primary connections in Utah. This resulted in both lines restructuring their operations toward the Ogden/Salt Lake City connection between the two railroads, and ultimately a merger of the two in 1988. From 1988 until the UP takeover in 1996, the Rio Grande mainline was a busy route hosting a wide variety of manifest freight trains, new automobile trains, priority intermodal trains as well as unit coal trains that originated along the line in Utah and Colorado. It should be noted that full-height (102 inch containers) double stack operations cannot be conducted along this route due to height limitations on the line's many tunnels.

When UP took control of the SP/Rio Grande in 1996, all of the transcontinental freight on the Rio Grande line was rerouted from the mountainous Rio Grande to the fast, and less mountainous UP Overland Route across Wyoming. Today, the Rio Grande line sees a daily UP manifest freight in each direction to serve on-line shippers, the previously mentioned coal trains from local mines, and BNSF Railway mainline and local trackage rights trains between Denver and Provo. Utah Railway trains and Amtrak's daily *California Zephyr* also use the scenic Rio Grande line.

It should be noted that the Salt Lake City to Provo section of the former Rio Grande line does see several automobile and manifest freights each day which are en route to and from Southern California via the Salt Lake Route and Provo lines to access the manifest freight and new automobile terminals at Salt Lake City's Roper Yard. These Salt Lake Route trains use the former Rio Grande line between Salt Lake City and Provo. Utah short lines Utah Railway and Savage Bingham & Garfield also operate on portions of the former Rio Grande line west of Helper and Midvale, Utah respectively.

UP sold a portion of the Rio Grande line right-of-way to UTA for construction of a dedicated line adjacent to the UP for UTA's *FrontRunner* commuter train service between Salt Lake City and Provo. UTA's *FrontRunner* commuter rail operations commenced on the Salt Lake to Provo line in December 2012.

2.1.1.7 The Western Pacific (WP), known as the Feather River Route, today's UP Shafter Subdivision (Salt Lake City to Wendover on the Nevada state line)

The WP was the last major railroad to come to Utah, and the final major segment of America's transcontinental railroad network to be completed. Built between 1903 and 1909 by George Gould, the son of railroad magnate Jay Gould, who also owned the Rio Grande system, the WP was intended as a continuation of the Rio Grande to California. Although financial troubles soon separated the WP and D&RGW, they remained primary connections at Salt Lake City until the UP took control of the WP in 1982.

Known as the Feather River Route, for its scenic line through the Feather River Canyon in the northern Sierra Nevada Mountains of California, the WP built directly west from its

connection with the Rio Grande in Salt Lake City. The WP passed along the south side of the Great Salt Lake and directly across the Bonneville Salt Flats on the Great Salt Lake Desert. The first crew change terminal was established at Wendover on the Utah/Nevada state line.

West of Wendover the single track WP climbed over or tunneled through several Great Basin mountain ranges, all the while maintaining the maximum 1.0 percent grade stipulated in the railroad's charter. At Wells, the WP began its run parallel to the SP's Overland Route west to Elko and Winnemucca, Nevada through the Humboldt River Valley.

Beginning with Federal control of America's railroads under the United States Railway Administration (USRA) in World War One, the SP and WP began operating under a paired track agreement between Wells and Winnemucca with all eastbound trains of both railroads using the WP line and all westbounds using the SP route. This arrangement worked so well that both railroads made it a permanent part of their operations across the Great Basin, which continued until UP took over both WP and SP in 1982 and 1996 respectively.

West of Winnemucca the WP headed out across the Black Rock and Smoke Creek Deserts to Beckworth Pass and the Feather River Canyon in California's Sierra Nevada. Exiting the mountains at Oroville, California, the WP traveled on a north/south alignment down the Central Valley through Marysville and Sacramento to Stockton where it turned west to cross the Coast Range on Altamont Pass to a terminus on San Francisco Bay at Oakland, California.

Today, the former WP line in Utah is a secondary mainline used by a handful of UP manifest trains and unit grain trains of animal feed en route to the Central Valley, BNSF mainline and local trackage rights trains between Denver and Stockton, along with Amtrak's daily *California Zephyr.* Most freight en route to and from northern California or the Port of Oakland uses the former SP Overland Route across Donner Pass and the Great Salt Lake causeway via Ogden rather than the former WP across the Salt Flats into Salt Lake City. Most of the trains that do use the WP line in Utah continue west to California via the former SP at Winnemucca crossing the Sierra on Donner Pass including BNSF and Amtrak trains.

2.1.1.8 The Utah Northern Railroad (UN), today UP's Ogden Subdivision, (Ogden to the Idaho state line via Brigham City and the Cache Valley)

Of all the main railroad lines serving Utah, UP's former UN line from Ogden to Idaho sees the fewest train movements each day. Construction on this secondary line began at a junction with the original CP portion of the transcontinental railroad at Brigham City in 1871. This was one of several feeder lines built by the Church of Jesus Christ of

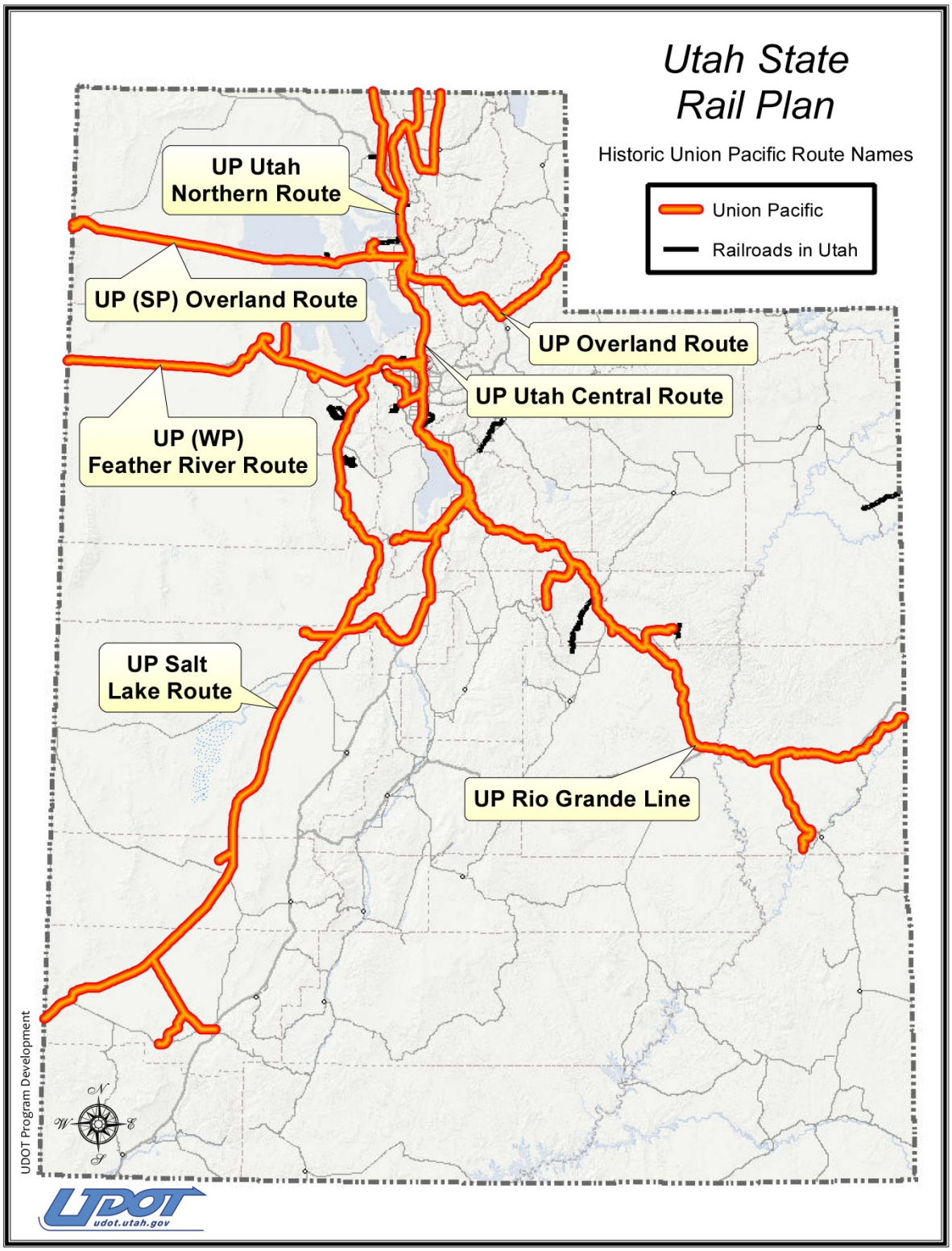
Latter-day Saints following the completion of America's first transcontinental railroad at Promontory, Utah.

As originally constructed, the UN passed through Logan, Utah, which was reached in 1873, on the east side of the Cache Valley in northern Utah. This route was reduced to a stub end branch when a new line through the valley with fewer grades was placed in service later in 1890 when the line was converted from narrow to standard gauge. The UN continued north, reaching the Idaho state line at Franklin in 1874. UP interests took control of the UN in 1878, renaming it the Utah & Northern (U&N) and continuing construction north into Idaho.

The U&N reached Pocatello in 1878 and Eagle Rock, today known as Idaho Falls, in 1879. The U&N ultimately arrived in the mining town of Butte, Montana in 1881, having constructed 466 miles of narrow gauge railroad from Utah. As already mentioned the line was acquired by the UP and ultimately became a part of UP's OSL subsidiary and was converted to standard gauge.

Today this single track line provides a link between Utah and the UP's northwestern mainline at McCammon, Idaho, southeast of Pocatello. This line is Utah's link with the Pacific Northwest and the seaports at Portland, Oregon, Tacoma and Seattle, Washington although intermodal shipments on this line are rare. A daily manifest train links the large UP hump yard at Hinkle, Oregon (near Hermiston) with the Roper Yard in Salt Lake City, and various locals also use portions of the line. The UN line also provides access to UP's branch lines to Malad, Idaho via Tremonton, Utah as well as the Cache Valley Branch, which was the original UN mainline through Logan to Preston, Idaho.

Figure 15: Historic Union Pacific Route Names



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2.1.2 Amtrak (National Railroad Passenger Corporation)

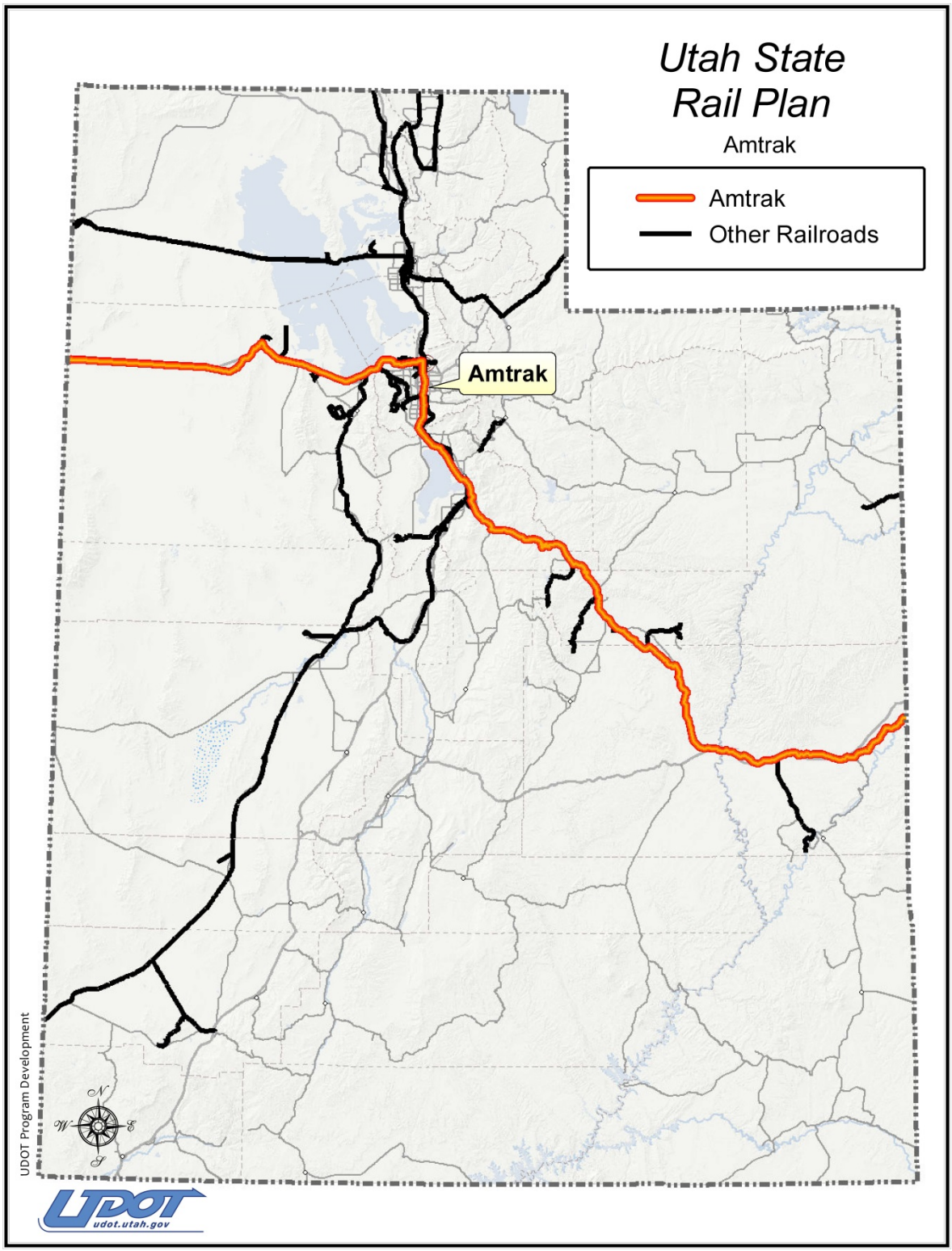
Table 3: Amtrak Information

Federal Railroad Administration Abbreviation:	ATK
Surface Transportation Board Classification:	Class I Railroad
Category:	Passenger
National Rail System Connection:	Yes
Number of Rail Miles Operated in Utah:	368
Number of Utah Employees:	51 (FY2013)
Total Utah Employee Earnings:	$4,115,485 (FY2013)
Utah Ridership:	55,283 (FY2013)
Amtrak Purchase of Goods and Services in Utah	$9,039,874 (FY 2013)
Signal Type:	Centralized Traffic Control (CTC)

Sources: Federal Railroad Administration, 2013. Amtrak Government Affairs, Fiscal Year 2012.

The National Railroad Passenger Corporation, known as Amtrak, is a quasi-governmental corporation that took over most of America's intercity passenger trains from the private railroad companies on May 1, 1971. Amtrak's formation was the result of the privately-operated passenger trains becoming uneconomical in the face of massive government investment in highways, airports, and other competing modes after World War II. Prior to May 11, 1997, Salt Lake City/Ogden was an important hub for three Amtrak long-distance passenger routes. Today, only Amtrak's Chicago to San Francisco Bay Area *California Zephyr* continues to serve Utah with stops in Green River, Helper, Provo and Salt Lake City.

Figure 16: Amtrak



2.1.3 BNSF Railway

Table 4: BNSF Railway Information

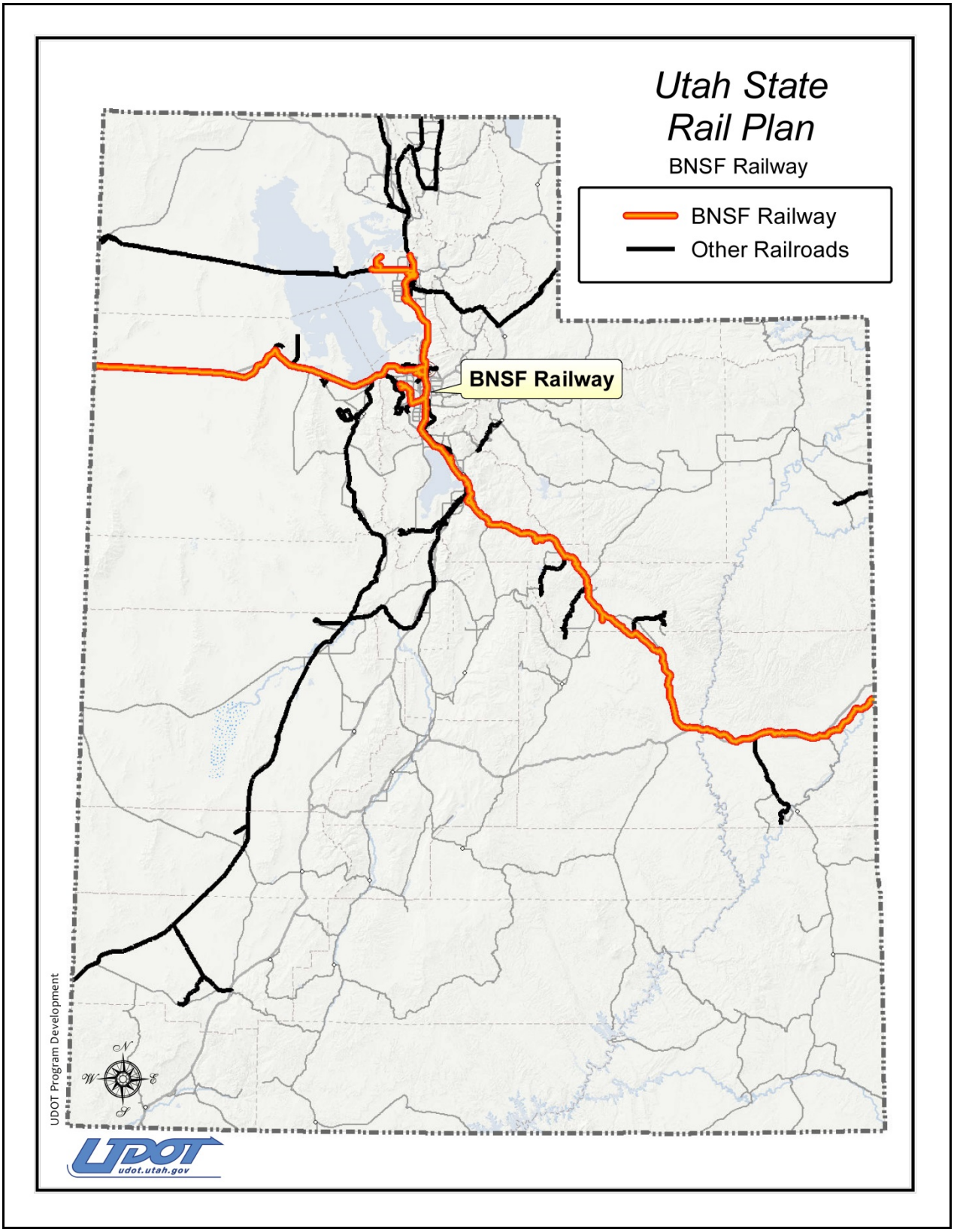
Federal Railroad Administration Abbreviation:	BNSF
Surface Transportation Board Classification:	Class I Railroad
Category:	Freight
National Rail System Connection:	Yes
Number of Rail Miles Operated in Utah:	433
Number of Utah Employees:	2
Total Utah Employee Earnings:	Not Available
Taxes Paid to Utah:	Not Available
Signal Type:	See UP Signal Types

Sources: Federal Railroad Administration, 2013. Association of American Railroads, 2012.

BNSF Railway, originally known as the Burlington Northern and Santa Fe Railway Company, serves the state of Utah via trackage rights over a route that links Denver with Stockton and throughout the Provo, Salt Lake City and Ogden areas. BNSF's trackage rights over parts of the UP and SP networks were obtained in 1995, when the STB granted BNSF the ability to serve customers in Utah via trackage rights in order to maintain freight competition. BNSF, one of America's leading freight railroads, operates in 28 states and two Canadian provinces. In Utah, BNSF currently interchanges with four short line railroads that provide rail served connections to additional customers not located along the former UP and SP lines, connecting over 400 miles of Utah rail lines to BNSF's extensive network.

Photo by Vern Keeslar

Figure 17: BNSF Railway



2.1.4 Comstock Mountain Lion Railroad

Table 5: Comstock Mountain Lion Railroad Information

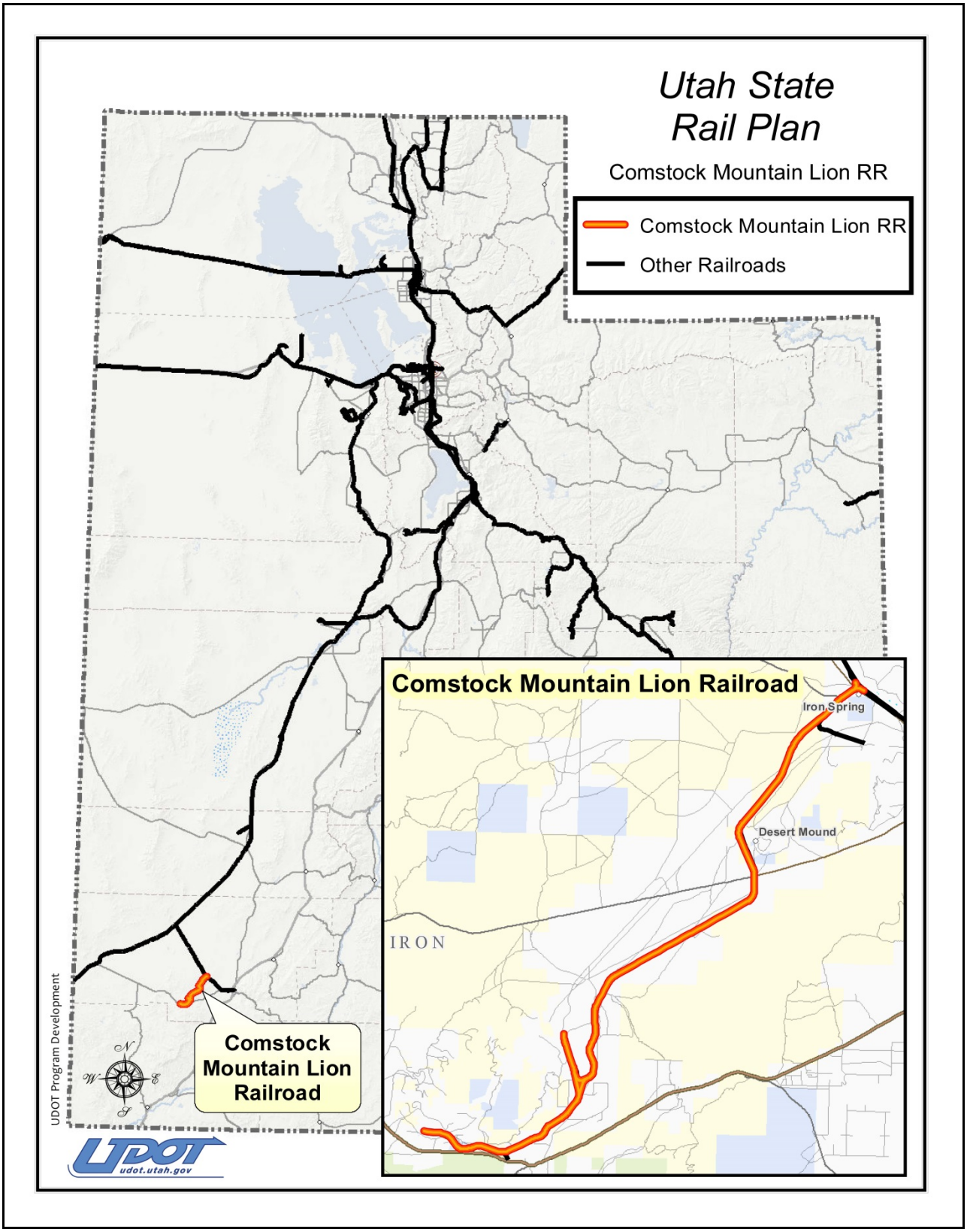
Federal Railroad Administration Abbreviation:	CMLR
Surface Transportation Board Classification:	Class III Railroad
Category:	Freight
National Rail System Connection:	Yes
Number of Rail Miles Operated in Utah:	15
Number of Utah Employees:	12
Total Utah Employee Earnings:	Not Available
Taxes Paid to Utah:	Not Available
Signal Type:	Track Warrant Control (TWC)

Sources: Federal Railroad Administration, 2013. Association of American Railroads, 2012.

The Comstock Mountain Lion Railroad (CMLR) is a 15-mile long short line that began operations in 2006 linking iron ore mines near Cedar City in southwestern Utah with the UP. The railroad is owned and operated by CML Metals Corporation, which exports iron ore to China via the Port of Stockton, California. Due to falling iron ore export markets, operations of the CMLR have suspended as of October 18, 2014. The railroad linking UP with the mines was originally built as a UP branch line in the 1920's to serve the area's National Parks and iron ore deposits. The photo below shows UP power at Iron Springs waiting for the CMLR iron ore train.

Photo by Vern Keeslar

Figure 18: Comstock Mountain Lion Railroad



2.1.5 Deseret Power Railway

Table 6: Deseret Power Railway Information

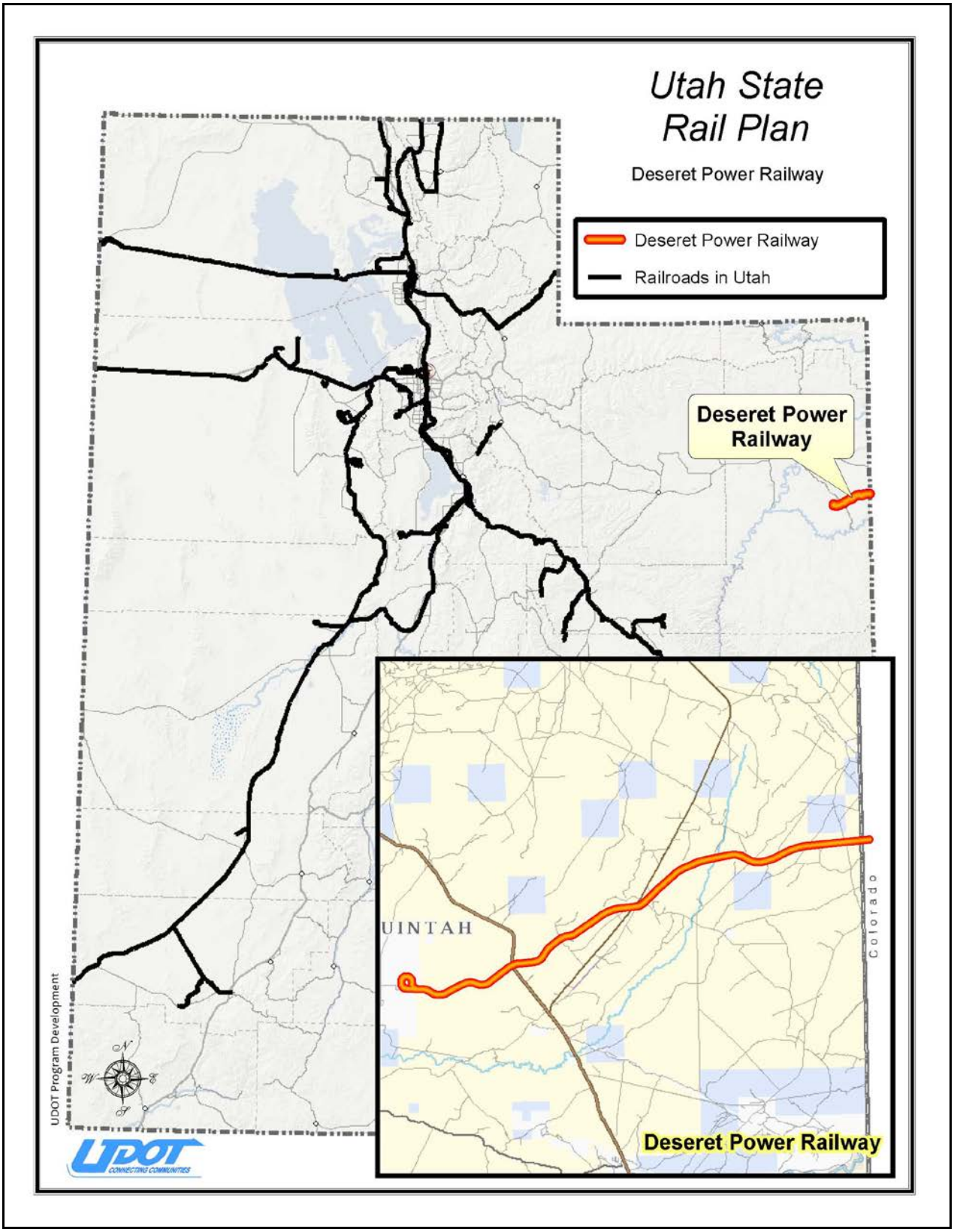
Federal Railroad Administration Abbreviation:	DPRW
Surface Transportation Board Classification:	Class III Railroad
Category:	Freight
National Rail System Connection:	No
Number of Rail Miles Operated in Utah:	17
Number of Utah Employees:	2
Total Utah Employee Earnings:	$120,000
Taxes Paid to Utah:	$15,400
Signal Type:	None

Sources: Federal Railroad Administration, 2013. Association of American Railroads, 2012.

The Deseret Power Railway (DPRW) is a 33-mile long coal hauling line that is isolated from the rest of Utah's and America's railroad network. Located in northeastern Utah and northwestern Colorado, the DPRW was originally known as the Deseret Western Railway when it commenced operations in 1983. Deseret Power hauls coal from the Deserado Mine northeast of Rangely, Colorado to the Deseret Electric Power Cooperative steam power plant near Bonanza, Utah. Deseret Power Railway is an electric powered operation and all locomotives and rolling stock used on the line had to be trucked in 90 miles from the nearest mainline railroad.

Deseret Power Railway Photo

Figure 19: Deseret Power Railway



2.1.6 Heber Valley Railroad

Table 7: Heber Valley Railroad Information

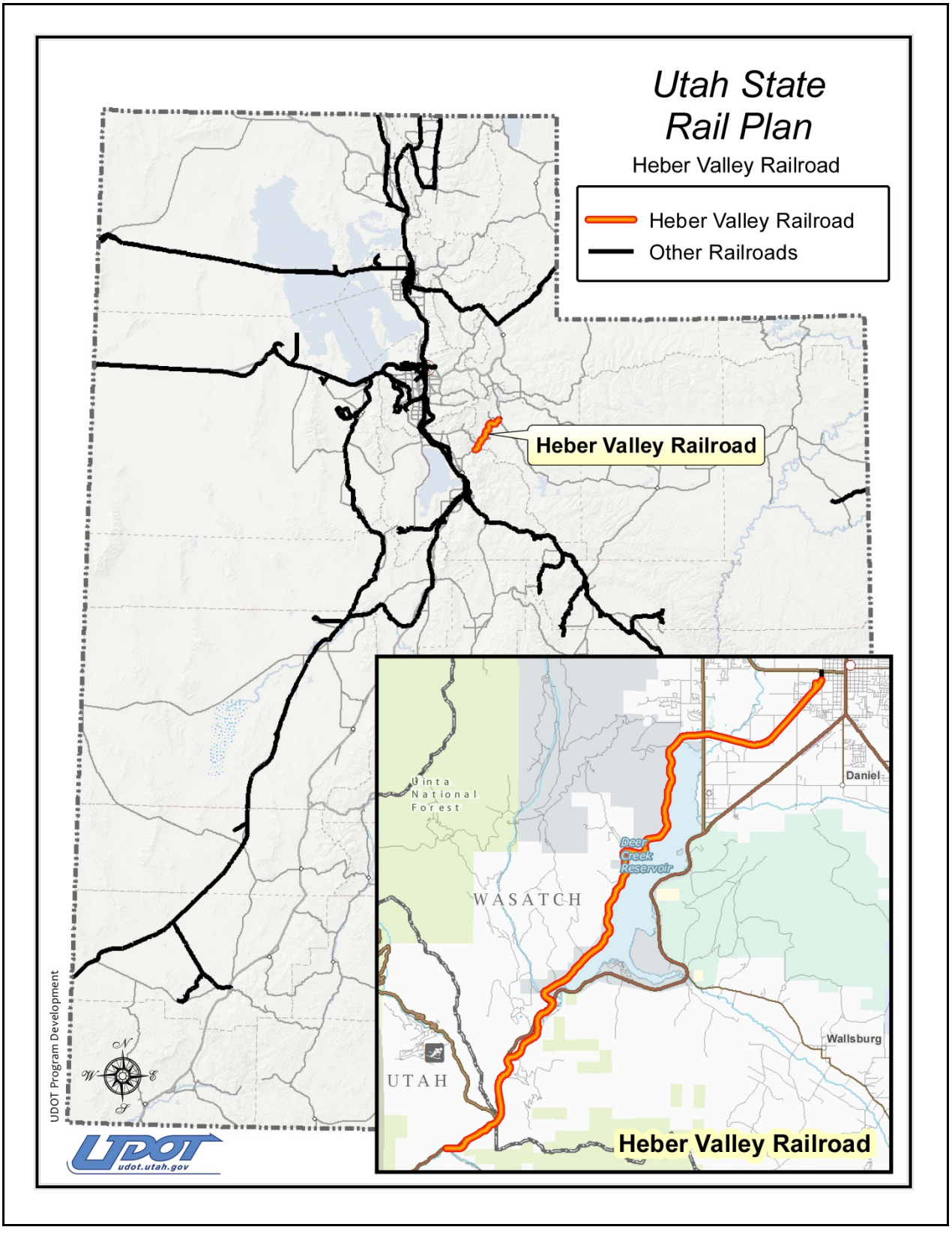
Federal Railroad Administration Abbreviation:	HVRX
Surface Transportation Board Classification:	Class III Railroad
Category:	Passenger
National Rail System Connection:	No
Number of Rail Miles Operated in Utah:	16
Number of Utah Employees:	Not Available
Total Utah Employee Earnings:	Not Available
Utah Ridership:	Not Available
Signal Type:	None

Sources: Federal Railroad Administration, 2013.

The Heber Valley Railroad (HVRX) was originally built in 1899 as a branch of the Denver & Rio Grande Western Railroad, who abandoned the line in 1967. In 1970 the upper end of the line was reopened as the “Heber Creeper” tourist railroad, and was given its present name in the early 1990’s. Operating both steam and diesel-electric locomotives and historic passenger cars, the HVRX played a role in the 2002 Salt Lake Winter Olympics and has appeared in more than 20 motion pictures. HVRX no longer has a connection to the mainline rail network in Utah with equipment having to be trucked-in. The HVRX is 16 miles long and operates from Heber City to Vivian Park in Provo Canyon in the nearby Wasatch Mountains.

Heber Valley Railroad Photo

Figure 20: Heber Valley Railroad



2.1.7 Kennecott Utah Copper LLC

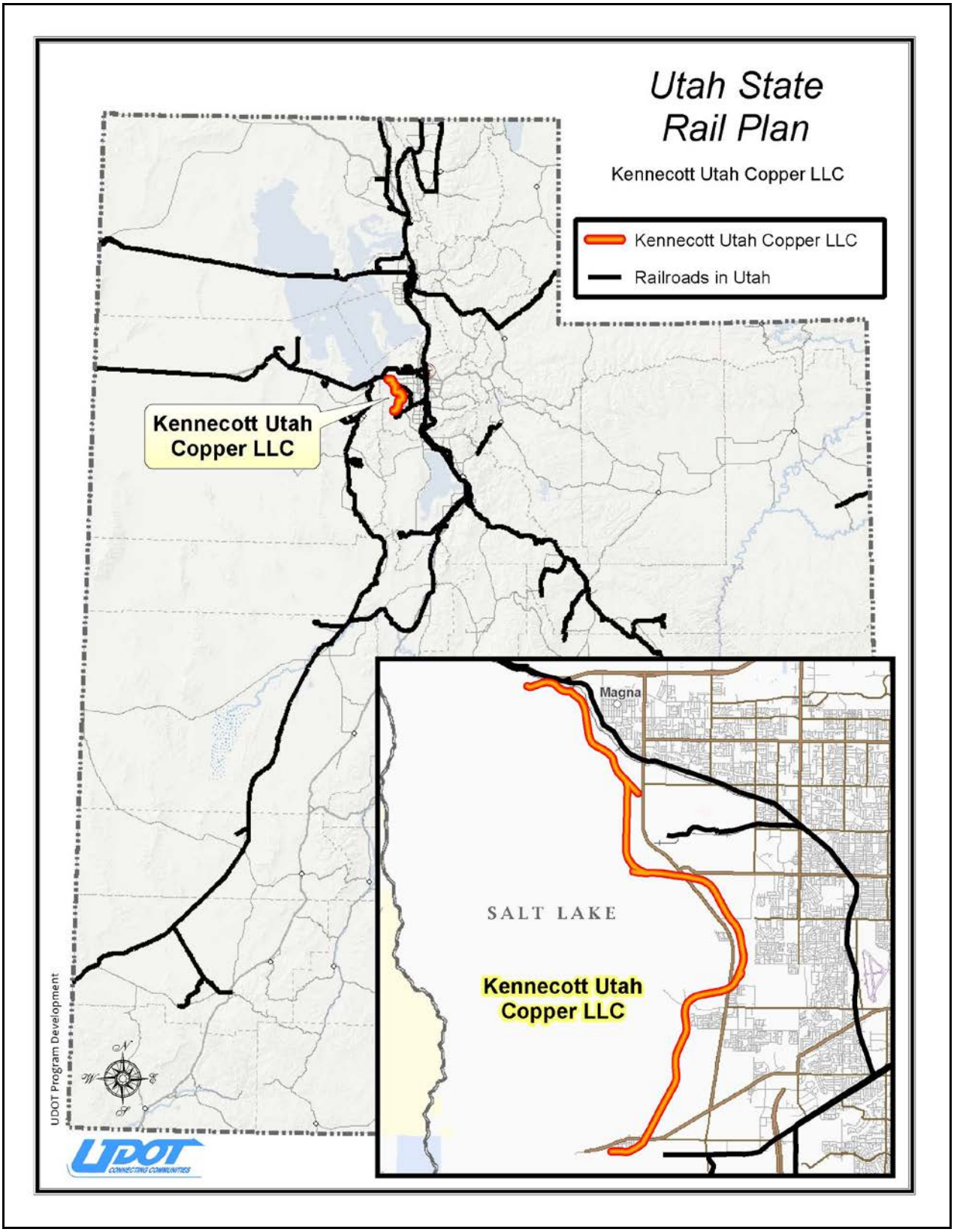
Table 8: Kennecott Utah Copper LLC Information

Federal Railroad Administration Abbreviation:	None
Surface Transportation Board Classification:	Class III Railroad
Category:	Freight
National Rail System Connection:	Yes
Number of Rail Miles Operated in Utah:	23
Number of Utah Employees:	Not Available
Total Utah Employee Earnings:	Not Available
Taxes Paid to Utah:	Not Available
Signal Type:	None

Sources: Federal Railroad Administration, 2013. Association of American Railroads, 2012.

The Kennecott Utah Copper LLC (KCC) encompasses the remaining active rail operations of the once vast rail network developed to serve Kennecott Utah Copper Corporation, a division of Rio Tinto Group, with mining, smelting and refining operations along the east side of the Oquirrh Mountains southwest of Salt Lake City. Kennecott's Bingham Canyon Mine is the largest open pit mine in the world, although heavy haul trucks and conveyor systems have replaced trains in removing ore from the mine and transporting it to the smelter. Kennecott's current rail operations are focused on the smelter adjacent to the south end of the Great Salt Lake, where Kennecott is served by UP and has access to BNSF through its agent Utah Railway.

Figure 21: Kennecott Utah Copper LLC



2.1.8 Salt Lake City Southern Railroad

Table 9: Salt Lake City Southern Railroad Information

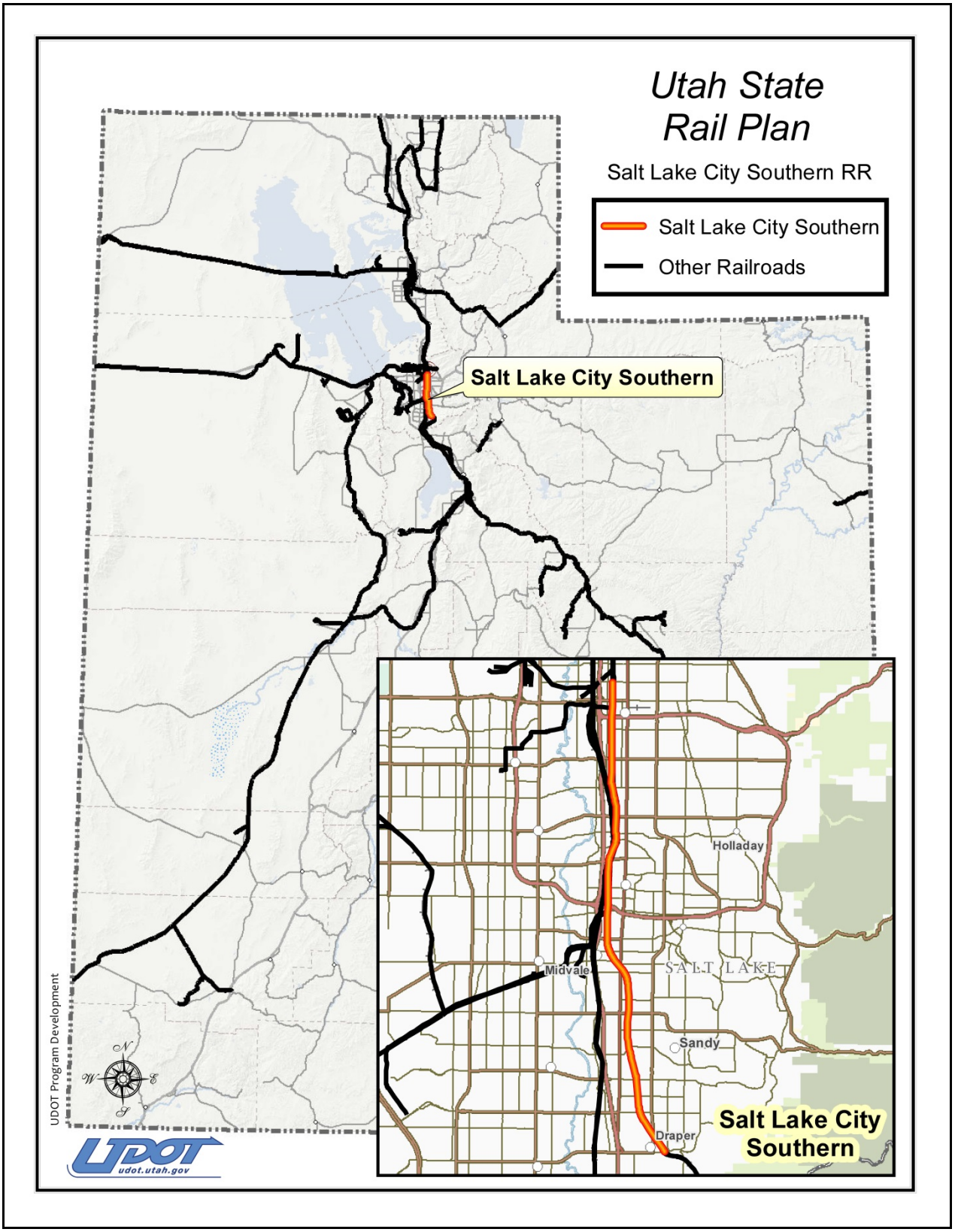
Federal Railroad Administration Abbreviation:	SL
Surface Transportation Board Classification:	Switching and Terminal Railroad
Category:	Freight
National Rail System Connection:	Yes
Number of Rail Miles Operated in Utah:	24
Number of Utah Employees:	Not Available
Total Utah Employee Earnings:	Not Available
Taxes Paid to Utah:	Not Available
Signal Type:	See UTA Signal Types

Sources: Federal Railroad Administration, 2013. Association of American Railroads, 2012.

The Salt Lake City Southern (SL) Railroad began freight operations in 1993 as a RailTex subsidiary and is today owned and operated by Genesee & Wyoming, Inc. SL operates over most of the 25 miles of former UP Provo Subdivision line that was sold to UTA in 1993. UTA began light rail transit operations over this route in 1999, with freight service restricted to between 12:00 a.m. and 5 a.m. when light rail vehicles are not operating.

Photo by Vern Keeslar

Figure 22: Salt Lake City Southern Railroad



2.1.9 Salt Lake, Garfield and Western Railway

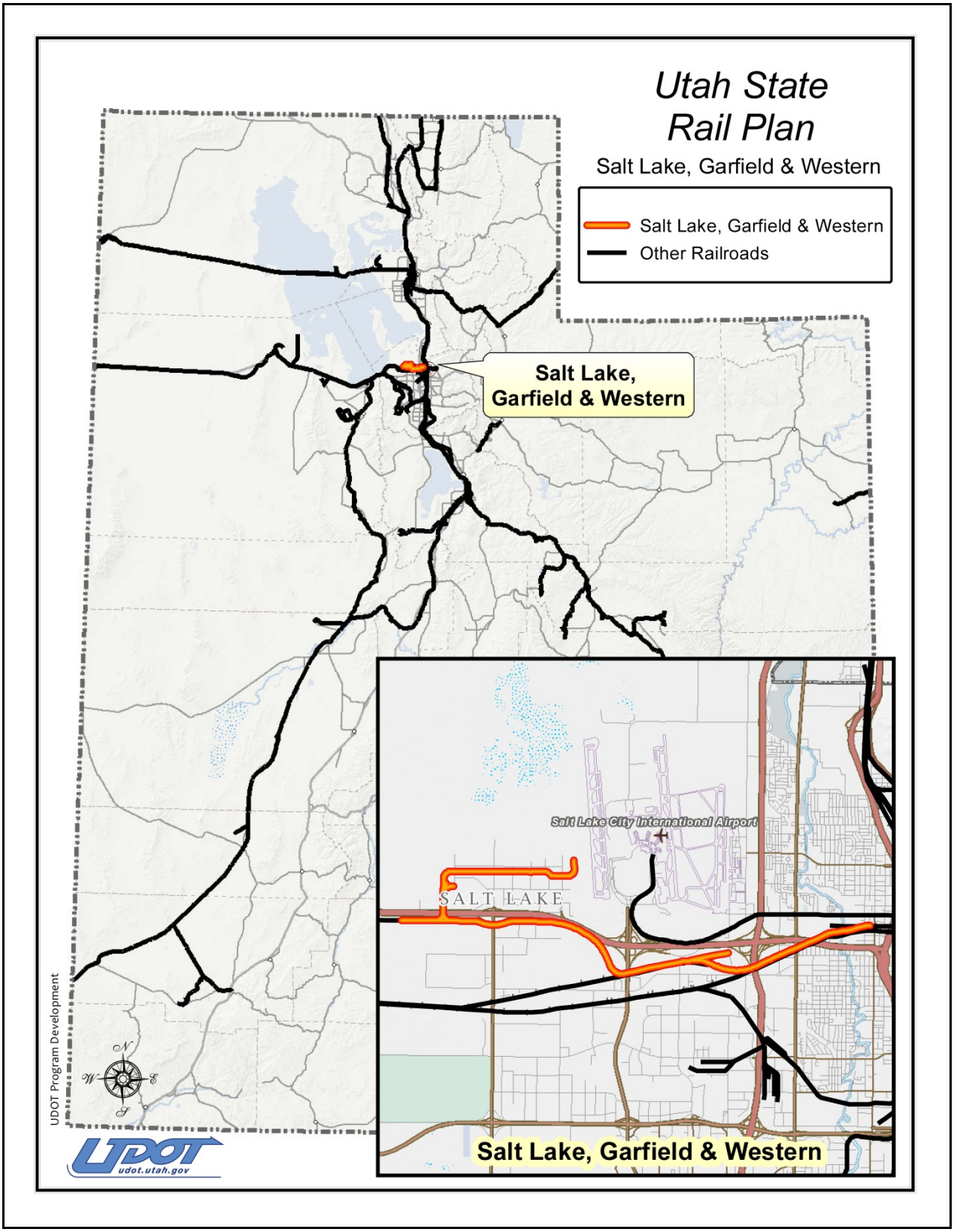
Table 10: Salt Lake, Garfield and Western Railway Information

Federal Railroad Administration Abbreviation:	SLGW
Surface Transportation Board Classification:	Class III Railroad
Category:	Freight
National Rail System Connection:	Yes
Number of Rail Miles Operated in Utah:	12
Number of Utah Employees:	2
Total Utah Employee Earnings:	$92,883
Taxes Paid to Utah:	$45,292
Signal Type:	None

Sources: Federal Railroad Administration, 2013. Association of American Railroads, 2012.

The Salt Lake, Garfield & Western (SLGW) Railway dates back to 1891 when it served resorts at the south end of the Great Salt Lake. Today the SLGW provides freight service to industries and warehouses west of downtown Salt Lake City and at the International Center business and warehouse area near the Salt Lake City International Airport. The SLGW owns its 12-mile line and connects with the UP and BNSF in Salt Lake City.

Figure 23: Salt Lake, Garfield and Western Railway



2.1.10 Savage, Bingham and Garfield Railroad

Table 11: Savage, Bingham and Garfield Railroad Information

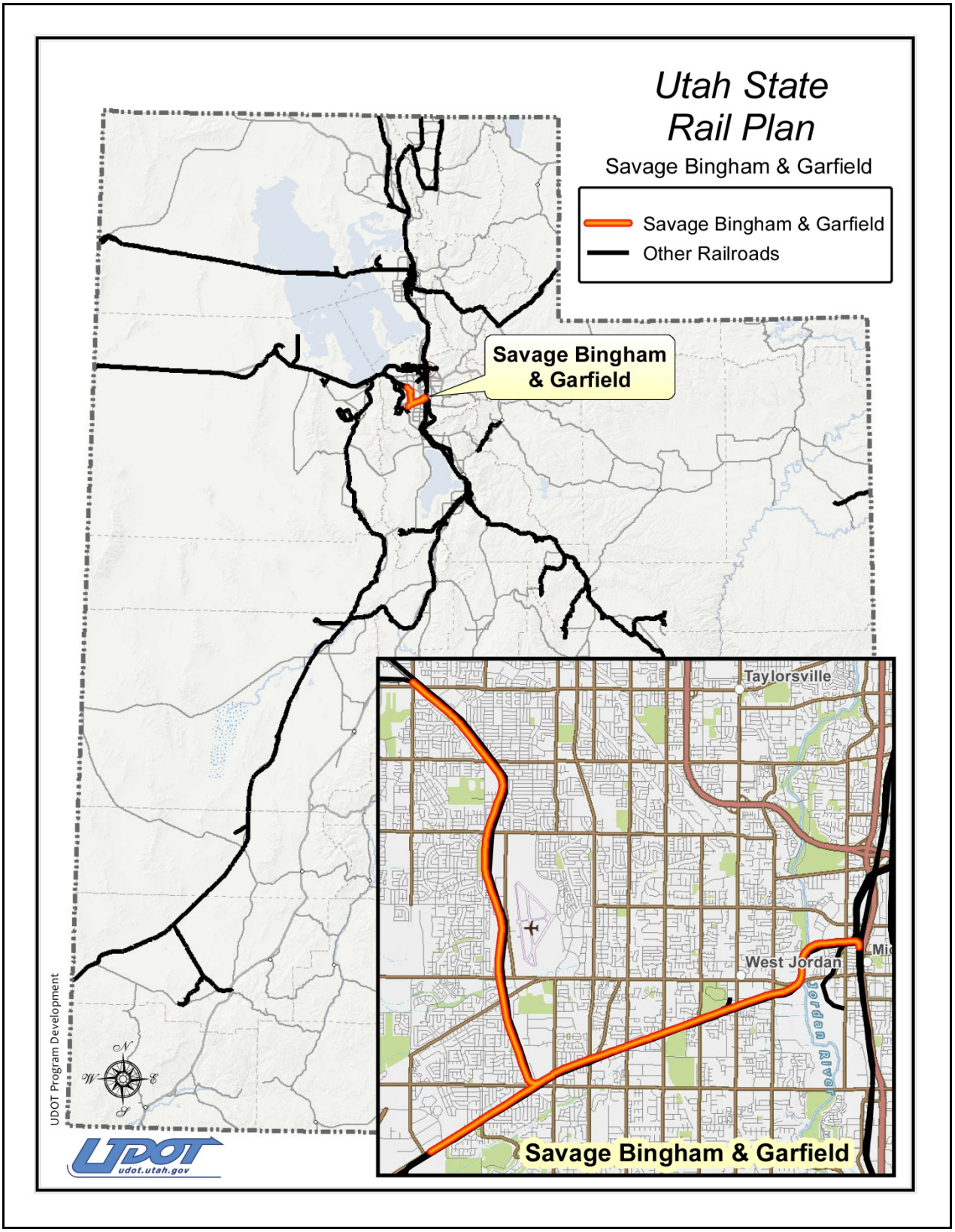
Federal Railroad Administration Abbreviation:	SBG
Surface Transportation Board Classification:	Switching and Terminal Railroad
Category:	Freight
National Rail System Connection:	Yes
Number of Rail Miles Operated in Utah:	21
Number of Utah Employees:	Not Available
Total Utah Employee Earnings:	Not Available
Taxes Paid to Utah:	Not Available
Signal Type:	See UTA Signal Types (None past UTA lines)

Sources: Federal Railroad Administration, 2013. Association of American Railroads, 2012.

The Savage, Bingham & Garfield Railroad (SBG) commenced freight operations in 2007 over portions of the UP's former D&RGW Bingham and Garfield branches on the southwest side of the Salt Lake Valley. Railroad operations are centered at the former D&RGW Midvale Yard, which is today primarily a BNSF/Utah Railway facility. A portion of SBG's operations are limited to between the hours of 12:00 a.m. and 5:00 a.m. due to UTA's light rail operations. Savage, Bingham & Garfield handles interstate freight to and from both UP and BNSF Railway.

Photo by Vern Keeslar

Figure 24: Savage, Bingham and Garfield Railroad



2.1.11 Union Pacific Railroad

Table 12: Union Pacific Railroad Information

Federal Railroad Administration Abbreviation:	UP
Surface Transportation Board Classification:	Class I Railroad
Category:	Freight
National Rail System Connection:	Yes
Number of Rail Miles Operated in Utah:	1,249
Number of Utah Employees:	1,400
Total Utah Employee Earnings:	$121,800,000
Taxes Paid to Utah:	Not Available
Signal Type:	CTC, ABS, TWC, YL, CTC/ACS, ABS/ACS

Sources: Federal Railroad Administration, 2013. Association of American Railroads, 2012.

The Union Pacific (UP) Railroad is the dominate rail carrier in Utah, owning and operating 1,249 of the 1,343 freight railroad miles in the state. The UP first arrived in Utah while building the eastern segment of America's first transcontinental railroad, the completion of which was marked by the driving of the famous Golden Spike at Promontory on May 10, 1869. Post-deregulation (1980) mergers allowed UP to take control of all Class I rail mileage in Utah by 1996. Today, UP is America's largest railroad with 31,900 miles of track in 23 states, and Utah serves as a vital crossroads for six UP routes. UP employs nearly 1,400 in Utah, and has made capital investments in the state between 2007 and 2012 of more than $290 million.

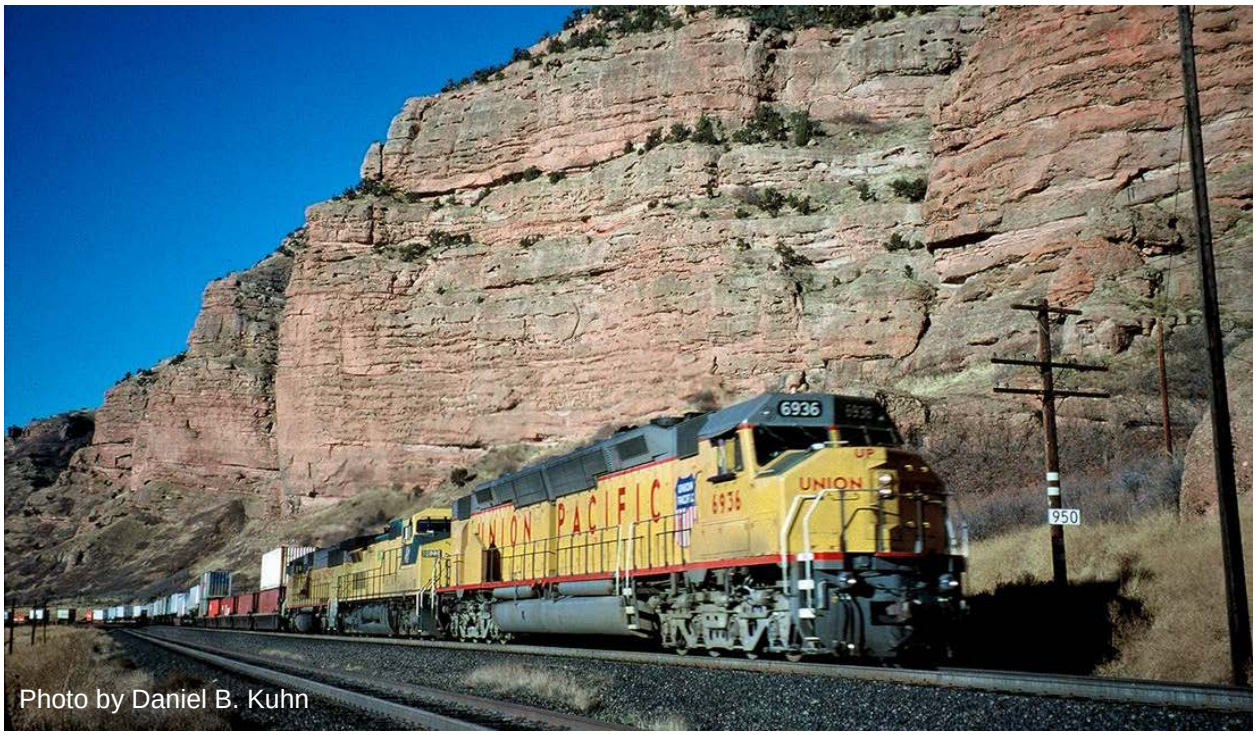
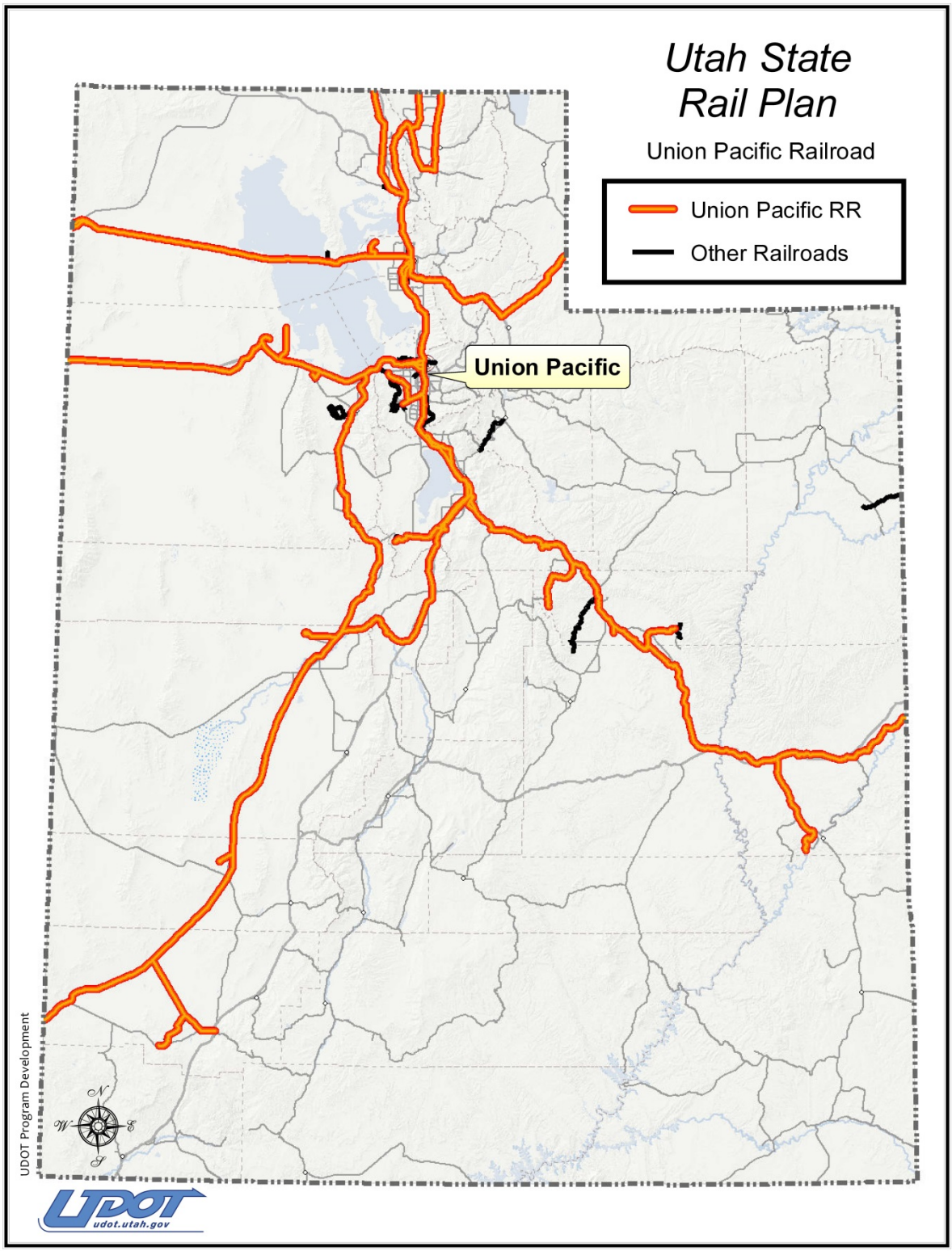


Photo by Daniel B. Kuhn

Figure 25: Union Pacific Railroad



2.1.12 Utah Central Railway

Table 13: Utah Central Railway Information

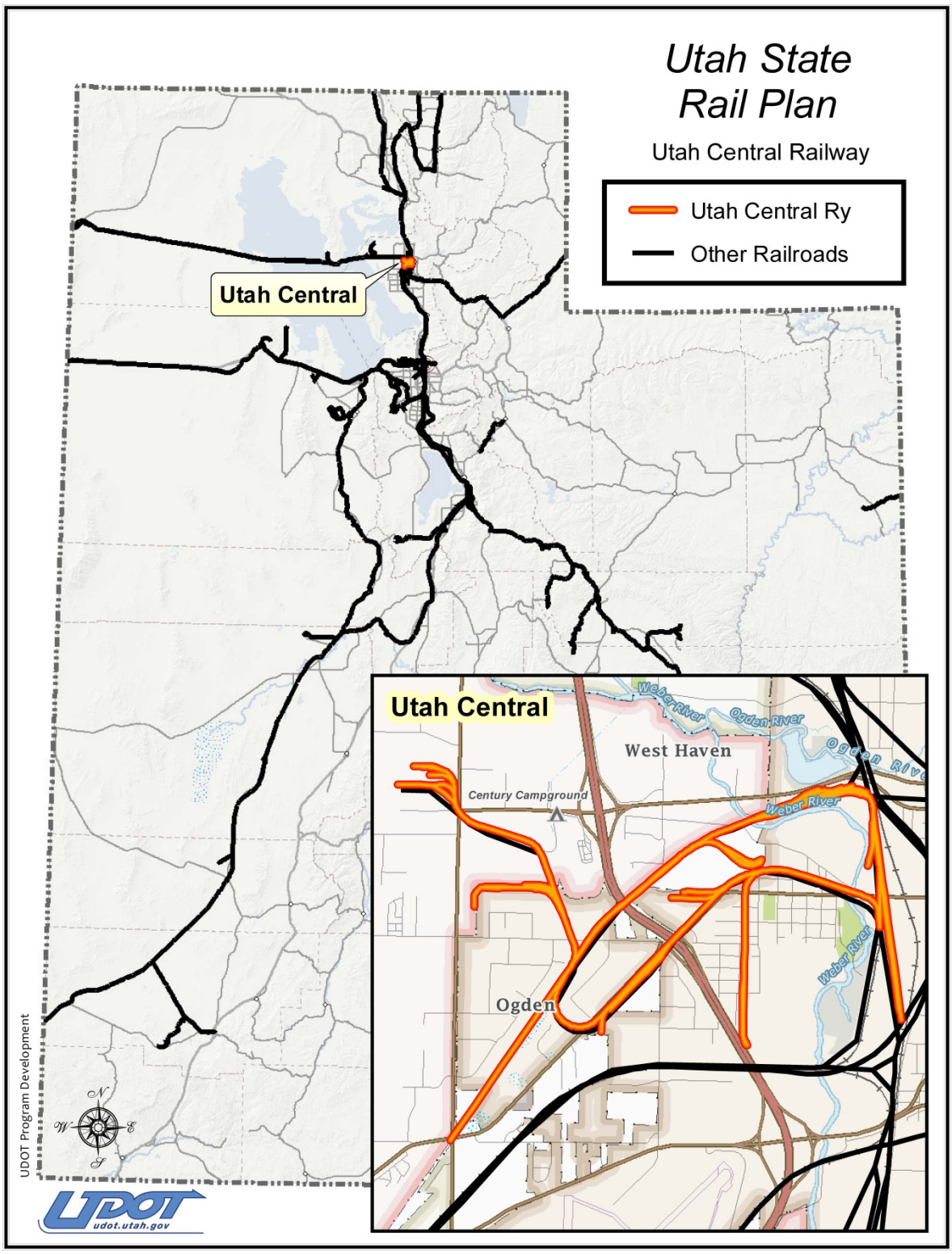
Federal Railroad Administration Abbreviation:	UCRY
Surface Transportation Board Classification:	Class III Railroad
Category:	Freight
National Rail System Connection:	Yes
Number of Rail Miles Operated in Utah:	34
Number of Utah Employees:	Not Available
Total Utah Employee Earnings:	Not Available
Taxes Paid to Utah:	Not Available
Signal Type:	Not Available

Sources: Federal Railroad Administration, 2013. Association of American Railroads, 2012.

The Utah Central Railway (UCRY) began operations in 1992 as a short line operating over former SP/D&RGW and UP industrial and branch line trackage on the northwest side of Ogden. The Utah Central also handles contract switching operations at Business Depot Ogden which is the former U.S. Army Defense Depot in Ogden. Utah Central connects with both UP and BNSF, through its agent Utah Railway, at the former D&RGW Yard in Ogden. In 2008 the Utah Central was sold to short line operator Patriot Rail Corporation of Florida. Today the Utah Central serves 34 miles of track in the growing industrial area in and around Ogden.

Photo by Kent Brown

Figure 26: Utah Central Railway



2.1.13 Utah Railway

Table 14: Utah Railway Information

Federal Railroad Administration Abbreviation:	UTAH
Surface Transportation Board Classification:	Class III Railroad
Category:	Freight
National Rail System Connection:	Yes
Number of Rail Miles Operated in Utah:	396
Number of Utah Employees:	69
Total Utah Employee Earnings:	Not Available
Taxes Paid to Utah:	Not Available
Signal Type:	DTC and CTC

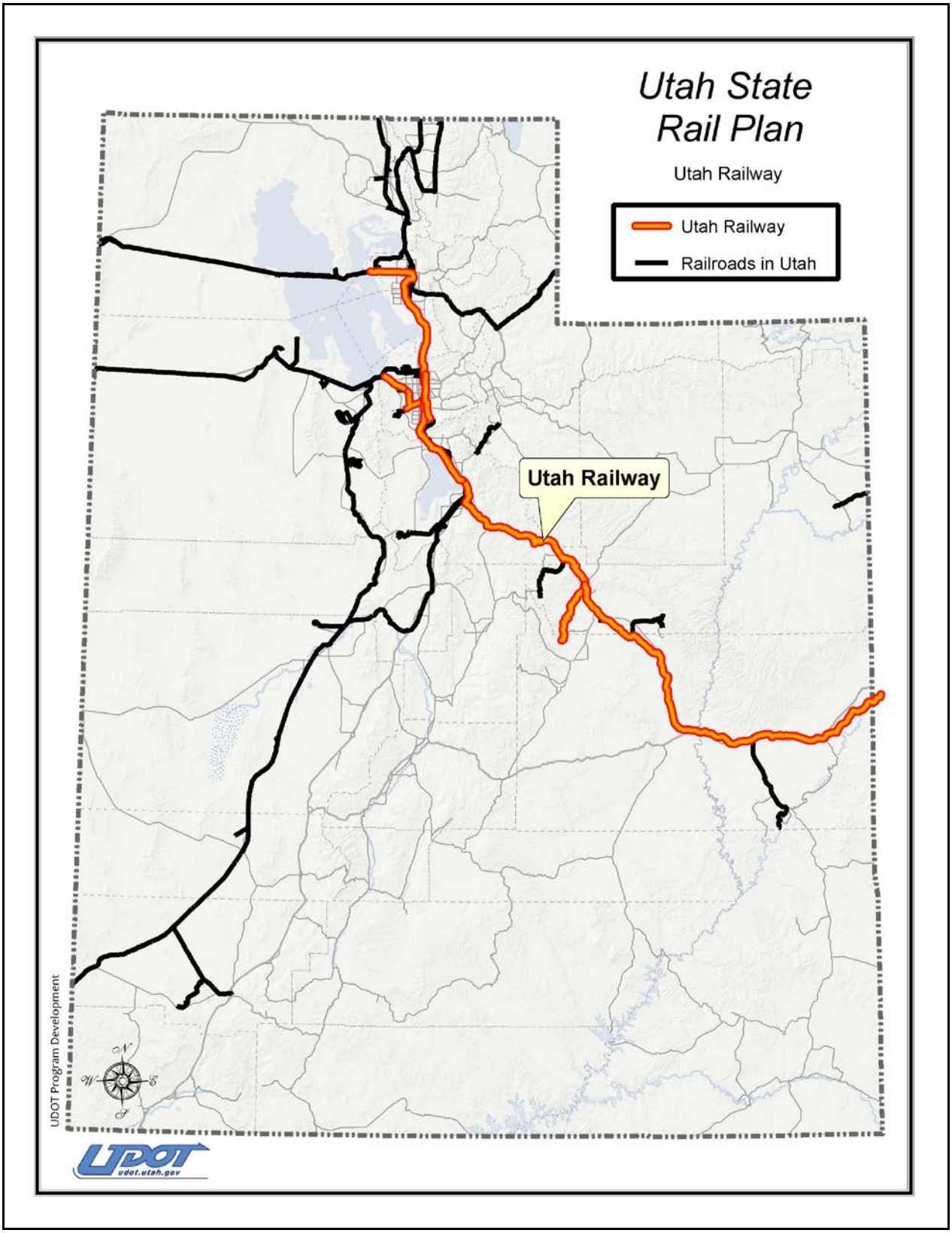
Sources: Federal Railroad Administration, 2013. Association of American Railroads, 2012.

The Utah Railway (UTAH) is a Genesee & Wyoming short line railroad that interchanges with BNSF and UP. It was originally built in 1912 to access coal mines in Carbon County near Price, Utah. The Utah Railway today operates over an extensive network of trackage rights assigned to BNSF Railway that resulted from the UP/SP merger in 1996. As a result of the UP/SP merger, these rights were extended east to the Grand Junction, Colorado interchange with BNSF Railway and to provide rail freight competition.

Utah Railway serves customers throughout the Provo, Salt Lake City to Ogden Wasatch Front population corridor, including the Little Mountain and Weber areas near Ogden, as an agent of BNSF Railway. The Utah Railway's operations range from local freights serving Wasatch Front oil refineries and other industries to hauling unit trains of coal over the state's highest railroad pass, 7,440 feet Soldier Summit.

Photo by Vern Keeslar

Figure 27: Utah Railway



2.1.14 Utah Transit Authority *FrontRunner*

Table 15: Utah Transit Authority *FrontRunner* Information

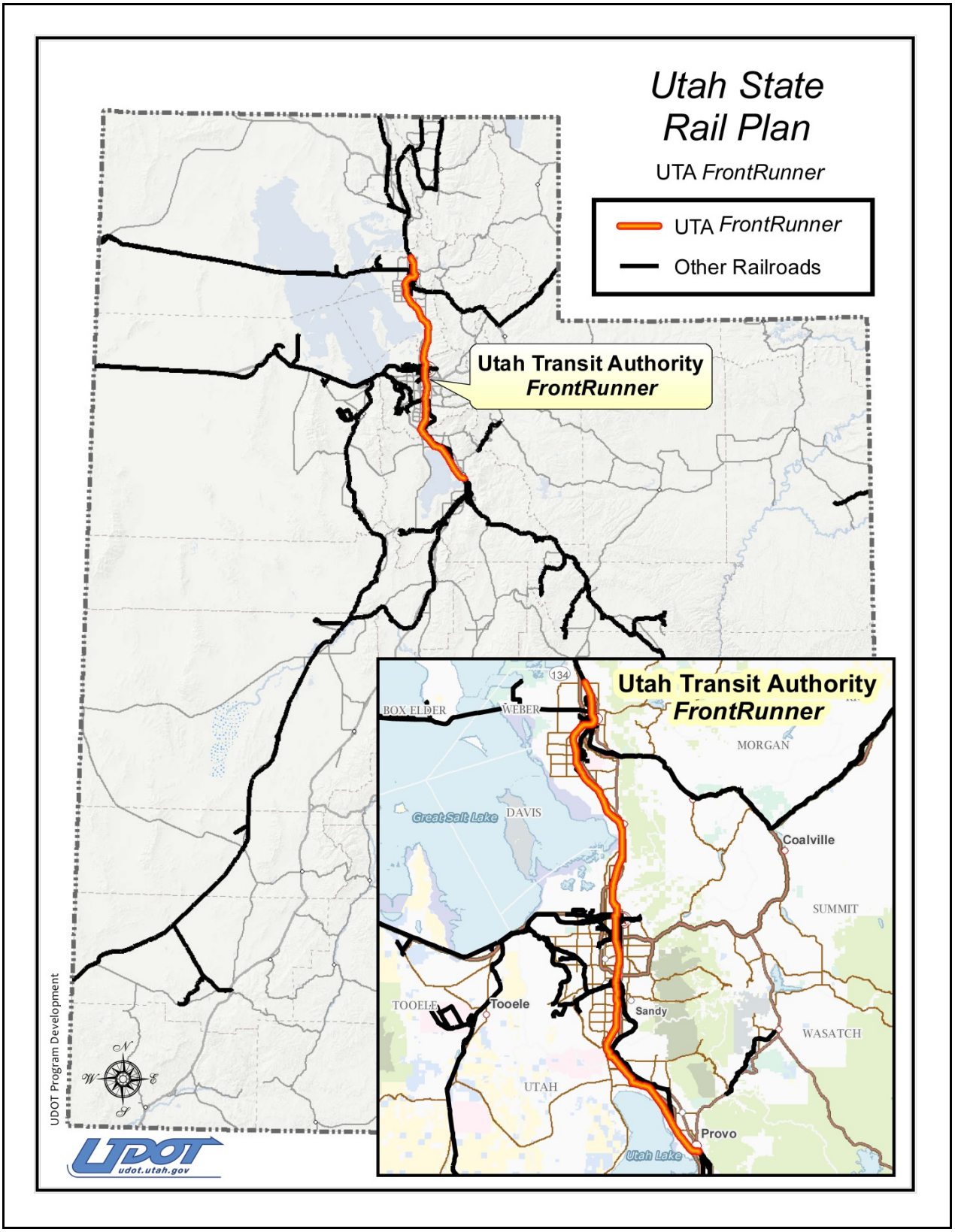
Federal Railroad Administration Abbreviation:	UFRC
Surface Transportation Board Classification:	Local Railroad
Category:	Passenger
National Rail System Connection:	Yes
Number of Rail Miles Operated in Utah:	88
Number of Utah Employees:	523
Total Utah Employee Earnings:	$35,232,654
Utah Ridership:	3,437,925 (2013)
Signal Type:	ABS, ATC, PTC

Sources: Federal Railroad Administration, 2013.

Utah Transit Authority's *FrontRunner* commuter rail service commenced operations in 2008 with over 38 miles of UTA-owned commuter train-exclusive track linking Salt Lake City with Ogden to the north, as well as six miles of track from Ogden further north to Pleasant View that is shared with UP. In 2012 UTA began *FrontRunner* service from Salt Lake City south to Provo over an additional 44 miles of UTA-owned commuter only line. UTA was formed in 1970 as the Wasatch Front population corridor's transit bus provider, expanding into light rail in 1999 and commuter rail in 2008. UTA's service area encompasses more than 1,400 square miles and 75 communities in a six county area that includes 80 percent of Utah's residents.

Photo by Vern Keeslar

Figure 28: Utah Transit Authority *FrontRunner*



2.2 Major freight and passenger terminals and stations that serve as intermodal connections, including seaports and airports.

The following tables list the freight railroad terminals and yards in Utah. Only major freight railroad terminals and yards are listed.

2.2.1 Freight Railroad Terminals and Yards

The railroad industry applies the term intermodal to containers and trailers on flat car transportation. Only one railroad has intermodal connection, Utah is served by UP's SLCIT. Only UP provides rail intermodal freight service (truck trailers and containers) in Utah. SLCIT is located adjacent to Salt Lake City's rapidly growing west side industrial and distribution warehousing area and is within close proximity of Interstate Highway 80, I-215, and the S. R. 201 freeways, all of which are primary freight network highways in Utah, as well as the Salt Lake City International Airport.

Table 16: Union Pacific Freight Rail Yards and Terminals

Name	Location	Information
1. Brigham City Yard	Brigham City	Small local yard handling manifest traffic from local shippers as well as trains serving the Malad Branch into Idaho
2. Freeport Center Yard	Clearfield	Manifest traffic to local businesses and warehouses
3. Helper Yard	Helper	Limited manifest freight and through unit coal train traffic
4. Lynndyl Yard	Lynndyl	Limited local manifest freight, unit grain trains, and through unit coal trains
5. Milford Yard	Milford	Limited local manifest traffic from locals to Lynndyl and on the Cedar City Branch, through unit trains of coal and grain, unit iron ore trains, crew change point for all through trains
6. North Yard	Salt Lake City	Limited manifest freight, mainline crew change location
7. Ogden Main Yard	Ogden	Limited manifest freight, mainline crew change point for trains en route to/from northern California and the Midwest
8. Provo Yard	Provo	Manifest freight, through unit coal train traffic
9. Riverdale Yard	Riverdale	Limited manifest freight, intermodal through freight block swaps
10. Roper Yard	South Salt Lake City	Manifest freight and new vehicle shipments, interchange with Utah Railway and Savage, Bingham & Garfield
11. Salt Lake City Intermodal Terminal (SLCIT)	Salt Lake City	Intermodal freight
12. Smelter Yard	Magna	Mainline block swaps, local copper smelter traffic
13. Wendover Yard	Wendover	Limited local manifest freight, unit trains of copper concentrate

Figure 29: Union Pacific Freight Rail Yards and Terminals

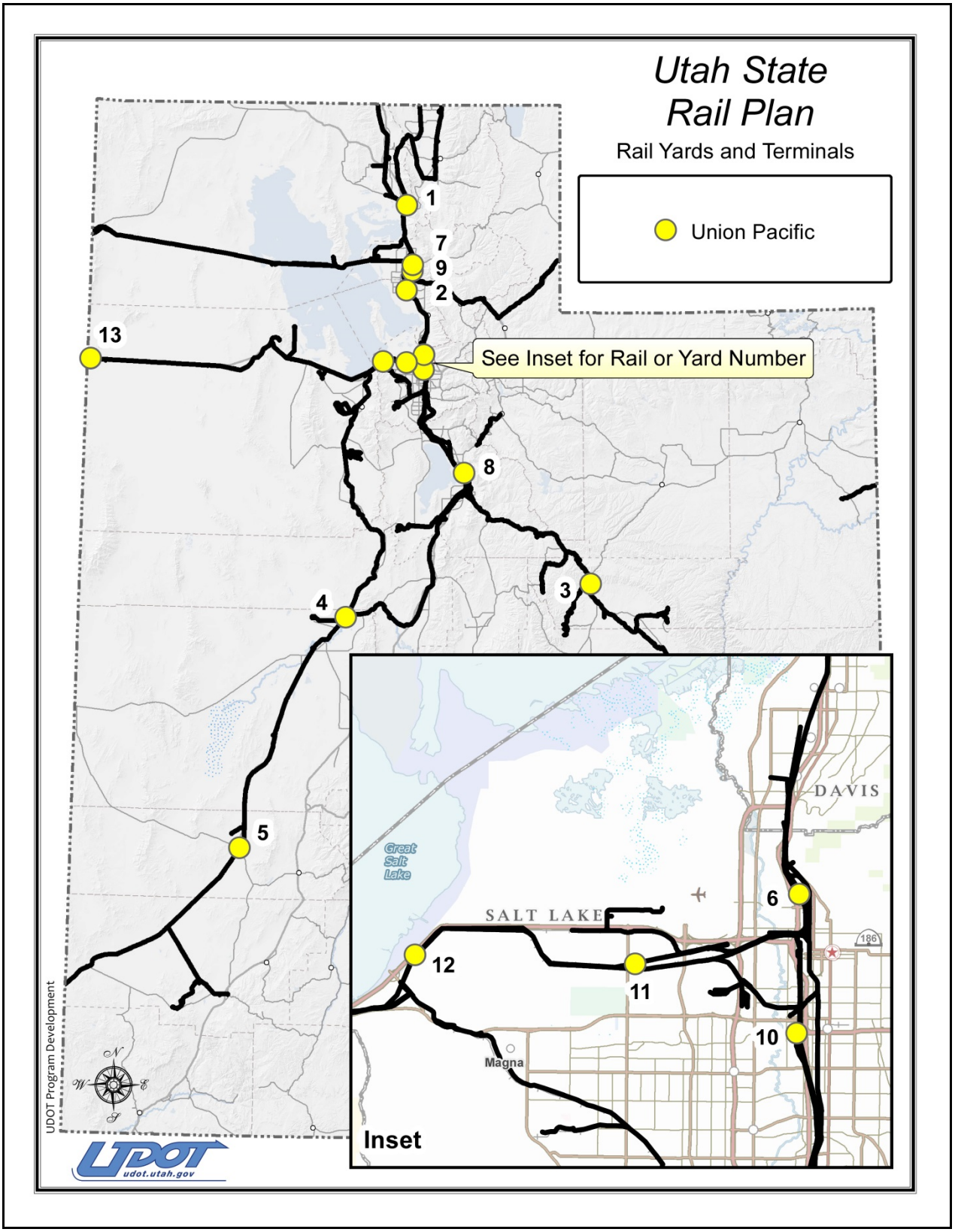


Table 17: BNSF Railway Freight Rail Yards and Terminals

Name	Location	Information
1. Midvale Yard	Midvale	Manifest freight, some interchange with Utah Railway
2. Ogden Yard	Ogden	Manifest freight, interchanges with Utah Central Railway
3. Provo Yard	Provo	Manifest freight, interchanges with Utah Railway

Table 18: Utah Railway Freight Rail Yards and Terminals

Name	Location	Information
1. Helper Yard	Helper (Martin)	Unit coal trains, BNSF trackage rights manifest trains
2. Provo Yard	Provo	Unit coal trains, local manifest trains, BNSF manifest trains

Figure 30: BNSF Railway Freight Rail Yards and Terminals

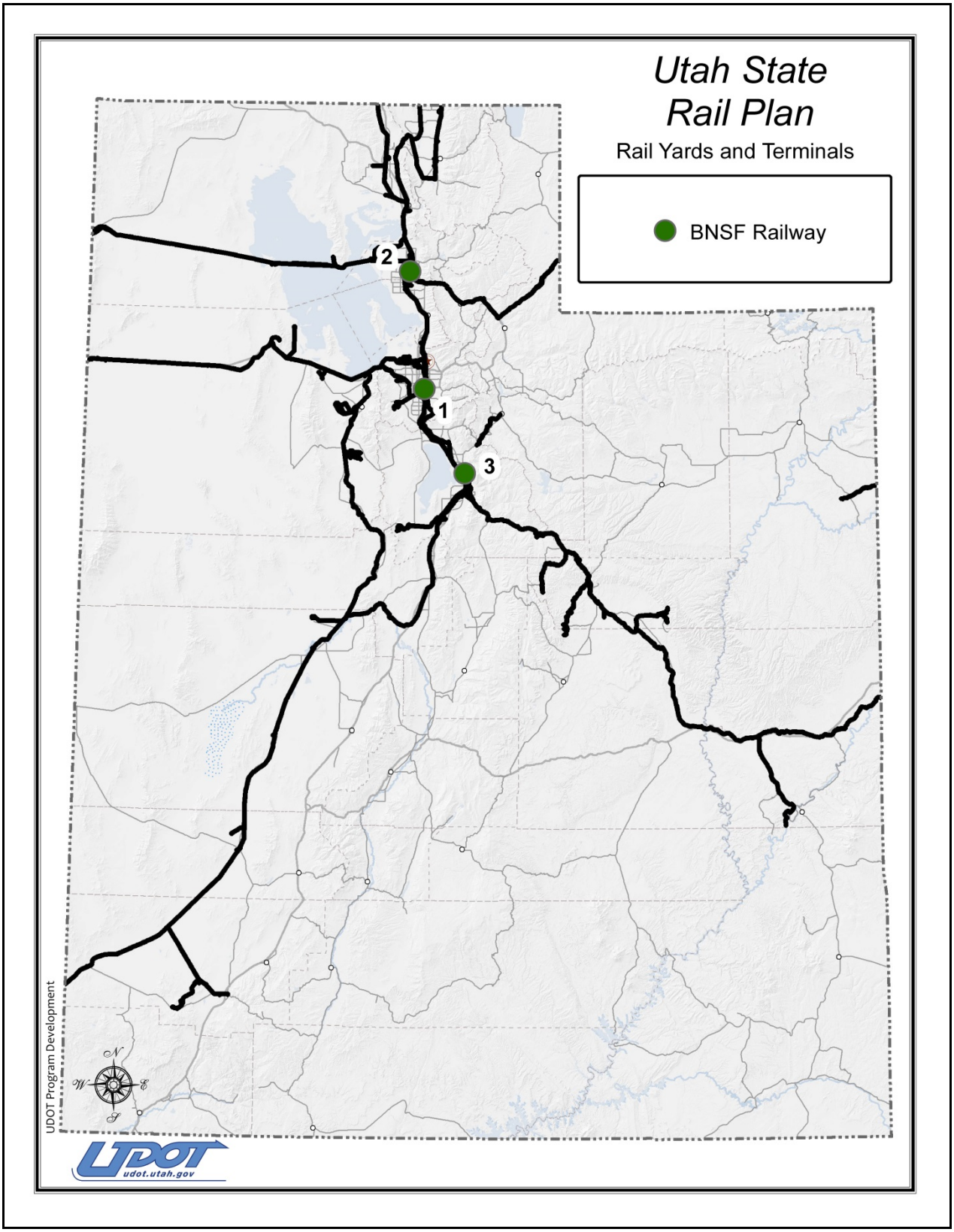
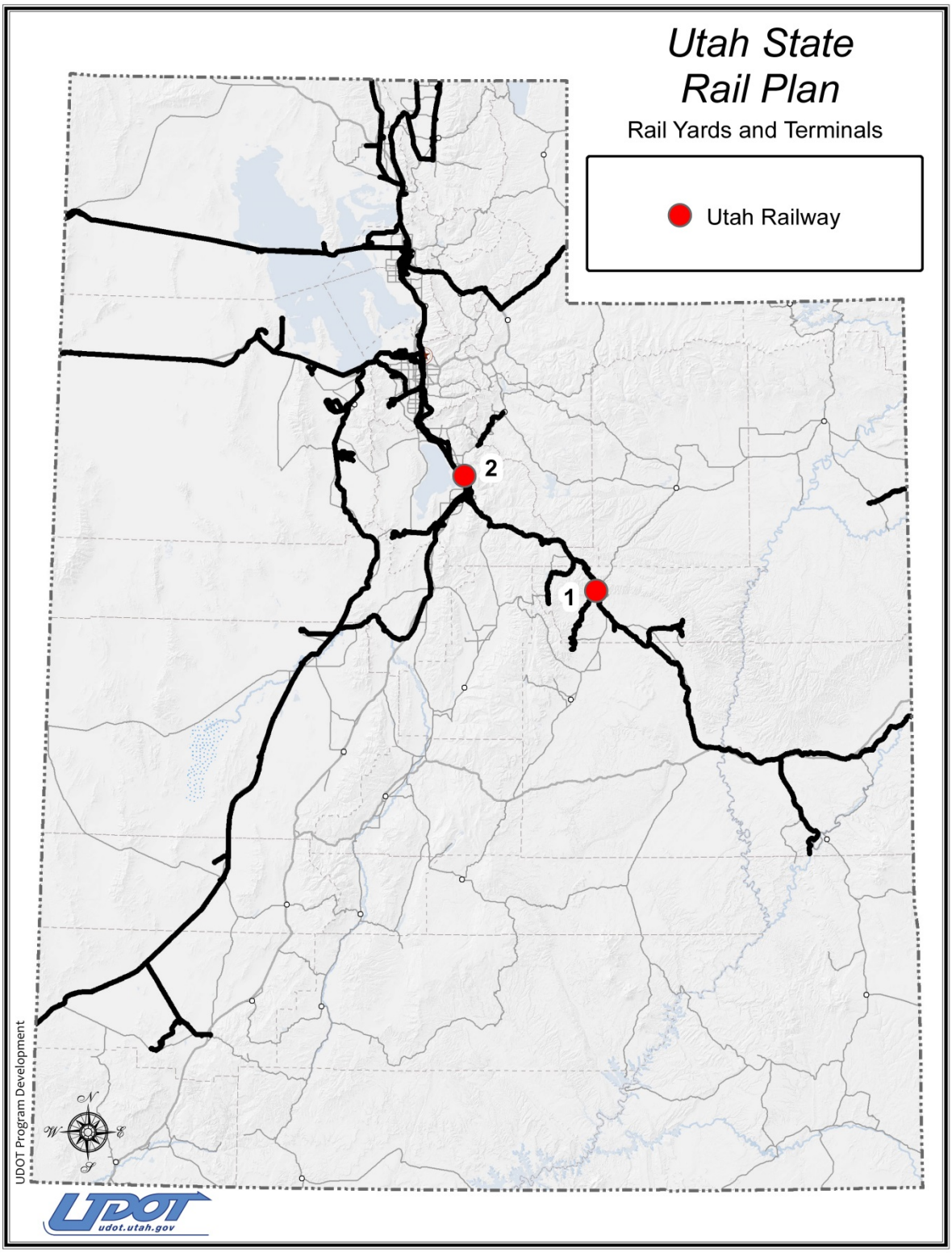


Figure 31: Utah Railway Freight Rail Yards and Terminals



2.2.2 Other Freight Multi-modal Connections

There are five oil refineries located between Salt Lake City and suburban Woods Cross, located ten miles to the north. Also in this same energy corridor are the Pioneer Pipeline Terminal and the Chevron Pipeline Terminal for refined petroleum products arriving from out-of-state. All of these facilities provide a form of multi-modal connection inasmuch as they combine rail freight service with pipelines and trucks.

A facility for new automobiles is maintained by the UP at their Roper Freight Yard, located three miles south of downtown Salt Lake City adjacent to I-15, I-80, and the S.R. 201 freeways. This facility handles all shipments of new automobiles and vehicles by rail for northern Utah. Southwestern Utah, primarily the communities of St. George and Cedar City, receives some of their new vehicles and intermodal freight shipments via a modest UP facility located in North Las Vegas.

2.2.3 Passenger Railroad Terminals and Stations

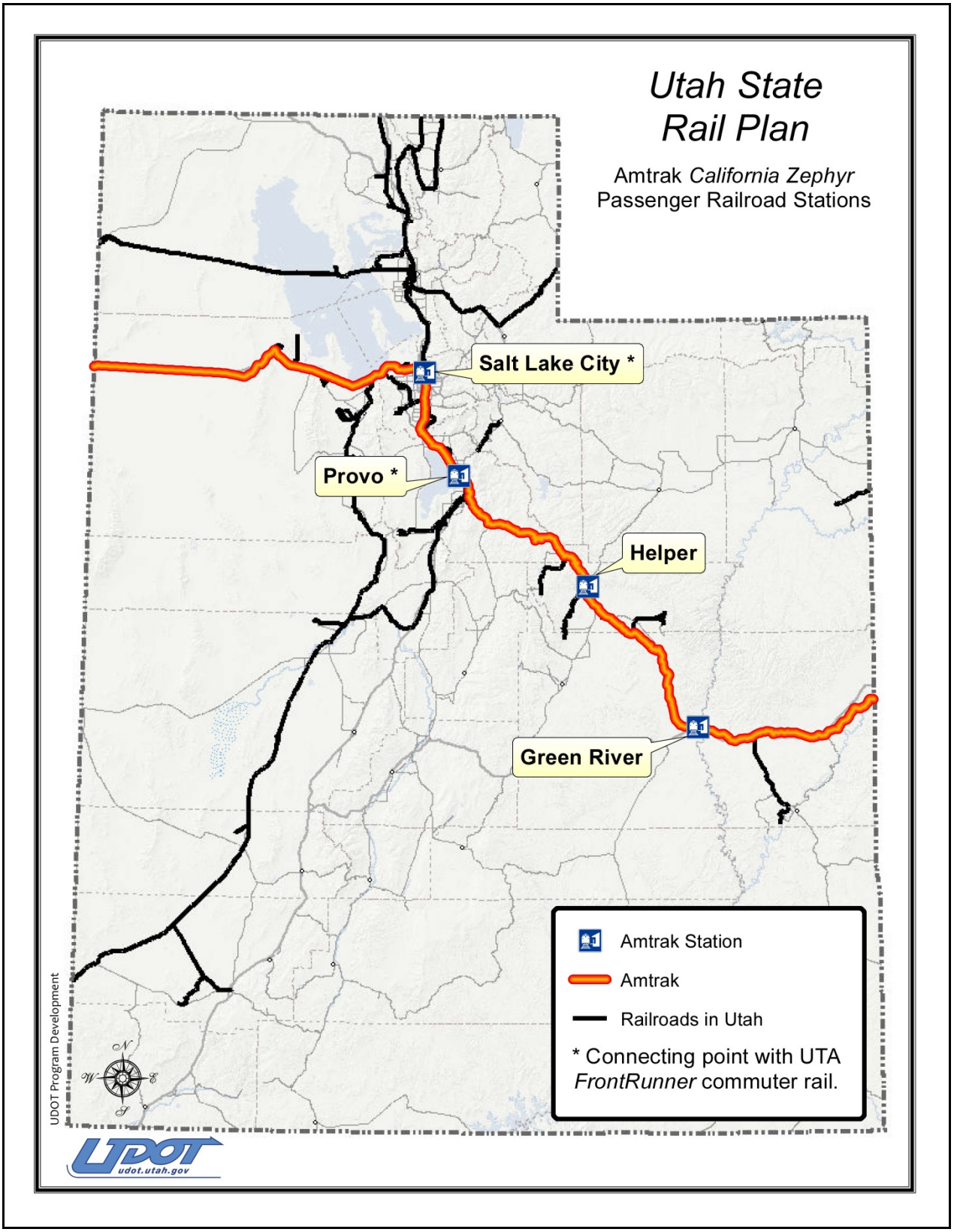
Amtrak's *California Zephyr* is the only intercity passenger train remaining in Utah since the Salt Lake City/Ogden to the Pacific Northwest *Pioneer* and the Salt Lake City to Southern California *Desert Wind* were discontinued in May of 1997. Amtrak serves the communities of Green River, Helper, Provo, and Salt Lake City with passenger stops, though only Salt Lake City has a manned station selling tickets and providing checked baggage services. The other three Amtrak stops in Utah are unmanned stations with minimal shelter facilities.

Amtrak's Salt Lake City station is a part of the UTA Salt Lake Central Station complex which includes intercity bus service by Greyhound, as well as city buses, *TRAX* light rail and *FrontRunner* commuter rail transit services provided by UTA. A limited multi-modal arrangement is found adjacent to Amtrak's shelter station in Provo where UTA city buses and *FrontRunner* commuter trains use a facility located less than one block from the Amtrak station. UTA *TRAX* and *FrontRunner* stops along those respective systems include connections to UTA's local city bus system. The table below lists Amtrak's station locations in Utah along with their multi-modal connectivity.

Table 19: Amtrak's *California Zephyr* Passenger Railroad Stations

Name	Location	Information
Green River	Green River	No multi-modal connection
Helper	Helper	No multi-modal connection
Provo	Provo	Multi-modal connections to UTA bus and *FrontRunner* commuter rail
Salt Lake City	Salt Lake City	Multi-modal connections to UTA bus, *FrontRunner* commuter rail, *TRAX* light rail, and Greyhound bus

Figure 32: Amtrak's *California Zephyr* Passenger Railroad Stations

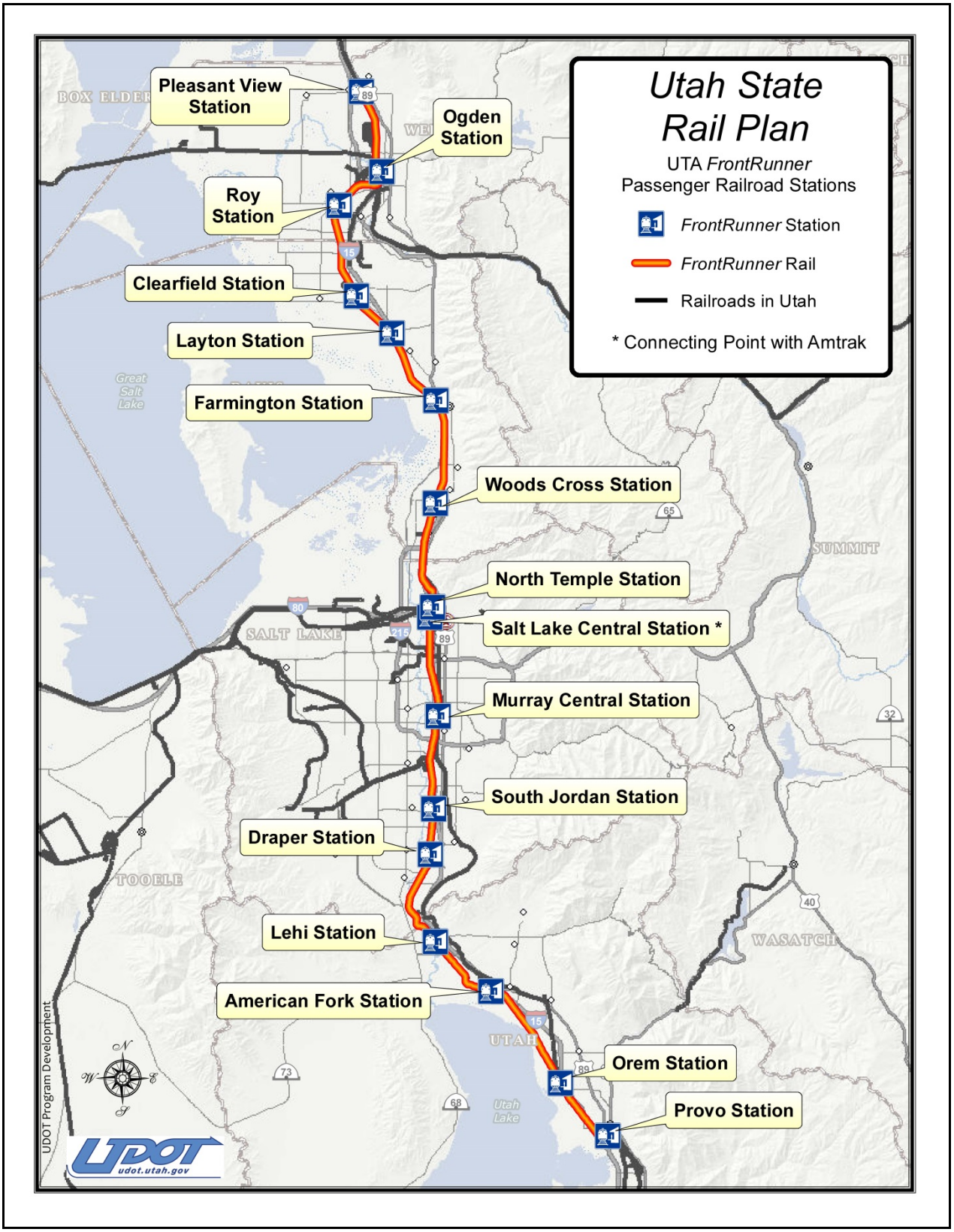


UTA's *FrontRunner* service from Pleasant View to Provo has 16 stations in 15 cities along the Wasatch Front. The table below lists the stations and their multi-modal connectivity. The North Temple Station connects with the Airport *TRAX* line.

Table 20: Utah Transit Authority's *FrontRunner* Passenger Railroad Stations

Name	Information
Pleasant View Station	Connection to UTA bus with 297 parking spaces
Ogden Intermodal Center	Connection to UTA bus with 476 parking spaces
Roy Station	Connection to UTA bus with 502 parking spaces
Clearfield Station	Connection to UTA bus with 561 parking spaces
Layton Station	Connection to UTA bus with 383 parking spaces
Farmington Station	Connection to UTA bus with 874 parking spaces
Woods Cross Station	Connection to UTA bus with 235 parking spaces
North Temple Station	Connection to UTA bus and *TRAX* light rail (no parking spaces)
Salt Lake Central Station	Connection to UTA bus, *TRAX* light rail, and Amtrak intercity rail passenger service with 36 parking spaces
Murray Central Station	Connection to UTA bus and *TRAX* light rail with 345 parking spaces
South Jordan Station	Connection to UTA bus with 577 parking spaces
Draper Station	Connection to UTA bus with 600 parking spaces
Lehi Station	Connection to UTA bus with 739 parking spaces
American Fork Station	Connection to UTA bus with 553 parking spaces
Orem Station	Connection to UTA bus with 498 parking spaces
Provo Station	Connection to UTA bus with 811 parking spaces

Figure 33: Utah Transit Authority's *FrontRunner* Passenger Railroad Stations



2.3 Objectives for the passenger rail services operating within the state, including minimum service levels by route, including service frequency, capacity, and projected ridership.

2.3.1 Intercity Passenger Rail

Intercity passenger rail is provided by Amtrak's *California Zephyr*, which passes through Utah twice daily en-route west to the San Francisco Bay Area and east to Chicago. Amtrak's operating objectives include striving to deliver high quality, safe, on-time rail passenger service that exceeds customer expectations. The table below shows the four Utah station stops and departure times for both trains 5 (westbound) and 6 (eastbound).

Table 21: Amtrak's *California Zephyr* Utah Station Departure Times

Station	Train #5 (westbound)	Train #6 (eastbound)
Green River	5:58 p.m.	7:59 a.m.
Helper	7:20 p.m.	6:37 a.m.
Provo	9:26 p.m.	4:35 a.m.
Salt Lake City	11:30 p.m.	3:30 a.m.

California Zephyr Timetable, Effective Date June 9, 2014, Amtrak.

The table below reveals ridership by the four Utah station stops for the *California Zephyr* for FY 2013. The ridership below is an increase of 4.6 percent above FY 2012.

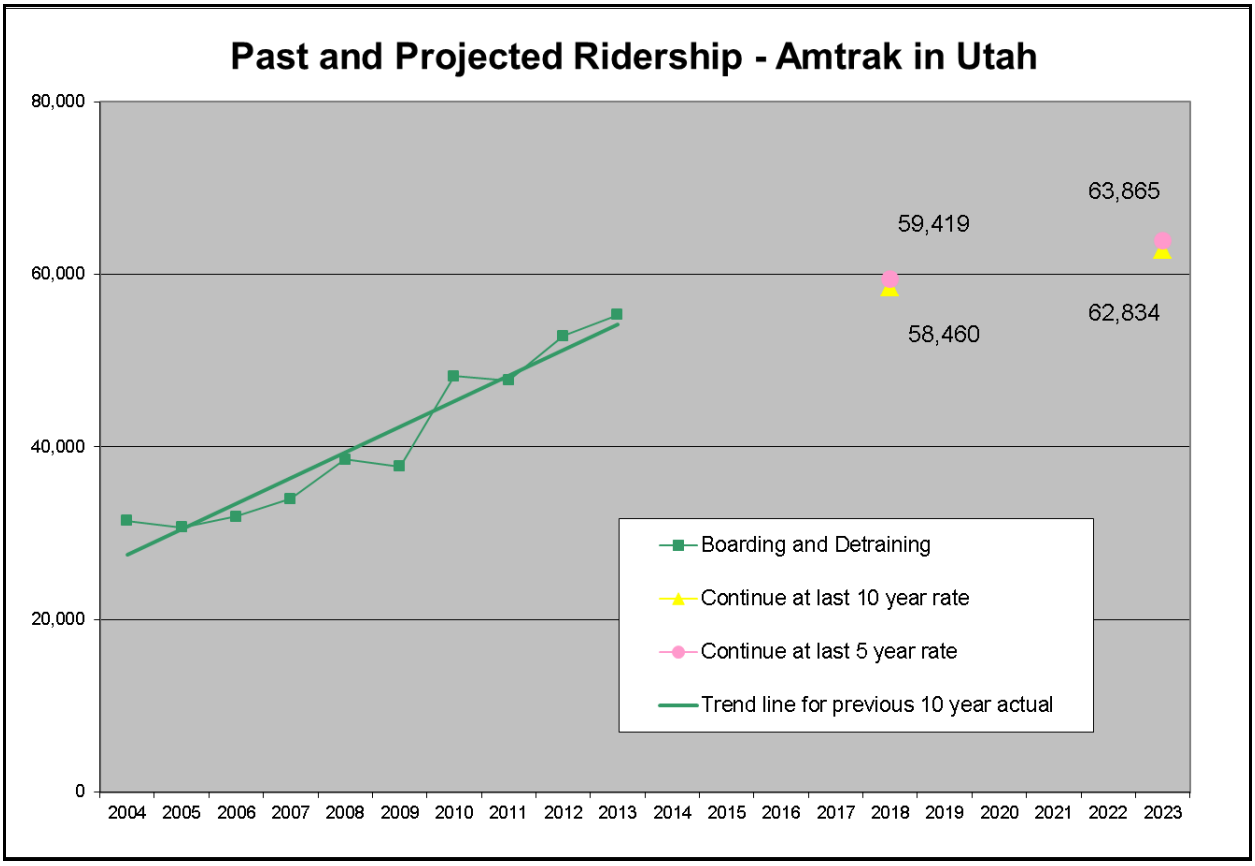
Table 22: Amtrak's *California Zephyr* Utah Ridership

Station	Boardings and Alightings
Green River	2,873
Helper	2,245
Provo	6,262
Salt Lake City	43,903
Total	**55,283**

Source: Amtrak Fact Sheet, Fiscal Year 2013 state of Utah, 2013.

The figure below contains ridership for the past ten years and the projected ridership for the next ten years. Based upon past growth, ridership on Amtrak in Utah is projected to increase over the next decade.

Figure 34: Amtrak's *California Zephyr* Utah Past and Projected Ridership



Source: Amtrak Fact Sheet, Fiscal Year 2004-2012 state of Utah, 2013

2.4 A performance evaluation of intercity passenger services operating in the state (both interstate and intrastate services) according to metrics such as those established under PRIIA Section 207: FRA Metrics and Standards for Intercity Passenger Service. Identify possible improvements in existing services and describe strategies to achieve those improvements).

2.4.1 Amtrak Metrics and Standards

In September 2010, Amtrak completed a performance improvement plan for the *California Zephyr*. As required by PRIIA, Section 207 it lays the groundwork for a series of comprehensive new financial, operating, customer service, and other service quality metrics with aggressive standards that Amtrak must achieve by FY 2014 – it also states that Amtrak must report quarterly to the FRA on achievements. The metrics include financial/operating, on-time performance (OTP) and train delays, and customer satisfaction.

The table below summarizes the key financial and operating metrics for the *California Zephyr* for the last 23 months that data was available.

Table 23: Amtrak's *California Zephyr* Financial and Operating Metrics

Metric	Report Period July 2011 – June 2013
Short-term avoidable operating cost recovery	Not available
Percentage of fully allocated operating cost recovery	42%
Long-term avoidable operating loss per passenger-mile	Not available
Adjusted loss per passenger-mile	$0.09
Passenger-miles per train-mile	173

Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations, FRA, USDOT, September 2013.

The table below summarizes the on-time performance and train delays metrics for the *California Zephyr*. The host delay refers to the railroad tracks' owner causing delays. The two main railroads that the *California Zephyr* operates over are the BNSF and the UP. In Utah, the *California Zephyr* only operates over UP owned infrastructure. The delays that Amtrak experiences on UP owned track in Utah are listed as "freight train interference," which means the delays are due to freight train traffic. The delays that are attributed to Amtrak are "servicing" and "crew/system." The servicing refers to switching and servicing the train delays while the crew/system refers to crew lateness or lone-engineer delays. Reliability is important with any transportation mode and on-time performance certainly needs to improve with the *California Zephyr*. Amtrak needs to develop strategies to improve on-time performance.

Table 24: Amtrak's *California Zephyr* On-time Performance and Train Delay Metrics

Metric	Report Period July 2011 – June 2013
Change in "effective speed"	3.4 mph
Endpoint on-time performance	58.8%
All stations on-time performance	49.9%
Amtrak delays (minutes of delay per 10,000 train-miles)	296 minutes
Host delays (minutes of delay per 10,000 train-miles)	889 minutes

Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations, FRA, USDOT, September 2013.

The table below references other service quality metrics that are mostly measured by customer surveys. Amtrak does keep track of customer complaints, which generally coincide with the metrics below. The metrics are based upon 100 points for the customer service indicator score and Amtrak's goal is to achieve the score of 80 in all categories with the customer service indicator score. With old and worn equipment, it will be difficult for Amtrak to obtain an acceptable score of 80 with on-board cleanliness. New equipment for long-distance passenger trains is needed.

On November 2, 1999 an agreement was executed between Salt Lake City and Amtrak to relocate Amtrak's passenger service from the Rio Grande Station to a new intermodal facility. Amtrak agreed to move its operations to a temporary station, located on the intermodal site, pending completion of the new facility. Additionally, Amtrak's agreement to the severance of existing rail service to the Rio Grande station was conditional upon the agreement by Salt Lake City to make arrangements for passenger rail service at the new passenger intermodal facility.

On March 12, 2007, Salt Lake City assigned and delegated all of the rights and obligations of the November 2, 1999 agreement between Salt Lake City and Amtrak, to UTA and UTA accepted all such rights and obligations, which included the design and construction of a new intermodal facility to house Amtrak.

In June of 2011, UTA informed Amtrak that it has entered into the final design of a permanent Amtrak facility at the Salt Lake City Intermodal Facility. To date, no such facility has been built and Amtrak remains located in the temporary facility, which is a modular building. Amtrak looks forward to working with UTA and UDOT to ensure that Salt Lake City has the functional intermodal facility that Amtrak says it needs to operate its intercity passenger rail services.

Table 25: Amtrak's *California Zephyr* Other Service Quality Metrics

Metric	Reporting Period 3rd Quarter FY 2013
Overall service (customer service indicator (CSI) score)	86
Amtrak personnel (CSI score)	84
Information given (CSI score)	75
On-board comfort (CSI score)	80
On-board cleanliness (CSI score)	61
On-board food service (CSI score)	72
Overall station experience	Not available
Overall sleeping car experience	Not available
Equipment-caused service interruptions (per 10,000 train-miles	19

Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations, FRA, USDOT, September 2013.

Amtrak also provides information regarding the *California Zephyr's* public benefit, which is measured in two ways. The table below shows the public benefit information.

Table 26: Amtrak's *California Zephyr* Public Benefit Metrics

Metric	Reporting Period FY 2012
Connectivity (Percent of passengers traveling on long distance routes connecting to or from other train routes)	19.6%
Availability of other modes (Percent of passengers, system-wide, traveling to or from underserved communities)	4.8%

Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations, FRA, US DOT, September 2013.

2.5 A statement on public financing for rail projects and service in the state, including a list of current and prospective public capital and operating funding resources, public subsidies, state taxation, and other financial policies relating to rail operations and infrastructure development. This section should also address existing challenges to state investment or involvement in rail transportation as posed by the state's constitution, laws, or regulations, or by implementation of current or proposed federal regulations.

2.5.1 Public Financing

Currently, Utah does not have a public financing mechanism for private rail investment for capital and operating funds from public resources such as taxes and subsidies. The Utah Constitution states in Article XIII, Section 5 Use and amount of taxes and expenditures, number six, as discussed earlier in this chapter.

Having no state funded resources for capital and operating expenses for the private sector railroads has not been a problem in the recent past. However, as freight mobility continues to be an important part of Utah's economy, state funding for rail investment could potentially be a topic of discussion in the near future.

2.6 Ongoing programs and projects intended to improve the safety and security of rail transportation, including all major projects funded under section 130 of Title 23.

2.6.1 Safety

UDOT is the jurisdictional agency responsible for the oversight of safety at all public grade crossings in the state of Utah. This authority is codified in Title 54 of the Utah State Code and Administrative Rule R930-5. Railroads, on the other hand, have jurisdiction over and are responsible for the safety of private crossings. UDOT's crossing oversight goal is to improve the safety for all users and provide for the efficient operations of trains and vehicles and pedestrian access through crossings. As part of this effort, UDOT promotes the elimination of at-grade crossings, reviews all existing crossings in the state for safety deficiencies, evaluates and approves the location of

new crossings, reviews the type of improvements at crossings and determines the maintenance responsibilities for crossings.

Any change to a crossing, either from the railroad or road agency, will result in a diagnostic review which the UDOT Rail Safety group will conduct with the affected parties. On average in the past five years and particularly because of the capital development of the UTA rail transit projects, UDOT has conducted roughly 60 diagnostic reviews annually on crossings in Utah. Since 2008 there have been 288 official diagnostic reviews at crossings in the state.

2.6.1.1 Section 130 Funds

UDOT Rail Safety is also responsible for conducting a program to improve crossing safety through federal safety funds based upon identified needs or locations for safety upgrades. The set-aside Section 130 funds under the Highway Safety Improvement Program (HSIP) are used for a variety of railroad crossing safety improvement projects including, but not limited to:

1. Crossing elimination by new grade separations, relocation of highways, roadways, or railroads, and crossing closure without other construction.
2. Reconstruction of existing grade separations.
3. Crossing improvement by:
    a. Installation of standard signs and pavement markings.
    b. Installation of Stop signs.
    c. Installation or replacement of active traffic control devices, including track circuit improvements and interconnection with highway intersection traffic signals.
    d. Crossing illumination.
    e. Crossing surface improvements.
4. General site improvements.

2.6.1.2 Crossing Inventory Inspection

In the state of Utah, UDOT oversees and maintains the inventory and inspections of the state's public railroad crossings. Between the rails and one foot outside of the rails at grade crossings are maintained by the railroad company. The roadway leading up to the public crossing is maintained by the roadway authority. Private grade crossings on roadways privately owned, such as on a farm or in an industrial area, are intended for use by the owner or by the owner's licensees and invitees. A private crossing is not intended for public use and is not maintained by a public highway authority.

All crossings in the United States, public, private and pedestrian, both at-grade and grade separated (overpasses and underpasses) are required by Law (RSIA of 2008) to

have a DOT Crossing Inventory Number assigned and the number should be posted at the crossing.

Measurements, photos and condition status are maintained through field review each year and documented and compiled for the department use. Deficiency of signage, surface or other safety components are identified and the responsible party or agency is contacted yearly through a letter identifying current crossing items not in compliance.

In 2013, there are 697 public, at-grade crossings in the state of Utah. These crossings represent the number for a freight corridor but do not include crossings for some light rail crossings, particularly ones defined by traffic light control. A list of railroad crossings by type and county is listed in Table 27 Utah Public Railroad Crossings.

Table 27: Utah Public Railroad Crossings by Type

County	Pedestrian Crossings	Vehicle Crossings
Beaver	0	6
Box Elder	0	62
Cache	0	81
Carbon	0	26
Davis	0	26
Emery	0	2
Grand	0	12
Iron	0	23
Juab	1	31
Millard	0	26
Morgan	0	1
Salt Lake	3	179
Summit	0	1
Tooele	0	31
Utah	0	134
Wasatch	0	6
Weber	0	50
Total	**4**	**697**

Federal Railroad Administration, 2013

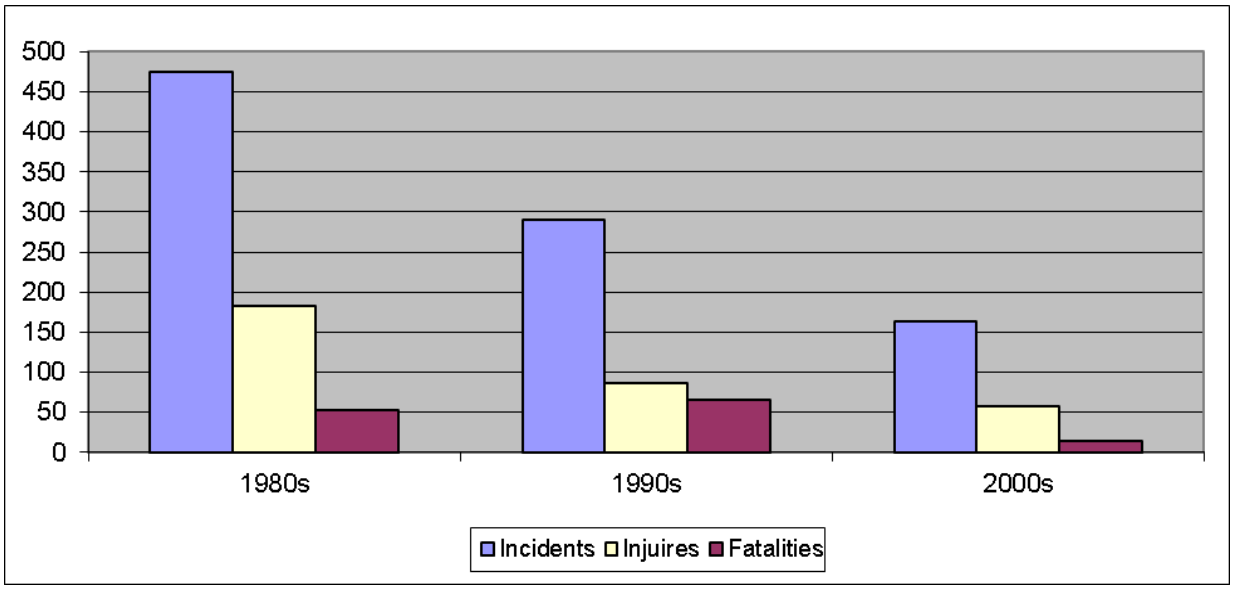
2.6.1.3 Zero Fatalities and Operation Lifesaver

The loss of just one life is too many. This is the philosophy of Zero Fatalities. It's a goal we can all live with. Zero Fatalities is not only a UDOT program, it is also one of UDOT's three strategic goals. The Zero Crashes, Injuries and Fatalities goal is contained within the Utah Comprehensive Safety Plan. Several agencies have long strived to reduce fatalities and injuries on Utah's highways. These agencies formally joined forces to create the Utah Safety Leadership Committee. This allows Utah to take a

comprehensive, coordinated approach to improving traffic safety. The Utah Strategic Highway Safety Plan is the culmination of the joint efforts of these agencies and sets the direction for Utah's collective safety efforts in the future.

Operation Lifesaver is a member of the Utah Safety Leadership Committee and promotes rail safety by educating the public through presentations to a variety of audiences including new drivers, school bus drivers, and professional truck drivers. Operation Lifesaver is a non-profit organization providing public education programs to prevent collisions, injuries and fatalities at highway-rail grade crossings and around railroad tracks. While crossing incidents have declined over the past three decades, the number of trains and train miles traveled are on the rise in Utah. The three "E's" of Operation Lifesaver – Education, Engineering, and Enforcement will continue to be a major focus to keep highway-rail grade crossing incidents on the decline. Utah, according to the FRA's data, is one of the best 15 states for low number of collisions at highway-rail grade crossings. Educational programs and signage at highway-rail grade crossings is not considered rail infrastructure.

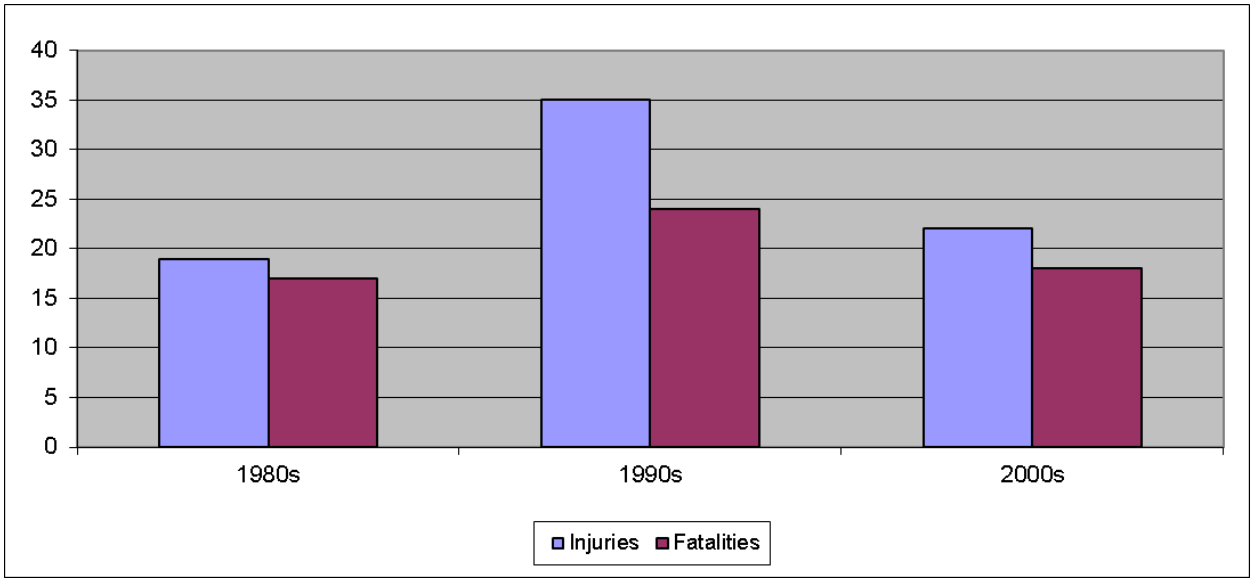
Figure 35: Utah Highway-Rail Grade Crossing Incidents by Decade



Source: Federal Railroad Administration

Highway-rail grade crossings are not the only place where incidents between trains and vehicles, pedestrians, or bicyclists take place. Trespassing on railroad tracks, right-of-way, and equipment also claims lives and injuries. Trespassing on railroad rights-of-way is not only dangerous, it is illegal. Again, according to FRA's data, Utah is one of the best 15 states for low number of trespass incidents.

Figure 36: Utah Rail Trespassing Injuries and Fatalities by Decade



Source: Federal Railroad Administration

2.7 A general analysis of rail transportation's economic, and environmental impacts in the state including, but not limited to, congestion mitigation, safety impacts, trade and economic development, air quality, land use, energy use, and community impacts.

Overall, rail transportation has had a positive impact on Utah's economy and environment. Freight rail has a long history in Utah and is a vital element in Utah's economic prosperity. According to the World Trade Center Utah, growth in exports from Utah has led the nation for the past five years and was second in the nation in 2011. Rail service accounts for roughly 16 percent of the commodity flow from Utah (by weight). With five national parks, much of Utah's landscape is known for its pristine environment. While it is difficult to measure the contributors to Utah's environmental elements, the history and future of rail service in Utah is one of many balanced contributions.

Significant detail is offered in the USRP regarding the history, present conditions, and future of rail in Utah. This section briefly highlights the benefits and impacts of rail service in Utah in several key areas identified by Federal legislation.

2.7.1 Congestion Mitigation

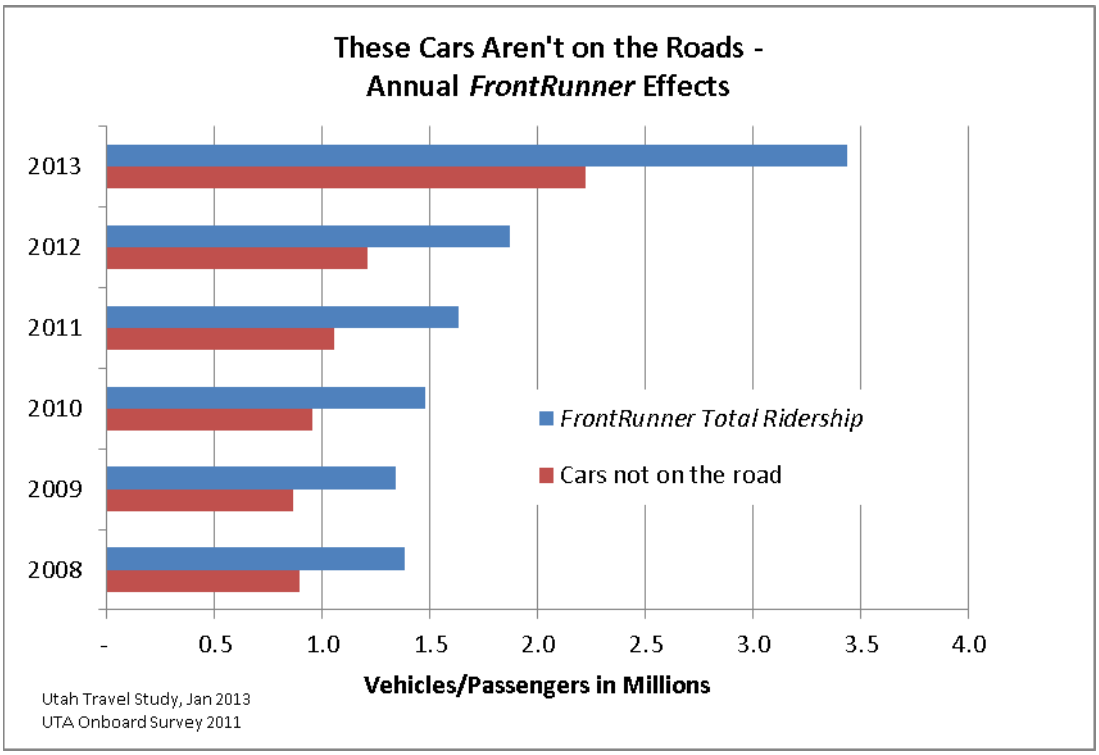
Traffic congestion is a growing concern in Utah's urban areas. According to the Texas Transportation Institute's (TTI) 2012 Mobility Report, urban congestion accounts for over $121 billion with 22 percent of that cost shouldered by trucks. From 101 urban areas, the Salt Lake City metropolitan area ranked 54th in truck congestion costs with

$71 million while the Provo-Orem metropolitan area ranked 87th in truck congestion costs with $30 million. To the extent that freight rail service reduces the need for truck travel in urban areas, freight rail in Utah plays a significant role in urban congestion.

Similarly, passenger rail and particularly work related mass transit has significantly grown in Utah based on its ability to reduce urban congestion. UTA's *FrontRunner* Commuter Rail from Pleasant View to Provo is a good example of this. In cooperation with UTA, both the WFRC, and MAG, participated in years of planning for commuter rail. Both MPOs have promoted transportation choice as an emphasis area of their regional transportation plans and view future rail service as a significant element in congestion relief through mobility choice.

The figure below shows the ridership of UTA's *FrontRunner* commuter rail from 2008-2013. The increase in 2013 includes the expansion of service from Salt Lake City to Provo, whereas the previous years only include service from Pleasant View to Salt Lake City. Notice the estimated number of vehicles that were eliminated from travel by using *FrontRunner*. In 2013, more than 2.2 million vehicles were not on the streets because their passengers were riding the *FrontRunner* rails instead.

Figure 37: *FrontRunner* Ridership and Vehicles Removed from Roads



Source: Utah Travel Survey, 2013 and UTA Onboard Survey, 2011

Finally, since 2004, UDOT has spent over $50 million on passing and climbing lanes in rural areas throughout the state. Increases in truck travel have raised safety and capacity concerns throughout rural Utah.

2.7.2 Safety Impacts

Utah has adopted a Zero Fatalities goal for the state and is trending towards steady reductions in transportation related fatalities. Rail travel presents the ability to greatly reduce driver error as a cause for transportation fatalities and increased rail travel is consistent with UDOT's safety goal. However, highway-rail grade crossings and rail trespassing fatalities have increased in the past two years corresponding to the increase in transit rail service in the urban areas. The impacts of passenger rail conflicts in urban areas is an area of concern for the USRP and UDOT is working with various partners to improve education, enforcement, and engineering solutions to rail safety concerns.

2.7.3 Trade and Economic Development

UDOT recognizes the value of transportation and warehousing in that they provide approximately 3.7 percent of the total jobs in Utah. Warehousing locations have grown significantly in areas offering intermodal opportunities between rail and truck. In addition to freight rail's positive impact on trade and economic development, the MPO's emphasis on transportation mobility choice is viewed as one of the key components to attracting high-tech employment in the urban areas of Utah and one of the keys to creating economic development opportunities for the next generation of workers.

According to the latest statistics available from the Association of American Railroads (AAR), 59.7 million tons of railroad freight originated in, terminated in, or passed through Utah in 2011. It would take more than three million trucks to move the freight that the railroads handled in Utah. In that same year there were 1,782 freight rail employees working in Utah earning an average of $103,270 in wages and benefits. Also in 2011, there were a total of 5,094 railroad retirement beneficiaries living in Utah earning $97 million in retirement benefits.

2.7.4 Air Quality

Air pollution has been a significant concern for both urban and small urban areas of Utah. Many of the most severe air pollution problems are characterized by winter temperature inversions, which trap stagnant air near the surface for days and weeks, allowing pollution to build. There is a growing emphasis in reducing the inventory of air pollutants that might build over several days, with a possible focus on episodic controls. Free or reduced price transit fares have been discussed as one example of how rail service may play an increasing part in solving air quality issues. Yet, the impacts of rail

service are not well known in its ability to affect air quality. Possible rail service expansion to growing areas such as the Uinta Basin, for example, might become a catalyst towards growth and economic development that brings a possible by-product of increased air pollution.

2.7.5 Land Use

Utah is generally characterized by small pockets of dense urban activities and vast areas of extremely sparse development. Railroad service supports this pattern of development. In the past, areas surrounding the urban core with good rail access have been zoned for industrial development and warehousing. Warehousing centers similar to the pocket of development in Salt Lake City and West Valley near the 5600 West freight intermodal center have been growing in western Brigham City, western Ogden, and to a lesser extent, western Cedar City. These land use changes are consistent with economic development plans of the respective cities and urban areas. However, the recent success of commuter rail and mass transit have created an emphasis in mixed use and transit oriented development in the urban areas. Growing success of rail service may create land use conflicts, particularly in the fringe of urban areas, where traditional warehousing and industrial land uses may be less desirable from a local government perspective than urban mixed-use centers.

2.7.6 Energy Use

Excess energy use is often viewed as a by-product of congestion. Fuel consumption estimates are available in the TTI report referenced under the congestion mitigation section and may be viewed for a quantitative assessment of the traffic congestion impacts and the potential for rail service to lessen these impacts. Energy use is a potential significant issue in the USRP. Coal is the single greatest commodity transported by rail service (by weight) in Utah. As discussed, rail is also being discussed as one of many modes that might serve the transportation needs of the energy development of the Uinta Basin. Future rail service in Utah may be largely driven by national energy use and energy policies. According to the AAR, in 2012, railroads moved a ton of freight by rail an average of 486 miles per gallon of fuel. That is an increase from 241 miles per gallon of fuel from 1980 or an efficiency gain of 102 percent.

2.7.7 Community Impacts

Zoning and land use control in Utah is generally performed at the local government level with little regional or state oversight. For this reason, rail impacts on communities have largely been covered in the land use section previously provided. Classic "other side of the track" issues of community divisiveness exist in Utah but are generally not new to existing or future rail service except in the fringe areas of urban expansion.

The top two complaints from communities about railroads are noise and the blocking of highway-rail grade crossings for long periods of time. Since the implementation of UTA's *FrontRunner* service from Pleasant View to Provo, a "Quiet Zone" exists where engineers are not required to sound the horn. However, it does not mean that engineers can't sound the horn. In case of emergencies or "close calls," the locomotive engineers will sound the horn. This "No Horn Rule," allowed by the FRA, has lessened the impact of noise and improved the quality of life for people that live close to railroad tracks. The other complaint of blocking crossings continues to be an issue. Grade separated structures are expensive to build and cannot be constructed at every crossing. Railroads can lessen the impact of blocking crossings by switching to using off-peak commuting hours.

2.7.8 Tourism

Tourism is an important issue in the economic development of Utah and a target area for rural communities throughout the state. Although passenger rail through Utah is relatively small, Utah's rich railroad history allows rail service to have a positive impact on tourism in Utah. Major railroad tourist locations include the Golden Spike National Historic Site, which is located at Promontory and is the home of the ceremonial birthplace of the first Transcontinental Railroad. In Heber City, the Heber Valley Historic Railroad operates a tourist railroad in Wasatch County and treats patrons to rides down to Vivian Park in Provo Canyon. In Ogden, the Utah State Railroad Museum, located at Ogden Union Station, contains an outdoor static display of engines and rolling stock and an indoor railroad museum.

2.7.9 Hazardous Materials

Large areas of Utah's west desert, spanning both Nevada and Utah are either serving as or are proposed as radioactive waste repositories. This represents a controversial land use issue that allows rail to be viewed as both a cause and mitigation. The transport of other hazardous materials by rail is also a safety concern.

2.7.10 Health Care and Education

Just as the megacity conglomerate issues of the east coast and northeast corridor have been seen as drivers for high-speed rail service in the east, isolated western cities create unique issues and potential rail service needs for access to health care and education. Many western cities such as Albuquerque, New Mexico; Boise, Idaho; Denver, Las Vegas, Phoenix, Arizona and Salt Lake represent pockets of hospitals, universities, theatre and other "cultural activities" that serve vast surrounding areas. The ability to easily get between these population centers represents a possible market for passenger and future high-speed rail service with significant positive benefits to economic growth and the environment.

Chapter 3 – Trends and Forecasts

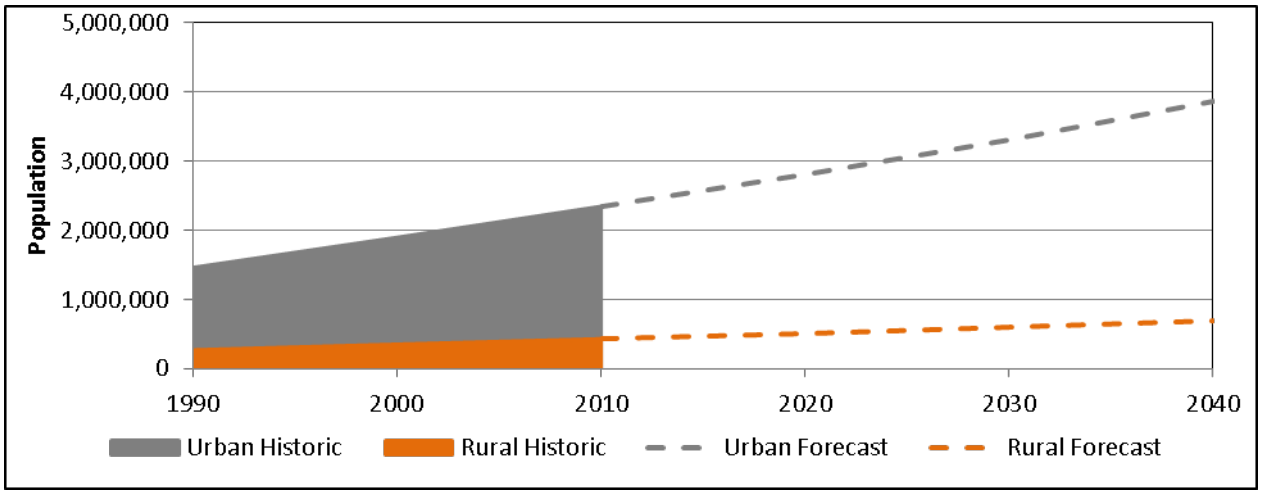
Objective: Describe the trends that will impact the need for rail in the State.

3.1 Demographic and Economic Growth Factors

3.1.1 Population Growth

Population growth within the state will drive freight and passenger rail demand over the coming decades. Utah's population is forecast to increase from approximately 2.2 million in 2010 to 3.9 million in 2040. This represents a 65 percent increase over this thirty year period or annual growth of 1.7 percent. Most of this growth is expected within the existing urbanized counties along the Wasatch Front, Cache County and Washington County. Population growth in these six counties will account for 85 percent of the total population growth within the state. Figure 38 illustrates statewide population growth through the year 2040.

Figure 38: Historic and Forecast Population Growth within Utah



Source: 2012 Baseline Projections, Utah Governor's Office of Management and Budget.

Salt Lake County and Utah County will account for more than half the forecast population growth within the State. These two counties are expected to add almost a million new residents, with the Utah County population growing by over 500,000 people. Washington County is also expected to see significant population growth adding over 200,000 residents. Conversely, the population in Daggett and San Juan Counties is forecast to grow by less than 500 people. Table 28 provides the 1990, 2010 and 2040 population by county.

Table 28: Population Growth by County

County	1990	2010	2040	Population Growth 2010-2040	Percent Growth 2010-2040
Beaver	4,771	6,629	10,522	3,893	59%
Box Elder	36,533	50,104	64,704	14,600	29%
Cache	70,550	113,273	196,559	83,286	74%
Carbon	20,146	21,409	22,860	1,451	7%
Daggett	702	1,061	1,407	346	33%
Davis	188,479	307,557	426,392	118,835	39%
Duchesne	12,611	18,643	25,721	7,078	38%
Emery	10,312	10,980	12,207	1,227	11%
Garfield	3,969	5,172	7,357	2,185	42%
Grand	6,622	9,225	12,147	2,922	32%
Iron	20,927	46,270	87,102	40,832	88%
Juab	5,821	10,246	20,049	9,803	96%
Kane	5,166	7,125	12,601	5,476	77%
Millard	11,313	12,503	13,804	1,301	10%
Morgan	5,547	9,469	17,926	8,457	89%
Piute	1,271	1,556	2,091	535	34%
Rich	1,731	2,264	3,153	889	39%
Salt Lake	728,295	1,033,274	1,507,997	474,723	46%
San Juan	12,451	14,746	15,191	445	3%
Sanpete	16,328	27,899	37,879	9,980	36%
Sevier	15,448	20,802	26,142	5,340	26%
Summit	15,693	36,473	71,433	34,960	96%
Tooele	26,587	58,417	128,348	69,931	120%
Uintah	22,251	32,588	42,690	10,102	31%
Utah	265,764	519,307	1,019,828	500,521	96%
Wasatch	10,149	23,668	59,159	35,491	150%
Washington	48,978	138,748	371,743	232,995	168%
Wayne	2,189	2,778	4,412	1,634	59%
Weber	158,662	232,097	349,009	116,912	50%
state of Utah	1,729,266	2,774,283	4,570,433	1,796,150	65%

Source: 2012 Baseline Projections, Utah Governor's Office of Management and Budget.

Although most of the population growth is forecast within the existing urbanized areas, several areas throughout the state will urbanize over the next several decades. These areas will have more than or close to 50,000 people by 2040. These newly urbanized areas will potentially drive demand for freight and passenger rail service and three of these areas, Brigham City-Tremonton, Cedar City, and Grantsville-Tooele already have access to existing rail service. Table 29 lists the existing and forecast population for these areas.

Table 29: Population Change in Non-urbanized Areas

Area	Cities	2010	2040	Percent Growth 2010-2040
Brigham City-Tremonton	Bear River City	853	971	14%
	Brigham City	17,899	22,970	28%
	Corinne	685	1,035	51%
	Deweyville	332	434	31%
	Elwood	1,034	1,682	63%
	Garland	2,400	3,452	44%
	Honeyville	1,441	1,754	22%
	Perry	4,512	7,764	72%
	Tremonton	7,647	10,353	35%
	Willard	1,772	2,182	23%
	Brigham City-Tremonton Area Total	**38,575**	**52,597**	**36%**
Cedar City	Cedar City	28,857	54,448	89%
	Enoch	5,803	10,949	89%
	Cedar City Area Total	**34,660**	**65,398**	**89%**
Park City-Snyderville	Park City	7,547	13,744	82%
	Synderville Basin	22,290	40,591	82%
	Park City-Snyderville Area Total	**29,837**	**54,334**	**82%**
Grantsville-Tooele	Grantsville	8,893	20,806	134%
	Tooele	31,605	63,683	101%
	Grantsville-Tooele Area Total	**40,498**	**84,490**	**109%**
Heber-Midway	Charleston	415	1,611	288%
	Daniel	938	2,626	180%
	Heber	11,362	22,683	100%
	Midway	3,845	11,759	206%
	Heber-Midway Area Total	**16,560**	**38,679**	**134%**
Hurricane-La Verkin	Hurricane	13,748	37,003	169%
	La Verkin	4,060	10,928	169%
	Leeds	820	2,207	169%
	Virgin	596	1,604	169%
	Hurricane-La Verkin Area Total	**19,224**	**51,742**	**169%**

Source: 2012 Baseline Projections, Utah Governor's Office of Management and Budget.

3.1.2 Employment Growth

Employment in Utah is expected to increase from 1.6 million jobs to 2.6 million jobs between 2010 and 2040 or an increase of more than 60 percent. As with population, much of the increase is forecast within the existing urbanized counties. Again, Salt Lake and Utah Counties are expected to account for more than half of the employment growth within the State. However, unlike population, Salt Lake County is forecast to add more jobs than Utah County. Table 30 summarizes the historic and forecast employment by county.

Table 30: Employment Growth by County

County	1990	2010	2040	Employment Growth 2010-2040	Percent Growth 2010-2040
Beaver	2,114	3,532	5,547	2,015	57%
Box Elder	20,788	25,078	36,588	11,510	46%
Cache	37,318	66,917	120,745	53,828	80%
Carbon	9,567	12,656	15,252	2,596	21%
Daggett	421	707	1,239	532	75%
Davis	85,466	155,988	204,850	48,862	31%
Duchesne	5,996	10,962	13,819	2,857	26%
Emery	4,997	6,028	7,233	1,205	20%
Garfield	2,185	3,341	5,078	1,737	52%
Grand	3,476	6,622	8,807	2,185	33%
Iron	10,193	23,583	48,384	24,801	105%
Juab	2,437	4,740	7,852	3,112	66%
Kane	2,365	4,440	8,215	3,775	85%
Millard	5,548	6,658	9,361	2,703	41%
Morgan	1,971	3,984	7,241	3,257	82%
Piute	360	745	898	153	21%
Rich	781	1,369	1,700	331	24%
Salt Lake	457,410	736,747	1,057,401	320,654	44%
San Juan	4,546	6,368	8,025	1,657	26%
Sanpete	6,450	11,382	14,397	3,015	26%
Sevier	7,005	11,228	14,152	2,924	26%
Summit	11,862	33,961	68,559	34,598	102%
Tooele	13,067	22,001	46,496	24,495	111%
Uintah	10,022	18,325	23,329	5,004	27%
Utah	123,220	254,494	493,182	238,688	94%
Wasatch	3,982	10,958	25,536	14,578	133%
Washington	21,259	70,378	190,954	120,576	171%
Wayne	1,008	1,743	3,056	1,313	75%
Weber	82,119	117,785	179,444	61,659	52%
state of Utah	937,933	1,632,720	2,627,340	994,620	61%

Source: 2012 Baseline Projections, Utah Governor's Office of Management and Budget.

3.1.3 Personal Income

Utah was among the lowest ranked states for per capita personal income at 46th with a per capita income of just $33,509 in 2011. The per capita personal income in Utah was $8,000 less than the national average. Although Utah is among the states with the lowest per capita personal income, the median household income is above the national average. In terms of household income Utah ranked 14th with a median household income of over $55,000 or $5,000 more than the national average. As of 2011, the average household size in Utah was 3.1 people per household compared to the national average of 2.6 people per household (2011 American Community Survey 1-Year Estimates) likely resulting in the discrepancy between per capita income and household income. Table 32 summarizes per capita income and median household income.

Table 31: Per Capita Personal Income and Median Household Income (2011)

	Per Capita Personal Income	Rank	Median Household Income	Rank
Utah	$33,509	46th	$55,493	14th
United States	$41,560	NA	$50,054	NA

Source: Personal Income Summary, Bureau of Economic Analysis. Current Population Survey, Annual Social and Economic Supplements, Table H-8 Median Household Income by State, U.S. Census Bureau.

3.1.4 Outlook by Industrial Sector

Depending upon the industry, some of the new employment will generate a larger ratio of freight per employee. Industry sectors such as mining, manufacturing, energy, transportation and warehousing will generate more freight than professional and governmental services. Employment in farming, natural resources and mining, which commonly generate rail freight, is actually expected to shrink over the next three decades. However, employment in other freight related industries such as construction, manufacturing, trade and warehousing is expected to increase, but not as much as professional services.

The majority of employment growth is anticipated to be within professional services, education/health services and government. Job growth in professional services will also impact the demand for passenger rail services. Employment growth in concentrated locations near existing passenger rail corridors, or locations that could accommodate future expansion, will increase demand for commuter and intercity passenger rail service. Table 31 summarizes industry sector growth from 2010 to 2040.

Table 32: Employment Growth by Industrial Sector

Industrial Sectors	1990	2010	2040	Employment Growth 2010-2040	Percent Growth 2010-2040
Natural Resources & Mining	11,250	18,282	18,016	-266	-1%
Construction	44,512	93,339	203,433	110,094	118%
Manufacturing	107,231	119,267	150,818	31,551	26%
Retail & Wholesale Trade	145,816	225,468	322,984	97,516	43%
Transportation, Warehousing & Utilities	39,064	55,631	83,294	27,663	50%
Information	19,581	34,259	61,945	27,686	81%
Finance & Insurance	44,469	120,567	127,130	6,563	5%
Professional & Business Services	129,182	309,250	644,941	335,691	109%
Education & Health Services	85,234	185,929	319,804	133,875	72%
Leisure & Hospitality	71,416	134,712	215,640	80,928	60%
Other Services	50,317	83,244	125,531	42,287	51%
Government	170,713	233,700	341,474	107,774	46%
Farm	19,148	19,071	12,316	-6,755	-35%
Total	937,933	1,632,719	2,627,326	994,607	61%

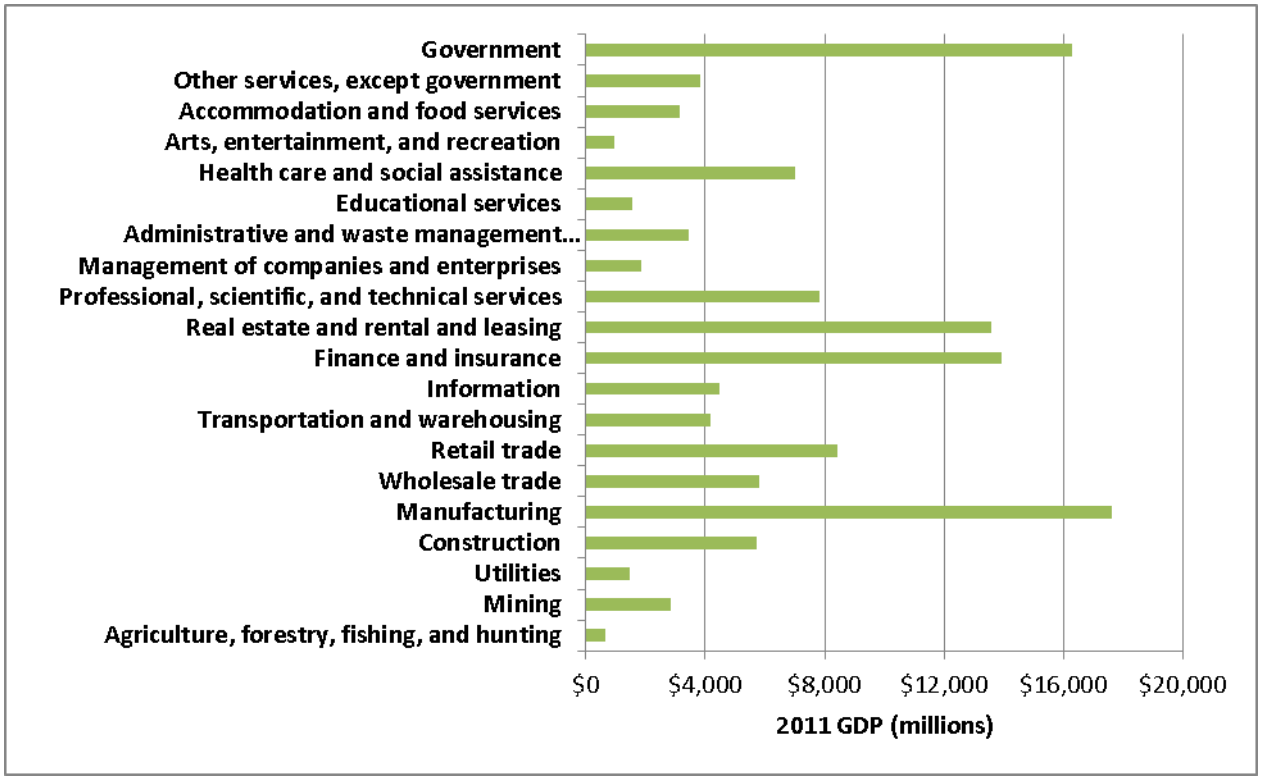
Source: 2012 Baseline Projections, Utah Governor's Office of Management and Budget.

3.2 Freight Demand and Growth

3.2.1 Gross State Product

In 2011, Utah current-dollar gross domestic product (GDP) was $124.5 billion and ranked 33rd in the United States. The top industries were manufacturing ($17.6 billion), government ($16.3 billion), finance/insurance ($13.9 billion) and real estate ($13.6 billion). All other industries had GDP of less than $10 billion and Figure 39 illustrates the 2011 GDP by industry.

Figure 39: 2011 Utah Gross Domestic Product



Source: Gross Domestic Product by State (millions of current dollars), Bureau of Economic Analysis.

Since 2001, the Utah GDP has grown at an annual rate of 5.6 percent, increasing from $72.3 billion to the $124.5 billion of today. Every industry saw an increase in GDP over the last ten years with the largest increase coming in manufacturing, which increased by more than $10 billion. Table 33 summarizes the top five industries that saw the largest increase in GDP over the last ten years.

Table 33: Utah Gross Domestic Product Growth by Industry 2001 to 2011

Rank	Industry	2001-2011 GDP Growth (Millions)
1	Manufacturing	$10,007
2	Finance and insurance	$7,043
3	Government	$6,146
4	Real estate and rental and leasing	$4,461
5	Professional, scientific, and technical services	$3,652

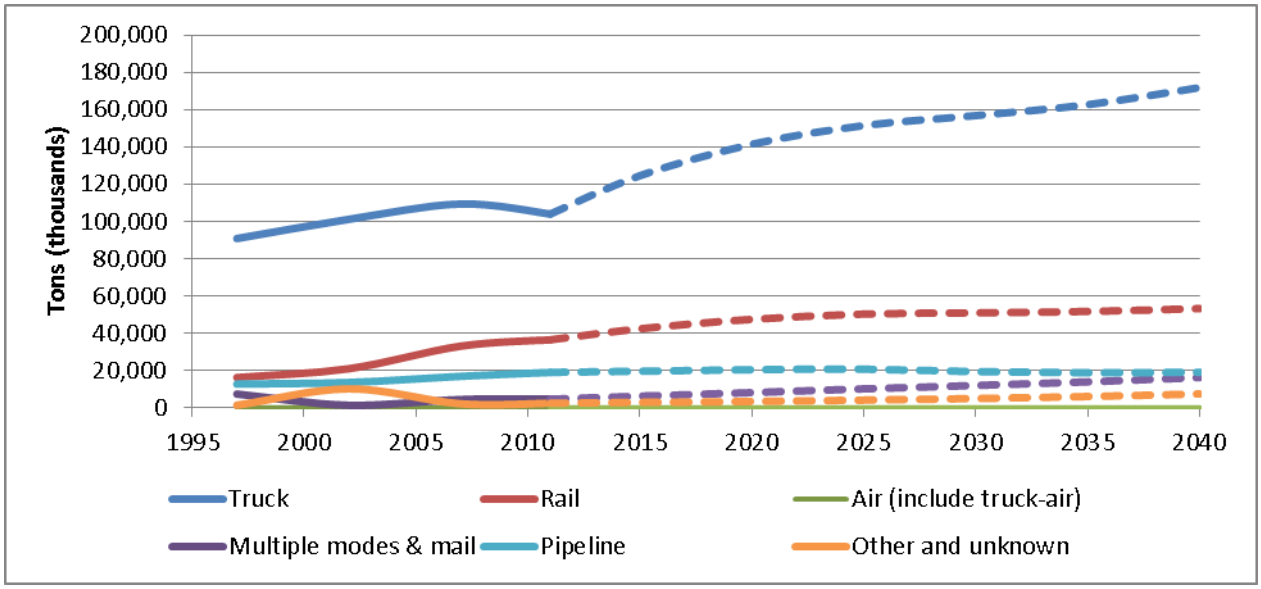
Source: Gross Domestic Product by State (millions of current dollars), Bureau of Economic Analysis.

3.2.2 Freight Growth

Federal Highway Administration's Freight Analysis Framework (FAF) forecasts the movement of freight between states and metropolitan areas by transportation mode and commodity type. FAF version 3.4 was used to provide estimates for tonnage by mode, origin/destination and commodity type through 2040. These FAF estimates are based upon FHWA's 2007 Commodity Flow Survey and other data sources.

Figure 40 shows the historic and forecast growth of freight tonnage by mode that originates within Utah. Currently, rail ships the second most tonnage behind truck. In 2011, rail shipped more than 36 million tons and is expected to increase by almost 17 million tons by 2040. However, since the tonnage moved by truck increases faster than tonnage shipped by rail, the proportion shipped by rail is expected to decrease from 22 percent in 2011 to 20 percent in 2040.

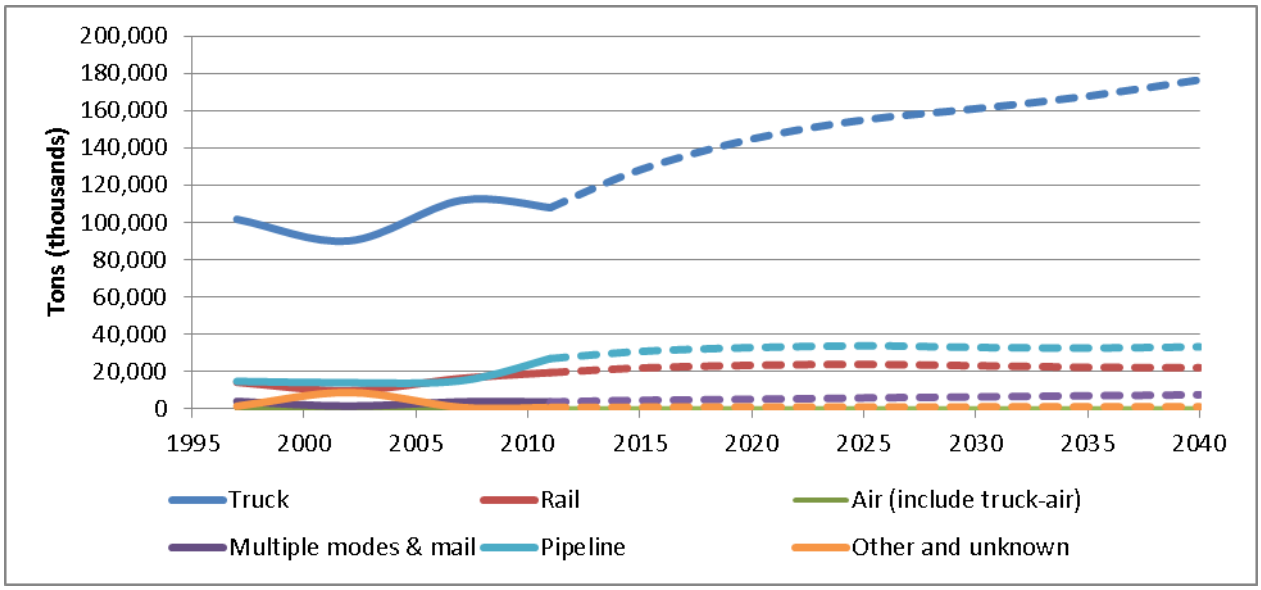
Figure 40: Tons of Freight Originating in Utah by Mode



Source: Freight Analysis Framework 3.4, Data Tabulation Tool, FHWA.

The historic and forecast growth of freight tonnage by mode terminating within Utah is illustrated in Figure 41. For freight terminating within Utah, rail carries the third most tonnage behind truck and pipeline, moving 19 million tons of freight in 2011. The tonnage of freight shipped by rail is forecast to increase by 2.6 million tons by 2040. However, the proportion of freight tonnage terminating within Utah by rail is also expected to decline from 12 percent to nine percent of all tonnage in 2040.

Figure 41: Tons of Freight Terminating in Utah by Mode



Source: Freight Analysis Framework 3.4, Data Tabulation Tool, FHWA.

Table 34: Top Commodities Originating in Utah by All Modes

Rank	Existing (2011)		Year 2040	
	Commodity	Tons (1,000)	Commodity	Tons (1,000)
1	Coal, Coke, LNG	46,523	Coal, Coke, LNG	51,676,
2	Nonmetal min. prods.	13,486	Nonmetal min. prods.	27,250
3	Basic chemicals	13,100	Waste/scrap	24,337
4	Waste/scrap	11,281	Gravel	21,446
5	Gravel	10,955	Basic chemicals	16,868
6	Gasoline & Fuel Oils	17,736	Metallic ores	13,861
7	Base metals	6,693	Mixed freight	13,554
8	Mixed freight	4,996	Gasoline & Fuel Oils	21,881
9	Crude petroleum	4,801	Misc. mfg. prods.	9,283
10	Cereal grains	4,177	Cereal grains	6,745

Source: Freight Analysis Framework 3.4, Data Tabulation Tool, FHWA.

Table 35: Top Commodities Originating in Utah by Rail

Rank	Existing (2011)		Year 2040	
	Commodity	Tons (1,000)	Commodity	Tons (1,000)
1	Coal, Coke, LNG	17,631	Coal, Coke, LNG	22,739
2	Basic chemicals	11,624	Basic chemicals	15,050
3	Base metals	2,823	Metallic ores	7,046
4	Metallic ores	1,410	Nonmetal min. prods.	2,009
5	Nonmetal min. prods.	981	Base metals	1,465
6	Waste/scrap	604	Nonmetallic minerals	1,306
7	Milled grain prods.	350	Waste/scrap	1,299
8	Fertilizers	333	Fertilizers	834
9	Nonmetallic minerals	310	Milled grain prods.	632
10	Cereal grains	166	Cereal grains	258

Source: Freight Analysis Framework 3.4, Data Tabulation Tool, FHWA.

The FAF3 State Annual Provisional Data 2011 and the 2040 forecasts were used to summarize the projected growth in commodity shipments. Table 34 and Table 35 show the top commodities that originate in Utah. Coal is the top commodity comprising approximately 28 percent of freight tonnage and 48 percent of rail tonnage in 2011. As shown in Table 34, the amount of coal originating in Utah is expected to increase by over five million tons by 2040 with most of the increase carried by rail. However, other commodities increase at a faster rate, so coal is anticipated to account for only 19 percent of freight tonnage and 43 percent of rail tonnage by 2040. While coal will still account for the most tonnage shipped in 2040, the tonnage of metallic ores transported by rail is projected to have the largest increase of over 5.6 million tons. Basic chemicals and nonmetal mineral products are also expected to see a significant increase in the tonnage shipped by rail with shipments of each of these commodities forecast to increase by one million tons by 2040.

Table 36: Commodities with Largest Increase in Shipments Originating in Utah from 2011 to 2040

Rank	All Modes		Rail	
	Commodity	Tons (1,000)	Commodity	Tons (1,000)
1	Nonmetal min. prods.	13,764	Metallic ores	5,636
2	Waste/scrap	13,055	Coal, Coke, LNG	5,108
3	Metallic ores	10,814	Basic chemicals	3,427
4	Gravel	10,491	Nonmetal min. prods.	1,028
5	Mixed freight	8,558	Nonmetallic minerals	996
6	Misc. mfg. prods.	6,203	Waste/scrap	695
7	Coal, Coke, LNG	5,153	Fertilizers	501
8	Basic chemicals	3,768	Milled grain prods.	281
9	Nonmetallic minerals	2,760	Gravel	142
10	Gasoline	2,677	Newsprint/paper	96

Source: Freight Analysis Framework 3.4, Data Tabulation Tool, FHWA.

Coal is also the top commodity to terminate in Utah, accounting for approximately 25 percent of freight tonnage and 77 percent of rail tonnage in 2011. Much of the coal that originates within Utah also terminates within Utah, with 11,259,000 tons of coal or about 76 percent that is shipped by rail staying within state. The FAF projections show that the largest increase of rail freight that will terminate in Utah will come from cereal grains, waste/scrap and plastic/rubber.

Table 37: Top Commodities Terminating in Utah by All Modes

Rank	Existing (2011)		Year 2040	
	Commodity	Tons (1,000)	Commodity	Tons (1,000)
1	Coal, Coke, LNG	39,956	Coal, Coke, LNG	40,749
2	Crude petroleum	18,448	Nonmetal min. prods.	30,287
3	Nonmetal min. prods.	14,550	Crude petroleum	23,692
4	Waste/scrap	11,842	Waste/scrap	21,285
5	Gravel	10,903	Gravel	20,760
6	Gasoline & Fuel Oils	16,251	Gasoline & Fuel Oils	19,302
7	Cereal grains	5,833	Mixed freight	9,511
8	Other foodstuffs	4,438	Cereal grains	9,271
9	Mixed freight	3,685	Other foodstuffs	6,822
10	Base metals	3,422	Misc. mfg. prods.	4,244

Source: Freight Analysis Framework 3.4, Data Tabulation Tool, FHWA.

Table 38: Top Commodities Terminating in Utah by Rail

Rank	Existing (2011)		Year 2040	
	Commodity	Tons (1,000)	Commodity	Tons (1,000)
1	Coal, Coke, LNG	14,818	Coal, Coke, LNG	14,920
2	Cereal grains	895	Cereal grains	1,324
3	Base metals	695	Waste/scrap	896
4	Waste/scrap	477	Plastics/rubber	698
5	Plastics/rubber	403	Base metals	616
6	Fertilizers	373	Fertilizers	601
7	Basic chemicals	286	Wood prods.	527
8	Wood prods.	286	Basic chemicals	423
9	Other foodstuffs	164	Nonmetal min. prods.	305
10	Newsprint/paper	149	Chemical prods.	276

Source: Freight Analysis Framework 3.4, Data Tabulation Tool, FHWA.

Table 39: Commodities with Largest Increase in Shipments Terminating in Utah from 2011 to 2040

Rank	All Modes		Rail	
	Commodity	Tons (1,000)	Commodity	Tons (1,000)
1	Nonmetal min. prods.	15,737	Cereal grains	429
2	Gravel	9,857	Waste/scrap	419
3	Waste/scrap	9,443	Plastics/rubber	295
4	Mixed freight	5,826	Wood prods.	242
5	Crude petroleum	5,243	Fertilizers	228
6	Cereal grains	3,438	Chemical prods.	202
7	Misc. mfg. prods.	2,943	Nonmetal min. prods.	202
8	Other foodstuffs	2,384	Coal-n.e.c.	161
9	Unknown	2,248	Basic chemicals	136
10	Machinery	2,163	Milled grain prods.	103

Source: Freight Analysis Framework 3.4, Data Tabulation Tool, FHWA.

The FAF data also provides the origin and destination for existing and future rail freight shipments. Western states will continue to be significant trading partners, with Arizona projected to see the most growth in rail freight shipped from Utah because of raw materials being exported to Arizona. However, for rail imports, some of the largest increases will come from states outside the intermountain west. Louisiana, Washington, and Nebraska are among the top states for rail import growth over the next several decades because of Utah's projected population growth and development.

Table 40: Top Destination for Rail Freight Originating in Utah

Rank	Existing (2011)		Year 2040		Growth 2011 – 2040	
	State	Tons (1,000)	State	Tons (1,000)	State	Tons (1,000)
1	Utah	12,234	Utah	12,171	Arizona	4,278
2	Idaho	7,092	Idaho	9,439	Nevada	3,791
3	California	4,058	California	6,863	California	2,806
4	Nevada	2,345	Nevada	6,136	Idaho	2,347
5	Wyoming	1,621	Arizona	5,338	Texas	1,493

Source: Freight Analysis Framework 3.4, Data Tabulation Tool, FHWA.

Table 41: Top Origins for Rail Freight Terminating in Utah

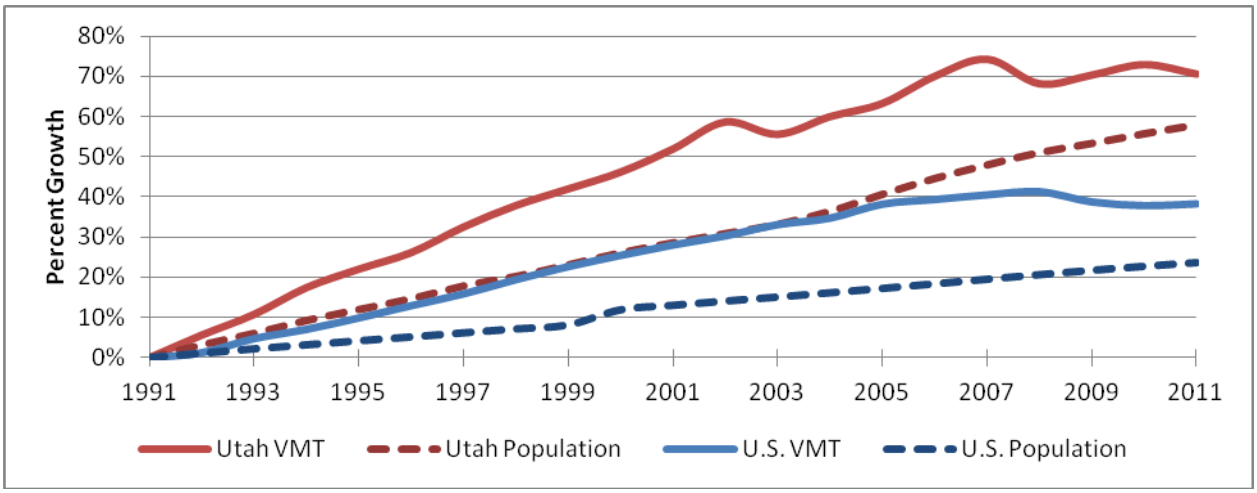
Rank	Existing (2011)		Year 2040		Growth 2011 – 2040	
	State	Tons (1,000)	State	Tons (1,000)	State	Tons (1,000)
1	Utah	12,234	Utah	12,171	Idaho	587
2	Colorado	3,514	Colorado	3,968	Colorado	453
3	Idaho	815	Idaho	1,401	Louisiana	338
4	Nebraska	508	Nebraska	686	Washington	274
5	Texas	414	Washington	533	Nebraska	179

Source: Freight Analysis Framework 3.4, Data Tabulation Tool, FHWA.

3.3 Passenger Travel Demand and Growth

In 2011, the total vehicle miles traveled (VMT) on Utah's highways was 26.22 billion with a daily VMT of approximately 72 million. This is a 71 percent increase from 1991, when annual VMT was just over 15 billion. Over this twenty year period, daily passenger travel demand increased significantly more within Utah than the rest of nation. Daily VMT within the United States increased by a relatively modest 38 percent from 2.17 trillion in 1991 to 2.97 trillion in 2010. Both within Utah and the United States, daily VMT increased substantially more than population growth, which only increased by 58 percent within Utah and 23 percent nationwide. Figure 42 illustrates the historic VMT and population growth.

Figure 42: Historic Daily Vehicle Miles Traveled and Population Growth



Source: National Transportation Statistics 2012 Table 1-35, Bureau of Transportation Statistic. VMT Road Ownership by County, UDOT. Total Population by County: 1940 – 2009, Utah Population Estimates Committee. Annual Estimates of the Population for the United States, Regions, States, and Puerto Rico: April 1, 2010 to July 1, 2012 (NST-EST2012-01), U.S. Census Bureau, Population Division. Intercensal Estimates of the Resident Population by Sex and Age for the United States: April 1, 2000 to July 1, 2010 (US-EST00INT-01), U.S. Census Bureau, Population Division, Historical National Population Estimates: July 1, 1900 to July 1, 1999, U.S. Census Bureau, Population Division.

This trend is expected to continue based upon results from the Utah Statewide Travel Demand model. The travel demand model results indicate that VMT will double from 2008 to 2040 growing at an annual rate of 2.2 percent. These growth projections are greater than those for population, which is expected to increase by 65 percent at an annual rate of 1.7 percent as summarized in section 3.1.1.

Table 42: Forecast Vehicle Miles Traveled Growth in Utah

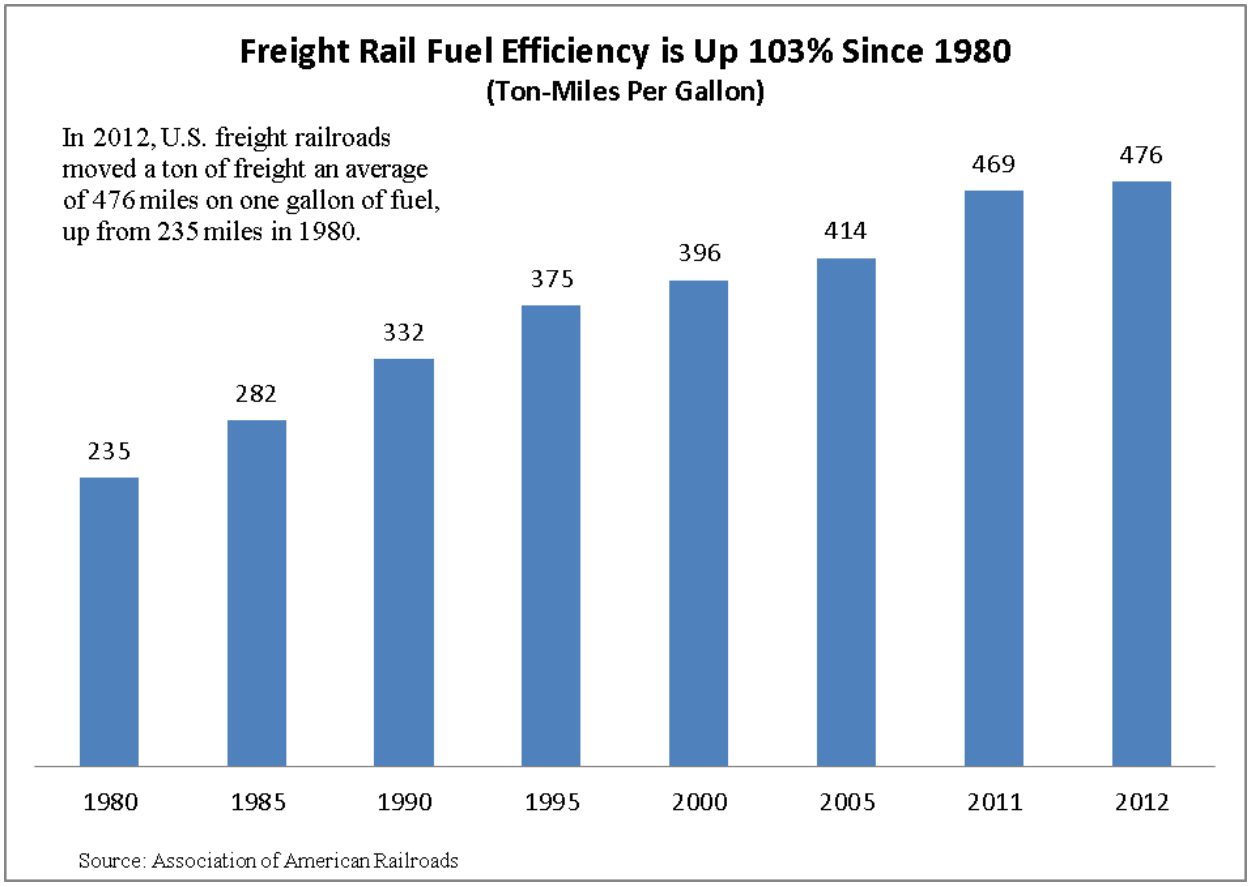
	Existing (2008)	Year 2040	Growth	Annual Growth Rate
Daily Vehicle Miles of Travel	71,539,855	143,043,101	100%	2.2%

Source: Utah Statewide Travel Demand Model Version 1.0 Beta.

3.4 Fuel Cost Trends

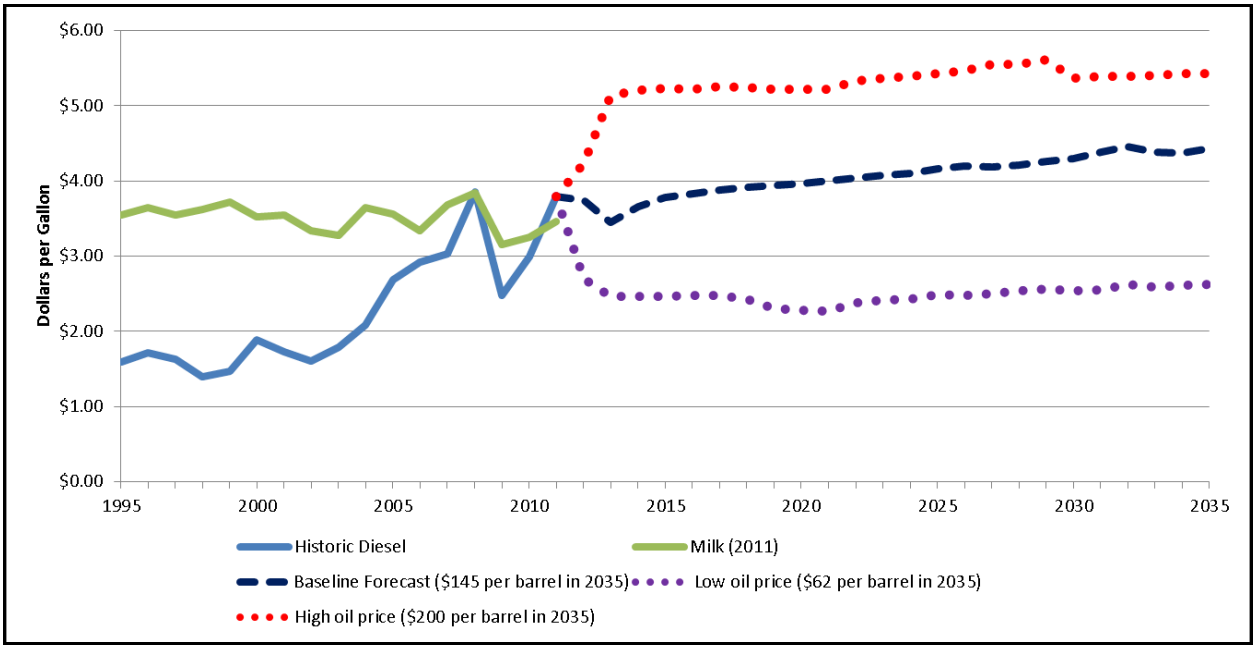
According to the Association of American Railroads (AAR), on average, rail is four times more fuel efficient than trucks. In 2012 railroads moved a ton of freight an average of 476 miles per gallon of fuel. That is an increase from 241 miles per gallon of fuel in 1980 or an efficiency gain of 103 percent. Since rail provides a cost-effective and ever more efficient mode of transportation, increases in the price of fuel will likely drive demand for freight and passenger rail services.

Figure 43: Freight Rail Fuel Efficiency



Based upon data from the Energy Information Administration (EIA), the price of diesel has increased from an annual average of $1.32 per gallon in 2002 to almost four dollars per gallon ($3.97) in 2012, an increase of more than 200 percent. The price of diesel is projected to keep increasing through 2035. Figure 44 provides the historic and forecast diesel prices in 2010 dollars from the EIA. Until recently, the price of a gallon of milk cost significantly more than diesel. However, as of 2009 the price of diesel has been close to that of milk and the real price of diesel is expected to continue increasing to $4.44 per gallon in 2035 under baseline assumptions. If the price of crude oil increases to $200 a barrel (2010 dollars), diesel is anticipated to cost $5.43 a gallon in 2035.

Figure 44: Historic and Forecast Diesel Price (2010 dollars)



Source: Weekly Retail Gasoline and Diesel Prices, U.S. Energy Information Administration. Annual Energy Outlook 2012, U.S. Energy Information Administration. Consumer Price Index, Bureau of Labor Statistics.

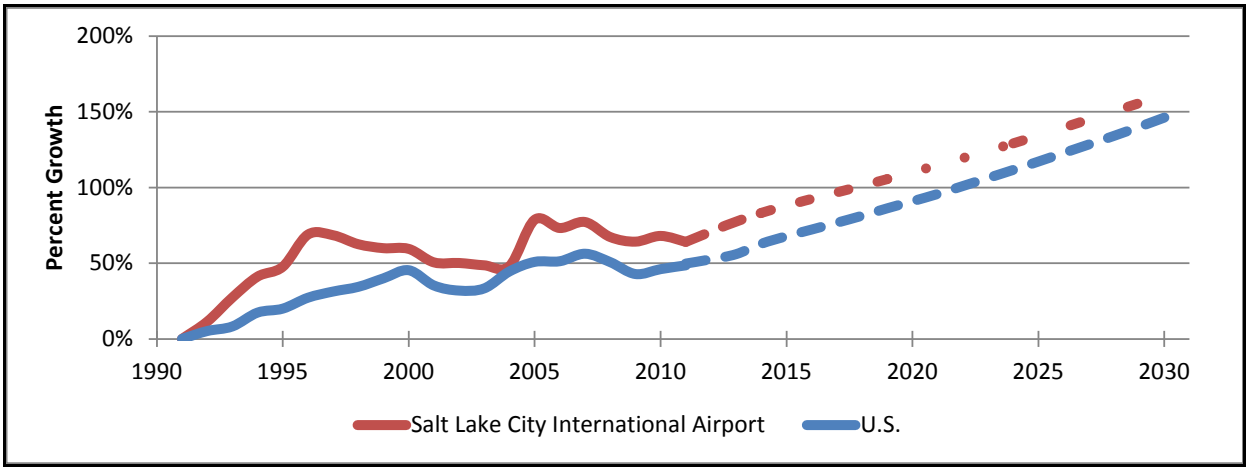
3.5 Airport and Highway Congestion Trends

3.5.1 Airport Congestion

The Ogden-Hinckley Airport, Provo Airport, Salt Lake City International Airport and St. George Municipal Airport are the four primary commercial airports within Utah. Of these airports, Salt Lake City International Airport is the major airport within the state accounting for over 99 percent of the boardings. In 2012, more than 20 million passengers passed through Salt Lake City International making it the 26th busiest airport in North America and 64th busiest in the world in terms of passengers. Although Salt Lake City International handles considerable traffic, in 2012 it ranked first for on-time arrivals and departures according to Bureau of Transportation Statistics (BTS) data.

While there are currently limited delays, the number of passengers is forecast to increase by almost 60 percent by 2030. Salt Lake City International will need to plan for expansion as passenger demand grows. Rail can provide an alternative for movement of both freight and passenger traffic, while reducing the pressure on available aviation infrastructure.

Figure 45: Historic and Forecast Growth in Commercial Airline Boardings

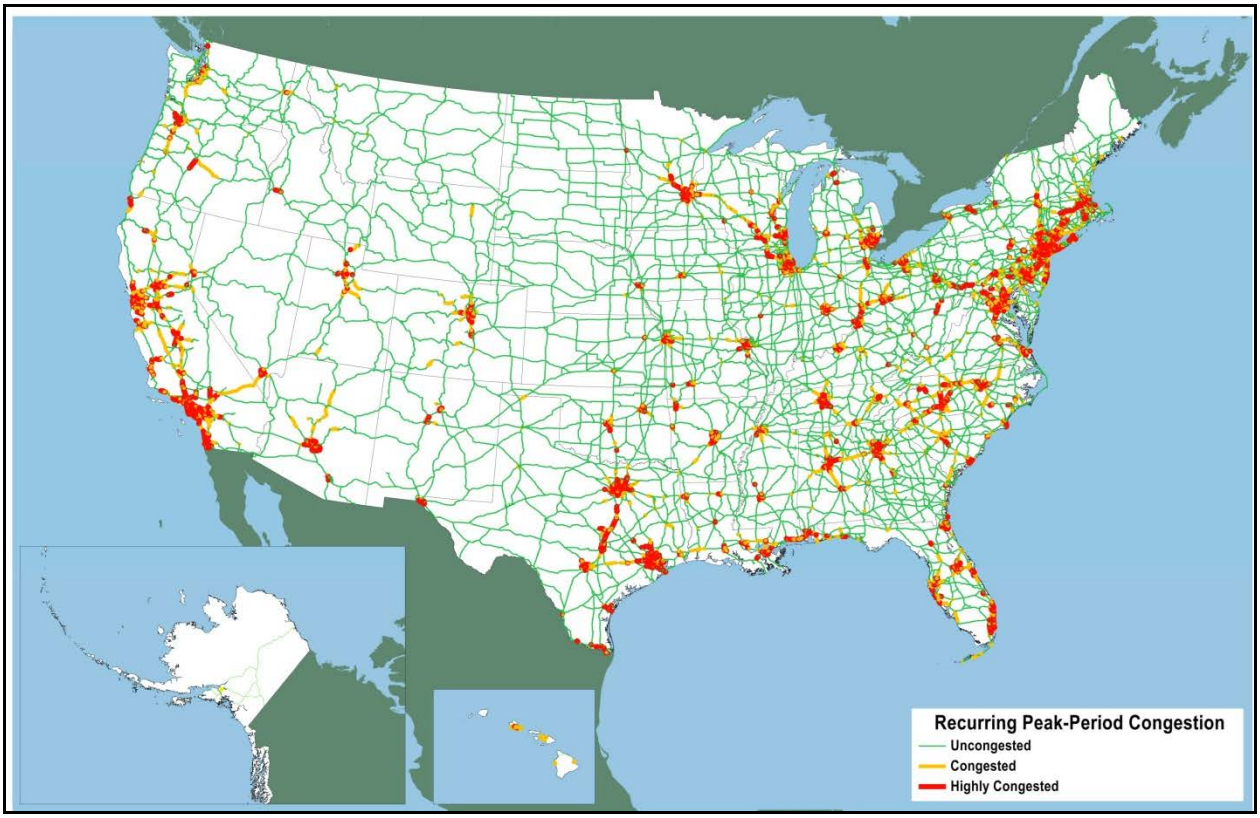


Source: Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports, Federal Aviation Administration. Appendix A Aviation Demand Forecasts, Salt Lake City International Airport Environmental Assessment. FAA Aerospace Forecasts FY 2012-2032, Federal Aviation Administration.

3.5.2 Highway Congestion

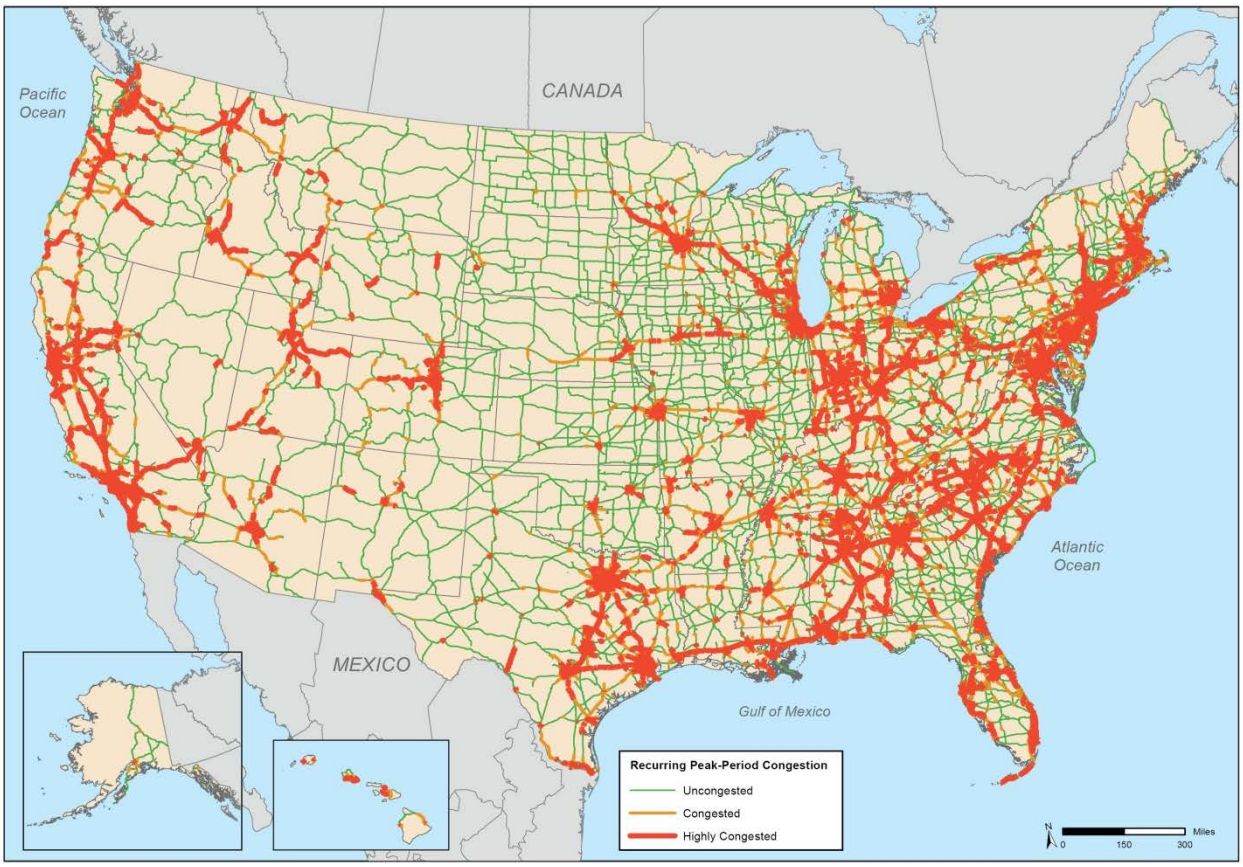
With the forecast growth in population, freight and passenger demand, the transportation network will need to accommodate a significant increase in passenger and freight movements. This increased demand will stress the state highway system, which already has significant congestion within the urbanized area as illustrated in Figures 46 and 47, which show existing and forecast congestion. Rail offers an opportunity to divert freight and passenger traffic from highways to rail.

Figure 46: Peak-Period Congestion on the National Highway System - 2007



http://www.ops.fhwa.dot.gov/Freight/freight_analysis/nat_freight_stats/docs/12factsfigures/figure3_15.htm December 30, 2014.

Figure 47: Peak-Period Congestion on the National Highway System - 2040



http://www.ops.fhwa.dot.gov/Freight/freight_analysis/nat_freight_stats/docs/12factsfigures/figure3_16.htm December 30, 2014.

3.6 Land Use Trends

In communities throughout Utah, greenfield development has resulted in increased traffic, increased transportation needs and reduction in the amount of open space. However, many communities have embraced a vision that will support the development of passenger rail service within the State. In 2010, the metropolitan planning organization for Davis, Salt Lake and Weber Counties adopted Wasatch Choice for 2040. Wasatch Choice for 2040 used residents, technical experts and elected officials to identify growth principals to guide development and make the transportation network more cost-effective and efficient. The vision focuses on in-fill development with mixed-use village and large economic centers linked by an efficient transportation network. Rail can be a vital component in developing this network by working as a catalyst for redevelopment and infill development that facilitates pedestrian mobility, while reducing automobile dependence.

Chapter 4 – The State's Existing Rail System: Rail Service Needs and Opportunities

Objective: Identify the needs and opportunities for passenger and freight rail service in the State.

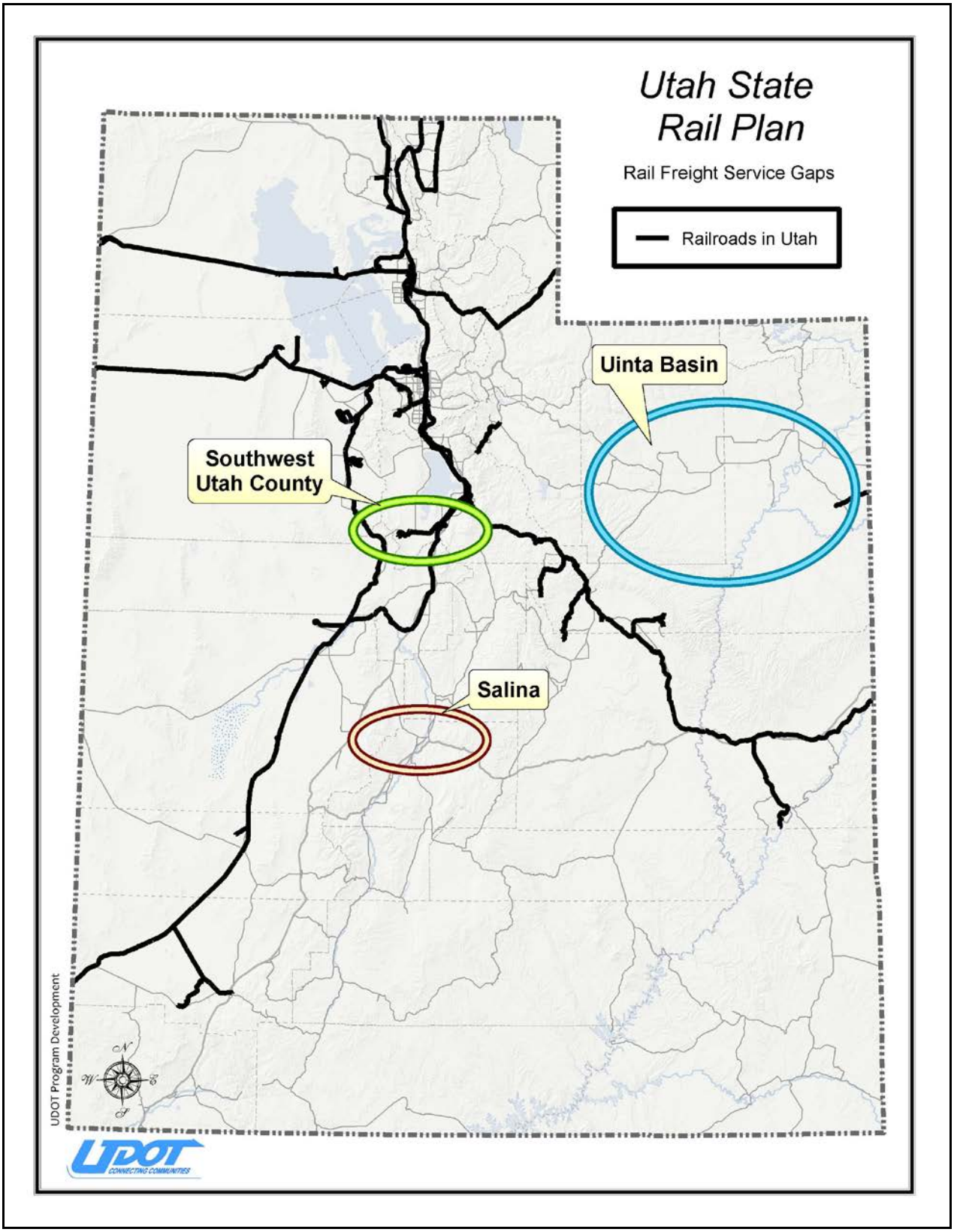
4.1 Based on the findings in Chapters 1 through 3, summarize the key issues, service gaps, improvement needs, including connectivity to other modes, and financial deficits facing the State's rail system. Identify the opportunities to address those issues, gaps, needs, and deficits for freight, intercity, and commuter rail. The rationale and basis for the rail improvements proposed in Chapters 5 and 6 should be presented, included projected shifts in the nature and type of passenger and freight movement and emerging markets

4.1.1 Freight rail summary with gaps, needs, financial deficits and opportunities

4.1.1.1 Potential freight rail service gaps in Utah

1. Direct railroad freight service to the resource-rich Uinta Basin region in northeastern Utah. See Chapter 6 of the Utah State Rail Plan (USRP) for more information.
2. Closer rail freight service to Utah's largest coal mine, the Sufco Mine, located east of Salina off I-70. (See Central Utah Rail Project in Chapter 6.)
3. Reintroduce rail freight service to southwest Utah County for agriculture, mining, and manufacturing. This is associated with the proposed reactivation of UP's former Tintic Branch by a short line railroad, in order to attract development in that part of Utah County. State and county development agencies have been approached in recent years by business entities expressing interest in locating along this line if it is reactivated.

Figure 48: Potential Rail Freight Service Gaps



4.1.1.2 Potential rail freight service needs in Utah

The regional and short line railroads in Utah account for a relatively small amount of the total rail infrastructure in the state. As the state's primary rail freight carrier, UP is the dominant owner/operator of most of Utah's freight railroad lines. As a result of UP's on-going capital investment in their infrastructure and operations, there are currently no major rail freight service needs in Utah.

According to the latest UP data, in 2013 UP invested $91.9 million in capital improvements in the state of Utah. From 2007 to 2013, UP invested more than $21.6 billion in its network and operations across its 23-state system to support transportation infrastructure. This represents a substantial financial commitment by a private sector, non-government funded corporation in the future of rail freight service in Utah and America. UP's expanding freight business in Utah reflects an improving economy and the inherent efficiencies of rail freight transportation.

One of the primary goals of departments of transportation across the nation is the safe and efficient movement of highway traffic, while at the same time strengthening their economy. MPOs and local governments also share in these goals. Here in Utah, the following are frequently communicated to governmental jurisdictions regarding railroad operations by both the general public and business community.

1. The amount of time it takes for mainline and local trains to clear at-grade railroad crossings is too long.
2. The frequency of railroad switching operations that impede highway traffic as well as bicycle and pedestrian movements is too often.
3. Diversion of freight traffic from rail to highway as a result of railroad service gaps or inadequacies, such as rail line abandonments or rail service problems, cannot be sustained.

A top priority of state and local governments is their ability to maintain and grow their economies. Freight transportation, including railroads, is the vital link between those economies and both foreign and domestic markets. As a result, maintaining railroad freight service to a community or area is likewise a priority to state and local governments.

One of the most important and beneficial efficiencies in transporting freight by rail is the ability to operate fewer but longer trains. Long freight trains are frequently operated by the nation's railroads, reflecting the operational requirements of shippers and of the railroads themselves. Along with the efficiencies and cost savings associated with these longer freight trains come impacts associated with the handling of these trains at railroad yards, crew change terminals, and fueling facilities, as well as out on the mainlines that link such facilities across the nation. Longer trains often require

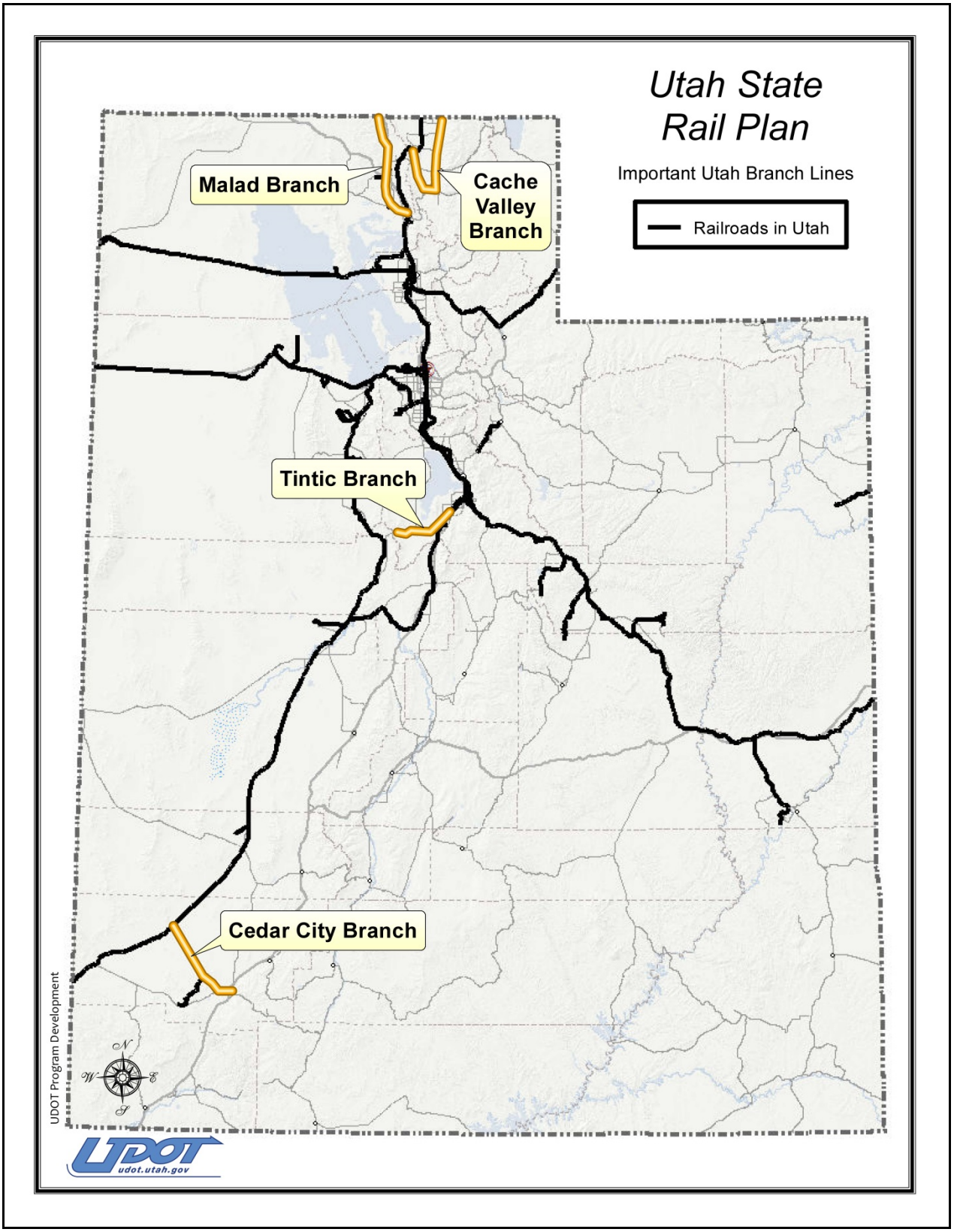
infrastructure investments to facilitate their operation such as expanded yard and terminal facilities as well as longer passing sidings on single-track mainlines.

Here in Utah, the most frequent incidents of long railroad crossing blockages due to longer freight trains, as well as terminal switching of long cuts of freight cars, are found at highway-rail at-grade crossings. These impacts are most frequently experienced at crossings located near UP's primary freight facilities at Salt Lake City's Roper Yard, North Yard, and at the Salt Lake City (Freight) Intermodal Terminal.

In contrast with the large freight trains that are the hallmark of long-haul mainline rail freight operations, lightly-used branch lines and industrial leads are important freight feeders to those big mainline trains. In Utah, as in other states, branch lines and industrial leads provide important freight links between mainline train service and smaller rural and urban shippers. Such lightly-used lines are vital to the current and future economic well-being of the areas and communities they serve, and to the state as a whole. In Utah there are several branch lines such as the Cache Valley Branch, Malad Branch, Cedar City Branch and the currently inactive Tintic Branch that figure prominently in the future growth and business development of the communities served by those lines.

Special Note: The UP continually evaluates factors such as, but not limited to, train size, length of sidings, etc. This analysis is considered proprietary information by UP that is not shared with UDOT. Outside economic influences, internal capital priorities in other regions served and in many cases the private marketplace, drive railroad capital investments on a case by case, and often a customer specific, basis. The history, depth and scope of private sector railroad capital investment since the industry was deregulated in 1980 illustrate this very well.

Figure 49: Important Utah Branch Lines



4.1.1.3 Financial deficits and opportunities.

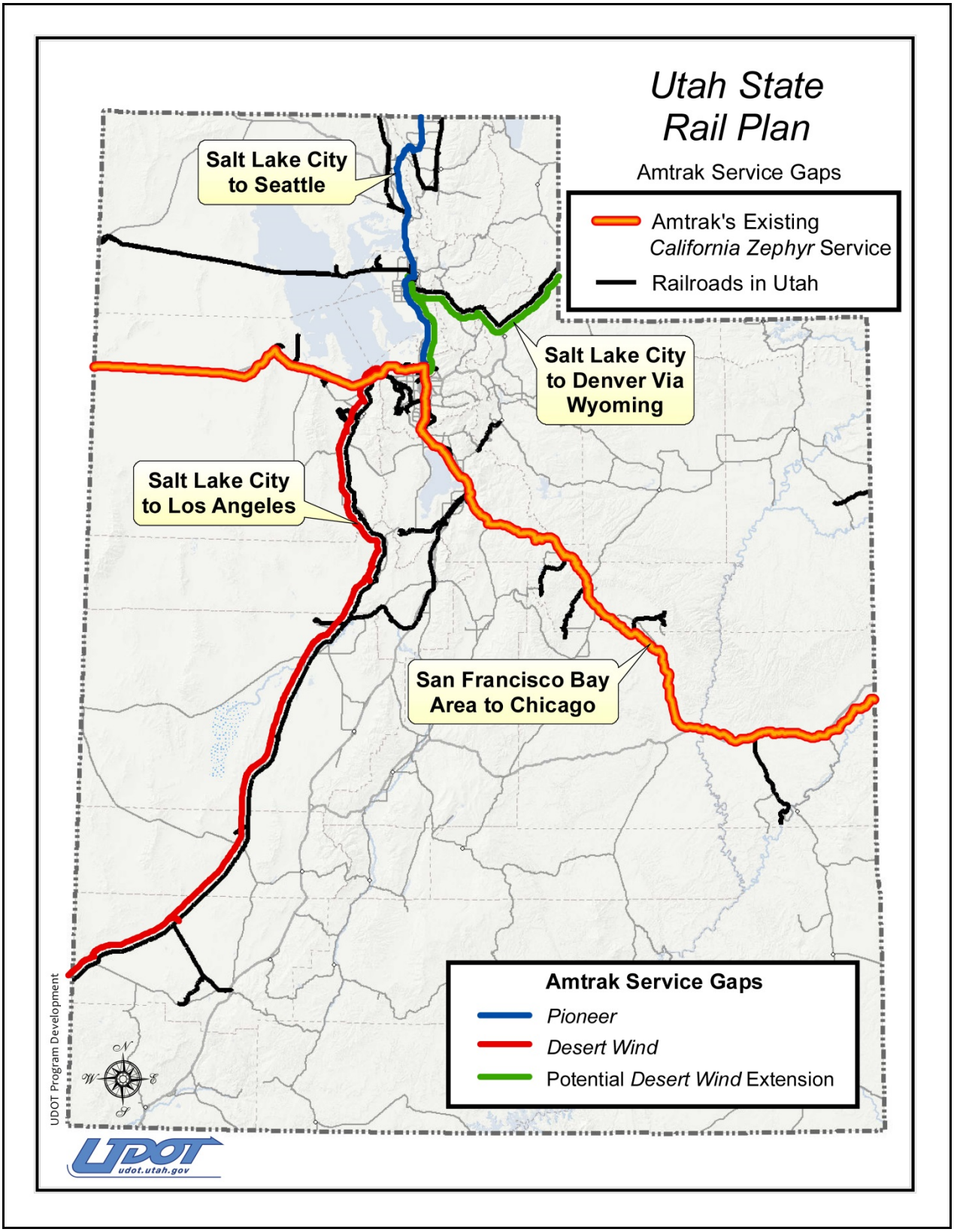
None.

4.2 Intercity passenger rail summary with gaps, needs, financial deficits and opportunities

4.2.1 Potential Amtrak intercity passenger rail service gaps in Utah

1. Intercity rail passenger service between Salt Lake City, Las Vegas, and Los Angeles as a national network passenger train with through-car connections to the existing *California Zephyr* in Salt Lake City. This train would be similar to the discontinued *Desert Wind*. See number 3 below.
2. Intercity rail passenger service between Salt Lake City, Boise, Portland, and Seattle as a national network passenger train. This train would be similar to the discontinued *Pioneer* as it existed prior to 1991.
3. Intercity rail passenger service from Salt Lake City to Denver via Ogden, Rock Springs and Laramie, Wyoming. This could be an extension of a reinstated Amtrak *Desert Wind*.
4. Investigate the feasibility of intrastate passenger rail service between Salt Lake City and Cedar City via Milford, with connecting motor coach bus service from Cedar City to St. George.
5. Both new and existing intercity passenger train service would benefit from a focus on full-service station facilities to cater to domestic and international tourism, rather than the temporary bus-shelter-type stations that were provided along the routes of the Amtrak *Pioneer* and *Desert Wind* passenger trains during their nearly twenty years of operation. Wherever possible existing and future intercity rail passenger stations would benefit from serving as passenger intermodal facilities for other passenger carriers serving the areas where those stations are located.
6. Expanded intercity rail passenger service options in Utah will enhance tourism opportunities by providing foreign and domestic visitors with non-auto options for accessing many of Utah's historic and natural attractions.

Figure 50: Potential Amtrak Intercity Passenger Rail Service Gaps

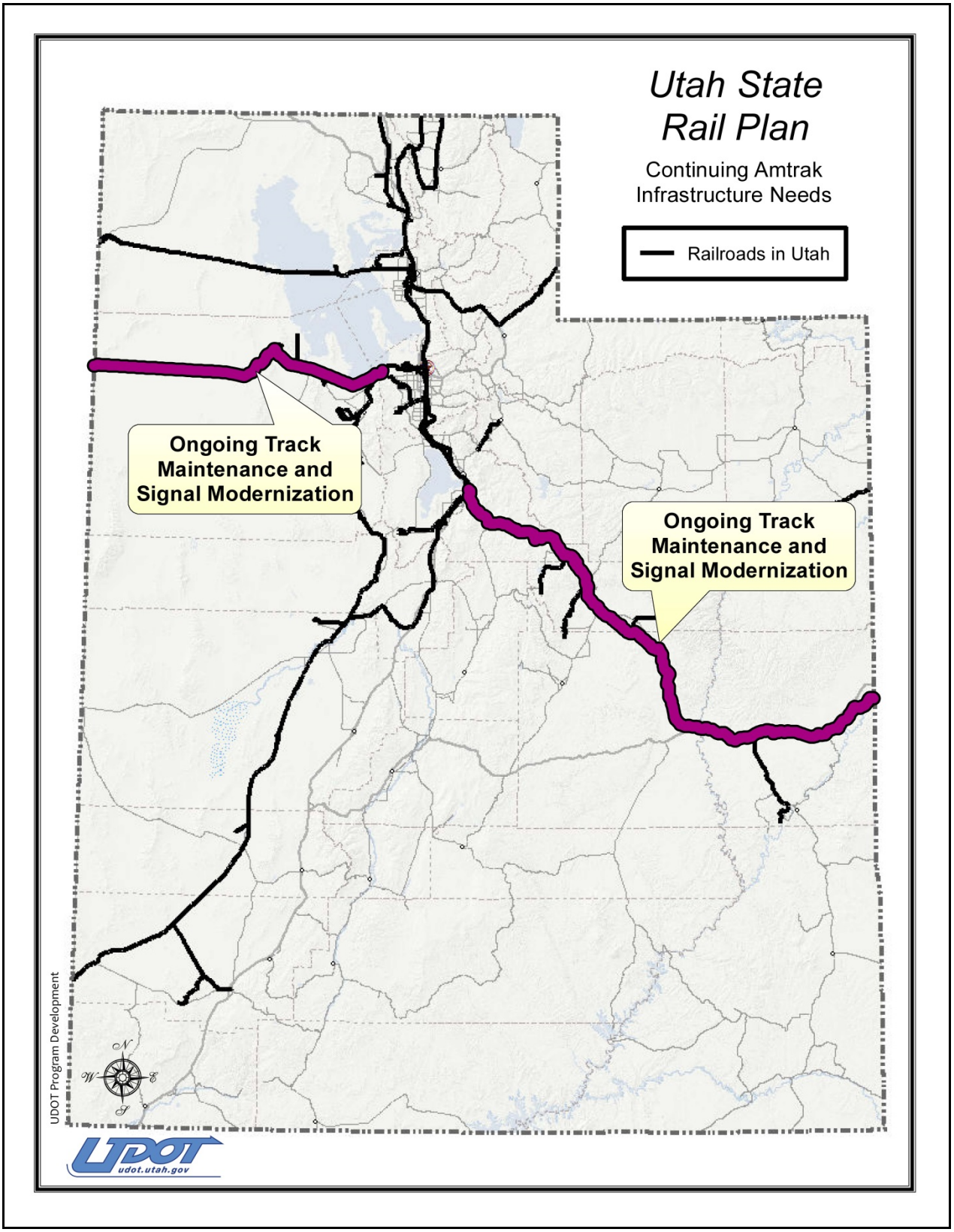


4.2.2 Potential intercity passenger rail service needs in Utah.

1. Continue on-going track maintenance and signal modernization on UP's Rio Grande mainline from Provo to Grand Junction.
2. Continue on-going track maintenance and signal modernization on UP's Feather River Route mainline from Smelter Junction west of Salt Lake City to Wendover. Both of these projects are improving safety and operational reliability on the two routes in question over which Amtrak's *California Zephyr* operates.
3. Establishment of a permanent, full-service Amtrak station in downtown Salt Lake City to replace the existing temporary modular facility that has served intercity rail passengers since 1999.
4. Investigate the feasibility of establishing a new suburban stop on the route of the *California Zephyr* between Salt Lake City and Provo at or near the Thanksgiving Point development in Lehi, Utah.
5. Investigate the feasibility of establishing a new station stop for the *California Zephyr* in Wendover, Utah or the adjacent community of West Wendover, Nevada.

Special Note: It is important to note that the public benefit of expanded rail passenger service appropriately follows public investment related to that service. At present, all existing and potential conventional intercity passenger train operations use private freight railroad lines. These existing and potential passenger train services are separate and apart from private freight rail planning and investment, and would rely on public interest and investment to move forward.

Figure 51: Continuing Amtrak Infrastructure Needs



4.2.3 Financial deficits and opportunities

None.

4.3 Commuter rail summary with gaps, needs, financial deficits and opportunities

UTA provides multi-modal service to a six-county Transit District that lies primarily along the area known as the Wasatch Front. UTA began commuter rail service between Salt Lake City and Pleasant View in 2008, serving Salt Lake, Davis, and Weber Counties. In 2012, commuter rail service was extended south into Utah County, providing continuous service between Provo and Pleasant View, directly serving the four most populous counties in the state of Utah.

UTAs primary source of funds is a transit sales tax collected in each county within the transit district. Sales tax receipts make up about 66 percent of UTAs operating revenue. Voters passed county-wide sales tax initiatives in Davis, Salt Lake, and Weber (2000) and Salt Lake and Utah (2006), in part, to fund the construction and operation of commuter rail service. Currently, as shown in the table below, the rate of sales tax varies by county. System-wide, these sales tax revenues cover both operating and capital costs.

Table 43: Utah Transit Authority 2014 Sales Tax by County

County	2014 Sales Tax
Box Elder	0.55
Davis	0.55
Salt Lake	0.6875
Tooele	0.3
Utah	0.55
Weber	0.55

4.3.1 Potential commuter rail service gaps in Utah

1. Commuter rail service on Sundays.
2. Commuter rail service from Pleasant View to Brigham City.
3. Commuter rail service from Provo to Santaquin.

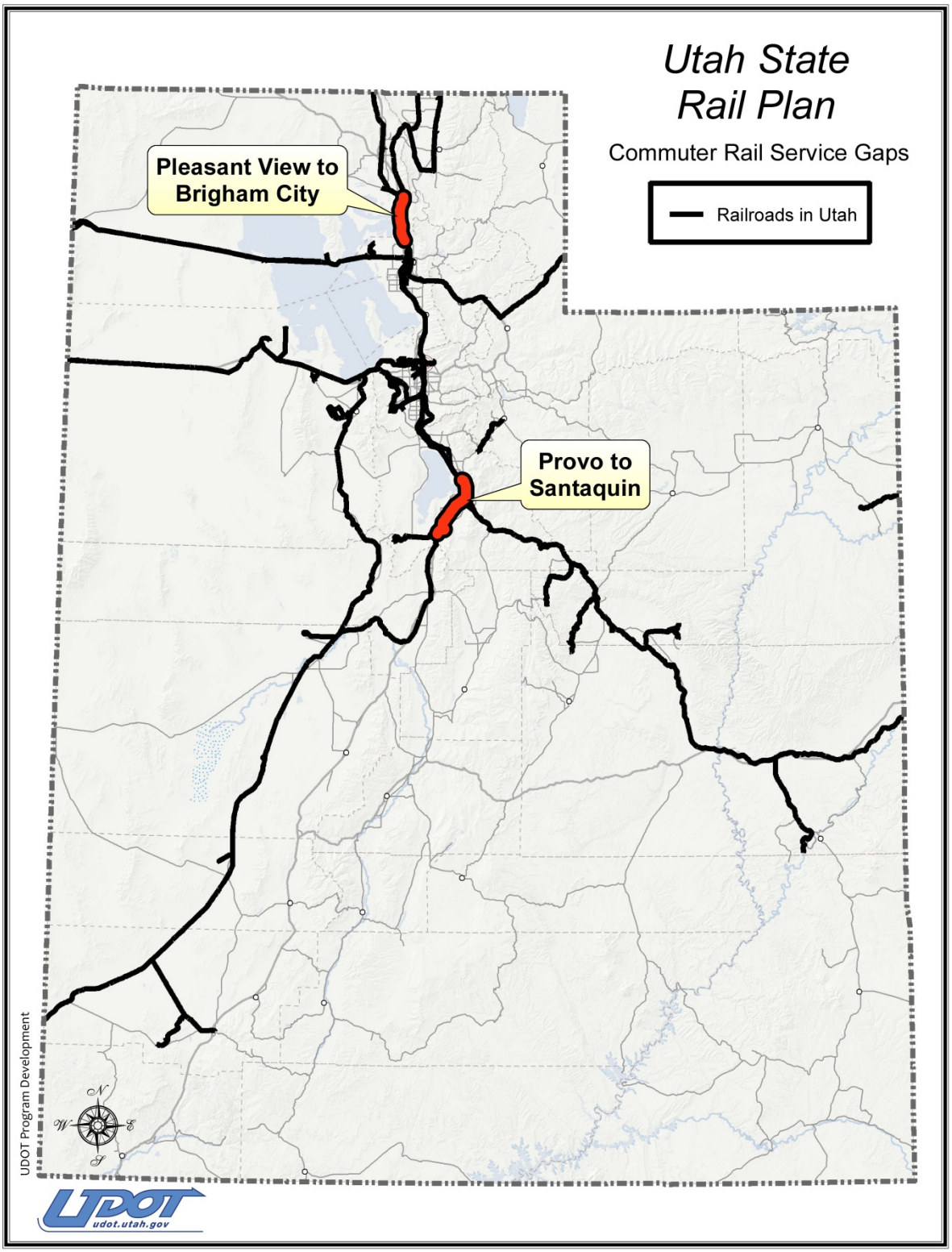
4.3.1.1 Long range future commuter rail service.

Looking beyond the current planning horizon, if future population growth continues as projected, the following additions of commuter rail service may be considered.

1. Brigham City to Tremonton.
2. Salt Lake City to Tooele.
3. Santaquin to Nephi.

It is important to note that at present these possible future commuter rail additions are outside UTA's existing rail service area. Therefore, a vote by the residents of those counties and UTA's Board of Directors would be required before expansion of services could occur.

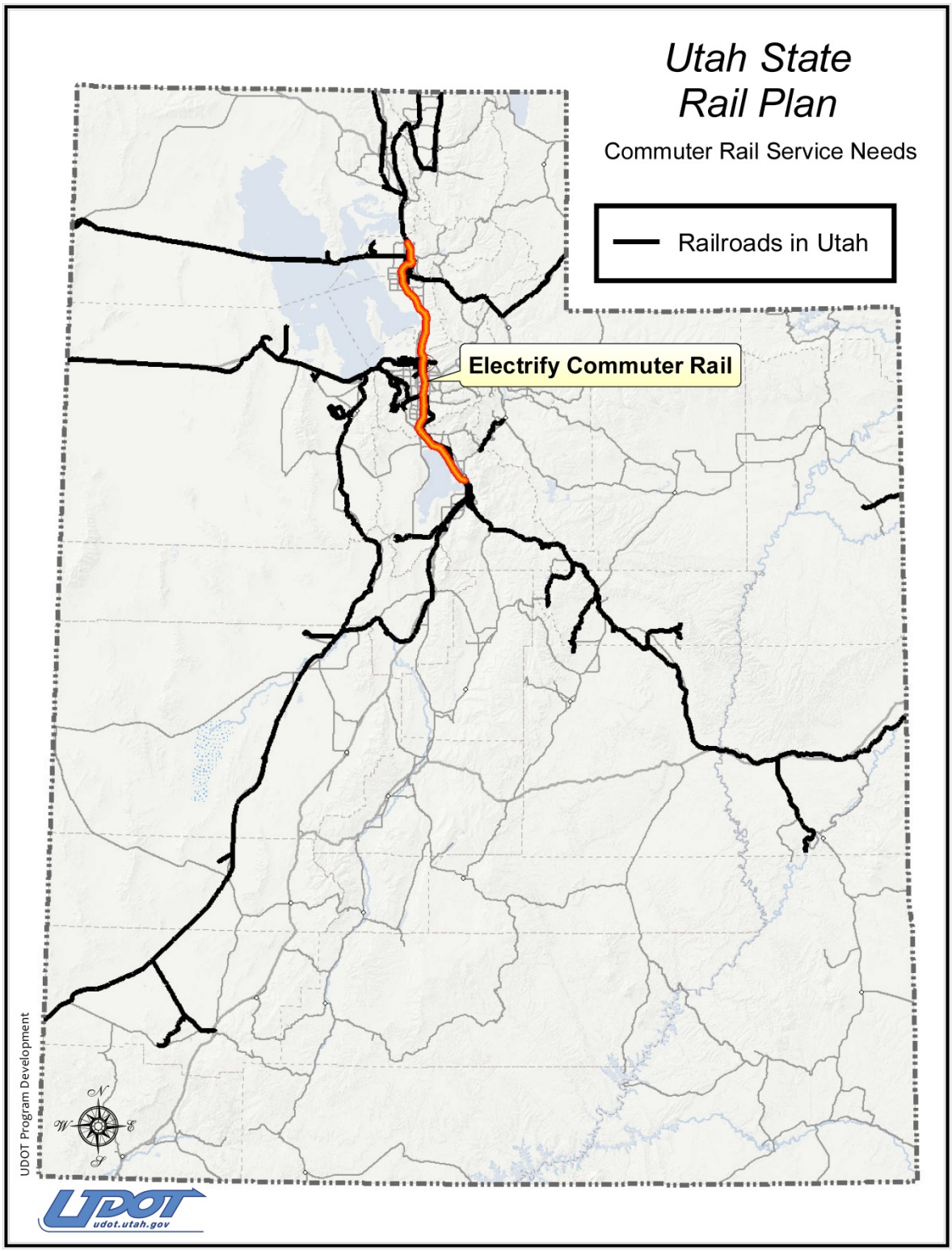
Figure 52: Potential Commuter Rail Passenger Service Gaps



4.3.2 Potential commuter rail service needs in Utah.

1. Conversion of *FrontRunner* commuter rail service from diesel to electric power.
2. Conversion of at-grade crossings to grade separated crossings to allow for higher speeds.

Figure 53: Potential Commuter Rail Passenger Service Needs



4.3.3 Financial deficits and opportunities

1. UTA's *FrontRunner* service has no capital financial deficits.

4.4 Opportunities Tourism Support

4.4.1 Amtrak

With five national parks, seven national monuments, two national recreation areas, and one national historic site, Utah is a prime national and international tourism destination. However, most out of the state or international tourists rely on auto and air travel to reach Utah and its scenic attractions. Unlike other areas in the western United States, Utah does not have rail passenger service that lends itself to being used by our domestic or international visitors. Amtrak's sole remaining train serving the mountain west region, the Chicago to San Francisco Bay Area *California Zephyr*, is not scheduled or equipped to cater to the majority of those wishing to visit Utah.

As was identified in the Amtrak Five Year Plan 1975 – 1980, for long distance trains to be fully viable, a minimum of three frequencies each day are required to provide travel time choice and daytime service over all segments of each long distance passenger train route. Amtrak's elimination of the Salt Lake City to Seattle *Pioneer* and Salt Lake City to Los Angeles *Desert Wind* passenger trains in 1997 eliminated Utah's passenger rail hub status, and also removed two important routes from further service and frequency enhancements. The remaining *California Zephyr* passes through most of Utah during night time hours. For example, Utah's only full service, manned Amtrak station is Salt Lake City, where the westbound *California Zephyr* is scheduled late in the evening while the eastbound *California Zephyr* serves Salt Lake City in the very early morning.

Various internal Amtrak studies in the early and mid-1980's identified the popularity of the system's long distance trains with foreign tourists. In many cases tourists were intimidated by the vast distances one must drive when visiting western America. Although there are no intrastate routes in Utah that lend themselves to state-funded intrastate passenger trains, a renewed focus by Amtrak on improving and expanding its long distance passenger train network would improve Utah's accessibility to rail-based tourism.

4.4.2 Heber Valley Railroad

As Utah's only tourist railroad, the Heber Valley Railroad has long been a popular tourist attraction located adjacent to the Wasatch Front population corridor. After playing an important role in the 2002 Salt Lake Winter Olympic Games, the Heber Valley Railroad's primary challenge today is in securing adequate and sustained funding to

maintain its operation. The Heber Valley Railroad runs several types of tourist trains, including special “theme” trains at different times of the year, and is a very popular attraction for both Utahns and tourists visiting this region. The Heber Valley Railroad is also important to the Utah Film Commission since a number of films have used the railroad’s historic trains and locomotives.

Chapter 5 – Proposed Passenger Rail Improvements and Investments

Objective: Describe the improvements and investments that could address the passenger rail needs of the State.

5.1 For the intercity and commuter passenger opportunities described in Chapter 4, describe in summary terms all passenger rail proposals under consideration, including new services, station improvements, improved intermodal connections to other passenger modes, state of good repair projects, rolling stock improvements, and unfunded concepts. Identify projects as service changes or physical improvements and whether they are improvements or new additions to the existing rail network in the State. Organized by corridor and type of service (i.e. intercity, commuter or both), describe how each proposal would address gaps in service and financial deficits identified in Chapter 4, identify potential operating subsidies and sources, identify efforts to mitigate external costs (e.g. noise and grade crossing closures), and reference relevant studies and reports.

As has already been explained in this plan, the state of Utah, aside from the projects outlined by UTA, has not traditionally and does not plan at this time to become a financial or operating entity in terms of rail passenger service in the state.

In Chapter 4 rail service gaps, needs and opportunities were identified involving both freight and passenger rail service in Utah. The state of Utah leaves such matters to the private sector in terms of rail freight improvements, and to those responsible agencies such as UTA and Amtrak for passenger rail projects. Inasmuch as this chapter deals specifically with intercity/commuter rail improvements, this chapter will focus on those beyond what has already been identified in previous chapters.

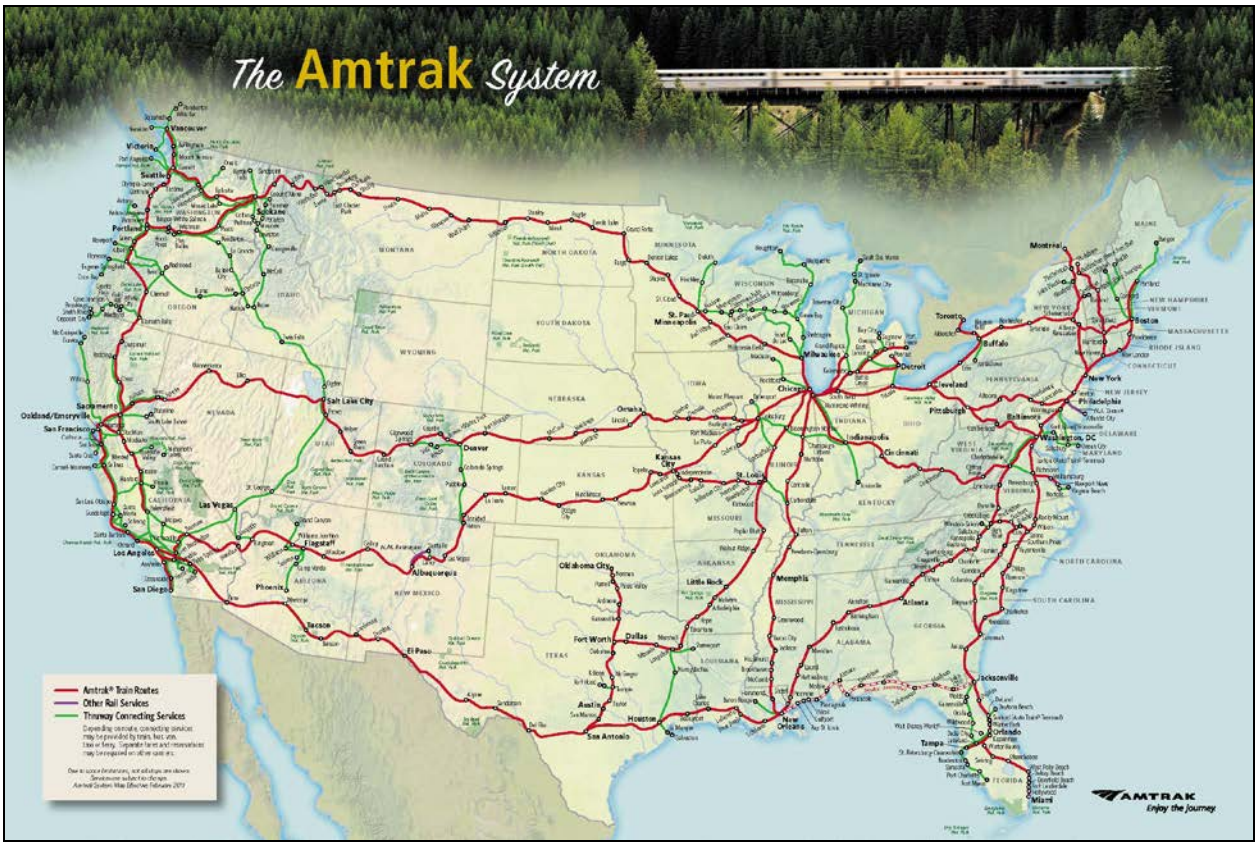
5.2 Amtrak Intercity Passenger Rail Improvements and Investments

Since the 1970's many states have become financially involved in the operation of intercity passenger trains within their own state or in multi-state short and medium distance corridors. California's extensive network of state-funded passenger trains is perhaps the best example of this, while Oregon and Washington's Pacific Northwest Corridor operation between Eugene, Oregon in the south and Vancouver, British Columbia Canada in the north is another prime example of multi-state-supported corridor service.

Utah has never involved itself in state-supported intercity rail passenger service for several reasons. First, as a fiscally conservative state, Utah has traditionally not invested state tax dollars in what could be considered private sector activities and services.

Second, owing to the geographical issues already covered earlier in this plan, as well as how Utah's communities and ground transportation links evolved, viable city pairs with existing rail infrastructure linking them do not exist outside the Wasatch Front population corridor. As such, Utah is currently not a candidate for state funded conventional intercity passenger train service such as that found in California and many other states. The Wasatch Front population corridor is served by UTA's current and future *FrontRunner* commuter rail operation. Potential future developments in high speed rail transportation may alter Utah's current intercity rail passenger service.

Figure 54: Amtrak System Map



Source: http://www.amtrak.com/ccurl/948/674/System0211_101web,0.pdf

5.2.1 Pioneer Route

It is important to note that the green lines linking Salt Lake City with the Pacific Northwest as well as Southern California, as shown in Figure 54, are buses and not trains.

In 2009, Amtrak studied the feasibility of restoring service of the *Pioneer*, which ran between Chicago and Seattle via Denver and Salt Lake City, from 1977 to 1997. This study, titled "Pioneer Route Passenger Rail Study" was required by Section 224 of PRIIA. The agency looked at four potential routes that included different combinations of

Denver, Salt Lake City, Portland and Seattle. Passenger miles per train mile ranged from 77 (Denver to Portland) to 131 (Salt Lake to Seattle). Fare box recovery ranged from 20.6 percent (Denver to Seattle) to 31.7 percent (Salt Lake City to Seattle). The report noted that the projected fare box recoveries for the various *Pioneer* options are significantly lower than the average fare box recovery for Amtrak long distance trains in Fiscal Year 2008 (51.8 percent).

Amtrak concluded:

> Restoration of the *Pioneer* would enhance Amtrak's route network and produce public benefits, but would require significant expenditures for initial capital costs and ongoing operating costs not covered by fare box revenues… Amtrak supports strengthening and improving the national network of long distance trains but will need significant additional funding to expand operations beyond today's current services. Thus, Amtrak recommends that federal and state policymakers determine if intercity passenger rail service along the former *Pioneer* route should be reintroduced and, if so, that they identify the preferred option for service restoration and provide the required levels of capital and operating funding to Amtrak.

5.3 Commuter Rail Plans

5.3.1 Existing Network

UTA opened the *FrontRunner* commuter rail service in 2008. The initial 44-mile line ran from Ogden in the north to Salt Lake City in the south, with stations in between at Woods Cross, Farmington, Layton, Clearfield, and Roy. A 45-mile extension from Salt Lake City south to Provo opened in 2012, with stations in Murray, South Jordan, Draper, Lehi, American Fork, Orem, and Provo. A Pleasant View station was also added to the north end of the line. The *FrontRunner* diesel locomotive powered push/pull trains are often bi-level and can achieve speeds of up to 79 miles per hour, based on Federal rail speed limits. The *FrontRunner* replaced some peak-hour express buses.

FrontRunner has begun to meet and exceed ridership projections. The annual ridership for 2014 was 4,416,371. The Provo extension line has carried as many as 16,000 boardings per weekday.[1]

Currently UTA runs commuter rail every 30 minutes during peak, 60 minutes during off peak, Monday through Saturday, approximately 5:00 a.m. to 12:30 am. The majority of

[1] UTA Press Release, "Ridership on UTA is healthy, but changing as new rail lines open," June 17, 2013.

crossings are at-grade, so the current service is restricted to 79 mph or less. The current service is also restricted to no more than 30 minute frequency due to long sections of single track along the alignment. Trains must wait for trains in the opposing direction of travel to clear the track prior to proceeding. There is a limited number of passing or siding tracks available for this maneuver.

Table 43: Utah Transit Authority *FrontRunner* Metrics

Metric	2013	2014
Ridership	3,816,324	4,416,371
Reliability	89.16%	92.00%
Customer Complaints	43.00/per 100,000 riders	21.76/per 100,000 riders

Future plans for commuter rail include double tracking where possible to increase travel frequency, grade separating all crossings in order to increase speeds above 79 mph, and electrification of locomotives for decreased fuel costs, improved air quality, and improved reliability.

Additionally, UTA is working on transit connectivity at all commuter rail stations as well as first/last mile strategies to increase ridership by making transit more accessible and convenient to the traveling public.

The following sections discuss planned commuter rail projects.

5.3.1.1 Wasatch Front Regional Council 2040 Regional Transportation Plan

The WFRC is preparing its 2015 – 2040 Regional Transportation Plan. The WFRC has developed a preferred scenario based on different land use scenarios. The preferred scenario identifies two commuter rail projects, both at the far north end of the Wasatch Front:

- Improvements to the segment of *FrontRunner* between the Ogden and Pleasant View stations (Phase 2 - 2021 to 2030); and
- A new segment of *FrontRunner* from the Pleasant View station north to the Box Elder County line, as part of an extension to Brigham City (Unfunded Phase).

Presently between Ogden and Pleasant View, UTA runs limited commuter rail service during morning and afternoon peak hours and shuttle buses during non-peak hours. The WFRC Unified Planning Work Plan calls for a right of way study from Ogden to Brigham City. It is difficult to provide enough service operating *FrontRunner* trains on the same track as freight trains. Constructing a UTA owned track in the UP corridor would allow UTA to extend its commuter rail operation north to Brigham City as funding becomes available. In order to do this in the future requires determining right of way needs in the corridor.

UTA will conduct preliminary mapping, survey and engineering work to determine right of way needs to construct its own track in the UP corridor between Ogden and Brigham City. This effort will define the exact rail alignment within the corridor and identify the properties needed for future rail operations.

5.3.1.2 Mountainland Association of Governments 2040 Transportation Plan

The MAG 2040 Metropolitan Transportation Plan was adopted in 2011 and identifies three additional segments of commuter rail that will add to the existing line that extends into Utah County:

- A new segment of *FrontRunner* from Provo to Payson (Phase 2, 2021 to 2030).
- A new segment of *FrontRunner* from Payson to Santaquin (Phase 3, 2031 to 2040).
- A new segment of *FrontRunner* from American Fork to Santaquin via Cedar Valley (Unfunded Phase).

The MAG Unified Planning Work Plan shows a project planned in the future that will extend *FrontRunner* commuter rail service from Provo 16 miles south to Payson City, with potential stations in Springville, Spanish Fork, and Payson. Current study and planning work includes station area planning in Springville, Spanish Fork, and Payson.

- Property Reserve Incorporated, Springville, UTA, Suburban Land Reserves, and Nebo School District are partnering for station area planning at a village center near the future Springville Commuter Rail Station near 400 South and 1750 West in Springville.
- UTA is partnering with Payson to do a freight/shippers sidings analysis and pedestrian and crossings analysis before conducting station area planning.
- UTA is working with Spanish Fork city to develop an area for the Spanish Fork Commuter Rail Station area located near Center Street and I-15 for a new station.

5.3.1.3 Station Area Planning

While many station areas have developed or are starting to develop into higher density centers, some communities struggle with effectively planning and implementing their plans in these areas. To address this issue and to meet UTA Board goals, the UTA planning department is seeking to provide funding and technical assistance to at least two communities every year.

First-last mile strategies, as defined by UTA and used for this project:

> The term “last mile” can be used to describe the difficulty in getting people from a transport hub, such as a railway station or bus depot, to their final destination and back again. When users have difficulty

> getting from their starting location to a transport network, this can be described as the "first mile problem."
>
> Traditional solutions to the first mile problem in public transit have included the use of feeder buses, bicycling infrastructure, pedestrian amenities and urban planning reform, such as street and trail connectivity and mixing uses. Other methods of alleviating the last mile problem such as bicycle sharing systems, car sharing programs, van pools, folding bike, taxi cab services, wayfinding, and other strategies have been proposed with varying degrees of adoption.

UTA, working with project partners that include WFRC and MAG, among others, will manage a consultant to develop recommendations for a comprehensive first and last mile strategy around major transit stations and fixed route stops including existing bus rapid transit, light rail and commuter rail stations within the UTA system in an effort to reduce auto usage and increase ridership as a means of improving air quality, improving job access, and reducing congestion.

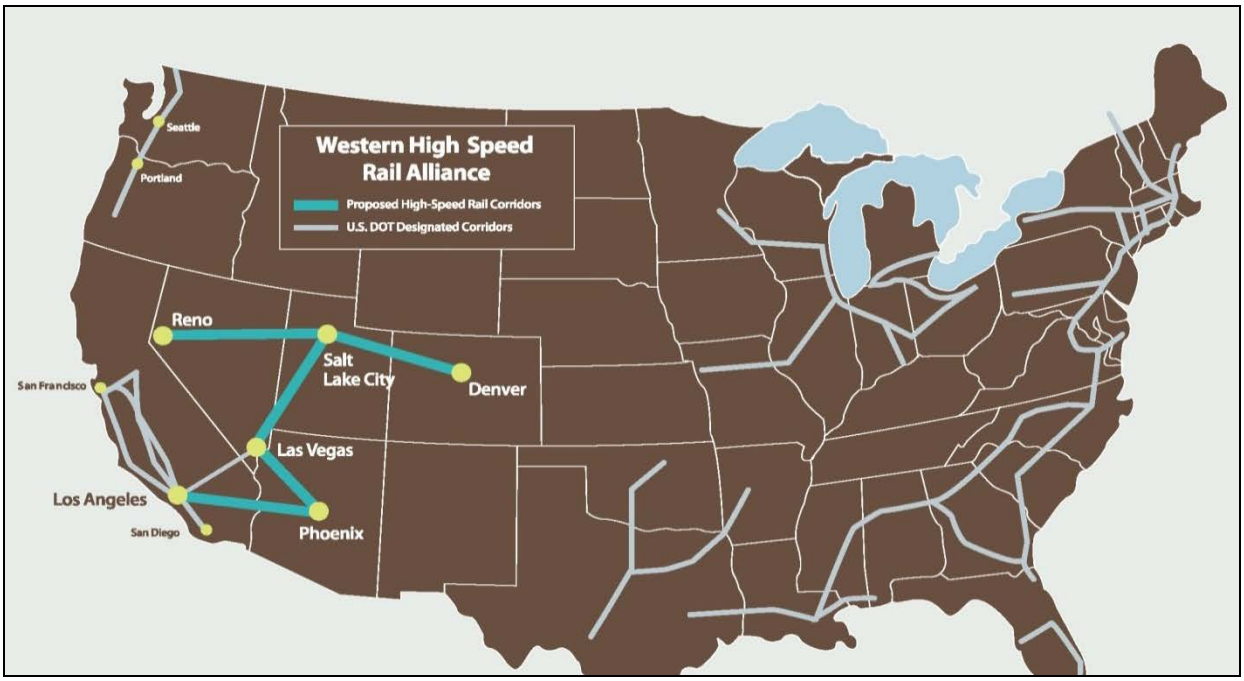
5.4 High Speed Rail and Maps

High-speed rail encompasses rail services that operate at 155 miles per hour on new tracks or 125 miles per hour on existing tracks.[2] High speed rail lines are generally electrically driven via overhead catenary and use continuous welded rail, which reduces track vibrations allowing high speeds.[3] Individual trains have the capacity to carry over 1,600 seated passengers.[4] Advocates make the point that high-speed rail is often viewed as an isolated transportation mode, but it can be combined with many other modes to make for efficient inter- and intra-city trips. For many long-distance trips, especially when taking into account travel times to an airport from a center city, high-speed rail can be faster than flying.

Utah was not included in the high-speed rail network proposed by the U.S. Department of Transportation (DOT). The U.S. DOT-designated corridors largely exclude the Intermountain West: a connection from Southern California to Las Vegas is the only corridor to reach into an Intermountain West state.

[2] As defined by the International Union of Railways (UIC), http://www.uic.org/spip.php?article971
[3] WHSRA fact sheet
[4] Modeled on an E4 Series Shinkansen train, in the Japanese high-speed rail network.

Figure 55: Western High Speed Rail Alliance Map



Source: http://www.whsra.com/sites/all/themes/whsra/downloads/WHSRA_Brochure.pdf

The Western High Speed Rail Alliance (WHSRA), which is now the Western Regional Alliance (WRA), has developed a vision for high-speed rail connections throughout the Intermountain West. The WRA consists of MPOs from Las Vegas, Phoenix, Reno and Denver as well as UTA. The organization was created to determine the viability of a high-speed rail network in the Intermountain West as well as to promote the concept.

The WRA argues that high-speed rail will fuel economic expansion, create new travel choices, reduce national dependence on oil, and foster sustainable growth patterns that can improve air quality and water use. The Alliance argues that the Intermountain West is ideal for high-speed rail because of the region's forecasted rapid population and economic growth as well as the wide-open spaces in between its large population centers.[5]

The organization's vision includes high-speed rail connections among the regions represented by its members, and would be tied to the U.S. DOT network by the Southern California-Las Vegas connection as well as a proposed route between Phoenix and Southern California.

Under the WRA vision, Utah would have connections to Reno, Denver and Las Vegas. The exact alignments of those connections have yet to be determined.

[5] The HSR points to US Census figures that predict that 88 percent of the nation's growth will occur in the western and southern states.

If the proposal gains traction, the WRA proposes to work jointly to fund studies, create plans and build high-speed rail facilities.

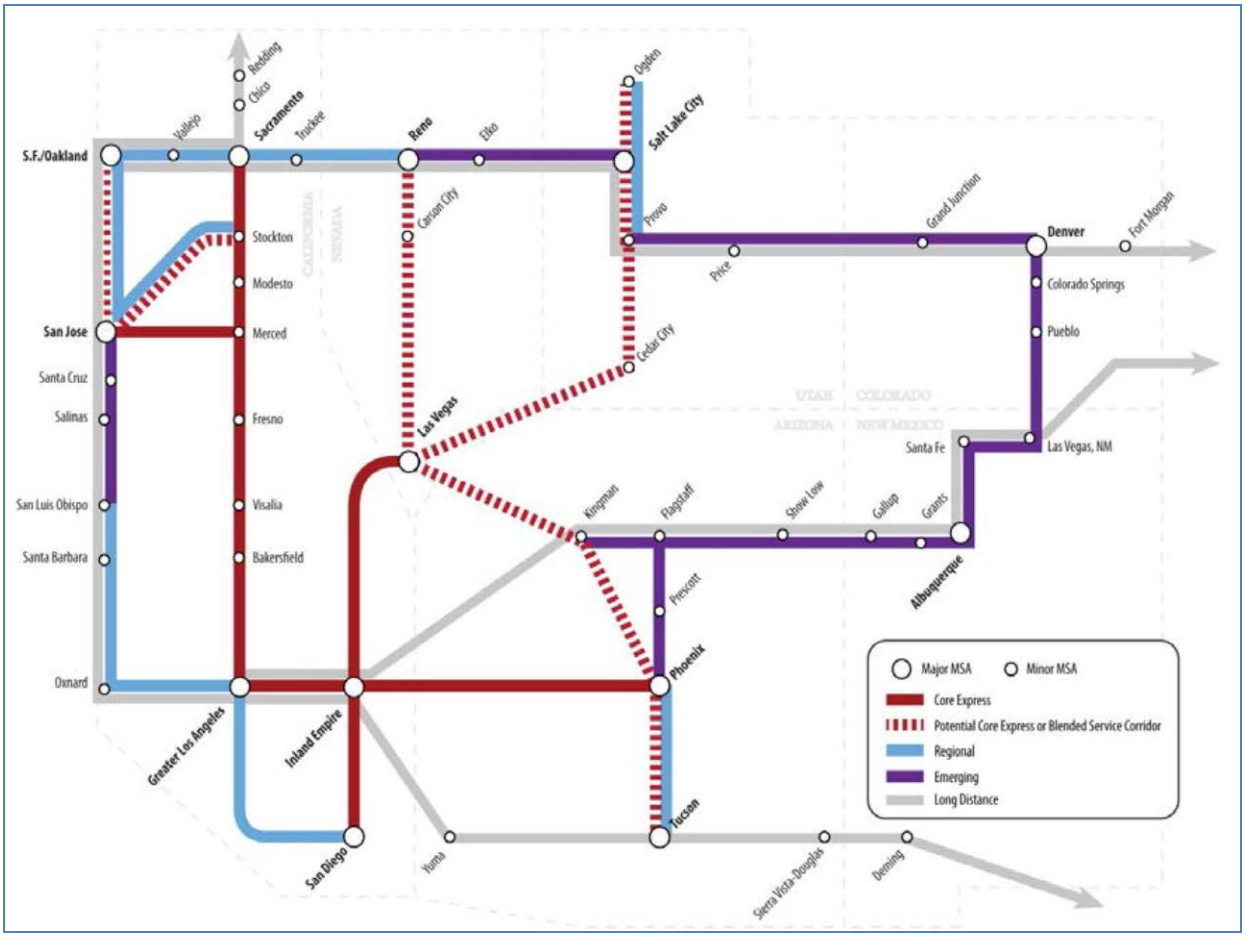
High-speed rail could address current gaps in passenger service between the Wasatch Front region and other major western metropolitan regions such as Reno, Las Vegas, Phoenix, and Denver.

5.4.1 Southwest Multi-state Rail Planning Study – Technical Background Report

The *Southwest Multi-State Rail Planning Study* (SW Study) is the first high-performance rail (HPR) network planning study led by the Federal Railroad Administration (FRA). The FRA initiated the SW Study concurrent with its National Rail Planning Study – an effort to develop a national toolkit for the conceptual planning of HPR networks at the multi-state and mega-regional level.

The SW Study discussed two city-pair corridors that include Utah. The first is Las Vegas to Salt Lake City and the second is Reno to Salt Lake City. The one city pair corridor that is not mentioned in the SW Study is Denver to Salt Lake City. The figure below shows a map of the entire candidate corridors. The solid red lines represent the core express service while the dashed red lines are potential core express service or blended service corridor. The solid blue line represents regional service while the solid purple line represents emerging service. Finally, the gray line represents existing Amtrak conventional long-distance passenger trains.

Figure 56: Candidate Corridors for Potential SW High-Performance Rail



Source: CONNECT Beta Version, 2012

*Figure identifies desired connections between metropolitan areas. It does not identify alignment or station locations and does not preclude multiple alignments within a corridor segment.

Chapter 6 – Proposed Freight Rail Improvements and Investments

Objective: Describe the improvements and investments that could address the freight rail needs of the State.

6.1 For the freight opportunities described in Chapter 4, describe in summary terms all freight rail proposals under consideration, including new intermodal interfaces. Identify projects as service changes or physical improvements and whether they are improvements or new additions to the existing rail network in the state. Organized by railroad company and corridor, describe how each proposal would address gaps in service and financial needs, and options for improvements in Chapter 4 and reference relevant studies and reports.

6.1.1 Freight Rail Proposals

Since the last USRP was compiled in 1996, three studies addressing potential expansion of rail service have been undertaken in the state. A fourth proposed project that has been discussed, but not studied is also included here.

6.1.1.1 Central Utah Rail Project

The Central Utah Rail Project is sponsored by the Six County Association of Governments consisting of Sevier, Sanpete, Juab, Millard, Piute, and Wayne Counties. As the project moves forward, the sponsoring entity will likely move to a three-county association of some kind involving those counties directly involved with rail operations. The state did not sponsor the project and contributed zero funds to the study. The funding structure for the project included six different funding sources as shown in the table below.

Table 44: Central Utah Rail Project Funding Sources

Source	Amount
Federal Earmark	$1,008,948
Federal Railroad Administration	$1,000,000
Sevier County	$526,594
Sufco Mine	$170,000
Utah Community Impact Board Fund	$100,000
PacifiCorp	$5,000
Total	$2,810,542

This proposed railroad would bring railroad freight service closer to Utah's largest coal mine. The Sufco Mine is located east of Salina a few miles north of I-70. This mine has produced over 800 coal truck shipments in a single day, with that coal having to travel west on I-70 to Salina, then north via U.S. Highway 89 and State Route 28 to the

nearest railroad loadout facility, near Levan on UP's Provo Line. The proposed new railroad would extend from Levan south to Salina, and would have also served the underground salt mines of Redmond Minerals north of Salina.

The Surface Transportation Board's SEA released the first Draft EIS for the Six County Association of Governments proposed 43-mile rail line in Sanpete, Sevier, and Juab Counties, Utah on June 29, 2007. A Supplemental Draft EIS was released for public comment on May 2, 2014 and it is anticipated that a final EIS will be completed on April 20, 2015. Known as the Central Utah Rail Project, this new line would begin at the connection with the UP's Provo mainline located near Levan, about 16 miles south of Nephi, and would terminate about half a mile southwest of Salina.

The length of the new railroad is approximately 43 miles and would cost an estimated $110 million. This railroad would allow industries to access rail transportation for bulk commodities to and from the area.

Economic Impacts

This line would enhance and strengthen the area's current transportation system with the two major Interstates intersecting 40 miles away. The line could also help preserve and retain 600 mining related jobs.

Infrastructure Impacts

Rail would allow for the reduction of heavy truck traffic on state highways and city streets not designed for heavy loads. The state will have to resurface several miles of highway due to damage caused by the trucks carrying 42-ton payloads of coal.

Opportunities and Benefits Provided by the Proposed Rail Line

The proposed rail project could open additional industrial development in Salina. The City of Salina is currently working on infrastructure developments for its 1,800-acre industrial park. Economic stability could be preserved and strengthened for all regional industries including; clay and minerals, lumber production, gypsum manufacturing, sand and gravel operations, trucking, etc. The primary commodities that would ship by rail include coal, salt, clay, lumber, agricultural products, and petroleum minerals. Some of the benefits identified for the proposed rail line included the following:

1. Preservation and expansion of Utah's largest coal mine (Sufco Mine).
2. Greatly increasing marketability of Utah coal to western U.S. and Pacific Rim customers.
3. Preservation of state highway system in region.
4. Improved safety and quality of life along coal-haul truck routes.
5. Reintroduction of rail freight service lost to region in 1983.
6. Ability to attract businesses requiring efficient transportation through rail access.
7. Improving transportation to existing businesses resulting in business expansion.

As of this writing, the project is still in the Draft EIS stage and has not received a Final Environmental Impact Statement. More information regarding the Central Utah Rail Project Draft EIS can be found at the STB website.

6.1.1.2 Isolated Empire Rail Project (IERP)

The Isolated Empire Rail Project (IERP) study from 1999 to 2001 resulted from interest by the counties and communities in northeastern Utah's resource-rich Uinta Basin in bringing railroad freight service into that area. The counties and communities involved in the Uinta Basin enlisted the help of the former Utah Department of Community and Economic Development to spearhead this hoped-for rail project.

Economic Impacts

Economic development, primarily in the form of a proposed Phosphate Mine in the Uinta Mountains north of Vernal, and processing plant to be located near the Bonanza Steam Power Plant southeast of Vernal, were the driving forces behind the IERP. This new phosphate development would have been in direct competition with the existing S & F Phosphate Mine located directly east of the proposed new phosphate facility on the south slope of the Uinta Mountains. It was not projected that this line would be involved more than indirectly in the energy industry, which was in a slump at that time in the Uinta Basin.

Aside from a funding earmark for studying the feasibility of the project, there was no government funding available for the line's construction and operation should it be built. As a result of this lack of major funding support, the railroad was projected to travel into the Uinta Basin via the adjacent state of Colorado, which provided the least expensive route alternative into the Basin. Several route alternatives were studied in the initial feasibility study, with the route from Rifle north over Rio Blanco Divide to Meeker, Colorado and then west to the Rangely area where the line would enter Utah just east of the Bonanza plant location, being the preferred route.

Rifle was selected since it provided access to UP's former Rio Grande mainline linking Salt Lake City with Denver over which the BNSF Railway has STB directed trackage rights following the UP/SP merger in 1996. As such, the new railroad would have access to both major Class I railroads serving the west.

Once the initial feasibility study and operations study were completed, no further work was done on the IERP. This was the result of the lack of government support and funding for the project, as well as the failure of the proposed new phosphate development to obtain funding to proceed. When the current Uinta Basin Rail Project commenced, the original IERP studies and plans were included as a part of the new project's research. However, owing to the change in project focus, and the desire to keep the new rail line totally within the state of Utah, the IERP and its proposed

Colorado alignment did not play more than a minor supporting role in the new study effort.

6.1.1.3 Uinta Basin Rail Project

The state of Utah has identified transportation constraints in the Uinta Basin that limit energy production and community building activities over the next three decades. Transportation constraints in the Uinta Basin were documented in an analysis conducted by UDOT in the Uinta Basin Energy and Transportation Study that was completed in April, 2013.

In this study, the unconstrained estimates of likely-to-be economically feasible energy production were identified with input from government, academic and industry sources of information. The Study concluded that there is the potential that existing and planned transportation capacity is constraining the potential for resource development.

To address the findings in the study, the USRP recognizes the potential need to provide new rail service from existing Class I rail lines to the Uinta Basin. Further study is needed to develop, evaluate and screen alternatives and then initiate the NEPA process to better understand the potential of providing new rail service into the Uinta Basin.

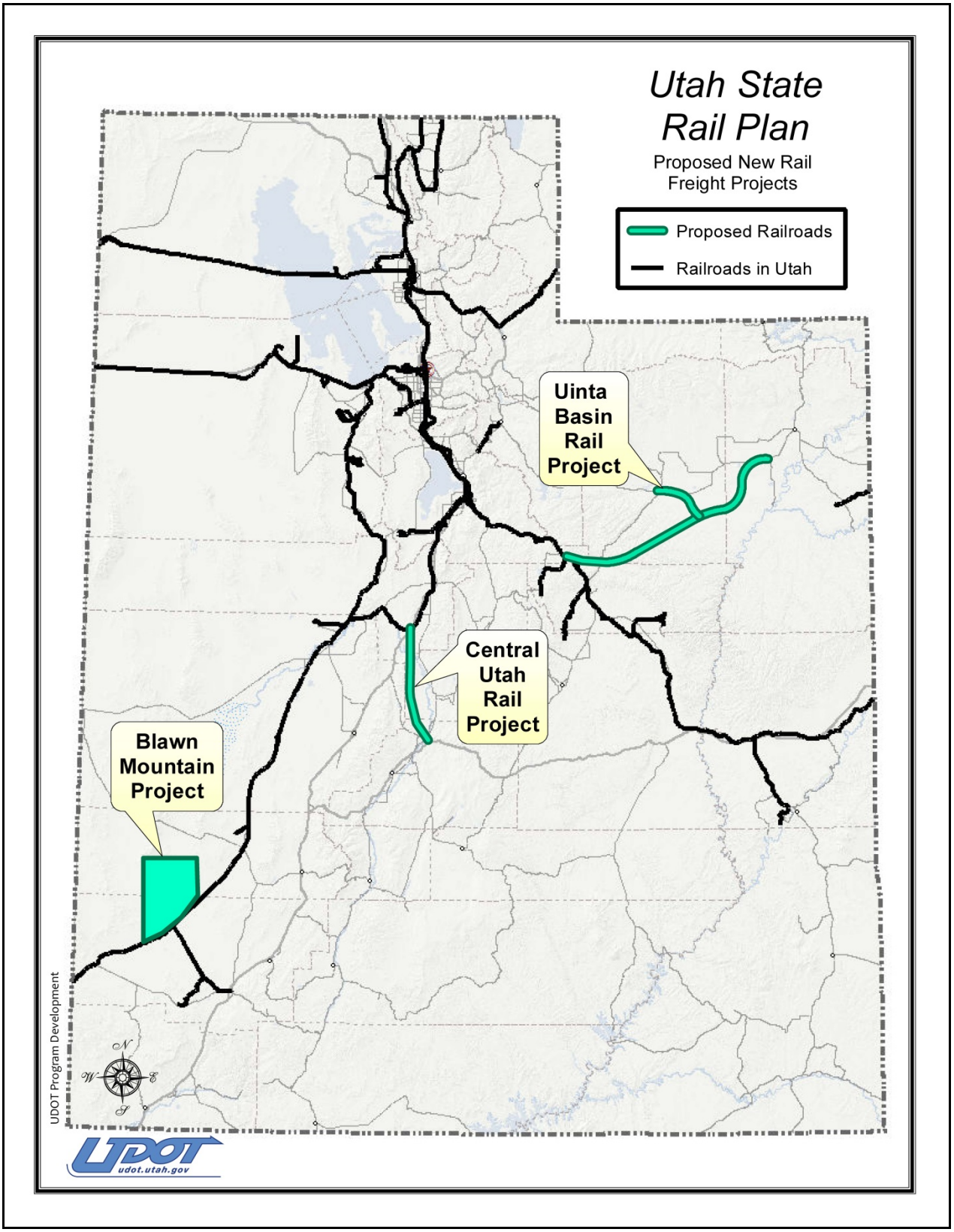
6.1.1.4 Blawn Mountain Rail Project

The Blawn Mountain Rail project is a very recent development, which has not yet progressed to a feasibility study, as of this writing. The proposed Potash Ridge Project at Blawn Mountain is located in southwestern Utah about 56 miles northeast of Cedar City and about 20 miles west of UP's Salt Lake Route mainline linking Utah with Southern California. This project would involve 18.5 sections (11,550 acres) of state land owned by the state of Utah School and Institutional Trust Lands Administration (SITLA) for the establishment of a surface potash mine. There is currently interest in establishing a rail connection between the proposed mine and the UP Salt Lake Route at a point southwest of Milford.

Although any rail development is in the very early stages as of this writing, the following data is provided to establish the need for rail access to the Potash Ridge Project. According to information provided by the project, the new mine will include conventional crushing, roasting, leaching and crystallization processes with a projected initial annual output after ramp-up of 770,000 tons of sulphate of potash (SOP) for the first ten years. Projected annual output for the remaining 30 years of the mine is 645,000 tons of SOP. Proven and probable mineral reserves of 426 million tons exist in the area of the mine which could extend the mine life beyond the 40 year mark.

UDOT will monitor the freight transportation needs, both rail and highway, of the Potash Ridge Project as it moves forward, with details to be included in future editions of the USRP.

Figure 57: Proposed New Rail Freight Projects



6.2 Crude Oil Transportation and Transload Facilities

Crude oil in the Uinta Basin is emerging as an opportunity for rail improvements. Demand is rising for shipping Utah crude oil out of state to processing in Oklahoma, Texas and Louisiana and to some degree California. Currently, via the Wasatch Front and Carbon County, there are six transload facilities handling crude oil from the Uinta Basin. Currently, there are between 25,000 and 30,000 barrels per day (bpd) being transported by truck to rail transload facilities in Carbon County and the Wasatch Front. Through industry outreach, UDOT estimates the current crude oil truck to rail numbers as follows:

- 102 crude oil trucks daily to rail transload facilities resulting in approximately 27,000 bpd filling 49 rail tank cars daily.

Within three to five years, it is estimated that there will be the following:

- 325-plus crude oil trucks daily to rail transload facilities resulting in more than 86,000 bpd filling 148-plus rail tank cars daily.

Note: Crude oil truck capacity is between 250 to 280 barrels of oil. To calculate the number of barrels per truck, an average of 265 barrels was used. Railroad tank car capacity, depending on the tank cars, ranges between 530 to 650 barrels of oil. To calculate the number of railroad tank cars, an average of 590 barrels was used.

6.2.1 Highway Impacts

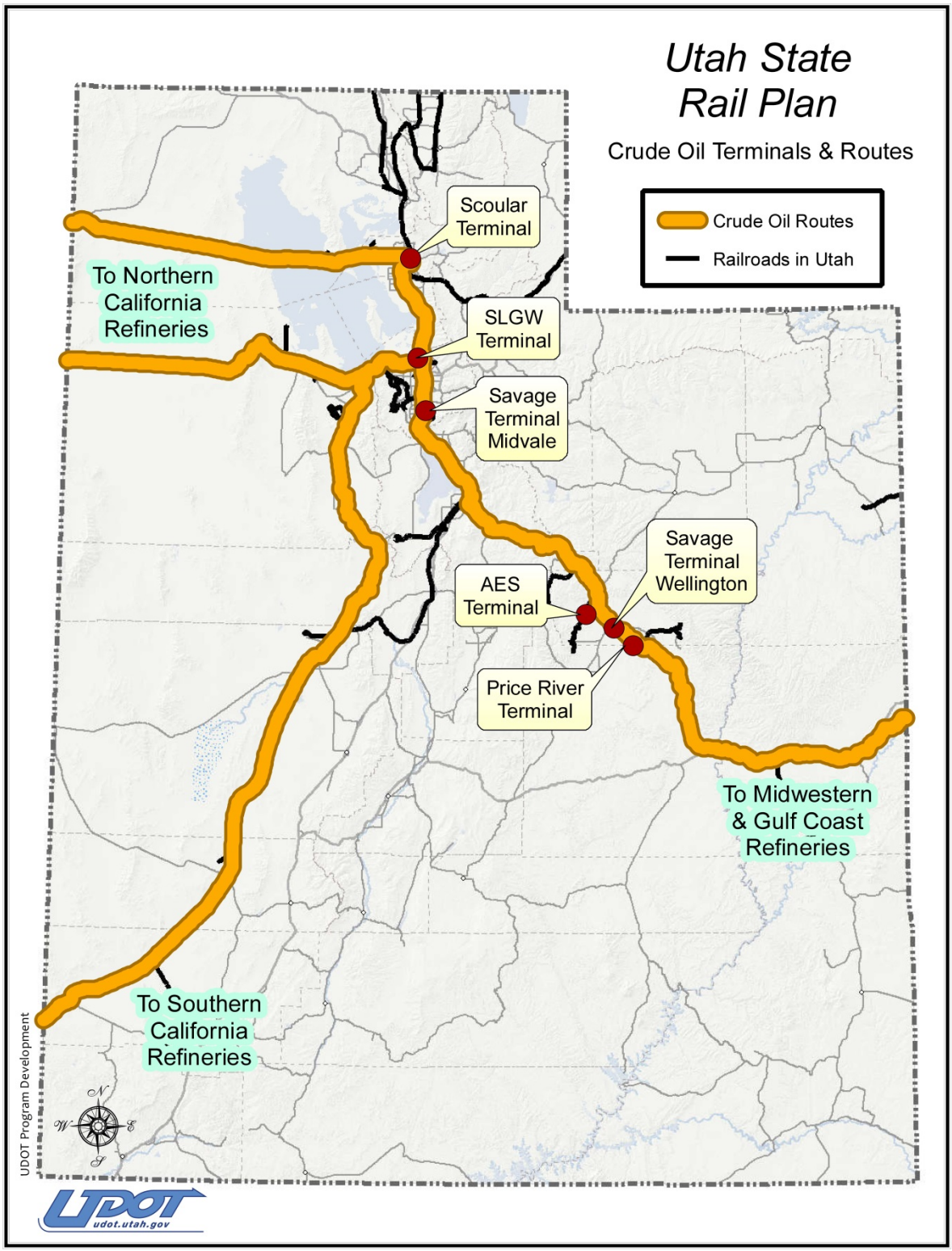
Transporting crude oil by truck out of the Uinta Basin to the transload facilities has an impact on roadway infrastructure. Currently, the crude oil is transported by truck from the Uinta Basin to three transload facilities on the Wasatch Front (Salt Lake, Ogden, Midvale) and three in Carbon County (near Helper and Wellington), where it can be transferred from trucks to rail cars. As the Carbon County transfer facilities are completed, more oil transfer will be shifted there from the more temporary Wasatch Front facilities because of its closer proximity to the Uinta Basin. Each of these Carbon County crude oil terminals currently relies on truck transportation via U.S. 191 through Indian Canyon.

6.2.2 Rail versus Pipeline

In most oil field developments in the past, a crude oil pipeline would be built to link the extraction area with refineries, water or rail terminals. With the growing environmental concern over pipelines, and given the thick, waxy nature of Utah's Uinta Basin crude, pipelines do not provide the bulk transportation solution they have in past energy developments in other regions.

A crude oil pipeline operated by Chevron already links the Uinta Basin with Utah's Wasatch Front refineries, however, very little of the Basin's unique waxy crude can be shipped in this pipeline. Trucks are the primary mover of Uinta Basin crude to refineries and rail terminals outside the Basin. Additionally, even if a proposed heated crude oil pipeline is built to transport waxy crude from the Basin to rail terminals in the Helper/Wellington area to the south, or Wasatch Front refineries to the west, such a pipeline will not be capable of handling inbound shipments of oil extraction-related materials such as frac sand, well heads, drill steel, refined petroleum products, etc. The Uinta Basin's energy development activities potentially need the multi-commodity freight handling capabilities of direct railroad service.

Figure 58: Crude Oil Rail Terminals and Routes



6.3 U.S. Department of Energy's Moab Uranium Mill Tailings Remedial Action (UMTRA) Project

In the Post World War II nuclear era, Utah was one of the primary centers for uranium mining and processing. One of the best-known sites of this nuclear activity was located on the banks of the Colorado River across from the resort town of Moab in eastern Utah. The Uranium Reduction Company built the Moab mill in 1956 and operated it until it was sold to Atlas Minerals Corporation in 1962.

When processing operations ceased in 1984, an estimated 16 million tons (12 million cubic yards) of radioactive mill tailings and contaminated soil was left in piles on site. Atlas proposed to cap the tailings in place when the facility closed. However, following the bankruptcy of Atlas, the tailings pile was left uncovered in close proximity to the Colorado River, which is a primary water supply to agriculture and more than 30 million people in the southwest.

Between 2005 and 2008 the United States Department of Energy (DOE) began implementation of the NEPA process, which facilitated federal involvement in the removal of the Moab tailings to a more environmentally secure location 30 miles to the north at Crescent Junction, Utah. The UP's Potash Branch, which passes adjacent to the Moab tailings site and connects with UP's Rio Grande line at Crescent Junction was selected to be the primary mode of transportation for the tailings. Truck transportation is used at both ends of the tailings shipment process.

In April of 2009 the DOE began relocating the tailings to the secure Crescent Junction disposal cell. The Moab UMTRA Project is currently shipping one train per day, four days a week, and carrying 136 containers of tailings material for a total of about 4,850 tons per trainload. By May of 2014 the project reached the milestone of having shipped over six million tons of tailings, or 42 percent of the total amount. The project is currently estimated to be completed in 2025.

Chapter 7 – The State's Long-Range Rail Service and Investment Program (LRSIP)

Objective: Describe the state's long-term vision for rail service and its role in the statewide multimodal transportation system. Prioritize the specific projects, programs, policies, laws, and funding necessary to achieve that vision and describe their financial and physical impacts.

The Long-Range Rail Service and Investment Program (LRSIP) is a critical component of the state rail plan. Essentially, it is the "action plan" component of the State rail plan that lays out the state's 20-year vision for the passenger and freight rail system and how that vision will be implemented and integrated with other statewide and regional transportation plans. The LRSIP will recommend improvements to achieve the vision, including an estimate of investment needs and benefits resulting from those investments.

Improvements identified in the LRSIP are strongly encouraged to be incorporated into statewide long-range transportation plans and transportation improvement programs, in keeping with the applicable regulations and interpretations of the Federal Highway Administration and the Federal Transit Administration. The LRSIP will also detail potential approaches to funding and financing the improvements and suggest policy and programmatic changes such as refining existing rail programs and institutional responsibilities for rail service and infrastructure development.

7.1 Vision: Describe the state's vision for rail transportation for the 5 and 20-year time horizons, as well as a longer-term vision. Describe how the vision would meet the state's goals for a multimodal transportation system and achieve the intended role for rail in the state's transportation system.

7.1.1 Utah's Rail Vision

UDOT will continue working with railroad freight and passenger stakeholders, including rail shippers, local governments, MPOs, etc. (see Chapter 8), to promote rail safety for everyone, maintain a state of good repair for rail transportation infrastructure, develop services for economic competitiveness, enhance quality of life through livable communities, and support environmental sustainability. In summary, drawing upon the National Rail Plan, UDOT's rail vision includes the following five strategic goals.

1. Promote Safety
2. State of Good Repair
3. Economic Competitiveness
4. Livable Communities
5. Environmental Sustainability

7.1.1.1 Promote Safety

Safety is very important to UDOT and is one of three strategic goals defined as “Zero Fatalities.” Railroad safety has improved steadily over time and railroad crossing fatalities in Utah have decreased by 82 percent since 1975. In fact, rail has a safety advantage compared to other modes for both rail freight and passenger transportation. With this safety advantage, increasing the market share of both passenger and freight rail provides a measureable public benefit in reduced fatalities and injuries.

7.1.1.2 State of Good Repair

The United States has invested countless dollars of public and private funds to create the world's most extensive and productive transportation system. America’s rail freight system is no different, serving the nation as the largest and most efficient railroad freight network in the world. To remain economically competitive, rail infrastructure must be actively maintained in a state of good repair. This responsibility is on the shoulders of the private railroad companies. Utah’s railroads invest millions of dollars each year in their rail infrastructure located in Utah.

7.1.1.3 Economic Competitiveness

The ability to move freight in a quick and efficient manner increases Utah’s economic competitiveness, which can be an attractive option for businesses considering relocating or expanding in Utah. Commuter rail service also plays a major role by providing options in moving Utah’s workforce, along with providing another mode of passenger transportation.

7.1.1.4 Livable Communities

Having direct connections between intercity passenger and commuter rail with local transit options enhances the quality of life of Utah residents by providing intermodal connectivity and mode choice. Many communities in Utah have seen an economic revitalization and redevelopment around commuter rail and other local transit stations.

7.1.1.5 Environmental Sustainability

UDOT is committed to advancing environmentally sustainable polices and investments. With its comparative energy advantage, rail plays a vital role in helping America to

become energy independent through both fuel efficiency and a decrease in carbon and harmful emissions for better air quality.

7.1.1.6 Railroad Freight Vision

Utah's goal is to maintain and expand, where necessary, efficient and economically-competitive railroad freight service that meets current and future needs of Utah's business community and which is fully integrated with other freight modes serving Utah.

7.1.1.7 Railroad Passenger Vision

Utah's goal is to develop a passenger network that is sustainable, fully integrated with other modes of passenger transportation, and which will adequately meet the evolving needs resulting from Utah's future growth.

7.1.2 Utah Transit Authority Mission Statement and Vision

UTA does not have a specific vision statement for commuter rail in Utah, but does have a mission statement and vision for the agency. They include the following:

- Mission Statement - Utah Transit Authority strengthens and connects communities enabling individuals to pursue a fuller life with greater ease and convenience by leading through partnering, planning, and wise investment of physical, economic, and human resources.
- Vision - Provide an integrated system of innovative, accessible and efficient public transportation services that contribute to increased access to opportunities and a healthy environment for all people of the Wasatch region.

7.2 Program Coordination: Describe how the state's long-term vision integrates with other transportation planning efforts, including the state's long-range transportation plan, the National Rail Plan, the state rail plans of neighboring states, and national and regional multi-state rail plans, as appropriate. Address how the vision meets National defense and emergency transportation requirements.

Utah's long-term vision is very similar to the vision outlined in the National Rail Plan. Many neighboring states also share common elements of a rail vision such as safety, economic competitiveness, and environmental sustainability.

Utah's vision promotes safety and encourages rail owners to maintain a state of good repair for rail infrastructure so that the National defense can be maintained through an efficient, extensive, and productive transportation system.

7.3 Rail Agencies: Describe any planned state rail agency organizational changes and proposed policy or legislative changes and new programs within the 5 and 20-year time horizons.

At the present time, the state of Utah does not have an established rail agency beyond UDOT. However, a special working group was established by UDOT to assist in the development of the USRP. A list of those that participated on a Working Group is listed on the acknowledgements page and in Table 48.

The state of Utah has historically avoided involvement in what are traditionally private sector transportation operations such as railroading. Utah lacks rail-served city pairs that would lend themselves to state-funded passenger train service such as that found in California, Washington, Illinois and 12 other states, and is also lacking in railroad freight branch lines and short line railroads in need of government-funded salvation. Hence, UDOT has not previously become financially involved in the railroad industry. UDOT allows the private sector and UTA to operate such services.

As of 2014, barring a significant change in the previously-mentioned conditions, it is not anticipated that Utah or UDOT would become financially-involved in either railroad freight or passenger service. As such, the "Vision" for such services is largely determined by the private sector freight railroads and quasi-governmental entities such as Amtrak and UTA which operate such services within Utah.

However, current or future research into the expanding transportation needs of Utah, as related to urban growth, as well as energy resource development, could result in a shift in Utah's current position with regards to financial investment in railroad operations, either passenger or freight. Examples of this are the ongoing Uinta Basin Rail Project, the Central Utah Rail Project, and UDOT's efforts to make UTA transit services more competitive.

7.4 Program Effects: Describe as specifically as possible the effects of the passenger and freight rail elements in the 5 and 20-year plans on:

Future rail elements are the responsibility of individual rail carriers and not the state of Utah. This was observed in the creation of this plan when the private railroads stated that their plans are proprietary information and not subject to public disclosure.

7.4.1 The state's transportation system.

Rail will continue to play a major role in freight and passenger service, both now and in the future. As congestion grows on Utah's highways, goods movement shifting to rail will be needed and passenger rail will not only be desirable, but also necessary to transport people from housing to job centers.

7.4.2 Public and private benefits that exist and are anticipated with the 5 and 20-year plans and the correlation between public funding contributions and the expected public benefits.

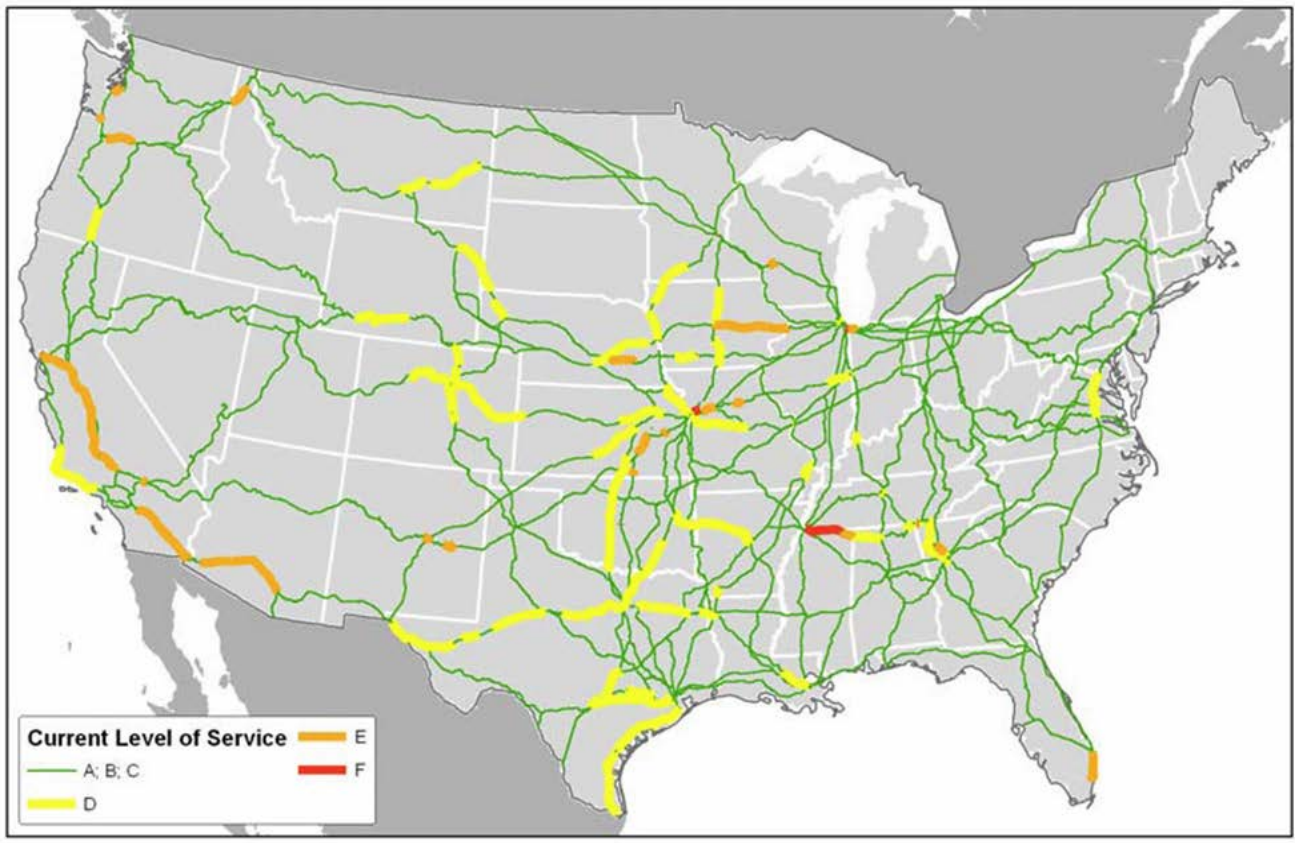
Private railroads in Utah do not disclose what they consider as proprietary information regarding funding or plans. Utah does not fund intercity passenger rail and the only Amtrak train serving Utah is the *California Zephyr*, which is a long-distance passenger train funded by the Federal government. Commuter rail in Utah is funded through sales tax within its service area and is expected to serve additional communities in the future as proposed in the long-range transportation plan of the WFRC and MAG.

7.4.3 Rail capacity and congestion by corridor.

Rail capacity and congestion is always being evaluated by individual railroads. The private railroad companies are not willing to provide information about capacity and congestion on their rail corridors. However, the National Rail Freight Infrastructure Capacity and Investment Study prepared for the AAR by Cambridge Systematics in 2007 showed level of service (LOS) for train volumes compared to train capacity for the year 2005. The study also showed projected 2035 train volumes with 2005 corridor capacity. In other words, the projected LOS was shown with projected future train volumes, but without any capacity improvements. The railroads in Utah stated they would never allow their railroad infrastructure LOS to deteriorate. They continually perform track maintenance and capacity improvements. Finally, the study further showed the projected 2035 train volumes with 2035 improvements. It should also be noted that this study was based upon pre-2008 recession train operations, which the economic downturn significantly impacted on certain mainlines in the west.

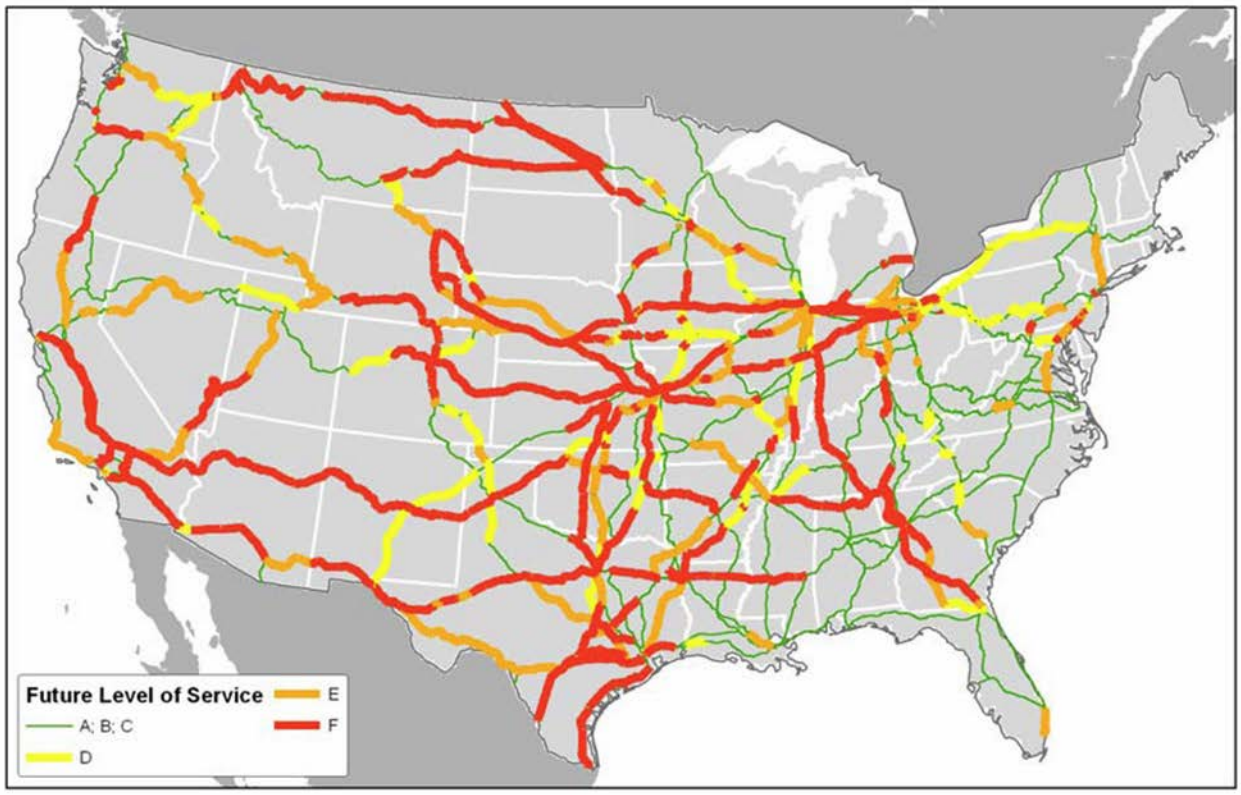
Special Note: It is important to point out that the Cambridge study focuses on future train traffic congestion if no railroad capacity improvements are made between 2005 and 2035. It is important to note that it is highly unlikely that America's profitable private freight railroads would cease investing the hundreds of millions of dollars they are currently spending each year on capital improvements to the detriment of America's railroad system, and its ability to handle future rail traffic.

Figure 59: 2005 Train Volumes Compared to 2007 Train Capacity



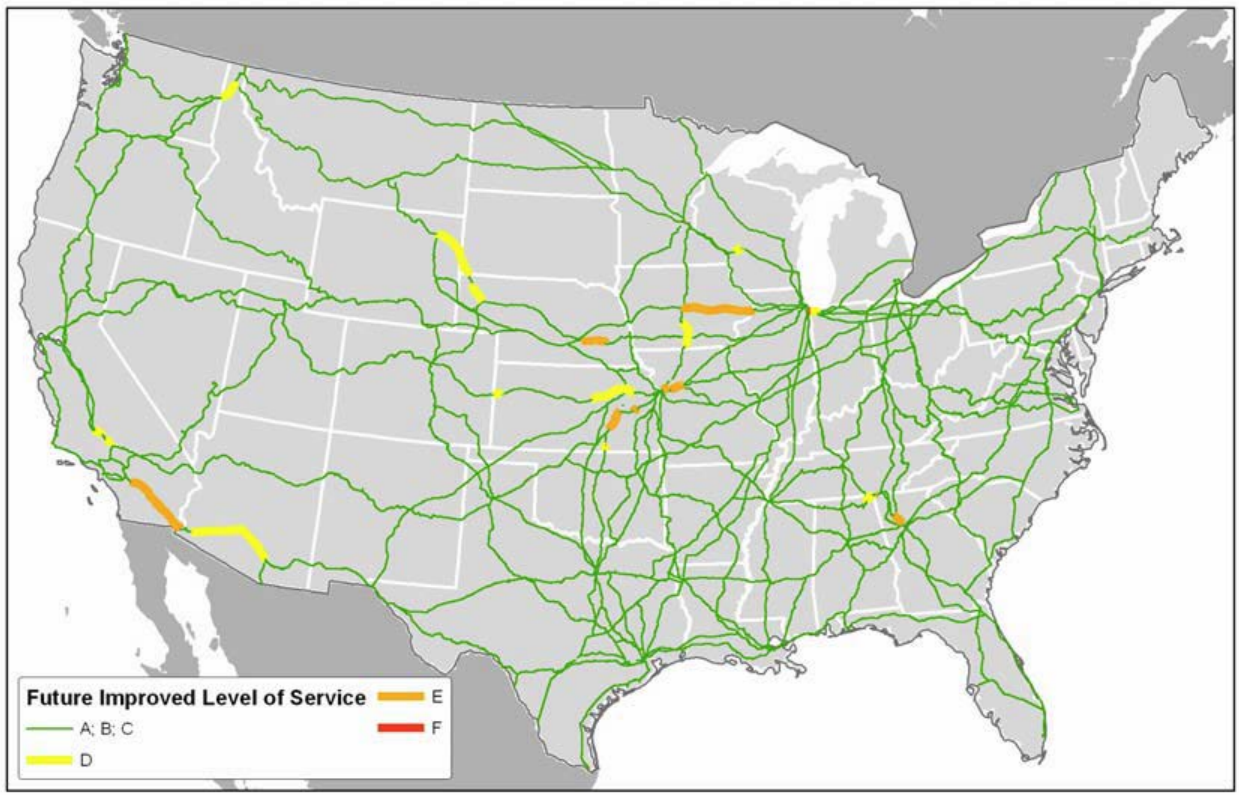
http://www.camsys.com/pubs/AAR_Nat_%20Rail_Cap_Study.pdf December 30, 2014.

Figure 60: 2035 Corridor Volumes Compared to 2005 Corridor Capacity without Improvements



http://www.camsys.com/pubs/AAR_Nat_%20Rail_Cap_Study.pdf December 30, 2014.

Figure 61: 2035 Train Volumes Compared to 2035 Train Capacity with Improvements



http://www.camsys.com/pubs/AAR_Nat_%20Rail_Cap_Study.pdf December 30, 2014.

7.4.4 Transportation system capacity, congestion, and safety, including the effects on highway, aviation, and maritime modes.

Not applicable due to the proprietary nature of internal railroad plans and data.

7.4.5 Environmental, economic, and employment conditions including energy consumption and greenhouse gas emissions.

Not applicable due to the proprietary nature of internal railroad plans and data.

7.4.6 Distribution of benefits to regions (regional balance).

Not applicable due to the proprietary nature of internal railroad plans and data.

7.5 Passenger Element

7.5.1 Describe how passenger rail capital projects were analyzed for their effects on:

See special note in Section 7.5.4.

7.5.1.1 Projected ridership, passenger miles traveled, modal diversion from highway and air travel, revenue, and operating expenses associated with existing, 5 and 20-year passenger rail services in aggregate and broken down by commuter, intercity and high-speed rail projects.

See special note in Section 7.5.4.

7.5.1.2 Livability, including land use changes and improvements to walkability.

See special note in Section 7.5.4.

7.5.2 Capital Financing Plan: describe the 5 and 20-year financing plans for capital expenditures associated with the project lists including potential funding sources, capital costs required both initially and in subsequent years to maintain a state-of- good-repair and to recapitalize as necessary to sustain the initially proposed level of service or higher levels of service. Present the estimates for capital expenditures annually in year of expenditure cost. Specify the strategy for using grants, loans, private activity bonds (PABs), public-private partnerships (P3s), or other finance mechanisms for each project.

See special note in Section 7.5.4.

7.5.3 Operating Financing Plan: Describe the 5 and 20-year financing plans for operating deficits associated with the State's publicly-financed passenger rail services, including funding sources.

See special note in Section 7.5.4.

7.5.4 Describe the public and private economic benefits that exist and are anticipated with the 5 and 20-year plans and the correlation between public funding contributions and the expected public benefits.

See special note in Section 7.5.4.

Special Note: As has already been explained in this plan, the state of Utah, aside from the projects outlined by UTA, has not traditionally and does not plan at this time to become a financial or operating entity in terms of rail passenger service in the state.

7.6 Freight Element

7.6.1 Financing Plan: describe 5 and 20-year capital financing plans for public and private investments in freight rail (Class I, II and III) capital expenses associated with the project lists in section 7.8 exclusive of operating and maintenance costs. If there are publicly-financed freight rail services in the State, an operating financing plan for any operating deficits (with funding sources) will need to be included and public capital contributions estimated annually in year of expenditure cost. Specify the strategy for using grants, loans, PABs, P3s, or other finance mechanisms for each project.

As per the state of Utah Constitution and Code, currently UDOT is extremely limited in its ability to participate with grants or loans to railroads in Utah. Therefore, there have not been any past grants, loans, or public/private partnership financing for railroads in Utah. While the Utah Constitution and Code limits specific funding sources from being used for non-highway purposes, other funding sources could be explored in the future by the Utah Legislature.

As of this writing, the existing private freight rail network of Utah is functioning well and does not have any major problems that need to be addressed. There are areas of the state without any rail infrastructure and those areas would benefit from the introduction of rail freight service, if economically feasible. Those areas without current rail service are outlined as freight rail service gaps in Chapter 4.

The on-going Uinta Basin Rail Project and Central Utah Rail Project (see Chapter 6) as of this writing have not progressed to the point of determining the financing of each new railroad freight operation. If these projects continue to progress, financing arrangements will be included in the next USRP.

7.6.2 Describe the public and private economic effects that exist and are anticipated with the 5 and 20-year plans and the correlation between public funding contributions and the expected public benefits.

See section 7.6.1 above.

7.7 Rail Studies and Reports: Describe existing and needed planning studies to: develop corridor service plans for passenger rail (including high speed rail) [§ 22705(a) (11)]; develop coordinated regional rail policies and plans; evaluate freight operations and policies; address economic, environmental, or safety topics; or address other rail system topics. List all planned studies organized by rail corridor for the next 5 years and provide the following information for each study:

7.7.1 Central Utah Rail Project

This proposed railroad would bring railroad freight service closer to Utah's largest coal mine. The Sufco Mine is located east of Salina a few miles north of I-70. This mine has produced over 800 coal truck shipments in a single day, with that coal having to travel west on I-70 to Salina, then north via U.S. Highway 89 and State Route 28 to the nearest railroad loadout facility, near Levan on Union Pacific's (UP) Provo Line. The proposed new railroad would extend from Levan south to Salina, and would have also served the underground salt mines of Redmond Minerals north of Salina.

The Surface Transportation Board's SEA released the first Draft EIS for the Six County Association of Governments (SCAOG) proposed 43-mile rail line in Sanpete, Sevier, and Juab Counties on June 29, 2007. A Supplemental Draft EIS was released for public comment on May 2, 2014. Known as the Central Utah Rail Project, this new line would begin at the connection with the UP's Provo mainline located near Levan, about 16 miles south of Nephi and would terminate about half a mile southwest of Salina. The length of the new railroad is approximately 43 miles and would cost an estimated $110 million. This railroad would allow industries to access rail transportation for bulk commodities to and from the area. (See Section 6.1.1.1.)

7.7.2 Isolated Empire Rail Project (IERP)

The Isolated Empire Rail Project (IERP) study from 1999 to 2001 resulted from interest by the counties and communities in northeastern Utah's resource-rich Uinta Basin in bringing railroad freight service into that area. The counties and communities involved in the Uinta Basin enlisted the help of the former Utah Department of Community and Economic Development to spearhead this hoped-for rail project.

Economic development, primarily in the form of a proposed Phosphate Mine in the Uinta Mountains north of Vernal, and processing plant to be located near the Bonanza Steam Power Plant southeast of Vernal, were the driving forces behind the IERP. This new phosphate development would have been in direct competition with the existing S & F Phosphate Mine located directly east of the proposed new phosphate facility on the south slope of the Uinta Mountains. It was not projected that this line would be involved more than indirectly in the energy industry, which was in a slump at that time in the Uinta Basin.

Aside from a funding earmark for studying the feasibility of the project, there was no government funding available for the line's construction and operation should it be built. As a result of this lack of major funding support, the railroad was projected to travel into the Uinta Basin via the adjacent state of Colorado, which provided the least expense route alternative into the Basin. Several route alternatives were studied in the initial feasibility study, with the route from Rifle north over Rio Blanco Divide to Meeker and

then west to the Rangely area. The preferred route of this line would enter Utah just east of the Bonanza plant location.

Rifle was selected since it provided access to UP's former Rio Grande mainline linking Salt Lake City with Denver over which the BNSF Railway has Surface Transportation Board (STB) directed trackage rights following the UP/SP merger in 1996. As such the new railroad would have access to both major Class I railroads serving the west.

Once the initial feasibility study and operations study were completed, no further work was done on the IERP. This was the result of the lack of government support and funding for the project, as well as the failure of the proposed new phosphate development to obtain funding to proceed. When the current Uinta Basin rail project commenced, the original IERP studies and plans were included as a part of the new project's research. However, owing to the change in project focus, and the desire to keep the new rail line totally within the state of Utah, the IERP and its proposed Colorado alignment did not play more than a minor supporting role in the new project.

7.7.3 Uinta Basin Rail Project

The state of Utah has identified transportation constraints in the Uinta Basin that limit energy production and community building activities over the next three decades. Transportation constraints in the Uinta Basin were documented in an analysis conducted by UDOT in the Uinta Basin Energy and Transportation Study that was completed in April, 2013.

In this study, the unconstrained estimates of likely-to-be economically feasible energy production were identified with input from government, academic and industry sources of information. The study concluded that there is the potential that existing and planned transportation capacity is constraining the potential for resource development.

To address the findings in the study, the USRP recognizes the potential need to provide new rail service from existing Class I rail lines to the Uinta Basin. Further study is needed to develop, evaluate and screen alternatives and then initiate the NEPA process to better understand the potential of providing new rail service into the Uinta Basin.

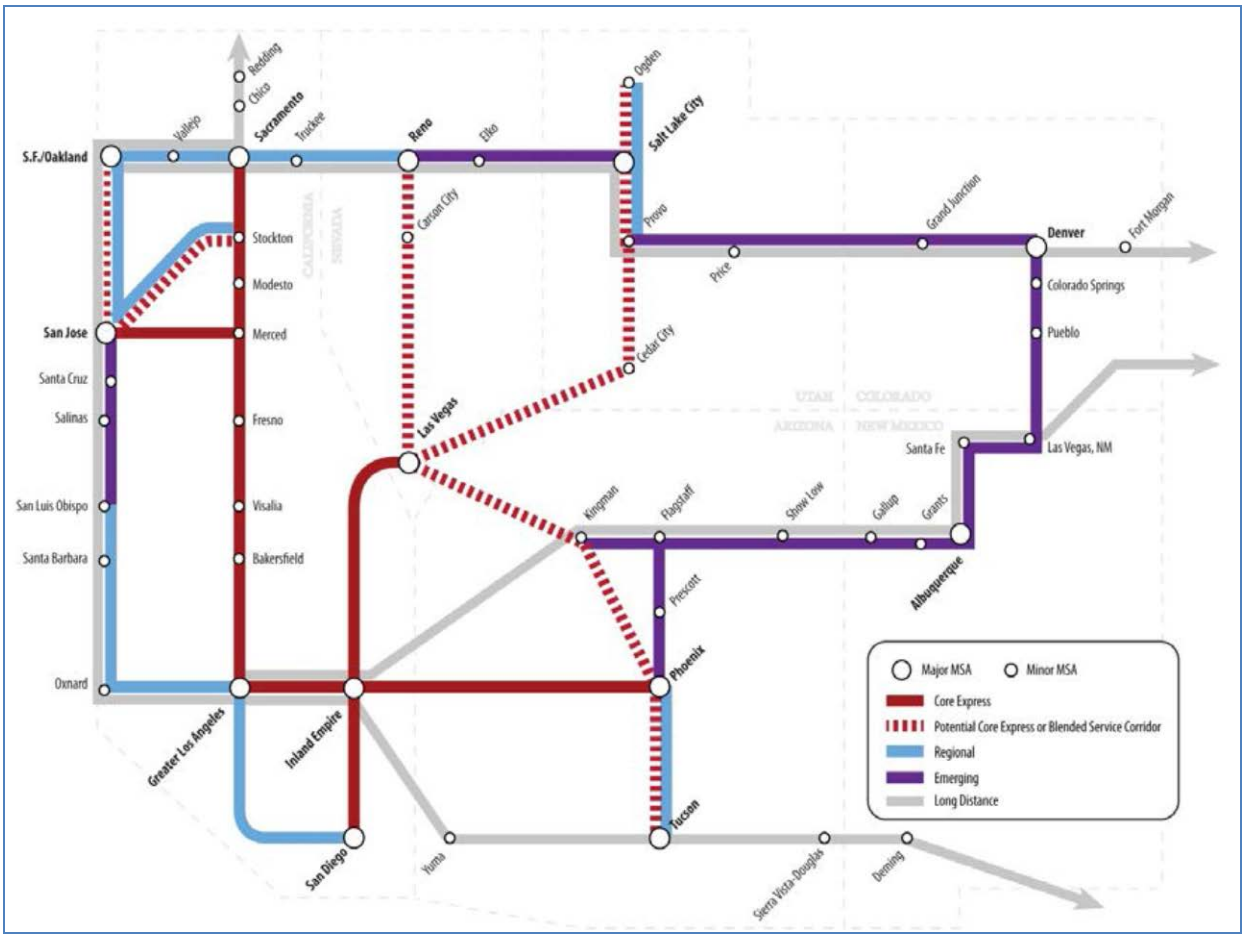
7.7.4 Southwest Multi-state Rail Planning Study – Technical Background Report

The *Southwest Multi-State Rail Planning Study* (SW Study) is the first high-performance rail (HPR) network planning study led by the FRA. FRA initiated the SW Study concurrent with its National Rail Planning Study – an effort to develop a national toolkit for the conceptual planning of HPR networks at the multi-state and mega-regional level.

The SW Study discussed two city pair corridors that include Utah. The first is Las Vegas to Salt Lake City and the second is Reno to Salt Lake City. The one city pair corridor that is not mentioned in the SW Study is Denver to Salt Lake City.

The figure below shows a map of the entire candidate corridors. The solid red lines represent the core express service while the dashed red lines potential core express service or blended service corridor. The solid blue line represents regional service while the solid purple line represents emerging service. Finally, the gray line represents existing Amtrak conventional long-distance passenger trains.

Figure 62: Candidate Corridors for Potential SW High-Performance Rail



Source: CONNECT Beta Version, 2012
*Figure identifies desired connections between metropolitan areas. It does not identify alignment or station locations and does not preclude multiple alignments within a corridor segment.

7.8 Passenger and Freight Rail Capital Projects: List all selected projects organized by rail corridor for the next 5 years and another list for years 6-20 that present the following information by project:

The state of Utah does not have any rail passenger projects on-going or planned for the five year period. The two freight rail projects currently on-going in Utah are outlined in Section 7.7 above.

Chapter 8 – Coordination and Review

Objective: Indicate how stakeholders were involved in the development and coordination of the Long-Range Rail Service and Investment Program (LRSIP) component of the State rail plan.

The scope of the Utah State Rail Plan (USRP) is far reaching, and inviting input from a wide range of stakeholders is essential to the success of the plan. Consistent with Passenger Rail Investment and Improvement Act (PRIIA) requirements, stakeholder engagement and public outreach was a cornerstone of the USRP process, providing opportunities for rail stakeholders as well as the general public to offer meaningful and thoughtful input.

8.1 Describe the approach to public and agency participation in the development of the state rail plan including public noticing, opportunities for public and agency participation, and how comments were accepted.

Agency involvement in the USRP process took two main forms. First, federal, state, and regional agencies were included on the USRP Working Group established to oversee this process. Their participation and active engagement in the process ensured that issues and concerns specific to each agency and across public entities were thoroughly and thoughtfully addressed in the process.

Second, local governments and other agencies were engaged through a comprehensive outreach effort utilizing efforts of MPOs around the state. The WFRC hosted a series of small area meetings that included each of the local governments within their jurisdiction. While these meetings were primarily aimed at preliminary work in anticipation of their upcoming long range plan process, it was also an opportunity to engage local government officials regarding concerns, issues, and plans related to the USRP and rail infrastructure and service within their areas. The USRP staff attended each of these meetings to inform local government officials about the process and to invite comments and rail-related concerns. In total, over 200 local officials, staff, and elected personnel were given the opportunity to provide input on rail conditions and future rail needs in the Wasatch Front region.

Table 45: Local Government Meetings

Cities	Date	Location
Farr West, Harrisville, North Ogden, Plain City, and Pleasant View	January 27, 2014	Pleasant View City
Hooper, Marriott-Slaterville, Roy, and West Haven	January 28, 2014	Roy City
Magna, Salt Lake City, South Salt Lake City, and West Valley City	January 30, 2014	West Valley City
Bountiful, Centerville, North Salt Lake City, and Woods Cross	February 3, 2014	Bountiful City
Draper and Sandy	February 5, 2014	Draper City
Ogden, Riverdale, South Ogden, South Weber, Uintah, and Washington Terrace	February 6, 2014	Ogden City
Farmington, Fruit Heights, Kaysville, and Layton	February 10, 2014	Farmington City
Bluffdale, Herriman, and Riverton	February 12, 2014	Riverton City
Cottonwood Heights, Holladay, Midvale, Millcreek, and Murray	February 13, 2014	Murray City
Brigham City, Perry, and Willard	February 19, 2014	Brigham City
Clearfield, Clinton, Sunset, Syracuse, and West Point	February 24, 2014	Clearfield City
Kearns, South Jordan, Taylorsville, and West Jordan	February 25, 2014	West Jordan City

In addition, USRP staff attended the technical committee meetings of all the other MPOs in the state, including WFRC, MAG, the Cache MPO, and the Dixie MPO. These technical committees are comprised of representatives from each local entity within their jurisdiction. A presentation was made about the USRP process and comments and discussion were invited from participants. The table below shows the meeting dates and locations.

Table 46: Metropolitan Planning Organization Outreach

MPO	Date	Location
Cache Metropolitan Planning Organization	June 11, 2014	Logan
Dixie Metropolitan Planning Organization	March 5, 2014	St. George
Mountainland Association of Governments	February 24, 2014	Orem
Wasatch Front Regional Council	May 7, 2014	Clearfield and Midvale

Finally, the USRP was placed on UDOT's website for public comment from July 11, 2014 to August 18, 2014. A comment area was provided for anyone that wanted to provide input by submitting their comments online.

The USRP draft was also sent to the FRA for the agency's 90-day review period. The USRP was submitted to the FRA as a draft document on July 3, 2014. On December 11, 2014, the FRA finally submitted comments to UDOT about the plan. UDOT addressed those comments and resent the USRP to the FRA on January 30, 2015 for final review. The USRP will then feed directly into the Utah Freight Plan and the UDOT Long-Range Transportation Plan. Since the USRP officially started May 2012, UDOT

used the FRA State Rail Plan Guidance dated August 2012 as the standardized format for the state rail plan.

8.2 Describe how the state rail plan was coordinated with neighboring states with respect to facilities and services that cross state boundaries.

In an effort to gather input from states where rail conditions and services impact those in Utah, the USRP process coordinated not only with neighboring states but also California, Nebraska, and Oregon, which is the origin or destination of the majority of rail freight in Utah. In February 2014, USRP staff sent a letter indicating that Utah had begun the process of developing their state rail plan and invited comments from these organizations.

Table 47: State Coordination Outreach

State	Input Received
Arizona Department of Transportation	No
California Department of Transportation	No
Colorado Department of Transportation	Yes
Idaho Transportation Department	No
Nebraska Department of Roads	No
New Mexico Department of Transportation	Yes
Oregon Department of Transportation	Yes
Wyoming Department of Transportation	Yes

The letter included a list of specific questions in order to elicit comments that would be most beneficial in developing the USRP. Those questions included:

1. Are you aware of rail operations or service in your state that affect rail movement in Utah?
2. Are you aware of rail operations or service in Utah that affect rail movement in your state?
3. Are you aware of rail plans, projects or studies that would impact rail movement in Utah?
4. Are you aware of any mode shift to or from rail that would impact rail in Utah?
5. Are you aware of rail plans, projects or studies that you need input from Utah?

Recipients were asked to respond by March 5, 2014. At the time of this writing, comments had been received from Colorado, New Mexico, Oregon, and Wyoming (a summary of their comments along with rail operation as it affects Utah is offered under section 8.4 below).

8.3 Address how the public, rail carriers, commuter and transit authorities operating in, or affected by rail operations within the state, units of local government, and other interested parties were involved in the preparation and review of the state rail plan.

UDOT understands the importance of input from a broad range of individuals and agencies across the transportation industry, local governments, and other affected groups. In order to offer the most comprehensive and continuous coordination with a wide range of interests, UDOT established the USRP Working Group that included representatives from public and private rail carriers, the local transit authority, MPOs, UDOT, FHWA, and other interested groups such as the Utah Trucking Association.

Table 48: Utah State Rail Plan Working Group

Organization	Representative(s)
Amtrak	Alex Khalfin, Bill Magazin, and Mark Sadler
BNSF Railway	Chris Bigoness, Susan Odom, Travis Thowe, and Connie Wilson
Cache Metropolitan Planning Organization	Jeff Gilbert
Comstock Mountain Lion Railroad	Alex Engelke
Dixie Metropolitan Planning Organization	Curt Hutchings and Myron Lee
Federal Highway Administration	Steve Call and Kelly Lund
Heber Valley Railroad	Mark Nelson
Kennecott Utah Copper LLC	Bryan Hendrickson
Mountainland Association of Governments	Chad Eccles
Salt Lake, Garfield & Western Railway	Chris Weesner
UDOT Planning	Jeff Harris, Daniel Kuhn, and Walt Steinvorth
UDOT Program Development	Cory Pope
UDOT Traffic and Safety	Eric Cheng
Union Pacific Railroad	Dan Harbeke
Utah Central Railway	Maurice Bowens and Paul Quintana
Utah Railway/Salt Lake City Southern Railroad	Clint Ashmead
Utah Transit Authority	Brett Coulam, Hal Johnson, and Jaime White
Utah Trucking Association	Terry Smith
Wasatch Front Regional Council	Ned Hacker and Val Halford

The working group met eight times over the course of the USRP process and was integral in providing input on key elements of the plan. The working group provided overall direction to plan development as well as comments on draft plan chapters and other documents.

Table 49: Working Group Meetings

Date	Location
May 30, 2012	UDOT in Salt Lake City
August 29, 2012	UDOT in Salt Lake City
November 28, 2012	UDOT in Salt Lake City
January 29, 2013	UDOT in Salt Lake City
March 27, 2013	UDOT in Salt Lake City
May 29, 2013	UDOT in Salt Lake City
October 30, 2013	UDOT in Salt Lake City
May 1, 2014	UDOT in Salt Lake City

Extra effort was made to reach out to companies where the movement of freight is a major factor in their day-to-day operations. For these companies, rail infrastructure and service as it pertains to the movement of freight is critical to their success. Individual meetings were held with each company shown in this table. Their freight and rail-related concerns and issues were discussed and incorporated into this plan.

Table 50: Rail Freight Shippers and Receivers Outreach

Company	Location	Inbound Freight		Outbound Freight	
		Rail	Truck	Rail	Truck
1. Ash Grove Cement	Leamington	✓	✓	✓	✓
2. Burton Lumber	Salt Lake City	✓	✓		✓
3. Cereal Food Processors	Ogden	✓	✓	✓	✓
4. Chevron Products Company	Salt Lake City	✓	✓	✓	✓
5. Circle Four Farms	Milford	✓	✓		✓
6. Comstock Mining, Inc.	Cedar City	✓		✓	
7. C.R. England Global Transportation	Salt Lake City	✓	✓	✓	✓
8. HollyFrontier Oil Refinery	West Bountiful	✓	✓	✓	✓
9. INTSEL Steel West	Salt Lake City	✓	✓	✓	✓
10. Intermountain Power Service Corporation	Delta	✓	✓	✓	✓
11. Nucor Steel	Plymouth	✓	✓	✓	✓
12. Pacific States Cast Iron Pipe Company	Provo	✓	✓	✓	✓
13. Presto Products Company	Lewiston	✓	✓		✓
14. Savage Coal Terminal	Wellington		✓	✓	
15. Scoular Company	Ogden	✓	✓	✓	✓

8.4 In general, describe issues raised during the preparation of the state rail plan and how they were addressed.

The vast majority of Utah's mainline railroad infrastructure is owned and operated by the Union Pacific (UP). Utah has direct rail links via UP lines to Nevada, Idaho, Wyoming, and Colorado. Beyond these neighboring railroad-served states, Utah's rail service is also impacted by the states of California, Nebraska, and Oregon owing to the major

markets, ports or railroad yards located in those states that affect train service to and through Utah. There are no railroad lines linking Utah directly with either Arizona or New Mexico. Table 45 above lists those states which were approached to provide input for this plan, and the states which responded to Utah's request.

8.4.1 Colorado

Colorado and Utah are linked via the UP's former Rio Grande Railroad line which links Salt Lake City with Denver via Provo and Grand Junction. This line sees mostly unit coal trains serving mines in eastern Utah and western Colorado, as well as limited manifest freight service to on-line shippers. Most of UP's freight, including all intermodal traffic, uses the UP Overland Route across southern Wyoming between Salt Lake City/Ogden and Denver via Cheyenne. UP's Rio Grande Line is also served by the BNSF Railway operating manifest freight service via trackage rights from Denver to Salt Lake City and on to Stockton.

From Dotsero, Colorado located east of Glenwood Springs, Colorado to Green River, the Rio Grande Line parallels I-70, and thus figures into Colorado Department of Transportation (CDOT) planning for the I-70 corridor across Colorado. Potential future high-speed rail development across the Rocky Mountains in Colorado is likely to follow the I-70 corridor in order to serve the state's western population centers as well as the famous Vail ski resort and Glenwood Springs, which is the gateway to the Aspen ski complex. Amtrak's *California Zephyr* passenger train uses the Rio Grande Line en route from Chicago to the San Francisco Bay Area.

CDOT expressed concerns about the frequent rock falls and other geology and weather-related problems and delays found along the Rio Grande Line through the several canyons of the Colorado River which the railroad uses to traverse the western slope of the Rocky Mountains. The single-tracked 6.21-mile long Moffat Tunnel, through the Continental Divide, which at 9,239 feet above sea level is the highest mainline railroad location in the United States, was also mentioned as a rail traffic chokepoint on the Rio Grande Line. CDOT also made mention of the recent return of Amtrak service to the historic Denver Union Station following extensive modifications to that facility.

There is another railroad linking Colorado with Utah, which is located in the northwestern portion of Colorado. The Deseret Power Railroad, built in the early 1980's as the Deseret Western Railway, is an isolated energy railroad that delivers coal from the Deserado Mine near Rangely to the Bonanza Steam Power Plant near Bonanza in northeastern Utah. The mine, railroad and the power plant are owned and operated by Deseret Generation and Transmission. The Deseret Power Railroad is about 35 miles long, is electrically powered and is totally isolated from the rail network of America. All

locomotives and rolling stock for this railroad must be trucked in over the region's two lane highways from the nearest railroad served points which are Rifle and Craig.

8.4.2 New Mexico

As already mentioned, there are no direct rail links between Utah and New Mexico. The primary railroad lines serving New Mexico are the BNSF Railway's Chicago to Texas to California Transcon mainline across the north-central part of the state, and the UP's Sunset Route linking Southern California with the Midwest and south via El Paso, located across the southern portion of the state. Both of these lines are east/west in nature with no north/south railroad in existence in that region of the west.

The only potential railroad development in New Mexico which could potentially impact Utah would be the proposed building of a line linking Farmington in northwestern New Mexico to the BNSF Transcon near Thoreau, New Mexico on the Continental Divide east of Gallup, New Mexico. This line would link the U.S. rail system with the coal, oil and gas deposits found in the Farmington area, and could potentially benefit similar deposits just over the border in southeastern Utah. Such a line would also introduce manifest railroad freight service into a region currently without such service.

8.4.3 Oregon

Utah is connected to Oregon via UP's Utah Northern Line which links Ogden and the Wasatch Front with the UP's northwest mainline at McCammon, a few miles southeast of the railroad's division point at Pocatello. From Pocatello, trains travel northwest via Nampa, Idaho and LaGrande, Oregon to the big hump-equipped Hinkle Yard located near the town of Hermiston, Oregon. Hinkle Yard is the hub of the UP in the northwest, with mainlines radiating out to Portland; Seattle and Spokane, Washington, the Canadian Pacific Railway on the Canadian border in northern Idaho, and to southern Idaho, Utah and the Midwest.

Most of UP's east/west freight traffic to and from Oregon bypasses Utah via Soda Springs and Montpelier, Idaho, and Kemmerer, Wyoming, with only a daily manifest train operating between Hinkle, Oregon and Salt Lake City's Roper Yard via Pocatello and McCammon, Idaho. This same routing was served by Amtrak's Seattle to Salt Lake City *Pioneer* passenger train prior to its June, 1991 rerouting across southern Wyoming and its subsequent discontinuance on May 10, 1997.

8.4.4 Wyoming

There is more railroad freight traffic on UP's Overland Route mainline linking Ogden with southern Wyoming than is found on any other railroad line in the state. As the original UP end of America's first transcontinental railroad, the Overland Route east of Ogden handles the combined total of east/west freight traveling to and from not only the former SP Overland Route west of Ogden, but the former Western Pacific Feather River Route west of Salt Lake City, and the Salt Lake Route mainline that links Utah with Southern California. The only sizeable railroad freight traffic crossing southern Wyoming on UP's Overland Route that does not pass through Utah are the trains traveling to and from the Pacific Northwest (see the Oregon section above), as well as coal and soda ash trains which originate at mines along the UP in southern Wyoming.

Wyoming and Utah share in the slow decline of coal shipments by rail, owing to changing environmental regulations and the switch to natural gas-fired steam power plants. However, Wyoming originates far more coal shipments by rail from its huge mines in the Powder River Basin of northeastern Wyoming than what is produced from Utah's small-by-comparison underground coal mines. The two states also share in the rapid growth of crude oil shipments by rail from their respective oil reserves, which represent much different crude oil from that currently being extracted from the Bakken formation in North Dakota and eastern Montana.

8.5 Describe how recommendations made by participants such as railroads, agencies, authorities, and municipalities within the state, or in the region in which the state is located, were appropriately considered and presented in this rail plan.

As with all comments received, a comment register has been developed to show the comment received, the person or organization that commented, the date of the comment, and what action, if any, was taken to address the comment. The comment register can be found in the Appendix of this document.

8.6 Describe how the state coordinates state rail planning with other state transportation planning programs and activities including those conducted under Section 135 of Title 23.

Statewide rail planning in Utah is provided by staff within the Planning Division of UDOT. The Planning Division staff works together to develop the state's long-range transportation plan, along with input from UDOT Regions. Rail planning and freight planning are both done by the same staff person at UDOT Planning, who is responsible for outreach and issue coordination with agencies and stakeholders throughout the state. Because Planning Division staff works collaboratively on statewide long-range transportation plans and with MPO's transportation plans, rail and freight projects get included in those plans as well as in Utah's Unified Transportation Plan.

Glossary of Terms

Amtrak: Trade name of the National Railroad Passenger Corporation, established in 1971 to take over intercity rail passenger service from private railroads that no longer had a financial incentive to provide such service.

Branch Line: A rail track which connects into a railroad main line.

Class I Railroads: As defined by the Association of American Railroads, have annual revenue exceeding $453 million and account for 69 percent of the industry's mileage, 90 percent of its employees, and 94 percent of its freight revenue. They operate in 44 states and the District of Columbia and concentrate largely on long-haul, high-density intercity traffic. There are seven Class I railroads: BNSF Railway Company, Canadian Pacific Railway, CN, CSX Transportation, Kansas City Southern Railway Company, Norfolk Southern Railway Company, and Union Pacific Railroad. The BNSF and Union Pacific operate in Utah.

Classification Yard: A railroad freight yard used to separate railroad cars on to one of several tracks, building new trains in the process. Cars are first taken to a track, called a lead or a drill track, and then sent through a series of switches, called a ladder, to the classification tracks. Larger yards tend to put the lead on an artificial hill, called a hump, so that gravity may propel the cars through the ladder. There are three types of classification yards: flat - shunted yards, hump yards, and gravity yards.

Commuter Rail: Passenger rail service that operates within a metropolitan area (also called metropolitan rail, regional rail or suburban rail) or between two nearby metropolitan areas (e.g., Ogden and Provo). Commuter Rail most often connects a central city with its suburbs.

Division: A geographical unit used by railroads to divide their operations for administrative purposes.

Environmental Impact Statement (EIS): Section 102 of the National Environmental Policy Act requires federal agencies to incorporate environmental considerations in their planning and decision - making through a systematic interdisciplinary approach. All federal agencies are to prepare detailed statements assessing the environmental impact of, and alternatives to, major federal actions significantly affecting the environment. Such a statement is called an EIS.

Federal Railroad Administration (FRA): The FRA was created by the Department of Transportation Act of 1966 (49 U.S.C. 103, Section 3(e)(1)). The purpose of FRA is to: promulgate and enforce rail safety regulations; administer railroad assistance programs; conduct research and development in support of improved railroad safety and national

rail transportation policy; provide for the rehabilitation of Northeast Corridor rail passenger service; and consolidate government support of rail transportation activities. The FRA operates through seven divisions.

Flyover: A grade‐separated crossing of two transportation facilities, where one line is physically elevated over the other. Also called an overpass or underpass.

High‐speed Rail: A mode that provides frequent passenger service between major population centers typically 100 to 600 miles apart, routinely achieves operating speeds of 110 mph or more, and may use shared tracks if equipped with positive train control (PTC) technology. According to the FRA, “service...is time‐competitive with air and/or automobile travel in a given intercity corridor.” Top speeds of 125 mph or more generally require completely grade‐separated tracks and dedicated right‐of‐way. The FRA defines three levels of high‐speed rail: express (with top speeds of at least 150 mph), regional (with top speeds of 110 to 150), and emerging (with typical speeds of 90 to 110).

Industrial Lead: A relatively short length of privately operated and maintained rail track, originating from a rail line and serving industrial uses. Can also be referred to as a spur.

Intercity Passenger Rail: Refers to conventional rail passenger service connecting cities approximately 100 miles or more apart. In the U.S., outside the Northeast Corridor, top speeds may range from 79 mph to approximately 90 mph. (Amtrak) Intercity rail passenger service generally operates on tracks owned by private freight railroads which is shared with freight trains, commuter rail or both.

Intermodal: Refers to the movement of freight by more than one mode of transportation. The railroad industry applies the term to container and trailer on flat car transportation only.

Light Rail Transit: An urban transit system evolved from the streetcars and trolleys of an earlier era. The term “light rail” was coined in the 1970s when such systems developed with more modern technology.

Mainline: The principal track that connects two points; it usually has sidings, spurs, and yards at a number of locations to serve customers, and to hold freight cars.

Metropolitan Planning Organization (MPO): A federally mandated and federally funded transportation policy-making organization in the United States that is made up of representatives from local government and governmental transportation authorities. The United States Congress passed the Federal-Aid Highway Act of 1962, which required the formation of an MPO for any urbanized area with a population greater than 50,000.

Federal funding for transportation projects and programs are channeled through this planning process.

Passenger Rail Investment and Improvement Act (PRIIA) (Public Law 110-432): Reauthorized the National Railroad Passenger Corporation (Amtrak) and strengthened the U.S. intercity passenger rail network by tasking Amtrak, the U.S. Department of Transportation (USDOT) , Federal Railroad Administration (FRA), States, and other stakeholders with improving service, operations, facilities, and authorizing funding for these activities.

Positive Train Control (PTC): Refers to technology that can prevent train‐to‐train collisions, overspeed derailments, and casualties or injuries to railway workers operating within their limits of authority as a result of unauthorized incursion by a train. PTC can also prevent train movements through a switch left in the wrong position. PTC systems vary widely in complexity and sophistication, based on their level of automation, the system architecture, the wayside system on which they are based (e.g., non‐signaled, block signal, cab signal), and the degree of train control they can assume. The federal Rail Safety Improvement Act of 2008 mandates the widespread installation of PTC systems by December 2015.

Quiet Zone: A segment of track, typically in an urbanized area, in which an agreement between local government and the railroad removes the requirement of sounding train whistles or horns, at least during specified hours. In return, the local jurisdiction may pay for and install additional safety measures, such as grade‐separated road crossings or four‐quadrant gates to enhance safety.

Section 130: An FHWA‐administered program that provides funding to states for use in highway‐rail grade crossing safety improvement projects.

Section 403(b): As part of the National Railroad Passenger Service Act of 1970, federal Amtrak legislation allows under Section 403(b) for a state or states to apply to Amtrak to establish rail service within their state(s) if they agree to pay at least 45 percent of the first year operating costs and 65 percent in the years thereafter.

Short Line and Regional Railroads: As defined by the Association of American Railroads, account for 31 percent of U.S. freight rail mileage and 10 percent of employees. They range in size from small operators handling a few carloads a month to multi-state operators close to Class I size. More than 560 short line and regional railroads operate in every U.S. state except Hawaii and often feed traffic to Class I railroads and receive traffic from Class I railroads for final delivery.

Siding: A section of track adjacent to a mainline used for passing trains on single track routes or switching moves. Sidings are sometimes used for storing rolling stock or

freight. A siding is also used as a form of rail access for warehouses and other businesses.

Spur: A stretch of rail that branches off the main line. Different from a siding or stub, spurs can be miles in length, and usually have only one destination at the end.

Switching and Terminal Railroads: As defined by the Association of American Railroads, usually perform pick-up and delivery services within a port or industrial area, or move traffic between other railroads. Many switching and terminal railroads were once branch lines of larger railroads that were sold off, or portions of mainlines that had been abandoned.

Subdivision: A railroad division may be divided into a number of subdivisions for ease of operations.

Surface Transportation Board (STB): The STB is an economic regulatory agency charged with resolving freight railroad rate and service disputes, reviewing proposed rail mergers, rail line purchases, constructions and abandonments. The Board also oversees Amtrak's on-time performance and has jurisdiction over other matters.

Switch: As a noun, refers to track equipment that allows cars to move, or cross over, from one track to another. The verb refers to shuffling or moving rail cars, usually within a yard (also called marshaling).

Trackage Rights: An agreement between two railroads whereby one buys the right to run its trains on the tracks of the other.

Transloading: The transfer of a shipment from one mode of transportation to another. According to one source, "transloading" has become specialized to mean non‐containerized freight transportation using more than one mode. This source uses "intermodal" to refer to "multimodal one‐container transportation," and "transloading" to refer to "multimodal non‐containerized movement."

Wye: A triangular shaped arrangement of railway tracks with a switch at each corner. In mainline railroads, this is used at a railway junction, where two railways join, or cross over. It can also be used as a stub for turning railway equipment. By performing the railway equivalent of a three‐point turn, the direction of a locomotive or railway vehicle can be reversed.

Yard: A system of tracks, other than main tracks and sidings, used for making up trains, storing cars or other purposes.

Appendix

USRP Working Group Agenda and Meeting Notes for May 30, 2012

USRP Working Group Agenda and Meeting Notes for August 29, 2012

USRP Working Group Agenda and Meeting Notes for November 28, 2012

USRP Working Group Agenda and Meeting Notes for March 27, 2013

USRP Working Group Agenda and Meeting Notes for May 29, 2013

USRP Working Group Agenda and Meeting Notes for October 30, 2013

USRP Working Group Agenda and Meeting Notes for January 29, 2014

USRP Working Group Agenda and Meeting Notes for May 1, 2014

Additional Utah Railroad Resources

Utah State Rail Plan (USRP)
Working Group Meeting Agenda

Date: Wednesday, May 30, 2012
Time: 10:00 a.m. to 11:30 a.m.
Place: Utah Department of Transportation (UDOT), located at 4501 South 2700 West, Salt Lake City, Utah. First Floor Administration Conference Room.

Invited Working Group

Camille Alexander, InterPlan (consultant)
Clint Ashmead, Utah Railway/SLCSRR
Maurice Bowens, Utah Central Railway
Eric Cheng, UDOT Traffic & Safety
Dave Creer, Utah Trucking Association
Jeff Gilbert, Cache MPO
Andrew Gruber, WFRC
Dan Harbeke, Union Pacific Railroad
Andrew Jackson, MAG
Vern Keeslar, InterPlan (consultant)
Daniel Kuhn, UDOT Planning
Myron Lee, Dixie MPO
Aaron Moody, BNSF Railway
Matt Riffkin, InterPlan (consultant)
Cory Pope, UDOT Program Development
Mark Sadler, Amtrak
Matt Sibul, Utah Transit Authority
Walt Steinvorth, UDOT Planning
John Thomas, UDOT Planning
Chris Weesner, SLG&W Railway

Agenda

1. Introductions
2. Current Rail Providers in Utah
    a. Freight
    b. Passenger
3. Passenger Rail Investment and Improvement Act (PRIIA) of 2008
    a. State Rail Plans
    b. Purpose of State Rail Plans
    c. State Rail Plan Requirements
4. Proposed Process
5. Individual and Roundtable Discussion
    a. What are your expectations for the Utah State Rail Plan?
    b. What information and data can you provide?
    c. Who else is needed on the Working Group?
    d. Other issues?
6. Proposed Next Meeting
    a. Date: Wednesday, August 29, 2012
    b. Time: 10:00 a.m. to 11:30 a.m.
    c. Place: UDOT

Utah State Rail Plan (USRP)
Working Group Meeting Notes

Date: Wednesday, May 30, 2012
Time: 10:00 a.m. to 11:30 a.m.
Place: Utah Department of Transportation (UDOT), located at 4501 South 2700 West, Salt Lake City, Utah. First Floor Administration Conference Room.

Invited Working Group

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Daniel Kuhn, UDOT Planning
Myron Lee, Dixie MPO
Aaron Moody, BNSF Railway
Matt Riffkin, InterPlan (consultant)
Cory Pope, UDOT Program Development
Mark Sadler, Amtrak
Matt Sibul, Utah Transit Authority
Walt Steinvorth, UDOT Planning
John Thomas, UDOT Planning
Chris Weesner, SLG&W Railway

Agenda

1. Daniel Kuhn welcomed everyone to the meeting and everyone introduced themselves. Those in attendance included the following: Daniel Kuhn, UDOT, Vern Keeslar, InterPlan, Jennifer Rose, InterPlan, Dan Harbeke, Union Pacific, Jeff Gilbert, Cache MPO, Paul Quintana, Utah Central Railway, Matt Riffkin, InterPlan, Walt Steinvorth, UDOT, Mark Sadler, Amtrak, Bill Magazin, Amtrak, Eric Cheng, UDOT, Bruce Barrett, BNSF Railway, Aaron Moody, BNSF Railway, Brett Coulam, UTA, Hal Johnson, UTA, Ned Hacker, WFRC, Cory Pope, UDOT, Myron Lee, Dixie MPO (by phone).
2. A presentation was given by Daniel Kuhn and Vern Keeslar listing the current rail providers for both freight and passengers in Utah.
3. Vern Keeslar presented information about Passenger Rail Investment and Improvement Act (PRIIA) of 2008 in regards to state rail plans, their purpose, how they are voluntary, and if a state does a rail plan what is required.
4. Vern Keeslar presented the proposed process of doing a state rail plan for Utah. He explained the proposed time would be about 18-24 month with working group meetings every three months and UDOT would be the authorized body to submit the state rail plan to the Federal Railroad Administration (FRA) for approval.
5. Everyone had the opportunity to provide comments, questions and suggestions about the state rail plan. They included the following:

a. Rail Plan Terms – How long out can they be? (20 yrs, 50 yrs, etc.)
b. What is the definition of Intermodal?
c. FRA has been doing a study of the rail plan. They have applied for a grant thru Nevada DOT. What is the demand and future need for a rail plan? FRA is interested in updating the rail plan.
d. BSNF (Aaron) – What does a Rail Plan usually involve?
e. UTA – How does it impact the local transit plans? How will ridership be affected?
f. UDOT – Where will the funding come from?
g. AMTRAK – Wants to review the rail plan from 1996 (might be helpful in creating the new rail plan). Are there any expansion plans?
h. UTA (Hal) – What is the expansion plans? Will there be additional rail plans with other MPO's? What kind of public involvement will there be? How will it differ from Nevada?
i. UDOT (Walt) – Can it be coordinated with the uPlan or with the Long Range Plan?
j. UDOT (Cory) – Concerned with funding issues. Should take advantage of the knowledge of others. We're asking a lot from carriers! What can we do to help? What can we provide? LRP, economic development in UT. We need to make it valuable to all partners.
k. InterPlan (Matt) – Need to balance the PRIIA and bureaucrat's needs. Where are we going with the rail plan?
l. WFRC (Ned) – 20 yr plan? Who are the partners? (UDOT & UTA). It's critical to have a rail plan. Is there a regional travel model that focuses on rail plan? We should look at an improved freight model. What are the freight needs and desires? Economic development around stations?
m. UT Central (Paul) – How the Ogden area will be involved or affected? What is the economic value? Worried that they will have to continue turning business away because of the lack of model transportation.
n. UP (Dan) – Balancing and understanding the things that can and cannot be shared. Rail expansion? Making sure that the funding is available.
o. Cache MPO (Jeff) – Don't want to lose their spur. Help understanding how they can keep it going and functioning. Passenger rail, maps, etc. Maybe worth looking at a 50 yr plan.
p. DMPO (Myron) – The railroad doesn't reach there. Wants to see plans in the Milford area. Are there any plans of expanding? Would it be coming from Vegas?
q. UP (Dan) – Agrees that we do have a good process in place. May need one on one interviews. Different types of material provided (i.e. canned material). Daily train counts. UP has already given data to Idaho and would be willing to

provide that same info to us. Idaho has a 12 month process in place (4 meetings a year).

r. InterPlan (Matt) – Should we meet with airports, truckers, etc.
s. UTA (Hal) – Should Envision Utah be involved? They could potentially help.
t. AMTRAK (Mark) – Ridership and origin numbers. To what extent did we participate in the other state plans? Would like to review the 1996 rail plan.
u. BNSF (Aaron) – There are things they can and cannot share, but are more than happy to help the best that they can.
v. Cache MPO (Jeff) – To what extent will we use public involvement?
w. UDOT (Walt) – Public involvement? Could get public involvement thru the LRP to help cut back on the funding issues for the rail plan?
x. UDOT (Cory) – Are there urgencies or applications for grants?

6. The next meeting was scheduled for Wednesday, August 29, 2012 at 10:00 a.m. to 11:30 a.m. at UDOT in the first floor conference room.

Utah State Rail Plan (USRP)
Working Group Meeting Agenda

Date: Wednesday, August 29, 2012
Time: 10:00 a.m. to 11:30 a.m.
Place: Utah Department of Transportation (UDOT), located at 4501 South 2700 West, Salt Lake City, Utah. First Floor Administration Conference Room.

Invited Working Group

Camille Alexander, InterPlan (consultant)
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Scott Martin, SB&G Railroad
Aaron Moody, BNSF Railway
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Cory Pope, UDOT Program Development
Paul Quintana, Utah Central Railway
Mark Sadler, Amtrak
Matt Sibul, Utah Transit Authority
Walt Steinvorth, UDOT Planning
John Thomas, UDOT Planning
Chris Weesner, SG&W Railway

Agenda

1. Welcome and Introductions – Daniel Kuhn
2. Definition of Terms, Acronyms, and Scope – Vern Keeslar
3. Maps and uPlan– Daniel Kuhn and Nick Kenczka
4. Individual Railroad Coordination Meetings – Daniel Kuhn
5. Utah Trends – Matt Riffkin
6. State Rail Plan Guidance and Schedule – Vern Keeslar
7. Proposed Next Meeting – Daniel Kuhn
    a. Date: Wednesday, November 28, 2012
    b. Time: 10:00 a.m. to 11:30 a.m.
    c. Place: UDOT

Utah State Rail Plan (USRP)
Working Group Meeting Notes

Date: Wednesday, August 29, 2012
Time: 10:00 a.m. to 11:30 a.m.
Place: Utah Department of Transportation (UDOT), located at 4501 South 2700 West, Salt Lake City, Utah. First Floor Administration Conference Room.

Invited Working Group

Camille Alexander, InterPlan (consultant)
Clint Ashmead, Utah Railway/SLCSRR
Bruce Barrett, BNSF Railway
Maurice Bowens, Utah Central Railway
Eric Cheng, UDOT Traffic & Safety
Brett Coulam, Utah Transit Authority
Dave Creer, Utah Trucking Association
Jeff Gilbert, Cache MPO
Andrew Gruber, WFRC
Ned Hacker, WFRC
Dan Harbeke, Union Pacific Railroad
Andrew Jackson, MAG
Hal Johnson, Utah Transit Authority
Vern Keeslar, InterPlan (consultant)
Daniel Kuhn, UDOT Planning
Myron Lee, Dixie MPO
Bill Magazin, Amtrak
Scott Martin, SB&G Railroad
Aaron Moody, BNSF Railway
Matt Riffkin, InterPlan (consultant)
Cory Pope, UDOT Program Development
Paul Quintana, Utah Central Railway
Mark Sadler, Amtrak
Matt Sibul, Utah Transit Authority
Walt Steinvorth, UDOT Planning
John Thomas, UDOT Planning
Chris Weesner, SG&W Railway

Agenda

1. Daniel Kuhn welcomed everyone to the meeting and everyone introduced themselves. Those in attendance included the following: Matt Riffkin, InterPlan, Camille Alexander, InterPlan, Walt Steinvorth, UDOT, Chris Weesner, SLGW, Maurice Bowens, Utah Central Railway, Eric Cheng, UDOT, Clint Ashmead, Utah Railway/SLCSRR, Brett Coulan, UTA, Ned Hacker, WFRC, Chad Eccles, MAG, Travis Thowe, BNSF, Connie Wilson, BNSF, Chris Bigoness, BNSF, Dan Harbeke, Union Pacific Railroad, Daniel Kuhn, UDOT Planning, Nick Kenczka, UDOT, Vern Keeslar, InterPlan, Jeff Gilbert, CMPO
2. Vern Keeslar handed out “Utah State Rail Plan Definitions.”
3. Vern Keeslar and Daniel Kuhn handed out maps to each individual Railroad with their specific rail lines highlighted. Vern and Dan are intending to meet individually with each railroad to discuss what tracks are operating in the state. Ned Hacker asked if the maps included: spurs, rails to trails, abandoned, inactive? InterPlan mapped existing rail lines and some spurs if they are longer. This map is intended to be a high level map.

4. Nick Kenczka spoke about UPLAN and how to use it, how to sign up for a username and password. He went over how to post a comment using the pushpins. Vern mentioned we will send out an email to get a username and password today or tomorrow. If you do have GIS shapefiles of the rail lines we would love to have that data. Travis Thowe asked if this a map of ownership, trackage rights? Vern Keeslar stated that InerPlan was showing both trackage rights and operations on this map. InterPlan wants to know where the railroad is operating and if they own the rail. In the individual meetings we will bring a questionnaire and go over both the UPLAN map and/or the hard copy map.
5. Matt Riffkin, InterPlan gave a presentation on Utah Trends.
    a. We can look at safety needs, capacity, trends, growth areas we need to serve in the future.
    b. The presentation is an overview of what we're looking at in the future.
    c. There are 2.5 million people in Utah today, and in 2050 expected population is 5 million people.
    d. Three out of four people live within five miles of I-15 and four out of five jobs are within five miles of I-15.
    e. A lot of growth is happening in small areas such as St. George and Logan.
    f. Trade has moved from the Atlantic Ocean to the Pacific Ocean, which means more freight and trucks coming from ports on western side of the country.
    g. Due to the geographical area, much of the freight comes through highways or railroads into Utah.
    h. We have seen an increase in truck traffic but not rail. It is not uncommon to have 30 to 50 percent truck traffic on highways in Utah. We want to look at how rail can help.
    i. UDOT is beginning an energy development study in the Uintah Basin due to high energy production in the state. Fuel prices are projected to grow slowly.
    j. Warehouse industry has a lot of potential for warehouse growth on the west side of the Salt Lake Valley, near the S.R. 201 corridor.
    k. The State Rail Plan will influence the employment and industry.
    l. Dan Kuhn added, even in a downturn economy there are still warehouses being built, meaning the economy is still good in Utah.
6. Vern Keeslar handed out the "Standardized State Rail Plan Guidance."
    a. Vern went over the outline of Standardized State Rail Plan Format and added that this is open for comments for the next 60 days.
    b. There was a discussion about if there was a state highway plan being developed as well?
    c. Walt Steinvorth mentioned that it was finished last year and they updated that plan every four years.

d. Vern stated that project lists can be developed for the State Rail Plan in order to know what the needs are in Utah.
e. Matt Riffkin said that we can overlay the other maps on UPLAN such as highways, safety, population growth, freight growth.
f. Walt Steinvorth creates the long range plan but also puts together another plan, the Unified Transportation Plan for the State Legislature. We are getting good at coordination of the Unified Transportation Plan, but it is harder to produce for larger states.
g. Dan Kuhn said that he wants to make sure that you are comfortable with these maps and the needs of your rail line.
h. Vern Keeslar stated that this plan will look at the 20 year vision and in this working group we would like your help in the developing the vision for the plan.
i. Dan Kuhn stated that he will also look at Donner Pass and other areas that are outside of the state, but still affect the rail lines within the state.
j. Vern Keeslar stated that we would like to have the first four chapters written by July 1, 2013.
k. Vern Keeslar handed out the working group schedule and said by the next meeting we should have the inventory of rail lines finalized.

7. Proposed Next Meeting – Daniel Kuhn
    a. Date: Wednesday, November 28, 2012
    b. Time: 10:00 a.m. to 11:30 a.m.
    c. Place: UDOT

Utah State Rail Plan (USRP)
Working Group Meeting Agenda

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Time: 10:00 a.m. to 11:30 a.m.
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Chris Bigoness, BNSR Railway
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Matt Sibul, Utah Transit Authority
Walt Steinvorth, UDOT Planning
John Thomas, UDOT Planning
Chris Weesner, SG&W Railway

Agenda

1. Welcome and Introductions – Daniel Kuhn
2. Map Meetings Update (handout) – Daniel Kuhn
3. Individual Railroad Information Update (handout) - Daniel Kuhn
4. Trends and Vision – Matt Riffkin
    a. Key Pad Polling
5. Revised Definitions (handout) – Vern Keeslar
6. Plan Status Update – Daniel Kuhn
7. Proposed Next Meeting – Daniel Kuhn
    a. Date: Wednesday, February 27, 2013
    b. Time: 10:00 a.m. to 11:30 a.m.
    c. Place: UDOT

Utah State Rail Plan (USRP)
Working Group Meeting Notes

Date: Wednesday, November 28, 2012
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Matt Sibul, Utah Transit Authority
Walt Steinvorth, UDOT Planning
John Thomas, UDOT Planning
Chris Weesner, SG&W Railway

Agenda

1. Daniel Kuhn welcomed everyone to the meeting and everyone introduced themselves. Those in attendance included the following: Clint Ashmead, Utah Railway/SLCSRR, Chris Bigoness, BNSF Railway, Brett Coulam, Utah Transit Authority, Chad Eccles, MAG, Jeff Gilbert, Cache MPO, Ned Hacker, WFRC, Vern Keeslar, InterPlan, Nick Kenczka, UDOT Planning, Daniel Kuhn, UDOT Planning, Matt Riffkin, InterPlan, Walt Steinvorth, UDOT Planning, Chris Weesner, Salt Lake, Garfield and Western Railway.
2. Daniel Kuhn updated everyone about the progress of meeting with the railroad partners concerning the maps showing railroad operating, ownership, and trackage rights. He distributed a handout that he gives out at the railroad meetings.
3. Daniel Kuhn also discussed the another handout that he has distributed to the railroads concerning a brief history, rail miles in Utah, and positive economic impacts to Utah like number of employees, payroll, and taxes paid.

4. Matt Riffkin gave a presentation concerning rail trends in the United States and Utah. He used a special presentation where instant feedback was obtained through anonymous voting within the Working Group through key pad polling. The presentation and voting results will be emailed to the Working Group. There was discussion about the data trends, answers to the questions, and results of the voting. The Working Group was engaged in discussion during the presentation.
5. Vern Keeslar distributed a “Definitions” handout and asked for public comment.
6. Daniel Kuhn gave a brief update to the Utah State Rail Plan process and schedule.
7. Daniel Kuhn stated that the next Utah State Rail Plan meeting will be the following:
    a. Date: Wednesday, February 27, 2013
    b. Time: 10:00 a.m. to 11:30 a.m.
    c. Place: UDOT

Utah State Rail Plan (USRP)
Working Group Meeting Agenda

Date: Wednesday, March 27, 2013
Time: 10:00 a.m. to 11:30 a.m.
Place: Utah Department of Transportation (UDOT), located at 4501 South 2700 West, Salt Lake City, Utah. First Floor Library Conference Room.

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Camille Alexander, InterPlan (consultant)
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Walt Steinvorth, UDOT Planning
John Thomas, UDOT Planning
Chris Weesner, SG&W Railway

Agenda

1. Welcome and Introductions – Daniel Kuhn
2. Freight Railroad Questionnaire – Daniel Kuhn
3. Passenger Railroad Questionnaire – Daniel Kuhn
4. Major Rail Commodities in Utah – Vern Keeslar
5. Railroad Gaps Serving Commodities in Utah – Vern Keeslar
6. Railroad Capacity Issues – Vern Keeslar
7. Yards and Terminals – Daniel Kuhn
8. Proposed Next Meeting – Daniel Kuhn
    a. Date: Wednesday, May 29, 2013
    b. Time: 10:00 a.m. to 11:30 a.m.
    c. Place: UDOT

Utah State Rail Plan (USRP)
Working Group Meeting Notes

Date: Wednesday, March 27, 2013
Time: 10:00 a.m. to 11:30 a.m.
Place: Utah Department of Transportation (UDOT), located at 4501 South 2700 West, Salt Lake City, Utah. First Floor Library Conference Room.

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John Thomas, UDOT Planning
Chris Weesner, SG&W Railway

Agenda

1. Welcome and Introductions – Daniel Kuhn

Daniel Kuhn welcomed everyone to the meeting and thanked them for their attendance. Those who were in attendance included Daniel Kuhn, Bruce Barrett, Nick Kenczka, Val Halford, Chris Bigoness, Eric Cheng, Camille Alexander, Brett Coulam, Ned Hacker, Dan Harbeke, Matt Riffkin, Walt Steinvorth, and Vern Keeslar.

2. Freight Railroad Questionnaire – Daniel Kuhn

Daniel Kuhn mentioned that the Freight Railroad Questionnaire deadline date is April 1, 2013. He asked if anyone had any questions about the questionnaire. Brett Coulam stated that Vern Keeslar was answering his questions. Daniel Kuhn mentioned that he may need to meet with the freight railroads personally about answers supplied by the railroads in the questionnaire.

3. Passenger Railroad Questionnaire – Daniel Kuhn

Daniel Kuhn mentioned that the Passenger Railroad Questionnaire deadline date is May 1, 2013. He asked if anyone had any questions about the questionnaire.

4. Major Rail Commodities in Utah – Vern Keeslar

Vern Keeslar passed out a handout that showed imports and exports in Utah by rail for 2011. A question was asked by Val Halford why does Utah import 77 percent of coal? Daniel Kuhn explained certain power plants in Utah begin to blend the coal. Daniel Kuhn also stated that the handout is from FAF data and it is specifically by rail. It is in and out of Utah what originates and terminates here by rail only. The group was divided into two different groups to discuss rail commodities, their growth, and if the growth of the commodity can be served by existing and future rail.

5. Railroad Gaps Serving Commodities in Utah – Vern Keeslar

Vern Keeslar passed out rail lines map of Utah to have the group identify any gaps of service, either existing or future. A comment was brought up of perhaps serving Uintah/Duchesne County. There is a study underway to look at rail lines through these counties. People think it is possible to have rail, but it is expensive and the resources need to have a return on investment.

a. Daniel Kuhn stated that the UDOT is taking the lead of simply trying to identify the gaps in the state. Please mark your maps of where you think we have gaps.
b. Dan Harbeke stated that building some in the south coast. But they rely on private investors to say we need a rail line in a certain place. It is hard for rail lines to pinpoint where growth is going to be.
c. Walt Steinvorth asked how railroads identify transportations systems that have a hole in them.
d. Dan Harbeke explained that they are having one on one conversations everyday with developers and where possible growth will be.
e. Walt Steinvorth asked where is the interface between rail and truck?
f. Matt Riffkin commented that Utah has the highest amount of truck movement among all states. And we are spending a lot of money on roads.
g. Dan Harbeke said he would love to divert truck to rail. UP pays for infrastructure not tax payers. In Idaho they just approved allowing larger trucks many state roads. When approvals such as this are made it hurts the roads.
h. Matt Riffkin commented a good goal would be to set up a process in the future so let's begin the process now.
i. Vern Keeslar said that MAP-21 talks about a freight advisory committee for each state. This will help with the development and communication of a statewide rail plan and freight plan.

6. Railroad Capacity Issues – Vern Keeslar

Vern Keeslar handed out map of 2005 and 2035 Level of Service for rail lines in Utah. Vern Keeslar explained how level of service is calculated for roadways using an A

through F grading level similar to a school report card. UDOT doesn't design freeway to hold maximum capacity. How do railroads define capacity?

a. Dan Harbeke stated that we don't share that information, but there are general things we could share.
b. Vern Keeslar stated that the graphic shows that if no improvement were done between now and 2035, this is how it would look, but that is not reality since the railroad would likely construct upgrades.
c. Dan Harbeke said that everyday UP is looking at efficiency. This graphic accounts for no planning.
d. Daniel Kuhn stated yes, this cast a negative light on how railroads actually function. If used in a plan we would have a correct disclaimer explaining.
e. Dan Harbeke stated that this graphic does help illustrate how much capital we need to sink into it.
f. Matt Riffkin asked what capacity does rail operate at?
g. Dan Harbeke said that we don't disclose that information, but operate at the best safest rail they can even if it is 10 mph.
h. As far as the map is concerned they are more comfortable with showing what the 2007 study looked at.
i. Vern Keeslar asked what are your capital improvement programs? What do you want us to show 20 years from now?
j. Dan Harbeke said that we won't be able to show 20 years from now. They can show what is current, and may not be able to show anything beyond 5 years in the future.

7. Yards and Terminals – Daniel Kuhn

Daniel Kuhn passed out a map and list and asked if the group could email the comments back. BNSF provided some comments back at the meeting.

8. Proposed Next Meeting – Daniel Kuhn

Date: Wednesday, May 29, 2013, Time: 10:00 a.m. to 11:30 a.m., Place: UDOT

Utah State Rail Plan (USRP)
Working Group Meeting Agenda

Date: Wednesday, May 29, 2013
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Aaron Moody, BNSF Railway
Mark Nelson, Heber Valley Railroad
Matt Riffkin, InterPlan (consultant)
Jon Osier, Kennecott Utah Copper
Cory Pope, UDOT Program Development
Mark Sadler, Amtrak
Walt Steinvorth, UDOT Planning
John Thomas, UDOT Planning
Chris Weesner, SG&W Railway

Agenda

1. Welcome and Introductions – Daniel Kuhn
2. State Rail Plan Update – Daniel Kuhn
3. Utah Transit Authority (UTA) Presentation – Hal Johnson, UTA
4. Amtrak Presentation – Alex Khalfin, Amtrak
5. Heber Valley Presentation – Mark Nelson, Heber Valley Railroad
6. Proposed Next Meeting – Daniel Kuhn
    a. Date: Wednesday, August 28, 2013
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Utah State Rail Plan (USRP)
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Mark Sadler, Amtrak
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John Thomas, UDOT Planning
Chris Weesner, SG&W Railway

Agenda

1. Welcome and Introductions – Daniel Kuhn, UDOT
   Daniel Kuhn welcomed everyone to the meeting and everyone introduced themselves. Those present included Daniel Kuhn, Vern Keeslar, Matt Riffkin, Kelly Lund, Walt Steinvorth, Val Halford, Ned Hacker, Nick Kenczka, Brett Coulam, Hal Johnson, and Dan Harbeke. Alex Khalfin participated by phone.
2. Amtrak Presentation – Alex Khalfin, Amtrak
   Alex Khalfin gave a presentation about Amtrak. He gave a brief background of Amtrak's history and funding, Amtrak's current performance, Amtrak service in Utah, PRIIA Section 209 prohibiting Amtrak funding trains less than 750 miles, and the Salt Lake City Amtrak Station. Alex also took some questions and comments about High Speed Rail and Amtrak's discontinued service of the *Deseret Wind* and *Pioneer*.
3. Utah Transit Authority (UTA) Presentation – Hal Johnson, UTA

Hal Johnson gave a presentation about UTA's 2015 project, which included the FrontRunner South commuter rail, the Mid-Jordan, West Valley, Airport, and the Draper TRAX light-rail lines, and the Sugarhouse Trolley line. He also discussed High Speed Rail and the Western High Speed Rail Alliance. The original HSR map did not include anything in the Intermountain West, but with alliances in Denver, Reno, Las Vegas, and Arizona, some corridors have been planned for HSR. There was some good discussion about how important it is to plan and start discussing HSR in Utah, even though it could be in the distant future.

4. State Rail Plan Update – Daniel Kuhn
   Daniel Kuhn stated that one passenger railroad and four freight railroads in Utah have not submitted the questionnaire back to UDOT.
5. Heber Valley Presentation – Mark Nelson, Heber Valley Railroad
   Mark Nelson was unable to attend, but is planning on attending in August to present.
6. Proposed Next Meeting – Daniel Kuhn
   Daniel Kuhn said that the next meeting for the USRP is Wednesday, August 28, 2013, 10:00 a.m. to 11:30 a.m. at UDOT.

Utah State Rail Plan (USRP)
Working Group Meeting Agenda

Date: Wednesday, October 30, 2013
Time: 10:00 a.m. to 11:30 a.m.
Place: Utah Department of Transportation (UDOT), located at 4501 South 2700 West, Salt Lake City, Utah. First Floor Administration Conference Room (East).

Invited Working Group

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Mark Sadler, Amtrak
Walt Steinvorth, UDOT Planning
John Thomas, UDOT Planning
Travis Thowe, BNSF Railway
Chris Weesner, SG&W Railway
Connie Wilson, BNSF Railway

Agenda

1. Welcome and Introductions – Daniel Kuhn
2. Section 130 Funding Presentation – Eric Cheng
3. Heber Valley Railroad Presentation – Mark Nelson, Heber Valley Railroad
4. Freight and Passenger Railroads Questionnaire Follow-up – Daniel Kuhn
5. Public Involvement Plan – Andrea Olson
6. Proposed Next Meeting – Daniel Kuhn
    a. Date: Wednesday, January 29, 2013
    b. Time: 10:00 a.m. to 11:30 a.m.
    c. Place: UDOT

Utah State Rail Plan (USRP)
Working Group Meeting Notes

Date: Wednesday, October 30, 2013
Time: 10:00 a.m. to 11:30 a.m.
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Chris Weesner, SG&W Railway
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Agenda

1. Welcome and Introductions – Daniel Kuhn

Daniel Kuhn welcomed everyone to the meeting and thanked them for their attendance. Those who were in attendance included Chris Bigoness, Travis Colledge, Brett Coulam, Ned Hacker, Val Halford, Dan Harbeke, Vern Keeslar, Nick Kenczka, Daniel Kuhn, Mark Nelson, Susan Odom, Andrea Olson, and Chris Weesner.

2. Section 130 Funding Presentation – Eric Cheng

On behalf of Eric Cheng, Travis Colledge, UDOT's railroad crossing consultant of CDM Smith, gave a presentation on Section 130 funds. He discussed that Section 130 funds were for railroad crossing improvements for public railroad crossings. UDOT receives about $1.6 million a year to improve crossings with active warning devices. Each railroad crossing improvement now averages between $300,000 and $400,000 per crossing. Travis discussed past projects where Section 130 funds were used to improve

the railroad crossing. He also listed a few projects that are in the process of being designed or completed using Section 130 funds.

3. Heber Valley Railroad Presentation – Mark Nelson, Heber Valley Railroad

Mark Nelson, Executive Director of the Heber Valley Railroad, gave two presentations. The first presentation was one that he gave the Utah Legislature requesting funding. The Heber Valley Railroad is actually an independent state agency titled the Heber Valley Historic Railroad Authority. Both steam engines owned by the Heber Valley are under repair and additional funds are needed to complete the refurbishing of the steam engines. The second presentation showed some of the recent marketing of the Heber Valley Railroad types of themed trains that they run. Mark explained that the ridership last year was 64,000 people with 42 percent of those riders were out-of-state. Mark said that the Heber Valley Railroad was going to market local riders with shorter and cheaper ticket rides.

4. Freight and Passenger Railroads Questionnaire Follow-up – Daniel Kuhn

Daniel reminded everyone that railroads that have submitted responses to the questionnaire included:

- Amtrak, BNSF Railway, Comstock Mountain Lion Railroad, Salt Lake, Garfield & Western Railway, Union Pacific Railroad, and the Utah Transit Authority FrontRunner.

Those who have yet to submit a response to the questionnaire include the following:

- Deseret Power Railroad, Kennecott Copper Railroad, Salt Lake City Southern Railroad, Savage, Bingham and Garfield Railroad, Utah Central Railway, and the Utah Railway.

5. Public Involvement Plan – Andrea Olson

Andrea Olson of InterPlan handed out a draft public involvement plan. She briefly discussed the requirements of the PRIIA FRA Guidance suggested outreach efforts. She also discussed the recommended outreach for the USRP. The railroad partners in attendance offered their support of the outreach and said they would assist where they could.

6. Proposed Next Meeting – Daniel Kuhn

Daniel stated that the next meeting date is Wednesday, January 29, 2014 from 10:00 a.m. to 11:30 a.m. at UDOT.

Utah State Rail Plan (USRP)
Working Group Meeting Agenda

Date: Wednesday, January 29, 2014
Time: 10:00 a.m. to 11:30 a.m.
Place: Utah Department of Transportation (UDOT), located at 4501 South 2700 West, Salt Lake City, Utah. First Floor Administration Conference Room (East).

Invited Working Group

Clint Ashmead, Utah Railway/SLCSRR
Chris Bigoness, BNSF Railway
Maurice Bowens, Utah Central Railway
Eric Cheng, UDOT Traffic & Safety
Jason Clark, SB&G Railroad
Brett Coulam, Utah Transit Authority
Rick Clasby, Utah Trucking Association
Chad Eccles, MAG
Alex Engelke, CML Railroad
Jeff Gilbert, Cache MPO
Ned Hacker, WFRC
Val Halford, WFRC
Dan Harbeke, Union Pacific Railroad
Jeff Harris, UDOT Planning
Bryan Hendrickson, Kennecott Copper
Hal Johnson, Utah Transit Authority
Vern Keeslar, InterPlan (consultant)
Nick Kenzcka, UDOT Planning
Alex Khalfin, Amtrak
Daniel Kuhn, UDOT Planning
Kelly Lund, FHWA
Myron Lee, Dixie MPO
Bill Magazin, Amtrak
Aaron Moody, BNSF Railway
Mark Nelson, Heber Valley Railroad
Susan Odom, BNSF Railway
Andrea Olson, InterPlan (Consultant)
Cory Pope, UDOT Program Development
Paul Quintana, Utah Central Railway
Mark Sadler, Amtrak
Walt Steinvorth, UDOT Planning
Travis Thowe, BNSF Railway
Chris Weesner, SLG&W Railway
Connie Wilson, BNSF Railway

Agenda

1. Welcome and Introductions – Daniel Kuhn
2. Plan Update and Chapters – Vern Keeslar
3. Utah Crude Oil Transload Facilities – Daniel Kuhn
4. Public Involvement Plan Update – Andrea Olson
5. Proposed Next Meeting – Daniel Kuhn
    a. Date: Wednesday, April 23, 2014
    b. Time: 10:00 a.m. to 11:30 a.m.
    c. Place: UDOT

Utah State Rail Plan (USRP)
Working Group Meeting Notes

Date: Wednesday, January 29, 2014
Time: 10:00 a.m. to 11:30 a.m.
Place: Utah Department of Transportation (UDOT), located at 4501 South 2700 West, Salt Lake City, Utah. First Floor Administration Conference Room (East).

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Mark Sadler, Amtrak
Walt Steinvorth, UDOT Planning
Travis Thowe, BNSF Railway
Chris Weesner, SLG&W Railway
Connie Wilson, BNSF Railway

Agenda

1. Welcome and Introductions – Daniel Kuhn

Daniel Kuhn welcomed everyone to the meeting and thanked them for their attendance. Those who were in attendance included Nathan Anderson, Eric Cheng, Brett Coulam, Jeff Gilbert, Ned Hacker, Val Halford, Dan Harbeke, Bryan Hendrickson, Vern Keeslar, Daniel Kuhn, Kelly Lund, Justin Morgran, Susan Odom, Andrea Olson, Walt Steinvorth, and Chris Weesner.

2. Plan Update and Chapters – Vern Keeslar

Vern Keeslar discussed an appropriate amount of time for the Working Group to review the first three chapters of the USRP. It was determined that a week per chapter would provide enough time for comments. Vern stated that he would send the first three chapters in PDF format by the end of the week. Comments are due back by Friday, February 21, 2014.

3. Utah Crude Oil Transload Facilities – Daniel Kuhn

Daniel Kuhn discussed that there are six crude oil transload facilities in Utah. He stated that he has been to each location and will include this information in the USRP. He stated that there are three along the Wasatch Front from Ogden to Midvale and three in Carbon County. Bryan Hendrickson expressed his concern about crude oil taking up needed switching capacity to service Kennecott Utah Copper rail shipments on a limited switching schedule on the Savage Bingham & Garfield Railroad. Daniel thanks him for the comment and responded that he should also express that concern to his rail service providers.

4. Public Involvement Plan Update – Andrea Olson

Andre Olson gave an update on the USRP outreach and public involvement. Daniel will be attending 12 public meetings with the Wasatch Front Regional Council (WFRC) at small group city meetings in January and February 2014. Daniel will hand out flyers about the USRP and where to provide input. Andrea is also proposing that Daniel attend each of the four metropolitan planning organizations (MPOs) technical advisory committee meetings. A schedule will be identified in the next couple of weeks.

5. USRP Presentation – Daniel Kuhn

Daniel gave a presentation on The Legacy of the Golden Spike; Railroad Service in Utah and the Utah State Rail Plan 2014. Originally prepared for the UDOT Annual Conference, this presentation looked at the continuing role of railroads in serving Utah's growing economy and how UDOT's Primary Freight Network highways work with the rail industry to support intermodal freight transportation. Bryan Hendrickson requested that the name of the Kennecott Utah Copper Railroad be corrected in the presentation.

6. Proposed Next Meeting – Daniel Kuhn

Daniel stated that the next meeting, and probably the last for the USRP, will be held at UDOT at 10:00 a.m. on Wednesday, April 23, 2014.

Utah State Rail Plan (USRP)
Working Group Meeting Agenda

Date: Thursday, May 1, 2014
Time: 10:00 a.m. to 11:30 a.m.
Place: Utah Department of Transportation (UDOT), located at 4501 South 2700 West, Salt Lake City, Utah. First Floor Administration Conference Room (East).

Invited Working Group

Clint Ashmead, Utah Railway/SLCSRR
Chris Bigoness, BNSF Railway
Maurice Bowens, Utah Central Railway
Eric Cheng, UDOT Traffic & Safety
Jason Clark, SB&G Railroad
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Travis Thowe, BNSF Railway
Chris Weesner, SLG&W Railway
Connie Wilson, BNSF Railway

Agenda

1. Welcome and Introductions – Daniel Kuhn
2. Plan Update and Chapters – Vern Keeslar
3. Freight Shippers/Receivers Meetings – Daniel Kuhn
4. Uinta Basin Rail EIS Presentation – Asia Alvord, HDR Engineering
5. Public Involvement Update – Andrea Olson
6. Last Meeting – Daniel Kuhn
    a. Date: To be determined
    b. Time: To be determined
    c. Place: To be determined

Utah State Rail Plan (USRP)
Working Group Meeting Notes

Date: Thursday, May 1, 2014
Time: 10:00 a.m. to 11:30 a.m.
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Paul Quintana, Utah Central Railway
Mark Sadler, Amtrak
Walt Steinvorth, UDOT Planning
Travis Thowe, BNSF Railway
Chris Weesner, SLG&W Railway
Connie Wilson, BNSF Railway

Agenda

1. Welcome and Introductions – Daniel Kuhn

Daniel Kuhn welcomed everyone to the meeting. Those present included Asia Alvord, Brett Coulam, Jeff Gilbert (by phone), Ned Hacker, Val Halford, Vern Keeslar, Daniel Kuhn, Andrea Olson, and Brandon Weston

2. Plan Update and Chapters – Vern Keeslar

Vern Keeslar updated everyone about the status of the chapters. Chapter 4 will be emailed out next week and Chapters 5 and 6 to follow in two weeks.

3. Freight Shippers/Receivers Meetings – Daniel Kuhn

Daniel Kuhn named the freight companies that he has had one-on-one meetings about shipping by rail and truck. They include NUCOR Steel, The Scoular Company, INTSEL Steel, Cereal Food Processors, HollyFrontier Refinery, Chevron Refinery, Burton Lumber, Presto Plastics, and Comstock Inc.

4. Uinta Basin Rail EIS Presentation – Asia Alvord, HDR Engineering

Asia Alvord gave a presentation about the Uinta Basin Rail EIS. She discussed how HDR Engineering reviewed several alignment options for this proposed new railroad. Asia stated, "the purpose of the Uinta Basin Railroad (UBRR) project is to reduce shipping costs and expand market access for commodities transported to and from the Uinta Basin by constructing a freight rail line that connects the Uinta Basin to the national common-carrier freight railroad system with direct access to the two western United States Class 1 railroads (BNSF and UP)."

5. Public Involvement Update – Andrea Olson

Andrea Olson gave an update regarding public involvement. She stated that the Draft Utah State Rail Plan will be posted on UDOT's website during the month of July for comments. She will also email a link to all Working Group members so that they may also spread the word about the Draft Utah State Rail Plan.

6. Last Meeting – Daniel Kuhn

Daniel Kuhn stated that he may hold one more state rail plan meeting in autumn. More information will follow if there is a need for one more meeting.

Additional Utah Railroad Resources

The following is a list of books and websites that can provide additional information about railroads in Utah.

Books

Hemphill, Mark W. Union Pacific Salt Lake Route. The Boston Mills Press, ISBN 1–55046–138–9, 1995.

Kooistra, Blair, Jim Belmont, and Dave Gayer. Crossroads of the West. Pentrex Media Group, ISBN 1-56342-008-2, 1998.

Schmollinger, Steve. Desert Railroading. Heimburger House Publishing Company, ISBN 0-911581-50-2, 1999.

Signor, John R. DONNER PASS Southern Pacific's Sierra Crossing. Golden West Books, ISBN 0-87095-094-0, 1985.

Signor, John R. Southern Pacific's Salt Lake Division. Signature Press, ISBN 978-1-930013-21-6, 2007.

Signor, John R. The Los Angeles & Salt Lake Railroad. Golden West Books, ISBN 0-87095-101-7, 1988.

Websites

www.amtrak.com
www.bnsf.com
www.cmlmetals.com
www.deseretpower.com
www.gwrr.com
www.hebervalleyrr.org
www.kennecott.com
www.patroitrail.com
www.rideuta.com
www.savageservices.com
www.up.com
www.utahrails.net

Governor Gary R. Herbert - March 2, 2011

Energy Initiatives & Imperatives

Utah's 10-Year Strategic Energy Plan 2.0

Updated Plan - February, 2014

UTAH OFFICE OF
ENERGY DEVELOPMENT

Advancing Utah's Energy Future

Front Cover: Pumpjack in Utah. Photo Credit: Mike Vanden Berg,

Flaming Gorge Dam, Utah. Photo Credit: Michael Vanden Berg, Utah Geological Survey

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Governor Herbert's 10-Year Strategic Energy Plan

Introduction

In his 2010 State of the State address, Governor Gary R. Herbert announced his intent to create the Utah Energy Initiative—a 10-year strategic energy plan that combines Utah's rich abundance of diverse natural resources with our innovative and entrepreneurial spirit—to ensure that Utah is at the forefront of solving the world's energy challenges.

Utah will seek to excel in job creation, innovation, entrepreneurship, global business and quality workforce and have a stable and sustainable business-friendly environment. Under the Governor's leadership, the State has received several awards and accolades. Most recently, Forbes Magazine named Utah the best state for business and careers. One key factor in their decision was our low cost of doing business, especially our competitive energy costs.

While rich in energy resources, Utah is also known for its National Parks, State Parks and unrivaled natural beauty. It is critical that while we strive for energy development that it be done in conjunction with preserving the quality of life that draws people to live and play in Utah.

This Energy Plan has been developed by a Task Force appointed by Governor Gary Herbert. In turn the Task Force relied upon Subcommittees and input from numerous private and public individuals, officials and organizations. Four public hearings were held throughout the state and input was solicited from all residents interested in energy development, economic development, human health and environmental issues.

Governor Gary R. Herbert

Guiding Principles

Based on input, the plan will be implemented in accordance with the following five guiding principles:

1. Utah's economy is dependent upon responsible energy development. Governor Herbert, his Cabinet and his energy policy task force will consider and thoroughly examine the potential for development of all energy resources, allowing the free market to drive while the State provides appropriate legislative and regulatory oversight.
2. Energy development in Utah will carefully consider the impacts on human health, environmental impacts and impacts on wildlife habitat. An effort to avoid, minimize or mitigate these impacts will be made regardless of energy resource.
3. Governor Herbert's Energy Plan is not a static document; it ushers in an ongoing open and transparent public discussion about best practices. The Governor and his Cabinet will work hand-in-hand with local government, federal agencies, Native American Tribes, environmental organizations, energy producers and utilities, business and the public to determine the best path forward.
4. Utah will work to keep utility costs low while recognizing that longer term price stability and relative affordability will require significant and ongoing investment in energy infrastructure.
5. Through expanding Utah's energy independence and providing export opportunities, Utah can stabilize its economy and provide for further economic expansion.

Note:

This version of the Energy Plan contains the text of the original Plan augmented with updates since original publication. Updated text is highlighted in orange, either inline with the text or in separate boxes beside the original text.

Goals

This document describes a 10-Year Strategic Energy Plan that seeks to strengthen Utah's economy by setting the following goals:

1. Meet the projected energy growth demands over the next decade by making balanced use of fossil fuels and alternatives and renewable resources in a market-driven, cost-effective and environmentally responsible way.
2. Ensure Utah's continued economic development through access to our own clean and low-cost energy resources.
3. Develop the best new cutting-edge technologies, particularly those that enable us to utilize precious natural resources with an elevated environmental consciousness, and deploy them in Utah, the nation and the world.
4. Create new and support existing energy related manufacturing opportunities and jobs in Utah.
5. Modernize the regulatory environment to support sustainable power generation, energy transmission solutions and energy conservation.
6. Promote energy efficiency, conservation and peak consumption reductions.
7. Facilitate the expansion of responsible development of Utah's energy resources, including traditional, alternative and renewable sources.
8. Pursue opportunities for Utah to export fuels, electricity and technologies to regional and global markets.
9. Enhance and further integrate partnerships between industry, universities, state government and local communities—especially those in energy-rich rural communities—to address future energy challenges and opportunities.
10. Collaborate with other western regional states to present a strong and unified voice to federal regulatory agencies on energy and public land issues.

Modeling

Given the vigorous nature of energy development resources, technology and potential impacts on human health and the environment, a key element of the Plan will be creating a methodology for evaluating resources, costs and economic impact on a continuous basis. The PI+ model from Regional Economic Models, Inc. (the REMI model) is one tool that can be used to forecast economic impacts of resource development in a timely manner.

REMI is a dynamic model which generates annual predictions to 2050 and includes a detailed economic structure. While REMI has thousands of input variables, the change in energy prices resulting from various policies will be central. REMI includes the price of natural gas, electricity and other energy for residential, commercial and industrial users as inputs. Other inputs that may be affected by different policies include home prices and industry production costs. In particular, REMI models the labor market as a process in which labor supply and labor demand are matched through wage adjustment. Employment by industry is determined in the labor market. Gross domestic product (GDP), personal income and labor income are also estimated. REMI is an effective tool for energy scenario analysis precisely because it generates estimates of employment, GDP and income resulting from different policy decisions.

This Executive Summary and Plan contain recommendations, next steps and additional investigations needed to achieve the ten goals above. This report does not contain answers to all of the challenges identified, but it provides a roadmap to accomplishing that objective. Over the next ten years, as Utah continues to develop a robust, diverse portfolio of energy resources and related economic development, there will surely be changes and additions to the 10-year Strategic Energy Plan and opportunities for stakeholders to collaborate in building a stronger, more secure energy future.

Energy Resources & Demand

Utah's current energy resource consumption includes traditional fossil fuels and renewable resources, as summarized in Figure 1. In 2009, residents, businesses and industries consumed approximately 27,411 gigawatt hours (GWh) of electricity and 131 billion cubic feet of natural gas. In 2012, residents, businesses and industries consumed approximately 29,723 GWhs of electricity and 132 billion cubic feet of natural gas.

The demand for energy in Utah is increasing. Rocky Mountain Power's total Utah load is expected to increase from approximately 4,700 megawatts (MW) in 2011 to approximately 5,600 MW in 2020. In terms of usage, rather than peak load, this means an increase from 25,153 GWhs in 2013 to 29,515 GWhs in 2022. Questar projects that natural gas consumption in Utah in the residential, commercial, and industrial sectors will increase from 170 million Dth in 2011 to 200 million Dth in 2020. New projections indicate that the residential, commercial, and industrial sectors will increase from 173 million Dth in 2013 to 214 million Dth in 2022. Based on increases in consumption over the last ten years, petroleum-based transportation fuel use is projected to increase from 45 million barrels/year to 52 million barrels/year during the same period New projections suggest the increase will be from the current 47 million barrels/year to 53 million barrels/year. These figures are summarized in Table 1.

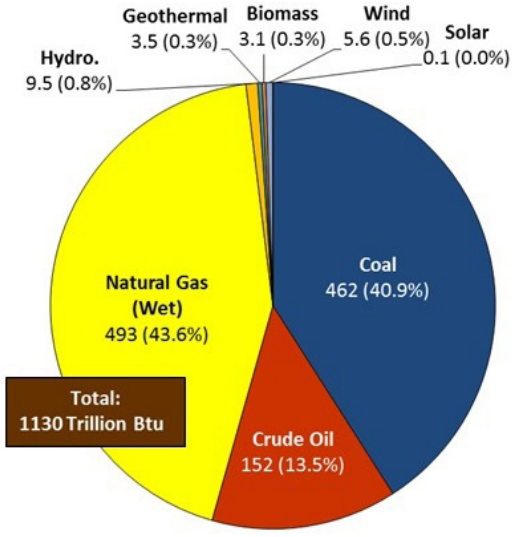


Figure 1. Energy Production in Utah by source in 2012.
Source: Utah Geological Survey.

How Utah Will Accomplish Its Energy Goals

Table 2 summarizes Utah's proven reserves and current consumption rates for petroleum, natural gas and coal. It also shows remaining years of proven reserves at current consumption rates. Several factors affect these values, including national policy, exportation of coal, unproven reserves, change in production rates (e.g., natural gas projected to increase, coal possibly to decline) and new reserve discoveries. Utah already imports a significant part of its consumed petroleum.

To meet future demand, Utah should continue to use existing fossil fuel resources while augmenting them with new, cost-effective energy efficiency measures and alternative and renewable energy resources as they become more economically feasible.

The State of Utah should work to meet the energy demand of 2020 with a balanced use of Utah's abundant energy resources. Development of resources should be done thoughtfully through evaluation of resource potential, impact on economic development, the natural environment and human health and physical and regulatory constraints. Utah would be best served by pursuing development of all energy sources and focusing on strategies that do not favor one over the other. Success will come if the focus is on the following eight cross-cutting strategies that provide a solid basis to support development of all of Utah's energy resources.

Table 1

Utah's Projected Fossil Fuel Energy Growth – Next 10 years

Source: Rocky Mountain Power, Questar, Utah Geological Survey

	2013	2022	Percent Change	Annual Rate
Electricity Load (RMP) (GWh)	25,153	29,515	17.9%	1.8%
Natural Gas (Questar) (million Dth)	173	214	23.7%	2.4%
Petroleum/Transportation (mbbl/yr)	47	53	12.8%	1.3%

Table 2

Utah's Current Conventional Fossil Fuel Production Rates and Proven Reserves
(All values referenced elsewhere in this report.)

	Petroleum	Natural Gas	Coal*
Proven Reserves	504 mbbl	8.1 Tcf	201 mt
Annual Production Rates	26 mbbl	0.462 Tcf	20 mt
Remaining Years of Reserve at Current Production Rates	19 years	18 years	10 years

mbbl = million of barrels, bcf = billions of cubic feet, mt = millions of tons
*including Kaiparowits (federal lands), 505 mt proven reserves, 25 years proven reserves at current production rates

Recommendation 1 - Status: Nearly Complete, Ongoing

Overview:

It is recommended that Utah establish an energy office, administered by the Governor's Energy Advisor, with an Advisory Committee to oversee the implementation of the Governor's Energy Plan. This structure will address the evolution of the State's energy policy and act as an advisory body to the Governor. The Committee will respond to emerging issues in the energy arena and make recommendations on any necessary changes in state policy in response to emerging issues. This committee will develop the next steps related to the energy policy recommendations, identify and evaluate scenarios to be evaluated using economic models and oversee the action items identified by the Governor.

Millford Wind is located in Beaver and Millard Counties, with 306 MW energy generation capacity.
Photo Credit: First Wind and Douglas Barnes Photography.

Update:

In 2011 the General Session of the Utah State Legislature, House Bill 475 created the Office of Energy Development (OED) (63M-4-401), which combined various energy programs and activities from multiple offices into a single agency tasked with advancing responsible energy development though economic development and policy initiatives.

OED's vision is to serve as the primary resource for advancing energy development in Utah. Its mission is to provide leadership in the balanced development of Utah's abundant energy resources through public and private partnerships for economic prosperity, energy independence and a reliable, affordable energy supply. In order to advance its mission, OED has identified the following strategic objectives: create and implement policy, provide industry assistance, build relationships, seek funding opportunities and support energy education.

The Governor's Energy Task Force, originally formed to create the 10-Year Strategic Energy Plan, served as OED's Advisory Committee, offering guidance and oversight at key moments in the office's short history.

Under the guidance of the Governor's Energy Task Force, OED has been organized with focus on five resource energy areas (conventional, efficiency, infrastructure, renewable and unconventional), as well as focus on the infrastructure that connects them. The conventional resource area includes oil, gas and coal, while the unconventional resource area includes oil shale, oil sands and nuclear. Renewable resources include wind, solar, hydroelectric, biomass and geothermal energy. The efficiency focus encompasses building efficiency, industrial process efficiency, agriculture and transportation.

Actions:

Streamline government processes and policies for executing the Plan. A clear and predictable policy voice creates a business friendly environment and intergovernmental alignment yielding investment in energy development and job creation.

A. Create an energy office by consolidating existing energy functions currently fragmented throughout state government.

- OED was created in 2011, in response to Recommendation 1 of the Plan. Per the guidance of the Plan, it consolidated existing energy functions, including the Governor's Energy Advisor's, State Energy Program and the Governor's Office of Economic Development's Energy and Natural Resources Cluster.

B. Form a State Energy Advisory Committee comprised of a diverse group of representatives of energy in Utah.

- The Governor's Energy Task Force provided periodic high-level energy policy assistance for the Governor's Office and OED.

C. Shape policy discussions to make informed decisions.

- OED tracks energy legislation, advises legislators and other policy makers on various energy issues through involvement in committee hearings and other forums, and actively supports policy to advance responsible energy development in the State. OED also conducts various public communications and outreach activities, and organizes the annual Governor's Energy Development Summit.

D. Provide continuous policy analysis on resources, economic development, transmission and constraints on development.

- OED has created the Energy Analyst position, responsible for tracking trends in Utah's development of diverse energy resources. The Office shares its assessments of the energy sector in a variety of venues, including the Natural Resources, Agriculture and Environment Committee, the Public Utilities and Technology Committee and the Governor's Energy Development Summit.

E. Implement this Energy Plan and assure state government agencies are working seamlessly to accomplish goals as outlined.

- The Energy Coordinating Council was formed in 2011, is chaired by the Governor's Energy Advisor and is comprised of state agency directors that work in the areas of energy, natural resources, land, economic development and associated regulation and technology.

Legislation:

2011 Creation of Office of Energy Development (H.B. 475): This bill created the Office of Energy Development (OED), in fulfillment of the first recommendation of Governor Herbert's 10-Year Strategic Energy Plan. The statute directs OED to focus on advancing responsible energy development through economic development and policy initiatives. Chief Sponsor, Representative Barrus; Senate Sponsor, Senator Van Tassell.

2012 Energy Changes (H.B. 137): Modified OED responsibilities to include administration of the Loan Program for Energy Efficiency Projects and administration of energy-related tax credits. Chief Sponsor, Representative Barrus; Senate Sponsor, Senator Okerlund.

Recommendation 2 - Status: Progress Made, Ongoing

Overview:

Utah should create an effective strategy for the legitimate use of Utah's public lands for energy development purposes by working with federal agencies to navigate the balance between economic and environmental sustainability. The federal government owns and manages approximately 60% of Utah's surface lands and a larger portion of the mineral estate. Many of these public lands include pristine air sheds, national parks and wilderness areas, important water resources that are essential to local communities, wildlife habitat and riparian zones, world-renowned archeological and culturally significant sites, nationally recognized scenic areas and prized recreational locations. Accordingly, federal land management agencies will play a central role in the State's ability to develop its traditional, alternative and renewable energy resources.

Update:

The Office of Energy Development has worked with the Bureau of Land Management (BLM) to form the Utah Energy Development Action Team. The Team coordinates through regular meetings and extensive data sharing, the goal of which is to advance forms of energy development on public lands.

OED has also supported the Governor's Office and Utah's federal delegation as it works with stakeholders to advance the Public Lands Initiative. While to date this support has largely been characterized by outreach and education about the aims of the Initiative, as OED continues to build its Geographic Information Systems (GIS) capacity, it expects to be engaged in detailed mapping and exchange considerations.

Actions:

Act to keep Utah's Public Lands open for responsible energy development.

A. Continue to work directly with federal officials, Western Governors' Association, National Governor's Association and other groups to advocate for energy development on public lands.

- OED has coordinated with the Bureau of Land Management (BLM) to create the Utah Energy Development Action Team and participates in the WGA's Transmission Siting and Permitting Task Force, both of which support communication and collaboration between the federal and state levels.

B. Designate access to public lands for energy development as a priority for the Governor 's Public Lands Policy Coordination Office (PLPCO).

- The PLPCO coordinates the State's interests on public lands issues and ensures that state and local interests are represented in federal management of public lands. PLPCO is the state agency that responds to federal management decisions including Resource Management Plans, Environmental Assessments, Environmental Impact Statements, Threatened and Endangered Species decisions and other issues facing energy development in Utah.
- Advancing the Public Lands Initiative (PLI) is a primary objective for OED. The PLI is a locally-driven effort to bring resolution to some of the most challenging land disputes in the state of Utah. The initiative is rooted in the belief that conservation and economic development can coexist and make Utah a better place to live, work and visit. Resolving long-standing land ownership conflicts and helping to consolidate energy-rich lands and resources under state management or control will play a significant role in advancing our mission to responsibly develop energy in the state of Utah. OED plans to work closely with Utah's federal delegation to prepare legislation that will set aside significant amounts of land in the state for energy development and ensure that the ability to responsibly develop the energy resources of those lands is preserved.

C. Utilize the Governor's Balanced Resource Council to facilitate agreement on energy and environmental concerns.

- The Council meets quarterly and has focused on these areas since 2011. The Governor's Energy Advisor stays engaged with the Council, and brings OED to the table when energy development issues are being considered.

D. Assure that State agencies are taking lead roles in developing plans and strategies on how to address impacted resources under State jurisdiction and regulation (e.g. air quality, wildlife, archeology).

- Led by PLPCO, recent inter-department collaborative efforts to create a State plan for the conservation of the greater sage-grouse has demonstrated how effectively State agencies can work together to advance environmental protection and economic development goals. More generally, Utah's Department of Natural Resources (DNR) is a leader in the Intermountain West in the areas of forest fire mitigation, wildlife conservation, and water resource protection.
- The Clean Air Action Team was created by Governor Gary R. Herbert in 2013 to conduct research, work with the public, and recommend strategies for improving Utah's air quality. Similarly, Governor Herbert convened a series of listening sessions, a State Water Plan Advisory Team and a Water Summit to develop a 50-year water vision for the State.

E. Coordinate efforts with local government, School and Institutional Trust Lands Administration (SITLA), State agencies and interest groups to identify potential issues and work towards solutions.

- OED works hand-in-hand with PLPCO, SITLA, and energy development companies to coordinate development activities on State and private lands. These agencies and others also present a unified voice to the federal government on various federal regulatory issues standing in the way of responsible development.

F. Partner in joint efforts to leverage regional support with other western states for land rights.

- Governor Herbert's leadership of the Western Governor's Association (WGA) led to the creation of three energy-focused reports. WGA's 10-Year Energy Vision was an important step in demonstrating that the western states can overcome partisan differences to advance a coherent regional energy policy. It is the hope of western governors that this Plan will serve as an example to a federal government that lacks a comprehensive energy policy. Energy Perspectives features essays from each Western Governor and Canadian Premier on aspects of energy policy particularly relevant to each of their states or provinces. State of Energy in the West provides an integrated summary of energy resource reserves and extraction throughout the west, as well as the infrastructure that connects them.

Legislation:

2011 Energy Producer States' Agreement (H.B. 461): This bill provided for the appointment of legislative members to participate in multistate discussions involving agreements that encourage the development of domestic energy resources. Chief Sponsor, Representative Barrus; Senate Sponsor, Senator Hinkins

2012 Uintah Basin Energy Zones (S.B. 83): This bill created the Uintah Basin Energy Zone, and adopted an energy exploration, access and development policy for the Uintah Basin Energy Zone, including the promotion of full, responsible development of energy and mineral resources within the Uintah Basin Energy Zone. It also promoted local, state and federal collaboration to develop energy and mineral resources in the Uintah Basin Energy Zone. Chief Sponsor, Senator Van Tassell; House Sponsor, Representative Mathis.

Recommendation 3 - Status: Progress Made, Ongoing

Overview:

Utah's research universities and regional colleges, the energy industry and nearby national energy laboratories all contribute to development and deployment of energy technologies and work force capabilities. These efforts will be enhanced through greater coordination.

Update:

The Utah Energy Research Triangle (UERT) is designed to connect the world class researchers and facilities at the University of Utah, Utah State University and Brigham Young University into a powerful energy research triangle. This triangle focuses on addressing Utah's substantial energy resources and challenges by using Utah talent and funding to develop technical solutions that support the State's strategy for energy innovation and self-reliance.

Through a merit-based selection process, UERT supports developing new energy production technology, energy transportation and energy use, resulting in more efficient, cost-effective and environmentally sensitive use of Utah's resources. The UERT was launched with support of OED and Utah's Department of Workforce Services Utah Cluster Acceleration Program (UCAP).

Actions:

Strengthen Utah's role in research and development of energy technology by making this a primary focus for the Governor's Energy Advisor with higher education, industry and other research partners.

- In addition to providing funding opportunities, the UERT was instrumental in creating the University of Utah's new Petroleum Engineering Master of Science degree, which will be instrumental in further positioning Utah as an energy leader in the West.

A. Develop a "Research Triangle" of Utah's three research universities to expand interaction with regional technology leaders through collaborative efforts lead by the Governor's senior energy official and senior energy research officials from each of the universities.

- As described above, the UERT is well on its way to offering new collaborative opportunities to Utah's higher education institutions, opportunities that will be essential to advancing Utah's energy goals. The Governor's Energy Leadership Scholars are an important component of the UERT, designed to develop Utah's next generation of talent for scientific and engineering innovation leadership while simultaneously addressing Utah's unique energy challenges with cutting-edge solutions.

B. Place emphasis on clean technology for fossil fuels (i.e. gasification, carbon capture and sequestration, unconventional fuel, etc.) and the interface with other energy forms.

- OED and the UERT will continue to work with researchers, developers, national laboratories, and others who are seeking technology solutions to Utah energy challenges such as those related to the transport of black wax from the Uintah Basin.

C. Increase collaboration between the Research Triangle and nearby national laboratories, particularly the Idaho National Laboratory.

D. Continue to attract world class researchers to connect higher education to deployable technologies.

E. Collaborate with U.S. Department of Energy (DOE) Energy Commercialization Center and associated technology transfer or commercialization agencies within the Research Triangle and regional colleges.

Recommendation 4 - Status: Progress Made, Ongoing

Overview:

Government tax incentives are a powerful economic tool that can influence behavior and business decisions. Incentives should be used strategically in coordination with Utah's energy plan, and where they have the most beneficial impact on Utah's economy.

Update:

The Alternative Energy Development Incentive (AEDI) was created in 2012 as an expansion of the Renewable Energy Development Incentive, and is administered by OED. The AEDI will advance large-scale renewable and unconventional energy development through a fixed post-performance tax credit of 75% of new state revenue that lasts for 20 years. The Alternative Energy Manufacturing Incentive (AEMI) was created in 2012 along with the AEDI. The AEMI, which is administered by the Governor's Office of Economic Development (GOED), provides for a post-performance tax credit of up to 100%, for up to 20 years. The AEMI applies to manufacturing facilities, and is limited to those same alternative energy resources outlined in the AEDI.

The Utah Energy Infrastructure Authority (UEIA) was created in 2012 as a follow-on to the Utah Generated Renewable Energy Electricity Network (UGREEN), and its board is staffed by OED. The UEIA will aim to facilitate energy development opportunities that were formerly constrained by a lack of sufficient energy delivery infrastructure. In some cases this might mean substation development to facilitate solar photovoltaic projects in Iron County, in other cases it might mean pipeline development to further open the Paradox Basin to oil and gas development.

Actions:

Review the role of tax incentives for businesses to relocate to and expand in Utah and their potential impact on job creation, energy availability and the growth of energy production.

A. Assess how tax incentives may further foster energy production and the manufacturing sector connected to the energy industry.

- The Alternative Energy Development Incentive and the Alternative Energy Manufacturing Tax Credit will not only encourage the development of Utah's alternative resources, but will also attract energy companies interested in research and development and manufacturing to the State, making Utah a true hub for advanced energy technologies.

B. Use economic modeling (REMI) to best determine the economic impacts of future development.

- OED is exploring a variety of modeling tools in order to determine how to most effectively characterize the economic impacts of resource development in the State. These modeling activities will both tell the story of energy's importance to Utah's economy, and help to advance policies and initiatives that fuel an expansion to responsible development.

Legislation:

2012 Alternative Energy Development Tax Credit Act (S.B. 65): This bill updated the Renewable Energy Development Incentive (REDI) so that it would apply to all qualified "alternative" energy resources, which are more broadly defined than renewable energy resources. Additionally, the authorization process was streamlined. Chief Sponsor, Senator Adams; House Sponsor, Representative Noel.

2012 Utah Energy Infrastructure Authority (H.B. 137): This bill renamed the Utah Generated Renewable Energy Electricity Network (UGREEN), broadening the applicability of the tax-free bonding mechanism so that it would apply to energy delivery infrastructure for all forms of responsible energy development. Chief Sponsor, Representative Barrus; Senate Sponsor, Senator Okerlund.

2013 Cleaner Burning Fuels Tax Credits Amendments (H.B. 96): This bill amended corporate and individual income tax credits for cleaner burning fuels. Further, it modified eligibility requirements to claim tax credits for cleaner burning fuels and extended the credits until the end of taxable year 2014. Chief Sponsor, Representative Draxler; Senate Sponsor, Senator Van Tassell.

2013 Sales and Use Tax Exemptions for Sales of a Fuel Cell (S.B.250): This bill created a sales tax exemption for combustion-free natural gas and/or biogas generation facilities, namely fuel cells. Chief Sponsor, Senator Okerlund; House Sponsor, Representative Noel.

Recommendation 5 - Status: Progress Made, Ongoing

Overview:

Increase energy development through coordination and transparency in the regulatory and licensing process. Utah's regulatory framework and process should be reviewed and revised to accommodate future demand. Within various state agencies there are competing requirements and a lack of standard policies and regulations related to application processes, timelines and paperwork requirements.

Update:

As part of the SUCCESS framework, all agencies are looking to reduce timelines and more effectively serve customers. In many instances in the regulatory space, this will mean identifying and mitigating any redundancy issues. Presumably any such streamlining would expedite energy development activities, and help to advance the State's energy policy.

Specifically, OED has completed a Guide to Permitting Transmission Lines in Utah, a primary goal of which was to identify redundancies in State and federal processes. A second phase of the study to be completed in 2014 will build on the results of the initial study. OED has also supported activities aimed at reducing local permitting timelines and other soft costs associated with distributed energy development at homes and businesses.

Actions:

Align Utah's agencies to better meet and facilitate responsible energy development.

A. Establish a single point of contact for energy developers for information on all State and local permit and ordinance requirements and regulations.

- As the primary point of contact, OED is engaged in pre-application meeting related to energy development activities, and continues to coordinate with agencies and developers throughout the permitting process. DEQ has general pre-application meetings with developers, in which the various relevant divisions are all represented, and a project is discussed. This helps identify any issues that might arise and permits that may be needed early on in the process.

B. Empower a new coordinating council of State agencies to work on energy development issues and activities.

- This has been completed. The Governor's Energy Advisor and OED convene and lead meetings of the Energy Coordinating Council, a body described above.

C. Instigate process improvement in state agencies that regulate the energy industry to assure greatest efficiency and protection to public health and environment.

- The Utah Department of Environmental Quality (DEQ) and DNR are working closely together to integrate and streamline permitting processes for oil and gas permits. The increased collaboration between State permitting agencies will increase efficiency and enable the oil and gas industry to fully develop Utah's energy's resources.
- The pre-application meetings described under Recommendation 2 are a key example of this type of improvement. Energy developers regularly praise not only the streamlined work of DEQ, but the permitting timelines of DNR, and the accessibility and advocacy provided by OED.

D. Develop a Utah long-range transmission plan.

- OED commissioned a Guide to Permitting Transmission Lines in Utah, which was aimed at identifying redundancies in State and federal processes. Phase II of the study, scheduled for 2014, will further develop the findings of Phase I, and explore future corridor-planning strategies.

E. Strengthen the State's role in authorizing and facilitating transmission/infrastructure projects.

F. Adjust Utah's regulatory framework and process to address Utah's future energy demand and the role of emerging technology.

- The Division of Oil, Gas and Mining provides oversight of established and emerging oil, gas and coal production technologies, ensuring that energy development is facilitated in accordance with necessary health and environmental safeguards.
- Adequacy of future electricity and natural gas supplies is protected through the Integrated Resource Plan (IRP) process undertaken every two years by the regulated utilityutilities. The State is very much involved in this process through the Public Service Commission (PSC), Department of Public Utilities (DPU), Office of Consumer Services (OCS) and OED.

Legislation:

2011 Energy Producer States' Agreement (H.B. 461): This bill provided for the appointment of legislative members to participate in multistate discussions involving agreements that encourage the development of domestic energy resources. Chief Sponsor, Representative Barrus; Senate Sponsor, Senator Hinkins.

2012 Uintah Basin Energy Zones (S.B. 83): This bill created the Uintah Basin Energy Zone, and adopted an energy exploration, access and development policy for the Uintah Basin Energy Zone, including the promotion of full, responsible development of energy and mineral resources within the Uintah Basin Energy Zone. It also promoted local, state and federal collaboration to develop energy and mineral resources in the Uintah Basin Energy Zone. Chief Sponsor, Senator Van Tassell; House Sponsor, Representative Mathis.

Solar panel installation on the new Utah Natural History Museaum rooftop. OED was instrumental in procureing funding for the new panels.

Recommendation 6 - Status: Progress Made, Ongoing

Overview:

Utah should have a state-wide program aimed at reducing energy consumption. Energy not consumed as a result of efficiency is a cost effective resource. Demand-side management (DSM) strategies reduce consumption during peak demand, resulting in lower costs because of avoided or delayed investment in new electrical generation and new natural gas supplies.

Update:

As the primary resource for advancing energy development in Utah, the Office of Energy Development worked with the Energy Advisor to facilitate production of a State Energy Efficiency and Conservation Plan. Energy leaders in the State were asked to oversee development of the planning document and to support implementation as Steering Committee members. The 15-member Steering Committee provided feedback throughout the process.

The Steering Committee members identified five main sectors to be addressed in the Plan, that include: Commercial and Residential Buildings; Alternative Transportation; Industrial; Agriculture and Public Outreach & Education. Each of these sectors was addressed separately by Team Committees. Experts from government, utilities, industry, academia, trade associations and non-profit organizations were invited to participate. Each Team Committee was chaired by a leader in their respective field.

Actions:

Maximize Utah's commitment to energy efficiency and demand-side management.

A. Support education and communication programs that enhance public awareness of energy efficiency and promote energy code training for new and existing energy professionals.

Education and communication efforts focusing on energy reduction have been supported across the state by several agencies and organizations. These include:

- Salt Lake Community College's Energy Manager program
- Energy codes training programs supported through partnerships with Rocky Mountain Power and Questar in conjunction with utility DSM programs
- K-12 energy education programs provided through the National Energy Foundation
- Utah Jazz Green Team Public Outreach Program
- University of Utah and Weber State Sustainability Programs
- Salt Lake City Sustainability Plan 2015
- Agricultural Agencies efficiency programs that include the State Department of Food and Agriculture, the United States Department of Agriculture and the Utah Farm Bureau
- Support by non-profit organizations such as Utah Clean Energy through the Industrial Energy Efficiency Challenges and Utah Clean Cities Coalition for the advancement of the Idle Free Campaign.

B. Encourage utilities and regulators to expand energy efficiency and demand response programs through State policy.

- The Energy Efficiency and Conservation Plan contains 27 recommendations that range from programs, policies, education, outreach, to financing and collaboration. The plan includes a responsibility matrix which list primary and secondary organizations that should play a leading role in implementation of the suggested policies, programs and projects for each recommendation. The Plan includes a variety of suggestions and ideas that may be further explored through investigatory dockets and other regulatory means, in partnership with State utilities.

C. Analyze financial incentives to enable investment in energy efficient construction and retrofitting.

The Energy Efficiency and Conservation Plan identifies many ways that the State can support programs that will enable investment in energy efficiency. These include:

- Incorporate Building Energy Performance Information Into Market Transactions

- Support and Promote Statewide Commercial PACE Financing
- Promote Best Practices in Non-Residential Energy Efficiency Through a Statewide Benchmarking Challenge & Recognition Program
- Support Mulit-Use Districts Located by Mass Transit Hubs
- Expand Options for Industrial Energy Efficiency Financing - Create Energy Efficiency Tax Credit
- Expand Options for Industrial Energy Efficiency Financing - Expand Establish a State Revolving Loan Fund
- Expand Education and Training for Industrial Energy Efficiency
- Establish Program Funding and Producer Incentives
- Catalogue and Share Best Practices Online and Showcase Incentive Programs Online

Legislation:

2013 Assessment Area Act Amendments, or "Commercial C-PACE" (S.B. 221): This commercial "Property Assessed Clean Energy" bill enables municipalities to create clean energy assessment areas or designations to facilitate the issuance of municipal bonds for renewable energy systems and efficiency improvements in commercial buildings. Chief Sponsor, Senator Van Tassell; House Sponsor, Representative Froerer.

2013 Energy Conservation Code Amendments (S.B. 202): This bill adopted the 2012 energy codes for commercial buildings, along with a revised version of the 2012 code for residential buildings. Chief Sponsor, Representative Wilson; Senate Sponsor, Senator Bramble.

2013 Sales and Use Tax Exemptions for Sales of a Fuel Cell (S.B.250): This bill created a sales tax exemption for combustion-free natural gas and/or biogas generation facilities, namely fuel cells. Chief Sponsor, Senator Okerlund; House Sponsor, Representative Noel.

Thermal imaging camera used to detect heat loss in homes and to determine solutions for building efficiency.

Insulation being blown into attic to increase heat retention in a home.

Recommendation 7 - Status: Progress Made, Ongoing

Overview:

Utah should diversify transportation fuels and build a transportation infrastructure and a fleet to meet the needs and demands of future generations. Utah's dependence on out of state sources for crude oil—72% used for transportation from out of state sources—may create a future fuel crisis. At this time only 50% of Utah petroleum product consumption is from out of State sources. Transportation accounts for 83% of Utah's total demand for petroleum products. It is critical to our economy, air quality and our quality of life that Utah diversifies our transportation model.

Update:

Utah's transportation requirements are significant, consuming one-third of total energy use in the state. Passenger travel and freight movement account for the bulk of the energy demand. However, new transportation technologies and programs are expanding rapidly and could provide support for more efficient fleet options, alternative fuel choices and greater opportunities for mass transit. The State is often cited in national publications as leading the nation in the number of compressed natural gas (CNG) fueling stations per capita. Three examples of recent lead-by-example State transportation initiatives include:

- Executive Order EO/005/2012—Automotive Idling Reduction: This Executive Order was issued to reduce idling by State employees;
- Multi-state Memorandum of Understanding (MOU): Governor Herbert signed a MOU that supported a joint solicitation, multi-state Request for Proposal that aggregated annual fleet vehicle procurements to promote functional and affordable natural gas vehicles.; and,
- Executive Branch Memo: The memo was sent to all state agencies to review vehicle requirements and to consider an expanded state fleet role for hybrid electric vehicles or compressed natural vehicles.

Actions:

Utah should pursue energy independence for transportation fuels by developing a framework for reducing its dependence on outside sources for transportation fuels and the inherent impacts this dependence has on economic development.

A. Support augmentation of Utah's fuel supply with nontraditional fuels.

- As described above, OED is engaged in advancing the proportion of private and public vehicles fueled with nontraditional fuels through a variety of avenues, including multiple boards, regulatory engagement, legislative engagement, and through leading by example.

B. Promote research and commercialization of clean technology for nontraditional fuels and alternative fuel vehicles (USTAR and Research Triangle).

- OED typically focuses on large-scale energy development, the vast majority of which is fueled by proven technologies that are readily deployable; however, that is not to say that it does not support commercialization activities wherever possible. For example, recognizing the potential of wireless charging to transform the alternative transportation sector, OED honored USU's Wave company in its 2013 Summit Awards. OED will also seek to support commercialization activities through the Utah Energy Research Triangle.

C. Analyze current and future pipeline capacity for oil and gas.

- OED supports the Western Interstate Energy Board (WIEB), which is currently focusing on studying the gas-electric interface, which will be essential as Utah slowly transitions to natural gas-based thermal plants. OED is also working with local economic developers and other project proponents to facilitate pipelines and other infrastructure to open the Paradox Basin to further development.

D. Assure that the State of Utah is engaged in transportation planning that promotes non-motorized and public mass transit infrastructure.

- The Public Service Commission (PSC) ruled in October, 2013 that electric vehicle charging service is not considered resale of electricity. This ruling will incentivize deployment of private charging stations, infrastructure that is essential to widespread adoption of electric vehicles in coming years.

Legislation:

2013 Energy Amendments: Alternative Energy Interlocal (S.B. 275): Created an interlocal entity to facilitate conversion to alternative fuel vehicles, and to facilitate the construction of maintenance facilities for such vehicles. Directed the Public Service Commission to investigate and report on measures for advancing cleaner air in the State. Provided a cost recovery mechanism for "a gas corporation" that pays for fueling stations and other related facilities. Chief Sponsor, Senator Adams; House Sponsor, Representative Draxler.

2013 Cleaner Burning Fuels Tax Credits Amendments (H.B. 96): This bill amended corporate and individual income tax credits for cleaner burning fuels. Further, it modified eligibility requirements to claim tax credits for cleaner burning fuels and extended the credits until the end of taxable year 2014. Chief Sponsor, Representative Draxler; Senate Sponsor, Senator Van Tassell.

The Compressed Natural Gas (CNG) vehicles above demonstrate the increasing popularity of nontraditional fuel usage.

Recommendation 8 - Status: Progress Made, Ongoing

Overview:

Utah should review the need for additional base-load sources of energy to supply electrical needs for our future. Given future demand projections, current and projected environmental regulations and constraints and Utah's unique mix of energy resources, the foundation for future base-load growth should be laid now.

Update:

Utah currently exports ~25-30% of the electricity produced within the state. This is largely owing to the Intermountain Power Project (IPP) and Milford Wind, which produce 2,100 of the State's 7,600 MWs of nameplate capacity generation. Rocky Mountain Power (RMP) cancelled the construction of a new gas plant scheduled for 2016 because of flattened load growth, and plans to serve new load over the next 5-10 years solely through Front Office Transactions. The state is not in need of new base generation at this time; however, this need is constantly monitored through the Integrated Resource Planning process, a public process involving the utility and various state agencies.

Actions:

Coordinate with major local and municipal utilities to develop a long-term strategy to broaden Utah's supply of base-load electricity.

A. Examine future coal supplies, the impacts of additional regulation on coal fired power plants and the potential of clean coal technology.

- Facing potential new EPA rules affecting new and existing power plants, OED is leading a coordinated response between the Division of Air Quality (DAQ), the Division of Public Utilities (DPU) and industry partners to assess the impact of such regulation, and to ensure that the EPA hears a unified voice from the State on the value of coal generation.

B. Assess Utah's natural gas resources and pipeline capacity in terms of delivering base-load energy.

- As mentioned under Recommendation 7, OED represents the State on the Western Interstate Energy Board (WIEB), which is currently focusing on studying the gas-electric interface, a critical nexus as Utah's electricity system slowly transitions to natural gas-based thermal plants.

C. Facilitate dialogue regarding Utah's potential opportunity for nuclear power development.

- Per the Plan and state energy policy (63M-4-301), OED is evaluating the potential role of nuclear energy production in Utah. To stimulate constructive discussion on the costs and benefits of nuclear, OED serves on the University of Utah's Nuclear Engineering Advisory Board, hosts nuclear education events, and considers diverse expert opinion on Utah's nuclear energy options at the Governor's Annual Energy Development Summit.

D. Evaluate Utah's role in energy storage strategies and capabilities for renewable energy sources including compressed air storage.

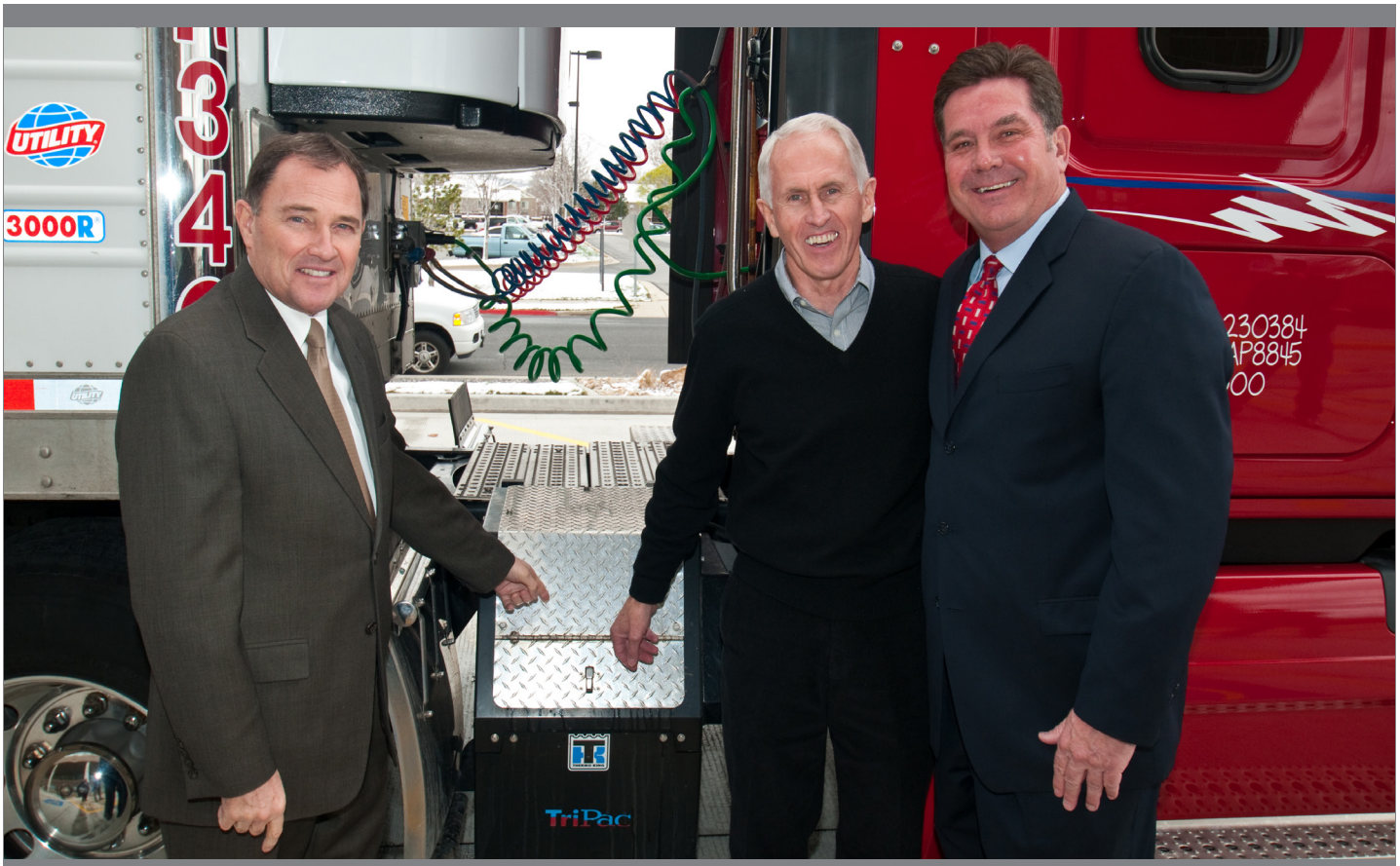
- Utility scale energy storage will be an essential component of the more distributed and intermittent generation system and Utah has supported development of a number of storage assets in the State.

Legislation:

2012 Utah Energy Infrastructure Authority (H.B. 137): This bill updated the Utah Generated Renewable Energy Electricity Network (UGREEN), broadening the applicability of the tax-free bonding mechanism so that it would apply to energy delivery infrastructure for all forms of responsible energy development. Chief Sponsor, Representative Barrus; Senate Sponsor, Senator Okerlund.

Summary

Energy is one of Governor Herbert's top priorities. The Utah Energy Task Force was appointed by the Governor to develop a 10-year Strategic Energy Plan. Eight recommendations have emerged from the comprehensive stakeholder driven process to help shape Utah's energy future. The Plan takes into consideration our abundant natural resources, economic development objectives and the importance of environmental sustainability. It is intended to be a working document to which modifications will be made as new information is realized. Energy development is an essential component to the vitality and success of the state and Utah will strive to lead our nation in the development of traditional, alternative efficiency and renewable energy resources.



Governor Herbert inspects a newly installed Auxiliary Power Unit (APU) for a semi truck. It is estimated each truck with APU's installed will save 6,450 gallons of diesel fuel per year.

Utah Energy Intiative

Governor Herbert's 10-Year Strategic Energy Plan

Section I: Introduction

Utah has a vast supply of diverse energy resources. These resources foster job creation and economic development through exploration, development, production, research and manufacturing. Additionally, Utah's low cost energy has been a driver in attracting businesses to locate in Utah. The revenue from energy development is the backbone of Utah's strong economy, providing funds for education to develop the scientists, engineers, technicians, entrepreneurs and workforce that match the opportunities of a strong economy and a vibrant quality of life.

Section II: Current & Future Energy Demand in Utah

Utah's current energy resource production base includes traditional fossil fuels and renewable resources, as summarized in Figure 1.

In 2009 [2012], residents, businesses and industries consumed approximately 27,411 [29,723] gigawatt hours (GWh) of electricity and 131 [132] billion cubic feet of natural gas. With the exception of crude oil, Utah currently produces more energy (including electricity, transportation fuels, and fuel for residential, commercial and industrial sectors) than it uses.

In 2008 [2011], Utah produced 29% [32%] more energy than it consumed.[1] Rocky Mountain Power's Utah load is expected to increase from approximately 4,700

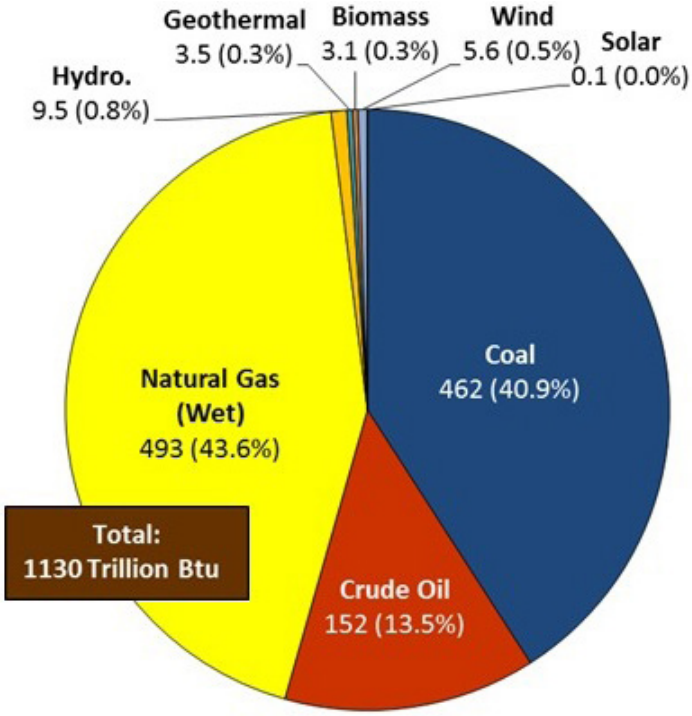


Figure 1. Energy Production in Utah by source in 2012. Source: Utah Geological Survey.

Table 1

Utah's Projected Fossil Fuel Energy Use Growth – Next 10 years

Source: Rocky Mountain Power, Questar Gas, Utah Geological Survey

	2013	2022	Percent Change	Annual Rate
Electricity Load (RMP) (GWh)	25,153	29,515	17.9%	1.8%
Natural Gas (Questar) (million Dth)	173	214	23.7%	2.4%
Petroleum/Transportation (mbbl/yr)	47	53	12.8%	1.3%

megawatts (MW) [25,153 gigawatt hours (GWh)] in 2011 [2013] to approximately 5,600 MW [29,515 GWh] in 2020 [2022]. Questar projects that natural gas consumption in Utah in the residential, commercial, and industrial sectors will increase from 170 [173] million Dth in 2011 [2013] to 200 [214] million Dth in 2020 [2022].[2] Based on increases in consumption over the last ten years, petroleum-based transportation fuel use is projected to increase from 45 [47] million barrels/year to 52 [53] million barrels/year during the same period.[3]

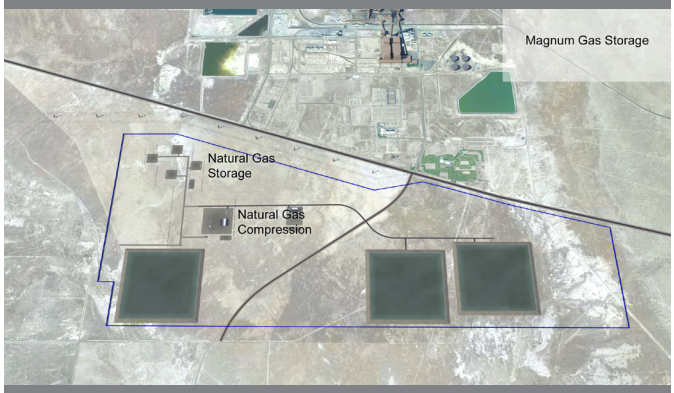
Table 1 shows Utah's projected energy demand growth for three of the four fossil fuels (all but coal). Coal reserves are at least sufficient to last this coming decade; and in general, existing coal plants will likely continue to produce electricity through the decade. The coal use may remain about the same, but this energy is accounted for in the electricity

This report notes that RMP provides about 80% of the State's electrical power, the balance coming principally from public municipals. Thus, the values in Table 1 will be low. Further, Utah is not self-sufficient in petroleum and imports about 72% [50%] of its petroleum consumed.

Figure 1 shows that currently, nearly 99% [98%] of Utah's energy production is from these three conventional fossil fuels. Renewable resources provide only 1.3% [1.9%] of the total.

While it is anticipated that renewable and alternative energy sources will likely grow at more rapid rates than the conventional fossil fuels, by 2020, Utah's energy will still be dominated by fossil fuels. To illustrate this, these 10-year projections for Utah can be compared to the federal government's energy plan which goes to 2035.(4) The U.S. Energy Information Administration projects a 14% [12%] increase in consumption from 2008 [2012] to 2035 [2040],[4] an annual growth rate of only 0.5% [.43%], significantly less than projected for Utah's growth rate (Table 1). The U.S. also projects a significant growth rate in renewables and biofuels. It also projects small increases in coal and natural gas with declining reliance on imported petroleum.

Currently, the conventional fossil fuels provide 84% [83%] of the U.S. energy demand. By 2035 [2040], the U.S. projects the fossil fuel percentage will drop from 84% [83%] to 78% [80%]. This is an important observation for Utah's 10-year energy plan. The U.S. has an aggressive program to expand renewable and alternative energy sources. Yet, even by 2035 [2040], the U.S. will still be principally dependent on these three fossil fuels. It is very likely that, even with aggressive efforts toward

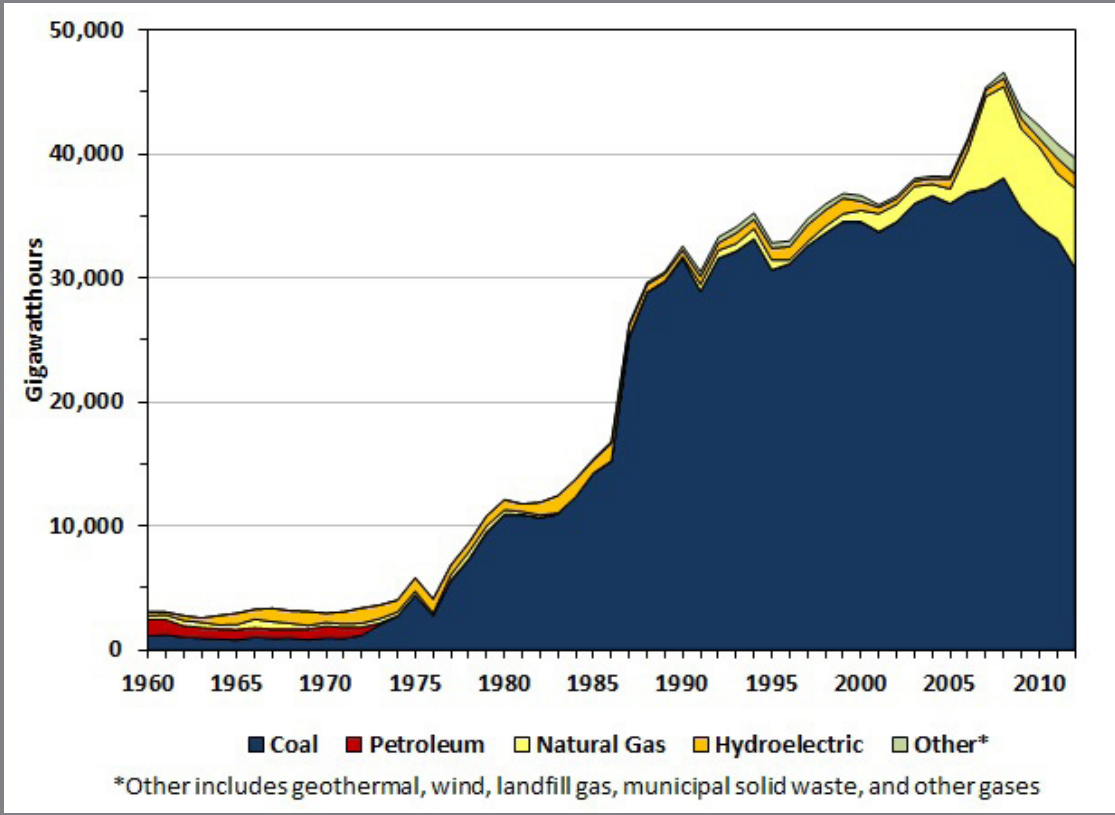


Magnum Energy

Magnum Energy's Western Energy Hub is located atop a unique natural salt dome that provides a variety of development opportunities, the most notable being energy storage, whether in the form of natural gas, natural gas liquids, petroleum, or compressed air energy storage (CAES). The Millard County project is located north of Delta at a critical crossroads of existing and developing electric, natural gas and petroleum liquids infrastructure in the West. The first phase of the Western Energy Hub, a series of caverns for the storage of natural gas liquids, is currently under construction. While a variety of options exist for a second phase, recent changes to California's Renewable Portfolio Standards requiring utility scale energy storage is a promising development for Magnum, which may have an opportunity to pursue its CAES project earlier than originally anticipated.

Figure 2: Net generation of electricity in Utah by energy source (2012)

Source: Utah Geological Survey



renewable energy sources, Utah must continue to rely principally on fossil fuels over the next 10 years.

To meet future demand, Utah should continue to use existing fossil fuel resources and augment with new, cost-effective energy efficiency, renewable and alternative energy resources to the extent it is technically and economically feasible, and continue the research and development of clean and secure energy through research centers around the State, e.g., the Bingham Entrepreneurship and Energy Research Center in Vernal.

Utah's dependence on imported transportation fuels is a concern over the next ten years. Utah currently imports about 72% [50%] of its petroleum to meet transportation needs. This is similar to U.S. imports of petroleum, which is considered to be a national crisis. As discussed elsewhere in this report, Utah has vast reserves of oil shale and oil sands in the Green River formation in eastern Utah.

Newer, cleaner technologies have been developed to produce liquid transportation fuels from these unconventional resources.[5] Oil shale has been and is being commercially produced in Brazil, China and Estonia.[6] A single small oil shale plant would have the capacity to produce 6,000 bbl/day of oil, which is about 11% of Utah's daily consumption of about 53,000 bbl/day.[7]

Section III. Background Information on Utah's Energy Resources

A. Status of Utah's Energy Resources

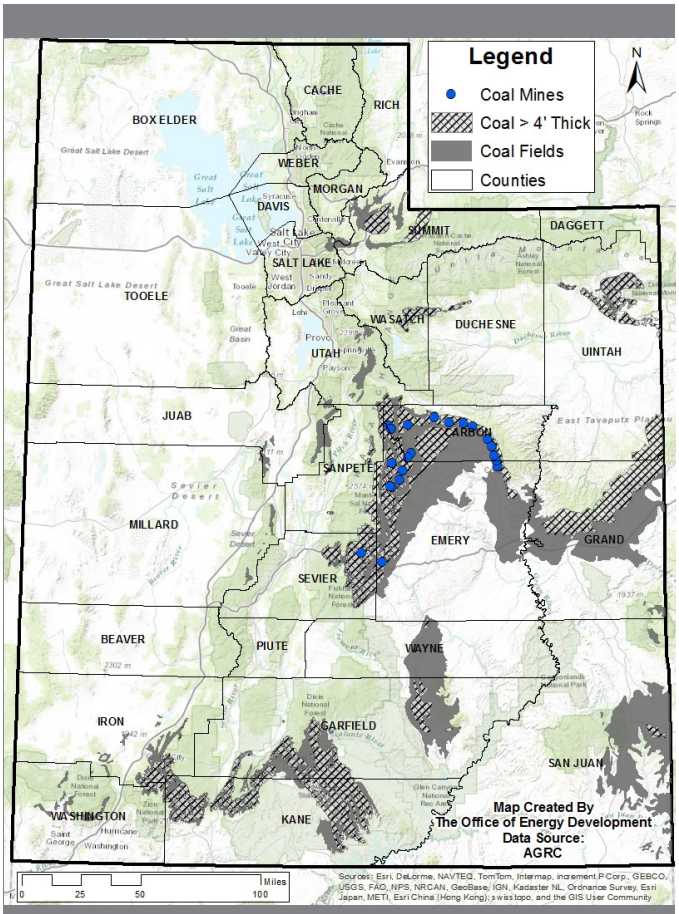
Utah's energy portfolio should include fossil fuels, alternative fuels, renewable resources and energy efficiency. Diversifying Utah's energy base not only provides jobs and revenues, but also critical resources and energy to fuel Utah's broader business and industrial sectors.

Coal:

In 2008, Utah produced its one-billionth ton of coal. In 2009 [2012], Utah ranked 13th [15th] in the nation in the production of coal at 21.9 [17.2] million tons and coal made up about 47% [41%] of Utah's total produced energy resources.

Coal also accounts for 41% [40%] of the energy consumed by Utahns.[8] There are estimated to be over 3,722 jobs in Utah's coal production industry, including direct and related support jobs (this figure does not include indirect jobs).[9] In 2012, there were estimated to be 1,831 jobs directly in Utah's coal production industry. This total does not include indirect support jobs, or the many jobs in coal-based electricity generation, which are counted separately. Utah's most economic coal reserves are located in the three coal fields forming an inverted "U" primarily across Sevier, Emery and Carbon Counties. Utah currently has about 202 [201] million tons of coal reserves under lease at active mines, while state-wide recoverable coal resources total about 15 billion tons (this number does not take into account economic or land use constraints).[10] Another estimate from the Bureau of Land Management Price Field Office resource management plan indicates statewide coal reserves at 14.3 billion tons or greater than 50 years at current production rates.

The majority of Utah coal, 68% [67%] in 2009 [2010], was used in-state, while 32% [30%] was shipped out of state, and 3.3% was shipped to other countries. Foreign exports, mostly to Asia, peaked in 1996 when 5.5 million tons, or 19.7%, of Utah coal was shipped to foreign markets. This export market ceased to be economic as Australia and China increased production.[11] Utah's research universities are evaluating carbon capture and related technologies with direct application to Utah's coal-fired generation.[12]



Coal Mines In Utah, 2013. Credit: OED

From 1973 to 1988, electricity generation increased from approximately 3,000 GWh to over 30,000 GWh. Utah became a net exporter of electricity. Coal-fired power plants comprised about 95% of total net generation as the amount of hydroelectric generation declined. Today, approximately 82% [78%] of Utah's total net generation of electricity comes from coal-fired power plants, with 16% [17%] from natural gas, and 2% [5%] from hydroelectric, geothermal, landfill gas and biomass, wind and solar.[13] Utah consumes about 60% [75%] of the electricity that is generated in the State. The resource mix consumed in Utah, as the Utah Geological Survey notes, is more

accurately reflected in the fuel mix of Rocky Mountain Power, which serves 80% of the electricity (MWh) and 75% of the electric customers in Utah. (Rocky Mountain Power also serves customers in Wyoming and parts of Idaho.) That fuel mix includes approximately 58% [60%] coal, 17% [12%] natural gas and 13% [17%] renewables (including hydroelectric).[14] The remaining Utah electricity customers are served by two municipal groups, Utah Associated Municipal Power Systems (UAMPS) and Utah Municipal Power Agency (UMPA) and by an association of rural electric cooperatives. They have a similar fuel mix as Rocky Mountain Power, but with a larger percentage from hydroelectric power.

Utah's proven coal reserves, adjacent to operating mines, have been steadily decreasing, from a high of 429 million tons in 2000 to 202.5 [201] million short tons in 2009 [2011]. There are three existing ways of estimating coal reserves. Reserves adjacent to active coal mines are the most conservative estimate, but also the most accurate estimate of readily available coal.

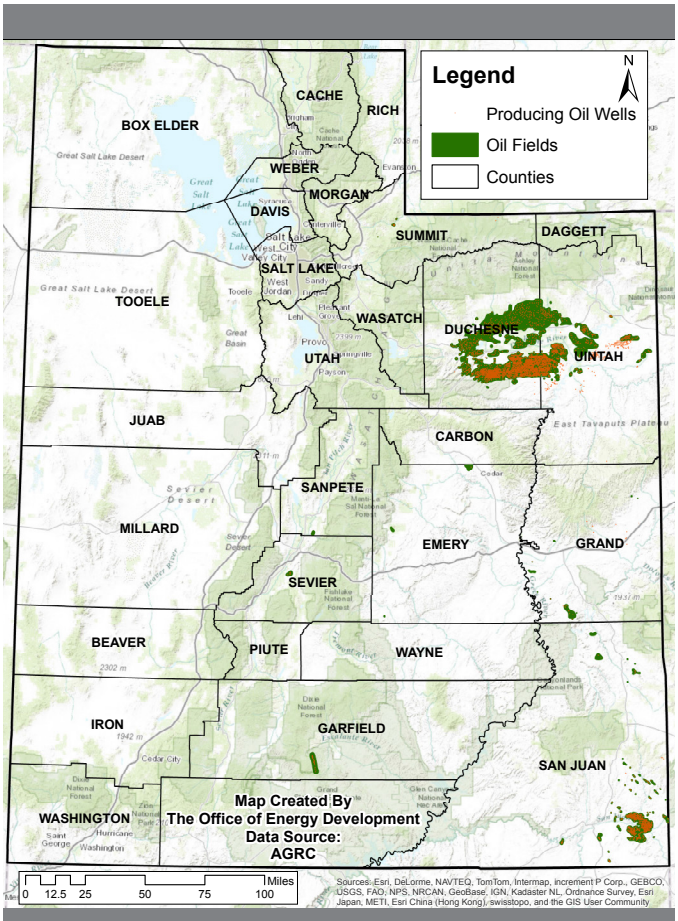
During this same period, 2000 to 2009 [2012], the number of mines decreased from 13 to 8 [9]. [15] Business-sector investments in coal-fired generation, including carbon capture and sequestration, appear unlikely until there is certainty regarding federal carbon regulation. The cost of compliance with additional air-pollution controls at existing plants is also under review. More restrictions are anticipated in the next few years, which will also decrease the probability of investment in new coal mines or new coal-fired electric generation.

Furthermore, as some Western states evaluate the generation and importation of electricity from cleaner sources (including renewables and natural gas), electricity portfolios may change. The technology and cost of integrating intermittent, non-dispatchable renewable resources, as well as the need to ensure reserve generation to back-up intermittent generation, are factors in the diversification of electricity resources in Utah and across the Western Interconnect.

Crude Oil (Petroleum Products):

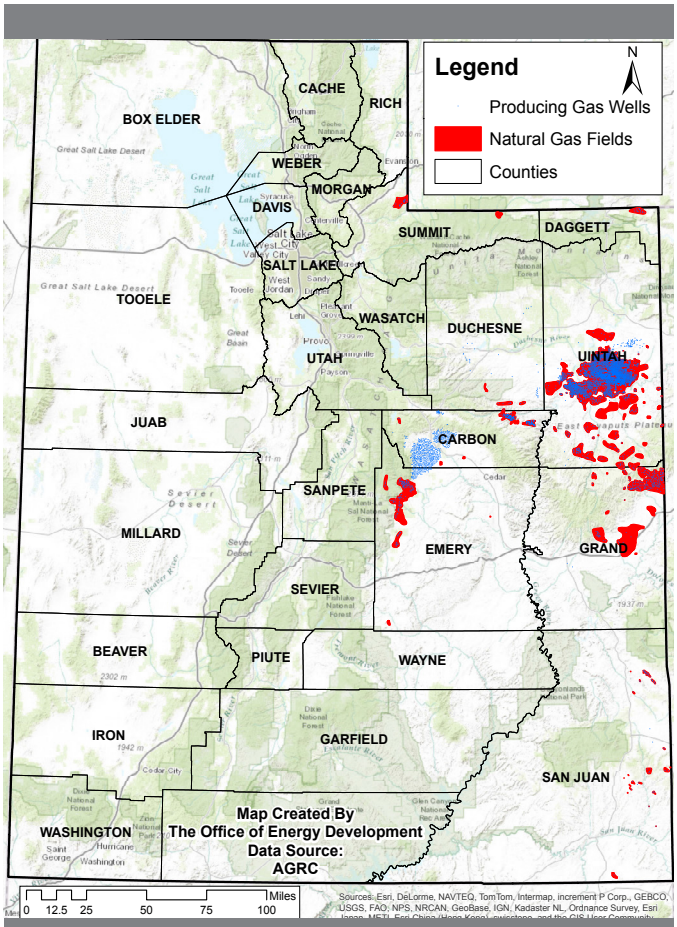
In 2008 [2013], Utah ranked as the 13th [11th] largest producer of crude oil in the United States. In 2009 [2011], crude oil made up approximately 12% [13%] of Utah's total produced energy resources. Crude oil also accounts for 33% of the energy consumed by Utahns.[16]

Utah has five refineries with over 150,000 barrels per day of refining capacity making gasoline, diesel, jet fuel and related products. While Utah is a net exporter of energy, it imports approximately 72% [56%] of the crude oil that is processed in its refineries. Imports come principally from Canada, along with Wyoming and Colorado.



Producing Oil Wells In Utah, 2013. Credit: OED

The refineries monetize Utah crude oil production. They are a significant source of jobs both for full time employees and contractors. Refineries are regional businesses exporting products to adjoining states. Though they are also significant consumers of natural gas and electricity, they provide transportation fuel reliability and accessibility in Utah. The environment in which they work is competitive because of the number of individuals and firms involved in the industry. This industry needs stability in regulation and taxation to invite the investment of necessary capital to continually modernize and make their operations more efficient.



Producing Natural Gas Wells In Utah, 2013. Credit: OED

The U.S. DOE estimates that U.S. crude oil production averaged 7.5 million barrels per day (bbl/d) in 2013, the highest annual average rate of production since 1989, and a 1.0-million-bbl/d increase from 2012. It projects crude oil production to average 8.5 million bbl/d in 2014 and 9.3 million bbl/d in 2015, which would be the highest annual rate of crude oil production since 1972. The record highest annual average crude oil production was 9.6 million bbl/d in 1970. In 2012 Utah produced more oil than any year since 1988, and that level of production reflects a significant growth in production that began in 2004. While the numbers are not complete for 2013, production seemed on track at least to be comparable to 2012.

Natural Gas:

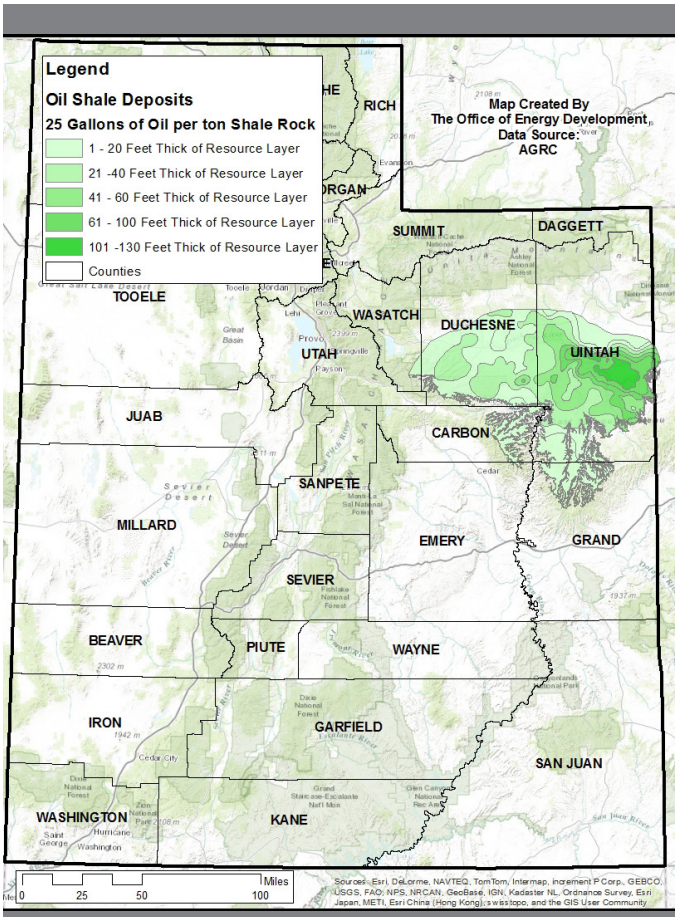
In 2007 [2012], Utah ranked as the 8th [10th] largest onshore producer of natural gas in the country. In 2008 [2012], Utah's natural gas was mostly used for home heating (nearly 29%) [33%] and by the electric utility sector (nearly 25%) [26%]. Natural gas makes up approximately 40% [44%] of Utah's total produced energy resources. Natural gas also accounts for 24% [25%] of the energy consumed by Utahns.[17] In 2012 there were estimated to be over 9,322 jobs in Utah's oil and gas industries, including direct and related support jobs of extraction, wells operations, distribution, transportation, refining, construction and manufacturing (this figure does not include induced jobs in electricity generation and other industries that exist because of natural gas production).[18]

Future energy projections place significant demands on natural gas production in Utah. Natural gas demand has historically come from the residential home heating, commercial, and industrial sectors. In 2008 [2012], those sectors consumed approximately 137 [132] billion cubic feet (bcf) of natural gas.[19] Natural Gas vehicles consumed only approximately 240 million cubic feet. Even a doubling of transportation fuel use would have little impact on consumption.

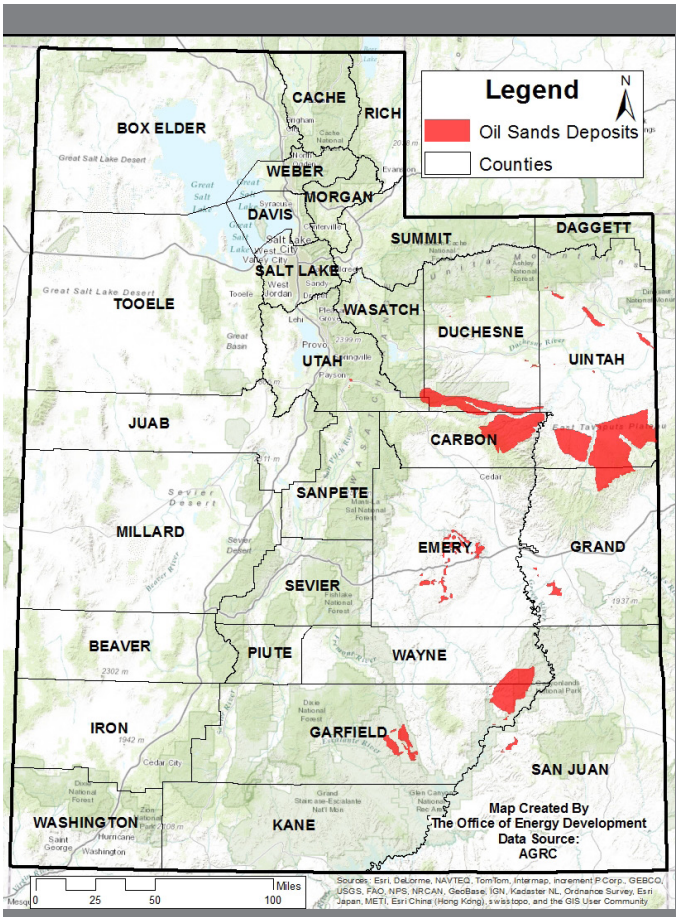
Natural gas consumption for electricity generation has increased steadily since the late 1990s, totaling more than 55 [49] bcf from all utilities in 2008 [2012], generating approximately 16% [17%] of Utah electricity production.[20] Rocky Mountain Power currently estimates that its Utah natural gas plants will consume approximately 62 bcf in 2020 for electricity generation, an increase of over 45 % from the approximately 42 bcf consumed by RMP plants in 2009.[21]

In 2020, Rocky Mountain Power's production of electricity from natural gas in Utah is projected to reach 9,000 GWh, compared with production in Utah in 2009 of 5,300 GWh.[22] Doubling Utah's natural gas-fired generation will require new natural gas production, which will require more efficient lease sales and permitting of natural gas exploration. Delays related to Resource Management Plan approvals must be resolved, and the approximate 18-month backlog on federal drilling permits must be reduced. State and federal agencies are already working together with industry to identify and reduce ozone and fine-particulate pollution that has been identified in some regions of oil and natural gas development.

Future considerations should include recognition that renewables, particularly wind and solar generation, do not completely replace fossil fuels in the fuel mix, but usually rely on natural gas as a backup and peak-day contingency. Additional natural gas will also be need-



Oil Shale Deposits In Utah, 2013. Credit: OED



Oil Sands Deposits In Utah, 2013. Credit: OED

ed should significant wind generation be developed in Utah. Wind's unpredictable nature means grid operators and planners must construct a shadow grid, particularly gas-peaking units, to stand as a reserve generator for those times when wind resources are not delivering their potential capacity. An increased reliance on natural gas for electricity generation also means that there is a need for additional pipeline capacity.

The U.S. DOE expects total natural gas consumption for the entire country to average a record high 71.2 billion cubic feet per day (Bcf/d) in 2013, an increase of 1.5 Bcf/d (2.1%) from the previous year. Increases in natural gas prices are expected to contribute to declines in natural gas used for electric power generation from 24.9 Bcf/d in 2012 to 22.3 Bcf/d in 2013 and 21.7 Bcf/d in 2014. However, as retirements of coal power plants rise in 2015 in response to the implementation of the Mercury and Air Toxics Standards, the DOE expects natural gas consumption in the power sector to increase to 22.6 Bcf/d. The development of the Lakeside Plant (a natural gas powered plant) six years ago in Utah County reflects these market dynamics and policy trends, as does the planned closure of the Carbon Plant (a coal burning facility) in Carbon County.

Unconventional Fuels:

Utah possesses unprecedented oil shale and oil sands resources. There have been wide-ranging estimates of the volume of resources in the Uinta Basin. The Utah Geological Survey's 2009 evaluation estimates that a continuous oil-shale interval that averages 35 gallons per ton contains an in-place resource of 76 billion barrels of shale oil.[23] Tar sands potential includes 14-15 billion barrels of measured in-place oil, with an additional estimated resource of 23-28 billion barrels.[24] The 2005 Rand Corporation Report indicates that, "the largest known oil shale deposits in the world are in the Green River Formation, which covers portions of Colorado, Utah, and Wyoming. Potentially recoverable oil shale resources include 500 billion barrels to 1.1 trillion barrels of oil. For policy planning purposes, it is enough to know that any amount in this range is very high. Present U.S. demand for petroleum products is about 20 [18.5] million barrels per day.[25] The largest volume of deposits of bitumen is in Utah, which has measured reserves of 8 billion to 12 billion bbl and total resources in place, including speculative ones, of 23 billion to 32 billion bbl."[26] The 2008 Rand Corporation Report on oil sands notes that "U.S. resources of bitumen have not been heavily exploited and are not characterized as thoroughly as resources in Canada (USGS, 2006). Major deposits of bitumen (i.e., larger than 100 million barrels) in the United States can be found in Alabama, Alaska, California, Kentucky, New Mexico, Oklahoma, Texas, Utah, and Wyoming."

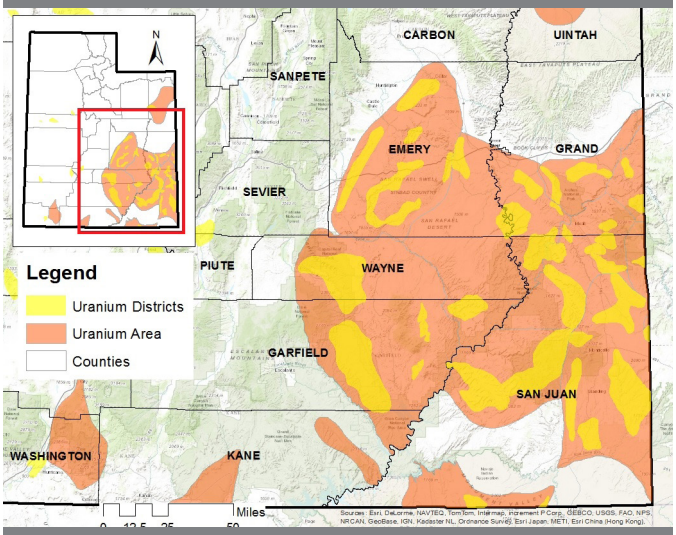
As of December 2013, both the U.S. Oil Sands oil sands project, and the Red Leaf Resources oil shale project have been fully permitted by the appropriate regulatory agencies in the State of Utah. Although U.S. Oil Sands is still involved in legal proceedings associated with its water permit, both projects anticipate breaking ground in 2014 or early 2015. Both projects will be in a position to benefit from the State's new Alternative Energy Development Tax Credit, which was designed to help developers of these new alternative resources be successful in the State. U.S. Oil Sands has 184 MM barrels of discovered resource on 5,930 acre PR Spring Development Block, and Red Leaf Resources SITLA parcel has an estimated 1.1 billion barrels of oil, and will initially proceed at 9,800 barrels per day.

Uranium:

Utah's San Juan County has a history of uranium mining dating back to the 1950s. Currently the Nation's only licensed and operating uranium mill, the White Mesa Mill, is located south of the community of Blanding, Utah. Uranium mined in Utah, in addition to Uranium mined in the Arizona Strip, is being transported to White Mesa for processing. There is the potential nuclear power plant project in Utah that would depend on this ore, additionally a market exists currently and may grow as additional plants are brought on line around the country.

There are more than 150 jobs in Utah's uranium industry, including direct and related support jobs in uranium mining and milling (this figure does not include indirect jobs).[27] Future job growth in Utah is dependent on the growth of the nuclear power industry, nationally and in Utah. Additionally, job growth in Utah is dependent on the area known as the Arizona Strip remaining open for uranium mining. Currently the Bureau of Land Management is proposing to withdraw over 1 million acres from development.

U.S. uranium mines produced 4.3 million pounds U308 in 2012, five percent more than in 2011. Six underground mines produced uranium ore during 2012, one more than during 2011. Uranium ore from underground mines is stockpiled and shipped to a mill, to be milled into uranium concentrate (a yellow or brown powder). Additionally, five in-situ-leach (ISL) mining operations produced solutions containing uranium in 2012 that was processed into uranium concentrate at ISL plants. Overall, there were 11 mines that operated during part or all of 2012. Total production of U.S. uranium concentrate in 2012 was 4.1 million pounds U308, four percent more than in 2011, from six facilities: one mill in Utah (White Mesa Mill) and five ISL plants (Alta Mesa Project, Crow Butte Operation, Hobson ISR Plant/La Palangana, Smith Ranch-Highland Operation, and Willow Creek Project). Nebraska, Texas and Wyoming produced uranium concentrate at the five ISL plants in 2012.



Uranium Deposits In Utah, 2013. Credit: OED

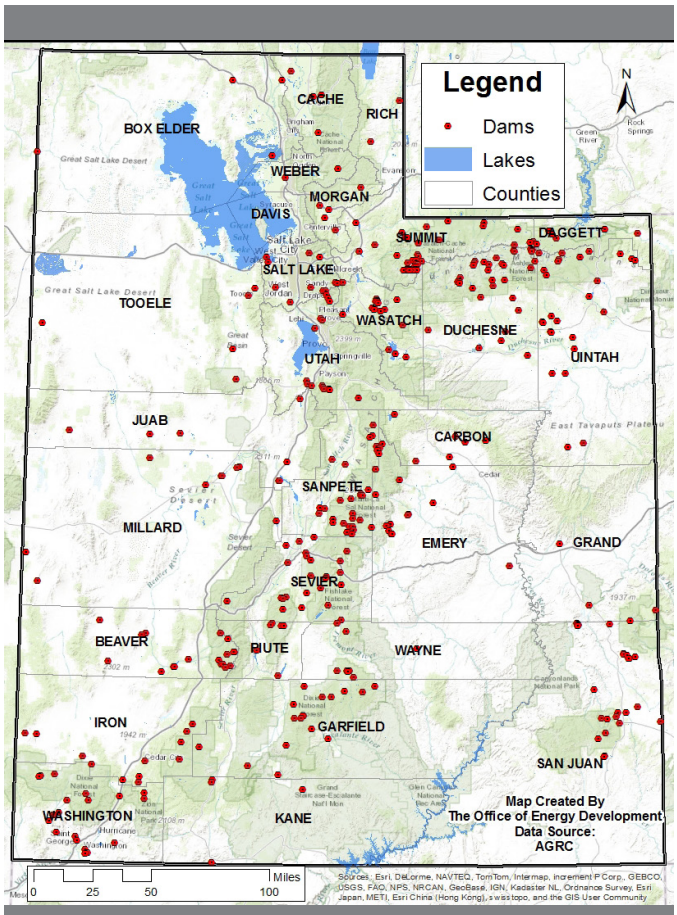
Hydroelectric:

In 2008 [2012], hydroelectric made up 0.5% [0.7%] of Utah's total produced energy resources. Hydroelectric also accounts for 0.7% [0.8%] of the energy consumed by Utahns.[28] Hydroelectric power comprises about 1.5% [1.9%] of electricity produced. There are estimated to be more than 30 direct jobs in Utah's hydroelectric industry, (this figure does not include indirect jobs).[29]

In terms of existing value, the U.S. Bureau of Reclamation operates two hydro plants in the State, including the small facility at Deer Creek Reservoir, and the much larger 150 MW plant at the Flaming Gorge Reservoir. Additionally, RMP operates 10 hydroelectric plants in the State of Utah, nine of which range in size from 0.16-10.3 MWs in nameplate capacity, and one of which – the Cutler Plant in Box Elder County – is an appreciably larger 30 MWs. Most of the plants were constructed between the very early 1900s and 1930. However, the oldest are Granite (Big Cottonwood Creek) and Pioneer (Ogden River), which went into operation in 1896 and 1897, respectively. Local municipal utilities and irrigation companies operate at least a few dozen additional smaller facilities throughout the State, the majority of which are 0.5-3 MWs in size.

Geothermal, Solar, Wind and Biomass:

In 2008 [2012], geothermal made up 0.5% [0.4%] of Utah's total produced energy resources. Geothermal also accounted for 0.8% of the energy consumed by Utahns, but in 2012 that fraction was 0.5%. Utah is one



Hydroelectric Power In Utah, 2013. Credit: OED

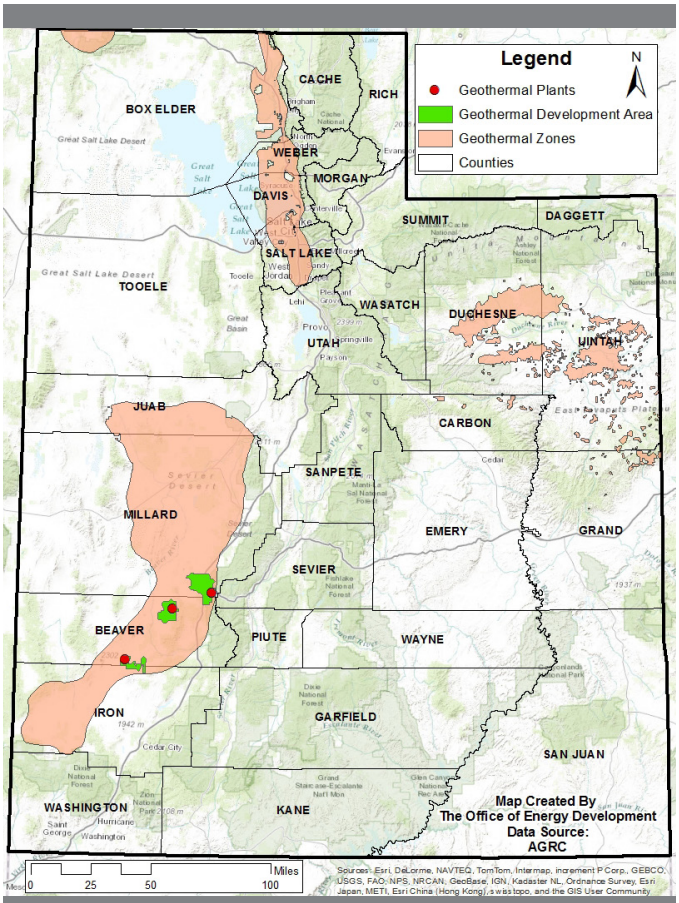
of only six states where electricity is generated from geothermal resources.[30] In 2010 [2012], Utah's wind generation capacity was 224 [324] megawatts (MW), most of which is exported to California. In 2009 [2012], 0.1% [1.8%] of Utah's electricity need was met by wind power. Solar energy generation made up 0.01% of total produced energy in Utah and 0.01% of the energy consumed by Utahns. In 2012, those numbers were 0.02% and 0.03%, respectively. In 2009, biomass made up 0.2% of Utah's total produced energy resources and 0.3 % of the energy consumed by Utahns. In 2012, those fractions were unchanged. In 2008, Utah ranked 45th in the nation in percent of total net electricity generation from renewable resources.[31]

While Utah may possess considerable renewable energy potential, many legitimate challenges currently impact the development of these resources. Among these challenges are the substantial investments in transmission infrastructure to connect these widespread resources to the grid, as well as policy, economic, technological and regulatory considerations. Combined, these challenges render many renewable energy projects in Utah not cost effective when compared to other resource options. Nevertheless, renewable energy represents a small, but growing, portion of Utah's energy generation portfolio, with a statewide installed renewable energy capacity, including hydroelectric generation of 570 MW [673 MW], with an additional 142 MW currently under contract.[33] Some of these resources are consumed in-state, while others are exported to surrounding states. Utah's renewable energy resource potential varies by technology and location.

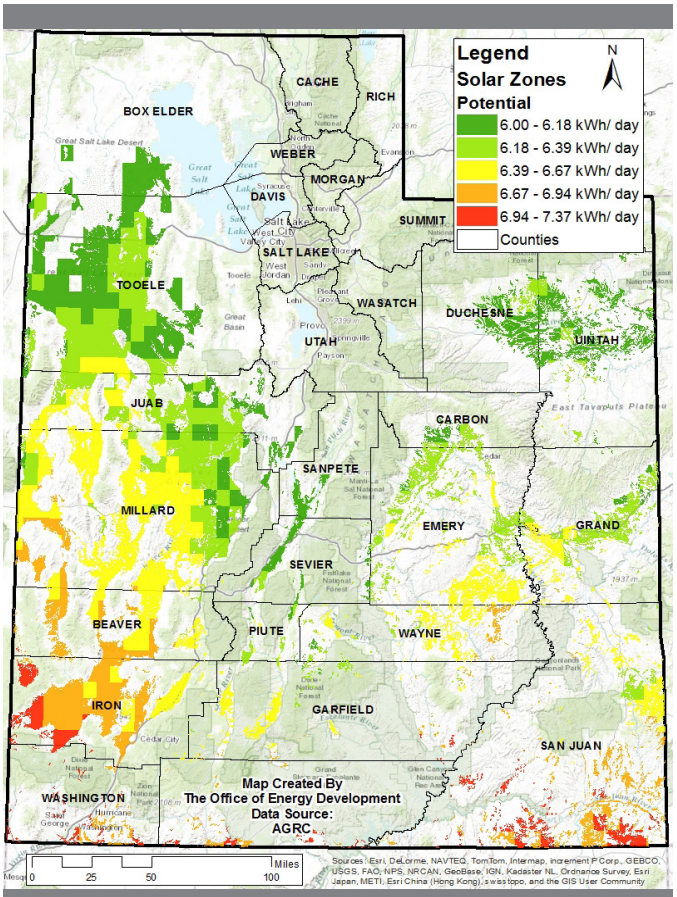
The numbers found in the Utah Renewable Energy Zone Task Force Report (UREZ) represent the upper boundary of what is theoretically possible, but does not identify what is reasonably probable and economic. Ongoing efforts by members of the Committee support the premise that commercially viable renewable energy projects exist and should be developed in Utah as they are demonstrated to be cost-effective.

Utah's policy-making authorities, public demand, cost, the utility regulatory and planning arenas and continued coordination among stakeholders should collaborate to identify pathways to address existing challenges to renewable energy development. Given growing energy demand and constraints on current energy supply, renewable energy could play an important role in Utah's energy future if these challenges are sufficiently addressed, though not likely having a major impact in the next 10 years.

It should be noted regarding Utah's renewable ener-



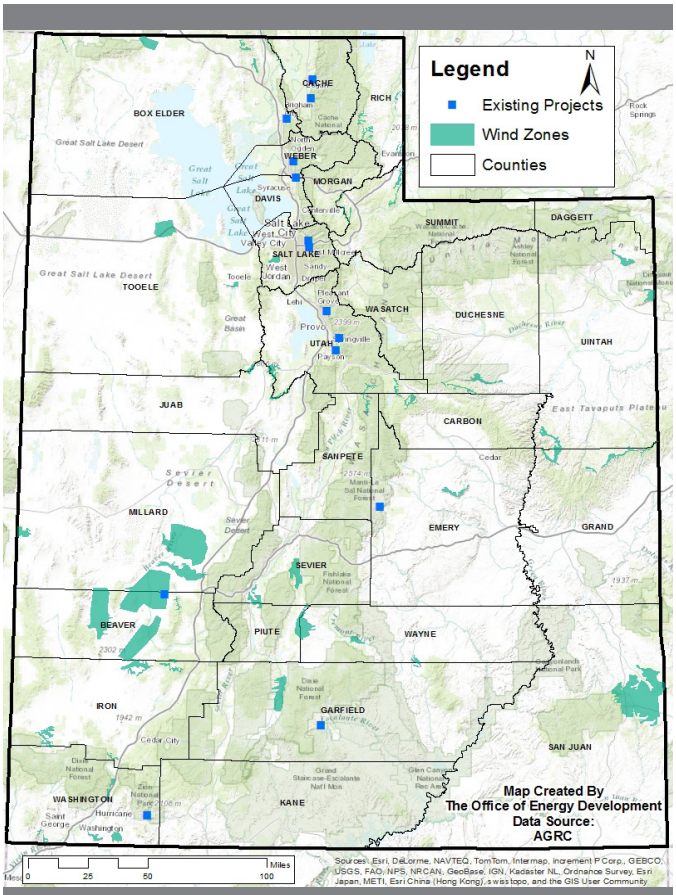
Geothermal Plants In Utah, 2013. Credit: OED



Solar Zones In Utah, 2013. Credit: OED

gy resources that to date, Rocky Mountain Power (RMP) has found potential renewable energy projects in Utah to be less cost-effective than projects in surrounding states. Current regulatory policy in the State applies a least-cost risk adjusted standard to RMP in providing electric service to its Utah customers. Under this standard, RMP has directed the majority of its investment in renewable energy generation facilities to areas located out of state, with the bulk of investment being directed to wind facilities in Wyoming. Under the current least-cost standard, RMP will invest in renewable energy facilities located in Utah (such as the Blundell geothermal facility located in Beaver County) to the extent they are found competitive from a cost effectiveness standpoint.

Also worthy of note regarding renewable energy facilities in general are the operational challenges of implementing renewable energy resources into an electrical system. By their very nature, energy production from renewable facilities is intermittent and can be random and unpredictable. Solar facility production is impacted by cloud cover and shading from nearby structures, while production from wind facilities can drop off in a matter of minutes as the wind ceases to blow. Also, production from renewable energy facilities may or may not occur at the time it is most needed - when de-



Wind Zones In Utah, 2013. Credit: OED

mand on the electrical system peaks. Because electric utilities are expected to provide service on a continuous basis, renewable energy facilities need to be backed up by production resources which can be dispatched 1) in a short period of time; and 2) at the time the energy is needed. Presently, RMP backs up its wind resources primarily with natural gas-fired generation and power purchases from the market, both of which add cost to the provision of electric service. The development of battery storage technologies, which is not a mature technology on a utility scale at this time, will improve the ability of renewable energy facilities to deliver energy at the time it is needed.

Shortly after the original 10-Year Strategic Energy Plan was published in 2011, First Wind completed Phase II of its ambitious Milford Wind project. This second phase was 102 MWs, making Milford Wind a 306 MW facility in total. Although 2012 did not see any activity in the realm of utility scale generation, it was the state's most successful to-date in the realm of distributed generation of renewable energy on homes and businesses. This was owing largely to the American Reinvestment and Recovery Act, which reached the height of its deployment activity in this year. 2013 saw a resurgence in activity in the utility scale renewable energy arena, with Enel Green Power North America's Cove Fort geothermal project coming online in November. That facility, which has a capacity of 25 MWs and expects to add capacity in the coming years, has a power purchase agreement with the Salt River Project in Arizona. Also in 2013, PacifiCorp signed a number of power purchase agreements with solar and wind producers, suggesting that 2014 and 2015 will see significant new development of these resources.

Compressed Air Energy Storage (CAES) as a Renewable Energy Resource.

The 2010 Legislature, through SB 104, designated air that is compressed and stored using renewable energy to be classified as a renewable energy resource under certain conditions. While there are no operating CAES facilities in Utah, the legislation was based on the potential for compressed air storage in proximity to potential renewable energy resources. A compressed natural gas storage facility, using storage in salt domes, is being permitted in Millard County. The CAES process uses stored compressed air, with the addition of natural gas combustion, to run turbines to generate electricity. This approach will not likely have a significant impact on Utah's energy production in the next 10 years.

Summit County Solar

In 2013 Summit Community Solar (SCS) helped 60 homeowners in Summit County install nearly a third of a Megawatt (331 kilowatts) of rooftop solar PV, which is more than five times the amount of residential solar installed in Summit County in 2012 and more than double the County's total installed residential solar capacity. Thanks to the bulk-purchasing power of the community, participants received upwards of 35% discounts off of average installed prices, before incentives. The average Summit County homeowner will save at least $700 per year on their electricity bills for the next 25 years (that adds up to over $1 million in electricity savings)!

Homeowners and local solar contractors also benefited from more simplified solar permitting processes and reduced permitting fees, which Summit County and Park City adopted in conjunction with the project. SCS was a collaborative partnership among Utah Clean Energy, Summit County, Park City and a volunteer citizen-led Steering Committee. SCS was modeled after Salt Lake Community Solar, a similarly successful bulk-purchase initiative in Salt Lake County in 2012. Both community solar projects were managed by Utah Clean Energy and supported by the Wasatch Solar Challenge.

Biofuels:

Biofuels such as ethanol, biodiesel and others, are fuels derived from biomass or waste feedstocks. Global production of biofuels – liquid and gaseous fuels derived from biomass – has been growing steadily over the last decade from 16 billion liters in 2000 to more than 100 billion liters in 2011. Today, biofuels provide around 3% of total road transport fuel globally (on an energy basis) and considerably higher shares are achieved in certain countries. Brazil, for instance, met about 23% of its road transport fuel demand in 2009 with biofuels, and the United States met 7.1 percent of its demand in 2012.

In Utah there are only a handful of commercial biofuels producers, including Pleasant Valley Biofuels and Washakie Renewable Energy, both of which rely on waste vegetable oil as a feedstock. However, researchers focused on the utilization of woody biomass produced through invasive species mitigation activities have developed new technologies that may improve the feasibility of large-scale Utah biofuel production.

Biomass Utilization:

Utah's biomass energy potential is only partly realized at this time. Currently, landfill gas, municipal solid waste combustion, and some experimental algae and anaerobic digestion processes constitute biomass energy utilization. The numerous national forests and wide expanse of public domain pro-duce an excess of wood, beetle kill waste and forest undergrowth waste. The web-based Coordinated Re-source Offering Protocol (CROP) provides potential wood users with information on wood fiber available within economical haul distances from federal and non-federal lands. Additionally, crop residue and animal waste associated with agricultural operations provide a potential resource that can be used for direct combustion or gasification, though significant contribution to Utah's energy needs by 2020 is not likely.

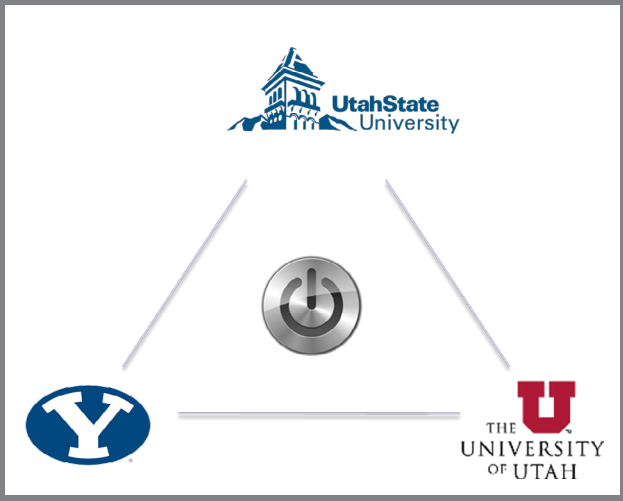
The Algae Biofuels Program at Utah State University is designing new ways to grow algae without needing fertile soil or rain. The approach uses sunlight to its fullest potential, conserves water, produces oil 50 times faster than regular crops and can co-produce electricity.[34]

Nuclear Power Generation:

This resource deserves additional evaluation, but will likely not be available for electricity generation in this 10-year strategic plan. The feasibility of future nuclear energy development in Utah will be impacted by the emerging role of nuclear energy nationally, as well as water, waste disposal, size of the plant, rail access, transportation of spent fuel, transmission costs and available certified designs. Important impacts on the economic basis for developing new nuclear-energy projects include the possibility of forthcoming taxes or cap-and-trade programs to restrict carbon emissions, cost of compliance with regulations to control other air pollutants, the instability of natural gas prices and the possible reduction in the use of coal as a base-load electric generation fuel.

Converting the current interest in building new nuclear energy plants in the United States into a series of new plant construction projects is dependent on public acceptance (this is particularly true in Utah), regulatory certainty, water availability and the ability to finance. This new environment will provide a context for encouraging nuclear energy development in Utah. Furthermore, if environmental concerns or policies curtail the development of future coal and/or gas-fired plants, or increase their net generating costs, this would provide an additional incentive to consider nuclear as a component of the State's base-load electrical generation.

Nuclear power has the potential to become a re-emergent industry within the United States. Utah should assess and develop its capacity to serve and supply the development of this industry, including the State's manufacturing capability and uranium ore reserves.



The Utah Energy Research Triangle

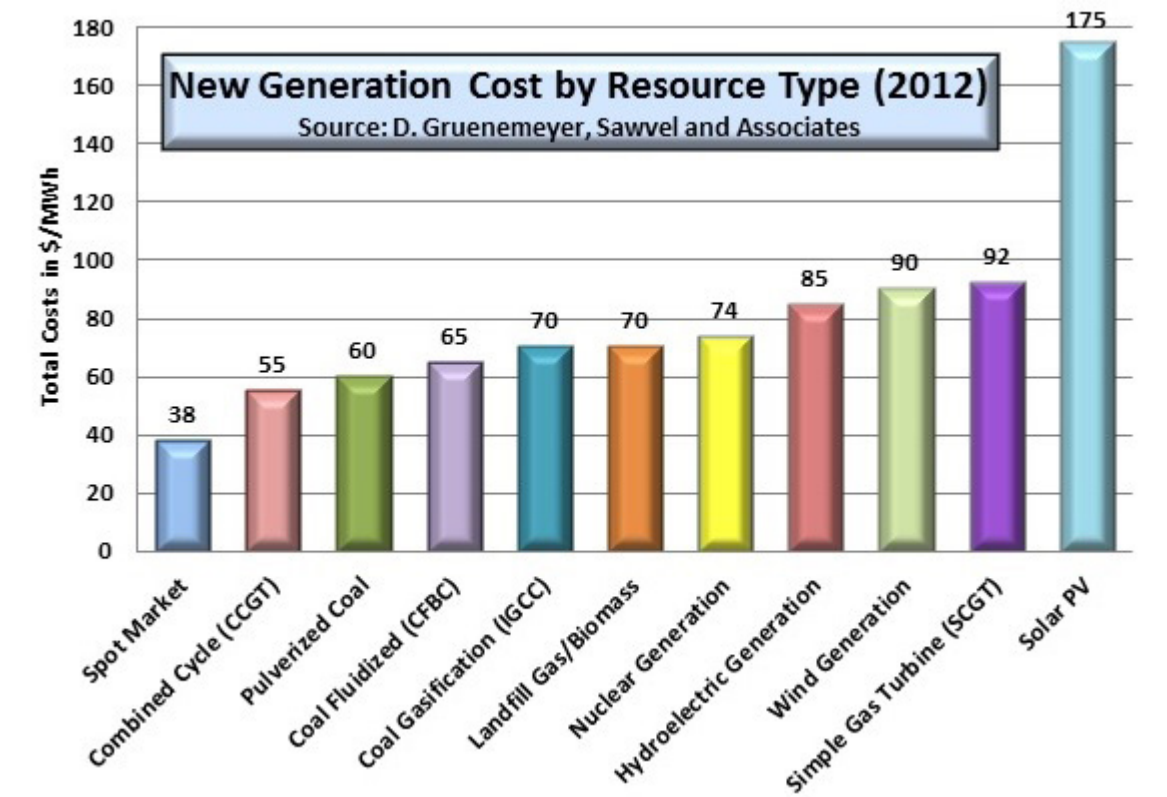
The Utah Energy Research Triangle is a unique component of Governor Gary R. Herbert's 10-Year Strategic Energy Plan. It is designed to connect the world class researchers and facilities at Utah's three main research universities into a powerful energy research triangle.

This triangle will focus on addressing Utah's substantial energy resources and challenges facing development by using Utah talent and funding. The Energy Research Triangle is a key component to the State of Utah's strategy for innovation and self-reliance in energy.

The Energy Research Triangle will support Utah-focused energy research at the State's research universities to develop technical solutions to the major energy-related challenges facing Utah. By developing new technology in energy production, energy transportation and energy use, we will use Utah's resources in a more efficient, cost-effective and environmentally sensitive manner.

Figure 3: New Generation Cost by Resource Type (2012)

Source: D. Grunemeyer, Sawvel and Associates



There are proposals to develop nuclear power in Utah, but there is not a proposal that has moved through the permitting process.

B. The Cost of Energy

It has been noted above that Utah has enjoyed low energy costs and that these low energy costs have been important in Utah's economic development. As Utah's energy portfolio changes over this next decade, cost of power will be a vital factor in maintaining Utah's economy.

Over the next decade, it is likely that Utah's energy cost will rise. Increases have/are occurring in some energy sectors such as motor fuels and electricity. Causes include costs of feedstock fossil fuels, costs of increasing regulation, impacts of supply and demand, the economic climate in the U.S. and other costs. Government expenditures through incentives, loans, tax credits and grants, several of which are mentioned in this report relating to development of renewable energy, will also impact energy cost. As larger fractions of Utah's energy are produced from alternative and renewable resources in the years to come, energy costs will rise. Figure 3 shows current typical generation costs for several energy resources, with combined cycle gas turbine plants being the least costly and solar photovoltaic energy the most costly.

Differences in costs among the various resources are dependent on the time period, the location, federal subsidy, pending regulations and other factors. But the comparisons of Figure 3 are current, realistic estimates for the State of Utah. As Utah implements its 10-year plan, implications of energy cost increase for various alternatives can be evaluated with the REMI Model.

Table 2

Utah's Current Conventional Fossil Fuel Production Rates and Proven Reserves
(All values referenced elsewhere in this report.)

	Petroleum	Natural Gas	Coal*
Proven Reserves	504 mbbl	8.1 Tcf	201 mt
Annual Production Rates	26 mbbl	0.462 Tcf	20 mt
Remaining Years of Reserve at Current Production Rates	19 years	18 years	10 years

mbbl = million of barrels, bcf = billions of cubic feet, mt = millions of tons
*including Kaiparowits (federal lands), 505 mt proven reserves, 25 years proven reserves at current production rates

Utah retail electricity prices have historically been among the lowest in the nation. That pattern has continued in 2012, when Utah's residential rates at 9.93 cents/kWh were 16% lower than the national average, commercial rates at 8.06 cents/kWh were 20% lower, industrial rates at 5.62 cents/kWh were 16% lower, and the average across all sectors at 7.84 cents/kWh was 20% lower.

With respect to retail natural gas prices, Utah's residential prices at $8.70/Mcf in 2012 were 19% lower than the national average, while commercial prices at $7.00/Mcf were 14 percent lower.

IV. Economic Development and Energy Jobs

Utah has abundant conventional energy resources, including three large oil fields with an estimated 286 [504] million barrels in oil reserves. Utah is home to two large natural gas fields, and Utah's proven natural gas reserves total 6.7 [8.1] trillion cubic feet (tcf).[36] In 2009 [2012], the State ranked 13th [15th] in the nation in the production of coal at 21.9 [17.2] million tons. Utah currently has about 202 million tons of coal reserves under lease at active mines, while state-wide recoverable coal resources total about 15 billion tons (this number does not take into account economic or land use constraints).[37] Another estimate from the Bureau of Land Management Price Field Office resource management plan indicates statewide coal reserves at 14.3 billion tons or greater than 50 years at current production rates.

Table 2 summarizes Utah's proven reserves and current consumption rates for petroleum, natural gas and coal. It also shows remaining years of proven reserves at current consumption rates. Several factors affect these values, including unproven reserves, change in production rates (e.g., natural gas projected to increase, coal possibly to decline), new reserve discoveries, etc. Utah currently imports a significant part of its consumed petroleum.

Conventional energy and mineral resources have historically served as the backbone of Utah's energy production. For example, in 2009 [2011], over 96% [94%] of electricity generated in Utah was fueled by coal and natural gas, 82% [78%] of which was coal and 14% [16%] natural gas.[38] Of the electricity generated in Utah in 2009 [2012], approximately 37% [25%] was exported out of state.[39]

That is not to say, however, that the State's electricity needs are served only by the in-state coal and gas fired plants. Rocky Mountain Power, the State's largest electric utility provider, supplies electricity to the State through a diverse portfolio that includes coal, natural gas, hydro, geothermal, wind, wholesale market purchases and other generation resources. For example, in 2009, Rocky Mountain Power-owned wind plants produced over 2,000 GWh of electricity. Generation re-

Table 3

Employment Baseline for Utah Energy Industries
Source: U.S. Department of Labor

Total Employees (2012)	17,502
Percentage of Utah's Total Workforce (2012)	1.4%
Total Wages (2012)	$1,362,801,701
Percent of Utah's Total Wages (2012)	2.7%
Percent of State's Average Monthly Wage	191.6%
Number of Companies/Firms	811
Total Patents (2005-2009) (To be updated in 2014)	162
Venture Capital Deals (2000-2008) (To be updated in 2014)	20
Public Deals (2000-2008) (To be updated in 2014)	11

Table 4

Energy Revenue for Utah
Source: Office of Energy Development (2012)

Production Value	Severance Taxes	Property Taxes	Royalties	Total Revenue
$4.663 Billion	$66 Million	$202 Million	$235 Million	$518 Million

sources located in Utah contribute to Rocky Mountain Power's portfolio, including some Utah renewable resources, primarily from geothermal and hydro resources. Utah possesses an array of renewable resources, most of which are used to generate electricity. About 2.5% [5%]of the State's electricity generation comes from renewable resources, approximately 26% [18%] of which is from geothermal, 65% [40%] from hydroelectric, 3% from biomass and 6% [38%] from wind, with a small fraction from solar.[40] UREZ and other recent studies identify new and significant renewable resource areas throughout the state, primarily concentrated in the rural southwest portion of Utah.[41]

Utah's energy sector is critical to future employment and investment opportunities, especially in rural Utah. U.S. Department of Labor employment statistics for 2012 provide the following baseline (Table 3) for Utah's energy industries.[42]

The energy sector contributes substantially to state tax revenues, thereby enhancing and stimulating various employment sectors of the State beyond energy. Also, a significant amount of energy development takes place on School and Institutional Trust Lands generating direct revenues that support K-12 public education programs. A Headwaters Economic Study, Energy Revenue in the Intermountain West, identifies revenues from energy development for Utah.[43] Table 4 updates these findings. This is especially important for rural Utah, where counties rely heavily on revenues generated from land use agreements and taxes from energy projects to fund county economic development programs, jobs and infrastructure.

In 2009, the estimated value of energy and mineral production in Utah was $6.8 billion, about $2.6 billion less than the record high of the $9.4 billion in 2008.[44] In 2012, the estimated value solely of primary energy production in Utah was $4.6 billion.

Developing Utah's energy resources creates a demand for jobs. Energy development throughout Utah enables the State to attract new jobs and manufacturing and improve its economic development and employment landscape. The ability to attract jobs is directly related to energy costs, availability of resources and quality of life in Utah. According to the U.S. Energy Information Ad-

ministration, Utah consistently has among the lowest electrical and heating energy costs in the country, due in large part to the low costs of coal-fired and natural gas electricity generation. This competitive advantage over other states is one way Utah is able to recruit new and expand existing businesses, particularly high-tech manufacturing. A September 2008 study, Fossil Fuel Extraction as a County Economic Development Strategy, compared[26] energy-focused counties in the West. Four of Utah's rural counties were included in the study: Carbon, Duchesne, Emery and Uintah. The study shows quite clearly that as energy production/development jobs surged, "the principal growth came from direct energy-related occupations and largely in occupations indirectly associated with energy development."[45]

The study raises both a concern and an opportunity: energy-focused counties, and by extension the State, need to have strategies in place to adequately balance their reliance on energy as an economic and employment driver. Utah can do much to attract future energy-related jobs and manufacturing by taking specific actions to eliminate barriers and provide enhancements to companies locating or expanding in Utah. In general, development will broaden and diversify Utah's energy economy. Energy development in Utah's rural and urban communities can become a strong stimulus to create vital and growing economic conditions.

As Utah's energy portfolio is diversified, the demand for new energy-sector employees will increase. Utah's energy employment reflects its historic strength in conventional energy resources. Efforts are underway to meet the demand for contemporary skill sets in power generation and transmission for the electric utility sector. In 2011, it was estimated that over 42% of the technician level workforce in sub-station management, metering, and line technology will retire within the next five years. The State should ensure that industry is engaged in developing, promoting and assisting with contemporary skill training workshops and programs in conjunction with regional education centers in order to provide qualified "work-ready" employees to fill the retirement gap.

In 2007, Utah ranked 34th in the nation for the number of green jobs. The State of Utah has started to allocate funds through the State Department of Workforce Services, Salt Lake Community College and the Applied Technology Colleges (ATC) to establish curriculum, certification and degree programs to prepare Utah's workforce in green jobs. The Utah Cluster Acceleration Partnership has established four pathways for green (sustainable energy, renewables and energy efficiency) job training – Green Construction, Alternative Fuels, Energy Management and Renewable Transmission. The State of Utah opened the Intermountain Weatherization Training Center in Clearfield for training and certifications of staff from public agencies and private companies. The State is investing to help train thousands to become certified solar installers, certified wind-turbine maintenance workers, certified energy management workers and alternative-fuel vehicle technicians.

In support of its partners at Salt Lake Community College, in 2013 OED completed the State's Energy Cluster Acceleration Report, which was paid for with American Recovery and Reinvestment Act (ARRA) funds administered through the Department of Workforce Services (DWS).

Until renewable energy becomes more cost-effective, the State should carefully consider whether or not to subsidize renewable energy development in an effort to grow Utah's renewable energy sector. This sector is concentrated in rural Utah, which often lacks the infrastructure to make these potential projects economically feasible. The committee needs to evaluate the renewable energy potential in Utah based on technological and economic feasibility in conjunction with other state and federal opportunities or grants. Any subsidies warranted to incentivize renewable energy development should be approved by State policy makers, i.e. the legislature and the Governor.

To the extent the State wants to encourage renewable energy development without mandates or incentives, legislation should be developed which enables utilities to offer renewable energy tariffs to their customers who want a greater share of renewable energy as part

of their usage mix than is provided by the utility. Rocky Mountain Power is supportive of this concept and supports a thorough, holistic review of potential renewable tariffs for customers who want them. Currently, under its Blue Sky program, Rocky Mountain Power encourages customers to voluntarily purchase renewable energy certificates ("RECs") that represent the environmental attributes of electric power produced from renewable energy projects.

In 2012 the Utah State Legislature passed Senate Bill 12, sponsored by Senator Mark Madsen. This bill allows for large load centers – e.g. a hospital or data center – to purchase power "directly" from a large-scale generator, with the utility agreeing to serve as an intermediary, creating back-to-back contracts to facilitate the deal. Rather than through a special tariff, this bill establishes an arrangement through which large consumers can chart their own course with respect to their specific portfolio mix.

Because of Utah's world-class conventional and unconventional fossil fuel resources, the State possesses unique opportunities for attracting rural and urban job growth in the areas of research, development, demonstration and deployment of new technology innovation through business relocation and start-up companies. While the State is making great strides through its Utah Science, Technology, and Research (USTAR) efforts in basic research and development, more investment and support is needed to take technology innovation to the next level using demonstration/pilot projects on the resources in Utah.

The State should continue to attract significant domestic and international investment funding. Such funding provides essential opportunities to help supplement the shortage of "seed" funding and second- and third-phase funding.

OED is working with GOED, the World Trade Center, the U.S. Commercial Service and others to explore opportunities to export coal from Utah.

Arch Coal's recent divestment of significant coal holdings in a sale to Bowie Resources, LLC, a Kentucky Company, has enhanced Utah's position with respect to coal exports. This is due to Bowie's access to significant West Coast export capacity.

Utah can be a national leader in energy resource management and environmental and technical training. Utah's expertise in resource and environmental management has great potential to attract high-skilled, high-paying jobs.

In summary, Utah's energy jobs are in the research and development, investment, technology, exploration, extraction, development, production, transmission, distribution and manufacturing industries, as well as professional support services. These jobs help to support Utah's position of being one of three states in the United States that is a net exporter of energy. If coal-fired generation and hydroelectric resources decline, new and expanded industry and jobs will be needed in these rural communities. State government should promote continued state and federal land access for exploration, extraction and production of crude oil and natural gas, investment in unconventional fuels technologies and development and the recruitment of manufacturing of renewable energy production components. Utah must show an unwavering commitment to the future energy economy that includes balancing fossil fuel development with development of renewable and alternative energy.

V. Energy Development and Our Natural Resources

Utah has the resources necessary to diversify its energy portfolio to provide affordable, sustainable and secure energy now and in the future. Utah's Energy Plan includes workable strategies to sustain its economy and protect its quality of life and environment.

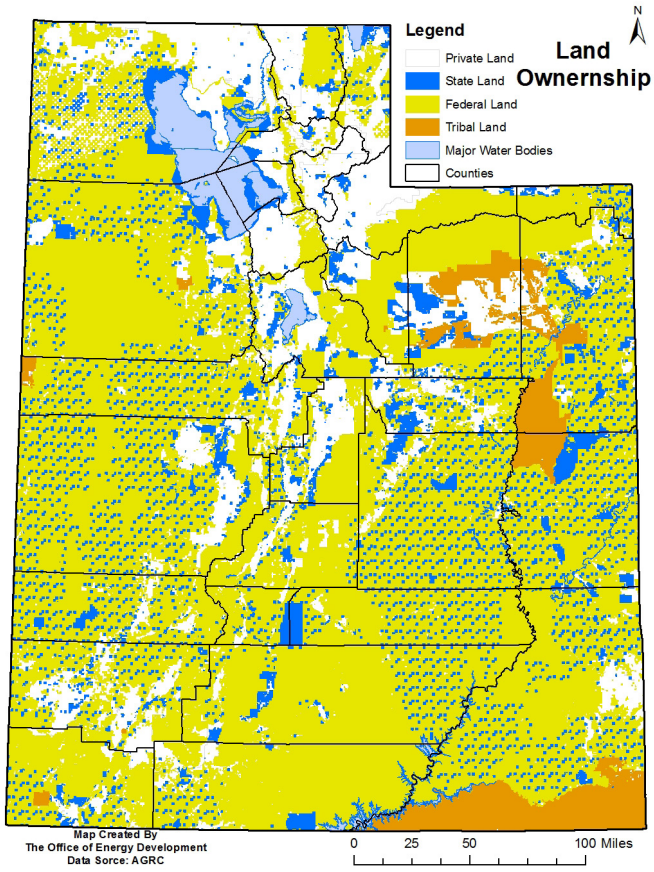
A. Land Ownership

Federal Lands

The federal government owns and manages approximately 60% of Utah's surface lands and a larger portion of the mineral estate. Accordingly, federal land management agencies will play a central role in the State's ability to develop its oil, gas, coal and renewable energy resources. It is also true that the State's public lands include pristine air sheds; national parks and wilderness areas; important water resources that are essential to local communities and wildlife habitat and riparian zones; world-renowned archeological and culturally significant sites; and nationally recognized scenic areas and prized recreational locations. Conflicts inevitably arise between industry, conservation organizations and State and local leaders over how and where energy development should occur on Utah's public lands and what resources should be protected for their environmental and cultural values.

These conflicts have triggered costly legal and administrative challenges that impact energy development in Utah. Energy development is a legitimate use of our public lands. To be successful in achieving the Governor's energy-development objectives, Utah officials will need to develop strategies to work with the federal agencies and navigate the balance between economic and environmental sustainability. Although some progress has been made in resolving conflicts on federal lands regarding energy exploration and development, many Utah officials who are active in this area believe that conflict resolution is still a long laborious process.

Representative Bishop's Public Lands Initiative (PLI) effort, advanced in coordination with the Governor's Office, is making significant strides toward addressing tension over the disposition of natural resources on federal lands. PLI proponents have managed to bring a diverse array of stakeholders together, including natural resource developers, environmental organizations, county commissioners, state legislators, and others.



Land Ownership Map, Office of Energy Development.

School and Institutional Trust Lands Administration

At statehood, Congress granted Utah millions of acres of land to be held in trust by the new state to provide financial support for public schools. These school trust lands are managed by the School and Institutional Trust Lands Administration (SITLA). SITLA manages approximately 3.4 million surface acres. In addition, SITLA manages another 1 million split estate oil and gas acres. Revenue from school trust lands is deposited into the Permanent School Fund, a perpetual endowment that distributes income annually to each K-12 public school in Utah.

Energy development is the largest component of SITLA's contribution to education funding. The SITLA's greatest source of existing revenue, accounting for over half the revenue to the trust, is natural gas production, followed by coal. SITLA has leased over 90,000 acres of trust lands for oil shale exploration, with initial development of commercial projects beginning. SITLA also has an expanding renewable energy portfolio. Over 100,000 acres of geothermal leases are in place, and the first new geothermal power plant built in Utah in the last 20 years was constructed on state trust lands in Beaver County. Leases for utility-scale wind and photovoltaic solar projects are also in place.

Finally, the unique Western Energy Hub project near Delta will be wholly located on trust lands. This project will store massive quantities of natural gas in engineered underground salt caverns, providing energy flexibility to industrial and power generation customers throughout the West. The Western Energy Hub project also contemplates developing underground compressed air energy storage, an innovative technology that can largely solve problems of intermittency with other renewable energy sources, thus supporting further development of wind and solar projects in Utah.

One critical issue for SITLA is access to and through federal public lands. The millions of acres of proposed wilderness in Utah have trapped over 1 million acres of state trust lands – almost 1/3 of the entire trust portfolio – in areas that are restrictively managed by the federal government, and to which access is highly limited. In the event that Congress and current and future administrations choose to continue managing federal public lands largely for wilderness, there needs to be an efficient legislative process for exchanging state trust lands out of proposed wilderness for consolidated blocks of federal land that can then be managed by SITLA for energy and economic development.

SITLA's assets include 3.29M acres of Surface Rights, 4.09M acres of Oil and Gas Rights, 4.08M acres of Coal Rights, and 4.12M acres of Other Mineral Rights. In FY 2012, of the $91.4M in total revenues, 79% was from min-

Kennecott's Efforts to Improve Air Quality

Due to its topography and growing population, Utah faces a number of challenges to maintaining healthy air quality, particularly along the more densely populated Wasatch Front. Rio Tinto Kennecott is aware of the importance of air quality, and is working hard to reduce its own impact. Rio Tinto is finding opportunities to improve air quality through upgrades to its truck fleet, improving the efficiency of engines, and implemented anti-idling programs for light/medium duty vehicles and haul trucks at the mine.

Together the programs have resulted in significant reductions in tailpipe emissions. Kennecott has also upgraded onsite power plants by installing renewable energy generation and combined heat and power systems to maximize energy use. Additionally, they have implemented smelter cogeneration and emissions capture to reduce waste heat and emissions. Lastly, Kennecott 's portfolio contains five high-performing LEED-certified buildings. The Rio Tinto Regional Center was the first LEED Platinum-rated building in Utah.

erals development, 7% was from surface activities such as grazing, and the remaining 14% was from a mix urban development activities, land sales, interest, etc. Total distributed Trust revenue to the schools in FY 2012 was $29M.

Tribal Lands

Utah tribes are important partners with the State of Utah, and tribal lands are an important component of Utah's energy production.

B. Air Quality

Much of Utah enjoys clean air for many days of the year. However, due to topography, weather patterns and a highly urbanized population, Utah also suffers some of the worst air quality days in the nation. It will be critical for human health, the environment and economic development to implement energy development in a way that takes this unique situation into account. Additionally, the Environmental Protection Agency (EPA), in implementing the Clean Air Act, is continuing to strengthen the nation's air quality standards for most pollutants. This will result in higher costs for coal and natural gas plants.

The natural byproducts of burning coal and, to a lesser extent natural gas, include air pollutants permitted and regulated by the Clean Air Act: particulate matter, sulfur dioxide and oxides of nitrogen. The emissions are permitted and regulated through the Clean Air Act. Throughout the West, the energy-production sectors have been viewed as major contributors to visibility impairment, especially in the national parks. Recent plans to address regional haze have resulted in substantial controls on emissions of sulfur dioxide. The full implementation of the regional haze plans will result in additional improvements as emissions from electrical generation are reduced.

Oil and natural gas drilling and production may impact air pollution. The Uinta Basin has recently recorded elevated levels of wintertime ozone. If these levels continue, they may impact attainment of National Ambient Air Quality Standards. It may be that energy development contributes to the Uinta Basin's elevated ozone levels, although the causes of the high ozone readings are still being investigated. Monitoring from Vernal, Utah, indicates that fine particulate pollution may also be a problem in the winter with cold pool temperature inversions.[46]

Red Leaf Resources, Inc.

Utah-based Red Leaf Resources has more than 20 U.S. patents for its EcoShale™ technology, which was specifically designed to address traditional environmental challenges of oil shale production. The EcoShale™ process extracts oil with lower energy consumption, lower emissions, lower water use and less environmental impact than any oil shale technology deployed in the world today. The resulting end product is of higher quality than traditional oil shale extraction -- equal to or better than the oil industry benchmark of light sweet West Texas Intermediate crude. Red Leaf has more than 1.2 billion barrels of recoverable oil on current lease holdings, and is actively pursuing opportunities to both acquire more resources and license its technology through strategic global partnerships.

At the behest of Governor Herbert, a collaboration involving the Division of Air Quality, county governments in eastern Utah, researchers from Utah State University, and the Western Energy Alliance produced (February 2013) the first study of wintertime ozone formation conditions and characteristics in the Uinta Basin. The "2012 Uintah Basin Winter Ozone & Air Quality Study" represented the first phase of a multiyear study of how ozone forms in the Basin.

C. Transportation and Air Quality

Transportation accounts for more than half of the air pollution along the Wasatch Front.[47] The combined criteria pollutant inventory for Davis, Salt Lake, Utah and Weber Counties in 2009 [2011] indicates that 51.9% [50%] of total annual emissions of criteria pollutants originated from the on-road mobile sector (cars, trucks and buses).

Ozone and PM2.5 are responsible for acute spikes in air pollution and unhealthy air days in Utah as confirmed by the Utah Division of Air Quality's (DAQ) monitoring network along the Wasatch Front. Both ozone and PM2.5 emissions are related to on-road mobile sources. Ozone and PM2.5 are respiratory irritants that can trigger asthmatic episodes and cause acute respiratory symptoms in sensitive individuals at concentrations that approach and exceed the National Ambient Air Quality Standards. Both pollutants are statistically confirmed risk factors for a number of respiratory and cardiovascular conditions. Since acute spikes in concentrations of air contaminants are predictable based on reasonably reliable weather forecasts, it is particularly beneficial to eliminate all nonessential driving to protect personal and public health when the UDAQ announces its yellow and red action alert days.

Transportation is also the largest consumer of energy in Utah at 31% [32%].[48] Saving energy and cleaning Utah's air will improve public health, thereby reducing costs. It will also bolster economic development efforts by helping to attract new companies and jobs, reduce Utah's dependence on foreign energy sources and generally improve the quality of life of all Utahns. This can be accomplished through strategies that include changing the vehicles used or eliminating the energy used to power those vehicles; managing vehicle traffic with technology, engineering and community design; and individual actions and business decisions. Implementation of these strategies should also include meaningful metrics for success, such as reducing particulate matter (PM2.5) and ozone levels in the air.

Alternative-fuel vehicles proven to reduce vehicle emissions and increase fuel economy include electric, electric hybrids, bio-fuels, bio-diesel, propane, hydrogen, compressed and liquefied natural gas (CNG and LNG) and hydraulic hybrids.

Utah should seek to improve vehicle technology/efficiency and alternative fuels (refueling) infrastructure. Utah can reduce emissions and non-attainment air-quality days by encouraging adoption of emission-reducing technologies. A barrier to increased alternative-fuel vehicle use is inadequate refueling infrastructure. The State should consider ways to incentivize alternative-fuel vehicles and to make refueling infrastructure more accessible. The Utah Public Service Commission approved a docket opened to clarify that electric vehicle charging services are not considered resale of electricity. This ruling allows charging stations to be added without considering the business as a utility.

Alternative-fuel vehicles proven to reduce vehicle emissions and increase fuel economy include electric, electric hybrids, bio-fuels, bio-diesel, propane, hydrogen, compressed and liquefied natural gas (CNG and LNG) and hydraulic hybrids, often with increased transportation costs. New technology continues to expand this list. Even gasoline and diesel powered vehicles are producing fewer emissions due to improving technology.

In 2011, Utah signed a Memorandum of Understanding with 15 other states that is designated to increase the use of natural gas vehicles in each state's fleet. In 2012, Utah Governor Gary R. Herbert signed an Executive Order prohibiting idling of state-owned vehicles. In another lead-by-example action, Governor Herbert requested that state agencies consider CNG vehicles when expanding or replacing their state fleet vehicles to expedite adoption of CNG and HEV. The Utah Transit Authority has replaced several of their diesel buses with CNG buses in 2013, with anticipating that a third of its fleet will be CNG in the next three to five years. To reduce emissions in school zones, Jordan School District's fleet is being converted to CNG, about 25% has been switched over from diesel school buses.

The State should continue its support of results-driven economically sound solutions and not favor one technology over others. However, reducing emissions and eliminating non-attainment days will depend on adoption of new technologies. If incentives are appropriate, they should be based on full-fuel-cycle efficiency since those technologies are the ones most likely to be developed and receive market support.

Fuel consumption and air pollution can be reduced through more efficient traffic flow, using engineering and technology to effectively manage all modes of traffic and maximizing the effectiveness of Utah's transportation systems. This includes continued implementation of proven ideas such as HOV/HOT lanes, reversible lanes, innovative intersection design, transit- vehicle signal pre-emption and signal coordination, especially during peak hours.

Strategic ideas such as dynamic speed control, peak hour use of shoulders, and increasing Park-and-Ride lots (both private and public) should be reviewed. All traffic-operation plans should include a thorough evaluation of the proven energy saving, air quality and safety benefits of reduced speed limits.

Changing behavior is difficult, but communication strategies and tactics that provide awareness and education, supported by incentives, marketing and promotions can succeed in reducing unnecessary travel, particularly the number and duration of solo-driver trips. Utah Clean Cities and Kennecott Utah Copper have teamed up to hold an annual "Idle Free Conference" that educates the public and private sector on how to implement idle-free programs in their organizations. Existing programs like TravelWise, Rideshare and Idle-free, along with events like the Clear the Air Challenge, Bike Month and Free-Fare Day are beginning to show effectiveness in promoting, encouraging and ultimately increasing alternative-transportation use. Programs such as Safe Routes to Schools, Student Neighborhood Access Program (SNAP) and Walking School Bus, all of which encourage walking or pooling to schools, need more resources to increase awareness. It is critical to educate and promote the benefits of more energy efficient transportation with such tools as the TravelWise Tracker.[49] The tracker allows people to measure the money, emissions and energy saved by using TravelWise strategies.

The State could help reinforce and encourage behavior change by more public education about air-quality indicators and using electronic signage as triggers to promote transportation alternatives such as using public transit, telecommuting, flexible work hours, trip chaining, biking, walking, carpooling, vanpooling and work at home opportunities. The statewide Utah Clean Air Partnership (UCAIR) provides education to individuals, businesses and communities about small changes that will improve Utah's air. UCAIR provides funding to implement projects that will impact air quality and build greater awareness of conservation and efficiency overall.

Many of the traffic-reducing strategies listed can be enhanced by business practices in the private and public sectors. Managers should implement policies that encourage and even coordinate ride sharing, telecommuting and flexible work schedules. Parking subsidies can be eliminated and given to employees as cash or transit passes. Salt Lake City announced it would offer Utah Transit Authority bus passes at a big discount – $360 per year for its residents as a pilot program. The State of Utah provides free bus passes to all employees living within bus routes. Above all, educational and promotional material should feature Utah's leaders at every level of state government and private business as examples of smart travel.

The State should assist communities in choosing land-use options that reduce per-capita energy consumption, improve air quality and make it easier for people to get from one place to another. Utah's population is projected to double over the next 30 years, with vehicular travel increasing at least as much. As the population and economy grow, Utah has an opportunity and responsibility to design communities in ways that support energy-efficient transportation and commerce, reduce congestion and long commutes and remove physical barriers to using public transportation. Vision Dixie[50] in Washington County and Envision Utah's Quality Growth Strategies[51] along the Wasatch Front are good examples of community input in the development of alternatives for transportation, infrastructure, land use, planning and zoning.

The State should work with local government to entice people to walk and cycle more often by designing accessible, safe and interesting paths and destinations. Government services should be located in neighborhood centers that draw people by offering a variety of public services and private businesses. Salt Lake City and Downtown Alliance partnered to establish the first bike sharing program, GREENBike, in Utah. In Park City, a new car sharing program has been launched, open to businesses, organizations and individuals. Neighborhood economic centers should reduce commutes by bringing jobs and housing closer together, with the added benefits of community cohesion and vitality. Seamless connections should be made from these neighborhoods to mass/public transit.

Transportation costs can be further reduced by emphasizing new building construction in already developed areas. Collectively known as walkable neighborhoods, transit-oriented development and the "Envision Utah 3 Percent Strategy," these strategies are thoroughly examined in the summary document for Wasatch Choices 2040 Project[52] and are designed to respond to changing demographics, increasing energy use and market demand for more residential choices. Wasatch Choice for 2040 focuses on transit-oriented development centers and recently released the Wasatch Choice for 2040 Toolbox Training to help communities explore scenarios, develop a community vision and form an effective implementation plan.

A better balance of regional travel choices between auto, public transit, bicycling and walking is imperative. Transportation's share of growing oil-consumption is a concern. Transportation accounts for approximately 25% [19%] of total energy demand worldwide (32% for Utah) and 81% [83%] of Utah's petroleum consumption.[53] Better load share among the available energy sources will be part of the solution.

In the process of allocating public funds for transportation, the priority should be projects that demonstrate the greatest science-based, long-term benefit. Mass transit should be given meaningful consideration. Pro-

Institute for Clean and Secure Energy

The Institute for Clean and Secure Energy (ICSE) grew from a long tradition of combustion research at the University of Utah beginning in the 1950s and continuing to today's level of over 120 faculty, staff, and students. ICSE formed from the combination of several strong research programs that focused on combustion simulation, analysis, and experiments.

In 2004, the University of Utah officially recognized ICSE as a permanent institute. The mission of ICSE is education through interdisciplinary research on high-temperature fuel utilization processes for energy generation, and associated environmental, health, policy, and performance issues.

ICSE employs an integrated, multi-disciplinary approach to the study of energy, combustion and high-temperature fuel-utilization processes by combining hands-on experimental work with analytical tools and simulation. This approach enables ICSE to develop predictive tools for these highly complex processes, which span multiple scales of time and space. ICSE has the resources and expertise to address and improve the understanding of these processes, which are often associated with applied systems and industrial applications.

viding more convenient, reliable and affordable travel options and infrastructure that supports biking and walking will reduce the amount of time people spend in their cars, saving energy and reducing air pollution.

As Utah provides a more balanced transportation system, it will need to expand pricing and land-use policies, well connected bikeways and vehicle miles traveled (VMT) and reduction strategies throughout the region to support this system.

D. Water Consumption and Quality

Limited quantities of water may be available for new energy development. Most areas of the State are closed to new surface and groundwater appropriations (especially new consumptive appropriations) and those that are still open are primarily for ground water in relatively small quantities. What little may be currently available will undoubtedly decline over the next decade.[54] Water currently used at other facilities or by other water users may be purchased for use in energy development in the future. This is how water resources were developed for the Huntington, Hunter and IPP power plants. Technology and efficiency advances in the energy industry may provide additional water for existing power plants or reduce the demand for water at new power plants in the future.

Given Utah's population growth and projected economic growth over the next decade, the possibility of increased drought and with limited new water resources available, water consumption of energy resources should be given careful consideration. The State of Utah may wish to calculate the water consumption associated with different energy portfolios that can meet projected electricity demand over the next decade.

As an arid state, an energy portfolio that encourages low water-use technologies should be considered. Power plants located in water-scarce regions may rely on dry cooling systems, which use air to cool and condense steam, or hybrid wet-dry cooling systems. Dry or hybrid cooling is typically a less efficient means of

power plant cooling than water, and thus typically increases the cost per kilowatt-hour of electricity. Dry or hybrid cooling can be more or less cost-effective, depending upon the type of electrical generation (nuclear, solar, etc.), and is not the current baseline technology.

The development of primary fuel sources such as oil, oil shale, tar sands, natural gas and biofuels also consume water. Specific information on the water quantity and quality and the impacts of technology for developing many of these resources, particularly tar sands and oil shale, is limited. Additionally, the water used to develop biofuels can vary tremendously. There are currently a dozen or more different technologies under consideration for these fuel resources. It is unlikely that all technologies will be developed. Water issues, including water availability, water pollution effects of specific technologies and potential pollution from spent shale waste sites, need to be evaluated as commercially viable technologies emerge and are developed.

In May 2009, the U.S. Department of Energy (DOE) published a report titled State Oil and Natural Gas Regulations Designed to Protect Water Resources from a study by the Ground Water Protection Council. This report identified key messages and suggested actions for regulating oil and gas activities, including hydraulic formation fracturing and coordination of State water-quality protection and oil and gas agencies. Utah already has most of these water-quality protection measures in place, including an MOU between the DEQ Division of Water Quality and the DNR Division of Oil, Gas and Mining, which was established in 1984 and updated in 1986 and 2010.

Additionally, the EPA has launched a Hydraulic Fracturing Study in order to assess potential impacts of this method of recovering natural gas on drinking water and human health. A progress report was released in December 2012 and a draft report is expected to be released for public comment and peer review in 2014.

Nuclear wastes, including uranium mining, uranium milling, low-level and high-level wastes, can impair surface and groundwater resources if they leak from impoundments and disposal sites. As with other waste-management units, best available technology combined with ground-water monitoring is used to minimize the discharge of contaminants from the waste source by applying control and containment technologies such as liners, leak detection systems, leak-collection systems and pump-back systems. These issues need to be reviewed regularly by the Department of Environmental Quality (DEQ), with remedial actions recommended if problems occur.

Governor Herbert has tasked his Senior Environmental Advisor, Alan Matheson, with the creation of a 50-Year State Water Strategy. Over the course of 2013, Matheson held public meetings across the State, culminating in a Water Summit in Salt Lake City in the fall of 2013. The 800+ comments received from the public will inform the ongoing work of the State Water Strategy Advisory Team.

E. Archaeology.

Energy extraction and transportation generally require construction and ground disturbance, which can be damaging to historic and archaeological resources. Federal and state statutes require the responsible agencies (e.g., land owners and permitting agencies) to consider the effects of their actions on cultural resources, and to allow the State Historic Preservation Office (SHPO) to comment. With advance planning, use of the State's web-based GIS database of archaeological and historic resources and consultation with interested parties, along with on-the-ground survey, most of the potential conflicts can be avoided.

Recent successes such as the West Tavaputs Programmatic Agreement and the Questar Pipeline Nine Mile Canyon Project demonstrate that energy development and transmission can occur without compromising fragile archaeological and historic resources. Advance planning, using the best available data and inclusion of all interested parties are critical components of a successful strategy.

F. Wildlife

Energy development has the potential to negatively impact wildlife, critical wildlife habitats and migration corridors. The most acute problem occurs when an energy project negatively impacts a federally-designated endangered, threatened or candidate species. One example is the potential for wind, solar, oil, gas and coal bed methane development to negatively impact greater sage-grouse and the sagebrush ecosystems they inhabit. Sage-grouse inhabit numerous Utah energy-development sites and were recently designated by the US Fish and Wildlife Service as "candidate species" for Endangered Species Act Protection. Extensive study indicates energy development related activities may negatively impact sage-grouse and critical sage-grouse habitat. These impacts include tall-structure avoidance, habitat loss and fragmentation, predation, human disturbance, road networks, increased noise, reduced nesting success, effectiveness of vocalizations, lek (courting site) attendance by males and females, shifts in nesting habitat selection away from energy-development infrastructure and reduced sage-grouse breeding populations.

The State of Utah, partnering with the Western Governors Association, is developing a Decision Support System (DSS) that will make crucial habitat and wildlife corridors available in the form of maps.[55] The State of Utah is also engaged in developing Best Management Practices approaches to reviewing energy projects. Conservation groups are compiling a series of Best Management Practices to assist land managers, conservationists, utilities and developers in the process of zoning, siting, building and operating renewable energy installations in a way to minimally impact wildlife and their habitats. They are also identifying the highest priority areas for conservation and ecosystem services in the region and then using a blend of land offsets and mitigation strategies to attain "no net loss" of biodiversity values. The analysis of the specific impacts of new energy development on wildlife and critical wildlife habitats will need to be thoroughly assessed through science-based processes at the project-site level. Once impacts are avoided and minimized, remaining impacts must be mitigated and long-term wildlife monitoring implemented to measure mitigation success.

The State strives to create a balanced approach between energy development and the protection of natural resources. Currently, there are several Utah species that are of concern to energy development, including: the greater sage-grouse, Uintah Basin hookless cactus, and Graham's beardtongue.

The State has crafted a Conservation Plan for Greater Sage-grouse Utah from recommendations made by all major stakeholder groups. The Utah Conservation Plan

Graham's beardtongue on oil shale.
Photo Credit: Michael Vanden Berg, UGS.

includes over 90% of known sage-grouse within Utah's jurisdiction.

The Uintah Basin hookless cactus has been on the Endangered Species List since 1979. Oil and gas development increases noxious weed invasions because of the associated surface disturbance that can alter the ecological characteristics of the cactus habitat, making it less suitable.

The Graham's beardtongue grows almost exclusively on exposed oil shale in Utah's Uintah Basin. Several state agencies have signed on to a conservation agreement that seeks a balance between responsible development of Utah's vast oil shale resource and the preservation of the beardtongue.

The State strongly believes in using science to develop policy to find the correct balance between protecting natural resources and enabling energy development. Utah is also working with industry to find smart ways to advance energy development with minimal impacts.

G. Carbon Management

As the debate on climate change continues, Utah must participate in this discussion to represent Utah's energy mix and to assist in developing complementary policies to address environmental pollutants. Congress and the last four administrations have not developed a policy on carbon emissions, and it seems less likely to occur in the immediate coming years. In the three years since publication of the original Energy Plan, the Administration has taken steps to regulate carbon emissions.

Uncertainties in possible future legislation impact decisions at the state level, including Utah, where decisions on energy projects totaling several billions of dollars will be made during the next decade. Local western utilities are including assumptions in their integrated resource plans on carbon emissions to help guarantee the plans reflect factors that may negatively impact the cost of energy. This is a risk-management exercise for them, and not an endorsement of what scientific factors should, or will be used to establish a national policy on carbon.

The EPA is moving forward with regulating Greenhouse Gases (GHGs) through the Clean Air Act. This is based on the Endangerment Finding, which applies to six gases collectively known as GHS's: (carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HCF_S), perfluorocarbons (PFC_S) and sulfur hexafluoride (SF_6). EPA's phased- in approach through the Tailoring Rule limits regulation initially to facilities already permitted and emitting at least 75,000 tons per year. The effect of this regulation will be increased cost to energy production and ultimately to the consumer, though cost estimates vary depending on source. Again, any such regulations should be accounted for when determining cost/benefit of future energy sources.

The EPA is now taking steps to regulate carbon dioxide emissions from new and existing power plants. The Office of Energy Development is leading a team including the Division of Air Quality, USTAR and electrical utilities to coordinate Utah's response.

VI. Energy Efficiency, Conservation and Demand-Response Update

The Governor and the Legislature have established energy efficiency as a priority and urged state and local governments and utilities to promote and encourage cost- effective energy efficiency and conservation.[56] Utah is making notable progress in energy-efficiency efforts and was recently recognized by the American Council for an Energy-Efficient Economy (ACEEE) as one of the "most improved" states and the highest-ranked in the region.[57] In 2013, the ACEEE ranked Utah 24th in the nation for energy efficiency.

Models and studies recognize energy that is not consumed as a result of energy efficiency as a cost-effective resource. Recent national studies conducted by the McKinsey Company and the National Academy of Scienc-

es show, respectively, cost-effective energy-efficiency technologies and building practices could reduce energy consumption 23% by 2020[58] and 30% by 2030.[59] These studies align with Utah-based analysis. Rocky Mountain Power and Questar Gas studies show that the maximum achievable cost-effective potential for energy efficiency would reduce natural gas consumption by 20% (21.4 million Dth) by 2013[60] and electricity consumption by 1,641 GWh by 2020.[61]

The first supplement to Utah's 10-Year Strategic Energy Plan – the Utah Energy Efficiency and Conservation Plan – was drafted in early 2014. This plan was produced through a stakeholder-driven, consensus-based approach by which leaders in the energy efficiency community put forth recommendations to further adoption of energy efficiency and conservation practices in Utah. There are recommendations in five main sections: Industrial Energy Efficiency, Building Energy Efficiency, Agricultural Energy Efficiency, Public Outreach, and Transportation. This plan, and the recommendations within each section, serve as a call to action to both the public and private sectors in Utah to commit to and expand a culture of energy efficiency and conservation in order to support Utah's growing economy, shape future policy and partnerships, and further Utah's commitment to responsible energy development.

A. Education and Public Awareness

A barrier to widespread adoption of energy efficiency and conservation is the lack of public and building official awareness and understanding about energy, energy-efficiency technologies, practices and programs. Rocky Mountain Power and Questar Gas have excellent energy efficiency and demand-side management programs and effective marketing campaigns. Other energy education efforts underway in Utah include some by municipal utilities and utility cooperatives, the State Energy Program, the Utah Building Energy Efficiency Strategies (UBEES) partnership, Utah's Weatherization and HEAT programs and nonprofits such as Utah Clean Energy.

Public and building officials' awareness could be increased through the following methods:

- Developing and implementing a State-sponsored, Governor-led, single-messaging communication program modeled after the Slow the Flow and former PowerForward programs that works with existing utility efforts to raise public awareness and understanding about the importance, cost-effectiveness and risk management opportunities of energy efficiency and to recognize excellence in energy efficiency.
- Requiring energy code education as part of continuing education credits for building officials, contractors, and trades and providing funding and other incentives to local building departments to train staff in the science of building energy demands, controls and efficiency and in code implementation and enforcement. The Building Energy Codes Training program originated in 2007 through a grant through the U.S. DOE with matching funds from the State. The training is now made possible with funding from utility demand-side management programs and the American Institute of Architects. Continuing education credits are provided to licensed building officials who attend the training. In 2013, OED held eight training webinars, and twelve full-day training sessions, which provided building code officials and other energy efficiency practitioners with 3,120 hours of continuing education credits.
- Increasing the minimum hiring standards for building-plan reviewers and inspectors to include energy management degrees, certificates, IECC training or equivalent.
- Educating home buyers regarding the importance of energy efficiency in general and providing specific information about the energy efficiency of homes they are building or buying.
- Helping low income households to maximize energy efficiency and reduce energy impacts on

household budgets. Between 2011 and 2013, the Olene Walker Housing Loan Fund (administered by the Department of Workforce Services, Housing and Community Development) constructed 1,660 new housing units that qualified for EPA's Energy Star Program. During that same period, 4,591 residential units were weatherized through the Weatherization Assistance program.

- The Office of Energy Development has worked with the National Energy Foundation (NEF) to provide Utah educators and students with renewable energy and energy efficiency education. The NEF estimates that they have provided over 3,240 teachers with energy education materials through support from OED. The "Water Energy in Action" program, directed towards K-12 schools throughout the state, provides teachers with tool kits, lesson plans and curricula that result in hands-on, interactive activities to teach students the importance of water and its relationship to energy.
- The Solar for Schools program, implemented through the American Recovery and Reinvestment Act (ARRA), resulted in installation of 5.3 kW rooftop solar photovoltaic arrays at 83 Utah schools in 27 districts throughout the state. NEF provided renewable energy training and materials to 340 teachers that teach an estimated 121,400 students.
- The Energy Efficiency and Conservation Plan also includes recommendations to expand education and public awareness opportunities for building officials, building owners, and the public.

B. Demand-Side Management and Load Control

While the impact energy efficiency can have is significant, it cannot entirely obviate the need for new production facilities, transmission lines, pipelines or transportation facilities. Each new customer added to a utility's system increases the demand on that system. In addition, demand is increasing as existing customers install high energy consumptive appliances, such as central air conditioners, large screen televisions and computer systems, etc. to their homes and businesses. Energy efficiency programs can contribute towards meeting this growth in demand.

Demand-side management (DSM) strategies enable energy users to reduce consumption during periods of peak demand. This reduces costs because of avoided or delayed investment in new electric generation and new natural gas supplies. Questar Gas's 2009 DSM programs confirm annual energy savings of 1,086,200 Dth, while Rocky Mountain Power's DSM Programs achieved 247.8 GWh of first year energy savings, or 1.2% of 2009 sales [236.2 GWh in 2012], [62] In 2009, Rocky Mountain Power spent $45.6 million to acquire these savings [$47.2 million in 2012]. Load control programs, such as Cool Keeper and Irrigation Load Control, are a subset of DSM, allowing the utility to reduce peak demand. In addition to

The Utah Intermountain Weatherization Training Center created a two-story 1200 foot replica of a home used to demonstrate best practices for weatherization and efficiency, providing important education to Utah community members and builders.

other DSM measures, Rocky Mountain Power spent $12.5 million in 2009 [$8.7 million in 2012] to acquire 155.9 MW [150.5 MW] of load control resources.

For close to a decade, Rocky Mountain Power has worked with its customers to reduce electricity use through demand response (including load control) programs. By actively controlling specific equipment such as residential and small commercial air-conditioning and agricultral irrigation pumps, the utility is able to reduce consumption and strain on the grid during periods of peak demand. In 2010 [2012] Rocky Mountain Power had approximately 100,000 [114,079] customers in Utah (roughly 25-28% of qualifying homes and businesses), representing over 112 [115] MW, under direct load control. (These savings reflect the Cool Keeper program.) The company also had about 43 megawatts of irrigation pumps under direct load control. Customers participating in these programs allow, under terms and conditions approved by the Public Service Commission of Utah, Rocky Mountain Power to leverage the existing infrastructure by curtailing usage of customers' equipment (irrigation pumps and air conditioners) at times when demand for electricity is high.

The state could enhance DSM and load control programs by:

- Identifying innovative demand-response programs and removing barriers that limit participation in these programs
- Designing demand-response programs that have been shown to increase participation significantly
- Supporting increased participation in cost effective distributed generation

C. Industrial Sector

Utah industries currently benefit from energy prices among the lowest in the nation. While these prices have helped make the industries cost competitive, they also create a barrier for investment in energy efficiency, i.e., multi-state industries receive a higher return for investments made where energy prices are higher.

Possible strategies to advance energy efficiency in Utah's industrial sector include:

- Provide a well-designed and integrated technical assistance program, addressing both electrical and natural gas energy efficiency. It should leverage existing resources and new energy-efficiency/ green-workforce training programs to include industrial energy management.
- Increase efforts to pursue energy-efficiency opportunities that involve recovering wasted energy to generate power. These opportunities could be evaluated for capturing energy otherwise unused in industrial processes. On October 29, 2013 the U.S. DOE, in coordination with State and Local Energy Efficiency Action Network and Southwest Energy Efficiency Project hosted a regional dialogue meeting in Salt Lake City, UT on industrial energy efficiency and combined heat and power (CHP) in the west. Dialogue focused on developing and implementing state best practice policies and investment models that address barriers to greater investment in industrial energy efficiency. The Governor's Energy Advisor, Cody B. Stewart, addressed the attending group of regional policy makers, non-profit groups, energy managers, trade associations and private sector firms, reinforcing the importance of industrial energy efficiency to Utah's growing economy.
- Encourage utilities and their regulators to continue or begin offering cost-effective programs to support industries' energy efficiency investments. Industrial energy efficiency was the focus of one of the many valuable energy efficiency and renewable energy projects and programs brought to Utah through the three-year course of ARRA. From 2009 to 2012, the State Energy Program coordinated the Utah Industrial Energy Efficiency Program (IEEP), which helped industrial companies gain greater expertise in energy efficiency

practices and reduce facility energy usage. Industrial companies made voluntary commitments to reduce energy intensity and related emissions, while the program provided training and technical assistance to maximize facility performance. The program provided training workshops and opportunities for networking with other industrial partners. It also helped participants establish a system for tracking annual energy consumption and reduction, and offered annual awards for companies that showed exemplary improvements.

D. Financial Incentives

In many situations, incentives are sufficient to encourage industries, businesses, and residential consumers to pursue individual energy-efficiency measures, but barriers remain for obtaining significant energy savings on a whole-plant, whole-building or whole-house basis. Utah businesses and residential consumers used 13,944 [19,991] GWh of electricity[63] and 103.8 [95.2] million Dth of natural gas in 2009 [2012].[64] The utilities, as well as the State, could offer incentives to customers who retrofit or purchase high-efficiency appliances, motors, lighting, increased insulation, more energy-efficient windows and other equipment. Home energy retrofit programs offered by the State and Salt Lake County also provide homeowner financing. Financing programs try to match the loan payment with the energy bill savings; however this is difficult with Utah's low energy costs. The State's Utah Home Performance program is based on the contractor delivering a whole package energy analysis, home improvement and financing program to the homeowner. Salt Lake County's Energy Smart program is an interest rate subsidized loan program serviced by Community Development Corporation of Utah, a 501(c)^3 organization.

Cooling towers in the City Creek development in downtown Salt Lake City utilize some of the most energy efficient technologies. Photo Credit: Andrew Gillman

Additional financial incentives to be considered include:

- Provide tax credits, tax deductions and/or rebates to industries, businesses and home owners, landlords and condominium associations for investments made in energy efficient equipment, processes, retrofits, etc.
- Create a no/low-interest loan program for industrial energy-efficiency capital projects, such as that provided by the Colorado Governor's Energy Office, or providing a volume cap allocation for tax-exempt funding from the Olene Walker fund.
- Include energy-efficiency and conservation requirements in state/local tax incentives for new businesses.
- Consider a job-creation tax incentive for hiring resource efficiency/energy managers at industrial facilities.
- Encourage banks to include evaluating energy costs as part of the mortgage application and develop low-interest loan services for energy-efficient retrofits, such as DOE's PowerSaver Loan

New Anadarko Natural Gas Project:
Praised for Environmental Coordination

In the summer of 2012, in a show of cooperation and compromise that is promising for the future of energy development in the state, Anadarko Petroleum Corporation (APC) and Southern Utah Wilderness Alliance (SUWA) were able to come to an agreement for a 3,675 well natural gas development proposed for Uintah County. The agreement limits the number of wells in wilderness-quality lands of the White River area, and provides for conservation easements will for certain high-value segments of the river. SUWA has determined that the White River agreement will help ensure the area will be protected from the sights and sounds of oil and gas development.

As proposed by Anadarko Petroleum Corporation, the Greater Natural Buttes' infill project is for an existing developed gas field in Uintah County, where up to 3,675 new natural gas wells will be drilled from 1,484 well pads. The active drilling time is slated for a period of 10 years.

Program.

- Require a home energy rating for all homes listed for sale or rent.

In addition to the incentives noted above, the Utah Legislature passed and the Governor signed into law Senate Bill 221, which amends Utah's Assessment Area Act and authorizes municipalities (and certain other parties) to provide assessment bond financing for energy efficiency upgrades and renewable energy systems on commercial and industrial properties. This financing method, known as Commercial Property Assessed Clean Energy or "C-PACE," can be used to provide 100% financing on building energy improvements and is repaid through a voluntary assessment on the property owner's property tax bill. There is a growing interest in C-PACE among Utah property owners and municipalities and efforts are underway to bring tools, resources and information to these parties to assist with the development of standardized C-PACE program guidelines.

E. New Construction

New home and new commercial building design and construction should be energy efficient. Utah is one of the fastest growing states in the nation. As such, more than 198,000 residential building permits[65] and an estimated 22,000 commercial building permits have been issued over the last ten years, and construction continues even during the economic downturn. These new homes and buildings will be part of the Utah landscape for decades to come. It is critical that steps be taken to ensure these buildings incorporate cost-effective energy efficiency measures at the time of construction rather than burdening owners and utilities with the cost of retrofits.

The State of Utah will continue to lead by example in energy efficiency. The Division of Facility Construction

and Management (DFCM) established Leadership in Energy and Environmental Design (LEED) Silver certification as a minimum standard for all new state-building construction. In 2010, DFCM also installed $4 million in renewable energy projects (mostly solar) with American Recovery and Reinvestment Act economic stimulus funding; established private/public partnerships with energy service companies (ESCOs) and utilities to fund energy efficiency improvements in existing buildings; benchmarked or tracked energy use in over 90% of large buildings under their management through ENERGY STAR's Portfolio Manager; used a re-commissioning platform for tuning up buildings; established a $2.5 million energy-efficiency revolving loan fund that is currently fully subscribed Update; established a statewide employee energy behavioral program "Think Energy" and employee E-teams; and continued to track the "Working 4 Utah" initiative that has shown a 10% energy use reduction.

Constructing buildings to current or above energy code standards reduces the occupant's energy costs and puts downward pressure on utility rates by deferring investment in new energy generation that would otherwise be needed to meet rising demand. Utah's commercial and residential buildings use 42% of its total energy, more than either the industrial or transportation sectors. Increasing energy efficiency in Utah's new buildings will potentially save $1.17 billion between 2001 and 2020.[66] The economic cost to builders to achieve such savings has not been determined and should be analyzed.

Professional energy auditors perform "blower door tests" to determine a homes airtightness. Reducing drafts increases building energy efficiency.

Building energy codes dictate minimum standards for the design and construction of all new and renovated buildings. The codes impact energy use for the life of the building. Utah's statewide building codes are adopted by the Legislature and enforced by local jurisdictions. Many Utah builders are effectively ensuring energy efficiency is a component of all new and retrofitted homes and buildings.

Energy codes are not effective if those codes aren't properly implemented by the design and construction industry or enforced by local building departments. To effectively do their jobs, everyone involved in building design, construction, plan-review and on-site enforcement must be aware of the latest building-science technologies and codes. Compliance tools and training materials that support energy codes are available through the U.S. Department of Energy's Building Energy Codes Program. The Utah State Energy Program, supported by Rocky Mountain Power and Questar Gas, provides energy code training. However, qualitative observations in 2010 reveal Utah's compliance rate could be improved.

The Task Force makes the following recommendations to improve energy efficiency in new construction:

- Encourage builders' participation in programs that encourage continued improvement. Voluntary programs that encourage more energy-efficient construction and renovation, such as ENERGY STAR for Homes, provide the opportunity for better-than-code products. The Energy Efficiency and Conservation Plan recommends increasing

the effective use and enforcement of the International Energy Conservation Code (IECC) by jurisdictional authorities and the design and construction industry through ongoing and expanded education, training and credential licensure.

- Use the most current Utah state energy code for both residential and commercial construction. 2013 Energy Conservation Code Amendments (S.B. 202) adopted the 2012 energy codes for commercial buildings, along with a revised version of the 2012 code for residential buildings. The Energy Efficiency and Conservation Plan recommends adoption of current and future International Energy Conservation Codes in full, amending out only provisions that can be proven to not pay for themselves on a cash flow basis or life cycle cost-effective basis (safety items should be measured independently from this calculation).
- Improve and clarify the administrative feedback loop for code enforcement professionals between local jurisdictions and the Uniform Building Code Council, and develop a resolution process for consensus-based code enforcement disputes.
- Approve development fees or allocating a portion of the DOPL's fund created from surcharges associated with construction as a funding source for energy-efficiency code enforcement at the local level.
- Encourage and fund programs that provide whole-house and building systems energy analysis and significant whole-house or whole-building retrofits.
- Encourage government and non-government organizations to utilize energy service companies as a financing mechanism for energy-efficient retrofits, recommissioning and ongoing commissioning.

In addition to the points previously noted, the Energy Efficiency and Conservation Plan proposes that the State should be a leading example of energy efficiency and conservation for buildings.

F. Regulatory Changes

Utah's regulatory framework is most effective in focusing its efforts on reducing overall energy consumption, managing peak loads through best practices, and supporting energy efficiency and demand-response programs, consumer education and utility rate design to promote energy efficiency and conservation. It is also important to ensure that utilities are not disadvantaged or economically harmed as a result of state energy and economic policy decisions.

Utah's regulatory environment, consistent with Utah statutes governing its operations, has provided support and recovery of costs directly incurred by public utilities associated with cost-effective energy efficiency and demand-response programs. Both Questar Gas and Rocky Mountain Power have robust and active advisory groups, established within Public Service Commission processes, to provide recommendations on program design, scope and implementation. This collaborative effort is an important ingredient to the ongoing success and achievement of these programs. Ongoing work should:

- Continue encouraging all customers and suppliers to pursue all cost-effective energy efficiency through its current regulatory culture.
- Make greater efforts to ensure all system and environmental benefits provided by energy efficiency are fully and appropriately valued in the planning, acquisition and regulatory decisions. Likewise, the costs and challenges associated with energy efficiency should be fully and appropriately considered as well.
- Consider establishing energy-efficiency targets and/or utility incentive programs for successful management of energy-efficiency and demand-side response programs. The Energy Efficiency and Conservation Plan recommends promotion of best practices in non-residential building energy efficiency through a statewide benchmarking challenge and recognition

Electrical transmission lines at the IPP coal plant, Utah. Photo Credit: Michael Vanden Berg, UGS

program.

- Pursue additional analysis and evaluation of utility and ratepayer impacts of high-efficiency scenarios.

- Consider rate recovery mechanisms that balance the first-year costs of energy-efficiency programs while benefits are accrued across many years. Alternative rate recovery mechanisms may be necessary to give energy-efficiency resources comparable treatment to supply-side generation resources that are amortized over multiple years. Impacts this approach may have on a utility's financial condition should be considered as part of this effort.

VII. Transmission, Infrastructure and Transportation

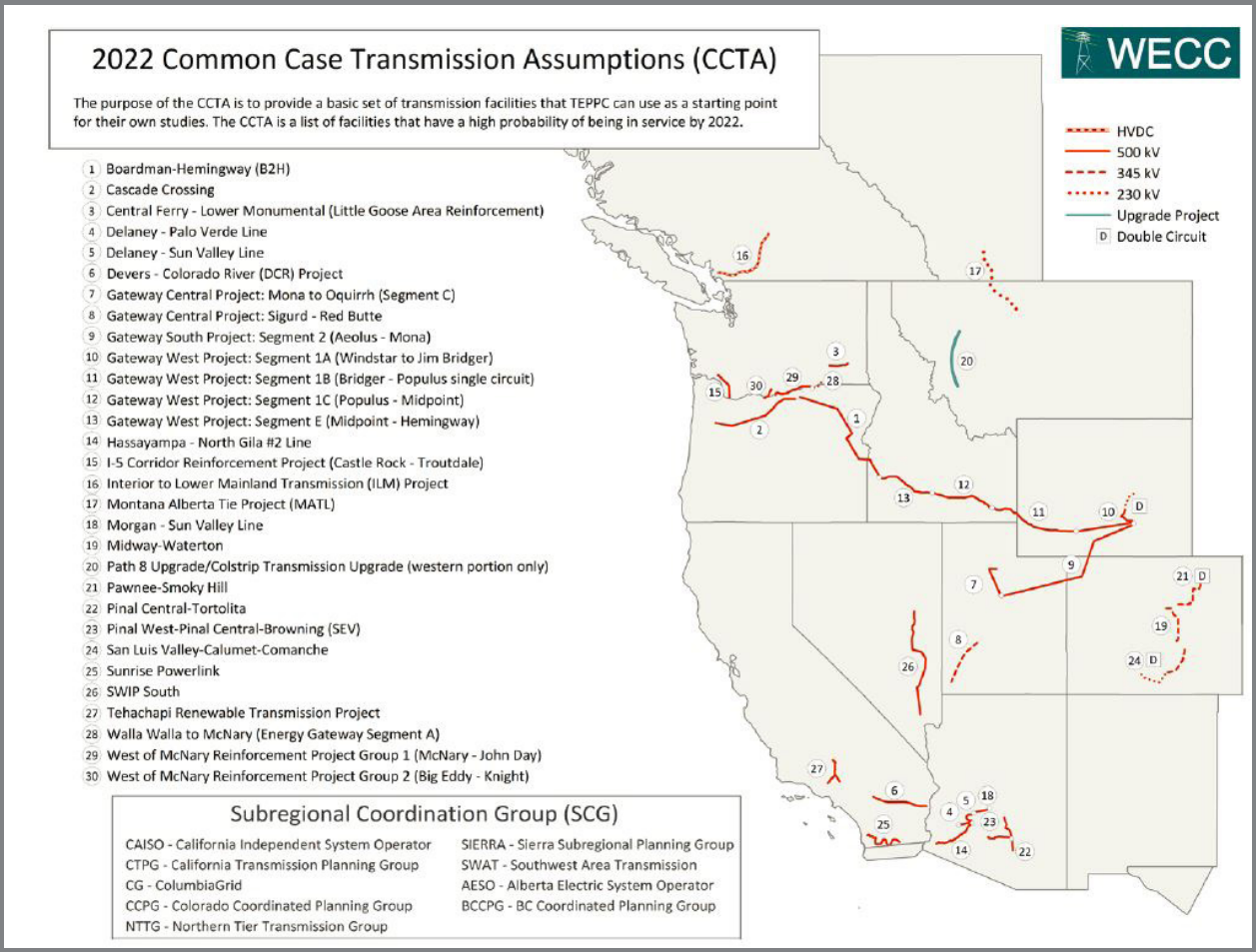
Historically, energy producers have focused on providing competitive costs while balancing other factors and risks. Increasingly other requirements and public policy objectives have become more predominant in thinking about the new energy economy and climate change. Infrastructure providers find themselves caught between customers who have become accustomed to low energy costs and continue to demand low costs, and those policies that promote renewable energy, conservation and the green economy with the potential for incrementally higher energy costs.

In Utah, peak demand for electricity rose steadily through the 1990s, with significant increases in the years prior to 2008. While growth has slowed significantly, consumer demand for electricity is still growing. The demand for natural gas has followed a similar path since natural gas is now increasingly being used for electricity and faces the same challenges.

Electric and natural gas transmission is a key part of any state's overall energy policy, but it is the most difficult component of the energy delivery system to construct. Long planning timelines, large geographic footprint, complex permitting from multiple jurisdictions and huge capital costs make energy transmission the most complex and highest risk enterprise an electric utility can undertake. Regardless of the energy policy selected, the mix of generating resources utilized-fossil fuels, nuclear, wind, solar or geothermal-all require

Figure 4: Proposed western foundational transmission projects by 2020

Source: Western Electricity Coordinating Council



robust transmission capacity to move electricity and natural gas to where customers need it.

Electrical transmission is accomplished by above-ground high voltage lines. The last major additions to the electric transmission network in the Western U.S. were made some 20-30 years ago. While some companies have begun major transmission additions or proposed major projects, the huge capital cost of transmission is a barrier to new investment. Because State policies still require that most transmission construction costs be borne by the retail customers of the load serving entity that construct them, few investor- or consumer-owned utilities have committed the large capital investment required for such projects, despite a pressing need. Likewise, private investors have been reluctant to propose projects of their own or commit funding to projects proposed by others.

During the summer of 2009 Rocky Mountain Power served approximately 85% of the total electrical peak demand in the State of Utah.[67] The peak demand in the Wasatch Front of Utah (Ogden area to Spanish Fork area) is 80% of the peak electrical demand for the entire State. This area is Rocky Mountain Power's largest and highest density urban load center. It also represents some of the company's greatest challenges in providing safe, adequate and reliable transmission service due to large population and established communities, land use (both existing and future planned) and the limited

Table 5

Existing Natural Gas Transmission and Distribution Pipelines in Utah
Source: Questar Gas

Pipeline	Miles of Gas Transmission Pipeline	Miles of Gas Distribution Pipeline	Total Miles of Gas Pipeline	Utah Interstate Pipeline Interconnection
Kern River Northwest Pipeline Questar Pipeline	712 2,500	0	712 — 2,500	1 2
Questar Gas*	1,029	15,909	16,938	11
Total Customer Interconnections	4,241	15,909	20,150	14
State Tax Commission Est.**	1,957			

Table 6

Proposed Natural Gas Transmission Pipelines in Utah
Source: Questar Gas

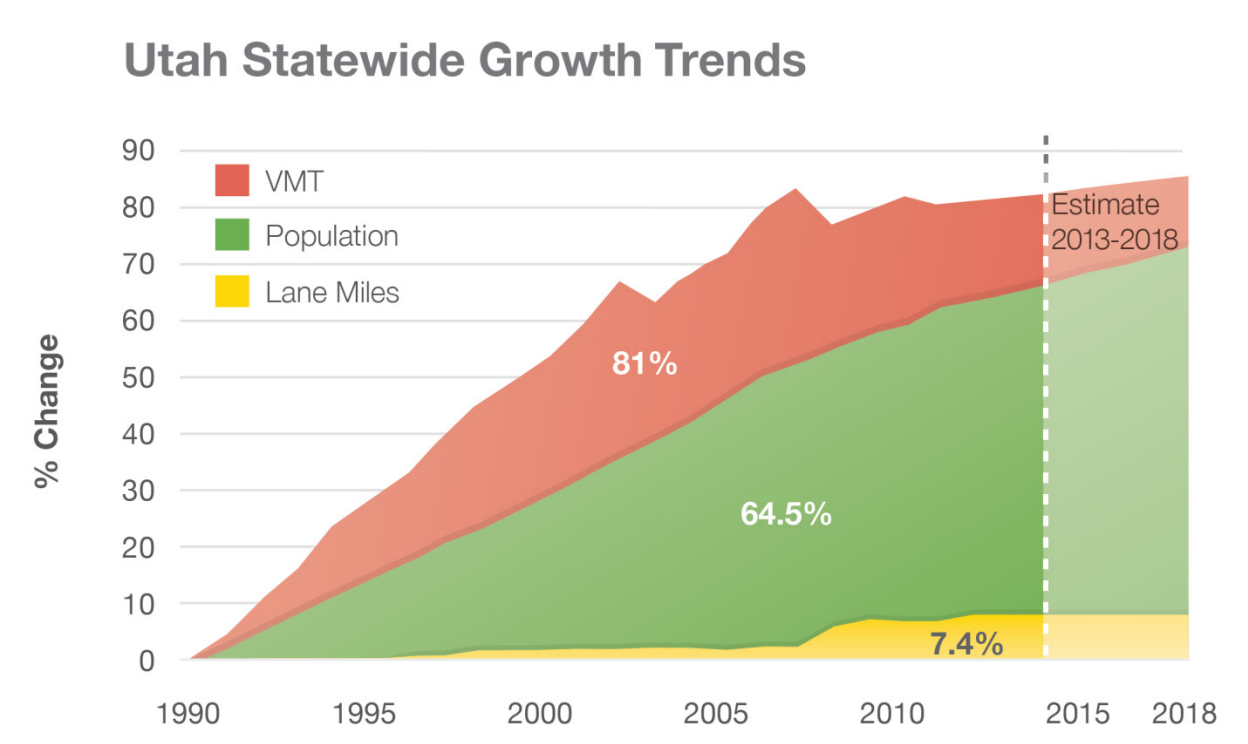
Pipeline	Project Name	Miles of Transmission Pipeline	Pipe Diameter	In-Service Date	Description
Kern River	Apex Expansion	2.8	36 inch	11/1/2011	This project will close the currently unlooped of Kern River's pipeline in the Wasatch mount
Questar Pipeline	ML 104 Extension	23.5	24-inch	11/1/2011	This project extends QPC's mainline to the east receive gas from the processing hubs in the Uintah Basin of Utah
El Paso Natural Gas	Ruby Pipeline	181.5	42-inch	Spring 2011	This project transports Rocky Mountain natural gas to end users in California, Nevada and the Pacific northwest

geography available to site and construct transportation facilities.

There are approximately 150 electrical interconnection points to Rocky Mountain Power's transmission system alone. The Company provides transmission services to more than eight other transmission owners and load serving entities. There are eight major electrical transmission paths that interconnect the State of Utah to bordering states. All of these existing paths are currently fully subscribed for transmission usage and have constraints and limits regarding their ability to serve the State long-term.

Figure 4 is a map of electrical transmission projects with a high probability of being in service by 2022 within the Western Electricity Coordinating Council (WECC)[68] and projected to be developed over the next 10 years. These projects are being proposed by a number of sponsors, including electric utilities and independent power producers and private investors.Update on these projects. Utah's transmission plan should be developed in coordination with sub-regional and WECC transmission plans, and Utah should work with other states/prov-

Figure 5: Comparison of population growth, increased vehicle miles traveled and highway mileage change in Utah. Source: Utah Department of Transportation



inces in the Western Interconnection to capitalize on synergies among transmission development in other states/provinces.

Natural gas transmission is accomplished by underground pipes, which have seen dramatic growth in the last 30 years. Natural gas export capacity from the Rockies has increased from 1.8 MMcf/day in 1980 to 8.1 MMcf/day in 2010. With the addition of the Ruby Pipeline and the Kern River expansion, which are scheduled to be completed in 2011, pipeline export capacity in the Rockies will be 10.4 MMcf/day. Pipeline transmission capacity inside Utah has dramatically increased as well, with new transmission capacity from Questar Pipeline and Kern River Pipeline. Questar Gas is also spending significant capital to replace and expand intrastate high-pressure feeder lines. Tables 5 and 6 provide more detailed information. Whether Utah is a net importer or exporter of natural gas in the future is dependent on development of resources in-state and regional and national market forces.

Transmission of coal and gasoline are typically by train or truck. Leaks in oil pipelines in the Salt Lake Valley have been of particular concern.

To develop renewable energy projects within the State's borders, additional transmission capacity would need to be built. To build a clean energy economy, gain more energy independence and promote development and jobs, Utah will need to develop its own large-scale renewable energy projects. A major obstacle to getting these sources on the grid is the availability of transmission to collect the output of these renewable resources from remote locations. Utah's regulatory framework is not currently set up to make this possible.

Potential barriers to transmission infrastructure development include financing, integrated planning across all levels of government and permitting procedures. Funding methods, sources and options need to

be explored and implemented, while building on previous state-based efforts. A long-range transmission feasibility study of a large-scale renewable energy projects in the state should be considered. Such a plan would include significant stakeholder input upfront. Substantial public and private sector participation, combined with the utilization of natural and cultural resource data early in planning and budgeting can help secure as much public support as possible. This, in turn, would reduce the probabilities of suits against any future projects that may be built as a result of the plan, facilitate permitting and produce more efficient siting and mitigation practices, thereby saving time and resources.

With the projected increase in travel and population, there is a need to expand the State transportation system, as defined in the Utah Long Range Plan. The Utah Department of Transportation (UDOT) maintains over 6,000 miles of highway infrastructure and 35,000 miles of road within the State of Utah. Currently there are 1.6 million drivers. This number is expected to grow 65% to 2.6 million by 2030. Population is expected to grow from 2.8 million residents in 2011 to 4.1 [3.9] million residents by 2030. See Figure 5. The amount of travel has increased faster than the rate of growth of the population. UDOT estimates that it will require $10.2 billion between now and 2030 to maintain the physical condition of the highway system at its current level.

There may be opportunities to both improve the energy transmission network and the transportation system that offers both overall efficiencies and reduced impacts through better coordination and planning.

RECOMMENDATIONS TO SUPPORT TRANSMISSION DEVELOPMENT:

Consider alternatives to current regulation and funding sources to encourage transmission line and pipeline construction in areas that promote economic development or renewable and alternative energy resource development. State economic regulation requires that investments be prudently made, competitive cost (risk adjusted) and used and useful for existing and future customers. Federal and state regulation requires non-discriminatory application of all tariffs to transmission users. If stakeholders decide it is in Utah's best interest, legislation could be developed that creates a state authority and funding vehicle that would be granted to transmission companies or developers to build lines that are found to be not economic by state utility regulators.

The State needs a clear process for siting and permitting transmission infrastructure projects. Local opposition can impede the development of infrastructure projects, which are critical and vital for the economic health of the State and its communities. Review the authority for the Utility Facility Siting Board that would specifically address local zoning and conditional use requirements and determine modified language that would allow the Board to review proposed permitting requirements.

In 2013, the Office of Energy Development commissioned a Transmission Permitting Guide summarizing the process of siting transmission lines across multiple jurisdictions and land ownership types. This report is a resource for the benefit of transmission developers in Utah, and will be followed by additional transmission policy analysis in 2014.

Inadequate coordination among state agencies involved in siting and permitting activities can impede the development of infrastructure projects. There are competing requirements and lack of standard policies relating to linear facilities within various State agencies. Strengthen the State infrastructure departments mission and support, review all State agencies' roles in successfully completing facilities development and consider options for better coordination among state and federal agencies.

Public interest multiple infrastructure corridors cannot be secured without funding and right-of-way acquisition. Infrastructure providers do not generally have

mechanisms to acquire future rights-of-way that meet state law and provide a return on that long-term investment. Develop funding methods to acquire long-term multiple infrastructure corridors. Review the statutory framework to identify options to provide funding to acquire Utah interest in joint corridors.

Infrastructure should be built in a way to minimize environmental and social impacts. For example, in July 2013, the Utah Office of Energy Development supported Enefit American Oil's utility corridor project, which promises to provide important project infrastructure that will greatly benefit the local economy without sacrificing environmental protection. Federal, state and private land owners often prefer impacts to be located elsewhere. Work with the Governor's Office to create a forum to balance infrastructure and the environment in the management of public and private lands. Create a team to develop specific language and recommendations that the State can take to federal land managers.

Encourage strong energy efficiency, demand-side management measures and distributed generation to minimize the need to build additional transmission. Fixed cost recovery is a problem and stakeholders disagree on the appropriate level of spending on demand -side management measures. Create a multi-dimensional stakeholder group to further discuss the issues. Utilities work with stakeholders to develop policies that encourage demand reduction and energy efficiency participation at optimal levels. Consider policy changes recommended by the stakeholder group.

VIII. Developing and Applying Technology and Science

Utah's heavy reliance on fossil fuels, coupled with rapid growth in the demand for energy and new environmental regulations, calls for a strategic energy plan to secure Utah's energy future. To stimulate economic growth, protect the environment and develop the State's vast energy resources, Utah must invest in its energy research and development infrastructure and improve coordination of the State's research universities, national energy laboratories, energy research and development industry, energy-related university spin-off companies and other key partners to collectively contribute to the development and deployment of energy technologies and work force capabilities.

Access to low-cost energy is a key incentive for businesses to expand in Utah and to locate in the State. However, Utah is facing a potential risk from carbon and green-house gas emission legislation on the cost of electricity in the state. Rapid growth in the demand for energy, coupled with new environmental regulations, will lead to higher costs for energy, which in turn could negatively impact the State's competitive position for job creation, as well as business attraction and retention.(69) While the electricity in Utah is primarily generated from fossil fuels, accounting for 96% [95%]of Utah's total electricity production in 2009 [2012], a significant portion of this generation is exported to other states. Electric power providers serve the State with a portfolio of resources (coal, natural gas, hydroelectric, wind, geothermal, purchased power, etc.) that are included in customers' electricity prices and mitigate the exposure to economic effects of federal regulation of carbon dioxide and other greenhouse gas emissions. Development of new energy resources is becoming increasingly costly and challenging while Utah's energy demand growth, competition for water resources and air quality issues place additional upward pressure on energy prices. While the state's energy costs will continue to increase, other states will likely also experience similar pressures.

To address these challenges and take advantage of its vast energy resources and talented workforce, Utah will have to take several key steps:

- Enhance the State's energy research facilities and continue to attract world-class researchers to the State.
- Align the State's main research universities – University of Utah (U of U), Utah State (USU) and Brigham Young University (BYU) – into a powerful

energy research and development triangle.

- Connect this "Research Triangle" with global industry, national laboratories and regional universities to effectively commercialize new energy technologies and develop Utah's conventional, alternative and renewable energy resources.
- Empower Utah's education system to expand its ability to train, attract and retain the skilled talent necessary to grow Utah's energy economy.

Utah's Research Triangle will optimize the role of the U of U, USU and BYU as innovation leaders in energy economy. The faculty, staff, students and facilities are engaged and respected on a global basis, and Utah's research universities are among the nation's leaders in many areas of energy research and development. Their separate capabilities are impressive, yet their efforts could be more effective, through increased collaboration. The research universities investment in developing and deploying energy technologies includes research faculty and programs; research labs and related infrastructure; commercialization offices; and coordination with industry, national labs, regional universities and State commercialization and economic development agencies. The research universities will also work closely with Utah's other universities, such as Weber State University, Utah Valley University and Southern Utah University, where notable energy research initiatives have already been established.

Utah's Research Triangle is well-connected nationally and internationally and has access to regional energy industry technology leaders with a global reputation for implementing and commercializing technologies developed within the Research Triangle. Closer collaboration between Utah's research universities, industry, national labs and state agencies will help achieve even greater returns on Utah's investment in energy research and development. Improved collaboration will also improve deployment of technology to develop Utah's natural energy resources affordably with minimal environmental impact. Additional information regarding specific research at the universities is also available in the Subcommittee's full report.[70]

A. The University of Utah

The University of Utah (U of U) is Utah's largest research institution and is ranked among the top 30 public research universities in the nation. Best known for its health sciences research, the U of U has also established itself as a leader in energy research. The U of U is home to two of the nation's leading energy research institutions, the Energy & Geoscience Institute (EGI) and the Institute for Clean and Secure Energy (ICSE). EGI is a leader in fossil fuel, geothermal and carbon sequestration research. EGI research projects cover the globe and 70 of the world's leading energy companies support its research. EGI is continuing to expand both its applied research in hydrocarbons, as well as geothermal and carbon management applications for both government and industry. ICSE is a leader in fossil fuel combustion, gasification and computer modeling research. ICSE utilizes its impressive off-campus pilot-scale research facilities, and partners with industry to commercialize new technologies for responsibly utilizing conventional and unconventional fossil fuel and biomass resources. ICSE's carbon mitigation program includes oxyfuel combustion, chemical looping and gasification.

The University of Utah also has emerging energy research programs in such areas as solar power, renewable energy storage, biofuels and smart-grid technologies. The Technology Commercialization Office at The University of Utah manages the commercialization of energy technologies produced at the university. The University of Utah will work closely with the Energy Commercialization Center to promote its successful model for bringing university-based renewable energy and energy efficiency technologies to market.

B. Utah State University

Utah State University (USU) is Utah's land-grant institution and home to several world-class research, development, demonstration and deployment platforms. USU is proficient in the areas of natural resource management and mitigation, agricultural development, animal and veterinary science and water resource management. Further, the University plays host to Energy Dynamics Laboratory, Colleges of Engineering and Science which are national leaders in bio-fuels, environmental monitoring and sensing, waste-water treatment, hybrid energy systems, electrical engineering, nuclear, geothermal and wind profiling. USU also has the ability to address environmental issues and socio-economic issues. Finally, USU is a world leader in the area of space sensing and imaging, with a 50-year history of designing, engineering, constructing, calibrating and deploying satellites and sensing equipment for NASA, JPL and US Department of Defense. Much of this work is now being brought to bear on terrestrial efforts related to weather, environment and energy both in the academic and commercial areas.

The USU Technology Commercialization Office is tasked with commercializing USU energy technologies. USU is uniquely equipped to test and deploy energy technologies in rural Utah through its rural partnerships and extension program. USU has just opened the Bingham Energy Research Center in the Uintah Basin; the center serves as a research center and to educate the workforce in energy-related careers.

C. Brigham Young University

Brigham Young University (BYU) is a private university engaged in substantial research and commercialization activities regarding environmentally sound energy resources. Research is both applied and academic with considerable strength in combustion, bio- mass, gasification, clean coal, and carbon management. Central to BYU's capability is the Advanced Combustion Engineering Research Center (ACERC) and the Technology Transfer Office (TTO). The ACERC has a global reputation for modeling and experimental work on clean coal combustion and has expanded to focus on sustainable energy. The TTO is a national leader in commercializing technology and products efficiently. BYU also has numerous initiatives in hybrid energy technologies and carbon management with expertise and intellectual property in both carbon capture and storage.

D. Research Partners

Utah's research universities seek closer research collaboration with all of the Nation's laboratories. In particular, the Idaho National Laboratory (INL) is collaborating with the State's universities on numerous projects. The Research Triangle can benefit greatly by expanding this relationship with INL, as well as pursuing collaboration with additional Department of Energy national assets in the region and energy space such as Los Alamos, National Renewable Energy Laboratory, Oakridge National Laboratory, National Energy Technology Laboratory and others.

INL, with its headquarters in southeastern Idaho, is one of ten multi-program national laboratories. It is a unique resource serving as one of America's premier energy research laboratories with a mission to develop and advance clean, smart and secure energy systems essential to national security, economic prosperity and environmental sustainability. INL has lead responsibilities for the Nation in nuclear energy research but also engages in research regarding development of fossil, renewable and integrated energy systems.

INL is dedicated to collaborating with regional research institutions, government, and industry in addressing current and anticipated energy challenges. As part of this effort, INL has been building key relationships in the Western Energy Corridor, a transnational region containing world-class energy resources strategic to North American energy security and regional economic development. Utah is key to the Corridor and hosts many of these resources.

Utah's energy industry is leading the way in research and development in such fields as geo-mechanics, new material technology and clean coal technologies. Examples of the leaders developing technology in the State include TerraTek, Ceramatec and Combustion Resources. TerraTek is a global leader in geo-mechanics laboratory testing and analysis provides multidisciplinary expertise in geosciences and engineering. Its expertise lies in unconventional gas recovery, drilling and completions performance, core-log integration and rock mechanics. Ceramatec is a national leader in developing new materials technology for the energy industry. Its focus is energy and environmental (clean-tech) areas, including industrial applications of ionic conducting ceramics and electrochemistry and fuel reformation and synthesis. Regionally, Combustion Resources' clean coke demonstration plant converts regional carbonaceous materials such as coal, coke fines, and chars into high-grade metallurgical coke. Utah is blessed with regional universities and colleges that grant bachelor degrees in science, technology, engineering, math, and commercial subjects that support energy producers, users, and research with a skilled work force. These institutions provide for a full spectrum of training from high school through post-doctoral education.

The eight Utah College of Applied Technology (UCAT) campuses, Salt Lake Community College, and other institutions of higher education offering energy- related technical training fill an essential role in developing and maintaining a technically-trained Utah workforce. These institutions focus on the safety, regulatory, implementation, production and other technical certifications that energy employees must possess. Typically, several technically-trained employees function as support to each researcher and engineer in the energy industry occupations.

E. Research Initiatives

- The U of U, USU and BYU should collaborate and optimize research capabilities and efforts. Recognizing the accomplishments and addressing the challenges of this collaboration will be the focus of semi-annual meetings convened by the Governor's senior energy official and attended by each university's senior energy research official at the State Capitol.
- INL should be invited to provide a senior staff member to participate in the Utah Research Triangle semi-annual meetings. Other national laboratories may be invited in the future.
- The Research Triangle will review the report and conclusions of the Utah Cluster Acceleration Partnership and implement findings appropriate to optimizing the welfare of the State of Utah and regional partners. The Utah Cluster Acceleration Partnership has worked extensively with industry, academia, and government to accelerate and support the expansion of Utah's energy industry and to fashion a well- trained workforce possessing the critical skills needed by this industry.
- The Energy Research Triangle continues to partner with UCAP to support energy education and workforce development, and to advance innovation and research in Utah's higher education institutions. Through such initiatives, Utah can maintain its leadership in energy and economic development.
- The Research Triangle will expand its interaction with regional technology leaders through collaborative efforts lead by the Governor's senior energy official and senior energy research official from each of the Universities towards commercialization and implementation of technology to meet Utah's energy challenges.
- Directed by the Governor's senior energy official and senior energy research official from each university, the team will collaborate with industry to form plausible solutions to energy challenges. The efforts include collaboration with Idaho National Laboratory and the Utah Cluster Acceleration Partnership to encourage energy career trainings and skilled workforce. To implement this recommenda-

Bingham Entrepreneurship and Energy Research Center

Utah State University's Bingham Entrepreneurship and Energy Research Center works hand-in-hand with the energy industry and government agencies to bring real life solutions to environmental issues by researching wintertime air quality, endangered species, and water and soil quality. Additionally, the Center works to develop environmentally-friendly energy technologies and new methods for environmental measurements.

tion on an annual basis, the research universities will alternately host a Utah Energy Symposium to present topics related to Utah energy resources, reserves, new developments, new installations and facilities and other emerging topics.

- The Governor's Energy Development Summit has consistently highlighted emerging resources and technologies, while drawing participants from Utah's research universities. Programs and presentations from past years are available on the OED website.
- Funding that encourages collaborative efforts in the research and development community is currently insufficient to promote and enable significant collaborative research. The Governor's senior energy official and the senior research official associated with energy at each of the universities will propose appropriate budget items at the State and federal level specifically focused on promoting cooperation between the Research Triangle in energy research and technology.
- The Department of Energy's national laboratories present significant opportunities to collaborate on critical research and development needs for the State, region and nation. The Research Triangle should expand its interaction with Department of Energy national laboratories , and specific funding should be identified to promote opportunities for appropriate collaboration in the State and nation's interest.
- Utah is positioned with natural resources, research institutions, capable industry and regional support to conduct meaningful demonstration scale projects that can lead to cost effective commercial and environmentally sound energy development.
- Demonstration-scale research projects supported by the State of Utah should be conducted by unprecedented partnerships between the Research Triangle, national laboratories, industry and the public sector to capitalize on the region's rich resources to meet the region's energy needs in an environmentally sensitive manner.

Implementation of these recommendations will significantly improve Utah's energy research, development and deployment performance and foster unprecedented collaboration between academia, government, laboratories and industry.

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UTAH OFFICE OF
ENERGY DEVELOPMENT

Advancing Utah's Energy Future

1 Executive Summary

UINTAH BASIN RAILWAY REPORT

Ute Indian Tribe Railway Task Force

February 2020

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Executive Summary

The Ute Tribe Uintah Basin Railway Task Force is comprised of representatives from the Energy and Minerals Department, Natural Resources Department, Fish and Wildlife Department and Ute Energy. The Task Force was appointed by the Business Committee in response to the Seven County Infrastructure Coalition's proposal to construct an approximately 85-mile railway connecting two terminus points on the Uintah and Ouray Reservation to an existing railway near Kyune, Utah. The railway would serve to transport crude oil from the Uintah Basin to external markets and help alleviate existing transportation bottlenecks. This report summarizes the Task Force's findings on potential impacts from the railroad on Tribal lands, resources and communities. In summary, the Task Force acknowledges the significant financial benefit of the railroad but cautions that it may have an adverse impact on the Tribal members living in the communities of Randlett, Fort Duchesne, and Myton, fish and wildlife, water quality, and *Sclerocactus*. The Task Force believes that it is crucial that agreements be put in place for the regulatory oversight of the railway well in advance of its construction to ensure that any undesirable events are addressed swiftly and without confusion.

Project Overview

The Seven County Coalition, Drexel Hamilton Infrastructure Partners, LP and Rio Grande Pacific Corporation propose to build an approximately 85-mile railway connecting two terminus points near Myton and Leland Bench on the Uintah and Ouray Reservation to an existing railway near Kyune, Utah. The $1.5 billion railway would replace the 600-800 trucks that currently transport heavy crude produced from wells on the Reservation to an existing railway near Kyune, which transports oil to Gulf Coast refineries. The railway would require a 100-foot wide right-of-way during construction which would be reduced to 50-foot wide right-of-way for operation and maintenance. There are currently three proposed routes under consideration. Two of which, the Indian Canyon Alternative and Whitmore Park Alternative, would travel through Indian Canyon and would cross approximately 7 miles of Tribal land and approximately 70 miles with the Reservation's Exterior Boundary. The Third alternative is the wells draw alternative, which has the same terminus points but follows a different alignment and does not cross any Tribal lands (See Map 1).

Key Participants

Seven County Infrastructure Coalition

The coalition is **responsible for planning and studies**, which include the environmental assessment process, preliminary design and financial modeling. Duchesne and Uintah Counties are taking the lead on the project.

Drexel Hamilton Infrastructure Partners, LP

Drexel Hamilton, an independent infrastructure investment fund with offices in Florida and New York, is **responsible for financing and commercialization** of the railway. The

Seven County Coalition includes:

- Carbon County
- Daggett County
- Duchesne County
- Emery Country
- San Juan County
- Sevier County
- Uintah County

company is also developing the $2.5 billon Plaquemines Liquid Terminal complex in Louisiana, which would be the largest crude oil export port in the western hemisphere.

Rio Grande Pacific Corporation

Rio Grande, a Texas-based holding company for regional freight railroads and railroad related firms, will be the private partner **responsible for design, operations and maintenance** of the railway.

Surface Transportation Board

The Surface Transportation Board (STB) is acting as the **lead federal agency** responsible for completing the environmental impact statement (EIS) for the project, which will analyze and disclose any potential environmental impacts. The STB is an independent federal agency based in Washington DC that is charged with the economic regulation of freight rail.

Route Alternatives

The EIS will analyze three potential routes for the railway—these routes are different from the initial three routes developed by the Coalition in May 2019. In response to public scoping for the project the Surface Transportation Board decided to eliminate the Craig Colorado Route, which would have travelled to the east and ended near Craig Colorado and add the Whitmore Park Alternative. Each of the three routes have the same terminus points on the Reservation and near Kyune, Utah.

Whitmore Park:

- Coalition Preferred
- 85 miles long
- 70 miles in Reservation Boundary
- Crosses approx. 7 miles of Tribal lands

Whitmore Park Alternative

The Whitmore Park Alternative is the newest route to be added and is the **Coalition's preferred alternative**. It would begin at Terminus Point 2 on Leland Bench, travel west to Terminus Point 1 south of Myton, then parallel Highway 191 southwest through Indian Canyon to connect to an existing rail line owned by Union Pacific Railroad Company near Kyune, Utah. This route largely follows the Indian Canyon Route, however it deviates in two areas north and south of Indian Canyon to avoid impacts to the Mini-Ranches near Duchesne, Utah and additional private properties near Kyune, Utah-- there are no deviations on Tribal lands.

Indian Canyon Alternative

The Indian Canyon Alternative was the Coalition's initial preferred alternative and is very similar to the Whitmore Park Alternative. The most significant difference between the routes on the Reservation occurs west of Antelope Canyon where the Indian Canyon Route travels northwest to the mouth of Indian Canyon whereas the Whitmore Park Alternative travels southwest to avoid the Duchesne Mini-Ranches. The two routes unite before crossing Tribal lands and entering Indian Canyon.

Indian Canyon:

- 80 miles long
- 70 miles in Reservation Boundary
- Crosses approx. 7 miles of Tribal lands

Wells Draw Alternative

The Wells Draw Alternative is approximately 100 miles long and **does not cross any Tribal lands**. The route heads directly southwest of the terminus points in the Uinta Basin, crosses the West Tavaputs Plateau then heads west and meets up with the Whitmore Park Route.

The first terminus point would be **3.5 miles** from Myton and the second terminus point would be **6 miles** from Randlett.

Terminus Points

The railway would have two terminus points in the Uinta Basin as depicted on the maps above. The first terminus point would be approximately 3.5 miles southwest of Myton, Utah and the second terminus point would be approximately 6 miles southwest of Randlett, Utah. Both Myton and Randlett have large populations of Tribal members with Randlett being a majority Tribal population.

Operation and Maintenance Plan

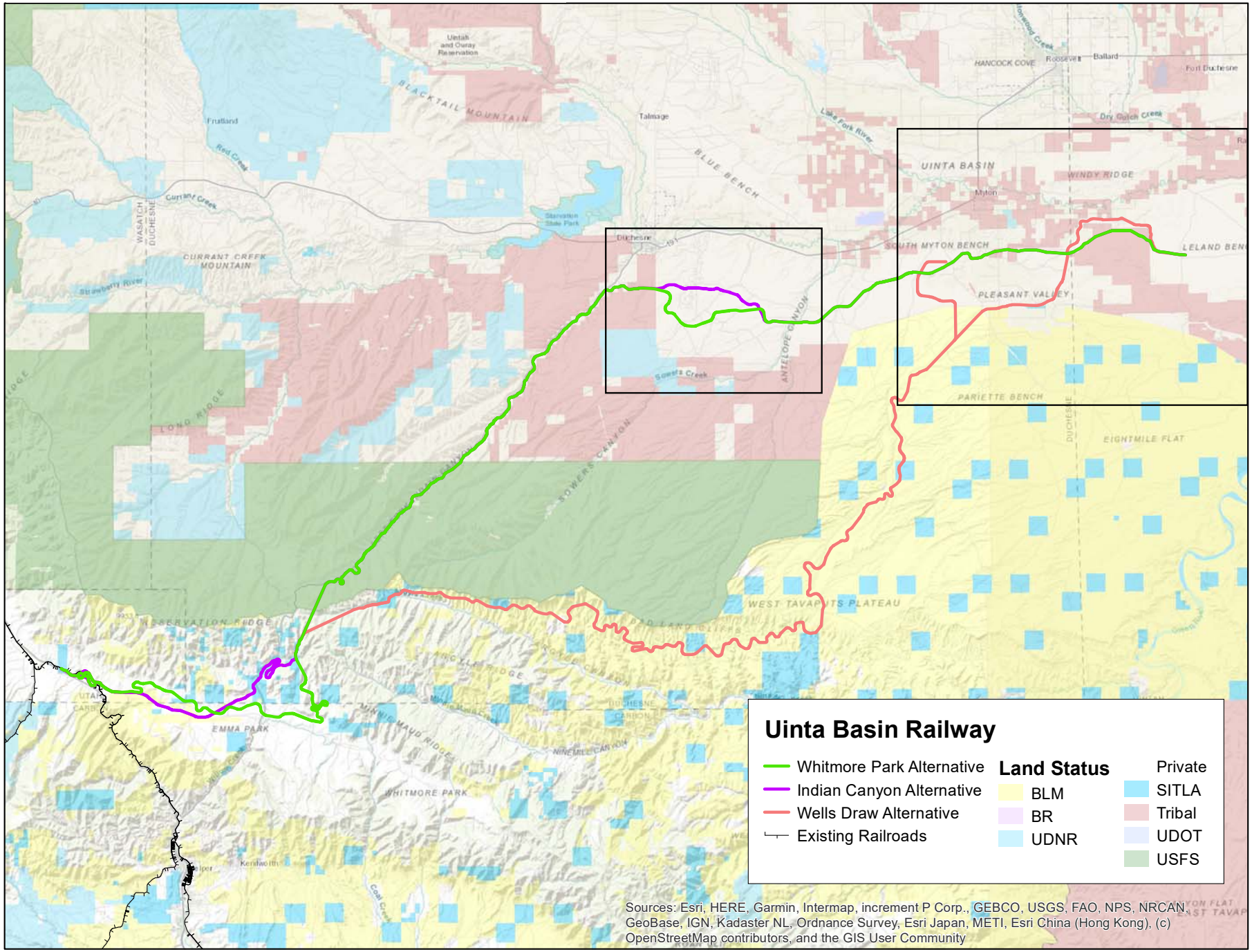
The trains would operate 24 hours a day, seven days a week, year-round. The trains will not be affected by seasonal weather. Maintenance for the trains will be performed by locally-based crews with a preference on hiring Tribal members. Training programs will be developed and offered to help local workers learn necessary skills. The train may have up to three (3) runs per day with approximately 115 cars per train carrying approximately 34,500 barrels per run.

Projected Rail Schedule

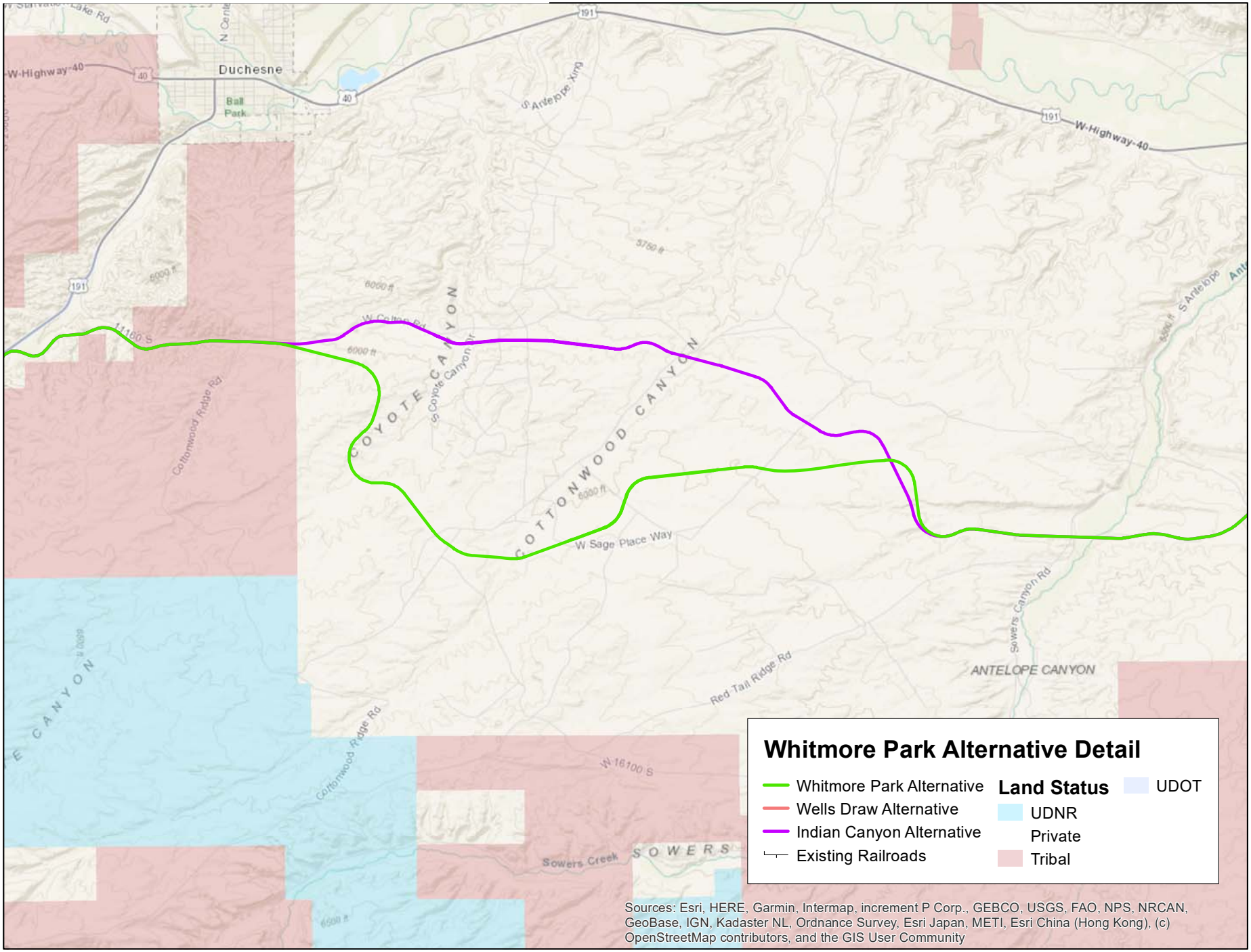
The Surface Transportation Board is currently working on a draft Environmental Impact Statement which will be released for public comment in the coming months. The Coalition estimates that if approved, the railway would be ready for operation by the end of 2022.

May 2019	Surface Transportation Board filed Notice of Intent to create EIS
July 2019	Public Scoping for Environmental Impact Statement
Feb. 2020	**Draft Environmental Impact Statement**
Dec. 2020	Final EIS and Record of Decision
March 2020	Final Investment Decision
March 2020	Engineering Start
January 2021	Construction start
Dec. 2022	Ready for operation

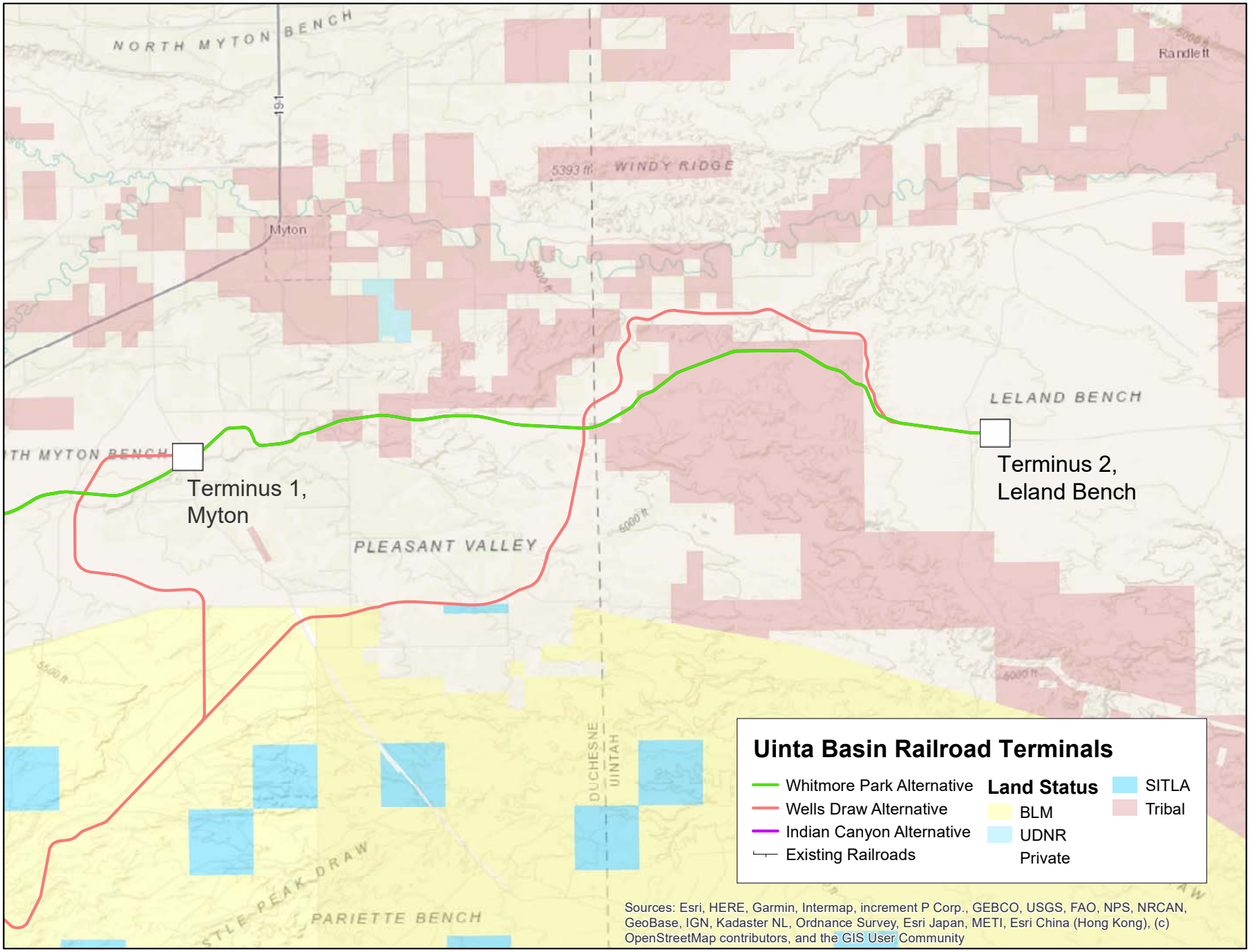
Map 1: Route Alternatives Overview



Map 2: Whitmore Park Detail



Map 3: Railway Terminus Points



Task Force Areas of Concern

While the Task Force acknowledges the significant financial benefit of the railway there are a few aspects of the project that raise concern. These are broken into the categories of Regulatory Authority, Fish and Wildlife, Community Impact, and Air Quality. Each section presents a summary of the concern followed by questions for the proponent and then recommendations.

Impacts to Tribal Communities

The three nearest towns to the railway terminus points are Randlett, Myton, and Fort Duchesne and Tribal members make up the majority of the populations in these communities. While construction of the railway will lead to an overall decrease in truck traffic, it will lead to an increase of approximately 690-862.5 trucks per day through these Tribal communities resulting in increases of noise, diesel fumes, dust, and encounters between trucks and autos. In addition to these disturbances to the overall quality of life for Tribal members, increased truck traffic will damage existing infrastructure such as AR-88 through Randlett and Fort Duchesne. Because Tribal members are the primary users of these roadways, aside from industry, they will disproportionately bear the burden of roadway wear and tear and increased traffic.

The Tribal communities of Myton, Randlett and Fort Duchesne may experience an increase of **690-862 trucks per day**.

Additionally, because Myton is only 3 miles from the railway, Tribal members in that community may also experience heightened noise disturbances from the operation of the railway. Increased traffic through these areas may also have disproportionate and negative impacts on the air quality which has immediate implications for the health of Tribal members. See Air Quality section for a more detailed discussion.

Questions:

- Will AR-88 through Randlett and Fort Duchesne be improved? Who will maintain this roadway?

Recommendations:

- It is recommended that mitigation measures be taken to reduce the impacts from increased truck traffic through Tribal communities by taking alternate routes when available, such as backroads.

Air Quality

There are two concerns around air quality: 1) increased development and truck traffic near Tribal communities from the railway may lead to increased emissions exacerbating existing air quality problems, and 2) federal regulation over air quality may limit new development.

The Reservation experiences unhealthy levels of ground-level ozone periodically over the winter months when there is snow on the ground and low temperatures cause an inversion, trapping pollutants within the basin. While these unhealthy levels typically do not last for periods longer

than a week, they represent some of the highest levels in the state. One of the primary precursors to ozone formation are volatile organic compounds, often referred to as VOC's; studies have found that oil and gas production accounts for approximately 98% of VOC emissions in the Uintah Basin. Thus, if the railway were to lead to a "boom" in production, the Reservation may see increased levels of ozone. Breathing elevated levels of ozone (over 70 parts per billion) can lead to lung damage and health problems including chest pain, coughing, throat irritation, and airway inflammation. People most at risk from breathing ozone include people with asthma, children, elders, and people who are active outdoors, especially outdoor workers.

Oil and gas production accounts for approximately 98% of VOC emissions in the Uintah Basin

While construction of the railway will lead to an overall decrease in vehicle emissions by eliminating the need for trucks to make long-hauls to Price, the Tribal communities of Myton, Randlett and Fort Duchesne may experience an increase in vehicle exhaust from trucks delivering oil to nearby terminus points. Because Tribal communities are the closest in proximity to these terminus points they may experience concentrated emissions and will bear a disproportionate burden of these impacts when compared to non-tribal members.

As mentioned, this concern is two-sided because increased development will have positive socio-economic benefits for the Tribe and stringent regulation of the air quality from the Environmental Protection Agency (EPA) may deter Increased development. Because construction of the railway is dependent upon operators committing to increase production, the feasibility of railway construction is dependent upon air quality and federal regulation. On December 16, 2019 the EPA released a draft Federal Implementation Plan (FIP) to regulate oil and gas emissions.

Recommendations

- It is recommended that the Tribe review the recently released EPA air quality plan (FIP) to access whether the plan will meet their needs to protect the health and well-being of Tribal members and allow for economic growth.

Regulatory Authority

Oversight of oil and gas development on the reservation includes a complex nexus of federal entities such as the Bureau of Indian Affairs and the Bureau of Land Management and Tribal departments including Energy and Minerals and Natural Resources. Construction of the railway will necessitate a new form of right-of-way to the Reservation along with a new regulatory agency, the Surface Transportation Board. The task force feels it is critical that the Tribe determine at an early stage who would have regulatory authority over the railroad. It is critical that the Tribe know who would respond to potential undesirable events such as oil spills and wildlife collisions associated with the railroad (see Appendix 2 – Fish and Wildlife report for specific questions regarding these issues).

Recommendations

- It is recommended that the Tribe enter into a Memorandum of Understanding with applicable federal agencies detailing who has regulatory authority over the railroad on the Reservation.
- The railway employees should follow all applicable Tribal laws and ordinances, including but not limited to the Tribe's policy regarding firearms.

Undesirable Events

While the task force acknowledges that railways have a strong safety record with more than 99.9% of all rail shipments reaching their destination without an incident, there are concerns about the potential for car derailment resulting in the release of hazardous materials which could potentially reach waterways. The task force is also concerned about the potential for the train to spark a fire. The company has explained that the use of drone, smart sensors, and ultrasound are used in preventative maintenance to catch any potential problems. Additionally, any potential fires could be extinguished with water volumes carried by the train.

Recommendations

- The company in charge of operations should provide the Tribe with a copy of their spill prevention, control, and response plan detailing specific measures taken to prevent spills and to contain any potential releases.
- The trains should use the best tank technology available.

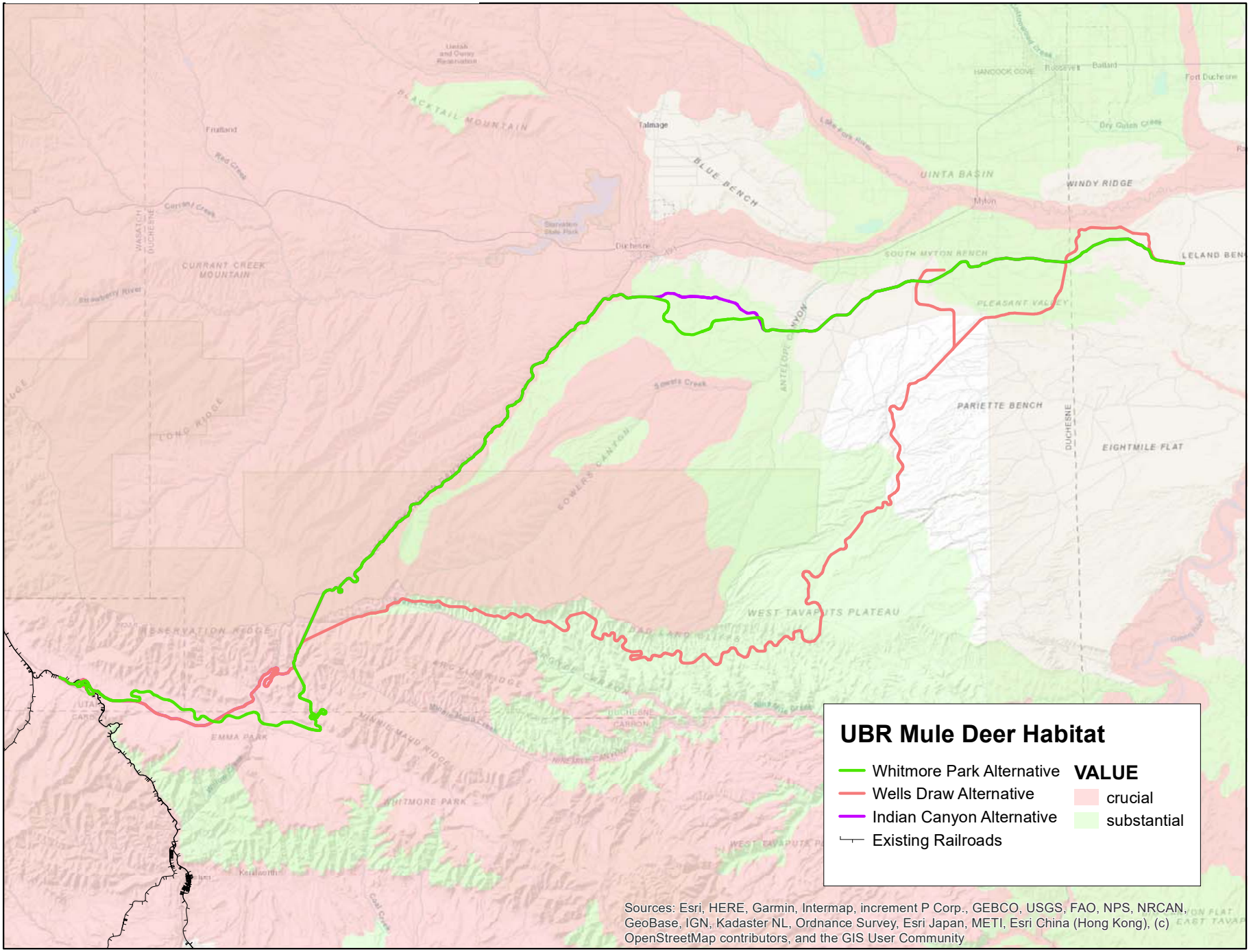
Wildlife

The railway will cross through crucial mule deer, elk, pronghorn antelope and moose habitat (see map) increasing the risk of animal fatality and fragmenting habitat. Decreases in wildlife and big game may have detrimental impacts on the hunting lifestyle practiced by many Tribal members. The railway also has the potential to impact migration routes from Gilsonite Strip to Indian Canyon. While the installation of fencing around the railway would help prevent potential collisions with wildlife, the task force feels that this measure would prevent natural wildlife migration patterns and does not recommend the use of fencing. Wildlife crossings are a practice in habitat conservation, allowing connections or reconnections between habitats, combating habitat fragmentation. They also assist in avoiding collisions between vehicles and animals, which in addition to killing or injuring wildlife may cause injury to humans and property damage.

Questions:

- What are the precautions will the operator take to prevent collisions with wildlife as well as domestic animals?
- In the event that animal collisions do occur, which entity is responsible for the removal of said animal? And will the tribe or tribal members be compensated for animals killed (per Tribal Trespass Ordinance)?
- Will Tribal hunters be permitted to cross the tracks outside of designated crossing areas?

Map 4: Mule Deer Habitat



Recommendations

- It is recommended that wildlife crossings be installed at migration routes and as necessary along route.
- Fencing to prevent wildlife crossings should not be used.

Fish and Water Quality

There are concerns the construction and operation of the railway will lead to increased sedimentation to the Duchesne River, Green River, White River, and Fivemile Creek. Increased sediment loads will have negative impacts on the water quality of these rivers which is in turn detrimental to fish populations such as trout, salmon, catfish, bass, and bluegill. Elevated levels of sediment have been shown to negatively impact fish populations in a variety of ways, including:

- clogging fish gills (reducing oxygen exchange),
- decreasing ability to find food (specifically for sight-driven foragers),
- decreasing food availability (excess sedimentation can destroy aquatic vegetation and insect populations) and reducing fish egg survival rates.
- As there are sensitive and endangered fish located directly downstream in the Duchesne River, this additional impact could be detrimental to fish populations.

Questions

- What steps will be taken to prevent erosion within Indian Canyon during the various phases of the project, i.e. construction and operation?

Recommendations

- The Environmental Impact Statement should include a comprehensive analysis of the potential impacts from project-related erosion to the nearby waterways, including an analysis of erosion caused by vibration from the trains.

Cultural Rights and Protection

The Cultural Rights and Protection (CR&P) office reviewed segments of the proposed Indian Canyon and Whitmore Park routes in 2015 when Utah Department of Transportation proposed a similar project in the same area. Because the route through Indian Canyon stays primarily within disturbed areas, there are no significant concerns regarding potential impacts to cultural resources. The Cultural Rights and Protection office will continue to work with federal agencies throughout the National Historic Preservation Act, Native American Graves and Protection and Repatriation Act and the National Environmental Protection Act processes.

Recommendations:

- The CR&P office recommends that approximately 5 acres of the route located northeast of Indian Canyon be monitored during excavation to ensure no cultural resources are destroyed.

Sclerocactus

The Coalition's preferred route will cross through *Sclerocactus* habitat on Tribal lands and construction should occur in compliance with the Tribe's *Sclerocactus* Management Plan, approved in 2015. Construction of the railway may have adverse impacts to cactus populations from increased vibration and soil erosion within cactus habitat and habitat fragmentation.

Recommendations

- The planning and construction of the railway should be in accordance with the Tribe's *Sclerocactus* Management Plan, including a commitment to complete soil assessments, comply with mitigation measures, and contribute to conservation mitigation fund, when appropriate.

Financial Benefit

Construction of the railway would alleviate existing transportation bottlenecks and allow for increased Tribal revenue through increased oil and gas production. It is estimated that the railway will need to transport approximately 130,000 barrels per day to be profitable. This represents an increase in 100,000 barrels per day from the current maximum amount of oil being transported through Indian Canyon by truck (100 trucks per day each hauling 300 BBLs).

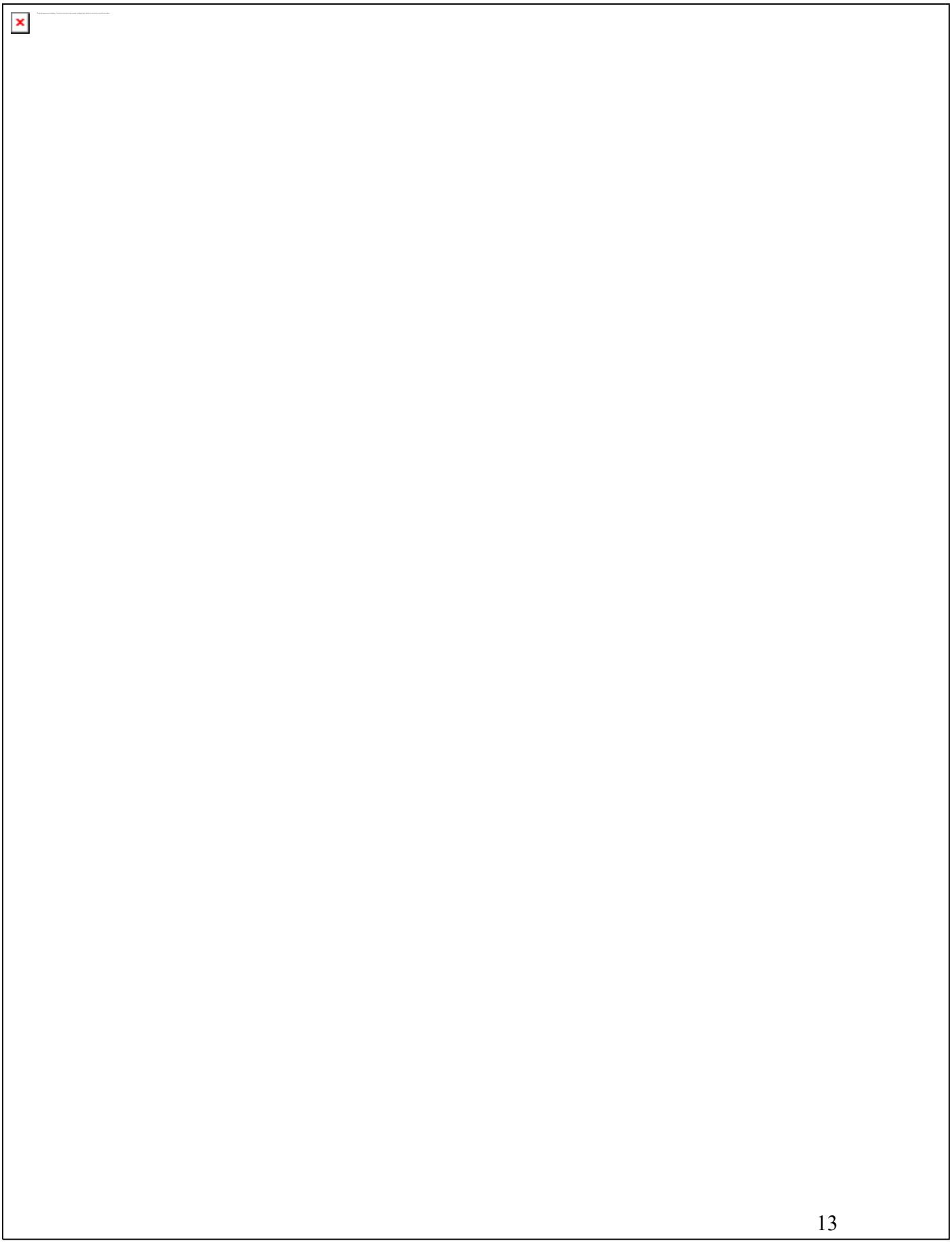
It is estimated that the railway will need to transport **130,000 barrels per day** to be profitable.

New Maritime regulations have led to a growing demand for low sulfur oil. Oil in the Basin is considered " low sulfur." Additionally, the processing of the Tribe's oil yields increased returns— for every barrel of oil put in there would be a return of 1.2 barrels of output. This would help in the overall economics of processing and help in times where oil prices are low.

The railway also presents some opportunities for the Tribe to provide the power to the new terminals and refineries. The train needs 50 megawatts of power at the Leland Bench Terminal and the refinery at Leland Bench needs approximately 500 dekatherms.

Drexel Hamilton remains very positive in making the project move along and eventually make the decisions to fund the railroad or have other funders join in to move the project to the finish line. Drexel has had some recent meetings with large refineries near the coast in trying to get the refinery put up initial capital. Drexel Hamilton is also trying to get some agreements in place to bring in sand on the rail to help offset producer costs. The ability for the Tribe to put in place some Water agreements should also help the overall process and economics of drilling in the Basin. The water agreements will act as an additional revenue stream to the Tribe. Overall, the Uinta Basin is a stranded asset and can only grow so much without answers for new marketing solutions. Revenues can only grow so much without constructing a new rail system.

Appendix 1: Natural Resources Division July 25, 2019 Report



Ute Tribe Rail Task Force

Division of Natural Resources

Preamble to the Ute Floodplain Development Ordinance

“The Ute Indian Tribe has a rich tradition, culture and history.The Nooch (Ute) were brought to this land by the Creator who had created other people of the world. Oral history tells of a story that because the Utes were the only one to endure the trek of the creator, we were chosen to be the care-takers of Ute homelands, which began on the western plains of Kansas to the Great Basin of Utah- from southern Wyoming to northern New Mexico. This was the vast territory of the Ute Nations.

The Northern Ute Tribe is comprised of three bands of the Ute Nation. The Uintah band once occupied the Wasatch front from southern Idaho to central Utah. The Uncompahgre band roamed from central Colorado to northern New Mexico. The Whiteriver band was found from the silver mountain of Colorado north into southern Wyoming and onto the plains of Nebraska and Kansas.

The Utes believe that water is sacred; it is the source of all living things. We pray with water and perform many religious practices with it. It is to be protected so that it will continue to provide the many blessings to the Ute people.

Utes are taught all living things have a spirit and a purpose. Everything is interconnected. We are taught to respect the world around us "we are a part of this earth and it is a part of us."

It is with this mind-set and purpose we choose to develop our resources responsibly, ensuring the integrity of all living things. We seek to achieve a balance of nature with the needs of the Northern Ute people. We recognize the dynamics of the environment around us and the ever-changing statues of nature's evolving. We seek to respect this change and wish to ensure the survival of the Northern Ute Tribe.

We reserve the right to decide and choose for ourselves how to administer policies and regulations in keeping with Ute values, traditions, culture and beliefs."

Natural Resource Office

The Seven County Infrastructure Coalition "Coalition" is a public-private entity comprised of Carbon, Daggett, Duchesne, Emery, San Juan, Sevier, and Uintah. The Coalition is developing a railroad project, for profit, to haul crude from the Uintah Basin.

Of the three proposed routes, the Coalition has selected the Indian Canyon rail line as the preferred route to which this Office concurs. This concurrence by the Natural Resource Office is supported by the reduction and/or avoidance of impacts to cultural sites and landscapes.

Through meetings of the Tribal Task Force the following facts were obtained:

- *Approximately 50 miles of the 80-mile long preferred rail line is located within the Uintah & Ouray Indian Reservation Exterior Boundaries.*
- There are three (3) segments that cross directly over tribal surface (see attached UBRY Conceptual Maps)
  a) Segment 1 is approximately 5.0 miles;
  b) Segment 2 is approximately .5 miles;
  c) Segment 3 is approximately 1.5 miles

  For a grand total of 7.0 miles.
- In segment 1, approximately two (2) miles will be cut from the entrance of the canyon.
- The Uintah Basin Train may have upto three (3) runs per day.
  a) There is approximately 115 cars per train
  b) One train car is equal to approximately 2-2 ½ supertankers (300 BBLs crude) 3 train runs/day x 115 train cars/train runs= 345 train cars/day

  1 train car= 2-2 ½ supertanker

  345 train cars/day x 2-2 ½ supertankers= 690 to 862.5 supertankers/day
- Train needs 50 megawatts (MW) of power at the Leland Bench Terminal
- Refinery (at Leland Bench) needs approximately 500 dekatherms (dTH)
- Corridor constraints
  a) Construction corridor= 100' feet in width
  b) Maintenance corridor= 50' feet in width
- Cactus Habitat is located within Segments 2 & 3 (see attached DRAFT Geographic Areas USFWS 05/23/25018) Map)
- Water Quality in the Duchesne River and contributories in Indian Canyon

Impacts to the Ute Indian Tribe

The Natural Resource Division is only addressing the impacts within our authority and any such other impacts should be addressed by those departments identified within the Tribal Rail Task Force.

The Natural Resource Division recommends that all negotiations with the Coalition be made on continuous basis throughout the life of the rail road and not a one-time proposition.

1) Impacts to Tribal Communities:
   a) There will be increased truck traffic of approximately 690-862.5 trucks per day through the Randlett and Fort Duchesne communities resulting in increases of noise, diesel fumes, dust, and encounters between truck and autos.
   b) Will AR-88 through Randlett and Fort Duchesne be improved? Who will maintain this roadway?
   c) Will there be mitigation surrounding the increase in noise, dust, and diesel fumes made with the Tribe?
2) Damages to Hookless Cactus Habitat:
   a) Increase dust, vibration, noise, interference with natural growth propagations by subdividing the habitat into two zones (dividing into separate areas) .
   b) Currently the Hookless Cactus is proliferating. Damages to soil and habitat need to be accessed and negotiated on a continual basis (per Hookless Cactus Policy). These damage assessments should be based on the width of the construction corridor of 100' feet. In accordance with the Hookless Cactus Ordinance a monitoring program be enforced with the Coalition or Rail helping to pay for a Tribal Biologist in additional or monitoring other endangered flora and fauna throughout the route.
3) Indian Canyon Cut and Fill:
   a) Will the Tribe be compensated for the damages of resources, removed, destroyed or extracted at 3 times the value (per Tribal Trespass Ordinance)?
4) Livestock, horses and wildlife mortality:
   a) Will the tribe or tribal members be compensated for animals killed (per Tribal Trespass Ordinance)?
   b) No fencing along the rail line to allow movement of ani mals .
5) Economic Development
   a) What benefit, either financial or developmental, will the Tribe derive from this project?
   b) Where is this power for the Leland Bench and Refinery coming from?
   c) Will there be additional power lines, or, is there additional infrastructure needed and will the Tribe participate? If power lines are going to be const ructed , how many miles of lines?
6) Employment
   a) will UTERO manage or negotiate with the Coalition on this project?
   b) What contactors are lined up for this project? Are they local or from out of town?
   c) Do they plan on hiring Tribal Members (for the long and short term positions)?
   d) How many Long- and Short-term positions are there?

7) Duchesne River impacts:

   a) Increase sedimentation into Duchesne River already impacted from the Dollar Ridge fire (TM DLs).

   b) Impairment of the water quality downstream into the Whiteriver due to fugitive dust in Indian canyon, cut and fill, and continued operation.

   c) Will there be negative impacts on threatened and endangered species that may not be able to be recovered from impaired and/or TMDL loaded waters of the Duchesne River.

8) Fauna and Flora

   a) How much vegetation will be removed? Which plants will be negatively impacted? Is there a plan to replant vegetation to decrease sedimentation flow into water bodies?

9) Corridor Agreements

   a) For continued maintenance of the rail line what type of device will be used, and how often?

   b) Access to the rail line will need to address the Trespass Ordinance, and Ute TERO.

   c) Is there opportunity to train a work force for this?

10) Undesirable Events

   a) Depending on the severity of the undesirable event, what is in place to avoid fires, chemical spills, contamination of waterways, etc. and will the Coalition provide funding to the Tribe to develop resources in emergency planning?

   b) Provide funding or resources to emergency preparedness?

Cultural Rights and Protection

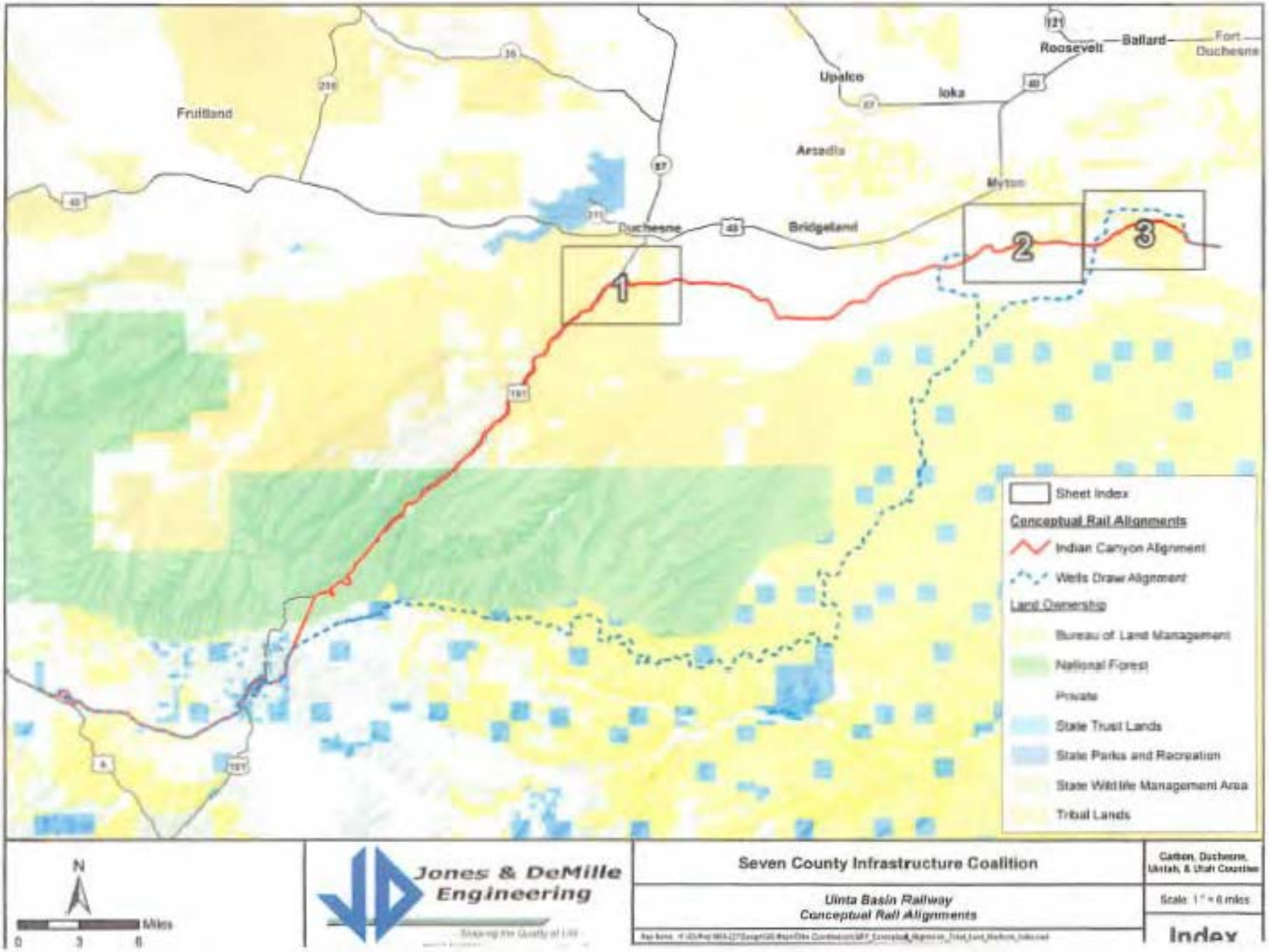
The 7 County Rail project preferred route has been identified as the Indian Canyon route. This route has segments of a previously reviewed route by the CR&P office in 2015 when Utah Department of Transportation proposing a similar project in the same area .

In 2015 the route included areas further to the west . The alignment was through areas that had sensitive cultural resources located within them. The current proposed route is being held to previously disturbed areas and in place skims tribal lands.

That being said an area about of approximately 5 areas on the route that enters Indian Canyon from Tribal lands will be heavily excavated to ensure proper grade for the trai n.

- ***CR&P recommend monitoring when this area is being excavated. At this time no cultural resources have been located in this area. We feel it would be prudent to monitor to ensure not cultural resources are destroyed.***

Although the CR&P office has participated in the task force for the Ute Indian Tribe our (department) responsibility will continues on this project until a decision has been made per the National Historic Preservation Act, Section 106; Native American Graves Protection and Repatriation Act and the National Environment Protection Act, which are in play for this federal undertaking.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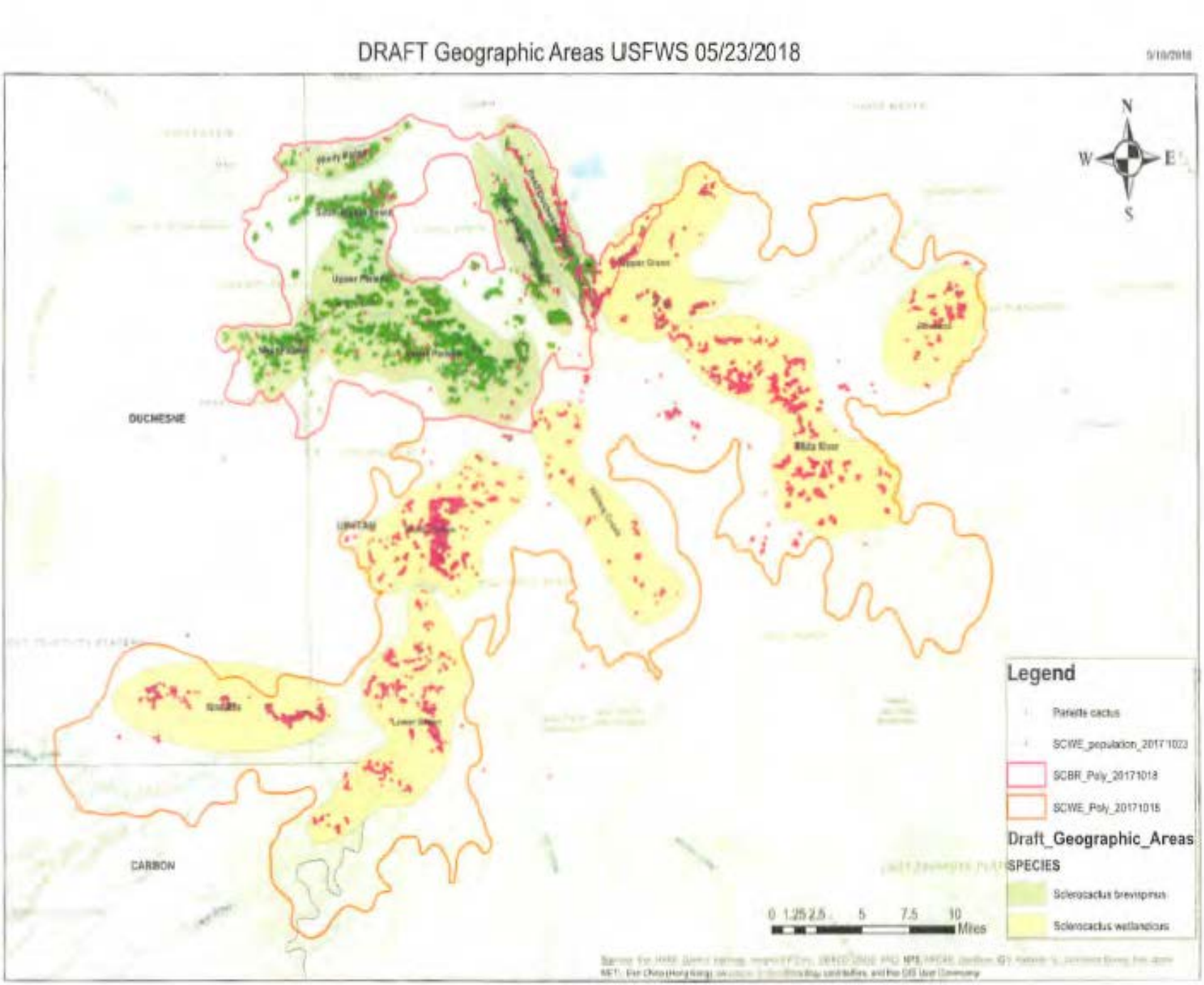
DRAFT Geographic Areas USFWS 05/23/2018



Appendix 2: Fish and Wildlife Department Railway Summary Report

UTE TRIBE FISH AND WILDLIFE DEPARTMENT
P.O. BOX 190, FORT DUCHESNE, UTAH 84026
OFFICE (435) 722-5511 FAX (435) 722-2677

Railway Summary Report

December 17,2019

We at the Ute Tribe Fish & Wildlife Department feel the proposed Uintah Rail Road is an economic positive for the Ute People. We are the protectors of the land, water and wildlife i.e. Mother Earth. This we don't take lightly; we must take the proper precaution that whatever catastrophe no matter how big or how small is dealt with accordingly. There will be a wreck or spill, regardless of who's at fault, it must be dealt with as swiftly as possible. Therefore, we have the following concerns:

- In addition to catastrophe's we also need to consider the impacts of the railroad itself, impacts on the natural resources, wildlife movement and habitat.

- Who is responsible for a wreck/ spill and its clean-up? This would include any water ways on tribal land as well as Utah and Colorado. Who has final say and the type of clean-up made. We feel documentation of any waterway should be made so that any damage that is made. An effort to put it back the way it was originally, can be made.

- What are the precautions from colliding with wildlife as well as domestic animals? Who is responsible for the removal of said animal? Will fences be used?

- Will there be any trespass or hunting issues? Is firearms not allowed on the train?

- What plans are there for wild and domestic animals to cross the tracks in migratory routes or a daily crossing for water. What precautions are being made for this issue.

- We in law enforcement have a concern that a railway could be used as was to transport illegal drugs. We feel this should be addressed preemptively with a K-9 officer through the Fish & Wildlife Department.

Ute Fisheries

The fisheries department's main cause for concern from the railway project is additional sediment transport throughout Fivemile Creek. As timber is removed and railroad tracks are built, it is likely that erosion will increase throughout Indian Canyon, which in turn will increase sediment run-off and sediment transportation throughout Fivemile Creek. Not only will this directly affect water quality for farmers that rely on this water to irrigate their crops and water their stock, but it can be detrimental to fish populations. Elevated levels of sediment have been shown to negatively impact fish populations in a variety of ways, including:

- clogging fish gills (reducing oxygen exchange),
- decreasing ability to find food (specifically for sight-driven foragers),
- decreasing food availability (excess sedimentation can destroy aquatic vegetation and insect populations), and reducing fish egg survival rates.
- As there are sensitive and endangered fish located directly downstream in the Duchesne River, this additional impact could be detrimental to fish populations.

Therefore, we are concerned about what steps will be taken to prevent erosion within Indian Canyon, and how it will be managed not only immediately (throughout construction), but also on a long-term basis.

Therefore, we would push for a study on the impact the railroad would take on the erosion into the water from the banks of the water caused by vibration from the train. Not only from tribal land but the State of Utah and Colorado as well.

Aundreau Gray

Ute Fish & Wildlife, Acting Director

Contributors:

Sgt Lon Hackford, Ute Fish & Wildlife Law Enforcement

Brook Webb, Fish & Wildlife Fisheries Biologist

Jamie Arrive, Fish & Wildlife Big Game

Appendix 3: Energy and Minerals Department Ute Tribe Railroad Executive Summary

Ute Tribe Railroad Executive Summary –

December 16, 2019

This report is to illustrate the current status and timeline of the Uinta Basin Rail project.

By the numbers: *Current rig count in the U.S. is at 840, which is down YOY by 330 rigs;

* Rig count in the Basin = 4

- Total number of oil wells: 4,793 (1,896 Native American);
  *Total number of Gas wells = 6,517 (158 Native American;
- Salt Lake refinery capacity = 85,000 BBL's per day;
- Rail cars hold approx... 600 barrels – The average semi-truck hauls 300 barrels;

It has been estimated by Savage Trucking that the maximum amount of oil that could be transported through Indian Canyon would be set at around 100 trucks per day, each truck hauling approx. 300 BBL's. which equals 30,000 barrels per day. This would not be enough to meet estimated projected demand to get to 130,000 barrels a day, which is the amount estimated to make the rail profitable. These facts show that production and drilling can only increase so much without constructing a new rail system.

- Finley is trying to avert the problem of too many trucks on the road by using large storage tanks.

Cube Development: Cube development and horizontal drilling is the future of oil drilling in the Basin. – Although this subject has been covered at length by the Basin's producers, as of this date, no actual cube development has been attempted but at least two operators have plans to drill using cube development starting in the spring of 2020. Because of this, actual economics remain unknown. Return on investment from cube development will be watched closely and will determine how the Uinta Basin will be able to grow production and revenues.

- Cube development will also help in cutting down pollution by using less roads and combining equipment.

Refinery issues: Currently, both producers and capital funders are looking at ways to ship oil to the coast. Last month the U.S. became a net exporter. This means that the U.S. exported more than it imported for the first time in 50 years, and export demand is expected to grow even more in the future. The Tribe's low sulfur oil is in demand and refineries are interested in potential agreements. Some of these potential agreements remain confidential. Most of these refineries can accept the Tribe's oil without any blending. Also, it is possible the Salt Lake City refineries may process less Canadian oil in the future because this type of dirty oil sands oil is on the decline because of more stringent clean energy standards and regulations.

- As of the current time. no long term contracts have been signed from producer/refinery.

Air Quality: Cold snowy weather and drilling for oil are the main subjects that are always talked about in air quality meetings and different groups have different ideas of how to cut emissions. It has been suggested that the Tribe get with other entities in the basin and try to get the EPA to agree to designate the cold snowy weather as an "exceptional event" because in the Basin the air quality readings go above 70 for only around two weeks during the year, making this an exceptional event would greatly help the Tribe in future drilling. VOC's coming from ponds is also a concern. The EPA is suggesting a credit program where offsets would be used to improve the overall air quality.

Air Quality (continued) Air quality is a main concern for the building of a new rail system. Any restrictive programs could slow drilling or even stop drilling in the Basin until improvements in air quality reach a certain standard. If the rail project were to come to fruition, the rail itself would help in reducing emissions. It has been estimated that each rail car would take about 7 trucks off the road. Because the air designation will be going up in the next few years, producers would be forced to spend more capital to be in compliance. This might make the oil producer cut back in their over-all budgets reducing needed production needed for the rail.

- Need to find out if 2 week Winter readings can be called an " exceptional event"

The Tribe's decision on taking on a 5% revenue sharing plan vs. doing an equity plan of approx. 20% there are many risk factors to consider for the Tribe in which plan to choose. The oil and gas industry in changing rapidly as well as other factors such as technology, and global warming. Already, car manufactures (Chevy, Ford and many others) have been laying off by the thousands in order to produce battery cars and start getting away from gas vehicles. The price of vehicle batteries for electric cars is going down rapidly. There will be many unknown factors in the future that will effect energy policy. Hopefully, the low sulfur oil from the basin will become part of the clean energy mix.

Gathering more data from outside research firms: It is important to note that if the Tribe decides to use outside research firms do decide if they want to do a capital position that any current figures would have to account for a rapidly changing environment. The rail project is a very long term project and what is true today might not be true a few years in the future. Unknown future events play a big role in the project and there are no guarantees.

Drexel Hamilton : Remains very positive in making the project move along and eventually make the decision to fund the railroad or have other funders join in to move the project to the finish line. Drexel has had some recent meetings with large refineries near the coast in trying to get the refinery put up initial capital. Because of the way the Tribe's oil would be processed, for every one barrel of oil put in, there would be a return of 1.2 barrels of output. This would help in the overall economics of processing and help in times where oil prices are low. Drexel Hamilton is also trying to get some agreements in place to bring in sand on the rail to help offset producer costs. The ability for the Tribe to put in place some water agreements should also help the overall process and economics of drilling in the Basin. The water agreements will act as an additional revenue stream to the Tribe.

Rail Timeline: Drexel Hamilton considers the Tribe's opinion to be very important and would like a decision from the Tribe by the end of February 2019 on how the Tribe feels overall about the project.

- Spring 2020 = Draft environmental document for review, public meetings and comments ---- Draft EIS ———— Winter 2020 = Final EIS, public comments ——— 2021 = Design rail stage ———————— 2022-2023 = Construction

Appendix 4: Natural Resources December 5, 2019 Summary of Environmental Impacts

Date: December 5, 2019
To: Felicia Gates, Natural Resources Director
From: Iktomi Was'te Winyan Favel, Environmental Outreach Worker/GAP
Subject: Uintah Basin Railway – Indian Canyon Route Environmental Impacts
The proposed Uintah Basin Railway – Indian Canyon Route is approximately 80 miles long and would connect an existing railway line owned by Union Pacific Railway Company near Kyune, Utah to terminus point in the Uintah Basin on Leland Bench, Utah, approximately 9.5 miles south of Fort Duchesne, approximately 6 miles south of residential homes, and approximately 8 miles southwest of the Randlett Community.
I would lien to address the following environmental impacts that may affect the sustainability and viability to the Ute Indian Tribe's spiritual, cultural, social, and economic relationship with their traditional lands.

- There is great concern that *Sclerocactus* (Wetlandicus and Brevispinus) individuals and/or habitat for will be significantly adversely impacted, thus possibly involving the guidance outlined in the Tribe's Sclerocactus *Management Plan for the Uintah and Ouray Indian Reservation,* (approved by the Tribal Business Committee on August 25, 2015). Moreover, The Sclerocactus do not grow anywhere else in the entire world. They choose to grow in the original homelands of the Nooche(Ute People). Culturally, everything and everyone is interconnected and depends upon one another. Sclerocactus are not only sacred; this rare species is irreplaceable when it comes to the functionality of ecosystems. When removed or threatened, ecological processes may be altered with cascading consequences for other plants and animals, as well as ecosystem services. Throughout our ancestor's history, biological diversity has not been conserved without traditional ecological knowledge (TEK) and the current knowledge holders must directly engage as active participants in these efforts to continue to help keeping a healthy functioning ecosystem on Mother Earth. Long term security of biodiversity depends on maintaining this intricate relationship. Our ancestors knew this link between culture (our way of life) and the environment was important to preserving healthy traditional lands for use by our future generations.

- In recent years, concentrations of wintertime ozone in the Uinta Basin have exceeded the National Ambient Air Quality Standards (NAAQS), raising concerns about the health and environmental impacts of elevated ozone levels in the Basin. Increased oil and gas exploration and production in the Uinta Basin has contributed to the increase in the precursor gases that lead to the formation of ozone. In addition, the Environmental Protection Agency (EPA) has tightened ozone standards and has implemented a Federal Implementation Plan (FIP) that demonstrates emission reductions to bring our area into compliance with the NAAQS. I am most concerned that all of the long hauls that currently go from their prospecting well locations in the Uintah Basin to Salt Lake City will now be all short hauls that will only release greenhouse gas emissions in the Uintah Basin, potentially contributing to already rising ozone. **Breathing in ozone can be harmful to our health**. People most at risk from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers. In addition, people with certain genetic characteristics, and people with reduced intake of certain nutrients, such as vitamins C and E, are at greater risk from ozone exposure. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and airway inflammation. It also can reduce lung function and harm lung tissue. Ozone can worsen bronchitis, emphysema, and asthma can lead to leading to increased medical care. According to a Duke University study, air pollution has been linked to a higher risk of declined brain health and can lead to diseases like dementia and Alzheimer's.
- According to the Utah Department of transportation, well over half of the oil and gas vehicles come from the Uintah Basin. With this traffic needing to travel through the Uintah and Ouray Indian Reservation to the proposed Leland Bench Railway Port, our roadways are sure to take a toll. The already damaged existing infrastructure has the potential to cause tire and vehicle damage that could become very costly to Tribal Members and to the Tribal Businesses. The Tribe will need well maintained roads, as they are also crucial to the people's health. Without road access, medical supplies, food

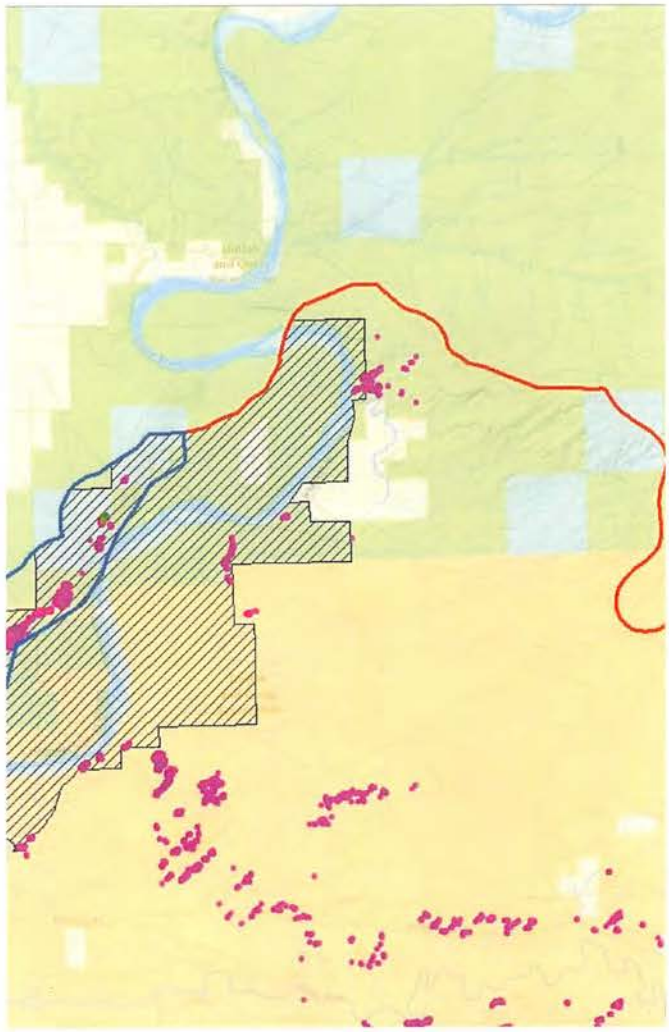
and water, community-education programs and supplies, and equipment to repair vital systems like water and sanitation, could not be delivered and could risk the Ute People's health.

- **There are many potential disturbances by railways due to air, soil, and water pollution, noise and vibration, and soil erosion.** There is evidence that soil and hydrology contamination may affect vegetation and aquatic fauna while noise can affect terrestrial vertebrates. In fact, noise, light, and vibration due to railways have been observed to reduce the thriving richness of some insects, amphibians, birds, and mammals and to cause avoidance behavior in predators. These are all essential factors in a biological diverse ecosystem. The Wildlife Management area that is crucial for Elk and other ungulates to thrive has the potential to be adversely impacted as well, that can lead to decreasing hunting opportunities. The Ute People have strong hunting traditions that are still practiced today and if the elk, deer, and other wild game are threatened, so is the Ute way of life. With increasing oil and gas trucks in the area, there is a higher risk of leaks or spills that have the can harm wildlife and pose a risk to human health if it reaches fresh water sources or contaminates the soil or the air. There can be irreversible harm to humans, animals, and lands exposed to oil and gas from spills and leaks. Emergency Response and Remediation Planning as innovative monitoring practices should be priority to reduce the likelihood of a undesirable event. How many freshwater sources are in proximity to the proposed railway?
- Environmental Justice - As indicated by Executive Order 12898, federal agencies are required, to the extent practicable and permitted by law, that environmental effects associated with federal actions, including environmental health risks, shall not disproportionately affect minority and low-income populations in the United States. The Uintah and Ouray Reservation is an area of higher minority population and higher levels of poverty, particularly among members of the Ute tribe, than are observed in nearby areas. The Reservation is, therefore, subject to the provisions of Executive Order 12898. Bringing the questions to the forefront of, who is

bearing the brunt of these impacts for this project to come to fruition? How will this impact our future generation's health and way of life?

- Other questions: How permanent is this project? What is the timeline of the Right Of Way? What other purposes could the railway be used for? Is the railway going through hunting territory? Will it be legal for hunters to cross the tracks? Will Tribal Members be allowed to cross the train tracks outside "designated crossing" areas?

UBRY Ute Tribe Rail Task Force 2019



JULY 25, 2019

Natural Resource Division

Sonja E. Willie, NR Acting Director

Betsy Chapoose, CRP Director,

Ute Tribe Rail Task Force

Division of Natural Resources

Preamble to the Ute Floodplain Development Ordinance

"The Ute Indian Tribe has a rich tradition, culture and history. The Nooch (Ute) were brought to this land by the Creator who had created other people of the world. Oral history tells of a story that because the Utes were the only one to endure the trek of the creator, we were chosen to be the care-takers of Ute homelands, which began on the western plains of Kansas to the Great Basin of Utah- from southern Wyoming to northern New Mexico. This was the vast territory of the Ute Nations.

The Northern Ute Tribe is comprised of three bands of the Ute Nation. The Uintah band once occupied the Wasatch front from southern Idaho to central Utah. The Uncompahgre band roamed from central Colorado to northern New Mexico. The Whiteriver band was found from the silver mountain of Colorado north into southern Wyoming and onto the plains of Nebraska and Kansas.

The Utes believe that water is sacred; it is the source of all living things. We pray with water and perform many religious practices with it. It is to be protected so that it will continue to provide the many blessings to the Ute people.

Utes are taught all living things have a spirit and a purpose. Everything is interconnected. We are taught to respect the world around us "we are a part of this earth and it is a part of us."

It is with this mind-set and purpose we choose to develop our resources responsibly, ensuring the integrity of all living things. We seek to achieve a balance of nature with the needs of the Northern Ute people. We recognize the dynamics of the environment around us and the ever-changing statues of nature's evolving. We seek to respect this change and wish to ensure the survival of the Northern Ute Tribe.

We reserve the right to decide and choose for ourselves how to administer policies and regulations in keeping with Ute values, traditions, culture and beliefs."

Natural Resource Office

The Seven County Infrastructure Coalition "Coalition" is a public-private entity comprised of Carbon, Daggett, Duchesne, Emery, San Juan, Sevier, and Uintah. The Coalition is developing a railroad project, for profit, to haul crude from the Uintah Basin.

Of the three proposed routes, the Coalition has selected the Indian Canyon rail line as the preferred route to which this Office concurs. This concurrence by the Natural Resource Office is supported by the reduction and/or avoidance of impacts to cultural sites and landscapes.

Through meetings of the Tribal Task Force the following facts were obtained:

- Approximately 50 miles of the 80-mile long preferred rail line is located within the Uintah & Ouray Indian Reservation Exterior Boundaries.
- There are three (3) segments that cross directly over tribal surface (see attached UBRY Conceptual Maps)
  a) Segment 1 is approximately 5.0 miles;
  b) Segment 2 is approximately .5 miles;
  c) Segment 3 is approximately 1.5 miles

  For a grand total of 7.0 miles.
- In segment 1, approximately two (2) miles will be cut from the entrance of the canyon.
- The Uintah Basin Train may have up to three (3) runs per day.
  a) There is approximately 115 cars per train
  b) One train car is equal to approximately 2–2 ½ supertankers (300 BBLs crude)

  3 train runs/day x 115 train cars/train runs = 345 train cars/day

  1 train car = 2-2 ½ supertanker

  345 train cars/day x 2-2 ½ supertankers = 690 to 862.5 supertankers/day
- Train needs 50 megawatts (MW) of power at the Leland Bench Terminal
- Refinery (at Leland Bench) needs approximately 500 dekatherms (dTH)
- Corridor constraints
  a) Construction corridor = 100' feet in width
  b) Maintenance corridor = 50' feet in width
- Cactus Habitat is located within Segments 2 & 3 (see attached DRAFT Geographic Areas USFWS 05/23/25018) Map)
- Water Quality in the Duchesne River and contributories in Indian Canyon

Impacts to the Ute Indian Tribe

The Natural Resource Division is only addressing the impacts within our authority and any such other impacts should be addressed by those departments identified within the Tribal Rail Task Force.

The Natural Resource Division recommends that all negotiations with the Coalition be made on continuous basis throughout the life of the rail road and not a one-time proposition.

1) Impacts to Tribal Communities:
   a) There will be increased truck traffic of approximately 690-862.5 trucks per day through the Randlett and Fort Duchesne communities resulting in increases of noise, diesel fumes, dust, and encounters between truck and autos.
   b) Will AR-88 through Randlett and Fort Duchesne be improved? Who will maintain this roadway?
   c) Will there be mitigation surrounding the increase in noise, dust, and diesel fumes made with the Tribe?
2) Damages to Hookless Cactus Habitat:
   a) Increase dust, vibration, noise, interference with natural growth propagations by subdividing the habitat into two zones (dividing into separate areas).
   b) Currently the Hookless Cactus is proliferating. Damages to soil and habitat need to be accessed and negotiated on a continual basis (per Hookless Cactus Policy). These damage assessments should be based on the width of the construction corridor of 100' feet. In accordance with the Hookless Cactus Ordinance a monitoring program be enforced with the Coalition or Rail helping to pay for a Tribal Biologist in additional or monitoring other endangered flora and fauna throughout the route.
3) Indian Canyon Cut and Fill:
   a) Will the Tribe be compensated for the damages of resources, removed, destroyed or extracted at 3 times the value (per Tribal Trespass Ordinance)?
4) Livestock, horses and wildlife mortality:
   a) Will the tribe or tribal members be compensated for animals killed (per Tribal Trespass Ordinance)?
   b) No fencing along the rail line to allow movement of animals.
5) Economic Development
   a) What benefit, either financial or developmental, will the Tribe derive from this project?
   b) Where is this power for the Leland Bench and Refinery coming from?
   c) Will there be additional power lines, or, is there additional infrastructure needed and will the Tribe participate? If power lines are going to be constructed, how many miles of lines?
6) Employment
   a) will UTERO manage or negotiate with the Coalition on this project?
   b) What contactors are lined up for this project? Are they local or from out of town?
   c) Do they plan on hiring Tribal Members (for the long and short term positions)?
   d) How many Long- and Short-term positions are there?

7) Duchesne River impacts:
   a) Increase sedimentation into Duchesne River already impacted from the Dollar Ridge fire (TMDLs).
   b) Impairment of the water quality downstream into the Whiteriver due to fugitive dust in Indian canyon, cut and fill, and continued operation.
   c) Will there be negative impacts on threatened and endangered species that may not be able to be recovered from impaired and/or TMDL loaded waters of the Duchesne River.
8) Fauna and Flora
   a) How much vegetation will be removed? Which plants will be negatively impacted? Is there a plan to replant vegetation to decrease sedimentation flow into water bodies?
9) Corridor Agreements
   a) For continued maintenance of the rail line what type of device will be used, and how often?
   b) Access to the rail line will need to address the Trespass Ordinance, and Ute TERO.
   c) Is there opportunity to train a work force for this?
10) Undesirable Events
   a) Depending on the severity of the undesirable event, what is in place to avoid fires, chemical spills, contamination of waterways, etc. and will the Coalition provide funding to the Tribe to develop resources in emergency planning?
   b) Provide funding or resources to emergency preparedness?

Cultural Rights and Protection

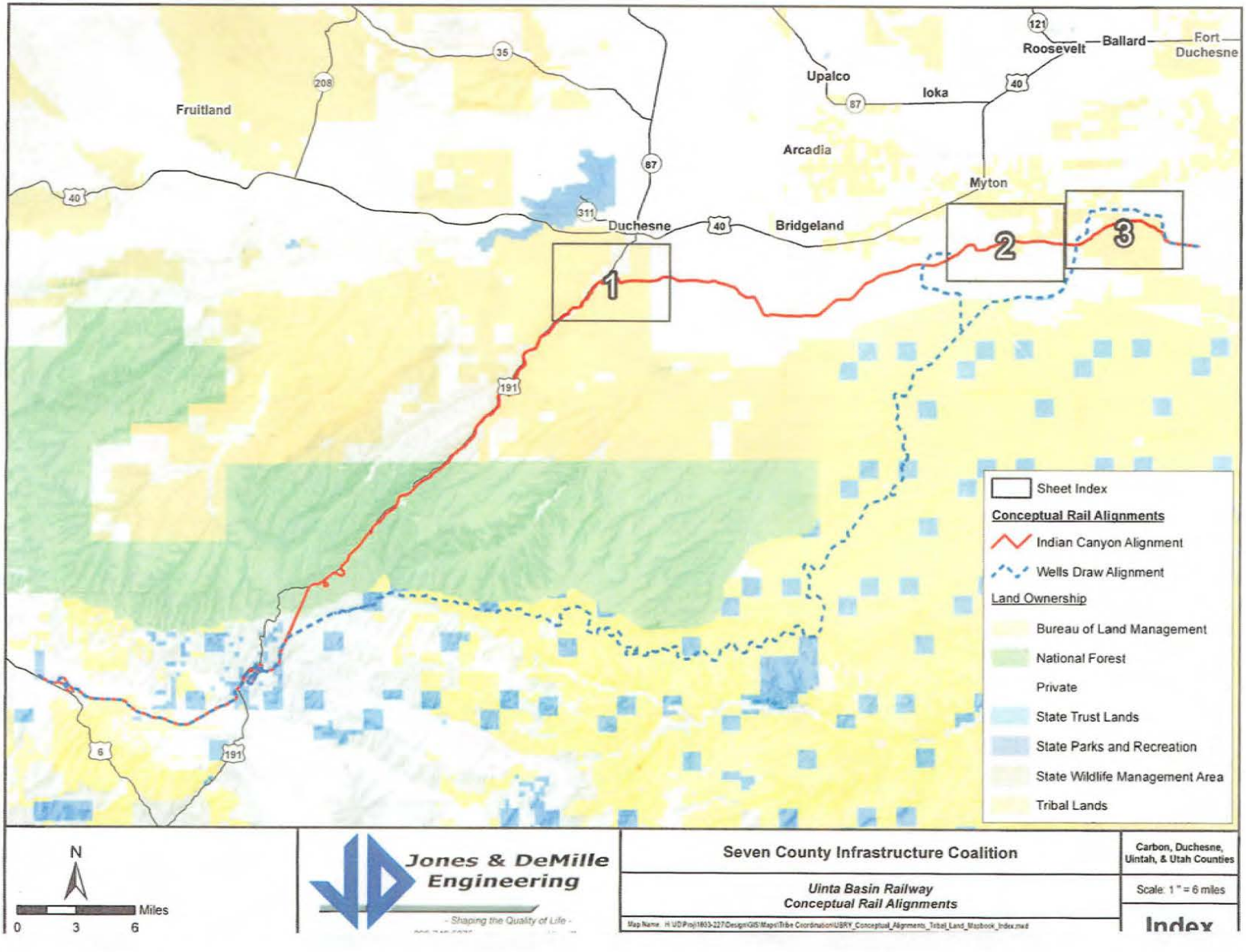
The 7 County Rail project preferred route has been identified as the Indian Canyon route. This route has segments of a previously reviewed route by the CR&P office in 2015 when Utah Department of Transportation proposing a similar project in the same area.

In 2015 the route included areas further to the west. The alignment was through areas that had sensitive cultural resources located within them. The current proposed route is being held to previously disturbed areas and in place skims tribal lands.

That being said an area about of approximately 5 areas on the route that enters Indian Canyon from Tribal lands will be heavily excavated to ensure proper grade for the train.

- ***CR&P recommend monitoring when this area is being excavated. At this time no cultural resources have been located in this area. We feel it would be prudent to monitor to ensure not cultural resources are destroyed.***

Although the CR&P office has participated in the task force for the Ute Indian Tribe our (department) responsibility will continues on this project until a decision has been made per the National Historic Preservation Act, Section 106; Native American Graves Protection and Repatriation Act and the National Environment Protection Act, which are in play for this federal undertaking.


Fruitland
Upalco
Ioka
Roosevelt
Ballard
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Arcadia
Myton
Duchesne
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State Parks and Recreation
State Wildlife Management Area
Tribal Lands
N
Miles
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Jones & DeMille Engineering
- Shaping the Quality of Life -
Seven County Infrastructure Coalition
Uinta Basin Railway
Conceptual Rail Alignments
Carbon, Duchesne, Uintah, & Utah Counties
Scale: 1 " = 6 miles
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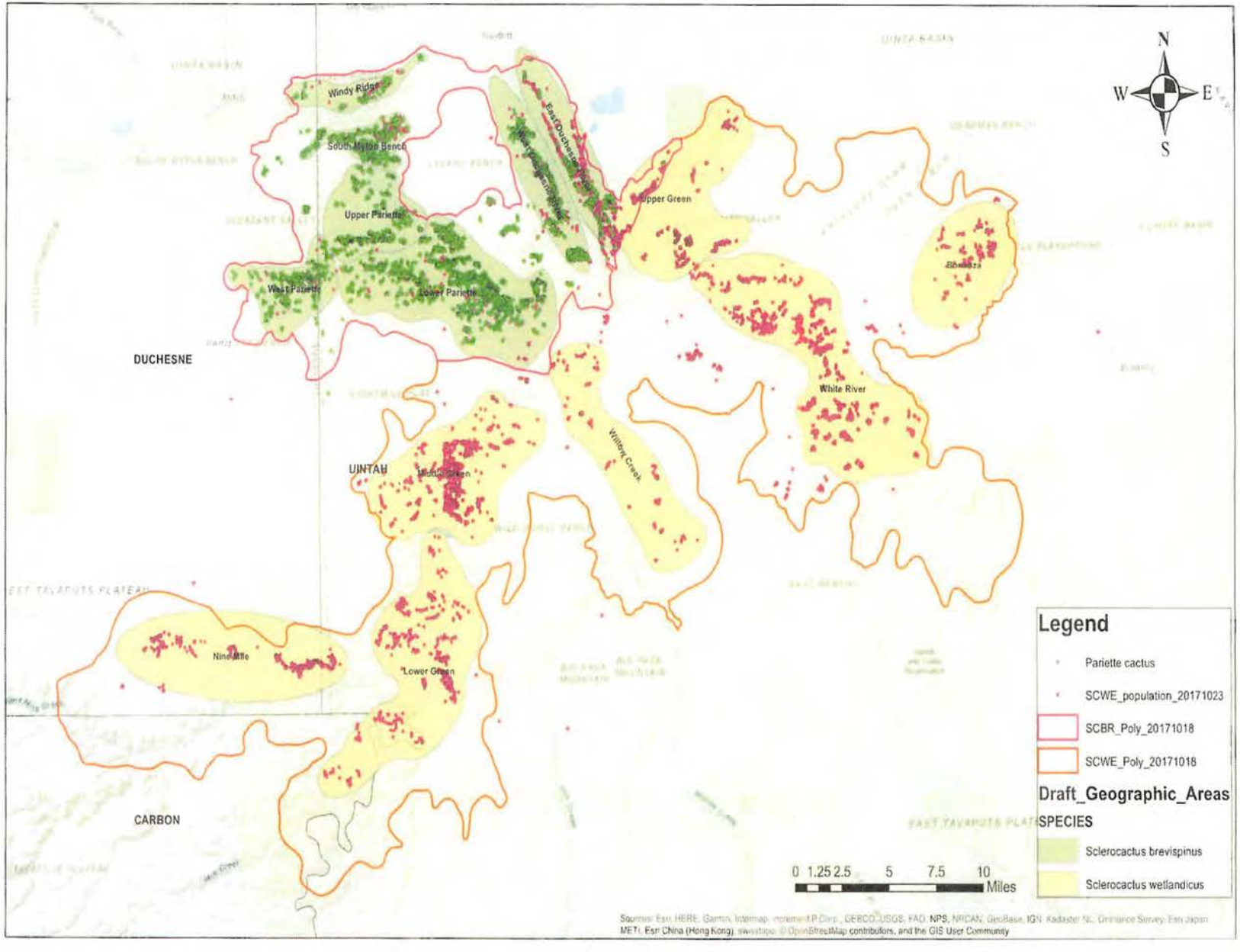
DRAFT Geographic Areas USFWS 05/23/2018

5/16/2018



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

February 4, 2020 Quarterly Meeting- Rail Report

Role of the Ute Tribal Railroad Task Force "TRTF"

Energy & Minerals, Natural Resources, Fish & Wildlife, Cultural Rights & Protection, and Ute Energy

Designated by the Business Committee, the role of TRTF is to gather facts on the possibility of constructing a rail line for future oil shipments out of the Uinta Basin in an effort to increase oil volumes resulting in increased revenues.

29 Routes EVALUATED
8 Routes SHORT LISTED
3 Routes for EIS CONSIDERATION
UTAH
COLORADO
SUMMIT
DAGGETT
UINTA MOUNTAINS
DUCHESNE
WASATCH
SALT LAKE
Salt Lake City
Heber City
Provo
Duchesne River
Green River
Yampa River
Vernal
Roosevelt
Myton
Duchesne
Dinosaur
Craig
CRAIG
Axial
Rangely
Meeker
White River
RIO BLANCO
MOFFAT
COALITION PREFERRED
INDIAN CANYON
Soldier Summit
WELLS DRAW
Helper
Price
CARBON
TAVAPUTS PLATEAU
UINTAH
CATHEDRAL BLUFFS
GARFIELD
Rifle
MESA
GRAND
EMERY
SAN PETE
JUAB
WASATCH PLATEAU
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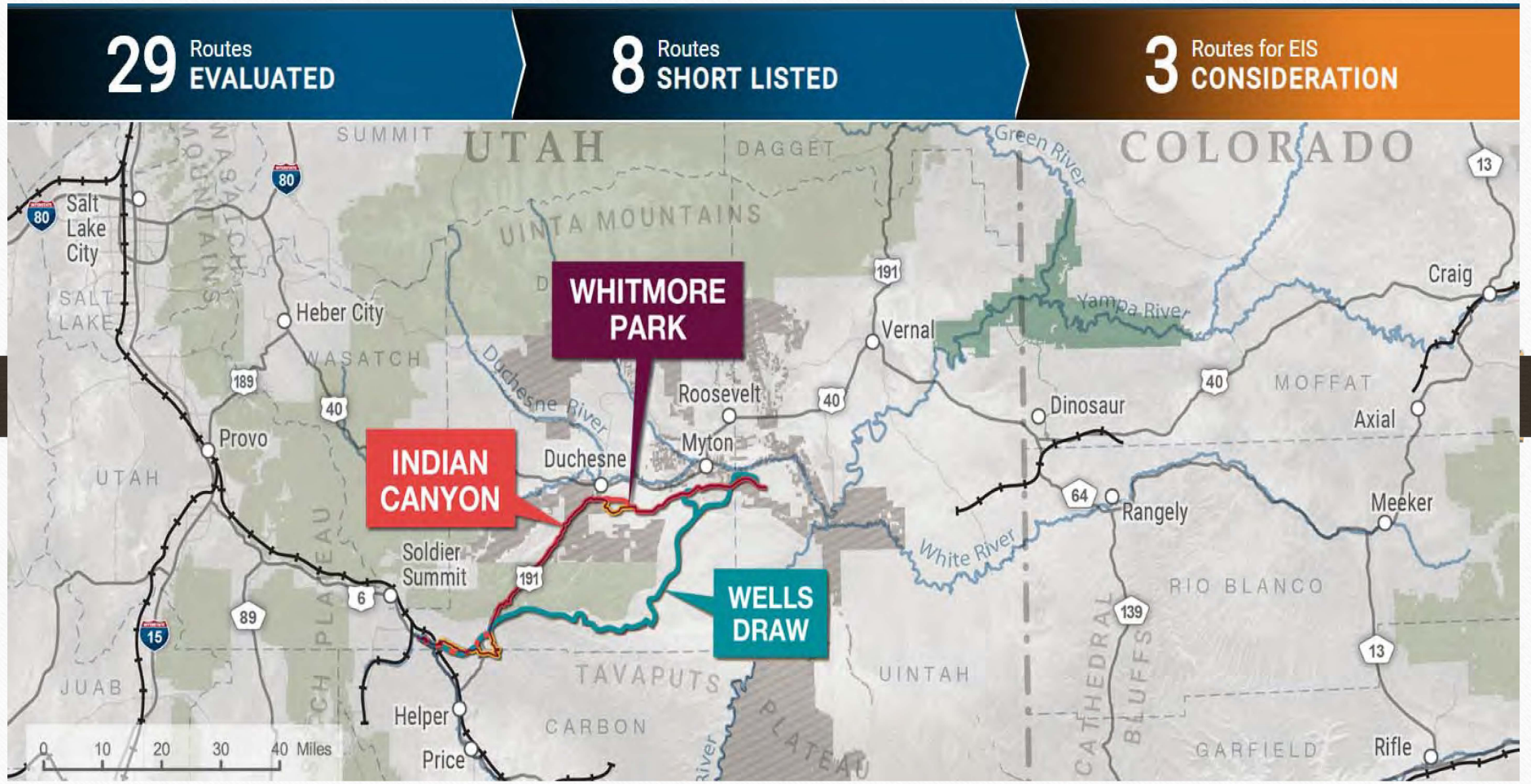
Tribal Land
US Forest Service Land
National Park Service Land
Environmentally Sensitive Areas
NORTH


29 Routes EVALUATED
8 Routes SHORT LISTED
3 Routes for EIS CONSIDERATION
WHITMORE PARK
INDIAN CANYON
WELLS DRAW
Salt Lake City
Heber City
Provo
Soldier Summit
Helper
Price
Roosevelt
Duchesne
Myton
Vernal
Dinosaur
Rangely
Craig
Axial
Meeker
Rifle
UTAH
COLORADO
SUMMIT
DAGGETT
UINTA MOUNTAINS
WASATCH
SALT LAKE
JUAB
TAVAPUTS
UINTAH
CARBON
RIO BLANCO
MOFFAT
GARFIELD
Green River
Yampa River
White River
Duchesne River
CATHEDRAL BLUFFS
PLATEAU
0 10 20 30 40 Miles

Role of Outside Business Entities associated with the rail project
The Rail project is a public-private partnership

- Seven County Infrastructure - The public partner and project proponent through the environmental clearance and authorization process.

- The U.S. Surface Transportation Board – The lead federal agency that will oversee the National Environmental Policy Act (NEPA) for the railway by preparing an environmental impact statement.

- Drexel Hamilton – The private partner responsible for financing and construction, and is teamed up with the Rio Grande Pacific Corporation for operation and maintenance of the railway.

Indian Canyon Route – Preferred Route

- 80 miles long (65 miles within the Exterior Boundary)
- $ 1.2 billion dollars
- Crosses Tribal and Forest Service Lands (7 miles directly on tribal land)
- Has competitive access to both Union Pacific Railroad and BNSF Railway

Wells Draw Route

- 100 Miles long (15 miles within the Exterior Boundary)
- $ 2.4 billion dollars
- Does not cross Tribal and Forest Service Lands
- Has competitive access to both Union Pacific Railroad and BNSF Railway

Whitmore Park Route – Replaces Old Colorado Route

- Nearly same description as Indian Canyon Route above

Operation and Maintenance Plan

- 24/7 operation, 365 days a year
- All weather reliability
- Maintenance crews based locally
- Train operating crews based at either end of the railway
- Most route maintenance is on-track
- Local preference on hiring
- Tribal preference on hiring
- Training programs will be developed and offered

Rail Schedule

- Surface Transportation Board Common-Carrier License
- Notice of Intent filing – May 2019
- Public Scoping – July 2019
- Draft EIS – February 2020
- Final EIS and Record of Decision – December 2020
- Final Investment Decision – March 2020
- Engineering Start – March 2020
- Construction start – January 2021
- Ready for operation – December 2022

Railroads have strong safety records

- More than 99.9% of all rail shipments reach destination without an incident
  - Railroads spend over $25 billion annually to maintain and modernize the rail network
- BNSF and Union Pacific use only the highest quality railcars in today's market
  - America's rail network is safer than ever - Drones, Smart Sensors, and Ultrasound are used in preventative maintenance to catch any potential problems
  - Employee driven : Railroads employ roughly 165,000 people – the vast majority of whom are unionized

Railroads have strong safety records (continued)

- Earn an average of $ 125,000 per year in total compensation - 60% more than the average U.S employee

- Concerns about the possibility of any fire created by the rail.
  - This is part of daily track safety and overlook. If a fire were to break out, there are rail cars that haul water and would be able to put out a fire much faster than a truck because of the water volumes carried on the Train.

- Spills and waterway concerns are addressed by preventative maintenance, and using the best tank technology available.

Role of Oil Producers:

- Producers understand that profitability of the rail project is dependent on their willingness to enter into letters of intent that will become binding commitments
  - Minimum volume commitment necessary to reach "Final Investment Decision" is approximately 130,000 barrels of oil per day

- 400,000 to 500,000 BBL/day is the goal for the railway
  - Interim oil production agreements are being consummated to enable a ramp-up of production so that required oil volumes and railroad initial operation status coincide

- The top 9 producers in the Uinta Basin account for 96% of the total oil production

Rail and the Oil and Gas Market: Air Quality and the Environment

- New Maritime regulations coming January 1, 2019 – because of these new regulations, low sulfur oil is growing in demand. Oil in the Basin is considered "low sulfur"
  - The oil and gas market has had a lot of change over the last few years.
- Environmental concerns are being addressed through processes like "cube development" where more than one horizontal well is drilled on one well pad. This also helps address air quality problems.
  - It is estimated that one rail car of oil takes 7 trucks off the road, which also helps in reducing air pollution.
- The Uinta Basin is a stranded asset and can only grow so much without answers for new marketing solutions. Revenues can only grow so much without constructing a new rail system.

Air Quality and the Environment (continued)

- It is unsure if every leak was fixed and best technology was used on every well in the field, it still might not be enough to get the Tribe in compliance with Federal Standards.
- In 2015 – No rigs were operating in the Basin for most of the year, and yet, air quality readings went up because of a bad weather year. (Deep snow and very cold temperatures)
- In 2018 – No exceedances over 70 that year because it was a very dry year- hardly any snow and mild temps. There were about 40 wells drilled- showing weather's relationship

The Uintah Basin Train may have up to three (3) runs per day

- There are approximately 115 cars per train (called a unit train)
- One train car is equal to approximately 7 semi trucks
  - Equal to 34,500 BBLS per run

Corridor constraints

- Construction corridor = 100' feet in width
- Maintenance corridor = 50' feet in width

Opportunities for the Tribe

- Train needs 50 megawatts (MW) of power at the Leland Bench Terminal
- Refinery (at Leland Bench) needs approximately 500 dekatherms (dth)

Wildlife:

- Migration Routes; Gilsonite Strip to Indian Canyon.
- Wildlife crossings; are a practice in habitat conservation, allowing connections or reconnections between habitats, combating habitat fragmentation. They also assist in avoiding collisions between vehicles and animals, which in addition to killing or injuring wildlife may cause injury to humans and property damage.
- Railway company has agreed to install wildlife crossings in designated migration routes.

- No high fence is recommended due to the natural migration pattern being altered, or mortality rates increase due to animals being stuck or tangled into fencing material.

Fisheries:

- Erosion controls established for habitat and stream habitat
- Sediment loads increased from Indian Canyon stream, which leads into the Duchesne River System, and eventually joining the Green River in Ouray, Utah.
- Concerns regarding endangered fish species.
- Concerns regarding fish species; trout, salmon, catfish, bass, and bluegill.

Definitions

- UNIT TRAIN – refers to approx. 100 rail cars carrying the same product.
- OOIP – Original Oil In Place (projects where no depletion has occurred)
- DSU – Drilling Spacing Unit (equated to cube development)
- DUC's – Drilled Uncompleted (sometime because of low prices)
- BOE – Barrels of Oil Equivalent (oil, gas, condensate)
- EOR – Enhanced Oil Recovery (fracking, water, chemicals, etc.)
- ***EXPONENTIAL TECHNOLOGY*** – Centralized drilling and horizontal drilling are examples. Market changes will come at a very fast pace.

New Items and Issues

- ***Timing issues*** – even though cube development has worked well in other states, it still has not been done in the Uinta Basin. Because of this there is no history to compare to. Producers will start cube development in 2020.
- ***EPA*** states that they will allow for moderate growth; but the rail project requires a booming production. Air Quality is a major concern for the project.
- ***Rail info*** – some of the rail info is still confidential until the process moves further forward.

New Items and Issues (continued)

- The Uinta Basin Railway is expected to add 100 new railway jobs in Carbon, Duchesne, and Uintah Counties and add up to 300 additional indirect jobs.
- Because of the projections for new jobs, there should not be a great concern as to what will happen to the existing trucking jobs. The existing jobs will just be redirected to shorter mile truck routes and/or rail positions.

Producer quantities delivered on daily basis to Salt Lake Refineries:

Top 6 producers

Operator	Barrels of oil per day
Encana	23,687
EP Energy	17,173
Crescent Point	14,955
Axia Energy	8,754
Finley Resources	7,085
Berry Petroleum	3,450
All others	3,000
Total daily barrels	84,840

(It is projected that Finley will soon become close to Encana in production)

General Stats

- The U.S. oil export market has grown over 4 times since 2016. Currently, the U.S. is exporting over 3 million barrels a day
- Exponential Technology must be a consideration in the rail project. (examples)
- Estimated Break Even – It has been estimated that the Whitmore Park route can only handle approx. 30,000 barrels a day of oil by truck. With a break-even est. of 130,000/bbl's a day, the amount transported is well short of what is needed to make the economics of a rail feasible and the amount of new drilling would have to be several times of what is being produced today.

Stats on Producing Wells

Oil wells: Federal = 1,638 / Native American = 1,929
State = 243 / Fee = 1,037

Gas wells: Federal = 4,377 / Native American = 163
State = 1,749 / Fee = 227

Permits approved (before spud stage): Federal = 466
Native American = 258 / State = 39 / Fee = 286

Surface Transportation News

- On December 13, 2019, The U.S. Surface Transportation Board (STB) released the final scope of study on the Environmental Impact Statement (EIS) for the Uinta Basin Railway. The Final Scope reflects additions and changes to the Draft Scope as a result of comments received during the scoping comment period.
- For further information about the Board's environmental review process and the EIS, you may also visit the project website at

  www.uintabasinrailwayeis.com.

Capital Position vs. 5% Ownership

- Capital position and final numbers have not yet been established. Going with a capital position comes with more risk than the 5% ownership plan.
- Any study within Tribe or an outside financial plan would attempt to guess what future events will be for the next few decades.

Factors that must be considered for the rail project:

1) ***The price of oil*** – Any Nymex price below $ 50/bbl makes if very difficult to produce acceptable profit margins when using the rail. Take or pay contracts can smooth out profits over the long run.

2) ***The speed of new technologies*** – Auto makers say they will reach parity in 5-8 years with gasoline cars. Electric battery costs are cut in ½ ever 6-12 months. Self generating batteries may take away the need for stations.

Capital Position vs. 5% Ownership (continued)

3) ***Air Quality*** – EPA administration may make it difficult to drill new wells in the future. This is probably the biggest concern for ramp up production. Remember that the train requires high amounts of production for many years to come – signed contracts can take out the risk for the Tribe, but initial contracts would probably be for only 5 years.

4) ***Future Events*** – Because of the future having so many concerns, the Task Force cannot give an opinion on taking a capital position, but taking a 5% ownership is an open for discussion option. As mentioned previously, any financial study could only give current financial numbers and only guess as to what the future of oil and gas demand would be.

UTE TRIBE FISH AND WILDLIFE DEPARTMENT
P.O. BOX 190, FORT DUCHESNE, UTAH 84026
OFFICE (435) 722-5511 FAX (435) 722-2677

Railway Summary Report

December 17,2019

We at the Ute Tribe Fish & Wildlife Department feel the proposed Uintah Rail Road is an economic positive for the Ute People. We are the protectors of the land, water and wildlife i.e. Mother Earth. This we don't take lightly; we must take the proper precaution that whatever catastrophe no matter how big or how small is dealt with accordingly. There will be a wreck or spill, regardless of who's at fault, it must be dealt with as swiftly as possible. Therefore, we have the following concerns:

- In addition to catastrophe's we also need to consider the impacts of the railroad itself, impacts on the natural resources, wildlife movement and habitat.

- Who is responsible for a wreck/ spill and its clean-up? This would include any water ways on tribal land as well as Utah and Colorado. Who has final say and the type of clean-up made. We feel documentation of any waterway should be made so that any damage that is made. An effort to put it back the way it was originally, can be made.

- What are the precautions from colliding with wildlife as well as domestic animals? Who is responsible for the removal of said animal? Will fences be used?

- Will there be any trespass or hunting issues? Is firearms not allowed on the train?

- What plans are there for wild and domestic animals to cross the tracks in migratory routes or a daily crossing for water. What precautions are being made for this issue.

- We in law enforcement have a concern that a railway could be used as was to transport illegal drugs. We feel this should be addressed preemptively with a K-9 officer through the Fish & Wildlife Department.

Ute Fisheries

The fisheries department's main cause for concern from the railway project is additional sediment transport throughout Fivemile Creek. As timber is removed and railroad tracks are built, it is likely that erosion will increase throughout Indian Canyon, which in turn will increase sediment run-off and sediment transportation throughout Fivemile Creek. Not only will this directly affect water quality for farmers that rely on this water to irrigate their crops and water their stock, but it can be detrimental to fish populations. Elevated levels of sediment have been shown to negatively impact fish populations in a variety of ways, including:

- clogging fish gills (reducing oxygen exchange),
- decreasing ability to find food (specifically for sight-driven foragers),
- decreasing food availability (excess sedimentation can destroy aquatic vegetation and insect populations), and reducing fish egg survival rates.
- As there are sensitive and endangered fish located directly downstream in the Duchesne River, this additional impact could be detrimental to fish populations.

Therefore, we are concerned about what steps will be taken to prevent erosion within Indian Canyon, and how it will be managed not only immediately (throughout construction), but also on a long-term basis.

Therefore, we would push for a study on the impact the railroad would take on the erosion into the water from the banks of the water caused by vibration from the train. Not only from tribal land but the State of Utah and Colorado as well.

Aundreau Gray

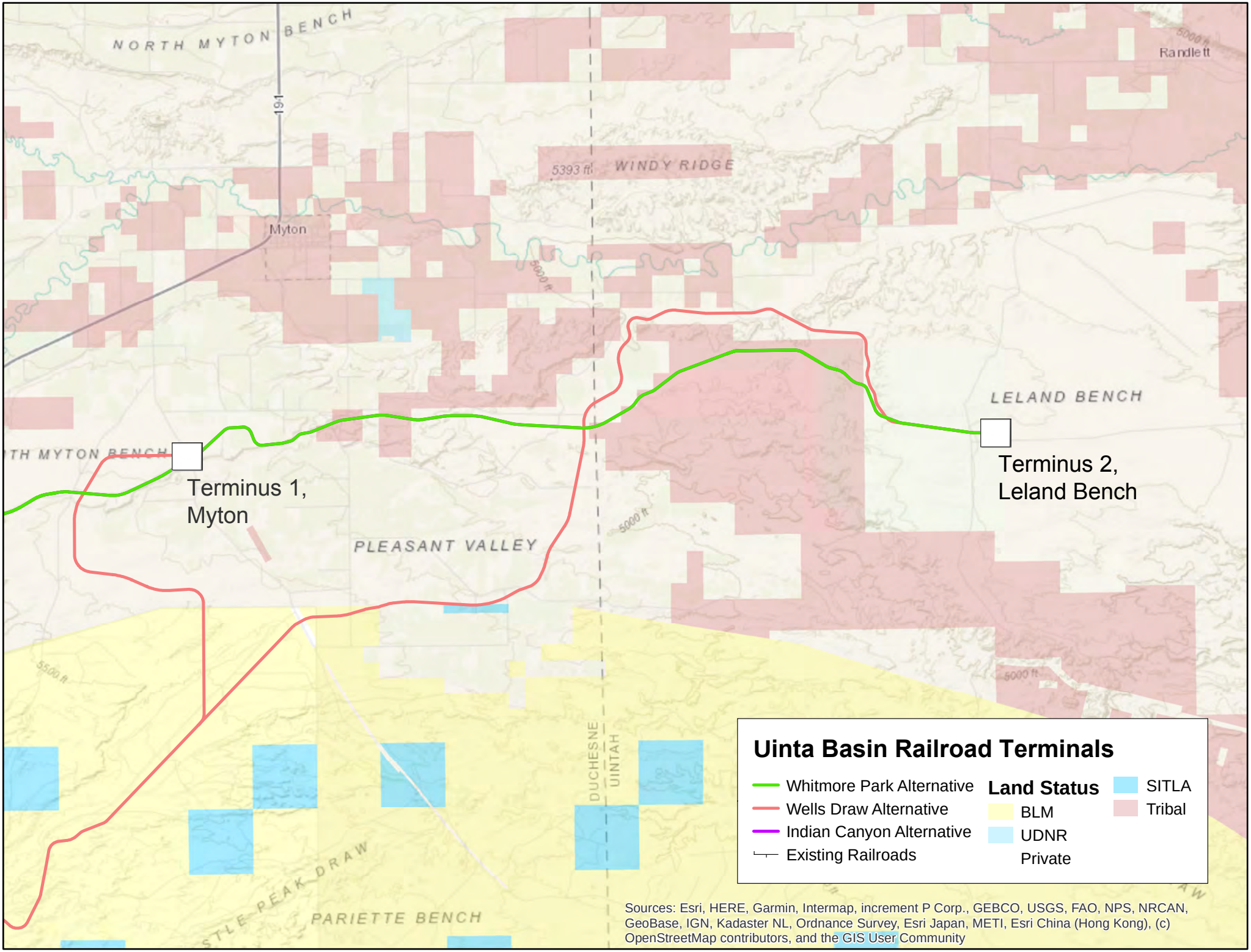
Ute Fish & Wildlife, Acting Director

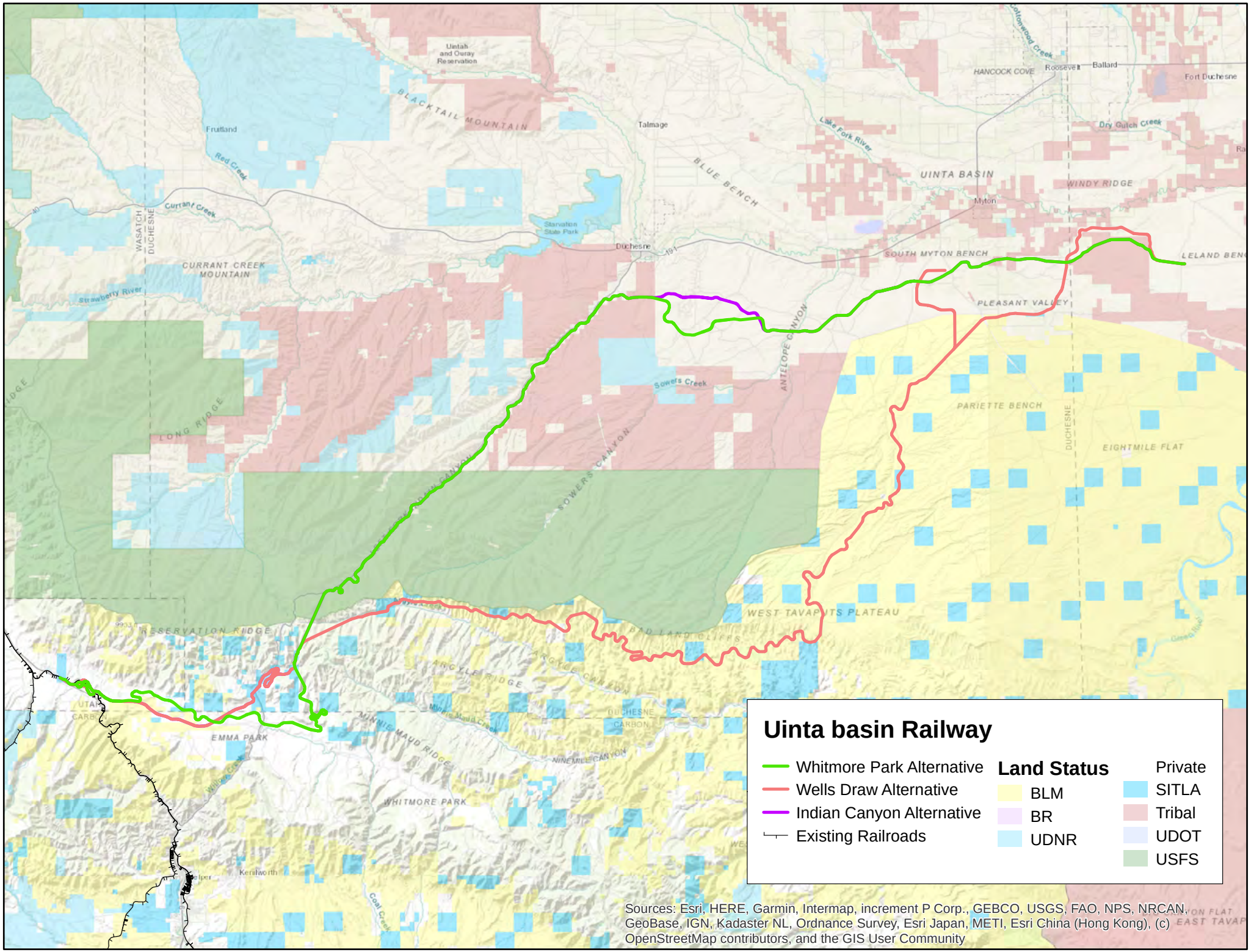
Contributors:

Sgt Lon Hackford, Ute Fish & Wildlife Law Enforcement

Brook Webb, Fish & Wildlife Fisheries Biologist

Jamie Arrive, Fish & Wildlife Big Game


NORTH MYTON BENCH
191
Myton
5393 ft
WINDY RIDGE
Randlett
5000 ft
LELAND BENCH
TH MYTON BENCH
Terminus 1,
Myton
Terminus 2,
Leland Bench
PLEASANT VALLEY
5500 ft
DUCHESNE
UINTAH
STLE PEAK DRAW
PARIETTE BENCH
Uinta Basin Railroad Terminals
Whitmore Park Alternative
Wells Draw Alternative
Indian Canyon Alternative
Existing Railroads
Land Status
BLM
UDNR
Private
SITLA
Tribal
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community


Uinta basin Railway
Whitmore Park Alternative
Wells Draw Alternative
Indian Canyon Alternative
Existing Railroads
Land Status
BLM
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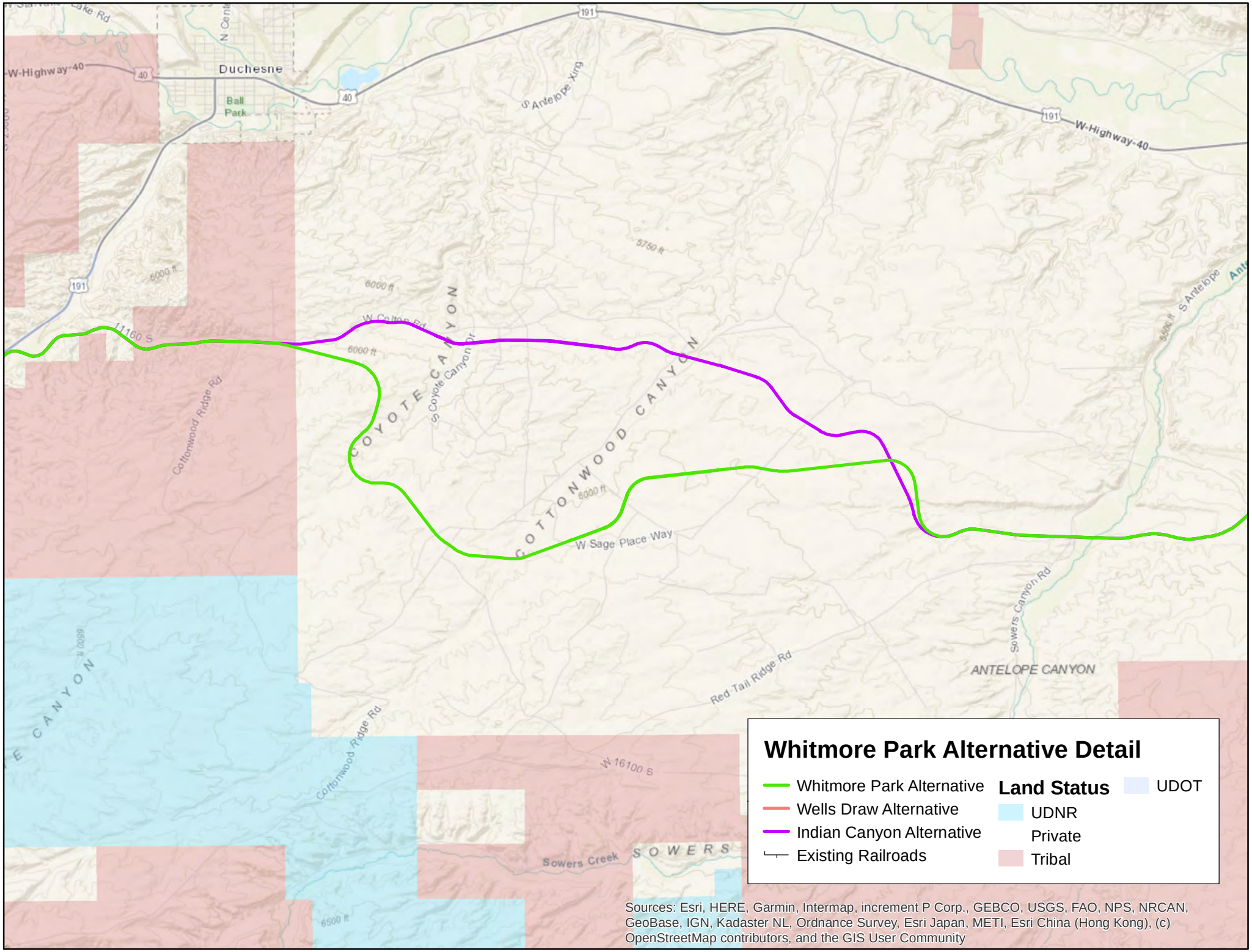
UDNR
Private
SITLA
Tribal
UDOT
USFS
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Uintah and Ouray Reservation
Fruitland
Talmage
Duchesne
Myton
Roosevelt
Ballard
Fort Duchesne
HANCOCK COVE
BLACKTAIL MOUNTAIN
BLUE BENCH
UINTA BASIN
WINDY RIDGE
SOUTH MYTON BENCH
LELAND BENCH
PLEASANT VALLEY
CURRANT CREEK MOUNTAIN
LONG RIDGE
SOWERS CANYON
ANTELOPE CANYON
PARIETTE BENCH
EIGHTMILE FLAT
WEST TAVAPUTS PLATEAU
RESERVATION RIDGE
ANGLE RIDGE
ANGLE CANYON
BAD LAND CLIFFS
MINNIE MAUD RIDGE
NINEMILE CANYON
EMMA PARK
WHITMORE PARK
Kenilworth
Helper
Red Creek
Currant Creek
Strawberry River
Starvation State Park
Lake Fork River
Dry Gulch Creek
Cottonwood Creek
Sowers Creek
Minnie Maud Creek
Willow Creek
Coal Creek
WASATCH
DUCHESNE
CARBON


Duchesne
Ball Park
W-Highway-40
S Antelope Xing
W Colton Rd
S Coyote Canyon Dr
COYOTE CANYON
COTTONWOOD CANYON
Cottonwood Ridge Rd
W Sage Place Way
Sowers Canyon Rd
ANTELOPE CANYON
Red Tail Ridge Rd
W 16100 S
Sowers Creek
SOWERS
6000 ft
6500 ft
5750 ft
Whitmore Park Alternative Detail
Whitmore Park Alternative
Wells Draw Alternative
Indian Canyon Alternative
Existing Railroads
Land Status
UDOT
UDNR
Private
Tribal
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Fact Sheet: The COVID-19 Pandemic's Impact on Utah's Petroleum Industry

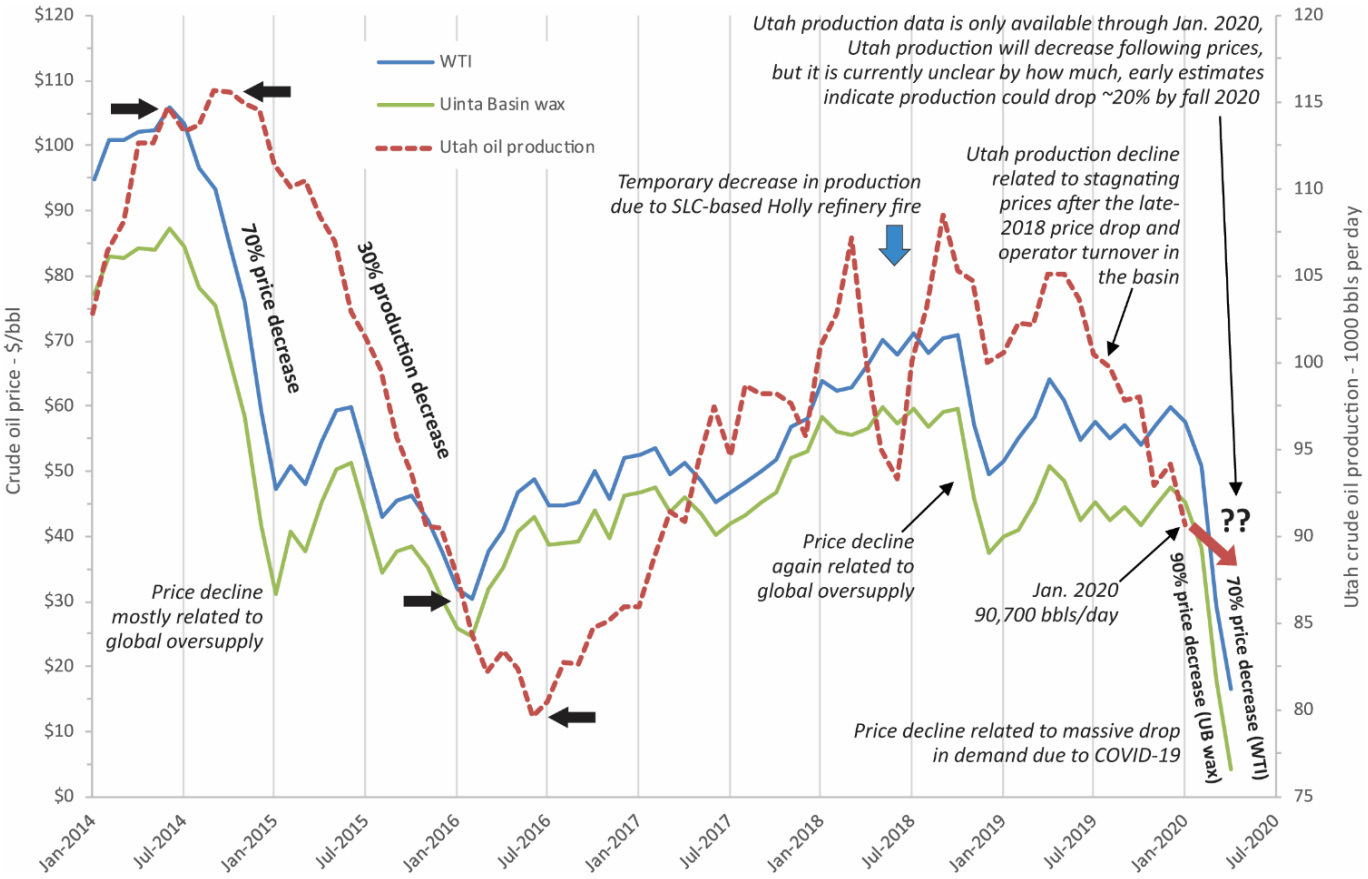
May 4, 2020

Michael D. Vanden Berg - Energy and Minerals Program Manager

Utah Geological Survey

The Utah Geological Survey has been tracking the response of Utah-specific energy sector data due to disruptions related to the COVID-19 pandemic. While most datasets have a several month delay, daily and weekly metrics are already showing significant changes, mostly from Utah's petroleum industry. As more data becomes available, this Fact Sheet will be updated to show the full effects the COVID-19 pandemic has had on Utah's energy industry.

Monthly crude oil prices and monthly Utah oil production, January 2014 to April 2020



Source: U.S. Energy Information Administration; Utah Division of Oil, Gas and Mining; Big West Oil price bulletin

The price for WTI (West Texas Intermediate – U.S. oil price benchmark) and Uinta Basin (UB) wax both underwent dramatic decreases in recent months.

- UB wax price declined 90% since January 2020, to about $4/bbl in April 2020 (monthly average).
- WTI price declined 70% since January 2020, to about $16/bbl in April 2020 (monthly average).
- As prices decline, the WTI/UB wax differential gets larger.
- May 2020 futures prices went negative for the first time ever on April 20 (-$36.98 for WTI, -$50.13 for UB wax), and were still negative for UB wax on April 21 (-$2.49).

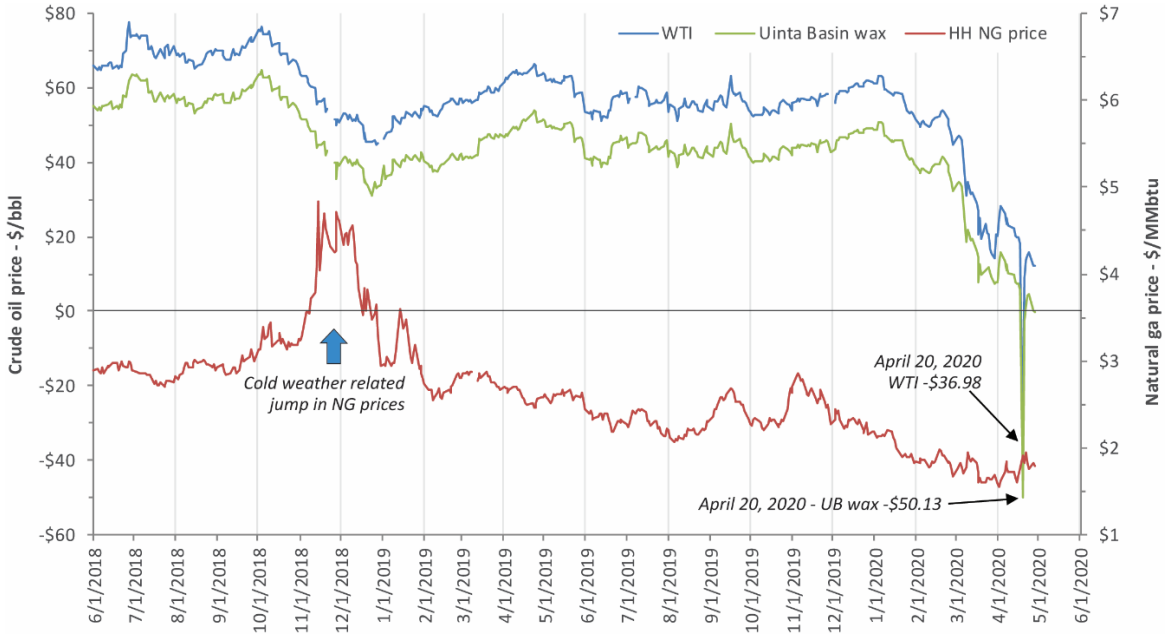
Utah oil production data (from the Utah Division of Oil, Gas and Mining) is only available through January 2020, when production equaled 90,700 barrels per day (monthly average).

- Utah oil production has been in decline since spring 2019 due to stagnating prices and Uinta Basin operator turnover.
- It is fully expected that Utah oil production will decline in the following months, but it is unclear by how much.
- Utah oil production declines will depend on the duration of low oil prices and subsequent rebound levels, which is related to demand for petroleum products (currently at historic lows due to COVID-19-related travel restrictions).
    - Current national forecasts suggest WTI could rebound to the mid-$30 range by late summer, which would equate to a UB wax price in the upper $20s, not high enough to spur new drilling.
    - Most likely, UB wax prices would need to return to the upper $30s to low $40s range to spur measurable new drilling; this might not happen until well into 2021.
- Early forecasts indicate that Utah production could decline to ~65,000 to ~70,000 bbls/day by fall 2020.
    - This would equate to total 2020 Utah oil production in the ~28 to 30 million barrels range, down from 36.5 million barrels in 2019.
    - Total Utah oil production is expected to decline even further in 2021.
- As refineries scale back production and storage fills, the only option will be to shut-in oil wells, further reducing production.

The price of natural gas at HH (Henry Hub – U.S. natural gas price benchmark) has been low for several years and has been below $2/million BTU since January 2020.

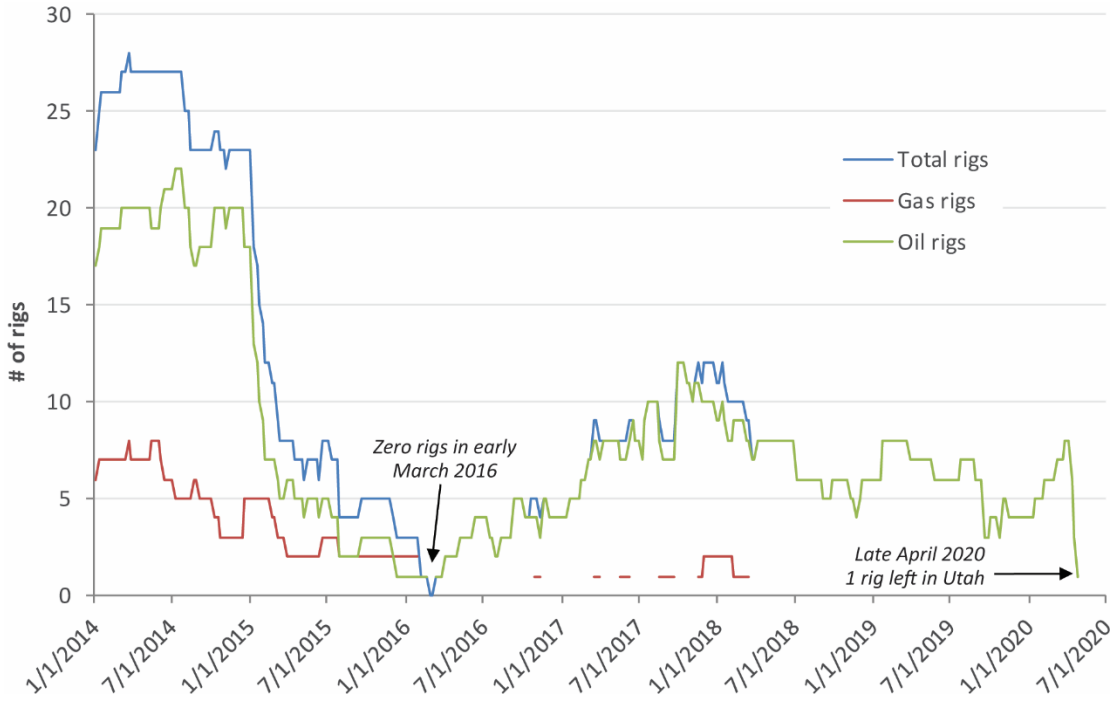
- Natural gas production in Utah has declined from 491 billion cubic feet in 2012 down to 272 billion cubic feet in 2019, a 45% decrease.
- The current COVID-19 situation will hasten natural gas production declines as associated gas production (i.e., from oil wells) decreases.

Daily crude oil prices and natural gas prices, June 2018 to April 2020



Source: U.S. Energy Information Administration, Big West Oil price bulletin

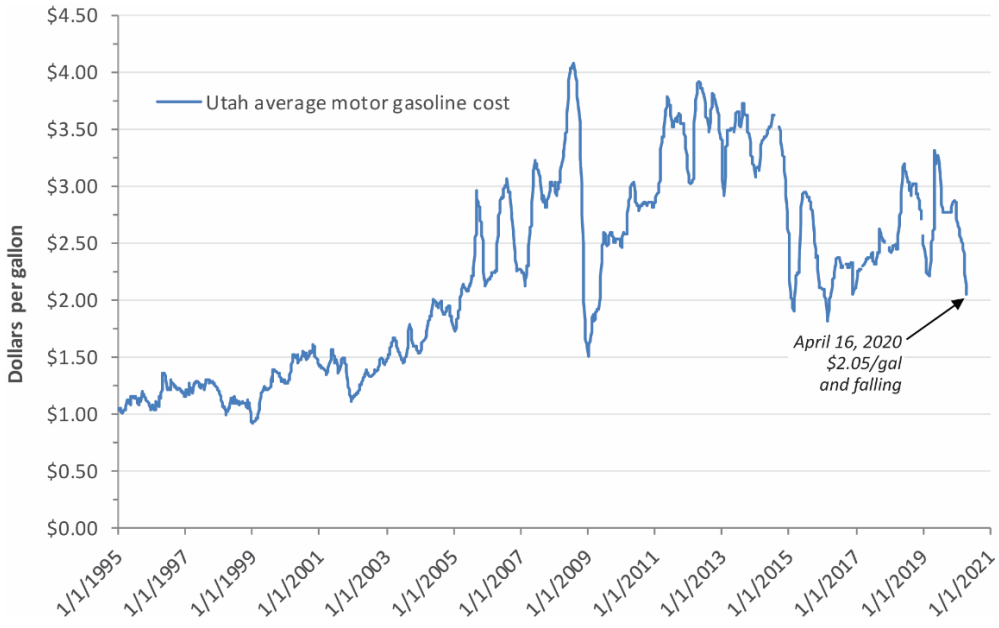
Weekly drill rig count in Utah, January 2014 to April 2020



Source: Baker Hughes, Rocky Mountain Oil Journal

Utah's drill rig count has fallen from eight rigs in early April 2020 to only one rig currently—it is fully expected that all rigs will get laid down by early May 2020, which will impact oil production going forward.

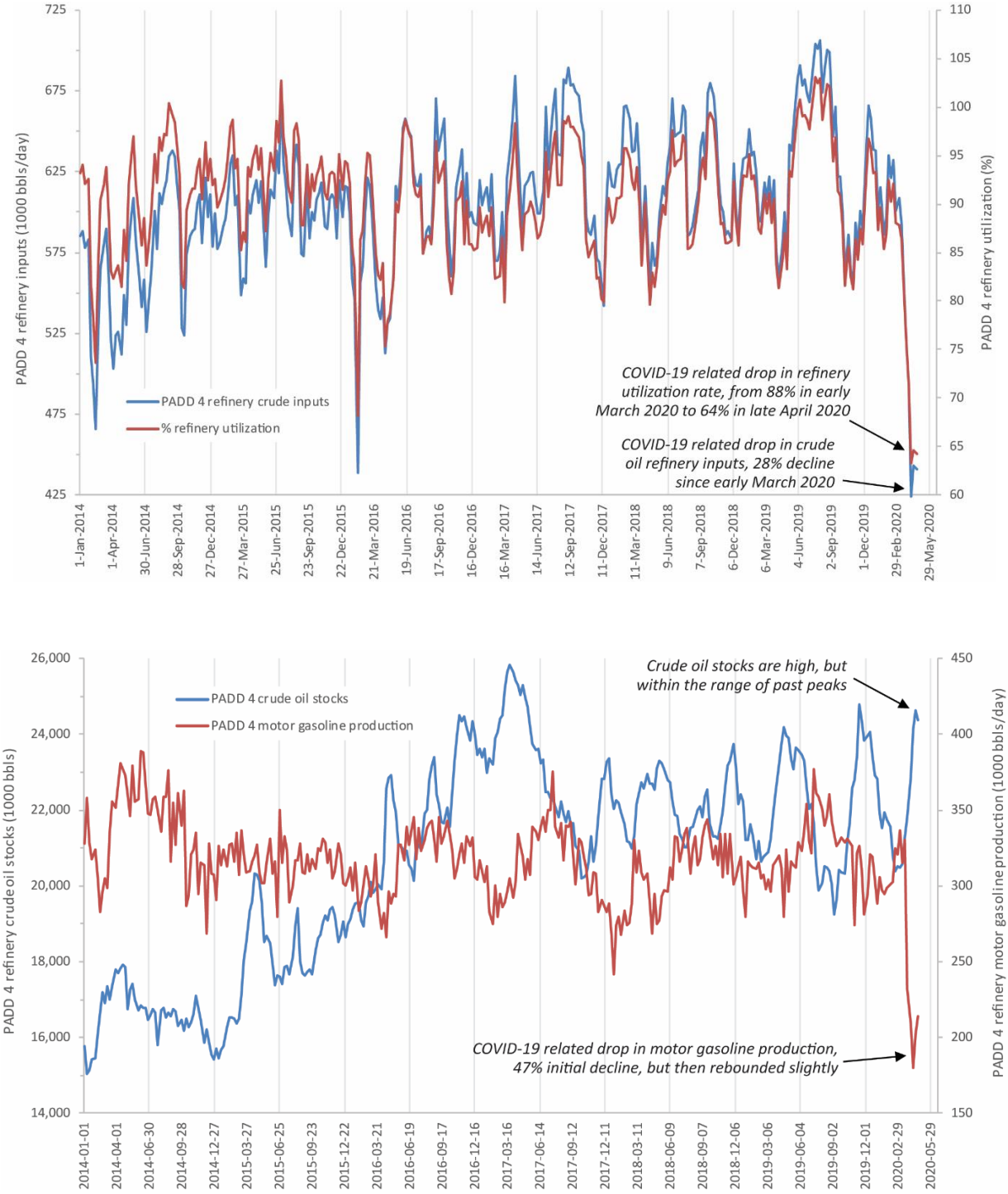
Weekly average motor gasoline prices (regular unleaded) in Utah, January 1995 to April 2020



Source: Oil and Gas Journal

Motor gasoline prices in Utah are falling, but are above the national average of about $1.77/gal. Gasoline prices always lag behind drops in crude oil prices. Some gas stations in Utah have posted prices as low as $1.14 /gal.

Weekly PADD 4 refinery data, January 2014 to April 2020



Source: U.S. Energy Information Administration

PADD = Petroleum Administration for Defense Districts

PADD 4 includes: Utah, Colorado, Wyoming, Idaho, and Montana

The Utah Geological Survey collects Utah-specific monthly refinery data, but currently data is only available through February 2020 and shows no signs of a COVID-19 downturn. Weekly refinery data for PADD 4 (northern Rocky Mountain states) is available from the U.S. Energy Information Administration and is a good proxy for what is also happening in Utah.

- As demand for petroleum products declines due to COVID-19 travel restrictions, refinery utilization rates have dropped from about 90% in early 2020 to only 64% in late April 2020. Utah refineries usually run at about 90% capacity.
- The average PADD 4 refinery crude oil inputs dropped 28% since early March 2020.
- The average PADD 4 refinery motor gasoline production rate has declined 47% since early March 2020 but rebounded slightly during the last week of April.
- Crude oil stocks at PADD 4 refineries have increased recently but are still inline with past peaks (this could be near the upper limit of the storage capacity).

The Utah Geological Survey provides timely scientific information about Utah's geologic environment, resources and hazards.

For more information contact Michael Vanden Berg at 801-538-5419 (o), 801-419-6577 (m), or at michaelvandenberg@utah.gov

Wayland, Joshua

From: [redacted] >
Sent: Tuesday, August 06, 2019 10:02 PM
To: Wayland, Joshua
Subject: Re: Uinta Basin Railway Environmental Impact Statement Question

Mr. Wayland,

Thank you for your reply,

[redacted]

Sent from my iPad

On Aug 6, 2019, at 14:07, Wayland, Joshua <Joshua.Wayland@stb.gov> wrote:

> Ms. [redacted],
>
> This email is to follow up on a question that you submitted to the project email address for the Uinta Basin Railway Environmental Impact Statement. In your email, you asked if passengers would be able to travel on the proposed rail line. Based on the description of the proposed project submitted by the applicant (the Seven County Infrastructure Coalition), there are no plans for passenger rail service on the proposed rail line and no anticipated demand for passenger rail service. Thanks for your question and for your participation in the Surface Transportation Board's environmental review process; please feel free to reach out to me at the number below if you have additional questions.
>
> Best,
>
> Josh Wayland, PhD
> Environmental Protection Specialist
> Office of Environmental Analysis
> Surface Transportation Board
> 202.245.0330

LNG | NATURAL GAS — 25 Jun 2020 | 21:08 UTC — Houston

Mexico liquefaction project sanctioning timing uncertain amid permit slowdown

Author Harry Weber
Editor Richard Rubin
Commodity LNG, Natural Gas

HIGHLIGHTS

Most recent Energia Costa Azul FID target was June 30

First phase calls for 2.5 million mt/year of export capacity

Houston — Sempra Energy has stopped providing a target for when it expects to make a final investment decision on whether to add LNG export capabilities at the site of its Energia Costa Azul regasification terminal in Mexico.

The San Diego-based company has blamed the uncertainty on a slowdown in regulatory approvals in Mexico due to the coronavirus pandemic, saying a final investment decision is contingent on receiving a long-term export permit from the government.

Sempra has declined to address to what extent market disruptions due the virus may be affecting its decision whether to move forward with the first phase of the project along Mexico's Pacific coast. In an email responding to questions June 24, a spokeswoman said the company continues "to have an active dialogue with the Mexican government." She declined to offer an updated timetable.

Officials with Mexico's Energy Secretariat did not respond to multiple requests for comment June 25.

For existing LNG export operators in the US, low international prices and weak global demand have prompted the cancellation of approximately 130 cargoes that were scheduled to be loaded in the US between April and August. Multiple developers of new US liquefaction terminals have delayed FID until 2021 or beyond. Among them is Sempra, which put off FID on its proposed Port Arthur LNG project in Texas until next year.

Market watchers have seen Energia Costa Azul as a potential exception to the halt to newly sanctioned LNG capacity in North America, in part because of its relatively small first phase and the fact that it reached long-term offtake agreements with buyers of the supplies tied to the first phase.

On February 27, executives said Sempra expected to take FID on the Energia Costa Azul project within 30 to 45 days, which would have put the outside of the target in mid-April. After that date passed, executives said during an investor call May 4 that Sempra was targeting FID for the second quarter, which ends June 30. They said at the time that while the virus had slowed

permit approvals in Mexico, they were confident they would get theirs in time to meet that target.

Phase 1 calls for a one-train export facility with capacity of around 2.5 million mt/year. Sempra has said it finalized preliminary offtake agreements with France's Total and Japan's Mitsui covering the full amount of the capacity. Feedgas would be shipped to the site from the US via pipeline. A second phase would be designed for 12 million mt/year of offtake.

For years, Mexico has had insufficient domestic production of natural gas to meet its power generation and home heating needs. As a result, it has been importing large amounts of natural gas from the US and building new pipelines to import even more. There has been a great deal of interest in possibly adding LNG export facilities on the West Coast of Mexico because of the proximity to Asia, the world's biggest importer of LNG, compared with the shipping distance from the US Gulf Coast. From the Pacific, shippers would also be able to avoid the increasingly congested Panama Canal.

Besides the ECA and Port Arthur projects it is developing, Sempra is majority owner of Cameron LNG in Louisiana, where three trains are currently in operation.

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2.53%
APR 15 Year Fixed
Select Loan Amount
$225,000
lendingtree
Calculate Payment
Terms & Conditions apply. NMLS#1136

Utah Inland Rig Count: 0.00 for Wk of Jul 02 2020

Add to Watchlists | Create an Alert

Overview | Interactive Chart

Utah Inland Rig Count is at a current level of 0.00, unchanged from 0.00 last week and down from 6.00 one year ago. This is a change of N/A from last week and -100.0% from one year ago.

Category: Energy
Region: Utah
Report: Baker Hughes North American Rotary Rig …
Source: Baker Hughes

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Chart

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5d | 1m | 3m | 6m | YTD | 1y | 5y | 10y | Max

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Data for this Date Range

July 2, 2020	0.00	Jan. 10, 2020	4.00
June 26, 2020	0.00	Jan. 3, 2020	4.00
June 19, 2020	0.00	Dec. 27, 2019	4.00
June 12, 2020	0.00	Dec. 20, 2019	4.00
June 5, 2020	0.00	Dec. 13, 2019	4.00
May 29, 2020	0.00	Dec. 6, 2019	4.00
May 22, 2020	0.00	Nov. 27, 2019	4.00
May 15, 2020	0.00	Nov. 22, 2019	4.00
May 8, 2020	0.00	Nov. 15, 2019	4.00
May 1, 2020	0.00	Nov. 8, 2019	5.00
April 24, 2020	5.00	Nov. 1, 2019	5.00
April 17, 2020	5.00	Oct. 25, 2019	3.00
April 9, 2020	6.00	Oct. 18, 2019	4.00
April 3, 2020	8.00	Oct. 11, 2019	4.00
March 27, 2020	8.00	Oct. 4, 2019	4.00
March 20, 2020	7.00	Sept. 27, 2019	3.00
March 13, 2020	7.00	Sept. 20, 2019	3.00

Last Updated	Jul 3 2020, 14:05 EDT
Next Release	Jul 10 2020, 14:00 EDT
Average Growth Rate	43.30%
Value from 1 Year Ago	6.00
Change from 1 Year Ago	-100.0%
Frequency	Weekly
Adjustment	N/A
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Motley Fool Issues Rare "All In" Buy Alert The Motley Fool
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$250,000 in Term Life Coverage Starting at $13.81/month AIG Direct
Massive 5G Killer Coming - Do Not Buy 5G Before You See This Technology Profits Daily

March 6, 2020	7.00	Sept. 13, 2019	6.00
Feb. 28, 2020	6.00	Sept. 6, 2019	6.00
Feb. 21, 2020	6.00	Aug. 30, 2019	6.00
Feb. 14, 2020	6.00	Aug. 23, 2019	7.00
Feb. 7, 2020	6.00	Aug. 16, 2019	7.00
Jan. 31, 2020	5.00	Aug. 9, 2019	7.00
Jan. 24, 2020	5.00	Aug. 2, 2019	7.00
Jan. 17, 2020	5.00	July 26, 2019	7.00

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