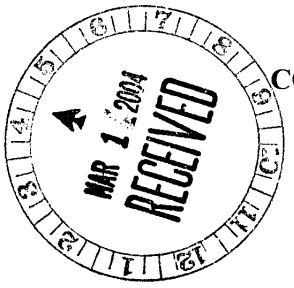
210213

BEFORE THE
SURFACE TRANSPORTATION BOARD

AEP TEXAS NORTH COMPANY Complainant, v. THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY Defendant.	)	Docket No. 41191 (Sub-No. 1)



OPENING EVIDENCE OF COMPLAINANT AEP TEXAS NORTH COMPANY

EXHIBITS

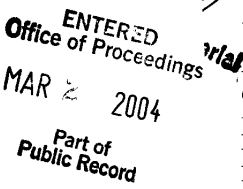
AEP TEXAS NORTH COMPANY
1 Riverside Plaza
Columbus, Ohio 43215

PUBLIC VERSION CONFIDENTIAL
MATERIAL HAS BEEN REDACTED

By: Timothy P. Stanley, Director,
Transportation and Marketing
David Cohen, Senior Counsel
AEP Texas North Company
155 West Nationwide Boulevard
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Attorneys and Practitioners

Dated: March 1, 2004

TABLE OF EXHIBITS

EXHIBIT I-	TITLE
1	Letter from Sami M. Shalah to Marguerite Mills dated December 9, 1996, reflecting the modified terms of service
2	Letter from Sami M. Shalah to Marguerite Mills dated June 16, 2000, increasing the rate of $13.68 per ton to $15.78 per ton
3	Letter from Larry C. Meyne to Timothy P. Stanley dated April 23, 2003, increasing the rate of $17.25 per ton to $18.04 per ton
4	Letters from Larry C. Meyne to Timothy P. Stanley dated December 10, 2003 increasing the rate of $18.04 to $18.83 per ton

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EXHIBIT III-C-	**TITLE**
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1	Analysis of Indexing Procedures for SARR Coal Transportation Rates and SARR Operating Expenses
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EXHIBIT III-H-	**TITLE**
1	DCF Model
2	Reparations Calculations

I Counsel's Argument and Summary of Evidence

BNSF

Sara M. S[illegible]
Assistant Vice President - East
Coal Marketing Business Unit

Burlington Northern Santa

2650 Lou Menk Drive
Fort Worth, Texas 76131-2830
(817) 352-6253 - Telephone
(817) 352-7939 - Fax

VIA FAX (214) 777-2212 AND
CERTIFIED MAIL NO. Z 378 094 208
RETURN RECEIPT REQUESTED

December 9, 1996

Ms. Marguerite Mills
Director, Solid Fuels
Central and South West Services Inc.
1616 Woodall Rodgers Freeway
Dallas, TX 75202

Dear Ms. Mills:

The May 3, 1996, decision of the Surface Transportation Board in West Texas Utilities Company v. Burlington Northern Railroad Company ordered BN to "establish and maintain rates" for the traffic at issue in that proceeding. As you may be aware, BN disagrees with the Board's decision in several respects, and we are pursuing and will continue to pursue various remedies to correct the decision. In the interim, however, we are compelled to comply with the Board's Decision as modified by its order of June 25, 1996. Accordingly, on July 2, 1996, BN established a rate for service to Oklaunion consistent with the Board's decision. BN subsequently agreed to modify the terms of service set forth in the July 2 letter. This letter reflects the modified terms of service without prejudice to our prerogative to modify those terms in the future. These rates and terms of service are established pursuant to 49 U.S.C. § 11101 and 49 C.F.R. Part 1300.

Origins: The rate applies to service from all coal mines in Campbell and Converse Counties, WY that are directly accessible to BN and are located on the rail line between Buckskin Junction and Converse Junction, WY, inclusive.

Route: These rates apply to BN service from the Origins to the Oklaunion Power Station near Vernon, TX.

Car Supply: BN will provide trainsets of up to 115 cars, 100 tons loading capacity. In general, trainsets will be aluminum; however, BN may substitute steel equipment when it deems necessary or appropriate, in its sole discretion. WTU shall be liable for all damage to or destruction of BN-supplied equipment caused by the acts of WTU, its agents, or the operator of the Origin mine or occurring while such equipment is in the control or possession of WTU, its agents, or the operator of the Origin mine. In the case of damaged equipment, WTU shall pay for repairs at a

facility designated by BN, including the cost of transporting the damaged equipment to the facility. In the case of destroyed equipment, WTU shall pay BN the settlement value of the equipment as established in the Field Manual and Office Manual of the Association of American Railroads Interchange Rules, as amended from time to time.

Train Weight: Weights will be ascertained at origin by WTU, its agent, or the mine operator. BN shall have the rights to inspection and certification of the origin scales. So long as BN provides trainsets of at least 115 cars, each train shall be loaded to a minimum weight of 11,500 tons. In cases where BN provides trainsets of fewer than 115 cars for loading, the minimum train weight shall be 100 tons multiplied by the number of cars provided. The rates for each shipment shall be based on the greater of (1) the minimum train weight, or (2) the actual train weight.

Loading: WTU or its agent shall be responsible for the provision of appropriate loading facilities. All loaded cars in each shipment shall be tendered to BN for movement to destination within three (3) hours after actual placement of the train. Actual placement is made when the train arrives at the designated notification point at the mine and the train crew requests instructions. WTU shall pay a charge of $373 for each hour or fraction of an hour that a train is delayed in excess of the free time. If actual placement is prevented due to any cause attributable to WTU, its agents, or the mine operator, BN may constructively place the train at any available hold point. The free time for loading shall begin when BN notifies WTU, its agents, or the mine operator that the train has arrived at the hold point and shall end when the train is actually placed.

Unloading: WTU or its agent shall be responsible for the provision of appropriate unloading facilities. Six (6) hours free time shall be allowed for unloading of all cars in each train, computed from the time of actual or constructive placement of the train. Actual placement is made when the train arrives at the designated notification point at the unloading facility and the train crew requests instructions. WTU shall pay a charge of $373 for each hour or fraction of an hour that a train is delayed in excess of the free time. If actual placement is prevented due to any cause attributable to WTU or its agents, BN may constructively place the train at any available hold point. The free time for loading shall begin when BN notifies WTU or its agents that the train has arrived at the hold point and shall end when the train is actually placed.

Accessorial Services: Accessorial services and charges therefor shall be as described in BN Tariff 6041 or successors thereto, except that no change in destination shall be permitted.

Rate: $13.68 per net ton.

Application of Rate: The rate is applicable to an individual annual minimum volume of 2,500,000 tons, and a five-year average annual minimum of 3,000,000 tons. On or before January 31, 1998, and January 31 of each calendar year thereafter, WTU shall certify to BN the number of tons shipped during the prior year. Also, on or before January 31, 2002, and January 31 of each calendar year thereafter, WTU shall certify to BN the total number of tons shipped during the prior five (5) years and the average number of tons shipped each year. If (i) the number of tons so certified for any individual calendar year is fewer than 2,500,000, or (ii) the average annual number of tons certified for any five (5) calendar year period is fewer than 3,000,000, and the

same is not excused by Railroad or Utility Disability, then WTU shall pay liquidated damages of $6.08 per net ton for each ton fewer than 2,500,000 transported during such year, and/or each ton by which a five-year annual average is less than 3,000,000, as the case may be. For purposes of computing liquidated damages with respect to the five-year average, each ton for which liquidated damages were paid or are to be paid as a result of an annual shortfall below 2,500,000 tons, shall be deemed a ton shipped.

Railroad Disability: The individual minimum, annual volume for a calendar year, and the average annual minimum volume for a five-year period, shall be reduced by the number of tons tendered by WTU for delivery but not delivered by BN due to a Railroad Disability. Railroad Disability shall include events beyond BN's control that prevent the transportation of coal, including but not limited to Acts of God, labor disturbances, failures of railroad equipment or facilities, unusual snow accumulations, restrain by court, military or public authorities, embargoes, abandonments, or shortages of diesel fuel or railroad equipment.

Utility Disability: The individual minimum annual volume for a calendar year, and the average annual minimum volume for a five-year period, shall be reduced by 1/365th for each 24 continuous hours during which a disability exists. Utility Disability shall include events beyond WTU's control that prevent the loading, unloading or use of coal by WTU, its agents, or the mine operator for a period of at least twenty-four (24) consecutive hours, including but not limited to Acts of God, labor disturbances, mechanical failures or breakdowns of equipment, fire, explosion, unusual snow accumulations, restraint by court, military or public authorities, or a mechanical failure or breakdown of equipment that results in a reduction in the amount of electricity that can be generated at the Oklaunion Station (i.e., a partial outage) that continues for a period of at least seventy-two (72) consecutive hours; provided, however, that events that prevent loading or unloading of coal but do not prevent use of coal for generation of electricity shall only provide a basis for reduction of tons to be tendered during an annual period or five-year period to the extent that such tons can not be reasonably and practicably made up through additional tenders during such annual period or five-year period. Utility Disability shall not include any change in demand or projected demand for electrical power or generating facilities, whether foreseeable or not.

BN will implement the services as set forth above as of the date of this letter. If you have any questions, please let me know.

Sincerely,

Sami M. Shalah /mm

cc: Mr. Gerald L. Lybarger
Manager, Coal - C&SW

Mr. L. C. Meyne

BNSF

SAMI M. SHALAH
Vice President
Coal

The Burlington Northern
and Santa Fe Railway Company

P.O. Box 961051
Fort Worth, TX 76161-0051

2650 Lou Menk Drive, 2nd Floor
Fort Worth, TX 76131
817-352-6253
Fax 817-352-7939
E-mail sami.shalah@bnsf.com

June 16, 2000

Ms. Marguerite Mills, Director, Solid Fuels
Central and South West Services, Inc.
1616 Woodall Rodgers Freeway
Dallas, TX 75202

Dear Ms. Mills:

Pursuant to 49 U.S.C. § 11101(c), The Burlington Northern and Santa Fe Railway Company hereby provides notice that as of twenty days from the above date, the common carrier rate for transportation of coal from the Buckskin mine near Buckskin Junction, WY and other Powder River Basin coal origins in Wyoming to West Texas Utilities' Oklaunion power station near Vernon, TX, will increase from the current rate of $13.68 per ton to $15.78 per ton. Service terms for this common carrier transportation will remain as set forth in my letter to you dated December 9, 1996.

In its May 3rd, 1996 decision in Docket No. 41191, the Surface Transportation Board ordered BNSF to establish a rate for movements from Rawhide, WY to WTU's Oklaunion power station at 180% of the variable costs for the movement, because the SAC maximum rate for 1995 was below the jurisdictional threshold. The Board further found that the variable costs for the movement for the fourth quarter 1995 were $7.60 per ton. The Board stated that its analysis and rate relief applied only to the Rawhide origin. Accordingly, on July 2, 1996, BNSF established a rate of $13.68 per ton for movements from Rawhide, WY to the Oklaunion station. In my December 9 letter to you, BNSF subsequently agreed to extend that rate to service for WTU from all coal mines in Campbell and Converse Counties, WY that are directly accessible to BNSF and are located on the rail line between Buckskin Junction and Converse Junction, WY, inclusive. BNSF has maintained that rate without change since 1996.

Although the rate prescription technically applies only to movements from the Rawhide origin, BNSF has been, and continues to be, willing to apply the Board's SAC determinations in Docket No. 41191 to movements from other origins, including Buckskin. The Board found that the SAC maximum rates in the early years were lower than the jurisdictional threshold. However, the SAC maximum rates determined by the Board for subsequent years have increased, as shown in the Board staff's electronic workpapers (Table L) in Docket No. 41191. Because the SAC maximum rates have increased at a faster pace than variable costs, the SAC maximum rate now exceeds 180 percent of variable costs. Therefore, consistent with the results of the Board's SAC analysis in Docket No. 41191, BNSF has decided to increase the rate up to the level of the SAC maximum for 2000 set out in Table L – *i.e.*, $15.78.

If you have any questions, please feel free to contact me.

Sincerely,

Sami M. Shalah

cc: Larry Meyne

BNSF

Larry C. M[illegible]
Director
Coal Marketing

Burlington Northe[illegible] ince ee
P. O. Box 961051
2650 Lou Meak Drive, 2nd Floor
Fort Worth, TX 76131-2830
Phone (817) 867-6244
Fax (817) 352-7039

Via Overnight Mail

April 23, 2003

Mr. Timothy P. Stanley
Manager Transportation & Marketing
American Electric Power Service Corporation
Fuel Supply Department
155 West Nationwide Blvd.
Columbus, OH 43215

Dear Mr. Stanley:

Pursuant to 49 U.S.C. § 11101(c), The Burlington Northern and Santa Fe Railway Company hereby provides notice that as of twenty days from the above date, the common carrier rate for transportation of coal from the Powder River Basin coal origins in Wyoming not covered by the STB rate prescription to West Texas Utilities' Oklaunion power station near Vernon, TX, will increase from the current rate of $17.25 per ton to $18.04 per ton. Service terms for this common carrier transportation will remain as set forth in Mr. Sami Shalah's letter to Ms. Marguerite Mills dated December 9, 1996.

If you have any questions, please feel free to contact me.

Sincerely,

Larry C. Roper

Cc: Sami M. Shalah
Rick Weicher
Mike Roper

BNSF

Larry C. Meyne
Director
Coal Marketing

Burlington Northern Santa Fe
P. O. Box 961051
2650 Lou Menk Drive, 2nd Floor
Fort Worth, TX 76131-2830
Phone (817) 867-6244
Fax (817) 352-7939

Via Overnight Mail

December 10, 2003

Mr. Timothy P. Stanley
Manager Transportation & Marketing
American Electric Power Service Corporation
Fuel Supply Department
155 West Nationwide Boulevard
Columbus, OH 43215

Dear Mr. Stanley:

Pursuant to 49 U.S.C. § 11101(c), The Burlington Northern and Santa Fe Railway Company hereby provides notice that as of January 1, 2004, the common carrier rate for transportation of coal from Rawhide Mine in Wyoming, covered by the STB rate prescription, to West Texas Utilities' Oklaunion power station near Vernon, TX, will increase from the current rate of $18.04 per ton to $18.83 per ton.

If you have any questions, please feel free to contact me.

Sincerely,

Larry C. Meyne

Cc: Sami M. Shalah
Rick Weicher
Mike Roper

BNSF

Larry C. Meyne
Director
Coal Marketing

Burlington Northern Santa Fe
P. O. Box 961051
2650 Lou Menk Drive, 2nd Floor
Fort Worth, TX 76131-2830
Phone (817) 867-6244
Fax (817) 352-7939

Via Overnight Mail

December 10, 2003

Mr. Timothy P. Stanley
Manager Transportation & Marketing
American Electric Power Service Corporation
Fuel Supply Department
155 West Nationwide Boulevard
Columbus, OH 43215

Dear Mr. Stanley:

Pursuant to 49 U.S.C. § 11101(c), The Burlington Northern and Santa Fe Railway Company hereby provides notice that as of January 1, 2004, the common carrier rate for transportation of coal from non-Rawhide Mines in Wyoming to the Oklaunion power station near Vernon, TX, will increase from the current rate of $18.04 per ton to $18.83 per ton and shall be covered by the enclosed Common Carrier Pricing Authority BNSF 306720.

If you have any questions, please feel free to contact me.

Sincerely,

Larry C. Meyne

Cc: Sami M. Shalah
Rick Weicher
Mike Roper

The Burlington Northern and Santa Fe Railway Company ("BNSF")
Common Carrier Pricing Authority BNSF 306720

Effective Date:	January 1, 2004
Expiration Date:	December 31, 2004, unless renewed or extended.
Commodity:	Raw sub-bituminous Coal, STCC 11-21-series (excluding artificially dried or processed coal).
Origins:	BNSF served mines in Wyoming, excluding Rawhide Mine.
Destination:	AEP Texas North's Oklaunion Generating Plant near Vernon, TX.
Route:	BNSF direct.
Railcar Supply:	BNSF supplied, subject to their availability for service under this Common Carrier Authority.
Transportation Rate:	$18.83 per net ton
Gross Weight:	Maximum of 268,000 pounds per railcar.
Minimum Train Lading Weight:	For trains comprised of aluminum gondola railcars – 111 tons multiplied by the number of railcars in the train. For trains comprised of aluminum rapid-discharge railcars – 107 tons multiplied by the number of railcars in the train. For trains comprised of steel railcars – 100 tons multiplied by the number of railcars in the train.

Weights utilized for the assessment of Freight Charges will be the applicable Minimum Train Lading Weight or the actual weight of Coal per Trainload, whichever is greater.

Train Size:	128 railcars
Railcars:	Claims for damage to or destruction of railcars shall be handled in accordance with the procedures set forth in the Field Manual and Office Manual of the Association of American Railroads Interchange Rules, as amended from time to time. Notwithstanding the foregoing, BNSF shall not be liable for events of force majeure, or for improper loading or unloading performed by Shipper, its agent, its contractor, consignor or consignee.
Weights:	Lading Weights shall be ascertained at Origin by Shipper, its agent, or the Coal mine operator, at no charge to BNSF, and will be provided to BNSF via either electronic data interchange or facsimile upon release of a loaded train. BNSF shall have the right to inspect and certify the Origin scales.

The Burlington Northern and Santa Fe Railway Company ("BNSF")
Common Carrier Pricing Authority BNSF 306720

Loading:

Shipper or its agent shall be responsible for the provision of appropriate loading facilities. All cars in each shipment shall be tendered to BNSF (or its agent or contractor) for loaded movement within four (4) hours of Actual or Constructive Placement for loading at Origin ("Loading Free Time"). Loading Free Time shall be extended for a period of time equivalent to that by which loading is delayed or prevented as a result of a Loading Disability or any occurrence attributable to BNSF which prevents or impedes loading.

A Loading Disability means any of the following events which directly results in the inability to load a train at Origin: (i) an Act of God; (ii) a strike or other labor disturbance; (iii) a riot or other such civil disturbance; (iv) unusual snow or ice accumulation sufficient to prevent or delay loading of a train; or (v) mechanical or electrical breakdown, explosion, or fire affecting the loading facilities at Origin.

Actual Placement is made when an empty train arrives at the designated loading point at Origin and the train crew requests loading instructions. If Actual Placement is prevented due to any cause attributable to Shipper, its agents, or the mine operator, BNSF (or its agent or contractor) may Constructively Place the train at any available hold point. In the event of Constructive Placement, Loading Free Time shall begin when BNSF (or its agent or contractor) determines a train must be placed at an available hold point because Actual Placement has been delayed or prevented, and ends when Actual Placement has been made. Shipper shall pay a charge of $600.00 per hour or fraction thereof that a train is held in excess of Loading Free Time.

Unloading:

Shipper shall be responsible for the provision of appropriate unloading facilities, and shall be responsible for unloading of railcars at Destination. Shipper shall take delivery of coal unit trains upon arrival at Destination. Shipper shall be allowed six hours free time for unloading of a train at Destination, commencing with the arrival of a train at Destination, or with Constructive Placement of a train ("Unloading Free Time"). Unloading Free Time shall be extended for a period of time equivalent to that by which unloading is delayed or prevented as a result of an Unloading Disability. If a train is not unloaded and released to BNSF within the applicable Unloading Free Time, Shipper shall pay BNSF a "Destination Detention Charge" of $600.00 per hour for each hour or fraction thereof that a train is held in excess of Unloading Free Time.

Constructive Placement begins when BNSF determines a train must be placed at an available hold point because placement at Destination has been delayed or prevented, and ends upon arrival of the train at Destination.

An Unloading Disability means any of the following events which directly results in the inability to unload a train at Destination: (i) an Act of God; (ii) a strike or other labor disturbance; (iii) a riot or other such civil disturbance; (iv) unusual snow or ice accumulation sufficient to prevent or delay unloading of a train; or (v) mechanical or electrical breakdown, explosion, or fire affecting the unloading facilities at Destination.

The Burlington Northern and Santa Fe Railway Company ("BNSF")
Common Carrier Pricing Authority BNSF 306720

Accessorial Services: Coal unit train accessorial services provided by BNSF and charges therefor, other than specified in this Common Carrier Authority, shall be as described in BNSF Authority 6041-series or successors thereto, except that no change in destination shall be permitted.

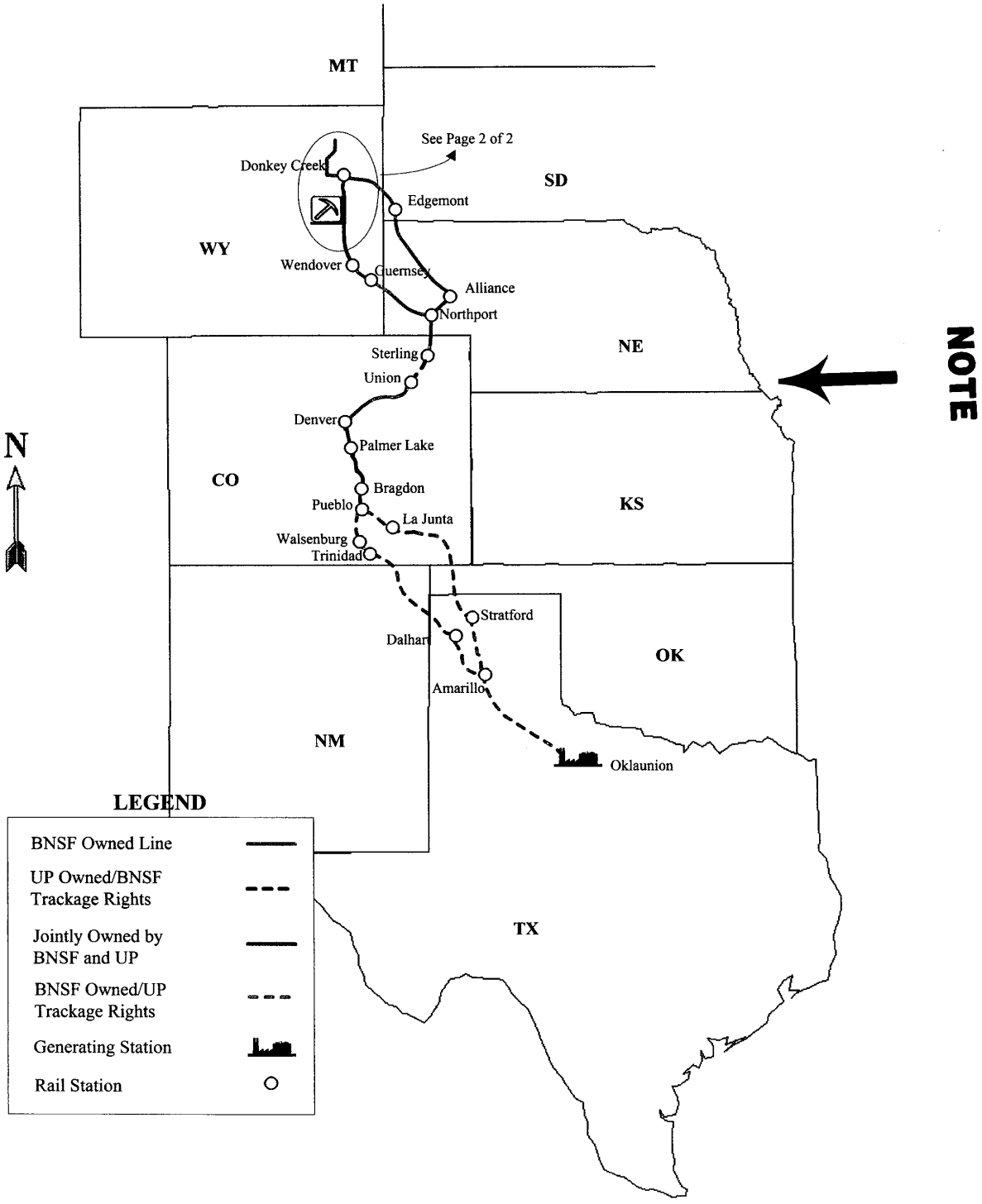
Billing and Payment: Freight Charges and accessorial will be billed by BNSF and paid by Shipper within ten working days of receipt of a bill therefor. BNSF will bill each shipment under the terms of the Uniform Straight Bill of Lading. All railcars for each shipment are to be billed on one (1) Bill of Lading. This Common Carrier Authority BNSF 306720, correct address and patron code must be shown on the Bill of Lading to insure accurate billing. In the event Shipper does not make full and timely payment, or if adverse credit conditions occur, which in the judgment of BNSF could affect Shipper's ability to meet payment terms, BNSF may require Shipper to pay cash in advance of service for all amounts for which Shipper is liable under this Common Carrier Authority.

Other Provisions: Shipments made under the provisions of this Common Carrier Authority are subject to the Uniform Freight Classification 6000-series or its successor, applicable tariffs, statutes, federal regulatory rules and regulations, AAR rules, and other accepted practices within the railroad industry as may be amended from time to time.

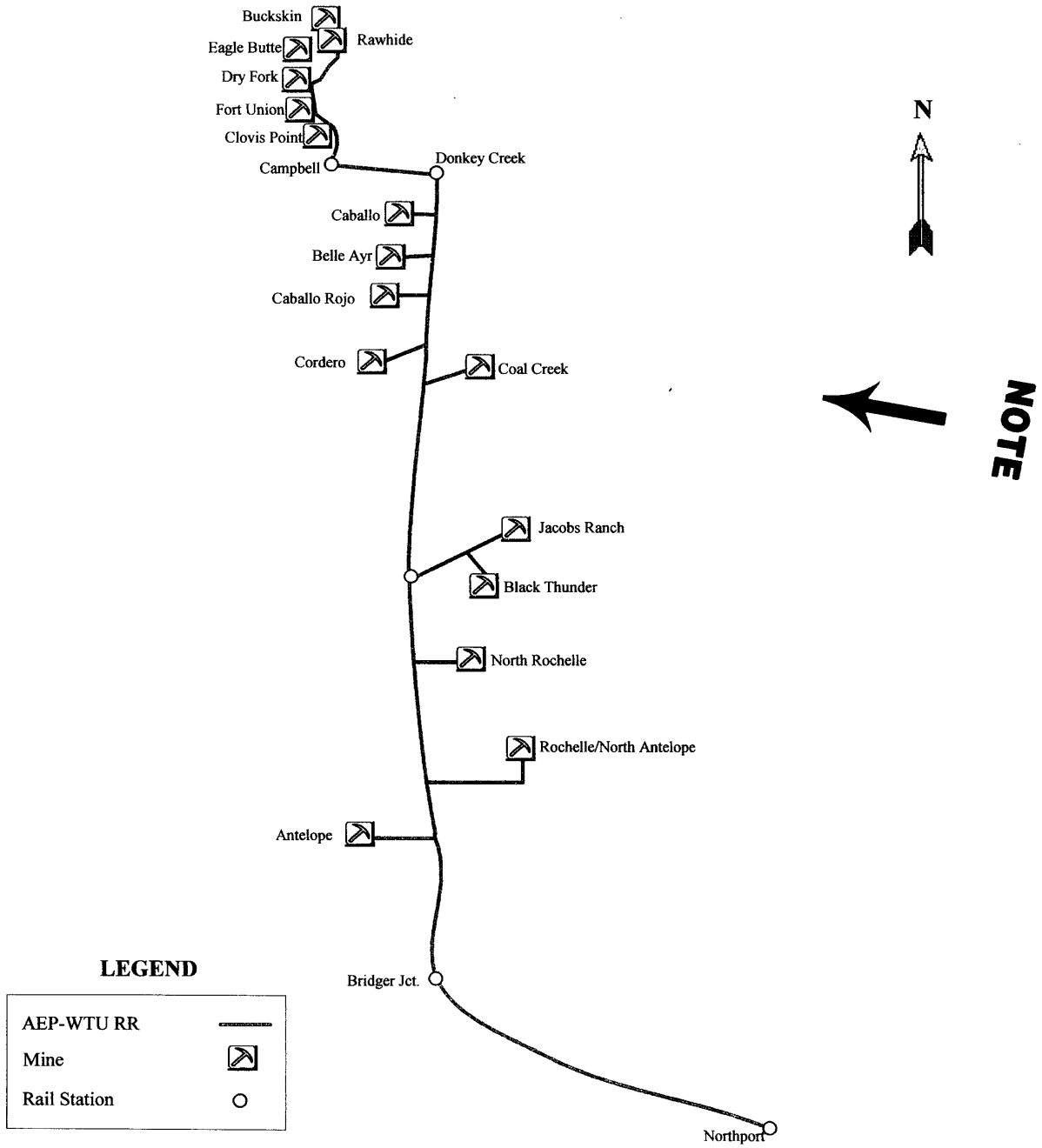
TOTAL P.05

II-A Quantitative Market Dominance

Schematic of Current Route(s) to AEP-Texas Oklaunion Plant



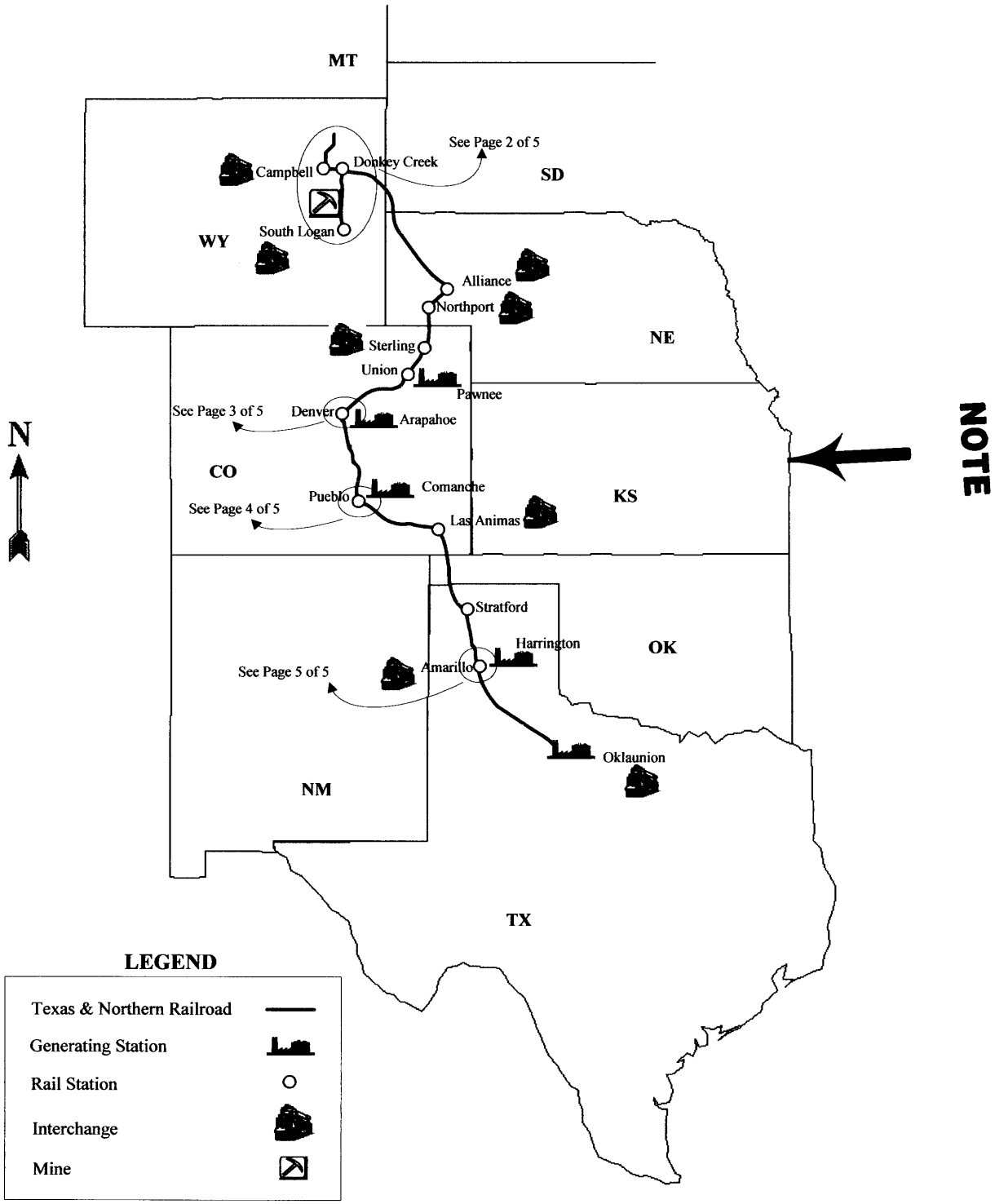
Schematic of Current Route(s) to AEP-Texas Oklaunion Plant



Exhibits
II-A-2 through II-A-81
Redacted

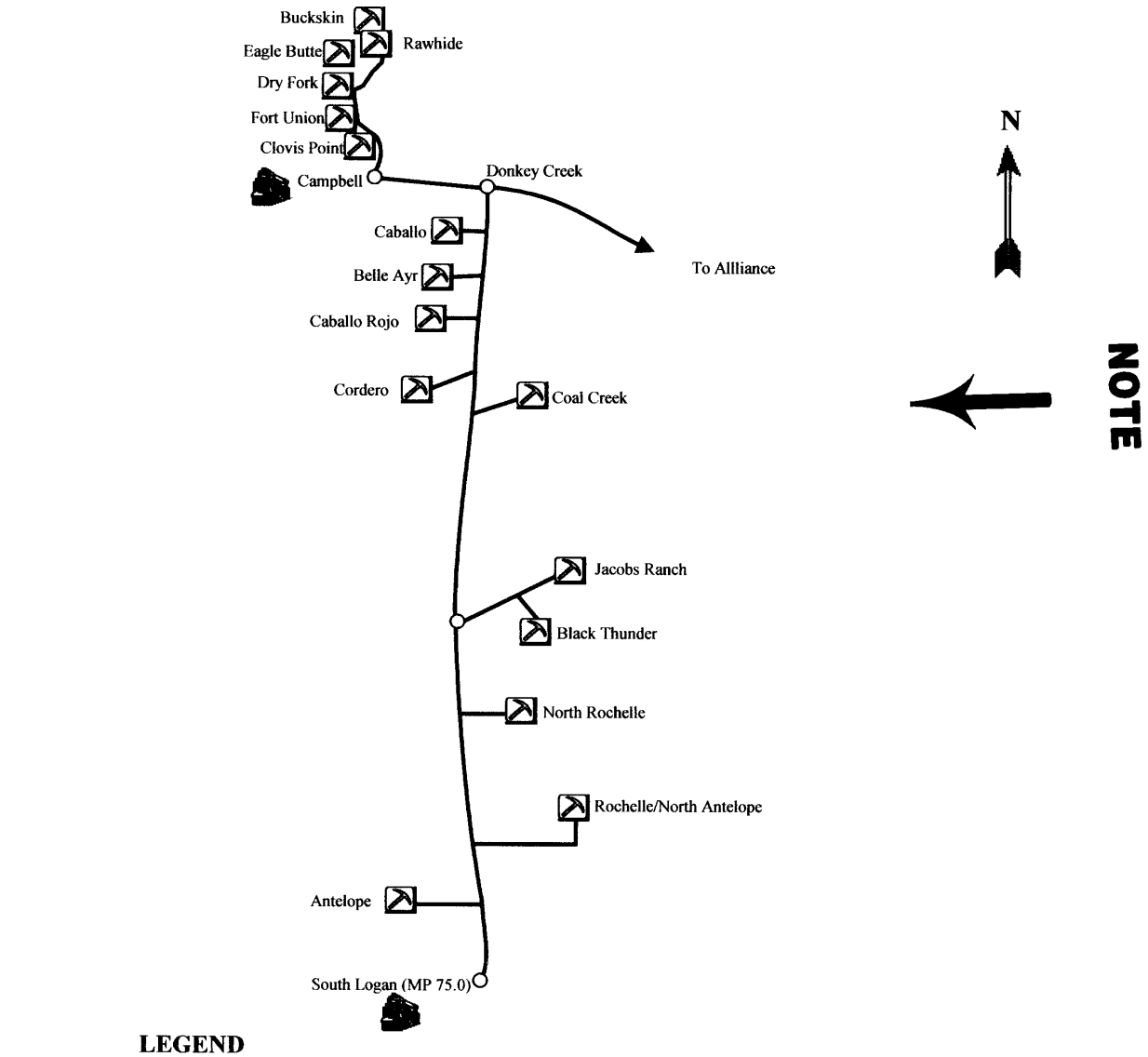
III-A Stand-Alone Traffic Group

Schematic of Texas & Northern Railroad



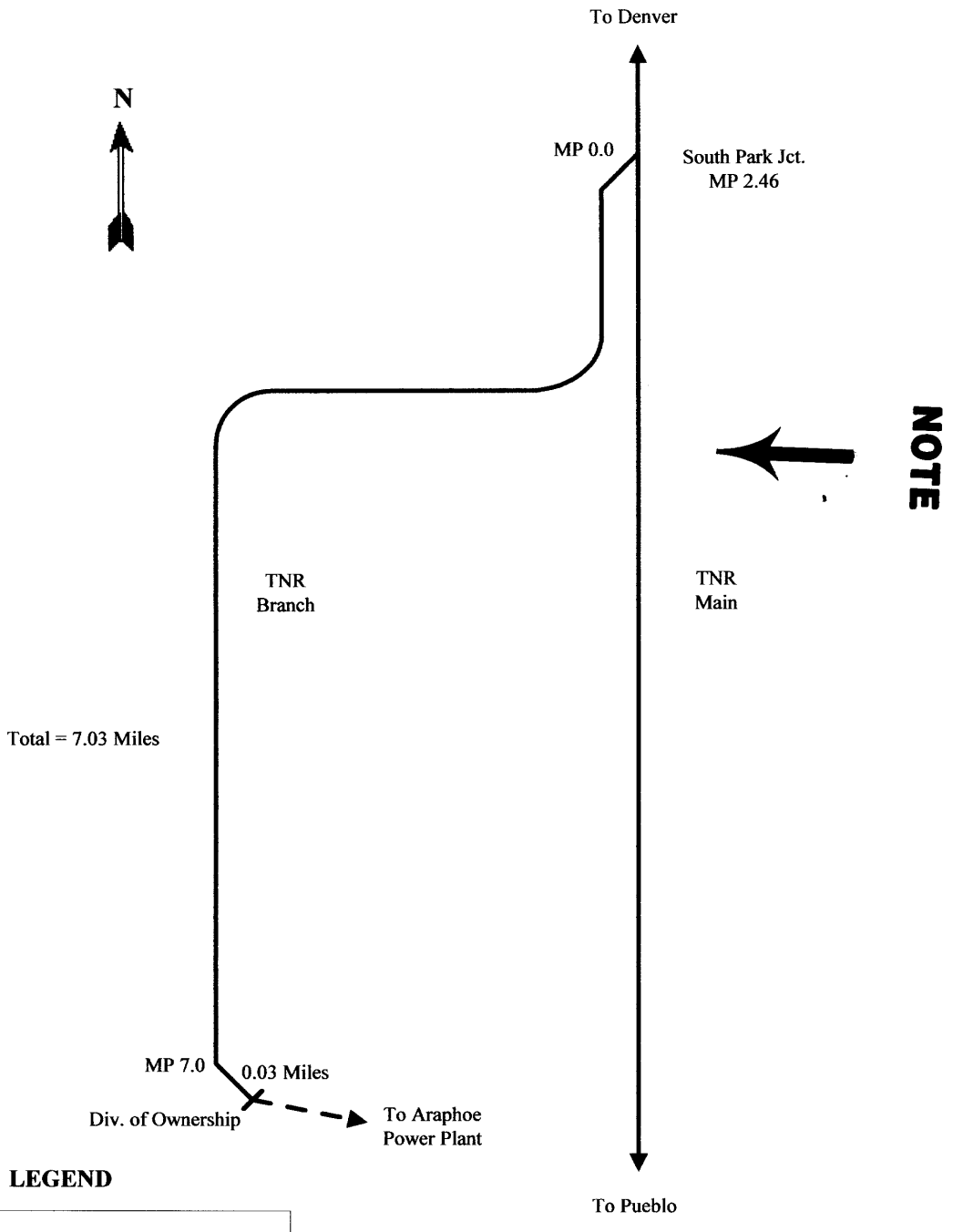
Schematic of Texas & Northern Railroad

(Powder River Basin, Wyoming)



Schematic of Texas & Northern Railroad

Arapahoe



Schematic of Texas & Northern Railroad

Comanche

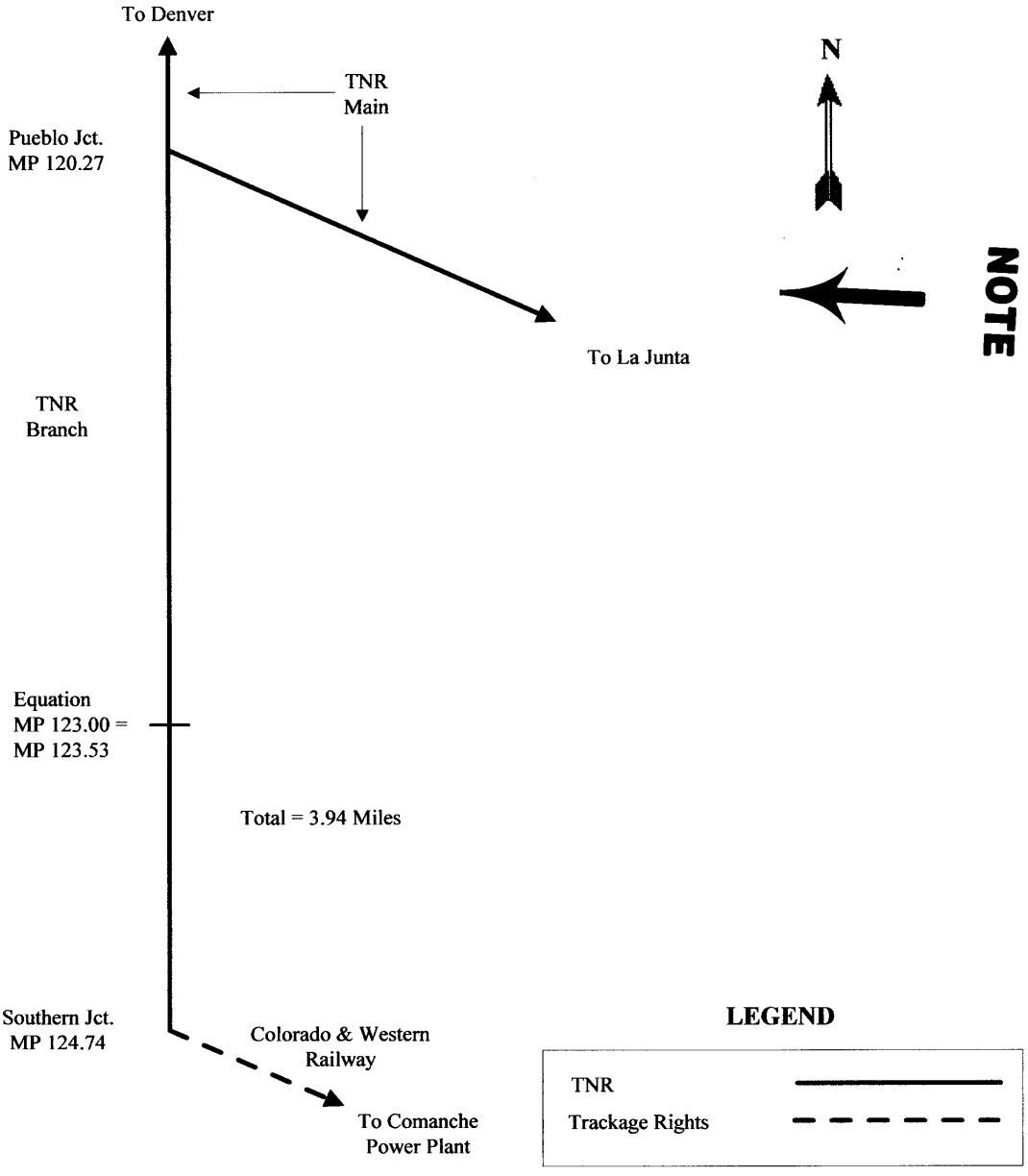


Exhibit
III-A-2
Redacted

Exhibit
III-A-3
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Schematic of Texas & Northern Railroad

Harrington/Amarillo

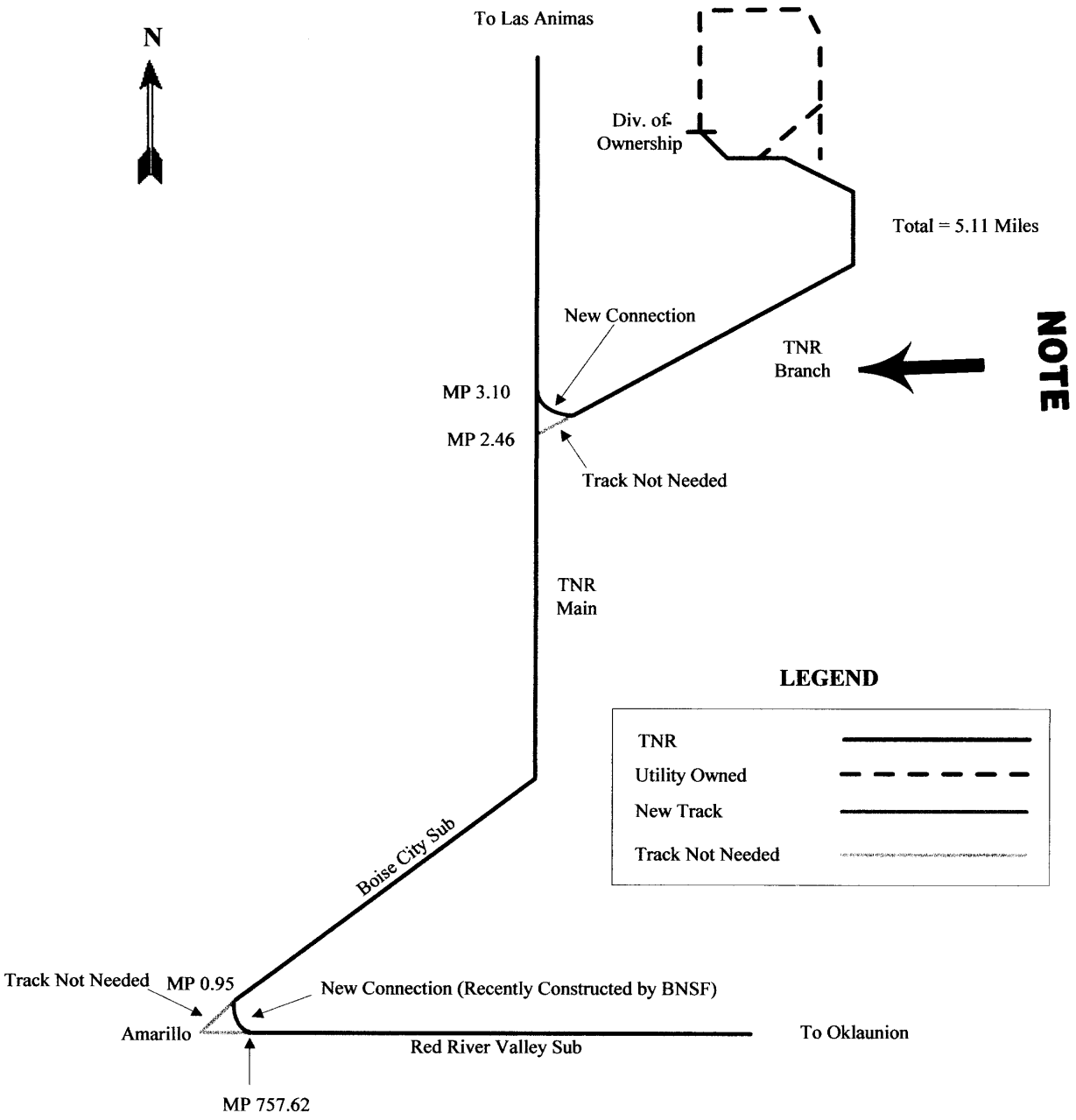


Exhibit
III-A-5
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AEO 2003 PRB Production Growth Forecast

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PRB Growth Rate	3.9%	6.1%	3.5%	2.4%	1.6%	1.7%	1.6%	2.3%	2.8%	1.7%	2.1%	2.4%

Compound Annual Growth Rate 2009-2020 2.7%

Source
Table 111. Coal Production by Region and Type
http://www.eia.doe.gov/oiaf/archive/aeo03/supplement/suptab_111.htm
Page 571 of *Annual Energy Outlook 2003 Supplemental Tables*

(Million Short Tons)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2001-2025
Northern Appalachia	149.14	153.6	136.83	137.66	134.53	142.23	148.21	146.64	139.07	136.86	135.09	134.07	131.87	130.91	131.54	131.73	132.61	131.91	137.17	137.62	139.07	139.58	140.61	143.58	146.93	148.45	-0.10%
Medium Sulfur (Premium) 1/	4.66	3.85	2.43	2.53	2.52	2.52	2.51	2.51	2.53	2.49	2.45	2.41	2.36	2.37	2.36	2.35	2.34	2.34	2.34	2.34	2.34	2.35	2.36	2.37	2.38	2.4	-2.00%
Low Sulfur (Bituminous) 2/	0.36	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A
Medium Sulfur (Bituminous) 2/	72.61	75.2	64.88	66.71	64.78	66.68	69.71	70.27	67.99	66.18	64.82	65.6	64.49	63.55	64.15	63.59	63.15	63.83	66.34	65.56	66.8	66.6	67.4	69	71.09	73.14	-0.16%
High Sulfur (Bituminous)	61.41	63.58	58.52	56.99	55.8	61.6	62.96	62.43	57.12	56.78	56.39	54.63	53.57	53.58	53.6	54.35	55.69	54.31	57.06	58.29	58.5	59.2	59.43	60.79	62.03	61.49	-0.10%
High Sulfur (Gob) 3/	10.1	10.6	11	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	11.43	0.30%
Central Appalachia	258.4	266.99	252.35	252.96	251.93	252.61	258.26	266.3	269.48	267.93	265.94	264.09	259.92	262.93	263.65	267.04	264.53	264.61	262.8	263.34	262.65	260.09	258.47	258.41	260.07	266.98	0.00%
Medium Sulfur (Premium) 1/	47.16	38.93	33.7	34.34	34.25	34.16	34.07	33.77	33.91	33.44	32.96	30.45	30.16	30.23	30.3	30.32	29.39	29.28	29.4	29.34	29.47	27.67	27.12	26.93	29.45	26.17	-1.50%
Low Sulfur (Bituminous)	55.91	71.2	54.25	66.96	68.6	68.77	70.93	71.85	72.35	71.7	71.73	75.56	78.25	77.64	75.64	74.83	73.62	72.72	71.96	72.24	71.99	71.65	71.2	71.53	72.09	75.13	0.20%
Medium Sulfur (Bituminous)	145.33	156.82	154.4	151.66	149.08	149.68	153.26	160.68	163.21	162.79	161.22	158.08	151.51	155.06	157.71	161.89	161.53	162.62	161.45	161.76	161.23	160.77	160.15	159.96	161.53	165.65	0.20%
Southern Appalachia	22	22.85	17.97	18.69	18.61	19.28	19.81	20.24	20.47	20.33	20.48	20.08	19.72	19.58	19.37	19.19	18.58	18.42	17.72	17.49	16.88	16.45	16.16	15.87	15.56	15.49	-1.60%
Low Sulfur (Premium) 1/	6.82	6.72	6.45	6.59	6.58	6.57	6.55	6.54	6.58	6.5	6.37	5.83	5.76	5.72	5.69	5.67	5.38	5.43	5.25	5.28	5.08	4.85	4.76	4.69	4.53	4.57	-1.60%
Low Sulfur (Bituminous)	6.03	5.88	3.21	3.21	3.17	3.01	3.14	3.43	3.55	3.57	3.9	4.16	4.34	4.36	4.27	4.23	4.19	4.14	3.99	3.9	3.7	3.6	3.54	3.44	3.38	3.3	-2.45%
Medium Sulfur (Bituminous)	9.15	10.25	8.31	8.9	8.85	9.68	10.11	10.27	10.34	10.26	10.21	10.1	9.62	9.5	9.41	9.29	9.01	8.85	8.53	8.34	8.11	8	7.87	7.75	7.65	7.61	-1.20%
Eastern Interior	88.09	96	97.95	103.27	100.95	105.74	109.58	107.99	109.36	108.38	106.35	103.39	101.87	104.89	104.99	107.78	109.09	110.77	111.5	112.72	110.73	113.09	115.1	116.62	119.03	121.69	1.00%
Medium Sulfur (Bituminous)	30.86	33.56	31.24	33.88	31.77	32.13	33.61	34.66	34.72	34.51	33.35	32.46	31.34	33.77	34.79	37.46	39.21	40.45	39.73	39.51	39	38.88	39.35	39.79	39.82	40.92	0.80%
High Sulfur (Bituminous)	56.33	61.84	65.97	66.42	66.07	71.33	72.33	69.72	70.85	69.9	68.93	66.87	66.73	67.19	66.22	66.31	65.9	66.31	67.76	69.25	67.76	70.16	71.87	73.15	75.4	77.08	0.90%
Medium Sulfur (Lignite)	0.9	0.6	0.74	2.97	3.12	3.27	3.44	3.61	3.79	3.98	4.07	4.06	3.81	3.93	3.99	4.01	3.99	4.01	4	3.95	3.96	3.95	3.88	3.89	3.81	3.68	7.90%
Western Interior High Sulfur (Bituminous)	2.42	2.41	2.35	2.46	2.46	2.68	2.69	2.64	2.64	2.57	2.55	2.46	2.33	2.3	2.31	2.27	2.21	2.17	2.09	2.03	1.98	1.96	1.92	1.88	1.85	1.85	-1.10%
Gulf	53.02	48.62	48.56	48.01	52.54	55.69	55.85	56.14	55.72	55.54	49.4	43.81	42.57	41.35	40.1	39.68	40.65	40.57	39.72	37.63	37.27	36.66	36.09	35.71	35.19	35.8	-1.30%
Medium Sulfur (Lignite)	36.44	33.42	28.74	27.79	30.69	32.74	33.39	33.06	33.56	33.03	30.01	27.26	26.87	25.86	25.24	24.71	25	24.86	24.27	22.74	22.6	22.25	21.76	21.6	21.24	21.59	-1.80%
High Sulfur (Lignite)	16.58	15.2	19.82	20.23	21.85	22.95	22.46	23.08	22.16	22.51	19.39	16.56	15.69	15.48	14.86	14.97	15.65	15.72	15.45	14.89	14.67	14.39	14.33	14.11	13.95	14.21	-0.30%
Dakota Medium Sulfur (Lignite)	31.41	30.82	31.55	30.85	30.57	30.54	30.69	30.88	31.12	31.31	31.51	31.7	31.9	32.08	32.29	32.47	32.65	32.9	33.08	33.27	33.46	33.47	33.46	33.5	33.53	33.55	0.40%
Powder/Green River	376.88	407.56	400.62	403.61	406.92	409.79	425.63	447.07	463.75	480.35	509.35	526.51	536.71	543.63	553.45	562.8	576.21	593.54	603.67	617.45	632.3	637.12	654.24	666.76	673.4	686.19	2.20%
Low Sulfur (Bituminous)	1.27	0	0	0.1	0.1	0.1	1.34	1.41	1.48	1.56	1.59	1.6	1.62	1.63	1.66	1.67	1.69	1.71	1.62	1.46	1.27	1.14	1.03	0.93	0.84	0.77	N/A
Low Sulfur (Sub-Bituminous)	345.74	375.08	368.82	368.2	373.62	379.37	394.44	416.27	433.98	450.91	478.34	495.2	507.15	515.48	524.31	532.46	544.54	559.82	569.11	581.11	595.28	598.93	614.69	625.79	631.52	642.2	2.30%
Medium Sulfur (Sub-Bituminous)	29.93	32.47	31.71	35.31	33.2	30.33	29.85	29.39	28.3	27.91	29.43	29.81	27.94	26.51	27.48	28.66	29.98	32.01	32.94	34.87	35.75	37.05	38.53	40.04	41.04	43.22	1.20%
Rocky Mountain	55.8	60.34	57.36	61.82	63.85	64.59	66.93	70.21	69.15	70.9	70.3	73.8	80.1	81.1	81.53	84.59	84.33	85	84.18	87.15	87.24	88.55	88.22	90.53	91.26	92.94	1.80%
Low Sulfur (Bituminous)	46.64	50.51	48.38	52.99	54.02	54.87	57.31	60.7	59.73	61.57	61.11	64.68	71.1	72.22	72.88	76.06	75.9	77.04	76.49	79.93	80.73	82.04	81.71	84.01	84.75	86.43	2.30%
Low Sulfur (Sub-Bituminous)	9.16	9.83	8.97	8.83	9.83	9.72	9.62	9.51	9.42	9.33	9.19	9.12	9	8.88	8.65	8.52	8.43	7.96	7.69	7.22	6.51	6.51	6.51	6.51	6.51	6.51	-1.70%
Arizona/New Mexico	40.43	43.03	33.31	33.69	33.87	33.94	33.79	33.64	33.49	33.43	33.37	33.26	33.35	32.79	32.19	31.95	31.64	31.36	31.11	30.96	30.83	30.9	30.83	30.84	30.84	30.84	-1.40%
Low Sulfur (Bituminous)	19.62	20.88	15.32	15.49	15.59	15.65	15.47	15.31	14.94	14.88	14.62	14.71	15.28	15.2	14.73	14.65	14.47	14.34	14.23	14.22	14.22	14.29	14.22	14.22	14.22	14.22	-1.60%
Medium Sulfur (Bituminous)	0	0.68	3.54	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	7.07	10.20%
Medium Sulfur (Sub-Bituminous)	20.81	21.47	14.45	11.1	11.21	11.22	11.25	11.26	11.48	11.48	11.48	11.48	11	10.53	10.39	10.23	10.09	9.95	9.81	9.67	9.54	9.54	9.54	9.54	9.55	9.55	-3.30%
Washington/Alaska																											
Medium Sulfur (Sub-Bituminous)	5.91	6.14	5.98	6.03	6.12	6.13	6.15	6.16	6.17	6.18	6.19	6.2	6.21	6.22	6.23	6.24	6.24	6.25	6.26	6.27	6.28	6.47	6.3	6.31	6.32	6.33	0.10%
Subtotals- All Regions																											
Premium Metallurgical 1/	58.64	49.5	42.58	43.46	43.35	43.25	43.14	42.81	43.02	42.44	41.81	38.7	38.3	38.32	38.34	38.33	37.11	37.05	36.99	36.94	36.89	34.87	34.23	33.98	33.36	33.14	-1.70%
Bituminous	517.86	553.18	520.49	532.83	527.36	543.26	559.74	570.45	566	563.3	557.68	557.97	557.25	563.05	564.49	573.69	573.64	575.56	578.28	583.57	582.36	585.44	586.74	593.51	601.73	614.69	0.40%
Sub-Bituminous	411.55	444.95	429.93	429.48	433.98	436.78	451.33	472.59	489.34	505.81	534.83	551.91	561.31	567.61	577.05	586.11	599.29	615.99	625.81	639.15	653.36	658.3	675.57	688.19	694.93	707.81	2.00%
Lignite	95.43	90.64	91.85	93.26	97.66	100.93	101.41	102.06	102.06	102.26	96.41	91.01	89.7	88.8	87.8	87.55	86.72	85.92	85.23	86.29	86.12	85.5	84.88	84.53	83.96	84.47	-0.35%
Low Sulfur	501.49	540.47	515.5	522.37	531.51	538.05	558.82	585.03	602.04	620.02	647.05	670.86	692.51	701.14	707.83	718.1	728.42	743.16	750.29	765.33	778.77	783	797.65	811.12	817.84	833.13	1.66%
Medium Sulfur	435.17	444.21	411.67	419.14	413.23	416.16	425.3	433.58	434.19	430.62	424.79	416.68	404.3	405.68	411.4	418.29	419.48	424.43	425.2	424.71	425.6	424.19	424.8	427.74	431.48	440.88	0.00%
High Sulfur	146.84	153.63	157.66	157.52	157.61	169.99	171.47	169.3	164.21	163.18	158.68	151.94	149.75	149.96	148.42	149.33	150.88	149.93	153.82	155.89	154.35	157.14	158.97	161.36	164.66	166.06	0.30%
Underground	373.43	380.23	355.57	371.36	369.99	380.76	393.92	404.03	399.3	398.4	394	394.83	397.79	402.36	405.94	413.86	415.02	417.41	422.19	428.53	427.61	429.55	431.38	437.56	444.51	456.12	0.80%
Surface	710.07	758.08	729.26	727.68	732.37	743.44	761.67	783.88	801.12	815.42	836.52	844.65	848.77	855.42	861.71	871.89	883.73	900.1	907.12	917.41	931.13	934.77	950.05	962.66	969.47	983.94	1.10%
U.S. Total	1083.5	1138.31	1084.84	1099.04	1102.35	1124.2	1155.59	1187.91	1200.42	1213.82	1230.53	1239.48	1246.55	1257.77	1267.65	1285.72	1298.76	1317.51	1329.31	1345.94	1358.73	1364.33	1381.42	1400.22	1413.98	1440.07	1.00%

1/ "Premium" coal is used to make metallurgical coke.
2/ Includes Pennsylvania anthracite.
3/ Waste coal delivered to Independent Power Producers (IPP) that is not included in other Energy Information Administration coal production tables. The totals for this tableinclude this waste coal tonnage.
Northern Appalachia: PA, MD, OH, Northern WV (PA anthracite is included under low and medium sulfur bituminous).
Central Appalachia: Southern WV, VA, Eastern KY
Southern Appalachia: AL, TN
Eastern Interior: IL, IN, MS, Western KY.
Western Interior (Bituminous Only): IA, MO, KS, OK, AR, TX. Gulf (Lignite Only): TX, LA, AR
Dakota: ND, Eastern MT (Lignite Only)
Powder/Green River: WY, MT (Sub-Bituminous and Bituminous)
Rocky Mountains: CO, UT.
Sulfur Definitions: Low Sulfur: 0 - 0.60 pounds of sulfur per million Btu. Medium Sulfur: 0.61 - 1.67 pounds of sulfur per million Btu. High Sulfur: Over 1.67 pounds of sulfur per million Btu.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, AEO2003 National Energy Modeling System run aeo2003.d110502c.

SARR Group EAF (%)	
Unit Name	**2003**
Alma #1	90.47
Alma #2	90.47
Alma #3	87.51
Alma #4	93.42
Alma #5	90.47
Arapahoe 3	80.47
Arapahoe 4	90.48
Avon Lake #6	78.60
Avon Lake #7	78.60
Avon Lake #9	85.91
Baldwin #1IllinoisPower	80.53
Baldwin #2	73.17
Baldwin #3 IllinoisPower	81.54
Bay Shore #1	88.28
Bay Shore #2	79.51
Bay Shore #3	75.45
Bay Shore #4	81.54
Belle River #ST1	91.45
Belle River #ST2	78.60
Big Brown #1	89.48
Big Brown #2	82.51
Big Cajun 1 #1 coal	80.53
Big Cajun 2 #1 coal	88.52
Big Cajun 2 #3 coal	83.53
Big Stone #1	91.45
Boardman 1	81.54
Burlington #1 Alliant	82.51
Coleto Creek #1	92.54
Columbia #1 EIA8023	85.50
Columbia #2 EIA8023	83.53
Comanche 1	80.53
Comanche 2	92.54
Corette 1	84.44
Dan E Karn #1	84.44
Dan E Karn #2	91.45
Dave Johnston 1	94.45
Dave Johnston 2	93.42
Dave Johnston 3	88.52
Dave Johnston 4	82.51
Eastlake #1	82.51
Eastlake #2	76.57
Eastlake #3	83.53
Eastlake #4	78.60
Eastlake #5	73.17
Fayette Power Prj #1	85.50
Fayette Power Prj #2	91.45
Fayette Power Prj #3	93.42
Flint Creek #1	86.46
Gentleman #1	77.57
Gentleman #2	84.44
Ghent #1	83.53
Ghent #2	86.46
Ghent #3	91.45
Ghent #4	85.50
Gibbons Creek #1	88.52
GRDA #1	88.77
GRDA #2	87.74
Harrington #1	89.48
Harrington #2	91.45

SARR Group EAF (%)	
Unit Name	**2003**
Harrington #3	92.54
Hawthorn 5	82.74
High Bridge #5	82.51
High Bridge #6	80.53
Holcomb #1	93.42
Holcomb #Exp	90.00
Hugo #1	78.60
Iatan #1	73.17
J H Campbell #1	79.51
J H Campbell #2	83.53
J H Campbell #3	79.51
J R Whiting #1	88.52
J R Whiting #2	82.51
J R Whiting #3	87.51
James H Miller Jr #1	85.50
James H Miller Jr #2	82.51
James H Miller Jr #3	86.46
James H Miller Jr #4	86.46
James River Power St #1 EIA21	82.74
James River Power St #2 EIA21	82.74
James River Power St #3 EIA21	90.00
James River Power St #4 EIA21	84.74
James River Power St #5 EIA21	89.74
Jeffrey EC #1	89.48
Jeffrey EC #2	87.51
Jeffrey EC #3	91.45
John P Madgett #1	87.51
Lacygne #1	67.91
Lacygne #2	83.53
Lake Shore #18	67.91
Lansing #1	72.46
Lansing #2	72.46
Lansing #3	75.89
Lansing #4	81.54
Laramie R Station #1	86.46
Laramie R Station 2	89.48
Laramie R Station 3	85.50
Lawrence EC #2	82.74
Lawrence EC #3	91.45
Lawrence EC #4	84.44
Lawrence EC #5	85.50
Leland Olds #1	87.51
Leland Olds #2	79.51
Limestone #1	85.50
Limestone #2	88.52
M L Kapp #2	87.51
Martin Lake #1	86.46
Martin Lake #2	83.53
Martin Lake #3	83.53
Monroe #1 Detroit Edison	77.57
Monroe #2 Detroit Edison	86.46
Monroe #3 Detroit Edison	80.53
Monroe #4 Detroit Edison	73.17
Monticello #1 EIA1922	85.50
Monticello #2 EIA6147	84.44
Monticello #3 EIA6147	80.53
Muscatine Plant #1 #7	60.36
Muscatine Plant #1 #8	82.51
Muscatine Plant #1 #9	84.44

SARR Group EAF (%)	
Unit Name	**2003**
Muscatine Plant #1 8A	79.24
Nearman Creek #1	83.74
Nebraska City #1 EIA6096	89.48
Nelson Coal #6	81.54
Nelson Dewey #1	89.48
Nelson Dewey #2	83.53
Newton #1	88.52
Newton #2	83.53
North Omaha #1	87.51
North Omaha #2	88.52
North Omaha #3	86.46
North Omaha #4	85.50
North Omaha #5	89.48
Oklaunion #1	81.54
Ottumwa #1 EIA6254 MidAmeric	83.53
Paradise #1 TVA	76.57
Paradise #2	81.54
Paradise #3	60.36
Pawnee 1	90.48
Platte #1	82.02
Presque Isle #1	92.54
Presque Isle #2	85.50
Presque Isle #3	82.51
Presque Isle #4	81.54
Presque Isle #5	90.48
Presque Isle #6	84.44
Presque Isle #7	83.53
Presque Isle #8	87.51
Presque Isle #9	83.53
Rawhide 1	90.48
River Rouge #2	79.51
River Rouge #3	77.57
Riverside #3HS EIA1081	79.24
Riverside #5 EIA1081	89.48
Riverside #8 EIA1927	84.44
Riverside #ST7 EIA1927	86.46
Rockport #1 IMPC	88.52
Rockport #2 IMPC	87.51
Rush Island #1	79.51
Rush Island #2	77.57
Scherer #1	92.54
Scherer #2	88.52
Scherer #3	91.45
Scherer #4	88.52
Shawnee #1 TVA	90.48
Shawnee #10	70.07
Shawnee #2	90.48
Shawnee #3	90.48
Shawnee #4	90.48
Shawnee #5	91.45
Shawnee #6	87.51
Shawnee #7	91.45
Shawnee #8	92.54
Shawnee #9	89.48
Sherburne Co #1	91.45
Sherburne Co #2	88.52
Sherburne Co #3	92.54
Sikeston #1	90.00
Sioux #1	78.60

SARR Group EAF (%)	
Unit Name	**2003**
Sioux #2	80.53
Southwest Power St #ST1	89.74
Springerville 1	89.48
Springerville 2	97.20
Springerville New	90.00
St Clair #1	89.48
St Clair #2	73.17
St Clair #3	81.54
St Clair #4	84.44
St Clair #6	67.91
St Clair #7	60.36
Stateline Coal #3	85.19
Stateline Coal #4	88.90
Tecumseh EC #7	89.48
Tecumseh EC #8	85.50
Thomas Hill #1	86.46
Thomas Hill #2	78.60
Thomas Hill #3	78.60
Tolk #1	90.48
Tolk #2	92.54
Trenton Channel #7	90.00
Trenton Channel #8	85.69
Trenton Channel #9	80.53
W A Parish #5	83.53
W A Parish #6	80.53
W A Parish #7	84.44
W A Parish #8	80.53
Welsh #1 EIA6139	86.46
Welsh #2 EIA6139	87.51
Welsh #3 EIA6139	87.51
White Bluff #1	80.53
White Bluff #2	67.91

Source: NERC pc-GAR database, version 2.04 v11_NM
See Electronic Workpapers "TNR Group Members Equivalent Availability Factor.xls" and "GADS Base Year Equivalent Availability Factors".

SARR Group EAF (%)	
Unit Name	**2020**
Alma #1	95.00
Alma #2	95.00
Alma #3	94.10
Alma #4	95.00
Alma #5	95.00
Arapahoe 3	86.53
Arapahoe 4	95.00
Avon Lake #6	84.53
Avon Lake #7	84.53
Avon Lake #9	92.38
Baldwin #1IllinoisPower	86.60
Baldwin #2	78.68
Baldwin #3 IllinoisPower	87.68
Bay Shore #1	94.93
Bay Shore #2	85.50
Bay Shore #3	81.14
Bay Shore #4	87.68
Belle River #ST1	95.00
Belle River #ST2	84.52
Big Brown #1	95.00
Big Brown #2	88.73
Big Cajun 1 #1 coal	86.60
Big Cajun 2 #1 coal	95.00
Big Cajun 2 #3 coal	89.82
Big Stone #1	95.00
Boardman 1	87.68
Burlington #1 Alliant	88.73
Coleto Creek #1	95.00
Columbia #1 EIA8023	91.94
Columbia #2 EIA8023	89.82
Comanche 1	86.60
Comanche 2	95.00
Corette 1	90.80
Dan E Karn #1	90.80
Dan E Karn #2	95.00
Dave Johnston 1	95.00
Dave Johnston 2	95.00
Dave Johnston 3	95.00
Dave Johnston 4	88.73
Eastlake #1	88.73
Eastlake #2	82.34
Eastlake #3	89.82
Eastlake #4	84.52
Eastlake #5	78.68
Fayette Power Prj #1	91.94
Fayette Power Prj #2	95.00
Fayette Power Prj #3	95.00
Flint Creek #1	92.98
Gentleman #1	83.42
Gentleman #2	90.80

SARR Group EAF (%)	
Unit Name	**2020**
Ghent #1	89.82
Ghent #2	92.98
Ghent #3	95.00
Ghent #4	91.94
Gibbons Creek #1	95.00
GRDA #1	95.00
GRDA #2	94.35
Harrington #1	95.00
Harrington #2	95.00
Harrington #3	95.00
Hawthorn 5	88.97
High Bridge #5	88.73
High Bridge #6	86.60
Holcomb #1	95.00
Holcomb #Exp	95.00
Hugo #1	84.52
Iatan #1	78.68
J H Campbell #1	85.50
J H Campbell #2	89.82
J H Campbell #3	85.50
J R Whiting #1	95.00
J R Whiting #2	88.73
J R Whiting #3	94.10
James H Miller Jr #1	91.94
James H Miller Jr #2	88.73
James H Miller Jr #3	92.98
James H Miller Jr #4	92.98
James River Power St #1 EIA2161	88.97
James River Power St #2 EIA2161	88.97
James River Power St #3 EIA2161	95.00
James River Power St #4 EIA2161	91.13
James River Power St #5 EIA2161	95.00
Jeffrey EC #1	95.00
Jeffrey EC #2	94.10
Jeffrey EC #3	95.00
John P Madgett #1	94.10
Lacygne #1	73.03
Lacygne #2	89.82
Lake Shore #18	73.03
Lansing #1	77.92
Lansing #2	77.92
Lansing #3	81.61
Lansing #4	87.68
Laramie R Station #1	92.98
Laramie R Station 2	95.00
Laramie R Station 3	91.94
Lawrence EC #2	88.97
Lawrence EC #3	95.00
Lawrence EC #4	90.80
Lawrence EC #5	91.94

SARR Group EAF (%)	
Unit Name	**2020**
Leland Olds #1	94.10
Leland Olds #2	85.50
Limestone #1	91.94
Limestone #2	95.00
M L Kapp #2	94.10
Martin Lake #1	92.98
Martin Lake #2	89.82
Martin Lake #3	89.82
Monroe #1 Detroit Edison	83.42
Monroe #2 Detroit Edison	92.98
Monroe #3 Detroit Edison	86.60
Monroe #4 Detroit Edison	78.68
Monticello #1 EIA1922	91.94
Monticello #2 EIA6147	90.80
Monticello #3 EIA6147	86.60
Muscatine Plant #1 #7	64.91
Muscatine Plant #1 #8	88.73
Muscatine Plant #1 #9	90.80
Muscatine Plant #1 8A	85.21
Nearman Creek #1	90.05
Nebraska City #1 EIA6096	95.00
Nelson Coal #6	87.68
Nelson Dewey #1	95.00
Nelson Dewey #2	89.82
Newton #1	95.00
Newton #2	89.82
North Omaha #1	94.10
North Omaha #2	95.00
North Omaha #3	92.98
North Omaha #4	91.94
North Omaha #5	95.00
Oklaunion #1	87.68
Ottumwa #1 EIA6254 MidAmerican	89.82
Paradise #1 TVA	82.34
Paradise #2	87.68
Paradise #3	64.91
Pawnee 1	95.00
Platte #1	88.20
Presque Isle #1	95.00
Presque Isle #2	91.94
Presque Isle #3	88.73
Presque Isle #4	87.68
Presque Isle #5	95.00
Presque Isle #6	90.80
Presque Isle #7	89.82
Presque Isle #8	94.10
Presque Isle #9	89.82
Rawhide 1	95.00
River Rouge #2	85.50
River Rouge #3	83.42

SARR Group EAF (%)	
Unit Name	**2020**
W A Parish #5	89.82
W A Parish #6	86.60
W A Parish #7	90.80
W A Parish #8	86.60
Welsh #1 EIA6139	92.98
Welsh #2 EIA6139	94.10
Welsh #3 EIA6139	94.10
White Bluff #1	86.60
White Bluff #2	73.03

Source: NERC pc-GAR database, version 2.04 v11_NM

See Electronic Workpapers "TNR Group Members Equivalent Availability Factor.xls" and "GADS Base Year Equivalent Availability Factors".

CEMAS DESCRIPTION

PLANNING APPROACH AND ASSUMPTIONS

Pace Global's market analysis planning tool consists of multiple, interrelated analytical processes. Pace Global employed computer simulation models to evaluate the existing supply and demand relationships in the region, match future utility operations to forecasts of demand, and predict the electricity prices and plant dispatch across the United States, Canada, and portions of Mexico. The following reviews Pace Global's four-step approach.

COMPETITIVE MARKET SIMULATION

Pace Global has developed a dynamic approach to forecasting electricity prices and power plant operations in a deregulated power market, which is based on hands-on experience in the deregulated power market of Australia, UK and the past seven years in the United States. Pace Global's approach incorporates five market analysis tools that provide the capability to project market-clearing prices for both capacity and energy. As we illustrate in Exhibit 1, Pace Global's CEMAS model consists of five modules. These modules are:

1. **Revenue Requirement Module:** This module compares fixed and variable costs for all generating units with all-in revenues generated from a given bidding strategy. It then reports information regarding over or under-recovery (stranded costs) to the Bid Analysis Module.

2. **Unit Fuel Pricing Module:** This module calculates fuel prices for each unit and transfers the data to the Revenue Requirement Module. These fuel pricing calculations take into account escalation schedules, transportation costs, fuel quality, and fuel procurement and contractual constraints.

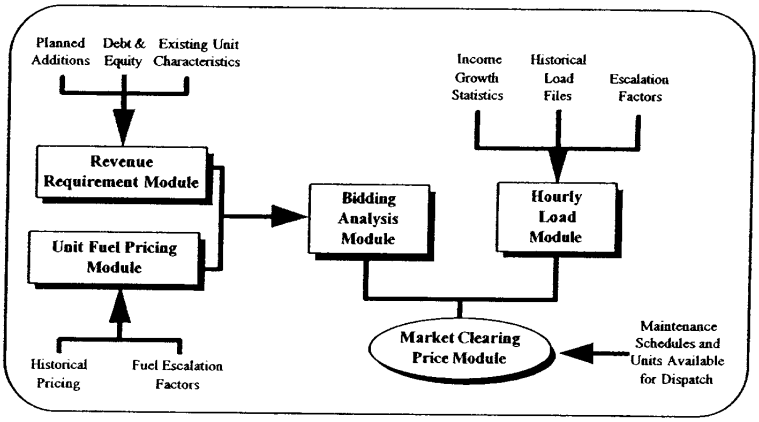
3. **Bidding Analysis Module:** Based on the fixed and variable costs of generating units and over and under-recovery data generated by the Revenue Requirement Module, this module determines the peak period prices that will provide an equilibrium dispatch and pricing solution and transfers this information to the Market Clearing Price Module.

4. **Hourly Load Module:** The Hourly Load Module aggregates actual utility hourly loads as reported to the FERC to create an integrated system hourly load profile. This module uses forecasts of peak and energy demand to develop the base system load profile over the study period. The results of the Hourly Load Module are drawn upon by the Market Clearing Price Module to simulate daily system demand.

5. **Market Clearing Price Module:** This module performs a detailed operations and dispatch simulation based on resource-specific variable costs and the hourly load data generated by the Hourly Load Module. For each hour in the study period, the module dispatches generating units according to their

variable costs and availability. Peak period prices generated by the Bidding Analysis Module are integrated into the price forecast to determine market prices under equilibrium conditions. The Market Clearing Price Module uses a utility grade dispatch model to model the hourly system constraints of a regional power pool, optimizing least cost generation choices to match demand fluctuations.

Exhibit 1: Pace Global CEMAS Methodology



Source: Pace Global.

CEMAS was designed based on Pace Global's market experience, which shows that clearing prices of competitive generation markets are a function of the underlying generation cost structure, supply availability and demand fluctuations, and the bidding strategies that participants adopt. Pace Global has sought with CEMAS to integrate these components into a system capable of accurately projecting market clearing prices in a competitive market.

The following sections review in greater detail the individual modules of the CEMAS analytical system—their purposes, inputs, and relationship to the whole modeling system.

REVENUE REQUIREMENT MODULE

The Revenue Requirement Module is the foundation input and calculation module of CEMAS. It maintains data characterizing each generating unit in the market area (both existing and planned) and is used to:

- Organize and store historical unit information regarding capacity, generation, O&M, and capital costs.
- Provide an interface mechanism with the Bidding Analysis Module to provide data for bid construction.

- Create an analysis mechanism for run results from the Market Pricing Module by matching unit revenues derived from bidding strategies to actual fixed cost recovery requirements. This evaluation is essential in benchmarking bidding strategies and capacity and energy market pricing, as well as determining potential stranded costs on either a unit or system basis.
- Provide a cost competitiveness evaluation tool for comparison of the relative cost and capacity mix for various utilities in the interconnected region.

Pace Global also uses the Revenue Requirement Module as a tool to perform sensitivity analyses of unit fixed cost structures. Specifically, the Revenue Requirement Module permits the adjustment of return on equity for each unit, interest rates, fixed O&M, debt term, unit book value (lowering or "writing-off"), and consolidation or disaggregation of units to simulate various market conditions and deregulation scenarios. All these capabilities permit the flexibility to model virtually any utility system or project the impact of multiple restructuring scenarios on market prices.

The detailed unit characterization data maintained by the Revenue Requirement Module includes information on utility system, in-service date, nameplate capacity, fuel type, fuel pricing, fixed O&M cost, variable O&M cost, heat rate, historical generation, current book value, annual depreciation expense, annual interest expense, and annual return-on-equity requirement. Pace Global utilizes forms EIA-411, EIA-412, FERC Form 1, and Rural Utilities Service Form 12a.

UNIT FUEL PRICING MODULE

The purpose of the Unit Fuel Pricing Module is to provide the Revenue Requirement Module with detail on each unit's fuel price and account for plant-specific fuel procurement and contracting practices, pricing differences, transportation costs, and fuel quality variances. The Unit Fuel Pricing Module:

- Organizes and stores historical unit fuel prices;
- Analyzes seasonal and annual fuel pricing trends for individual units and entire systems; and
- Provides input to the Revenue Requirement Module and Market Clearing Price Module.

The Fuel Pricing Module calculates the average fuel costs for each fuel type (i.e., coal, uranium, natural gas, No. 6 and No. 2 fuel oil), and develops fuel disaggregation factors for each unit. The Unit Fuel Pricing Module adopts this process to project annual fuel costs given a market area price for a type of fuel. This market area fuel price is then adjusted each year by the study's assumed long-range fuel pricing forecast escalators as detailed in Section VI. At this stage, unit-specific fuel prices are then into the Revenue Requirement Module to calculate variable operating costs and other variables necessary for bidding analysis.

HOURLY LOAD MODULE

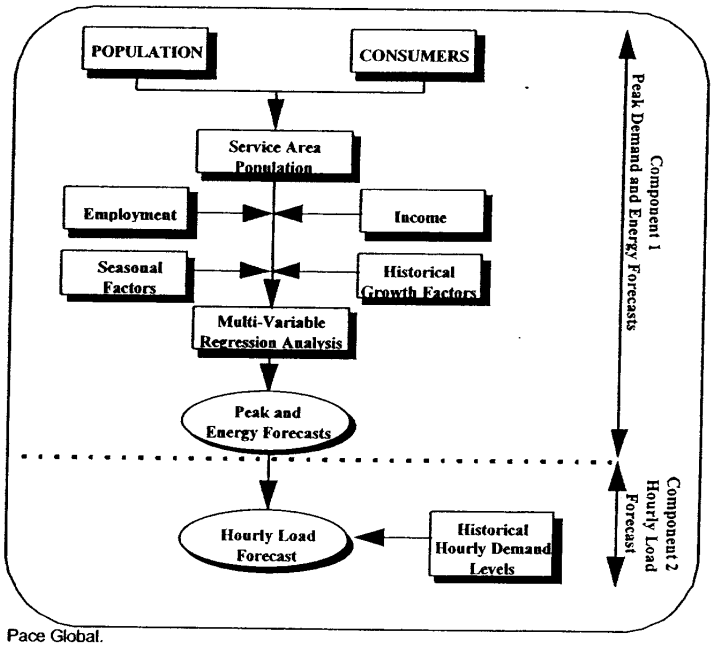
Load characterization defines how many supply resources are needed, as well as how these resources will be used on a daily, weekly, and seasonal basis. Consequently, hourly demand is an important determinant of the shape and escalation of system costs. CEMAS characterizes this important variable by modeling all market pricing scenarios with an hourly load module that replicates the actual 8,760 hours of demand occurring in a utility system each year. In this way, modeling results reflect not only the cost to serve a certain level of demand, but also show how hourly changes impact the use of different types of generation units.

The Hourly Load Module aggregates actual utility hourly loads as reported to the FERC to create an integrated system hourly load profile. It then uses utility adjusted forecasts of peak and energy demand to escalate the base system load profile over the study period. The results are drawn upon by the Market Clearing Price Module to simulate daily system demand.

Load Forecasting

Pace Global's independent forecast was developed according to the methodology illustrated in Exhibit 2. This methodology has two primary components. The first is the use of econometric models to forecast annual peak demand and energy levels based on changes in population, employment, income, and other factors. The second component of the methodology is the translation of historical hourly demand levels and forecasted peak demands to create predicted hourly load for each forecast year.

Exhibit 2: Pace Global Load Forecasting Methodology



Source: Pace Global.

Pace Global generated its energy demand forecast based on the historical relationships between regional demand and multiple historic economic indicators (e.g., population, employment, and income) between 1989-2002.

BIDDING ANALYSIS MODULE

Given the fundamental change in the electricity market from a regulated cost of service to a more market driven mechanism, it is expected (and it has been demonstrated in other competitive markets such as Chile, Norway, the United Kingdom, New Zealand, and Australia) that a bidding process will be developed as the basis of determining which generators will be used in a given hour. To account for the change from cost-driven dispatch to market-driven dispatch, Pace Global has developed a Bidding Analysis Module to assist in formulating peak prices. The Bidding Analysis Module assesses generators' variable and fixed costs requirements, system demand, relative competitiveness, and experience from the results of the previous day's bidding to:

- Generate peak prices that create the highest probability of achieving targeted fixed and variable cost recovery;
- Maximize revenues where total fixed and variable cost recovery can not be achieved due to market forces;
- Maximize upside revenue potential during periods of peak demand or unit outages; and
- Replicate the activities and consequent pricing of existing competitive markets; and.

MARKET CLEARING PRICE MODULE

The Market Clearing Price Module uses a utility grade dispatch model (AURORA) to model hourly system constraints of a regional power pool, optimizing least cost generation choices to match demand fluctuations. The Market Clearing Price Module matches the outputs of the Bidding Analysis Module, Revenue Requirement Module, and the Hourly Load Module to determine market prices for each forecast period.

AURORA is a chronological hybrid electric utility production simulation modeling system developed by EPIS and used extensively by utilities and public utility commissions. It is designed to perform planning studies, and as result of its chronological structure, AURORA accomplishes detailed hour-by-hour investigation of electric utility operations. It utilizes the Monte Carlo method (i.e., a random number generator is used to determine unit availability during the simulation period) of outage distribution along with chronological constraints to simulate the system's operation. Given a sufficient number of iterations, the Monte Carlo method is typically more accurate than probabilistic dispatch.

Because AURORA is a chronological model, it permits highly detailed description of the modeling environment. This capability adds increased modeling control over variable inputs and results in more accurate simulation of utility operation in a given market area.

Additionally, AURORA has the capability to simulate a market structure where units compete on an optimized total cost basis (one bid price to recover both capital and energy costs) rather than traditional marginal cost optimization. This capability allows Pace Global to simulate alternative market structures, such as the competitive generation market resulting from electricity industry restructuring.

2002$

Power Consulting New Additions Unit Assumptions - Lending Case

Source: Pace Global

Item	Unit	CT 7FA	CC 2x1F	CC "G"	Coal PC
Dollar Vaue		2002$	2002$	2002$	2002$
Available Year	Year			2005	
Capacity	MW	170	530	530	400
Cost	$/kW	376	500	512	1,500
Variable O&M	$/MWh	2.50	1.80	1.80	2.60
Fixed O&M	$/kW-yr	8.50	12.00	14.00	25.90
Heat Rate	Btu/kWh HHV	10,400	7,050	6,850	10,100
Heat Rate -Summer	Btu/kWh HHV	10,400	7,262	7,056	9,888
Forced Outage	%	2.50	2.50	2.50	2.50
Annual Maintenance	Weeks	2.00	3.00	3.50	4.50
Percent Equity	%	50.0%	40.0%	40.0%	40.0%
Interest	%	8.3%	8.3%	8.3%	8.3%
After Tax Return on Equity	%	15.0%	15.0%	15.0%	15.0%
Debt Term	Years	20	20	20	20

Regional Power Consulting New Additions Unit Assumptions

Area	Model Zone	Multiple of Standard Cost Assumption	Resulting Fixed O&M ($/kW-yr.) CT 7FA	CC 2x1F	CC "G"	Coal	Multiple of Standard Cost Assumption	Resulting Installed Cost ($/kW) CT 7FA	CC 2x1F	CC "G"	Coal
SERC	VACAR	1.125	9.56	13.50	15.75	29.14	1.125	423	563	576	1,688
	STHRN	1.125	9.56	13.50	15.75	29.14	1.125	423	563	576	1,688
	TVA	1.100	9.35	13.20	15.40	28.49	1.100	414	550	563	1,650
	Entergy	1.100	9.35	13.20	15.40	28.49	1.100	414	550	563	1,650
FRCC	All	1.100	9.35	13.20	15.40	28.49	1.125	423	563	576	1,688
SPP	SPP	1.070	9.10	12.84	14.98	27.71	1.070	402	535	548	1,605
NEPOOL	Boston	1.175	9.99	14.10	16.45	30.43	1.175	442	588	602	1,763
	South	1.100	9.35	13.20	15.40	28.49	1.150	432	575	589	1,725
	Rest of NEPOOL	1.100	9.35	13.20	15.40	28.49	1.100	414	550	563	1,650
NY	NYC	1.450	12.33	17.40	20.30	37.56	2.850	1,072	1,425	1,459	
	LI	1.400	11.90	16.80	19.60	36.26	2.750	1,034	1,375	1,408	
	Rest of NY	1.100	9.35	13.20	15.40	28.49	1.100	414	550	563	1,650
MAPP	All	1.055	8.97	12.66	14.77	27.32	1.055	397	528	540	1,583
MAAC/PJM	West	1.100	9.35	13.20	15.40	28.49	1.100	414	550	563	1,650
	Northeast	1.100	9.35	13.20	15.40	28.49	1.100	414	550	563	1,650
	South	1.100	9.35	13.20	15.40	28.49	1.100	414	550	563	1,650
WSCC	AZNMA	1.150	9.78	13.80	16.10	29.79	1.150	432	575	589	1,725
	SC	1.325	11.26	15.90	18.55	34.32	1.325	498	663	678	1,988
	NC	1.325	11.26	15.90	18.55	34.32	1.325	498	663	678	1,988
	NWPA	1.050	8.93	12.60	14.70	27.20	1.050	395	525	538	1,575
	NNV	1.075	9.14	12.90	15.05	27.84	1.075	404	538	550	1,613
	SNV	1.075	9.14	12.90	15.05	27.84	1.075	404	538	550	1,613
	RMPA	1.075	9.14	12.90	15.05	27.84	1.075	404	538	550	1,613
MAIN	NI	1.155	9.82	13.86	16.17	29.91	1.155	434	578	591	1,733
	SI	1.125	9.56	13.50	15.75	29.14	1.125	423	563	576	1,688
	EMO	1.095	9.31	13.14	15.33	28.36	1.095	412	548	561	1,643
	WUM	1.110	9.44	13.32	15.54	28.75	1.110	417	555	568	1,665
ECAR	NE	1.075	9.14	12.90	15.05	27.84	1.075	404	538	550	1,613
	SW	1.093	9.29	13.11	15.30	28.30	1.093	411	546	559	1,639
	MECS	1.135	9.65	13.62	15.89	29.40	1.135	427	568	581	1,703
ERCOT	All	1.100	9.35	13.20	15.40	28.49	1.100	414	550	563	1,650

TNR Plant List with Specifications

Name	Heat Rate Btu/kWh	Capacity MW	Variable O&M $/MWh
Alma 1	11,641	21	2.15
Alma 2	11,641	22	2.15
Alma 3	11,641	20	2.15
Alma 4	11,641	55	2.15
Alma 5	11,641	84	2.15
Arapahoe (PSCO) 3	11,388	45	1.15
Arapahoe (PSCO) 4	11,388	111	1.15
Avon Lake 6	10,341	27	1.02
Avon Lake 7	10,341	96	1.02
Avon Lake 9	10,341	596	1.02
Baldwin (DMG) 1	11,315	580	1.02
Baldwin (DMG) 2	11,315	585	1.02
Baldwin (DMG) 3	11,315	599	1.02
Bay Shore 1	10,593	122	1.46
Bay Shore 2	10,593	124	1.46
Bay Shore 3	10,593	130	1.46
Bay Shore 4	10,593	202	1.46
Belle River ST1	10,170	625	0.57
Belle River ST2	10,170	635	0.57
Big Brown 1	10,744	575	0.68
Big Brown 2	10,744	575	0.68
Big Cajun 2 1	10,380	575	0.68
Big Cajun 2 2	10,380	575	0.68
Big Cajun 2 3	10,380	575	0.55
Big Stone 1	11,100	464	0.53
Boardman (PGE) 1	10,308	544	1.08
Burlington (IES) 1	10,671	212	0.70
Campbell (CEC) 1	9,566	254	1.17
Campbell (CEC) 2	9,566	358	1.17
Campbell (CEC) 3	9,566	790	0.75
Coleto Creek 1	9,618	632	0.46
Columbia (WPL) 1	10,446	530	0.62
Columbia (WPL) 2	10,446	530	0.62
Comanche (PSCO) 1	10,751	325	0.57
Comanche (PSCO) 2	10,751	335	0.57
Corette 1	11,037	160	1.02
Dewey 1	10,195	113	1.22
Dewey 2	10,195	114	1.32
Eastlake 1	10,447	131	1.82
Eastlake 2	10,447	131	1.82
Eastlake 3	10,447	131	1.82
Eastlake 4	10,447	239	1.82
Eastlake 5	10,447	597	1.82
Fayette (LCRA) 1	10,396	584	0.42
Fayette (LCRA) 2	10,396	584	0.42
Fayette (LCRA) 3	10,396	438	0.42
Flint Creek (SOEP) 1	10,582	519	0.47
Gentleman 1	10,571	665	0.61
Gentleman 2	10,571	700	0.61
Ghent 1	10,326	482	0.48
Ghent 2	10,326	513	0.48
Ghent 3	10,326	502	0.48
Ghent 4	10,326	488	0.48
Gibbons Creek 1	10,605	440	0.45

TNR Plant List with Specifications

Name	Heat Rate Btu/kWh	Capacity MW	Variable O&M $/MWh
Grand River Dam (GRDA) 1	10,802	490	0.38
Grand River Dam (GRDA) 2	10,802	520	0.89
Harrington 1	10,038	346	0.38
Harrington 2	10,038	360	0.38
Harrington 3	10,038	360	0.38
Hawthorn 5	10,624	550	0.51
High Bridge 5	11,150	98	1.79
High Bridge 6	11,150	170	1.79
Holcomb 1	10,270	336	1.56
Holcomb 2	10,100	600	2.60
Hugo (WEFA) 1	10,648	412	0.90
Iatan 1	10,158	670	0.83
J.P. Madgett 1	11,095	377	0.60
James River (SPCIUT) 1	11,253	21	1.41
James River (SPCIUT) 2	11,253	21	1.41
James River (SPCIUT) 3	11,253	42	1.41
James River (SPCIUT) 4	11,253	58	1.41
James River (SPCIUT) 5	11,253	97	1.41
Jeffrey Energy Center 1	11,082	744	0.50
Jeffrey Energy Center 2	11,082	741	0.50
Jeffrey Energy Center 3	11,082	742	0.50
Johnston 1	11,694	106	0.91
Johnston 2	11,694	106	0.91
Johnston 3	11,694	230	0.91
Johnston 4	11,694	330	0.91
Kapp 2	10,972	217	0.75
Kam 1	10,358	255	0.73
Kam 2	10,358	260	0.73
Lacygne 1	11,138	719	1.26
Lacygne 2	11,138	692	0.62
Lake Shore 18	15,288	195	2.46
Lansing 1	12,193	16	0.82
Lansing 2	12,193	11	0.82
Lansing 3	12,193	34	0.82
Lansing 4	12,193	258	0.82
Laramie River 1	10,155	568	1.06
Laramie River 2	10,155	550	1.06
Laramie River 3	10,155	550	1.06
Lawrence Energy Center 2	11,060	26	0.94
Lawrence Energy Center 3	11,060	59	0.94
Lawrence Energy Center 4	11,060	119	0.94
Lawrence Energy Center 5	11,060	394	0.94
Leland Olds 1	11,328	210	1.59
Leland Olds 2	11,328	440	1.59
Limestone 1	10,731	793	1.48
Limestone 2	10,731	793	1.48
Martin Lake 1	11,090	750	0.84
Martin Lake 2	11,090	750	0.84
Martin Lake 3	11,090	750	0.84
Miller 1	10,258	684	0.83
Miller 2	10,258	684	0.83
Miller 3	10,258	701	0.58
Miller 4	10,258	710	0.58
Monroe (DETED) 1	9,855	750	0.76

TNR Plant List with Specifications

Name	Heat Rate Btu/kWh	Capacity MW	Variable O&M $/MWh
Monroe (DETED) 2	9,855	750	0.76
Monroe (DETED) 3	9,855	750	0.76
Monroe (DETED) 4	9,855	750	0.76
Monticello (TUEC) 1	11,101	565	0.63
Monticello (TUEC) 2	11,101	570	0.63
Monticello (TUEC) 3	11,101	750	0.63
Muscatine (MPW) 7	11,927	21	1.58
Muscatine (MPW) 8	11,927	80	1.58
Muscatine (MPW) 8A	11,927	17	1.58
Muscatine (MPW) 9	11,927	160	1.58
Nearman Creek 1	11,194	235	0.87
Nebraska City - OPPD 1	10,336	632	0.66
Nelson 6	10,843	550	0.92
Newton 1	10,593	555	0.82
Newton 2	10,593	555	0.82
North Omaha 1	11,116	67	1.25
North Omaha 2	11,116	103	1.25
North Omaha 3	11,116	103	1.25
North Omaha 4	11,116	127	1.25
North Omaha 5	11,116	199	1.25
Oklaunion 1	10,339	676	0.74
Ottumwa - IES 1	10,902	716	0.56
Paradise (TVA) 1	9,772	610	0.92
Paradise (TVA) 2	9,772	610	0.92
Paradise (TVA) 3	9,772	999	0.92
Parish 5	10,483	650	0.90
Parish 6	10,483	650	0.90
Parish 7	10,483	600	0.90
Parish 8	10,483	555	0.90
Pawnee 1	10,937	508	0.59
Platte 1	10,809	105	1.22
Presque Isle 1	11,197	25	1.33
Presque Isle 2	11,197	37	1.33
Presque Isle 3	11,197	58	1.33
Presque Isle 4	11,197	58	1.33
Presque Isle 5	11,197	87	1.33
Presque Isle 6	11,197	90	1.33
Presque Isle 7	11,197	85	1.33
Presque Isle 8	11,197	85	1.33
Presque Isle 9	11,197	88	1.33
Rawhide 1	10,518	270	1.78
River Rouge 2	9,994	243	1.38
River Rouge 3	9,994	266	1.38
Riverside (NSP) 8	10,492	227	1.19
Riverside (NSP) ST7	10,492	154	1.19
Rockport (INMI) 1	10,381	1,300	0.40
Rockport (INMI) 2	10,381	1,300	0.33
Rush Island 1	10,390	584	0.87
Rush Island 2	10,390	584	0.87
Scherer 1	11,478	870	0.84
Scherer 2	11,478	874	0.84
Scherer 3	11,478	883	0.65
Scherer 4	11,478	893	0.75
Shawnee (TVA) 1	10,575	136	1.03

TNR Plant List with Specifications

Name	Heat Rate Btu/kWh	Capacity MW	Variable O&M $/MWh
Shawnee (TVA) 10	10,575	126	1.03
Shawnee (TVA) 2	10,575	136	1.03
Shawnee (TVA) 3	10,575	136	1.03
Shawnee (TVA) 4	10,575	136	1.03
Shawnee (TVA) 5	10,575	136	1.03
Shawnee (TVA) 6	10,575	136	1.03
Shawnee (TVA) 7	10,575	136	1.03
Shawnee (TVA) 8	10,575	136	1.03
Shawnee (TVA) 9	10,575	136	1.03
Sherburne 1	10,294	736	0.68
Sherburne 2	10,294	721	0.68
Sherburne 3	10,294	871	0.78
Sikeston 1	10,647	229	0.88
Sioux 1	10,344	466	1.11
Sioux 2	10,344	466	1.11
Southwest ST1	10,996	178	1.03
Springerville 1	10,031	400	0.92
Springerville 2	10,031	400	0.92
Springerville 3	10,100	400	2.60
St. Clair 1	10,550	163	1.30
St. Clair 2	10,550	162	1.30
St. Clair 3	10,550	163	1.30
St. Clair 4	10,550	162	1.30
St. Clair 6	10,550	321	1.30
St. Clair 7	10,550	435	1.30
Stateline (DOMENE) 3	10,560	187	1.02
Stateline (DOMENE) 4	10,560	303	1.02
Tecumseh Energy Center 7	11,156	85	1.40
Tecumseh Energy Center 8	11,156	158	1.40
Thomas Hill 1	10,385	175	1.05
Thomas Hill 2	10,385	275	1.05
Thomas Hill 3	10,385	670	0.91
Tolk 1	10,220	540	0.36
Tolk 2	10,220	540	0.36
Trenton Channel 7	10,657	105	0.93
Trenton Channel 8	10,657	105	0.93
Trenton Channel 9	10,657	515	0.93
Welsh (SWEP) 1	10,382	528	0.40
Welsh (SWEP) 2	10,382	528	0.40
Welsh (SWEP) 3	10,382	528	0.40
White Bluff 1	10,696	815	0.65
White Bluff 2	10,696	844	0.65
Whiting (CEC) 1	10,393	95	1.19
Whiting (CEC) 2	10,393	95	1.19
Whiting (CEC) 3	10,393	120	1.19

Non-Fuel Var O&M $/MWh from Powerdat

Source: PowerDat - System Version 4.0.212; Data version 4.0.0703

Plant Name	2000	2001	2002	Average
Alma	1.39	2.91	NA	2.15
Arapahoe (PSCO)	1.05	1.18	1.21	1.15
Bay Shore	1.46	NA	NA	1.46
Belle River	0.43	0.47	0.82	0.57
Big Brown	0.49	0.87	NA	0.68
Big Cajun 2	NA	0.51	0.85	0.68
Big Cajun 2 #3	0.4	0.51	0.73	0.55
Big Stone	0.47	0.51	0.62	0.53
Boardman (PGE)	0.97	0.99	1.27	1.08
Burlington (IES)	0.45	1.11	0.53	0.70
Campbell #1-2	1.06	1.16	1.3	1.17
Campbell #3	0.56	0.39	1.3	0.75
Coleto Creek	0.35	0.47	0.56	0.46
Columbia (WPL)	0.71	0.51	0.65	0.62
Comanche (PSCO)	0.55	0.64	0.53	0.57
Eastlake	1.82	NA	NA	1.82
Fayette (LCRA)	0.42	NA	NA	0.42
Flint Creek (SOEP)	0.45	0.5	0.46	0.47
Gentleman	0.61	NA	NA	0.61
Ghent	0.52	0.4	0.52	0.48
Gibbons Creek	0.7	0.64	0	0.45
Grand River Dam #1	0.38	NA	NA	0.38
Grand River Dam #2	0.89	NA	NA	0.89
Grand River Dam (GRDA)	NA	0.58		0.58
Harrington	0.33	0.36	0.45	0.38
Hawthorn	0	0.79	0.75	0.51
High Bridge	1.84	1.63	1.9	1.79
Holcomb	1.47	1.52	1.68	1.56
Hugo (WEFA)	0.93	1.01	0.77	0.90
Iatan	0.95	0.64	0.91	0.83
J.P. Madgett	0.57	0.54	0.68	0.60
James River (SPCIUT)	1.41	NA	NA	1.41
Jeffrey Energy Center	0.48	0.56	0.46	0.50
Johnston	0.87	0.98	0.89	0.91
Kapp	0.62	0.9	0.72	0.75
Kam #1-2	0.7	0.76	NA	0.73
Lacygne	0.79	1.05	0.75	0.86
Lacygne #1	1.13	1.61	1.04	1.26
Lacygne #2	0.56	0.68	0.62	0.62
Lake Road (AQUILA)	NA	2.24	2.67	2.46
Lake Shore	4.94	NA	NA	4.94
Lansing	0.76	0.95	0.75	0.82
Lansing Smith (GUPC)	0.72	0.75	1.51	0.99
Laramie River	0.97	1.04	1.16	1.06
Lawrence Energy Center	1.01	0.96	0.84	0.94
Leland Olds	1.94	1.52	1.3	1.59
Limestone	1.17	1.79	NA	1.48
Martin Lake	0.73	0.94	NA	0.84
Miller	0.57	0.54	0.62	0.58
Miller #1-2	0.83	0.92	0.73	0.83
Monroe (DETED)	0.65	0.69	0.94	0.76
Monticello (TUEC)	0.66	0.59	NA	0.63
Muscatine (MPW)	1.58	NA	NA	1.58
Nearman Creek	0.83	0.9	NA	0.87

Non-Fuel Var O&M $/MWh from Powerdat

Source: PowerDat - System Version 4.0.212; Data version 4.0.0703

Plant Name	2000	2001	2002	Average
Nebraska City - OPPD	0.78	0.56	0.63	0.66
Nelson #6	0.54	1.42	0.81	0.92
Nelson Dewey #1	0.92	1.33	1.4	1.22
Nelson Dewey #2	0.92	1.33	1.72	1.32
Newton	NA	0.82	NA	0.82
North Omaha	1.3	1.31	1.15	1.25
Oklaunion	0.6	0.84	0.79	0.74
Ottumwa - IES	0.48	0.57	0.63	0.56
Paradise (TVA)	1.04	0.83	0.89	0.92
Parish	0.75	1.04	NA	0.90
Pawnee	0.61	0.45	0.72	0.59
Platte	1.22	NA	NA	1.22
Presque Isle	1.27	1.34	1.37	1.33
Rawhide	1.89	1.44	2.02	1.78
River Rouge	1.36	1.7	1.07	1.38
Riverside (NSP)	1.36	1.19	1.01	1.19
Rockport #1	0.3	0.42	0.47	0.40
Rockport #2	0.34	0.24	0.4	0.33
Rush Island	0.78	0.95	NA	0.87
Scherer #1-2	0.68	0.96	0.87	0.84
Scherer #1-3	0.67	0.89	0.65	0.74
Scherer #3	0.61	0.78	0.57	0.65
Scherer #4	0.52	0.89	0.85	0.75
Shawnee (TVA)	1	1.07	1.02	1.03
Sherburne	0.65	0.67	0.72	0.68
Sherburne #3	0.95	0.67	0.72	0.78
Sikeston	0.88	0.73	1.04	0.88
Sioux	1.11	1.1	NA	1.11
Southwest	1.03	NA	NA	1.03
Springerville	0.93	0.86	0.98	0.92
St. Clair	1.05	1.56	1.3	1.30
Tecumseh Energy Center	1.38	1.72	1.11	1.40
Thomas Hill #1-2	1.01	1.07	1.08	1.05
Thomas Hill #3	0.58	0.59	1.56	0.91
Tolk	0.25	0.32	0.5	0.36
Trenton Channel	1.08	0.61	1.1	0.93
Welsh (SWEP)	0.37	0.43	0.39	0.40
White Bluff	0.63	0.59	0.73	0.65
Whiting (CEC)	1.17	1.21	NA	1.19

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.998; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
4 AC Station	ECAR	ECARSR	14TG	COAL (GENERIC)	67.5	64.8	67.5	66.2	196308	1963	Operating
4 AC Station	ECAR	ECARSR	15TG	COAL (GENERIC)	67.5	64.8	67.5	66.2	196310	1963	Standby
Abbott Power Plant-University	MAIN	MAINSR	1	COAL (GENERIC)	3.0	3.0	3.0	3.0	194011	1940	Operating
Abbott Power Plant-University	MAIN	MAINSR	2	COAL (GENERIC)	3.0	3.0	3.0	3.0	194011	1940	Operating
Abbott Power Plant-University	MAIN	MAINSR	3	COAL (GENERIC)	3.0	2.9	3.0	2.9	194801	1948	Operating
Abbott Power Plant-University	MAIN	MAINSR	4	COAL (GENERIC)	3.0	2.9	3.0	2.9	195102	1951	Operating
Abbott Power Plant-University	MAIN	MAINSR	5	COAL (GENERIC)	3.0	2.9	3.0	2.9	195506	1955	Operating
Abbott Power Plant-University	MAIN	MAINSR	6	COAL (GENERIC)	7.5	7.2	7.5	7.4	195908	1959	Operating
Abbott Power Plant-University	MAIN	MAINSR	7	COAL (GENERIC)	7.5	7.2	7.5	7.4	196208	1962	Operating
ACE Cogeneration Plant	WECC	CAMX	1	BITUMINOUS COAL	108.0	100.4	108.0	104.2	199009	1990	Operating
Acme	ECAR	ECARSR	2	BITUMINOUS COAL	72.0	72.0	72.0	72.0	195106	1951	Standby
ACS - Drayton (AMCR)	MAPP	MAPPSR	1	SUBBITUMINOUS	6.8	5.6	7.2	6.4	196509	1965	Operating
Advance	ECAR	ECARSR	1	BITUMINOUS COAL	7.5	7.5	7.5	7.5	195304	1953	Operating
Advance	ECAR	ECARSR	2	BITUMINOUS COAL	7.5	7.5	7.5	7.5	195304	1953	Operating
Advance	ECAR	ECARSR	3	BITUMINOUS COAL	22.0	25.0	24.0	24.5	196701	1967	Operating
AES Barbers Point	HI	HISR	1	COAL (GENERIC)	102.0	95.6	102.0	98.8	199209	1992	Operating
AES Barbers Point	HI	HISR	2	COAL (GENERIC)	102.0	95.6	102.0	98.8	199209	1992	Operating
AES Beaver Valley	ECAR	ECARSR	2	BITUMINOUS COAL	31.5	29.5	31.5	30.5	198707	1987	Operating
AES Beaver Valley	ECAR	ECARSR	3	BITUMINOUS COAL	107.0	100.3	107.0	103.6	198707	1987	Operating
AES Cayuga	NPCC	NYPP	1	BITUMINOUS COAL	155.3	157.0	149.0	153.0	195509	1955	Operating
AES Cayuga	NPCC	NYPP	2	BITUMINOUS COAL	167.2	148.0	154.0	151.5	195810	1958	Operating
AES Greenidge	NPCC	NYPP	3	BITUMINOUS COAL	50.0	54.0	55.0	54.5	195004	1950	Standby
AES Greenidge	NPCC	NYPP	4	BITUMINOUS COAL	112.5	105.0	108.0	106.5	195312	1953	Operating
AES Hickling	NPCC	NYPP	1	BITUMINOUS COAL	37.5	36.0	36.0	36.0	194810	1948	Standby
AES Hickling	NPCC	NYPP	2	BITUMINOUS COAL	49.0	47.0	44.0	45.5	195206	1952	Standby
AES Jennison	NPCC	NYPP	1	BITUMINOUS COAL	37.5	35.0	35.0	35.0	194510	1945	Standby
AES Jennison	NPCC	NYPP	2	BITUMINOUS COAL	37.5	34.0	38.0	36.0	195005	1950	Standby
AES Shady Point Inc.	SPP	S	1	COAL (GENERIC)	175.0	164.0	175.0	169.5	199101	1991	Operating
AES Shady Point Inc.	SPP	S	2	COAL (GENERIC)	175.0	164.0	175.0	169.5	199101	1991	Operating
AES Somerset	NPCC	NYPP	1	BITUMINOUS COAL	655.1	675.0	675.0	675.0	198408	1984	Operating
AES Thames Inc.	NPCC	NEPOOL	1	BITUMINOUS COAL	181.0	200.4	281.0	240.7	199003	1990	Operating
AES Warrior Run Inc.	ECAR	ECARSR	1	BITUMINOUS COAL	200.0	180.0	180.0	180.0	200002	2000	Operating
AES Westover	NPCC	NYPP	7	BITUMINOUS COAL	43.8	45.0	45.0	45.0	194310	1943	Operating
AES Westover	NPCC	NYPP	8	BITUMINOUS COAL	83.0	83.0	83.0	83.0	195112	1951	Operating
AG Processing Inc.	MAPP	MAPPSR	1	COAL (GENERIC)	8.5	8.0	8.5	8.2	198201	1982	Operating
Albright	ECAR	ECARSR	1	BITUMINOUS COAL	69.0	73.0	76.0	74.5	195212	1952	Operating
Albright	ECAR	ECARSR	2	BITUMINOUS COAL	69.0	73.0	76.0	74.5	195210	1952	Operating
Albright	ECAR	ECARSR	3	BITUMINOUS COAL	140.3	137.0	140.0	138.5	195410	1954	Operating
Allen (DUPC)	SERC	VACAR	1	BITUMINOUS COAL	165.0	165.0	165.0	165.0	195706	1957	Operating
Allen (DUPC)	SERC	VACAR	2	BITUMINOUS COAL	165.0	165.0	165.0	165.0	195711	1957	Operating
Allen (DUPC)	SERC	VACAR	3	BITUMINOUS COAL	275.0	265.0	265.0	265.0	195910	1959	Operating
Allen (DUPC)	SERC	VACAR	4	BITUMINOUS COAL	275.0	275.0	275.0	275.0	196010	1960	Operating
Allen (DUPC)	SERC	VACAR	5	BITUMINOUS COAL	275.0	270.0	270.0	270.0	196107	1961	Operating
Allen (TVA)	SERC	TVA	1	BITUMINOUS COAL	330.0	248.0	251.0	249.5	195905	1959	Operating
Allen (TVA)	SERC	TVA	2	BITUMINOUS COAL	330.0	248.0	251.0	249.5	195905	1959	Operating
Allen (TVA)	SERC	TVA	3	BITUMINOUS COAL	330.0	248.0	251.0	249.5	195910	1959	Operating
Alloy Steam Station	ECAR	ECARSR	GEN3	COAL (GENERIC)	40.0	38.4	40.0	39.2	195007	1950	Operating
Alma	MAPP	MAPPSR	1	BITUMINOUS COAL	15.0	21.0	21.0	21.0	194709	1947	Operating
Alma	MAPP	MAPPSR	2	BITUMINOUS COAL	15.0	22.0	22.0	22.0	194710	1947	Operating
Alma	MAPP	MAPPSR	3	BITUMINOUS COAL	15.0	20.0	20.0	20.0	195107	1951	Operating
Alma	MAPP	MAPPSR	4	BITUMINOUS COAL	50.0	51.8	57.4	54.6	195705	1957	Operating
Alma	MAPP	MAPPSR	5	BITUMINOUS COAL	80.0	81.0	88.0	84.5	196001	1960	Operating
Alpena Plant (LAF)	ECAR	ECARSR	GE10	COAL (GENERIC)	4.0	3.2	4.0	3.6	199902	1999	Standby
Alpena Plant (LAF)	ECAR	ECARSR	GEN6	COAL (GENERIC)	12.5	11.5	12.0	11.8	195201	1952	Operating
Alpena Plant (LAF)	ECAR	ECARSR	GEN7	COAL (GENERIC)	10.2	9.6	10.0	9.8	195501	1955	Operating
Alpena Plant (LAF)	ECAR	ECARSR	GEN8	COAL (GENERIC)	11.3	10.0	11.3	10.7	199104	1991	Operating
Alpena Plant (LAF)	ECAR	ECARSR	GEN9	COAL (GENERIC)	11.3	10.0	11.3	10.7	199404	1994	Operating
Altavista (DOMENE)	SERC	VACAR	1	BITUMINOUS COAL	71.1	66.6	71.1	68.9	199109	1991	Operating
Amalgamated Sugar-Nyssa	WECC	NWPA	1	COAL (GENERIC)	12.0	11.2	12.0	11.6	198709	1987	Standby
Amalgamated Sugar-Nyssa	WECC	NWPA	2	COAL (GENERIC)	1.5	1.4	1.5	1.5	194209	1942	Standby
Amalgamated Sugar-Nyssa	WECC	NWPA	3	COAL (GENERIC)	0.5	0.5	0.5	0.5	194209	1942	Standby
Ames	MAPP	MAPPSR	7	SUBBITUMINOUS	33.0	33.0	33.0	33.0	196801	1968	Operating
Ames	MAPP	MAPPSR	8	SUBBITUMINOUS	65.0	70.0	70.0	70.0	198203	1982	Operating
Amos	ECAR	ECARSR	1	BITUMINOUS COAL	816.3	800.0	800.0	800.0	197109	1971	Operating
Amos	ECAR	ECARSR	2	BITUMINOUS COAL	816.3	800.0	800.0	800.0	197206	1972	Operating
Amos	ECAR	ECARSR	3	BITUMINOUS COAL	1,300.0	1,300.0	1,300.0	1,300.0	197310	1973	Operating
Anheuser-Busch Inc.-S	MAIN	MAINSR	1	COAL (GENERIC)	11.0	10.6	11.0	10.8	194701	1947	Operating
Anheuser-Busch Inc.-S	MAIN	MAINSR	2	COAL (GENERIC)	11.0	10.6	11.0	10.8	194801	1948	Operating
Anheuser-Busch Inc.-S	MAIN	MAINSR	3	COAL (GENERIC)	4.1	4.1	4.1	4.1	193901	1939	Operating
Antelope Valley (BEPC)	MAPP	MAPPSR	1	LIGNITE	435.0	450.0	450.0	450.0	198407	1984	Operating
Antelope Valley (BEPC)	MAPP	MAPPSR	2	LIGNITE	435.0	450.0	450.0	450.0	198607	1986	Operating
Apache	WECC	AZNMNV	ST2	SUBBITUMINOUS	194.7	175.0	175.0	175.0	197901	1979	Operating
Apache	WECC	AZNMNV	ST3	SUBBITUMINOUS	194.7	175.0	175.0	175.0	197909	1979	Operating
Arapahoe (PSCO)	WECC	RMPA	1	BITUMINOUS COAL	44.0	45.0	45.0	45.0	195001	1950	Operating
Arapahoe (PSCO)	WECC	RMPA	2	BITUMINOUS COAL	44.0	45.0	45.0	45.0	195101	1951	Operating
Arapahoe (PSCO)	WECC	RMPA	3	BITUMINOUS COAL	44.0	45.0	45.0	45.0	195101	1951	Operating
Arapahoe (PSCO)	WECC	RMPA	4	BITUMINOUS COAL	100.0	111.0	111.0	111.0	195501	1955	Operating
Argus	WECC	CAMX	TG8	COAL (GENERIC)	27.5	26.4	31.0	28.7	197807	1978	Operating
Argus	WECC	CAMX	TG9	COAL (GENERIC)	27.5	26.4	31.0	28.7	197807	1978	Operating
Arkwright	SERC	STHRN	3	BITUMINOUS COAL	40.3	42.0	42.0	42.0	194312	1943	Operating
Arkwright	SERC	STHRN	4	BITUMINOUS COAL	49.0	44.0	44.0	44.0	194811	1948	Operating
Arkwright	SERC	STHRN	ST1	BITUMINOUS COAL	46.0	41.0	41.0	41.0	194106	1941	Operating
Arkwright	SERC	STHRN	ST2	BITUMINOUS COAL	46.0	41.0	41.0	41.0	194205	1942	Operating
Armstrong (ALENSU)	ECAR	ECARSR	1	BITUMINOUS COAL	163.2	172.1	180.0	176.1	195805	1958	Operating
Armstrong (ALENSU)	ECAR	ECARSR	2	BITUMINOUS COAL	163.2	171.0	176.0	173.5	195907	1959	Operating
Asbury	SPP	N	1	SUBBITUMINOUS	212.8	193.0	193.0	193.0	197006	1970	Operating
Asbury	SPP	N	2	SUBBITUMINOUS	18.8	20.0	20.0	20.0	198604	1986	Operating
Asheville	SERC	VACAR	1	BITUMINOUS COAL	206.6	198.0	200.0	199.0	196405	1964	Operating
Asheville	SERC	VACAR	2	BITUMINOUS COAL	207.0	194.0	194.0	194.0	197105	1971	Operating
Ashtabula (CEI)	ECAR	ECARSR	5	BITUMINOUS COAL	256.0	243.0	244.0	243.5	195812	1958	Operating
Ashtabula (CEI)	ECAR	ECARSR	6	BITUMINOUS COAL	46.0	43.0	44.0	43.5	197212	1972	Operating
Ashtabula (CEI)	ECAR	ECARSR	7	BITUMINOUS COAL	46.0	43.0	44.0	43.5	197212	1972	Operating

All Coal Unit Assumptions
Source: CoalDat - System version 5.5.998; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Ashtabula (CEI)	ECAR	ECARSR	8	BITUMINOUS COAL	46.0	43.0	44.0	43.5	197212	1972	Operating
Ashtabula (CEI)	ECAR	ECARSR	9	BITUMINOUS COAL	46.0	43.0	44.0	43.5	197212	1972	Operating
Avon Lake	ECAR	ECARSR	6	BITUMINOUS COAL	86.0	25.0	29.0	27.0	194911	1949	Operating
Avon Lake	ECAR	ECARSR	7	BITUMINOUS COAL	86.0	95.0	96.0	95.5	194912	1949	Operating
Avon Lake	ECAR	ECARSR	9	BITUMINOUS COAL	680.0	596.0	596.0	596.0	197008	1970	Operating
Bailly	ECAR	ECARSR	7	BITUMINOUS COAL	194.0	160.0	160.0	160.0	196211	1962	Operating
Bailly	ECAR	ECARSR	8	BITUMINOUS COAL	421.6	320.0	320.0	320.0	196807	1968	Operating
Baldwin (DMG)	MAIN	MAINSR	1	BITUMINOUS COAL	623.1	575.0	564.0	570.5	197007	1970	Operating
Baldwin (DMG)	MAIN	MAINSR	2	BITUMINOUS COAL	634.5	581.0	568.0	564.5	197305	1973	Operating
Baldwin (DMG)	MAIN	MAINSR	3	BITUMINOUS COAL	634.5	595.0	602.0	598.5	197506	1975	Operating
Barry	SERC	STHRN	1	BITUMINOUS COAL	153.1	140.0	140.0	140.0	195402	1954	Operating
Barry	SERC	STHRN	2	BITUMINOUS COAL	153.1	139.0	139.0	139.0	195407	1954	Operating
Barry	SERC	STHRN	3	BITUMINOUS COAL	272.0	251.0	251.0	251.0	195907	1959	Operating
Barry	SERC	STHRN	4	BITUMINOUS COAL	403.8	362.0	362.0	362.0	196912	1969	Operating
Barry	SERC	STHRN	5	BITUMINOUS COAL	788.8	768.0	768.0	768.0	197110	1971	Operating
Bay Shore	ECAR	ECARSR	1	BITUMINOUS COAL	140.6	132.0	111.0	121.5	195508	1955	Operating
Bay Shore	ECAR	ECARSR	2	BITUMINOUS COAL	140.6	134.0	113.0	123.5	195902	1959	Operating
Bay Shore	ECAR	ECARSR	3	BITUMINOUS COAL	140.6	142.0	117.0	129.5	196305	1963	Operating
Bay Shore	ECAR	ECARSR	4	BITUMINOUS COAL	217.6	213.0	190.0	201.5	196806	1968	Operating
Beckjord	ECAR	ECARSR	1	BITUMINOUS COAL	115.0	94.0	94.0	94.0	195206	1952	Operating
Beckjord	ECAR	ECARSR	2	BITUMINOUS COAL	112.5	94.0	94.0	94.0	195310	1953	Operating
Beckjord	ECAR	ECARSR	3	BITUMINOUS COAL	125.0	128.0	128.0	128.0	195411	1954	Operating
Beckjord	ECAR	ECARSR	4	BITUMINOUS COAL	163.2	150.0	150.0	150.0	195807	1958	Operating
Beckjord	ECAR	ECARSR	5	BITUMINOUS COAL	244.8	238.0	238.0	238.0	196212	1962	Operating
Beckjord	ECAR	ECARSR	6	BITUMINOUS COAL	460.8	414.0	420.0	417.0	196807	1969	Operating
Belews Creek	SERC	VACAR	1	BITUMINOUS COAL	1,080.1	1,120.0	1,120.0	1,120.0	197408	1974	Operating
Belews Creek	SERC	VACAR	2	BITUMINOUS COAL	1,080.1	1,120.0	1,120.0	1,120.0	197512	1975	Operating
Belle River	ECAR	ECARSR	ST1	SUBBITUMINOUS	697.5	625.0	625.0	625.0	198406	1984	Operating
Belle River	ECAR	ECARSR	ST2	SUBBITUMINOUS	697.5	635.0	635.0	635.0	198507	1985	Operating
Big Bend	FRCC	FRCCSR	1	BITUMINOUS COAL	445.5	416.0	426.0	421.0	197010	1970	Operating
Big Bend	FRCC	FRCCSR	ST2	BITUMINOUS COAL	445.5	416.0	426.0	421.0	197304	1973	Operating
Big Bend	FRCC	FRCCSR	ST3	BITUMINOUS COAL	445.5	433.0	443.0	438.0	197605	1976	Operating
Big Bend	FRCC	FRCCSR	ST4	BITUMINOUS COAL	496.0	442.0	447.0	444.5	198502	1985	Operating
Big Brown	ERCOT	ERCOTS	1	LIGNITE	593.4	575.0	575.0	575.0	197112	1971	Operating
Big Brown	ERCOT	ERCOTS	2	LIGNITE	593.4	575.0	575.0	575.0	197212	1972	Operating
Big Cajun 2	SERC	ENTR	1	SUBBITUMINOUS	611.0	575.0	575.0	575.0	198106	1981	Operating
Big Cajun 2	SERC	ENTR	2	SUBBITUMINOUS	611.0	575.0	575.0	575.0	198106	1981	Operating
Big Cajun 2	SERC	ENTR	3	SUBBITUMINOUS	611.0	575.0	575.0	575.0	198312	1983	Operating
Big Sandy (KPC)	ECAR	ECARSR	1	BITUMINOUS COAL	280.5	260.0	260.0	260.0	196301	1963	Operating
Big Sandy (KPC)	ECAR	ECARSR	2	BITUMINOUS COAL	816.3	800.0	800.0	800.0	196910	1969	Operating
Big Stone	MAPP	MAPPSR	1	COAL (GENERIC)	475.0	455.7	472.6	464.2	197505	1975	Operating
Birchwood Power Facility	SERC	VACAR	1	BITUMINOUS COAL	240.0	224.9	243.0	233.9	199611	1996	Operating
Black Dog	MAPP	MAPPSR	1	SUBBITUMINOUS	81.0	75.0	50.0	62.5	195209	1952	Operating
Black Dog	MAPP	MAPPSR	2	SUBBITUMINOUS	137.0	101.0	77.5	89.3	195411	1954	Operating
Black Dog	MAPP	MAPPSR	3	SUBBITUMINOUS	114.0	111.7	97.0	104.4	195508	1955	Operating
Black Dog	MAPP	MAPPSR	4	SUBBITUMINOUS	180.0	172.5	172.9	172.7	196010	1960	Operating
Blacksburg	ECAR	ECARSR	1	BITUMINOUS COAL	6.3	6.3	6.3	6.3	197401	1974	Operating
Blandin Paper Co. (Blapap)	MAPP	MAPPSR	ST1	COAL (GENERIC)	15.0	14.4	15.0	14.7	196906	1969	Operating
Blandin Paper Co. (Blapap)	MAPP	MAPPSR	ST2	COAL (GENERIC)	16.5	15.9	16.5	16.2	198012	1980	Operating
Blount	MAIN	MAINSR	3	BITUMINOUS COAL	34.5	39.2	41.7	40.5	195309	1953	Operating
Blount	MAIN	MAINSR	4	BITUMINOUS COAL	20.0	22.4	23.8	23.1	193801	1938	Operating
Blount	MAIN	MAINSR	5	BITUMINOUS COAL	23.0	28.5	30.3	29.4	194811	1948	Operating
Blount	MAIN	MAINSR	6	BITUMINOUS COAL	50.0	49.3	53.0	51.2	195706	1957	Operating
Blount	MAIN	MAINSR	7	BITUMINOUS COAL	50.0	49.8	52.7	51.3	196107	1961	Operating
Blue Valley	SPP	N	2	BITUMINOUS COAL	25.0	21.0	21.0	21.0	195805	1958	Operating
Blue Valley	SPP	N	3	BITUMINOUS COAL	65.0	51.0	51.0	51.0	196508	1965	Operating
Blue Valley	SPP	N	ST1	BITUMINOUS COAL	25.0	21.0	21.0	21.0	195804	1958	Operating
Boardman (PGE)	WECC	NWPA	1	SUBBITUMINOUS	560.5	528.0	560.0	544.0	198008	1980	Operating
Bonanza	WECC	NWPA	1	BITUMINOUS COAL	460.0	425.0	460.0	442.5	198605	1986	Operating
Boswell Energy Center	MAPP	MAPPSR	1	SUBBITUMINOUS	75.0	69.0	69.0	69.0	195807	1958	Operating
Boswell Energy Center	MAPP	MAPPSR	2	SUBBITUMINOUS	75.0	69.0	69.0	69.0	196001	1960	Operating
Boswell Energy Center	MAPP	MAPPSR	3	SUBBITUMINOUS	364.5	350.0	350.0	350.0	197305	1973	Operating
Boswell Energy Center	MAPP	MAPPSR	4	SUBBITUMINOUS	558.0	535.0	535.0	535.0	198005	1980	Operating
Bowater Newsprint Calhoun Oper	SERC	TVA	1	COAL (GENERIC)	19.0	18.2	19.0	18.6	195405	1954	Operating
Bowater Newsprint Calhoun Oper	SERC	TVA	2	COAL (GENERIC)	19.2	18.4	20.0	19.2	195406	1954	Operating
Bowater Newsprint Calhoun Oper	SERC	TVA	3	COAL (GENERIC)	25.0	24.0	27.0	25.5	195706	1957	Operating
Bowen	SERC	STHRN	1	BITUMINOUS COAL	805.8	705.6	705.6	705.6	197110	1971	Operating
Bowen	SERC	STHRN	2	BITUMINOUS COAL	788.8	704.5	704.5	704.5	197209	1972	Operating
Bowen	SERC	STHRN	3	BITUMINOUS COAL	880.0	902.0	952.0	927.0	197412	1974	Operating
Bowen	SERC	STHRN	4	BITUMINOUS COAL	880.0	929.0	952.0	940.5	197511	1975	Operating
Brandon Shores	MAAC	PJM	1	BITUMINOUS COAL	685.1	650.0	670.0	660.0	198405	1984	Operating
Brandon Shores	MAAC	PJM	2	BITUMINOUS COAL	685.1	646.0	670.0	658.0	199105	1991	Operating
Brayton Point	NPCC	NEPOOL	1	BITUMINOUS COAL	241.0	247.0	255.0	251.0	196308	1963	Operating
Brayton Point	NPCC	NEPOOL	2	BITUMINOUS COAL	241.0	240.0	253.0	246.5	196407	1964	Operating
Brayton Point	NPCC	NEPOOL	3	BITUMINOUS COAL	642.7	605.0	622.0	613.5	196907	1969	Operating
Bremo Bluff	SERC	VACAR	3	BITUMINOUS COAL	69.0	71.0	74.0	72.5	195006	1950	Operating
Bremo Bluff	SERC	VACAR	4	BITUMINOUS COAL	185.3	156.0	160.0	158.0	195808	1958	Operating
Bridgeport Harbor	NPCC	NEPOOL	3	BITUMINOUS COAL	399.5	385.0	400.0	392.5	196808	1968	Operating
Bridger	WECC	NWPA	1	SUBBITUMINOUS	560.6	520.0	520.0	520.0	197411	1974	Operating
Bridger	WECC	NWPA	2	SUBBITUMINOUS	560.6	520.0	520.0	520.0	197512	1975	Operating
Bridger	WECC	NWPA	3	SUBBITUMINOUS	560.6	520.0	520.0	520.0	197609	1976	Operating
Bridger	WECC	NWPA	4	SUBBITUMINOUS	560.6	520.0	520.0	520.0	197911	1979	Operating
Brown (KUC)	ECAR	ECARSR	1	BITUMINOUS COAL	113.6	105.0	107.0	106.0	195705	1957	Operating
Brown (KUC)	ECAR	ECARSR	2	BITUMINOUS COAL	179.5	168.0	170.0	169.0	196306	1963	Operating
Brown (KUC)	ECAR	ECARSR	3	BITUMINOUS COAL	446.4	439.0	442.0	440.5	197107	1971	Operating
Brown (SIGE)	ECAR	ECARSR	1	BITUMINOUS COAL	265.2	250.0	250.0	250.0	197903	1979	Operating
Brown (SIGE)	ECAR	ECARSR	2	BITUMINOUS COAL	265.2	250.0	250.0	250.0	198602	1986	Operating
Brunner Island	MAAC	PJM	1	BITUMINOUS COAL	363.3	321.0	334.0	327.5	196106	1961	Operating
Brunner Island	MAAC	PJM	2	BITUMINOUS COAL	405.0	378.0	390.0	384.0	196510	1965	Operating
Brunner Island	MAAC	PJM	3	BITUMINOUS COAL	790.4	735.0	745.0	740.0	196906	1969	Operating
Buck (DUPC)	SERC	VACAR	3	BITUMINOUS COAL	80.0	75.0	75.0	75.0	194107	1941	Operating
Buck (DUPC)	SERC	VACAR	4	BITUMINOUS COAL	40.0	38.0	38.0	38.0	194209	1942	Operating

All Coal Unit Assumptions

Source: CoalDet - System version 5.5.998; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Buck (DUPC)	SERC	VACAR	5	BITUMINOUS COAL	125.0	128.0	128.0	128.0	195309	1953	Operating
Buck (DUPC)	SERC	VACAR	6	BITUMINOUS COAL	125.0	128.0	128.0	128.0	195312	1953	Operating
Bull Run (TVA)	SERC	TVA	1	BITUMINOUS COAL	950.0	868.0	870.0	869.0	196706	1967	Operating
Burger	ECAR	ECARSR	3	BITUMINOUS COAL	103.5	94.0	94.0	94.0	195003	1950	Operating
Burger	ECAR	ECARSR	4	BITUMINOUS COAL	156.3	156.0	156.0	156.0	195503	1955	Operating
Burger	ECAR	ECARSR	5	BITUMINOUS COAL	156.3	156.0	156.0	156.0	195506	1955	Operating
Burlington (IES)	MAIN	MAINSR	1	SUBBITUMINOUS	212.0	211.8	211.8	211.8	196806	1968	Operating
Cambria CoGen	MAAC	PJM	GEN1	BITUMINOUS COAL	98.0	91.8	98.0	94.9	199103	1991	Operating
Cameo	WECC	RMPA	1	BITUMINOUS COAL	22.0	23.7	23.7	23.7	195701	1957	Operating
Cameo	WECC	RMPA	2	BITUMINOUS COAL	44.0	49.0	49.0	49.0	196001	1960	Operating
Campbell (CEC)	ECAR	ECARSR	1	BITUMINOUS COAL	265.0	254.0	254.0	254.0	196210	1962	Operating
Campbell (CEC)	ECAR	ECARSR	2	BITUMINOUS COAL	385.0	355.0	360.0	357.5	196707	1967	Operating
Campbell (CEC)	ECAR	ECARSR	3	BITUMINOUS COAL	770.0	790.2	790.2	790.2	198009	1980	Operating
Canadys	SERC	VACAR	1	BITUMINOUS COAL	136.0	105.0	105.0	105.0	196204	1962	Operating
Canadys	SERC	VACAR	2	BITUMINOUS COAL	136.0	116.0	116.0	116.0	196405	1964	Operating
Canadys	SERC	VACAR	3	BITUMINOUS COAL	217.6	175.0	175.0	175.0	196706	1967	Operating
Cane Run	ECAR	ECARSR	4	BITUMINOUS COAL	163.2	155.0	155.0	155.0	196205	1962	Operating
Cane Run	ECAR	ECARSR	5	BITUMINOUS COAL	209.4	168.0	168.0	168.0	196605	1966	Operating
Cane Run	ECAR	ECARSR	6	BITUMINOUS COAL	272.0	240.0	240.0	240.0	196905	1969	Operating
Cape Fear	SERC	VACAR	5	BITUMINOUS COAL	140.6	143.0	148.0	145.5	195612	1956	Operating
Cape Fear	SERC	VACAR	6	BITUMINOUS COAL	187.9	173.0	175.0	174.0	195807	1958	Operating
Capitol Heat and Power Plant	MAIN	MAINSR	1	COAL (GENERIC)	1.0	1.0	1.0	1.0	196305	1963	Standby
Capitol Heat and Power Plant	MAIN	MAINSR	2	COAL (GENERIC)	1.0	1.0	1.0	1.0	196305	1963	Operating
Carbon	WECC	NWPA	1	BITUMINOUS COAL	75.0	70.0	70.0	70.0	195411	1954	Operating
Carbon	WECC	NWPA	2	BITUMINOUS COAL	113.6	105.0	105.0	105.0	195709	1957	Operating
Cardinal	ECAR	ECARSR	1	BITUMINOUS COAL	615.2	585.0	600.0	592.5	196702	1967	Operating
Cardinal	ECAR	ECARSR	2	BITUMINOUS COAL	615.2	585.0	600.0	592.5	196707	1967	Operating
Cardinal	ECAR	ECARSR	3	BITUMINOUS COAL	650.0	630.0	630.0	630.0	197709	1977	Operating
Cargill Fertilizer Inc	FRCC	FRCCSR	1	SUBBITUMINOUS	35.4	32.9	35.4	34.2	198808	1988	Operating
Cargill Fertilizer Inc	FRCC	FRCCSR	2	SUBBITUMINOUS	6.0	5.8	6.0	5.9	196105	1961	Operating
Cargill Fertilizer Inc	FRCC	FRCCSR	3	SUBBITUMINOUS	42.5	42.5	42.5	42.5	199911	1999	Operating
Cargill Inc - Corn Milling Div	MAIN	MAINSR	GEN1	COAL (GENERIC)	16.0	15.4	16.0	15.7	195212	1952	Operating
Carlson	NPCC	NYPP	5	BITUMINOUS COAL	28.8	28.8	28.8	28.8	195108	1951	Operating
Carlson	NPCC	NYPP	6	BITUMINOUS COAL	25.0	23.3	23.3	23.3	196808	1968	Operating
Carneys Point	MAAC	PJM	1	BITUMINOUS COAL	285.0	262.9	267.1	264.5	199403	1994	Operating
Cayuga	ECAR	ECARSR	1	BITUMINOUS COAL	531.0	500.0	505.0	502.5	197010	1970	Operating
Cayuga	ECAR	ECARSR	2	BITUMINOUS COAL	531.0	480.0	485.0	482.5	197206	1972	Operating
Cedar Bay Generating Co., L.P.	FRCC	FRCCSR	GEN1	BITUMINOUS COAL	285.0	260.0	267.1	263.5	199401	1994	Operating
Cedar Rapids - ADM	MAIN	MAINSR	GEN1	COAL (GENERIC)	31.0	29.0	31.0	30.0	198811	1988	Operating
Cedar Rapids - ADM	MAIN	MAINSR	GEN2	COAL (GENERIC)	31.0	29.0	31.0	30.0	198811	1988	Operating
Cedar Rapids - ADM	MAIN	MAINSR	GEN3	COAL (GENERIC)	31.0	29.0	31.0	30.0	198811	1988	Operating
Cedar Rapids - ADM	MAIN	MAINSR	GEN4	COAL (GENERIC)	31.0	29.0	31.0	30.0	198811	1988	Standby
Cedar Rapids - ADM	MAIN	MAINSR	GEN5	COAL (GENERIC)	31.0	29.0	31.0	30.0	199502	1995	Operating
Celco Plant	ECAR	ECARSR	1	COAL (GENERIC)	6.0	5.8	6.0	5.9	194201	1942	Operating
Celco Plant	ECAR	ECARSR	2	COAL (GENERIC)	6.0	5.8	6.0	5.9	194201	1942	Operating
Celco Plant	ECAR	ECARSR	3	COAL (GENERIC)	6.0	5.8	6.0	5.9	194401	1944	Operating
Celco Plant	ECAR	ECARSR	4	COAL (GENERIC)	9.2	8.8	9.2	9.0	196601	1966	Operating
Central Heating Plant (IOSTUN)	MAPP	MAPPSR	1	COAL (GENERIC)	3.0	2.9	3.0	2.9	194906	1949	Standby
Central Heating Plant (IOSTUN)	MAPP	MAPPSR	2	COAL (GENERIC)	13.2	12.7	13.2	12.9	197809	1978	Operating
Central Heating Plant (IOSTUN)	MAPP	MAPPSR	3	COAL (GENERIC)	6.0	5.8	6.0	5.9	196010	1960	Standby
Central Heating Plant (IOSTUN)	MAPP	MAPPSR	4	COAL (GENERIC)	11.5	11.0	11.5	11.3	197003	1970	Operating
Central Power and Lime Incorp	FRCC	FRCCSR	1	BITUMINOUS COAL	125.0	141.0	141.0	141.0	198806	1988	Operating
Centralia (TRAENE)	WECC	NWPA	1	SUBBITUMINOUS	730.0	670.0	670.0	670.0	197212	1972	Operating
Centralia (TRAENE)	WECC	NWPA	2	SUBBITUMINOUS	730.0	670.0	670.0	670.0	197307	1973	Operating
CF Plant City Phosphate	FRCC	FRCCSR	GEN1	SUBBITUMINOUS	40.6	37.7	40.6	39.1	198811	1988	Operating
Chalk Point	MAAC	PJM	ST1	BITUMINOUS COAL	364.0	341.0	341.0	341.0	196408	1964	Operating
Chalk Point	MAAC	PJM	ST2	BITUMINOUS COAL	364.0	342.0	343.0	342.5	196503	1965	Operating
Chamois	MAIN	MAINSR	1	BITUMINOUS COAL	15.0	17.0	18.0	17.5	195312	1953	Operating
Chamois	MAIN	MAINSR	2	BITUMINOUS COAL	44.0	49.0	50.0	49.5	196011	1960	Operating
Cherokee (PSCO)	WECC	RMPA	1	BITUMINOUS COAL	100.0	107.0	107.0	107.0	195701	1957	Operating
Cherokee (PSCO)	WECC	RMPA	2	BITUMINOUS COAL	110.0	106.8	106.8	106.8	195901	1959	Operating
Cherokee (PSCO)	WECC	RMPA	3	BITUMINOUS COAL	150.0	158.0	158.0	158.0	196201	1962	Operating
Cherokee (PSCO)	WECC	RMPA	4	BITUMINOUS COAL	350.0	352.0	352.0	352.0	196801	1968	Operating
Chesapeake Energy Center	SERC	VACAR	3	BITUMINOUS COAL	185.3	156.0	162.0	159.0	195906	1959	Operating
Chesapeake Energy Center	SERC	VACAR	ST1	BITUMINOUS COAL	112.5	111.0	111.0	111.0	195306	1953	Operating
Chesapeake Energy Center	SERC	VACAR	ST2	BITUMINOUS COAL	112.5	111.0	111.0	111.0	195412	1954	Operating
Chesapeake Energy Center	SERC	VACAR	ST4	BITUMINOUS COAL	230.4	217.0	221.0	219.0	196205	1962	Operating
Chester Operations	MAAC	PJM	T5	ANTHRACITE	67.0	62.8	67.0	64.9	198605	1986	Operating
Chesterfield	SERC	VACAR	3	BITUMINOUS COAL	112.5	100.0	105.0	102.5	195212	1952	Operating
Chesterfield	SERC	VACAR	4	BITUMINOUS COAL	187.5	166.0	171.0	168.5	196006	1960	Operating
Chesterfield	SERC	VACAR	5	BITUMINOUS COAL	359.0	326.0	333.0	329.5	196408	1964	Operating
Chesterfield	SERC	VACAR	6	BITUMINOUS COAL	693.9	658.0	671.0	664.5	196912	1969	Operating
Cheswick	ECAR	ECARSR	1	BITUMINOUS COAL	565.0	562.0	570.0	566.0	197010	1970	Operating
Cholla	WECC	AZNMNV	1	BITUMINOUS COAL	113.6	110.0	110.0	110.0	196206	1962	Operating
Cholla	WECC	AZNMNV	2	BITUMINOUS COAL	288.9	245.0	245.0	245.0	197806	1978	Operating
Cholla	WECC	AZNMNV	3	BITUMINOUS COAL	288.9	260.0	260.0	260.0	198005	1980	Operating
Cholla	WECC	AZNMNV	4	BITUMINOUS COAL	414.0	380.0	380.0	380.0	198106	1981	Operating
Clark (UTIL)	WECC	RMPA	1	BITUMINOUS COAL	16.5	19.0	19.0	19.0	195509	1955	Operating
Clark (UTIL)	WECC	RMPA	2	BITUMINOUS COAL	22.0	24.0	24.0	24.0	195911	1959	Operating
Cliffside	SERC	VACAR	1	BITUMINOUS COAL	40.0	38.0	38.0	38.0	194007	1940	Operating
Cliffside	SERC	VACAR	2	BITUMINOUS COAL	40.0	38.0	38.0	38.0	194007	1940	Operating
Cliffside	SERC	VACAR	3	BITUMINOUS COAL	65.0	61.0	61.0	61.0	194805	1948	Operating
Cliffside	SERC	VACAR	4	BITUMINOUS COAL	65.0	61.0	61.0	61.0	194810	1948	Operating
Cliffside	SERC	VACAR	5	BITUMINOUS COAL	570.9	562.0	562.0	562.0	197206	1972	Operating
Clifty Creek	ECAR	ECARSR	1	SUBBITUMINOUS	217.3	210.0	213.0	211.5	195502	1955	Operating
Clifty Creek	ECAR	ECARSR	2	SUBBITUMINOUS	217.3	211.0	214.0	212.5	195505	1955	Operating
Clifty Creek	ECAR	ECARSR	3	SUBBITUMINOUS	217.3	196.0	199.0	197.5	195507	1955	Operating
Clifty Creek	ECAR	ECARSR	4	SUBBITUMINOUS	217.3	202.0	205.0	203.5	195510	1955	Operating
Clifty Creek	ECAR	ECARSR	5	SUBBITUMINOUS	217.3	205.0	208.0	206.5	195511	1955	Operating
Clifty Creek	ECAR	ECARSR	6	SUBBITUMINOUS	217.3	203.0	206.0	204.5	195603	1956	Operating
Clinch River	ECAR	ECARSR	1	BITUMINOUS COAL	237.5	230.0	235.0	232.5	195809	1958	Operating
Clinch River	ECAR	ECARSR	2	BITUMINOUS COAL	237.5	230.0	235.0	232.5	195812	1958	Operating

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.996; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Clinch River	ECAR	ECARSR	3	BITUMINOUS COAL	237.5	230.0	235.0	232.5	196112	1961	Operating
Clinton (ADM)	MAIN	MAINSR	1	COAL (GENERIC)	7.5	7.2	7.5	7.4	195401	1954	Operating
Clinton (ADM)	MAIN	MAINSR	2	COAL (GENERIC)	3.5	3.5	3.5	3.5	194001	1940	Operating
Clinton (ADM)	MAIN	MAINSR	3	COAL (GENERIC)	9.4	9.0	9.4	9.2	196501	1965	Operating
Clinton (ADM)	MAIN	MAINSR	4	COAL (GENERIC)	4.0	3.8	4.0	3.9	197401	1974	Operating
Clinton (ADM)	MAIN	MAINSR	5	COAL (GENERIC)	7.0	6.5	7.0	6.8	199104	1991	Operating
Clover	SERC	VACAR	1	BITUMINOUS COAL	424.0	441.0	441.0	441.0	199510	1995	Operating
Clover	SERC	VACAR	2	BITUMINOUS COAL	424.0	441.0	441.0	441.0	199603	1996	Operating
Coal Creek	MAPP	MAPPSR	1	LIGNITE	506.0	544.0	544.0	544.0	197907	1979	Operating
Coal Creek	MAPP	MAPPSR	2	LIGNITE	506.0	550.2	550.2	550.2	198107	1981	Operating
Cobb	ECAR	ECARSR	4	BITUMINOUS COAL	156.3	161.0	161.0	161.0	195609	1956	Operating
Cobb	ECAR	ECARSR	5	BITUMINOUS COAL	156.3	159.0	159.0	159.0	195703	1957	Operating
Colfaxen	MAIN	MAINSR	1	BITUMINOUS COAL	389.0	340.0	340.0	340.0	196512	1965	Operating
Colfaxen	MAIN	MAINSR	2	BITUMINOUS COAL	616.5	580.0	580.0	580.0	197209	1972	Operating
Cogen South	SERC	VACAR	GEN1	BITUMINOUS COAL	99.0	82.8	99.0	90.5	199904	1999	Operating
Cogentrix Elizabethtown	SERC	VACAR	1	BITUMINOUS COAL	34.7	33.3	33.3	33.3	198406	1984	Operating
Cogentrix Kenansville	SERC	VACAR	1	BITUMINOUS COAL	34.7	32.4	32.4	32.4	198604	1986	Operating
Cogentrix Lumberton	SERC	VACAR	1	BITUMINOUS COAL	34.7	33.5	33.5	33.5	198406	1984	Operating
Cogentrix Richmond	SERC	VACAR	GEN1	BITUMINOUS COAL	67.5	62.8	67.5	65.2	199205	1992	Operating
Cogentrix Richmond	SERC	VACAR	GEN2	BITUMINOUS COAL	67.5	62.8	67.5	65.2	199205	1992	Operating
Cogentrix Richmond	SERC	VACAR	GEN3	BITUMINOUS COAL	67.5	62.8	67.5	65.2	199208	1992	Operating
Cogentrix Richmond	SERC	VACAR	GEN4	BITUMINOUS COAL	67.5	62.8	67.5	65.2	199208	1992	Operating
Cogentrix Roxboro	SERC	VACAR	1	BITUMINOUS COAL	60.0	56.0	56.0	56.0	198708	1987	Operating
Cogentrix Southport	SERC	VACAR	1	BITUMINOUS COAL	60.0	50.8	54.2	52.5	198709	1987	Operating
Cogentrix Southport	SERC	VACAR	2	BITUMINOUS COAL	60.0	50.8	54.2	52.5	198709	1987	Operating
Colbert	SERC	TVA	1	BITUMINOUS COAL	200.0	178.0	182.0	180.0	195501	1955	Operating
Colbert	SERC	TVA	2	BITUMINOUS COAL	200.0	178.0	182.0	180.0	195503	1955	Operating
Colbert	SERC	TVA	3	BITUMINOUS COAL	200.0	178.0	182.0	180.0	195507	1955	Operating
Colbert	SERC	TVA	4	BITUMINOUS COAL	200.0	178.0	182.0	180.0	195511	1955	Operating
Colbert	SERC	TVA	5	BITUMINOUS COAL	550.0	467.0	476.0	471.5	196511	1965	Operating
Coleman (WKEC)	ECAR	ECARSR	1	BITUMINOUS COAL	160.0	150.0	150.0	150.0	196911	1969	Operating
Coleman (WKEC)	ECAR	ECARSR	2	BITUMINOUS COAL	160.0	150.0	150.0	150.0	197009	1970	Operating
Coleman (WKEC)	ECAR	ECARSR	3	BITUMINOUS COAL	160.0	155.0	155.0	155.0	197201	1972	Operating
Coleto Creek	ERCOT	ERCOTS	1	SUBBITUMINOUS	600.4	632.0	632.0	632.0	198006	1980	Operating
Colstrip	WECC	NWPA	1	SUBBITUMINOUS	358.4	307.0	307.0	307.0	197511	1975	Operating
Colstrip	WECC	NWPA	2	SUBBITUMINOUS	358.4	307.0	307.0	307.0	197608	1976	Operating
Colstrip	WECC	NWPA	3	SUBBITUMINOUS	778.0	740.0	740.0	740.0	198401	1984	Operating
Colstrip	WECC	NWPA	4	SUBBITUMINOUS	778.0	740.0	740.0	740.0	198604	1986	Operating
Colstrip Energy	WECC	NWPA	ST	WASTE COAL	41.5	36.9	41.5	40.2	199002	1990	Operating
Columbia (WPL)	MAIN	MAINSR	1	SUBBITUMINOUS	512.0	525.0	535.0	530.0	197505	1975	Operating
Columbia (WPL)	MAIN	MAINSR	2	SUBBITUMINOUS	511.0	525.0	535.0	530.0	197805	1978	Operating
Columbia-Mo	MAIN	MAINSR	5	BITUMINOUS COAL	16.5	16.5	16.5	16.5	195701	1957	Operating
Columbia-Mo	MAIN	MAINSR	7	BITUMINOUS COAL	22.0	22.0	22.0	22.0	196501	1965	Operating
Columbia-Mo	MAIN	MAINSR	8	BITUMINOUS COAL	35.0	35.0	35.0	35.0	197001	1970	Operating
Colver Power Project	MAAC	PJM	IPP	BITUMINOUS COAL	131.0	122.0	131.0	126.5	199502	1995	Operating
Comanche (PSCO)	WECC	RMPA	1	BITUMINOUS COAL	350.0	325.0	325.0	325.0	197301	1973	Operating
Comanche (PSCO)	WECC	RMPA	2	BITUMINOUS COAL	350.0	335.0	335.0	335.0	197602	1976	Operating
Conemaugh	MAAC	PJM	1	BITUMINOUS COAL	936.0	850.0	850.0	850.0	197005	1970	Operating
Conemaugh	MAAC	PJM	2	BITUMINOUS COAL	936.0	850.0	850.0	850.0	197105	1971	Operating
Conesville	ECAR	ECARSR	1	BITUMINOUS COAL	148.0	115.0	125.0	120.0	195902	1959	Operating
Conesville	ECAR	ECARSR	2	BITUMINOUS COAL	136.0	115.0	125.0	120.0	195712	1957	Operating
Conesville	ECAR	ECARSR	3	BITUMINOUS COAL	161.5	165.0	165.0	165.0	196210	1962	Operating
Conesville	ECAR	ECARSR	4	BITUMINOUS COAL	841.5	780.0	780.0	780.0	197306	1973	Operating
Conesville	ECAR	ECARSR	5	BITUMINOUS COAL	444.0	375.0	375.0	375.0	197611	1976	Operating
Conesville	ECAR	ECARSR	6	BITUMINOUS COAL	444.0	375.0	375.0	375.0	197806	1978	Operating
Container Corporation of Ameri	SERC	STHRN	1	COAL (GENERIC)	12.5	12.0	12.5	12.3	195710	1957	Operating
Container Corporation of Ameri	SERC	STHRN	2	COAL (GENERIC)	12.5	12.0	12.5	12.3	196404	1964	Operating
Container Corporation of Ameri	SERC	STHRN	3	COAL (GENERIC)	13.9	12.9	13.9	13.4	198201	1982	Operating
Cooper	ECAR	ECARSR	1	BITUMINOUS COAL	100.0	116.0	116.0	116.0	196502	1965	Operating
Cooper	ECAR	ECARSR	2	BITUMINOUS COAL	220.9	225.0	225.0	225.0	196910	1969	Operating
Cope	SERC	VACAR	ST1	BITUMINOUS COAL	417.4	410.0	422.0	416.0	199601	1996	Operating
Corette	WECC	NWPA	1	SUBBITUMINOUS	163.0	160.0	160.0	160.0	196804	1968	Operating
Corn Products-Illinois	MAIN	MAINSR	3	BITUMINOUS COAL	25.0	23.2	25.0	24.1	199101	1991	Operating
Corn Products-Illinois	MAIN	MAINSR	4	BITUMINOUS COAL	25.0	23.2	25.0	24.1	199101	1991	Operating
Corn Wet Milling Plant	SERC	TVA	ST	COAL (GENERIC)	25.0	23.3	25.0	24.1	198505	1985	Standby
Coronado	WECC	AZNMNV	CO1	BITUMINOUS COAL	410.9	395.0	395.0	395.0	197912	1979	Operating
Coronado	WECC	AZNMNV	CO2	BITUMINOUS COAL	410.9	365.0	376.0	371.5	198010	1980	Operating
Council Bluffs	MAPP	MAPPSR	1	SUBBITUMINOUS	49.0	43.0	43.0	43.0	195403	1954	Operating
Council Bluffs	MAPP	MAPPSR	2	SUBBITUMINOUS	81.6	88.0	88.0	88.0	195810	1958	Operating
Council Bluffs	MAPP	MAPPSR	3	SUBBITUMINOUS	725.9	840.6	840.6	840.6	197812	1978	Operating
Coyote	MAPP	MAPPSR	1	LIGNITE	450.0	427.0	427.0	427.0	198105	1981	Operating
Craig	WECC	RMPA	1	BITUMINOUS COAL	446.4	428.0	428.0	428.0	198007	1980	Operating
Craig	WECC	RMPA	2	BITUMINOUS COAL	446.4	428.0	428.0	428.0	198001	1980	Operating
Craig	WECC	RMPA	3	BITUMINOUS COAL	446.4	408.0	408.0	408.0	198410	1984	Operating
Crane	MAAC	PJM	1	BITUMINOUS COAL	190.4	190.0	190.0	190.0	196107	1961	Operating
Crane	MAAC	PJM	2	BITUMINOUS COAL	209.4	195.0	195.0	195.0	196302	1963	Operating
Crawford (MIDGEN)	MAIN	MAINSR	7	SUBBITUMINOUS	239.4	213.0	216.0	214.5	195805	1958	Operating
Crawford (MIDGEN)	MAIN	MAINSR	8	SUBBITUMINOUS	358.2	319.0	326.0	322.5	196104	1961	Operating
Crawfordsville	ECAR	ECARSR	4	BITUMINOUS COAL	11.5	11.6	11.6	11.6	195501	1955	Operating
Crawfordsville	ECAR	ECARSR	5	BITUMINOUS COAL	12.7	12.9	12.9	12.9	196501	1965	Operating
Crisp	SERC	STHRN	1	BITUMINOUS COAL	12.5	12.5	12.5	12.5	195812	1958	Operating
Crist	SERC	STHRN	4	BITUMINOUS COAL	93.8	88.0	88.0	88.0	195907	1959	Operating
Crist	SERC	STHRN	5	BITUMINOUS COAL	93.8	87.0	87.0	87.0	196106	1961	Operating
Crist	SERC	STHRN	6	BITUMINOUS COAL	369.8	327.0	327.0	327.0	197005	1970	Operating
Crist	SERC	STHRN	7	BITUMINOUS COAL	578.0	517.1	517.1	517.1	197308	1973	Operating
Cromby	MAAC	PJM	1	BITUMINOUS COAL	187.5	144.0	147.0	145.5	195407	1954	Operating
Cross	SERC	VACAR	1	BITUMINOUS COAL	590.9	620.0	620.0	620.0	199505	1995	Operating
Cross	SERC	VACAR	2	BITUMINOUS COAL	570.2	554.0	554.0	554.0	198405	1984	Operating
Crystal River	FRCC	FRCCSR	1	BITUMINOUS COAL	440.6	369.0	373.0	371.0	196610	1966	Operating
Crystal River	FRCC	FRCCSR	2	BITUMINOUS COAL	523.8	464.0	469.0	466.5	196911	1969	Operating
Crystal River	FRCC	FRCCSR	4	BITUMINOUS COAL	739.3	697.0	717.0	707.0	198212	1982	Operating
Crystal River	FRCC	FRCCSR	5	BITUMINOUS COAL	739.3	697.0	717.0	707.0	198410	1984	Operating

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.998; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Cutler	ECAR	ECARSR	1	BITUMINOUS COAL	46.0	46.0	46.0	46.0	195508	1955	Operating
Cutler	ECAR	ECARSR	2	BITUMINOUS COAL	103.7	90.0	90.0	90.0	196612	1966	Operating
Cutler	ECAR	ECARSR	3	BITUMINOUS COAL	265.2	250.0	250.0	250.0	197306	1973	Operating
Cumberland (TVA)	SERC	TVA	1	BITUMINOUS COAL	1,300.0	1,265.0	1,291.0	1,278.0	197303	1973	Operating
Cumberland (TVA)	SERC	TVA	2	BITUMINOUS COAL	1,300.0	1,265.0	1,291.0	1,278.0	197311	1973	Operating
Dale (EKPC)	ECAR	ECARSR	1	BITUMINOUS COAL	22.0	24.0	24.0	24.0	195412	1954	Operating
Dale (EKPC)	ECAR	ECARSR	2	BITUMINOUS COAL	22.0	24.0	24.0	24.0	195412	1954	Operating
Dale (EKPC)	ECAR	ECARSR	3	BITUMINOUS COAL	66.0	75.0	75.0	75.0	195710	1957	Operating
Dale (EKPC)	ECAR	ECARSR	4	BITUMINOUS COAL	66.0	75.0	75.0	75.0	196008	1960	Operating
Dallman	MAIN	MAINSR	1	BITUMINOUS COAL	90.3	87.5	87.8	87.7	196806	1968	Operating
Dallman	MAIN	MAINSR	2	BITUMINOUS COAL	90.3	86.0	86.4	86.2	197206	1972	Operating
Dallman	MAIN	MAINSR	3	BITUMINOUS COAL	207.4	190.0	190.0	190.0	197806	1978	Operating
Dan River	SERC	VACAR	1	BITUMINOUS COAL	70.0	67.0	67.0	67.0	194912	1949	Operating
Dan River	SERC	VACAR	2	BITUMINOUS COAL	70.0	67.0	67.0	67.0	195003	1950	Operating
Dan River	SERC	VACAR	3	BITUMINOUS COAL	150.0	142.0	142.0	142.0	195506	1955	Operating
Danskammer	NPCC	NYPP	3	BITUMINOUS COAL	147.1	131.3	134.7	133.0	195910	1959	Operating
Danskammer	NPCC	NYPP	4	BITUMINOUS COAL	239.4	233.0	230.0	231.5	196709	1967	Operating
DC Battle Cogeneration	SERC	VACAR	1	BITUMINOUS COAL	60.0	53.7	59.0	56.4	199010	1990	Operating
DC Battle Cogeneration	SERC	VACAR	2	BITUMINOUS COAL	60.0	53.7	59.0	56.4	199010	1990	Operating
Decatur (ADM)	MAIN	MAINSR	GEN2	COAL (GENERIC)	31.0	29.0	31.0	30.0	196704	1967	Operating
Decatur (ADM)	MAIN	MAINSR	GEN3	COAL (GENERIC)	31.0	29.0	31.0	30.0	196704	1967	Operating
Decatur (ADM)	MAIN	MAINSR	GEN4	COAL (GENERIC)	31.0	29.0	31.0	30.0	196705	1967	Operating
Decatur (ADM)	MAIN	MAINSR	GEN5	COAL (GENERIC)	31.0	29.0	31.0	30.0	196712	1967	Operating
Decatur (ADM)	MAIN	MAINSR	GEN6	COAL (GENERIC)	31.0	29.0	31.0	30.0	199409	1994	Operating
Decatur Plant Cogen	MAIN	MAINSR	GEN7	COAL (GENERIC)	75.0	70.2	75.0	72.6	199704	1997	Operating
Deely	ERCOT	ERCOTS	GEN1	COAL (GENERIC)	62.0	57.6	62.0	59.8	196901	1969	Operating
Deely	ERCOT	ERCOTS	1	SUBBITUMINOUS	446.0	415.0	418.0	416.5	197708	1977	Operating
Deely	ERCOT	ERCOTS	2	SUBBITUMINOUS	446.0	415.0	418.0	416.5	197806	1978	Operating
Deepwater (ACEC)	MAAC	PJM	6	BITUMINOUS COAL	91.9	80.0	81.0	80.5	195412	1954	Operating
Deerhaven	FRCC	FRCCSR	2	BITUMINOUS COAL	250.8	218.0	218.0	218.0	198110	1981	Operating
Dewey	MAIN	MAINSR	1	SUBBITUMINOUS	100.0	113.0	113.0	113.0	195912	1959	Operating
Dewey	MAIN	MAINSR	2	SUBBITUMINOUS	100.0	113.0	114.0	113.5	196212	1962	Operating
Dickerson	MAAC	PJM	1	BITUMINOUS COAL	196.0	182.0	182.0	182.0	195906	1959	Operating
Dickerson	MAAC	PJM	2	BITUMINOUS COAL	196.0	182.0	182.0	182.0	196004	1960	Operating
Dickerson	MAAC	PJM	3	BITUMINOUS COAL	196.0	182.0	182.0	182.0	196203	1962	Operating
Dolet Hills	SPP	S	1	LIGNITE	720.8	650.0	650.0	650.0	198604	1986	Operating
Don Plant	WECC	NWPA	1	SUBBITUMINOUS	15.9	15.0	15.9	15.4	198602	1986	Operating
Dover (DOVEWP)	ECAR	ECARSR	2	BITUMINOUS COAL	4.0	3.7	3.7	3.7	194401	1944	Standby
Dover (DOVEWP)	ECAR	ECARSR	3	BITUMINOUS COAL	8.0	7.4	7.5	7.4	195401	1954	Standby
Dover (DOVEWP)	ECAR	ECARSR	4	BITUMINOUS COAL	19.5	15.2	15.2	15.2	196801	1968	Operating
Dover Cogeneration	MAAC	PJM	1	BITUMINOUS COAL	-	-	-	-	198506	1985	Operating
Drake	WECC	RMPA	5	BITUMINOUS COAL	56.8	47.0	48.0	47.5	196211	1962	Operating
Drake	WECC	RMPA	6	BITUMINOUS COAL	86.2	79.0	80.0	79.5	196810	1968	Operating
Drake	WECC	RMPA	7	BITUMINOUS COAL	147.0	133.0	134.0	133.5	197407	1974	Operating
Dubuque	MAIN	MAINSR	3	BITUMINOUS COAL	26.8	30.0	30.0	30.0	195201	1952	Operating
Dubuque	MAIN	MAINSR	4	BITUMINOUS COAL	37.5	35.0	35.0	35.0	195901	1959	Operating
Dubuque	MAIN	MAINSR	ST2	BITUMINOUS COAL	15.0	13.0	13.0	13.0	192901	1929	Operating
Duck Creek	MAIN	MAINSR	1	BITUMINOUS COAL	441.0	366.0	366.0	366.0	197606	1976	Operating
Duluth Paper Mill	MAPP	MAPPSR	1	SUBBITUMINOUS	10.7	9.9	10.7	10.3	198611	1986	Operating
Dunkirk (NRG)	NPCC	NYPP	1	BITUMINOUS COAL	96.0	95.8	97.7	96.7	195011	1950	Operating
Dunkirk (NRG)	NPCC	NYPP	2	BITUMINOUS COAL	96.0	99.5	99.3	99.4	195012	1950	Operating
Dunkirk (NRG)	NPCC	NYPP	3	BITUMINOUS COAL	218.0	196.5	204.8	200.6	195909	1959	Operating
Dunkirk (NRG)	NPCC	NYPP	ST4	BITUMINOUS COAL	218.0	191.9	202.0	197.0	196008	1960	Operating
Eagle Valley	ECAR	ECARSR	3	BITUMINOUS COAL	50.0	43.0	43.0	43.0	195112	1951	Operating
Eagle Valley	ECAR	ECARSR	4	BITUMINOUS COAL	69.0	56.0	57.0	56.5	195301	1953	Operating
Eagle Valley	ECAR	ECARSR	5	BITUMINOUS COAL	99.0	62.0	63.0	62.5	195312	1953	Operating
Eagle Valley	ECAR	ECARSR	6	BITUMINOUS COAL	113.6	99.0	100.0	99.5	195610	1956	Operating
Earl F. Wisdom	MAPP	MAPPSR	ST	COAL (GENERIC)	33.0	37.3	38.0	37.7	196006	1960	Operating
East Bend	ECAR	ECARSR	2	BITUMINOUS COAL	648.4	600.0	600.0	600.0	198103	1981	Operating
Eastlake	ECAR	ECARSR	1	BITUMINOUS COAL	123.0	129.0	132.0	130.5	195309	1953	Operating
Eastlake	ECAR	ECARSR	2	BITUMINOUS COAL	123.0	129.0	132.0	130.5	195312	1953	Operating
Eastlake	ECAR	ECARSR	3	BITUMINOUS COAL	123.0	129.0	132.0	130.5	195406	1954	Operating
Eastlake	ECAR	ECARSR	4	BITUMINOUS COAL	208.0	238.0	240.0	239.0	195603	1956	Operating
Eastlake	ECAR	ECARSR	5	BITUMINOUS COAL	680.0	597.0	597.0	597.0	197209	1972	Operating
Ebensburg Power Co.	MAAC	PJM	GEN1	BITUMINOUS COAL	57.6	47.0	53.9	50.5	199011	1990	Operating
Eckert	ECAR	ECARSR	1	BITUMINOUS COAL	44.0	44.9	45.6	45.3	195406	1954	Operating
Eckert	ECAR	ECARSR	2	BITUMINOUS COAL	44.0	37.4	39.8	38.6	195806	1958	Operating
Eckert	ECAR	ECARSR	3	BITUMINOUS COAL	47.0	48.5	50.8	49.7	196006	1960	Operating
Eckert	ECAR	ECARSR	4	BITUMINOUS COAL	80.0	74.7	78.2	76.5	196412	1964	Operating
Eckert	ECAR	ECARSR	5	BITUMINOUS COAL	80.0	75.1	77.2	76.2	196806	1968	Operating
Eckert	ECAR	ECARSR	6	BITUMINOUS COAL	80.0	76.1	77.3	76.7	197008	1970	Operating
Eddystone	MAAC	PJM	1	BITUMINOUS COAL	353.6	279.0	288.0	283.5	196002	1960	Operating
Eddystone	MAAC	PJM	2	BITUMINOUS COAL	353.6	302.0	311.0	306.5	196010	1960	Operating
Edge Moor	MAAC	PJM	3	BITUMINOUS COAL	75.0	86.0	86.0	86.0	195412	1954	Operating
Edge Moor	MAAC	PJM	4	BITUMINOUS COAL	176.8	174.0	174.0	174.0	196604	1966	Operating
Edgewater (WPL)	MAIN	MAINSR	3	SUBBITUMINOUS	60.0	74.0	74.0	74.0	195107	1951	Operating
Edgewater (WPL)	MAIN	MAINSR	4	SUBBITUMINOUS	330.0	342.0	342.0	342.0	196912	1969	Operating
Edgewater (WPL)	MAIN	MAINSR	5	SUBBITUMINOUS	380.0	402.0	402.0	402.0	198503	1985	Operating
Edwards	MAIN	MAINSR	1	BITUMINOUS COAL	136.0	117.0	117.0	117.0	196005	1960	Operating
Edwards	MAIN	MAINSR	2	BITUMINOUS COAL	280.5	262.0	262.0	262.0	196806	1968	Operating
Edwards	MAIN	MAINSR	3	BITUMINOUS COAL	363.8	361.0	361.0	361.0	197206	1972	Operating
Edwardsport	ECAR	ECARSR	7	BITUMINOUS COAL	40.3	45.0	45.0	45.0	194901	1949	Operating
Edwardsport	ECAR	ECARSR	8	BITUMINOUS COAL	69.0	75.0	75.0	75.0	195112	1951	Operating
Eielson Air Force Base Central	ASCC	ASCCSR	ST1	COAL (GENERIC)	2.5	2.3	2.5	2.4	195210	1952	Standby
Eielson Air Force Base Central	ASCC	ASCCSR	ST2	COAL (GENERIC)	2.5	2.3	2.5	2.4	195210	1952	Standby
Eielson Air Force Base Central	ASCC	ASCCSR	ST3	COAL (GENERIC)	5.0	4.6	5.0	4.8	195508	1955	Operating
Eielson Air Force Base Central	ASCC	ASCCSR	ST4	COAL (GENERIC)	5.0	4.6	5.0	4.8	196906	1969	Operating
Eielson Air Force Base Central	ASCC	ASCCSR	ST5	COAL (GENERIC)	10.0	9.4	10.0	9.7	198710	1987	Operating
Elrama	ECAR	ECARSR	1	BITUMINOUS COAL	100.0	97.0	100.0	98.5	195206	1952	Operating
Elrama	ECAR	ECARSR	2	BITUMINOUS COAL	100.0	97.0	100.0	98.5	195303	1953	Operating
Elrama	ECAR	ECARSR	3	BITUMINOUS COAL	125.0	109.0	112.0	110.5	195411	1954	Operating
Elrama	ECAR	ECARSR	4	BITUMINOUS COAL	185.3	171.0	175.0	173.0	196011	1960	Operating

All Coal Unit Assumptions

Source: CoalDat - Systems version 5.5.998; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Endicott	ECAR	ECARSR	1	BITUMINOUS COAL	55.0	50.0	55.0	52.5	196212	1962	Operating
England	MAAC	PJM	1	BITUMINOUS COAL	136.0	129.0	129.0	129.0	196210	1962	Operating
England	MAAC	PJM	2	BITUMINOUS COAL	163.2	155.0	155.0	155.0	196411	1964	Operating
Erka	SERC	VACAR	3	COAL (GENERIC)	3.0	3.0	3.0	3.0	193701	1937	Standby
Erka	SERC	VACAR	4	COAL (GENERIC)	4.0	3.8	4.0	3.9	194801	1948	Operating
Erka	SERC	VACAR	5	COAL (GENERIC)	4.0	3.8	4.0	3.9	195701	1957	Operating
Ericksen	ECAR	ECARSR	1	BITUMINOUS COAL	154.7	158.4	158.5	158.5	197302	1973	Operating
Escalante	WECC	AZNMNV	1	SUBBITUMINOUS	233.0	235.0	235.0	235.0	198412	1984	Operating
Escanaba	MAIN	MAINSR	1	BITUMINOUS COAL	11.5	13.1	13.1	13.1	195805	1958	Operating
Escanaba	MAIN	MAINSR	2	BITUMINOUS COAL	11.5	13.2	13.2	13.2	195805	1958	Operating
Fair Station	MAPP	MAPPSR	1	BITUMINOUS COAL	25.0	23.4	24.0	23.7	196001	1960	Operating
Fair Station	MAPP	MAPPSR	2	BITUMINOUS COAL	37.5	41.0	42.0	41.5	196704	1967	Operating
Fairmont	MAPP	MAPPSR	3	BITUMINOUS COAL	5.0	4.2	4.2	4.2	194501	1945	Standby
Fairmont	MAPP	MAPPSR	4	BITUMINOUS COAL	5.0	4.9	4.9	4.9	194901	1949	Standby
Fairmont	MAPP	MAPPSR	5	BITUMINOUS COAL	11.0	12.3	12.3	12.3	195901	1959	Standby
Farmland Hydro L/P	FRCC	FRCCSR	1	SUBBITUMINOUS	38.2	35.5	38.2	36.9	199011	1990	Operating
Fayette (LCRA)	ERCOT	ERCOTS	1	SUBBITUMINOUS	615.0	580.0	588.0	584.0	197906	1979	Operating
Fayette (LCRA)	ERCOT	ERCOTS	2	SUBBITUMINOUS	615.0	580.0	588.0	584.0	198005	1980	Operating
Fayette (LCRA)	ERCOT	ERCOTS	3	SUBBITUMINOUS	460.0	435.0	440.0	437.5	198804	1988	Operating
Fibertek Energy	NPCC	NYPP	1	COAL (GENERIC)	90.6	84.3	90.6	87.4	199108	1991	Operating
Fisk	MAIN	MAINSR	19	SUBBITUMINOUS	374.1	328.0	326.0	328.0	195903	1959	Operating
Flint Creek (SOEP)	SPP	S	1	SUBBITUMINOUS	558.0	480.0	558.0	519.0	197805	1978	Operating
Fresca	SPP	N	3	BITUMINOUS COAL	58.0	59.0	59.0	59.0	195412	1954	Operating
Fort Drum Cogeneration	NPCC	NYPP	1	COAL (GENERIC)	49.0	46.8	49.0	48.4	198907	1989	Operating
Fort Martin (MONG)	ECAR	ECARSR	1	BITUMINOUS COAL	576.0	552.0	552.0	552.0	196710	1967	Operating
Fort Martin (MONG)	ECAR	ECARSR	2	BITUMINOUS COAL	576.0	555.0	555.0	555.0	196812	1968	Operating
Four Corners	WECC	AZNMNV	1	BITUMINOUS COAL	190.1	170.0	170.0	170.0	196305	1963	Operating
Four Corners	WECC	AZNMNV	2	BITUMINOUS COAL	190.1	170.0	170.0	170.0	196306	1963	Operating
Four Corners	WECC	AZNMNV	3	BITUMINOUS COAL	253.4	220.0	220.0	220.0	196406	1964	Operating
Four Corners	WECC	AZNMNV	4	BITUMINOUS COAL	816.1	740.0	740.0	740.0	196907	1969	Operating
Four Corners	WECC	AZNMNV	5	BITUMINOUS COAL	816.1	740.0	740.0	740.0	197007	1970	Operating
French	WECC	RMPA	ST1	SUBBITUMINOUS	25.0	21.6	21.6	21.6	196101	1961	Operating
Gadsden	SERC	STHRN	1	BITUMINOUS COAL	69.0	64.0	64.0	64.0	194904	1949	Operating
Gadsden	SERC	STHRN	2	BITUMINOUS COAL	69.0	66.0	66.0	66.0	194907	1949	Operating
Gallagher	ECAR	ECARSR	1	BITUMINOUS COAL	150.0	140.0	140.0	140.0	195906	1959	Operating
Gallagher	ECAR	ECARSR	2	BITUMINOUS COAL	150.0	140.0	140.0	140.0	195812	1958	Operating
Gallagher	ECAR	ECARSR	3	BITUMINOUS COAL	150.0	140.0	140.0	140.0	196004	1960	Operating
Gallagher	ECAR	ECARSR	4	BITUMINOUS COAL	150.0	140.0	140.0	140.0	196103	1961	Operating
Gallatin (TVA)	SERC	TVA	1	BITUMINOUS COAL	300.0	225.0	228.0	226.5	195611	1956	Operating
Gallatin (TVA)	SERC	TVA	2	BITUMINOUS COAL	300.0	225.0	228.0	226.5	195706	1957	Operating
Gallatin (TVA)	SERC	TVA	3	BITUMINOUS COAL	327.6	263.0	266.0	264.5	195905	1959	Operating
Gallatin (TVA)	SERC	TVA	4	BITUMINOUS COAL	327.6	263.0	266.0	264.5	195908	1959	Operating
Gannon	FRCC	FRCCSR	1	BITUMINOUS COAL	125.0	110.0	110.0	110.0	195709	1957	Operating
Gannon	FRCC	FRCCSR	2	BITUMINOUS COAL	125.0	110.0	110.0	110.0	195811	1958	Operating
Gannon	FRCC	FRCCSR	3	BITUMINOUS COAL	179.5	155.0	155.0	155.0	196010	1960	Operating
Gannon	FRCC	FRCCSR	4	BITUMINOUS COAL	187.5	189.0	189.0	189.0	196311	1963	Operating
Gannon	FRCC	FRCCSR	5	BITUMINOUS COAL	230.4	227.0	232.0	229.5	196511	1965	Operating
Gannon	FRCC	FRCCSR	6	BITUMINOUS COAL	445.5	362.0	392.0	377.0	196710	1967	Operating
Gardner (NEVP)	WECC	AZNMNV	1	BITUMINOUS COAL	114.0	110.0	110.0	110.0	196506	1965	Operating
Gardner (NEVP)	WECC	AZNMNV	2	BITUMINOUS COAL	114.0	110.0	110.0	110.0	196806	1968	Operating
Gardner (NEVP)	WECC	AZNMNV	3	BITUMINOUS COAL	114.0	110.0	110.0	110.0	197605	1976	Operating
Gardner (NEVP)	WECC	AZNMNV	4	BITUMINOUS COAL	295.0	265.0	265.0	265.0	196307	1963	Operating
Gaston (ALAP)	SERC	STHRN	1	BITUMINOUS COAL	272.0	257.0	257.0	257.0	196005	1960	Operating
Gaston (ALAP)	SERC	STHRN	2	BITUMINOUS COAL	272.0	259.0	259.0	259.0	196007	1960	Operating
Gaston (ALAP)	SERC	STHRN	3	BITUMINOUS COAL	272.0	260.0	260.0	260.0	196106	1961	Operating
Gaston (ALAP)	SERC	STHRN	5	BITUMINOUS COAL	952.0	861.0	861.0	861.0	197408	1974	Operating
Gaston (ALAP)	SERC	STHRN	ST4	BITUMINOUS COAL	244.8	256.0	256.0	256.0	196206	1962	Operating
Gavin	ECAR	ECARSR	1	BITUMINOUS COAL	1,300.0	1,300.0	1,300.0	1,300.0	197410	1974	Operating
Gavin	ECAR	ECARSR	2	BITUMINOUS COAL	1,300.0	1,300.0	1,300.0	1,300.0	197507	1975	Operating
General Electric - Erie PA Po	MAAC	PJM	ST1	COAL (GENERIC)	4.0	3.6	4.0	3.8	192901	1929	Operating
General Electric - Erie PA Po	MAAC	PJM	ST2	COAL (GENERIC)	7.5	7.0	7.5	7.2	194901	1949	Operating
General Electric - Erie PA Po	MAAC	PJM	ST3	COAL (GENERIC)	7.5	6.8	7.5	7.1	193901	1939	Operating
Geneva Steel	WECC	NWPA	GEN1	COAL (GENERIC)	50.0	46.0	50.0	48.0	194401	1944	Operating
Genoa	MAPP	MAPPSR	ST3	BITUMINOUS COAL	345.6	347.0	372.0	359.5	196906	1969	Operating
Gentleman	MAPP	MAPPSR	1	SUBBITUMINOUS	681.3	665.0	665.0	665.0	197904	1979	Operating
Gentleman	MAPP	MAPPSR	2	SUBBITUMINOUS	681.3	700.0	700.0	700.0	198201	1982	Operating
George Neal North	MAPP	MAPPSR	1	SUBBITUMINOUS	147.1	135.0	135.0	135.0	196405	1964	Operating
George Neal North	MAPP	MAPPSR	2	SUBBITUMINOUS	349.2	300.0	300.0	300.0	197205	1972	Operating
George Neal North	MAPP	MAPPSR	3	SUBBITUMINOUS	549.8	515.0	515.0	515.0	197512	1975	Operating
George Neal South	MAPP	MAPPSR	4	SUBBITUMINOUS	640.0	624.0	624.0	624.0	197907	1979	Operating
GF Weaton Power Station	ECAR	ECARSR	GEN1	COAL (GENERIC)	60.0	57.6	60.0	58.8	195808	1958	Operating
GF Weaton Power Station	ECAR	ECARSR	GEN2	COAL (GENERIC)	60.0	57.6	60.0	58.8	195805	1958	Operating
Ghent	ECAR	ECARSR	1	BITUMINOUS COAL	556.9	476.0	487.0	481.5	197402	1974	Operating
Ghent	ECAR	ECARSR	2	BITUMINOUS COAL	556.4	509.0	516.0	512.5	197704	1977	Operating
Ghent	ECAR	ECARSR	3	BITUMINOUS COAL	556.6	498.0	506.0	502.0	198105	1981	Operating
Ghent	ECAR	ECARSR	4	BITUMINOUS COAL	556.2	485.0	491.0	488.0	198408	1984	Operating
Gibbons Creek	ERCOT	ERCOTS	1	SUBBITUMINOUS	444.0	420.0	460.0	440.0	198310	1983	Operating
Gibson	ECAR	ECARSR	1	BITUMINOUS COAL	668.0	630.0	635.0	632.5	197605	1976	Operating
Gibson	ECAR	ECARSR	2	BITUMINOUS COAL	668.0	630.0	635.0	632.5	197504	1975	Operating
Gibson	ECAR	ECARSR	3	BITUMINOUS COAL	668.0	630.0	635.0	632.5	197803	1978	Operating
Gibson	ECAR	ECARSR	4	BITUMINOUS COAL	668.0	622.0	627.0	624.5	197903	1979	Operating
Gibson	ECAR	ECARSR	5	BITUMINOUS COAL	668.0	619.0	625.0	622.0	198210	1982	Operating
Gilman Paper Co.	SERC	STHRN	NO1	COAL (GENERIC)	4.0	3.7	4.0	3.9	194101	1941	Operating
Gilman Paper Co.	SERC	STHRN	NO2	COAL (GENERIC)	6.8	6.3	6.8	6.5	194701	1947	Operating
Gilman Paper Co.	SERC	STHRN	NO3	COAL (GENERIC)	18.8	17.4	18.8	18.1	195501	1955	Operating
Glen Lyn	ECAR	ECARSR	5	BITUMINOUS COAL	100.0	90.0	95.0	92.5	194406	1944	Operating
Glen Lyn	ECAR	ECARSR	6	BITUMINOUS COAL	237.5	235.0	240.0	237.5	195705	1957	Operating
Golden Plant	WECC	RMPA	ST1	COAL (GENERIC)	7.5	7.0	7.5	7.2	197609	1976	Operating
Golden Plant	WECC	RMPA	ST2	COAL (GENERIC)	7.5	7.0	7.5	7.2	197705	1977	Operating
Golden Plant	WECC	RMPA	ST3	COAL (GENERIC)	20.0	18.7	20.0	19.4	198306	1983	Operating
Golden Plant	WECC	RMPA	ST4	COAL (GENERIC)	0.4	0.4	0.4	0.4	199710	1997	Operating
Gorgas	SERC	STHRN	10	BITUMINOUS COAL	788.8	738.0	738.0	738.0	197210	1972	Operating

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.998; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Gorgas	SERC	STHRN	6	BITUMINOUS COAL	125.0	110.0	110.0	110.0	195104	1951	Operating
Gorgas	SERC	STHRN	7	BITUMINOUS COAL	125.0	111.0	111.0	111.0	195207	1952	Operating
Gorgas	SERC	STHRN	8	BITUMINOUS COAL	187.5	167.0	167.0	167.0	195605	1956	Operating
Gorgas	SERC	STHRN	9	BITUMINOUS COAL	190.4	177.0	177.0	177.0	195806	1958	Operating
Grainger	SERC	VACAR	1	BITUMINOUS COAL	81.6	85.0	85.0	85.0	196606	1966	Operating
Grainger	SERC	VACAR	2	BITUMINOUS COAL	81.6	85.0	85.0	85.0	196606	1966	Operating
Grand River Dam (GRDA)	SPP	S	1	BITUMINOUS COAL	490.0	490.0	490.0	490.0	198107	1981	Operating
Grand River Dam (GRDA)	SPP	S	2	BITUMINOUS COAL	520.0	520.0	520.0	520.0	198604	1986	Operating
Grand Tower	MAIN	MAINSR	3	BITUMINOUS COAL	85.7	82.0	82.0	82.0	195103	1951	Operating
Grand Tower	MAIN	MAINSR	4	BITUMINOUS COAL	113.6	104.0	104.0	104.0	195804	1958	Operating
Grant Town Facility (American	ECAR	ECARSR	1	WASTE COAL	97.0	80.0	95.7	87.9	199212	1992	Operating
Green	ECAR	ECARSR	1	BITUMINOUS COAL	242.1	231.0	231.0	231.0	197912	1979	Operating
Green	ECAR	ECARSR	2	BITUMINOUS COAL	242.1	223.0	223.0	223.0	198101	1981	Operating
Green Bay Mill	MAIN	MAINSR	GEN1	COAL (GENERIC)	1.5	1.3	1.5	1.4	192901	1929	Standby
Green Bay Mill	MAIN	MAINSR	GEN2	COAL (GENERIC)	3.0	2.7	3.0	2.9	193301	1933	Standby
Green Bay Mill	MAIN	MAINSR	GEN3	COAL (GENERIC)	3.0	2.7	3.0	2.9	194001	1940	Standby
Green Bay Mill	MAIN	MAINSR	GEN4	COAL (GENERIC)	2.5	2.3	2.5	2.4	194701	1947	Standby
Green Bay Mill	MAIN	MAINSR	GEN5	COAL (GENERIC)	10.0	9.2	10.0	9.6	195401	1954	Operating
Green Bay Mill	MAIN	MAINSR	GEN6	COAL (GENERIC)	18.7	16.3	18.7	17.5	196301	1963	Operating
Green Bay Mill	MAIN	MAINSR	GEN7	COAL (GENERIC)	28.9	26.7	28.9	27.8	196901	1969	Operating
Green Bay Mill	MAIN	MAINSR	GEN8	COAL (GENERIC)	25.0	23.1	25.0	24.1	197701	1977	Operating
Green Bay Mill	MAIN	MAINSR	GEN9	COAL (GENERIC)	43.2	40.4	43.2	41.8	198512	1985	Operating
Green River (KUC)	ECAR	ECARSR	1	BITUMINOUS COAL	37.5	26.0	29.0	27.5	195003	1950	Operating
Green River (KUC)	ECAR	ECARSR	2	BITUMINOUS COAL	37.5	27.0	30.0	28.5	195003	1950	Operating
Green River (KUC)	ECAR	ECARSR	3	BITUMINOUS COAL	75.0	71.0	72.0	71.5	195404	1954	Operating
Green River (KUC)	ECAR	ECARSR	4	BITUMINOUS COAL	113.6	108.0	111.0	109.5	195907	1959	Operating
Green River Wy Plt	WECC	NWPA	1	COAL (GENERIC)	15.0	14.4	15.0	14.7	196805	1968	Operating
Green River Wy Plt	WECC	NWPA	2	COAL (GENERIC)	15.0	14.4	15.0	14.7	197701	1977	Operating
Greene County (ALAP)	SERC	STHRN	ST1	BITUMINOUS COAL	299.2	254.0	254.0	254.0	196506	1965	Operating
Greene County (ALAP)	SERC	STHRN	ST2	BITUMINOUS COAL	299.3	255.0	255.0	255.0	196607	1966	Operating
H.M. Down	MAAC	PJM	10	BITUMINOUS COAL	25.0	23.0	23.0	23.0	197005	1970	Operating
Hamilton (HAMI)	ECAR	ECARSR	8	BITUMINOUS COAL	25.0	25.0	25.0	25.0	196506	1965	Operating
Hamilton (HAMI)	ECAR	ECARSR	9	BITUMINOUS COAL	50.6	50.0	50.0	50.0	197510	1975	Operating
Hamilton Ohio	ECAR	ECARSR	ST1	COAL (GENERIC)	6.0	5.4	6.0	5.7	192401	1924	Operating
Hamilton Ohio	ECAR	ECARSR	ST2	COAL (GENERIC)	1.5	1.4	1.5	1.4	192701	1927	Standby
Hamilton Ohio	ECAR	ECARSR	ST3	COAL (GENERIC)	7.5	6.6	7.5	7.1	193001	1930	Operating
Hamilton Ohio	ECAR	ECARSR	ST4	COAL (GENERIC)	10.5	9.5	10.5	10.0	193001	1930	Operating
Hammond (GPCO)	SERC	STHRN	1	BITUMINOUS COAL	125.0	111.7	111.7	111.7	195406	1954	Operating
Hammond (GPCO)	SERC	STHRN	2	BITUMINOUS COAL	125.0	110.2	110.2	110.2	195409	1954	Operating
Hammond (GPCO)	SERC	STHRN	3	BITUMINOUS COAL	125.0	110.8	110.8	110.8	195506	1955	Operating
Hammond (GPCO)	SERC	STHRN	4	BITUMINOUS COAL	576.0	505.4	505.4	505.4	197012	1970	Operating
Harbor Beach	ECAR	ECARSR	1	BITUMINOUS COAL	121.0	103.0	103.0	103.0	196804	1968	Operating
Harding Street	ECAR	ECARSR	5	BITUMINOUS COAL	113.6	108.0	109.0	107.5	195806	1958	Operating
Harding Street	ECAR	ECARSR	6	BITUMINOUS COAL	113.6	106.0	109.0	107.5	196105	1961	Operating
Harding Street	ECAR	ECARSR	7	BITUMINOUS COAL	470.9	422.0	422.0	422.0	197307	1973	Operating
Harlee Branch	SERC	STHRN	1	BITUMINOUS COAL	299.2	255.3	255.3	255.3	196506	1965	Operating
Harlee Branch	SERC	STHRN	2	BITUMINOUS COAL	359.0	319.0	319.0	319.0	196706	1967	Operating
Harlee Branch	SERC	STHRN	3	BITUMINOUS COAL	544.0	494.4	494.4	494.4	196807	1968	Operating
Harlee Branch	SERC	STHRN	4	BITUMINOUS COAL	544.0	496.4	496.4	496.4	196906	1969	Operating
Harrington	SPP	S	1	BITUMINOUS COAL	360.0	346.0	346.0	346.0	197607	1976	Operating
Harrington	SPP	S	2	BITUMINOUS COAL	360.0	360.0	360.0	360.0	197805	1978	Operating
Harrington	SPP	S	3	BITUMINOUS COAL	360.0	360.0	360.0	360.0	198005	1980	Operating
Harrison	ECAR	ECARSR	1	BITUMINOUS COAL	684.0	640.0	650.0	645.0	197212	1972	Operating
Harrison	ECAR	ECARSR	2	BITUMINOUS COAL	684.0	640.0	650.0	645.0	197312	1973	Operating
Harrison	ECAR	ECARSR	3	BITUMINOUS COAL	684.0	640.0	650.0	645.0	197412	1974	Operating
Hatfields Ferry Power Station	ECAR	ECARSR	1	BITUMINOUS COAL	576.0	530.0	570.0	550.0	199011	1990	Operating
Hatfields Ferry Power Station	ECAR	ECARSR	2	BITUMINOUS COAL	576.0	530.0	570.0	550.0	197010	1970	Operating
Hatfields Ferry Power Station	ECAR	ECARSR	3	BITUMINOUS COAL	576.0	530.0	570.0	550.0	197112	1971	Operating
Havana	MAIN	MAINSR	6	BITUMINOUS COAL	488.5	428.0	430.0	429.0	197806	1978	Operating
Hayden	WECC	RMPA	1	BITUMINOUS COAL	190.0	184.0	184.0	184.0	196507	1965	Operating
Hayden	WECC	RMPA	2	BITUMINOUS COAL	275.4	262.0	262.0	262.0	197609	1976	Operating
Healy	ASCC	ASCCSR	1	SUBBITUMINOUS	25.0	30.0	28.0	29.0	196711	1967	Operating
Henderson 1	ECAR	ECARSR	5	BITUMINOUS COAL	11.5	10.0	10.0	10.0	195606	1956	Operating
Henderson 1	ECAR	ECARSR	6	BITUMINOUS COAL	32.3	26.0	26.0	26.0	196804	1968	Operating
Henderson II	ECAR	ECARSR	1	BITUMINOUS COAL	176.0	154.0	154.0	154.0	197306	1973	Operating
Henderson II	ECAR	ECARSR	2	BITUMINOUS COAL	178.7	159.0	159.0	159.0	197404	1974	Operating
Hennepin	MAIN	MAINSR	1	BITUMINOUS COAL	81.0	79.0	81.0	80.0	195306	1953	Operating
Hennepin	MAIN	MAINSR	2	BITUMINOUS COAL	231.3	210.0	217.0	213.5	195905	1959	Operating
Hercules Inc./Missouri	MAIN	MAINSR	1	COAL (GENERIC)	7.5	7.0	7.5	7.2	194301	1943	Operating
Hercules Inc./Missouri	MAIN	MAINSR	2	COAL (GENERIC)	7.5	7.0	7.5	7.2	194301	1943	Operating
Heskett	MAPP	MAPPSR	1	LIGNITE	40.0	29.7	29.7	29.7	195411	1954	Operating
Heskett	MAPP	MAPPSR	2	LIGNITE	75.0	74.6	74.6	74.6	196311	1963	Operating
Hibbing	MAPP	MAPPSR	3	SUBBITUMINOUS	10.0	10.0	10.0	10.0	196501	1965	Operating
Hibbing	MAPP	MAPPSR	5	SUBBITUMINOUS	19.5	19.5	19.5	19.5	198508	1985	Operating
Hibbing	MAPP	MAPPSR	6	SUBBITUMINOUS	6.5	3.5	3.5	3.5	199601	1996	Operating
High Bridge	MAPP	MAPPSR	3	BITUMINOUS COAL	50.0	48.2	49.3	48.8	194201	1942	Operating
High Bridge	MAPP	MAPPSR	4	BITUMINOUS COAL	50.0	48.2	49.3	48.8	194401	1944	Operating
High Bridge	MAPP	MAPPSR	5	SUBBITUMINOUS	113.6	97.0	98.0	97.5	195609	1956	Operating
High Bridge	MAPP	MAPPSR	6	SUBBITUMINOUS	163.2	170.0	170.0	170.0	195905	1959	Operating
Hillsboro (AMCR)	MAPP	MAPPSR	1	SUBBITUMINOUS	13.3	12.4	13.3	12.8	199009	1990	Operating
Holcomb	SPP	N	1	SUBBITUMINOUS	388.0	331.0	340.0	335.5	198308	1983	Operating
Homer City	MAAC	PJM	1	BITUMINOUS COAL	660.0	620.0	620.0	620.0	196907	1969	Operating
Homer City	MAAC	PJM	2	BITUMINOUS COAL	660.0	614.0	614.0	614.0	196912	1969	Operating
Homer City	MAAC	PJM	3	BITUMINOUS COAL	692.0	650.0	650.0	650.0	197712	1977	Operating
Hoot Lake	MAPP	MAPPSR	1	SUBBITUMINOUS	7.5	7.6	7.6	7.6	194808	1948	Operating
Hoot Lake	MAPP	MAPPSR	2	SUBBITUMINOUS	54.4	64.6	64.6	64.6	195910	1959	Operating
Hoot Lake	MAPP	MAPPSR	3	SUBBITUMINOUS	75.0	83.7	83.7	83.7	196405	1964	Operating
Hopewell (DOMENE)	SERC	VACAR	ST1	BITUMINOUS COAL	71.1	66.1	71.1	68.6	199207	1992	Operating
Hudson (PSEGF)	MAAC	PJM	2	BITUMINOUS COAL	659.7	623.0	620.0	621.5	196812	1968	Operating
Hugo (WEFA)	SPP	S	1	SUBBITUMINOUS	400.0	405.0	416.0	411.5	198204	1982	Operating
Humboldt	MAPP	MAPPSR	1	BITUMINOUS COAL	9.4	9.0	9.0	9.0	195004	1950	Standby
Humboldt	MAPP	MAPPSR	2	BITUMINOUS COAL	9.4	9.0	9.0	9.0	195004	1950	Standby

All Coal Unit Assumptions

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Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Humboldt	MAPP	MAPPSR	3	BITUMINOUS COAL	13.5	12.5	12.5	12.5	195111	1951	Standby
Humboldt	MAPP	MAPPSR	4	BITUMINOUS COAL	20.3	18.5	18.5	18.5	195312	1953	Standby
Hunlock Creek	MAAC	PJM	3	ANTHRACITE	50.0	46.0	46.0	46.0	195909	1959	Operating
Hunter	WECC	NWPA	1	BITUMINOUS COAL	480.2	430.0	430.0	430.0	197806	1978	Operating
Hunter	WECC	NWPA	2	BITUMINOUS COAL	480.2	430.0	430.0	430.0	198006	1980	Operating
Hunter	WECC	NWPA	3	BITUMINOUS COAL	480.2	460.0	460.0	460.0	198306	1983	Operating
Huntington	WECC	NWPA	1	BITUMINOUS COAL	496.0	440.0	440.0	440.0	197706	1977	Operating
Huntington	WECC	NWPA	2	BITUMINOUS COAL	496.0	455.0	455.0	455.0	197407	1974	Operating
Huntley	NPCC	NYPP	63	BITUMINOUS COAL	92.0	89.2	95.8	92.5	194212	1942	Operating
Huntley	NPCC	NYPP	64	BITUMINOUS COAL	100.0	88.9	86.3	87.6	194812	1948	Operating
Huntley	NPCC	NYPP	65	BITUMINOUS COAL	100.0	88.4	92.5	90.5	195312	1953	Operating
Huntley	NPCC	NYPP	66	BITUMINOUS COAL	100.0	89.4	93.5	91.5	195412	1954	Operating
Huntley	NPCC	NYPP	67	BITUMINOUS COAL	217.6	197.8	205.1	201.5	195712	1957	Operating
Huntley	NPCC	NYPP	68	BITUMINOUS COAL	217.6	204.9	203.2	204.1	195812	1958	Operating
Hutchings	ECAR	ECARSR	1	BITUMINOUS COAL	60.0	58.0	59.0	58.5	194807	1948	Operating
Hutchings	ECAR	ECARSR	2	BITUMINOUS COAL	60.0	55.0	56.0	55.5	194903	1949	Operating
Hutchings	ECAR	ECARSR	3	BITUMINOUS COAL	60.0	63.0	64.0	63.5	195012	1950	Operating
Hutchings	ECAR	ECARSR	4	BITUMINOUS COAL	60.0	63.0	64.0	63.5	195102	1951	Operating
Hutchings	ECAR	ECARSR	5	BITUMINOUS COAL	60.0	63.0	64.0	63.5	195211	1952	Operating
Hutchings	ECAR	ECARSR	6	BITUMINOUS COAL	60.0	63.0	64.0	63.5	195308	1953	Operating
Hutsonville	MAIN	MAINSR	3	BITUMINOUS COAL	75.0	76.0	77.0	76.5	195302	1953	Operating
Hutsonville	MAIN	MAINSR	4	BITUMINOUS COAL	75.0	77.0	79.0	78.0	195407	1954	Operating
Iatan	SPP	N	1	SUBBITUMINOUS	725.0	670.0	670.0	670.0	198005	1980	Operating
IMC-Agrico Co. Uncle Sam	SERC	ENTR	ST1	SUBBITUMINOUS	11.0	10.8	12.5	11.5	196801	1968	Operating
IMC-Agrico Co. Uncle Sam	SERC	ENTR	ST2	SUBBITUMINOUS	11.0	10.6	12.5	11.5	196801	1968	Operating
Independence	SERC	ENTR	1	SUBBITUMINOUS	850.0	836.0	836.0	836.0	198301	1983	Operating
Independence	SERC	ENTR	2	SUBBITUMINOUS	850.0	842.0	842.0	842.0	198412	1984	Operating
Indian Orchard Plant	NPCC	NEPOOL	TG	COAL (GENERIC)	5.7	5.3	5.7	5.5	196505	1965	Operating
Indian River (NRG)	MAAC	PJM	1	BITUMINOUS COAL	91.6	91.0	91.0	91.0	195711	1957	Operating
Indian River (NRG)	MAAC	PJM	2	BITUMINOUS COAL	91.6	91.0	91.0	91.0	195901	1959	Operating
Indian River (NRG)	MAAC	PJM	3	BITUMINOUS COAL	176.8	165.0	165.0	165.0	197004	1970	Operating
Indian River (NRG)	MAAC	PJM	4	BITUMINOUS COAL	442.4	420.0	420.0	420.0	198010	1980	Operating
Indiantown Cogeneration Facili	FRCC	FRCCSR	GEN1	BITUMINOUS COAL	330.0	306.9	330.0	318.5	199512	1995	Operating
Intermountain Generating	WECC	CAMX	1	BITUMINOUS COAL	891.9	820.0	830.0	825.0	198606	1986	Operating
Intermountain Generating	WECC	CAMX	2	BITUMINOUS COAL	891.9	820.0	830.0	825.0	198705	1987	Operating
Irvington	WECC	AZNMNV	ST4	SUBBITUMINOUS	173.3	156.0	156.0	156.0	196707	1967	Operating
Ivorydale	ECAR	ECARSR	ST1	COAL (GENERIC)	12.5	12.1	12.5	12.3	196511	1965	Operating
Ivorydale	ECAR	ECARSR	ST2	COAL (GENERIC)	13.0	12.1	13.0	12.5	196411	1964	Operating
J.K. Spruce	ERCOT	ERCOTS	1	SUBBITUMINOUS	555.0	530.0	530.0	530.0	199210	1992	Operating
J.P. Madgett	MAPP	MAPPSR	1	SUBBITUMINOUS	387.0	377.0	377.0	377.0	197911	1979	Operating
Jack Watson	SERC	STHRN	4	BITUMINOUS COAL	250.0	261.8	261.8	261.8	196805	1968	Operating
Jack Watson	SERC	STHRN	5	BITUMINOUS COAL	500.0	512.1	512.1	512.1	197304	1973	Operating
James De Young	ECAR	ECARSR	3	BITUMINOUS COAL	11.5	10.5	10.5	10.5	195104	1951	Operating
James De Young	ECAR	ECARSR	4	BITUMINOUS COAL	22.0	20.5	20.5	20.5	196205	1962	Operating
James De Young	ECAR	ECARSR	5	BITUMINOUS COAL	29.4	27.0	27.0	27.0	196906	1969	Operating
James River (SPCIUT)	SPP	N	1	BITUMINOUS COAL	22.0	21.0	21.0	21.0	195708	1957	Operating
James River (SPCIUT)	SPP	N	2	BITUMINOUS COAL	22.0	21.0	21.0	21.0	195706	1957	Operating
James River (SPCIUT)	SPP	N	3	BITUMINOUS COAL	56.0	42.0	42.0	42.0	196002	1960	Operating
James River (SPCIUT)	SPP	N	4	BITUMINOUS COAL	76.0	58.0	58.0	58.0	196405	1964	Operating
James River (SPCIUT)	SPP	N	5	BITUMINOUS COAL	126.0	97.0	97.0	97.0	197005	1970	Operating
James River Cogeneration Co.	SERC	VACAR	1	BITUMINOUS COAL	60.0	50.8	54.2	52.5	198710	1987	Operating
James River Cogeneration Co.	SERC	VACAR	2	BITUMINOUS COAL	60.0	50.8	54.2	52.5	198710	1987	Operating
Jasper 2	ECAR	ECARSR	1	BITUMINOUS COAL	14.5	13.5	13.5	13.5	196809	1968	Operating
Jefferies	SERC	VACAR	3	COAL (GENERIC)	172.8	153.0	153.0	153.0	197001	1970	Operating
Jefferies	SERC	VACAR	4	COAL (GENERIC)	172.8	153.0	153.0	153.0	197007	1970	Operating
Jeffrey Energy Center	SPP	N	1	BITUMINOUS COAL	720.0	744.0	744.0	744.0	197807	1978	Operating
Jeffrey Energy Center	SPP	N	2	BITUMINOUS COAL	720.0	741.0	741.0	741.0	198005	1980	Operating
Jeffrey Energy Center	SPP	N	3	BITUMINOUS COAL	720.0	742.0	742.0	742.0	198305	1983	Operating
John B Rich Memorial Power St	MAAC	PJM	GEN1	ANTHRACITE	86.4	82.8	86.4	85.6	198802	1988	Operating
John Deere Dubuque Works	MAIN	MAINSR	1	COAL (GENERIC)	3.5	3.4	3.5	3.4	194907	1949	Operating
John Deere Dubuque Works	MAIN	MAINSR	2	COAL (GENERIC)	3.0	2.8	3.0	2.9	198911	1989	Operating
John Deere Dubuque Works	MAIN	MAINSR	3	COAL (GENERIC)	7.5	7.2	7.5	7.4	196402	1964	Operating
John Deere Harvester Works	MAPP	MAPPSR	1	COAL (GENERIC)	2.0	2.0	2.0	2.0	194010	1940	Operating
John Deere Harvester Works	MAPP	MAPPSR	2	COAL (GENERIC)	2.5	2.4	2.5	2.5	194904	1949	Operating
John Deere Harvester Works	MAPP	MAPPSR	3	COAL (GENERIC)	3.0	2.9	3.0	2.9	195111	1951	Operating
John Deere Harvester Works	MAPP	MAPPSR	4	COAL (GENERIC)	2.5	2.4	2.5	2.5	196011	1960	Operating
John Sevier	SERC	TVA	1	BITUMINOUS COAL	200.0	176.0	178.0	177.0	195507	1955	Operating
John Sevier	SERC	TVA	2	BITUMINOUS COAL	200.0	176.0	178.0	177.0	195509	1955	Operating
John Sevier	SERC	TVA	3	BITUMINOUS COAL	200.0	176.0	178.0	177.0	195602	1956	Operating
John Sevier	SERC	TVA	4	BITUMINOUS COAL	200.0	176.0	178.0	177.0	195710	1957	Operating
Johnsonburg Plant	ECAR	ECARSR	GEN1	COAL (GENERIC)	60.0	56.2	60.0	58.1	198302	1983	Operating
Johnsonville (TVA)	SERC	TVA	1	BITUMINOUS COAL	125.0	107.0	113.0	110.0	195110	1951	Operating
Johnsonville (TVA)	SERC	TVA	10	BITUMINOUS COAL	172.8	141.0	144.0	142.5	195908	1959	Operating
Johnsonville (TVA)	SERC	TVA	2	BITUMINOUS COAL	125.0	107.0	113.0	110.0	195111	1951	Operating
Johnsonville (TVA)	SERC	TVA	3	BITUMINOUS COAL	125.0	107.0	113.0	110.0	195202	1952	Operating
Johnsonville (TVA)	SERC	TVA	4	BITUMINOUS COAL	125.0	107.0	113.0	110.0	195204	1952	Operating
Johnsonville (TVA)	SERC	TVA	5	BITUMINOUS COAL	147.0	107.0	113.0	110.0	195211	1952	Operating
Johnsonville (TVA)	SERC	TVA	6	BITUMINOUS COAL	147.0	107.0	113.0	110.0	195302	1953	Operating
Johnsonville (TVA)	SERC	TVA	7	BITUMINOUS COAL	172.8	141.0	144.0	142.5	195811	1958	Operating
Johnsonville (TVA)	SERC	TVA	8	BITUMINOUS COAL	172.8	141.0	144.0	142.5	195901	1959	Operating
Johnsonville (TVA)	SERC	TVA	9	BITUMINOUS COAL	172.8	141.0	144.0	142.5	195906	1959	Operating
Johnston	WECC	NWPA	1	SUBBITUMINOUS	113.6	106.0	106.0	106.0	195902	1959	Operating
Johnston	WECC	NWPA	2	SUBBITUMINOUS	113.6	106.0	106.0	106.0	196101	1961	Operating
Johnston	WECC	NWPA	3	SUBBITUMINOUS	229.5	230.0	230.0	230.0	196412	1964	Operating
Johnston	WECC	NWPA	4	SUBBITUMINOUS	360.0	330.0	330.0	330.0	197207	1972	Operating
Joliet	MAIN	MAINSR	7	SUBBITUMINOUS	660.0	499.0	503.0	501.0	196504	1965	Operating
Joliet	MAIN	MAINSR	8	SUBBITUMINOUS	660.0	518.0	522.0	520.0	196603	1966	Operating
Joliet 9	MAIN	MAINSR	6	SUBBITUMINOUS	360.4	292.0	302.0	297.0	195906	1959	Operating
Joppa (EEI)	MAIN	MAINSR	1	BITUMINOUS COAL	183.4	169.0	169.0	169.0	195308	1953	Operating
Joppa (EEI)	MAIN	MAINSR	2	BITUMINOUS COAL	183.4	169.0	169.0	169.0	195309	1953	Operating
Joppa (EEI)	MAIN	MAINSR	3	BITUMINOUS COAL	183.4	169.0	169.0	169.0	195405	1954	Operating
Joppa (EEI)	MAIN	MAINSR	4	BITUMINOUS COAL	183.4	169.0	169.0	169.0	195408	1954	Operating

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.998; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Joppa (EEI)	MAIN	MAINSR	5	BITUMINOUS COAL	183.4	169.0	169.0	169.0	195506	1955	Operating
Joppa (EEI)	MAIN	MAINSR	6	BITUMINOUS COAL	183.4	169.0	169.0	169.0	195508	1955	Operating
Kammer	ECAR	ECARSR	1	BITUMINOUS COAL	237.5	200.0	210.0	205.0	195807	1958	Operating
Kammer	ECAR	ECARSR	2	BITUMINOUS COAL	237.5	200.0	210.0	205.0	195811	1958	Operating
Kammer	ECAR	ECARSR	3	BITUMINOUS COAL	237.5	200.0	210.0	205.0	195903	1959	Operating
Kanawha River	ECAR	ECARSR	1	BITUMINOUS COAL	219.7	195.0	200.0	197.5	195307	1953	Operating
Kanawha River	ECAR	ECARSR	2	BITUMINOUS COAL	219.7	195.0	200.0	197.5	195312	1953	Operating
Kapp	MAIN	MAINSR	2	BITUMINOUS COAL	218.5	217.0	217.0	217.0	196701	1967	Operating
Kam	ECAR	ECARSR	1	BITUMINOUS COAL	265.0	255.0	255.0	255.0	195911	1959	Operating
Kam	ECAR	ECARSR	2	BITUMINOUS COAL	265.0	260.0	260.0	260.0	196103	1961	Operating
Kaw	SPP	N	1	BITUMINOUS COAL	37.0	37.0	37.0	37.0	195501	1955	Standby
Kaw	SPP	N	2	BITUMINOUS COAL	37.0	37.0	37.0	37.0	195706	1957	Standby
Kaw	SPP	N	3	BITUMINOUS COAL	55.0	55.0	55.0	55.0	196203	1962	Standby
Keith D. Beardmore (Chillicoth	SPP	N	5	BITUMINOUS COAL	5.0	5.0	5.0	5.0	194801	1948	Operating
Keith D. Beardmore (Chillicoth	SPP	N	6	BITUMINOUS COAL	6.0	6.0	6.0	6.0	195809	1958	Operating
Keystone (RELIANT)	MAAC	PJM	1	BITUMINOUS COAL	936.0	850.0	850.0	850.0	196708	1967	Operating
Keystone (RELIANT)	MAAC	PJM	2	BITUMINOUS COAL	936.0	850.0	850.0	850.0	196807	1968	Operating
Killen	ECAR	ECARSR	2	BITUMINOUS COAL	666.5	600.0	600.0	600.0	198206	1982	Operating
Kincaid	MAIN	MAINSR	1	BITUMINOUS COAL	659.7	554.0	554.0	554.0	196706	1967	Operating
Kincaid	MAIN	MAINSR	2	BITUMINOUS COAL	659.7	554.0	554.0	554.0	196806	1968	Operating
King	MAPP	MAPPSR	1	SUBBITUMINOUS	598.4	571.0	585.0	578.0	196804	1968	Operating
Kingston	SERC	TVA	1	BITUMINOUS COAL	175.0	136.0	139.0	137.5	195402	1954	Operating
Kingston	SERC	TVA	2	BITUMINOUS COAL	175.0	136.0	139.0	137.5	195404	1954	Operating
Kingston	SERC	TVA	3	BITUMINOUS COAL	175.0	136.0	139.0	137.5	195406	1954	Operating
Kingston	SERC	TVA	4	BITUMINOUS COAL	175.0	136.0	139.0	137.5	195407	1954	Operating
Kingston	SERC	TVA	5	BITUMINOUS COAL	200.0	178.0	180.0	179.0	195501	1955	Operating
Kingston	SERC	TVA	6	BITUMINOUS COAL	200.0	178.0	180.0	179.0	195503	1955	Operating
Kingston	SERC	TVA	7	BITUMINOUS COAL	200.0	178.0	180.0	179.0	195505	1955	Operating
Kingston	SERC	TVA	8	BITUMINOUS COAL	200.0	178.0	180.0	179.0	195508	1955	Operating
Kingston	SERC	TVA	9	BITUMINOUS COAL	200.0	178.0	180.0	179.0	195512	1955	Operating
Kinston North Carolina plant	SERC	VACAR	GEN1	COAL (GENERIC)	7.5	7.2	7.5	7.4	195201	1952	Operating
Kinston North Carolina plant	SERC	VACAR	GEN2	COAL (GENERIC)	7.5	7.2	7.5	7.4	195201	1952	Operating
Kodak Park Site	NPCC	NYPP	GEN1	COAL (GENERIC)	6.3	5.7	6.3	6.0	193711	1937	Operating
Kodak Park Site	NPCC	NYPP	GEN10	COAL (GENERIC)	25.6	24.6	25.6	25.1	196708	1967	Operating
Kodak Park Site	NPCC	NYPP	GEN11	COAL (GENERIC)	25.6	24.6	25.6	25.1	196904	1969	Operating
Kodak Park Site	NPCC	NYPP	GEN12	COAL (GENERIC)	25.6	24.0	25.6	24.8	198708	1987	Operating
Kodak Park Site	NPCC	NYPP	GEN3	COAL (GENERIC)	10.4	9.6	10.4	10.0	194805	1948	Operating
Kodak Park Site	NPCC	NYPP	GEN4	COAL (GENERIC)	10.4	9.6	10.4	10.0	194807	1948	Operating
Kodak Park Site	NPCC	NYPP	GEN5	COAL (GENERIC)	17.5	16.2	17.5	16.9	195610	1956	Operating
Kodak Park Site	NPCC	NYPP	GEN6	COAL (GENERIC)	25.6	23.7	25.6	24.7	197210	1972	Operating
Kodak Park Site	NPCC	NYPP	GEN7	COAL (GENERIC)	15.0	13.9	15.0	14.5	196811	1968	Operating
Kodak Park Site	NPCC	NYPP	GEN8	COAL (GENERIC)	12.5	12.0	12.5	12.3	195408	1954	Operating
Kodak Park Site	NPCC	NYPP	GEN9	COAL (GENERIC)	25.6	24.6	25.6	25.1	196405	1964	Operating
Kyger Creek	ECAR	ECARSR	1	BITUMINOUS COAL	217.3	208.0	216.0	212.0	195502	1955	Operating
Kyger Creek	ECAR	ECARSR	2	BITUMINOUS COAL	217.3	203.0	213.0	208.0	195506	1955	Operating
Kyger Creek	ECAR	ECARSR	3	BITUMINOUS COAL	217.3	198.0	208.0	203.0	195509	1955	Operating
Kyger Creek	ECAR	ECARSR	4	BITUMINOUS COAL	217.3	198.0	208.0	203.0	195511	1955	Operating
Kyger Creek	ECAR	ECARSR	5	BITUMINOUS COAL	217.3	192.0	202.0	197.0	195512	1955	Operating
Labadie	MAIN	MAINSR	1	BITUMINOUS COAL	573.8	558.0	561.0	559.5	197006	1970	Operating
Labadie	MAIN	MAINSR	2	BITUMINOUS COAL	573.8	558.0	561.0	559.5	197106	1971	Operating
Labadie	MAIN	MAINSR	3	BITUMINOUS COAL	621.0	558.0	561.0	559.5	197206	1972	Operating
Labadie	MAIN	MAINSR	4	BITUMINOUS COAL	621.0	558.0	561.0	559.5	197306	1973	Operating
Lacygne	SPP	N	1	SUBBITUMINOUS	893.0	686.0	750.0	718.0	197306	1973	Operating
Lacygne	SPP	N	2	SUBBITUMINOUS	685.0	674.0	710.0	692.0	197705	1977	Operating
Lake Road (AQUILA)	MAPP	MAPPSR	1	SUBBITUMINOUS	23.0	22.0	15.0	18.5	195006	1950	Operating
Lake Road (AQUILA)	MAPP	MAPPSR	4	SUBBITUMINOUS	90.0	97.0	97.0	97.0	196608	1966	Operating
Lake Shore	ECAR	ECARSR	16	BITUMINOUS COAL	256.0	210.0	180.0	195.0	196206	1962	Operating
Lakeside (SPRIL)	MAIN	MAINSR	6	BITUMINOUS COAL	37.5	39.8	41.1	40.5	196104	1961	Operating
Lakeside (SPRIL)	MAIN	MAINSR	7	BITUMINOUS COAL	37.5	39.7	41.1	40.4	196512	1965	Operating
Lansing	MAIN	MAINSR	1	BITUMINOUS COAL	15.0	15.5	15.5	15.5	194801	1948	Operating
Lansing	MAIN	MAINSR	2	BITUMINOUS COAL	11.5	10.7	10.7	10.7	194901	1949	Operating
Lansing	MAIN	MAINSR	3	BITUMINOUS COAL	37.5	33.8	33.8	33.8	195701	1957	Operating
Lansing	MAIN	MAINSR	4	SUBBITUMINOUS	274.5	260.0	255.0	257.5	197706	1977	Operating
Lansing Smith (GUPC)	SERC	STHRN	1	BITUMINOUS COAL	149.6	162.0	162.0	162.0	196506	1965	Operating
Lansing Smith (GUPC)	SERC	STHRN	2	BITUMINOUS COAL	190.4	192.6	192.6	192.6	196706	1967	Operating
Laramie River	WECC	RMPA	1	SUBBITUMINOUS	570.0	568.0	568.0	568.0	198007	1980	Operating
Laramie River	WECC	RMPA	2	SUBBITUMINOUS	570.0	550.0	550.0	550.0	198107	1981	Operating
Laramie River	WECC	RMPA	3	SUBBITUMINOUS	570.0	550.0	550.0	550.0	198211	1982	Operating
Lastin Energy Center	MAPP	MAPPSR	1	SUBBITUMINOUS	58.0	55.0	55.0	55.0	195306	1953	Operating
Lastin Energy Center	MAPP	MAPPSR	2	SUBBITUMINOUS	58.0	55.0	55.0	55.0	195309	1953	Operating
Lauhoff Grain Co.	MAIN	MAINSR	GEN1	COAL (GENERIC)	20.0	18.7	20.0	19.4	198911	1989	Operating
Lawrence Energy Center	SPP	N	4	BITUMINOUS COAL	114.0	119.0	119.0	119.0	196003	1960	Operating
Lawrence Energy Center	SPP	N	5	BITUMINOUS COAL	403.0	394.0	394.0	394.0	197105	1971	Operating
Lee (CPLC)	SERC	VACAR	1	BITUMINOUS COAL	75.0	79.0	84.0	81.5	195206	1952	Operating
Lee (CPLC)	SERC	VACAR	2	BITUMINOUS COAL	75.0	76.0	80.0	78.0	195105	1951	Operating
Lee (CPLC)	SERC	VACAR	3	BITUMINOUS COAL	252.5	252.0	257.0	254.5	196208	1962	Operating
Lee (DUPC)	SERC	VACAR	1	BITUMINOUS COAL	90.0	100.0	100.0	100.0	195103	1951	Operating
Lee (DUPC)	SERC	VACAR	2	BITUMINOUS COAL	90.0	100.0	100.0	100.0	195107	1951	Operating
Lee (DUPC)	SERC	VACAR	3	BITUMINOUS COAL	175.0	170.0	170.0	170.0	195812	1958	Operating
Leland Olds	MAPP	MAPPSR	1	LIGNITE	216.0	210.0	210.0	210.0	196601	1966	Operating
Leland Olds	MAPP	MAPPSR	2	LIGNITE	440.0	440.0	440.0	440.0	197512	1975	Operating
Lewis & Clark	MAPP	MAPPSR	1	LIGNITE	52.3	52.3	49.2	50.7	195810	1958	Operating
Limestone	ERCOT	ERCOTS	1	LIGNITE	813.4	766.0	820.0	793.0	198512	1985	Operating
Limestone	ERCOT	ERCOTS	2	LIGNITE	813.4	766.0	820.0	793.0	198612	1986	Operating
Lincoln (ADM)	MAPP	MAPPSR	1	COAL (GENERIC)	7.9	7.4	7.9	7.6	198807	1988	Operating
Lock Haven Mill	MAAC	PJM	1	COAL (GENERIC)	19.5	16.9	16.9	16.9	197006	1970	Operating
Lock Haven Mill	MAAC	PJM	2	COAL (GENERIC)	19.5	16.9	16.9	16.9	197010	1970	Operating
Logan Generating Plant	MAAC	PJM	IPP	BITUMINOUS COAL	230.0	215.5	216.0	216.8	199410	1994	Operating
Logansport	ECAR	ECARSR	4	BITUMINOUS COAL	18.0	16.5	16.5	16.5	195801	1958	Operating
Logansport	ECAR	ECARSR	5	BITUMINOUS COAL	25.0	22.0	22.0	22.0	196401	1964	Operating
Louisa (MID)	MAPP	MAPPSR	1	SUBBITUMINOUS	738.1	679.7	679.7	679.7	198310	1983	Operating
Lovett	NPCC	NYPP	4	BITUMINOUS COAL	179.5	176.8	175.0	175.9	196605	1966	Operating

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.996; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Lovett	NPCC	NYPP	5	BITUMINOUS COAL	200.6	200.6	190.6	195.6	196904	1969	Operating
Lowland	SERC	TVA	1	COAL (GENERIC)	5.0	4.6	5.0	4.8	194701	1947	Operating
Lowland	SERC	TVA	2	COAL (GENERIC)	5.0	4.6	5.0	4.8	194701	1947	Operating
Lowland	SERC	TVA	3	COAL (GENERIC)	5.0	4.6	5.0	4.8	195101	1951	Operating
Lowland	SERC	TVA	4	COAL (GENERIC)	0.3	0.3	0.3	0.3	198501	1985	Operating
Lowland	SERC	TVA	5	COAL (GENERIC)	5.0	4.6	5.0	4.8	195101	1951	Operating
Lowman (Tombigbee)	SERC	STHRN	1	BITUMINOUS COAL	66.0	71.0	78.0	74.5	196906	1969	Operating
Lowman (Tombigbee)	SERC	STHRN	2	BITUMINOUS COAL	236.0	232.0	235.0	233.5	197806	1978	Operating
Lowman (Tombigbee)	SERC	STHRN	3	BITUMINOUS COAL	236.0	236.0	240.0	238.0	198006	1980	Operating
Luke Mill	ECAR	ECARSR	GEN1	COAL (GENERIC)	35.0	32.5	35.0	33.7	195801	1958	Operating
Luke Mill	ECAR	ECARSR	GEN2	COAL (GENERIC)	30.0	27.8	30.0	28.9	197901	1979	Operating
M.L. Hibbard	MAPP	MAPPSR	4	SUBBITUMINOUS	37.5	39.0	39.0	39.0	195104	1951	Operating
MacMillan Bloedel Packaging I	SERC	STHRN	NO1	COAL (GENERIC)	43.5	41.8	43.5	42.7	196808	1968	Operating
MacMillan Bloedel Packaging I	SERC	STHRN	NO2	COAL (GENERIC)	32.9	30.6	32.9	31.8	198211	1982	Operating
Main Street Plant	MAIN	MAINSR	3	COAL (GENERIC)	16.0	15.3	16.0	15.7	198001	1980	Operating
Main Street Plant	MAIN	MAINSR	4	COAL (GENERIC)	19.3	18.6	19.3	19.0	196801	1968	Operating
Manitowoc	MAIN	MAINSR	2	BITUMINOUS COAL	5.0	5.0	5.0	5.0	193501	1935	Operating
Manitowoc	MAIN	MAINSR	3	BITUMINOUS COAL	10.0	10.0	10.0	10.0	194101	1941	Operating
Manitowoc	MAIN	MAINSR	4	BITUMINOUS COAL	10.0	10.0	10.0	10.0	195001	1950	Operating
Manitowoc	MAIN	MAINSR	5	BITUMINOUS COAL	22.0	22.0	22.0	22.0	195601	1956	Operating
Manitowoc	MAIN	MAINSR	6	BITUMINOUS COAL	32.0	32.0	32.0	32.0	196401	1964	Operating
Mansfield	ECAR	ECARSR	1	BITUMINOUS COAL	913.8	780.0	780.0	780.0	197604	1976	Operating
Mansfield	ECAR	ECARSR	2	BITUMINOUS COAL	913.8	780.0	780.0	780.0	197710	1977	Operating
Mansfield	ECAR	ECARSR	3	BITUMINOUS COAL	913.8	800.0	800.0	800.0	198009	1980	Operating
Marion (SIPC)	MAIN	MAINSR	1	BITUMINOUS COAL	33.0	34.0	34.0	34.0	196306	1963	Operating
Marion (SIPC)	MAIN	MAINSR	2	BITUMINOUS COAL	33.0	34.0	34.0	34.0	196308	1963	Operating
Marion (SIPC)	MAIN	MAINSR	3	BITUMINOUS COAL	33.0	34.0	34.0	34.0	196309	1963	Operating
Marion (SIPC)	MAIN	MAINSR	4	BITUMINOUS COAL	173.0	170.0	170.0	170.0	197810	1978	Operating
Marshall (DUPC)	SERC	VACAR	1	BITUMINOUS COAL	350.0	385.0	385.0	385.0	196503	1965	Operating
Marshall (DUPC)	SERC	VACAR	2	BITUMINOUS COAL	350.0	385.0	385.0	385.0	196604	1966	Operating
Marshall (DUPC)	SERC	VACAR	3	BITUMINOUS COAL	648.0	660.0	660.0	660.0	196905	1969	Operating
Marshall (DUPC)	SERC	VACAR	4	BITUMINOUS COAL	648.0	660.0	660.0	660.0	197005	1970	Operating
Martin Lake	ERCOT	ERCOTS	1	LIGNITE	793.3	750.0	750.0	750.0	197705	1977	Operating
Martin Lake	ERCOT	ERCOTS	2	LIGNITE	793.3	750.0	750.0	750.0	197805	1978	Operating
Martin Lake	ERCOT	ERCOTS	3	LIGNITE	793.3	750.0	750.0	750.0	197904	1979	Operating
Martinez Regen Sulfuric Acid P	WECC	CAMX	1	SUBBITUMINOUS	4.0	3.8	4.0	3.9	197706	1977	Operating
Martins Creek	MAAC	PJM	1	BITUMINOUS COAL	174.3	158.0	168.0	163.0	195409	1954	Operating
Martins Creek	MAAC	PJM	2	BITUMINOUS COAL	174.3	158.0	168.0	163.0	195606	1956	Operating
Marysville	ECAR	ECARSR	6	BITUMINOUS COAL	50.0	33.0	33.0	33.0	193010	1930	Standby
Marysville	ECAR	ECARSR	7	BITUMINOUS COAL	75.0	83.0	83.0	83.0	194304	1943	Operating
Marysville	ECAR	ECARSR	8	BITUMINOUS COAL	75.0	84.0	84.0	84.0	194702	1947	Operating
May Plant	SERC	VACAR	1	COAL (GENERIC)	5.5	5.3	5.5	5.4	195201	1952	Operating
May Plant	SERC	VACAR	2	COAL (GENERIC)	5.5	5.3	5.5	5.4	195201	1952	Operating
May Plant	SERC	VACAR	3	COAL (GENERIC)	19.0	17.7	19.0	18.3	199307	1993	Operating
Mayo	SERC	VACAR	1	BITUMINOUS COAL	735.8	745.0	750.0	747.5	198303	1983	Operating
McDonough	SERC	STHRN	1	BITUMINOUS COAL	299.2	255.1	255.1	255.1	196308	1963	Operating
McDonough	SERC	STHRN	2	BITUMINOUS COAL	299.2	255.5	255.5	255.5	196406	1964	Operating
McIntosh (LALW)	FRCC	FRCCSR	3	BITUMINOUS COAL	363.9	333.0	342.0	337.5	198209	1982	Operating
McIntosh	SERC	STHRN	1	BITUMINOUS COAL	177.7	155.1	155.1	155.1	197902	1979	Operating
McMeekin	SERC	VACAR	1	BITUMINOUS COAL	146.9	126.0	127.0	126.5	195807	1958	Operating
McMeekin	SERC	VACAR	2	BITUMINOUS COAL	146.9	126.0	127.0	126.5	195812	1958	Operating
Mead-Fine Paper Division	ECAR	ECARSR	10	COAL (GENERIC)	10.7	10.3	10.7	10.5	195202	1952	Operating
Mead-Fine Paper Division	ECAR	ECARSR	11	COAL (GENERIC)	24.0	23.1	24.0	23.5	195802	1958	Operating
Mead-Fine Paper Division	ECAR	ECARSR	12	COAL (GENERIC)	31.0	29.8	31.0	35.4	196702	1967	Operating
Mead-Fine Paper Division	ECAR	ECARSR	13	COAL (GENERIC)	27.2	26.1	27.2	26.7	197807	1978	Operating
Menasha	MAIN	MAINSR	3	BITUMINOUS COAL	7.5	7.5	7.5	7.5	195401	1954	Operating
Menasha	MAIN	MAINSR	4	BITUMINOUS COAL	13.7	13.6	13.6	13.6	196401	1964	Operating
Meramec	MAIN	MAINSR	1	BITUMINOUS COAL	137.5	131.0	134.0	132.5	195305	1953	Operating
Meramec	MAIN	MAINSR	2	BITUMINOUS COAL	137.5	131.0	134.0	132.5	195407	1954	Operating
Meramec	MAIN	MAINSR	3	BITUMINOUS COAL	280.0	278.0	280.0	279.0	195901	1959	Operating
Meramec	MAIN	MAINSR	4	BITUMINOUS COAL	359.0	333.0	342.0	337.5	196107	1961	Operating
Mercer	MAAC	PJM	1	BITUMINOUS COAL	326.4	324.0	325.0	324.5	196012	1960	Operating
Mercer	MAAC	PJM	2	BITUMINOUS COAL	326.4	324.0	325.0	324.5	196106	1961	Operating
Meredosia	MAIN	MAINSR	1	BITUMINOUS COAL	57.5	62.0	64.0	63.0	194806	1948	Operating
Meredosia	MAIN	MAINSR	2	BITUMINOUS COAL	57.5	62.0	64.0	63.0	194901	1949	Operating
Meredosia	MAIN	MAINSR	3	BITUMINOUS COAL	230.4	215.0	215.0	215.0	196007	1960	Operating
Merom	ECAR	ECARSR	1	BITUMINOUS COAL	540.0	507.0	515.0	511.0	198309	1983	Operating
Merom	ECAR	ECARSR	2	BITUMINOUS COAL	540.0	493.0	501.0	497.0	198202	1982	Operating
Merrimack	NPCC	NEPOOL	1	BITUMINOUS COAL	113.6	112.5	113.5	113.0	196012	1960	Operating
Merrimack	NPCC	NEPOOL	2	BITUMINOUS COAL	345.6	320.0	320.0	320.0	196805	1968	Operating
Miami Fort	ECAR	ECARSR	5	BITUMINOUS COAL	100.0	80.0	80.0	80.0	194912	1949	Operating
Miami Fort	ECAR	ECARSR	6	BITUMINOUS COAL	168.0	163.0	163.0	163.0	196011	1960	Operating
Miami Fort	ECAR	ECARSR	7	BITUMINOUS COAL	512.1	500.0	500.0	500.0	197505	1975	Operating
Miami Fort	ECAR	ECARSR	8	BITUMINOUS COAL	512.2	500.0	500.0	500.0	197802	1978	Operating
Michigan City	ECAR	ECARSR	12	BITUMINOUS COAL	540.0	469.0	469.0	469.0	197405	1974	Operating
Mill Creek (LG&E)	ECAR	ECARSR	1	BITUMINOUS COAL	355.5	303.0	303.0	303.0	197208	1972	Operating
Mill Creek (LG&E)	ECAR	ECARSR	2	BITUMINOUS COAL	355.5	301.0	301.0	301.0	197407	1974	Operating
Mill Creek (LG&E)	ECAR	ECARSR	3	BITUMINOUS COAL	462.6	386.0	386.0	386.0	197808	1978	Operating
Mill Creek (LG&E)	ECAR	ECARSR	4	BITUMINOUS COAL	543.6	480.0	490.0	485.0	198209	1982	Operating
Miller	SERC	STHRN	1	BITUMINOUS COAL	705.5	684.0	684.0	684.0	197810	1978	Operating
Miller	SERC	STHRN	2	BITUMINOUS COAL	705.5	684.0	684.0	684.0	198505	1985	Operating
Miller	SERC	STHRN	3	BITUMINOUS COAL	705.5	701.0	701.0	701.0	198905	1989	Operating
Miller	SERC	STHRN	4	BITUMINOUS COAL	705.5	710.0	710.0	710.0	199103	1991	Operating
Milwaukee County	MAIN	MAINSR	1	BITUMINOUS COAL	11.0	11.0	11.0	11.0	199603	1996	Operating
Minnesota Valley	MAPP	MAPPSR	3	SUBBITUMINOUS	46.0	47.0	47.0	47.0	195310	1953	Operating
Missouri City	SPP	N	1	BITUMINOUS COAL	23.0	19.0	19.0	19.0	195406	1954	Operating
Missouri City	SPP	N	2	BITUMINOUS COAL	23.0	19.0	19.0	19.0	195406	1954	Operating
Mitchell (ALENSU)	ECAR	ECARSR	3	BITUMINOUS COAL	299.2	277.0	288.0	282.5	196311	1963	Operating
Mitchell (GPCO)	SERC	STHRN	1	BITUMINOUS COAL	27.6	21.2	21.2	21.2	194811	1948	Operating
Mitchell (GPCO)	SERC	STHRN	2	BITUMINOUS COAL	27.6	20.1	20.1	20.1	194903	1949	Operating
Mitchell (GPCO)	SERC	STHRN	3	BITUMINOUS COAL	163.2	156.2	156.2	156.2	196405	1964	Operating
Mitchell (MIPS)	ECAR	ECARSR	11	SUBBITUMINOUS	115.1	110.0	110.0	110.0	197005	1970	Operating

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.996; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Mitchell (NIPS)	ECAR	ECARSR	5	SUBBITUMINOUS	138.1	125.0	125.0	125.0	195905	1959	Operating
Mitchell (NIPS)	ECAR	ECARSR	6	SUBBITUMINOUS	138.1	125.0	125.0	125.0	195909	1959	Operating
Mitchell (OPC)	ECAR	ECARSR	1	BITUMINOUS COAL	616.3	800.0	800.0	800.0	197105	1971	Operating
Mitchell (OPC)	ECAR	ECARSR	2	BITUMINOUS COAL	616.3	800.0	800.0	800.0	197105	1971	Operating
Mobile Mill	SERC	STHRN	GEN3	COAL (GENERIC)	20.0	19.2	20.0	19.6	195601	1956	Operating
Mobile Mill	SERC	STHRN	GEN4	COAL (GENERIC)	40.0	38.4	40.0	39.2	195601	1956	Operating
Mobile Mill	SERC	STHRN	GEN5	COAL (GENERIC)	32.0	30.7	32.0	31.4	197601	1976	Operating
Mohave	WECC	CAMX	1	SUBBITUMINOUS	818.1	790.0	790.0	790.0	197104	1971	Operating
Mohave	WECC	CAMX	2	SUBBITUMINOUS	818.1	790.0	790.0	790.0	197110	1971	Operating
Monroe (DETED)	ECAR	ECARSR	1	BITUMINOUS COAL	817.2	750.0	750.0	750.0	197106	1971	Operating
Monroe (DETED)	ECAR	ECARSR	2	BITUMINOUS COAL	822.6	750.0	750.0	750.0	197303	1973	Operating
Monroe (DETED)	ECAR	ECARSR	3	BITUMINOUS COAL	822.6	750.0	750.0	750.0	197305	1973	Operating
Monroe (DETED)	ECAR	ECARSR	4	BITUMINOUS COAL	817.2	750.0	750.0	750.0	197405	1974	Operating
Monticello (TUEC)	ERCOT	ERCOTS	1	LIGNITE	593.4	565.0	565.0	565.0	197412	1974	Operating
Monticello (TUEC)	ERCOT	ERCOTS	2	LIGNITE	593.4	570.0	570.0	570.0	197512	1975	Operating
Monticello (TUEC)	ERCOT	ERCOTS	3	LIGNITE	793.3	750.0	750.0	750.0	197806	1978	Operating
Montour	MAAC	PJM	1	BITUMINOUS COAL	805.5	745.0	755.0	750.0	197203	1972	Operating
Montour	MAAC	PJM	2	BITUMINOUS COAL	819.0	745.0	755.0	750.0	197304	1973	Operating
Montrose	SPP	N	1	BITUMINOUS COAL	187.0	170.0	170.0	170.0	195807	1958	Operating
Montrose	SPP	N	2	BITUMINOUS COAL	187.0	164.0	164.0	164.0	196004	1960	Operating
Montrose	SPP	N	3	BITUMINOUS COAL	188.0	176.0	176.0	176.0	196405	1964	Operating
Morgantown Energy Facility	ECAR	ECARSR	GEN1	WASTE COAL	90.0	84.6	89.0	86.8	199204	1992	Operating
Morgantown	MAAC	PJM	ST1	BITUMINOUS COAL	626.0	582.0	583.0	582.5	197006	1970	Operating
Morgantown	MAAC	PJM	ST2	BITUMINOUS COAL	626.0	582.0	583.0	582.5	197106	1971	Operating
Morrow (SOMI)	SERC	STHRN	1	BITUMINOUS COAL	200.0	200.0	200.0	200.0	197804	1978	Operating
Morrow (SOMI)	SERC	STHRN	2	BITUMINOUS COAL	200.0	200.0	200.0	200.0	197812	1978	Operating
Mount Pleasant	MAPP	MAPPSR	4	BITUMINOUS COAL	3.0	3.0	3.0	3.0	194901	1949	Operating
Mount Storm (MtEP)	SERC	VACAR	1	BITUMINOUS COAL	570.2	533.0	545.0	539.0	196506	1965	Operating
Mount Storm (MtEP)	SERC	VACAR	2	BITUMINOUS COAL	570.2	533.0	545.0	539.0	196607	1966	Operating
Mount Storm (MtEP)	SERC	VACAR	3	BITUMINOUS COAL	522.0	521.0	536.0	528.5	197312	1973	Operating
Mount Tom	NPCC	NEPOOL	1	BITUMINOUS COAL	136.0	146.0	147.0	146.5	196001	1960	Operating
Mountaineer	ECAR	ECARSR	1	BITUMINOUS COAL	1,300.0	1,300.0	1,300.0	1,300.0	198009	1980	Operating
Mt. Carmel Inc	MAAC	PJM	TG1	WASTE COAL	46.0	43.1	46.0	44.6	198901	1989	Operating
Mulberry Phosphates Inc	FRCC	FRCCSR	ST1	SUBBITUMINOUS	21.0	19.5	21.0	20.3	198505	1985	Operating
Muscatine (MPW)	MAPP	MAPPSR	8	BITUMINOUS COAL	75.0	80.0	80.0	80.0	196901	1969	Operating
Muscatine (MPW)	MAPP	MAPPSR	8A	SUBBITUMINOUS	18.1	16.4	18.5	17.4	200006	2000	Operating
Muscatine (MPW)	MAPP	MAPPSR	9	SUBBITUMINOUS	175.0	160.0	160.0	160.0	198305	1983	Operating
Muskingum River	ECAR	ECARSR	1	BITUMINOUS COAL	219.7	190.0	205.0	197.5	195312	1953	Operating
Muskingum River	ECAR	ECARSR	2	BITUMINOUS COAL	219.7	190.0	205.0	197.5	195406	1954	Operating
Muskingum River	ECAR	ECARSR	3	BITUMINOUS COAL	237.5	205.0	215.0	210.0	195712	1957	Operating
Muskingum River	ECAR	ECARSR	4	BITUMINOUS COAL	237.5	205.0	215.0	210.0	195805	1958	Operating
Muskingum River	ECAR	ECARSR	5	BITUMINOUS COAL	615.2	575.0	585.0	580.0	196810	1968	Operating
Muskogee	SPP	S	4	SUBBITUMINOUS	572.0	492.5	492.5	492.5	197712	1977	Operating
Muskogee	SPP	S	5	SUBBITUMINOUS	572.0	492.5	492.5	492.5	197810	1978	Operating
Muskogee	SPP	S	6	SUBBITUMINOUS	572.0	506.0	506.0	506.0	198406	1984	Operating
NAO GM Pontiac Power Plant	ECAR	ECARSR	1	COAL (GENERIC)	28.9	27.1	28.9	28.0	198710	1987	Standby
Natrium Plant	ECAR	ECARSR	GEN3	COAL (GENERIC)	7.5	7.2	7.5	7.4	194301	1943	Operating
Natrium Plant	ECAR	ECARSR	GEN4	COAL (GENERIC)	7.5	7.2	7.5	7.4	194301	1943	Standby
Natrium Plant	ECAR	ECARSR	GEN6	COAL (GENERIC)	26.0	24.9	26.0	25.5	195401	1954	Operating
Natrium Plant	ECAR	ECARSR	GEN7	COAL (GENERIC)	82.0	78.8	82.0	80.4	196601	1966	Operating
Naughton	WECC	NWPA	1	BITUMINOUS COAL	163.2	160.0	160.0	160.0	196305	1963	Operating
Naughton	WECC	NWPA	2	BITUMINOUS COAL	217.6	210.0	210.0	210.0	196810	1968	Operating
Naughton	WECC	NWPA	3	BITUMINOUS COAL	326.4	330.0	330.0	330.0	197110	1971	Operating
Navajo (SRP)	WECC	AZNMNV	NAV1	SUBBITUMINOUS	803.2	755.0	755.0	755.0	197405	1974	Operating
Navajo (SRP)	WECC	AZNMNV	NAV2	SUBBITUMINOUS	803.2	750.0	750.0	750.0	197504	1975	Operating
Navajo (SRP)	WECC	AZNMNV	NAV3	SUBBITUMINOUS	803.2	750.0	750.0	750.0	197604	1976	Operating
Nearman Creek	SPP	N	1	SUBBITUMINOUS	235.0	235.0	235.0	235.0	198102	1981	Operating
Nebraska City - OPPD	MAPP	MAPPSR	1	SUBBITUMINOUS	615.9	631.5	631.5	631.5	197905	1979	Operating
Neil Simpson 1	WECC	RMPA	5	SUBBITUMINOUS	21.8	14.6	18.6	16.6	196909	1969	Operating
Neil Simpson 2	WECC	RMPA	2	SUBBITUMINOUS	80.0	75.0	92.0	83.5	199508	1995	Operating
Nelson	SERC	ENTR	6	SUBBITUMINOUS	614.6	550.0	550.0	550.0	198205	1982	Operating
New Castle	ECAR	ECARSR	3	BITUMINOUS COAL	97.8	98.0	98.0	98.0	195210	1952	Operating
New Castle	ECAR	ECARSR	4	BITUMINOUS COAL	113.6	98.0	98.0	98.0	195810	1958	Operating
New Castle	ECAR	ECARSR	5	BITUMINOUS COAL	136.0	137.0	137.0	137.0	196408	1964	Operating
New Madrid - ASEC	SERC	ENTR	1	SUBBITUMINOUS	600.0	575.0	600.0	587.5	197212	1972	Operating
New Madrid - ASEC	SERC	ENTR	2	SUBBITUMINOUS	600.0	575.0	600.0	587.5	197706	1977	Operating
Newton	MAIN	MAINSR	1	BITUMINOUS COAL	617.4	555.0	555.0	555.0	197711	1977	Operating
Newton	MAIN	MAINSR	2	BITUMINOUS COAL	617.4	555.0	555.0	555.0	198212	1982	Operating
Niagara Falls	NPCC	NYPP	1	COAL (GENERIC)	53.0	57.0	53.0	55.0	199108	1991	Operating
Niagara of Wisconsin Paper Cor	MAIN	MAINSR	ST1	COAL (GENERIC)	2.5	2.3	2.5	2.4	194001	1940	Operating
Niagara of Wisconsin Paper Cor	MAIN	MAINSR	ST2	COAL (GENERIC)	9.4	8.7	9.4	9.0	196401	1964	Operating
Nichols Road Power Plant	WECC	CAMX	1	COAL (GENERIC)	20.5	18.5	19.2	18.9	199003	1990	Operating
Niles (ORION)	ECAR	ECARSR	1	BITUMINOUS COAL	132.8	68.0	108.0	88.5	195401	1954	Operating
Niles (ORION)	ECAR	ECARSR	2	BITUMINOUS COAL	132.8	69.0	108.0	88.5	195406	1954	Operating
Nixon	WECC	RMPA	1	BITUMINOUS COAL	230.0	208.0	208.0	208.0	198004	1980	Operating
Noblesville	ECAR	ECARSR	1	BITUMINOUS COAL	50.0	45.0	45.0	45.0	195012	1950	Operating
Noblesville	ECAR	ECARSR	2	BITUMINOUS COAL	50.0	45.0	45.0	45.0	195009	1950	Operating
North Branch Project	SERC	VACAR	1	WASTE COAL	80.0	74.0	77.0	75.5	199205	1992	Operating
North Omaha	MAPP	MAPPSR	1	SUBBITUMINOUS	73.5	76.6	55.8	67.2	195407	1954	Operating
North Omaha	MAPP	MAPPSR	2	SUBBITUMINOUS	108.8	111.0	95.2	103.1	195704	1957	Operating
North Omaha	MAPP	MAPPSR	3	SUBBITUMINOUS	108.8	111.0	95.2	103.1	195904	1959	Operating
North Omaha	MAPP	MAPPSR	4	SUBBITUMINOUS	136.0	136.2	115.0	126.6	196303	1963	Operating
North Omaha	MAPP	MAPPSR	5	SUBBITUMINOUS	217.6	224.0	173.2	198.6	196805	1968	Operating
North Valmy	WECC	NWPA	ST1	SUBBITUMINOUS	254.3	258.0	258.0	258.0	198112	1981	Operating
North Valmy	WECC	NWPA	ST2	SUBBITUMINOUS	267.0	274.0	274.0	274.0	198505	1985	Operating
Northampton Generating Compan	MAAC	PJM	1	ANTHRACITE	117.0	110.0	117.0	113.5	199508	1995	Operating
Northeast Station	MAPP	MAPPSR	1	BITUMINOUS COAL	31.9	29.3	29.3	29.3	197104	1971	Operating
Northeastern	SPP	S	3	SUBBITUMINOUS	472.5	450.0	450.0	450.0	197912	1979	Operating
Northeastern	SPP	S	4	SUBBITUMINOUS	472.5	450.0	450.0	450.0	198009	1980	Operating
Northeastern Power Cogeneratio	MAAC	PJM	1	WASTE COAL	57.5	53.8	50.0	51.9	198907	1989	Operating
Northside	FRCC	FRCCSR	1	COAL (GENERIC)	297.5	262.0	262.0	262.0	196611	1966	Operating
Nucla	WECC	RMPA	1	BITUMINOUS COAL	11.5	12.0	12.0	12.0	195911	1959	Operating

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.998; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Nucla	WECC	RMPA	2	BITUMINOUS COAL	11.5	12.0	12.0	12.0	195911	1959	Operating
Nucla	WECC	RMPA	3	BITUMINOUS COAL	11.5	12.0	12.0	12.0	195911	1959	Operating
Nucla	WECC	RMPA	AB4	BITUMINOUS COAL	79.4	64.0	64.0	64.0	199101	1991	Operating
Oak Creek South	MAIN	MAINSR	5	SUBBITUMINOUS	275.0	261.0	262.0	261.5	195912	1959	Operating
Oak Creek South	MAIN	MAINSR	6	SUBBITUMINOUS	275.0	264.0	265.0	264.5	196112	1961	Operating
Oak Creek South	MAIN	MAINSR	7	SUBBITUMINOUS	317.6	296.0	298.0	296.0	196503	1965	Operating
Oak Creek South	MAIN	MAINSR	8	SUBBITUMINOUS	324.0	312.0	314.0	313.0	196710	1967	Operating
Oklaunion	ERCOT	ERCOTS	1	SUBBITUMINOUS	663.9	676.0	676.0	676.0	198612	1986	Operating
Old Town Division	NPCC	NEPOOL	ST1	COAL (GENERIC)	3.5	3.4	3.5	3.4	194607	1946	Operating
Oro Grande Plant	WECC	CAMX	ST1	COAL (GENERIC)	12.0	11.1	12.0	11.6	195412	1954	Operating
Oro Grande Plant	WECC	CAMX	ST2	COAL (GENERIC)	12.0	11.1	12.0	11.6	195412	1954	Operating
Orrville (Vine Street)	ECAR	ECARSR	10	BITUMINOUS COAL	25.0	25.0	25.0	25.0	197101	1971	Operating
Orrville (Vine Street)	ECAR	ECARSR	11	BITUMINOUS COAL	25.0	25.0	25.0	25.0	197101	1971	Operating
Orrville (Vine Street)	ECAR	ECARSR	7	BITUMINOUS COAL	5.0	5.0	5.0	5.0	194901	1949	Standby
Orrville (Vine Street)	ECAR	ECARSR	8	BITUMINOUS COAL	7.5	7.5	7.5	7.5	195501	1955	Standby
Orrville (Vine Street)	ECAR	ECARSR	9	BITUMINOUS COAL	22.0	12.0	12.0	12.0	196101	1961	Operating
Osage (BKH)	WECC	RMPA	1	SUBBITUMINOUS	11.5	10.2	11.0	10.6	194810	1948	Operating
Osage (BKH)	WECC	RMPA	2	SUBBITUMINOUS	11.5	10.2	11.0	10.6	194910	1949	Operating
Osage (BKH)	WECC	RMPA	3	SUBBITUMINOUS	11.5	10.2	11.0	10.6	195209	1952	Operating
Ottumwa - IES	MAIN	MAINSR	1	SUBBITUMINOUS	726.0	715.5	715.5	715.5	196105	1961	Operating
P H Glatfelter Company	MAAC	PJM	1	COAL (GENERIC)	6.0	5.6	6.0	5.8	194807	1948	Operating
P H Glatfelter Company	MAAC	PJM	2	COAL (GENERIC)	6.0	5.5	6.0	5.8	197504	1975	Operating
P H Glatfelter Company	MAAC	PJM	3	COAL (GENERIC)	5.1	4.7	5.1	4.9	194805	1948	Operating
P H Glatfelter Company	MAAC	PJM	4	COAL (GENERIC)	7.5	7.0	7.5	7.2	196201	1962	Operating
P H Glatfelter Company	MAAC	PJM	5	COAL (GENERIC)	46.0	43.1	46.0	44.5	196206	1962	Operating
P H Glatfelter Company	MAAC	PJM	6	COAL (GENERIC)	39.2	36.7	39.2	37.9	199401	1994	Operating
Packaging Corporation of Ameri	MAIN	MAINSR	1	COAL (GENERIC)	5.0	4.6	5.5	5.1	194806	1948	Operating
Packaging Corporation of Ameri	MAIN	MAINSR	2	COAL (GENERIC)	7.5	7.0	8.0	7.5	197808	1978	Operating
Painesville	ECAR	ECARSR	3	BITUMINOUS COAL	7.5	7.5	7.5	7.5	195301	1953	Operating
Painesville	ECAR	ECARSR	5	BITUMINOUS COAL	16.5	16.5	16.5	16.5	196501	1965	Operating
Painesville	ECAR	ECARSR	7	BITUMINOUS COAL	22.0	22.0	22.0	22.0	199002	1990	Operating
Painesville	ECAR	ECARSR	ST2	BITUMINOUS COAL	7.5	7.5	7.5	7.5	193301	1933	Operating
Panther Creek Energy Facility	MAAC	PJM	GEN1	WASTE COAL	94.0	83.0	88.0	85.5	199207	1992	Operating
Paradise (TVA)	SERC	TVA	1	BITUMINOUS COAL	704.0	596.0	624.0	610.0	196311	1963	Operating
Paradise (TVA)	SERC	TVA	2	BITUMINOUS COAL	704.0	596.0	624.0	610.0	196305	1963	Operating
Paradise (TVA)	SERC	TVA	3	BITUMINOUS COAL	1,150.2	977.0	1,020.0	998.5	197002	1970	Operating
Parish	ERCOT	ERCOTS	5	SUBBITUMINOUS	734.1	650.0	650.0	650.0	197712	1977	Operating
Parish	ERCOT	ERCOTS	6	SUBBITUMINOUS	734.1	650.0	650.0	650.0	197812	1978	Operating
Parish	ERCOT	ERCOTS	7	SUBBITUMINOUS	614.6	600.0	600.0	600.0	198006	1980	Operating
Parish	ERCOT	ERCOTS	8	SUBBITUMINOUS	614.6	555.0	555.0	555.0	198212	1982	Operating
Park 500 Division	SERC	VACAR	1	BITUMINOUS COAL	6.1	5.7	6.1	5.9	198404	1984	Operating
Park 500 Division	SERC	VACAR	2	BITUMINOUS COAL	13.0	12.2	13.0	12.6	198309	1983	Operating
Pawnee	WECC	RMPA	1	BITUMINOUS COAL	547.0	505.0	511.0	508.0	198111	1981	Operating
PCS Phosphate Company Inc e k	SERC	VACAR	ST	SUBBITUMINOUS	39.9	37.1	39.9	38.5	198412	1984	Operating
Pearl	MAIN	MAINSR	1	BITUMINOUS COAL	22.0	22.0	22.0	22.0	196701	1967	Operating
Pella	MAPP	MAPPSR	5	BITUMINOUS COAL	11.5	12.5	12.5	12.5	196405	1964	Operating
Pella	MAPP	MAPPSR	6	BITUMINOUS COAL	26.5	26.5	26.5	26.5	197207	1972	Operating
Pensacola Florida	SERC	STHRN	GEN1	COAL (GENERIC)	39.6	36.8	39.6	38.2	198101	1981	Operating
Pensacola Florida	SERC	STHRN	GEN2	COAL (GENERIC)	43.2	40.1	43.2	41.7	198101	1981	Operating
Peoria	MAIN	MAINSR	GEN1	BITUMINOUS COAL	30.0	30.0	30.0	30.0	193401	1934	Operating
Peoria	MAIN	MAINSR	GEN2	BITUMINOUS COAL	30.0	30.0	30.0	30.0	193401	1934	Operating
Peoria	MAIN	MAINSR	GEN3	BITUMINOUS COAL	30.0	30.0	30.0	30.0	195401	1954	Operating
Peoria	MAIN	MAINSR	GEN4	BITUMINOUS COAL	30.0	30.0	30.0	30.0	198501	1985	Operating
Peoria	MAIN	MAINSR	GEN5	BITUMINOUS COAL	30.0	30.0	30.0	30.0	198501	1985	Operating
Pepeekeo Power Plant	HI	HISR	1	COAL (GENERIC)	23.8	22.1	23.8	22.9	197409	1974	Operating
Perry K	ECAR	ECARSR	4	BITUMINOUS COAL	15.0	16.0	17.0	16.5	192501	1925	Operating
Perry K	ECAR	ECARSR	6	BITUMINOUS COAL	5.0	3.0	3.0	3.0	193808	1938	Operating
Peru (PERU)	ECAR	ECARSR	2	BITUMINOUS COAL	22.0	22.5	22.5	22.5	195902	1959	Operating
Peru (PERU)	ECAR	ECARSR	3	BITUMINOUS COAL	12.5	12.2	12.2	12.2	194906	1949	Operating
Pete 1 (IP&L)	ECAR	ECARSR	4	BITUMINOUS COAL	574.2	515.0	515.0	515.0	198604	1986	Operating
Pete 1 (IP&L)	ECAR	ECARSR	ST1	BITUMINOUS COAL	253.4	232.0	232.0	232.0	196706	1967	Operating
Pete 1 (IP&L)	ECAR	ECARSR	ST2	BITUMINOUS COAL	471.0	407.0	407.0	407.0	196912	1969	Operating
Pete 1 (IP&L)	ECAR	ECARSR	ST3	BITUMINOUS COAL	574.4	510.0	510.0	510.0	197711	1977	Operating
Pioway	ECAR	ECARSR	5	BITUMINOUS COAL	106.3	90.0	100.0	95.0	195511	1955	Operating
Pineville	ECAR	ECARSR	3	BITUMINOUS COAL	37.5	32.0	33.0	32.5	195107	1951	Operating
Piney Creek Project	MAAC	PJM	IPP	BITUMINOUS COAL	36.0	31.0	36.0	33.5	199212	1992	Operating
Piqua	ECAR	ECARSR	10	BITUMINOUS COAL	0.8	0.8	0.8	0.8	198712	1987	Standby
Piqua	ECAR	ECARSR	4	BITUMINOUS COAL	7.5	7.5	7.5	7.5	194701	1947	Standby
Piqua	ECAR	ECARSR	5	BITUMINOUS COAL	1.0	1.0	1.0	1.0	194701	1947	Standby
Piqua	ECAR	ECARSR	6	BITUMINOUS COAL	12.5	12.5	12.5	12.5	195101	1951	Standby
Piqua	ECAR	ECARSR	7	BITUMINOUS COAL	20.0	20.0	20.0	20.0	196101	1961	Standby
Piqua	ECAR	ECARSR	9	BITUMINOUS COAL	4.0	4.0	4.0	4.0	194701	1947	Standby
Pirkey	SPP	S	1	LIGNITE	720.8	675.0	675.0	675.0	198501	1985	Operating
Plant #2	ECAR	ECARSR	1	COAL (GENERIC)	7.5	7.0	7.5	7.2	197510	1975	Standby
Plant #2	ECAR	ECARSR	2	COAL (GENERIC)	12.5	11.6	12.5	12.0	197704	1977	Operating
Plant #2	ECAR	ECARSR	3	COAL (GENERIC)	7.5	7.0	7.5	7.3	198405	1984	Operating
Plant #2	ECAR	ECARSR	4	COAL (GENERIC)	12.5	11.6	12.5	12.0	195302	1953	Operating
Plant Kraft (Port Wentworth)	SERC	STHRN	2	BITUMINOUS COAL	54.4	51.5	51.5	51.5	196105	1961	Operating
Plant Kraft (Port Wentworth)	SERC	STHRN	3	BITUMINOUS COAL	103.5	97.1	97.1	97.1	196505	1965	Operating
Plant Kraft (Port Wentworth)	SERC	STHRN	ST1	BITUMINOUS COAL	50.0	47.8	47.8	47.8	195807	1958	Operating
Platte	MAPP	MAPPSR	1	SUBBITUMINOUS	109.8	100.0	109.0	104.5	198212	1982	Operating
Pleasant Prairie	MAIN	MAINSR	1	SUBBITUMINOUS	616.6	600.0	605.0	602.5	198006	1980	Operating
Pleasant Prairie	MAIN	MAINSR	2	SUBBITUMINOUS	616.6	600.0	605.0	602.5	198507	1985	Operating
Pleasants	ECAR	ECARSR	1	BITUMINOUS COAL	684.0	639.0	650.0	644.5	197904	1979	Operating
Pleasants	ECAR	ECARSR	2	BITUMINOUS COAL	684.0	621.0	635.0	628.0	198012	1980	Operating
Polk	FRCC	FRCCSR	IGCC1	BITUMINOUS COAL	326.2	250.0	290.0	270.0	199610	1996	Operating
Port of Stockton District Ener	WECC	CAMX	STG1	COAL (GENERIC)	50.0	44.0	46.5	45.3	198712	1987	Operating
Port Washington (Wep)	MAIN	MAINSR	ST1	BITUMINOUS COAL	80.0	80.0	80.0	80.0	193510	1935	Operating
Port Washington (Wep)	MAIN	MAINSR	ST2	BITUMINOUS COAL	80.0	83.0	83.0	83.0	194310	1943	Operating
Port Washington (Wep)	MAIN	MAINSR	ST3	BITUMINOUS COAL	80.0	83.0	84.0	83.5	194810	1948	Operating
Port Washington (Wep)	MAIN	MAINSR	ST4	BITUMINOUS COAL	80.0	80.0	80.0	80.0	194908	1949	Operating
Portland	MAAC	PJM	1	BITUMINOUS COAL	171.7	158.0	156.0	157.0	195810	1958	Operating

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.996; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Portland	MAAC	PJM	2	BITUMINOUS COAL	255.0	243.0	243.0	243.0	196209	1962	Operating
Portsmouth	SERC	VACAR	1	BITUMINOUS COAL	57.5	50.8	54.2	52.5	196806	1968	Operating
Portsmouth	SERC	VACAR	2	BITUMINOUS COAL	57.5	50.8	54.2	52.5	196806	1968	Operating
Possum Point	SERC	VACAR	3	BITUMINOUS COAL	113.6	101.0	105.0	103.0	195506	1955	Operating
Possum Point	SERC	VACAR	4	BITUMINOUS COAL	239.4	221.0	221.0	221.0	196204	1962	Operating
Potomac River	MAAC	PJM	1	BITUMINOUS COAL	92.0	88.0	88.0	88.0	194909	1949	Operating
Potomac River	MAAC	PJM	2	BITUMINOUS COAL	92.0	88.0	88.0	88.0	195006	1950	Operating
Potomac River	MAAC	PJM	3	BITUMINOUS COAL	110.0	102.0	102.0	102.0	195406	1954	Operating
Potomac River	MAAC	PJM	4	BITUMINOUS COAL	110.0	102.0	102.0	102.0	195602	1956	Operating
Potomac River	MAAC	PJM	5	BITUMINOUS COAL	110.0	102.0	102.0	102.0	195705	1957	Operating
Power Plant (NORTE)	ECAR	ECARSR	1	COAL (GENERIC)	3.0	2.9	3.0	2.9	196206	1962	Standby
Power Plant (NORTE)	ECAR	ECARSR	2	COAL (GENERIC)	1.7	1.6	1.7	1.7	195207	1952	Operating
Power Plant (NORTE)	ECAR	ECARSR	5	COAL (GENERIC)	2.0	1.9	2.0	2.0	195609	1956	Operating
Power Plant (NORTE)	ECAR	ECARSR	6	COAL (GENERIC)	5.0	4.8	5.0	4.9	196702	1967	Operating
Powerton	MAIN	MAINSR	5	SUBBITUMINOUS	882.8	769.0	769.0	769.0	197209	1972	Operating
Powerton	MAIN	MAINSR	6	SUBBITUMINOUS	882.8	769.0	769.0	769.0	197512	1975	Operating
Prairie Creek	MAIN	MAINSR	2	SUBBITUMINOUS	23.0	21.5	21.5	21.5	195105	1951	Operating
Prairie Creek	MAIN	MAINSR	3	SUBBITUMINOUS	50.0	49.0	49.0	49.0	195810	1958	Operating
Prairie Creek	MAIN	MAINSR	4	SUBBITUMINOUS	146.8	142.0	142.0	142.0	196704	1967	Operating
Presque Isle	MAIN	MAINSR	1	BITUMINOUS COAL	25.0	25.0	25.0	25.0	195509	1955	Operating
Presque Isle	MAIN	MAINSR	2	BITUMINOUS COAL	37.5	37.0	37.0	37.0	196207	1962	Operating
Presque Isle	MAIN	MAINSR	3	BITUMINOUS COAL	54.4	58.0	58.0	58.0	196401	1964	Operating
Presque Isle	MAIN	MAINSR	4	BITUMINOUS COAL	57.8	58.0	58.0	58.0	196612	1966	Operating
Presque Isle	MAIN	MAINSR	5	BITUMINOUS COAL	90.0	87.0	87.0	87.0	197412	1974	Operating
Presque Isle	MAIN	MAINSR	6	BITUMINOUS COAL	90.0	90.0	90.0	90.0	197504	1975	Operating
Presque Isle	MAIN	MAINSR	7	SUBBITUMINOUS	90.0	85.0	85.0	85.0	197806	1978	Operating
Presque Isle	MAIN	MAINSR	8	SUBBITUMINOUS	90.0	85.0	85.0	85.0	197811	1978	Operating
Presque Isle	MAIN	MAINSR	9	SUBBITUMINOUS	90.0	88.0	88.0	88.0	197908	1979	Operating
Provo	WECC	NWPA	4	BITUMINOUS COAL	7.5	7.5	7.5	7.5	195003	1950	Operating
Pulliam	MAIN	MAINSR	3	SUBBITUMINOUS	30.0	28.2	28.2	28.2	194301	1943	Operating
Pulliam	MAIN	MAINSR	4	SUBBITUMINOUS	30.0	26.5	28.3	27.4	194708	1947	Operating
Pulliam	MAIN	MAINSR	5	SUBBITUMINOUS	50.0	50.2	50.2	50.2	194909	1949	Operating
Pulliam	MAIN	MAINSR	6	SUBBITUMINOUS	62.5	70.0	66.7	68.8	195111	1951	Operating
Pulliam	MAIN	MAINSR	7	SUBBITUMINOUS	75.0	86.7	86.5	86.6	195811	1958	Operating
Pulliam	MAIN	MAINSR	8	SUBBITUMINOUS	125.0	143.5	136.4	140.0	196412	1964	Operating
Purdue University	ECAR	ECARSR	1	COAL (GENERIC)	30.9	28.7	30.9	29.8	199507	1995	Operating
Purdue University	ECAR	ECARSR	2	COAL (GENERIC)	10.7	10.3	10.7	10.5	199901	1999	Operating
Quindaro	SPP	N	1	BITUMINOUS COAL	76.5	73.0	73.0	73.0	196505	1965	Operating
Quindaro	SPP	N	2	BITUMINOUS COAL	145.5	135.0	135.0	135.0	197112	1971	Operating
Radford Army Ammunition Plant	ECAR	ECARSR	ST1	COAL (GENERIC)	6.0	5.6	6.0	5.8	194101	1941	Operating
Radford Army Ammunition Plant	ECAR	ECARSR	ST2	COAL (GENERIC)	6.0	5.6	6.0	5.8	194101	1941	Operating
Radford Army Ammunition Plant	ECAR	ECARSR	ST3	COAL (GENERIC)	6.0	5.6	6.0	5.8	194101	1941	Operating
Radford Army Ammunition Plant	ECAR	ECARSR	ST4	COAL (GENERIC)	6.0	5.6	6.0	5.8	194101	1941	Operating
Raton	WECC	RMPA	3	BITUMINOUS COAL	1.5	1.8	1.8	1.8	193701	1937	Standby
Raton	WECC	RMPA	4	BITUMINOUS COAL	3.8	3.2	3.2	3.2	195110	1951	Operating
Raton	WECC	RMPA	5	BITUMINOUS COAL	7.5	8.0	8.0	8.0	196103	1961	Operating
Ratts	ECAR	ECARSR	1	BITUMINOUS COAL	116.6	123.0	126.0	124.5	197004	1970	Operating
Ratts	ECAR	ECARSR	2	BITUMINOUS COAL	116.6	121.0	124.0	122.5	197004	1970	Operating
Rawhide	WECC	RMPA	1	SUBBITUMINOUS	293.6	270.0	270.0	270.0	198404	1984	Operating
Reid	ECAR	ECARSR	1	BITUMINOUS COAL	66.0	65.0	65.0	65.0	196601	1966	Operating
Rhinelander Paper Co.	MAIN	MAINSR	ST1	COAL (GENERIC)	4.0	4.0	4.0	4.0	194012	1940	Operating
Rhinelander Paper Co.	MAIN	MAINSR	ST2	COAL (GENERIC)	10.0	9.6	10.0	9.8	195102	1951	Standby
Rhinelander Paper Co.	MAIN	MAINSR	ST3	COAL (GENERIC)	9.4	8.7	9.4	9.0	195807	1958	Operating
Richard H. Gorsuch	ECAR	ECARSR	1	BITUMINOUS COAL	53.3	53.0	53.0	53.0	195101	1951	Operating
Richard H. Gorsuch	ECAR	ECARSR	2	BITUMINOUS COAL	53.3	53.0	53.0	53.0	195101	1951	Operating
Richard H. Gorsuch	ECAR	ECARSR	3	BITUMINOUS COAL	53.3	53.0	53.0	53.0	195301	1953	Operating
Richard H. Gorsuch	ECAR	ECARSR	4	BITUMINOUS COAL	53.3	53.3	53.3	53.3	195301	1953	Operating
Rio Bravo Jasmin	WECC	CAMX	1	COAL (GENERIC)	38.3	35.8	38.3	37.1	198911	1989	Operating
Rio Bravo Poso	WECC	CAMX	1	COAL (GENERIC)	38.3	35.8	38.3	37.1	198909	1989	Operating
RITTMAN PAPERBOARD (PACTIV)	ECAR	ECARSR	1	COAL (GENERIC)	3.0	3.0	3.0	3.0	192801	1928	Operating
RITTMAN PAPERBOARD (PACTIV)	ECAR	ECARSR	2	COAL (GENERIC)	5.0	5.0	5.0	5.0	194001	1940	Operating
RITTMAN PAPERBOARD (PACTIV)	ECAR	ECARSR	3	COAL (GENERIC)	6.0	5.8	6.0	5.9	194606	1946	Operating
River Rouge	ECAR	ECARSR	2	BITUMINOUS COAL	292.5	238.0	247.0	242.5	195711	1957	Operating
River Rouge	ECAR	ECARSR	3	BITUMINOUS COAL	358.1	262.0	270.0	266.0	195810	1958	Operating
Riverbend	SERC	VACAR	4	BITUMINOUS COAL	100.0	94.0	94.0	94.0	195210	1952	Operating
Riverbend	SERC	VACAR	5	BITUMINOUS COAL	100.0	94.0	94.0	94.0	195211	1952	Operating
Riverbend	SERC	VACAR	6	BITUMINOUS COAL	133.0	133.0	133.0	133.0	195406	1954	Operating
Riverbend	SERC	VACAR	7	BITUMINOUS COAL	133.0	133.0	133.0	133.0	195411	1954	Operating
Riverside (MIDAM)	MAPP	MAPPSR	3HS	SUBBITUMINOUS	5.0	5.0	5.0	5.0	194905	1949	Operating
Riverside (MIDAM)	MAPP	MAPPSR	5	SUBBITUMINOUS	136.0	130.0	130.0	130.0	196106	1961	Operating
Riverside (NSP)	MAPP	MAPPSR	6	BITUMINOUS COAL	238.9	230.0	224.0	227.0	196405	1964	Operating
Riverside (NSP)	MAPP	MAPPSR	ST7	SUBBITUMINOUS	165.0	152.1	156.8	154.4	198707	1987	Operating
Riverton (EMDE)	SPP	N	7	SUBBITUMINOUS	37.5	38.0	38.0	38.0	195006	1950	Operating
Riverton (EMDE)	SPP	N	8	SUBBITUMINOUS	50.0	54.0	54.0	54.0	195406	1954	Operating
Rivesville	ECAR	ECARSR	5	BITUMINOUS COAL	35.0	46.0	48.0	47.0	194306	1943	Operating
Rivesville	ECAR	ECARSR	6	BITUMINOUS COAL	74.8	91.0	94.0	92.5	195109	1951	Operating
Roanoke Rapids North Carolina	SERC	VACAR	ST1	COAL (GENERIC)	22.5	21.6	22.5	22.1	196601	1966	Operating
Roanoke Valley II	SERC	VACAR	1	BITUMINOUS COAL	57.9	56.5	57.9	57.2	199506	1995	Operating
Roanoke Valley Project	SERC	VACAR	1	BITUMINOUS COAL	182.3	179.9	182.3	181.1	199405	1994	Operating
Robinson	SERC	VACAR	1	BITUMINOUS COAL	206.6	174.0	185.0	179.5	196005	1960	Operating
Rochester 7 (Russell Station)	NPCC	NYPP	1	BITUMINOUS COAL	46.0	47.0	47.0	47.0	194901	1949	Operating
Rochester 7 (Russell Station)	NPCC	NYPP	2	BITUMINOUS COAL	62.5	65.0	65.0	65.0	195102	1951	Operating
Rochester 7 (Russell Station)	NPCC	NYPP	3	BITUMINOUS COAL	62.5	65.0	65.0	65.0	195310	1953	Operating
Rochester 7 (Russell Station)	NPCC	NYPP	4	BITUMINOUS COAL	81.6	80.0	80.0	80.0	195704	1957	Operating
Rockdale Works	ERCOT	ERCOTS	GEN1	COAL (GENERIC)	121.0	116.2	121.0	118.6	195312	1953	Operating
Rockdale Works	ERCOT	ERCOTS	GEN2	COAL (GENERIC)	121.0	116.2	121.0	118.6	195402	1954	Operating
Rockdale Works	ERCOT	ERCOTS	GEN3	COAL (GENERIC)	121.0	116.2	121.0	118.6	195407	1954	Operating
Rockport (INMI)	ECAR	ECARSR	1	BITUMINOUS COAL	1,300.0	1,300.0	1,300.0	1,300.0	198412	1984	Operating
Rockport (INMI)	ECAR	ECARSR	2	BITUMINOUS COAL	1,300.0	1,300.0	1,300.0	1,300.0	198912	1989	Operating
Rodemacher - CELE	SPP	S	2	BITUMINOUS COAL	558.0	523.0	523.0	523.0	198208	1982	Operating
Roxboro	SERC	VACAR	1	BITUMINOUS COAL	410.9	385.0	390.0	387.5	196605	1966	Operating
Roxboro	SERC	VACAR	2	BITUMINOUS COAL	657.0	670.0	675.0	672.5	196805	1968	Operating

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.006; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Roxboro	SERC	VACAR	3	BITUMINOUS COAL	745.2	707.0	715.0	711.0	197307	1973	Operating
Roxboro	SERC	VACAR	4	BITUMINOUS COAL	745.2	700.0	710.0	705.0	198009	1980	Operating
Rumford Cogeneration Co	NPCC	NEPOOL	1	BITUMINOUS COAL	102.0	85.0	95.5	90.3	199005	1990	Operating
Rush Island	MAIN	MAINSR	1	BITUMINOUS COAL	621.0	583.0	584.0	583.5	197603	1976	Operating
Rush Island	MAIN	MAINSR	2	BITUMINOUS COAL	621.0	583.0	584.0	583.5	197703	1977	Operating
S. D. Warren Co. #1 Muskeg	ECAR	ECARSR	GEN4	COAL (GENERIC)	19.1	17.0	18.0	17.5	196801	1968	Operating
S. D. Warren Co. #1 Muskeg	ECAR	ECARSR	GEN5	COAL (GENERIC)	28.3	25.0	27.0	26.0	198901	1989	Operating
Salem Harbor	NPCC	NEPOOL	1	BITUMINOUS COAL	81.9	80.0	84.0	82.0	195201	1952	Operating
Salem Harbor	NPCC	NEPOOL	2	BITUMINOUS COAL	82.0	80.0	80.0	80.0	195209	1952	Operating
Salem Harbor	NPCC	NEPOOL	3	BITUMINOUS COAL	165.8	150.0	150.0	150.0	195808	1958	Operating
Sammis	ECAR	ECARSR	1	BITUMINOUS COAL	180.4	180.0	180.0	180.0	195908	1959	Operating
Sammis	ECAR	ECARSR	2	BITUMINOUS COAL	180.4	180.0	180.0	180.0	196007	1960	Operating
Sammis	ECAR	ECARSR	3	BITUMINOUS COAL	180.4	180.0	180.0	180.0	196107	1961	Operating
Sammis	ECAR	ECARSR	4	BITUMINOUS COAL	180.4	180.0	180.0	180.0	196211	1962	Operating
Sammis	ECAR	ECARSR	5	BITUMINOUS COAL	334.1	300.0	300.0	300.0	196712	1967	Operating
Sammis	ECAR	ECARSR	6	BITUMINOUS COAL	680.0	600.0	600.0	600.0	196904	1969	Operating
Sammis	ECAR	ECARSR	7	BITUMINOUS COAL	680.0	600.0	600.0	600.0	197109	1971	Operating
San Juan (PNM)	WECC	AZNMNV	1	SUBBITUMINOUS	361.0	327.0	327.0	327.0	197612	1976	Operating
San Juan (PNM)	WECC	AZNMNV	2	SUBBITUMINOUS	350.0	316.0	316.0	316.0	197311	1973	Operating
San Juan (PNM)	WECC	AZNMNV	3	SUBBITUMINOUS	534.0	497.0	497.0	497.0	197912	1979	Operating
San Juan (PNM)	WECC	AZNMNV	4	SUBBITUMINOUS	534.0	507.0	507.0	507.0	198204	1982	Operating
San Miguel (Smig)	ERCOT	ERCOTS	1	LIGNITE	400.4	391.0	391.0	391.0	198201	1982	Operating
Sandow 4	ERCOT	ERCOTS	4	LIGNITE	580.6	552.0	585.0	568.5	198105	1981	Operating
Sartell Mill	MAPP	MAPPSR	ABB2	COAL (GENERIC)	20.4	19.0	20.4	19.7	198201	1982	Operating
Savannah Sugar Refinery	SERC	STHRN	GEN2	COAL (GENERIC)	3.0	2.9	3.0	2.9	195902	1959	Operating
Savannah Sugar Refinery	SERC	STHRN	GENA	COAL (GENERIC)	2.7	2.6	2.7	2.7	194803	1948	Operating
Savannah Sugar Refinery	SERC	STHRN	GENC	COAL (GENERIC)	1.0	1.0	1.0	1.0	194608	1946	Operating
Savannah Sugar Refinery	SERC	STHRN	GEND	COAL (GENERIC)	5.0	4.7	5.0	4.8	198503	1985	Operating
Schahfer	ECAR	ECARSR	14	BITUMINOUS COAL	540.0	431.0	431.0	431.0	197612	1976	Operating
Schahfer	ECAR	ECARSR	15	SUBBITUMINOUS	556.4	472.0	472.0	472.0	197910	1979	Operating
Schahfer	ECAR	ECARSR	17	BITUMINOUS COAL	423.5	361.0	361.0	361.0	198304	1983	Operating
Schahfer	ECAR	ECARSR	18	BITUMINOUS COAL	423.5	361.0	361.0	361.0	198602	1986	Operating
Scherer	SERC	STHRN	1	BITUMINOUS COAL	818.0	840.0	891.0	870.0	198203	1982	Operating
Scherer	SERC	STHRN	2	BITUMINOUS COAL	818.0	856.0	891.0	873.5	198402	1984	Operating
Scherer	SERC	STHRN	3	BITUMINOUS COAL	818.0	875.0	891.0	883.0	198701	1987	Operating
Scherer	SERC	STHRN	4	BITUMINOUS COAL	818.0	894.7	891.0	892.9	198902	1989	Operating
Schiller Station	NPCC	NEPOOL	4	BITUMINOUS COAL	50.0	47.5	47.5	47.5	195210	1952	Operating
Schiller Station	NPCC	NEPOOL	5	BITUMINOUS COAL	50.0	49.6	49.6	49.6	195505	1955	Operating
Schiller Station	NPCC	NEPOOL	6	BITUMINOUS COAL	50.0	48.0	48.0	48.0	195707	1957	Operating
Scholz	SERC	STHRN	1	BITUMINOUS COAL	49.0	47.6	47.6	47.6	195303	1953	Operating
Scholz	SERC	STHRN	2	BITUMINOUS COAL	49.0	47.5	47.5	47.5	195310	1953	Operating
Scott-SD Warren (Westbrook)	NPCC	NEPOOL	10	BITUMINOUS COAL	15.0	14.1	15.0	14.5	198504	1985	Operating
Scott-SD Warren (Westbrook)	NPCC	NEPOOL	8	BITUMINOUS COAL	10.0	9.4	10.0	9.7	198906	1989	Operating
Scrubgrass Generating Co.	MAAC	PJM	1	BITUMINOUS COAL	94.7	88.8	94.7	91.8	199306	1993	Operating
Seaford Plant	MAAC	PJM	ST1	COAL (GENERIC)	10.0	9.0	10.0	9.5	193901	1939	Operating
Seaford Plant	MAAC	PJM	ST2	COAL (GENERIC)	10.0	9.0	10.0	9.5	193901	1939	Operating
Seaford Plant	MAAC	PJM	ST3	COAL (GENERIC)	10.0	10.0	10.0	10.0	193901	1939	Operating
Seminole (SECI)	FRCC	FRCCSR	1	BITUMINOUS COAL	714.6	625.0	636.0	630.5	198402	1984	Operating
Seminole (SECI)	FRCC	FRCCSR	2	BITUMINOUS COAL	714.6	625.0	636.0	630.5	198501	1985	Operating
Seward (RELIANT)	MAAC	PJM	4	BITUMINOUS COAL	62.0	60.0	62.0	61.0	195006	1950	Operating
Seward (RELIANT)	MAAC	PJM	5	BITUMINOUS COAL	156.2	136.0	137.0	136.5	195704	1957	Operating
SF Phosphates Limited Co.	WECC	NWPA	1	SUBBITUMINOUS	11.5	10.7	11.5	11.1	198608	1986	Operating
Shawnee (TVA)	SERC	TVA	1	BITUMINOUS COAL	175.0	134.0	138.0	136.0	195304	1953	Operating
Shawnee (TVA)	SERC	TVA	10	BITUMINOUS COAL	175.0	124.0	127.0	125.5	195610	1956	Operating
Shawnee (TVA)	SERC	TVA	2	BITUMINOUS COAL	175.0	134.0	138.0	136.0	195306	1953	Operating
Shawnee (TVA)	SERC	TVA	3	BITUMINOUS COAL	175.0	134.0	138.0	136.0	195310	1953	Operating
Shawnee (TVA)	SERC	TVA	4	BITUMINOUS COAL	175.0	134.0	138.0	136.0	195401	1954	Operating
Shawnee (TVA)	SERC	TVA	5	BITUMINOUS COAL	175.0	134.0	138.0	136.0	195410	1954	Operating
Shawnee (TVA)	SERC	TVA	6	BITUMINOUS COAL	175.0	134.0	138.0	136.0	195411	1954	Operating
Shawnee (TVA)	SERC	TVA	7	BITUMINOUS COAL	175.0	134.0	138.0	136.0	195412	1954	Operating
Shawnee (TVA)	SERC	TVA	8	BITUMINOUS COAL	175.0	134.0	138.0	136.0	195503	1955	Operating
Shawnee (TVA)	SERC	TVA	9	BITUMINOUS COAL	175.0	134.0	138.0	136.0	195507	1955	Operating
Shawville	MAAC	PJM	1	BITUMINOUS COAL	125.0	122.0	128.0	125.0	195408	1954	Operating
Shawville	MAAC	PJM	2	BITUMINOUS COAL	125.0	125.0	130.0	127.5	195403	1954	Operating
Shawville	MAAC	PJM	3	BITUMINOUS COAL	191.0	175.0	180.0	177.5	195912	1959	Operating
Shawville	MAAC	PJM	4	BITUMINOUS COAL	191.0	175.0	180.0	177.5	196004	1960	Operating
Shelby Muni Lgt Plt	ECAR	ECARSR	1	BITUMINOUS COAL	12.5	12.0	12.0	12.0	196708	1967	Operating
Shelby Muni Lgt Plt	ECAR	ECARSR	2	BITUMINOUS COAL	12.5	12.0	12.0	12.0	197305	1973	Operating
Shelby Muni Lgt Plt	ECAR	ECARSR	3	BITUMINOUS COAL	5.0	5.0	5.0	5.0	194804	1948	Standby
Shelby Muni Lgt Plt	ECAR	ECARSR	4	BITUMINOUS COAL	7.5	7.0	7.0	7.0	195406	1954	Operating
Sheldon (NPPD)	MAPP	MAPPSR	1	SUBBITUMINOUS	108.8	105.0	105.0	105.0	196101	1961	Operating
Sheldon (NPPD)	MAPP	MAPPSR	2	SUBBITUMINOUS	119.9	120.0	120.0	120.0	196501	1965	Operating
Sherburne	MAPP	MAPPSR	1	SUBBITUMINOUS	750.0	721.0	750.0	735.5	197605	1976	Operating
Sherburne	MAPP	MAPPSR	2	SUBBITUMINOUS	660.0	721.0	721.0	721.0	197704	1977	Operating
Sherburne	MAPP	MAPPSR	3	SUBBITUMINOUS	860.0	871.0	871.0	871.0	198711	1987	Operating
Shiras	MAIN	MAINSR	1	BITUMINOUS COAL	12.5	12.5	12.5	12.5	196701	1967	Operating
Shiras	MAIN	MAINSR	3	SUBBITUMINOUS	43.7	43.7	43.7	43.7	198304	1983	Operating
Sibley (UTIL)	SPP	N	1	BITUMINOUS COAL	55.0	52.7	52.7	52.7	196006	1960	Operating
Sibley (UTIL)	SPP	N	2	BITUMINOUS COAL	50.0	52.7	52.7	52.7	196205	1962	Operating
Sibley (UTIL)	SPP	N	3	BITUMINOUS COAL	418.0	389.7	389.7	389.7	196906	1969	Operating
Sikeston	SPP	N	1	BITUMINOUS COAL	235.0	222.0	235.0	228.5	198108	1981	Operating
Silver Bay Power Co.	MAPP	MAPPSR	GEN1	COAL (GENERIC)	40.0	37.0	40.0	38.5	195510	1955	Operating
Silver Bay Power Co.	MAPP	MAPPSR	GEN2	COAL (GENERIC)	75.0	69.5	75.0	72.3	196201	1962	Operating
Silver Lake (RPU)	MAPP	MAPPSR	1	BITUMINOUS COAL	7.5	9.2	9.2	9.2	194808	1948	Operating
Silver Lake (RPU)	MAPP	MAPPSR	2	BITUMINOUS COAL	11.5	13.5	13.5	13.5	195312	1953	Operating
Silver Lake (RPU)	MAPP	MAPPSR	3	BITUMINOUS COAL	25.0	23.5	23.5	23.5	196211	1962	Operating
Silver Lake (RPU)	MAPP	MAPPSR	4	BITUMINOUS COAL	54.4	58.8	58.8	58.8	196912	1969	Operating
Sims	ECAR	ECARSR	3	BITUMINOUS COAL	65.0	66.3	66.3	66.3	198308	1983	Operating
Sioux	MAIN	MAINSR	1	BITUMINOUS COAL	549.8	461.0	470.0	465.5	196705	1967	Operating
Sioux	MAIN	MAINSR	2	BITUMINOUS COAL	549.8	461.0	470.0	465.5	196805	1968	Operating
Sixth Street	MAIN	MAINSR	1	BITUMINOUS COAL	10.0	3.0	6.0	4.5	192105	1921	Operating
Sixth Street	MAIN	MAINSR	2	BITUMINOUS COAL	6.0	3.0	3.0	3.0	193011	1930	Operating

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.008; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Sixth Street	MAIN	MAINSR	4	BITUMINOUS COAL	15.0	19.4	19.4	19.4	194206	1942	Operating
Sixth Street	MAIN	MAINSR	7	BITUMINOUS COAL	15.0	18.1	18.1	18.1	194503	1945	Operating
Sixth Street	MAIN	MAINSR	8	BITUMINOUS COAL	28.8	32.6	32.6	32.6	195010	1950	Operating
Smith (OMU)	ECAR	ECARSR	1	BITUMINOUS COAL	151.0	140.0	151.0	145.5	196404	1964	Operating
Smith (OMU)	ECAR	ECARSR	2	BITUMINOUS COAL	265.0	246.0	290.0	268.0	197403	1974	Operating
Smith (POTED)	ECAR	ECARSR	3	BITUMINOUS COAL	34.5	28.0	28.0	28.0	194710	1947	Operating
Smith (POTED)	ECAR	ECARSR	4	BITUMINOUS COAL	75.0	86.0	87.0	86.5	195811	1958	Operating
Snowflake Paper Mill	WECC	AZNMNV	ST1	BITUMINOUS COAL	27.2	26.1	27.2	26.7	197401	1974	Operating
Snowflake Paper Mill	WECC	AZNMNV	ST2	COAL (GENERIC)	43.4	41.7	43.4	42.5	196101	1961	Operating
Somerset	NPCC	NEPOOL	5	BITUMINOUS COAL	73.7	68.5	69.4	68.9	195111	1951	Operating
Somerset	NPCC	NEPOOL	6	BITUMINOUS COAL	112.0	111.0	111.0	111.0	195907	1959	Operating
Sooner	SPP	S	1	SUBBITUMINOUS	568.0	514.0	514.0	514.0	197911	1979	Operating
Sooner	SPP	S	2	SUBBITUMINOUS	568.0	517.0	517.0	517.0	198012	1980	Operating
Southampton (DOMENE)	SERC	VACAR	1	BITUMINOUS COAL	71.1	66.6	71.1	68.9	199203	1992	Operating
Southeast Missouri State Unive	MAIN	MAINSR	2	COAL (GENERIC)	6.3	6.0	6.3	6.1	197201	1972	Operating
Southwest	SPP	N	ST1	SUBBITUMINOUS	233.0	178.0	178.0	178.0	197606	1976	Operating
Spom	ECAR	ECARSR	1	BITUMINOUS COAL	152.5	145.0	150.0	147.5	195001	1950	Operating
Spom	ECAR	ECARSR	2	BITUMINOUS COAL	152.5	145.0	150.0	147.5	195007	1950	Operating
Spom	ECAR	ECARSR	3	BITUMINOUS COAL	152.5	145.0	150.0	147.5	195108	1951	Operating
Spom	ECAR	ECARSR	4	BITUMINOUS COAL	152.5	145.0	150.0	147.5	195202	1952	Operating
Spom	ECAR	ECARSR	5	BITUMINOUS COAL	495.6	440.0	450.0	445.0	196012	1960	Operating
Springerville	WECC	AZNMNV	1	SUBBITUMINOUS	424.8	400.0	400.0	400.0	198506	1985	Operating
Springerville	WECC	AZNMNV	2	SUBBITUMINOUS	424.8	400.0	400.0	400.0	199008	1990	Operating
Springfield (SPU)	MAPP	MAPPSR	4	BITUMINOUS COAL	4.0	4.0	4.0	4.0	196101	1961	Standby
Spurlock	ECAR	ECARSR	1	BITUMINOUS COAL	305.2	325.0	325.0	325.0	197709	1977	Operating
Spurlock	ECAR	ECARSR	2	BITUMINOUS COAL	508.3	525.0	525.0	525.0	198103	1981	Operating
St Nicholas Cogeneration Proj	MAAC	PJM	1	WASTE COAL	117.0	108.6	117.0	113.3	199009	1990	Operating
St. Clair	ECAR	ECARSR	1	BITUMINOUS COAL	168.8	163.0	163.0	163.0	195308	1953	Operating
St. Clair	ECAR	ECARSR	2	BITUMINOUS COAL	156.3	162.0	162.0	162.0	195311	1953	Operating
St. Clair	ECAR	ECARSR	3	BITUMINOUS COAL	156.3	163.0	163.0	163.0	195406	1954	Operating
St. Clair	ECAR	ECARSR	4	BITUMINOUS COAL	168.8	162.0	162.0	162.0	195410	1954	Operating
St. Clair	ECAR	ECARSR	6	BITUMINOUS COAL	352.8	321.0	321.0	321.0	196104	1961	Operating
St. Clair	ECAR	ECARSR	7	BITUMINOUS COAL	544.5	435.0	435.0	435.0	196904	1969	Operating
St. Johns River Power	FRCC	FRCCSR	1	BITUMINOUS COAL	679.0	624.0	638.0	631.0	198704	1987	Operating
St. Johns River Power	FRCC	FRCCSR	2	BITUMINOUS COAL	679.0	624.0	638.0	631.0	198805	1988	Operating
St. Marys (SMMLP)	ECAR	ECARSR	5	BITUMINOUS COAL	6.0	5.8	5.8	5.8	195701	1957	Operating
St. Marys (SMMLP)	ECAR	ECARSR	6	BITUMINOUS COAL	10.0	9.0	9.0	9.0	196704	1967	Operating
Stanton (GREARV)	MAPP	MAPPSR	1	LIGNITE	172.0	185.1	187.5	186.3	196704	1967	Operating
Stanton (GREARV)	MAPP	MAPPSR	10	LIGNITE	60.0	65.0	65.0	65.0	198201	1982	Operating
Stanton Energy Center	FRCC	FRCCSR	1	BITUMINOUS COAL	464.6	441.0	443.0	442.0	198707	1987	Operating
Stanton Energy Center	FRCC	FRCCSR	2	BITUMINOUS COAL	464.6	441.0	443.0	442.0	199606	1996	Operating
Stateline (DOMENE)	ECAR	ECARSR	3	SUBBITUMINOUS	225.0	187.0	187.0	187.0	195511	1955	Operating
Stateline (DOMENE)	ECAR	ECARSR	4	SUBBITUMINOUS	389.0	303.0	303.0	303.0	196205	1962	Operating
Stockton CoGen Co.	WECC	CAMX	1	BITUMINOUS COAL	55.1	51.6	55.1	53.4	198803	1988	Operating
Stone Container Corp (SSCC)	SERC	STHRN	1	COAL (GENERIC)	10.0	9.6	10.0	9.8	194903	1949	Operating
Stone Container Corp (SSCC)	SERC	STHRN	2	COAL (GENERIC)	20.0	19.2	20.0	19.6	195603	1956	Operating
Stone Container Corp (SSCC)	SERC	STHRN	3	COAL (GENERIC)	4.0	4.0	4.0	4.0	193005	1930	Operating
Stone Container Corp	MAIN	MAINSR	1	COAL (GENERIC)	14.8	14.3	14.6	14.6	196605	1966	Operating
Stoneman	MAPP	MAPPSR	1	BITUMINOUS COAL	15.0	17.8	17.8	17.8	195001	1950	Standby
Stoneman	MAPP	MAPPSR	2	BITUMINOUS COAL	33.0	35.8	35.8	35.8	195101	1951	Standby
Streeter Station	MAPP	MAPPSR	6	BITUMINOUS COAL	16.5	20.0	16.5	18.2	196309	1963	Operating
Streeter Station	MAPP	MAPPSR	7	BITUMINOUS COAL	35.0	36.6	36.6	36.6	197306	1973	Operating
Stuart	ECAR	ECARSR	1	BITUMINOUS COAL	610.2	585.0	585.0	585.0	197105	1971	Operating
Stuart	ECAR	ECARSR	2	BITUMINOUS COAL	610.2	585.0	585.0	585.0	197010	1970	Operating
Stuart	ECAR	ECARSR	3	BITUMINOUS COAL	610.2	585.0	585.0	585.0	197205	1972	Operating
Stuart	ECAR	ECARSR	4	BITUMINOUS COAL	610.2	585.0	585.0	585.0	197406	1974	Operating
Sunbury	MAAC	PJM	1	ANTHRACITE	75.0	70.0	76.0	73.0	194911	1949	Operating
Sunbury	MAAC	PJM	2	ANTHRACITE	75.0	70.0	76.0	73.0	194909	1949	Operating
Sunbury	MAAC	PJM	3	BITUMINOUS COAL	103.5	94.0	103.0	98.5	195104	1951	Operating
Sunbury	MAAC	PJM	4	BITUMINOUS COAL	156.3	128.0	134.0	131.0	195308	1953	Operating
Sunnyside Cogeneration (COOPSE	WECC	NWPA	1	WASTE COAL	58.1	51.0	58.1	54.6	199403	1994	Operating
Sutherland	MAIN	MAINSR	1	BITUMINOUS COAL	37.5	31.0	32.0	31.5	195505	1955	Operating
Sutherland	MAIN	MAINSR	2	BITUMINOUS COAL	37.5	31.0	32.0	31.5	195505	1955	Operating
Sutherland	MAIN	MAINSR	3	BITUMINOUS COAL	81.6	81.0	81.5	81.3	196101	1961	Operating
Sutton	SERC	VACAR	1	BITUMINOUS COAL	112.5	97.0	105.0	101.0	195408	1954	Operating
Sutton	SERC	VACAR	2	BITUMINOUS COAL	112.5	106.0	108.0	107.0	195505	1955	Operating
Sutton	SERC	VACAR	3	BITUMINOUS COAL	446.6	410.0	416.0	413.0	197206	1972	Operating
T B Simon Power Plant	ECAR	ECARSR	GEN1	COAL (GENERIC)	12.5	12.0	12.5	12.3	196512	1965	Operating
T B Simon Power Plant	ECAR	ECARSR	GEN2	COAL (GENERIC)	12.5	12.0	12.5	12.3	196609	1966	Operating
T B Simon Power Plant	ECAR	ECARSR	GEN3	COAL (GENERIC)	15.0	14.4	15.0	14.7	197412	1974	Operating
T B Simon Power Plant	ECAR	ECARSR	GEN4	COAL (GENERIC)	21.0	19.5	21.0	20.3	199311	1993	Operating
Taconite Harbor Power Plant	MAPP	MAPPSR	1	SUBBITUMINOUS	67.5	62.5	67.5	65.0	195701	1957	Operating
Taconite Harbor Power Plant	MAPP	MAPPSR	2	SUBBITUMINOUS	67.5	62.5	67.5	65.0	195701	1957	Operating
Taconite Harbor Power Plant	MAPP	MAPPSR	3	SUBBITUMINOUS	67.5	62.5	67.5	65.0	196701	1967	Operating
Tanners Creek	ECAR	ECARSR	1	BITUMINOUS COAL	152.5	140.0	145.0	142.5	195103	1951	Operating
Tanners Creek	ECAR	ECARSR	2	BITUMINOUS COAL	152.5	140.0	145.0	142.5	195211	1952	Operating
Tanners Creek	ECAR	ECARSR	3	BITUMINOUS COAL	215.4	200.0	205.0	202.5	195412	1954	Operating
Tanners Creek	ECAR	ECARSR	4	BITUMINOUS COAL	579.7	500.0	500.0	500.0	196407	1964	Operating
Teche	SPP	S	1	LIGNITE	25.0	23.0	23.0	23.0	195307	1953	Operating
Tecumseh Energy Center	SPP	N	7	SUBBITUMINOUS	82.0	85.0	85.0	85.0	195708	1957	Operating
Tecumseh Energy Center	SPP	N	8	SUBBITUMINOUS	150.0	158.0	158.0	158.0	196204	1962	Operating
Tennessee Eastman	SERC	TVA	TG10	COAL (GENERIC)	6.0	5.5	6.0	5.8	194602	1946	Operating
Tennessee Eastman	SERC	TVA	TG11	COAL (GENERIC)	6.0	5.5	6.0	5.8	194905	1949	Standby
Tennessee Eastman	SERC	TVA	TG12	COAL (GENERIC)	6.0	5.5	6.0	5.8	195302	1953	Operating
Tennessee Eastman	SERC	TVA	TG13	COAL (GENERIC)	7.0	6.4	7.0	6.7	196001	1960	Operating
Tennessee Eastman	SERC	TVA	TG14	COAL (GENERIC)	10.0	9.2	10.0	9.6	196204	1962	Operating
Tennessee Eastman	SERC	TVA	TG15	COAL (GENERIC)	7.5	6.9	7.5	7.2	196310	1963	Operating
Tennessee Eastman	SERC	TVA	TG16	COAL (GENERIC)	10.4	9.9	10.4	10.2	196607	1966	Operating
Tennessee Eastman	SERC	TVA	TG17	COAL (GENERIC)	10.4	9.9	10.4	10.2	196610	1966	Standby
Tennessee Eastman	SERC	TVA	TG18	COAL (GENERIC)	10.4	9.9	10.4	10.2	196707	1967	Operating
Tennessee Eastman	SERC	TVA	TG19	COAL (GENERIC)	10.4	9.9	10.4	10.2	197004	1970	Operating
Tennessee Eastman	SERC	TVA	TG20	COAL (GENERIC)	10.4	9.9	10.4	10.2	197204	1972	Operating

All Coal Unit Assumptions

Source: CostDat - System version 5.5.998; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Tennessee Eastman	SERC	TVA	TG21	COAL (GENERIC)	15.0	14.4	15.0	14.7	199007	1990	Operating
Tennessee Eastman	SERC	TVA	TG22	COAL (GENERIC)	15.0	14.4	15.0	14.7	198212	1982	Operating
Tennessee Eastman	SERC	TVA	TG24	COAL (GENERIC)	16.8	15.6	16.8	16.2	198307	1983	Operating
Tennessee Eastman	SERC	TVA	TG25	COAL (GENERIC)	18.0	16.8	18.0	17.4	199412	1994	Operating
Tennessee Eastman	SERC	TVA	TG26	COAL (GENERIC)	16.6	15.5	16.6	16.1	199410	1994	Standby
Tennessee Eastman	SERC	TVA	TG7	COAL (GENERIC)	6.0	5.4	6.0	5.7	193609	1936	Operating
Tennessee Eastman	SERC	TVA	TG8	COAL (GENERIC)	6.0	5.4	6.0	5.7	193909	1939	Standby
Tennessee Eastman	SERC	TVA	TG9	COAL (GENERIC)	6.0	5.5	6.0	5.8	194107	1941	Operating
TES Filer City Station	ECAR	ECARSR	1	BITUMINOUS COAL	70.0	60.0	63.0	61.5	199007	1990	Operating
The Amalgamated Sugar Co.	WECC	NWPA	1	COAL (GENERIC)	1.5	1.4	1.5	1.5	194812	1948	Operating
The Amalgamated Sugar Co.	WECC	NWPA	2	COAL (GENERIC)	2.5	2.4	2.5	2.5	194812	1948	Operating
The Amalgamated Sugar Co.	WECC	NWPA	3	COAL (GENERIC)	6.3	5.8	6.3	6.0	199409	1994	Operating
Thilmany Pulp & Paper	MAIN	MAINSR	1	COAL (GENERIC)	6.0	5.6	6.0	5.8	195101	1951	Operating
Thilmany Pulp & Paper	MAIN	MAINSR	2	COAL (GENERIC)	11.0	10.2	11.0	10.6	197701	1977	Operating
Thilmany Pulp & Paper	MAIN	MAINSR	3	COAL (GENERIC)	15.6	14.5	15.6	15.0	196201	1962	Operating
Thilmany Pulp & Paper	MAIN	MAINSR	4	COAL (GENERIC)	7.5	7.0	7.5	7.2	196701	1967	Operating
Thomas Hill	SERC	ENTR	1	SUBBITUMINOUS	180.0	175.0	175.0	175.0	196611	1966	Operating
Thomas Hill	SERC	ENTR	2	SUBBITUMINOUS	285.0	275.0	275.0	275.0	196903	1969	Operating
Thomas Hill	SERC	ENTR	3	SUBBITUMINOUS	670.0	670.0	670.0	670.0	198206	1982	Operating
Titus	MAAC	PJM	1	BITUMINOUS COAL	75.0	81.0	83.0	82.0	195103	1951	Operating
Titus	MAAC	PJM	2	BITUMINOUS COAL	75.0	81.0	83.0	82.0	195106	1951	Operating
Titus	MAAC	PJM	3	BITUMINOUS COAL	75.0	81.0	83.0	82.0	195304	1953	Operating
Tobaccoville Utility Plant	SERC	VACAR	GEN1	BITUMINOUS COAL	40.0	37.5	40.0	38.7	198506	1985	Operating
Tobaccoville Utility Plant	SERC	VACAR	GEN2	BITUMINOUS COAL	40.0	37.5	40.0	38.7	198509	1985	Operating
Tolk	SPP	S	1	BITUMINOUS COAL	568.0	540.0	540.0	540.0	198207	1982	Operating
Tolk	SPP	S	2	BITUMINOUS COAL	568.0	540.0	540.0	540.0	198506	1985	Operating
Traverse (Bayside)	ECAR	ECARSR	1	BITUMINOUS COAL	2.5	3.1	3.1	3.1	194601	1946	Operating
Traverse (Bayside)	ECAR	ECARSR	2	BITUMINOUS COAL	5.0	6.1	6.1	6.1	195001	1950	Operating
Traverse (Bayside)	ECAR	ECARSR	4	BITUMINOUS COAL	14.0	15.1	15.1	15.1	196801	1968	Operating
Trenton Channel	ECAR	ECARSR	7	BITUMINOUS COAL	120.0	105.0	105.0	105.0	194906	1949	Operating
Trenton Channel	ECAR	ECARSR	8	BITUMINOUS COAL	120.0	105.0	105.0	105.0	195002	1950	Operating
Trenton Channel	ECAR	ECARSR	9	BITUMINOUS COAL	535.5	515.0	515.0	515.0	196801	1968	Operating
Trimble County	ECAR	ECARSR	1	BITUMINOUS COAL	566.1	495.0	495.0	495.0	199012	1990	Operating
Trinidad (TRIN)	WECC	RMPA	1	BITUMINOUS COAL	3.8	3.8	3.8	3.8	195005	1950	Operating
Tuscola Plant	MAIN	MAINSR	1	COAL (GENERIC)	6.0	6.0	6.0	6.0	195501	1955	Operating
Tuscola Plant	MAIN	MAINSR	2	COAL (GENERIC)	6.0	6.0	6.0	6.0	195501	1955	Operating
Tuscola Plant	MAIN	MAINSR	3	COAL (GENERIC)	6.0	6.0	6.0	6.0	199012	1990	Operating
Twin Oaks Power	ERCOT	ERCOTS	1	LIGNITE	174.6	148.0	152.0	150.0	199009	1990	Operating
Twin Oaks Power	ERCOT	ERCOTS	2	LIGNITE	174.6	150.0	152.0	151.0	199110	1991	Operating
Tyrone (KUC)	ECAR	ECARSR	3	BITUMINOUS COAL	75.0	72.0	73.0	72.5	195307	1953	Operating
Tyrone (WVC)	MAAC	PJM	TG3	COAL (GENERIC)	2.5	2.5	2.5	2.5	192901	1929	Standby
Tyrone (WVC)	MAAC	PJM	TG4	COAL (GENERIC)	4.5	4.5	4.5	4.5	193001	1930	Standby
Tyrone (WVC)	MAAC	PJM	TG5	COAL (GENERIC)	3.0	3.0	3.0	3.0	193601	1936	Standby
Tyrone (WVC)	MAAC	PJM	TG6	COAL (GENERIC)	7.5	7.2	7.5	7.4	195801	1958	Operating
U.S. Agri-Chemicals Corporatio	FRCC	FRCCSR	1	SUBBITUMINOUS	32.0	29.7	32.0	30.9	198201	1982	Operating
U.S. Alliance	SERC	STHRN	1	COAL (GENERIC)	5.0	4.8	5.0	4.9	194201	1942	Operating
U.S. Alliance	SERC	STHRN	2	COAL (GENERIC)	5.0	4.8	5.0	4.9	194201	1942	Operating
U.S. Alliance	SERC	STHRN	3	COAL (GENERIC)	5.0	4.8	5.0	4.9	194201	1942	Operating
U.S. Alliance	SERC	STHRN	4	COAL (GENERIC)	5.0	4.8	5.0	4.9	194201	1942	Operating
U.S. Alliance	SERC	STHRN	5	COAL (GENERIC)	5.0	4.8	5.0	4.9	194201	1942	Operating
U.S. Alliance	SERC	STHRN	6	COAL (GENERIC)	12.5	12.0	12.5	12.3	196801	1968	Operating
UAE Mecklenburg	SERC	VACAR	1	BITUMINOUS COAL	66.0	66.0	66.0	66.0	199211	1992	Operating
UAE Mecklenburg	SERC	VACAR	2	BITUMINOUS COAL	66.0	66.0	66.0	66.0	199211	1992	Operating
UNC-Chapel Hill Power Plant	SERC	VACAR	1	COAL (GENERIC)	28.0	26.2	28.0	27.1	199107	1991	Operating
University of Alaska Fairbanks	ASCC	ASCCSR	1	COAL (GENERIC)	1.5	1.4	1.5	1.4	196401	1964	Standby
University of Alaska Fairbanks	ASCC	ASCCSR	2	COAL (GENERIC)	1.5	1.4	1.5	1.4	196401	1964	Standby
University of Alaska Fairbanks	ASCC	ASCCSR	3	COAL (GENERIC)	10.0	9.4	10.0	9.7	198104	1981	Operating
University of Iowa - Main Powe	MAPP	MAPPSR	ST1	COAL (GENERIC)	3.0	2.8	3.0	2.9	194701	1947	Operating
University of Iowa - Main Powe	MAPP	MAPPSR	ST2	COAL (GENERIC)	3.0	2.8	3.0	2.9	195601	1956	Operating
University of Iowa - Main Powe	MAPP	MAPPSR	ST3	COAL (GENERIC)	15.0	13.9	15.0	14.5	197401	1974	Operating
University of Missouri-Columbi	MAIN	MAINSR	GEN1	COAL (GENERIC)	6.2	5.7	6.2	6.0	196101	1961	Operating
University of Missouri-Columbi	MAIN	MAINSR	GEN2	COAL (GENERIC)	12.5	12.0	12.5	12.3	197401	1974	Operating
University of Missouri-Columbi	MAIN	MAINSR	GEN3	COAL (GENERIC)	19.5	18.6	19.5	19.1	198601	1986	Standby
University of Missouri-Columbi	MAIN	MAINSR	GEN4	COAL (GENERIC)	14.5	13.4	14.5	14.0	198801	1988	Operating
Urquhart - SCEG	SERC	VACAR	1	BITUMINOUS COAL	75.0	75.0	76.0	75.5	195312	1953	Operating
Urquhart - SCEG	SERC	VACAR	2	BITUMINOUS COAL	75.0	75.0	76.0	75.5	195402	1954	Operating
Urquhart - SCEG	SERC	VACAR	3	BITUMINOUS COAL	75.0	100.0	102.0	101.0	195511	1955	Operating
USDOE SRS (D-AREA)	SERC	VACAR	1	BITUMINOUS COAL	70.0	35.0	20.0	27.5	199510	1995	Operating
Valley (WEP)	MAIN	MAINSR	1	BITUMINOUS COAL	136.0	140.0	140.0	140.0	196806	1968	Operating
Valley (WEP)	MAIN	MAINSR	2	BITUMINOUS COAL	136.0	140.0	113.0	126.5	196903	1969	Operating
Valmont	WECC	RMPA	5	BITUMINOUS COAL	200.0	189.0	189.0	189.0	196401	1964	Operating
Vanderbilt University Power Pl	SERC	TVA	1	COAL (GENERIC)	6.5	6.1	6.5	6.3	198811	1988	Operating
Vanderbilt University Power Pl	SERC	TVA	2	COAL (GENERIC)	4.5	4.2	4.5	4.3	198907	1989	Operating
Vermillion (DMG)	MAIN	MAINSR	2	BITUMINOUS COAL	108.8	102.0	102.0	102.0	195611	1956	Operating
Vermillion (DMG)	MAIN	MAINSR	ST1	BITUMINOUS COAL	73.5	74.0	75.0	74.5	195505	1955	Operating
Victor J. Daniel	SERC	STHRN	1	BITUMINOUS COAL	500.0	478.3	478.3	478.3	197709	1977	Operating
Victor J. Daniel	SERC	STHRN	2	BITUMINOUS COAL	500.0	478.3	478.3	478.3	198106	1981	Operating
Virginia	MAPP	MAPPSR	1A	SUBBITUMINOUS	4.0	4.0	4.0	4.0	199208	1992	Operating
Virginia	MAPP	MAPPSR	5	SUBBITUMINOUS	7.5	8.0	8.0	8.0	195401	1954	Operating
Virginia	MAPP	MAPPSR	6	SUBBITUMINOUS	18.5	16.5	18.5	17.5	197101	1971	Operating
W.H. Zimmer	ECAR	ECARSR	ST1	BITUMINOUS COAL	1,425.6	1,300.0	1,300.0	1,300.0	199103	1991	Operating
Wabash River	ECAR	ECARSR	2	BITUMINOUS COAL	112.5	85.0	85.0	85.0	195308	1953	Operating
Wabash River	ECAR	ECARSR	3	BITUMINOUS COAL	123.3	85.0	85.0	85.0	195409	1954	Operating
Wabash River	ECAR	ECARSR	4	BITUMINOUS COAL	112.5	85.0	85.0	85.0	195412	1954	Operating
Wabash River	ECAR	ECARSR	5	BITUMINOUS COAL	125.0	95.0	95.0	95.0	195605	1956	Operating
Wabash River	ECAR	ECARSR	6	BITUMINOUS COAL	387.0	318.0	318.0	318.0	196808	1968	Operating
Wagner	MAAC	PJM	2	BITUMINOUS COAL	136.0	135.0	135.0	135.0	195901	1959	Operating
Wagner	MAAC	PJM	3	BITUMINOUS COAL	359.0	324.0	332.0	328.0	196608	1966	Operating
Wansley	SERC	STHRN	1	BITUMINOUS COAL	952.0	891.0	891.0	891.0	197612	1976	Operating
Wansley	SERC	STHRN	2	BITUMINOUS COAL	952.0	892.0	892.0	892.0	197804	1978	Operating
Warren (RELIANT)	MAAC	PJM	1	BITUMINOUS COAL	42.3	41.0	41.0	41.0	194809	1948	Operating
Warren (RELIANT)	MAAC	PJM	2	BITUMINOUS COAL	73.8	73.5	73.5	73.5	194903	1949	Operating

All Coal Unit Assumptions

Source: CoalDat - System version 5.5.998; Data version 5.5.0703

Plant	Plant NERC Region	Plant NERC Sub-Region	Unit	Unit Primary Fuel	Original Nameplate (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Average Capacity (MW)	On-line Date (YYYYMM)	Online Year	Unit Status Descr
Warrick	ECAR	ECARSR	1	BITUMINOUS COAL	144.0	139.7	132.3	136.0	196004	1960	Operating
Warrick	ECAR	ECARSR	2	BITUMINOUS COAL	144.0	139.7	132.3	136.0	196401	1964	Operating
Warrick	ECAR	ECARSR	3	BITUMINOUS COAL	144.0	139.7	132.3	136.0	196501	1965	Operating
Warrick	ECAR	ECARSR	4	BITUMINOUS COAL	323.0	270.0	270.0	270.0	197012	1970	Operating
Washington State University	WECC	NWPA	1	COAL (GENERIC)	2.0	1.9	2.0	2.0	196310	1963	Operating
Waterloo (SOCG)	SERC	VACAR	1	BITUMINOUS COAL	385.9	350.0	360.0	355.0	197009	1970	Operating
Waterloo (SOCG)	SERC	VACAR	2	BITUMINOUS COAL	385.9	350.0	360.0	355.0	197112	1971	Operating
Waukegan (MIDGEN)	MAIN	MAINSR	6	SUBBITUMINOUS	121.0	100.0	100.0	100.0	195201	1952	Operating
Waukegan (MIDGEN)	MAIN	MAINSR	7	SUBBITUMINOUS	326.4	328.0	328.0	328.0	195606	1956	Operating
Waukegan (MIDGEN)	MAIN	MAINSR	8	SUBBITUMINOUS	355.3	361.0	361.0	361.0	196207	1962	Operating
Waupun Correctional Institutio	MAIN	MAINSR	1	COAL (GENERIC)	1.0	1.0	1.0	1.0	195105	1951	Standby
Waupun Correctional Institutio	MAIN	MAINSR	2	COAL (GENERIC)	1.0	1.0	1.0	1.0	195105	1951	Operating
Waynesboro Virginia Plant	SERC	VACAR	1	COAL (GENERIC)	3.0	3.0	3.0	3.0	192901	1929	Operating
Waynesboro Virginia Plant	SERC	VACAR	2	COAL (GENERIC)	3.0	3.0	3.0	3.0	192901	1929	Operating
Waynesboro Virginia Plant	SERC	VACAR	3	COAL (GENERIC)	3.0	3.0	3.0	3.0	192901	1929	Operating
Waynesboro Virginia Plant	SERC	VACAR	4	COAL (GENERIC)	3.4	3.4	3.4	3.4	192901	1929	Operating
WCI Steel Inc.	ECAR	ECARSR	1	COAL (GENERIC)	3.0	3.0	3.0	3.0	193410	1934	Operating
WCI Steel Inc.	ECAR	ECARSR	2	COAL (GENERIC)	7.5	7.5	7.5	7.5	194003	1940	Operating
WCI Steel Inc.	ECAR	ECARSR	3	COAL (GENERIC)	10.0	9.3	10.0	9.7	198112	1981	Standby
Weadock	ECAR	ECARSR	7	BITUMINOUS COAL	156.3	155.0	155.0	155.0	195505	1955	Operating
Weadock	ECAR	ECARSR	8	BITUMINOUS COAL	156.3	155.0	155.0	155.0	195801	1958	Operating
Weatherspoon	SERC	VACAR	1	BITUMINOUS COAL	46.0	49.0	49.0	49.0	194909	1949	Operating
Weatherspoon	SERC	VACAR	2	BITUMINOUS COAL	46.0	49.0	49.0	49.0	195006	1950	Operating
Weatherspoon	SERC	VACAR	3	BITUMINOUS COAL	73.5	78.0	79.0	78.5	195206	1952	Operating
Welsh (SWEP)	SPP	S	1	SUBBITUMINOUS	558.0	528.0	528.0	528.0	197703	1977	Operating
Welsh (SWEP)	SPP	S	2	SUBBITUMINOUS	558.0	528.0	528.0	528.0	198004	1980	Operating
Welsh (SWEP)	SPP	S	3	SUBBITUMINOUS	558.0	528.0	528.0	528.0	198203	1982	Operating
Weston (WPS)	MAIN	MAINSR	1	SUBBITUMINOUS	60.0	61.5	67.5	64.5	195411	1954	Operating
Weston (WPS)	MAIN	MAINSR	2	SUBBITUMINOUS	75.0	81.8	86.3	84.1	196009	1960	Operating
Weston (WPS)	MAIN	MAINSR	3	SUBBITUMINOUS	321.6	334.3	337.5	335.9	198112	1981	Operating
Westwood Generating Station	MAAC	PJM	GEN1	ANTHRACITE	30.0	31.6	34.0	32.8	198509	1985	Operating
Wheelabrator Frackville Energy	MAAC	PJM	GEN1	WASTE COAL	48.0	45.0	48.0	46.5	198809	1988	Operating
Whelan Energy Center	MAPP	MAPPSR	1	SUBBITUMINOUS	76.3	72.0	72.0	72.0	198107	1981	Operating
White Bluff	SERC	ENTR	1	SUBBITUMINOUS	850.0	815.0	815.0	815.0	198008	1980	Operating
White Bluff	SERC	ENTR	2	SUBBITUMINOUS	850.0	844.0	844.0	844.0	198107	1981	Operating
Whitewater	ECAR	ECARSR	1	BITUMINOUS COAL	33.0	34.8	34.8	34.8	195503	1955	Operating
Whitewater	ECAR	ECARSR	2	BITUMINOUS COAL	60.9	65.1	65.1	65.1	197308	1973	Operating
Whiting (CEC)	ECAR	ECARSR	1	BITUMINOUS COAL	100.0	95.0	95.0	95.0	195207	1952	Operating
Whiting (CEC)	ECAR	ECARSR	2	BITUMINOUS COAL	100.0	95.0	95.0	95.0	195212	1952	Operating
Whiting (CEC)	ECAR	ECARSR	3	BITUMINOUS COAL	125.0	120.0	120.0	120.0	195311	1953	Operating
Widows Creek	SERC	TVA	1	BITUMINOUS COAL	140.6	111.0	113.0	112.0	195207	1952	Operating
Widows Creek	SERC	TVA	2	BITUMINOUS COAL	140.6	111.0	113.0	112.0	195210	1952	Operating
Widows Creek	SERC	TVA	3	BITUMINOUS COAL	140.6	111.0	113.0	112.0	195211	1952	Operating
Widows Creek	SERC	TVA	4	BITUMINOUS COAL	140.6	111.0	113.0	112.0	195301	1953	Operating
Widows Creek	SERC	TVA	5	BITUMINOUS COAL	140.6	111.0	113.0	112.0	195406	1954	Operating
Widows Creek	SERC	TVA	6	BITUMINOUS COAL	140.6	111.0	113.0	112.0	195407	1954	Operating
Widows Creek	SERC	TVA	7	BITUMINOUS COAL	575.0	477.0	480.0	478.5	196102	1961	Operating
Widows Creek	SERC	TVA	8	BITUMINOUS COAL	550.0	467.0	471.0	469.0	196502	1965	Operating
Will County	MAIN	MAINSR	1	SUBBITUMINOUS	187.5	151.0	156.0	153.5	195507	1955	Operating
Will County	MAIN	MAINSR	2	SUBBITUMINOUS	163.8	148.0	154.0	151.0	195503	1955	Operating
Will County	MAIN	MAINSR	3	SUBBITUMINOUS	299.2	251.0	262.0	256.5	195706	1957	Operating
Will County	MAIN	MAINSR	4	SUBBITUMINOUS	598.4	510.0	520.0	515.0	196306	1963	Operating
Williams-ST	SERC	VACAR	ST1	BITUMINOUS COAL	632.7	615.0	615.0	615.0	197307	1973	Operating
Willmar	MAPP	MAPPSR	3	BITUMINOUS COAL	18.0	12.5	11.5	12.0	197011	1970	Operating
Willmar	MAPP	MAPPSR	ST2	BITUMINOUS COAL	8.0	7.5	7.0	7.3	195608	1956	Operating
Willow Island	ECAR	ECARSR	1	BITUMINOUS COAL	50.0	54.0	55.0	54.5	194902	1949	Operating
Willow Island	ECAR	ECARSR	2	BITUMINOUS COAL	163.2	161.0	168.0	164.5	196010	1960	Operating
Wilson (WKEC)	ECAR	ECARSR	ST1	BITUMINOUS COAL	440.0	420.0	435.0	427.5	198611	1986	Operating
Winyah	SERC	VACAR	1	BITUMINOUS COAL	315.0	295.0	295.0	295.0	197503	1975	Operating
Winyah	SERC	VACAR	2	BITUMINOUS COAL	340.0	295.0	295.0	295.0	197707	1977	Operating
Winyah	SERC	VACAR	3	BITUMINOUS COAL	340.0	295.0	295.0	295.0	198005	1980	Operating
Winyah	SERC	VACAR	4	BITUMINOUS COAL	315.0	270.0	270.0	270.0	198111	1981	Operating
Wood River (DMG)	MAIN	MAINSR	4	BITUMINOUS COAL	112.5	96.0	99.0	97.5	195406	1954	Operating
Wood River (DMG)	MAIN	MAINSR	5	BITUMINOUS COAL	387.6	372.0	379.0	375.5	196407	1964	Operating
Wright (FRE)	MAPP	MAPPSR	6	SUBBITUMINOUS	16.5	15.0	15.0	15.0	195708	1957	Operating
Wright (FRE)	MAPP	MAPPSR	7	SUBBITUMINOUS	22.0	20.0	20.0	20.0	196308	1963	Operating
Wright (FRE)	MAPP	MAPPSR	8	SUBBITUMINOUS	91.5	85.0	85.0	85.0	197701	1977	Operating
Wyandotte (WYAN)	ECAR	ECARSR	7	BITUMINOUS COAL	32.0	32.0	32.0	32.0	198607	1986	Operating
Wyandotte (WYAN)	ECAR	ECARSR	8	BITUMINOUS COAL	30.0	30.0	30.0	30.0	199204	1992	Operating
Wyodak	WECC	NWPA	1	SUBBITUMINOUS	362.1	335.0	344.0	339.5	197809	1978	Operating
Yates	SERC	STHRN	1	BITUMINOUS COAL	100.0	102.1	122.5	112.3	195009	1950	Operating
Yates	SERC	STHRN	2	BITUMINOUS COAL	100.0	100.2	122.5	111.4	195011	1950	Operating
Yates	SERC	STHRN	3	BITUMINOUS COAL	100.0	105.8	122.5	114.2	195208	1952	Operating
Yates	SERC	STHRN	4	BITUMINOUS COAL	125.0	134.4	156.3	145.3	195706	1957	Operating
Yates	SERC	STHRN	5	BITUMINOUS COAL	125.0	137.9	156.3	147.1	195805	1958	Operating
Yates	SERC	STHRN	6	BITUMINOUS COAL	350.0	352.3	403.8	378.0	197407	1974	Operating
Yates	SERC	STHRN	7	BITUMINOUS COAL	403.8	345.5	345.5	345.5	197404	1974	Operating
Yorktown	SERC	VACAR	1	BITUMINOUS COAL	187.5	159.0	163.0	161.0	195707	1957	Operating
Yorktown	SERC	VACAR	2	BITUMINOUS COAL	187.5	167.0	172.0	169.5	195901	1959	Operating
Young	MAPP	MAPPSR	1	LIGNITE	256.9	250.0	250.0	250.0	197011	1970	Operating
Young	MAPP	MAPPSR	2	LIGNITE	477.0	470.0	470.0	470.0	197705	1977	Operating

Area From	Area To	Capacity MW	Losses Fraction	Wheeling $/MWh
ECAR-MECS	NPCC-Canada-ON-West	1,750	0.01	0.50
ECAR-MECS	ECAR-Northeast	2,500	0.01	0.50
ECAR-MECS	ECAR-Southwest	2,500	0.01	0.50
FRCC-East	SERC-South	1,412	0.03	1.00
FRCC-East	FRCC-West	2,000	0.03	1.00
MAAC-PJM-East	SERC-VACAR	0	0.03	1.00
MAAC-PJM-East	NPCC-NYiso-J-NYC	696	0.01	1.00
MAAC-PJM-East	MAAC-PJM-Central	6,864	0.01	0.33
MAAC-PJM-internalWest	NPCC-NYiso-A-West	1,462	0.01	1.00
MAAC-PJM-internalWest	SERC-VACAR	4,000	0.03	1.00
MAAC-PJM-internalWest	NPCC-NYiso-C-Central	780	0.01	1.00
MAAC-PJM-internalWest	NPCC-NYiso-G-HudsonValley	1,511	0.01	1.00
MAAC-PJM-internalWest	MAAC-PJM-Central	5,016	0.01	0.33
MAAC-PJM-internalWest	ECAR-Northeast	5,000	0.01	1.50
MAIN-SMAIN	MAPP-US	630	0.03	1.00
MAIN-SMAIN	SERC-TVA	1,775	0.03	1.00
MAIN-SMAIN	SERC-Entergy	1,401	0.03	1.00
MAIN-SMAIN	SPP	1,180	0.03	1.00
MAIN-SMAIN	MAIN-NI	2,625	0.01	0.50
MAIN-SMAIN	MAIN-ALTW	950	0.01	0.50
MAIN-SMAIN	ECAR-Southwest	1,728	0.03	1.00
MAPP-US	MAIN-SMAIN	920	0.03	1.00
MAPP-US	SERC-Entergy	2,000	0.03	1.00
MAPP-US	SPP	1,400	0.03	1.00
MAPP-US	NPCC-Canada-ON-West	100	0.03	1.00
MAPP-US	MAIN-WUMS	1,075	0.03	1.00
MAPP-US	MAIN-NI	566	0.03	1.00
MAPP-US	MAIN-ALTW	1,027	0.03	1.00
MAPP-US	WECC-Montana	510	0.03	1.00
MAPP-US	MAPP-Saskatchewan	126	0.01	0.50
MAPP-US	MAPP-Manitoba	524	0.01	0.50
NPCC-Canada-Quebec	NPCC-isoNE-Maine	2,485	0.03	1.00
NPCC-Canada-Quebec	NPCC-NYiso-D-North	1,500	0.01	1.00
NPCC-Canada-Quebec	NPCC-isoNE-NorthCentral	225	0.03	1.00
NPCC-Canada-Quebec	NPCC-isoNE-Massachusetts	1,500	0.03	1.00
NPCC-isoNE-Maine	NPCC-Canada-NewBrunswick	700	0.02	0.50
NPCC-isoNE-Maine	NPCC-isoNE-NorthCentral	1,700	0.005	0.50
NPCC-NYiso-A-West	MAAC-PJM-internalWest	80	0.01	1.00

Area From	Area To	Capacity MW	Losses Fraction	Wheeling $/MWh
NPCC-NYiso-A-West	NPCC-NYiso-B-Genesee	3,700	0.01	0.00
NPCC-NYiso-A-West	NPCC-Canada-ON-Niagara	1,650	0.005	0.25
NPCC-NYiso-B-Genesee	NPCC-NYiso-A-West	3,700	0.01	0.00
NPCC-NYiso-B-Genesee	NPCC-NYiso-C-Central	2,425	0.01	0.00
SERC-South	FRCC-East	3,000	0.03	0.25
SERC-South	SERC-VACAR	1,823	0.03	1.00
SERC-South	SERC-TVA	2,424	0.03	1.00
SERC-South	SERC-Entergy	2,672	0.03	1.00
SERC-South	FRCC-West	1,179	0.03	0.00
SERC-VACAR	MAAC-PJM-East	0	0.03	1.00
SERC-VACAR	MAAC-PJM-internalWest	4,000	0.03	1.00
SERC-VACAR	SERC-South	4,177	0.03	1.00
SERC-VACAR	SERC-TVA	2,982	0.03	1.00
SERC-VACAR	ECAR-Northeast	2,000	0.03	1.00
SERC-VACAR	ECAR-Southwest	2,000	0.03	1.00
SERC-TVA	MAIN-SMAIN	1,925	0.03	1.00
SERC-TVA	SERC-South	2,976	0.03	1.00
SERC-TVA	SERC-VACAR	3,000	0.03	1.00
SERC-TVA	SERC-Entergy	2,861	0.03	1.00
SERC-TVA	ECAR-Southwest	4,030	0.03	1.00
SERC-Entergy	MAIN-SMAIN	1,099	0.03	1.00
SERC-Entergy	MAPP-US	1,800	0.03	1.00
SERC-Entergy	SERC-South	2,228	0.03	1.00
SERC-Entergy	SERC-TVA	2,539	0.03	1.00
SERC-Entergy	SPP	1,300	0.03	2.00
SERC-Entergy	MAIN-ALTW	1,095	0.03	1.00
SPP	MAIN-SMAIN	470	0.03	1.00
SPP	MAPP-US	1,729	0.03	1.00
SPP	SERC-Entergy	1,900	0.03	2.00
SPP	SERC-Entergy	1,900	0.03	2.00
SPP	ERCOT North	785	0.0075	1.00
NPCC-NYiso-C-Central	MAAC-PJM-internalWest	1,008	0.01	1.00
NPCC-NYiso-C-Central	NPCC-NYiso-B-Genesee	2,425	0.01	0.00
NPCC-NYiso-C-Central	NPCC-NYiso-E-MohawkValley	5,060	0.01	0.00
NPCC-NYiso-D-North	NPCC-Canada-Quebec	1,000	0.01	1.00
NPCC-NYiso-D-North	NPCC-NYiso-E-MohawkValley	1,875	0.01	0.00
NPCC-NYiso-D-North	NPCC-Canada-ON-East	400	0.01	1.00
NPCC-NYiso-D-North	NPCC-isoNE-NorthCentral	400	0.01	1.00

Area From	Area To	Capacity MW	Losses Fraction	Wheeling $/MWh
NPCC-NYiso-E-MohawkValley	NPCC-NYiso-C-Central	5,060	0.01	0.00
NPCC-NYiso-E-MohawkValley	NPCC-NYiso-D-North	1,600	0.01	0.00
NPCC-NYiso-E-MohawkValley	NPCC-NYiso-F-Capital	1,677	0.01	0.00
NPCC-NYiso-E-MohawkValley	NPCC-NYiso-G-HudsonValley	1,677	0.01	0.00
NPCC-NYiso-F-Capital	NPCC-NYiso-E-MohawkValley	1,677	0.01	0.00
NPCC-NYiso-F-Capital	NPCC-NYiso-G-HudsonValley	4,541	0.01	0.00
NPCC-NYiso-F-Capital	NPCC-isoNE-Massachusetts	400	0.01	1.00
NPCC-NYiso-G-HudsonValley	MAAC-PJM-internalWest	1,715	0.01	1.00
NPCC-NYiso-G-HudsonValley	NPCC-NYiso-E-MohawkValley	1,677	0.01	0.00
NPCC-NYiso-G-HudsonValley	NPCC-NYiso-F-Capital	4,541	0.01	0.00
NPCC-NYiso-G-HudsonValley	NPCC-NYiso-H-Millwood	5,490	0.01	0.00
NPCC-NYiso-G-HudsonValley	NPCC-isoNE-South	600	0.01	1.00
NPCC-NYiso-H-Millwood	NPCC-NYiso-G-HudsonValley	5,490	0.01	0.00
NPCC-NYiso-H-Millwood	NPCC-NYiso-I-Dunwoodie	8,025	0.01	0.00
NPCC-NYiso-I-Dunwoodie	NPCC-NYiso-H-Millwood	8,025	0.01	0.00
NPCC-NYiso-I-Dunwoodie	NPCC-NYiso-J-NYC	5,000	0.01	0.00
NPCC-NYiso-I-Dunwoodie	NPCC-NYiso-K-LongIsland	1,225	0.01	0.00
NPCC-NYiso-J-NYC	MAAC-PJM-East	327	0.01	1.00
NPCC-NYiso-J-NYC	NPCC-NYiso-I-Dunwoodie	5,000	0.01	0.00
NPCC-NYiso-J-NYC	NPCC-NYiso-K-LongIsland	1,000	0.01	0.00
NPCC-NYiso-K-LongIsland	NPCC-NYiso-I-Dunwoodie	1,225	0.01	0.00
NPCC-NYiso-K-LongIsland	NPCC-NYiso-J-NYC	1,000	0.01	0.00
NPCC-NYiso-K-LongIsland	NPCC-isoNE-South	330	0.01	1.00
MAAC-PJM-Central	MAAC-PJM-East	6,864	0.01	0.33
MAAC-PJM-Central	MAAC-PJM-internalWest	5,016	0.01	0.33
NPCC-Canada-NewBrunswick	NPCC-isoNE-Maine	700	0.02	0.50
NPCC-Canada-ON-Northwest	MAPP-Manitoba	488	0.02	1.00
NPCC-Canada-ON-West	ECAR-MECS	2,700	0.01	0.50
NPCC-Canada-ON-West	MAPP-US	150	0.03	1.00
NPCC-Canada-ON-East	NPCC-NYiso-D-North	400	0.01	0.50
NPCC-Canada-ON-Niagara	NPCC-NYiso-A-West	2,100	0.005	0.25
MAIN-WUMS	MAPP-US	925	0.03	1.00
MAIN-WUMS	MAIN-NI	551	0.01	0.50
MAIN-NI	MAIN-SMAIN	3,075	0.01	0.50
MAIN-NI	MAPP-US	884	0.03	1.00
MAIN-NI	MAIN-WUMS	1,549	0.01	0.50
MAIN-NI	MAIN-ALTW	950	0.01	0.50
MAIN-NI	ECAR-Southwest	4,052	0.03	1.00

Area From	Area To	Capacity MW	Losses Fraction	Wheeling $/MWh
MAIN-ALTW	MAIN-SMAIN	850	0.01	0.50
MAIN-ALTW	MAPP-US	873	0.03	1.00
MAIN-ALTW	SERC-Entergy	905	0.03	1.00
MAIN-ALTW	MAIN-NI	800	0.01	0.50
ECAR-Northeast	ECAR-MECS	1,500	0.01	0.50
ECAR-Northeast	MAAC-PJM-internalWest	2,500	0.01	1.50
ECAR-Northeast	SERC-VACAR	1,225	0.03	1.00
ECAR-Northeast	ECAR-Southwest	2,500	0.01	0.50
ECAR-Southwest	ECAR-MECS	1,500	0.01	0.50
ECAR-Southwest	MAIN-SMAIN	3,172	0.03	1.00
ECAR-Southwest	SERC-VACAR	1,225	0.03	1.00
ECAR-Southwest	SERC-TVA	1,970	0.03	1.00
ECAR-Southwest	MAIN-NI	3,248	0.03	1.00
ECAR-Southwest	ECAR-Northeast	1,500	0.01	0.50
ERCOT Houston	ERCOT North	2,500	0.0075	0.50
ERCOT Houston	ERCOT South	2,253	0.005	0.50
WECC-OR/WA/IDNorth	WECC-CaliforniaNorth	4,880	0.066	1.80
WECC-OR/WA/IDNorth	WECC-CaliforniaSouth	2,990	0.11	2.90
WECC-OR/WA/IDNorth	WECC-British Columbia	2,000	0.044	1.00
WECC-OR/WA/IDNorth	WECC-Idaho South	1,200	0.044	1.00
WECC-OR/WA/IDNorth	WECC-Montana	600	0.066	1.50
WECC-OR/WA/IDNorth	WECC-Nevada North	300	0.066	1.50
WECC-CaliforniaNorth	WECC-OR/WA/IDNorth	3,705	0.066	1.80
WECC-CaliforniaNorth	WECC-CaliforniaSouth	3,000	0.055	1.80
WECC-CaliforniaNorth	WECC-Nevada North	160	0.044	1.80
WECC-CaliforniaSouth	WECC-OR/WA/IDNorth	2,858	0.11	2.50
WECC-CaliforniaSouth	WECC-CaliforniaNorth	3,900	0.055	1.80
WECC-CaliforniaSouth	WECC-Arizona	0	0.0616	1.40
WECC-CaliforniaSouth	WECC-Utah	0	0.0902	2.05
WECC-CaliforniaSouth	WECC-Nevada North	0	0.055	1.25
WECC-CaliforniaSouth	WECC-Mexico-Baja CA North	796	0.01	1.80
WECC-CaliforniaSouth	WECC-Nevada South	0	0.01	0.50
WECC-British Columbia	WECC-OR/WA/IDNorth	3,150	0.044	1.00
WECC-British Columbia	WECC-Alberta	1,200	0.065	1.00
WECC-Idaho South	WECC-OR/WA/IDNorth	2,400	0.044	1.00
WECC-Idaho South	WECC-Montana	337	0.033	0.75
WECC-Idaho South	WECC-Wyoming	50	0.0396	0.90
WECC-Idaho South	WECC-Utah	1,500	0.0616	1.40

Area From	Area To	Capacity MW	Losses Fraction	Wheeling $/MWh
WECC-Idaho South	WECC-Nevada North	500	0.0396	0.90
WECC-Montana	MAPP-US	460	0.03	1.00
WECC-Montana	WECC-OR/WA/IDNorth	2,200	0.066	1.50
WECC-Montana	WECC-Idaho South	337	0.033	0.75
WECC-Montana	WECC-Wyoming	400	0.0484	1.10
WECC-Wyoming	WECC-Idaho South	2,200	0.0396	0.90
WECC-Wyoming	WECC-Montana	400	0.0484	1.10
WECC-Wyoming	WECC-Colorado	1,424	0.0506	1.15
WECC-Wyoming	WECC-Utah	400	0.0506	1.15
WECC-Colorado	WECC-Wyoming	1,424	0.0506	1.15
WECC-Colorado	WECC-New Mexico	600	0.0946	2.15
WECC-Colorado	WECC-Utah	550	0.0418	0.95
WECC-New Mexico	SPP	420	0.03	1.00
WECC-New Mexico	WECC-Colorado	600	0.0946	2.15
WECC-New Mexico	WECC-Arizona	1,500	0.0484	1.10
WECC-Arizona	WECC-CaliforniaSouth	2,516	0.0616	1.40
WECC-Arizona	WECC-New Mexico	1,500	0.0484	1.10
WECC-Arizona	WECC-Utah	850	0.0968	2.20
WECC-Arizona	WECC-Nevada South	814	0.01	0.50
WECC-Utah	WECC-CaliforniaSouth	1,920	0.0902	6.50
WECC-Utah	WECC-Idaho South	1,000	0.0616	1.40
WECC-Utah	WECC-Wyoming	420	0.0506	1.15
WECC-Utah	WECC-Colorado	550	0.0418	0.95
WECC-Utah	WECC-Arizona	820	0.0968	2.20
WECC-Utah	WECC-Nevada North	545	0.0528	4.50
WECC-Utah	WECC-Nevada South	300	0.01	0.50
WECC-Nevada North	WECC-OR/WA/IDNorth	300	0.066	1.50
WECC-Nevada North	WECC-CaliforniaNorth	160	0.044	1.00
WECC-Nevada North	WECC-CaliforniaSouth	18	0.055	1.25
WECC-Nevada North	WECC-Idaho South	360	0.0396	0.90
WECC-Nevada North	WECC-Utah	450	0.0528	1.20
WECC-Alberta	WECC-British Columbia	1,000	0.065	1.00
WECC-Alberta	MAPP-Saskatchewan	150	0.01	0.50
MAPP-Saskatchewan	MAPP-US	406	0.01	0.50
MAPP-Saskatchewan	WECC-Alberta	150	0.01	0.50
MAPP-Saskatchewan	MAPP-Manitoba	183	0.01	0.50
MAPP-Manitoba	MAPP-US	1,694	0.01	0.50
MAPP-Manitoba	NPCC-Canada-ON-Northwest	359	0.02	1.00

Area From	Area To	Capacity MW	Losses Fraction	Wheeling $/MWh
MAPP-Manitoba	MAPP-Saskatchewan	472	0.01	0.50
WECC-Mexico-Baja CA North	WECC-CaliforniaSouth	796	0.01	0.50
WECC-Nevada South	WECC-CaliforniaSouth	5,034	0.01	1.80
WECC-Nevada South	WECC-Arizona	0	0.01	0.50
WECC-Nevada South	WECC-Utah	300	0.01	1.80
NPCC-isoNE-South	NPCC-NYiso-G-HudsonValley	600	0.01	1.00
NPCC-isoNE-South	NPCC-NYiso-K-LongIsland	330	0.01	1.00
NPCC-isoNE-South	NPCC-isoNE-Massachusetts	3,500	0.005	0.50
NPCC-isoNE-NorthCentral	NPCC-Canada-Quebec	225	0.03	1.00
NPCC-isoNE-NorthCentral	NPCC-isoNE-Maine	1,600	0.005	0.50
NPCC-isoNE-NorthCentral	NPCC-NYiso-D-North	400	0.01	1.00
NPCC-isoNE-NorthCentral	NPCC-isoNE-Massachusetts	2,500	0.005	0.50
NPCC-isoNE-Massachusetts	NPCC-Canada-Quebec	1,500	0.03	1.00
NPCC-isoNE-Massachusetts	NPCC-NYiso-F-Capital	400	0.01	1.00
NPCC-isoNE-Massachusetts	NPCC-isoNE-South	2,800	0.005	0.50
NPCC-isoNE-Massachusetts	NPCC-isoNE-NorthCentral	4,000	0.005	0.50
NPCC-isoNE-Massachusetts	NPCC-isoNE-Boston	2,600	0.005	0.50
ERCOT North	SPP	949	0.0075	0.50
ERCOT North	ERCOT Houston	2,500	0.0075	0.50
ERCOT North	ERCOT South	1,665	0.0075	0.50
ERCOT North	ERCOT West	2,025	0.01	0.50
ERCOT South	ERCOT Houston	2,253	0.005	0.50
ERCOT South	ERCOT North	1,665	0.0075	0.50
ERCOT South	ERCOT West	323	0.01	0.50
ERCOT West	ERCOT North	2,025	0.01	0.50
ERCOT West	ERCOT South	323	0.01	0.50
NPCC-isoNE-Boston	NPCC-isoNE-Massachusetts	1,350	0.005	0.50
FRCC-West	FRCC-East	2,000	0.03	1.00
FRCC-West	SERC-South	688	0.03	5.00

Data Sources: Aurora standard transmission links between power areas, including

NERC - Summer and Winter Seasonal Assessment:

From the NERC Seasonal Assessments, locate a transmission map diagram with typical transfer limits among the separate NERC Reliability Regions.

Area From	Area To	Capacity MW	Losses Fraction	Wheeling $/MWh

NERC Seasonal Assessments - http://www.nerc.com/~filez/rasreports.html
NERC - Transmission Line Map - https://ssl.nerc.com/tlm/
NERC - http://www.nerc.com/

Additional regional detail used by EPIS includes:

ECAR

2001 Summer Assessment of Transmission System Performance 01-TSPP-3 -
http://www.ecar.org/publications/TSPP/default.htm

ERCOT
ERCOT - Control Area Map, Transmission Maps,
Public Utility Commission of Texas - Electric Retail Service Area Map -
http://www.puc.state.tx.us/electric/maps/index.cfm
System Planning Technical Operations - http://www.ercot.com/Participants/SystemPlanning.htm
Document Index - ftp://ftp.ercot.com/isodocs/isodocs.htm
Commercially Significant Constraints - ftp://ftp.ercot.com/CSCDATA/csc.htm
CSC MRS #7 presentation & TTC Results - ftp://ftp.ercot.com/CSCDATA/KenDCSCMRS7.ppt
Final Workbook - ftp://ftp.ercot.com/CSCDATA/FinalCM20012CSC3ZONES-C.zip

MAPP
MAPP - Principal Power Supply Facilities Map - http://www.mapp.org/content/library.shtml
MAPP - 2000 Regional Plan Map - Form4 - http://www.mapp.org/Library/2001_Form4.pdf
MAPP - 2001 Regional Plan update

WECC
From the WECC Information Summaries listed below, obtain transfer limits between WECC sub-regions.
WECC Information Summaries - http://www.wscc.com/documents/publications/info_sum.html
WECC - Purchase WSCC Maps - http://www.wscc.com/purchase_maps.html
WECC Maps & Diagrams - http://www.wscc.com/maps.html
California - CaliforniaNorth vs CaliforniaSouth
From the following set of maps, find detail on AURORA Area transmission within California

CAISO

Area From	Area To	Capacity MW	Losses Fraction	Wheeling $/MWh

California ISO Zone Map - http://www.caiso.com/docs/1999/11/16/19991116091901296l1.pdf
Network Model http://www.caiso.com/docs/09003a6080/11/62/09003a608011625b.pdf

CEC

California Major Electric Transmission Lines - http://www.energy.ca.gov/maps/transmission_lines.html
Map of Electric Utility Districts in California - 1996 - http://www.energy.ca.gov/maps/utility_service.html
Map of ISO Service Area in California - http://www.energy.ca.gov/maps/map_iso_area.html
Map of Power Plants in California - http://www.energy.ca.gov/maps/power_plant.html

LADWP - LADWP OASIS Path Map - http://www.swoasis.com/ldwp/pathmap8x10.jpg

Rocky Mountain Area

Colorado Coordinated Planning Group - http://ccpg.basinelectric.com/totemap.jpg
Rocky Mountain Area OASIS - Transmission Path Map - http://www.rmao.com/OASIS/NODE/

Pace Global Southeast Fuel Price Forecast

2004 Quarter 1 | 2002 $ | 7-Jan-04 | NERC Regions: | SERC

Source: Pace Global

Monthly Fuel Price Adjustment Factors

Month	Gas 2004	Gas 2005	Gas 2006+	#6	#2	Kero
Jan	130%	116%	111%	100%	100%	100%
Feb	130%	116%	111%	97%	97%	97%
Mar	113%	101%	101%	92%	94%	94%
Apr	102%	98%	97%	95%	96%	96%
May	97%	95%	95%	94%	97%	96%
Jun	95%	95%	95%	94%	93%	92%
Jul	94%	95%	95%	97%	95%	96%
Aug	96%	97%	96%	96%	100%	101%
Sep	96%	95%	96%	101%	100%	101%
Oct	95%	96%	97%	102%	100%	111%
Nov	93%	102%	102%	100%	102%	100%
Dec	97%	105%	106%	106%	103%	103%

	SERC										
	Henry Hub	Eastern Appalachia	Carolina Coast	Georgia	Alabama/FL Panhandle	North Mississippi Delta	Mississippi Delta	Lower Mississippi Valley	East Texas	South Central	E. Texas
1998	2.24	2.48	3.21	2.77	2.94	2.34	2.25	2.41	2.38	2.31	2.73
1999	2.43	2.66	3.41	2.89	3.06	2.54	2.45	2.61	2.48	2.39	2.93
2000	4.08	4.46	5.23	4.59	4.38	4.15	4.06	4.25	4.06	4.11	4.62
2001	4.37	4.22	5.06	4.76	4.57	4.42	4.34	4.52	4.37	4.47	4.66
2002	3.48	4.14	4.82	3.81	3.66	3.47	3.40	3.57	3.23	3.38	3.86
2003	5.38	4.60	4.76	5.84	5.95	5.44	5.36	5.54	5.17	5.21	5.67
2004	4.66	5.53	6.39	5.34	5.15	4.83	4.67	5.04	4.69	4.74	5.17
2005	4.52	4.80	5.60	4.75	4.57	4.37	4.31	4.47	4.35	4.35	4.61
2006	3.78	4.37	5.07	4.22	4.04	3.85	3.78	3.95	3.62	3.83	4.28
2007	3.72	4.36	5.06	4.15	3.87	3.78	3.71	3.84	3.75	3.78	4.21
2008	3.75	4.38	4.71	4.18	4.00	3.81	3.74	3.81	3.78	3.78	4.24
2009	3.71	4.31	4.68	4.16	3.96	3.78	3.72	3.86	3.76	3.77	4.22
2010	3.72	4.30	4.66	4.15	3.97	3.78	3.71	3.86	3.75	3.76	4.21
2011	3.78	4.36	4.66	4.13	3.95	3.78	3.69	3.86	3.73	3.74	4.18
2012	3.72	4.30	4.66	4.15	3.97	3.77	3.71	3.86	3.75	3.76	4.21
2013	3.74	4.32	4.70	4.17	3.99	3.79	3.73	3.89	3.77	3.78	4.23
2014	3.76	4.34	4.72	4.19	4.01	3.81	3.75	3.91	3.79	3.79	4.25
2015	3.77	4.35	4.73	4.20	4.02	3.83	3.77	3.93	3.81	3.81	4.26
2016	3.78	4.37	4.75	4.22	4.04	3.85	3.78	3.95	3.82	3.83	4.28
2017	3.81	4.39	4.77	4.24	4.06	3.87	3.81	3.97	3.84	3.85	4.30
2018	3.83	4.41	4.79	4.26	4.08	3.89	3.82	3.99	3.86	3.87	4.32
2019	3.85	4.43	4.81	4.28	4.10	3.91	3.84	4.01	3.88	3.89	4.34
2020	3.87	4.45	4.83	4.30	4.12	3.92	3.86	4.03	3.90	3.91	4.36

WTI Crude Oil Price Forecast

1998	3.71
1999	5.58
2000	9.57
2001	4.84
2002	4.48
2003	5.84
2004	4.61
2005	4.88
2006+	3.91

Fuel Oil Location Basis

Region	Cracking, CIF, Inc.	Basis
SERC	South Appalachia	0.11
	Central Texas	(0.03)
	North Texas	0.11
	Arkansas	0.29
	Mississippi	(0.07)
	Louisiana	(0.05)
	Alabama	(0.02)
	Georgia	0.09
	West Carolinas	0.03
	Carolina Coast	0.15
	Virginia	0.07
	Missouri	0.27

Crude Oil Refined Product Crack Spreads

	#2 Oil	LS #2 Oil	#6 0.3% Oil	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero
1998	0.83	4.75	4.15	(0.48)	(0.74)	1.12	1.06
1999	0.93	6.06	(0.09)	(0.39)	(0.64)	0.99	0.84
2000	4.22	5.87	4.34	(0.74)	(1.50)	2.65	1.93
2001	0.73	6.05	(0.32)	(1.08)	(1.43)	1.31	1.17
2002	0.47	4.81	(0.38)	(0.91)	(1.23)	1.42	0.99
2003	0.85	6.74	(0.28)	(0.73)	(1.14)	1.62	0.87
2004	0.95	4.77	(0.24)	(0.81)	(1.22)	1.67	0.90
2005	0.90	6.78	(0.24)	(0.81)	(1.23)	1.67	0.90
2006+	0.94	6.78	(0.24)	(0.81)	(1.23)	1.67	0.90

Fuel Oil

SERC

	South Appalachia							Central Texas							North Texas						
	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero
2004	5.27	5.49	4.49	3.81	3.58	5.79	5.61	5.13	5.35	4.34	3.77	3.36	5.45	5.47	5.28	5.50	4.49	3.81	3.58	5.80	5.62
2005	4.78	4.94	3.98	3.39	2.97	5.27	5.10	4.62	4.84	3.82	3.25	2.83	5.13	4.98	4.79	4.99	3.97	3.40	2.94	5.28	5.10
2006+	4.58	4.80	3.78	3.21	2.79	5.08	4.92	4.44	4.66	3.64	3.07	2.65	4.95	4.77	4.58	4.81	3.78	3.21	2.80	5.10	4.92

	Arkansas							Mississippi							Louisiana						
	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero
2004	5.37	5.59	4.58	4.01	3.59	5.68	5.71	5.18	5.32	4.38	3.73	3.32	5.02	5.44	5.68	5.30	4.38	3.71	3.30	5.68	5.42
2005	4.88	5.08	4.08	3.48	3.07	5.17	5.18	4.58	4.81	3.79	3.21	2.80	5.18	4.82	4.56	4.79	3.77	3.18	2.78	5.04	4.84
2006+	4.68	4.89	3.88	3.31	2.89	5.16	5.01	4.48	4.63	3.61	3.03	2.67	4.82	4.74	4.38	4.61	3.58	3.01	2.60	4.86	4.74

	Alabama							Georgia							West Carolinas						
	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero
2004	5.14	5.36	4.35	3.78	3.37	5.66	5.48	5.25	5.48	4.46	3.80	3.40	5.78	5.60	5.30	5.42	4.41	3.63	3.42	5.72	5.54
2005	4.63	4.85	3.83	3.26	2.84	5.14	4.97	4.74	4.97	3.95	3.37	2.96	5.28	5.06	4.68	4.81	3.80	3.21	2.80	5.20	5.02
2006+	4.45	4.67	3.65	3.08	2.66	4.96	4.78	4.56	4.79	3.77	3.19	2.78	5.08	4.90	4.50	4.73	3.71	3.13	2.72	5.02	4.84

	Carolina Coast							Virginia							Missouri						
	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 2.0%	LS Jet Kero	Jet Kero
2004	5.31	5.53	4.52	3.95	3.54	5.83	5.65	5.23	5.45	4.44	3.87	3.48	5.75	5.58	5.38	5.61	4.66	4.05	3.62	5.91	5.73
2005	4.80	5.02	4.06	3.43	3.02	5.31	5.14	4.72	4.94	3.93	3.35	2.94	5.24	5.06	4.86	5.08	4.06	3.51	3.10	5.40	5.22
2006+	4.62	4.84	3.92	3.25	2.83	5.12	4.96	4.54	4.77	3.75	3.17	2.76	5.06	4.88	4.70	4.92	3.90	3.33	2.91	5.21	5.04

Pace Global Fuel Price Forecast

2004 Quarter 1 | 2002 $ | 7-Jan-04 | NERC Regions: WECC

Source: Pace Global

Monthly Fuel Price Adjustment Factors

Month	Gas 2004	Gas 2005	Gas 2006-on	#6	#2	Kero
1	126%	114%	111%	100%	100%	100%
2	126%	109%	109%	93%	97%	97%
3	113%	101%	101%	92%	96%	94%
4	103%	96%	97%	95%	96%	96%
5	97%	95%	95%	94%	97%	95%
6	93%	93%	93%	94%	93%	92%
7	94%	95%	95%	97%	95%	96%
8	96%	95%	96%	96%	100%	101%
9	98%	95%	96%	96%	101%	101%
10	92%	96%	97%	105%	100%	111%
11	93%	102%	102%	100%	103%	100%
12	97%	108%	106%	109%	103%	103%

Natural Gas Forecast ($/MMBtu)

	WECC												
	Henry Hub	Pacific NW	Northern California	Southern California	Nevada	Northern Arizona	Southwest Arizona	Four Corners	Permian	Rio Arriba	Rocky Mountains	Northern Border	Dakotas
2004	3.34	3.61	3.76	3.78	3.49	3.36	3.46	3.46	3.44	3.35	3.23	3.16	3.03
2005	3.45	3.59	3.85	3.91	3.61	3.51	3.71	3.76	3.67	3.58	3.47	3.42	3.07
2006	4.09	4.08	4.34	4.34	4.09	4.25	4.05	4.05	4.07	4.09	3.95	3.88	3.65
2007	4.37	4.62	4.66	4.68	4.66	4.25	4.77	4.64	4.71	4.66	3.92	3.87	4.02
2008	3.93	3.94	3.99	3.91	3.92	3.93	3.99	3.99	3.98	3.94	3.47	3.42	3.88
2009	3.96	3.91	3.94	3.98	3.95	3.89	3.98	3.91	3.98	3.93	3.73	3.64	3.57
2010	4.06	4.04	4.04	4.08	4.03	3.96	4.03	3.97	4.03	3.94	3.82	3.69	3.65
2011	4.02	4.04	4.05	4.07	4.02	3.93	4.02	3.93	4.02	3.93	3.73	3.62	3.65
2012	3.73	3.89	4.14	4.17	4.05	3.86	3.88	3.77	3.79	3.86	3.62	3.60	3.63
2013	3.72	3.88	4.17	4.16	4.04	3.85	3.88	3.76	3.78	3.87	3.61	3.59	3.62
2014	3.70	3.86	4.15	4.14	4.02	3.83	3.86	3.74	3.76	3.85	3.59	3.57	3.60
2015	3.72	3.86	4.17	4.16	4.04	3.85	3.88	3.76	3.78	3.87	3.61	3.59	3.62
2016	3.74	3.78	4.18	4.18	4.06	3.87	3.89	3.78	3.80	3.88	3.63	3.61	3.64
2017	3.76	3.72	4.21	4.20	4.08	3.88	3.91	3.80	3.81	3.73	3.65	3.63	3.66
2018	3.77	3.74	4.23	4.22	4.09	3.91	3.93	3.82	3.83	3.75	3.68	3.65	3.67
2019	3.78	3.76	4.25	4.25	4.11	3.93	3.95	3.83	3.85	3.75	3.68	3.67	3.69
2020	3.81	3.77	4.27	4.25	4.13	3.95	3.97	3.85	3.87	3.77	3.70	3.69	3.71
2021	3.83	3.79	4.29	4.27	4.15	3.97	3.99	3.87	3.89	3.78	3.72	3.71	3.73
2022	3.85	3.81	4.31	4.29	4.17	3.99	4.01	3.89	3.91	3.81	3.74	3.73	3.75
2023	3.87	3.83	4.33	4.31	4.19	4.01	4.03	3.91	3.93	3.82	3.76	3.75	3.77

WTI Crude Oil Price Forecast

2004	32.71
2005	33.39
2006	33.37
2007	34.64
2008	34.45
2009	35.14
2010	34.91
2011	34.88
2012-on	34.81

Fuel Oil Location Basis

Region	Cushing, OK hub	Basis
WECC	Pacific NW	0.40
	Northern California	0.74
	Southern California	0.61
	Spokane Area	0.64
	Salt Lake Area	1.62
	Arizona	0.95
	Billings Area	1.65
	Rocky Mountains	1.65
	Colorado	0.52
	New Mexico	0.95

Crude Oil Refined Product Crack Spreads

	#2 Oil	LS #2 Oil	#6 6.3% Oil	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	6.45	6.25	6.15	(6.48)	(6.74)	6.12	6.08
2005	6.51	6.46	(6.69)	(6.48)	(6.64)	6.39	6.64
2006	1.22	1.37	0.24	(6.74)	(1.52)	2.66	1.69
2007	6.73	6.85	(0.38)	(1.66)	(1.47)	1.31	1.17
2008	6.47	6.61	(0.38)	(6.61)	(1.23)	1.61	1.68
2009	6.33	6.17	(0.12)	(6.27)	(1.13)	1.61	1.67
2010	6.36	6.77	(0.24)	(6.41)	(1.22)	1.67	1.68
2011	6.56	6.76	(0.24)	(6.61)	(1.23)	1.67	1.69
2012-on	6.56	6.76	(0.24)	(6.61)	(1.23)	1.67	1.69

Fuel Oil ($/MMBtu)

WECC

	Pacific NW							Northern California							Southern California						
	#2	LSFO	#6 0.3%	#6 1%	#6 3.0%	LS Jet Kero	Jet Kero	#2	LSFO	#6 0.3%	#6 1%	#6 3.0%	LS Jet Kero	Jet Kero	#2	LSFO	#6 0.3%	#6 1%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.45	5.66	4.66	4.38	3.66	6.17	6.08	5.82	6.14	5.13	4.56	4.15	6.44	6.36	5.67	6.18	5.16	4.41	4.20	6.49	6.32
2005	5.14	5.37	4.55	3.77	3.56	5.98	5.46	5.41	5.62	4.61	4.04	3.67	5.82	5.75	5.42	5.66	4.96	4.06	3.96	5.94	5.86
2006-on	4.98	5.18	4.46	3.58	3.48	5.98	5.39	5.29	5.46	4.43	3.86	3.54	5.74	5.67	5.28	5.50	4.86	3.91	3.88	5.79	5.82

	Spokane Area							Salt Lake Area							Arizona						
	#2	LSFO	#6 0.3%	#6 1%	#6 3.0%	LS Jet Kero	Jet Kero	#2	LSFO	#6 0.3%	#6 1%	#6 3.0%	LS Jet Kero	Jet Kero	#2	LSFO	#6 0.3%	#6 1%	#6 3.0%	LS Jet Kero	Jet Kero
2004	6.02	6.25	5.21	4.98	4.25	6.55	6.37	6.16	6.48	5.38	4.62	4.41	6.78	6.52	5.62	6.04	5.08	4.48	4.05	6.34	6.17
2005	5.51	5.74	4.72	4.14	3.73	6.03	5.65	5.67	5.88	4.87	4.30	3.88	6.10	5.81	5.31	5.53	4.61	3.94	3.53	5.83	5.65
2006-on	5.33	5.58	4.54	3.96	3.53	5.85	5.57	5.48	5.71	4.68	4.12	3.70	6.01	5.83	5.11	5.36	4.52	3.76	3.53	5.65	5.47

	Billings Area							Rocky Mountains							Colorado						
	#2	LSFO	#6 0.3%	#6 1%	#6 3.0%	LS Jet Kero	Jet Kero	#2	LSFO	#6 0.3%	#6 1%	#6 3.0%	LS Jet Kero	Jet Kero	#2	LSFO	#6 0.3%	#6 1%	#6 3.0%	LS Jet Kero	Jet Kero
2004	6.19	6.41	5.40	4.93	4.42	6.71	6.53	6.17	6.39	5.36	4.88	4.36	6.68	6.51	5.66	5.89	4.86	4.32	3.91	6.20	6.02
2005	5.66	5.88	4.86	4.31	3.90	6.20	6.02	5.95	6.09	4.98	4.39	3.97	6.17	5.99	5.17	5.39	4.47	3.90	3.50	5.68	5.51
2006-on	5.50	5.72	4.70	4.13	3.71	5.91	5.83	5.77	5.79	4.86	4.19	3.78	5.98	5.81	4.98	5.21	4.19	3.62	3.29	5.50	5.32

	New Mexico						
	#2	LSFO	#6 0.3%	#6 1%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.64	6.04	5.07	4.49	4.06	6.36	6.20
2005	5.34	5.57	4.55	3.97	3.56	5.89	5.68
2006-on	5.19	5.38	4.37	3.78	3.38	5.68	5.50

Pace Global South Central Fuel Price Forecast

2004 Quarter 1 | 2002 $ | 7-Jan-04 | NERC Regions: ERCOT, SPP

Source: Pace Global

Monthly Fuel Price Adjustment Factors

Month	Gas 2004	Gas 2005	Gas 2006 on	#6	#2	Kero
Jan	128%	116%	111%	104%	100%	103%
Feb	128%	109%	109%	93%	97%	97%
Mar	113%	101%	101%	92%	97%	94%
Apr	103%	98%	97%	89%	96%	96%
May	97%	95%	95%	88%	97%	99%
Jun	89%	93%	93%	84%	93%	93%
Jul	84%	89%	89%	87%	95%	96%
Aug	90%	89%	94%	96%	108%	101%
Sep	89%	85%	96%	101%	109%	107%
Oct	92%	96%	97%	106%	108%	110%
Nov	93%	102%	102%	99%	102%	106%
Dec	97%	108%	108%	108%	103%	103%

Natural Gas Forecast ($/MMBtu)

	Henry Hub	ERCOT: Houston	ERCOT: East Texas	ERCOT: South Texas	ERCOT: West Texas	ERCOT: Dallas Ft. Worth	SPP: SE Oklahoma/ Delta	SPP: Lower Oklahoma/ Valley	SPP: North Texas	SPP: Panhdle	SPP: East Texas	SPP: West Texas	SPP: Sw Area	SPP: Wst Centrl/Kansas	SPP: South Central	SPP: West Plains	SPP: South Plains	SPP: Dallas Ft. Worth
1999	2.34	2.27	2.26	2.25	2.21	2.26	2.31	2.41	2.25	2.44	2.30	2.21	2.35	2.24	2.31	2.30	2.30	2.30
2000	3.43	3.47	3.48	3.48	3.48	3.48	3.54	3.61	3.42	3.67	3.48	3.48	3.58	3.43	3.58	3.56	3.56	3.56
2001	4.06	4.13	4.06	4.06	4.07	4.07	4.15	4.21	3.79	4.47	4.06	4.07	4.06	4.04	4.11	4.10	4.10	4.17
2002	4.37	4.41	4.37	4.39	4.41	4.40	4.42	4.52	4.34	4.71	4.37	4.41	4.40	4.40	4.47	4.51	4.52	4.40
2003	5.41	5.45	5.23	5.24	5.23	5.32	5.47	5.57	5.36	5.95	5.23	5.23	5.40	5.32	5.39	5.40	5.40	5.36
2004	5.36	5.36	5.37	5.39	5.00	5.46	5.44	5.54	5.36	5.39	5.37	5.06	4.75	5.14	5.24	5.27	5.38	5.48
2005	4.66	4.76	4.64	4.76	4.58	4.65	4.65	4.64	4.65	4.63	4.66	4.58	4.58	4.67	4.74	4.61	4.61	4.69
2006	4.32	4.34	4.35	4.33	4.16	4.44	4.37	4.47	4.28	4.34	4.35	4.18	4.64	4.28	4.35	4.42	4.42	4.44
2007	3.79	3.81	3.82	3.80	3.74	3.91	3.85	3.95	3.78	3.85	3.82	3.74	3.76	3.78	3.83	3.80	3.80	3.81
2008	3.72	3.74	3.75	3.73	3.67	3.84	3.78	3.88	3.68	3.78	3.75	3.67	3.67	3.68	3.76	3.62	3.63	3.64
2009	3.73	3.77	3.76	3.76	3.70	3.87	3.81	3.91	3.72	3.81	3.78	3.70	3.70	3.72	3.79	3.65	3.66	3.67
2010	3.73	3.75	3.76	3.74	3.68	3.85	3.78	3.88	3.70	3.78	3.76	3.68	3.68	3.70	3.77	3.63	3.64	3.65
2011	3.72	3.74	3.75	3.73	3.67	3.84	3.78	3.88	3.68	3.78	3.75	3.67	3.67	3.68	3.76	3.62	3.63	3.64
2012	3.70	3.72	3.73	3.71	3.65	3.82	3.76	3.86	3.67	3.76	3.73	3.65	3.65	3.67	3.74	3.60	3.61	3.62
2013	3.72	3.74	3.75	3.73	3.67	3.84	3.77	3.88	3.68	3.78	3.75	3.67	3.67	3.68	3.76	3.62	3.63	3.64
2014	3.74	3.76	3.77	3.75	3.69	3.86	3.79	3.89	3.71	3.80	3.77	3.69	3.69	3.70	3.78	3.64	3.64	3.66
2015	3.76	3.78	3.78	3.77	3.70	3.88	3.81	3.91	3.72	3.81	3.79	3.70	3.71	3.72	3.79	3.66	3.66	3.68
2016	3.77	3.80	3.81	3.79	3.72	3.90	3.83	3.93	3.74	3.83	3.81	3.72	3.73	3.74	3.81	3.68	3.68	3.69
2017	3.78	3.81	3.82	3.81	3.74	3.92	3.85	3.95	3.76	3.85	3.82	3.74	3.75	3.76	3.83	3.69	3.69	3.70
2018	3.81	3.83	3.84	3.83	3.76	3.94	3.87	3.97	3.78	3.87	3.84	3.76	3.77	3.78	3.85	3.71	3.72	3.72
2019	3.83	3.85	3.86	3.85	3.78	3.96	3.89	3.99	3.80	3.89	3.86	3.78	3.78	3.80	3.87	3.73	3.74	3.74
2020	3.85	3.87	3.88	3.86	3.80	3.97	3.91	4.01	3.82	3.91	3.88	3.80	3.81	3.82	3.89	3.75	3.76	3.76
2021	3.87	3.89	3.90	3.88	3.82	3.99	3.92	4.03	3.84	3.93	3.90	3.82	3.82	3.84	3.91	3.77	3.78	3.78

WTI Crude Oil Price Forecast

1999	2.71
2000	3.39
2001	5.57
2002	4.64
2003	4.88
2004	5.04
2005	4.61
2006	4.69
2004-on	3.61

Fuel Oil Location Basis

Region	Crude Oil Hub	Location Basis
ERCOT & SPP	West Texas	0.35
	North Texas	0.11
ERCOT	Central Texas	(0.05)
	South Texas	(0.14)
SPP	Louisiana	(0.45)
	South Central	0.15
	Arkansas	0.30
	Colorado	0.52
	New Mexico	0.08
	Missouri	0.25

Crude Oil Refined Product Crack Spreads

	#2 Oil	LS #2 Oil	#6 0.3% Oil	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
1999	4.69	4.75	4.15	(0.48)	(0.74)	5.62	4.88
2000	6.88	6.88	(0.69)	(0.48)	(0.64)	6.88	6.84
2001	1.22	1.37	0.24	(0.74)	(1.52)	2.48	1.85
2002	0.73	0.85	(0.13)	(1.08)	(1.49)	1.31	1.17
2003	0.47	0.61	(0.39)	(0.61)	(1.28)	1.02	0.88
2004	0.83	0.74	(0.29)	(0.73)	(1.18)	1.02	0.87
2005	0.95	0.77	(0.24)	(0.61)	(1.22)	1.07	0.88
2006	0.98	0.78	(0.24)	(0.61)	(1.23)	1.07	0.90
2004-on	0.98	0.78	(0.24)	(0.61)	(1.23)	1.07	0.90

Fuel Oil (2002$/MMBtu)

ERCOT

West Texas

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.52	5.74	4.72	4.15	3.74	6.04	5.08
2005	5.00	5.25	4.21	3.63	3.22	5.52	5.34
2006-on	4.82	5.05	4.03	3.45	3.04	5.34	5.16

North Texas

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.26	5.50	4.46	3.81	3.50	5.80	5.62
2005	4.76	4.99	3.97	3.40	2.96	5.28	5.10
2006-on	4.58	4.81	3.79	3.21	2.80	5.10	4.92

Central Texas

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.13	5.35	4.34	3.77	3.36	5.65	5.47
2005	4.62	4.84	3.82	3.25	2.83	5.13	4.96
2006-on	4.44	4.66	3.64	3.07	2.65	4.95	4.77

South Texas

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.03	5.25	4.24	3.67	3.25	5.55	5.37
2005	4.52	4.74	3.72	3.15	2.73	5.03	4.85
2006-on	4.34	4.56	3.54	2.96	2.55	4.85	4.67

SPP

Louisiana

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.08	5.30	4.28	3.71	3.30	5.60	5.42
2005	4.58	4.78	3.77	3.19	2.78	5.08	4.90
2006-on	4.34	4.61	3.58	3.01	2.60	4.90	4.72

South Central

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.35	5.57	4.58	3.99	3.58	5.87	5.70
2005	4.84	5.07	4.05	3.47	3.06	5.36	5.18
2006-on	4.66	4.88	3.87	3.28	2.84	5.16	5.00

Arkansas

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.37	5.58	4.58	4.01	3.59	5.88	5.71
2005	4.86	5.08	4.08	3.48	3.07	5.37	5.19
2006-on	4.68	4.90	3.88	3.31	2.90	5.19	5.01

Colorado

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.98	6.00	4.99	4.32	3.91	6.20	6.02
2005	5.17	5.39	4.37	3.80	3.39	5.68	5.51
2006-on	4.99	5.21	4.19	3.62	3.20	5.50	5.33

New Mexico

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.66	5.88	5.07	4.49	4.08	6.38	6.20
2005	5.34	5.57	4.55	3.97	3.56	5.86	5.68
2006-on	5.16	5.39	4.37	3.79	3.38	5.68	5.50

Missouri

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.30	5.61	4.80	4.03	3.62	5.91	5.73
2005	4.84	5.10	4.08	3.51	3.10	5.40	5.22
2006-on	4.70	4.92	3.90	3.33	2.91	5.21	5.04

West Texas

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.52	5.74	4.72	4.15	3.74	6.04	5.86
2005	5.00	5.23	4.21	3.63	3.22	5.52	5.34
2006-on	4.82	5.05	4.03	3.45	3.04	5.34	5.16

North Texas

	#2 Oil	LS #2 Oil	#6 0.3%	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
2004	5.26	5.50	4.46	3.81	3.50	5.80	5.62
2005	4.76	4.99	3.97	3.40	2.96	5.28	5.10
2006-on	4.58	4.81	3.79	3.21	2.80	5.10	4.92

Pace Global Midwest Fuel Price Forecast

2004 Quarter 1 **2002 $** **7-Jan-04**

Source: Pace Global

NERC Regions: ECAR, MAIN, MAPP

Monthly Fuel Price Adjustment Factors

	Gas 2004	Gas 2005	Gas 2006-on	#6	#2	Kero
Jan	139%	116%	111%	104%	100%	103%
Feb	120%	108%	106%	93%	97%	97%
Mar	113%	101%	101%	92%	96%	94%
Apr	103%	98%	97%	89%	94%	96%
May	97%	93%	95%	86%	97%	95%
Jun	95%	93%	95%	84%	93%	93%
Jul	94%	93%	96%	87%	95%	96%
Aug	96%	95%	96%	96%	106%	101%
Sep	96%	93%	96%	101%	106%	107%
Oct	97%	96%	97%	106%	106%	111%
Nov	95%	102%	102%	100%	102%	106%
Dec	97%	106%	106%	106%	103%	103%

Natural Gas Forecast ($/MMBtu)

	Henry Hub	ECAR: Chicago Citygate	ECAR: Michigan	ECAR: Midwest	ECAR: Appalachia	ECAR: Lower Midwest	ECAR: West Pool	MAIN: Chicago Citygate	MAIN: Great Lakes	MAIN: Midwest	MAIN: South Plains	MAIN: East Wisconsin	MAIN: Upper Midwest	MAPP: Dakotas	MAPP: Dakotas	MAPP: West Plains	MAPP: Great Lakes	MAPP: Upper Midwest	MAPP: Midwest
2004	4.84	4.83	4.88	4.84	4.88	4.88	4.86	4.83	4.87	4.85	4.80	4.82	4.80	4.85	4.81	4.87	4.80	4.84	4.84
2005	4.45	4.43	4.48	4.44	4.48	4.48	4.46	4.43	4.47	4.45	4.40	4.42	4.40	4.45	4.41	4.47	4.40	4.44	4.44
2006	4.37	4.36	4.41	4.37	4.41	4.41	4.39	4.36	4.40	4.38	4.33	4.35	4.33	4.38	4.34	4.40	4.33	4.37	4.37
2007	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2008	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2009	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2010	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2011	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2012	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2013	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2014	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2015	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2016	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2017	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2018	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2019	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25
2020	4.26	4.24	4.29	4.25	4.29	4.29	4.27	4.24	4.28	4.26	4.21	4.23	4.21	4.26	4.22	4.28	4.21	4.25	4.25

WTI Crude Oil Price Forecast

2004	5.71
2005	5.30
2006	4.97
2007	4.64
2008	4.48
2009	4.54
2010	4.61
2011	4.69
2004-20	3.81

Fuel Oil Location Basis

Region	Clustering, Oil, Inc.	Locations
ECAR	Michigan	0.24
	South Appalachia	0.11
	North Appalachia	0.31
	PJM West	0.32
ECAR & MAIN	Chicago	0.12
MAIN & MAPP	Missouri	0.23
	Iowa	0.41
	Minnesota	0.61
MAPP	Colorado	0.52
	Rocky Mountains	1.09

Crude Oil Refined Product Crack Spreads

	#2 Oil	LS #2 Oil	#6 0.3% Oil	#6 1.0%	#6 3.0%	LS Jet Kero	Jet Kero
1995	0.63	0.71	4.15	(0.46)	(0.74)	1.12	1.06
1996	0.53	0.60	(0.05)	(0.06)	(0.04)	0.89	0.84
1997	1.23	1.37	0.34	(0.74)	(1.53)	2.01	1.93
1998	0.73	0.85	(0.32)	(1.04)	(1.63)	1.31	1.17
1999	0.47	0.61	(0.34)	(0.61)	(1.22)	1.02	0.88
2000	0.53	0.74	(0.23)	(0.77)	(1.18)	1.02	0.87
2001	0.55	0.77	(0.24)	(0.61)	(1.22)	1.07	0.88
2002	0.56	0.78	(0.24)	(0.61)	(1.23)	1.07	0.90
2003-on	0.56	0.78	(0.24)	(0.61)	(1.23)	1.07	0.90

Fuel Oil (2002$/bbl)

ECAR

	Michigan: #2 Oil	Michigan: LS #2 Oil	Michigan: #6 0.3%	Michigan: #6 1.0%	Michigan: #6 3.0%	Michigan: LS Jet Kero	Michigan: Jet Kero	South Appalachia: #2 Oil	South Appalachia: LS #2 Oil	South Appalachia: #6 0.3%	South Appalachia: #6 1.0%	South Appalachia: #6 3.0%	South Appalachia: LS Jet Kero	South Appalachia: Jet Kero
2004	5.46	5.63	4.61	4.64	3.83	5.83	5.75	5.27	5.40	4.48	3.61	3.56	5.78	5.61
2005	4.86	5.12	4.10	3.52	3.11	5.41	5.23	4.78	4.96	3.94	3.30	2.87	5.27	5.10
2006-on	4.71	4.84	3.92	3.34	2.91	5.23	5.05	4.58	4.80	3.78	3.21	2.76	5.08	4.92

	South Appalachia: #2 Oil	South Appalachia: LS #2 Oil	South Appalachia: #6 0.3%	South Appalachia: #6 1.0%	South Appalachia: #6 3.0%	South Appalachia: LS Jet Kero	South Appalachia: Jet Kero	PJM West: #2 Oil	PJM West: LS #2 Oil	PJM West: #6 0.3%	PJM West: #6 1.0%	PJM West: #6 3.0%	PJM West: LS Jet Kero	PJM West: Jet Kero	Chicago: #2 Oil	Chicago: LS #2 Oil	Chicago: #6 0.3%	Chicago: #6 1.0%	Chicago: #6 3.0%	Chicago: LS Jet Kero	Chicago: Jet Kero
2004	5.47	5.66	4.66	4.11	3.70	5.99	5.82	5.48	5.70	4.69	4.12	3.71	6.00	5.83	5.29	5.51	4.48	3.92	3.51	5.61	5.43
2005	4.84	5.10	4.10	3.50	3.14	5.48	5.30	4.97	5.19	4.18	3.60	3.19	5.49	5.31	4.77	5.00	3.96	3.40	2.99	5.20	5.11
2006-on	4.78	5.01	3.98	3.41	2.99	5.36	5.19	4.78	5.02	4.00	3.42	3.01	5.31	5.13	4.58	4.82	3.80	3.22	2.81	5.11	4.93

MAIN

	Chicago: #2	Chicago: LS #2	Chicago: #6 0.3%	Chicago: #6 1%	Chicago: #6 3.0%	Chicago: LS Jet Kero	Chicago: Jet Kero	Missouri: #2	Missouri: LS #2	Missouri: #6 0.3%	Missouri: #6 1%	Missouri: #6 3.0%	Missouri: LS Jet Kero	Missouri: Jet Kero
2004	5.29	5.51	4.48	3.92	3.51	5.61	5.43	5.30	5.51	4.49	4.03	3.62	5.81	5.73
2005	4.77	5.00	3.96	3.40	2.99	5.20	5.11	4.66	5.10	4.06	3.51	3.10	5.40	5.22
2006-on	4.58	4.82	3.80	3.22	2.81	5.11	4.93	4.70	4.92	3.84	3.33	2.91	5.21	5.04

	Iowa: #2	Iowa: L/#2	Iowa: #6 0.3%	Iowa: #6 1%	Iowa: #6 3.0%	Iowa: LS Jet Kero	Iowa: Jet Kero	Minnesota: #2	Minnesota: L/#2	Minnesota: #6 0.3%	Minnesota: #6 1%	Minnesota: #6 3.0%	Minnesota: LS Jet Kero	Minnesota: Jet Kero
2004	5.57	5.78	4.78	4.21	3.80	6.00	5.81	5.57	5.78	4.78	4.21	3.80	6.00	5.81
2005	5.06	5.28	4.26	3.69	3.28	5.58	5.40	5.06	5.28	4.26	3.69	3.27	5.57	5.40
2006-on	4.88	5.10	4.08	3.51	3.08	5.38	5.22	4.88	5.10	4.08	3.51	3.08	5.38	5.22

MAPP

	Minnesota: #2	Minnesota: L/#2	Minnesota: #6 0.3%	Minnesota: #6 1%	Minnesota: #6 3.0%	Minnesota: LS Jet Kero	Minnesota: Jet Kero	Iowa: #2	Iowa: L/#2	Iowa: #6 0.3%	Iowa: #6 1%	Iowa: #6 3.0%	Iowa: LS Jet Kero	Iowa: Jet Kero	Dakotas Check: #2	Dakotas Check: L/#2	Dakotas Check: #6 0.3%	Dakotas Check: #6 1%	Dakotas Check: #6 3.0%	Dakotas Check: LS Jet Kero	Dakotas Check: Jet Kero
2004	5.57	5.78	4.78	4.21	3.80	6.00	5.81	5.57	5.78	4.78	4.21	3.80	6.00	5.81	6.10	6.41	5.40	4.83	4.42	6.71	6.53
2005	5.06	5.28	4.26	3.69	3.27	5.57	5.40	5.06	5.28	4.26	3.69	3.28	5.56	5.40	5.56	5.90	4.66	4.31	3.90	6.20	6.02
2006-on	4.88	5.10	4.08	3.51	3.08	5.38	5.22	4.88	5.10	4.08	3.51	3.08	5.36	5.22	5.50	5.72	4.70	4.13	3.71	6.01	5.84

	Rocky Mountains: #2	Rocky Mountains: L/#2	Rocky Mountains: #6 0.3%	Rocky Mountains: #6 1%	Rocky Mountains: #6 3.0%	Rocky Mountains: LS Jet Kero	Rocky Mountains: Jet Kero	Colorado: #2	Colorado: L/#2	Colorado: #6 0.3%	Colorado: #6 1%	Colorado: #6 3.0%	Colorado: LS Jet Kero	Colorado: Jet Kero	Missouri: #2	Missouri: L/#2	Missouri: #6 0.3%	Missouri: #6 1%	Missouri: #6 3.0%	Missouri: LS Jet Kero	Missouri: Jet Kero
2004	6.17	6.39	5.39	4.80	4.38	6.98	6.51	5.66	5.90	4.88	4.32	3.81	6.20	6.02	5.38	5.61	4.59	4.03	3.62	5.91	5.73
2005	5.65	5.86	4.86	4.29	3.87	6.17	5.98	5.17	5.39	4.37	3.80	3.39	5.66	5.51	4.86	5.10	4.08	3.51	3.10	5.40	5.22
2006-on	5.47	5.70	4.66	4.10	3.69	5.99	5.81	4.99	5.21	4.16	3.62	3.20	5.56	5.33	4.76	4.92	3.90	3.33	2.91	5.21	5.04

CEMAS Projected Total Coal Consumption by TNR Plants (MMBtu)

Plant Name	Region	2009	2010	2011	2012	2013	2014	2015
Alma #1	MAPPUS	1,474,062	1,511,577	1,523,985	1,575,502	1,548,581	1,583,764	1,596,715
Alma #2	MAPPUS	1,545,040	1,581,699	1,595,066	1,649,918	1,621,192	1,660,111	1,672,516
Alma #3	MAPPUS	1,401,472	1,438,381	1,450,786	1,500,432	1,474,634	1,509,416	1,521,101
Alma #4	MAPPUS	3,828,990	3,927,188	3,957,494	4,091,704	4,015,621	4,114,832	4,149,898
Alma #5	MAPPUS	5,883,261	6,039,772	6,083,955	6,285,775	6,167,891	6,315,357	6,369,098
Arapahoe 3	WECCUS	3,768,958	3,732,213	3,747,370	3,772,906	3,777,298	3,792,472	3,807,634
Arapahoe 4	WECCUS	10,372,960	10,278,690	10,320,280	10,390,370	10,393,030	10,393,030	10,393,030
Avon Lake #6	ECAR	1,128,480	1,184,007	1,225,320	1,274,644	1,249,034	1,278,412	1,311,960
Avon Lake #7	ECAR	3,996,621	4,194,767	4,338,681	4,514,644	4,419,776	4,526,190	4,647,180
Avon Lake #9	ECAR	26,536,320	27,858,320	28,789,910	29,928,030	29,325,760	30,052,620	30,826,070
Baldwin #1IllinoisPower	MAIN	47,257,440	47,452,340	47,678,150	48,029,980	48,189,580	48,398,990	48,601,050
Baldwin #2	MAIN	43,869,340	44,039,480	44,247,780	44,562,020	44,694,060	44,879,180	45,063,670
Baldwin #3 IllinoisPower	MAIN	49,232,690	49,443,050	49,702,180	50,079,940	50,259,500	50,484,240	50,704,340
Bay Shore #1	ECAR	10,162,610	10,205,680	10,231,390	10,318,750	10,338,230	10,382,930	10,424,780
Bay Shore #2	ECAR	9,375,511	9,413,643	9,439,530	9,517,074	9,533,520	9,576,081	9,612,166
Bay Shore #3	ECAR	9,365,619	9,403,617	9,429,270	9,508,600	9,523,922	9,563,306	9,602,423
Bay Shore #4	ECAR	15,655,780	15,718,260	15,759,420	15,893,110	15,921,480	15,987,450	16,053,000
Belle River #ST1	ECAR	51,393,480	51,388,150	51,417,810	51,708,600	51,637,570	51,709,140	51,730,880
Belle River #ST2	ECAR	45,686,520	45,846,100	46,032,410	46,438,880	46,514,850	46,745,730	46,929,780
Big Brown #1	ERCOT	49,080,690	49,380,090	49,582,170	49,836,710	49,688,760	49,724,550	49,714,360
Big Brown #2	ERCOT	45,646,330	45,897,640	46,087,660	46,484,220	46,534,840	46,745,240	46,920,410
Big Cajun 1 #1 coal	SERC	43,265,820	43,464,530	43,614,110	43,945,720	43,997,660	44,181,170	44,354,190
Big Cajun 2 #1 coal	SERC	46,692,000	46,728,180	46,713,440	46,895,720	46,772,820	46,785,310	46,798,480
Big Cajun 2 #3 coal	SERC	44,727,980	44,926,750	45,091,100	45,437,680	45,477,540	45,657,360	45,844,710
Big Stone #1	MAPPUS	39,657,500	39,706,170	39,919,170	40,159,320	40,196,380	40,236,540	40,308,450
Boardman 1	WECCUS	41,639,080	41,866,840	42,084,790	42,380,380	42,434,970	42,600,480	42,764,440
Burlington #1 Alliant	MAIN	16,759,100	16,823,100	16,894,150	17,017,180	17,038,230	17,102,480	17,169,700
Coleto Creek #1	ERCOT	49,132,130	49,182,490	49,200,640	49,380,800	49,263,460	49,267,630	49,267,630
Columbia #1 EIA8023	MAIN	42,221,580	42,401,640	42,592,910	42,908,060	42,895,890	42,901,260	42,905,700
Columbia #2 EIA8023	MAIN	41,407,100	41,584,540	41,763,600	42,063,050	42,131,830	42,299,950	42,467,900
Comanche 1	WECCUS	25,755,230	25,487,980	25,586,910	25,759,060	25,789,760	25,891,360	25,992,850
Comanche 2	WECCUS	29,490,810	29,068,830	29,068,830	29,148,870	29,068,830	29,068,830	29,068,830
Corette 1	WECCUS	13,156,620	13,261,460	13,424,360	13,594,120	13,691,650	13,797,870	13,879,870
Dan E Karn #1	ECAR	20,019,490	20,102,170	20,185,260	20,338,720	20,364,110	20,447,530	20,529,160
Dan E Karn #2	ECAR	21,896,340	21,891,110	21,889,830	21,984,770	21,931,700	21,941,580	21,941,700
Dave Johnston 1	WECCUS	9,367,526	9,723,695	9,723,695	9,750,470	9,723,695	9,723,695	9,723,695
Dave Johnston 2	WECCUS	9,439,228	9,723,695	9,723,695	9,750,470	9,723,695	9,723,695	9,723,695
Dave Johnston 3	WECCUS	20,419,460	21,098,690	21,098,690	21,156,780	21,098,690	21,098,690	21,098,690
Dave Johnston 4	WECCUS	27,355,360	28,764,330	28,873,260	29,065,160	29,094,390	29,206,360	29,318,510
Eastlake #1	ECAR	9,188,033	9,292,895	9,377,809	9,641,299	9,748,514	9,812,705	9,939,064
Eastlake #2	ECAR	8,619,080	8,724,222	8,794,240	9,032,652	9,127,362	9,183,053	9,297,844
Eastlake #3	ECAR	9,270,408	9,388,710	9,475,251	9,737,785	9,849,771	9,913,637	10,034,980
Eastlake #4	ECAR	16,083,960	16,290,170	16,446,530	16,904,240	17,085,260	17,170,810	17,396,940
Eastlake #5	ECAR	37,695,160	38,158,580	38,518,540	39,588,440	39,973,490	40,162,920	40,655,240
Fayette Power Prj #1	ERCOT	46,605,160	46,790,850	46,976,880	47,292,840	47,349,120	47,539,920	47,726,550
Fayette Power Prj #2	ERCOT	48,961,270	48,962,580	48,969,960	49,104,790	48,969,960	48,969,960	48,969,960
Fayette Power Prj #3	ERCOT	36,684,080	36,681,260	36,685,560	36,786,580	36,685,560	36,685,560	36,685,560
Flint Creek #1	SPP	40,583,990	41,205,120	41,651,540	42,093,980	42,343,160	42,662,860	42,869,710
Gentleman #1	MAPPUS	49,314,400	49,527,020	49,729,350	50,060,610	50,121,940	50,315,720	50,515,680
Gentleman #2	MAPPUS	56,131,180	56,367,900	56,607,910	56,989,130	57,060,070	57,282,150	57,510,280
Ghent #1	ECAR	30,323,380	30,880,470	31,647,890	32,436,640	32,065,500	32,492,920	32,996,010
Ghent #2	ECAR	33,108,170	33,704,700	34,530,060	35,348,820	34,987,320	35,493,610	36,064,340
Ghent #3	ECAR	33,590,740	34,099,240	34,850,230	35,563,440	35,047,370	35,472,370	35,936,690
Ghent #4	ECAR	31,299,500	31,863,740	32,618,840	33,438,420	33,035,450	33,591,120	34,125,840

CEMAS Projected Total Coal Consumption by TNR Plants (MMBtu)

Plant Name	Region	2009	2010	2011	2012	2013	2014	2015
Gibbons Creek #1	ERCOT	36,955,260	37,118,640	37,269,820	37,527,640	37,575,610	37,636,880	37,636,880
GRDA #1	SPP	42,014,380	42,175,460	42,361,430	42,653,200	42,725,380	42,898,790	43,080,990
GRDA #2	SPP	44,076,720	44,230,140	44,440,850	44,760,330	44,841,490	45,025,910	45,220,530
Harrington #1	SPP	27,396,500	27,503,510	27,640,700	27,756,820	27,790,030	27,893,450	27,841,040
Harrington #2	SPP	28,687,250	28,706,500	28,725,820	28,845,670	28,878,120	29,015,880	28,945,010
Harrington #3	SPP	28,697,960	28,701,080	28,740,430	28,856,430	28,887,830	29,011,790	28,940,290
Hawthorn 5	SPP	42,413,580	42,576,290	42,751,540	43,042,090	43,089,860	43,261,760	43,435,090
High Bridge #5	MAPPUS	7,890,417	7,933,889	7,998,049	8,084,141	8,126,953	8,167,089	8,215,583
High Bridge #6	MAPPUS	13,464,200	13,532,910	13,644,840	13,790,780	13,864,840	13,929,490	14,017,120
Holcomb #1	SPP	27,265,190	27,262,720	27,295,280	27,396,220	27,471,820	27,519,210	27,527,860
Holcomb #Exp	SPP	47,346,100	47,572,540	47,887,840	48,366,730	48,737,330	49,058,190	49,352,190
Hugo #1	SPP	31,048,340	31,096,270	31,281,250	31,528,310	31,549,440	31,683,610	31,831,940
Iatan #1	SPP	45,242,570	45,419,980	45,597,410	45,906,850	45,957,700	46,140,730	46,324,150
J H Campbell #1	ECAR	14,254,130	14,642,450	15,007,330	15,276,720	15,563,100	15,888,380	16,184,250
J H Campbell #2	ECAR	20,660,670	21,225,280	21,756,670	22,120,020	22,575,150	23,002,260	23,532,750
J H Campbell #3	ECAR	46,208,200	47,413,460	48,334,860	49,410,380	50,120,090	51,014,060	51,846,650
J R Whiting #1	ECAR	6,370,356	6,570,550	6,705,739	6,843,752	6,994,403	7,179,522	7,331,799
J R Whiting #2	ECAR	6,026,181	6,202,000	6,341,549	6,471,964	6,602,240	6,772,446	6,906,777
J R Whiting #3	ECAR	7,930,102	8,169,874	8,352,992	8,522,899	8,696,849	8,949,154	9,133,170
James H Miller Jr #1	SERC	39,896,920	53,131,250	53,362,950	53,893,770	54,008,340	54,307,460	54,582,910
James H Miller Jr #2	SERC	39,105,320	52,256,580	52,472,100	52,841,010	52,890,820	53,094,220	53,303,380
James H Miller Jr #3	SERC	43,377,720	55,854,860	56,093,430	56,479,060	56,404,300	56,405,410	56,406,380
James H Miller Jr #4	SERC	43,459,620	56,569,900	56,811,110	57,201,130	57,124,140	57,126,990	57,129,340
James River Power St #1 B	SPP	1,632,934	1,641,679	1,663,073	1,706,583	1,698,398	1,715,385	1,723,296
James River Power St #2 B	SPP	1,632,948	1,641,779	1,663,082	1,706,628	1,698,264	1,715,317	1,722,918
James River Power St #3 B	SPP	3,491,570	3,512,695	3,553,605	3,646,795	3,621,173	3,649,041	3,647,798
James River Power St #4 B	SPP	4,595,578	4,621,536	4,680,614	4,802,605	4,781,151	4,831,630	4,850,336
James River Power St #5 B	SPP	8,034,369	8,083,500	8,182,283	8,400,866	8,358,409	8,422,896	8,418,696
Jeffrey EC #1	SPP	65,281,560	65,573,100	65,898,380	66,260,100	66,327,860	66,254,110	66,413,270
Jeffrey EC #2	SPP	63,762,190	64,017,090	64,370,300	64,852,330	65,104,790	65,271,860	65,673,820
Jeffrey EC #3	SPP	65,752,120	65,757,910	65,850,920	66,222,670	66,250,130	66,182,950	66,332,590
John P Madgett #1	MAPPUS	29,098,990	29,379,880	29,725,050	30,825,070	31,153,870	31,343,820	31,431,690
Lacygne #1	SPP	49,699,320	49,906,580	50,102,420	50,436,720	50,500,730	50,696,530	50,892,450
Lacygne #2	SPP	57,865,150	58,089,630	58,331,540	58,731,160	58,813,020	59,048,680	59,291,740
Lake Shore #18	ECAR	13,715,810	14,312,910	14,511,610	14,576,650	14,845,150	15,251,990	15,671,000
Lansing #1	MAIN	1,248,102	1,252,883	1,257,973	1,266,950	1,268,988	1,273,823	1,278,685
Lansing #2	MAIN	861,588	864,894	868,399	874,600	876,011	879,377	882,700
Lansing #3	MAIN	2,835,033	2,845,828	2,857,675	2,878,236	2,882,886	2,893,703	2,904,995
Lansing #4	MAIN	23,005,370	23,095,240	23,196,470	23,364,080	23,406,430	23,499,440	23,593,630
Laramie R Station #1	WECCUS	45,326,190	44,933,560	45,112,170	45,415,410	45,469,040	45,652,300	45,835,780
Laramie R Station 2	WECCUS	45,201,590	44,924,720	45,101,640	45,408,810	45,465,950	45,497,720	45,497,720
Laramie R Station 3	WECCUS	43,416,300	43,059,010	43,227,510	43,519,550	43,573,340	43,750,400	43,923,420
Lawrence EC #2	SPP	1,932,149	1,965,895	1,988,440	2,034,287	2,005,863	2,045,419	2,070,176
Lawrence EC #3	SPP	4,720,588	4,791,260	4,824,293	4,922,279	4,842,372	4,923,241	4,963,723
Lawrence EC #4	SPP	8,979,381	9,137,603	9,240,634	9,455,899	9,326,240	9,510,803	9,624,508
Lawrence EC #5	SPP	29,838,780	30,405,280	30,739,770	31,445,830	30,987,840	31,617,530	31,985,200
Leland Olds #1	MAPPUS	17,551,590	17,796,370	17,851,650	18,081,700	18,202,950	18,248,410	18,348,390
Leland Olds #2	MAPPUS	33,693,900	34,295,800	34,488,350	35,076,760	35,445,250	35,673,460	35,960,720
Limestone #1	ERCOT	65,038,220	65,388,990	65,674,570	66,194,710	66,296,340	66,587,230	66,838,120
Limestone #2	ERCOT	67,065,080	67,446,030	67,766,020	68,326,560	68,419,920	68,722,650	68,864,540
M L Kapp #2	MAIN	18,624,390	18,668,510	18,675,300	18,728,480	18,677,060	18,677,060	18,677,060
Martin Lake #1	ERCOT	64,395,060	64,706,230	64,979,300	65,473,010	65,565,440	65,839,010	66,121,970
Martin Lake #2	ERCOT	62,376,910	62,663,070	62,927,100	63,382,880	63,472,400	63,731,020	64,000,810
Martin Lake #3	ERCOT	62,386,700	62,668,320	62,933,650	63,384,030	63,476,000	63,733,710	64,000,880

CEMAS Projected Total Coal Consumption by TNR Plants (MMBtu)

Plant Name	Region	2009	2010	2011	2012	2013	2014	2015
Monroe #1 Detroit Edison	ECAR	50,816,480	50,424,220	51,318,520	51,858,770	52,156,810	52,510,030	52,806,690
Monroe #2 Detroit Edison	ECAR	55,313,450	54,655,620	55,868,050	56,711,900	57,195,970	57,691,770	58,085,380
Monroe #3 Detroit Edison	ECAR	52,324,350	52,061,540	52,944,820	53,575,490	53,916,930	54,257,900	54,595,740
Monroe #4 Detroit Edison	ECAR	48,156,450	48,034,570	48,618,030	49,141,770	49,420,300	49,756,380	50,035,330
Monticello #1 EIA1922	ERCOT	47,788,580	48,044,910	48,237,740	48,748,520	48,795,740	49,011,890	49,214,570
Monticello #2 EIA6147	ERCOT	47,818,080	48,055,960	48,277,560	48,661,040	48,708,280	48,919,210	49,113,470
Monticello #3 EIA6147	ERCOT	60,235,120	60,521,620	60,782,120	61,242,100	61,304,790	61,579,440	61,814,380
Muscatine Plant #1 #7	MAIN	1,395,110	1,400,730	1,406,181	1,416,664	1,418,662	1,424,996	1,430,567
Muscatine Plant #1 #8	MAIN	7,044,561	7,077,409	7,108,515	7,163,350	7,178,881	7,210,654	7,244,276
Muscatine Plant #1 #9	MAIN	1,565,968	1,572,692	1,579,987	1,591,928	1,595,645	1,602,564	1,610,106
Muscatine Plant #1 8A	MAIN	13,503,520	13,571,260	13,644,630	13,753,260	13,808,680	13,878,280	13,947,180
Nearman Creek #1	SPP	19,798,280	19,875,360	19,957,040	20,094,150	20,122,330	20,202,630	20,284,890
Nebraska City #1 EIA6096	MAPPUS	51,173,780	51,184,560	51,199,900	51,343,500	51,202,510	51,202,510	51,202,510
Nelson Coal #6	SERC	43,531,860	43,745,270	43,966,540	44,324,290	44,399,660	44,597,860	44,806,960
Nelson Dewey #1	MAIN	8,545,714	8,602,314	8,622,740	8,699,567	8,748,805	8,775,000	8,822,699
Nelson Dewey #2	MAIN	8,267,178	8,359,751	8,398,323	8,509,985	8,596,318	8,660,188	8,743,980
Newton #1	MAIN	44,890,010	44,968,830	45,056,110	45,284,270	45,300,300	45,337,220	45,382,220
Newton #2	MAIN	43,540,660	43,757,230	43,993,740	44,361,170	44,519,540	44,725,970	44,929,100
North Omaha #1	MAPPUS	5,843,206	5,855,570	5,857,061	5,875,876	5,859,442	5,859,741	5,859,741
North Omaha #2	MAPPUS	8,984,236	8,983,787	8,985,625	9,014,496	8,989,737	8,990,195	8,990,195
North Omaha #3	MAPPUS	8,868,864	8,902,165	8,938,393	9,001,059	8,989,737	8,990,195	8,990,195
North Omaha #4	MAPPUS	10,781,360	10,822,150	10,865,090	10,942,060	10,953,930	10,997,480	11,039,420
North Omaha #5	MAPPUS	17,306,150	17,303,940	17,308,770	17,364,550	17,316,850	17,317,740	17,317,740
Oklaunion #1	ERCOT	51,311,680	51,540,890	51,745,270	52,106,510	52,175,540	52,382,110	52,591,910
Ottumwa #1 EIA6254 MidA	MAIN	58,503,780	58,725,010	58,969,320	59,392,330	59,462,060	59,683,210	59,923,250
Paradise #1 TVA	SERC	39,446,670	39,656,400	39,907,310	40,562,860	40,891,970	41,235,770	41,515,800
Paradise #2	SERC	41,455,200	41,690,760	41,969,530	42,655,480	43,057,580	43,441,120	43,782,830
Paradise #3	SERC	53,132,100	53,374,320	53,705,980	54,414,430	54,805,820	55,136,750	55,468,550
Pawnee 1	WECCUS	45,627,220	45,810,960	45,916,680	46,043,540	45,916,680	45,916,680	45,916,680
Platte #1	MAPPUS	8,332,640	8,362,997	8,399,746	8,458,563	8,470,343	8,500,624	8,535,068
Presque Isle #1	MAIN	1,653,402	1,692,682	1,745,333	1,759,879	1,697,768	1,770,299	1,786,712
Presque Isle #2	MAIN	2,421,199	2,486,204	2,570,950	2,601,000	2,516,578	2,622,232	2,644,749
Presque Isle #3	MAIN	3,699,069	3,800,105	3,931,445	3,974,437	3,855,359	4,030,998	4,078,332
Presque Isle #4	MAIN	3,663,130	3,758,837	3,893,899	3,937,533	3,823,989	4,000,134	4,046,650
Presque Isle #5	MAIN	5,712,295	5,850,199	6,039,750	6,091,119	5,911,141	6,163,137	6,214,879
Presque Isle #6	MAIN	5,799,444	5,948,691	6,163,371	6,230,666	6,018,160	6,305,923	6,386,468
Presque Isle #7	MAIN	5,461,043	5,609,874	5,803,667	5,870,645	5,694,275	5,952,321	6,022,150
Presque Isle #8	MAIN	5,604,021	5,733,685	5,919,176	5,971,765	5,777,518	6,017,874	6,073,997
Presque Isle #9	MAIN	5,646,220	5,795,986	6,001,996	6,071,688	5,884,640	6,155,988	6,226,336
Rawhide 1	WECCUS	22,469,890	22,277,310	22,277,310	22,338,650	22,277,310	22,277,310	22,277,310
River Rouge #2	ECAR	13,963,320	14,344,070	14,668,020	14,880,720	15,179,760	15,403,570	15,787,370
River Rouge #3	ECAR	14,885,530	15,246,860	15,599,150	15,830,660	16,082,820	16,333,400	16,753,560
Riverside #8 EIA1927	MAPPUS	17,874,410	17,962,160	18,058,620	18,209,550	18,270,230	18,349,760	18,441,900
Riverside #ST7 EIA1927	MAPPUS	12,436,520	12,492,680	12,561,100	12,661,660	12,673,500	12,678,810	12,691,470
Rockport #1 IMPC	ECAR	106,339,500	106,706,200	107,140,500	108,146,800	108,418,000	108,910,500	109,488,300
Rockport #2 IMPC	ECAR	105,333,200	105,779,700	106,116,600	107,117,100	107,359,500	107,874,500	108,349,200
Rush Island #1	MAIN	43,380,920	43,526,100	43,708,780	44,038,630	44,137,220	44,318,370	44,501,540
Rush Island #2	MAIN	42,483,380	42,645,210	42,815,170	43,130,020	43,207,920	43,384,320	43,553,680
Scherer #1	SERC	48,934,500	58,187,600	59,964,800	62,618,800	63,791,680	64,652,770	66,699,290
Scherer #2	SERC	48,684,910	57,856,740	59,620,990	62,430,930	63,613,860	64,336,160	66,481,880
Scherer #3	SERC	50,622,210	61,987,830	63,565,800	65,938,990	66,671,530	68,454,860	70,068,290
Scherer #4	FRCC	50,782,120	61,182,200	62,710,000	65,405,660	66,544,290	67,107,850	69,486,850
Shawnee #1 TVA	SERC	9,835,028	8,346,050	8,509,640	8,699,240	8,904,013	9,070,198	9,302,223
Shawnee #10	SERC	7,598,511	6,546,666	6,682,427	6,883,024	7,032,804	7,169,821	7,382,286

CEMAS Projected Total Coal Consumption by TNR Plants (MMBtu)

Plant Name	Region	2009	2010	2011	2012	2013	2014	2015
Shawnee #2	SERC	9,787,966	8,377,779	8,537,990	8,758,286	8,915,030	9,086,501	9,292,111
Shawnee #3	SERC	9,820,282	8,314,906	8,466,719	8,770,237	8,948,267	9,109,310	9,343,326
Shawnee #4	SERC	9,851,634	7,948,301	8,064,117	8,755,954	8,944,496	9,109,641	9,324,527
Shawnee #5	SERC	9,925,100	8,245,344	8,392,896	8,856,245	8,857,405	9,020,747	9,197,629
Shawnee #6	SERC	9,922,262	8,336,310	8,502,968	8,871,005	8,664,105	8,815,015	8,709,274
Shawnee #7	SERC	9,917,036	8,319,573	8,496,567	8,827,219	8,535,839	8,652,674	9,194,274
Shawnee #8	SERC	9,892,707	8,283,905	8,449,842	8,800,404	8,844,700	9,012,244	9,246,822
Shawnee #9	SERC	9,905,631	8,032,798	8,248,688	8,170,730	8,627,888	8,827,042	9,246,120
Sherburne Co #1	MAPPUS	59,221,520	59,247,910	59,276,680	59,484,030	59,358,070	59,360,950	59,374,300
Sherburne Co #2	MAPPUS	58,093,220	58,104,920	58,147,180	58,343,860	58,202,220	58,202,470	58,211,360
Sherburne Co #3	MAPPUS	70,013,060	70,058,840	70,081,980	70,382,460	70,237,920	70,264,100	70,302,030
Sikeston #1	SPP	19,423,330	19,470,900	19,594,920	19,751,650	19,717,420	19,738,060	19,754,600
Sioux #1	MAIN	34,074,110	34,195,360	34,336,040	34,596,030	34,681,800	34,819,470	34,965,070
Sioux #2	MAIN	34,774,250	34,899,680	35,052,570	35,320,090	35,421,390	35,561,910	35,705,660
Southwest Power St #ST1	SPP	15,460,880	15,558,350	15,650,160	15,759,710	15,784,070	15,851,300	15,864,530
Springerville 1	WECCUS	31,921,970	31,930,060	31,932,230	32,020,460	31,932,230	31,932,230	31,932,230
Springerville 2	WECCUS	31,912,460	31,928,230	31,932,230	32,020,460	31,932,230	31,932,230	31,932,230
Springerville New	WECCUS	26,628,540	27,241,550	27,315,540	27,871,730	27,907,110	27,983,400	28,460,140
St Clair #1	ECAR	13,094,260	13,522,980	13,260,990	13,518,390	13,652,550	13,746,270	13,796,940
St Clair #2	ECAR	10,909,330	11,206,470	11,028,500	11,208,270	11,319,910	11,402,820	11,473,780
St Clair #3	ECAR	12,102,050	12,432,210	12,208,050	12,414,510	12,560,670	12,659,000	12,748,750
St Clair #4	ECAR	12,386,190	12,736,040	12,526,100	12,709,910	12,868,810	13,000,310	13,095,320
St Clair #6	ECAR	20,126,980	20,694,770	20,312,950	20,640,990	20,878,310	21,045,520	21,192,920
St Clair #7	ECAR	24,798,260	25,321,730	25,043,710	25,387,890	25,582,890	25,767,430	25,937,590
Stateline Coal #3	ECAR	12,383,210	12,641,950	12,820,120	12,916,320	13,105,350	13,308,170	13,509,490
Stateline Coal #4	ECAR	20,717,880	21,157,200	21,456,120	21,606,850	21,936,230	22,282,470	22,611,870
Tecumseh EC #7	SPP	6,790,668	6,924,783	6,984,436	7,160,480	7,042,487	7,178,888	7,243,599
Tecumseh EC #8	SPP	12,176,280	12,420,630	12,531,600	12,845,910	12,622,420	12,898,270	13,060,200
Thomas Hill #1	SERC	14,007,220	14,072,800	14,131,260	14,242,980	14,229,140	14,239,090	14,243,270
Thomas Hill #2	SERC	20,212,650	20,306,250	20,391,960	20,549,670	20,577,310	20,668,930	20,758,770
Thomas Hill #3	SERC	49,275,150	49,505,580	49,698,550	50,087,700	50,155,770	50,372,590	50,583,190
Tolk #1	SPP	38,434,800	39,103,860	39,146,260	40,013,720	40,450,040	41,232,900	41,729,240
Tolk #2	SPP	38,398,290	39,092,220	39,071,730	39,910,800	40,413,300	41,232,090	41,739,450
Trenton Channel #7	ECAR	8,890,416	8,937,928	8,994,659	9,073,088	9,079,938	9,088,484	9,100,125
Trenton Channel #8	ECAR	8,503,769	8,548,405	8,595,185	8,675,324	8,712,237	8,754,081	8,799,932
Trenton Channel #9	ECAR	39,255,800	39,377,500	39,690,530	40,060,620	40,267,880	40,476,950	40,693,470
W A Parish #5	ERCOT	50,787,310	51,091,830	51,549,330	51,921,820	52,001,840	52,217,140	52,426,800
W A Parish #6	ERCOT	49,454,540	49,670,980	49,881,360	50,220,710	50,286,960	50,491,990	50,689,930
W A Parish #7	ERCOT	47,636,840	47,856,700	48,082,290	48,414,900	48,484,780	48,683,030	48,875,800
W A Parish #8	ERCOT	42,216,420	42,390,300	42,586,950	42,880,170	42,936,270	43,112,280	43,281,450
Welsh #1 EIA6139	SPP	40,353,500	40,958,300	41,323,600	41,989,100	42,167,590	42,566,000	42,665,260
Welsh #2 EIA6139	SPP	40,690,720	41,325,100	41,726,560	42,388,330	42,587,510	42,983,760	43,087,020
Welsh #3 EIA6139	SPP	40,704,890	41,321,200	41,697,980	42,389,300	42,576,950	42,969,430	43,092,140
White Bluff #1	SERC	63,110,750	63,411,060	63,645,490	64,140,740	64,229,570	64,497,590	64,773,040
White Bluff #2	SERC	56,280,840	56,517,350	56,734,740	57,151,660	57,220,300	57,446,500	57,677,630

CEMAS Projected Total Coal Consumption by TNR Plants (MMBtu)

Plant Name	Region	2016	2017	2018	2019	2020
Alma #1	MAPPUS	1,624,019	1,651,323	1,639,751	1,659,801	1,680,054
Alma #2	MAPPUS	1,700,922	1,729,328	1,716,423	1,737,163	1,760,064
Alma #3	MAPPUS	1,546,507	1,571,913	1,561,089	1,580,623	1,600,746
Alma #4	MAPPUS	4,220,044	4,290,189	4,260,911	4,312,060	4,363,025
Alma #5	MAPPUS	6,484,119	6,599,140	6,558,160	6,631,637	6,717,042
Arapahoe 3	WECCUS	3,823,011	3,838,387	3,853,986	3,869,134	3,895,432
Arapahoe 4	WECCUS	10,393,030	10,393,030	10,393,030	10,393,030	10,421,650
Avon Lake #6	ECAR	1,359,749	1,407,537	1,391,716	1,420,730	1,454,029
Avon Lake #7	ECAR	4,814,433	4,981,685	4,927,312	5,023,929	5,141,009
Avon Lake #9	ECAR	31,971,655	33,117,240	32,707,930	33,332,890	34,122,680
Baldwin #1IllinoisPower	MAIN	48,798,945	48,996,840	49,230,770	49,423,850	49,758,220
Baldwin #2	MAIN	45,246,430	45,429,190	45,636,860	45,813,460	46,118,320
Baldwin #3 IllinoisPower	MAIN	50,919,525	51,134,710	51,395,710	51,597,560	51,950,010
Bay Shore #1	ECAR	10,456,820	10,488,860	10,488,860	10,488,860	10,517,740
Bay Shore #2	ECAR	9,652,255	9,692,343	9,730,786	9,770,210	9,835,610
Bay Shore #3	ECAR	9,641,905	9,681,386	9,719,429	9,758,622	9,824,744
Bay Shore #4	ECAR	16,121,345	16,189,690	16,253,960	16,318,390	16,427,870
Belle River #ST1	ECAR	51,762,190	51,793,500	51,799,750	51,799,210	51,941,460
Belle River #ST2	ECAR	47,134,060	47,338,340	47,524,460	47,713,890	48,035,250
Big Brown #1	ERCOT	49,735,575	49,756,790	49,743,820	49,751,090	49,891,100
Big Brown #2	ERCOT	47,117,805	47,315,200	47,487,350	47,683,080	48,008,130
Big Cajun 1 #1 coal	SERC	44,533,675	44,713,160	44,881,260	45,054,970	45,352,100
Big Cajun 2 #1 coal	SERC	46,809,225	46,819,970	46,819,970	46,819,970	46,948,890
Big Cajun 2 #3 coal	SERC	46,023,250	46,201,790	46,379,970	46,557,610	46,864,010
Big Stone #1	MAPPUS	40,320,425	40,332,400	40,394,850	40,401,840	40,512,100
Boardman 1	WECCUS	42,930,440	43,096,440	43,261,350	43,426,570	43,712,140
Burlington #1 Alliant	MAIN	17,236,755	17,303,810	17,369,560	17,436,850	17,552,470
Coleto Creek #1	ERCOT	49,267,630	49,267,630	49,267,630	49,267,630	49,403,290
Columbia #1 EIA8023	MAIN	42,911,230	42,916,760	42,943,580	42,941,000	43,065,050
Columbia #2 EIA8023	MAIN	42,631,320	42,794,740	42,944,760	42,943,590	43,062,470
Comanche 1	WECCUS	26,095,780	26,198,710	26,300,340	26,404,570	26,582,040
Comanche 2	WECCUS	29,068,830	29,068,830	29,068,830	29,068,830	29,148,870
Corette 1	WECCUS	13,940,835	14,001,800	14,053,860	14,053,860	14,092,690
Dan E Karn #1	ECAR	20,612,775	20,696,390	20,778,400	20,862,300	21,001,640
Dan E Karn #2	ECAR	21,944,515	21,947,330	21,947,330	21,947,330	22,007,760
Dave Johnston 1	WECCUS	9,723,695	9,723,695	9,723,695	9,723,695	9,750,470
Dave Johnston 2	WECCUS	9,723,695	9,723,695	9,723,695	9,723,695	9,750,470
Dave Johnston 3	WECCUS	21,098,690	21,098,690	21,098,690	21,098,690	21,156,780
Dave Johnston 4	WECCUS	29,431,930	29,545,350	29,657,410	29,772,320	29,969,880
Eastlake #1	ECAR	9,998,532	10,058,000	10,217,580	10,277,330	10,392,430
Eastlake #2	ECAR	9,362,508	9,427,172	9,553,106	9,607,053	9,699,083
Eastlake #3	ECAR	10,105,230	10,175,480	10,323,850	10,394,820	10,506,370
Eastlake #4	ECAR	17,514,605	17,632,270	17,899,030	18,011,870	18,196,360
Eastlake #5	ECAR	40,945,905	41,236,570	41,796,640	42,090,140	42,489,360
Fayette Power Prj #1	ERCOT	47,915,005	48,103,460	48,294,290	48,485,090	48,810,270
Fayette Power Prj #2	ERCOT	48,969,960	48,969,960	48,969,960	48,969,960	49,104,790
Fayette Power Prj #3	ERCOT	36,685,560	36,685,560	36,685,560	36,685,560	36,786,580
Flint Creek #1	SPP	43,223,795	43,577,880	43,653,650	43,979,800	44,366,000
Gentleman #1	MAPPUS	50,715,015	50,914,350	51,119,240	51,318,700	51,665,550
Gentleman #2	MAPPUS	57,741,225	57,972,170	58,199,800	58,433,710	58,823,360
Ghent #1	ECAR	33,581,725	34,167,440	34,544,230	34,670,310	35,553,320
Ghent #2	ECAR	36,697,360	37,330,380	37,791,390	37,693,160	38,652,660
Ghent #3	ECAR	36,472,130	37,007,570	37,251,550	37,429,610	38,211,040
Ghent #4	ECAR	34,689,215	35,252,590	35,648,750	35,796,540	36,689,080

CEMAS Projected Total Coal Consumption by TNR Plants (MMBtu)

Plant Name	Region	2016	2017	2018	2019	2020
Gibbons Creek #1	ERCOT	37,636,880	37,636,880	37,636,880	37,636,880	37,740,510
GRDA #1	SPP	43,098,630	43,116,270	43,122,930	43,124,150	43,241,440
GRDA #2	SPP	45,402,610	45,584,690	45,760,460	45,761,120	45,887,130
Harrington #1	SPP	27,852,665	27,864,290	27,937,220	27,959,580	28,040,300
Harrington #2	SPP	28,957,410	28,969,810	29,057,860	29,080,410	29,162,480
Harrington #3	SPP	28,958,310	28,976,330	29,060,530	29,077,390	29,161,090
Hawthorn 5	SPP	43,611,555	43,788,020	43,964,840	44,141,520	44,436,950
High Bridge #5	MAPPUS	8,254,436	8,293,289	8,341,183	8,378,020	8,435,219
High Bridge #6	MAPPUS	14,082,310	14,147,500	14,229,440	14,292,680	14,390,510
Holcomb #1	SPP	27,553,720	27,579,580	27,670,020	27,680,610	27,774,200
Holcomb #Exp	SPP	49,477,310	49,602,430	49,809,790	49,870,120	50,051,810
Hugo #1	SPP	31,958,740	32,085,540	32,220,620	32,342,640	32,572,930
Iatan #1	SPP	46,507,135	46,690,120	46,873,040	47,061,980	47,375,110
J H Campbell #1	ECAR	16,484,940	16,785,630	17,098,930	17,262,560	17,538,230
J H Campbell #2	ECAR	23,996,515	24,460,280	24,956,650	25,195,930	25,649,960
J H Campbell #3	ECAR	52,553,180	53,259,710	54,042,830	54,574,340	55,289,530
J R Whiting #1	ECAR	7,427,755	7,523,711	7,631,239	7,684,300	7,779,271
J R Whiting #2	ECAR	7,012,733	7,118,689	7,238,408	7,307,070	7,419,411
J R Whiting #3	ECAR	9,276,694	9,420,217	9,597,638	9,671,951	9,796,963
James H Miller Jr #1	SERC	54,648,405	54,713,900	54,823,210	54,829,220	55,038,140
James H Miller Jr #2	SERC	53,511,555	53,719,730	53,923,390	54,132,460	54,491,330
James H Miller Jr #3	SERC	56,407,360	56,408,340	56,408,340	56,408,340	56,563,670
James H Miller Jr #4	SERC	57,130,975	57,132,610	57,132,610	57,132,610	57,289,930
James River Power St #1 E	SPP	1,749,691	1,776,085	1,780,937	1,794,056	1,807,383
James River Power St #2 E	SPP	1,749,397	1,775,876	1,780,977	1,794,325	1,807,378
James River Power St #3 E	SPP	3,697,530	3,747,261	3,746,939	3,762,725	3,776,526
James River Power St #4 E	SPP	4,928,371	5,006,406	5,021,902	5,060,558	5,098,241
James River Power St #5 E	SPP	8,535,887	8,653,077	8,650,356	8,687,854	8,719,328
Jeffrey EC #1	SPP	66,448,675	66,484,080	66,628,200	66,692,300	66,866,990
Jeffrey EC #2	SPP	65,976,420	66,279,020	66,431,250	66,457,240	66,640,930
Jeffrey EC #3	SPP	66,355,560	66,378,530	66,502,280	66,537,700	66,711,280
John P Madgett #1	MAPPUS	31,740,135	32,048,580	32,233,970	32,296,610	32,556,850
Lacygne #1	SPP	51,094,715	51,296,980	51,499,320	51,701,660	52,047,130
Lacygne #2	SPP	59,529,980	59,768,220	60,013,250	60,254,560	60,655,260
Lake Shore #18	ECAR	16,355,450	17,039,900	17,034,570	18,050,990	18,615,900
Lansing #1	MAIN	1,283,663	1,288,641	1,293,595	1,298,552	1,306,973
Lansing #2	MAIN	886,117	889,535	893,004	896,427	902,234
Lansing #3	MAIN	2,916,299	2,927,602	2,938,862	2,950,351	2,969,651
Lansing #4	MAIN	23,684,230	23,774,830	23,874,170	23,966,550	24,122,210
Laramie R Station #1	WECCUS	46,018,825	46,201,870	46,384,980	46,573,220	46,889,930
Laramie R Station 2	WECCUS	45,497,720	45,497,720	45,497,720	45,497,720	45,623,000
Laramie R Station 3	WECCUS	44,098,510	44,273,600	44,451,510	44,628,560	44,929,840
Lawrence EC #2	SPP	2,098,261	2,126,346	2,119,317	2,141,108	2,174,776
Lawrence EC #3	SPP	5,017,407	5,071,090	5,035,458	5,072,288	5,143,553
Lawrence EC #4	SPP	9,756,932	9,889,356	9,855,550	9,960,064	10,122,490
Lawrence EC #5	SPP	32,417,480	32,849,760	32,728,520	33,130,700	33,698,530
Leland Olds #1	MAPPUS	18,395,625	18,442,860	18,540,490	18,575,520	18,642,560
Leland Olds #2	MAPPUS	36,210,285	36,459,850	36,785,150	37,001,000	37,284,120
Limestone #1	ERCOT	67,114,290	67,390,460	67,634,880	67,917,860	68,404,230
Limestone #2	ERCOT	68,881,570	68,898,600	68,876,420	68,881,410	69,107,260
M L Kapp #2	MAIN	18,677,060	18,677,060	18,677,060	18,677,060	18,728,480
Martin Lake #1	ERCOT	66,391,230	66,660,490	66,929,090	67,204,860	67,665,520
Martin Lake #2	ERCOT	64,259,505	64,518,200	64,780,610	65,041,990	65,483,850
Martin Lake #3	ERCOT	64,259,540	64,518,200	64,780,610	65,041,990	65,483,850

CEMAS Projected Total Coal Consumption by TNR Plants (MMBtu)

Plant Name	Region	2016	2017	2018	2019	2020
Monroe #1 Detroit Edison	ECAR	53,091,505	53,376,320	53,607,040	53,831,990	54,231,720
Monroe #2 Detroit Edison	ECAR	58,461,840	58,838,300	59,091,440	59,432,910	59,890,740
Monroe #3 Detroit Edison	ECAR	54,917,260	55,238,780	55,475,660	55,744,170	56,144,040
Monroe #4 Detroit Edison	ECAR	50,299,045	50,562,760	50,810,090	51,049,050	51,399,410
Monticello #1 EIA1922	ERCOT	49,435,530	49,656,490	49,859,910	50,056,230	50,379,620
Monticello #2 EIA6147	ERCOT	49,330,480	49,547,490	49,743,640	49,947,820	50,280,200
Monticello #3 EIA6147	ERCOT	62,083,265	62,352,150	62,594,400	62,851,780	63,274,510
Muscatine Plant #1 #7	MAIN	1,435,626	1,440,685	1,446,989	1,452,299	1,461,649
Muscatine Plant #1 #8	MAIN	7,271,257	7,298,238	7,332,135	7,360,932	7,408,673
Muscatine Plant #1 #9	MAIN	1,616,061	1,622,016	1,629,184	1,629,276	1,633,584
Muscatine Plant #1 8A	MAIN	14,004,165	14,061,150	14,134,240	14,193,470	14,287,700
Nearman Creek #1	SPP	20,366,550	20,448,210	20,529,800	20,614,870	20,751,920
Nebraska City #1 EIA6096	MAPPUS	51,202,510	51,202,510	51,202,510	51,202,510	51,343,500
Nelson Coal #6	SERC	45,006,100	45,205,240	45,401,580	45,575,470	45,882,790
Nelson Dewey #1	MAIN	8,838,974	8,855,249	8,889,366	8,902,748	8,935,484
Nelson Dewey #2	MAIN	8,797,037	8,850,094	8,917,904	8,933,522	8,967,165
Newton #1	MAIN	45,406,480	45,430,740	45,532,730	45,546,160	45,674,980
Newton #2	MAIN	45,122,075	45,315,050	45,533,380	45,554,010	45,681,370
North Omaha #1	MAPPUS	5,859,741	5,859,741	5,859,741	5,859,741	5,875,876
North Omaha #2	MAPPUS	8,990,195	8,990,195	8,990,195	8,990,195	9,014,950
North Omaha #3	MAPPUS	8,990,195	8,990,195	8,990,195	8,990,195	9,014,950
North Omaha #4	MAPPUS	11,039,420	11,039,420	11,039,420	11,039,420	11,069,820
North Omaha #5	MAPPUS	17,317,740	17,317,740	17,317,740	17,317,740	17,365,420
Oklaunion #1	ERCOT	52,801,550	53,011,190	53,220,620	53,430,060	53,787,070
Ottumwa #1 EIA6254 MidA	MAIN	60,152,815	60,382,380	60,614,620	60,847,030	61,247,970
Paradise #1 TVA	SERC	41,838,920	42,162,040	42,507,940	42,661,350	43,064,980
Paradise #2	SERC	44,129,695	44,476,560	44,873,440	45,059,210	45,500,360
Paradise #3	SERC	55,820,215	56,171,880	56,554,880	56,750,250	57,259,250
Pawnee 1	WECCUS	45,916,680	45,916,680	45,916,680	45,916,680	46,043,540
Platte #1	MAPPUS	8,568,073	8,601,078	8,634,690	8,667,526	8,725,158
Presque Isle #1	MAIN	1,825,877	1,865,042	1,814,011	1,803,275	1,848,702
Presque Isle #2	MAIN	2,703,816	2,762,882	2,687,780	2,668,549	2,736,302
Presque Isle #3	MAIN	4,180,172	4,282,012	4,180,740	4,161,143	4,280,571
Presque Isle #4	MAIN	4,148,215	4,249,780	4,150,551	4,131,839	4,249,312
Presque Isle #5	MAIN	6,352,083	6,489,286	6,326,183	6,279,711	6,440,457
Presque Isle #6	MAIN	6,529,092	6,671,716	6,507,253	6,448,147	6,625,397
Presque Isle #7	MAIN	6,171,260	6,320,369	6,174,755	6,127,302	6,283,966
Presque Isle #8	MAIN	6,207,502	6,341,007	6,170,505	6,119,273	6,277,978
Presque Isle #9	MAIN	6,382,038	6,537,740	6,385,011	6,334,285	6,499,214
Rawhide 1	WECCUS	22,277,310	22,277,310	22,277,310	22,277,310	22,338,650
River Rouge #2	ECAR	16,063,715	16,340,060	16,559,460	16,783,600	17,125,130
River Rouge #3	ECAR	17,037,505	17,321,450	17,541,170	17,809,370	18,209,660
Riverside #8 EIA1927	MAPPUS	18,515,765	18,589,630	18,675,720	18,678,260	18,729,190
Riverside #ST7 EIA1927	MAPPUS	12,691,750	12,692,030	12,706,020	12,706,360	12,741,090
Rockport #1 IMPC	ECAR	109,728,300	109,968,300	109,980,300	109,963,600	110,272,400
Rockport #2 IMPC	ECAR	108,836,850	109,324,500	109,760,900	109,976,900	110,279,600
Rush Island #1	MAIN	44,668,485	44,835,430	45,026,210	45,204,620	45,505,790
Rush Island #2	MAIN	43,717,630	43,881,580	44,062,230	44,234,040	44,527,230
Scherer #1	SERC	68,087,065	69,474,840	70,907,580	71,865,310	72,840,190
Scherer #2	SERC	67,881,105	69,280,330	70,706,580	71,678,740	72,596,650
Scherer #3	SERC	71,139,075	72,209,860	74,257,440	75,395,500	75,922,010
Scherer #4	FRCC	70,900,655	72,314,460	73,455,500	75,531,840	75,941,910
Shawnee #1 TVA	SERC	9,441,676	9,581,128	9,598,003	9,805,235	9,969,747
Shawnee #10	SERC	7,511,961	7,641,636	7,667,717	7,837,997	7,981,139

CEMAS Projected Total Coal Consumption by TNR Plants (MMBtu)

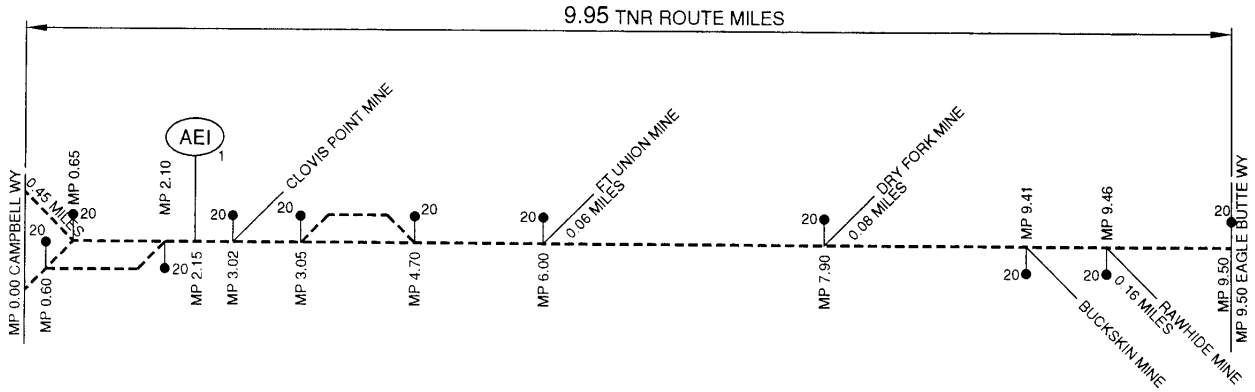
Plant Name	Region	2016	2017	2018	2019	2020
Shawnee #2	SERC	9,435,491	9,578,870	9,456,803	9,830,966	9,987,745
Shawnee #3	SERC	9,454,783	9,566,240	9,146,725	9,884,392	10,029,910
Shawnee #4	SERC	9,451,615	9,578,703	9,570,371	9,851,494	10,006,120
Shawnee #5	SERC	9,373,864	9,550,099	9,606,845	9,789,996	9,961,554
Shawnee #6	SERC	9,106,525	9,503,776	9,580,480	9,668,648	9,856,715
Shawnee #7	SERC	9,395,377	9,596,480	9,407,434	8,935,658	9,109,132
Shawnee #8	SERC	9,372,469	9,498,116	9,471,137	9,741,078	9,915,884
Shawnee #9	SERC	9,198,662	9,151,204	9,604,676	9,731,934	9,913,725
Sherburne Co #1	MAPPUS	59,381,665	59,389,030	59,392,200	59,392,200	59,555,740
Sherburne Co #2	MAPPUS	58,216,480	58,221,600	58,221,600	58,221,600	58,381,920
Sherburne Co #3	MAPPUS	70,303,850	70,305,670	70,334,450	70,334,050	70,524,890
Sikeston #1	SPP	19,760,180	19,765,760	19,787,560	19,787,720	19,853,960
Sioux #1	MAIN	35,103,700	35,242,330	35,393,200	35,531,970	35,767,050
Sioux #2	MAIN	35,852,020	35,998,380	36,159,430	36,301,180	36,541,600
Southwest Power St #ST1	SPP	15,877,770	15,891,010	15,899,840	15,891,000	15,963,250
Springerville 1	WECCUS	31,932,230	31,932,230	31,932,230	31,932,230	32,020,460
Springerville 2	WECCUS	31,932,230	31,932,230	31,932,230	31,932,230	32,020,460
Springerville New	WECCUS	28,858,840	29,257,540	29,147,680	29,156,770	29,739,650
St Clair #1	ECAR	13,838,540	13,880,140	14,002,800	14,004,910	14,047,910
St Clair #2	ECAR	11,555,130	11,636,480	11,762,410	11,810,540	11,893,300
St Clair #3	ECAR	12,837,175	12,925,600	13,085,500	13,140,400	13,230,220
St Clair #4	ECAR	13,181,450	13,267,580	13,431,210	13,489,830	13,582,640
St Clair #6	ECAR	21,336,055	21,479,190	21,760,770	21,851,420	22,000,100
St Clair #7	ECAR	26,085,310	26,233,030	26,475,070	26,585,850	26,767,330
Stateline Coal #3	ECAR	13,739,475	13,969,460	14,112,880	14,348,210	14,588,550
Stateline Coal #4	ECAR	22,924,300	23,236,730	23,380,920	23,705,910	24,015,310
Tecumseh EC #7	SPP	7,327,381	7,411,163	7,326,929	7,373,362	7,487,100
Tecumseh EC #8	SPP	13,252,540	13,444,880	13,339,630	13,456,280	13,717,140
Thomas Hill #1	SERC	14,248,075	14,252,880	14,256,350	14,254,720	14,295,610
Thomas Hill #2	SERC	20,843,925	20,929,080	21,013,860	21,091,950	21,233,310
Thomas Hill #3	SERC	50,792,215	51,001,240	51,197,730	51,391,320	51,732,360
Tolk #1	SPP	42,205,580	42,681,920	43,400,280	43,575,940	43,715,950
Tolk #2	SPP	42,204,745	42,670,040	43,340,120	43,563,760	43,719,700
Trenton Channel #7	ECAR	9,108,058	9,115,991	9,118,145	9,118,227	9,143,680
Trenton Channel #8	ECAR	8,843,157	8,886,381	8,924,367	8,960,011	9,020,360
Trenton Channel #9	ECAR	40,901,765	41,110,060	41,299,280	41,468,240	41,749,500
W A Parish #5	ERCOT	52,632,745	52,838,690	53,047,760	53,256,540	53,612,390
W A Parish #6	ERCOT	50,890,505	51,091,080	51,289,080	51,492,480	51,837,900
W A Parish #7	ERCOT	49,070,930	49,266,060	49,459,370	49,657,290	49,986,800
W A Parish #8	ERCOT	43,452,790	43,624,130	43,793,300	43,966,220	44,261,710
Welsh #1 EIA6139	SPP	43,062,590	43,459,920	43,510,350	43,785,560	44,246,140
Welsh #2 EIA6139	SPP	43,495,905	43,904,790	43,950,640	44,169,780	44,450,680
Welsh #3 EIA6139	SPP	43,502,595	43,913,050	43,943,610	44,164,770	44,451,210
White Bluff #1	SERC	65,038,985	65,304,930	65,550,980	65,802,230	66,239,320
White Bluff #2	SERC	57,908,495	58,139,360	58,358,580	58,578,270	58,960,180

Exhibit
III-A-13
Redacted

Exhibit
III-A-14
Redacted

Exhibit
III-A-15
Redacted

III-B Stand-Alone
Railroad System



SEGMENT 1
PAGE 1 OF 20

DIVISION: **POWDER RIVER**

SUBDIVISION: **CAMPBELL**

FROM: **CAMPBELL** MP: **0.00**

TO: **EAGLE BUTE** MP: **9.50**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

FED 1 FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

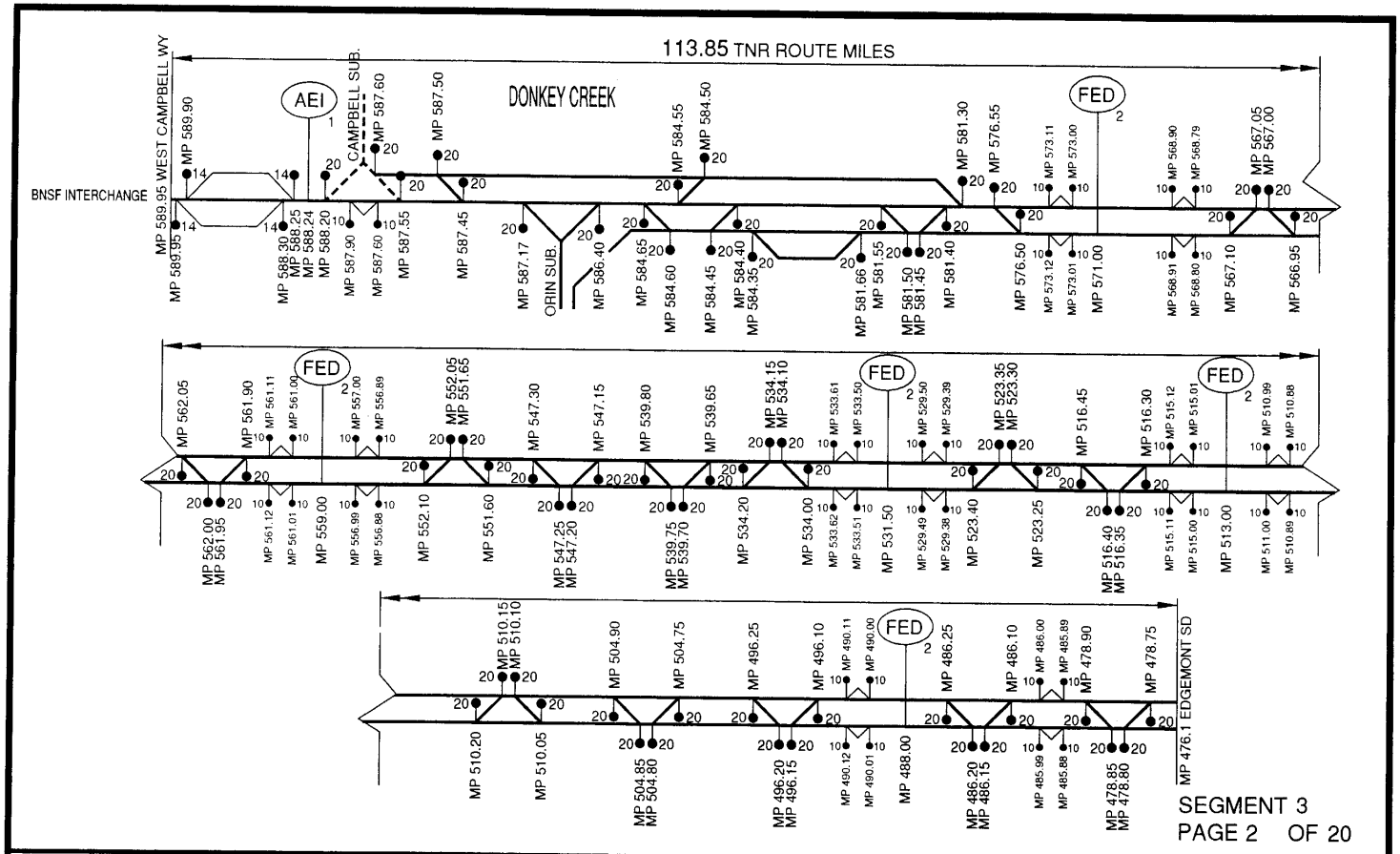
AEI 1 AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

20 = TURNOUT TYPE*

* TURNOUT TYPES
24 - #24 ELECTRIC
20 - #20 ELECTRIC
14- #14 ELECTRIC
14H- #14 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

CAMPBELL, 2/23/2004 7:21:06 PM



DIVISION: **POWDER RIVER**

SUBDIVISION: **BLACK HILLS**

FROM: **WEST CAMPBELL** MP: **589.95**

TO: **EDGEMONT** MP: **476.10**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

(FED) — FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

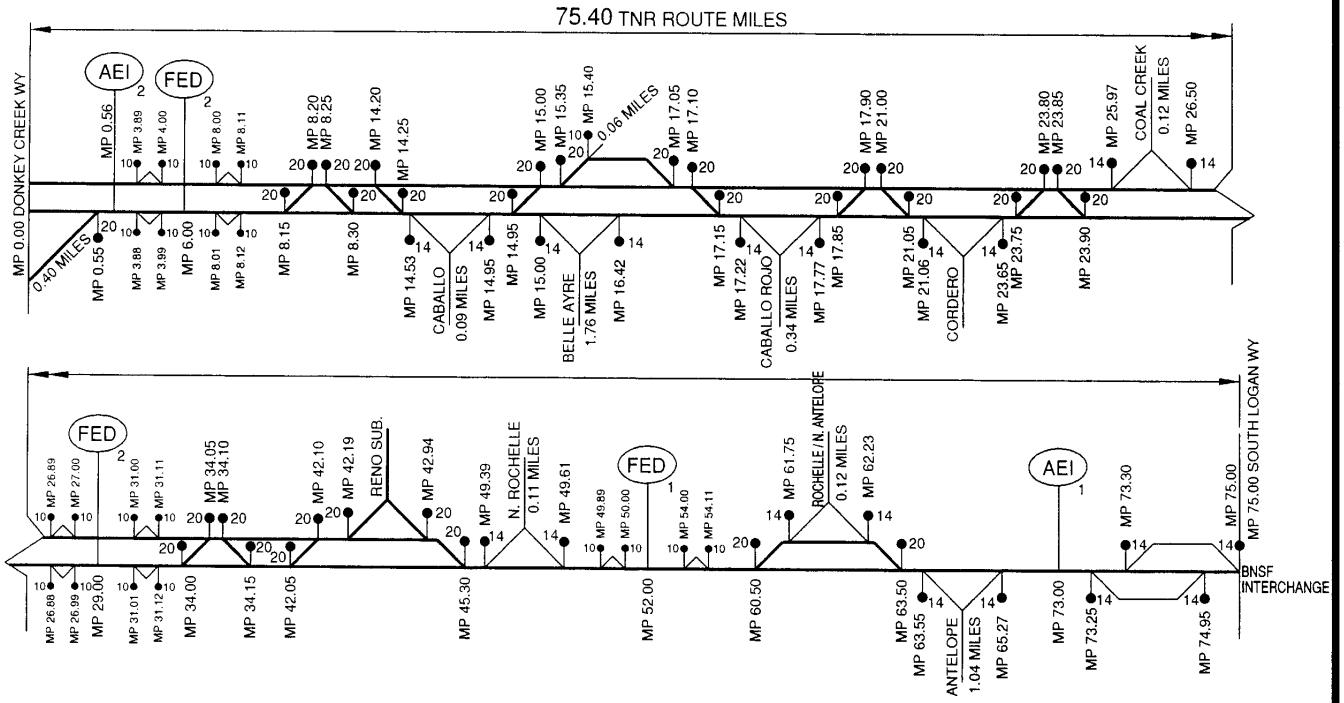
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10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

BLACK HILLS, 2/23/2004 7:21:13 PM



SEGMENT 2
PAGE 3 OF 20

DIVISION: **POWDER RIVER**

SUBDIVISION: **ORIN**

FROM: **DONKEY CREEK** MP: **0.00**

TO: **SOUTH LOGAN** MP: **75.0**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

(FED)$_1$ FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
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HW= HOT WHEEL DETECTOR

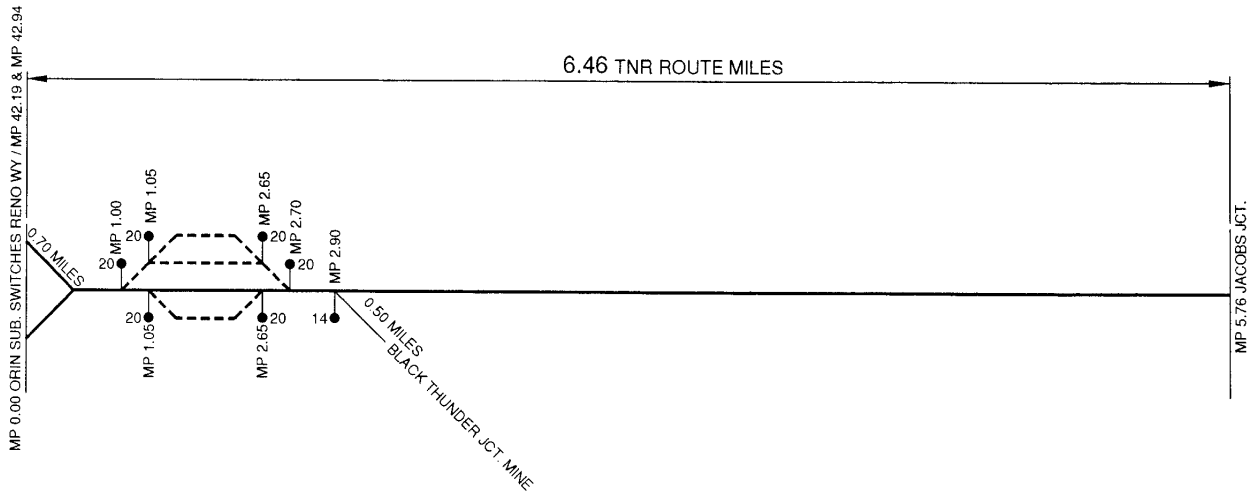
(AEI)$_1$ AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

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14H- #14 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

ORIN, 2/23/2004 7:21:19 PM



SEGMENT 2A
PAGE 4 OF 20

DIVISION: **POWDER RIVER**

SUBDIVISION: **RENO**

FROM: **ORIN SUB. SWITCHES** MP: **0.0**

TO: **JACOBS JCT.** MP: **5.76**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

(FED)$_1$ FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
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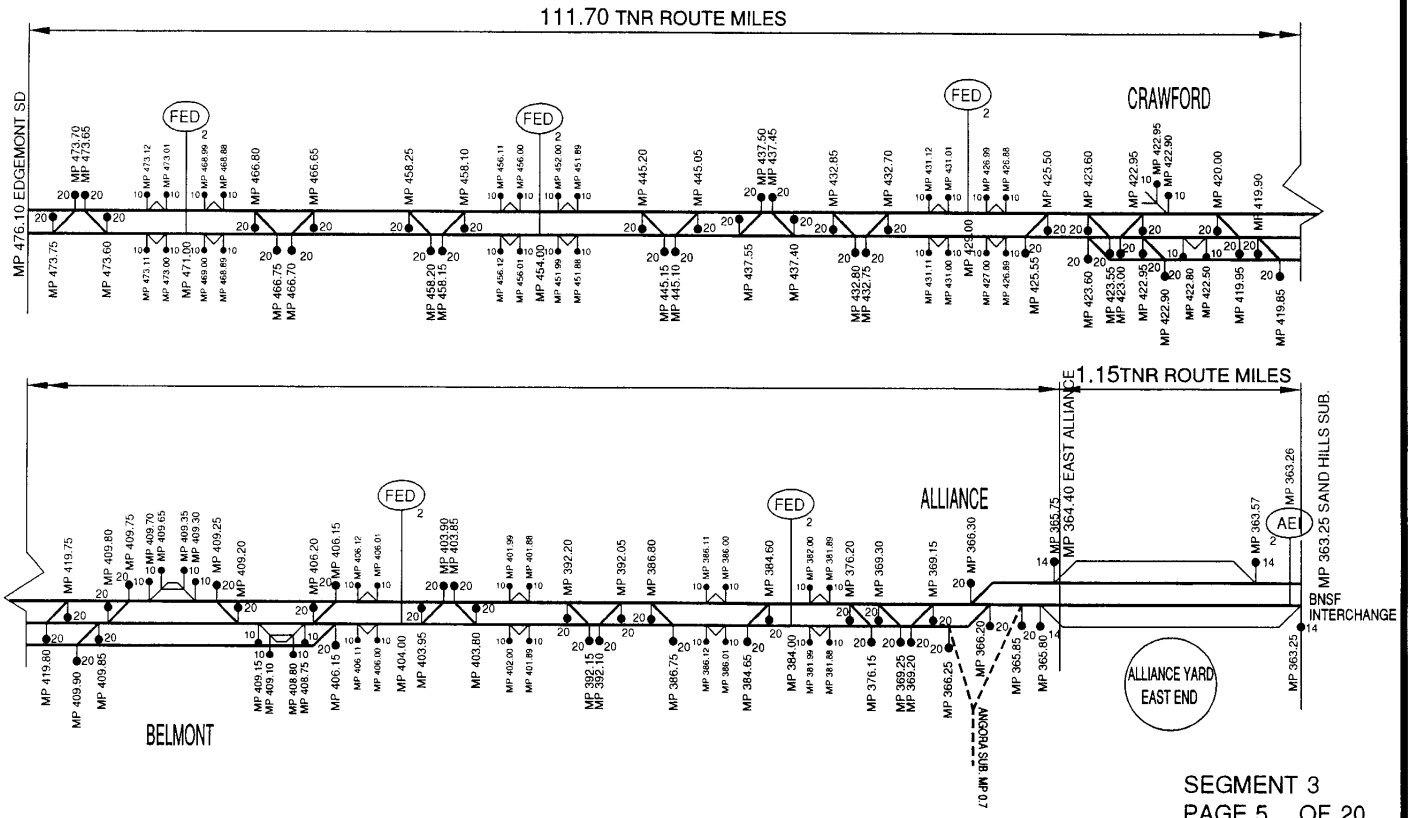
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10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

RENO, 2/23/2004 7:21:24 PM



DIVISION: **POWDER RIVER**

SUBDIVISION: **BUTTE**

FROM: **EDGEMONT** MP: **476.1**

TO: **EAST ALLIANCE** MP: **364.40**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

FED (1) FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED = DRAGGING EQUIPMENT DETECTOR
HW = HOT WHEEL DETECTOR

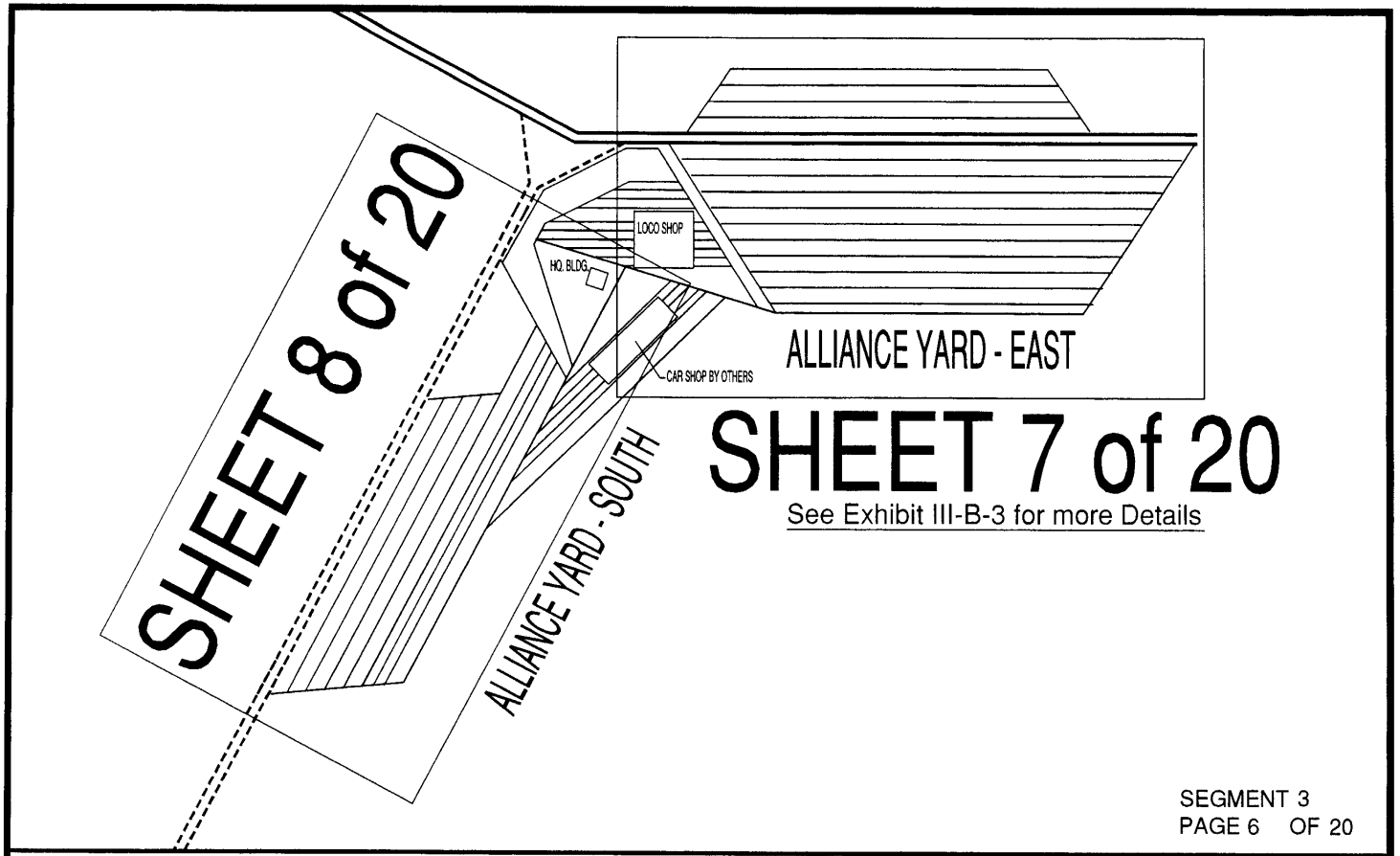
AEI (1) AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

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10E - #10 ELECTRIC

EXHIBIT: **III-B-1**

BUTTE, 2/23/2004 7:21:30 PM



SEGMENT 3
PAGE 6 OF 20

ALLIANCE YARD OVERALL, 2/23/2004 7:21:36 PM

DIVISION: **POWDER RIVER**

SUBDIVISION: **BUTTE / ANGORA**

FROM: **ALLIANCE YARD OVERVIEW** MP:

TO: MP:

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

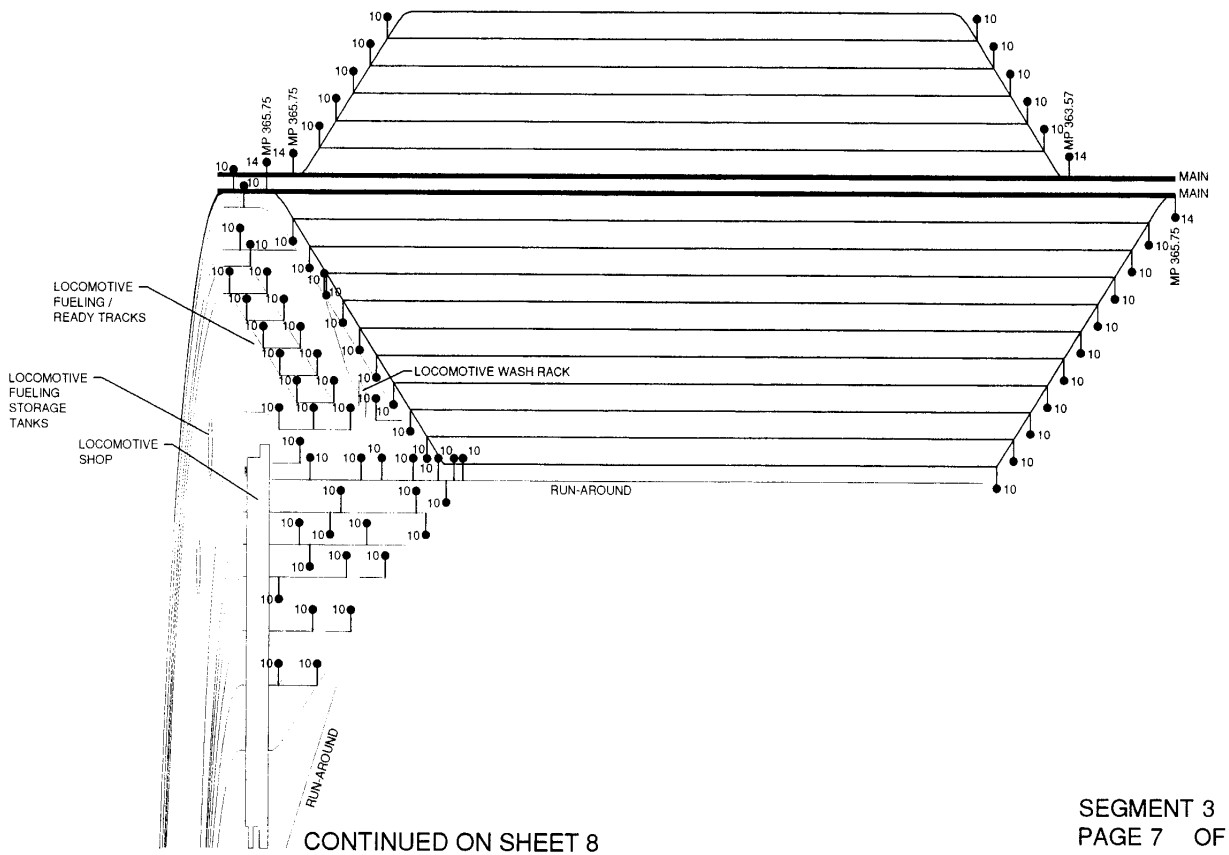
FED (1) FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
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HW= HOT WHEEL DETECTOR

AEI (1) AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

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10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**



CONTINUED ON SHEET 8

SEGMENT 3
PAGE 7 OF 20

DIVISION: **POWDER RIVER**

SUBDIVISION: **BUTTE**

FROM: **ALLIANCE YARD - EAST** MP: **365.80**

TO: MP: **363.25**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

FED (1) FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
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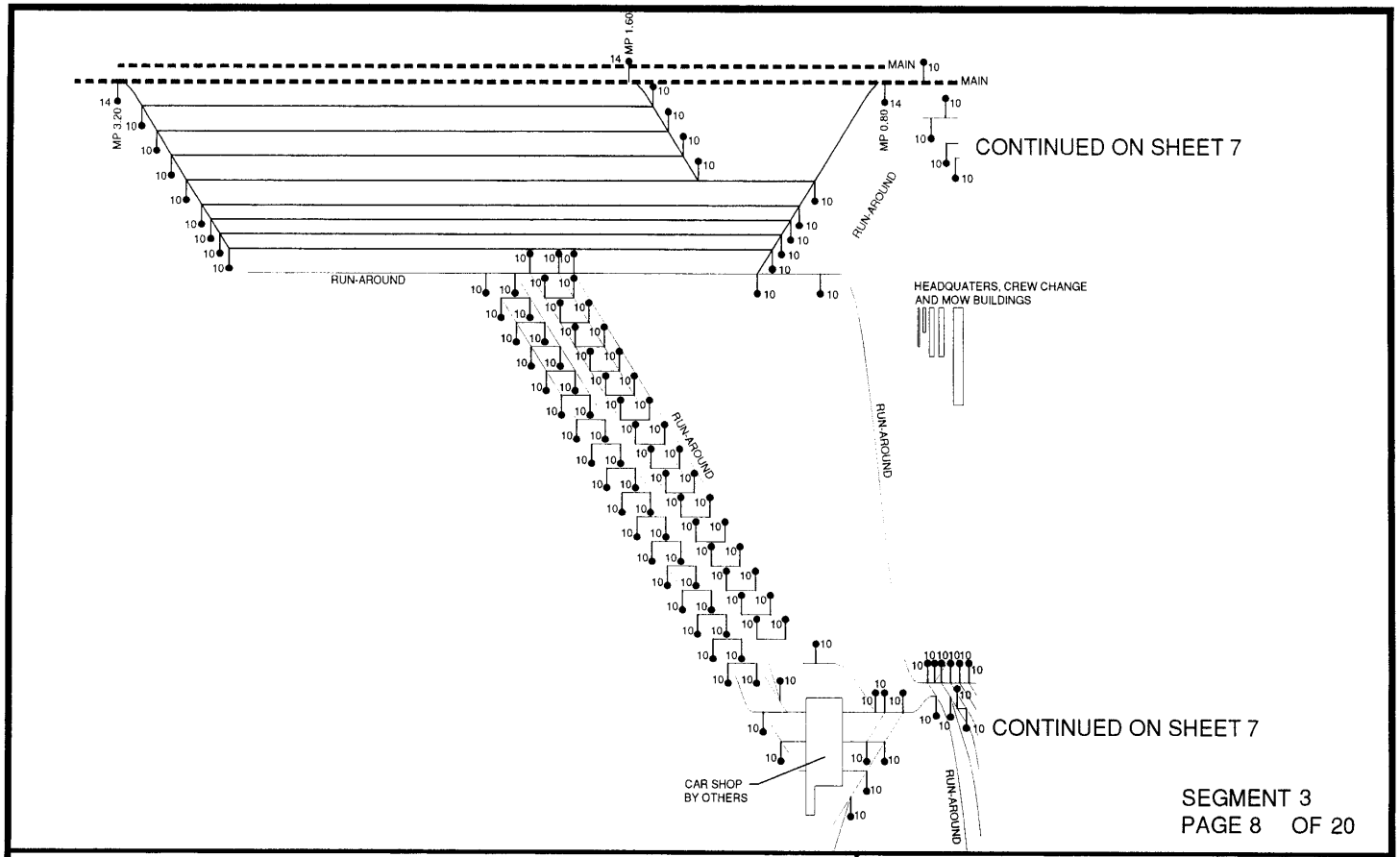
AEI (1) AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

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10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

E. ALLIANCE YARD, 2/23/2004 7:21:41 PM



SEGMENT 3
PAGE 8 OF 20

DIVISION: **POWDER RIVER**

SUBDIVISION: **ANGORA**

FROM: **ALLIANCE YARD - SOUTH** MP: **0.80**

TO: MP: **3.20**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

FED 1 — FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
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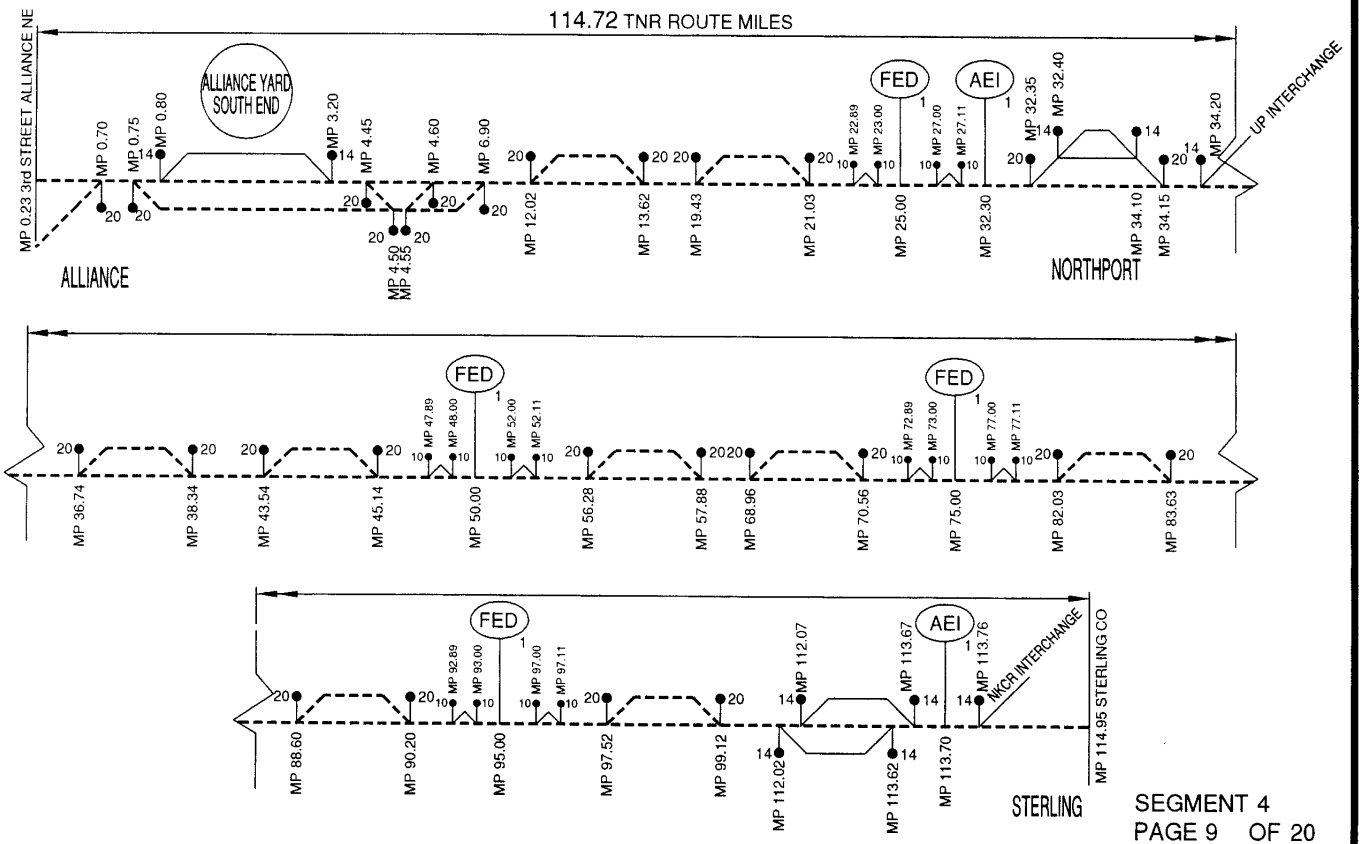
AEI 1 — AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

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10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

S. ALLIANCE YARD, 2/23/2004 7:21:46 PM



SEGMENT 4
PAGE 9 OF 20

DIVISION: **POWDER RIVER**

SUBDIVISION: **ANGORA**

FROM: **3rd STREET ALLIANCE** MP: **0.23**

TO: **STERLING** MP: **114.95**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

FED 1 FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
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HW= HOT WHEEL DETECTOR

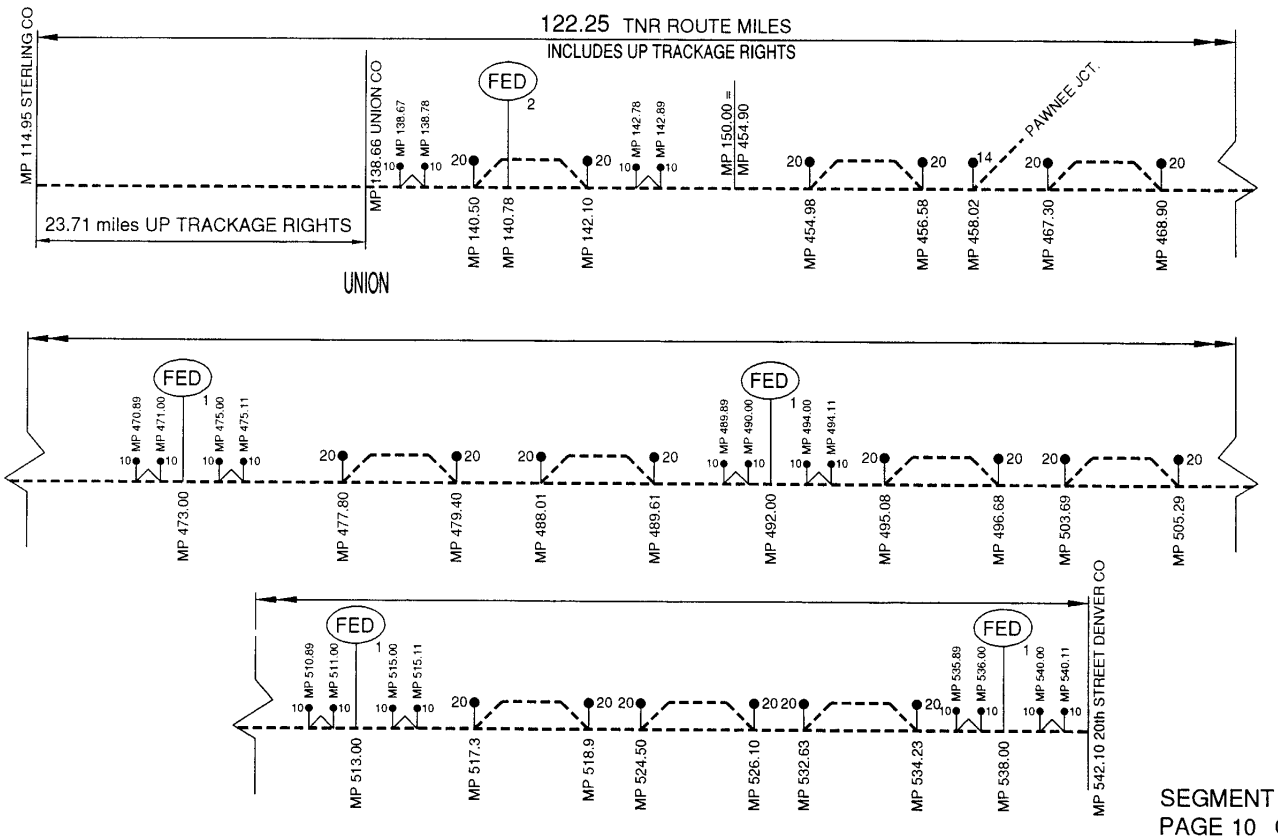
AEI 1

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10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

ANGORA, 2/23/2004 7:21:52 PM



SEGMENT 4
PAGE 10 OF 20

DIVISION: **POWDER RIVER**

SUBDIVISION: **BRUSH**

FROM: **STERLING** MP: **114.95**

TO: **20th STREET DENVER** MP: **542.10**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

(FED) FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

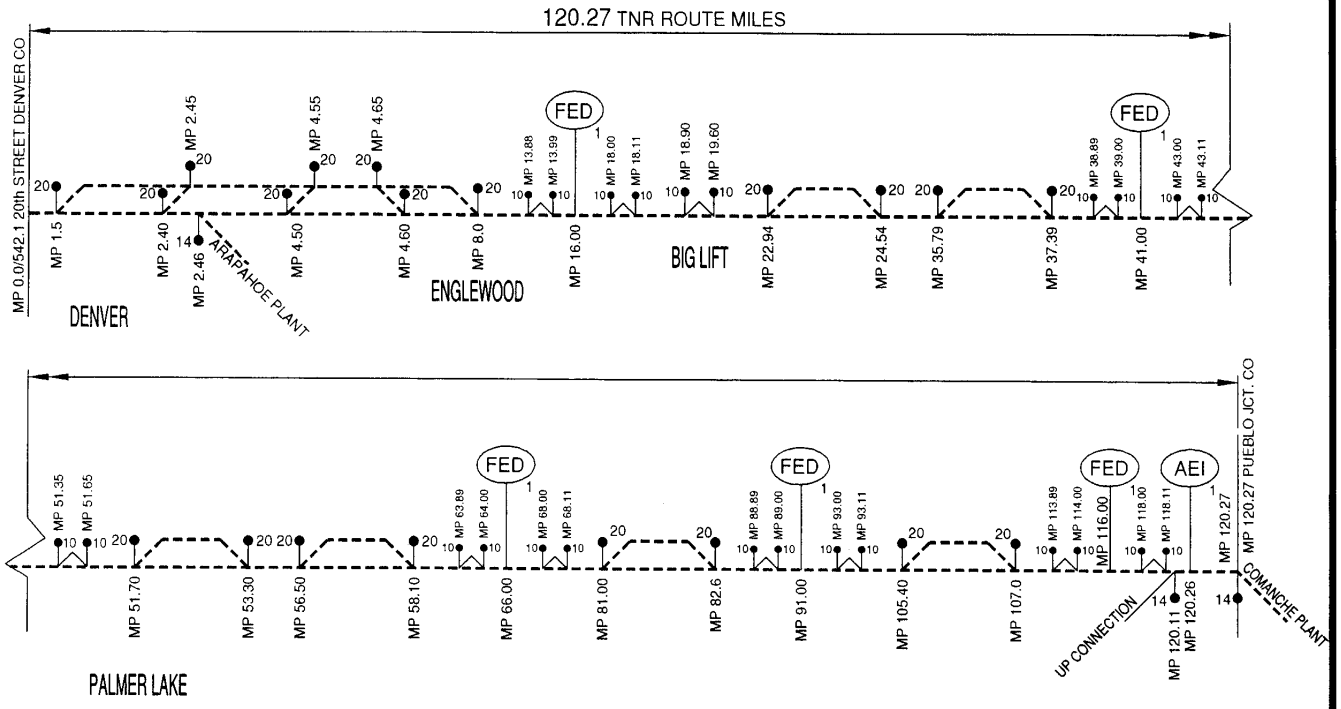
(AEI) AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

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10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

BRUSH, 2/23/2004 7:21:58 PM



SEGMENT 5
PAGE 11 OF 20

DIVISION: **POWDER RIVER**

SUBDIVISION: **PIKES PEAK**

FROM: **20th STREET DENVER** MP: **0.0**

TO: **PUEBLO JCT.** MP: **120.27**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

FED (1) FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

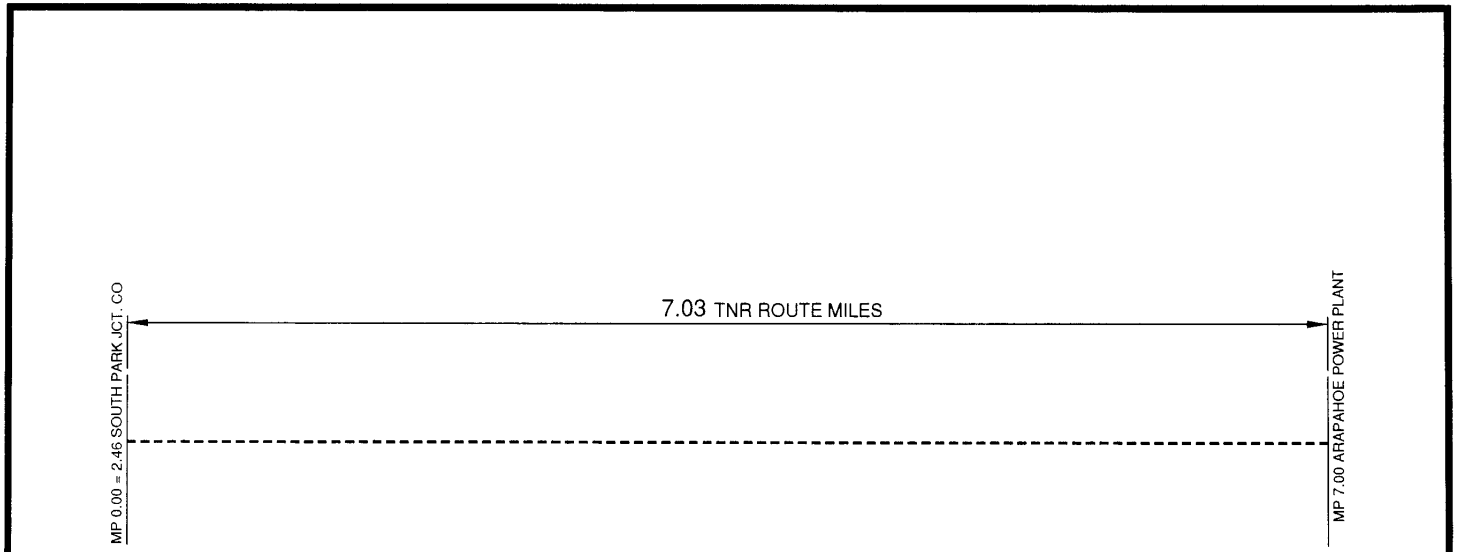
AEI (1) AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

20 = TURNOUT TYPE*

* TURNOUT TYPES
24 - #24 ELECTRIC
20 - #20 ELECTRIC
14- #14 ELECTRIC
14H- #14 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

PIKES PEAK, 2/23/2004 7:22:03 PM



SEGMENT 5A
PAGE 12 OF 20

DIVISION: **POWDER RIVER**

SUBDIVISION: **PIKES PEAK**

FROM: **SOUTH PARK JCT.** MP: **0.00**

TO: **ARAPAHOE POWER PLANT** MP: **7.00**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

(FED)$_1$ FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
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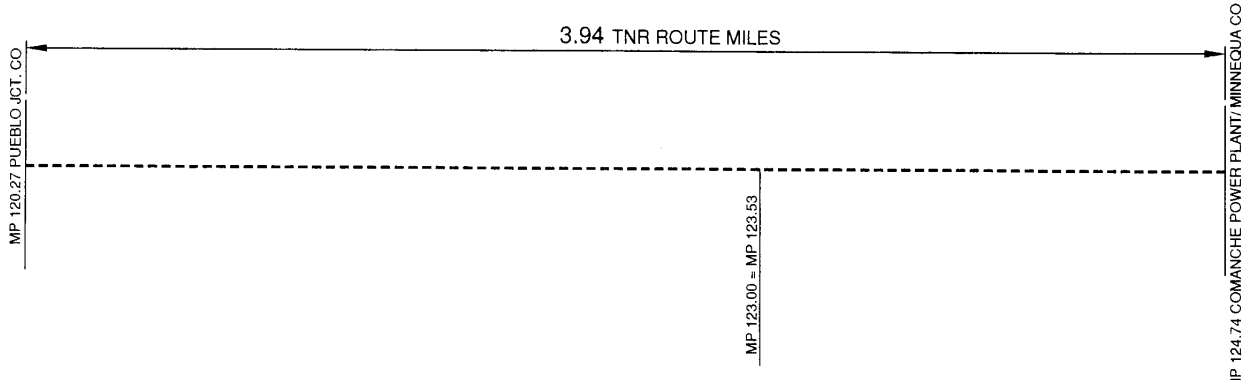
(AEI)$_1$ AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

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14H- #14 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

PIKES PEAK.ARAPAHOE POWER, 2/23/2004 7:22:09 PM



SEGMENT 5B
PAGE 13 OF 20

DIVISION: **POWDER RIVER**

SUBDIVISION: **SPANISH PEAKS**

FROM: **PUEBLO** MP: **120.27**

TO: **COMANCHE POWER PLANT** MP: **124.74**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

FED — FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

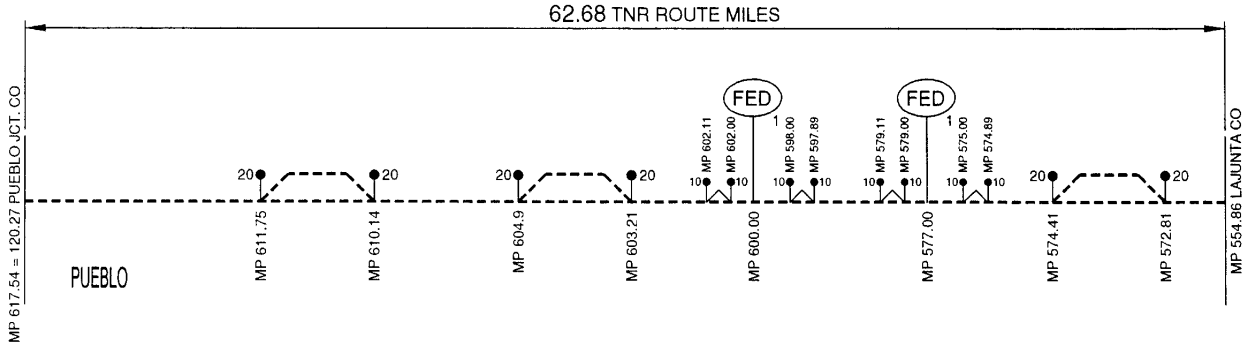
AEI — AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

20 = TURNOUT TYPE*

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14- #14 ELECTRIC
14H- #14 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

SPANISH PEAKS.COMANCHE POWER, 2/23/2004 7:22:14 PM



SEGMENT 6
PAGE 14 OF 20

DIVISION: **POWDER RIVER**

SUBDIVISION: **PUEBLO**

FROM: **PUEBLO** MP: **617.54**

TO: **LA JUNTA** MP: **554.86**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

FED 1 — FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
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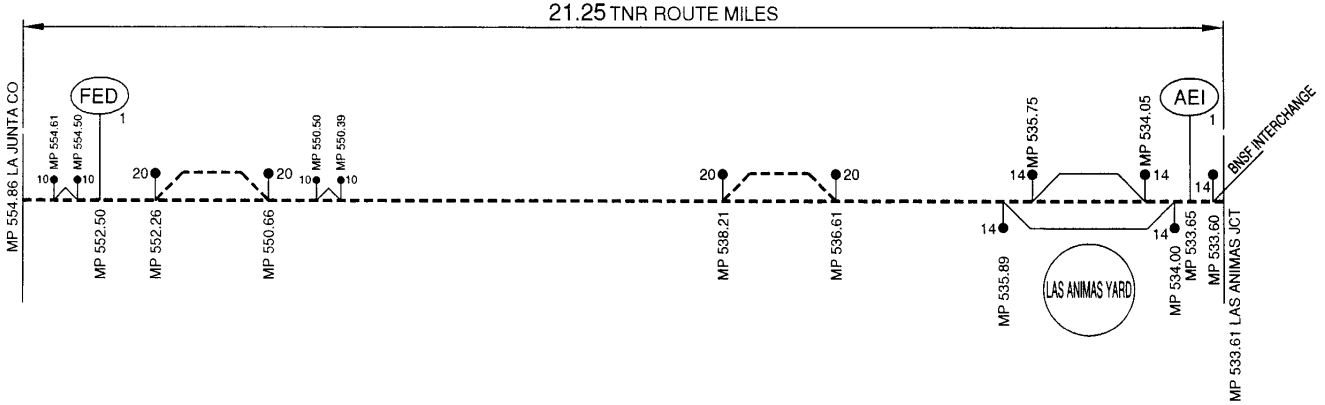
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10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

PUEBLO, 2/23/2004 7:22:19 PM



SEGMENT 7
PAGE 15 OF 20

DIVISION: **KANSAS**

SUBDIVISION: **LA JUNTA**

FROM: **LA JUNTA** MP: **554.86**

TO: **LAS ANIMAS JCT** MP: **533.61**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

FED (1) FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
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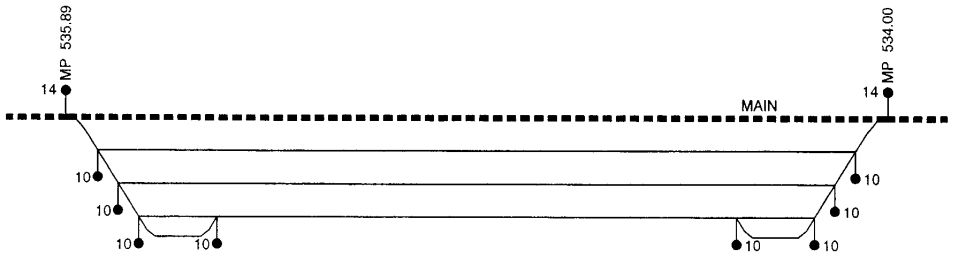
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10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

LA JUNTA, 2/23/2004 7:22:25 PM



SEGMENT 7
PAGE 16 OF 20

DIVISION: **KANSAS**

SUBDIVISION: **LA JUNTA**

FROM: **LAS ANIMAS YARD** MP: **535.85**

TO: MP: **534.00**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

FED (1) FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
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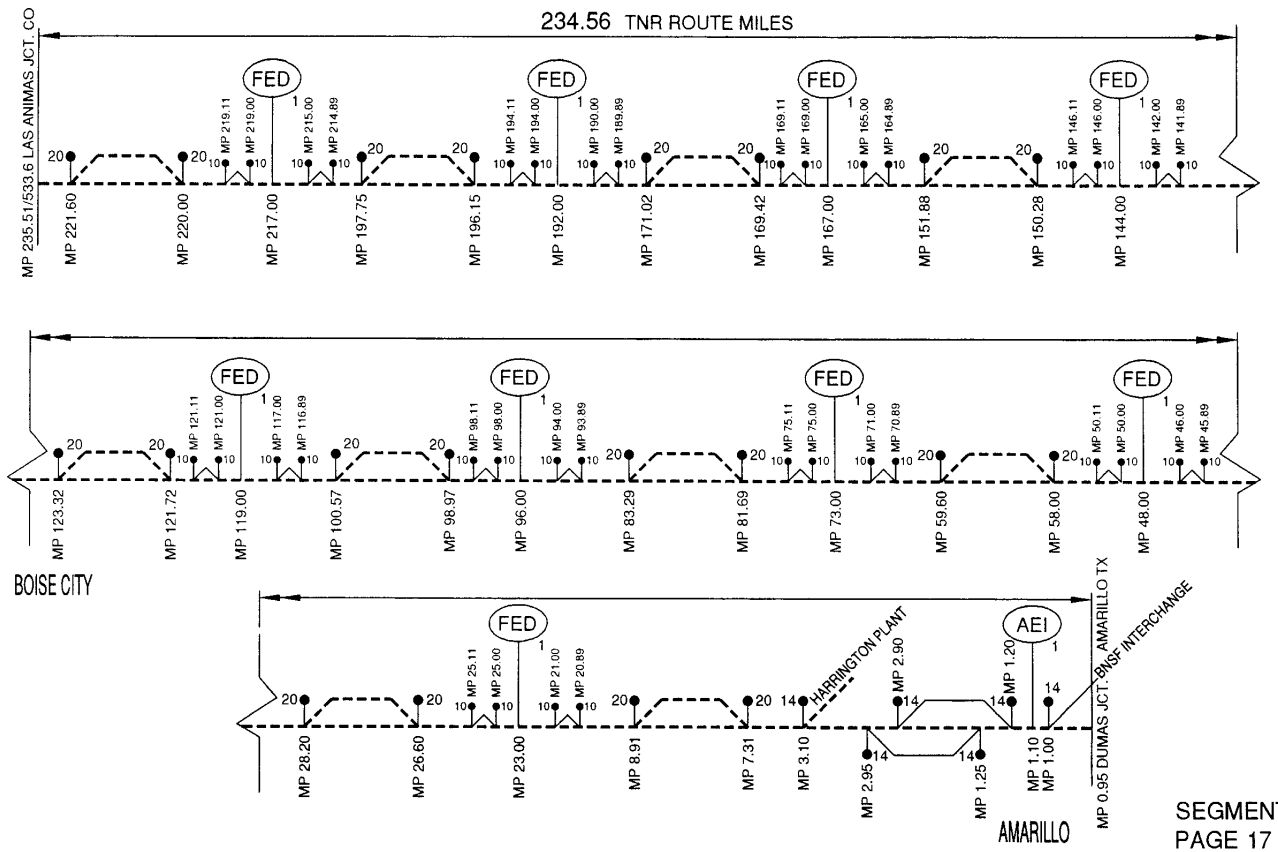
AEI (1) AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

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10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

LAS ANIMAS YARD, 2/23/2004 7:22:30 PM



DIVISION: **KANSAS**

SUBDIVISION: **BOISE CITY**

FROM: **LAS ANIMAS JCT.** MP: **235.51**

TO: **DUMAS JCT.** MP: **0.95**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

FED (1) FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
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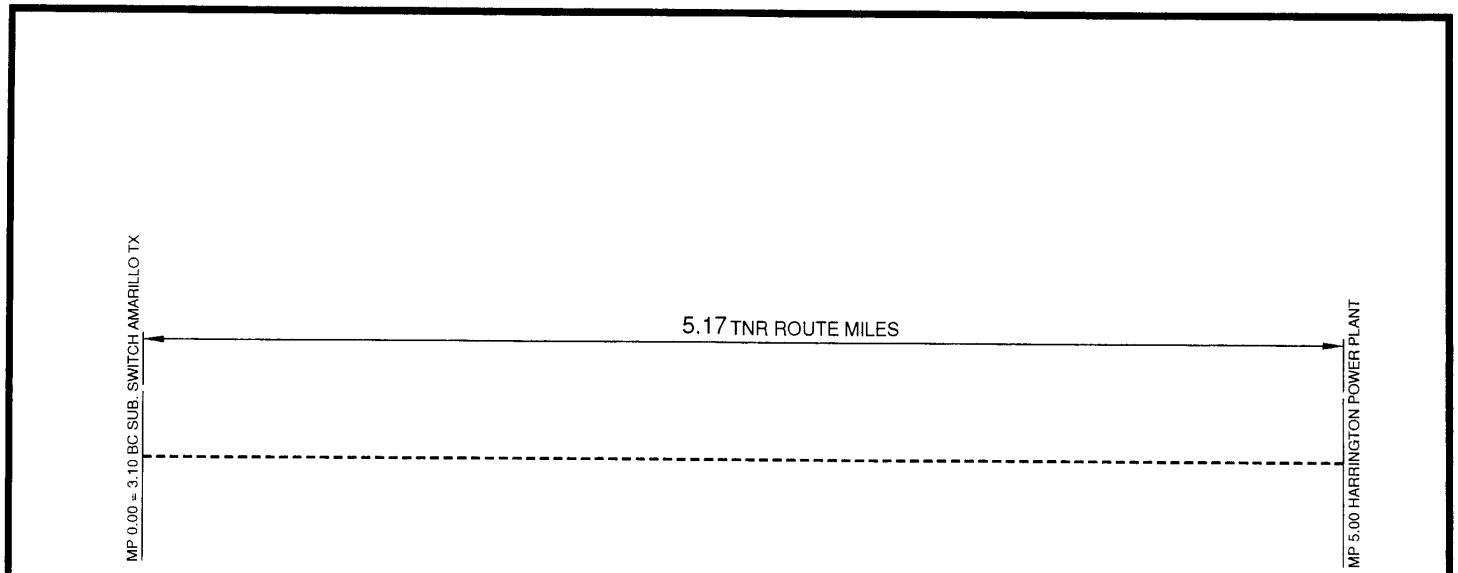
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10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

BOISE CITY, 2/23/2004 7:22:35 PM



SEGMENT 8B
PAGE 18 OF 20

DIVISION: **KANSAS**

SUBDIVISION: **BOISE CITY**

FROM: **AMARILLO** MP: **0.00**

TO: **HARRINGTON POWER PLT.** MP: **5.00**

DATE: **02/19/04**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

(FED)$_1$ FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

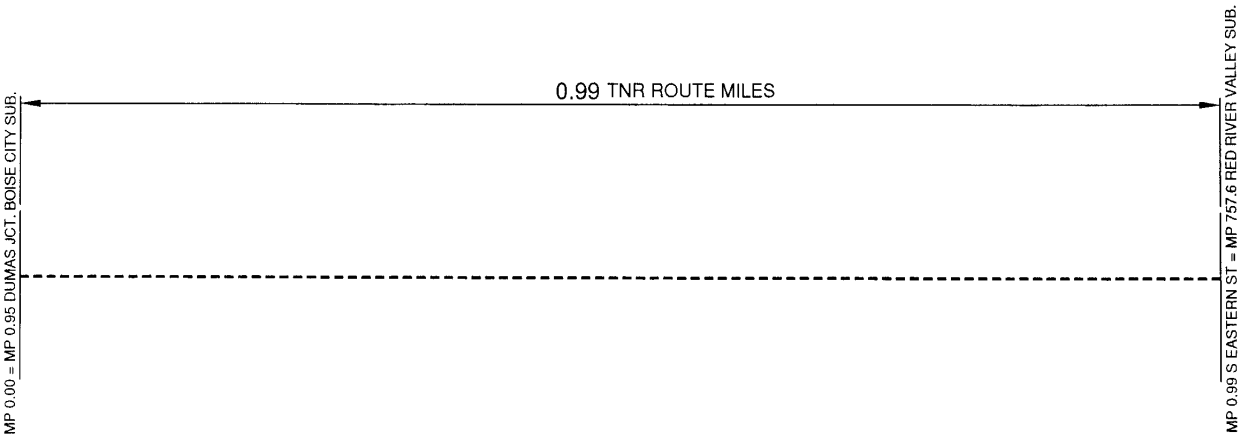
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10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

HARRINGTON BRANCH, 2/23/2004 7:22:41 PM



SEGMENT 8A
PAGE 19 OF 20

DIVISION: **TEXAS**

SUBDIVISION: **B.C./R.R.V. CONNECTION**

DATE: **02/19/04**

FROM: **DUMAS JCT.** MP: **0.95**

TO: **S. EASTERN ST.** MP: **757.6/332.6** NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

(FED 1) FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
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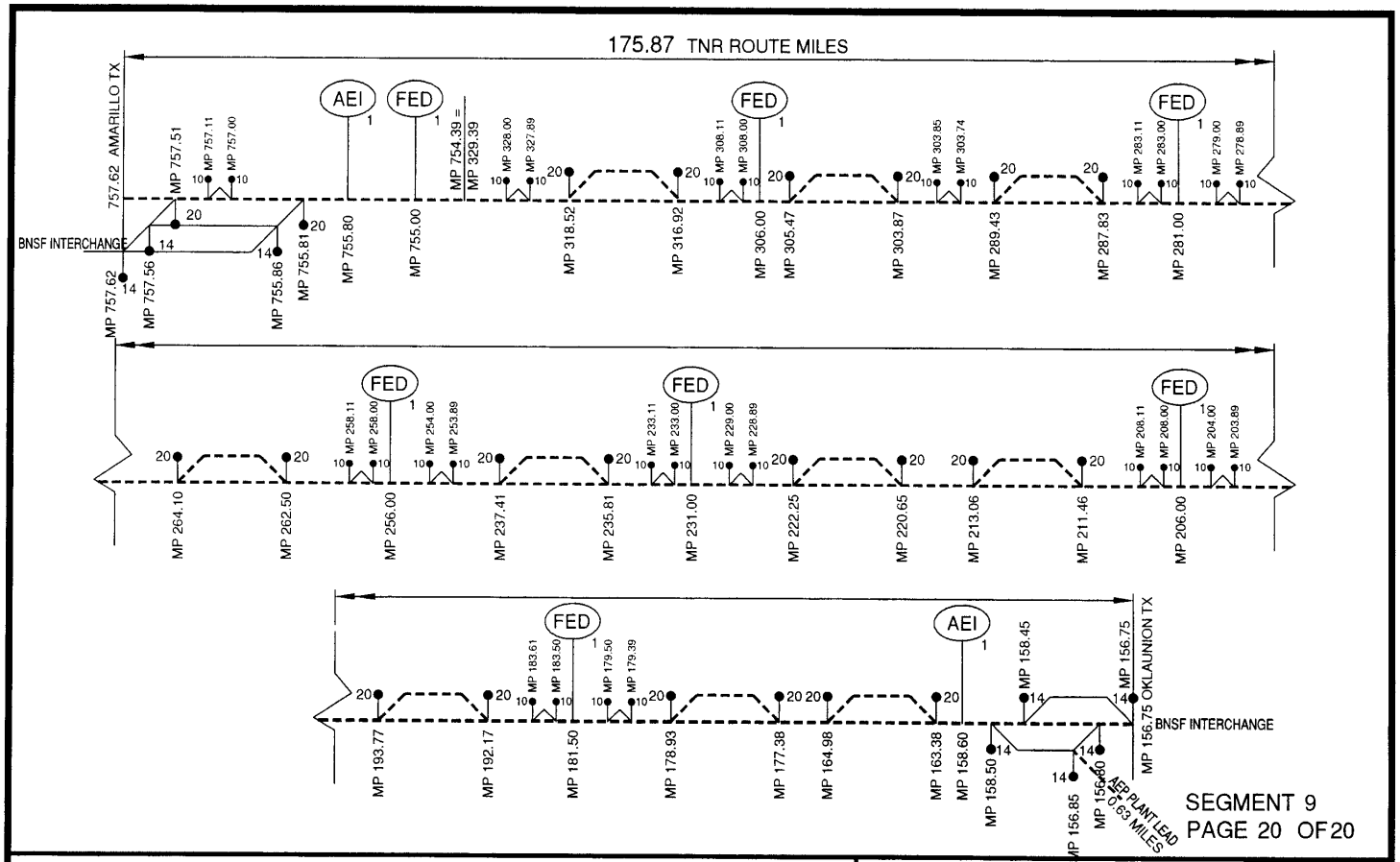
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10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

BC-RRV CONNECTION, 2/23/2004 7:22:46 PM



SEGMENT 9
PAGE 20 OF 20

RED RIVER VALLEY, 2/23/2004 7:22:51 PM

DIVISION: **TEXAS**

SUBDIVISION: **RED RIVER VALLEY**

DATE: **02/19/04**

FROM: **AMARILLO** MP: **757.62**

TO: **W. TEXAS POWER** MP: **156.75**

NOT TO SCALE

LEGEND:

- 136# PREMIUM CWR
- 136# STANDARD CWR
- 115# CWR CLASS 1 RELAY

(FED) — FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED = DRAGGING EQUIPMENT DETECTOR
HW = HOT WHEEL DETECTOR

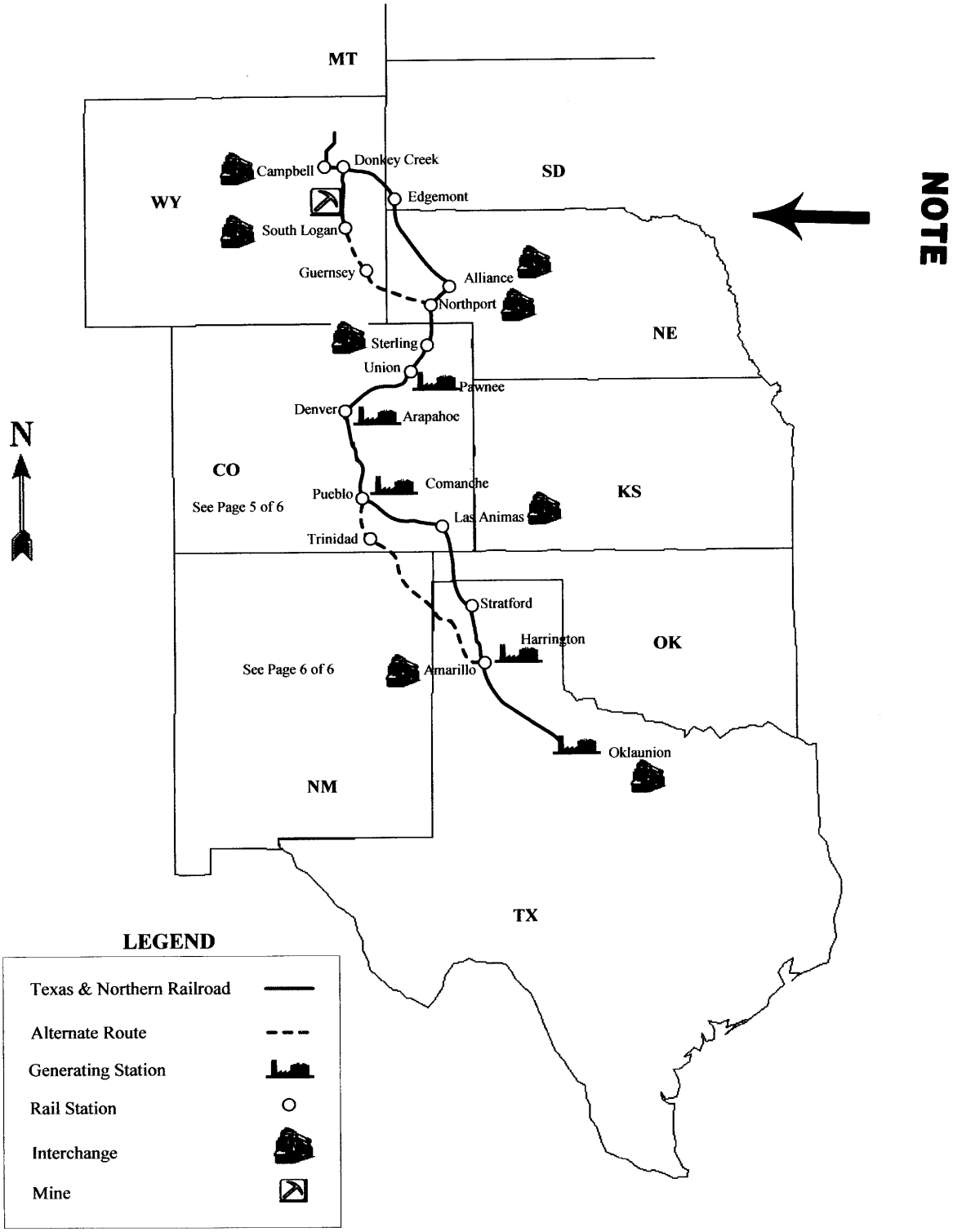
(AEI) — AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

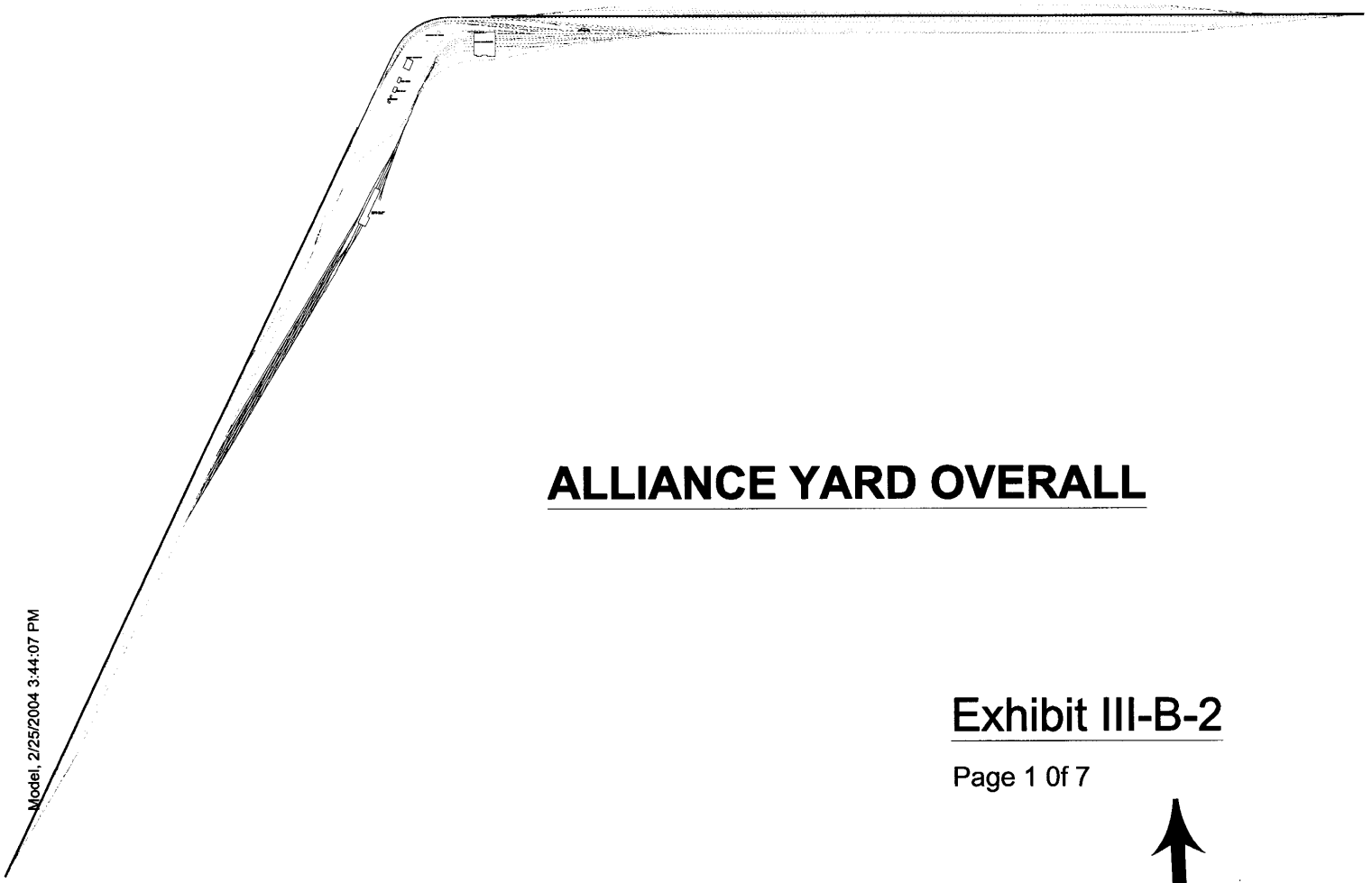
20 = TURNOUT TYPE*

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14H - #14 HAND-THROWN
10S - #10 SPRING
10 - #10 HAND-THROWN
10E - #10 ELECTRIC

EXHIBIT: **III-B-1**

Schematic of Texas & Northern Railroad and Route Alternatives

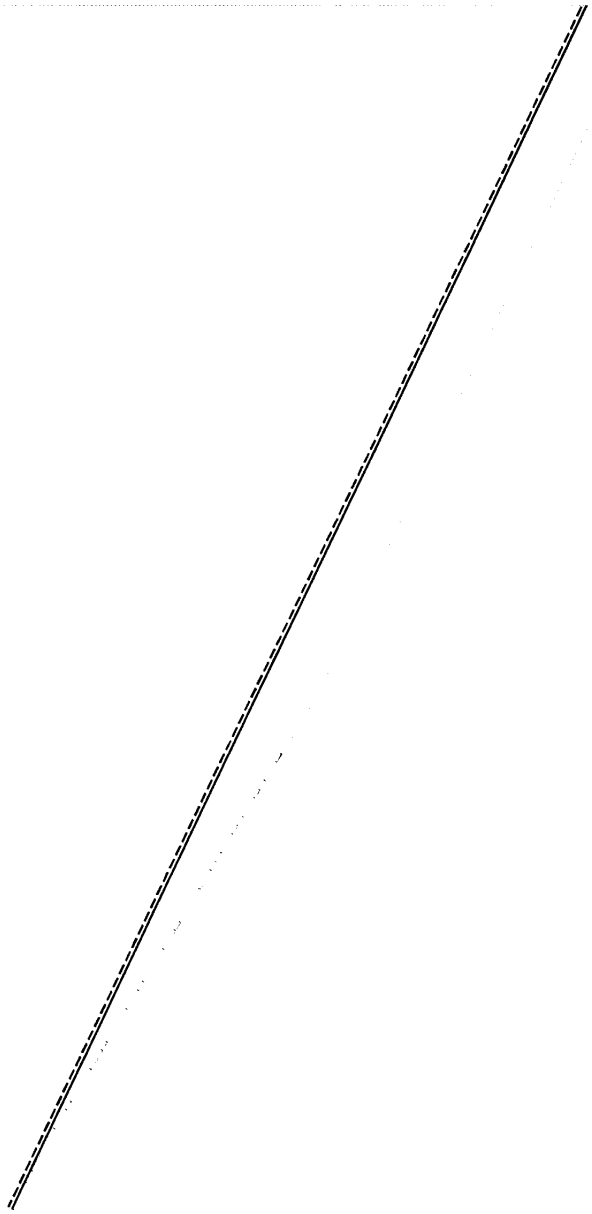




ALLIANCE YARD OVERALL

Exhibit III-B-2

NOTE



NOTE

Layout1, 2/25/2004 3:44:09 PM

Exhibit III-B-2

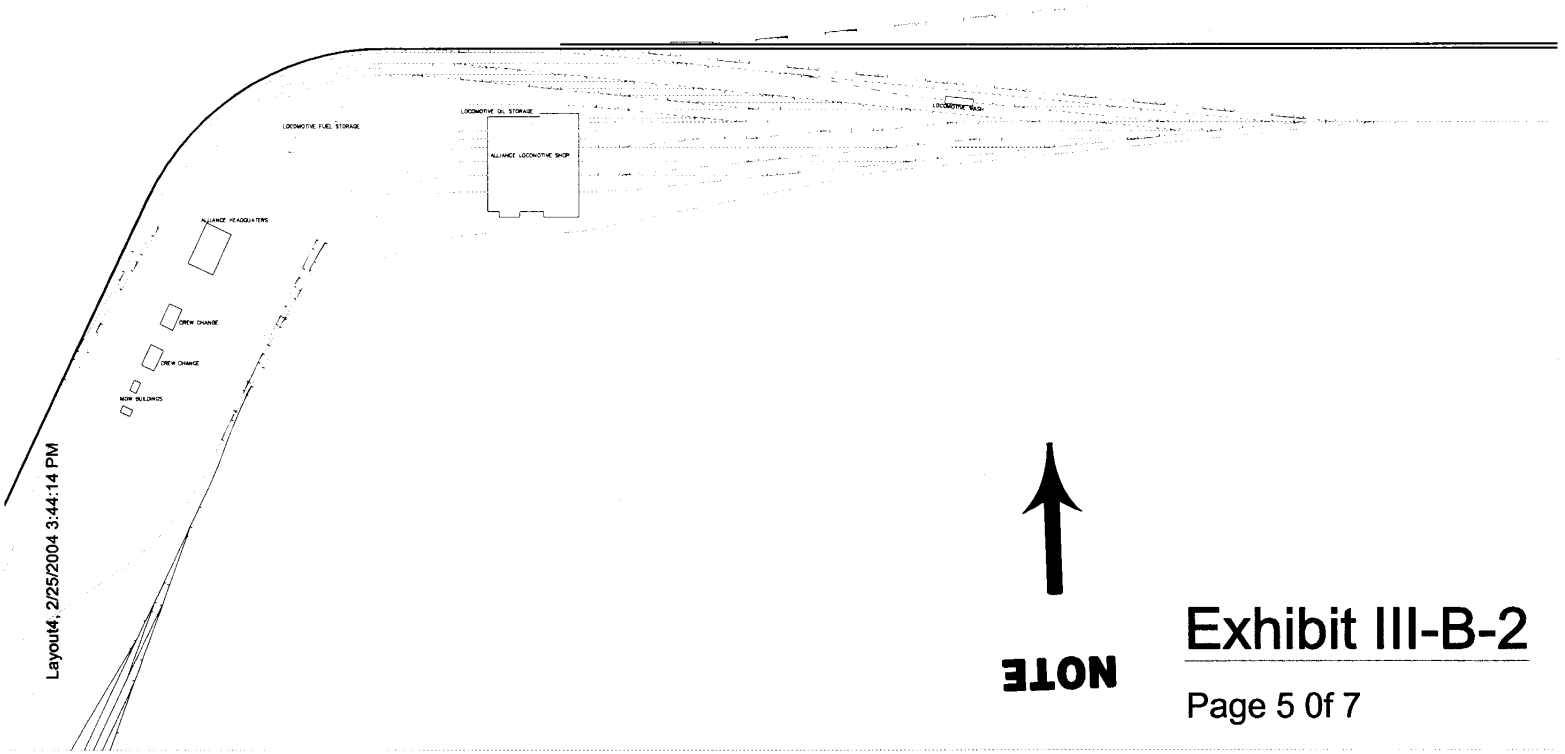
Exhibit III-B-2

Page 3 0f 7

Layout2, 2/25/2004 3:44:11 PM

Exhibit III-B-2

Layout3, 2/25/2004 3:44:12 PM



Layout4, 2/25/2004 3:44:14 PM

Exhibit III-B-2

Exhibit III-B-2

NOTE

Layouts, 2/25/2004 3:44:16 PM

NOTE

Exhibit III-B-2

Layout6, 2/25/2004 3:44:17 PM

Exhibit III-B-3
Redacted

2020 TNR Density

	Segment				Round Trip
	From	To	Trains	Net Tons	Trailing Tons
	(1)	(2)	(3)	(4)	(5)
1.	Campbell Branch		3,866	53,341,826	75,745,394
2.	Reno Branch		5,756	77,370,119	109,865,569
3.	E Campbell	Donkey Creek	3,715	51,330,735	72,889,643
4.	Donkey Creek	Reno	12,672	173,927,133	246,976,529
5.	Reno	Converse Jct	3,951	56,351,696	80,019,409
6.	Converse Jct	South Logan	953	13,516,033	19,192,767
7.	Donkey Creek	Alliance	13,983	190,257,032	270,164,986
8.	Alliance	Northport	4,469	59,281,823	84,180,189
9.	Northport	Sterling	3,704	48,354,740	68,663,730
10.	Sterling	Pawnee Jct	3,576	46,664,791	66,264,003
11.	Pawnee Jct	Denver	3,382	44,194,222	62,755,795
12.	Denver	Pueblo	3,324	43,389,703	61,613,379
13.	Pueblo	Las Animas	3,115	41,058,291	58,374,707
14.	Las Animas	Amarillo	2,857	37,829,843	53,790,309
15.	Amarillo	Oklaunion	4,830	33,346,814	51,170,913

Source: electronic workpaper "TNR Density.xls"

III-F Road Property Investment

Exhibit III-F-1
Redacted

LAND ACQUISITION COST

FOR

TEXAS & NORTHERN RAILROAD

AEP Texas North Co. v. BNSF Co.

STB Docket No. 41191
(Sub-No.1)

REPORT DATE:
February 12, 2004

VALUATION DATE:
July 1, 2000

PREPARED FOR:
AEP Texas North Company
c/o Slover & Loftus
1224 Seventeenth Street, N.W.
Washington, D.C. 20036-3003

PREPARED BY:
THORNE CONSULTANTS, INC.
10605 Concord Street, Suite 420
Kensington, Maryland 20895
TEL: (301) 231-4700 FAX: (301) 231-4704

THORNE CONSULTANTS, INC.
REAL ESTATE COUNSELING

February 12, 2004

AEP Texas North Company
c/o Slover & Loftus
Mr. Christopher A. Mills
1224 Seventeenth Street, N.W.
Washington, D.C. 20036-3003

Re: BNSF Railroad Right-of-Way
Texas & Northern Railroad
Six States from Gillette, WY to Oklaunion, TX
AEP Texas North Co. v. Burlington Northern and Santa Fe Ry. (BNSF)
STB Docket No. 41191 (Sub-No.1)

Mr. Mills:

In accordance with your recent letter of engagement, we performed an appraisal of the above-referenced property. We recently completed site inspections of the right-of-way, obtained comparable sales from selected counties in most of the states, inspected the comparable sales, and reviewed deeds relating to the sales. This letter of transmittal is an integral part of the attached report and its addenda. The report is to be read, understood and used only in its entirety.

This report is prepared for and our professional fee billed to our client, AEP Texas North Company, under the direction of its legal counsel, Slover & Loftus. The report and addenda are intended only for use by our client as a portion of its work product regarding the above-referenced litigation. Our client recognizes that the signatories to the report and Thorne Consultants, Inc., are unbiased third parties with no role in any past or present decisions regarding the acquisition, development, operation or disposition of the BNSF Railroad. This report is invalid if used for any purposes other than those represented to us by our client, and the report may not be relied on for any purpose by any person or firm other than our client, without the express written consent of the appraisers. Thorne Consultants, Inc., and the signatories to this report assume no obligation, liability or accountability to any user or reader of this document other than the client to whom our report is addressed.

The purpose of this appraisal is to provide our competent, disinterested and unbiased opinion of the acquisition price to acquire the right -of-way for the hypothetical stand-alone railroad ("SARR"), the Texas & Northern Railroad ("TNR"). The TNR was designed to support AEP Texas North's power plant in Oklaunion, TX. The real estate along the TNR right-of-way was analyzed in its undeveloped condition (without improvements), without consideration of adjacent ownership boundaries, ownership, severance damages or assemblage premiums on or about July 1, 2000, the effective date of our opinion.

The attached report identifies the right -of-way and easements to serve AEP Texas North Company's plant in Oklaunion, Texas. The scope of our work is detailed at the outset of the report, and the addenda includes supporting documents and our qualifications.

The real estate comprising the SARR is identified below:

Rights-of-Way in Fee and Easements	14,201.01 Acres
Right-of-Way	13,110.75 Acres
Easements	755.42 Acres
Yards	273.34 Acres
Radio System (various states)	61.5 Acres

Based upon our recent inspection of the property and the investigation and analysis undertaken, and given a range of possible costs, subject to the stated assumptions and limiting conditions, it is our opinion that the estimated and most probable retrospective cost to acquire the right-of-way, easements, yards and side tracks for the SARR identified as "Texas & Northern Railroad," including land owned in fee and easements, in its assumed undeveloped condition (vacant right-of-way), on or about July 1, 2000, was **$89,500,000**.

We are available to respond to your questions concerning this report, and we appreciate this opportunity to provide our real estate services to AEP Texas North Company and your firm.

Respectfully submitted,
THORNE CONSULTANTS, INC.

Oakleigh J. Thorne, MAI

Certified General Real Estate Appraiser, Commonwealth of Virginia #4001-1708
Certified General Real Estate Appraiser, District of Columbia - GA10140
Certified General Real Estate Appraiser, Maryland #1956

Temporary Permits as a Certified General Real Estate Appraiser in:
State of Nebraska, Temporary Permit #CG230131
State of South Dakota, Temporary Permit #0388-T-2003
State of Texas, Temporary Permit #881221145
The remaining states of Oklahoma, Colorado and Wyoming are Non-Mandatory States

SUMMARY OF IMPORTANT FACTS AND CONCLUSIONS

Subject Property:	Burlington Northern and Santa Fe Company (BNSF) railroad rights-of-way beginning near Gillette, WY, and ending at the AEP Texas North Company's (AEP) power plant in Oklaunion, TX
SARR Identification:	Texas & Northern Railroad ("TNR")
Price Opinion Date:	On or about July 1, 2000
Report Date:	February 12, 2004
Ownership Rights:	Fee Simple Estate (subsurface mineral reservations are common throughout all six states and are considered in our pricing estimates). There are also several locations throughout the system where BNSF has easement rights only.
Land Owner of Record:	Various corporation names are used throughout the length of the railroad; the parent company is BNSF.

Land Area:

	Acres
Rights-of-Way:	14,201.01 (in Fee and Easements)
Rights-of-Way:	755.42 (in Easements; this is a subset of the above number)
Yards:	273.34 (in Fee at two locations)
Radio System:	61.50 (in Fee at various locations)

Land Area Sources:	Stone Consulting & Design, Inc. and Thorne Consultants, Inc.
Typical Right-of Way Width:	About 100 feet (Rural/Suburban - areas identified within the report) About 75 feet (Urban/Mixed-Use - areas identified within the report) (The more narrow right-of-way width was used in the following cities or towns: Denver, Colorado Springs and Pueblo, Colorado, and Amarillo, Texas)
Additional Land Requirements:	Slopes adjacent to portions of the right-of-way, at open-cut tunnels, and yards are necessary to build and operate the rail line where widths for short distances was set at 150 feet. Other additional land areas for two rail yards and communication tower pads (about 1.5 acres each) were also required.

LAND ACQUISITION COST OPINION $89,500,000
(Includes Easements)

PURPOSE, SCOPE, AND USE OF THE APPRAISAL

PURPOSE

The purpose of this report is to provide our competent, disinterested and unbiased opinion of the most probable and hypothetical cost to acquire the TNR right-of-way in fee and through easements. Some of the property interests of the railroad are encumbered by mineral reservations (which are considered in our pricing estimates). The real estate along the TNR right-of-way was analyzed in its undeveloped condition (without improvements) and without consideration of adjacent ownership boundaries, abutting ownership, severance damages or assemblage premiums on or about July 1, 2000, the effective date of our price opinion.

SCOPE

The work scope and tasks relating to this assignment are outlined in detail in the following sections of the report.

USE OF THE APPRAISAL

This report is prepared for and our professional fee billed to our client, AEP Texas North Company (AEP) under the direction of its legal counsel, Slover & Loftus. It is our understanding that the report is to be used as work product in litigation between AEP and BNSF. Our client recognizes that the signatories to the report and Thorne Consultants, Inc., are unbiased third parties with no role in any past or present decisions regarding the acquisition, development, operation or disposition of the subject property. This report is invalid if used for purposes other than those represented to us by our client. Further, this report may not be relied on for any purpose by any person or firm other than our client, without the express written consent of the signatory to the report. Thorne Consultants, Inc., and the signatory to this report assume no responsibility or liability to any user of this document other than the client to whom our report is addressed.

DEFINITIONS AND TERMINOLOGY

"FEE SIMPLE ESTATE" is defined as "absolute ownership unencumbered by any other interest or estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat."[1] Fee simple estate is sometimes referred to as "fee simple interest" or "fee simple."

"SALES COMPARISON APPROACH" is "a set of procedures in which a value indication is derived by comparing the property being appraised to similar properties that have been sold recently, then applying appropriate units of comparison and making adjustments to the sale prices of the comparables based on the elements of comparison. The sales comparison approach may be used to value improved properties, vacant land, or land being considered as

[1] Appraisal Institute, The Dictionary of Real Estate Appraisal, 4th ed. (Chicago: Appraisal Institute, 2002), 113.

though vacant; it is the most common and preferred method of land valuation when an adequate supply of comparable sales are available."[2]

Although this approach relates to valuation, the sales comparison approach is used herein to identify the most probable cost to acquire BNSF's right-of-way.

We recognize that complete fee simple ownership for many, if not all, of the counties in the six states is restricted (or encumbered) by the presence of subsurface mineral rights for the potential extraction of coal, natural gas and oil reserves. These deed reservations are commonly accepted by land traders active in the market.

Several miles within BNSF's system are not owned in fee. Easements exclusively for rail use were acquired at nominal amounts in lieu of fee acquisitions. The terms "mineral (subsurface) rights" and "easements" are defined below.

"SUBSURFACE RIGHTS" is defined as "the rights to the use and profits of the underground portion of a designated property; usually refers to the right to extract coal, minerals, oil, gas, or other hydrocarbon substances as designated in the grant; may include a right-of-way over designated portions of the surface."[3]

"ACROSS THE FENCE METHOD" is "a land valuation method typically used to estimate the value of a real estate corridor, including railroad or pipeline rights of way, highways, or other corridor real estate. The price or value of land adjacent to the corridor (i.e., "across the fence") is considered for the valuation."[4]

"ACROSS THE FENCE (ATF) VALUE" is defined as follows: "in the valuation of real estate corridors, the value concluded based on a comparison with adjacent lands before the consideration of any other adjustment factors. The ATF value accounts for location and market conditions."[5]

"RIGHT OF WAY" is defined as "a privilege to pass over the land of another in some particular path; usually an easement over the land of another; a strip of land used in this way for railroad and highway purposes, for pipelines or pole lines, and for private or public passage."[6]

"EASEMENT" means "an interest in real property that conveys use, but not ownership, of a portion of an owner's property. Access or right of way easements may be acquired by private

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[2] Ibid, 255.

[3] Ibid, 282.

[4] Ibid, 5.

[5] Ibid, 5.

[5] Ibid, 250.

parties or public utilities. Governments dedicate conservation, open space and preservation easements."[7]

"RETROSPECTIVE VALUE OPINION" is "an opinion of value that is likely to have applied as of a specified historic date. A retrospective value opinion is most frequently sought in connection with appraisals for estate tax, condemnation, inheritance tax, and similar purposes."[8]

PROPERTY RIGHTS ASSUMED

The property rights consist of the fee simple estate (encumbered by subsurface rights) and easements in the subject's undeveloped and unimproved condition on or about July 1, 2000, the effective retrospective date of our price opinion.

CERTIFICATION

I certify that, to the best of my knowledge and belief,...

- the statements of fact contained in this report are true and correct.
- the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, impartial, and unbiased professional analyses, opinions, and conclusions.
- I have no present or prospective interest in the property that is the subject of this report, and I have no personal interest with respect to the parties involved.
- I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.
- my engagement in this assignment was not contingent upon developing or reporting predetermined results.
- the appraisal assignment was not based on a requested minimum valuation, a specific valuation, or the approval of a loan.
- my compensation for completing this assignment is not contingent upon the development or reporting of a predetermined price or direction in price that favors the cause of the client, the amount of the price opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.

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[7] Ibid, 90.

[8] Ibid, 248.

- my analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation and the Code of Professional Ethics and Standards of Professional Practice of the Appraisal Institute.

- I have the knowledge and experience necessary to complete the assignment competently.

- I have made a personal inspection of most, but not all, of the property that is the subject of this report.

- Mr. Craig L. Lichter provided assistance to the person signing this report.

- Messrs. Robert J. Brockman of Keyhole Land Company and Charles R. Rhodes of Rhodes Appraisal Service provided assistance to the person signing this report.

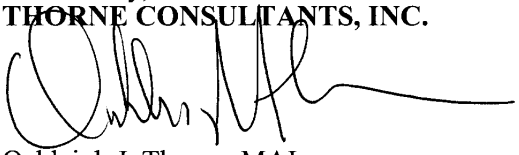
- the use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.

- as of the date of this report, I, Oakleigh J. Thorne, MAI, have completed the requirements of the continuing education program of the Appraisal Institute.

- I, Oakleigh J. Thorne, MAI, currently hold appropriate state certifications allowing the performance of real estate appraisals in connection with this work in the states in which the subject properties are located.

- Based upon our recent inspection of the property, the investigation and analysis undertaken, and subject to the stated assumptions and limiting conditions, it is our opinion, based on a range of possible costs, that the estimated retrospective cost to acquire the right-of-way of the subject's fee simple interest and easements in its assumed undeveloped condition (vacant right-of-way), on or about July 1, 2000, was **$89,500,000**.

Certified by,
THORNE CONSULTANTS, INC.



Oakleigh J. Thorne, MAI

Certified General Real Estate Appraiser, Commonwealth of Virginia #4001-1708
Certified General Real Estate Appraiser, District of Columbia - GA10140
Certified General Real Estate Appraiser, Maryland #1956

Temporary Permits as a Certified General Real Estate Appraiser in:
State of Nebraska, Temporary Permit #CG230131
State of South Dakota, Temporary Permit #0388-T-2003
State of Texas, Temporary Permit #881221145
The remaining states of Oklahoma, Colorado and Wyoming are Non-Mandatory States

ASSUMPTIONS AND LIMITING CONDITIONS

This report is made with the following general assumptions and limiting conditions:

1. No responsibility is assumed for the legal description or for matters including legal or title considerations. Title to the property is assumed to be good and marketable unless otherwise stated. The subject's descriptions are based on information provided by Stone Consulting & Design, Inc. and L.E. Peabody and Associates, Inc. No title report was provided. We further assume that the subject properties are not encumbered by the existence of marked or unmarked cemeteries and/or historic resources which would hinder any development process.

2. The subject properties are free and clear of any or all liens or encumbrances unless stated.

3. Responsible ownership and competent property management are assumed.

4. The information furnished by others is believed to be reliable. However, no warranty is given for its accuracy.

5. All engineering is assumed to be correct. The plat, plans and illustrative material in this report, if any, are included only to assist the reader in visualizing the property. Thorne Consultants, Inc., and the signatories have not made a survey of the property and assume that the existing boundaries are correct and that no encroachments exist. Thorne Consultants, Inc., and the signatories assume no responsibility for any condition not readily observable from customary investigation and inspection of the premises which might affect the valuation, excepting those items specifically mentioned in the report.

6. It is assumed that there are no hidden or unapparent conditions of the property or subsoil, that render it more or less valuable, unless stated. Members of our firm are not experts on soil conditions or engineering issues, and our efforts are limited to visual inspection. Our client is advised to seek appropriate professional engineering counsel on all matters pertaining to soil structure and engineering. This report is not to be relied on as an opinion of the conditions of the property or soils, nor should any such representation be made.

7. It is assumed that there is full compliance with all applicable federal, state, and local environmental regulations and laws unless noncompliance is stated, defined, and considered in the report. We assume no responsibility for environmental conditions or for arranging studies that may be required to discover them.

8. It is assumed that all applicable zoning and use regulations and restrictions have been complied with and all easements are enforceable and have been complied with, unless a nonconformity has been stated, defined, and considered in the report.

   Members of our firm are not experts on zoning or easement issues, and our efforts are limited to reporting what we perceive as pertinent existing land use regulations and easements. Our client is advised to seek appropriate legal counsel on all matters pertaining to compliance of any existing or proposed uses of the subject properties with applicable zoning codes and the status of any easement agreements. This report is not to be relied on as an opinion of compliance with zoning restrictions or as an opinion regarding the validity of easement agreements nor should any such representation be made.

9. It is assumed that all required licenses, consents, or other legislative or administrative authority from any local, state, or national government or private entity or organization have been, or can be, obtained or renewed for any use on which the price estimate contained in this report is based.

10. It is assumed that any future utilization of the land and improvements will be within the boundaries or property lines of the property described, and that there will be no encroachment or trespass unless noted in the report.

11. Unless otherwise stated in this report, the existence of hazardous substances, including without limitation asbestos, polychlorinated biphenyls, petroleum leakage, or agricultural chemicals, which may or may not be present on the properties, or other environmental conditions, was not called to our attention nor did we become aware of such during our inspection. We have no knowledge of the existence of such materials on or in the properties unless otherwise stated and we are not qualified to test for such substances or conditions. If the presence of such hazardous substances or environmental conditions affects the price of the property, the price estimated is predicated on the assumption that there is no condition on or in the property or in such proximity, thereto, that it would cause a loss in price. No responsibility is assumed for any such conditions or for any expertise or engineering knowledge required to discover them. The reader is encouraged to satisfy questions in this regard with an expert on environmental conditions.

12. The conclusions expressed in our appraisal report apply only as of the stated effective date of the price opinion, and we assume no responsibility for economic or physical factors occurring at some later date which may affect the opinions stated herein.

13. Disclosure of the contents of the report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.

14. Neither all nor any part of this report nor copy thereof shall be used for any purposes by anyone other than the client to whom the report is addressed, nor shall it be conveyed by anyone to the public through advertising, public relations, news, sales, or other media, or any other means of communication (including, without limitation, prospectuses, private offering memoranda, and other offering material provided to prospective investors) without the prior written consent of the appraisers, particularly as to price conclusions, the identity of the appraisers or our firm, or any reference to the MAI affiliation. Thorne Consultants, Inc. and the signatories to this report assume no obligation, liability, or accountability to any user of this document other than the client to whom the report is addressed.

15. The principal business activity of Thorne Consultants, Inc., and its members, is rendering opinions on real estate prices and marketability through our analysis, as appropriate, of the supply of and demand for real estate, investor criteria, and property sales. Our reports are prepared so that readers who consider our opinions can evaluate them in terms of the available data and its applications, the methodologies of analyses employed, and our judgments and conclusions. The reader should reach an independent conclusion regarding all facts, recognizing that Thorne Consultants, Inc., and its members do not possess expertise regarding certain issues. Appropriate experts should be consulted with respect to matters involving specialized knowledge and/or skills, including but not limited to, zoning, engineering and survey issues, and hazardous materials contamination.

16. The prices reported here are valid estimates only under the valuation circumstances described, and the dollar amount of any price opinion rendered was based on the purchasing power of the U.S. dollar and normal financing rates, terms and charges as of the appraisal date. Further, the final estimate of the price is not guaranteed, and no warranty is implied or intended. If the subject properties become distressed or are auctioned or market conditions change or the properties cannot be held until the market for same returns, then the price estimates reported herein are invalid.

IDENTIFICATION OF THE PROPERTY

The subject property consists of the SARR identified as the "Texas & Northern Railroad" ("TNR"). The hypothetical undeveloped and vacant real property assets of the TNR are listed below in acres:

Rights-of-way (in fee and easements)	14,201.01
Rights-of-way (in easements)	755.42
Yards	273.34
Pad Sites (radio towers)	61.50
Total Linear Miles of Right-of-Way	1,165.85
Number of States	Six
Number of Counties	36

The right-of-way width is established by the physical dimensions of the subgrade supporting the track structure and the ground space on each side of the subgrade necessary for proper drainage, access by heavy machinery during construction of the line, and roadways for future inspection and maintenance.

Consistent with Surface Transportation Board precedent, the right-of-way is based upon an average width of 100 feet in most areas, plus additional width at yard, terminal and a few other locations. An average width of 75 feet was used in industrial, commercial and urban areas found in and near the many larger towns and cities along the rail line. Three major cities were found in Colorado -- Denver, Colorado Springs and Pueblo. One additional major population center was found in Texas (Amarillo). There are, however, numerous small towns located in all six states throughout the system.

The rail line traverses six states and 36 counties mostly concentrated in the western region of the United States. Roughly 37% of the total linear miles of the SARR are found in Colorado where land prices are generally the highest.

REGIONAL MARKET OVERVIEW

BNSF's rail line is found almost entirely within the western regional agricultural heartland of the United States. Of the six states traversed by the TNR, Colorado, Oklahoma and Texas have the highest population densities.

POPULATION TRENDS

Colorado, Oklahoma and Texas currently represent the highest populated states and also report the highest annual compound growth over a twenty-year period from 1980 to 2000. Colorado and Texas, in fact, increased their respective population totals by about 2.0% per year. Due to a number of economic factors and poor climatic conditions, Nebraska, South Dakota and Wyoming experienced only very limited growth during the twenty-year period. South Dakota only increased its population by 65,000 persons in a twenty-year period or only 650 persons per year.

Wyoming and South Dakota have the lowest population densities at 5.1 and 10.0 persons per every square mile, respectively. Colorado, Oklahoma and Texas have the highest population densities at 42.6, 50.4 and 81.5 per square mile, respectively. However, the majority of the population in Texas is located in the state's center and is concentrated in the two major cities of Dallas and Houston. The Texas panhandle is very lightly populated, and Amarillo is the only major city in west Texas where the SARR rail line is present.

REGIONAL POPULATION TRENDS FROM 1980 TO 2000

State	Population in 1,000 1980	2000	Twenty Year Growth (%)	Persons Per Square Mile
Colorado	2,890	4,301	2.01	42.6
Nebraska	1,570	1,711	0.43	22.3
Oklahoma	3,025	3,451	0.66	50.4
South Dakota	691	755	0.44	10.0
Texas	14,229	20,852	1.93	81.5
Wyoming	470	494	0.25	5.1
Regional Total	22,875	31,564	1.62	

The growth column reports annual compound change.
The last column reports population densities per square mile.
Source: U. S. Census Bureau, Statistical Abstract of the U.S. 2002.

AGRICULTURAL STATISTICS

Texas is the leader of the six subject states in agricultural production and revenues, and Texas and Nebraska are ranked in the top four of 50 states for revenues related to agricultural productivity. Beef production is a leading industry for all states, and Nebraska and Wyoming are leaders in pork bellies.

Due to the climate conditions in west Texas, cotton is a leading product. Climatic factors also affect greenhouse vegetable production prevalent in Texas. However, most of the state's greenhouses are located in the eastern regions to reduce transportation costs to eastern markets.

Although Texas is a leader in total farm revenues, individual farm unit production of $59 million per farm is the lowest ranking. Nebraska and Colorado are leaders in individual annual farm production averaging $166 and $152 million per annum, respectively, in 2000.

REGIONAL AGRICULTURAL PRODUCTIVITY FOR 2000

State	Total Farms # of in 2000	Revenue $ millions	State Ranking	Principle Agricultural Products In Order of Production Revenues
Colorado	30	4,560	16	Cattle, corn, hogs, dairy
Nebraska	54	8,952	4	Cattle, corn, soybeans, hogs
Oklahoma	85	4,220	18	Cattle, hogs, broilers, wheat
South Dakota	33	3,790	20	Cattle, soybeans, corn, wheat
Texas	226	13,344	2	Cattle, greenhouse, cotton, broilers
Wyoming	9	954	38	Cattle, sugar beets, hay, hogs
Regional Total	437	35,820		

Source: U. S. Census Bureau, Statistical Abstract of the U.S. 2002.

MANUFACTURING AND RETAIL ACTIVITY

Again, Texas is the leader in total annual (2000) "value added" from manufacturing industries at roughly $134.1 billion. Despite South Dakota's limited population base, the state exceeds the more populated state of Wyoming. South Dakota's manufacturing sector produced "value added" benefits in 2000 of about $5.3 billion to Wyoming's meager $1.5 billion.

Per capita total retail sale expenditures were highest in South Dakota at $2,019 in 2000. The high proportion of wealthy households explains the state's top position in per capita sales. Colorado and Wyoming are distant seconds to South Dakota's performance. Denver's diversified economy and its urban population of lower household incomes produced lower average per capita expenditures. The lowest manufacturing productive states of Wyoming and South Dakota reflect their limited populations and below-average infrastructure to support industry.

REGIONAL MANUFACTURING AND RETAIL STATISTICS FOR THE YEAR 2001

State	Manufacturing Value Added $ Millions	Retail Activity Total Sales $ Millions	Sales Per Capita
Colorado	20,206	64,382	1,497
Nebraska	12,377	22,084	1,291
Oklahoma	18,198	38,397	1,113
South Dakota	5,308	15,247	2,019
Texas	134,088	288,536	1,384
Wyoming	1,462	6,917	1,400
Regional Total	191,639	435,563	1,380

Source: U. S. Census Bureau, Statistical Abstract of the U.S. 2002.

SUMMARY

The economics of the six-state region and 31.56 million persons are driven by agricultural production. The largest city in the region, Denver, represents an anomaly to the predominate farming activities prevailing throughout the region. Future growth over the next decade in three of the six states (Nebraska, Wyoming and South Dakota) will be severely limited as jobs and opportunities for youthful persons are unavailable and they migrate to the larger urban centers seeking more favorable conditions. Our review of existing real estate (homes and commercial buildings) along the rail line clearly suggests that the out-migration process has been underway for some time. Many of the former active and prosperous grain elevator towns located along the line illustrate signs of deterioration, high building vacancies, and empty derelict structures.

METHODOLOGY

Three approaches are typically used to estimate the highly probable cost to acquire rights-of-way, i.e., the cost, income capitalization and sales comparison approaches.

As we are not appraising any building structures, the first two approaches are not relevant. Vacant land is best appraised using the sales comparison approach. The method provides a price indication by comparing the subject property to similar properties that have sold recently, applying appropriate units of comparison and making adjustments, based on the elements of comparison, to the sale prices of the analogues. Generally, sales in rural areas are analyzed using the "price per acre" as the key determinant to establish a value estimate. Land sales in urban environments are typically appraised using a rate "per square foot."

Our approach to the cost estimate of the TNR right-of-way is consistent with traditional and accepted real estate practices applied to all types of rights-of-way when a corridor value is not required. Land sales in the vicinity of a right-of-way are found to develop across the fence land prices. These land sales found adjacent or near the rail line form the basis for the cost estimate of the right-of-way.

A number of issues arose during the completion of this assignment that warrant discussion, including the following:

1.) the unavailability of sales information in some of the less populous states and counties such as Wyoming, South Dakota and Nebraska

2.) lack of consistency in the amount of information available and in the reporting practices among the several different counties found within the SARR

3.) the general lack of sales activity in several counties throughout the Region, except for the urban areas located in Colorado

4.) environmental issues

5.) land uses near the rights-of-way

6.) urban population counts and our sales research efforts

7.) line segmentation decisions and valuation

8.) reserved subsurface rights in almost all of the 36 counties in the system

9.) physical inspections

10.) the issue of subtracting acreage for tunnels, trestles, easements, bridges and crossings

11.) information sources

12.) land use restrictions and zoning codes

DATA AVAILABILITY

The more rural counties through which the SARR runs lack any mechanism, transactional database or process to offer information to the public or to real estate appraisers. There are no legal requirements even within counties of the same state to report sale transactions or for the public to gain access to data books or other sources to understand land pricing trends or the pace of transactional activity.

The lack of a centralized and relatively common database within the six states or among the counties within a state presented unique and difficult data retrieval methods. Five of the six states comprising the system (Nebraska, Oklahoma, Texas, Wyoming and South Dakota) are non-disclosure states. Therefore, prices paid for real estate are not disclosed in title reports or on recorded deeds. Because of the very low population densities and vast areas of pasture and grasslands, most of the counties have no land use or zoning regulations. This further complicates the land sales search as the intended use can only be determined by location, road access and terrain. We found it impossible to call each land buyer to determine use; in fact, in many cases, we could not find the buyer's phone number or the number was disconnected.

In those states where land prices are the lowest in the system (i.e., Wyoming, Nebraska and parts of Texas), we limited our sales research efforts and relied on land brokers, active appraisers and assessors (only those willing to discuss land prices) for our land cost opinions. Based on our inspections, and after reviewing several tax maps for a number of counties in Colorado, we noted that the U.S. Government controls much of the land adjacent to the right-of-way near the Air Force Academy south of Denver and a military installation northeast of Denver. There are no sales adjacent to the SARR line due to the ownership profiles.

Fortunately, Colorado is a disclosure state. Land prices in the SARR system are the highest in that state due to the three large cities of Denver, Colorado Springs and Pueblo. As the economy is severely depressed in several regions comprising the SARR, there is almost no market for land in these localities, especially outside Colorado. We intensified our research efforts where disclosure was practiced and land prices were comparatively higher.

DISPARATE REPORTING PRACTICES AMONG THE COUNTIES

There are no state-wide assessment divisions within the SARR's network. Consequently, the availability of sales information and the manner in which sales are reported vary from one county to another in the same state. A few counties in the more populous regions offer GIS or other imagery to help define the property sold, while others use only a street address or tax map identification number. Regardless, we reported all available data from every county where our firm researched sales. Accordingly, we used the most detailed chart to report sales and left blank those rows and columns where the data were not available.

LIMITED SALES ACTIVITY

Many counties within the system have very low population densities and/or are economically depressed where land sale activity is very limited. When land acquisitions occur in these subregions, the motivation behind the sale typically is to mine coal, cut marketable timber, conduct limited farming and/or engage in recreational activities (hunting and fishing). Topographic features (deep stream beds, valleys and very dry mesas) restrict the use of the land for any other purpose. Almost all buyers of land to build residences or install mobile homes purchase large tracts consistent with western culture for large land holdings. With very limited marketability and depressed economies, there are few vacant land transactions in four of the six states covered by the TNR right-of-way (Wyoming, South Dakota, Nebraska and Oklahoma). In all states, although our search efforts concentrated on land sale activity near or adjacent to the rail lines, we found very few sales proximate to the right-of-way.

As population growth has been either flat or negative in many of the rural states, there is no demand for new housing construction. The agricultural economies prevailing throughout the region define the land's marketability, use and ultimate price. Only Colorado offers greater and more profitable economic ventures with a corresponding increase in land sale activity and prices.

ENVIRONMENTAL ISSUES

The rail line traverses grass and pasture lands through the SARR right-of-way and meanders through and parallels both wet and presently dry creek and river beds in order to avoid difficult or impassable mesas and valleys. As a consequence, the right-of-way lies adjacent to river and creek beds, most of which are in floodplains and wetlands. Current environmental regulations in the various states may or may not apply to these isolated areas, and prevailing or applicable laws may or may not prohibit any rail line construction in these sensitive areas. We ignored this potential conflict in our analysis.

ADJACENT LAND USE PATTERNS

In many cases, SARR's right-of-way is inaccessible as it traverses vast open prairie lands. The rail line in many rural areas is found adjacent to existing highways. The land adjacent to one side of the highway is devoted to retail or housing uses while the land adjacent to the opposite side of the rail line is used for pasture or crops. The highway represents a barrier between the two land uses. In practically all cases, we used a price estimate for acquisition marginally above crop land prices as it is impossible to determine the sequence of development, i.e., whether the rail line acquisition preceded or followed the highway construction. This is particularly true in

large segments of the right-of-way in Texas, northern Colorado and from Pueblo to Las Animas in southern Colorado.

URBAN POPULATIONS AND OUR RESEARCH EFFORTS

There are a number of population centers within the rail network of the SARR; most notably, all are in Colorado. As the state permits the disclosure of prices in deeds resulting from property transfers, thousands of land transactions were reviewed for the cities of Denver, Colorado Springs and Pueblo. The only remaining population center within the system is Amarillo, Texas, although most of the SARR avoids the higher priced land in that city.

We deemed that a careful approach to data analysis was necessary in these Colorado urban centers as the communities have the highest land prices in the rail network. We noted that there are a multitude of small villages and towns throughout the system. In these micro-neighborhoods there are, generally, no transition lines between rural and urban areas (we use the term mixed-use for the small villages and towns). Almost all of these small villages are economically depressed with high retail, industrial and office vacancies present.

LINE SEGMENTATION DECISIONS AND PRICING ESTIMATES

We elected to use valuation sections ("val. sections") usually defined by zoning (when available) or topographic changes. The small towns and villages where zoning is not present were divided by rural or mixed-use to identify the transition in land prices as increasing population densities affect land costs. Where zoning is not present, the divisions are a function of our judgment. Each division requires the use of different land sales to estimate the hypothetical cost of acquiring the right-of-way. In most cases, a right-of-way within clearly defined incorporated city limits is considered urban, and our land cost opinions are defined by the applicable zoning across the fence. However, the transition between rural and suburban land development is not always as well defined outside Colorado.

Pricing land for the SARR acquisition in the three cities of Colorado required the use of disjointed right-of-way half-sections. We found that land uses in the split urban right-of-way (75 feet ÷ 2 or 37.5 feet) were not consistent on both sides of the rail line. Therefore, the terminal points for changes in land uses may not occur at a common slice for a particular "val. section." This practice of dividing the right-of-way almost always occurred in Colorado where the large urban centers with the SARR system are located.

SUBSURFACE RESERVATIONS

Real estate transfer deeds throughout the system stipulate reservations of mineral rights (including coal, gas and oil). In other words, complete fee simple interests are seldom conveyed. We assume that any hypothetical right-of-way acquisitions would be subject to the same reservations.

INSPECTION PROCESS

Major segments of the right-of-way were inspected throughout the length of the rail line where access was available by car and/or foot. There were, however, long sections of the right-

of-way (especially in the remote and isolated areas) where the line was not inspected either because the location was inaccessible or topographic conditions prevented access by car or foot. All of the lowest priced right-of-way areas leaving Pueblo to Amarillo (325 miles) were not physically inspected at grade level. Aerial photographs obtained from TerraServer, Keyhole.com and DeLorme's Topo USA (Version 3.0) provided the necessary information to determine surface conditions.

The eastern leg of the northern section (about 317 miles) was inspected and photographed by Robert J. Brockman of Keyhole Land Company.

In rural counties with no small towns and limited mileage (less than fifteen miles), the line was not inspected. Information about adjacent land uses was obtained from state or county Web sites or the aforementioned sources.

Oakleigh J. Thorne's physical inspection activities relating to the line occurred during a seven-day period in November 2003.

THE ISSUE OF BRIDGES, TUNNELS, EASEMENTS, TRESTLES AND CROSSINGS

Although there are several thousand linear feet of trestles, surface easements, bridges and crossings present in the Colorado urban areas, the land was priced in fee ignoring any discount for public road crossings or over passes. L.E. Peabody & Associates, Inc and Stone Consulting & Design, Inc. identified the easements throughout the system and the dollar amounts associated to acquire those easements. All related figures are illustrated in the acquisition tabulations included in this report.

We used our judgment with regard to deducting for highway crossings in urban areas. As Colorado represented the highest prices in the system, we applied deductions for only this state. The low land prices in the remaining five states warranted no deductions.

INFORMATION SOURCES

Stone Consulting & Design, Inc. supplied both large system-wide overview maps and individual maps to aid in our physical inspections. The engineering firm also supplied the linear miles by county and state. L.E. Peabody & Associates, Inc. provided a list of easements and crossings (including dollar amounts) as well as mileage information.

Several mapping sources were used to locate and identify the condition and nature of the rights-of-way including Street Atlas Plus 2004 USA (dated 2003) and Topo USA by DeLorme (Version 3.0, dated 2001). Several counties offered on-line GIS services on the Internet including land sales, tax plats and zoning. We used TerraServer and Keyhole.com to provide satellite imagery of the SARR lines throughout the system. In addition, we obtained a monthly contract from First American Real Estate Solutions, a sales database provider, to access public records in disclosure states.

Sales information was obtained from a multitude of publicly available sources and various Web sites. A three-page list of sources is included at the end of this report.

LAND USE RESTRICTIONS

Many of the rural counties and villages lack any regulatory or governmental body to control land use. Accordingly, the ultimate use of the land is a function of terrain, public or private road access, the buyer's intention, and proximity to other land users. The very low land prices in the economically depressed areas of Wyoming, South Dakota and Nebraska clearly dictate the land use as recreational, crop or grassland.

Generally the rural areas were classified into seven different groups including: Agricultural; Government; Pasture (both irrigated and non-irrigated); Rural Residential (usually located on the boundaries of small villages and towns; Transitional (a blend of commercial and residential land uses in rural villages); Unproductive (land not suitable for crops or grazing); and X for poor topographic features and stream beds. Commercial (C), Industrial (I), Multi-Family (M) and Single Family (S) classifications are also used for the larger cities and a few of the larger villages.

The cities in Colorado, especially Denver, required additional land use allocations. We used five different classifications for Residential and Institutional zones, seven different Business zones, three Industrial zones, and two different zones for Open Space and Agricultural Districts. The SARR also passed through an area known as the Platte River Valley Zone, which required a further classification.

FIELD WORK

Land sales were researched by accessing data on the Internet and on record in local assessor offices or through local appraisers. (The land sales are compiled by county in tabular format in the addenda.) Several counties within the SARR were not researched for land sales either because land prices were deemed insignificant and/or the amount of land area devoted to the right-of-way within the county was deemed negligible in relation to the amount of rail line in other counties in the system. Counties having less than nine miles devoted to the ROW are Custer, South Dakota (6.0 miles); Washington, Colorado (2.29 miles); Carson, Texas (0.62 miles); and Dallam, Texas (6.99 miles). Despite the small mileage in Arapahoe, Colorado (9.73 miles), we were able to retrieve sales information from Web sites and/or First American Real Estate Solutions.

In counties where land transfer searches were completed, local assessor offices were used to access raw sales data. Deed research was completed at the county land records office, and tax maps were reviewed at the local offices or on the Internet. Each sale's location was then determined by references made in the deed and corresponding tax map.

COLLABORATIVE EFFORTS

As stated previously, Robert J. Brockman of Keyhole Land Company in Wyoming provided assistance to our firm both in the supply of comparable sales and in performing rail line inspections in Wyoming, South Dakota and Nebraska. Charles R. Rhodes of Rhodes Appraisal Service provided sales data for a few counties in West Texas.

Members of L.E. Peabody & Associates, Inc. and Stone Consulting & Design, Inc. provided easement data and rail maps, respectively.

ACQUISITION PRICE ESTIMATE

Land adjacent to the right-of-way throughout the SARR system is suited for a variety of uses. Each county's "val. section" is classified according to the land identifications outlined above.

As an example, a single rural mile section contains 12.12 acres calculated as follows: 5,280 linear feet by 100 feet wide equals 528,000 square feet. Dividing the total square feet by the number of square feet in an acre (43,560) equals 12.12 acres. The adjacent or nearby sale analogues (price per acre) are compared to the area within the right-of-way "val. section" to provide a cost estimate to acquire that section of the line. In some rail segments, we were instructed to use a right-of-way width of 150 feet due to slope and drainage requirements.

RAIL YARDS

The SARR design requires rail yards in addition to the narrow rights-of-way for maintenance and storage facilities. Acreages and locations for the yards were provided by L.E. Peabody. Land acquisition costs for the various yards are found at the end of the right-of-way tabulations. Two rail yards are required to maintain and service the rolling stock of the TNR. One is in Alliance, Nebraska (237.98 acres), and a second is in Las Animas, Colorado (15.36 acres).

COUNTY DESCRIPTIONS

The following sections contain descriptions of those counties through which the TNR travels from Campbell County, Wyoming, at the north to Wilbarger County, Texas, at the south. All population figures reported in the descriptions were obtained from the U.S. Census Bureau Web site ("http://factfinder.census.gov") and reflect 2000 data.

WYOMING

CAMPBELL COUNTY - SOUTHERN LEG

The following description relates to TNR's leg heading directly south from Gillette toward Converse County. The ROW inspections were completed by Oakleigh J. Thorne.

Traveling south on Rt. 59 from I-90 between Gillette and Wyodak in Campbell County (population 33,698), the landscape consists mainly of ranches and non-irrigated grasslands as far as the eye can see. Buffalo and antelope farms abound, as well as sporadic cattle farms. The ranches typically have no houses on them; most are vacant. When there is housing, it consists of modest structures. Also present in the county are oil fields and trucking businesses.

Pic 1 and Pic 2 were taken at the northernmost point of the right-of-way (hereinafter "ROW"). The photos were taken from American Road just north of its intersection with Rt. 14

south of I-90 in the town of Rozet (population unavailable). Pic 3 is taken in Rozet at Timber Creek Road near Cedar Hills Drive looking north toward the ROW and I-90. Rozet is a very small town, and the tracks are just north of the town on the north side of Highway 51.

Pic 4 was taken along Rt. 14 between Wyodak and Gillette looking east toward the large mining facility near Wyodak.

Three pictures were taken near the town of Wright (population 1,427) at Wright Road and the ROW just north of Rt. 450. Thunder Basin National Grasslands park is located south of Rt. 450 at this point. Pic 5 looks northwest from Hight Road; Pic 6 looks west; and Pic 7 looks southeast. Rt. 59 travels south though the park from this location.

CONVERSE COUNTY

Converse County (population 12,052) is similar to Campbell County in terms of topography and land uses. The rail extends only 25.24 miles into the county from the north.

Pic 8 and Pic 9 were taken from Rt. 59 just north of the town of Bill (population unavailable) where the railroad crosses under the roadway. As shown, the land is desolate in all directions. These photos were taken at the southern end of the Thunder Basin National Grasslands park, which terminates just south of Bill.

CAMPBELL COUNTY - EASTERN LEG

TNR's eastern leg was inspected by Robert J. Brockman. TNR's line runs from Campbell County (Wyoming) to Alliance (Nebraska).

Land not used for mineral production is generally range land used for cattle grazing. Land use along both sides of the tracks from Rozet to the border of Campbell and Crook Counties is all native range land.

Pic 165 is a photo of the trackage just north of Rozet facing east, and Pic 166 and Pic 167 show the terminus of the trackage just west of Rozet facing east.

CROOK COUNTY

The following inspection was performed by Robert J. Brockman.

The economy in Crook County (population 5,887) is generally agricultural in nature with some oil, gas and coal mining. Most of the land is native range land. The tracks parallel the south side of Highway 16 from the Weston County line to Moorcroft (population 807). The tracks enter Moorcroft in the southeast corner and run along the southern boundary of the town. Land use in Moorcroft near the trackage is a mixture of residential and commercial (agriculture-related business). The tracks leave Moorcroft in a westerly direction on the south side of Highway 51, which is just south of Interstate 90. Land use on both sides of the tracks from Moorcroft to the Campbell County line is all native range land.

Pic 168 was taken from just south of the town of Moorcroft looking west, and Pic 169 was taken from the west end of Moorcroft looking west. Pic 170, taken from the west end of Moorcroft, looks east back toward the town. Pic 182 was taken about ten miles west of Moorcroft facing east toward that town, while Pic 171 was taken from the same area facing west toward the town of Rozet.

WESTON COUNTY

Weston County (population 6,644), inspected by Robert J. Brockman, consists generally of livestock grazing range lands except for some oil and gas drilling and existing wells. Land uses from south of Newcastle (population 3,065) to where the rail line enters Weston County from South Dakota is all native range. The tracks enter the southeastern edge of Newcastle and travel through the town and then parallel the northern boundary of Newcastle until the tracks proceed to the west. Land uses in Newcastle are a mix of residential, commercial and industrial (oil refinery). The area between the towns of Osage (population 215) and the east side of Upton (population 872) consists of scenic wooded hills with some recreational uses. The tracks are situated on the eastern side of Osage; land uses in Osage near the tracks are residential in nature. The tracks go through Upton on the south side of town with land uses near the tracts consisting of some residential and some commercial uses (agricultural-related businesses).

Pic 172 was taken about five miles west of Newcastle facing west toward Osage. Pic 173 is a photo of trackage near the center of Newcastle facing east. Pic 174 was taken from the east end of Newcastle facing east and southeast, while Pic 175 faces west along the trackage as it travels through town.

Pic 176 was taken just east of Osage facing west toward town; and Pic 177 was shot about four miles east of Upton facing south. Pic 178 was taken from the east end of Upton facing west as the trackage goes through town.

SOUTH DAKOTA

The two counties in South Dakota were inspected by Mr. Brockman.

CUSTER COUNTY

Custer County (population 7,275) is a mixture of agricultural use and the Black Hills National Forest. The tracks (6.0 miles) bisect the southwestern corner of this county with land use on both sides of the tracks consisting of native range land.

FALL RIVER COUNTY

This sparsely populated county (population 7,453) consists almost entirely of native range land used for livestock grazing. The tracks enter the county just south of Ardmore (population unavailable) and travel in a north to northwesterly direction on the west side of Highway 71/471. Land use on both sides of the tracks is all native range land for livestock usage. The land use transitions as the tracks enter the southern edge of Edgemont (population 867). The tracks border the eastern part of the town with residential and some light commercial usage adjacent to the

right-of-way. The tracks travel under Highway 18 just north of Edgemont and then proceed in a northwesterly direction. All land use north of Edgemont to the Custer County line is native range land.

Pic 179 was taken from the northern Edgemont city limits facing southerly through town. Pic 180 was taken north of Edgemont looking north, and Pic 181 was taken south of Edgemont looking south. Pic 183, taken south of Ardmore, faces northwest. Pic 184, taken east of Rumford, faces west toward town. Pic 185 was taken west and north of Rumford facing south and southeast, while Pic 186 was taken from the southern end of Edgemont facing north toward that town.

NEBRASKA

SIOUX COUNTY

Sioux County (inspected by Mr. Brockman) is very sparsely populated (population 1,475), and nearly all land use is native range land for livestock grazing. The tracks parallel Toadstool Road to the Nebraska/South Dakota border. All of the land on both sides of the tracks in this county is native range land.

DAWES COUNTY

Dawes County (population 9,060), also inspected by Mr. Brockman, is generally all agricultural in terms of its economic base. Land use in the county is predominantly range land with some irrigated and dry crop land. From Marsland (population unavailable), an unincorporated town bisected by the rail tracks, to a point about twelve miles north, land uses consist entirely of native range lands (primarily hard grass). From this point north to about six miles south of Crawford (population 1,107), wooded range lands are found (used for both livestock grazing and recreation). This area is known as the "Pine Ridge Forest Area." Dry crop land exists throughout the six-mile stretch south of and approaching the town of Crawford. The tracks bisect the eastern part of Crawford with a mixture of residential and light commercial (grain bins and farm-related businesses) on both sides of the right-of-way. The tracks exit Crawford and head in a northwesterly direction. Land use on both sides of the tracks from Crawford to the Sioux County line is native range land with the exception of some improved hay meadows within two miles of Crawford.

Pic 187 was taken from the east side of Crawford facing northwest, while Pic 188 faces south. Pic 189 was taken about three miles north of Crawford facing west.

BOX BUTTE COUNTY

Box Butte County (population 12,158) consists generally of a mixture of irrigated cropland, dry cropland and native range land. The county was inspected by Mr. Brockman.

The county seat is Alliance (population 8,959), which represents the county's main population center. Trackage in Box Butte County from the southern county line to a point about one mile south of Alliance is dry crop land and some irrigated land. As the rail line enters

385 in a northerly direction. Thereafter, the rail line parallels Highway 385 on the east side of the roadway. The tracks follow along the eastern edge of irrigated cropland and, in some areas, farms are bisected. For roughly the first six miles of trackage, the land is best classified as irrigated cropland. The track then meanders in a north-northwesterly direction toward Angora (a very small town for which population statistics are unavailable). The land transitions from the irrigated valley to native range land (the western side of the Sandhills). For the next nine to ten miles, native grass land is found. From about two miles south of Angora to about two miles north of Angora, land use is dry cropland. The tracks pass on the east side of Angora where grain elevators are evident. From two miles north of Angora to the northern county line, the land is all native grass land. The area is sparsely populated, and dwellings in the area are the homes of farmer/ranchers or their families or employees.

Pic 203 was taken from Highway 26 near Bridgeport facing north, and Pic 204 was taken from Highway 26 north of Bridgeport facing south toward the beginning/end of the trackage.

Entering the town of Bridgeport, the railroad crosses Rt. 26 where an electrical substation and grain elevators are present. Further into town are trailer parks, a lumber yard, rambler-style housing, gas stations, a water tower, community center and a small main street of about three blocks. The railroad passes in a southeasterly direction along the southern edge of the town. Multiple tracks and a railroad station and yard (along with rambler-style houses) are present at about the mid-point of Bridgeport, just west of Rt. 385. Pic 37 and Pic 38 were taken at the railroad crossing at Rt. 385. Adjacent uses include grain facilities, modest housing and low-grade industrial buildings.

Leaving Bridgeport and traveling south on Rt. 385 toward Cheyenne County, land uses consist of fallow, non-irrigated vacant tracts.

All remaining county descriptions (for all states) were prepared by Mr. Thorne.

CHEYENNE COUNTY

The town of Dalton (population 282) in Cheyenne County (population 9,830) consists of a couple of grain elevators and abandoned retail stores. The railroad tracks are located on the west side of Rt. 385. South of Dalton is active cash-crop farming as the ROW continues to follow Rt. 385 to the town of Gurley (population 228). As the railroad crosses over the six blocks that comprise Gurley, several large grain elevators and a limited amount of low-income homes are evident.

On the way to Sidney (population 6,282), the railroad continues to travel along the Rt. 385 right-of-way. Sidney is a small urban area with a complete mix of land uses. The main street is about five blocks long, and a railroad (not the BNSF) runs parallel to and one block north of the main street (Rt. 30/Illinois Avenue). The subject railroad crosses over Rt. 30 at the eastern end of town where Pic 39 was taken. As shown, vacant land borders the ROW on one side; light industrial uses are present on the other. Pic 40 was taken at the intersection of 10th Avenue and the ROW looking east to illustrate typical uses along the tracks as the railroad skirts the less-populated edges of town. Pic 41 looks west from 10th Avenue. As indicated in the two photos, light industrial uses and modest housing line the ROW. From Sidney, we traveled on Rt. 17 J south to make our way to I-80.

COLORADO

To follow the railroad through Colorado, Mr. Thorne took I-80 west for one intersection and exited at Rt. 19 south. Along the way, lands are desolate with an occasional wind farm. No agricultural activities are evident. Rt. 19 becomes Rt. 113 at the Colorado line.

LOGAN COUNTY

The town of Peetz (population 227) in Logan County (population 10,504) consists of open fallow land with no irrigation and no visible homes. The only use evident in town is one grain elevator.

Traveling south toward Rt. 138, the countryside consists of irrigated crop land and grazing fields. The railroad tracks are located to the west of Rt. 113, but are not visible. At the intersection of Rt. 113 and Rt. 138, the railroad joins Rt. 138 and travels in a co-terminus right-of-way on the south side of the roadway as it approaches the town of Sterling (population 11,360). Land uses on the north side of Rt. 138 include largely vacant retail strips and a community college. Large grain elevators are present at the rail yard located just before Rt. 6 intersects with Rt. 138. The railroad tracks follow Rt. 138 along the southern boundary of town, at the edge of residential and low-grade retail uses. Housing is modest and generally in good condition. The town itself includes all customary uses (e.g., banks, retail businesses, a theatre, food service establishments and more). Pic 42 looks east from North Front Street's intersection with Poplar Street and shows industrial and highway-serving retail uses along the ROW's multiple tracks. Pic 43 is a typical shot of the streetscape along the ROW at North Front Street.

Leaving Sterling, the railroad tracks are co-terminus with Rt. 6 on the south side of the roadway. Active cash-crop farming (non-irrigated) is present on both sides of the road. About six miles outside Merino, lands become irrigated (sporadically) and a number of feed lots are evident. The small town of Merino (population 246) has a grain elevator (abandoned) and some housing on the north side of Rt. 6.

WASHINGTON COUNTY

Only about 2.29 miles of railroad tracks are located in Washington County (population 4,926). A large amount of land in this portion of the ROW is irrigated (70%-80%). Only agricultural uses are evident.

MORGAN COUNTY

About 19.47 miles of railroad tracks pass through Morgan County (population 27,171). From Merino (in Logan County) to Hillrose (population 254), the tracks are too distant to the north of Rt. 6 to be visible as they travel through unpopulated grassland areas. Upon entering the small town of Hillrose, we noticed a junk yard, abandoned grain elevator and very modest housing. The railroad tracks run adjacent to the north side of Rt. 6 on the very northern edge of town. Large farms and I-76 are visible to the south side of Rt. 6. Vacant land occupies the north side of the ROW. Traveling on I-76 west, we passed through Brush (population 5,117) on the way to Ft. Morgan. On both sides of the road are farming activities. A golf course is located on the south side of I-76 between Brush and Ft. Morgan.

Fort Morgan (population 11,034) is an industrial town that has a WalMart, Blockbuster, numerous gas stations, a community college, churches and other uses characteristic of a town consisting of 4.5 square miles. Near the railroad, multiple heavy industrial uses are present, such as a propane processing facility (refer to Pic 44; taken at County Road 20 and the ROW near E. Railroad Avenue). Pic 45 (taken at County Road 20 and E. Railroad Avenue looking west) shows additional heavy industrial uses typical of those along the ROW in Fort Morgan. Along Rt. 34 are uses such as motels, a drive-in theatre and farms. However, industrial uses parallel both sides of the tracks, as shown in Pic 46 and Pic 47. In general, Rt. 34 travels right through the center of Fort Morgan whereas the railroad travels along the southern edge of the town.

Leaving Fort Morgan, additional heavy industrial uses are evident (e.g., in Weldona). Further west, uses return to irrigated crop lands and ranches. These uses continue for miles, with an occasional trucking operation. The railroad parallels I-76 on the south side of the highway. Some industrial uses are present as the railroad passes through the small town of Wiggins (population 838).

WELD COUNTY

Approaching Weld County (population 180,936), the railroad travels too far to the south of I-76 to be visible. In fact, the railroad does not enter a town in Weld County until Roggen. Traveling through Weld County, fallow land is evident in all directions.

The town of Roggen (population unavailable) is a tiny, abandoned-looking grain town. The town of Keenesburg (population 855), by comparison, appears to have one operating grain elevator and a number of small houses. Surrounding the town are agricultural uses. The railroad passes by the southern edge of Roggen and through the center Keenesburg. Outside Keenesburg are some cattle farms and a power plant. The railroad tracks follow I–76 in its southern adjacent ROW for some distance.

Hudson (population 1,565) has several grain elevators and additional industrial uses which generally are found adjacent to the ROW as the railroad passes through town.

ADAMS COUNTY

Traveling southwest through Adams County (approaching Denver), a change to higher land uses is evident as random house lots become more commonplace. At the northern end of Adams County (population 363,857), agrarian uses are still present, but housing developments are interspersed. These are the first new housing developments seen. On the south side of I-76, there are some graded sites offered (by Fuller Realty reporting listing prices of $3.00 to $4.00 per foot) for development, but at this time the land is still in agricultural use or is fallow. At E. 144th Avenue and I-76, several commercial buildings are present. One large building appears vacant with a large "lease" sign. The railroad travels along I-76 adjacent to Barr Lake. At E. 136th Avenue, the land between I-76 and the railroad consists of low-grade industrial uses. Thereafter, land uses return to vacant grassland with an occasional house.

We exited I-76 at Sable Boulevard to take Rt. 2. Pic 48 was taken at the Rt. 2 overpass looking east and showing vacant land on both sides of the ROW. Pic 49 was taken at the Rt. 2 overpass looking southeast and showing new residential development. Heading southwest on Rt.

2, the railroad is located on the northern side of the road. The land is fallow with no evidence of any development. There does not appear to be sewer on the north side of Rt. 2 although some dense single-family development on the south side suggests the presence of sewer. At the junction of Rt. 2 and E. 104th Avenue, there is still no evidence of demand on the north side of Rt. 2.

On the south side of Rt. 2 after E. 104th Avenue are some industrial junkyards and dense residential developments. On the north side are industrial uses. Pic 50 was taken at E. 96th Avenue looking east. The photo shows industrial development on the north side of Rt. 2 and dense residential uses (Eagle Creek) on the south side.

Proceeding southwest on Rt. 2, the south side of the ROW is bounded by the huge fenced-in Rocky Mountain Arsenal National Wildlife Refuge of Commerce City. The north side of the ROW is bounded by grain elevators and trucking and container shipping enterprises. Pic 51 was taken at E. 88th Avenue looking east. Vacant land occupies the space between the ROW and Rt. 2 to the south while industrial uses occupy the land north of the ROW.

After E. 88th Avenue, low-grade industrial uses and modest houses are present. These uses continue until E. 80th Avenue after which low-income housing in poor condition becomes prevalent (no industrial). At E. 72nd Avenue, local-serving retail uses are found (e.g., pawn shop, bakery, salon, restaurants and video rentals). Railroad cars are stored just before the intersection. Bungalow-type housing stock is adjacent to the ROW. Pic 52 was taken at E. 71st Avenue and Kearney Street showing the housing stock typical of that area.

At E. 69th Avenue is a large power station interspersed with mobile homes. These uses continue until E. 66th Avenue where a large grain elevator facility is located adjacent to the ROW (refer to Pic 53).

The entire distance between E. 66th Avenue and the railroad's intersection with I-270 at about E. 60th Avenue consists of heavy industrial uses. Pic 54 was taken at E. 60th Avenue looking east toward grain elevators. Pic 55 was taken at E. 60th Avenue looking west and showing the prevalence of additional industrial uses. At this point, we accessed Brighton Boulevard (Rt. 265) to follow the railroad tracks south. Pic 56 was taken at Rt. 265 between E. 56th Avenue and E. 57th Avenue looking southwest and showing the heavy industrial uses (e.g., a crackling plant) which straddle the railroad tracks.

DENVER COUNTY

Entering Denver County (population 554,636), we traveled on Brighton Boulevard with the railroad to the west. Uses continue to be heavy industrial and warehouse-related in nature. At about 44th Street, uses change to light industrial and distribution facilities. At 38th Street (a/k/a Washington Street) is a concrete batching plant (on the east side of the tracks) and limited retail (on the west side).

Between 38th Street and 31st Street are deteriorated industrial properties. Land is for sale (with utilities) at the east side of Brighton Boulevard just north of 31st Street (the broker quoted asking prices of $3.00 per foot. At the terminus of 31st Street, trucking and distribution businesses and a FedEx facility are adjacent to the railroad tracks. Pic 57 was taken at the

terminus of 31st Street and the ROW looking north, while Pic 58 looks south from the same location. About 15 - 20 sets of tracks are present at this location.

Continuing south on Brighton Boulevard (now referred to as Broadway), we turned right on Park Avenue/22nd Street heading toward I-25 so as to view the ROW at the Park Avenue overpass. Old industrial buildings, many of which are abandoned, are found at this location. On the north side of Park Avenue are slightly superior industrial buildings, mostly related to trucking and distribution. A photo taken at the corner of Denargo Street and Arkins Court (Pic 59) shows low-grade industrial uses along the ROW.

The ROW intersects with 19th Street near Chestnut Street. Pic 60 was taken at 19th Street looking southwest, and Pic 61 was taken at the same location looking northeast. An apartment building (about 12 stories in height) is adjacent to the north side of the tracks. North of 19th Street are an abandoned industrial building, power stations and vacant land.

South of Park Avenue, according to signage, one enters the city limits of Denver. Traveling south on Blake Street (about three blocks from the ROW), commercial and retail uses line both sides of the road. We turned right on 15th Street, passing retail establishments with lofts for offices and housing. The ROW crosses 15th Street between Little Raven Street and Delgany Street at Chestnut Street. The Archstone Riverfront Apartments are found on the south side of 15th Street at the ROW. On the north and south sides of 15th Street west of the track are apartment buildings; the east side also contains apartments, but they are removed from the ROW (separated by vacant land). The apartments appear to be moderate-income, multi-family, multi-level facilities.

One block further south (at N. Speer Boulevard), level land resides on the southeast side of the tracks. On the northwest side, the land is well above grade. The Elitch Amusement Park (Six Flags) borders the track on the west side. Adjacent to the park are the Gates Crescent Park Gardens and the Children's Museum. Adjacent to them is I-25, which is bordered in turn by Invesco Field (sports stadium). Pic 62 (which shows the amusement park in the distance) and Pic 63 were taken at the intersection of 4th Street and Walnut Street.

Traveling south on 7th Street (a few blocks from the ROW), uses consist of a college (University of Colorado-Denver Metropolitan State College-Denver Community College - Auraria Campus), moderate-priced housing and vacant land. At W. 13th Avenue and the ROW looking both south (Pic 65) and north (Pic 64) are low-grade industrial buildings.

Along Mariposa Street is deteriorating housing stock in very poor condition. Turning onto W. 8th Avenue, the ROW is bordered by low-grade industrial uses on both the west and east sides. Pic 66 was taken at the intersection of W. Mulberry Place and Tejon Street looking north; Pic 67 looks south. At this location are scrap yards and low-grade industrial uses and printing shops.

At the W. 6th Avenue Freeway overpass, rail-related buildings (a large rail yard) and heavy industrial activities are present.

Light to heavy industrial uses and building material storage yards (construction companies) are evident at W. 3rd Avenue and the ROW. Pic 68 looks north from the intersection of Raritan Way and Quivas Street; Pic 69 looks south. On the west side of the ROW is I-25.

Pic 70(looking north) and Pic 71 (looking south) were taken at the corner of W. Bayaud Avenue and Kalamath Street. The area consists of low-grade industrial to the north and trucking and heavy industry to the south.

Uses along S. Cherokee Street include low-income housing (aged and deteriorating housing stock). Approaching Alameda Avenue, uses change to converted warehouses (uses undeterminable). At S. Cherokee Street, industrial uses are found on the west side of the tracks, and parking lots (related to local commuter mass-transit lines) and low-grade industrial uses are found on the east side. Pic 72 looks north from S. Cherokee Street.

Traveling on S. Broadway, land uses include retail, big box, car dealerships, a tire store, and some commercial structures. At W. Mississippi Avenue, heavy industrial uses are evident along the ROW (see Pic 73). However, they all appear abandoned.

South of W. Mississippi Avenue, uses along S. Broadway (one block from the ROW) consist largely of antique stores ("Antique Row") and low-grade retail. Pic 74 was taken on the west side of the tracks at W. Florida Avenue looking north. Pic 75 looks south from the same location. The area consists of industrial uses interspersed with some office space. At this point, Rt. 85 lies adjacent to the west side of the tracks. Immediately to the west of Rt. 85 is the Overland Park Golf Course.

Traveling again on S. Broadway south of W. Florida Avenue (a few blocks from the ROW), retail uses are still evident (e.g., fast food restaurants, gas stations, restaurants, furniture stores, auto parts). Using W. Evans Avenue to access the ROW, uses become rail-related (e.g., a passenger terminal and parking lots) and low-grade industrial. Some local-serving retail uses (e.g., a pizza restaurant) are found.

ARAPAHOE COUNTY

We entered Arapahoe County (population 487,967) at E. Yale Avenue, where new industrial construction is underway. Pic 76 was taken at W. Bates Avenue and S. Galapago Street looking north. In addition to new construction activity, uses consist of building material storage yards and heavy steel fabrication plants.

Traveling south on S. Elati Street (a few blocks from the ROW), modest housing is found. At W. Floyd Avenue approaching the ROW, the Englewood Civic Center is noted along with a parking garage and a bus transfer station. We also noticed three-story, multi-family rental apartments behind and to the east of the garage. Free rent is being offered for one-, two- and three-bedroom units indicating the low demand for rental housing units in the market. Pic 77 was taken at W. Floyd Avenue at the civic center looking north and showing the commuter parking lot on the east side of the ROW. Pic 78 looks north and shows the west side of the tracks and the low-grade, local-serving industrial uses.

At S. Elati Street and Englewood Parkway are a retail shopping center and large discount retail uses (e.g., Petco, Ross). At S. Elati Street and W. Hampden Avenue (Rt. 285), higher quality retail uses are present. These retail uses are a few blocks removed from the ROW. Pic 79 and Pic 80 were taken at the intersection of S. Windermere Street and W. Kenyon Avenue where light to moderate industrial uses line the east side of the ROW. Rt. 85 borders the west side of the tracks (adjacent to Rt. 85 is the Englewood Municipal Golf Course).

We followed S. Windermere Street (which parallels Rt. 85) south along the ROW. Light to heavy industrial uses are present. South of W. Oxford Avenue, heavy industrial uses are followed by a waste service facility, railroad tie enterprise, lawn and tree company, millwork and sheet metal fabrication shops, and other light to moderate industrial uses. Rt. 85 is still adjacent to the west side of the ROW. Pic 81 was taken at S. Windermere Street and W. Tufts Avenue looking north; Pic 82 looks south.

South of W. Tufts Avenue, heavy industrial uses such as scrap yards, power stations, self-storage and building material storage facilities are present. The ROW passes over W. Belleview Avenue (Rt. 88) with heavy industry on both sides.

Continuing south on S. Windermere Street, we turned west on W. Powers Avenue. The tracks are well below grade at W. Littleton Boulevard where Pic 83 was taken looking north from the west side of the tracks. A parking is located on the west side of the ROW along with multi-family housing; the east side of the tracks consists of vacant land.

Traveling further south, we took W. Ridge Road to view the ROW. Single-family residences are present (moderate income and good quality) as well as some town homes/condos. Rt. 85 is adjacent to the west side of the ROW at this location. Adjacent to Rt. 85 is vacant land. On the east side of the ROW are large grassy areas which act as a buffer between the ROW and the residential uses. Newly constructed single-family homes are located south of W. Ridge Road along the ROW (see Pic 84, which looks south from W. Ridge Road).

Along S. Houstoun Waring Circle are residential developments (some older split-level homes and some zero-lot-line new single-family homes). Pic 85 was taken looking north along S. Houstoun Waring Circle near Sunset Drive. The homes parallel the railroad tracks, but we could not access the ROW without trespassing. The tracks are also co-terminus with a commuter rail line. Pic 86 was taken at the intersection of W. Mineral Avenue, Rt. 85 (S. Santa Fe Drive) and the ROW showing the rear of housing along S. Houstoun Waring Circle and/or S. Summer Circle. Good quality shopping centers are found on the west side of the tracks, although they are separated from the ROW by the commuter rail and Rt. 85.

DOUGLAS COUNTY

Douglas County (population 175,766) begins at Rt. 470, at which point vacant land is present both north and south of the roadway. The tracks cross over Rt. 85 in an area referred to as Blakeland. Pic 87 was taken at Norwood Drive and Rt. 85 looking north (the city of Denver is in the distance). A mini-storage facility is located on the southeast side of the tracks. Transition land between industrial and agricultural is evident, as shown in Pic 88 taken at the end of Norwood Drive looking north. A second industrial facility directly opposite Norwood Drive's cul de sac is shown looking northwest in Pic 89. Pic 90 looks west toward farmland.

Heading down Rt. 85 toward W. Carder Court, highway service and industrial uses are evident. At W. Carder Court and the ROW, heavy industry is present (reinforced concrete production) on the east side of the tracks. On the west side is the Chatfield State Park along which the ROW travels for some distance. Pic 91 and Pic 92 were taken at W. Carder Court with Pic 91 showing the state park and Pic 92 showing the Carder Concrete Products facility.

Uses between 12000 and 12500 N. Dumont Way consist of light to heavy industrial facilities, e.g., concrete batching, excavation companies, landscaping businesses and construction offices.

Heading south on Rt. 85, the ROW lies between the highway (with an adjacent power line) and Chatfield State Park. At the southern end of the state park, a limited amount of housing becomes visible around Titan Parkway/W. Titan Road. South of this location are RV and mobile home parks, a couple of junkyards and a liquor store. Thereafter, both the east and west sides of Rt. 85 are bordered by open land although some low-grade industrial uses (auto and truck repair) become evident as the ROW approaches tiny Kellytown (population unavailable). South of town are heavy industrial uses followed by low-grade industrial uses at about W. Airport Road. All industrial uses stop roughly at Rt. 67 after which both sides of Rt. 85 are bounded by vacant land.

Approaching Castle Rock (population 20,224) at N. Daniels Park Road (a/k/a County Road 29), there is transitional real estate. Land uses change from vacant farm land to low-density residential. At E. Happy Canyon Road, both housing and office/retail uses are present on both sides of the track. This tiny cluster of uses ends abruptly. Residential development begins again north of Atrium Drive at a project called Castle Pines (condos or town homes). South of Atrium Drive is vacant land.

At this point, we accessed I-25 south. Land along the interstate highway is fully developed with hotels, restaurants and retail stores, but the ROW is some distance away in a valley. At about Plum Creek Parkway, the ROW reappears and begins to travel directly to the west of I-25 although it is separated from the interstate highway by Frontage Road. Limited housing is noticeable, but these uses are short-lived as farm land quickly becomes the dominant land use. After Noe Road, the ROW separates from I-25 and travels out of sight to the southwest.

EL PASO COUNTY

The ROW enters El Paso County (population 516,929) at County Line Road. The tracks are not adjacent to I-25 at this point; rather, they enter the county traveling in a southwesterly direction while I-25 travels due south. The tracks roughly follow S. Spruce Mountain Road to the town of Palmer Lake (population 2,179). In Palmer Lake, S. Spruce Mountain Road terminates at Rt. 105, and the ROW travels on the east side of Rt. 105 through town. Most development is on the west side of Rt. 105 and S. Spruce Mountain Road (in fact, the body of water known as Palmer Lake lies to the east of the tracks).

Taking Rt. 105 in a westerly direction from I-25, the ROW crosses Rt. 105 just west of Washington Street in the town of Monument (population 1,971). Pic 93 shows the ROW at Rt. 105 looking northeast from the west side of the tracks. Pic 94 shows the east side of the ROW looking northwest. The town of Monument is a rural agricultural community with highway-

related services (e.g., fast food) at the intersection of Rt. 105 and I-25. The railroad is at the city limits. On the east side of the tracks (Pic 94) is a mobile home park. On the west side (Pic 93) are a fire station, a few homes and vacant land. On the east side of the ROW south of Rt. 105 are single-family homes; industrial uses are on the west side (see Pic 95, taken south of Rt. 105). These uses continue for about 3/4 mile.

At 3rd Street and the ROW, retail uses are found on the east side of the tracks and industrial uses (a nursery) on the west side. Highway-related uses are found on both sides of the tracks at 2nd Street (refer to Pic 96 and Pic 97, taken at 2nd Street). South of 2nd Street on the east side of the tracks is a play ground. From 2nd Street south, residential uses occupy the east side of the tracks (ramblers and some split levels); housing begins on the west side of the ROW about 1/4 mile south of 2nd Street.

We turned east onto Trumbull Lane (a circular road); the tracks run between two subdivisions at this location. At the southern end of Trumbull Lane (at the intersection of Synthes Avenue and Mitchell Avenue), a parcel of "2-9 acres" is up for sale. According to the broker, Steve Bach, industrial sites are offered at $3.00 per foot. There have been no sales for over three years. Pic 98 and Pic 99 were taken at Synthes Avenue's dead-end showing housing and meadow lands adjacent to the ROW. CPI Compact Power offices are adjacent to the ROW (at a distance of about 500 feet). After Synthes Avenue, land uses convert to rural grasslands.

Limited commercial development is present at the intersection of I-25 and Baptist Road. Just south of Baptist Road, a sign advertises land available, the broker never returned our calls. We exited I-25 at Exit 156 at the northern entrance to the U.S. Air Force Academy. The tracks are located beyond the security gate. Between the tracks and the Academy buildings is a distance in excess of ½ mile. All surrounding land is vacant.

The ROW is inaccessible until it exits the southern boundary of the USAF Academy property. Our first opportunity to inspect the ROW as we approached Colorado Springs (population 360,890) occurred when we exited I-25 at Exit 149 (W. Woodmen Road). About 1/4 mile off the exit ramp, the ROW crosses Woodmen Road. Pic 100 was taken looking north from W. Woodmen Road at the "Edmonston Trail Head." On the north side of W. Woodmen Road, the west side of the tracks consists of offices and housing; the east side is a dry creek bed. On the south side of W. Woodmen Road (see Pic 101), the east side of the ROW consists of a dry creek bed; the west side consists of retail (small, local-serving strip center) and condos/townhouses.

At Mark Dabling Boulevard, the dry creek bed continues on the east side of the ROW; housing is located on the west side. Pic 102 was taken at Mark Dabling Boulevard looking south and showing the dry creek bed and embankment. Pic 103 looks north showing the dry creek bed and housing at higher elevations on the west side of the tracks. Traveling south, the ROW follows the west side of Mark Dabling Boulevard in co-terminus rights-of-way that are located to the west of I-25. However, at Rockrimmon Boulevard S., the ROW and Mark Dabling Boulevard cross to the east side of I-25.

At Rockrimmon Boulevard S., offices and industrial uses are present on the west side of the tracks, and Mark Dabling Boulevard is still adjacent to the east side of the tracks. Pic 104 was taken at the I-25 overpass at Mark Dabling Boulevard looking south. Offices are located

between the tracks and Mark Dabling Boulevard. The west side of the tracks is adjacent to I-25. Pic 105 looks north from the I-25 overpass toward Rockrimmon Boulevard S. Opposite 5320 Mark Dabling Boulevard adjacent to a "research park", a sign advertises "Available 5-10 Acres". The broker, David Phillips, did not return our calls.

About 1/4 mile north of W. Garden of the Gods Road, Pic 106 and Pic 107 were taken from Mark Dabling Boulevard. The west side of the tracks contains industrial uses; on the east side is Mark Dabling Boulevard. Low-grade housing borders the east side of Mark Dabling Boulevard, but it is separated from the railroad by the road. At and south of W. Garden of the Gods Road, uses become industrial (distribution and warehousing) on both sides of the tracks.

From about the 3600 to 4000 blocks of Mark Dabling Boulevard, a sports complex and recreational fields are located on the east side of the tracks while industrial uses (including Pike Peak's Steel) and low-income homes are on the west side. A sign for an available industrial building site is found on the east side of Mark Dabling Boulevard at the 3700 block, the broker, John Onstott of Highland Commercial Group, reported the site is listed for $4.50 per foot. However, the parcel has been on the market for two years without any offers. This land is separated from the tracks by the roadway as well as the sports complex. Pic 108 looks south from the recreational fields.

South of W. Fillmore Street (Rt. 38), an industrial yard is located east of the tracks; on the west side of the tracks is I-25. Pic 109 (taken at W. Fillmore Street and Stinton Road) looks south showing the industrial yard. Traveling south on Steel Drive, industrial uses line the east side of the ROW while I-25 is on the west side. Steel Drive separates the industrial uses from the ROW south of W. Polk Street. Housing and low-grade industrial uses are found on the west side of the ROW at the terminus of Steel Drive. A trolley museum is adjacent to the east side of the tracks at this location.

At the intersection of W. San Miguel Street and Recreation Way, Pic 110 looks north and Pic 111 looks south. A maintenance and vehicle storage yard for the City of Colorado Springs is located east of the tracks (and east of Recreation Drive) all the way from about Steel Drive to W. San Miguel Street. South of W. Fontanero Street on the west side of I-25 is single-family housing separated from I-25 by sound barriers. The Monument Valley Park is located east of Recreation Way, separated from the roadway by a creekbed. The southern boundary of the park appears to be W. Uintah Street; the northern boundary is Monroe Place.

At W. Uintah Street and the railroad overpass, retail uses and a commuter storage facility are present on the east side of the tracks. Limited low-income housing is located south of W. Uintah Street separated from the tracks by Glen Avenue. The west side of the tracks is adjacent to I-25 with housing beyond sound barriers.

From W. Uintah Street south to W. Bijou Street, the ROW is bordered by public land (City of Colorado Springs) on the east and I-25 on the west. South of W. Bijou Street, offices and retail uses (e.g., restaurants such as Old Depot Square) are present. Pic 112 (looking north) and Pic 113 (looking south) were taken south of W. Bijou Street at W. Pikes Peak Avenue. These uses continue until W. Colorado Avenue. South of W. Colorado Avenue, industrial uses are present until Rt. 24 (Cimarron Street). I-25 continues to be located to the west of the ROW.

Along Conejos Street from Rt. 24 south to E. Mill Street, industrial uses are present on the east side of the ROW; on the west side is a huge power facility. Pic 114 was taken at Conejos Street and W. Animas Street looking north and showing the industrial uses along the ROW.

At the intersection of Conejos Street and W. Fountain Street, the ROW turns abruptly from a southern to an eastern direction. As the railroad travels east toward Business Route I-25, vacant land is present on both the north and south sides of the ROW at the dead-ends of S. Cascade Avenue.

At S. Tejon Street and the ROW, the tracks are bordered by retail uses to the east and an embankment to the west. Traveling southeasterly along the ROW on E. Las Vegas Street, low-income housing is located on the south side of the tracks (separated from the ROW by the street). Industrial uses are evident on the north side of the tracks at E. Las Vegas Street and S. Royer Street. Between S. Royer Street and S. El Paso Street, industrial uses are located on both sides of the ROW although the southern uses are separated from the ROW by E. Las Vegas Street. Pic 115 was taken opposite a water filtration plant looking north. After the water filtration plant, embankments and rough topography reside on the east side of the ROW. Following some vacant land, industrial uses begin again in the vicinity of the ROW's intersection with Rt. 24.

After Rt. 24, the ROW is bordered by vacant land and E. Las Vegas Street all the way south to Rt. 29. At the Rt. 29 intersection, a mini-storage facility is located on the east side of the tracks. Industrial uses and vacant land continue until the ROW crosses E. Las Vegas Street just south of Rt. 29. The west side of the tracks is bordered by S. Las Vegas Street after the cross-over (see Pic 116).

E. Las Vegas Street terminates at Rt. 85. Traveling on Rt. 85 south to Rt. 83, industrial uses are on the east side of the tracks; vacant land and Rt. 85 are on the west side (the land appears to be a public right-of-way not suitable for development). After Rt. 83, a power line is located between the ROW and some low- to moderate-income housing on the east side of the tracks. Vacant land and Rt. 85 continue on the west side (see Pic 117). Approaching and after Main Street, uses on the east side become a mixture of residential and industrial. Highway-related uses are found on the west side of the tracks but these uses are separated from the ROW by Rt. 85. Just before Fontaine Boulevard, residential uses are present on the east side of the tracks, while strip centers occupy the west side (again, separated from the ROW by Rt. 85). At Fontaine Boulevard is a cluster of retail and office land uses.

After Fontaine Boulevard, retail uses are present on both sides of the tracks although the uses on the west side are separated again from the ROW by Rt. 85. Pic 118 and Pic 119 were taken at Rt. 85 south of Fontaine Boulevard (looking north and south, respectively). Housing quickly becomes the predominant land use traveling south with sporadic industrial uses as Rt. 85 approaches Rt. 16.

Residential uses on the east side of the tracks terminate at the Rt. 16 overpass. On the west side of Rt. 85 is a Scotts supply store. Thereafter, vacant land borders both sides of the ROW (with an occasional home or industrial use on the west side of Rt. 85) until Comanche Village Drive (approaching the town of Fountain, population 15,197). Although housing begins again at this point on the east side of the tracks, the housing is separated from the ROW by El Paso Street. Following a limited amount of housing, the ROW is bordered once again by vacant

land on the east. At about Iris Drive, road-side services and retail uses are located between Rt. 85 and the tracks. The east side of the ROW contains residential uses. These uses continue until south of W. Illinois Avenue just north of a creek bed.

Traveling down Pueblo Avenue and Eagle Street, manufactured housing is located on the west side of the tracks. The east side contains vacant land until a tank farm appears south of Arvada Street. Pic 120 was taken at Arvada Street looking north.

Leaving Fountain and heading south on I-25, vacant fallow land follows the east side of the tracks (with an occasional random industrial use). The ROW is bordered on its west side by I-25.

PUEBLO COUNTY

Entering Pueblo County (population 141,472), uses continue to consist of vacant fallow land with an isolated industrial use or random home. While one lodging facility (Days Inn) is visible at Exit 101, virtually no other uses are present. After Exit 108, the railroad veers off to the east to avoid a racetrack and a mesa (then reconnects with I-25). Approaching Pueblo (Pueblo West CDP has a population of 16,899; Pueblo City's population is 102,121), the railroad crosses from the east to the west side of I-25. Vacant land continues along the ROW for at least 1/4 mile into the distance.

Exiting I-25 at Exit 104, we accessed Dillon Drive/E. Platteville Boulevard to view the ROW. Sites are for sale along the roadway; the listing broker, Dee Brown, did not return our phone calls. A mobile home park called Northpoint Estates is located on the north side of E. Platteville Boulevard. With that exception, all land is vacant approaching the at-grade crossing of the ROW. Pic 121 (looking north) and Pic 122 (looking south) were taken at the E. Platteville Boulevard railroad crossing where an isolated grain elevator facility is located.

We exited I-25 again at Exit 101 (Rt. 50). From E. Platteville Boulevard south to this exit, the ROW travels through the hinterlands. Rt. 50 itself is completely built out with retail uses and fast food restaurants. The ROW crosses Rt. 50 at the edge of the retail uses with a Ford Dealership on the south side of Rt. 50 and road-service retail on the north side. Pic 123 and Pic 124 were taken at the dead-end of E. Spaulding Avenue looking toward Rt. 50 and the ROW.

We exited Rt. 50 at Rt. 45 (Pueblo Boulevard) and turned left onto Tuxedo Boulevard, then left on Parker Boulevard and right on Wild Horse Road to follow the ROW. The land adjacent to the ROW is vacant until W. 29th Street where Pic 125 was taken looking north from the at-grade crossing; Pic 126 looks south. Uses at W. 29th Street consist of vacant land on the east side of the tracks and low-grade industrial on the west side followed by some low-income housing.

From W. 29th Street south to Cheyenne Avenue's dead-end at W. 19th Street, low-income housing is evident on both sides of the ROW (see Pic 127 to view typical housing). Low-income housing continues on both sides of the ROW until the intersection of Hooper Avenue and W. 15th Street at which location is a state prison. At Hood Avenue and W. 15th Street is a large marshaling yard on the east side of the tracks (publicly owned). Industrial uses are evident on

the west side of the tracks. On the north side of the tracks at W. 11th Street is low-income housing; the south side of the tracks consists of industrial uses. From W. 11th Street south to Rt. 96 (W. 4th Street), the ROW contains the large marshaling yard mentioned above with vacant land on the east side until the ROW approaches Rt. 96, at which point industrial uses begin. The Arkansas River is found on the west side of the tracks for the entire distance from W. 11th Street to Rt. 96.

South of Rt. 96, heavy industrial uses begin on the east side of the rails. The west side continues to be bounded by the Arkansas River. Pic 128 is taken from the Rt. 96 overpass looking southeast.

Pic 129 was taken at S. Mechanic Street and E. C Street looking east toward I-25. Adjacent land uses on the east side of the tracks are industrial with some public land ownership (including the Pueblo Union Depot). Between Rt. 96 and this location, the Arkansas River bounds the west side of the tracks. Vacant land followed by industrial uses at about W. B Street occupy the east side of the tracks.

At this juncture TNR's right-of-way turns eastward toward the towns of La Junta (population 7,568) and Las Animas (population 2,758). The segment of the line from the eastern edge of Pueblo to the northern edge of Amarillo, Texas, was not inspected due to its remote location, vast areas of unproductive land, and low prices. However, descriptions of the uninspected counties are included below.

OTERO COUNTY

Otero County (population 20,311) has 1,268 square miles in land area and a population density of 15.7 persons per square mile. In the last three decades of the 1900s, its population declined by 13.7%. The following information was taken from the Web site "www.scedd.com" (Southern Colorado Economic Development District).

Historically, Otero County has served as the trade hub of the region. The construction of the railroad impacted Otero County, as "train towns" became established throughout the region. Otero County has long been agriculturally based, and while this segment continues to suffer, its importance to the area is second to none. Urban demand for agricultural water now threatens the rural lifestyle, and many efforts are being made to maintain the area's rich agricultural heritage. A subtle shift and diversification of the economic base has resulted in a strong economy and bright outlook. Local economic development efforts focus on business and industries (particularly telecommunications) that want the "small town flavor" without the negative aspects of urban sprawl.

La Junta (population 7,568), the county seat, was a railroad town from the beginning. In the last one hundred years, the city has waxed and waned with the fortunes of commerce. In the heyday of rail travel, La Junta was a transportation hub for produce and cattle shipments. Residents in the early part of the century built a town of substance overlooking the low valley of the Arkansas. Today, La Junta sits south of the Arkansas, as before, but now poised to launch into the 21st Century. Consolidation of railroad resources led to downsizing of the Atchison, Topeka, and Santa Fe rail presence in the late 1980s, with predictably negative effect on the economy. Aggressive actions by concerned citizens and members of the business community led

to several light industries moving from out of state or out of the area to La Junta's Industrial Park, north of the city.

The local area is given over to ranching and agriculture. Northern Otero County is known for some of the finest melon crops in the world. The above information about La Junta was found on the Web site "www.ci.la-junta.co.us."

BENT COUNTY

The description included herein was taken from a Web site entitled "www.ccionline.org."

Bent County (population 5,988) is located in southeast Colorado approximately 80 miles from the New Mexico border and 38 miles from the Kansas border. Bent County is 36 miles from east to west and 43 miles from north to south, with a total land area of 970,880 acres. The elevation of the county at the southern border is 5,000 feet. The southern portion of the county contains bluffs, mesas and canyons that open to the rolling plains of the Arkansas River valley. The Arkansas River, which sits at an elevation of approximately 3,775 feet at the eastern border of the county, runs from west to east in the northern half of the county. Las Animas lies at an elevation of 3,901 feet. The northern part of Bent County is a series of rolling plains that slope south to the Arkansas River.

There are two major transportation corridors in Bent County: U.S. Highway 50 (US 50) and State Highway 101. Interstate 25, a major north-south link in Colorado and a part of the National Highway System, can be reached 85 miles west of Las Animas on US 50 at Pueblo. US 50 is an undivided regional highway running a distance of approximately 36 miles east-west through Bent County, generally along the old Sante Fe Trail route. As US 50 passes through Las Animas, it is classified as a non-rural principal highway.

The Burlington Northern-Sante Fe Railroad has two major rail lines in Bent County, one running east-west generally following the Arkansas River, and the other running south from Las Animas generally following the SH 101 alignment. Although Amtrak passenger service crosses Bent County, the Las Animas depot is currently closed. The closest active rail depot is in La Junta to the west.

Bent County features a wide range of state and federal lands within its borders. The Bureau of Land Management, US Army Corp of Engineers and other Federal agencies manage land within the county. The State of Colorado manages lands at the State Wildlife Areas and at John Martin Reservoir State Park. The State also oversees the school "sections" scattered across all counties in Colorado, including Bent. Private lands in Bent County are predominantly in uses related to agriculture.

The county is a large producer of alfalfa, corn and winter wheat, and thousands of acres are under cultivation. Land used for agricultural purposes in Bent County consists of 676,505 acres of rangeland, 55,069 acres of non-irrigated cropland, and over 59,638 acres of irrigated cropland. The A-1 Agriculture District is intended to protect and preserve agricultural industry in the county and to protect rural property owners from incompatible land uses. The majority of unincorporated Bent County is zoned A-1. McClave Hasty, Caddoa, and Fort Lyon and are all zoned M.U.D. Multiple Use District. The M.U.D. is intended to provide for a mix of uses in

"traditionally mixed-use areas", or areas that are in a state of transition toward mixed use. A platted subdivision just south of McClave is zoned R- 3, which provides for single-family homes on minimum 7000 square foot lots.

The most common land use in the incorporated city of Las Animas is single-family housing occurring throughout the city except at its commercial core. The R-2 District is intended to accommodate permanent, single-family dwellings with a maximum of four dwelling units per acre. Duplexes and multifamily residential uses are much less common. Duplexes occur sporadically around the city and in small concentrations of usually two to six duplexes. R-3 Urban Residential zoning is intended to provide for higher density and diversity of residential development than the R-2 district. R-3 zoning occurs in four non-contiguous areas in Las Animas.

Most of the retail and service land uses occur in and around the town core. The B-1 Highway Business District is intended to accommodate automobile oriented business, typically of the service industry. The intent of the B-2 Central Business District is to accommodate businesses that serve Las Animas residents, tourists, and the surrounding community. B-2 Central Business District zoning occurs in the center of town. The Neighborhood Shopping District is intended to accommodate businesses that provide retail goods and services in residential districts for the convenience of local residents. The I-1 Light Industrial District is intended to accommodate light industrial, wholesaling, and manufacturing operations.

BACA COUNTY

Information about Baca County was obtained from online sources, including "www.scedd.com", "www.springfieldcolorado.com" and "www.coloradosfrontier.com."

Baca County (population 4,517) has the distinction of being the least populated county in Colorado. It is situated in the far southeast corner of the state. The area is a unique combination of plains, canyons and buttes. Baca County offers recreational opportunities, and Picture Canyon offers a unique combination of historical resources. The present day economy of Baca County is based on ranching and farming, with irrigated row crops in the eastern part of the county.

Springfield (population 1,562) is the county seat and largest town of Baca County in the southeastern corner of Colorado. It is on the Colorado high plains and is surrounded by generally flat to gently rolling farm lands. Springfield serves as the service and commercial center for the mostly agricultural area. Elevations range from 3,800 to 5,200 feet in Baca County.

Campo (population 150) is 21 miles south of Springfield on Highway 287, just nine miles from Oklahoma. It has remained a virile little community going through periods of growth and decline controlled by rainfall and the economy. It is in a fertile farming area with some of the best grazing land in Baca County.

OKLAHOMA

CIMARRON COUNTY

Cimarron County (population 3,148), formed in 1907 from the western portion of Beaver County, is located in the Panhandle region of Oklahoma and is the state's westernmost county. The following information was obtained from a number of online sources, including "www.ohwy.com" and "www.ptsi.net."

Cimarron County is located in the northwest section of the state, and is the only county in the United States that touches four states other than its own: Texas, New Mexico, Colorado and Kansas. Citizens in Cimarron County are farther from their own state capital, Oklahoma City (340 miles) than to capitals of two other states, Colorado and New Mexico. (Denver 299 miles, Santa Fe 210 miles). There are five major highways through Cimarron County: U.S. 287, 64, 56, 385 and S.H. 3.

Two cities are found in Cimarron County. Boise City, the county seat and Keyes. Cimarron County has the highest elevation in the state. There is not a stoplight in the county even though it is one of the largest counties in the state. The closet metropolitan area to Cimarron County is Amarillo, Texas, which is 120 miles south of Boise City. This is also the location of the nearest commercial airport, dairy processing plant and also provides many services.

The county is historically noted as cattle country as evidenced by the old "Santa Fe Trail," which runs parallel to present-day U.S. Highway 56/64/412. Outdoor recreation is provided by Lake Etling and Black Mesa State Park near the New Mexico border and the Cimarron River to the north. Black Mesa is Oklahoma's highest point at nearly 5,000 feet elevation. The mesa is 55 miles long and several miles wide, and extends into Colorado and New Mexico. The total land area of the county consists of 1,840 square miles of rolling hills and bluffs.

Land uses in Cimarron County consist mainly of livestock raising and agriculture, particularly wheat and sorghum.

The City of Boise (population 1,483) is located near the center of the county at the intersection of U.S. Highways 412, 385/287 and 56 and SRs 3 and 325. Many of these routes were established from, or near, old cattle trails. It is a rough and tumble area characterized by grasses and cacti.

TEXAS

DALLAM COUNTY

Dallam County (population 6,222) is located in the far northwestern corner of the Texas Panhandle; its western border abuts New Mexico, and its northern boundary borders Oklahoma. Sherman County lies to the east, and Moore County lies to the southeast. The following information was obtained from the Web site "www.rra.dst.tx.us."

The county seat, Dalhart, is located on the Dallam-Hartley county line in the south-central part of the county. Dalhart is northwest of Amarillo where U.S. Highways 87, 385 and 54 meet. The town represents and agribusiness center for a wide area of Texas, Oklahoma and New Mexico. Texline, the county's only other incorporated town, is at the intersection of U.S. Highway 87 and the New Mexico border. Dallam County comprises roughly 1,505 square miles of the rolling grasslands of the Panhandle, and the terrain is marked by numerous dry gullies and intermittent creeks. The county's sandy, sandy loam, loam and salty clay loam soils support a variety of natural grasses and trees, as well as numerous crops including wheat, corn, milo, sorghum and other grain products. Ranching, the county's dominant industry, utilizes the abundant grasses to produce large numbers of beef cattle, along with some hogs and horses.

The transportation system in the county is centered around Dalhart where two railroads contribute to the local economy. The TNR railroad at issue here does not pass through Dalhart. Rather, the roughly seven miles involved in this assignment pass in a southeasterly direction in the very far northeastern section of the county between Cimarron County, Oklahoma, and Sherman County, Texas. Kerrick, Texas (current population unavailable; 1990 population was 60) is located on U.S. Highway 287 near the Oklahoma border in northeastern Dallam County. It was established on the Panhandle and Santa Fe Railroad and is the only town through or near which the subject TNR travels.

SHERMAN COUNTY

Sherman County (population 3,186) is in the High Plains region of the northern Panhandle on the Oklahoma border. Stratford (population 1,991), the county seat, is in the northwestern part of the county 80 miles north of Amarillo. The following information was obtained from the Web site "www.rra.dst.tx.us."

The county extends across 923 square miles of nearly level land covered by prairie grasses, some sagebrush and yucca; elevations range from 3,200 to 3,800 feet above sea level. The area is drained by the North Fork of the Canadian River, which cuts across the northwestern corner of the county, and by a number of creeks. The soils are dark and loamy, which clay subsoils that contain hardened calcium deposits. Most of the land in the county is devoted to farming and ranches. As of the 1980s, about half of the agricultural land was cultivated and almost 60% of the cultivated land was irrigated. Wheat, corn, barley, sorghum and soybeans are the main crops, and mineral resources including natural gas and petroleum are plentiful.

Sherman County's road network includes U.S. Highways 54 and 287 and State Highway 15. Two railroad lines pass through the county and intersect at Stratford, which is located on U.S. Highway 54 and 287 in the western part of the county.

MOORE COUNTY

Moore County (population 20,121) is located in the north-central part of the Panhandle of Texas bordered by Sherman, Hutchinson, Potter and Hartley counties. Dumas (population 13,747), the county seat, is located in the center of the county at the junction of U.S. Highways 87 and 287. The following information was obtained by the Web site "www.rra.dst.tx.us."

Moore County occupies 909 square miles of the High Plains, and its sandy and loam soils support abundant native grasses as well as various local crops such as wheat, corn, milo and other grains. In addition, large-scale commercial oil and gas production, which began in the 1920s, gave way to the construction of the railroads, their spurs, and a highway system to serve the oil, gas and refining industry. The production of oil and natural gas dominate the local economy, although ranching and farming activities are also extensive. Moore County also produces two-thirds of the nation's helium.

In general, the terrain of the county consists of nearly level prairies crossed by the Canadian River in the southeast and a number of creeks which drain into the river. Part of Lake Meredith, a man-made lake on the Canadian River, is in the far southeastern corner of the county. Dumas is in the heart of the state's leading grain sorghum producing areas.

POTTER COUNTY

The ROW travels southeast (roughly along F-M 1061, or Ranch 1061 Road) through Potter County (population 113,546) from the Moore County line to Amarillo (population 173,627). With the exception of some ranches and occasional tiny towns, the terrain is open grassland.

Exiting I-40 at Exit 62B, we traveled to the north side of Amarillo using Amarillo Boulevard (old I- 66; now Rt. 40). Turning left at N. Western Street, we accessed the ROW's overpass in the vicinity of Hester Drive. Pic 139 was taken at the overpass looking west out of town. This location is just outside the city limits of Amarillo. The Tascosa Country Club and a residential community (with golf course) are adjacent to the south side of the tracks. The north side contains a few low-income homes and trailers. The golf course follows the ROW for some time. After the golf course, the ROW follows Hester Drive and is bounded by random low-income housing on large lots or vacant land, followed by a cluster of dense low-income housing at Cliffside Drive.

Pic 140 was taken at N. McMasters Street at N.W. 13th Avenue looking northwest toward the N. Western Street overpass. It is clear that only vacant land borders the ROW between these two points, although some low-grade industrial uses are found at the actual intersection of the ROW and N. McMasters Street..

Two blocks later, the ROW crosses under I-66/Rt. 40. A concrete batching plant and other industrial uses are present on both sides of the track. Between the crossings at N. McMasters Street and Rt. 66, uses consist of vacant land and low-grade housing.

The ROW crosses N. Hughes Street at W. 1st Avenue. Pic 141 looks northwest from this intersection, while Pic 142 looks southeast. Uses are industrial on both sides of the ROW. Between Rt. 66 and N. Hughes Street, the ROW is bounded by vacant land (possible flood plain) to the north and housing to the south.

Traveling east on W. 2nd Avenue, the ROW is bordered by vacant land, low-grade housing and industrial properties. At N. Tyler Street, uses are industrial in nature on both the south and north sides of the ROW.

Pictures were taken at N. Fillmore Street at about W. 2nd Avenue in the middle of multiple highway crossovers (Routes 287, 87 and 60). Pic 143 looks west, and Pic 144 looks east. Uses on both sides of the ROW consist of old one- to three-story industrial buildings and warehouses. BNSF Railroad trains were noted on one of the most southern of the multiple tracks found at this location.

From about S. Grant Street to S. Grand Street, multiple tracks (bordered with industrial uses) are found. Pic 145 (looking east) and Pic 146 (looking west) were taken at the intersection of Ridgemere Boulevard and N.E. 3rd Avenue. As shown, the ROW is bordered by roadways and railroad-related uses. In the vicinity of S. Grand Street, the ROW separates from the multiple tracks and begins to travel in a southeasterly direction.

The ROW crosses S. Grand Street just north of S.E. 3rd Avenue. Pic 147 and Pic 148 were taken at this location. Looking east, the ROW is bordered by vacant land on both sides of the track with a grain elevator about one mile to the east. Looking west, the ROW is lined with heavy industrial uses on both sides.

Traveling east on S.E. 3rd Avenue, the ROW is adjacent to the north side of the road; vacant land borders the road and the ROW in all directions. Amarillo International Airport (only military aircraft noted) is located at Rt. 335 on the south side of S.E. 3rd Avenue (not adjacent to the ROW).

East of the Rt. 335 loop at the airport, Pic 149 (looking east) and Pic 150 (looking west) were taken just west of the Rt. 468 spur. Producers Grain elevator and storage facility is adjacent to the north side of the tracks looking east. With the exception of a few industrial buildings (including an additional grain elevator), the land is vacant.

Following the ROW's crossing at I-40, the southern side of the ROW is bordered by Rt. 287 (S.E. 3rd Avenue, extended) in co-terminus rights-of-way. Heading southeast on Rt. 287, land is vacant in all directions.

ARMSTRONG COUNTY

Entering Armstrong County (population 2,148) on Rt. 287, cash crops are present on the south side of Rt. 287 and on the north side of the ROW. At Washburn (population unavailable), a grain elevator is located north of the tracks, and a few dilapidated industrial structures and homes are located south of Rt. 287. Traveling southeast on Rt. 287 adjacent to the tracks, the ROW is generally vacant with a few junkyards and an occasional dilapidated house. These uses continue until the town of Claude (population 1,313).

Just within the Claude city limits, four large grain elevators are located north of the tracks. Traveling further into town, the ROW is bounded by several grain elevators on the north and vacant land and run-down, low-grade industrial structures on the south. Pic 151 (looking west) and Pic 152 (looking east) were taken at Hawkins Street in the center of Claude.

Exiting Claude, the ROW is again bounded by grasslands on the south side of Rt. 287 and on the north side of the tracks. The ROW and Rt. 287 continue to be co-terminus. At rare random points, there are small areas with good quality farmland.

The ROW passed through the town of Goodnight (population unavailable), which consists of two houses and a cemetery.

DONLEY COUNTY

Land continues to be vacant traveling through Donley County (population 3,828). There is an occasional farm, but generally just grassland (typically not irrigated). The ROW continues to be co-terminus with Rt. 287.

Entering the town of Clarendon (population 1,974), Rt. 287 is bounded on the south by such uses as a horse farm, low-grade industrial, auto repair shops and a college. However, these uses are separated from the ROW by Rt. 287. The north side of the ROW is active farm land followed by vacant land as one enters town. Along 1st Street from about Taylor Street to Kearney Street, the ROW is bounded by low-grade retail fronting on Rt. 287 and sporadic industrial uses adjacent to the tracks. Pic 153 and Pic 154 were taken at Kearney Street and the ROW. Pic 153, looking northwest, shows one of the random industrial uses. As shown in Pic 154, looking southeast from Kearney Street, vacant land becomes the predominant use.

Leaving Clarendon, the ROW is again bounded by fallow land with an occasional homestead or cattle farm. There is no evidence of irrigation. At the junction of Rt. 203 and Rt. 287 is the town of Hedley (population 379). The ROW is bounded by deteriorating housing stock on the north and Rt. 287 on the south. No industrial uses are present, although there are a small number of equipment storage yards at the eastern edge of town.

Approaching Giles (population unavailable), the ROW is not contiguous with Rt. 287, but rather travels to the northeast of the highway. Land in this vicinity is totally barren. We note that we observed no streets or housing to delineate Giles; possibly it is simply a ranch.

HALL COUNTY

Continuing southeast on Rt. 287, we entered Hall County (population 3,782). Approaching the town of Memphis (population 2,479), the ROW is contiguous with Rt. 287, which is bounded to the southwest by lodging facilities, gasoline stations and low-grade retail uses. These uses are separated from the ROW by Rt. 287. The northeast side of the ROW is vacant until about N. 12th Street where storage houses and a water tower are located. A fuel depot and irrigation supply business are located northeast of the ROW at Rt. 256. Thereafter, small industrial facilities, low-income housing and vacant land are present on the northeast side of the ROW (Rt. 287 continues on the southwest side). About ½ mile east of Rt. 256, vacant land becomes the predominant use.

Vacant land continues along Rt. 287 while traveling southeast to Estelline (population 168) with occasional cotton plantations adjacent to the west side of the highway (one or two cotton farms are noted on the east side of the ROW).

The ROW skirts the town of Estelline on its northeast side. Thereafter, the ROW is only occasionally visible from Rt. 287 until the town of Carey in Childress County. Sight lines available from portions of Rt. 287 reveal level grassland.

CHILDRESS COUNTY

Entering Childress County (population 7,688), only level grassland is visible. The ROW passes under Rt. 287 just outside the town of Carey (population unavailable; the entire town consists of about five county roads). High quality, more productive farm land is present on both sides of the highway and ROW for about one mile beyond Carey. Cash crop land uses continue, albeit of a lesser quality, as Rt. 287 approaches the town of Childress (population 6,778).

As the ROW approaches Rt. 62, vacant land borders the tracks. Heading southeast from 18th Street on Avenue C and then Avenue A, low-income housing is adjacent to both sides of the tracks. This housing stock continues until 4th Street, at which point industrial uses begin on both sides of the ROW. Avenue A is a dirt road that separates the housing from the tracks.

At S. Main Street, a fire station is located on the north side of the tracks, and industrial properties are located on the south side. Land uses return to housing (with an occasional low-grade industrial building) within a few blocks. Again, the housing is separated from the ROW by a road. Pic 155 looks west and Pic 156 looks east (leaving town) from the ROW's intersection with N. 5th Street.

Leaving Childress, the ROW is bounded by vacant land on both sides. Within a few miles, the ROW becomes adjacent to the south side of Rt. 287 in co-terminus rights-of-way. This proximity continues into Hardeman County.

HARDEMAN COUNTY

Hardeman County (population 4,724) consists of open grazing land, mesas and some cash crops. As the railroad travels southeast, land continues to be vacant with the exception of a small grain facility four miles outside Acme in the tiny town of Goodlett (population unavailable). In Acme (another barely inhabited town), a large industrial facility is present at the Rt. 287 overpass at the ROW.

The ROW passes through the town of Quanah (population 3,022) in an industrial section about ten blocks removed from Rt. 287. Looking east and west along the ROW are abandoned, derelict industrial properties. The town's retail stores are largely vacant. Several grain elevators (which appear inactive) line the ROW at S. Main Street (Rt. 6).

Leaving Quanah, the ROW is bordered again by vacant grassland and an occasional cattle farm. At Tinker Road (near Lake Pauline Road) about eight miles west of Chillico. In Chillicothe (population 798), the ROW passes by abandoned grain storage and other resource storage facilities. East of Chillicothe, the ROW is co-terminus with Rt. 287 again; surrounding land is vacant.

WILBARGER COUNTY

Just beyond Chillicothe, Rt. 287 enters Wilbarger County (population 14,676). As with previous counties through which the railroad travels, Wilbarger consists of open grass and grazing land. For long distances, the ROW is co-terminus with Rt. 187.

There is virtually no development in Wilbarger County until the town of Vernon (population 11,660). The ROW enters the town just west of the intersection of Rt. 283 and Rt. 70. Pic 160 (looking west) was taken at the ROW's crossing at Rt. 283. Pic 161 was taken at the same location looking east. Both sides of the tracks are bordered by grain elevators, storage facilities and rail-related uses.

Traveling southeast on Rt. 70/287, the ROW is on the north side of the highway. The land is vacant with an occasional industrial facility. After the intersection of Routes 70, 183 and 287, the tracks become co-terminus with the highway. Again, the land is vacant with an occasional industrial building or grain storage facility.

Pic 162 and Pic 163 were taken at County Road 111N at the edge of Oklaunion (population unavailable). Pic 162 looks west toward Vernon, and Pic 163 looks east toward the Rt. 433 intersection and cross-over to the AEP Power Plant. The land on the north side of the tracks is a mix of tillable land and grassland. Cotton farms and tillable lands are on the south side of Rt. 70.

We visited the AEP Texas (American Electric Power) plant (a/k/a the Oklaunion Power Station) and inspected the property with Brent (Donald B.) Perkins. The plant is located at the end of Farm Road 3430 (which is accessible from Farm Road 433 East off of Rt. 283). The ROW enters the plant from its northeast corner.

Pic 158 (looking northeast) and Pic 159 (looking southwest) were taken at the edge of AEP's property. As shown, vacant land abounds in all directions.

To inspect Oklaunion, we exited Rt. 70 at the 145 Loop Road. The final photograph was taken at the intersection of 145 Loop Road and Rt. 404 in Oklaunion. Pic 164 looks west toward the Rt.70/287/183 overpass. The land along the ROW is vacant with the exception of a few low-income houses. Oklaunion is a tiny town consisting of manufactured homes in poor condition.

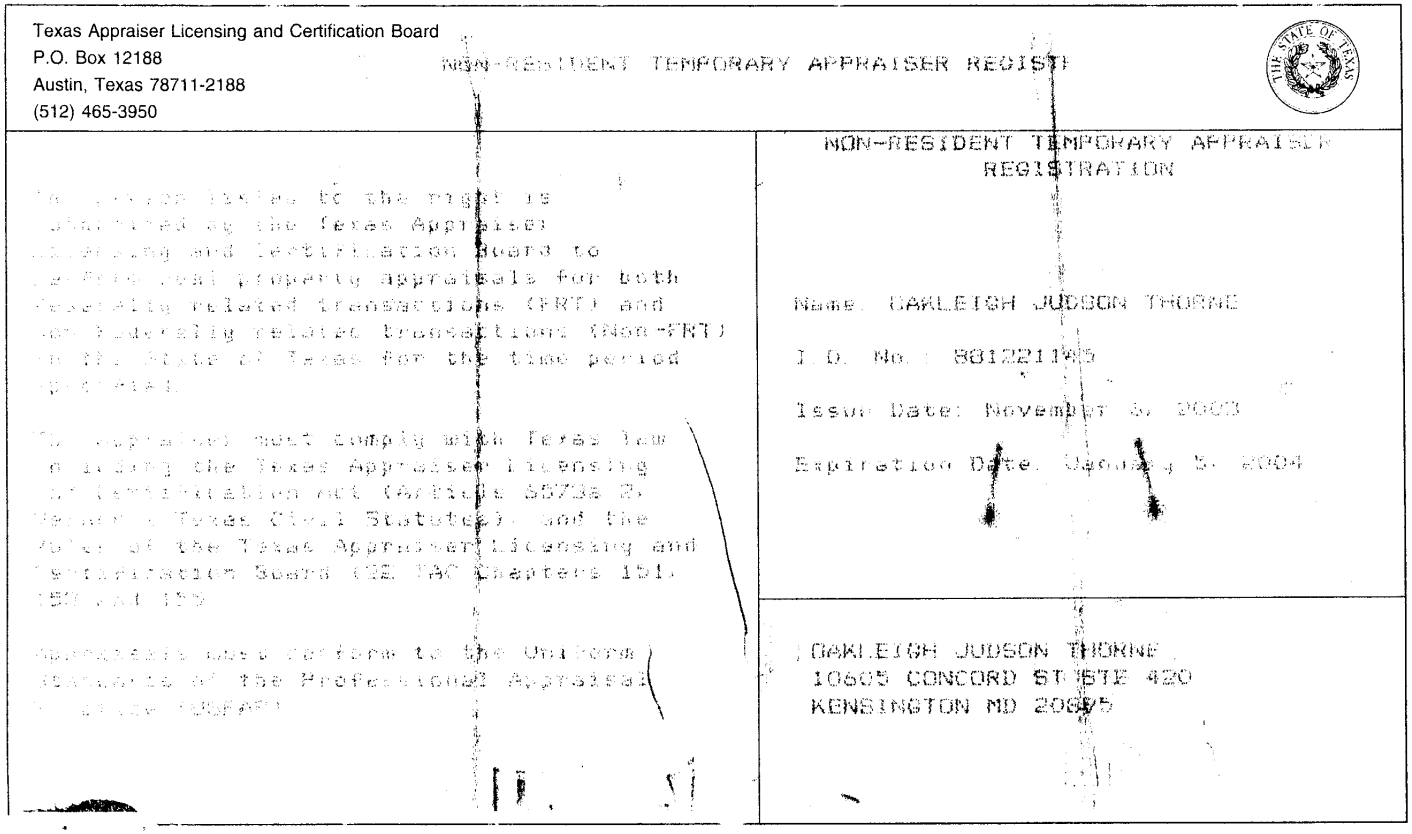
LAND ACQUISITION PRICE ESTIMATE

Based upon our recent inspection of the property and the investigation and analysis undertaken, and given a range of possible costs, subject to the stated assumptions and limiting conditions, it is our opinion that the estimated and most probable retrospective cost to acquire the right-of-way, easements, yards and side tracks for the SARR identified as "Texas and Northern Railroad," including land owned in fee and easements, in its assumed undeveloped condition (vacant right-of-way), on or about July 1, 2000, was $89,542,462.91 or rounded to **$89,500,000.** The final mile, acreage, and cost estimate calculations follow at the end of this report.

TNR

County	TNR Miles	Feet	ROW	ROW (FT)	Acres	$/Ac	Total
Wyoming							
Campbell	54.03	285,278.40	100.00	28,527,840.00	672.71	$145	$97,246
Converse	2.60	13,728.00	100.00	1,372,800.00	31.52	$160	$5,043
Crook	17.30	91,344.00	100.00	9,134,400.00	211.20	$163	$34,521
Weston	62.55	330,264.00	100.00	33,026,400.00	761.19	$327	$248,804
Wyoming Total	136.48	720,614.40		72,061,440.00	1676.62	$230	$385,614
South Dakota							
Custer	6.00	31,680.00	100.00	3,168,000.00	74.23	$185	$13,733
Fall River	42.87	226,353.60	100.00	22,635,360.00	522.63	$187	$97,673
South Dakota Total	48.87	258,033.60		25,803,360.00	596.86	$187	$111,406
Nebraska							
Box Butte	41.98	221,654.40	100.00	22,165,440.00	749.82	$1,519	$1,139,217
Cheyenne	33.73	178,094.40	100.00	17,809,440.00	404.95	$411	$166,515
Dawes	33.29	175,771.20	100.00	17,577,120.00	406.52	$419	$170,246
Morrill	48.02	253,545.60	100.00	25,354,560.00	583.55	$483	$282,126
Sioux	15.56	82,156.80	100.00	8,215,680.00	188.61	$200	$37,722
Nebraska Total	172.58	911,222.40		91,122,240.00	2333.45	$770	$1,795,826
Colorado							
Adams	19.76	104,324.76	75.00	7,824,356.95	206.66	$67,520	$13,953,725
Arapahoe	9.73	51,374.40	75.00	3,853,080.00	44.24	$107,580	$4,759,350
Baca	59.53	314,302.91	100.00	31,430,291.06	726.08	$500	$363,040
Bent	45.80	241,832.86	100.00	24,183,286.42	556.65	$500	$278,325
Denver	14.46	76,373.62	75.00	5,728,021.20	130.64	$316,072	$41,563,525
Douglas	37.43	197,616.56	95.00	18,773,573.04	451.88	$14,525	$6,563,713
El Paso	48.57	256,449.60	87.50	22,439,340.00	476.47	$27,444	$13,076,085
Logan	24.62	129,993.60	100.00	12,999,360.00	301.42	$400	$120,568
Morgan	42.94	226,723.20	100.00	22,672,320.00	519.54	$500	$259,693
Otero	39.54	208,790.35	100.00	20,879,035.40	480.77	$443	$213,109
Pueblo	54.67	288,657.07	87.50	25,257,493.80	652.44	$5,366	$3,501,076
Washington	0.16	844.80	100.00	84,480.00	1.94	$450	$873
Weld	35.69	188,464.69	100.00	18,846,468.76	434.11	$505	$219,365
Colorado Total	432.91	2,285,748.42		214,971,106.64	4982.84	$17,030	$84,872,446
Oklahoma							
Cimarron	42.87	226,353.60	100.00	22,635,360.00	412.14	$685	$282,165
Oklahoma Total	42.87	226,353.60	100.00	22,635,360.00	412.14	$685	$282,165
Texas							
Armstrong	32.01	169,012.80	100.00	16,901,280.00	389.50	$322	$125,250
Carson	0.62	3,273.60	100.00	327,360.00	7.52	$300	$2,256
Childress	27.77	146,625.60	100.00	14,662,560.00	338.10	$289	$97,730
Dallam	6.99	36,907.20	100.00	3,690,720.00	86.23	$350	$30,181
Donley	37.74	199,267.20	100.00	19,926,720.00	458.96	$286	$131,264
Hall	17.20	90,816.00	100.00	9,081,600.00	209.98	$304	$63,769
Hardeman	30.92	163,257.60	100.00	16,325,760.00	376.28	$404	$151,941
Moore	32.17	169,857.60	100.00	16,985,760.00	392.95	$382	$149,917
Potter	47.97	253,281.60	87.50	22,162,140.00	587.91	$1,819	$1,069,660
Sherman	27.57	145,569.60	100.00	14,556,960.00	335.68	$350	$117,488
Wilbarger	21.25	112,200.00	100.00	11,220,000.00	260.57	$409	$106,449
Texas Total	282.21	1,490,068.80		145,840,860.00	3443.68	$594	$2,045,904
Total Land Purchase	1,115.92	5,892,041.22			13,445.59	$19,495	$89,493,360.61
Total Easements	62.52				755.42	$65	$49,102.30
TOTAL LAND COST	1,178.44						$89,542,462.91

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Texas Appraiser Licensing and Certification Board
P.O. Box 12188
Austin, Texas 78711-2188
(512) 465-3950

NON-RESIDENT TEMPORARY APPRAISER REGIST

THE STATE OF TEXAS

The person listed to the right is authorized by the Texas Appraiser Licensing and Certification Board to perform real property appraisals for both federally related transactions (FRT) and non-federally related transactions (Non-FRT) in the State of Texas for the time period printed.

The appraiser must comply with Texas law governing the Texas Appraiser Licensing and Certification Act (Article 6573a.2, Vernon's Texas Civil Statutes), and the rules of the Texas Appraiser Licensing and Certification Board (22 TAC Chapters 151, 153 and 155).

Appraisals must conform to the Uniform Standards of the Professional Appraisal Practice (USPAP).

NON-RESIDENT TEMPORARY APPRAISER REGISTRATION

Name: OAKLEIGH JUDSON THORNE

I.D. No.: 80122114

Issue Date: November 6, 2003

Expiration Date: January 5, 2004

OAKLEIGH JUDSON THORNE
10605 CONCORD ST STE 420
KENSINGTON MD 20895

South Dakota
Department of Revenue & Regulation
Appraiser Certification Program

445 East Capitol Avenue
Pierre, South Dakota 57501-3185
Phone: 605-773-4608
Fax: 605-773-5369

This is to certify that the following individual has been granted Temporary Appraiser status in the state of South Dakota commencing on **December 16, 2003** and is valid through the completion of the appraisal work required by the contract for appraisal service for the **land pricing estimates of railroad right-of-way within the state of South Dakota near Edgemont** or six months from this date, whichever occurs first. The Temporary Permit is valid only for the person named below:

Oakleigh J. Thorne
Thorne Consultants, Inc.
10605 Concord Street, Suite 420
Kensington, Maryland 20895
TEMPORARY PERMIT NUMBER : 0388-T-2003
ISSUED TO : OAKLEIGH J. THORNE
STATE-CERTIFIED GENERAL APPRAISER
DATE ISSUED : December 16, 2003
BY : SOUTH DAKOTA DEPARTMENT OF REVENUE AND REGULATION

This document was signed by the official in charge of licensing and certification on **December 16, 2003**.

BY : _____
Gary R. Viken, Secretary
Department of Revenue and Regulation

APPROVED
(SEAL)
Dept of Revenue and Regulation

THIS IS TO CERTIFY THAT

Oakleigh Thorne

is licensed / registered by the New Mexico Regulation and Licensing Department in accordance with provisions of laws in the State of New Mexico.

License / Registration No.	License / Registration Type
TP-1564	Temporary Practice Permit
Issue Date	**Expiration Date**
09/08/2003	**03/08/2004**

The bearer is prohibited by law from using this identification card to give the impression that they are in any way connected with a governmental agency.

Signature of holder:

State of New Mexico

REAL ESTATE APPRAISERS BOARD

PO Box 25101 Santa Fe, NM 87504 (505) 476-7053

This is to certify that

Oakleigh Thorne

is hereby granted a

TEMPORARY PRACTICE PERMIT

as a Real Estate Appraiser in New Mexico on the following assignment(s):

Pricing of the right-of-way for the Burlington Northern Santa Fe Rail Line within the state of NM. It is the Railroad right-of-way

Permit #TP-1564 Issue Date: 09/08/2003 Date Expires: 03/08/2004

CUT ON HEAVY RULE TO FIT PURSE OR WALLET

FOLD ON DOTTED LINE

ALL ADDRESS CHANGES, EITHER BUSINESS OR RESIDENCE, MUST BE REPORTED TO THE APPRAISER BOARD IMMEDIATELY.
FEDERAL REGISTRY FEE PAID

000425

OAKLEIGH JUDSON THORNE
THORNE CONSULTANTS, INC.
10605 CONCORD STREET, #420
KENSINGTON, MD 20895

Assignment: Right-of-Way in NE
Cost opinions BNSF

SIGNATURE OF APPRAISER

DO NOT DETACH

CARD NO. 425

State of Nebraska **2003**
REAL ESTATE APPRAISER BOARD
LINCOLN, NEBRASKA

FEE PAID $50.00

This is to certify that the individual named is a CG230131

VOID 3/4/2004 TEMPORARY

CERTIFIED GENERAL REAL ESTATE APPRAISER,

until December 31, 2003 unless sooner suspended or revoked as provided by law.

2805 REGINA DRIVE
SILVER SPRING, MD 20906

NEBRASKA REAL ESTATE APPRAISER BOARD

ISSUED MO. DAY YEAR 9/4/2003

Marilyn Hasselbalch
DIRECTOR

NOT TRANSFERABLE

Pack #308

NEBRASKA REAL ESTATE APPRAISER BOARD

A-10946

Date 4 Sept 03

RECEIVED FROM Oakleigh Thorne - Thorne Consultants

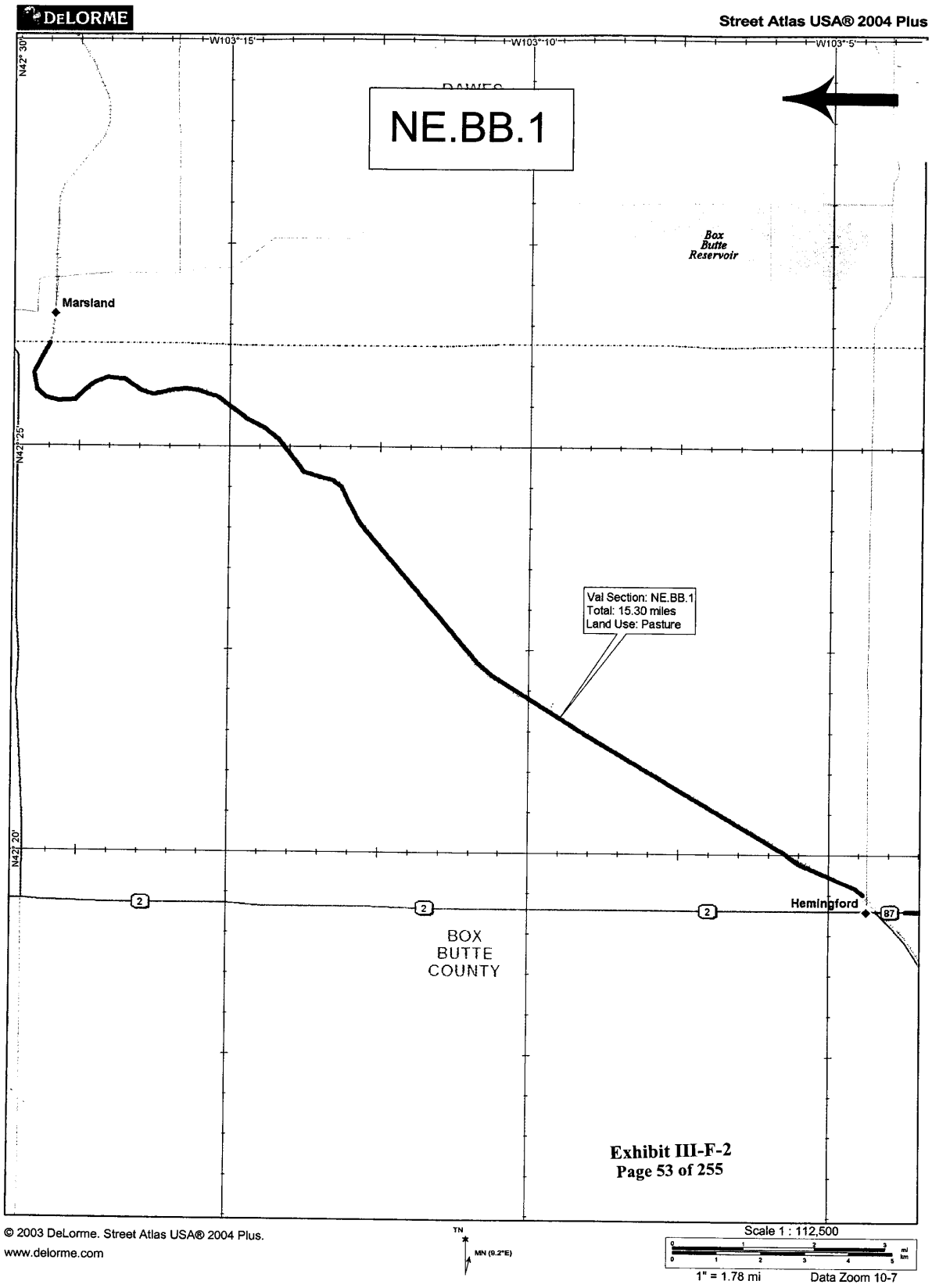
10605 Concord St #420 Kensington, MD 20895
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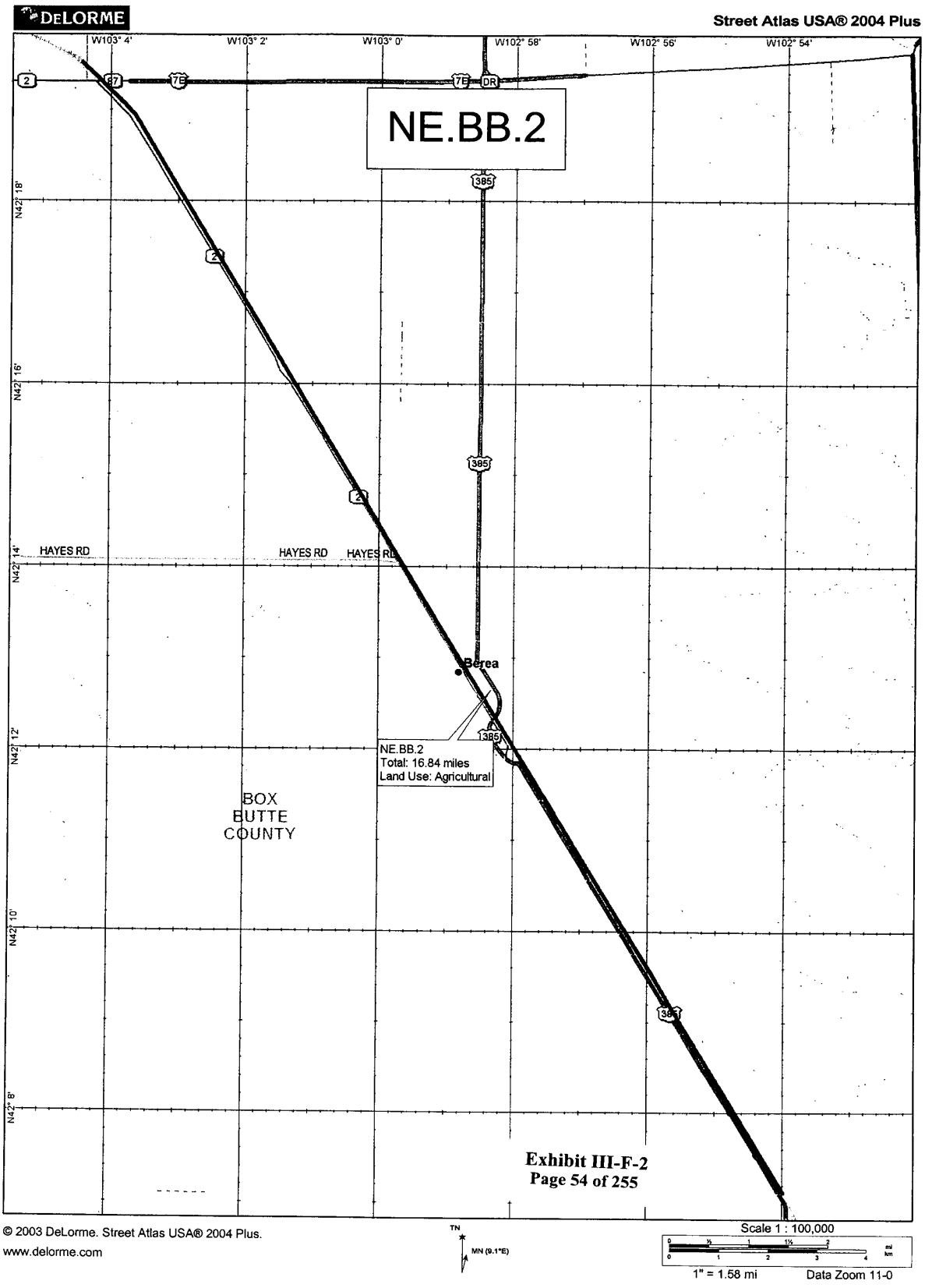
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Federal Fee	$	____
Review of Courses	$	____
Penalty Fees	$	____
Miscellaneous	$	____
TOTAL	$	100

CG 230131
#425

Marilyn Hasselbalch
DIRECTOR

NEBRASKA


DeLORME
Street Atlas USA® 2004 Plus
W103°15'
W103°10'
W103°5'
N42°30'
N42°25'
N42°20'
NE.BB.1
NOTE
Box Butte Reservoir
Marsland
Val Section: NE.BB.1
Total: 15.30 miles
Land Use: Pasture
Hemingford
87
2
BOX BUTTE COUNTY
Exhibit III-F-2
Page 53 of 255
© 2003 DeLorme. Street Atlas USA® 2004 Plus.
www.delorme.com
TN
MN (9.2°E)
Scale 1 : 112,500
1" = 1.78 mi
Data Zoom 10-7


DeLORME
Street Atlas USA® 2004 Plus
W103° 4'
W103° 2'
W103° 0'
W102° 58'
W102° 56'
W102° 54'
NE.BB.2
N42° 18'
N42° 16'
N42° 14'
N42° 12'
N42° 10'
N42° 8'
HAYES RD
HAYES RD
HAYES RD
Berea
NE.BB.2
Total: 16.84 miles
Land Use: Agricultural
BOX
BUTTE
COUNTY
Exhibit III-F-2
Page 54 of 255
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www.delorme.com
TN
MN (9.1°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0

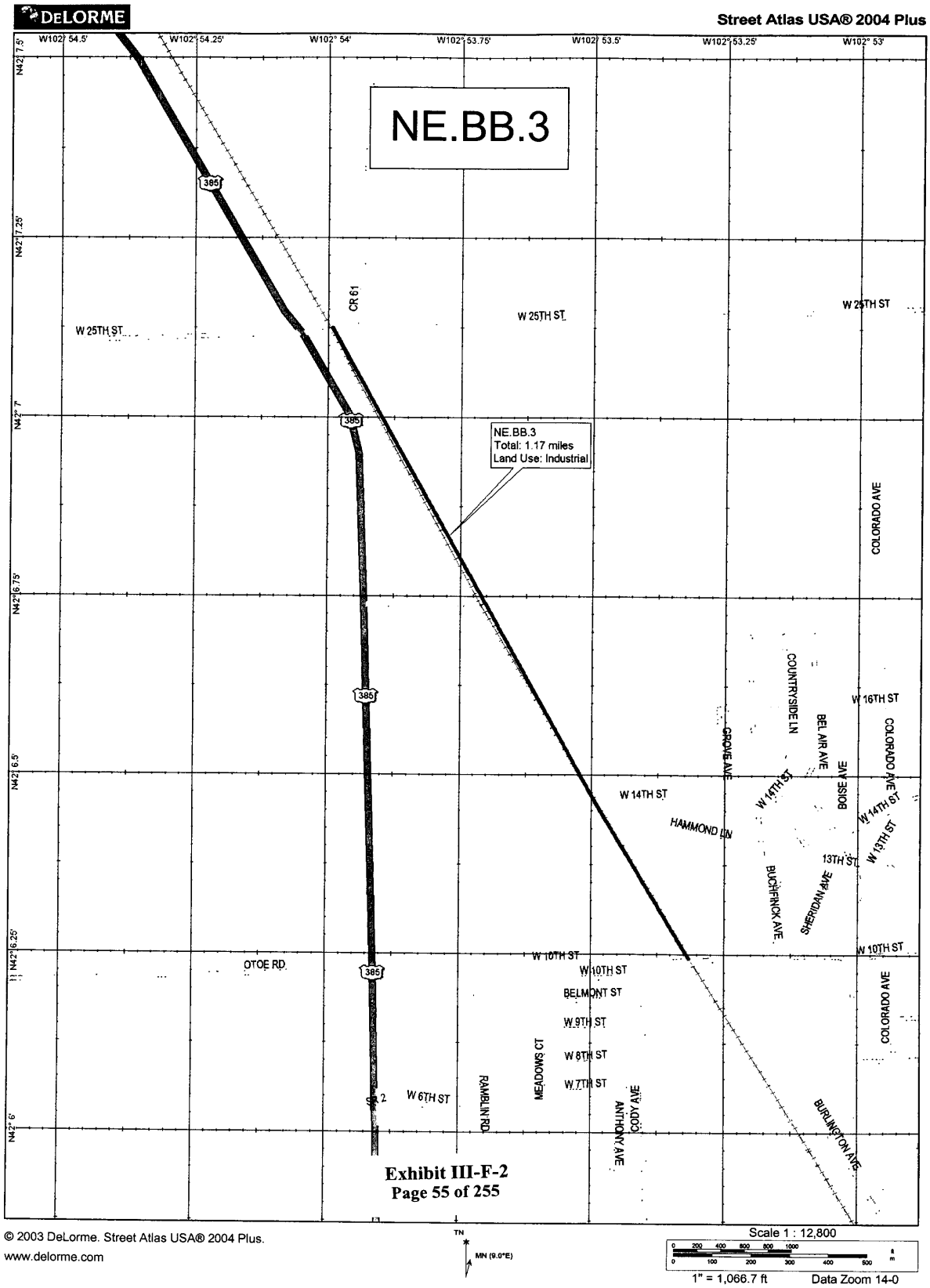
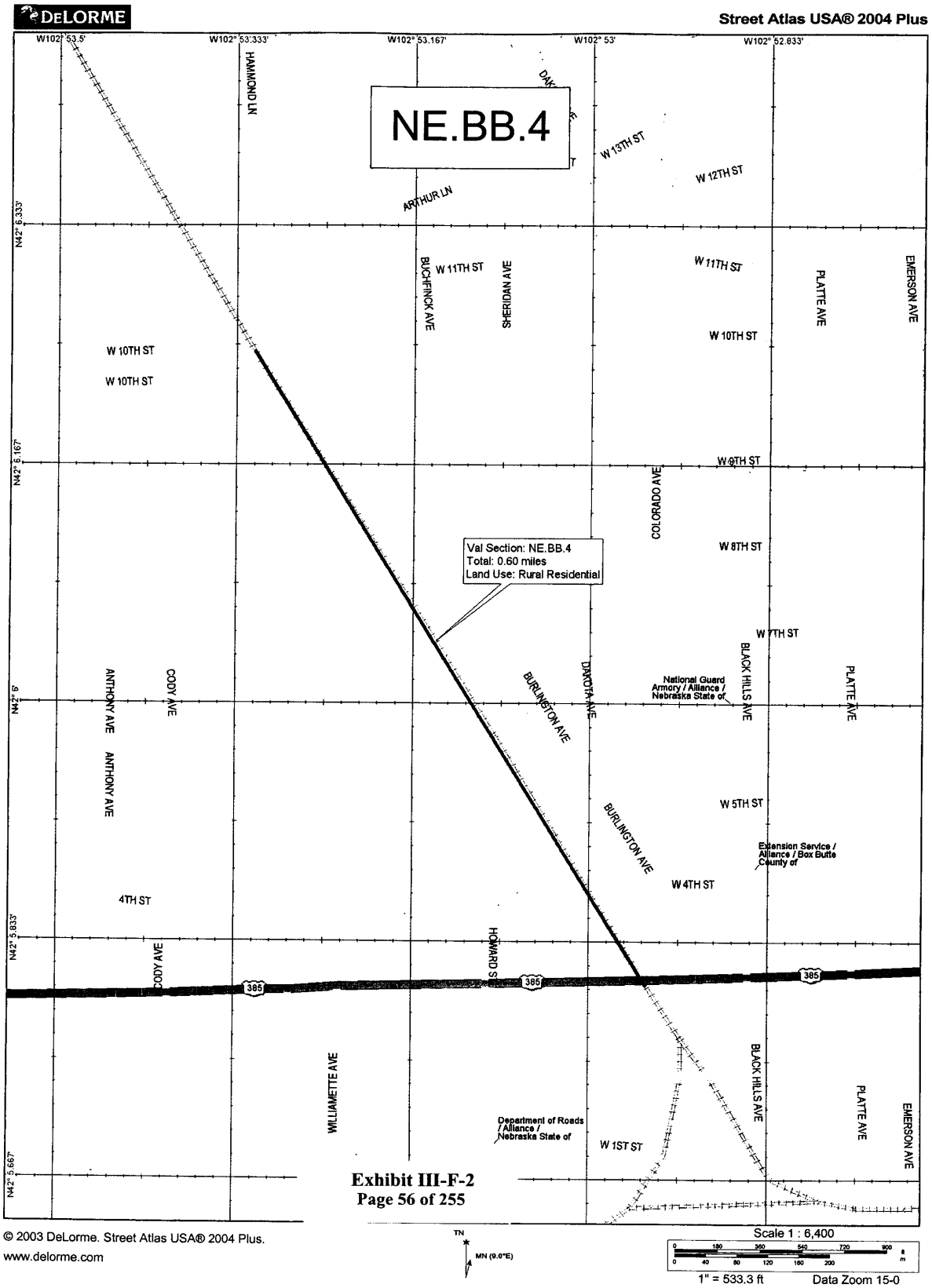


Exhibit III-F-2
Page 55 of 255


DeLORME
Street Atlas USA® 2004 Plus
NE.BB.4
W102° 53.5'
W102° 53.333'
W102° 53.167'
W102° 53'
W102° 52.833'
N42° 6.333'
N42° 6.167'
N42° 6'
N42° 5.833'
N42° 5.667'
HAMMOND LN
ARTHUR LN
W 13TH ST
W 12TH ST
W 11TH ST
W 10TH ST
BUCHFINCK AVE
SHERIDAN AVE
PLATTE AVE
EMERSON AVE
W 9TH ST
W 8TH ST
COLORADO AVE
Val Section: NE.BB.4
Total: 0.60 miles
Land Use: Rural Residential
W 7TH ST
BLACK HILLS AVE
National Guard Armory / Alliance / Nebraska State of
BURLINGTON AVE
DAKOTA AVE
ANTHONY AVE
CODY AVE
W 5TH ST
Extension Service / Alliance / Box Butte County of
W 4TH ST
4TH ST
HOWARD ST
385
WILLIAMETTE AVE
Department of Roads / Alliance / Nebraska State of
W 1ST ST
TN
MN (9.0°E)
Scale 1 : 6,400
1" = 533.3 ft
Data Zoom 15-0
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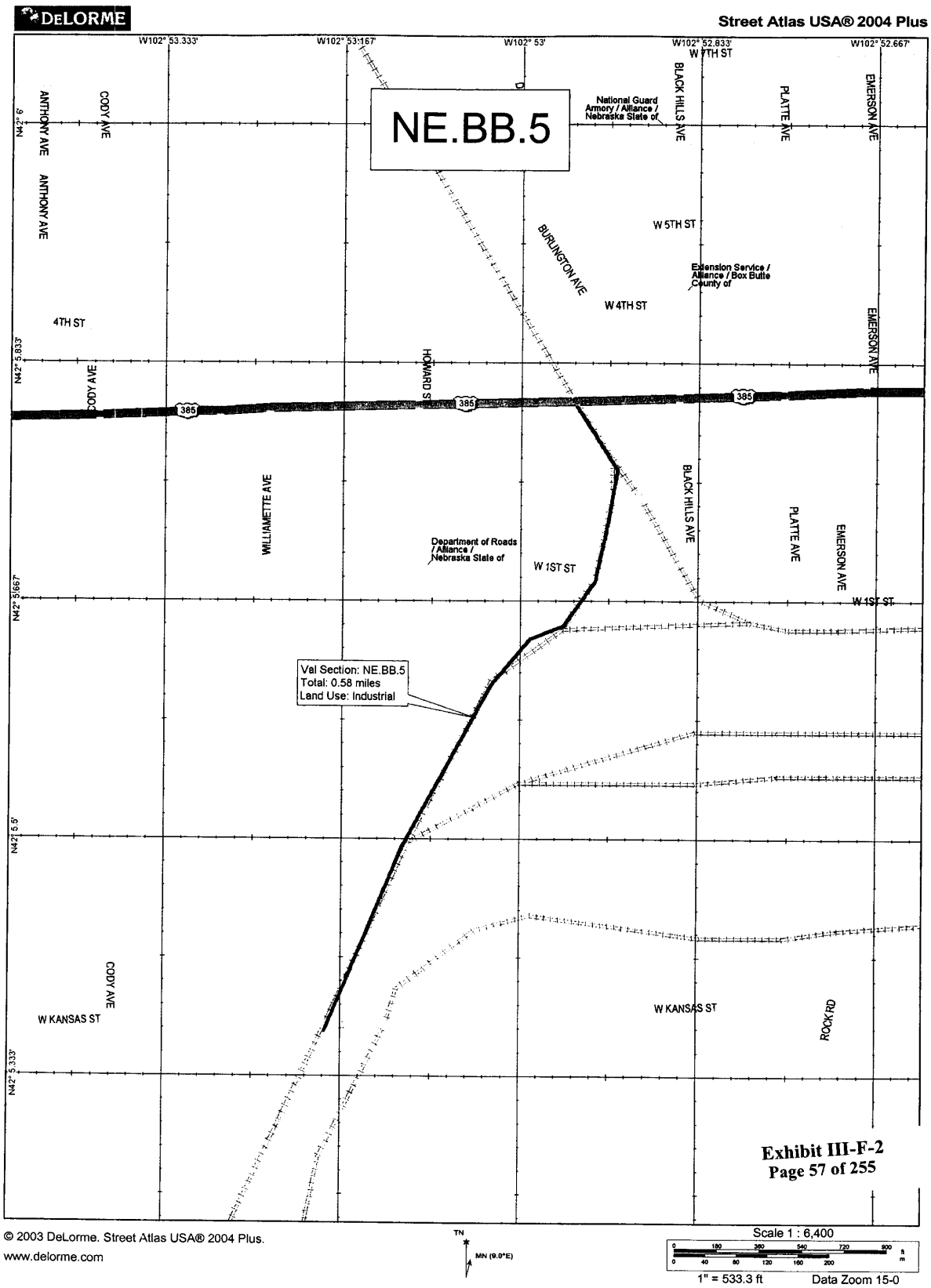


Exhibit III-F-2
Page 57 of 255

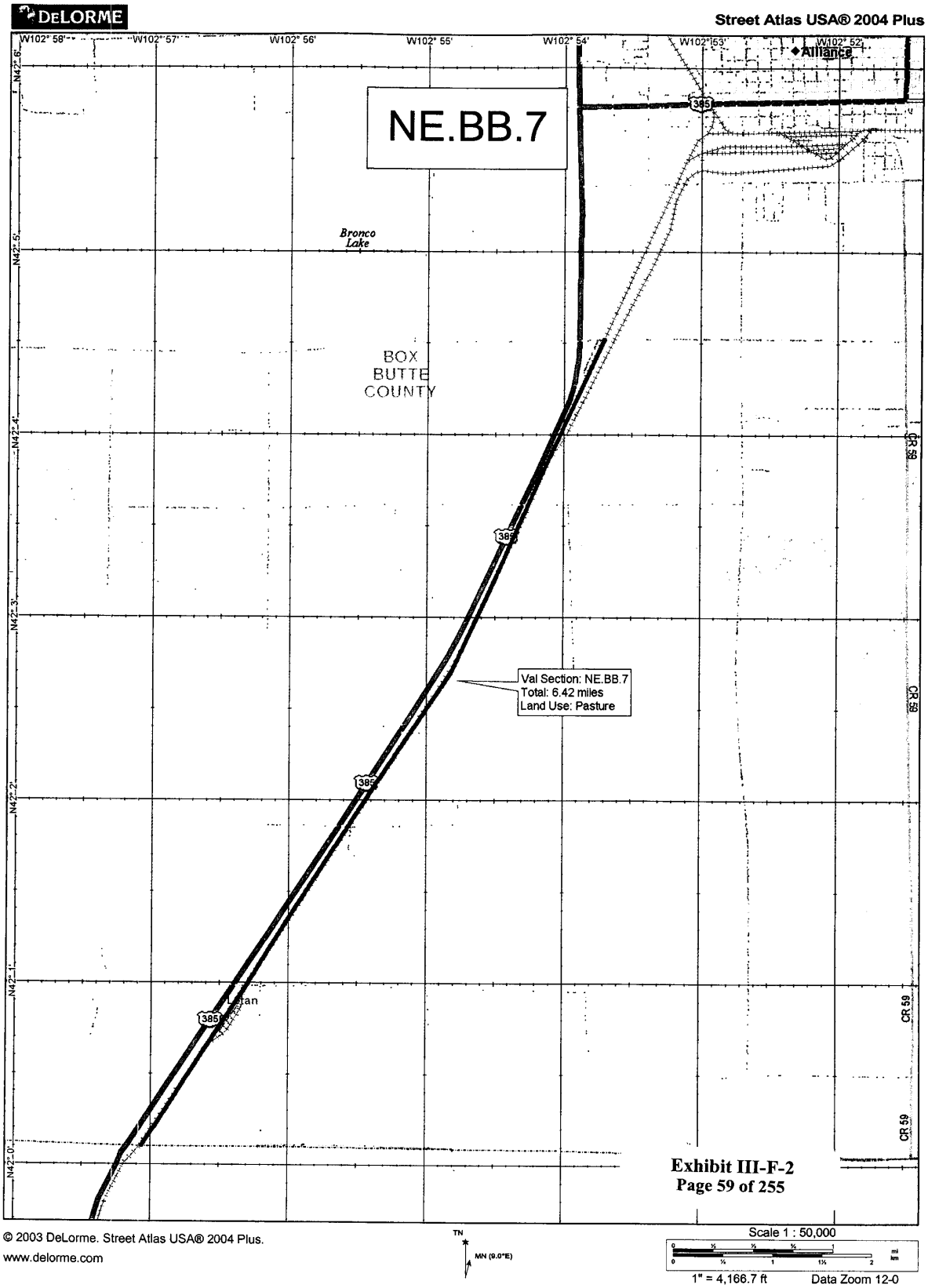


Exhibit III-F-2
Page 59 of 255

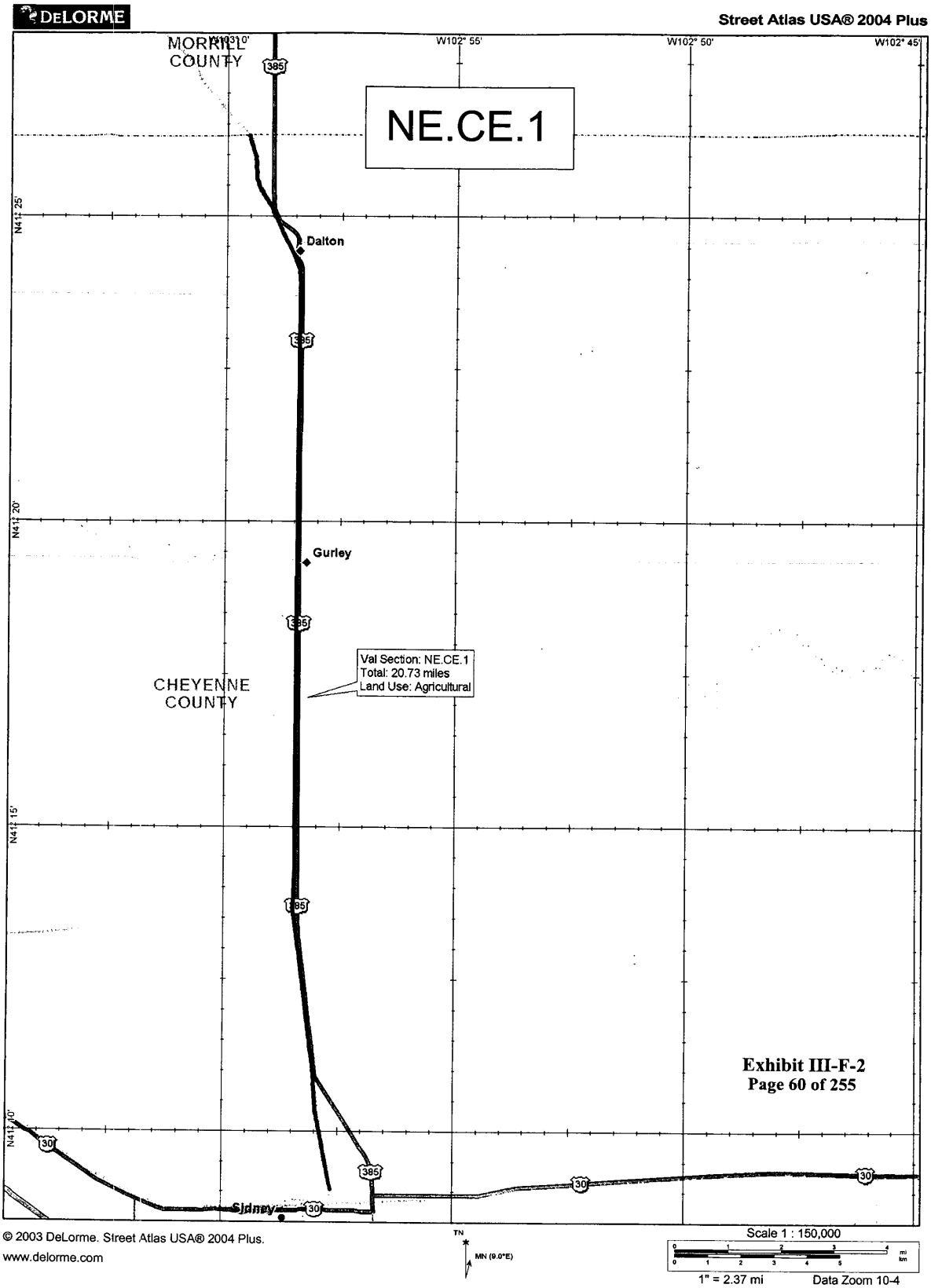


Exhibit III-F-2
Page 60 of 255

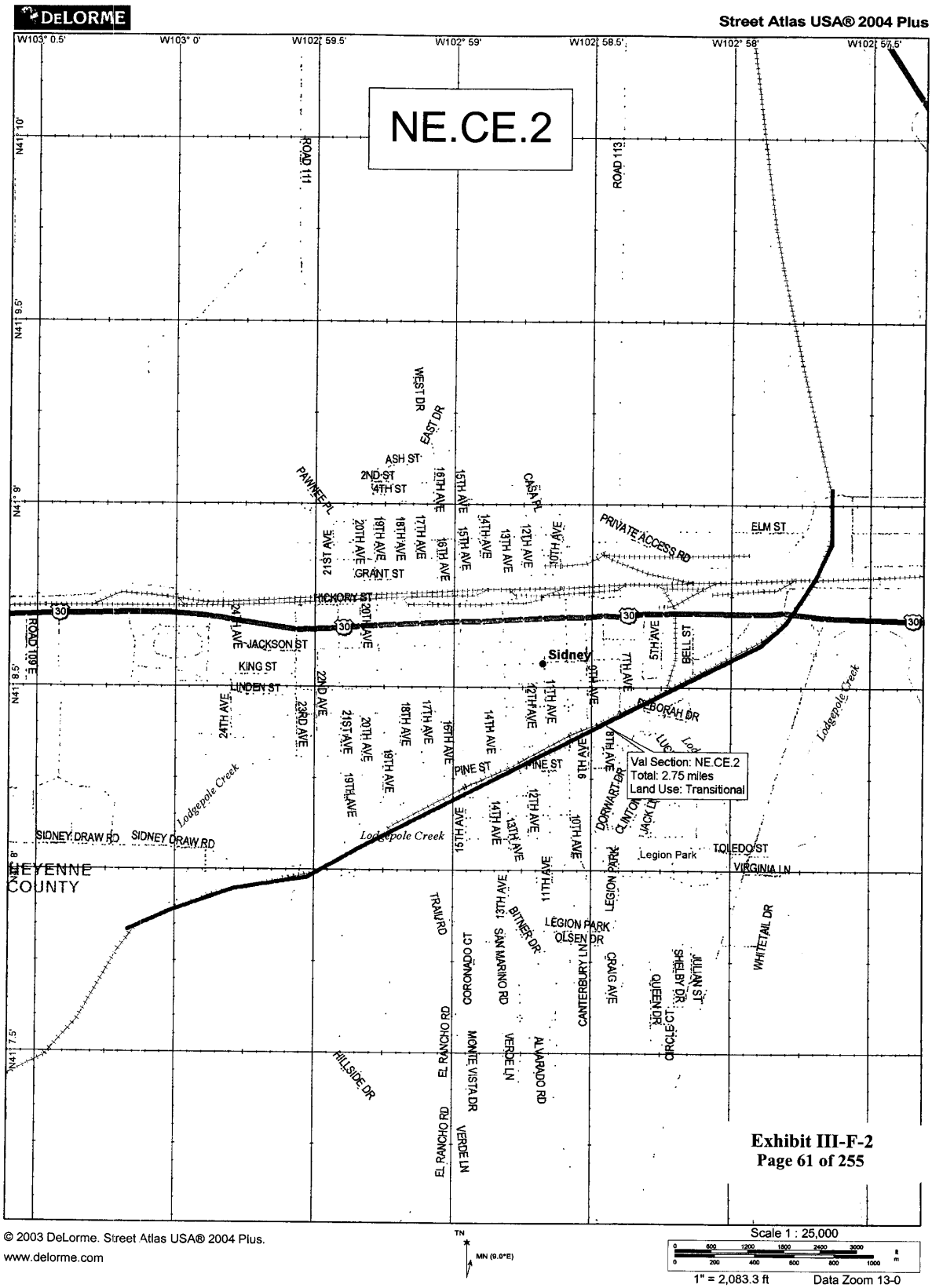
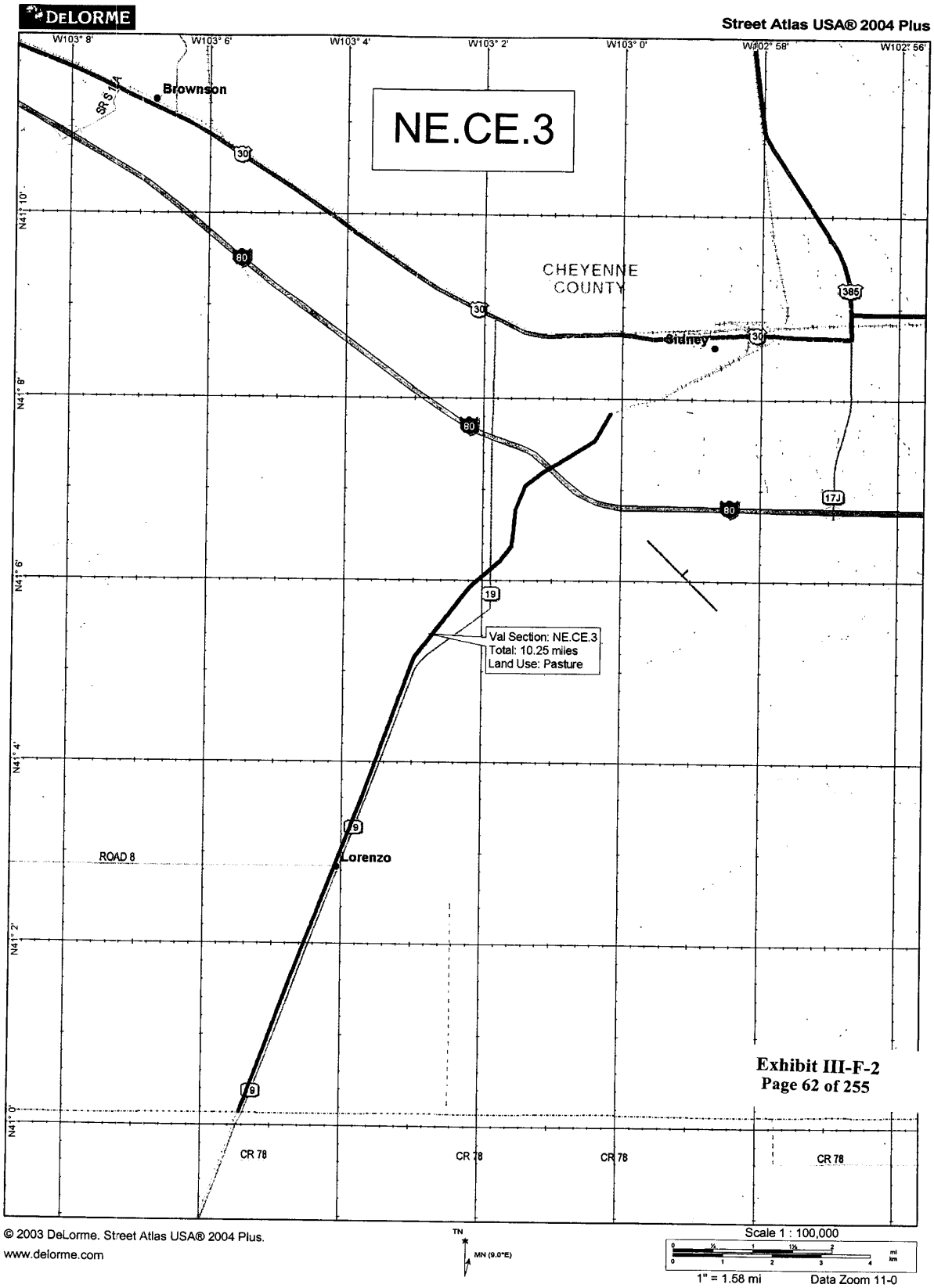


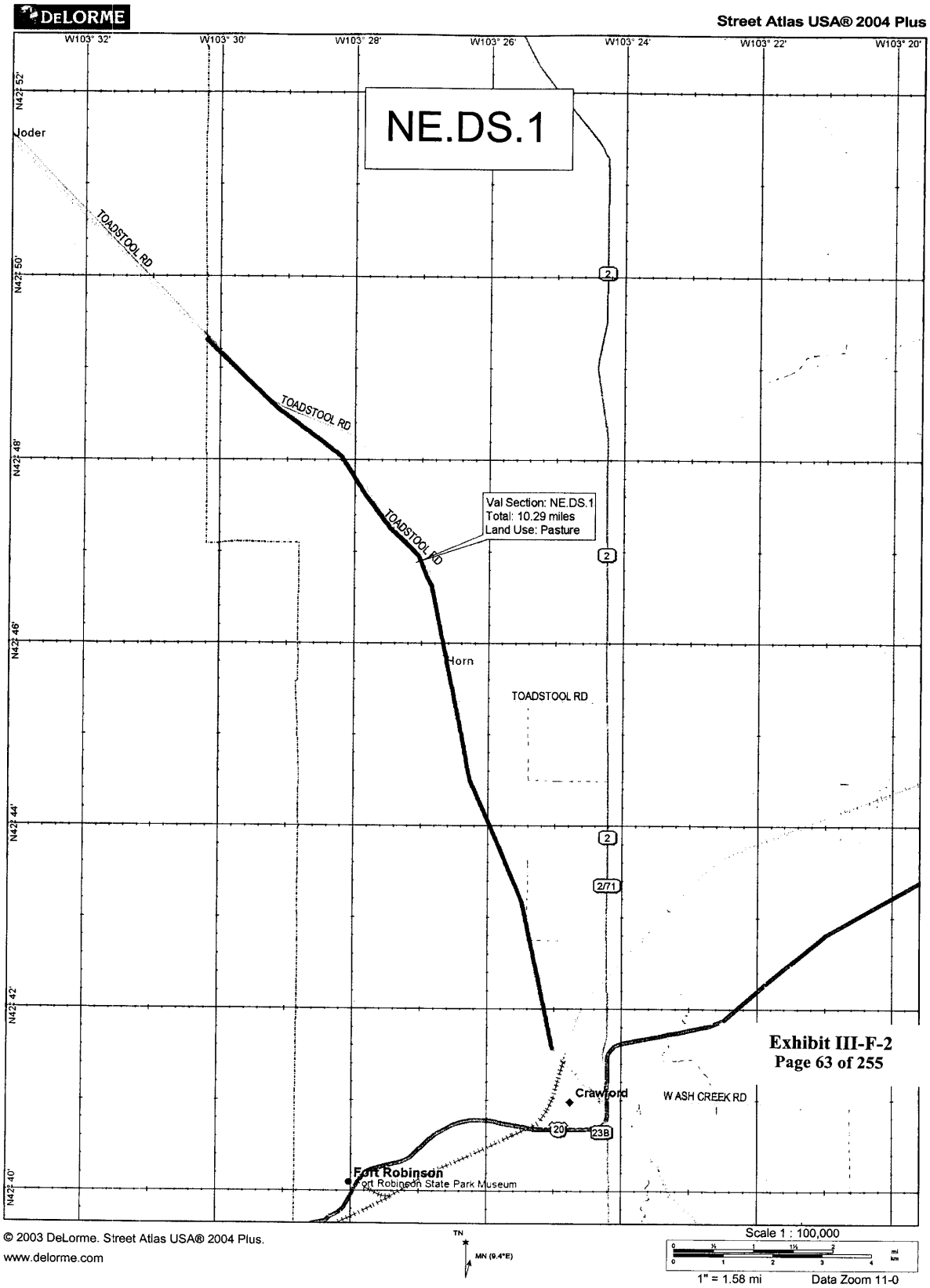
Exhibit III-F-2
Page 61 of 255

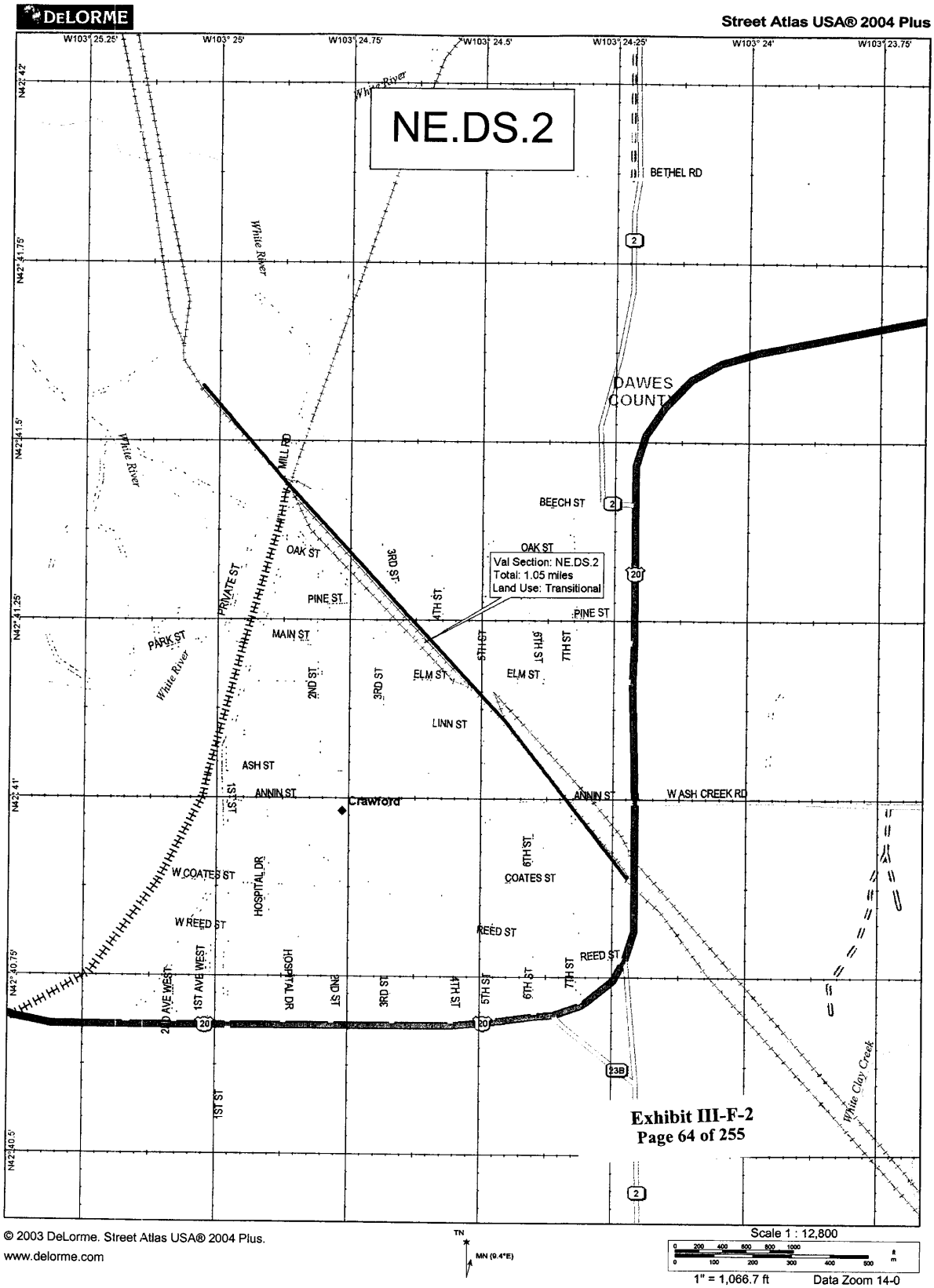
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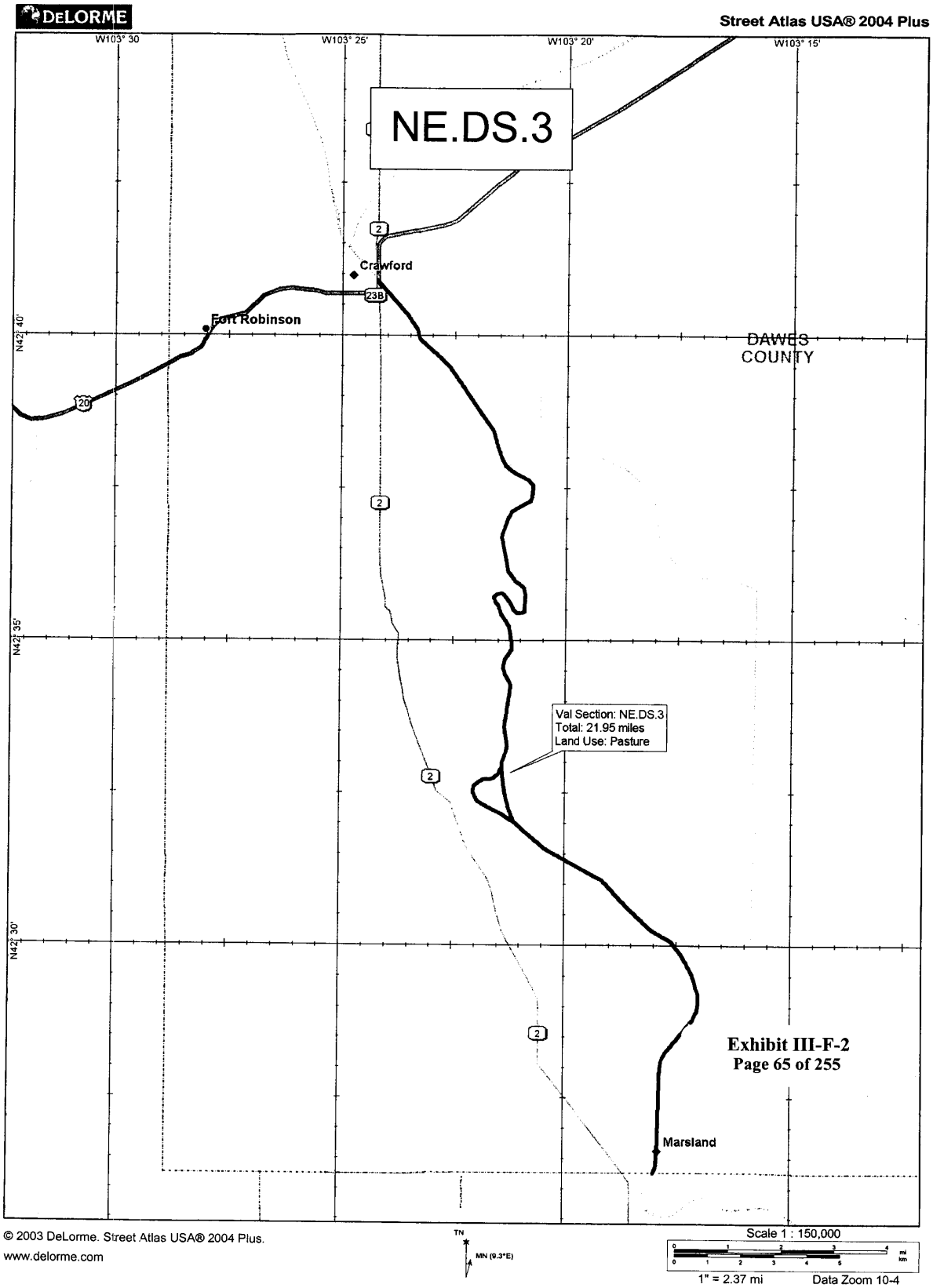
TN
MN (9.0°E)

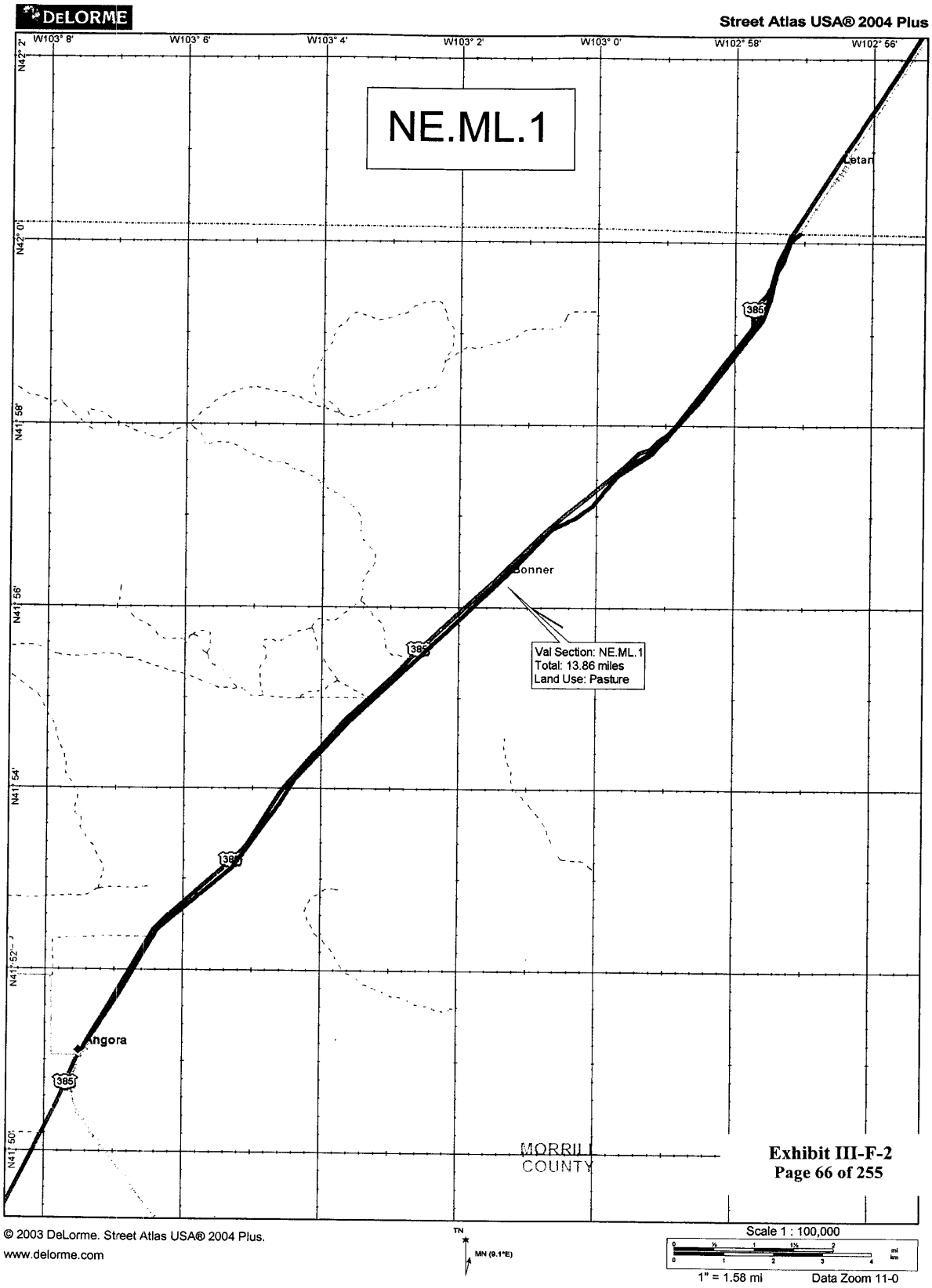
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0

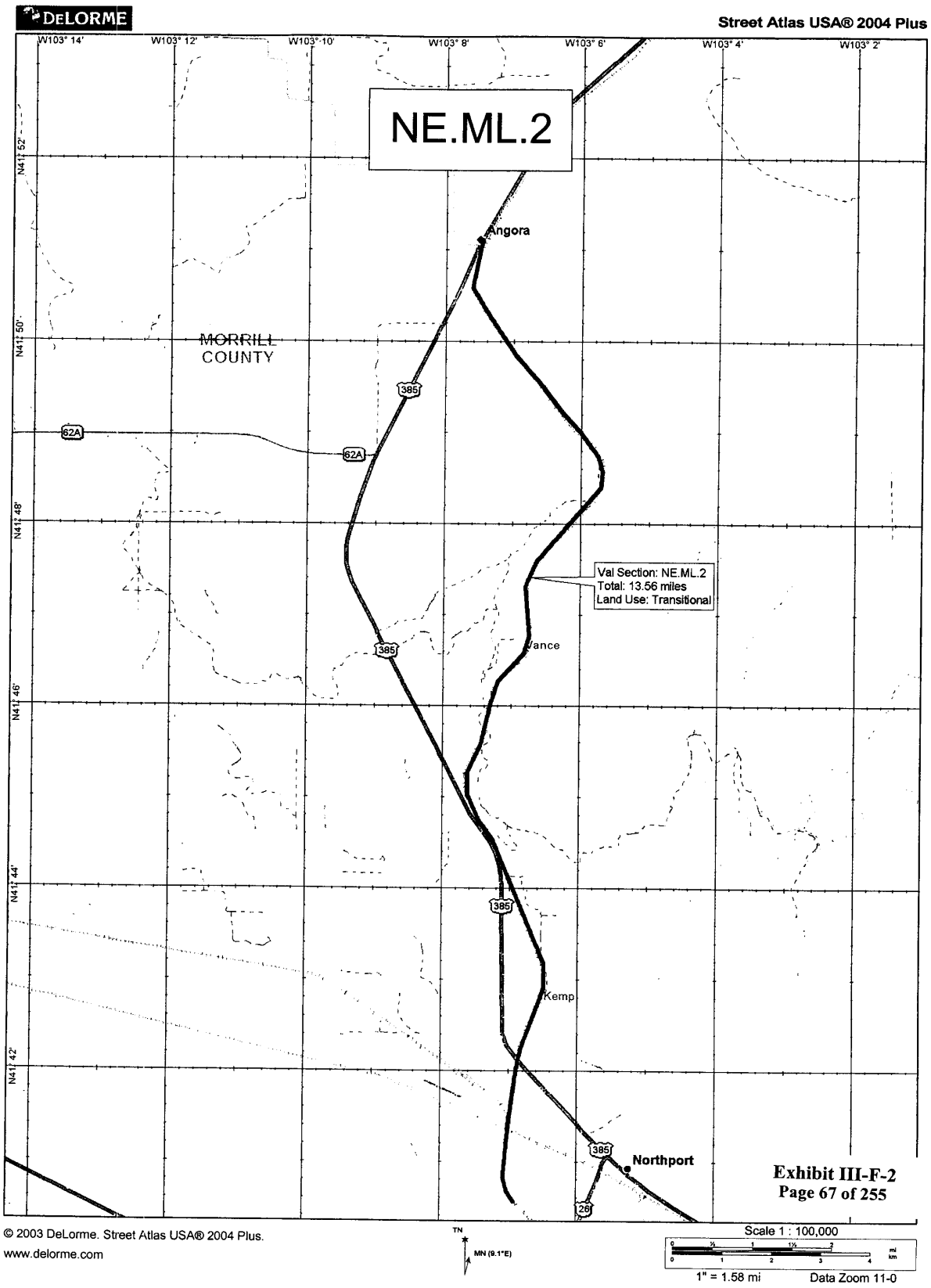

DeLORME
Street Atlas USA® 2004 Plus
NE.CE.3
W103° 8'
W103° 6'
W103° 4'
W103° 2'
W103° 0'
W102° 58'
W102° 56'
N41° 10'
N41° 8'
N41° 6'
N41° 4'
N41° 2'
N41° 0'
Brownson
SR S 14
CHEYENNE
COUNTY
Sidney
Lorenzo
ROAD 8
CR 78
Val Section: NE.CE.3
Total: 10.25 miles
Land Use: Pasture
30
80
385
17J
19
9
TN
MN (9.0°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0
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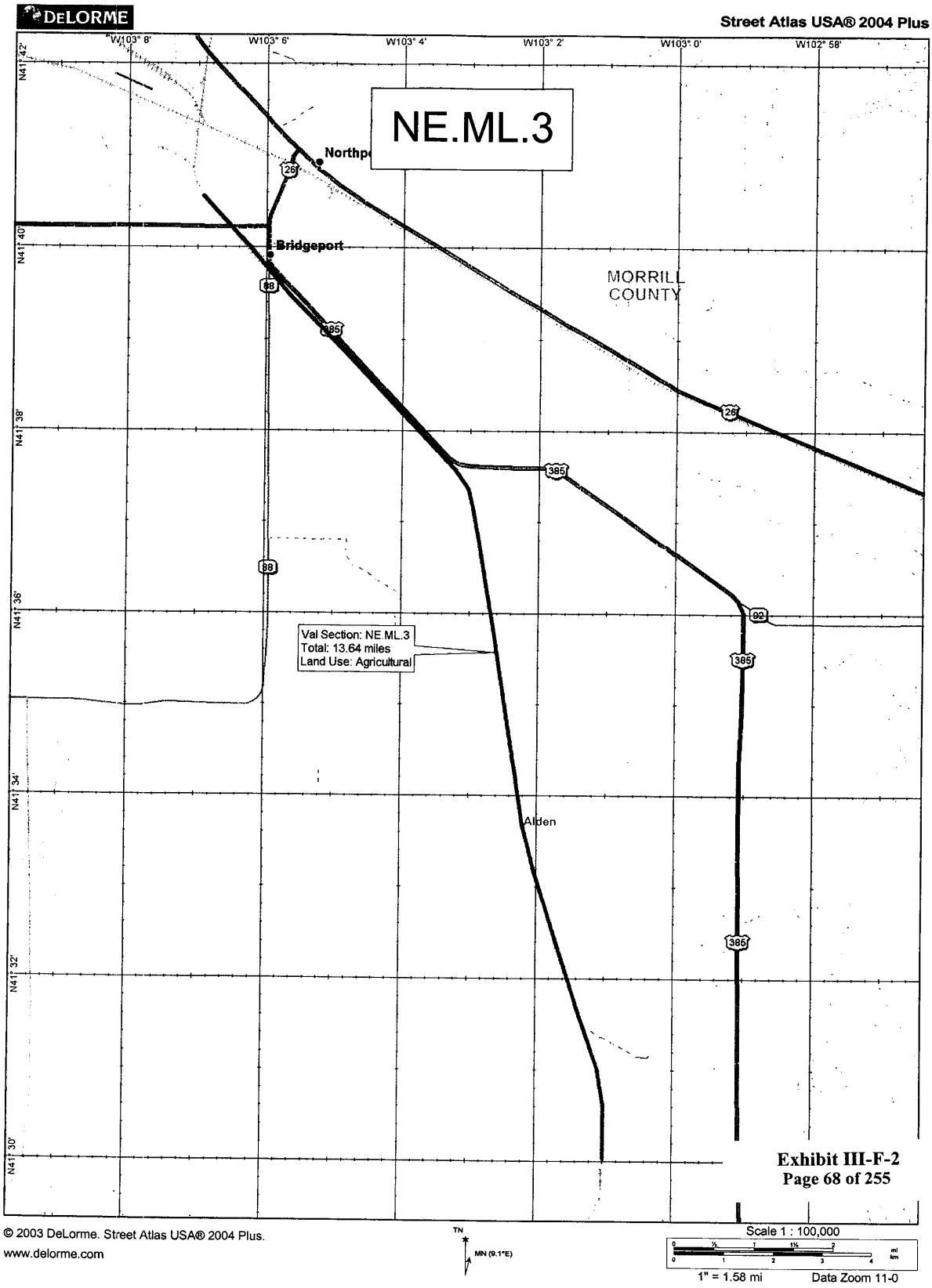

DeLORME
Street Atlas USA® 2004 Plus
NE.DS.1
W103° 32'
W103° 30'
W103° 28'
W103° 26'
W103° 24'
W103° 22'
W103° 20'
N42° 52'
N42° 50'
N42° 48'
N42° 46'
N42° 44'
N42° 42'
N42° 40'
Yoder
TOADSTOOL RD
TOADSTOOL RD
TOADSTOOL RD
Val Section: NE.DS.1
Total: 10.29 miles
Land Use: Pasture
Horn
TOADSTOOL RD
2
2
2
2/71
Crawford
WASH CREEK RD
20
23B
Fort Robinson
Fort Robinson State Park Museum
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www.delorme.com
TN
MN (9.4°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0

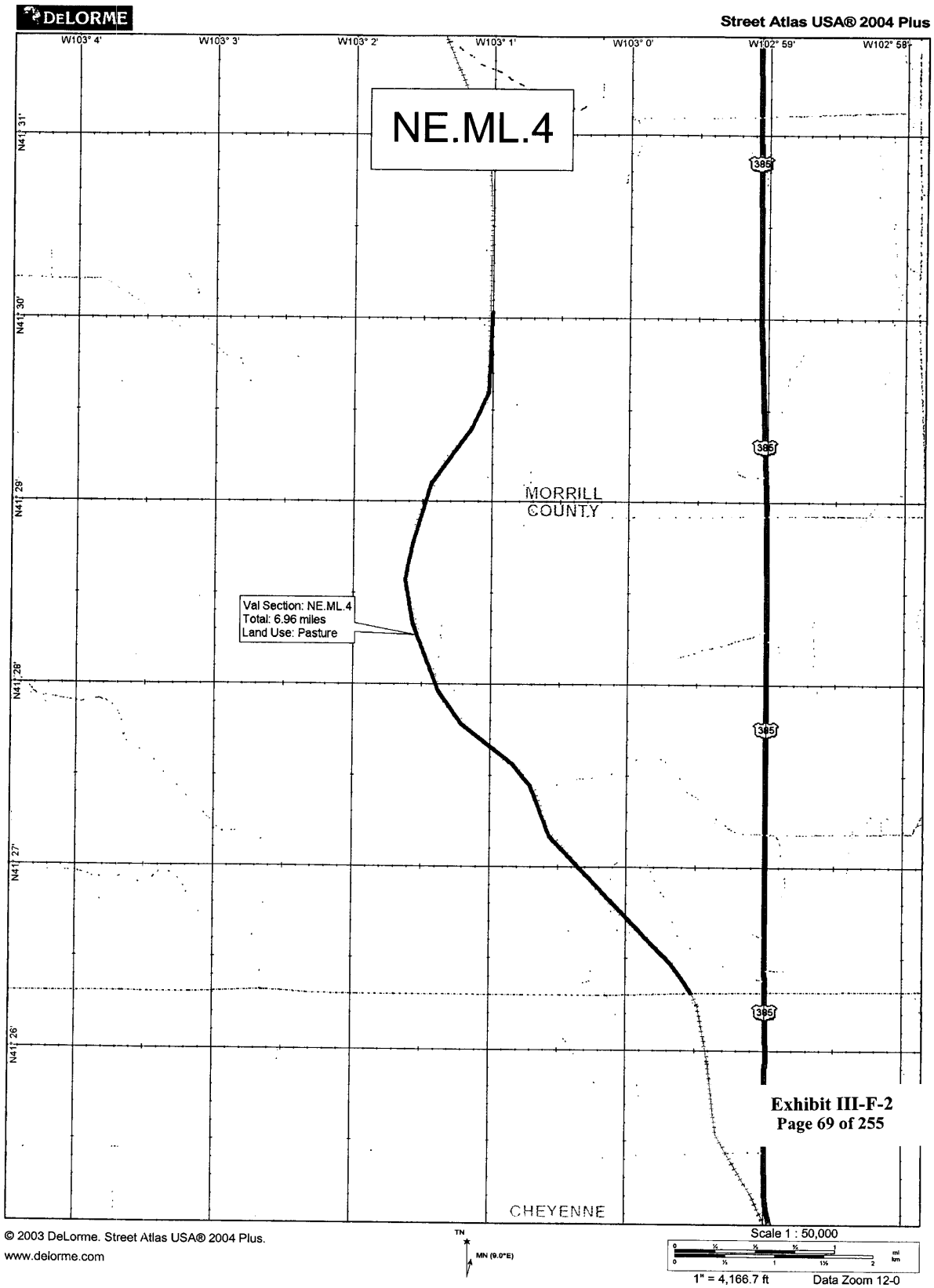

DeLORME
Street Atlas USA® 2004 Plus
NE.DS.2
W103° 25.25'
W103° 25'
W103° 24.75'
W103° 24.5'
W103° 24.25'
W103° 24'
W103° 23.75'
N42° 42'
N42° 41.75'
N42° 41.5'
N42° 41.25'
N42° 41'
N42° 40.75'
N42° 40.5'
White River
BETHEL RD
DAWES COUNTY
MILL RD
BEECH ST
OAK ST
PINE ST
MAIN ST
PARK ST
PRIVATE ST
3RD ST
4TH ST
5TH ST
6TH ST
7TH ST
ELM ST
LINN ST
ASH ST
ANNIN ST
1ST ST
2ND ST
Crawford
W ASH CREEK RD
W COATES ST
COATES ST
HOSPITAL DR
W REED ST
REED ST
2ND AVE WEST
1ST AVE WEST
White Clay Creek
Val Section: NE.DS.2
Total: 1.05 miles
Land Use: Transitional
20
2
23B
Exhibit III-F-2
Page 64 of 255
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TN
MN (9.4°E)
Scale 1 : 12,800
1" = 1,066.7 ft
Data Zoom 14-0

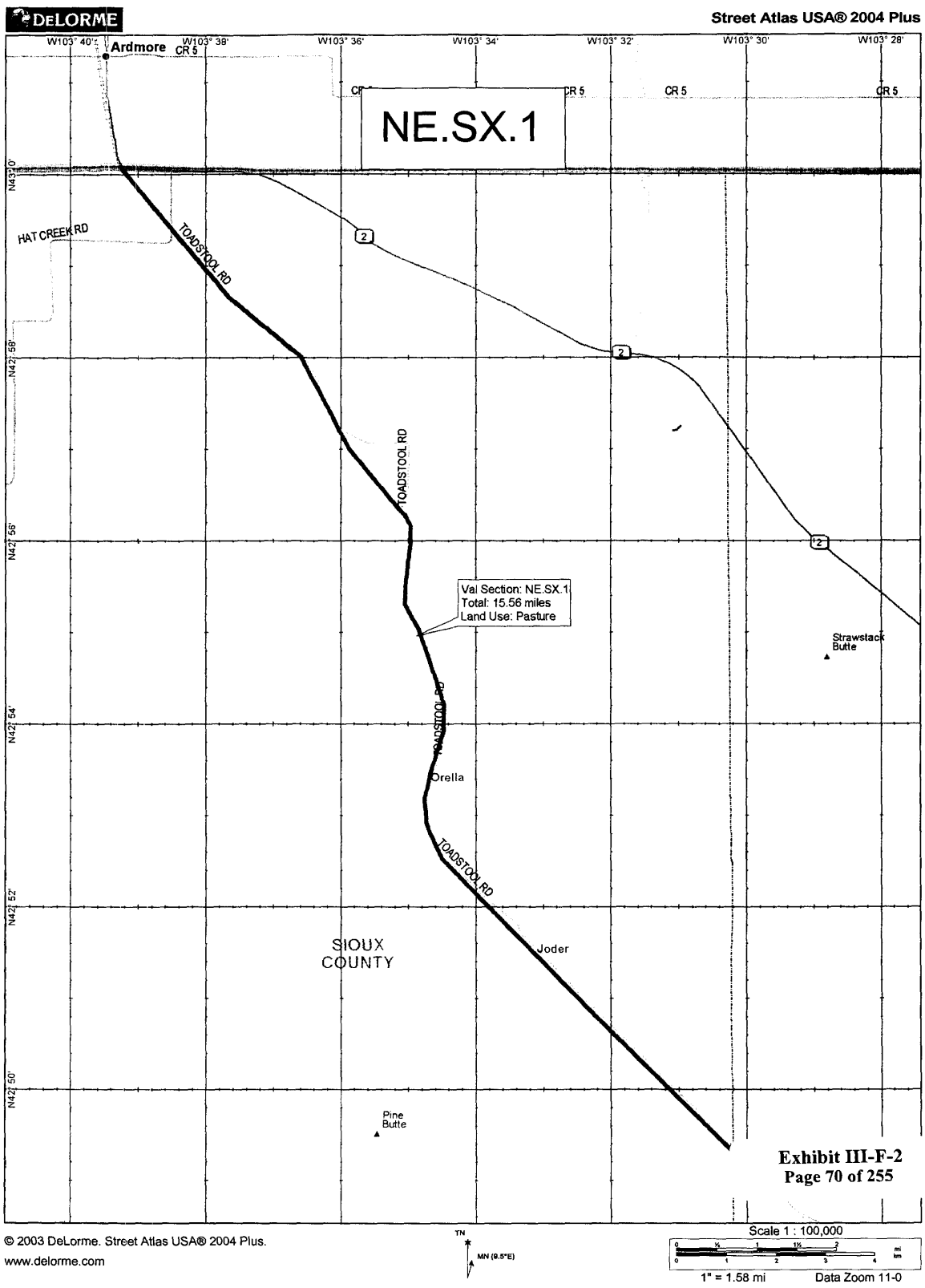

DeLORME
Street Atlas USA® 2004 Plus
W103° 30
W103° 25'
W103° 20'
W103° 15'
NE.DS.3
Crawford
Fort Robinson
DAWES
COUNTY
N42° 40'
N42° 35'
N42° 30'
Val Section: NE.DS.3
Total: 21.95 miles
Land Use: Pasture
Marsland
Exhibit III-F-2
Page 65 of 255
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TN
MN (9.3°E)
Scale 1 : 150,000
1" = 2.37 mi
Data Zoom 10-4


DeLORME
Street Atlas USA® 2004 Plus
NE.ML.1
W103° 8'
W103° 6'
W103° 4'
W103° 2'
W103° 0'
W102° 58'
W102° 56'
N42° 2'
N42° 0'
N41° 58'
N41° 56'
N41° 54'
N41° 52'
N41° 50'
Bonner
Val Section: NE.ML.1
Total: 13.86 miles
Land Use: Pasture
386
385
Angora
MORRILL
COUNTY
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TN
MN (9.1°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0

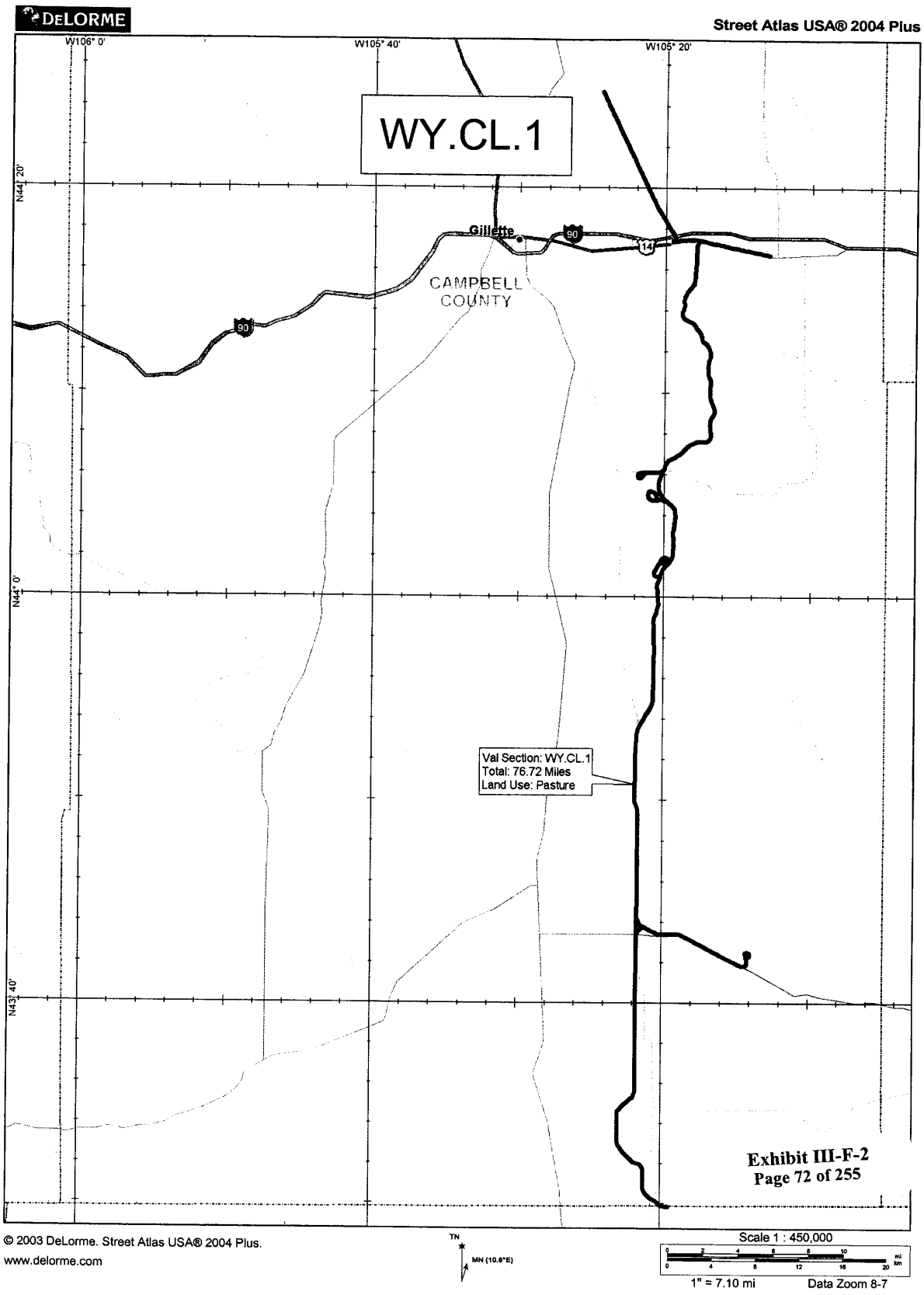

DeLORME
Street Atlas USA® 2004 Plus
NE.ML.2
W103° 14'
W103° 12'
W103° 10'
W103° 8'
W103° 6'
W103° 4'
W103° 2'
N41° 52'
N41° 50'
N41° 48'
N41° 46'
N41° 44'
N41° 42'
Angora
MORRILL
COUNTY
385
62A
Val Section: NE.ML.2
Total: 13.56 miles
Land Use: Transitional
Vance
Kemp
Northport
26
Exhibit III-F-2
Page 67 of 255
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TN
MN (9.1°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0

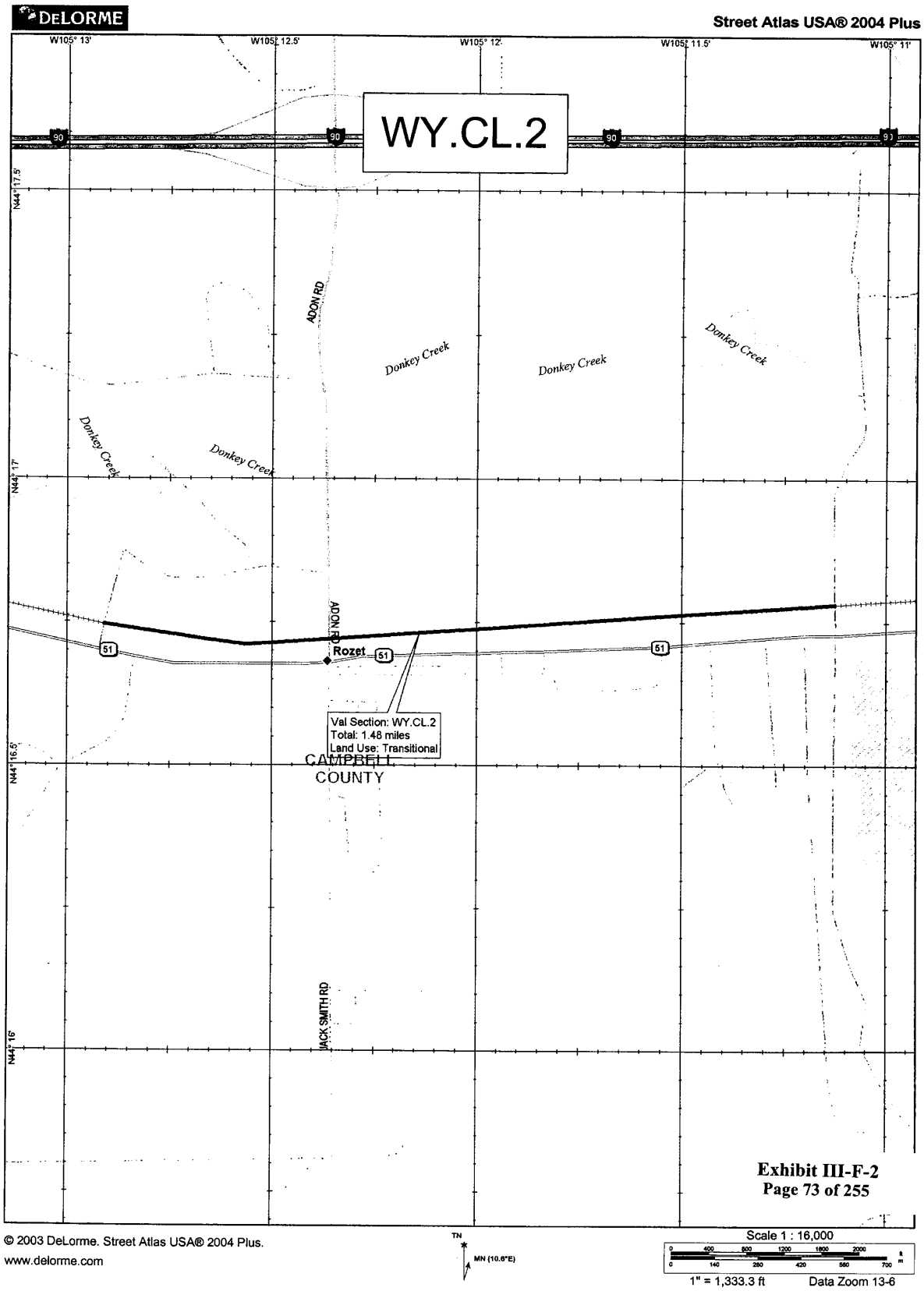

DeLORME
Street Atlas USA® 2004 Plus
NE.ML.3
W103° 8'
W103° 6'
W103° 4'
W103° 2'
W103° 0'
W102° 58'
N41° 42'
N41° 40'
N41° 38'
N41° 36'
N41° 34'
N41° 32'
N41° 30'
Northp
Bridgeport
MORRILL
COUNTY
26
88
385
92
386
Val Section: NE.ML.3
Total: 13.64 miles
Land Use: Agricultural
Alden
Exhibit III-F-2
Page 68 of 255
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TN
MN (9.1°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0

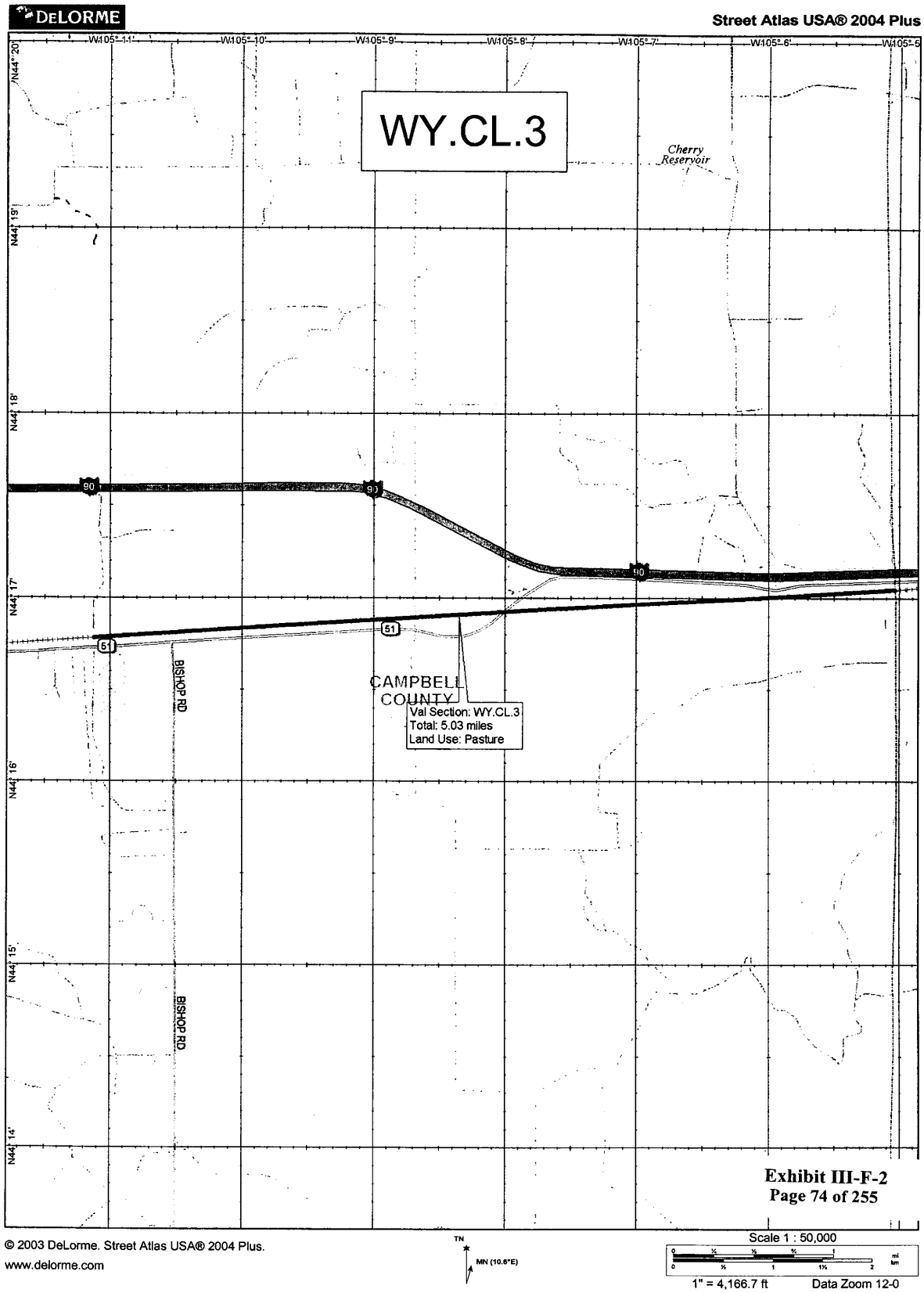

DeLORME
Street Atlas USA® 2004 Plus
NE.ML.4
W103° 4'
W103° 3'
W103° 2'
W103° 1'
W103° 0'
W102° 59'
W102° 58'
N41° 31'
N41° 30'
N41° 29'
N41° 28'
N41° 27'
N41° 26'
385
386
MORRILL
COUNTY
Val Section: NE.ML.4
Total: 6.96 miles
Land Use: Pasture
CHEYENNE
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www.delorme.com
TN
MN (9.0°E)
Scale 1 : 50,000
1" = 4,166.7 ft
Data Zoom 12-0

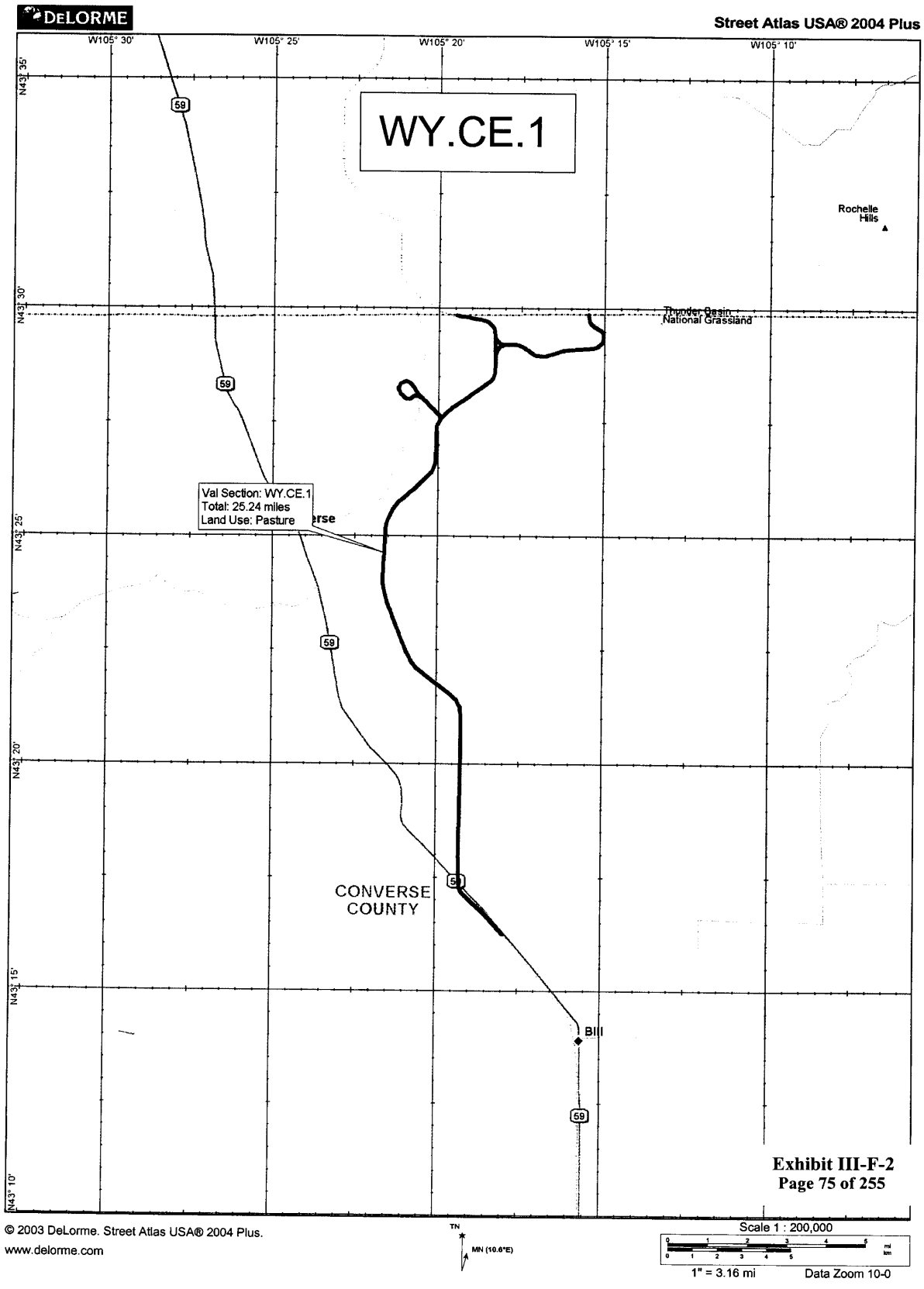

DeLORME
Street Atlas USA® 2004 Plus
NE.SX.1
Ardmore
CR 5
HAT CREEK RD
TOADSTOOL RD
Val Section: NE.SX.1
Total: 15.56 miles
Land Use: Pasture
Strawstack Butte
Orella
SIOUX COUNTY
Joder
Pine Butte
W103° 40'
W103° 38'
W103° 36'
W103° 34'
W103° 32'
W103° 30'
W103° 28'
N43° 0'
N42° 58'
N42° 56'
N42° 54'
N42° 52'
N42° 50'
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www.delorme.com
TN
MN (9.5°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0

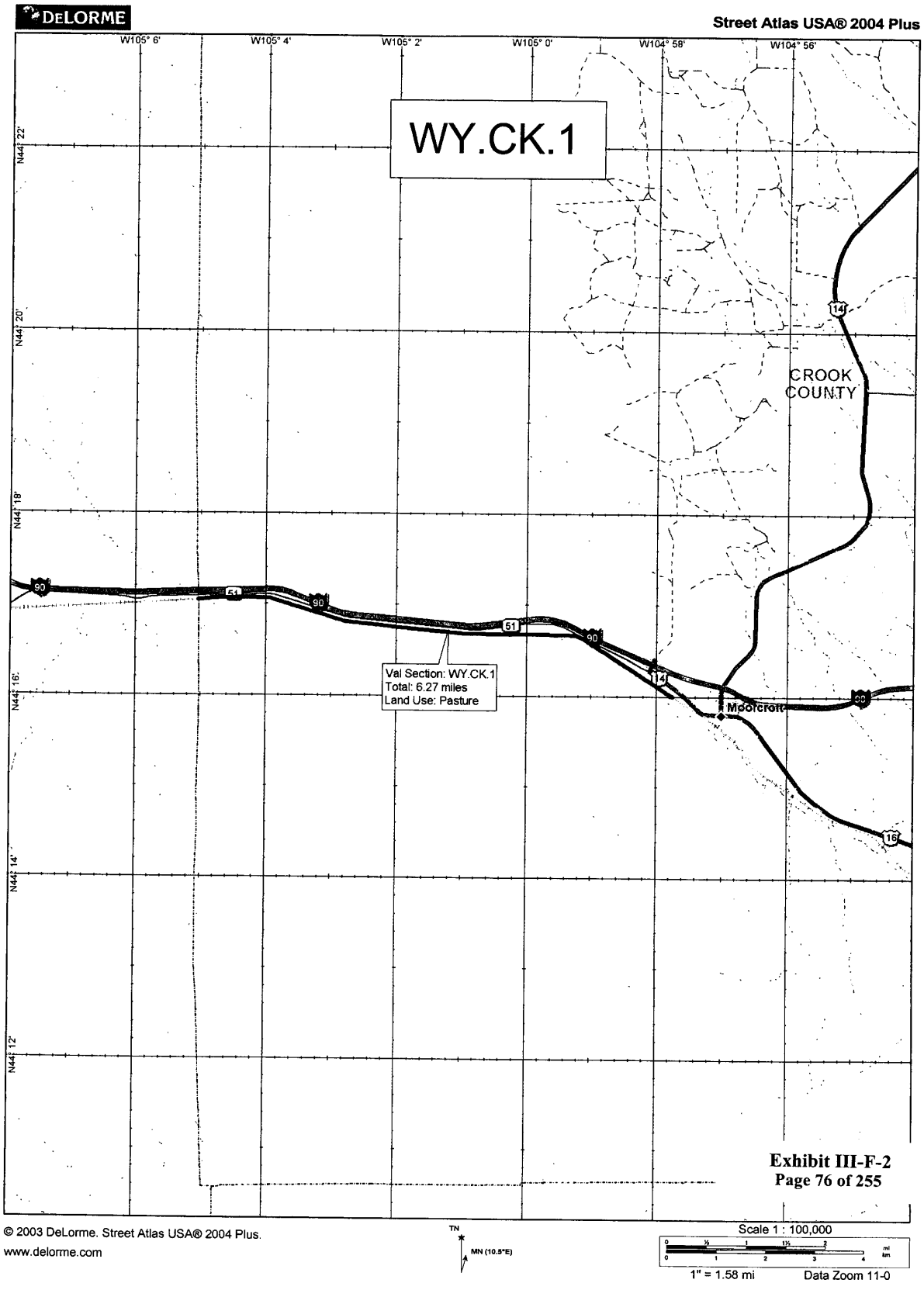
WYOMING


DeLORME
Street Atlas USA® 2004 Plus
W106° 0'
W105° 40'
W105° 20'
WY.CL.1
N44° 20'
N44° 0'
N43° 40'
Gillette
90
14
CAMPBELL
COUNTY
Val Section: WY.CL.1
Total: 76.72 Miles
Land Use: Pasture
Exhibit III-F-2
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TN
MN (10.8°E)
Scale 1 : 450,000
1" = 7.10 mi
Data Zoom 8-7


DeLORME
Street Atlas USA® 2004 Plus
WY.CL.2
W105° 13'
W105° 12.5'
W105° 12'
W105° 11.5'
W105° 11'
N44° 17.5'
N44° 17'
N44° 16.5'
N44° 16'
ADON RD
Donkey Creek
Donkey Creek
Donkey Creek
Donkey Creek
Donkey Creek
Rozet
Val Section: WY.CL.2
Total: 1.48 miles
Land Use: Transitional
CAMPBELL
COUNTY
JACK SMITH RD
Exhibit III-F-2
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TN
MN (10.6°E)
Scale 1 : 16,000
1" = 1,333.3 ft
Data Zoom 13-6


DeLORME
Street Atlas USA® 2004 Plus
WY.CL.3
Cherry Reservoir
W105° 11'
W105° 10'
W105° 9'
W105° 8'
W105° 7'
W105° 6'
W105° 5'
N44° 20'
N44° 19'
N44° 18'
N44° 17'
N44° 16'
N44° 15'
N44° 14'
90
51
BISHOP RD
CAMPBELL COUNTY
Val Section: WY.CL.3
Total: 5.03 miles
Land Use: Pasture
Exhibit III-F-2
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TN
MN (10.6°E)
Scale 1 : 50,000
1" = 4,166.7 ft
Data Zoom 12-0


DeLORME
Street Atlas USA® 2004 Plus
W105° 30'
W105° 25'
W105° 20'
W105° 15'
W105° 10'
N43° 35'
N43° 30'
N43° 25'
N43° 20'
N43° 15'
N43° 10'
WY.CE.1
Rochelle Hills
Thunder Basin National Grassland
Val Section: WY.CE.1
Total: 25.24 miles
Land Use: Pasture
CONVERSE COUNTY
59
Exhibit III-F-2
Page 75 of 255
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TN
MN (10.6°E)
Scale 1 : 200,000
1" = 3.16 mi
Data Zoom 10-0


DeLORME
Street Atlas USA® 2004 Plus
WY.CK.1
W105° 6'
W105° 4'
W105° 2'
W105° 0'
W104° 58'
W104° 56'
N44° 22'
N44° 20'
N44° 18'
N44° 16'
N44° 14'
N44° 12'
CROOK
COUNTY
Val Section: WY.CK.1
Total: 6.27 miles
Land Use: Pasture
Moorcroft
90
51
14
16
TN
MN (10.5°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0
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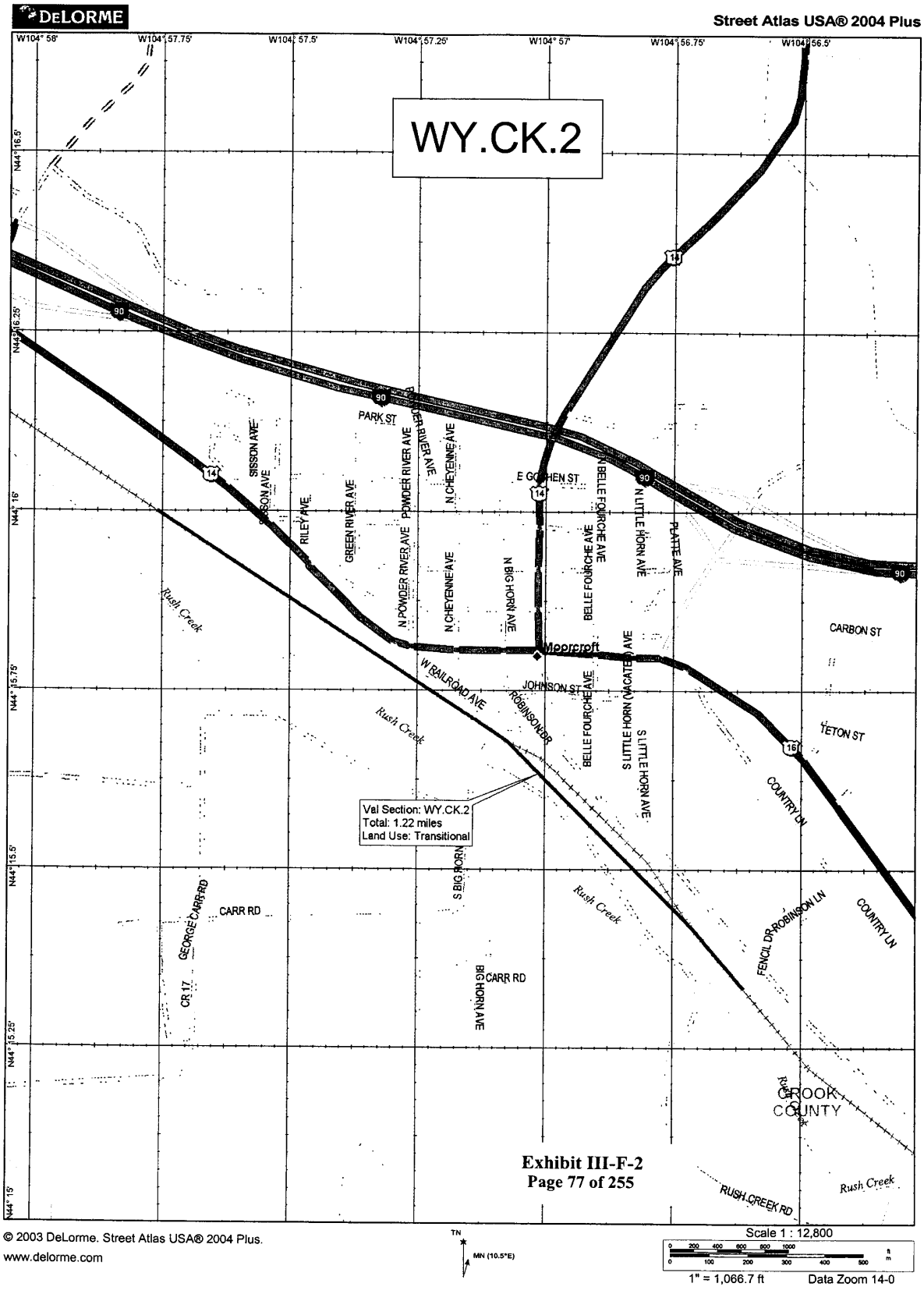
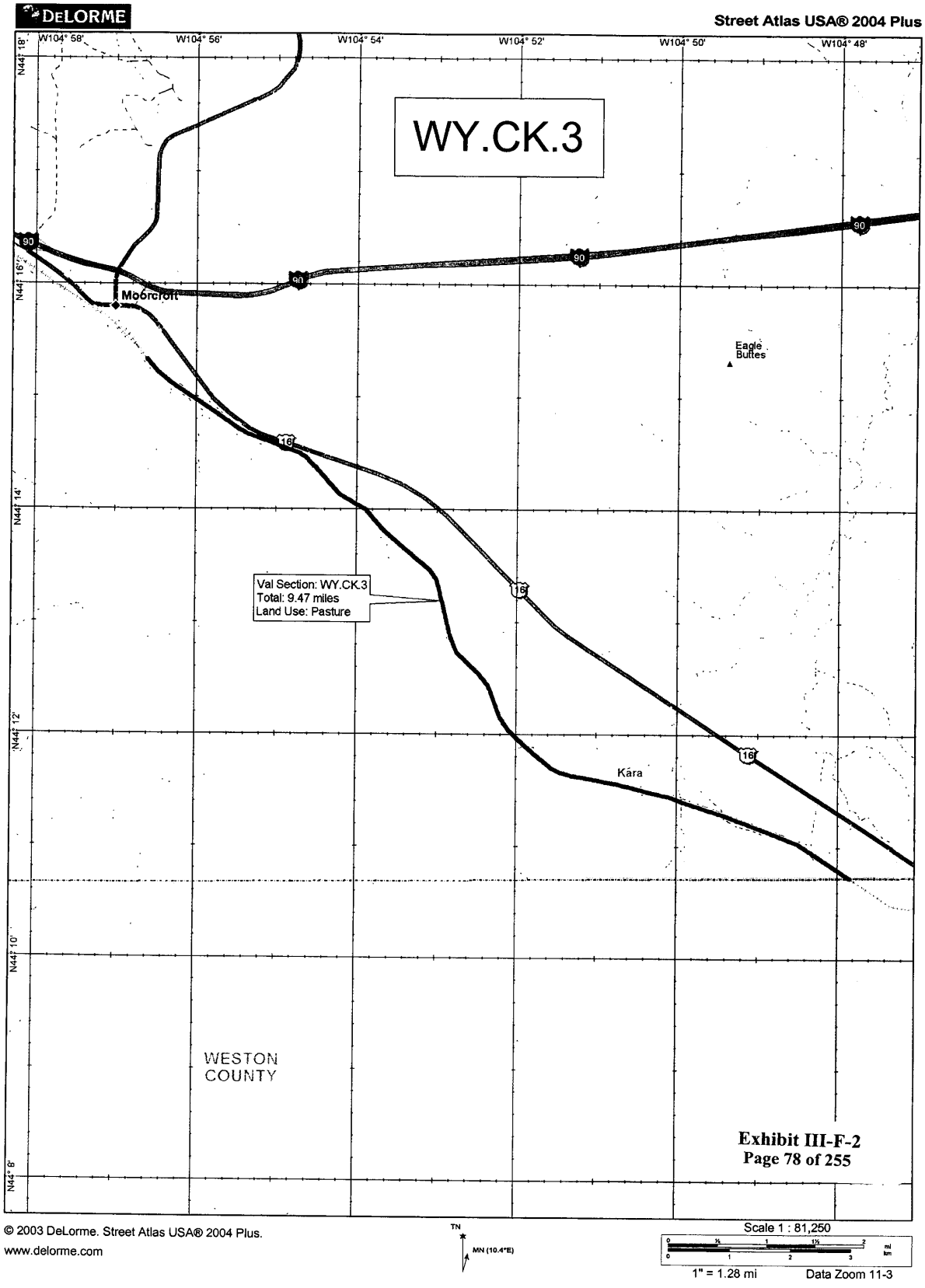


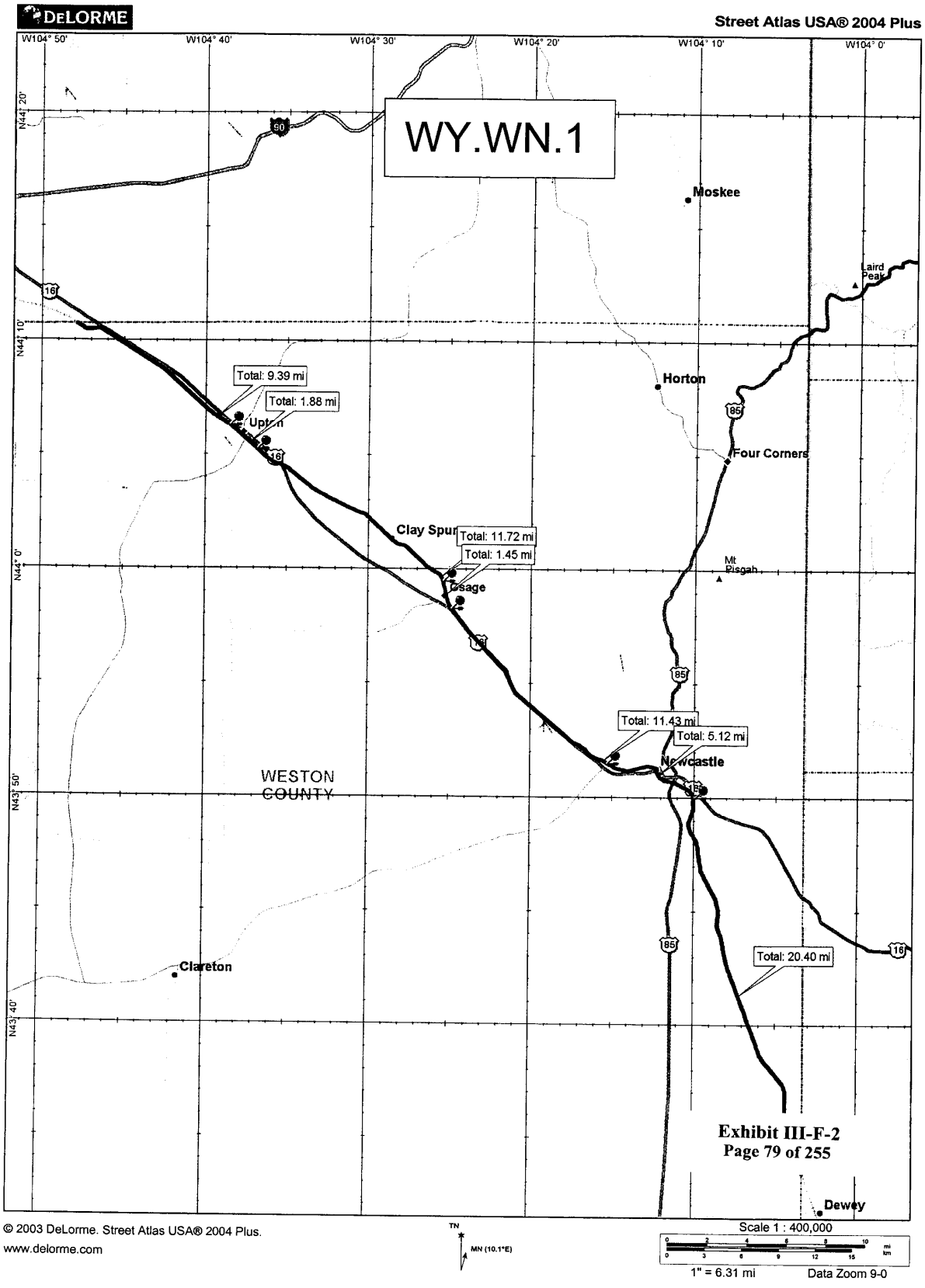
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TN
MN (10.5°E)

Scale 1 : 12,800
1" = 1,066.7 ft
Data Zoom 14-0


DeLORME
Street Atlas USA® 2004 Plus
WY.CK.3
W104° 58'
W104° 56'
W104° 54'
W104° 52'
W104° 50'
W104° 48'
N44° 18'
N44° 16'
N44° 14'
N44° 12'
N44° 10'
N44° 8'
90
16
Moorcroft
Eagle Buttes
Kara
Val Section: WY.CK.3
Total: 9.47 miles
Land Use: Pasture
WESTON COUNTY
Exhibit III-F-2
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TN
MN (10.4°E)
Scale 1 : 81,250
1" = 1.28 mi
Data Zoom 11-3


DeLORME
Street Atlas USA® 2004 Plus
WY.WN.1
W104° 50'
W104° 40'
W104° 30'
W104° 20'
W104° 10'
W104° 0'
N44° 20'
N44° 10'
N44° 0'
N43° 50'
N43° 40'
Moskee
Laird Peak
Horton
Four Corners
Mt Pisgah
Total: 9.39 mi
Total: 1.88 mi
Upton
Clay Spur
Total: 11.72 mi
Total: 1.45 mi
Osage
Total: 11.43 mi
Total: 5.12 mi
Newcastle
WESTON COUNTY
Clareton
Total: 20.40 mi
Dewey
Exhibit III-F-2
Page 79 of 255
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TN
MN (10.1°E)
Scale 1 : 400,000
1" = 6.31 mi
Data Zoom 9-0

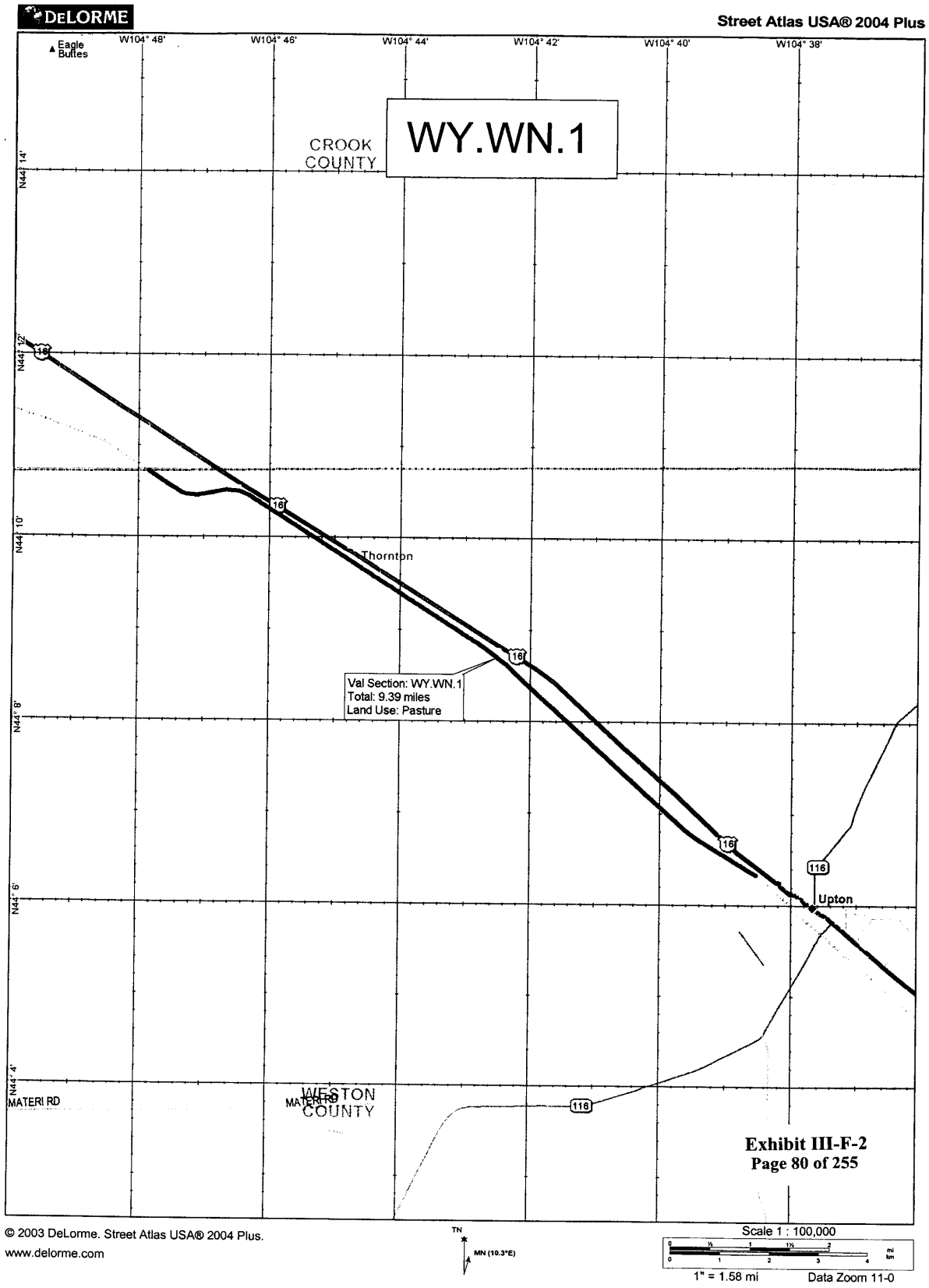
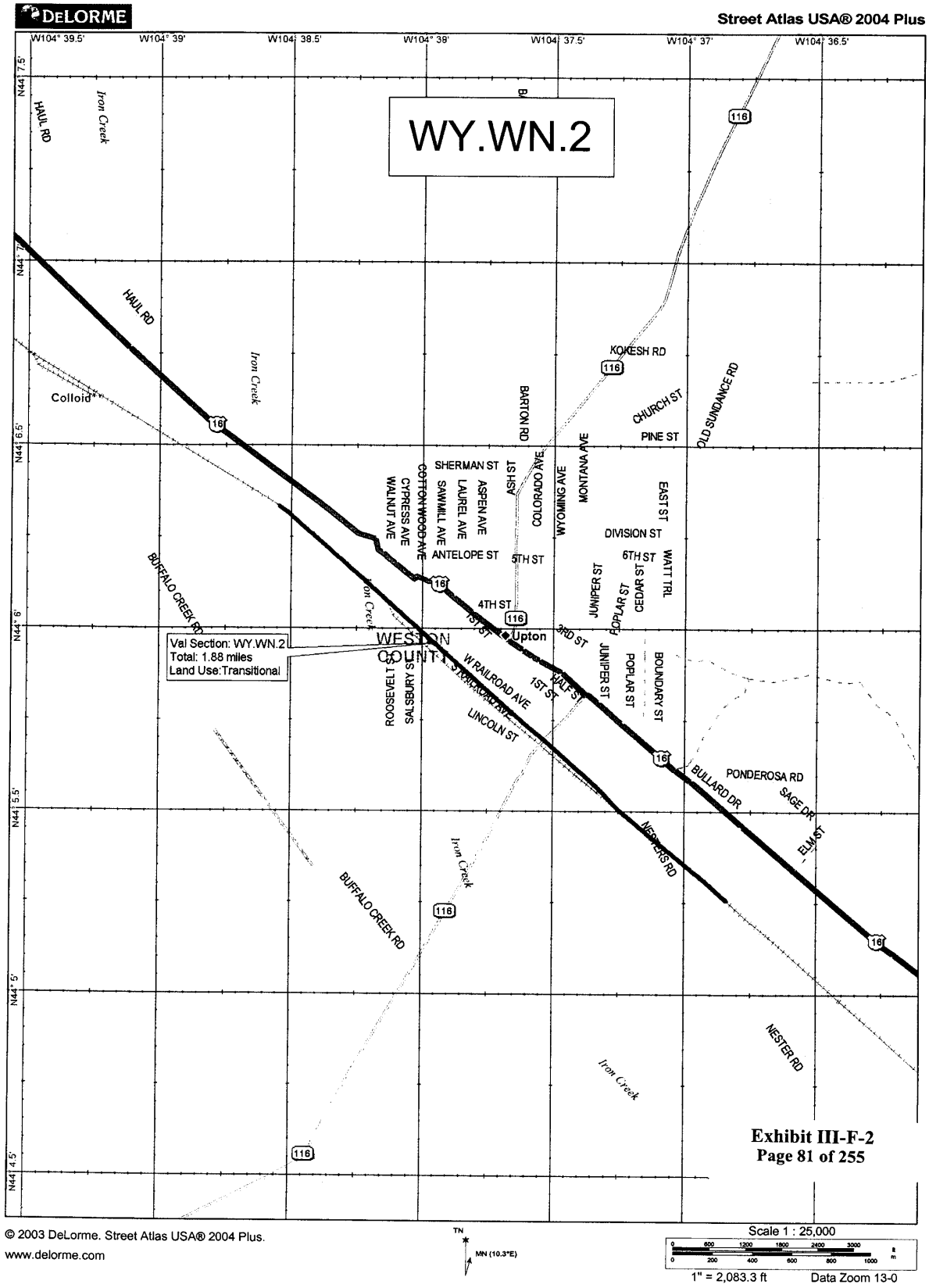
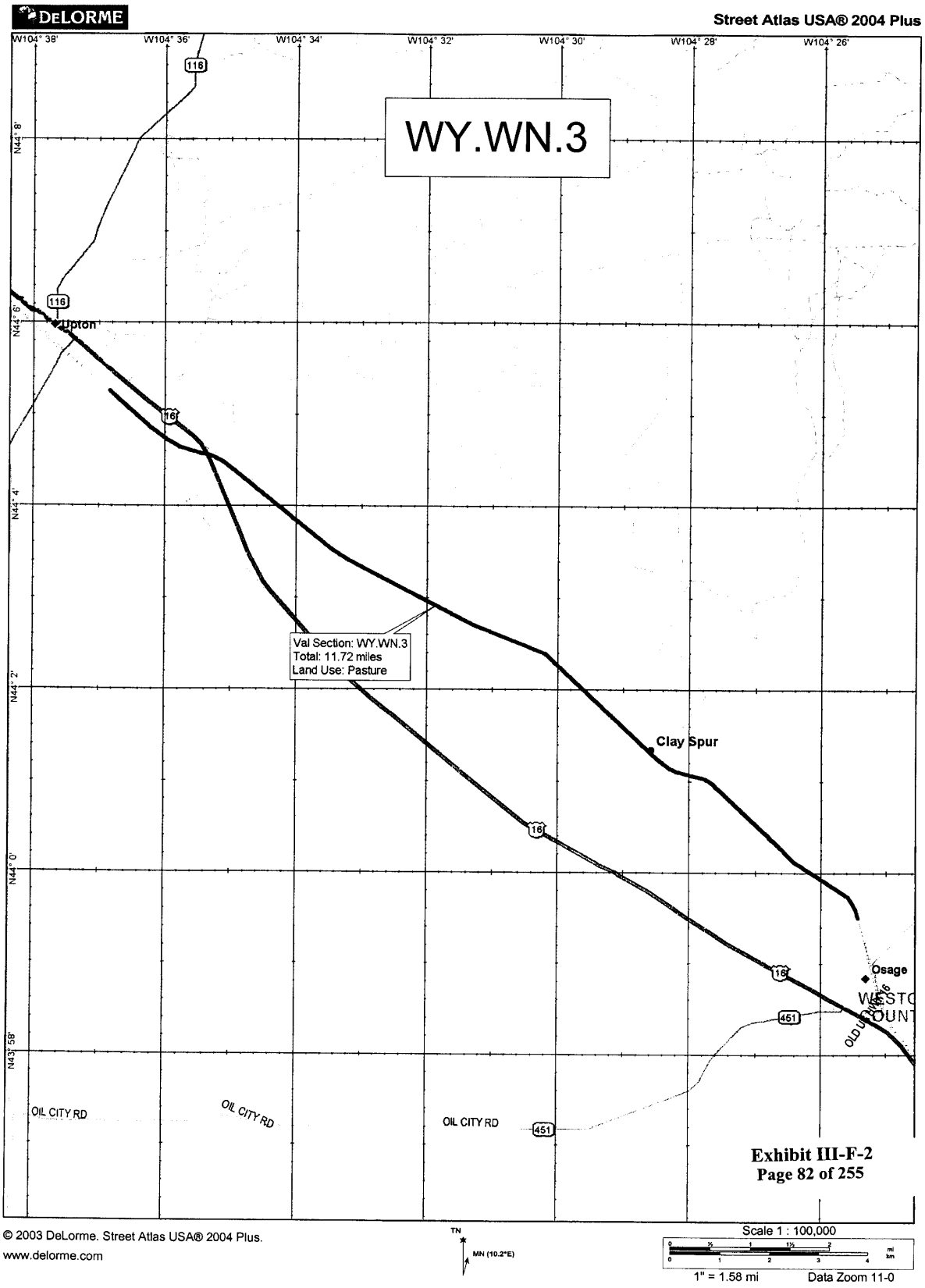
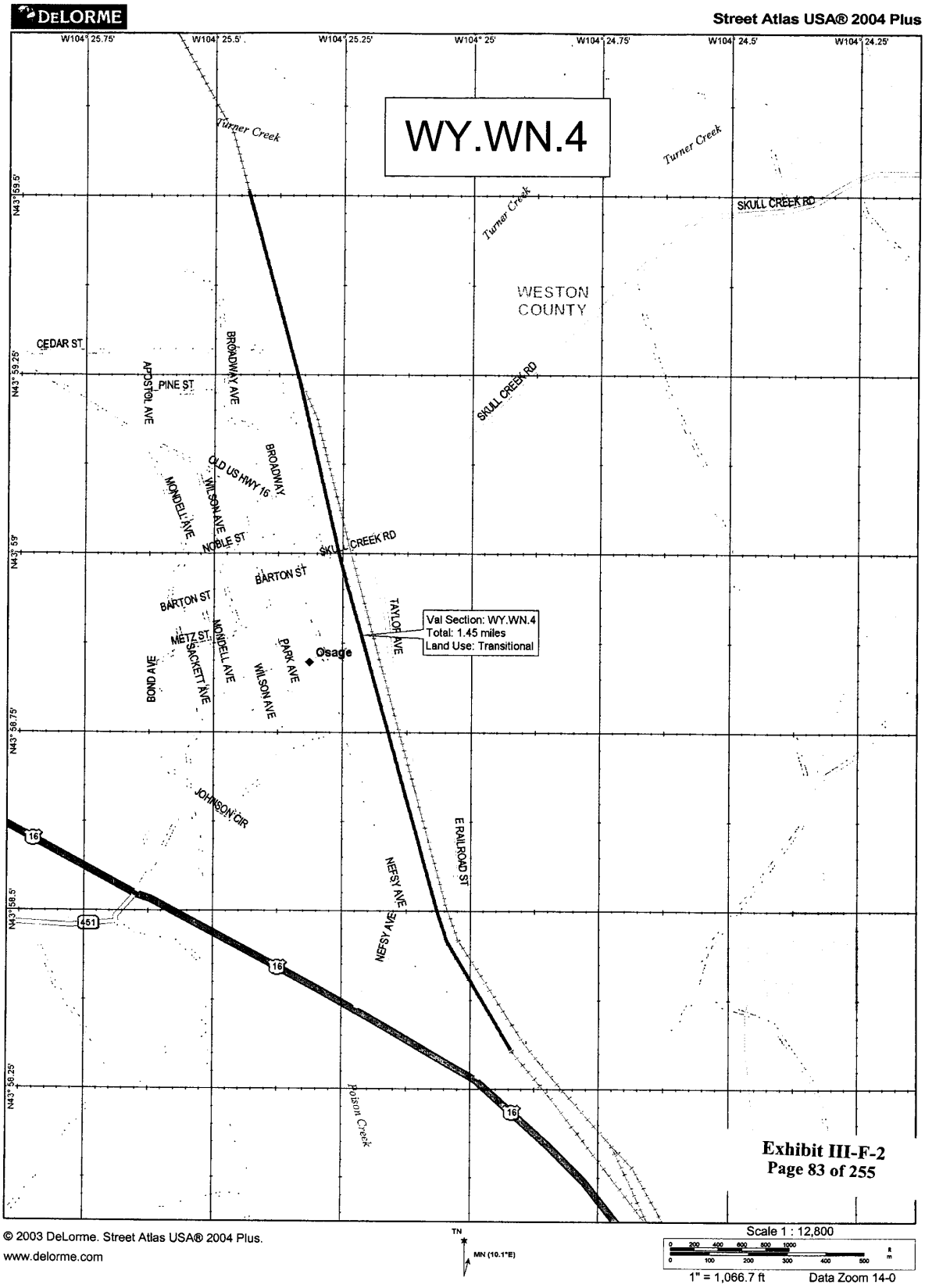
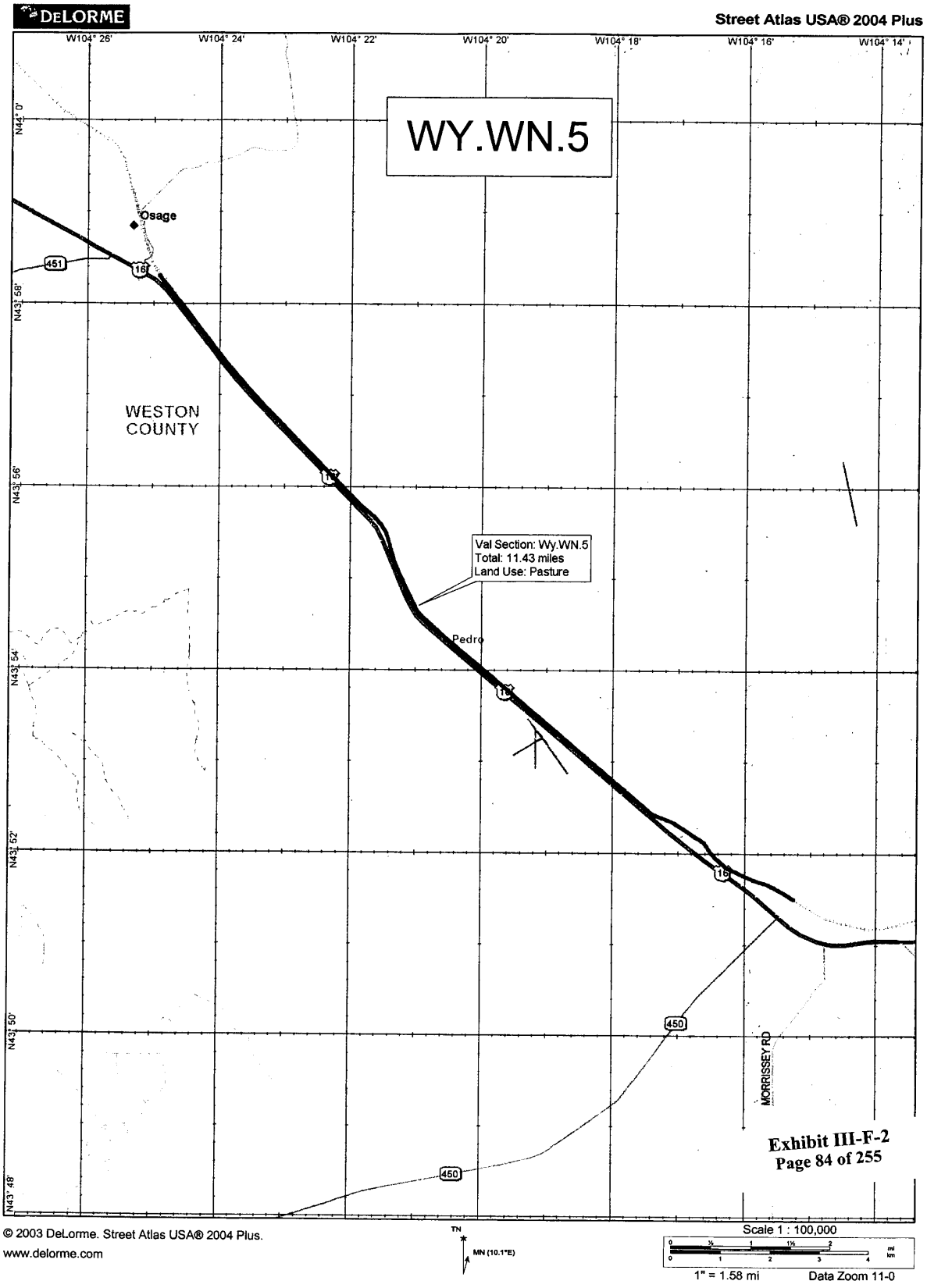


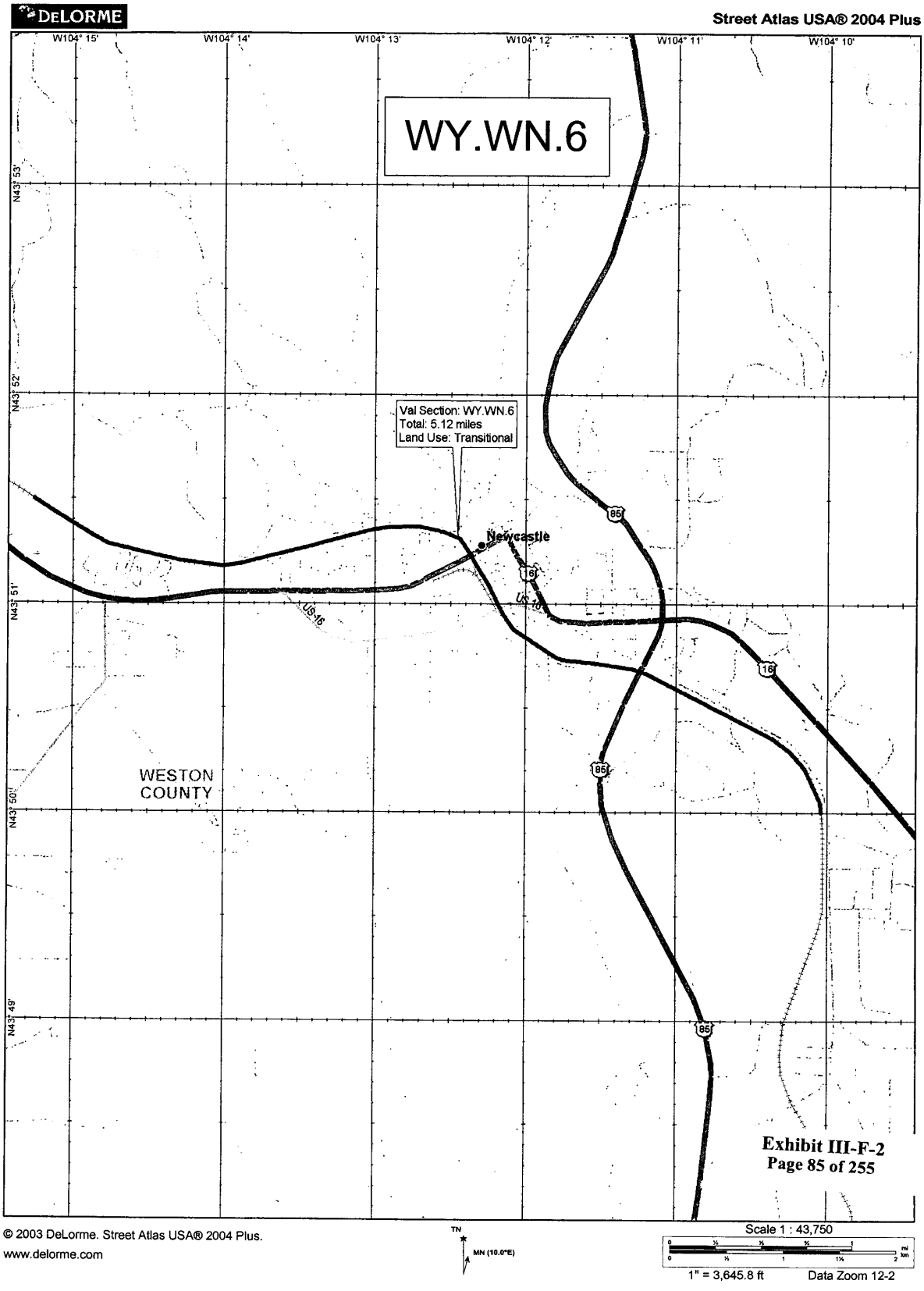
Exhibit III-F-2
Page 80 of 255

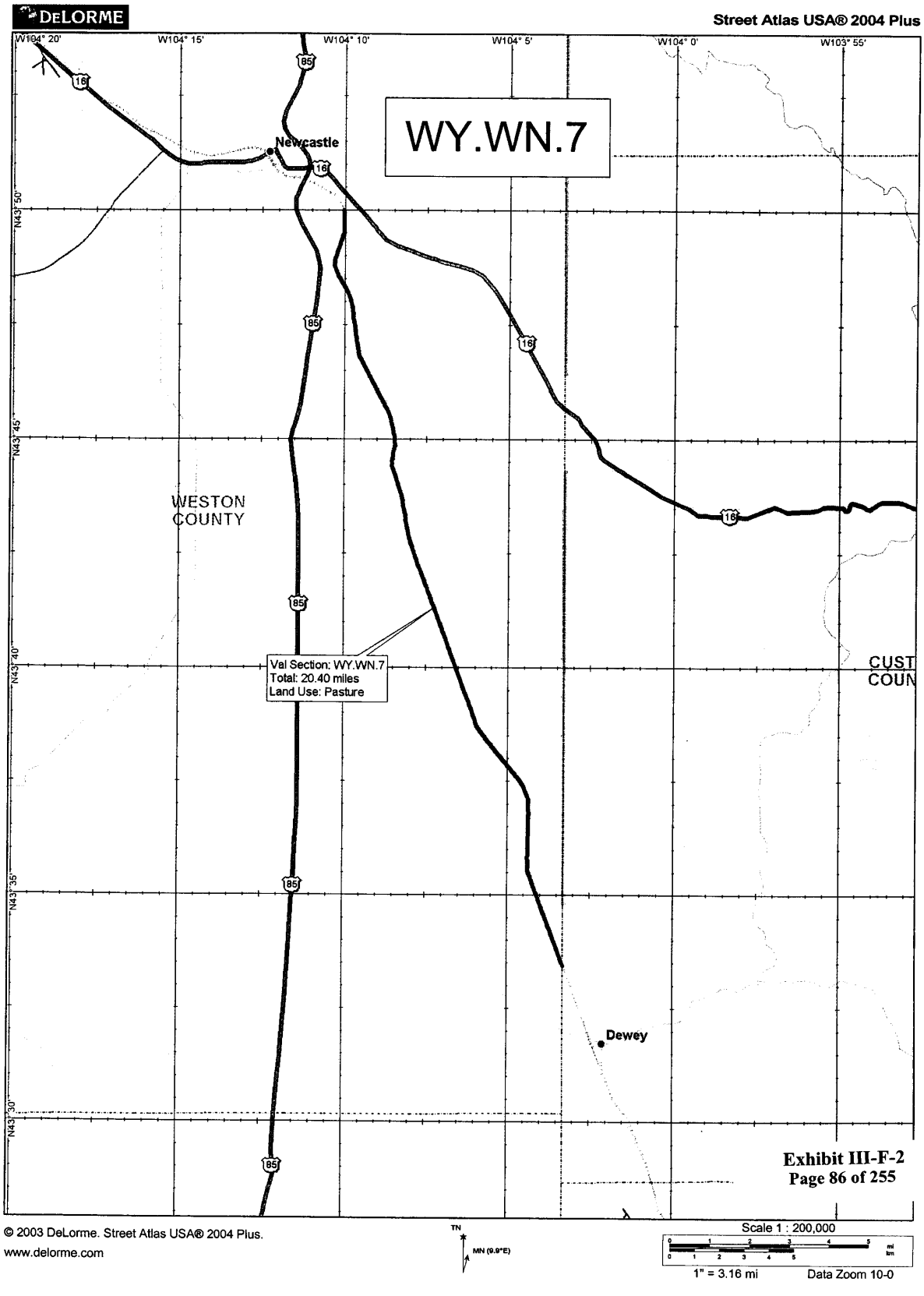

DeLORME
Street Atlas USA® 2004 Plus
WY.WN.2
W104° 39.5'
W104° 39'
W104° 38.5'
W104° 38'
W104° 37.5'
W104° 37'
W104° 36.5'
N44° 7.5'
N44° 7'
N44° 6.5'
N44° 6'
N44° 5.5'
N44° 5'
N44° 4.5'
HAUL RD
Iron Creek
Colloid
KOKESH RD
CHURCH ST
PINE ST
OLD SUNDANCE RD
BARTON RD
SHERMAN ST
1ST ST
COLORADO AVE
WYOMING AVE
MONTANA AVE
EAST ST
DIVISION ST
6TH ST
WATT TRL
ASH ST
ASPEN AVE
LAUREL AVE
SAWMILL AVE
COTTONWOOD AVE
CYPRESS AVE
WALNUT AVE
ANTELOPE ST
5TH ST
4TH ST
3RD ST
JUNIPER ST
POPLAR ST
CEDAR ST
BUFFALO CREEK RD
Upton
WESTON COUNTY
Val Section: WY.WN.2
Total: 1.88 miles
Land Use:Transitional
W RAILROAD AVE
1ST ST
HALL ST
BOUNDARY ST
ROOSEVELT ST
SALISBURY ST
LINCOLN ST
PONDEROSA RD
BULLARD DR
SAGE DR
ELM ST
NESTER RD
116
16
Exhibit III-F-2
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www.delorme.com
TN
MN (10.3°E)
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0


DeLORME
Street Atlas USA® 2004 Plus
WY.WN.3
W104° 38'
W104° 36'
W104° 34'
W104° 32'
W104° 30'
W104° 28'
W104° 26'
N44° 8'
N44° 6'
N44° 4'
N44° 2'
N44° 0'
N43° 58'
116
Upton
16
Val Section: WY.WN.3
Total: 11.72 miles
Land Use: Pasture
Clay Spur
Osage
451
OIL CITY RD
OIL CITY RD
OIL CITY RD
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www.delorme.com
TN
MN (10.2°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0

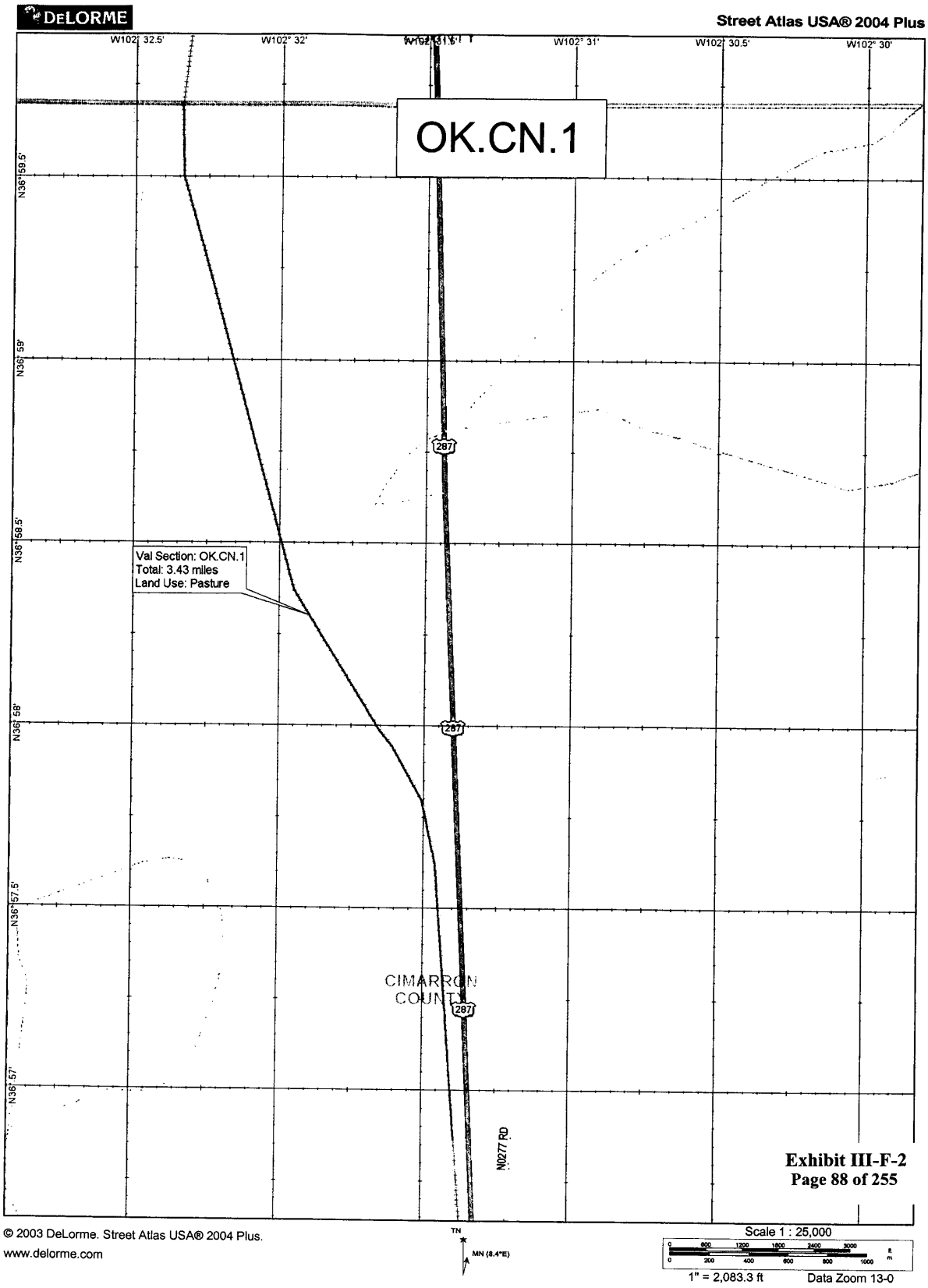

DeLORME
Street Atlas USA® 2004 Plus
WY.WN.4
W104° 25.75'
W104° 25.5'
W104° 25.25'
W104° 25'
W104° 24.75'
W104° 24.5'
W104° 24.25'
N43° 59.5'
N43° 59.25'
N43° 59'
N43° 58.75'
N43° 58.5'
N43° 58.25'
Turner Creek
SKULL CREEK RD
WESTON COUNTY
CEDAR ST
PINE ST
APOSTOL AVE
BROADWAY AVE
BROADWAY
OLD US HWY 16
MONDELL AVE
WILSON AVE
NOBLE ST
BARTON ST
METZ ST
BOND AVE
SACKETT AVE
PARK AVE
TAYLOR AVE
Osage
JOHNSON CIR
E RAILROAD ST
NEFSY AVE
Poison Creek
16
451
Val Section: WY.WN.4
Total: 1.45 miles
Land Use: Transitional
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www.delorme.com
TN
MN (10.1°E)
Scale 1 : 12,800
1" = 1,066.7 ft
Data Zoom 14-0

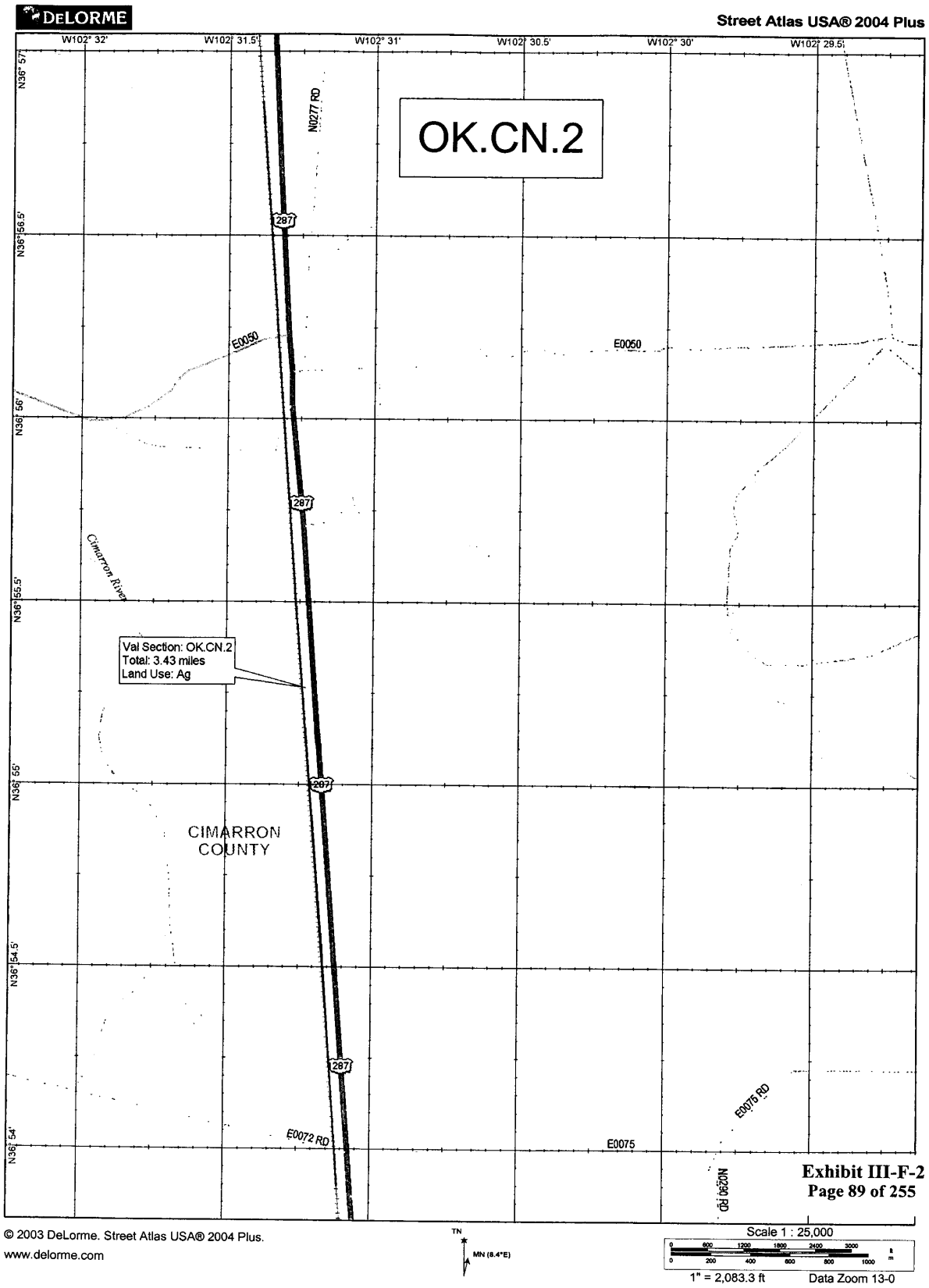

DeLORME
Street Atlas USA® 2004 Plus
WY.WN.5
W104° 26'
W104° 24'
W104° 22'
W104° 20'
W104° 18'
W104° 16'
W104° 14'
N44° 0'
N43° 58'
N43° 56'
N43° 54'
N43° 52'
N43° 50'
N43° 48'
Osage
451
16
WESTON
COUNTY
Val Section: Wy.WN.5
Total: 11.43 miles
Land Use: Pasture
Pedro
450
MORRISSEY RD
Exhibit III-F-2
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www.delorme.com
TN
MN (10.1°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0


DeLORME
Street Atlas USA® 2004 Plus
WY.WN.6
W104° 15'
W104° 14'
W104° 13'
W104° 12'
W104° 11'
W104° 10'
N43° 53'
N43° 52'
N43° 51'
N43° 50'
N43° 49'
Val Section: WY.WN.6
Total: 5.12 miles
Land Use: Transitional
Newcastle
US-16
WESTON
COUNTY
85
16
Exhibit III-F-2
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www.delorme.com
TN
MN (10.0°E)
Scale 1 : 43,750
1" = 3,645.8 ft
Data Zoom 12-2

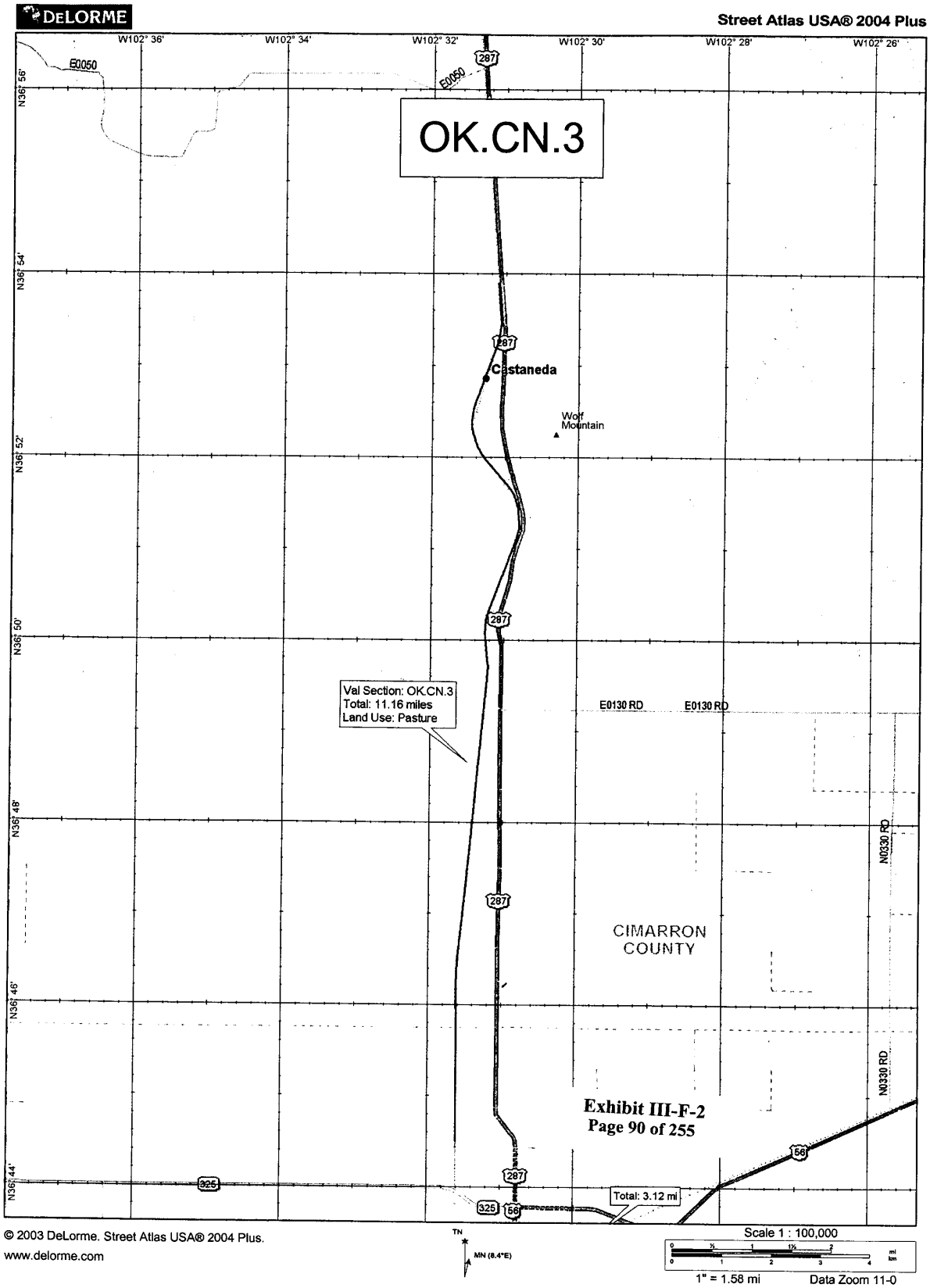

DeLORME
Street Atlas USA® 2004 Plus
WY.WN.7
W104° 20'
W104° 15'
W104° 10'
W104° 5'
W104° 0'
W103° 55'
N43° 50'
N43° 45'
N43° 40'
N43° 35'
N43° 30'
Newcastle
WESTON COUNTY
CUST COUN
Val Section: WY.WN.7
Total: 20.40 miles
Land Use: Pasture
Dewey
16
85
Exhibit III-F-2
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www.delorme.com
TN
MN (9.9°E)
Scale 1 : 200,000
1" = 3.16 mi
Data Zoom 10-0

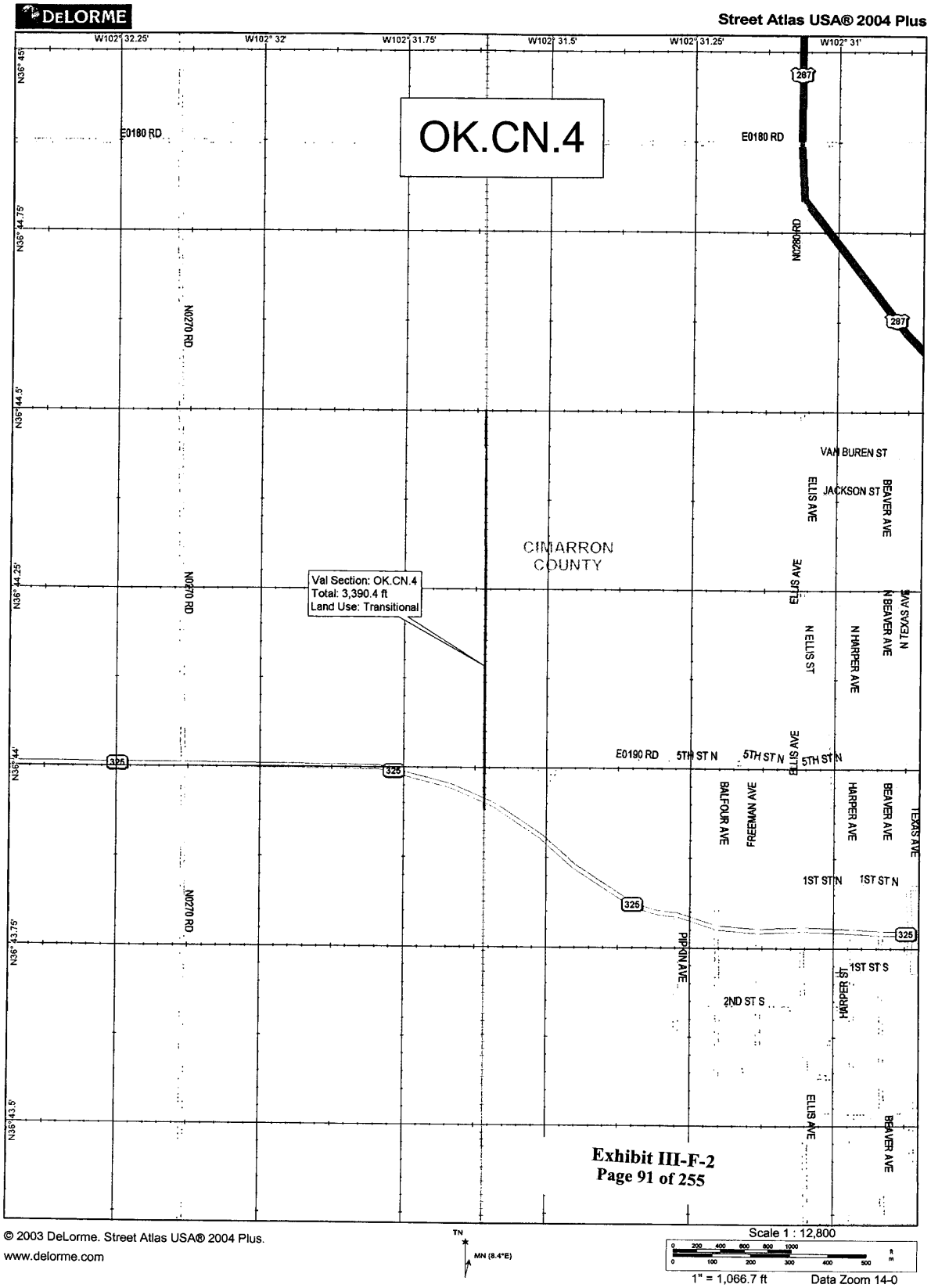
OKLAHOMA

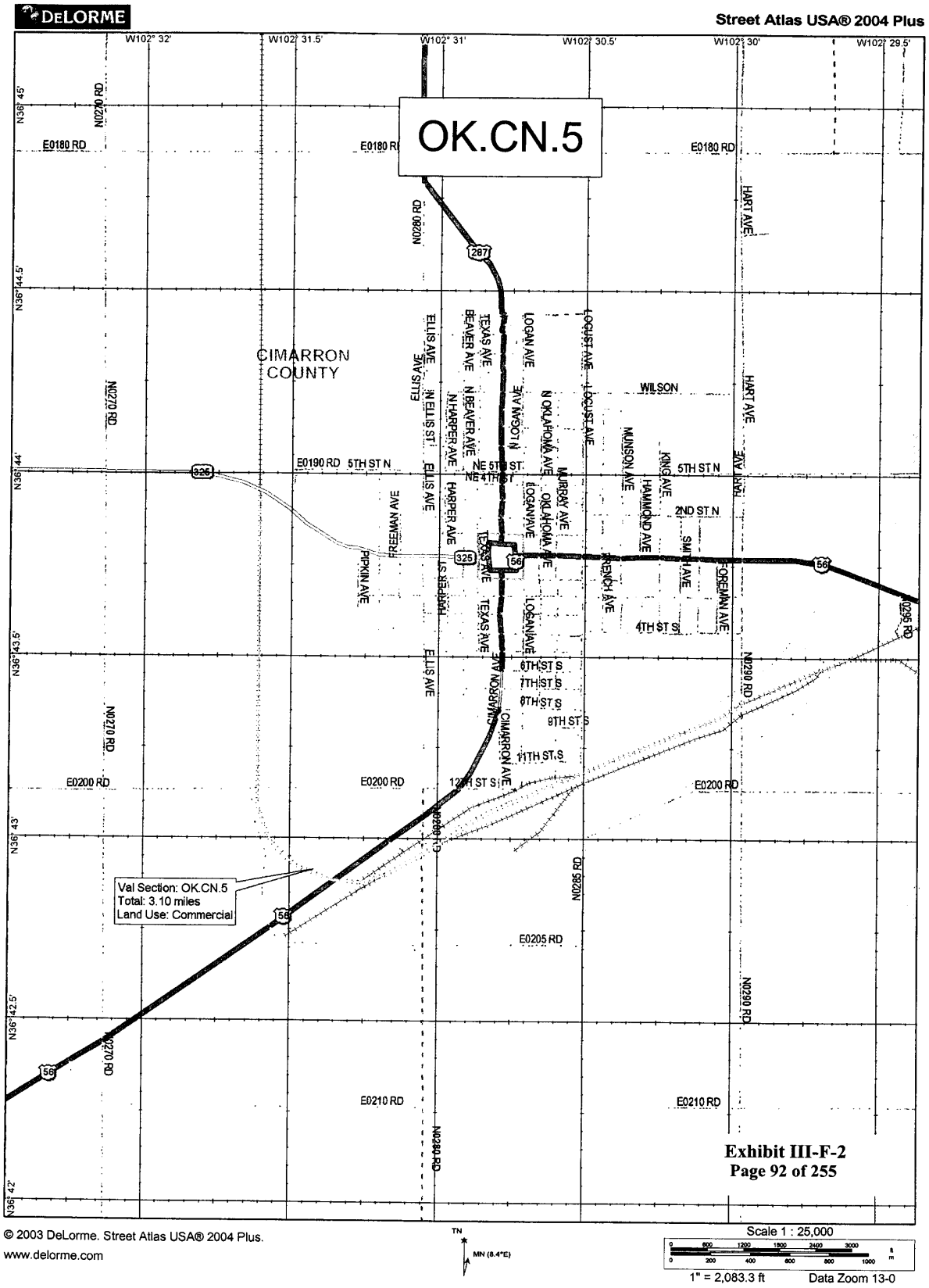

DeLORME
Street Atlas USA® 2004 Plus
OK.CN.1
W102° 32.5'
W102° 32'
W102° 31'
W102° 30.5'
W102° 30'
N36° 59.5'
N36° 59'
N36° 58.5'
N36° 58'
N36° 57.5'
N36° 57'
Val Section: OK.CN.1
Total: 3.43 miles
Land Use: Pasture
287
CIMARRON
COUNTY
N0277 RD
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www.delorme.com
TN
MN (8.4°E)
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0



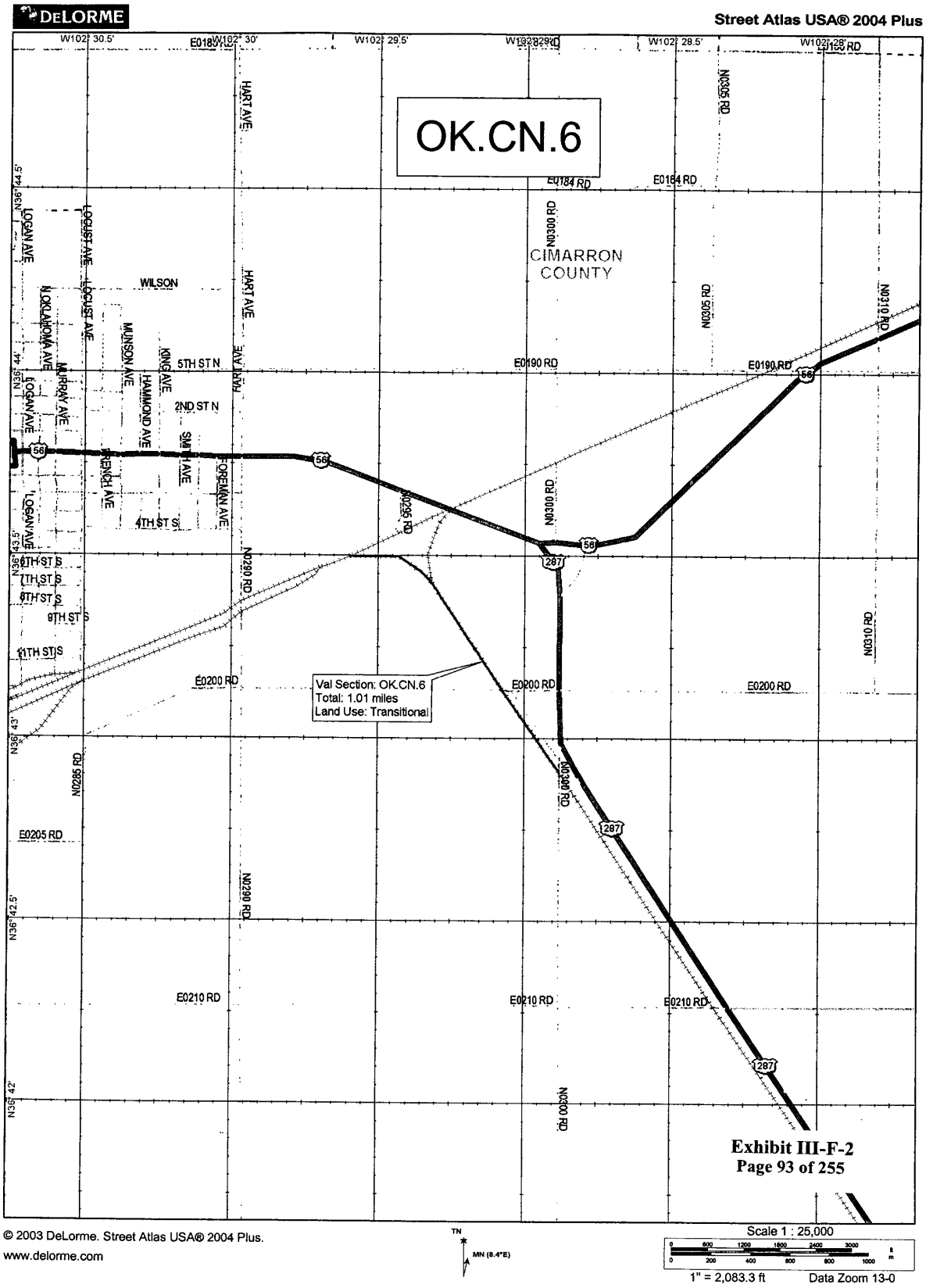
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www.delorme.com

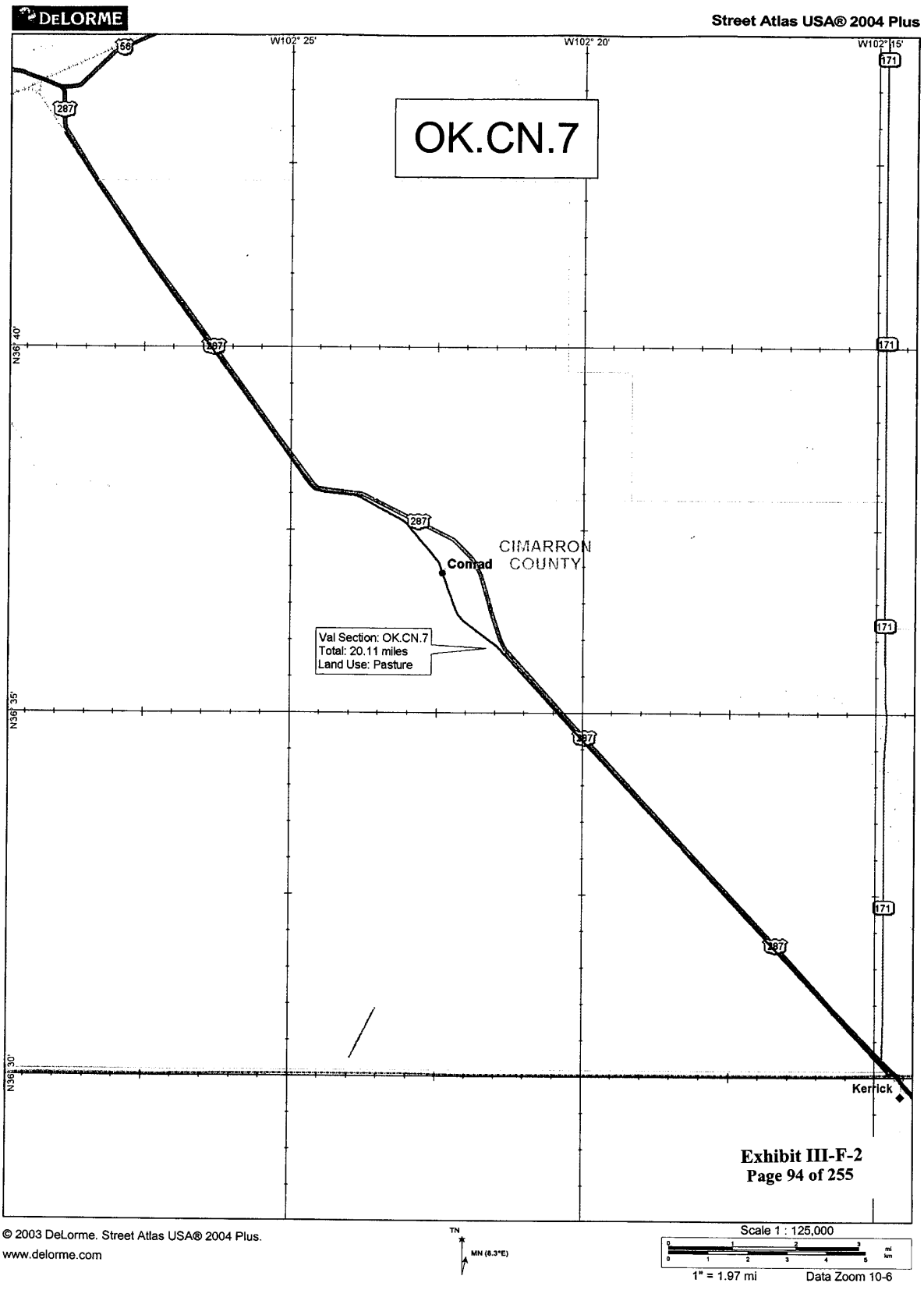

DeLORME
Street Atlas USA® 2004 Plus
OK.CN.3
W102° 36'
W102° 34'
W102° 32'
W102° 30'
W102° 28'
W102° 26'
N36° 56'
N36° 54'
N36° 52'
N36° 50'
N36° 48'
N36° 46'
N36° 44'
E0050
E0050
287
Castaneda
Wolf Mountain
Val Section: OK.CN.3
Total: 11.16 miles
Land Use: Pasture
E0130 RD
E0130 RD
N0330 RD
CIMARRON COUNTY
N0330 RD
325
56
Total: 3.12 mi
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www.delorme.com
TN
MN (8.4°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0


DeLORME
Street Atlas USA® 2004 Plus
OK.CN.4
W102° 32.25'
W102° 32'
W102° 31.75'
W102° 31.5'
W102° 31.25'
W102° 31'
N36° 45'
N36° 44.75'
N36° 44.5'
N36° 44.25'
N36° 44'
N36° 43.75'
N36° 43.5'
E0180 RD
N0270 RD
N0280 RD
287
CIMARRON COUNTY
Val Section: OK.CN.4
Total: 3,390.4 ft
Land Use: Transitional
VAN BUREN ST
JACKSON ST
ELLIS AVE
BEAVER AVE
N ELLIS ST
N HARPER AVE
N BEAVER AVE
N TEXAS AVE
E0190 RD
5TH ST N
BALFOUR AVE
FREEMAN AVE
HARPER AVE
TEXAS AVE
1ST ST N
325
PIPPIN AVE
1ST ST S
2ND ST S
HARPER ST
ELLIS AVE
BEAVER AVE
Exhibit III-F-2
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TN
MN (8.4°E)
Scale 1 : 12,800
1" = 1,066.7 ft
Data Zoom 14-0

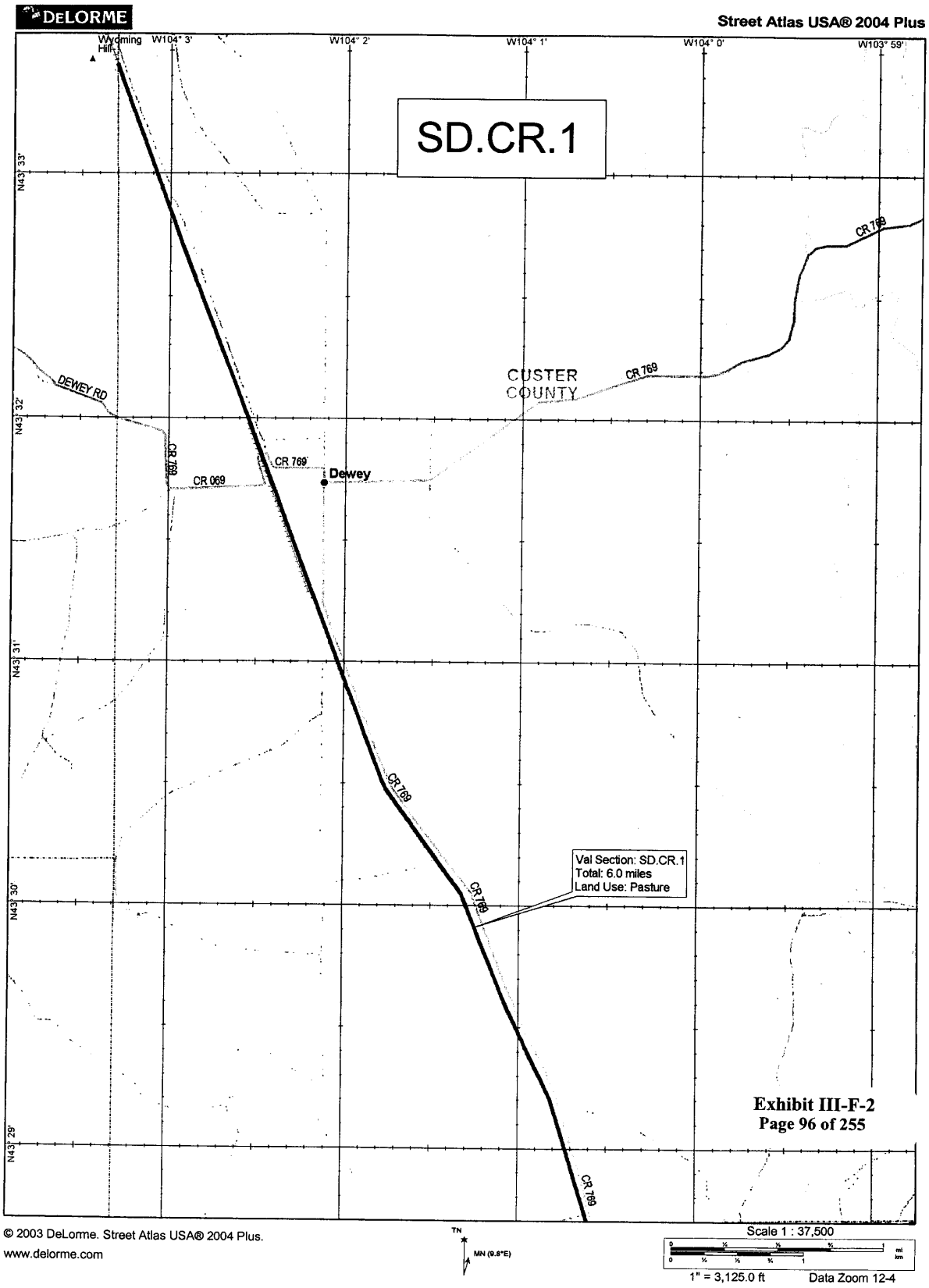


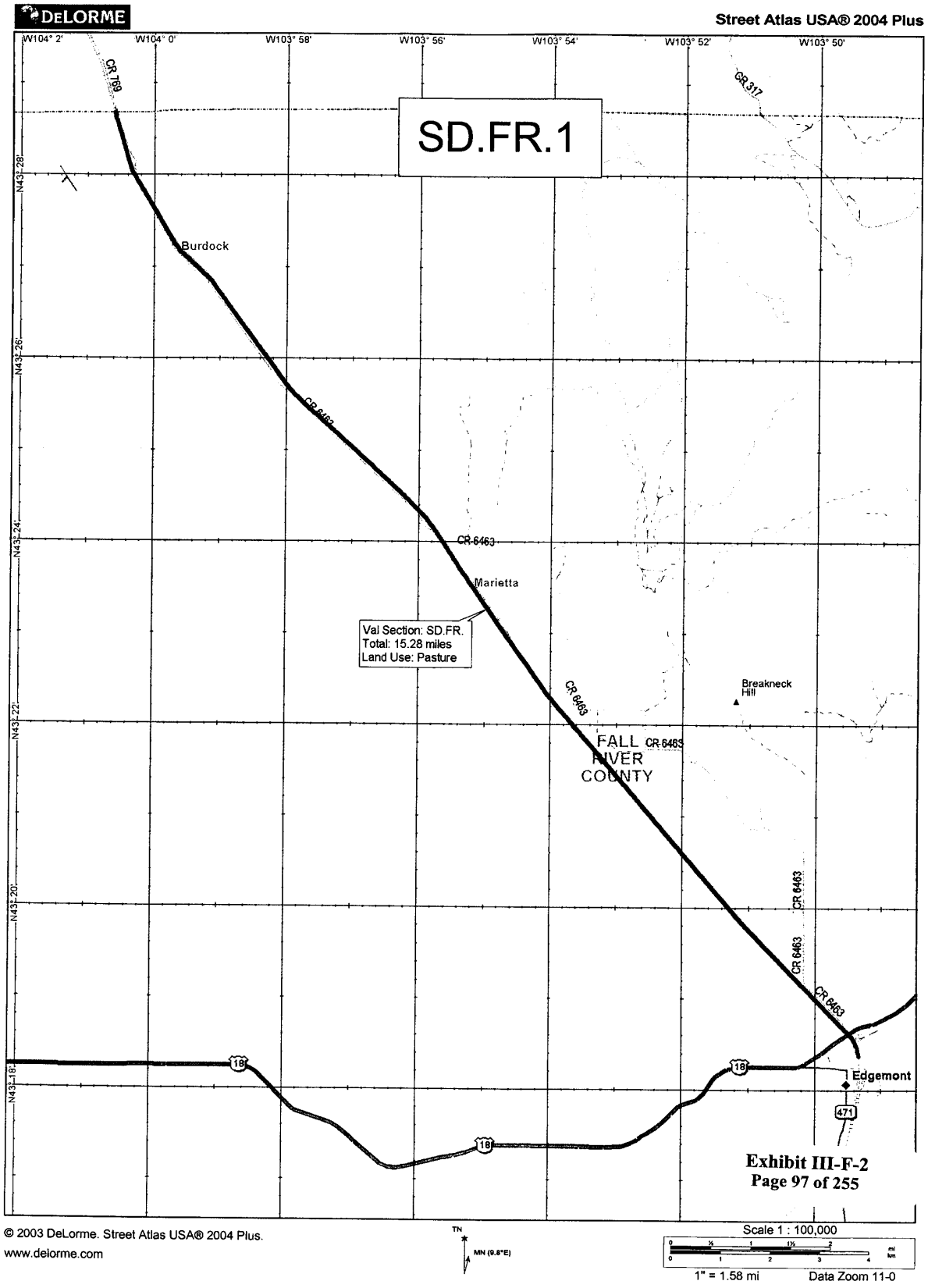
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www.delorme.com

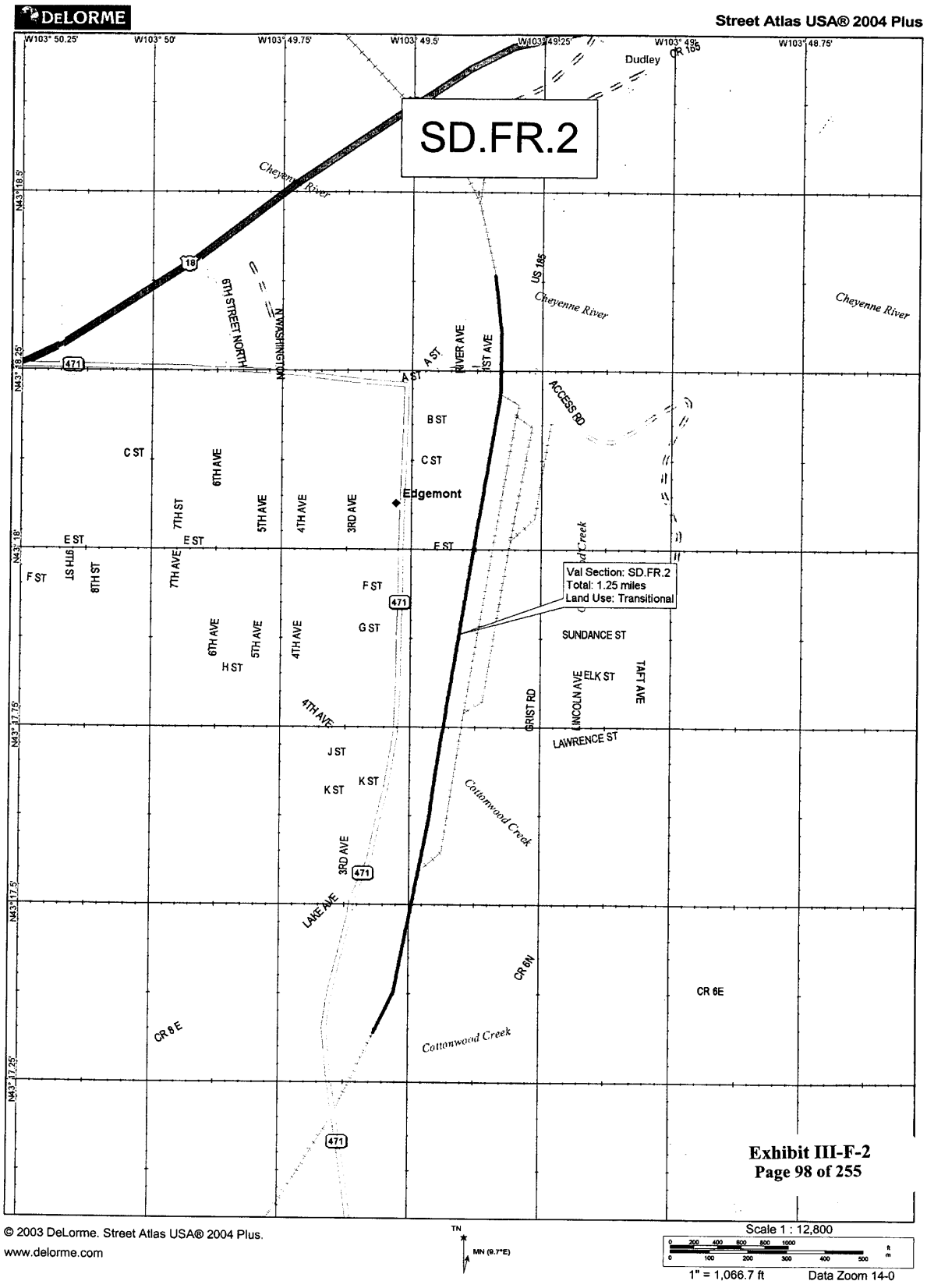

DeLORME
Street Atlas USA® 2004 Plus
OK.CN.6
CIMARRON COUNTY
WILSON
HART AVE
LOGAN AVE
LOCUST AVE
N OKLAHOMA AVE
MUNSON AVE
MURRAY AVE
KING AVE
HAMMOND AVE
FRENCH AVE
SMITH AVE
FOREMAN AVE
5TH ST N
2ND ST N
4TH ST S
6TH ST S
7TH ST S
8TH ST S
9TH ST S
11TH ST S
E0184 RD
E0190 RD
E0200 RD
E0205 RD
E0210 RD
N0300 RD
N0305 RD
N0310 RD
N0295 RD
N0290 RD
N0286 RD
56
287
Val Section: OK.CN.6
Total: 1.01 miles
Land Use: Transitional
W102° 30.5'
W102° 30'
W102° 29.5'
W102° 29'
W102° 28.5'
W102° 28'
N36° 44.5'
N36° 44'
N36° 43.5'
N36° 43'
N36° 42.5'
N36° 42'
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TN
MN (8.4°E)
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0

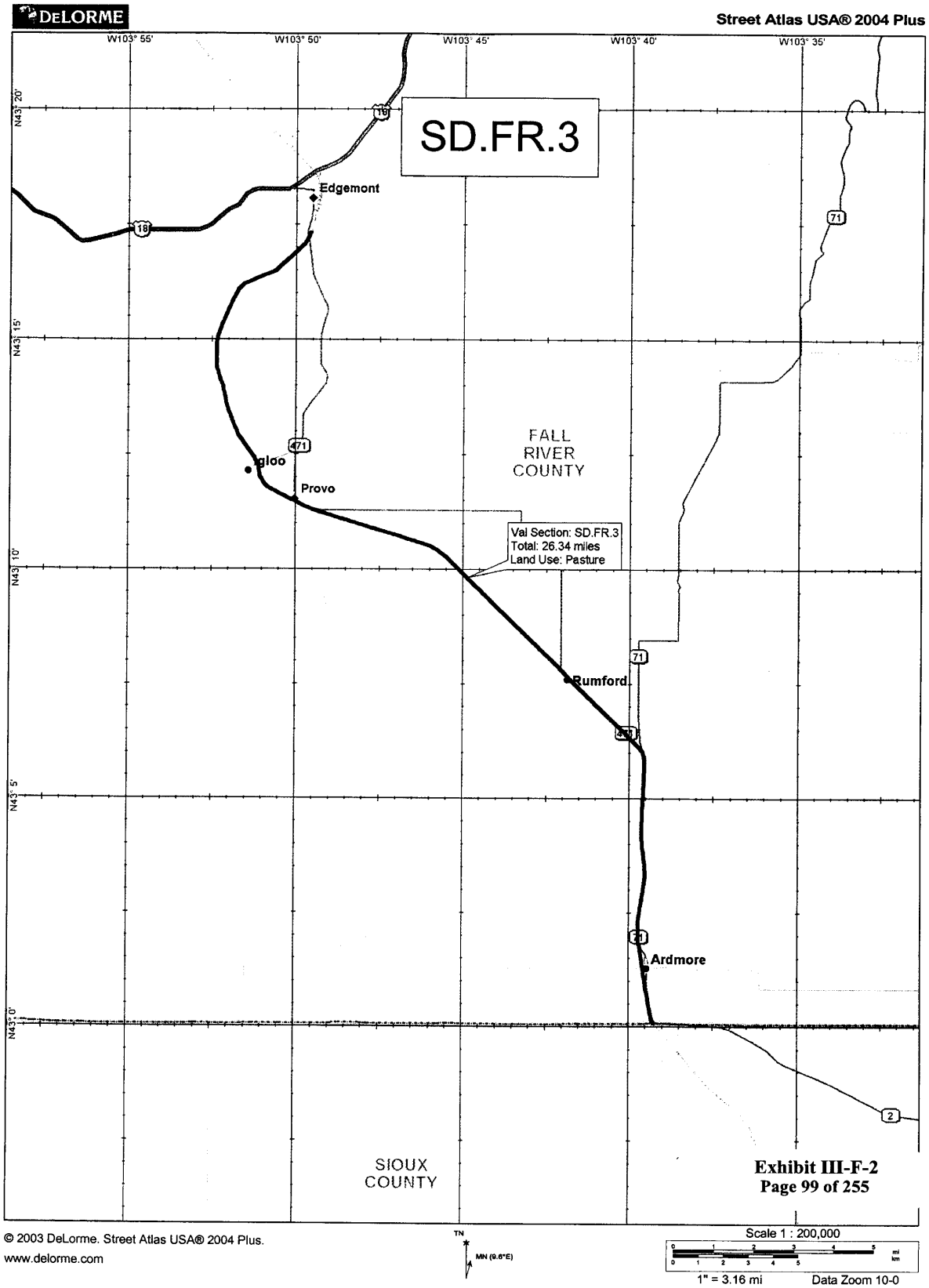

DeLORME
Street Atlas USA® 2004 Plus
W102° 25'
W102° 20'
W102° 15'
OK.CN.7
N36° 40'
N36° 35'
N36° 30'
CIMARRON COUNTY
Conrad
Val Section: OK.CN.7
Total: 20.11 miles
Land Use: Pasture
Kerrick
Exhibit III-F-2
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TN
MN (8.3°E)
Scale 1 : 125,000
1" = 1.97 mi
Data Zoom 10-6

SOUTH DAKOTA


DeLORME
Street Atlas USA® 2004 Plus
SD.CR.1
Wyoming Hill
W104° 3'
W104° 2'
W104° 1'
W104° 0'
W103° 59'
N43° 33'
N43° 32'
N43° 31'
N43° 30'
N43° 29'
DEWEY RD
CR 769
CR 069
CR 769
Dewey
CUSTER COUNTY
CR 769
CR 769
CR 769
CR 769
CR 769
Val Section: SD.CR.1
Total: 6.0 miles
Land Use: Pasture
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TN
MN (9.8°E)
Scale 1 : 37,500
1" = 3,125.0 ft
Data Zoom 12-4


DeLORME
Street Atlas USA® 2004 Plus
SD.FR.1
W104° 2'
W104° 0'
W103° 58'
W103° 56'
W103° 54'
W103° 52'
W103° 50'
N43° 28'
N43° 26'
N43° 24'
N43° 22'
N43° 20'
N43° 18'
CR 789
CR 317
Burdock
CR 6463
Marietta
Val Section: SD.FR.
Total: 15.28 miles
Land Use: Pasture
Breakneck Hill
FALL RIVER COUNTY
18
Edgemont
471
Exhibit III-F-2
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TN
MN (9.8°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0

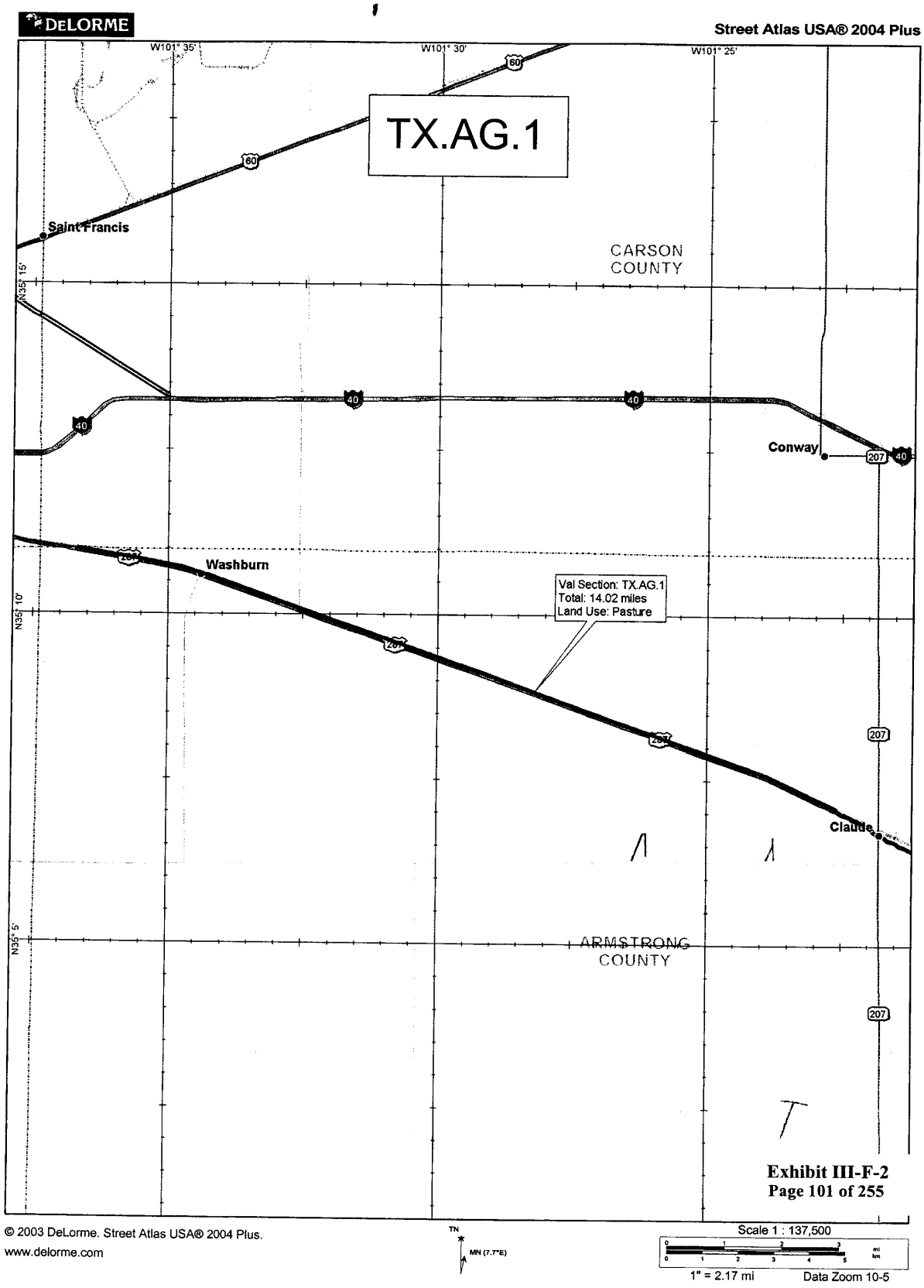

DeLORME
Street Atlas USA® 2004 Plus
SD.FR.2
Dudley
Cheyenne River
Edgemont
Val Section: SD.FR.2
Total: 1.25 miles
Land Use: Transitional
Cottonwood Creek
CR 6N
CR 6E
CR 8E
Exhibit III-F-2
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Scale 1 : 12,800
1" = 1,066.7 ft
Data Zoom 14-0

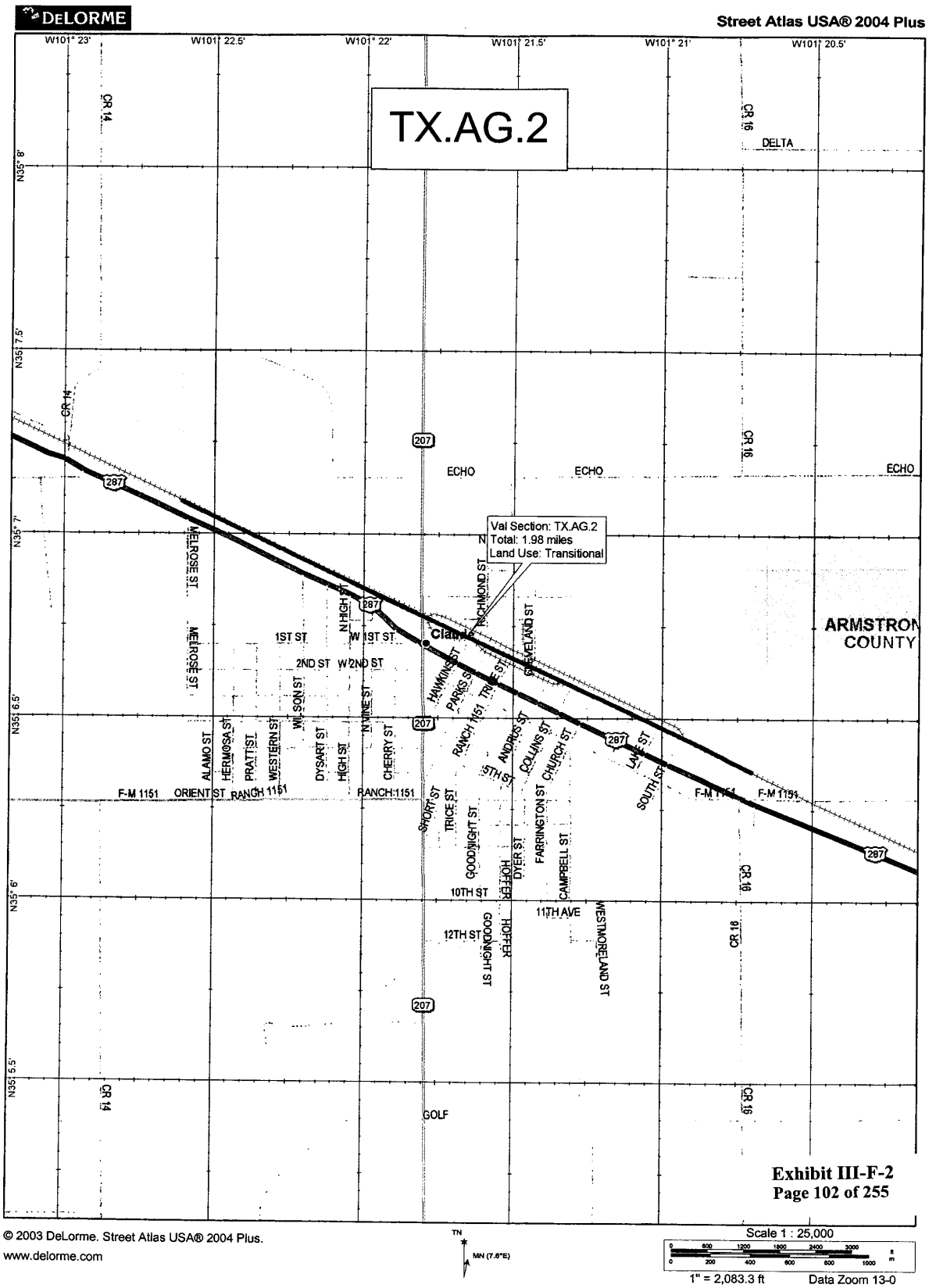


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TEXAS


DeLORME
Street Atlas USA® 2004 Plus
TX.AG.1
W101° 35'
W101° 30'
W101° 25'
N35° 15'
N35° 10'
N35° 5'
Saint Francis
CARSON
COUNTY
Conway
Washburn
Val Section: TX.AG.1
Total: 14.02 miles
Land Use: Pasture
Claude
ARMSTRONG
COUNTY
60
40
207
Exhibit III-F-2
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TN
MN (7.7°E)
Scale 1 : 137,500
1" = 2.17 mi
Data Zoom 10-5


DeLORME
Street Atlas USA® 2004 Plus
TX.AG.2
W101° 23'
W101° 22.5'
W101° 22'
W101° 21.5'
W101° 21'
W101° 20.5'
N35° 8'
N35° 7.5'
N35° 7'
N35° 6.5'
N35° 6'
N35° 5.5'
CR 14
CR 16
DELTA
ECHO
ECHO
ECHO
207
287
Val Section: TX.AG.2
Total: 1.98 miles
Land Use: Transitional
ARMSTRON
COUNTY
MERRIMAC ST
MERRIMAC ST
N HIGH ST
1ST ST
W 1ST ST
2ND ST
W 2ND ST
WILSON ST
N NINE ST
RICHMOND ST
CLEVELAND ST
HAWKINS ST
PARKS ST
TRUE ST
RANCH HST
ANDRUS ST
COLLINS ST
CHURCH ST
LAKE ST
SOUTH ST
5TH ST
ALAMO ST
HERMOSA ST
PRATT ST
WESTERN ST
DYSART ST
HIGH ST
CHERRY ST
F-M 1151
ORIENT ST
RANCH 1151
RANCH:1151
SHORT ST
TRICE ST
GOODNIGHT ST
HOPPER
DYER ST
FARRINGTON ST
CAMPBELL ST
10TH ST
11TH AVE
12TH ST
WESTMORELAND ST
GOLF
Exhibit III-F-2
Page 102 of 255
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TN
MN (7.6°E)
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0

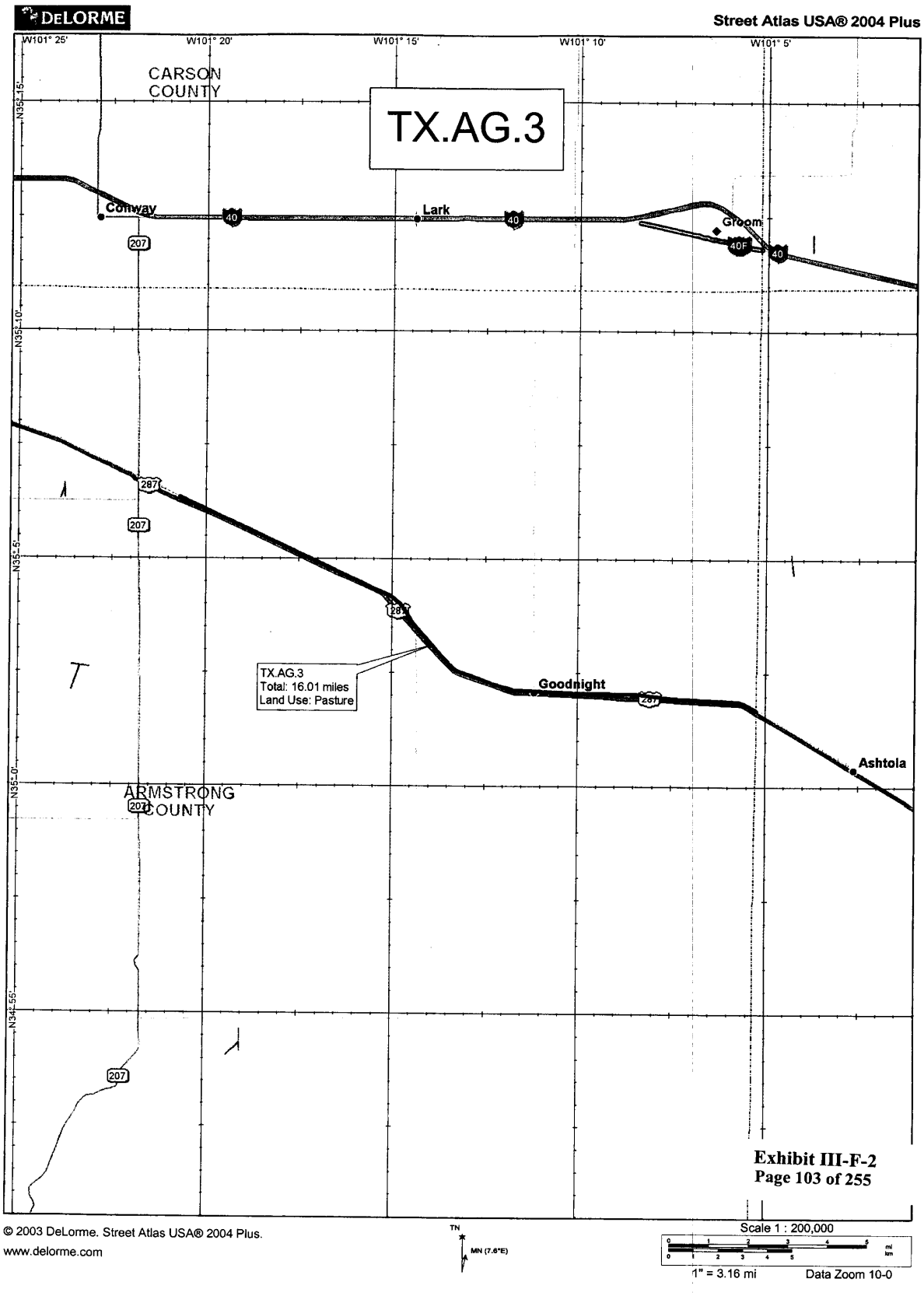
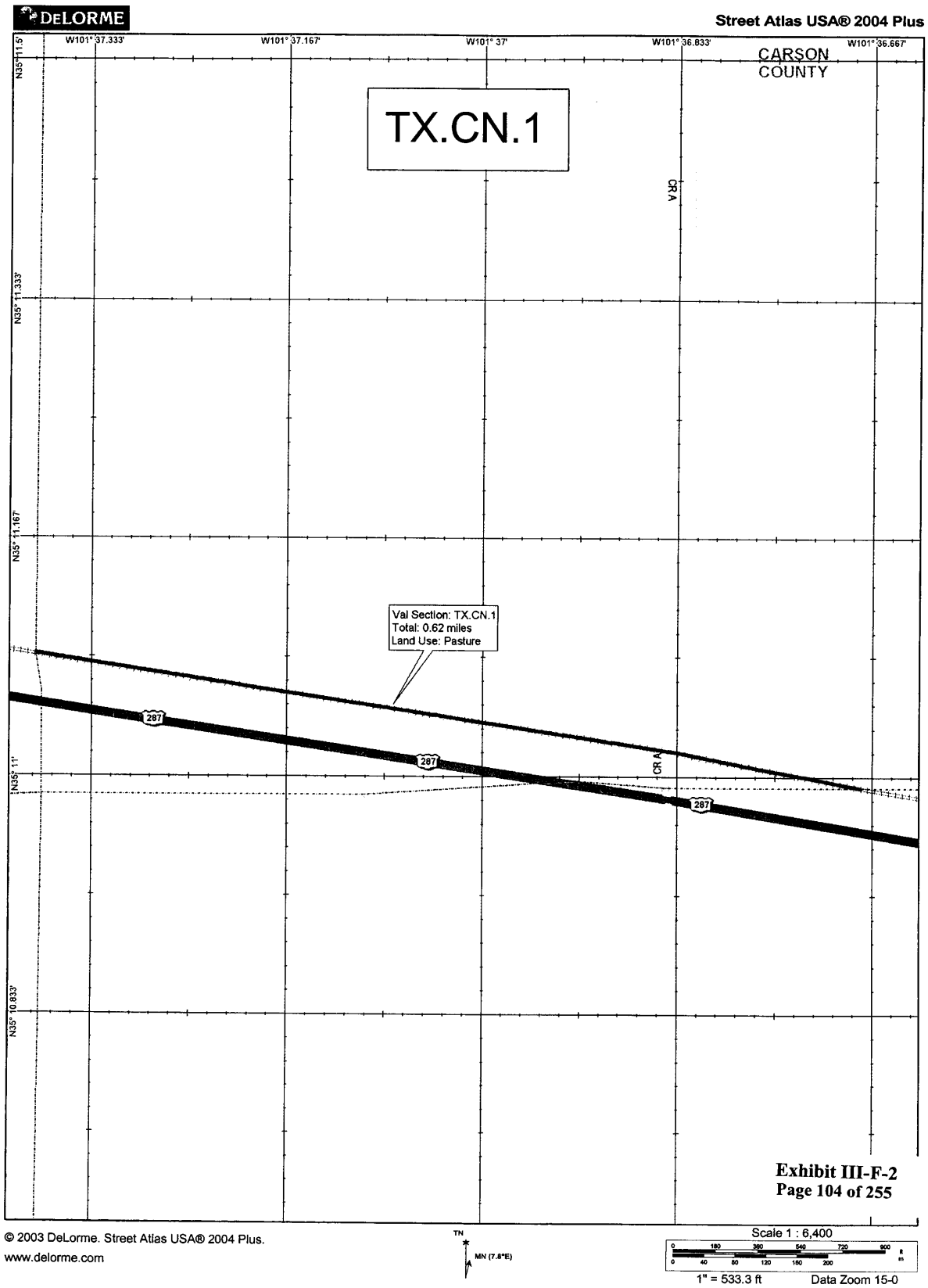
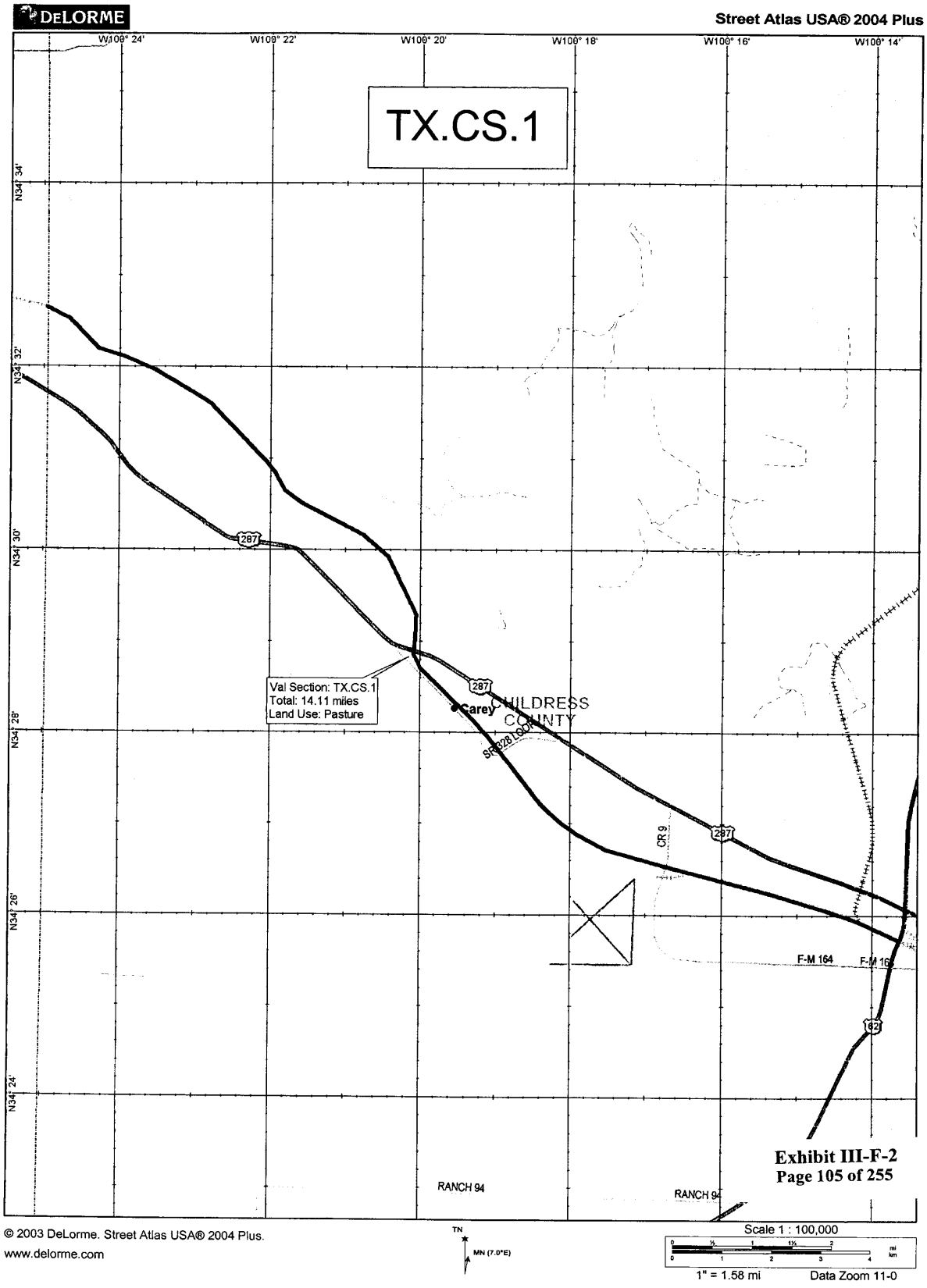
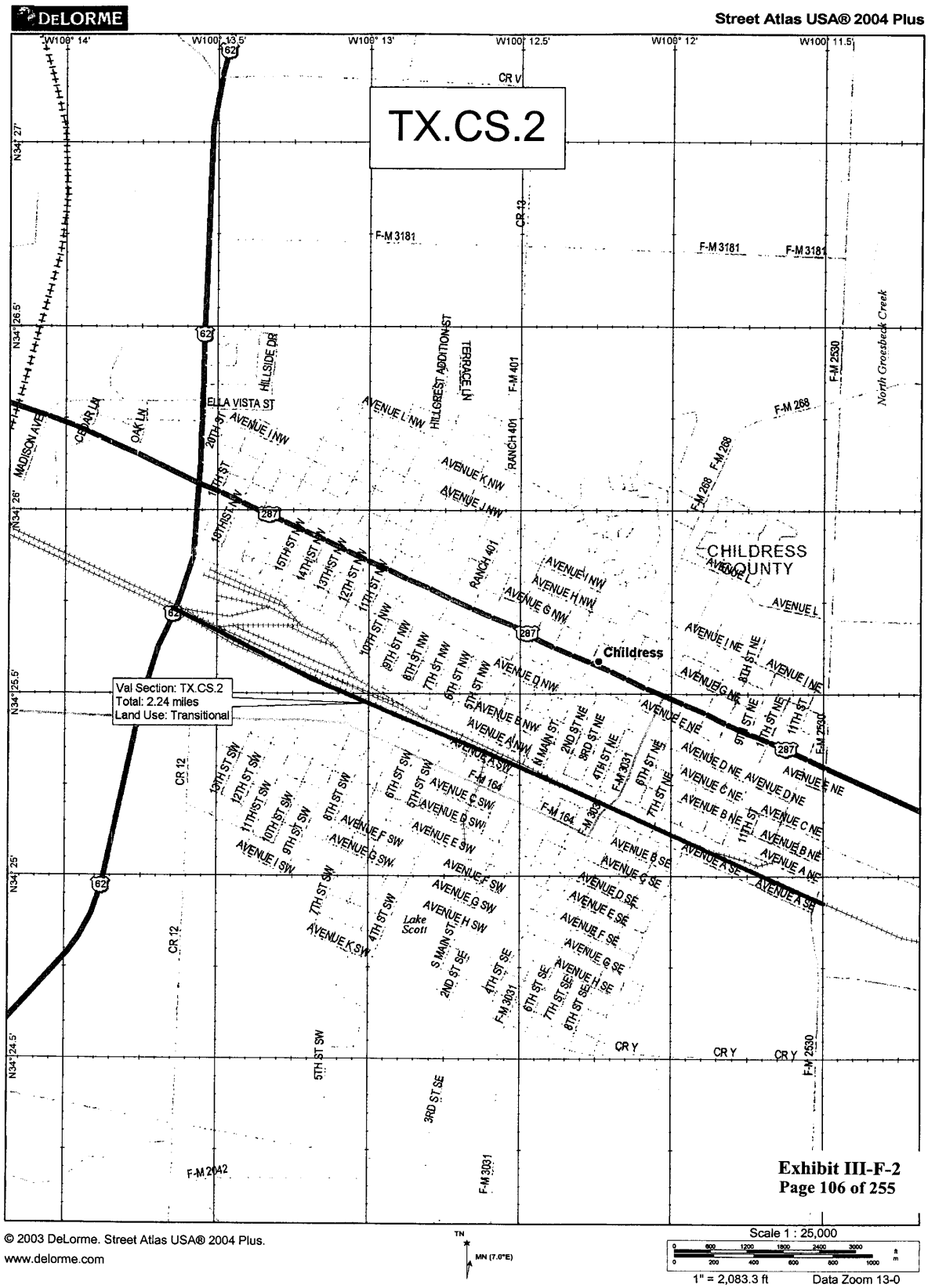
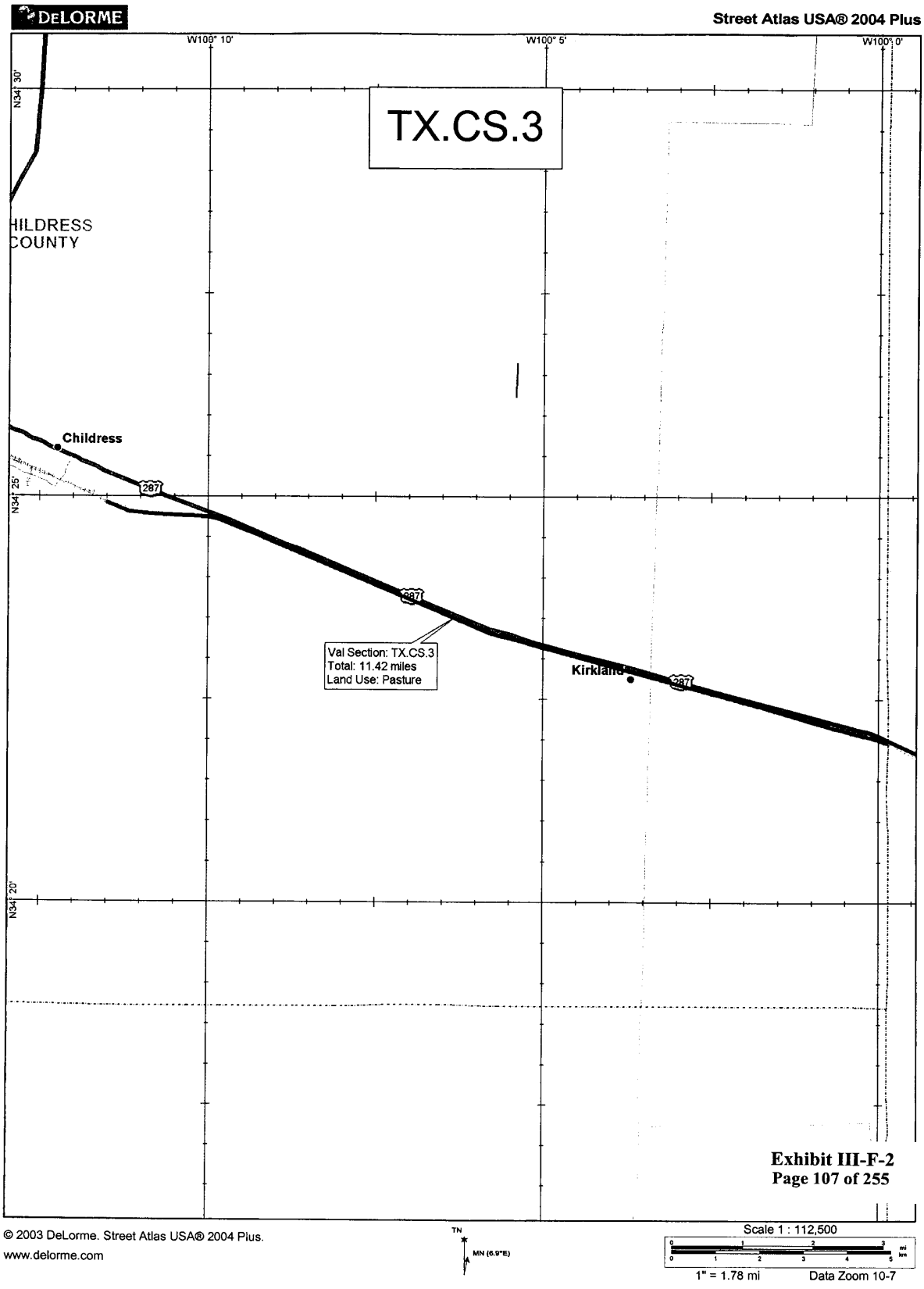


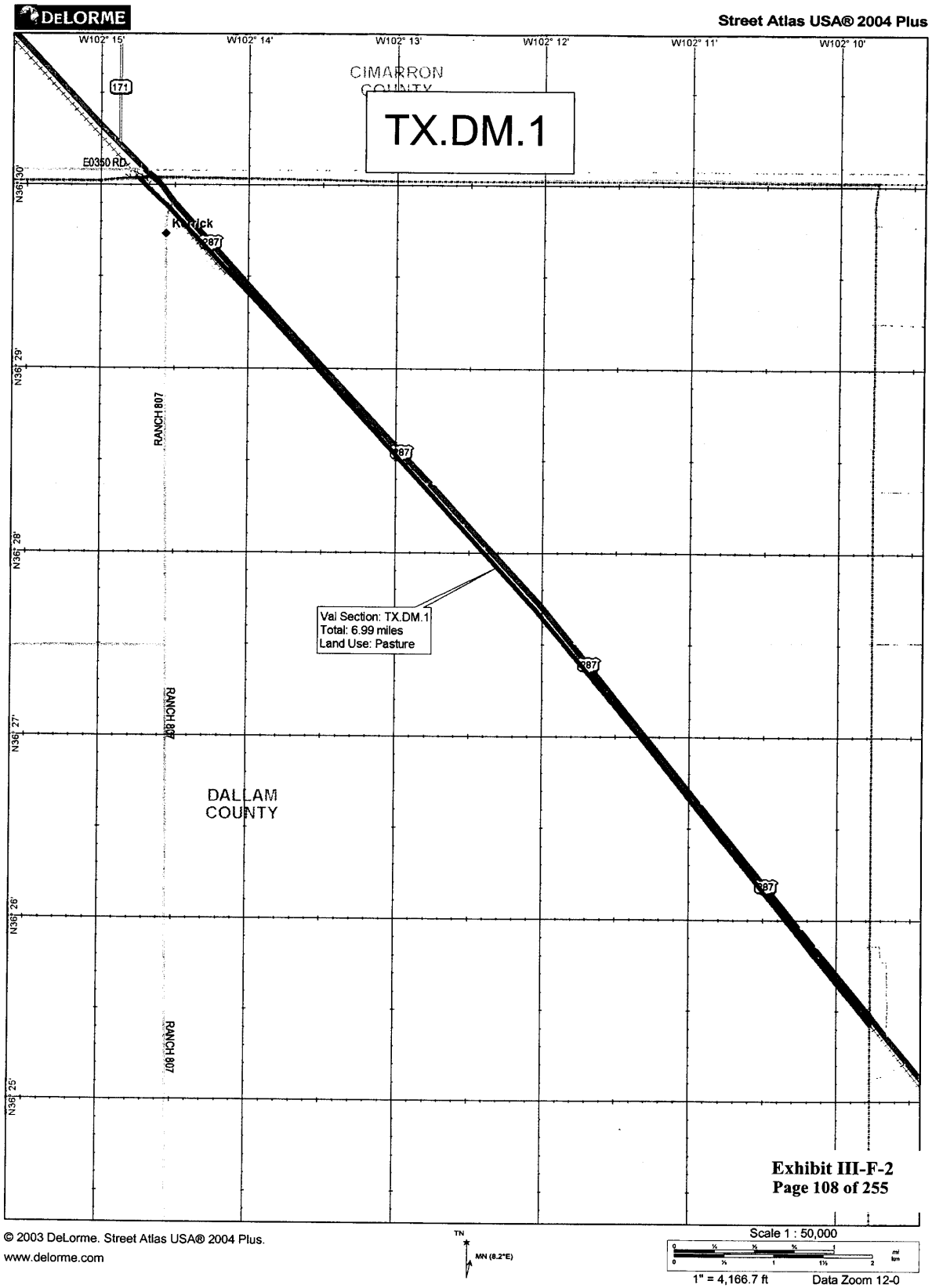
Exhibit III-F-2
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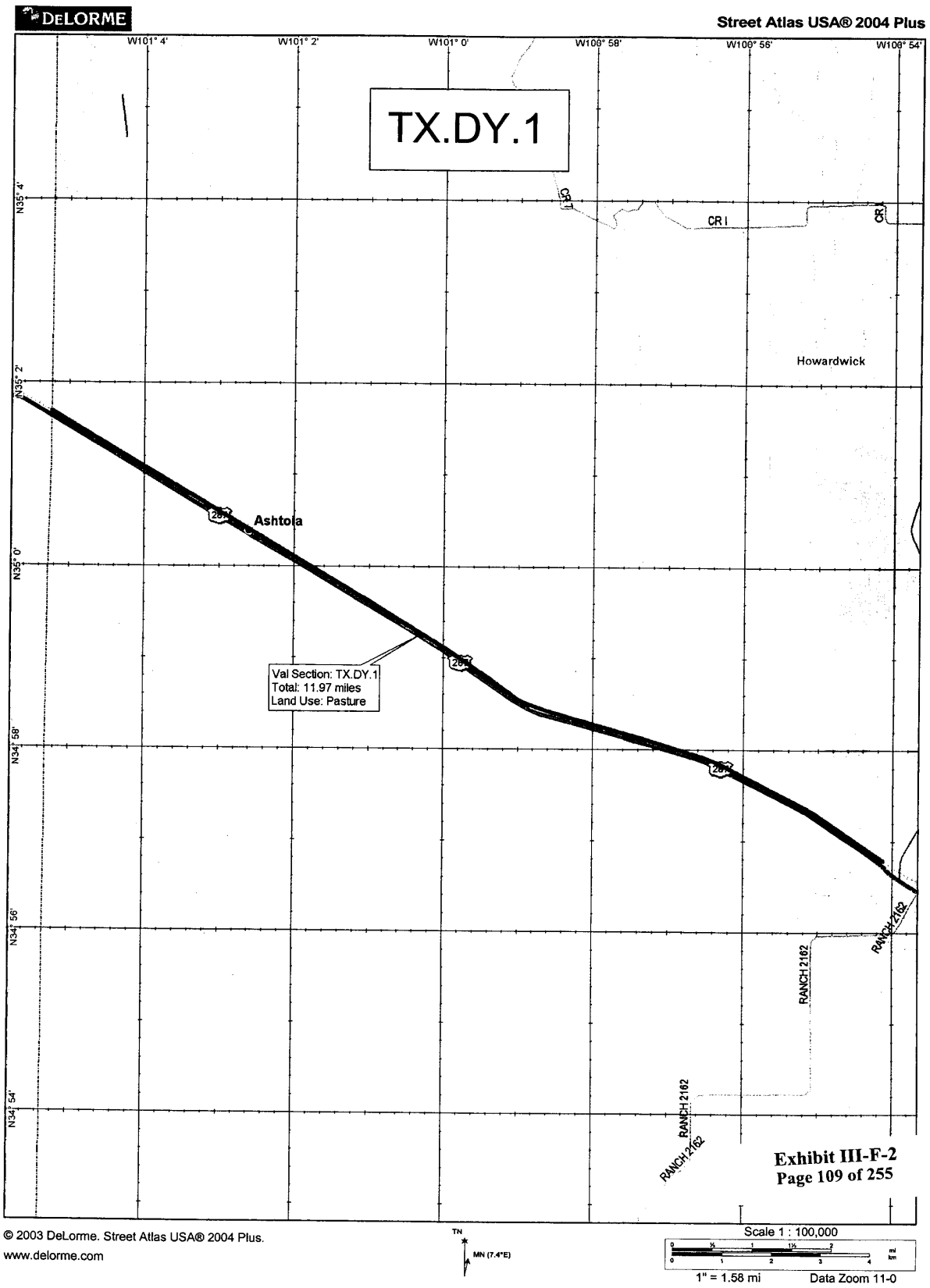

DeLORME
Street Atlas USA® 2004 Plus
W101° 37.333'
W101° 37.167'
W101° 37'
W101° 36.833'
W101° 36.667'
N35° 11.5'
N35° 11.333'
N35° 11.167'
N35° 11'
N35° 10.833'
CARSON
COUNTY
TX.CN.1
CR A
Val Section: TX.CN.1
Total: 0.62 miles
Land Use: Pasture
287
287
287
CR A
Exhibit III-F-2
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TN
MN (7.6°E)
Scale 1 : 6,400
0 180 360 540 720 900 ft
0 40 80 120 160 200 m
1" = 533.3 ft
Data Zoom 15-0

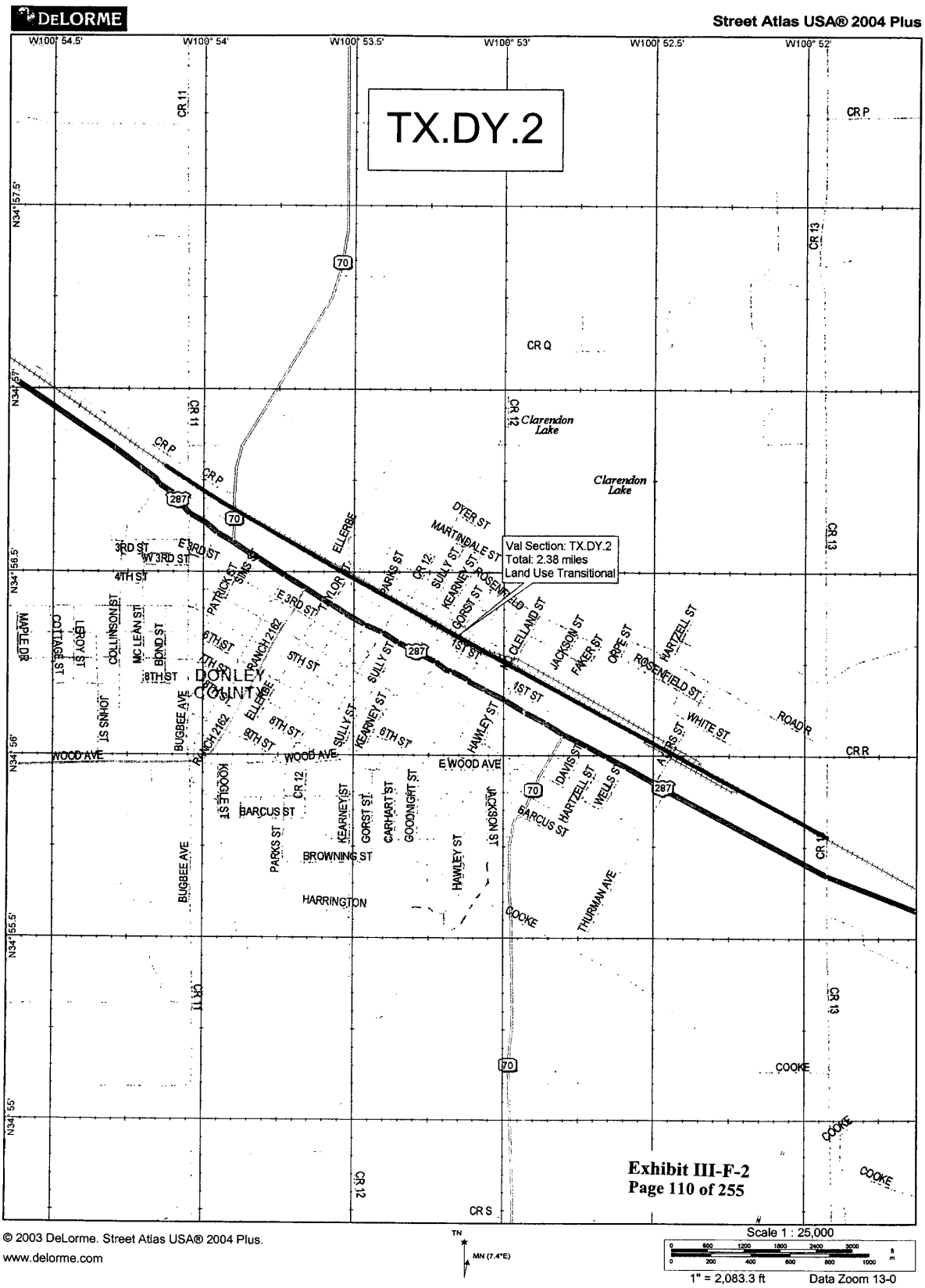

DeLORME
Street Atlas USA® 2004 Plus
TX.CS.1
W100° 24'
W100° 22'
W100° 20'
W100° 18'
W100° 16'
W100° 14'
N34° 34'
N34° 32'
N34° 30'
N34° 28'
N34° 26'
N34° 24'
287
Val Section: TX.CS.1
Total: 14.11 miles
Land Use: Pasture
Carey
HILDRESS COUNTY
SR 928 LOOP
CR 9
F-M 164
F-M 165
82
RANCH 94
RANCH 9
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TN
MN (7.0°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0

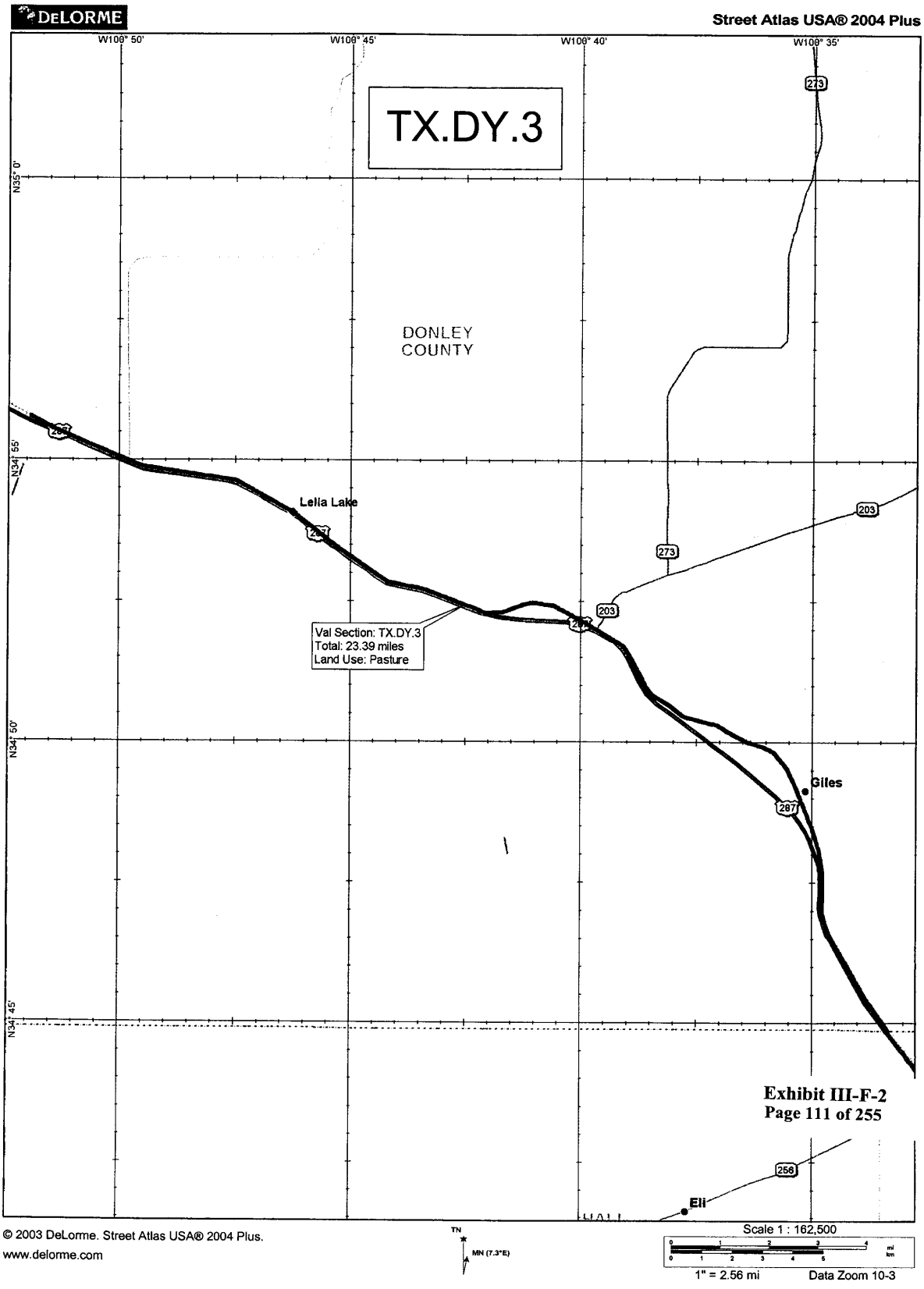

DeLORME
Street Atlas USA® 2004 Plus
TX.CS.2
Val Section: TX.CS.2
Total: 2.24 miles
Land Use: Transitional
Childress
CHILDRESS COUNTY
Lake Scott
North Groesbeck Creek
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0
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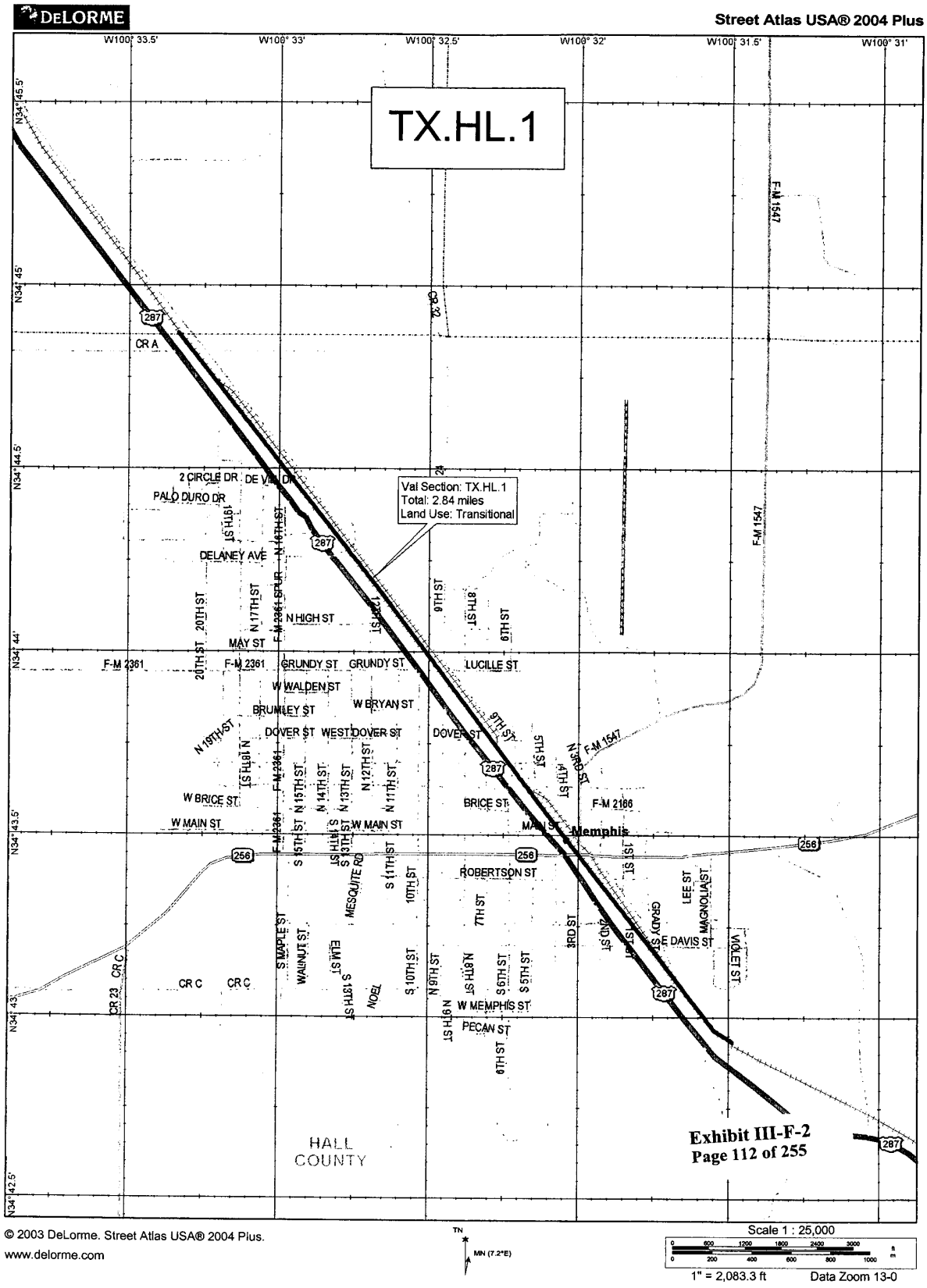

DeLORME
Street Atlas USA® 2004 Plus
W100° 10'
W100° 5'
W100° 0'
N34° 30'
N34° 25'
N34° 20'
TX.CS.3
HILDRESS
COUNTY
Childress
287
287
287
Val Section: TX.CS.3
Total: 11.42 miles
Land Use: Pasture
Kirkland
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TN
MN (6.9°E)
Scale 1 : 112,500
1" = 1.78 mi
Data Zoom 10-7

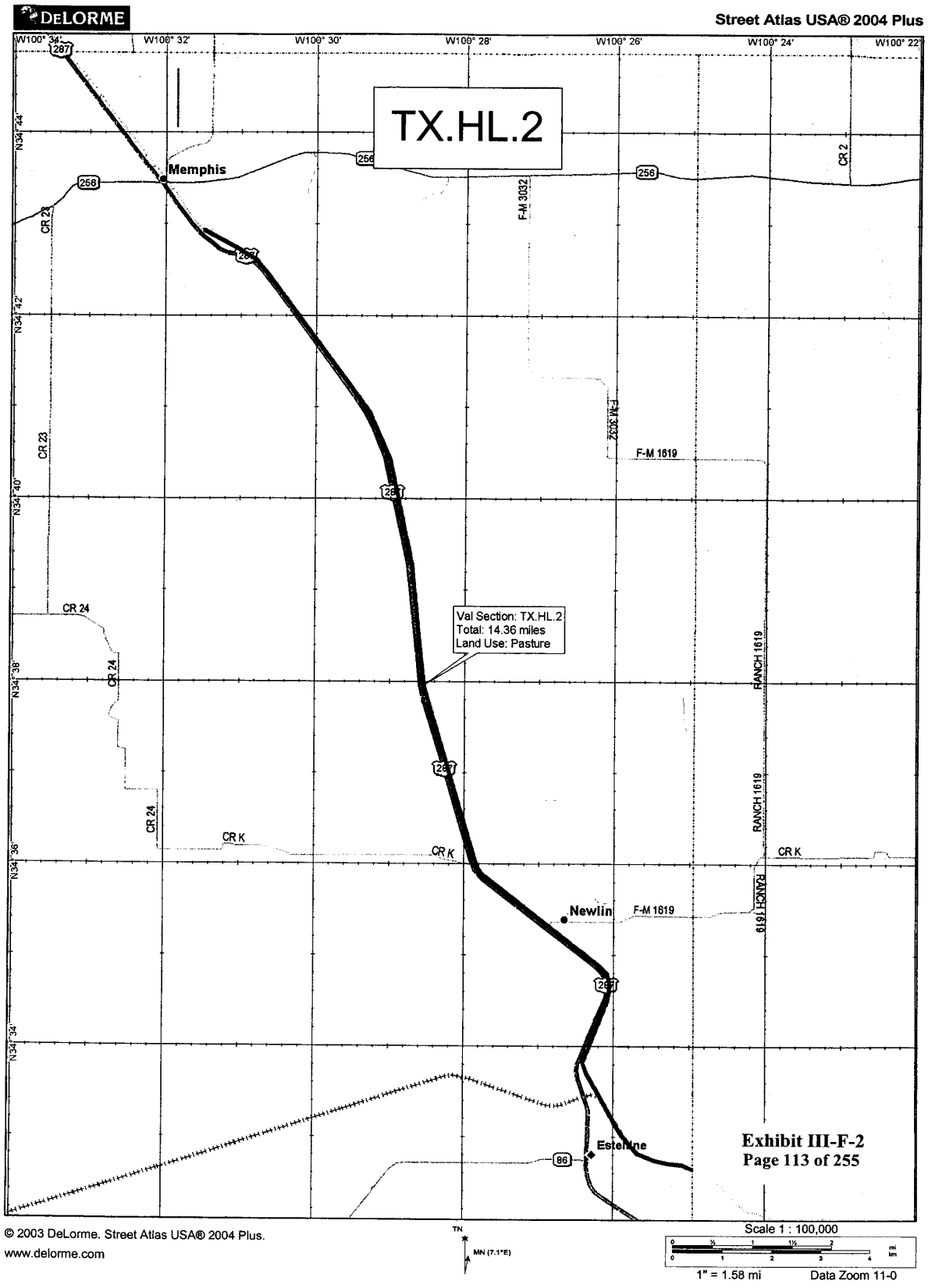

DELORME
Street Atlas USA® 2004 Plus
W102° 15'
W102° 14'
W102° 13'
W102° 12'
W102° 11'
W102° 10'
CIMARRON
COUNTY
TX.DM.1
171
E0350 RD
N36° 30'
N36° 29'
N36° 28'
N36° 27'
N36° 26'
N36° 25'
RANCH 807
RANCH 807
RANCH 807
287
287
287
287
Val Section: TX.DM.1
Total: 6.99 miles
Land Use: Pasture
DALLAM
COUNTY
Exhibit III-F-2
Page 108 of 255
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www.delorme.com
TN
MN (8.2°E)
Scale 1 : 50,000
1" = 4,166.7 ft
Data Zoom 12-0

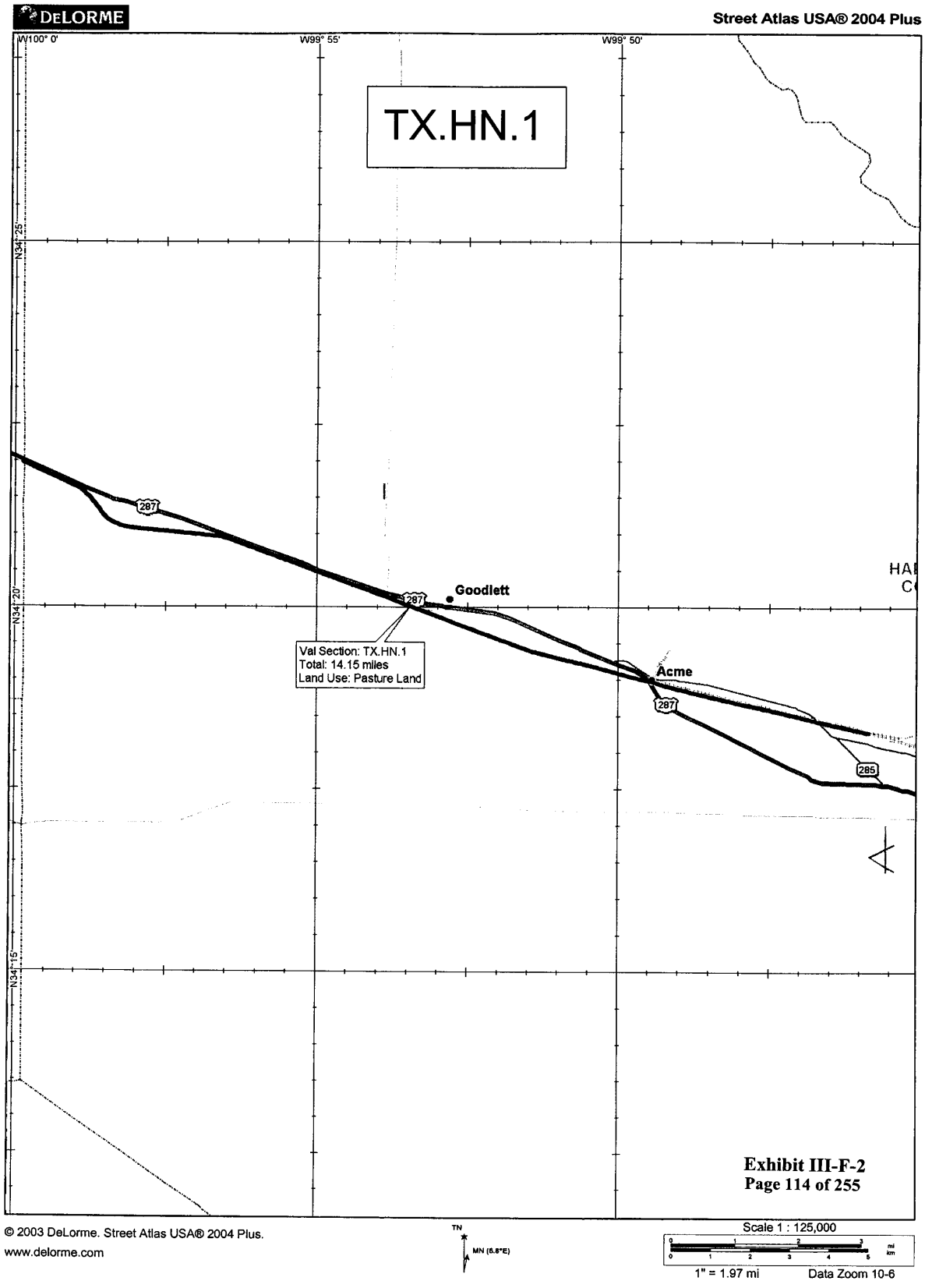

DeLORME
Street Atlas USA® 2004 Plus
TX.DY.1
W101° 4'
W101° 2'
W101° 0'
W100° 58'
W100° 56'
W100° 54'
N35° 4'
N35° 2'
N35° 0'
N34° 58'
N34° 56'
N34° 54'
CR I
CR I
CR I
Howardwick
Ashtola
Val Section: TX.DY.1
Total: 11.97 miles
Land Use: Pasture
RANCH 2162
RANCH 2162
RANCH 2162
RANCH 2162
Exhibit III-F-2
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TN
MN (7.4°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0

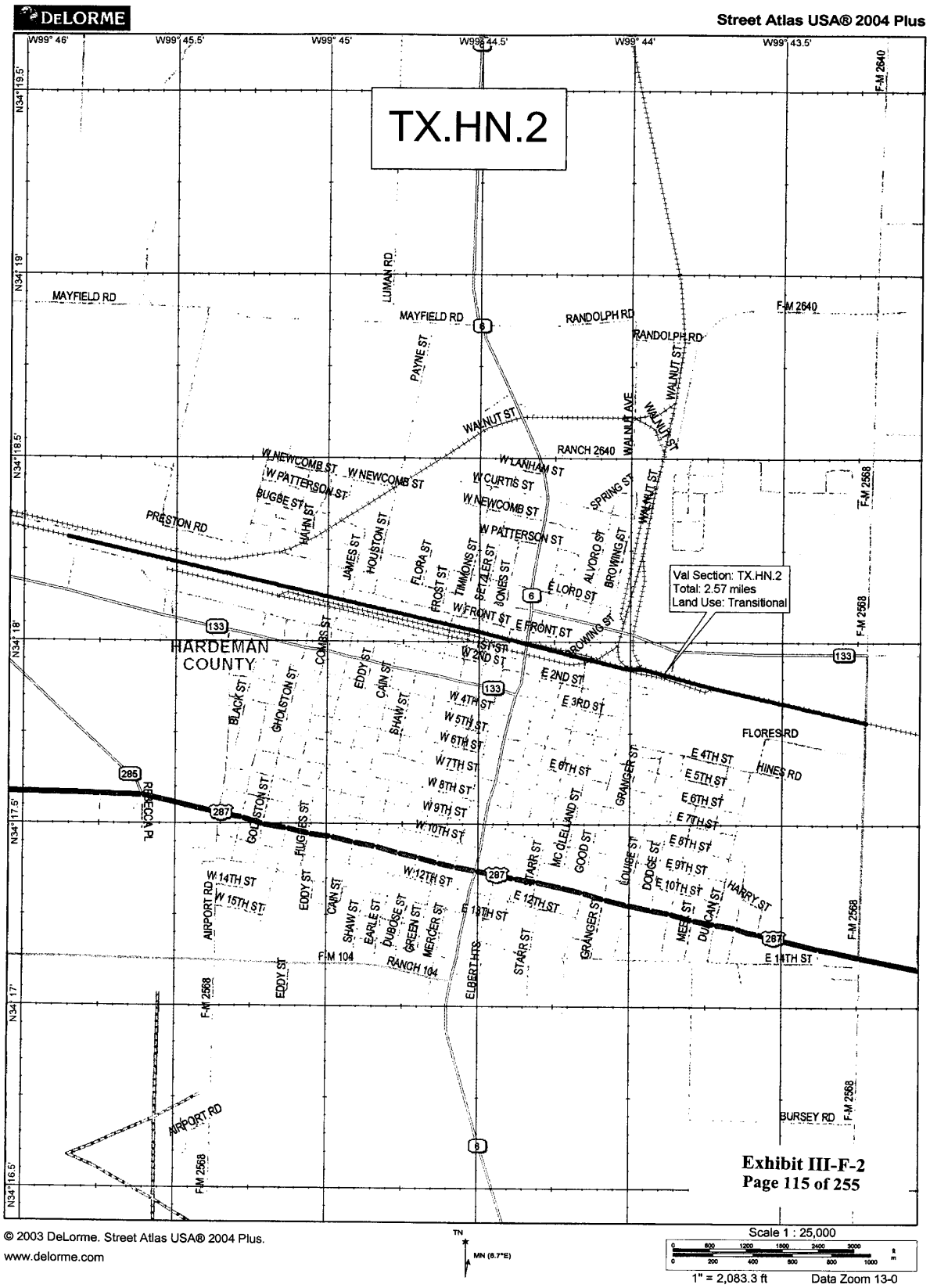

DeLORME
Street Atlas USA® 2004 Plus
TX.DY.2
Val Section: TX.DY.2
Total: 2.38 miles
Land Use Transitional
Clarendon Lake
DONLEY COUNTY
HARRINGTON
BROWNING ST
BARCUS ST
E WOOD AVE
WOOD AVE
3RD ST
W 3RD ST
E 3RD ST
4TH ST
5TH ST
6TH ST
8TH ST
1ST ST
DYER ST
MARTINDALE ST
ELLERBE
PARKS ST
SULLY ST
KEARNEY ST
GORST ST
ROSENFIELD ST
CLELLAND ST
JACKSON ST
FAKER ST
ORPE ST
HARTZELL ST
WHITE ST
ROAD R
HAWLEY ST
DAVIS ST
WELLS ST
THURMAN AVE
COOKE
BUGBEE AVE
RANCH 2162
PATRICK ST
SIMS ST
COLLINSON ST
MC LEAN ST
BOND ST
LEROY ST
COTTAGE ST
MAPLE DR
JOHNS ST
GOOGLE ST
CARHART ST
GOODNIGHT ST
CR 11
CR 12
CR 13
CR P
CR Q
CR R
CR S
70
287
Exhibit III-F-2
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TN
MN (7.4°E)
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0

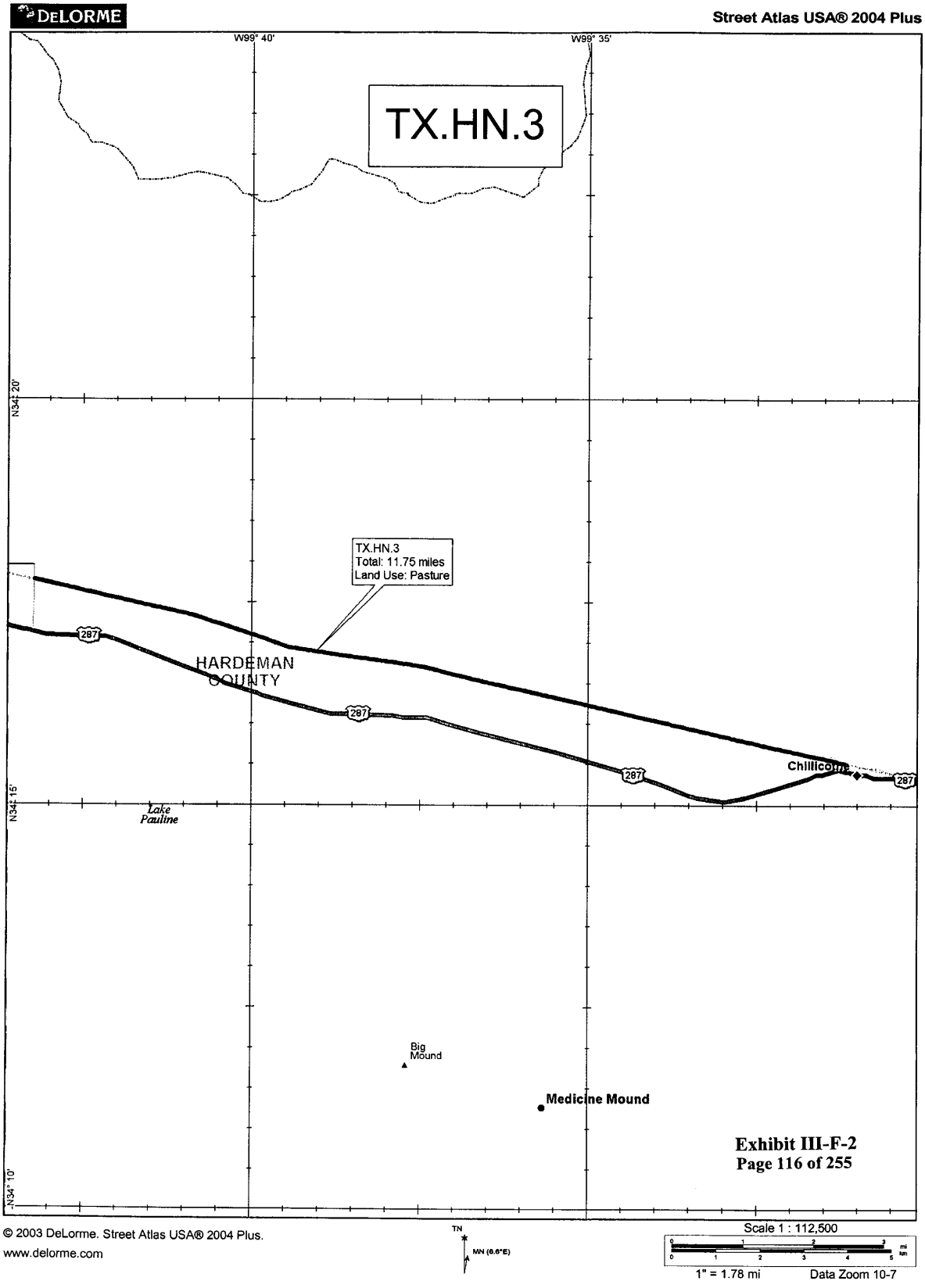

DeLORME
Street Atlas USA® 2004 Plus
TX.DY.3
W100° 50'
W100° 45'
W100° 40'
W100° 35'
N35° 0'
N34° 55'
N34° 50'
N34° 45'
DONLEY
COUNTY
Lelia Lake
Giles
Eli
273
203
287
256
Val Section: TX.DY.3
Total: 23.39 miles
Land Use: Pasture
Exhibit III-F-2
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TN
MN (7.3°E)
Scale 1 : 162,500
1" = 2.56 mi
Data Zoom 10-3

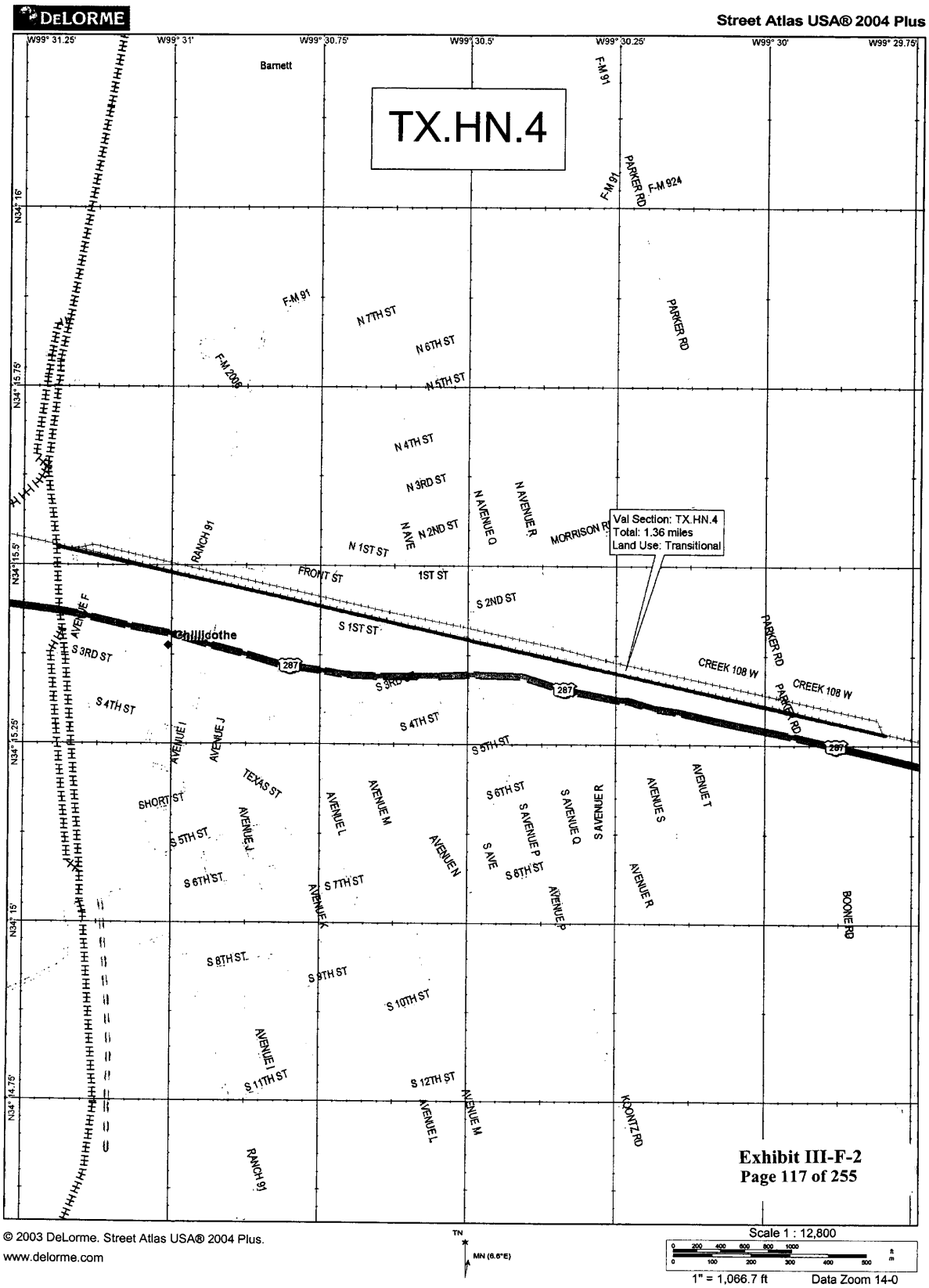

DeLORME
Street Atlas USA® 2004 Plus
TX.HL.1
Val Section: TX.HL.1
Total: 2.84 miles
Land Use: Transitional
Memphis
HALL
COUNTY
Exhibit III-F-2
Page 112 of 255
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www.delorme.com
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0


DeLORME
Street Atlas USA® 2004 Plus
TX.HL.2
W100° 34'
W100° 32'
W100° 30'
W100° 28'
W100° 26'
W100° 24'
W100° 22'
N34° 44'
N34° 42'
N34° 40'
N34° 38'
N34° 36'
N34° 34'
Memphis
Newlin
Estelline
287
256
86
CR 2
CR 23
CR 24
CR K
F-M 3032
F-M 1619
RANCH 1619
Val Section: TX.HL.2
Total: 14.36 miles
Land Use: Pasture
Exhibit III-F-2
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TN
MN (7.1°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0


DeLORME
Street Atlas USA® 2004 Plus
W100° 0'
W99° 55'
W99° 50'
TX.HN.1
N34° 25'
N34° 20'
N34° 15'
287
Goodlett
Val Section: TX.HN.1
Total: 14.15 miles
Land Use: Pasture Land
Acme
285
Exhibit III-F-2
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TN
MN (6.8°E)
Scale 1 : 125,000
1" = 1.97 mi
Data Zoom 10-6


DeLORME
Street Atlas USA® 2004 Plus
TX.HN.2
W99° 46'
W99° 45.5'
W99° 45'
W99° 44.5'
W99° 44'
W99° 43.5'
N34° 19.5'
N34° 19'
N34° 18.5'
N34° 18'
N34° 17.5'
N34° 17'
N34° 16.5'
MAYFIELD RD
LUMAN RD
PAYNE ST
RANDOLPH RD
F-M 2640
WALNUT ST
WALNUT AVE
RANCH 2640
W NEWCOMB ST
W PATTERSON ST
W CURTIS ST
W LANHAM ST
BUGBE ST
HAHN ST
PRESTON RD
JAMES ST
HOUSTON ST
FLORA ST
FROST ST
TIMMONS ST
SPEAKER ST
JONES ST
E LORD ST
ALVORD ST
BROWNING ST
SPRING ST
F-M 2568
Val Section: TX.HN.2
Total: 2.57 miles
Land Use: Transitional
HARDEMAN
COUNTY
W FRONT ST
E FRONT ST
W 1ST ST
W 2ND ST
E 2ND ST
E 3RD ST
W 4TH ST
W 5TH ST
W 6TH ST
W 7TH ST
E 6TH ST
W 8TH ST
W 9TH ST
W 10TH ST
W 12TH ST
E 12TH ST
E 13TH ST
W 14TH ST
W 15TH ST
COMBS ST
BLACK ST
GHOLSTON ST
EDDY ST
CAIN ST
SHAW ST
EARLE ST
DUBOSE ST
GREEN ST
MERCER ST
STARR ST
MC CLELLAND ST
GOOD ST
GRANGER ST
DODGE ST
DUNCAN ST
HARRY ST
E 4TH ST
E 5TH ST
E 6TH ST
E 7TH ST
E 8TH ST
E 9TH ST
E 10TH ST
E 14TH ST
FLORES RD
HINES RD
RIDDOCH PL
AIRPORT RD
F-M 104
RANCH 104
ELBERT HTS
BURSEY RD
133
287
285
6
8
Exhibit III-F-2
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TN
MN (6.7°E)
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0


DeLORME
Street Atlas USA® 2004 Plus
W99° 40'
W99° 35'
TX.HN.3
N34° 20'
TX.HN.3
Total: 11.75 miles
Land Use: Pasture
287
HARDEMAN
COUNTY
287
287
Chillicothe
287
N34° 15'
Lake
Pauline
Big
Mound
Medicine Mound
N34° 10'
Exhibit III-F-2
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TN
MN (6.6°E)
Scale 1 : 112,500
1" = 1.78 mi
Data Zoom 10-7



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DeLORME

Street Atlas USA® 2004 Plus

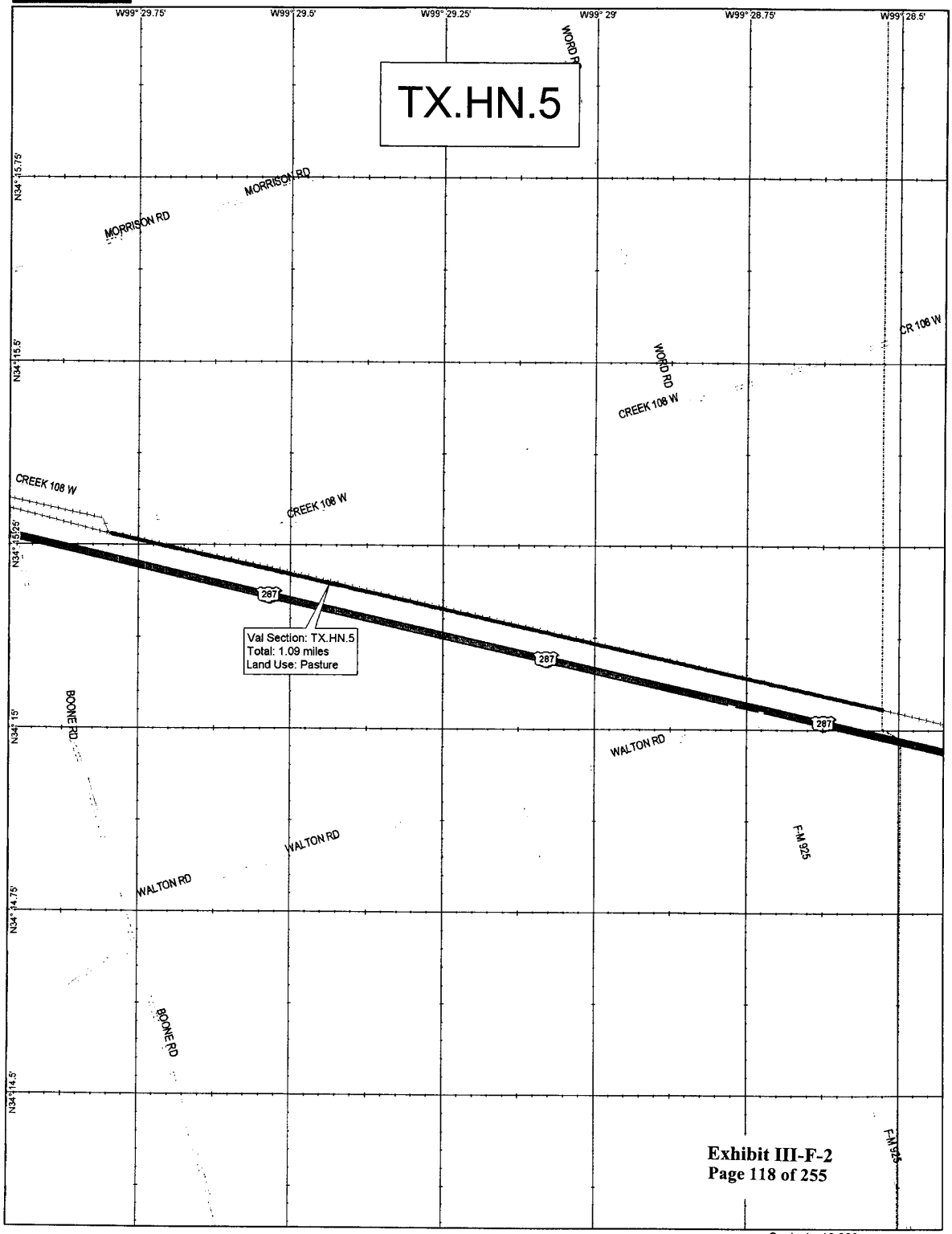
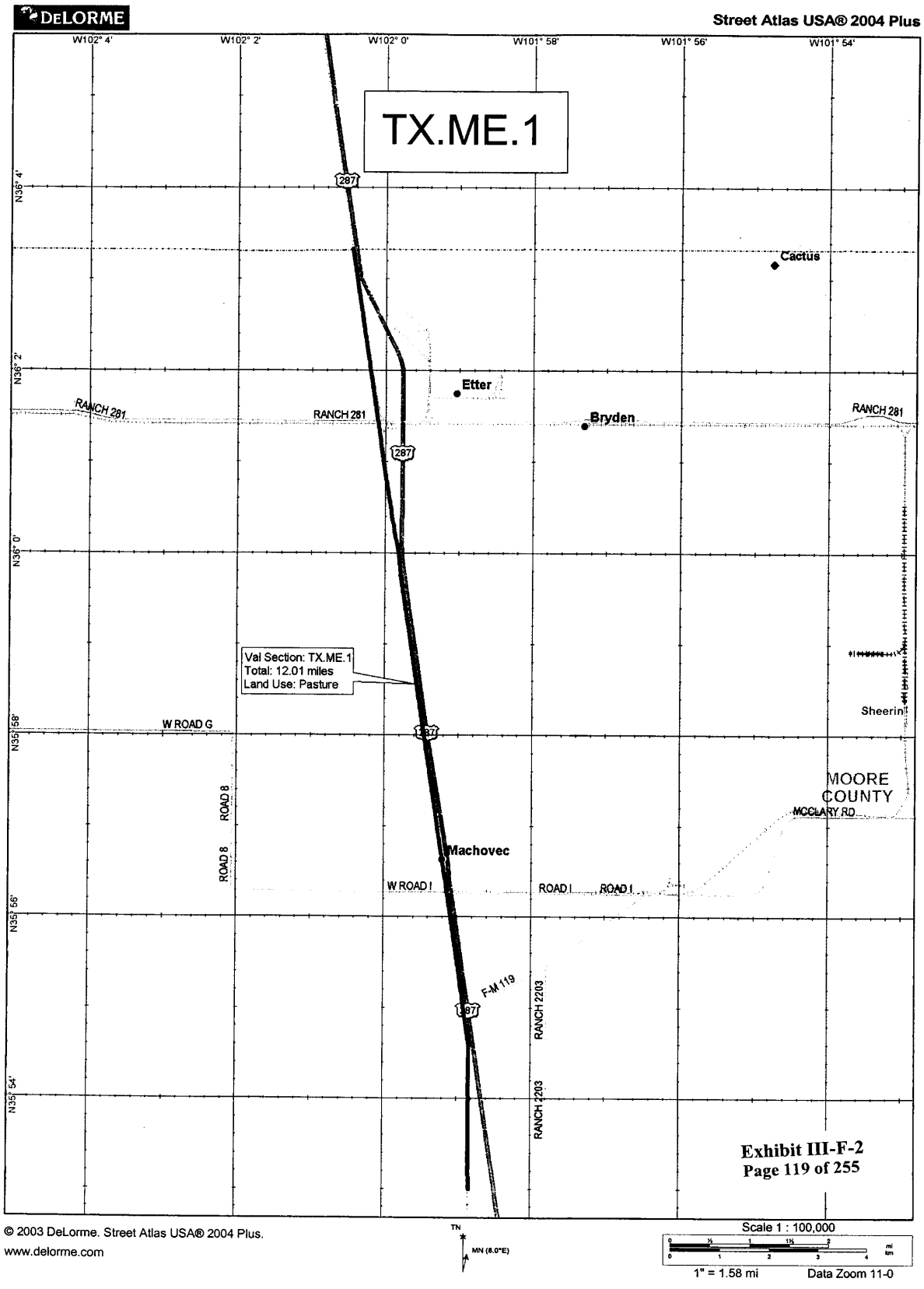


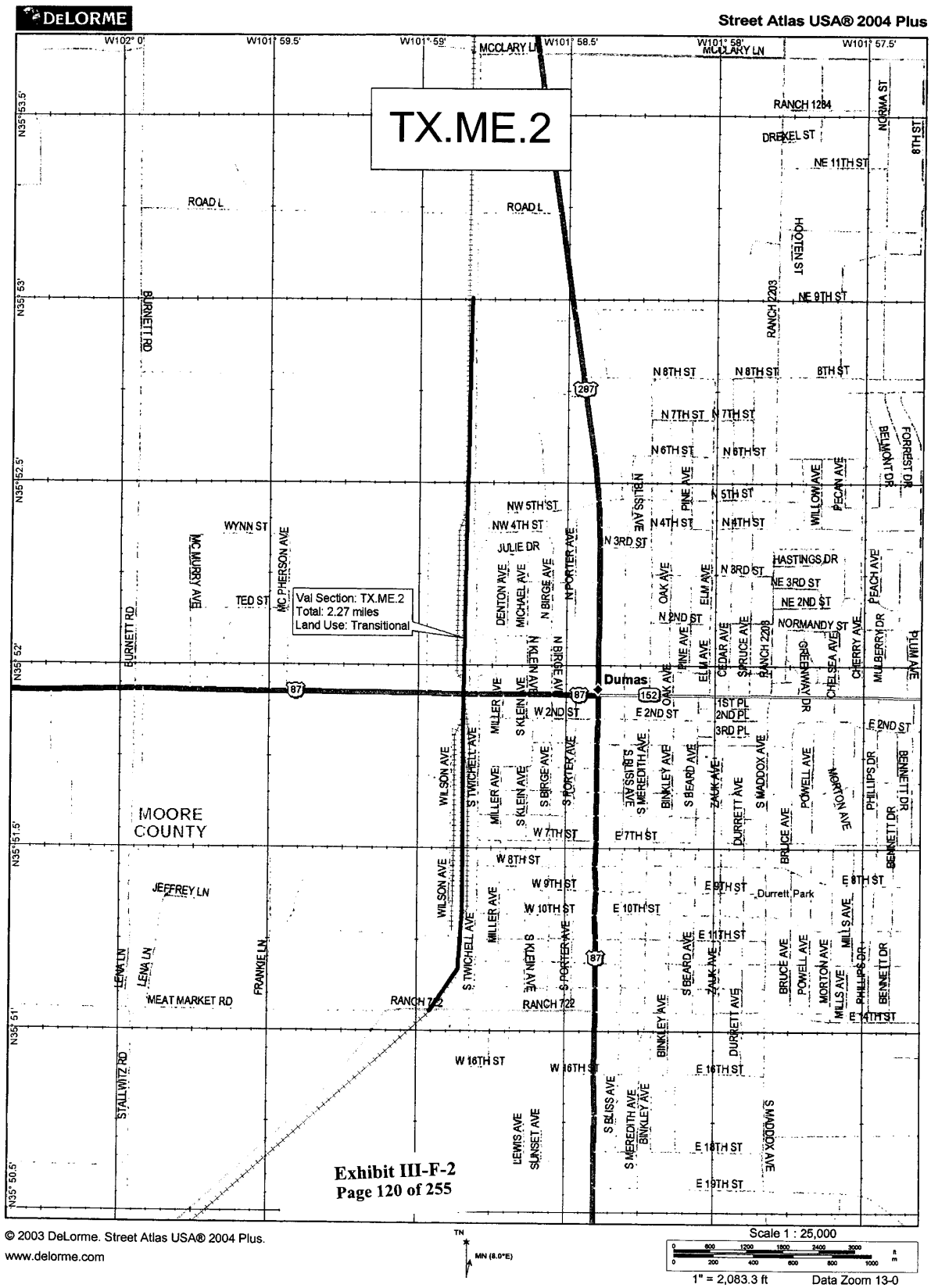
Exhibit III-F-2
Page 118 of 255

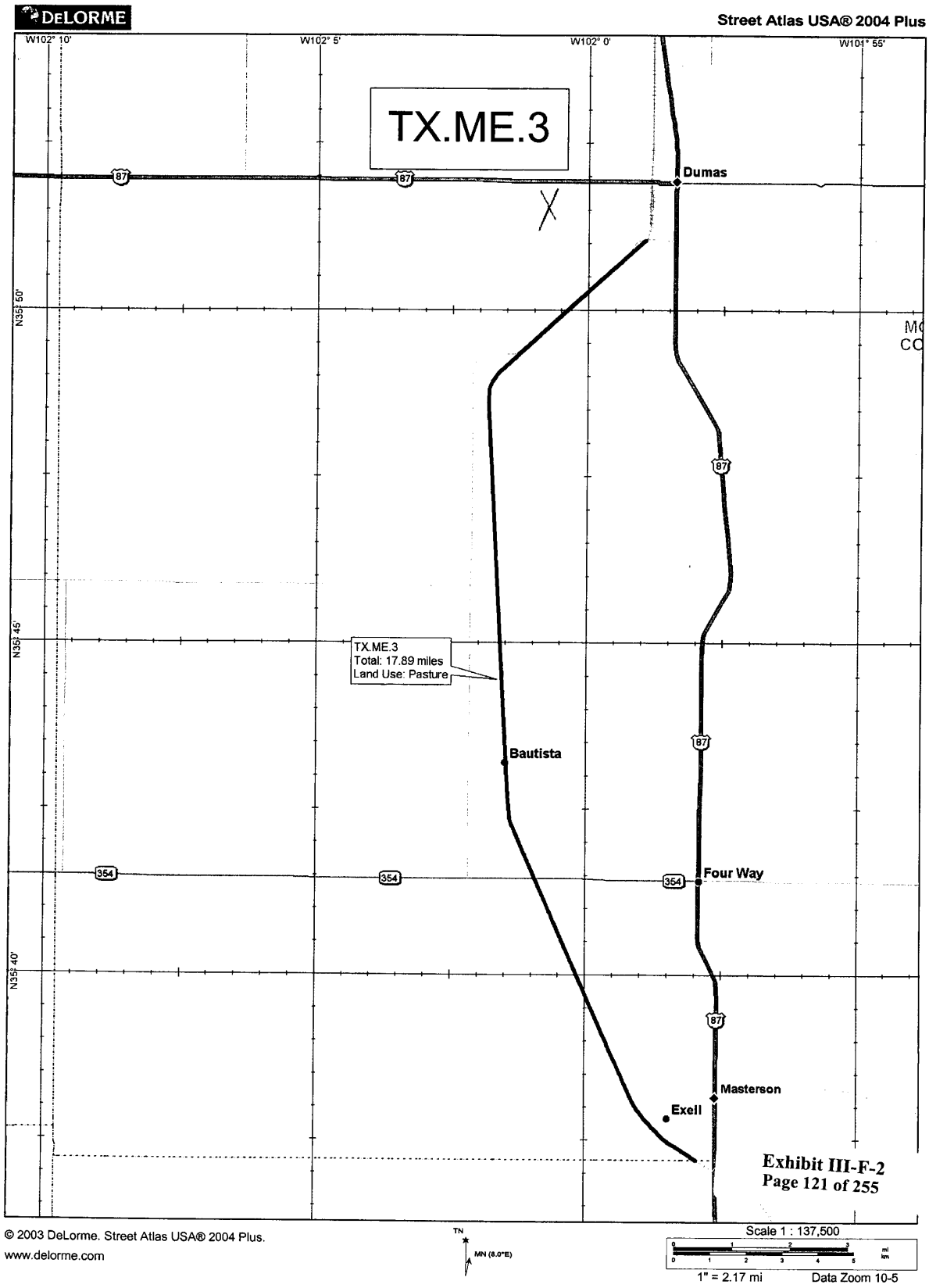
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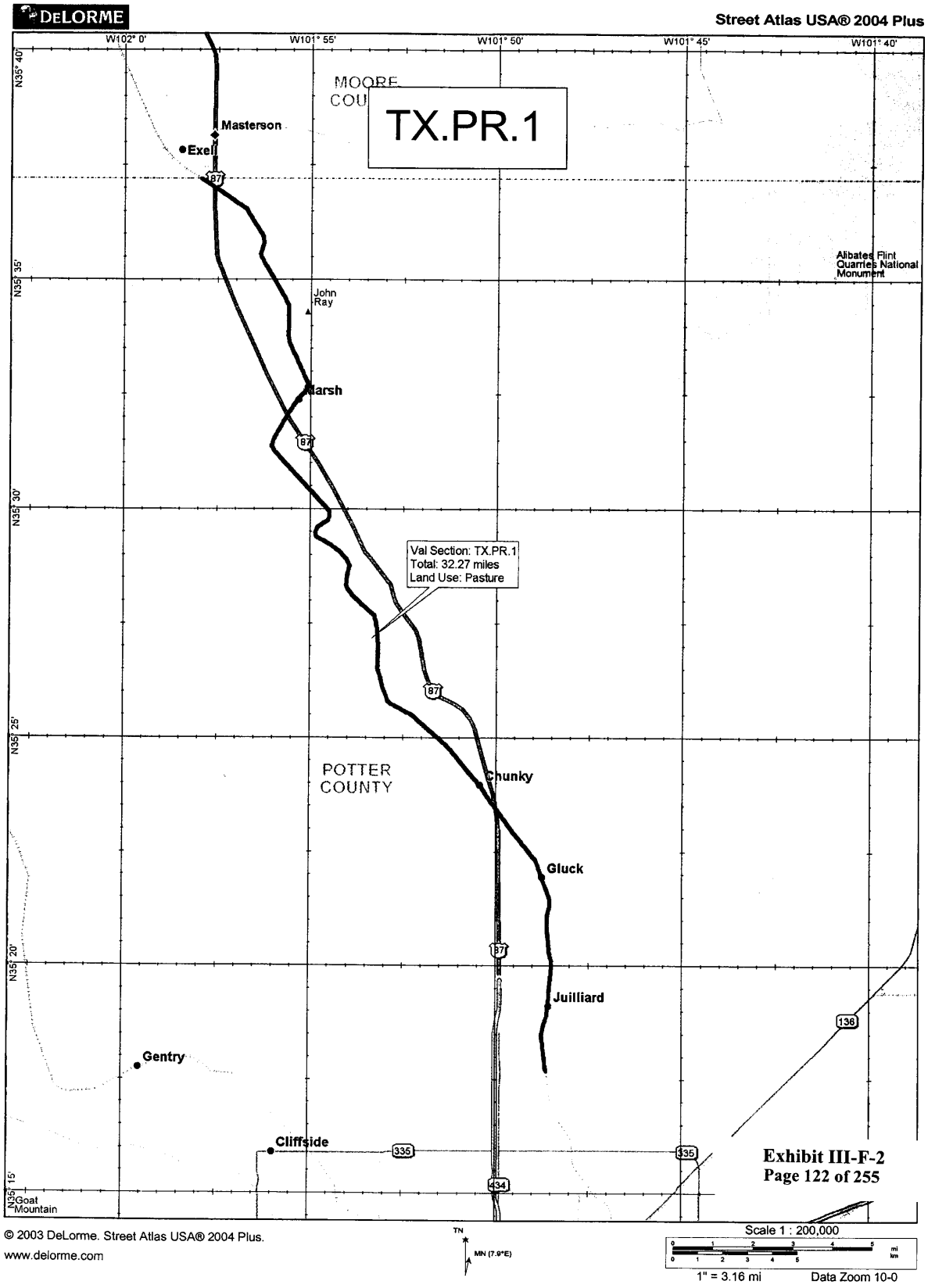
TN
MN (6.5°E)

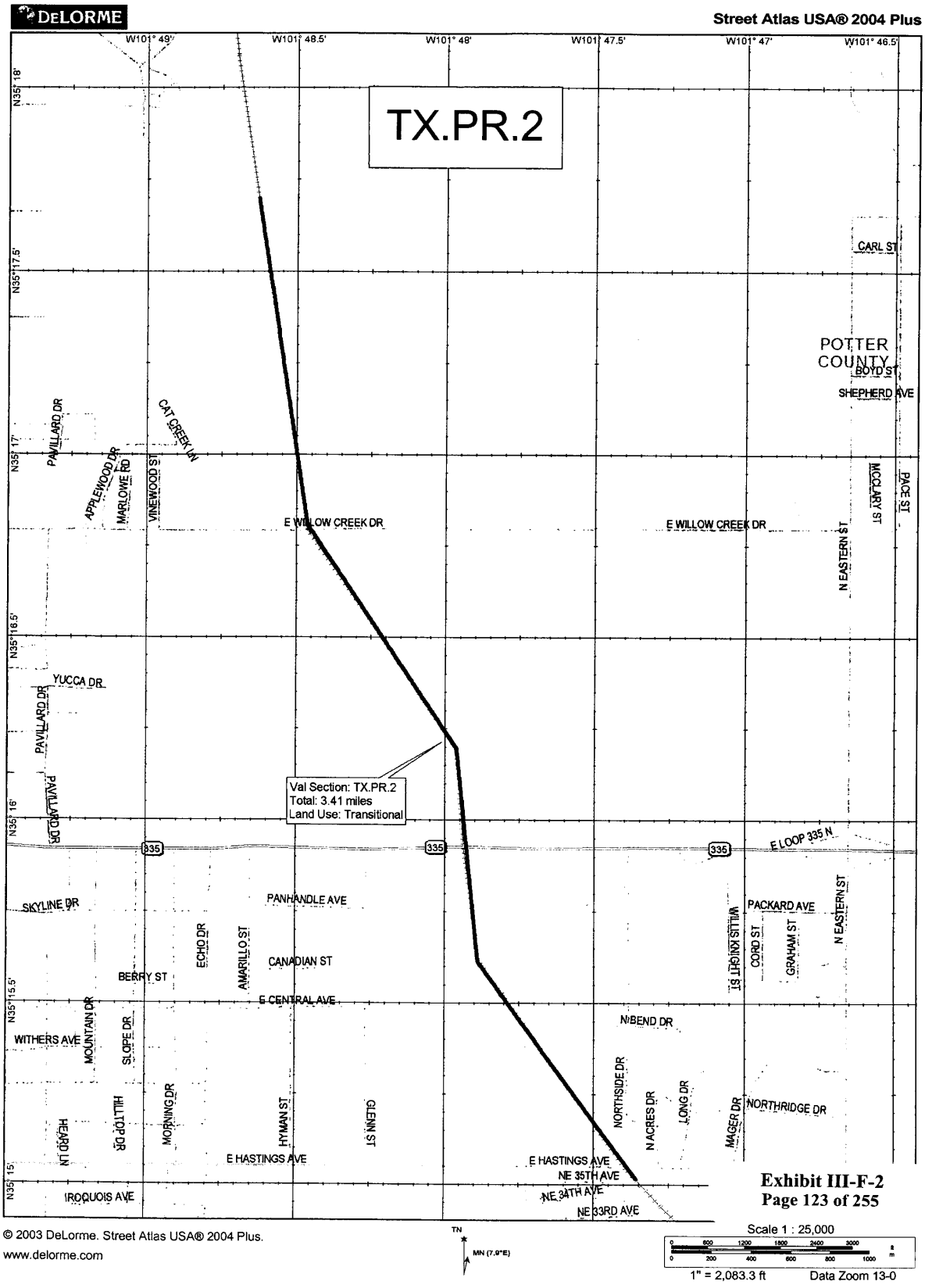
Scale 1 : 12,800
1" = 1,066.7 ft
Data Zoom 14-0

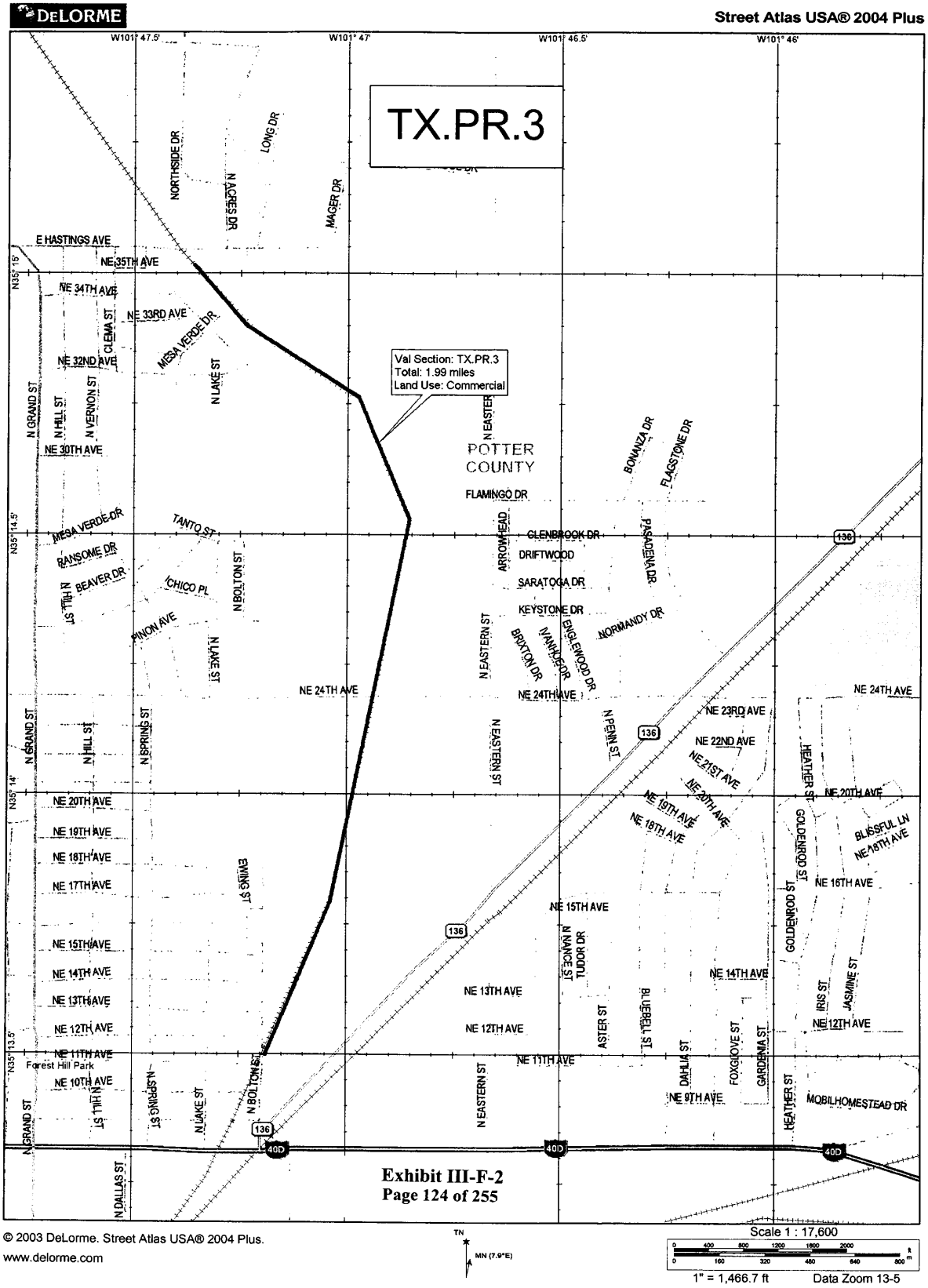

DeLORME
Street Atlas USA® 2004 Plus
TX.ME.1
W102° 4'
W102° 2'
W102° 0'
W101° 58'
W101° 56'
W101° 54'
N36° 4'
N36° 2'
N36° 0'
N35° 58'
N35° 56'
N35° 54'
287
Cactus
Etter
Bryden
RANCH 281
Val Section: TX.ME.1
Total: 12.01 miles
Land Use: Pasture
W ROAD G
Sheerin
MOORE
COUNTY
MCCLARY RD
ROAD 8
Machovec
W ROAD I
ROAD I
F-M 119
RANCH 2203
Exhibit III-F-2
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TN
MN (8.0°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0

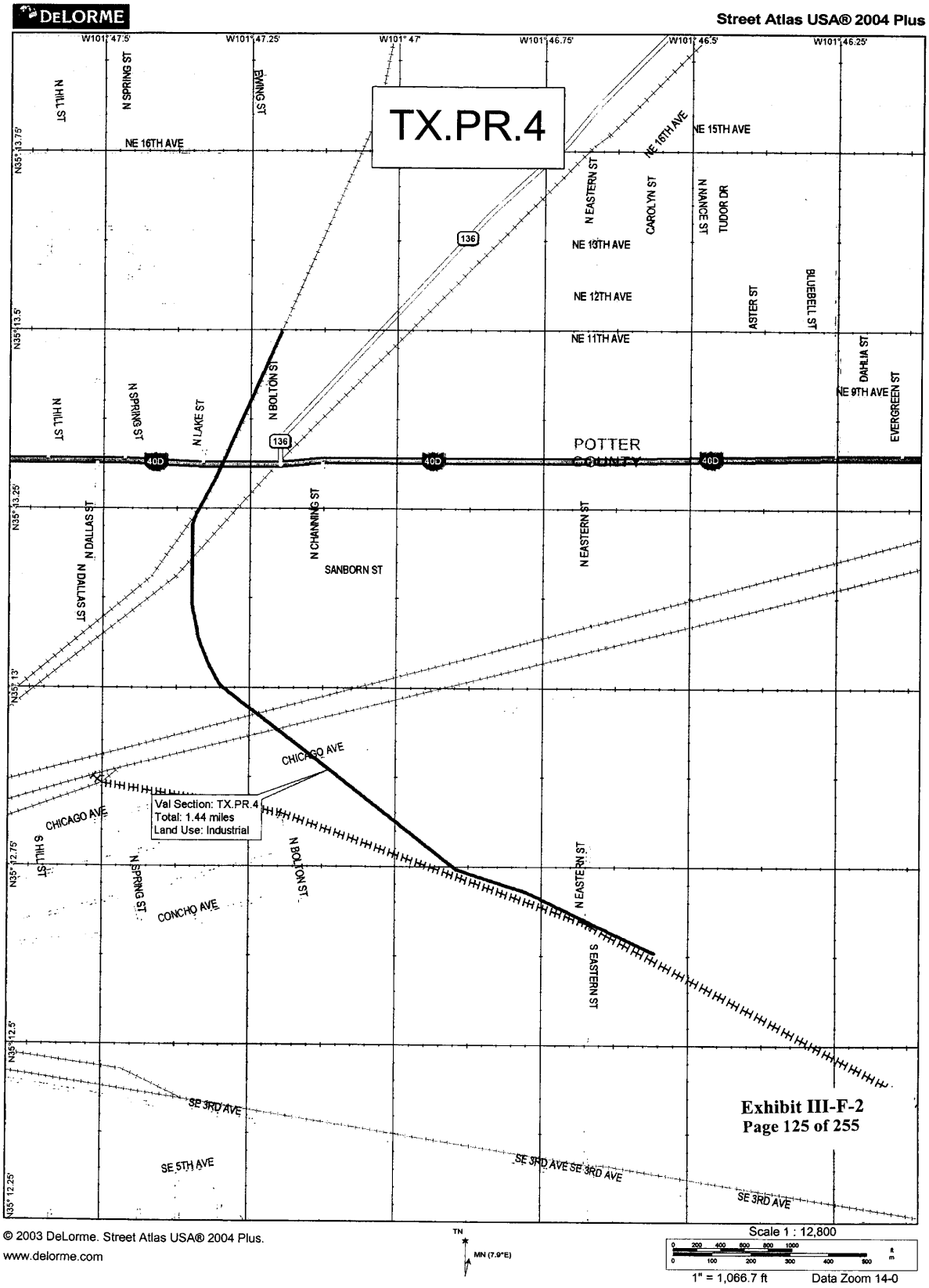

DeLORME
Street Atlas USA® 2004 Plus
TX.ME.2
Val Section: TX.ME.2
Total: 2.27 miles
Land Use: Transitional
Dumas
MOORE COUNTY
ROAD L
BURNETT RD
MC PHERSON AVE
MC MURRY AVE
WYNN ST
TED ST
JULIE DR
NW 5TH ST
NW 4TH ST
N 6TH ST
N 7TH ST
N 3RD ST
N 4TH ST
N 5TH ST
N 8TH ST
8TH ST
HASTINGS DR
NE 3RD ST
NE 2ND ST
NORMANDY ST
NE 11TH ST
NE 9TH ST
DREXEL ST
HOOTEN ST
RANCH 1284
RANCH 2203
RANCH 2205
RANCH 722
NORMA ST
8TH ST
FORREST DR
BELMONT DR
PEACH AVE
PLUM AVE
CHERRY AVE
MULBERRY DR
CHELSEA AVE
GREENWAY DR
PECAN AVE
WILLOW AVE
PINE AVE
OAK AVE
ELM AVE
CEDAR AVE
SPRUCE AVE
DENTON AVE
MICHAEL AVE
N BIRGE AVE
N PORTER AVE
N KLEIN AVE
N BLISS AVE
S BLISS AVE
S MEREDITH AVE
BINKLEY AVE
S BEARD AVE
ZAUK AVE
S MADDOX AVE
DURRETT AVE
POWELL AVE
MORTON AVE
MILLS AVE
PHILLIPS DR
BENNETT DR
BRUCE AVE
E 2ND ST
1ST PL
2ND PL
3RD PL
W 2ND ST
MILLER AVE
S KLEIN AVE
S BIRGE AVE
S PORTER AVE
S TWICHELL AVE
WILSON AVE
W 7TH ST
E 7TH ST
W 8TH ST
W 9TH ST
W 10TH ST
E 10TH ST
E 8TH ST
E 9TH ST
E 11TH ST
E 14TH ST
Durrett Park
W 16TH ST
E 16TH ST
E 18TH ST
E 19TH ST
LEWIS AVE
SUNSET AVE
JEFFREY LN
LENA LN
FRANKIE LN
MEAT MARKET RD
STALLWITZ RD
N35° 53.5'
N35° 53'
N35° 52.5'
N35° 52'
N35° 51.5'
N35° 51'
N35° 50.5'
W102° 0'
W101° 59.5'
W101° 59'
W101° 58.5'
W101° 58'
W101° 57.5'
MCCLARY LN
Exhibit III-F-2
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TN
MN (8.0°E)
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0

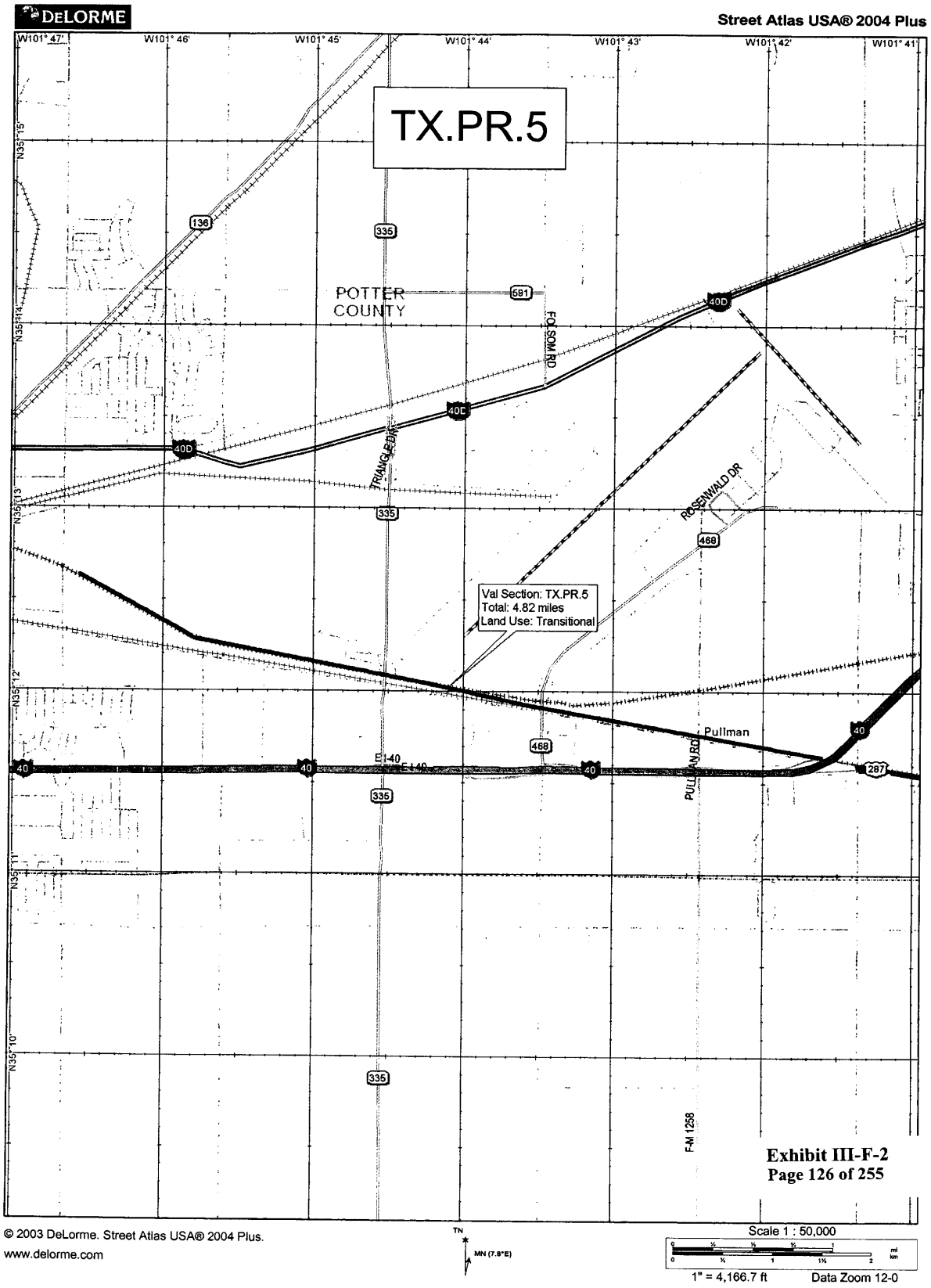

DeLORME
Street Atlas USA® 2004 Plus
W102° 10'
W102° 5'
W102° 0'
W101° 55'
TX.ME.3
Dumas
87
N35° 50'
N35° 45'
N35° 40'
TX.ME.3
Total: 17.89 miles
Land Use: Pasture
Bautista
354
Four Way
Masterson
Exell
Exhibit III-F-2
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TN
MN (8.0°E)
Scale 1 : 137,500
1" = 2.17 mi
Data Zoom 10-5


DeLORME
Street Atlas USA® 2004 Plus
W102° 0'
W101° 55'
W101° 50'
W101° 45'
W101° 40'
N35° 40'
N35° 35'
N35° 30'
N35° 25'
N35° 20'
N35° 15'
MOORE
COU
TX.PR.1
Masterson
Exell
87
Alibates Flint Quarries National Monument
John Ray
Marsh
Val Section: TX.PR.1
Total: 32.27 miles
Land Use: Pasture
POTTER COUNTY
Chunky
Gluck
Juilliard
136
Gentry
Cliffside
335
434
Goat Mountain
Exhibit III-F-2
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TN
MN (7.9°E)
Scale 1 : 200,000
1" = 3.16 mi
Data Zoom 10-0

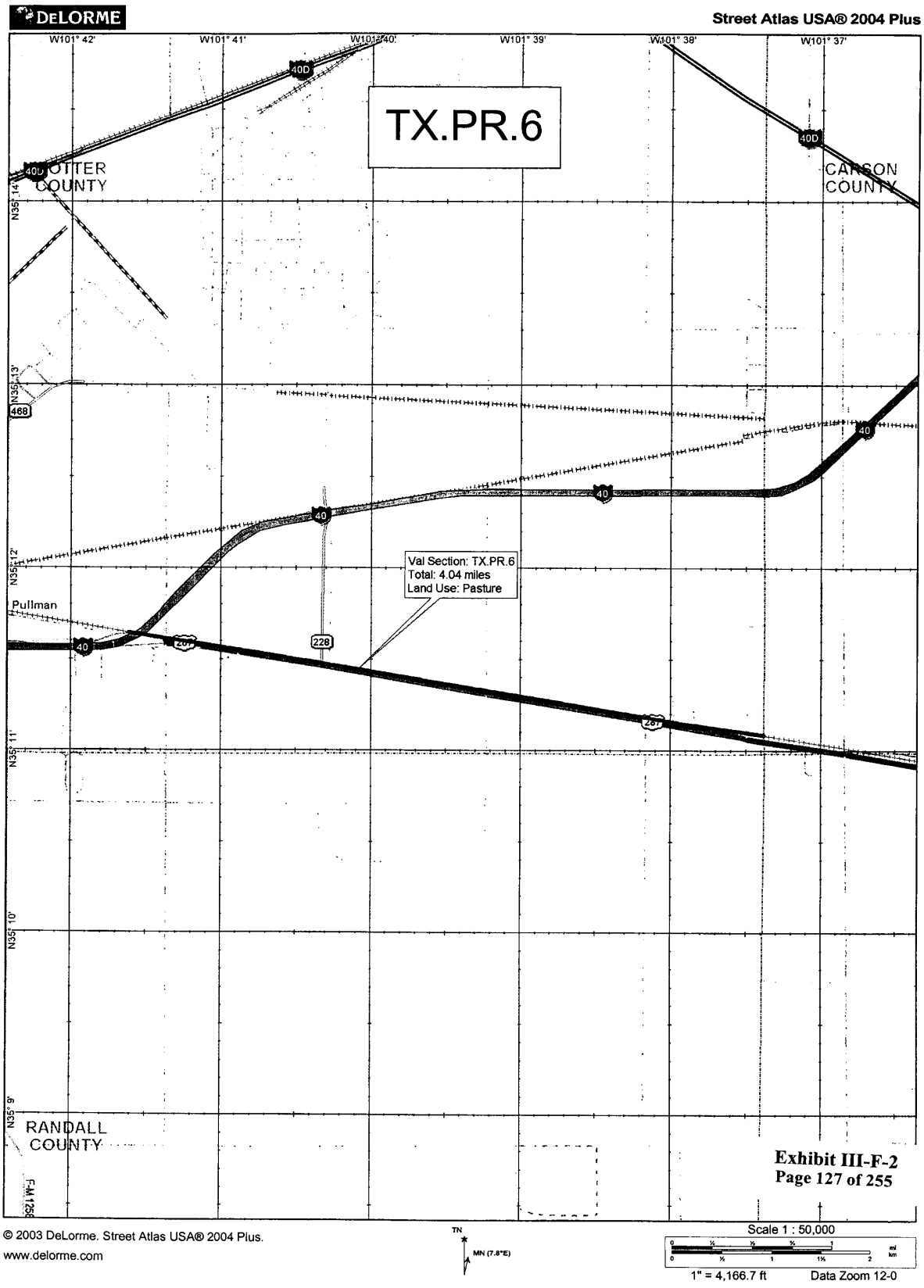

DeLORME
Street Atlas USA® 2004 Plus
TX.PR.2
W101° 49'
W101° 48.5'
W101° 48'
W101° 47.5'
W101° 47'
W101° 46.5'
N35° 18'
N35° 17.5'
N35° 17'
N35° 16.5'
N35° 16'
N35° 15.5'
N35° 15'
CARL ST
POTTER COUNTY
BOYD ST
SHEPHERD AVE
PAVILLARD DR
CAT CREEK LN
APPLEWOOD DR
MARLOWE RD
VINEWOOD ST
E WILLOW CREEK DR
E WILLOW CREEK DR
N EASTERN ST
MCCLARY ST
PACE ST
YUCCA DR
PAVILLARD DR
Val Section: TX.PR.2
Total: 3.41 miles
Land Use: Transitional
335
335
335
E LOOP 335 N
SKYLINE DR
PANHANDLE AVE
ECHO DR
AMARILLO ST
CANADIAN ST
BERRY ST
E CENTRAL AVE
PACKARD AVE
WILLIS KNIGHT ST
CORD ST
GRAHAM ST
N EASTERN ST
WITHERS AVE
MOUNTAIN DR
SLOPE DR
HILLTOP DR
HEARD LN
MORNING DR
HYMAN ST
GLENN ST
E HASTINGS AVE
N BEND DR
NORTHSIDE DR
N ACRES DR
LONG DR
MAGER DR
NORTHRIDGE DR
E HASTINGS AVE
NE 35TH AVE
NE 34TH AVE
NE 33RD AVE
IROQUOIS AVE
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TN
MN (7.9°E)
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0

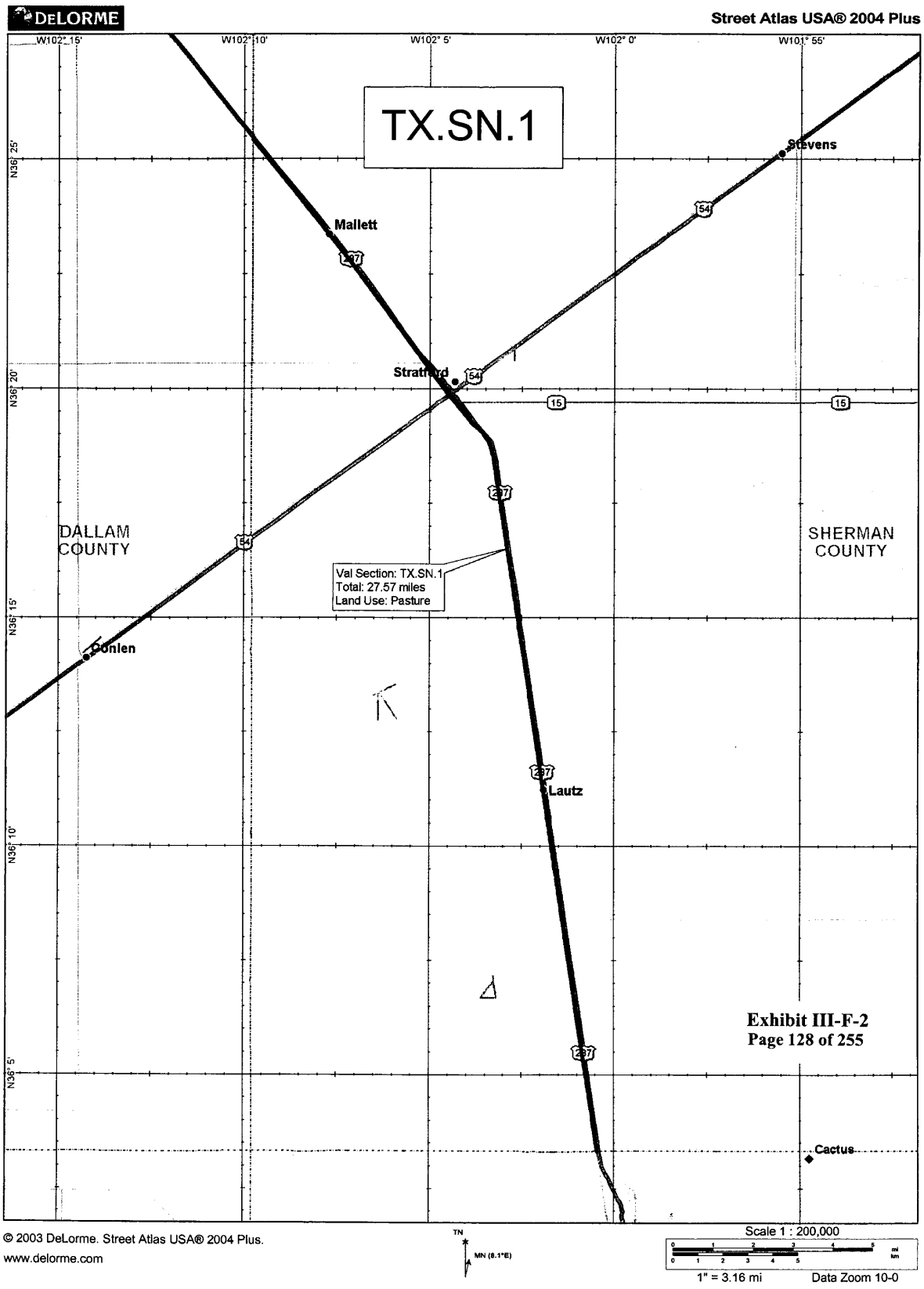

DeLORME
Street Atlas USA® 2004 Plus
TX.PR.3
Val Section: TX.PR.3
Total: 1.99 miles
Land Use: Commercial
POTTER COUNTY
W101° 47.5'
W101° 47'
W101° 46.5'
W101° 46'
N35° 15'
N35° 14.5'
N35° 14'
N35° 13.5'
E HASTINGS AVE
NE 35TH AVE
NE 34TH AVE
NE 33RD AVE
NE 32ND AVE
NE 30TH AVE
NE 24TH AVE
NE 20TH AVE
NE 19TH AVE
NE 18TH AVE
NE 17TH AVE
NE 15TH AVE
NE 14TH AVE
NE 13TH AVE
NE 12TH AVE
NE 11TH AVE
NE 10TH AVE
NE 23RD AVE
NE 22ND AVE
NE 21ST AVE
NE 9TH AVE
NORTHSIDE DR
LONG DR
N AVERES DR
MAGER DR
CLEMA ST
MESA VERDE DR
N LAKE ST
N GRAND ST
N HILL ST
N VERNON ST
N EASTER
BONANZA DR
FLAGSTONE DR
FLAMINGO DR
TANTO ST
RANSOME DR
BEAVER DR
CHICO PL
PINON AVE
N BOLTON ST
ARROWHEAD
CLENBROOK DR
DRIFTWOOD
SARATOGA DR
KEYSTONE DR
NORMANDY DR
PASADENA DR
ENGLEWOOD DR
BROXTON DR
VANNOY DR
N EASTERN ST
N PENN ST
N SPRING ST
HEATHER ST
GOLDENROD ST
BLISSFUL LN
IRIS ST
JASMINE ST
TUDOR DR
ASTER ST
BLUEBELL ST
DAHLIA ST
FOXGLOVE ST
GARDENIA ST
MOBILHOMESTEAD DR
Forest Hill Park
N DALLAS ST
136
40D
Exhibit III-F-2
Page 124 of 255
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TN
MN (7.9°E)
Scale 1 : 17,600
1" = 1,466.7 ft
Data Zoom 13-5

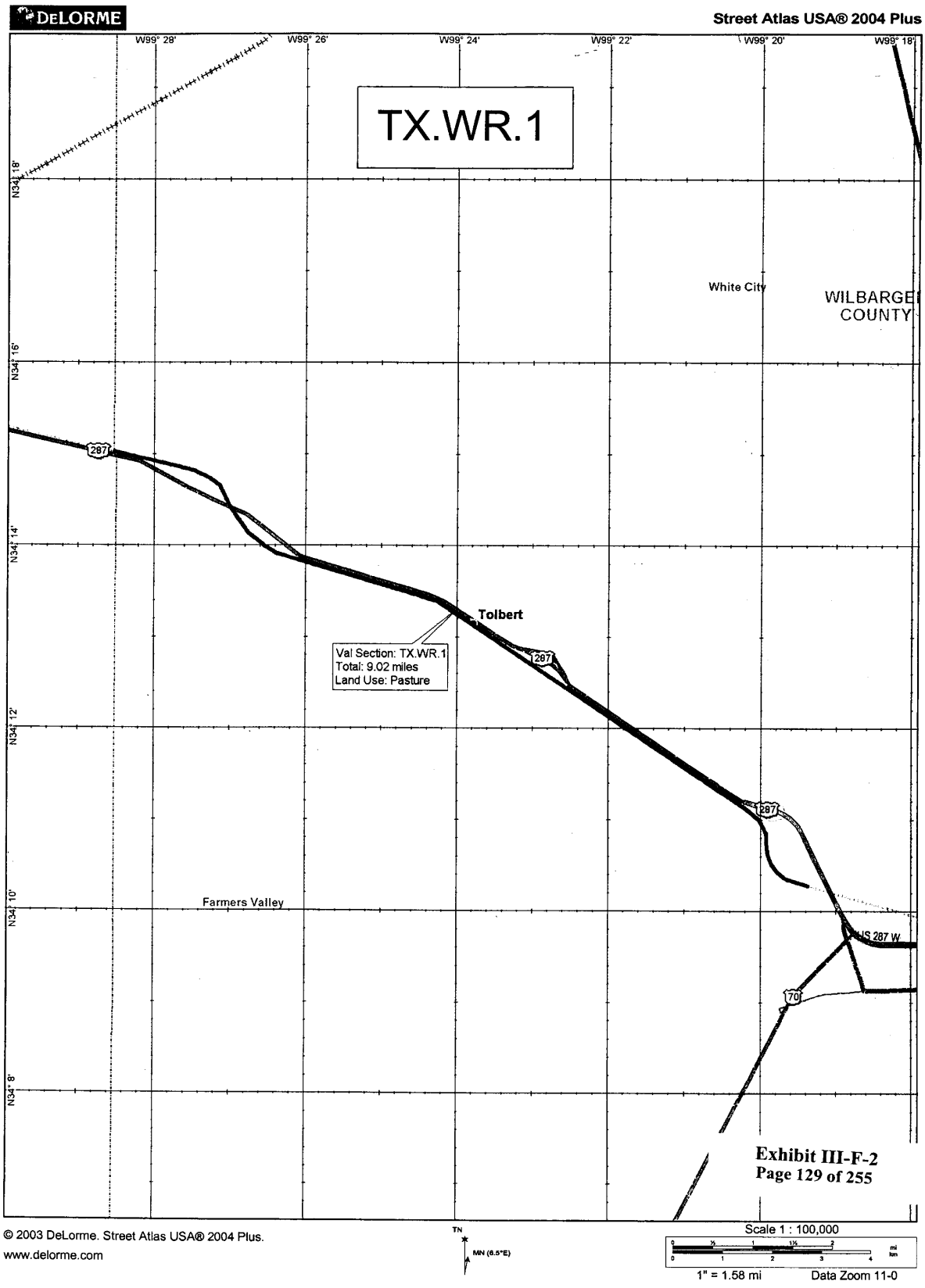

DeLORME
Street Atlas USA® 2004 Plus
TX.PR.4
W101° 47.5'
W101° 47.25'
W101° 47'
W101° 46.75'
W101° 46.5'
W101° 46.25'
N35° 13.75'
N35° 13.5'
N35° 13.25'
N35° 13'
N35° 12.75'
N35° 12.5'
N35° 12.25'
N HILL ST
N SPRING ST
EMING ST
NE 16TH AVE
NE 15TH AVE
NE 16TH AVE
N EASTERN ST
CAROLYN ST
N MANCE ST
TUDOR DR
NE 13TH AVE
NE 12TH AVE
ASTER ST
BLUEBELL ST
NE 11TH AVE
DAHLIA ST
NE 9TH AVE
EVERGREEN ST
N HILL ST
N SPRING ST
N LAKE ST
N BOLTON ST
136
POTTER
COUNTY
40D
40D
40D
N DALLAS ST
N CHANNING ST
SANBORN ST
N EASTERN ST
N DALLAS ST
CHICAGO AVE
CHICAGO AVE
Val Section: TX.PR.4
Total: 1.44 miles
Land Use: Industrial
S HILL ST
N SPRING ST
CONCHO AVE
N BOLTON ST
N EASTERN ST
S EASTERN ST
SE 3RD AVE
SE 5TH AVE
SE 3RD AVE SE 3RD AVE
SE 3RD AVE
Exhibit III-F-2
Page 125 of 255
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TN
MN (7.9°E)
Scale 1 : 12,800
1" = 1,066.7 ft
Data Zoom 14-0

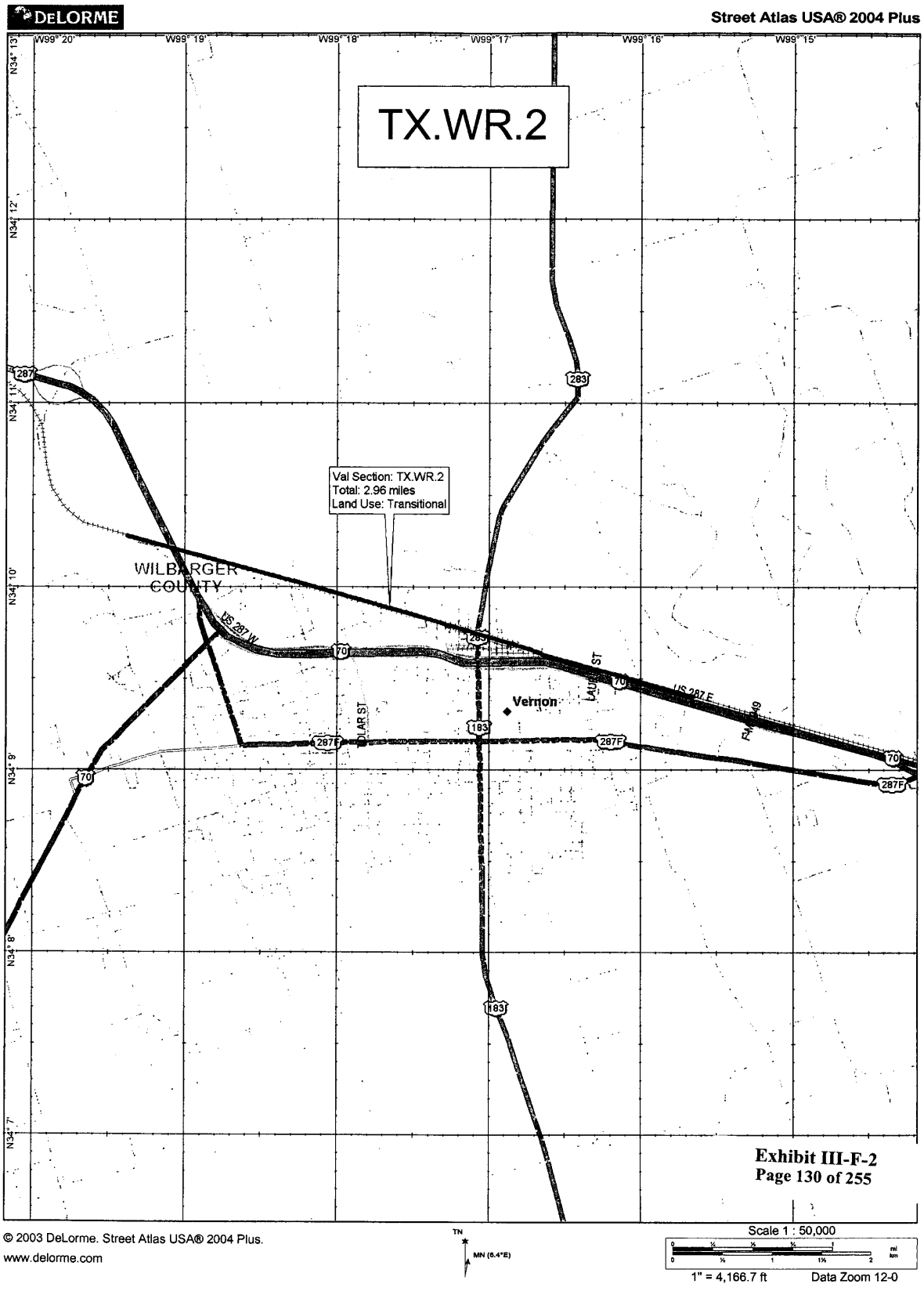


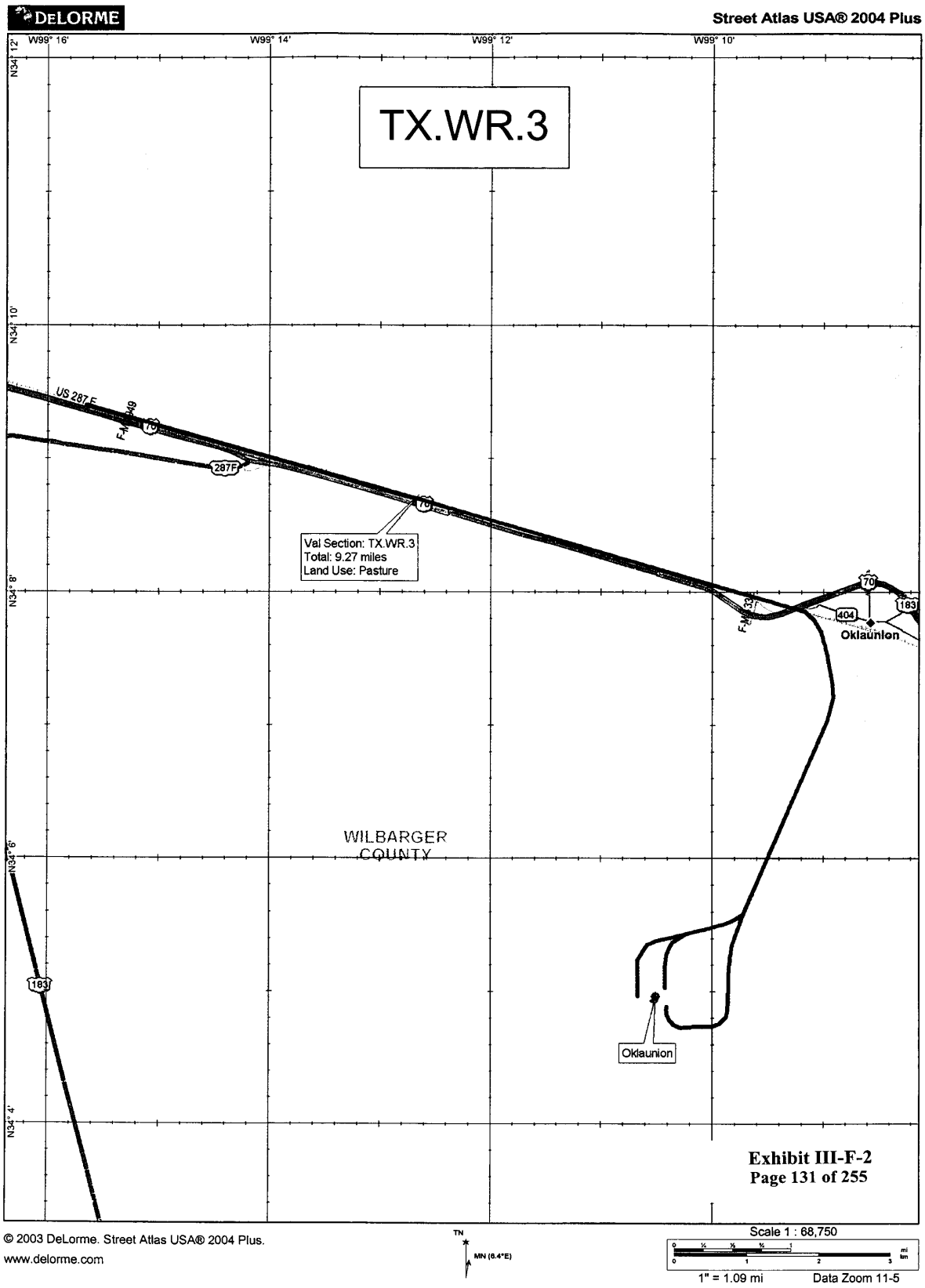
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DeLORME
Street Atlas USA® 2004 Plus
W101° 42'
W101° 41'
W101° 40'
W101° 39'
W101° 38'
W101° 37'
TX.PR.6
OTTER COUNTY
CARSON COUNTY
RANDALL COUNTY
N35° 14'
N35° 13'
N35° 12'
N35° 11'
N35° 10'
N35° 9'
Pullman
Val Section: TX.PR.6
Total: 4.04 miles
Land Use: Pasture
40D
40
468
228
207
FM 1258
Exhibit III-F-2
Page 127 of 255
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TN
MN (7.8°E)
Scale 1 : 50,000
1" = 4,166.7 ft
Data Zoom 12-0


DeLORME
Street Atlas USA® 2004 Plus
TX.SN.1
W102° 15'
W102° 10'
W102° 5'
W102° 0'
W101° 55'
N36° 25'
N36° 20'
N36° 15'
N36° 10'
N36° 5'
Mallett
Stevens
Stratford
Dhlen
Lautz
Cactus
DALLAM COUNTY
SHERMAN COUNTY
Val Section: TX.SN.1
Total: 27.57 miles
Land Use: Pasture
Exhibit III-F-2
Page 128 of 255
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TN
MN (8.1°E)
Scale 1 : 200,000
1" = 3.16 mi
Data Zoom 10-0


DeLORME
Street Atlas USA® 2004 Plus
TX.WR.1
W99° 28'
W99° 26'
W99° 24'
W99° 22'
W99° 20'
W99° 18'
N34° 18'
N34° 16'
N34° 14'
N34° 12'
N34° 10'
N34° 8'
White City
WILBARGER
COUNTY
287
Tolbert
Val Section: TX.WR.1
Total: 9.02 miles
Land Use: Pasture
Farmers Valley
US 287 W
70
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TN
MN (6.5°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0


DeLORME
Street Atlas USA® 2004 Plus
TX.WR.2
W99° 20'
W99° 19'
W99° 18'
W99° 17'
W99° 16'
W99° 15'
N34° 13'
N34° 12'
N34° 11'
N34° 10'
N34° 9'
N34° 8'
N34° 7'
Val Section: TX.WR.2
Total: 2.96 miles
Land Use: Transitional
WILBARGER COUNTY
Vernon
US 287 W
US 287 E
MAIN ST
DLAR ST
287
283
70
183
287F
FM 2649
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www.delorme.com
TN
MN (6.4°E)
Scale 1 : 50,000
1" = 4,166.7 ft
Data Zoom 12-0


DeLORME
Street Atlas USA® 2004 Plus
W99° 16'
W99° 14'
W99° 12'
W99° 10'
N34° 12'
N34° 10'
N34° 8'
N34° 6'
N34° 4'
TX.WR.3
US 287 F
FM 369
70
287F
Val Section: TX.WR.3
Total: 9.27 miles
Land Use: Pasture
FM 433
404
183
Oklaunion
WILBARGER
COUNTY
Oklaunion
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www.delorme.com
TN
MN (6.4°E)
Scale 1 : 68,750
1" = 1.09 mi
Data Zoom 11-5

Colorado

Adams County, Colorado

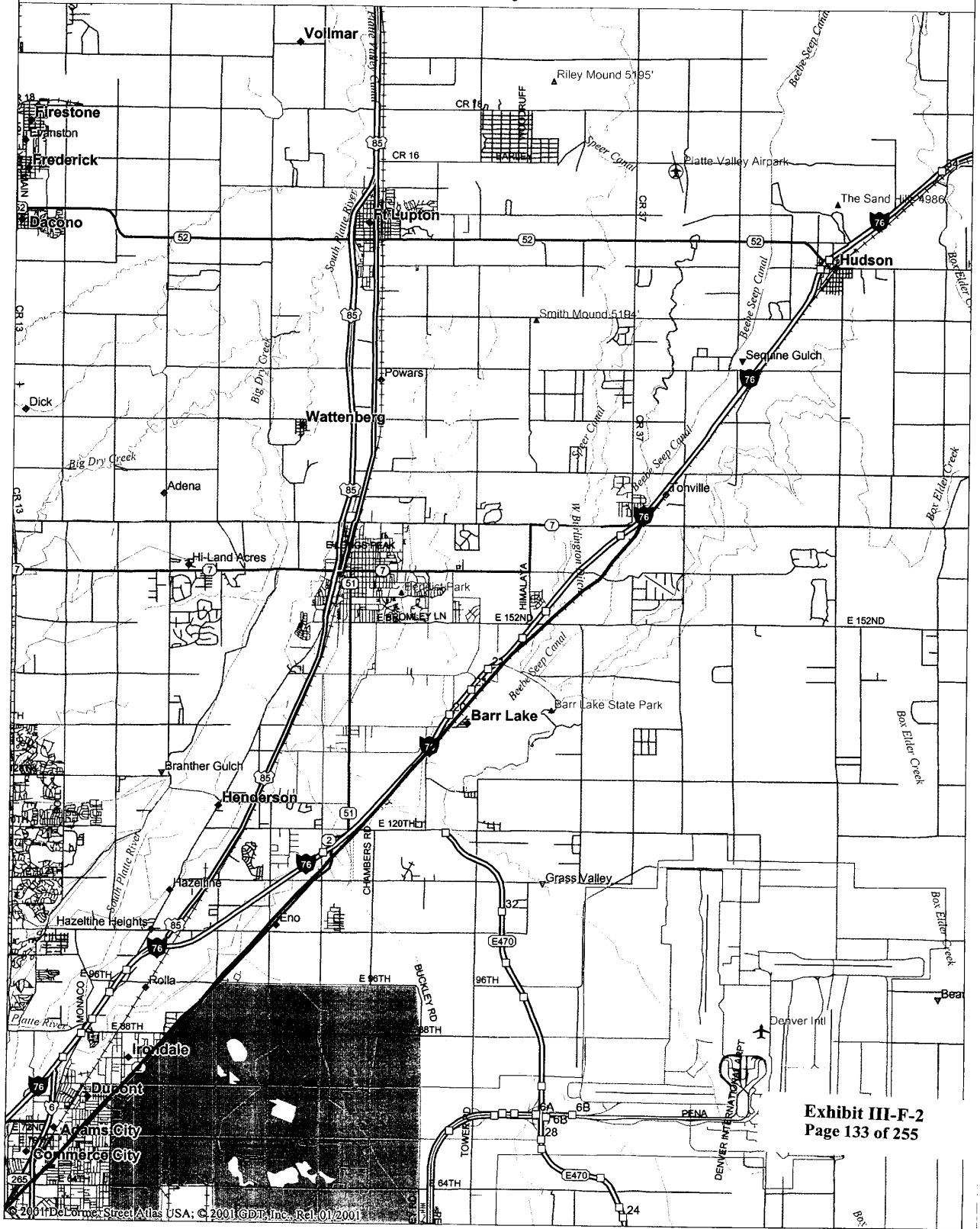
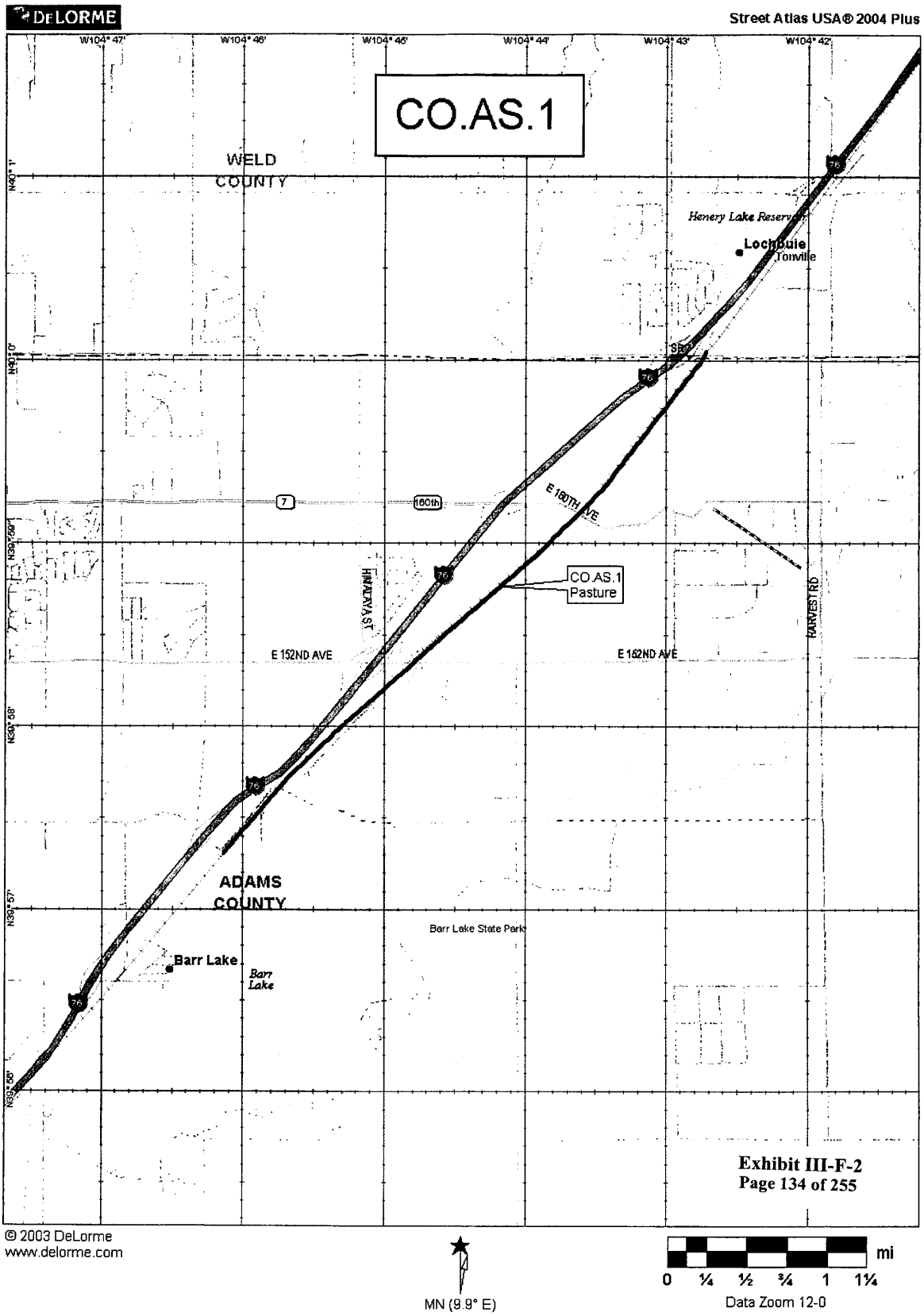
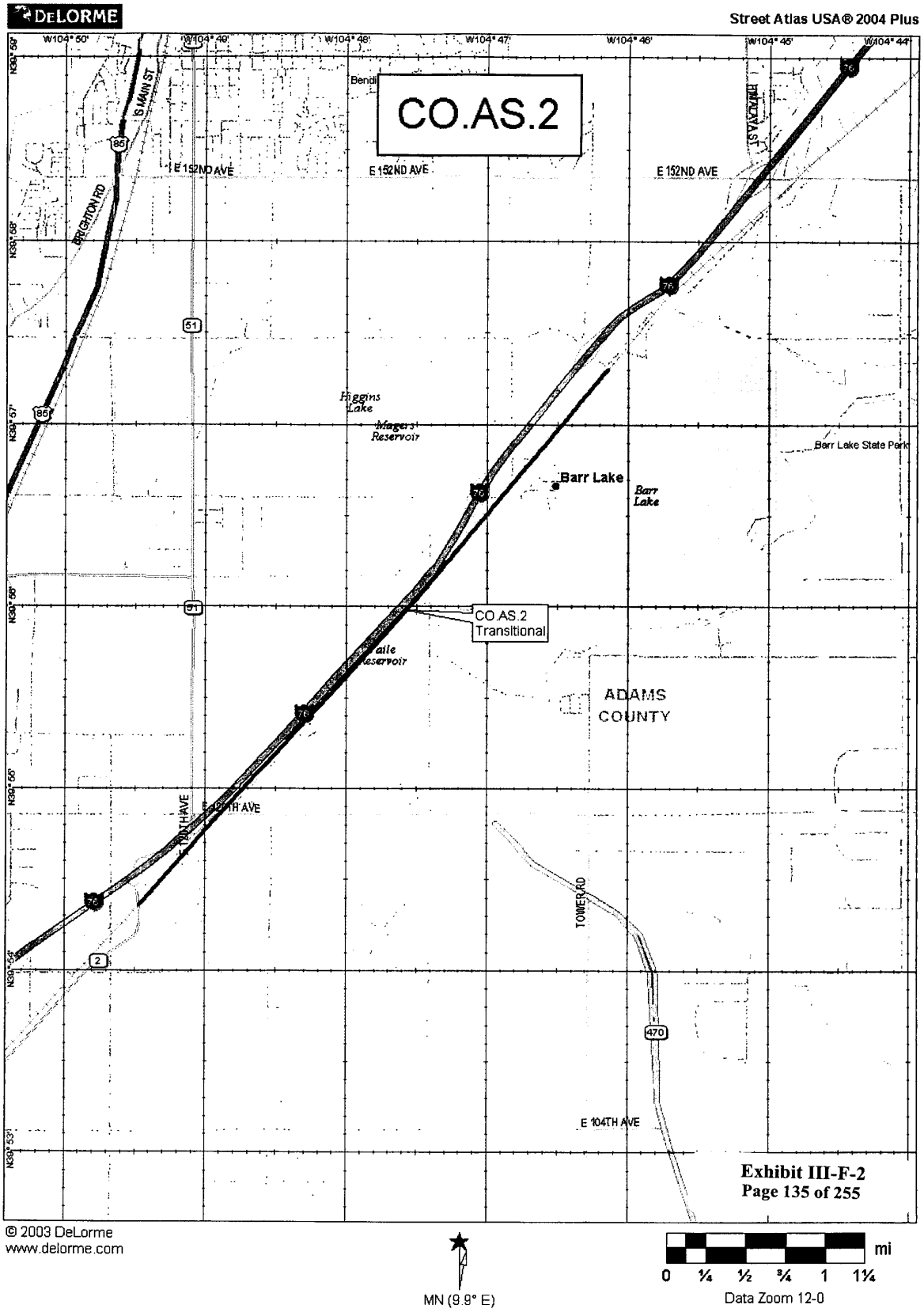
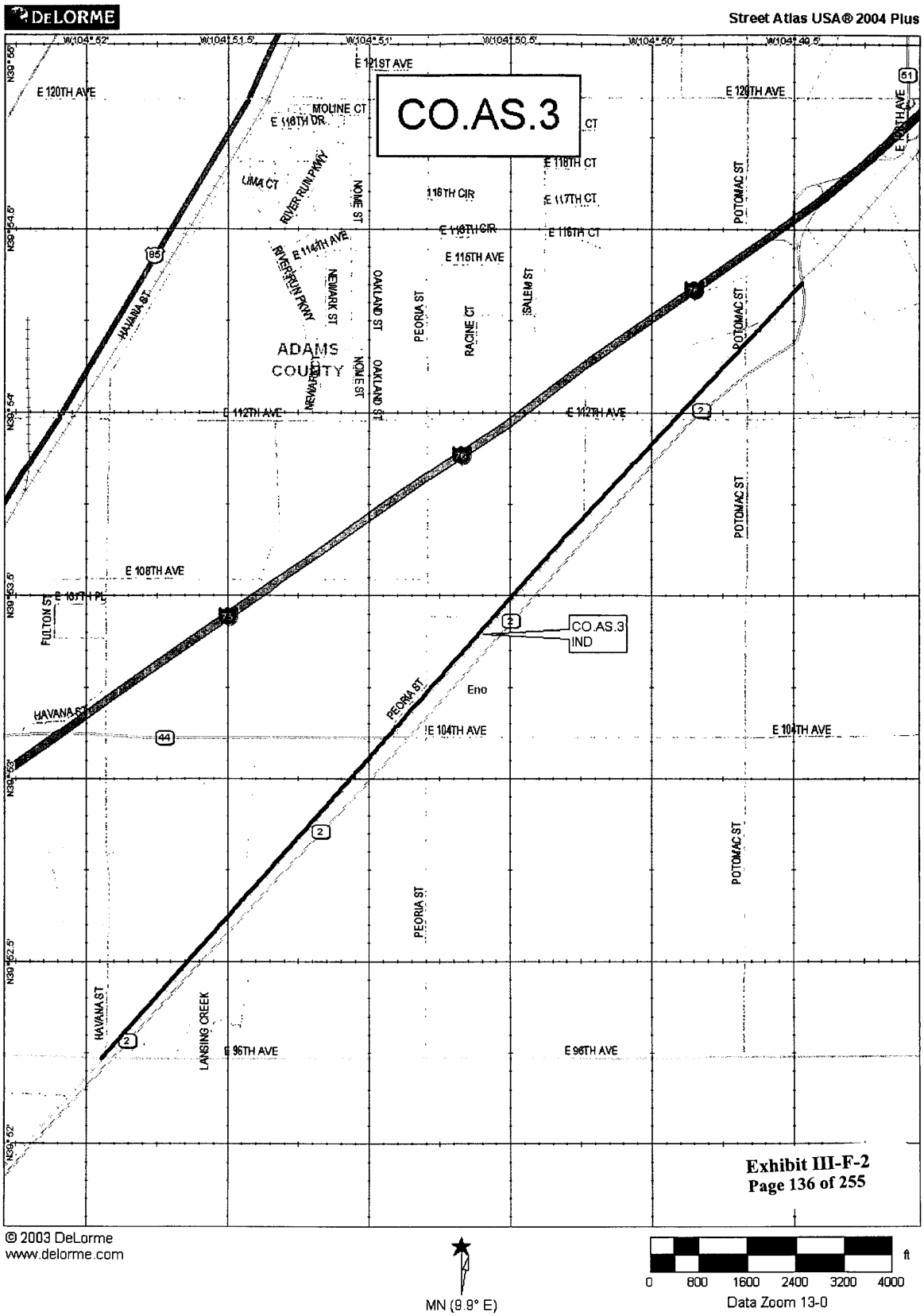
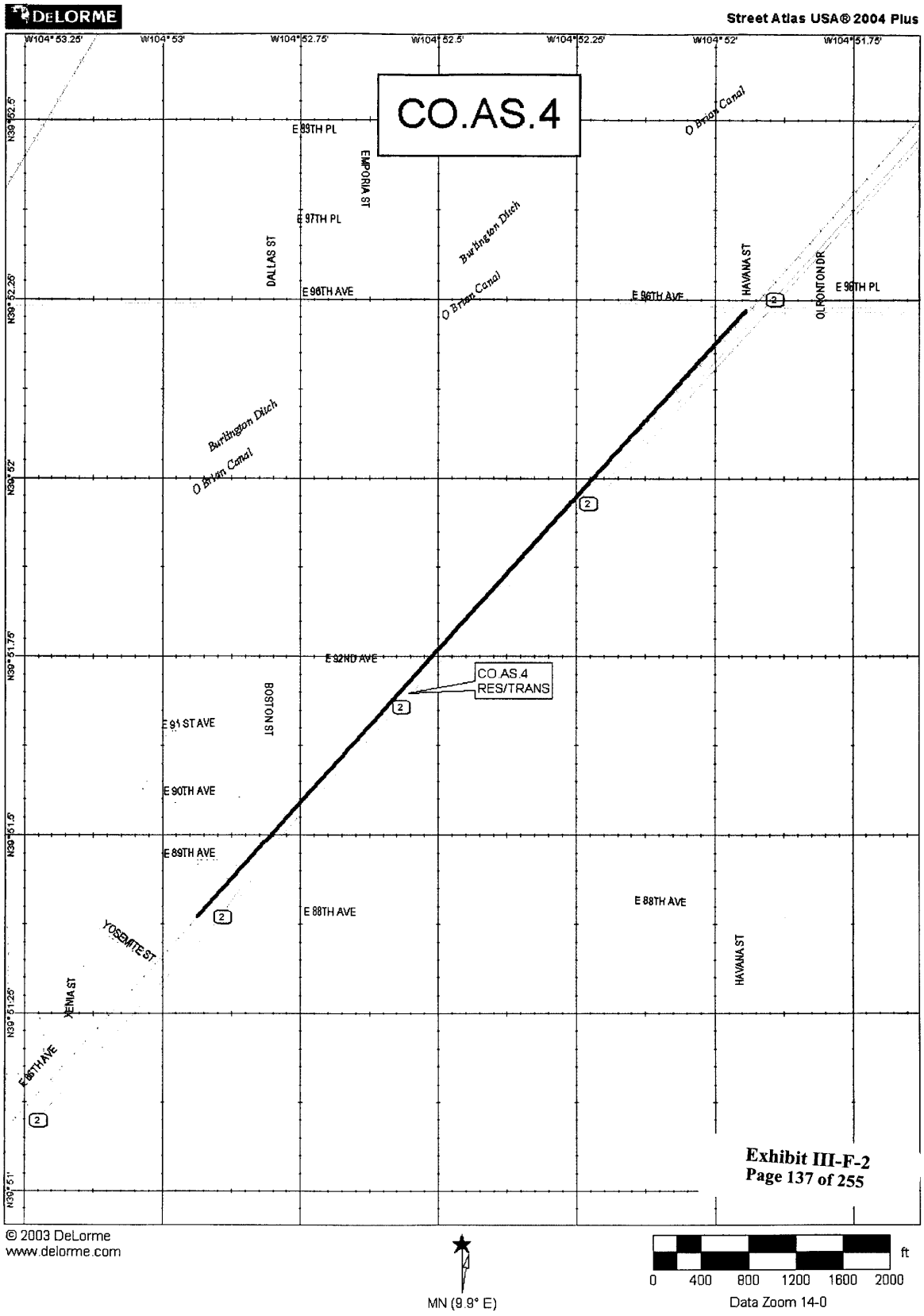


Exhibit III-F-2
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DELORME
Street Atlas USA® 2004 Plus
CO.AS.1
W104° 47'
W104° 46'
W104° 45'
W104° 44'
W104° 43'
W104° 42'
N40° 1'
N40° 0'
N39° 59'
N39° 58'
N39° 57'
N39° 56'
WELD COUNTY
Henery Lake Reservoir
Lochbuie
Tomville
76
7
160th
E 160TH AVE
HIGHWAY 85
CO.AS.1
Pasture
E 152ND AVE
E 152ND AVE
HARVEST RD
ADAMS COUNTY
Barr Lake State Park
Barr Lake
Barr Lake
Exhibit III-F-2
Page 134 of 255
© 2003 DeLorme
www.delorme.com
MN (9.9° E)
mi
0 ¼ ½ ¾ 1 1¼
Data Zoom 12-0


DELORME
Street Atlas USA® 2004 Plus
CO.AS.2
CO.AS.2
Transitional
E 152ND AVE
E 104TH AVE
BRIGHTON RD
S MAIN ST
TOWER RD
Higgins Lake
Barr Lake
Barr Lake State Park
ADAMS COUNTY
Exhibit III-F-2
Page 135 of 255
© 2003 DeLorme
www.delorme.com
MN (9.9° E)
mi
0 ¼ ½ ¾ 1 1¼
Data Zoom 12-0


DELORME
Street Atlas USA® 2004 Plus
CO.AS.3
E 121ST AVE
E 120TH AVE
MOLINE CT
E 118TH DR
LIMA CT
RIVER RUN PKWY
NOME ST
E 118TH CIR
E 118TH CT
E 117TH CT
E 116TH CIR
E 116TH CT
E 116TH AVE
E 114TH AVE
NEWARK ST
OAKLAND ST
PEORIA ST
RACINE CT
SALEM ST
POTOMAC ST
HAVANA ST
ADAMS COUNTY
E 112TH AVE
E 108TH AVE
E 107TH PL
FULTON ST
CO.AS.3 IND
Eno
E 104TH AVE
E 96TH AVE
LANSING CREEK
W104° 52'
W104° 51.5'
W104° 51'
W104° 50.5'
W104° 50'
W104° 49.5'
N39° 56'
N39° 54.5'
N39° 54'
N39° 53.5'
N39° 53'
N39° 52.5'
N39° 52'
85
76
2
44
51
E 120TH AVE
E 104TH AVE
E 96TH AVE
POTOMAC ST
PEORIA ST
HAVANA ST
Exhibit III-F-2
Page 136 of 255
© 2003 DeLorme
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MN (9.9° E)
0 800 1600 2400 3200 4000 ft
Data Zoom 13-0


DELORME
Street Atlas USA® 2004 Plus
CO.AS.4
W104° 53.25'
W104° 53'
W104° 52.75'
W104° 52.5'
W104° 52.25'
W104° 52'
W104° 51.75'
N39° 52.5'
N39° 52.25'
N39° 52'
N39° 51.75'
N39° 51.5'
N39° 51.25'
N39° 51'
E 89TH PL
E 97TH PL
E 96TH AVE
E 92ND AVE
E 91 ST AVE
E 90TH AVE
E 89TH AVE
E 88TH AVE
E 86TH AVE
EMPORIA ST
DALLAS ST
BOSTON ST
YOSEMITE ST
XENIA ST
HAVANA ST
OLIVE RONTON DR
O'Brian Canal
Burlington Ditch
CO.AS.4
RES/TRANS
2
© 2003 DeLorme
www.delorme.com
MN (9.9° E)
0 400 800 1200 1600 2000 ft
Data Zoom 14-0

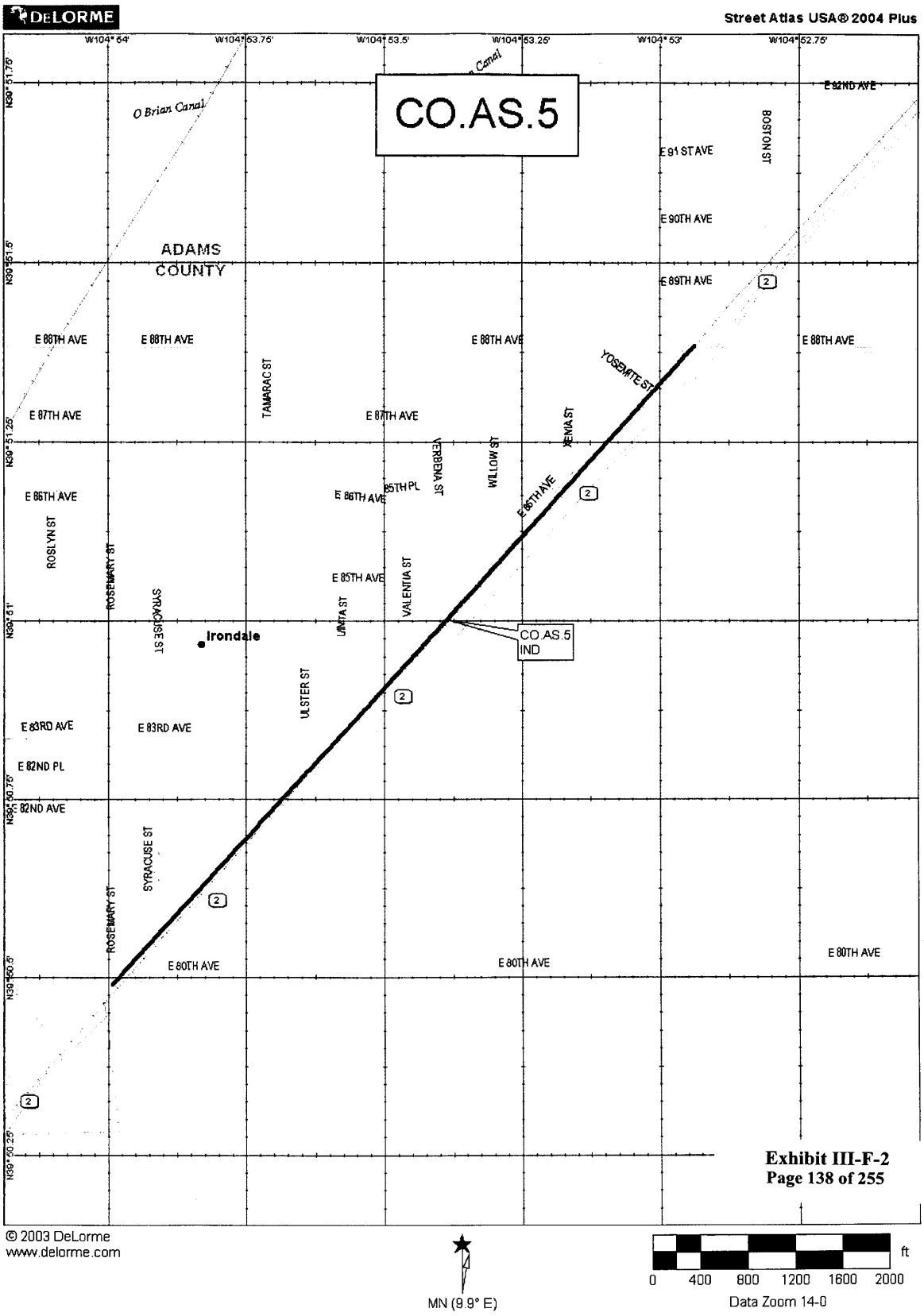


Exhibit III-F-2
Page 138 of 255

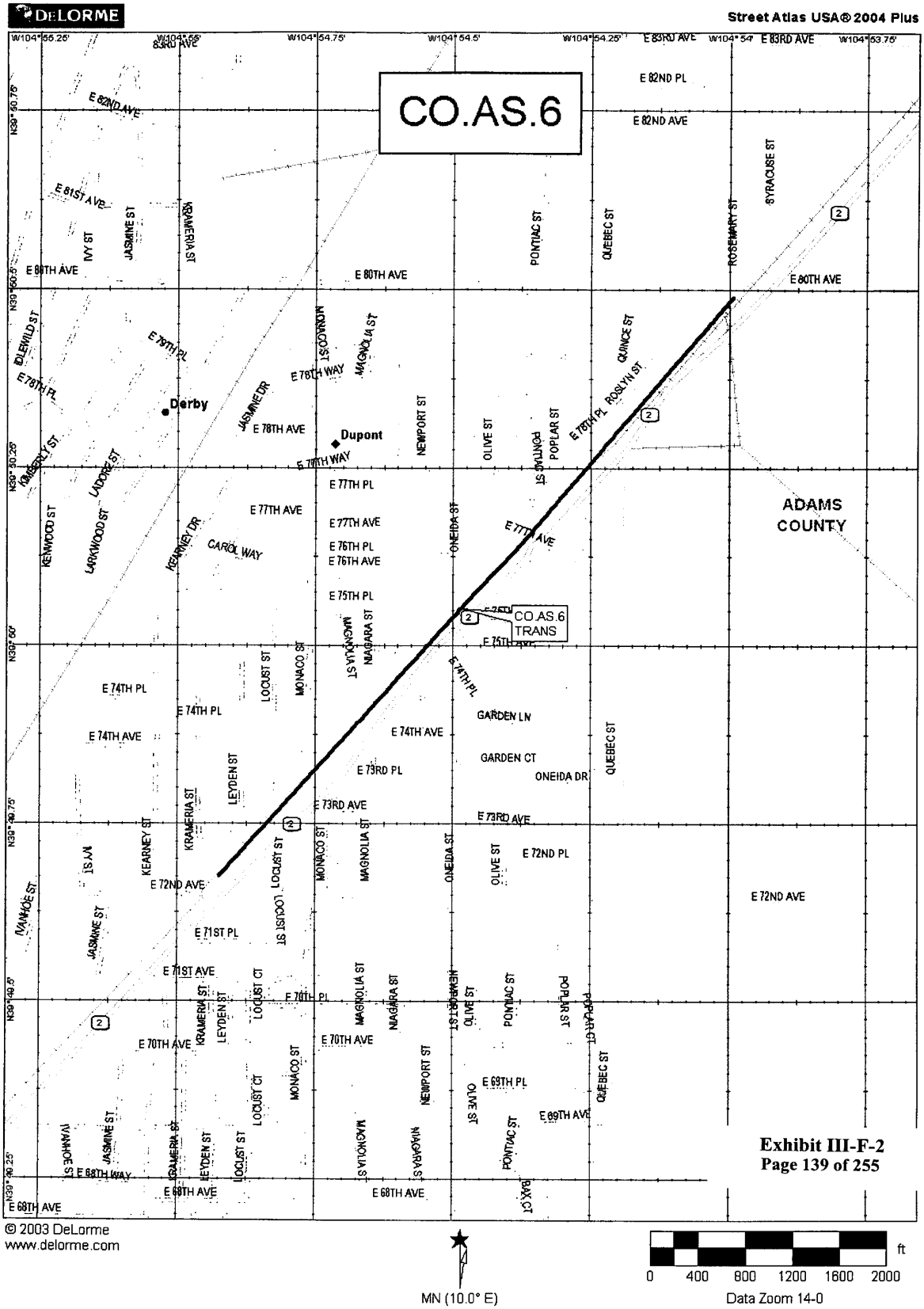


Exhibit III-F-2
Page 139 of 255

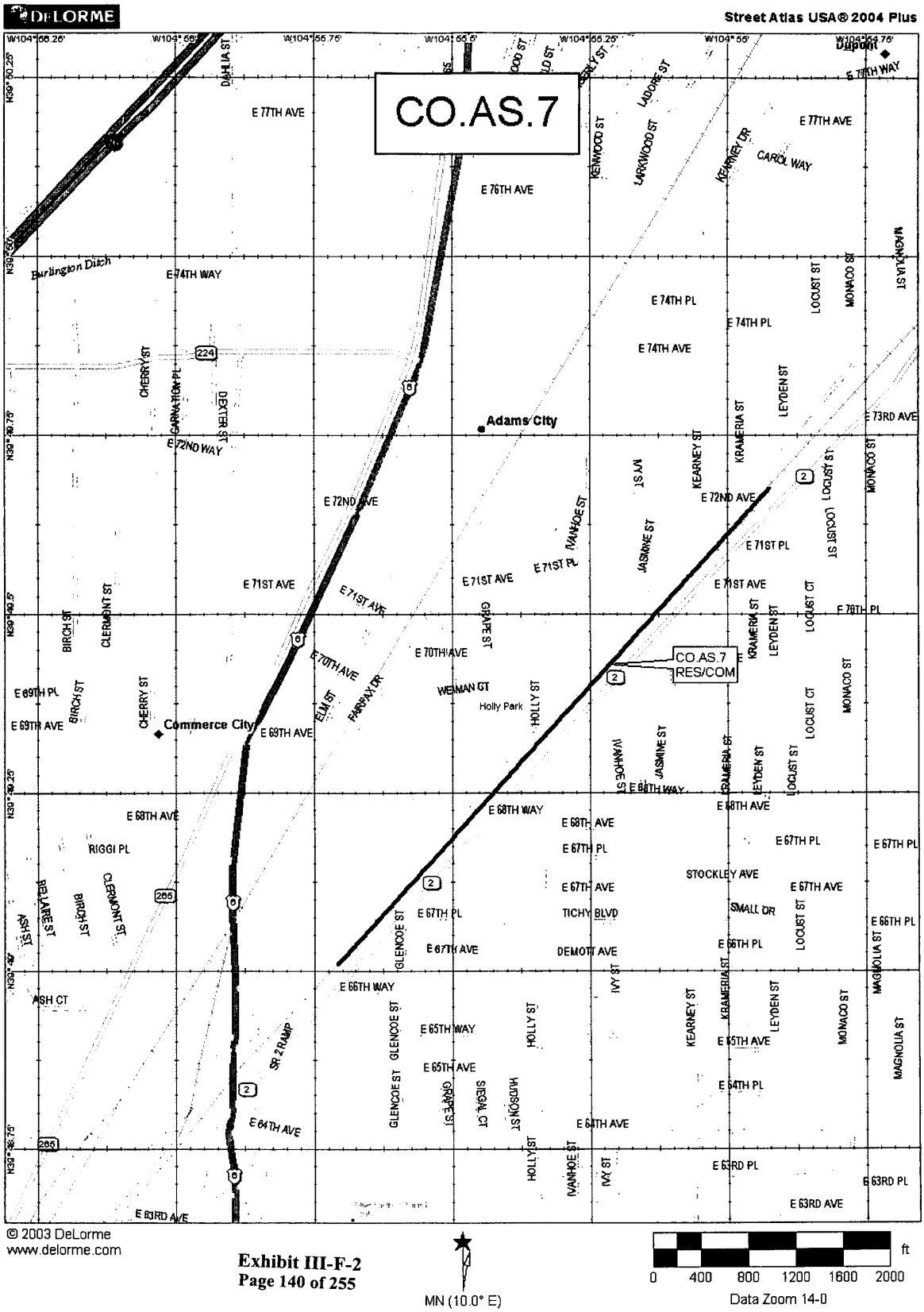
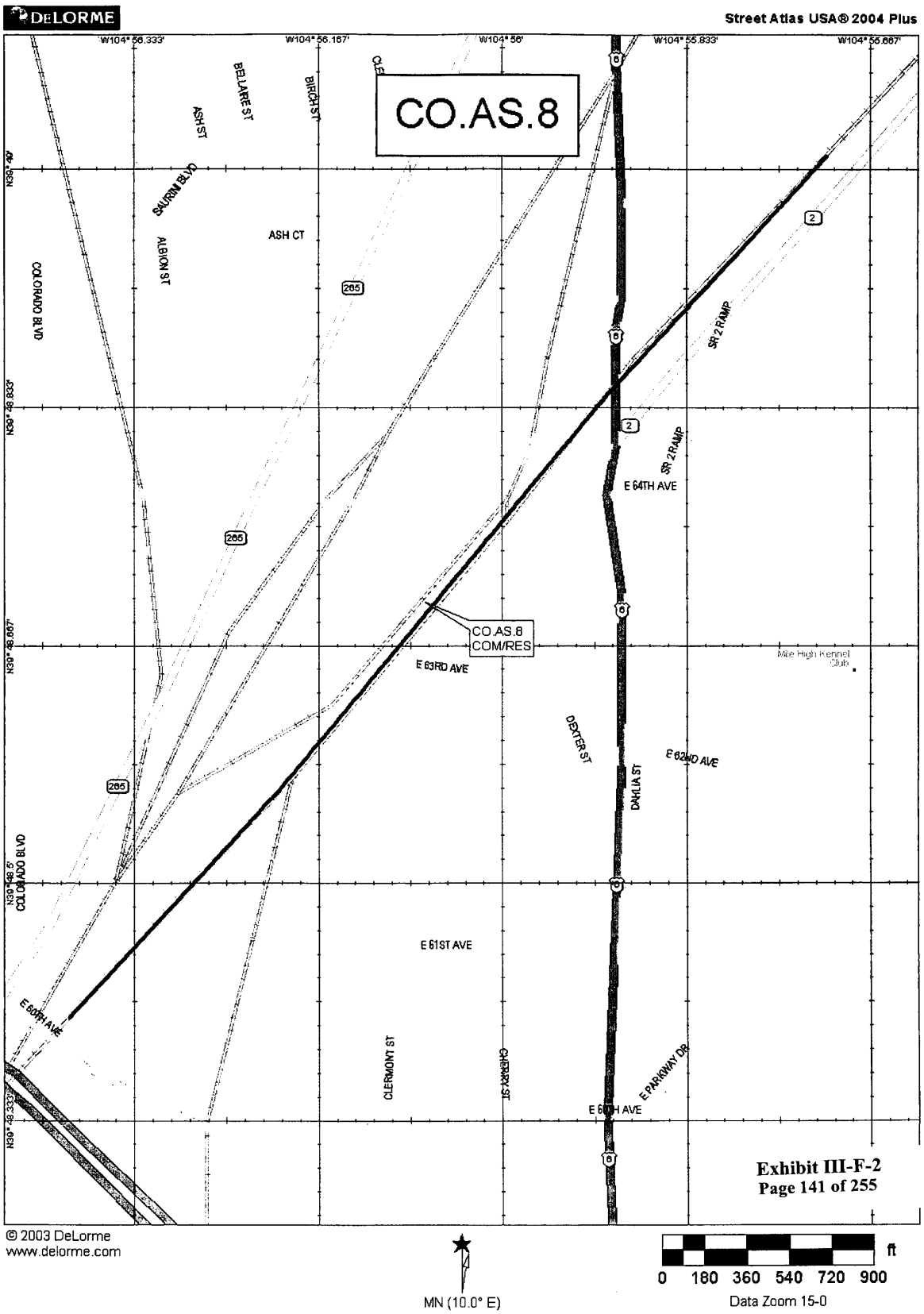
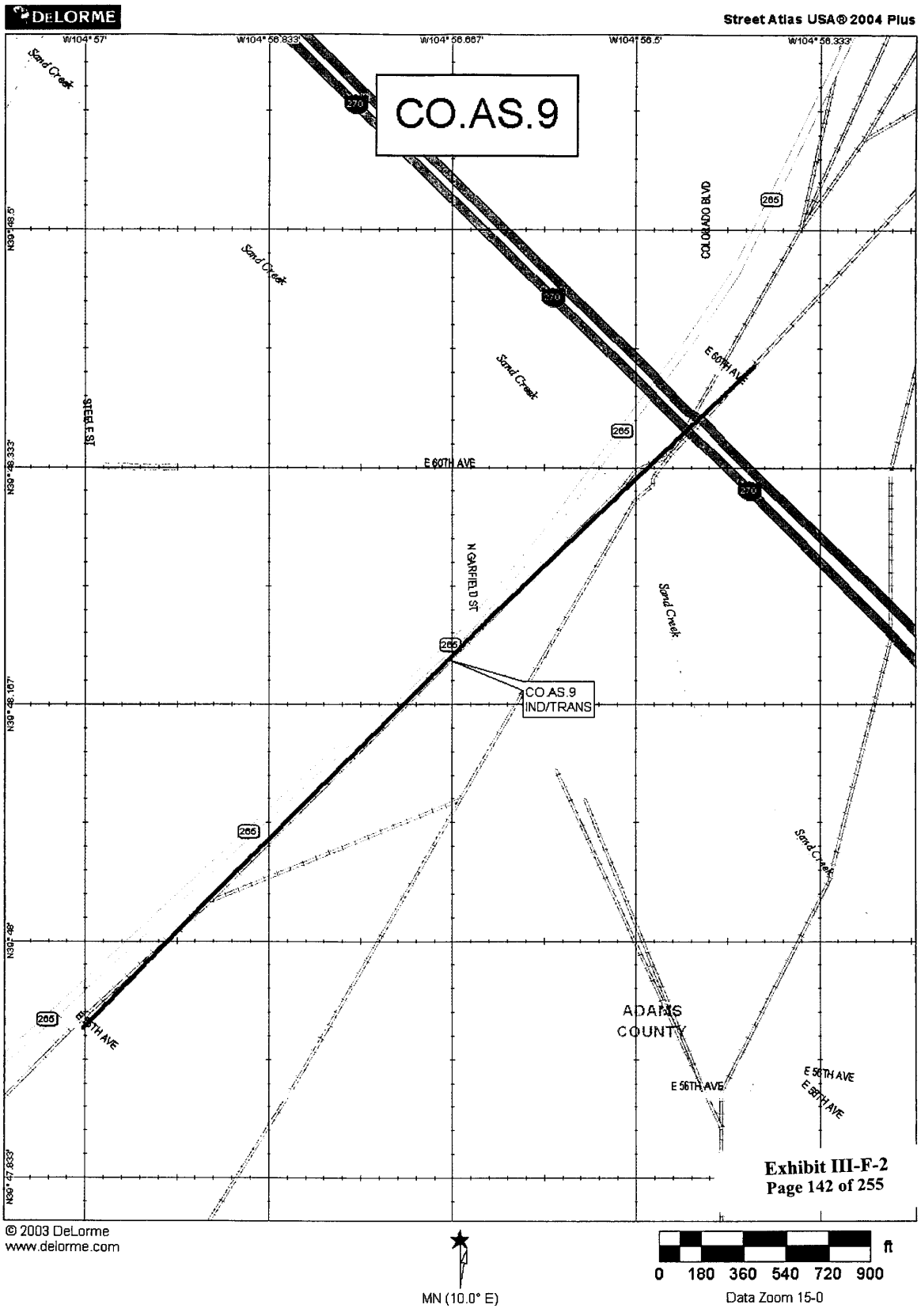
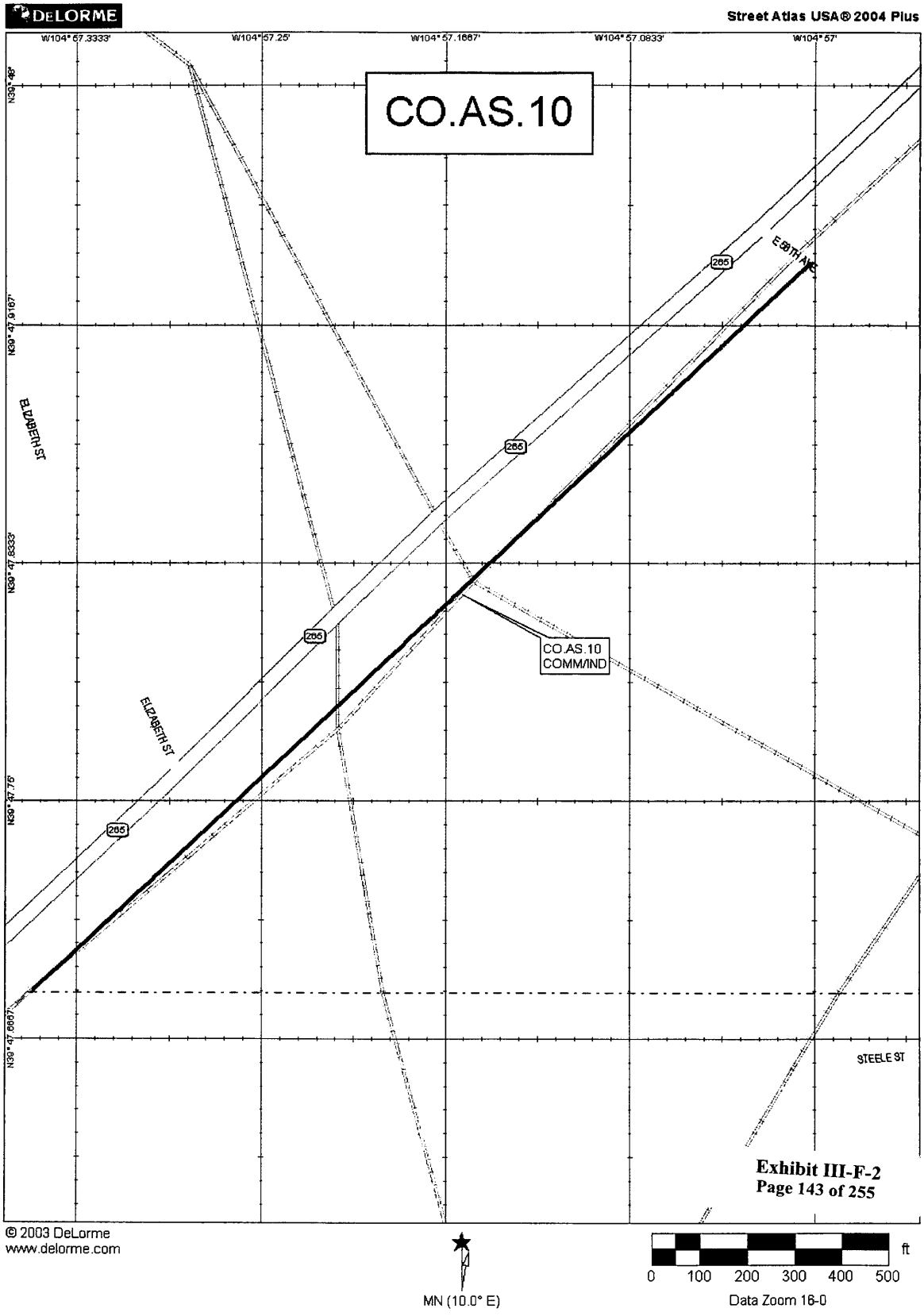


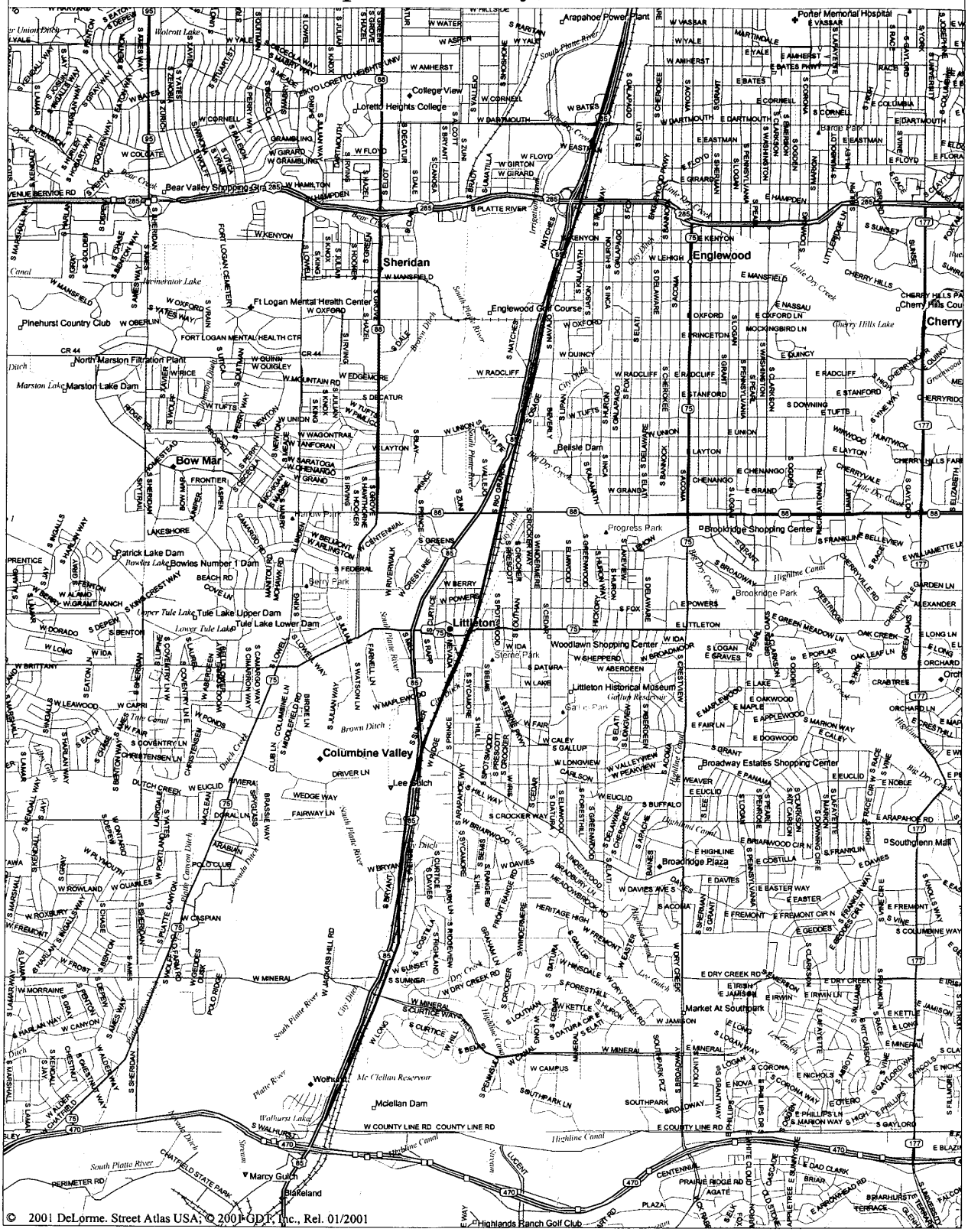
Exhibit III-F-2
Page 140 of 255

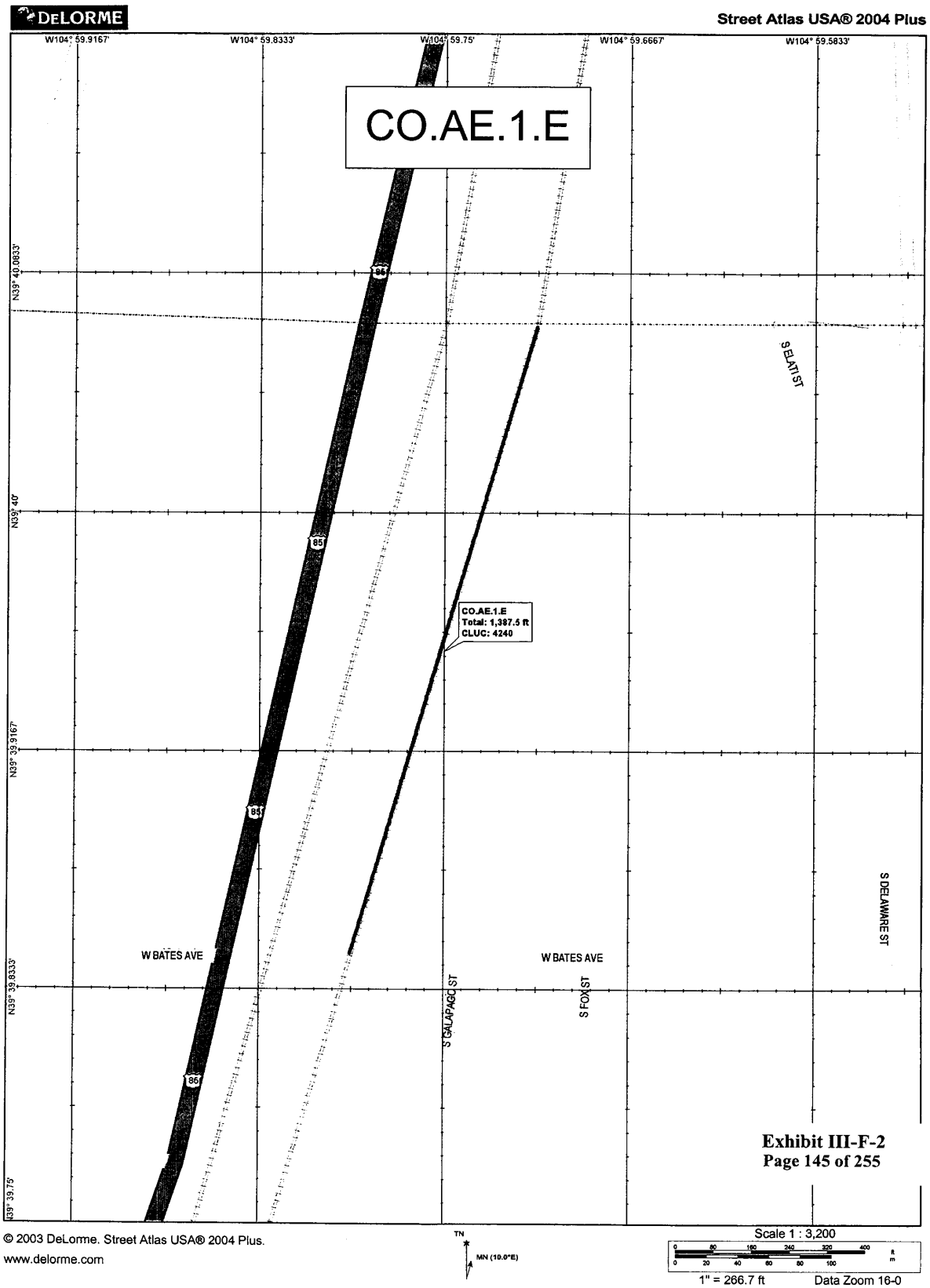

DELORME
Street Atlas USA® 2004 Plus
CO.AS.8
W104° 56.333'
W104° 56.167'
W104° 56'
W104° 55.833'
W104° 55.667'
N39° 49'
N39° 48.833'
N39° 48.667'
N39° 48.5'
N39° 48.333'
ASH ST
BELLAIRE ST
BIRCH ST
SAURIAN BLVD
ALBION ST
ASH CT
COLORADO BLVD
265
2
SR 2 RAMP
E 64TH AVE
CO.AS.8
COM/RES
E 63RD AVE
Mile High Kennel Club
DEXTER ST
DAHLIA ST
E 62ND AVE
E 61ST AVE
E 60TH AVE
CLERMONT ST
CHERRY ST
E PARKWAY DR
Exhibit III-F-2
Page 141 of 255
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MN (10.0° E)
ft
0 180 360 540 720 900
Data Zoom 15-0


DELORME
Street Atlas USA® 2004 Plus
CO.AS.9
CO.AS.9
IND/TRANS
Sand Creek
COLORADO BLVD
E 60TH AVE
N GARFIELD ST
ADAMS
COUNTY
E 56TH AVE
270
265
© 2003 DeLorme
www.delorme.com
MN (10.0° E)
0 180 360 540 720 900 ft
Data Zoom 15-0


DeLORME
Street Atlas USA® 2004 Plus
W104° 57.3333'
W104° 57.25'
W104° 57.1667'
W104° 57.0833'
W104° 57'
N39° 48'
N39° 47.9167'
N39° 47.8333'
N39° 47.75'
N39° 47.6667'
CO.AS.10
285
E 58TH AVE
ELIZABETH ST
CO.AS.10
COMM/IND
STEELE ST
© 2003 DeLorme
www.delorme.com
MN (10.0° E)
0 100 200 300 400 500 ft
Data Zoom 16-0

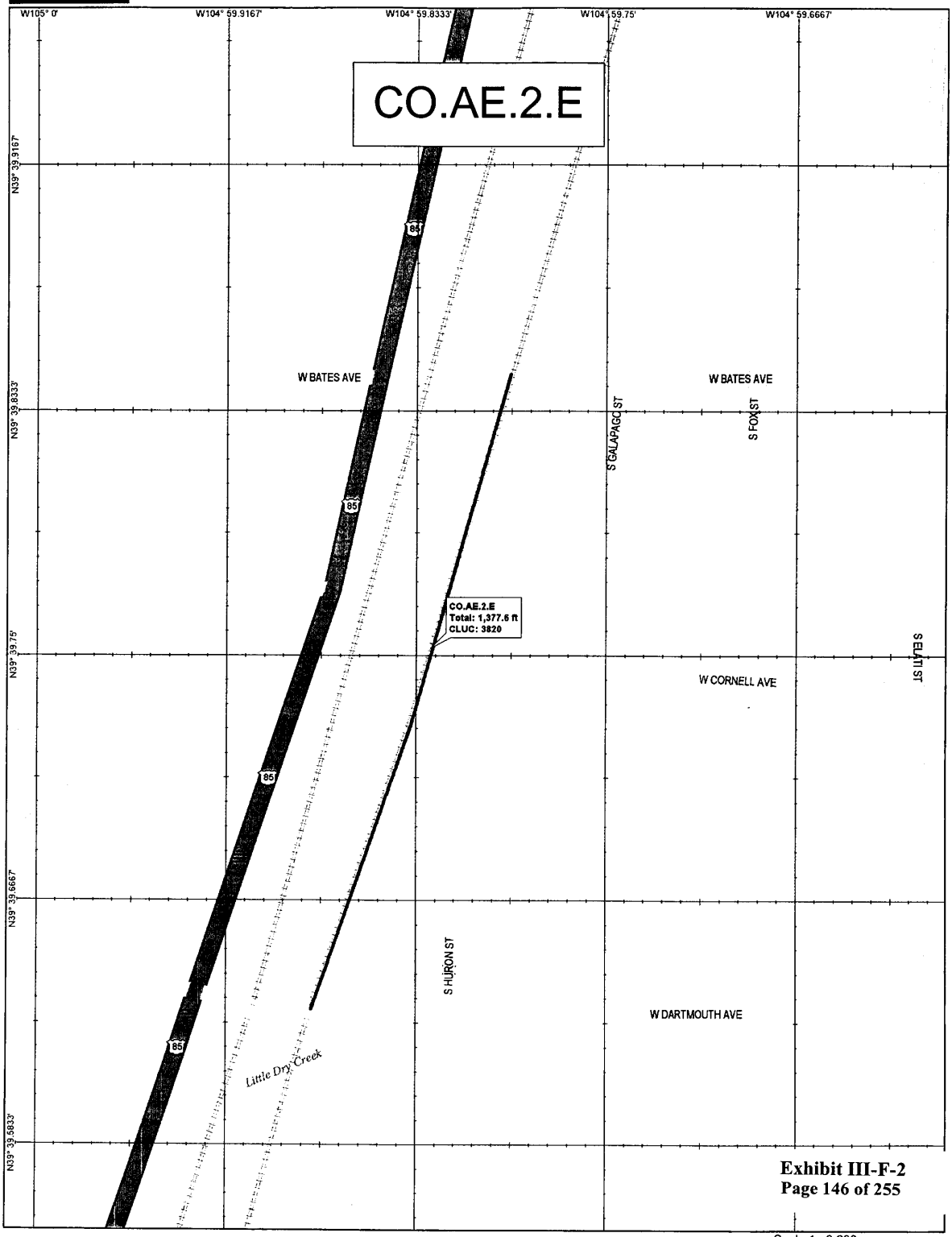
Arapahoe County, Colorado




DeLORME
Street Atlas USA® 2004 Plus
CO.AE.1.E
W104° 59.9167'
W104° 59.8333'
W104° 59.75'
W104° 59.6667'
W104° 59.5833'
N39° 40.0833'
N39° 40'
N39° 39.9167'
N39° 39.8333'
N39° 39.75'
85
S ELATI ST
CO.AE.1.E
Total: 1,387.5 ft
CLUC: 4240
W BATES AVE
W BATES AVE
S GALAPAGO ST
S FOX ST
S DELAWARE ST
Exhibit III-F-2
Page 145 of 255
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TN
MN (10.0°E)
Scale 1 : 3,200
1" = 266.7 ft
Data Zoom 16-0

DeLORME

Street Atlas USA® 2004 Plus



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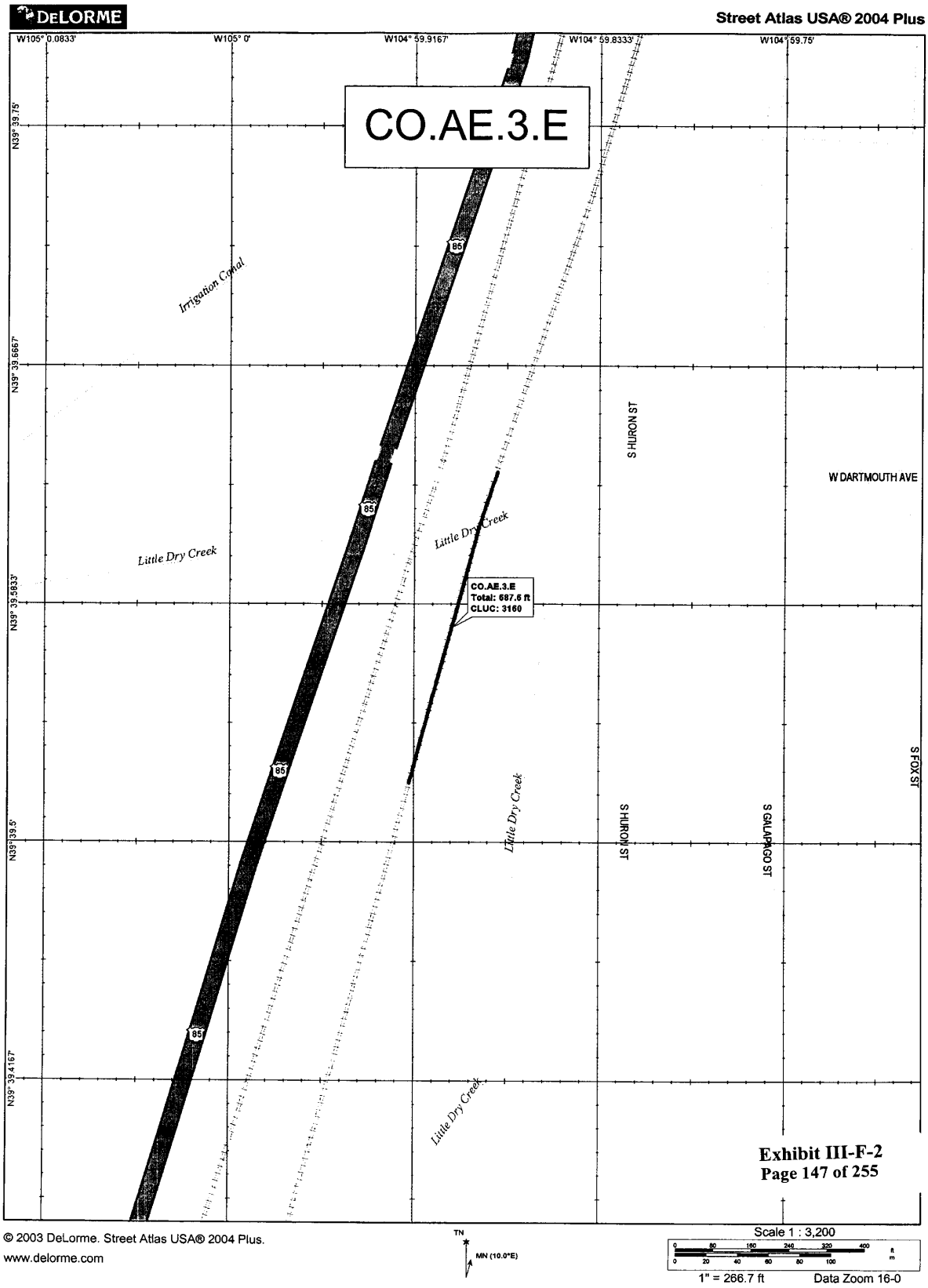
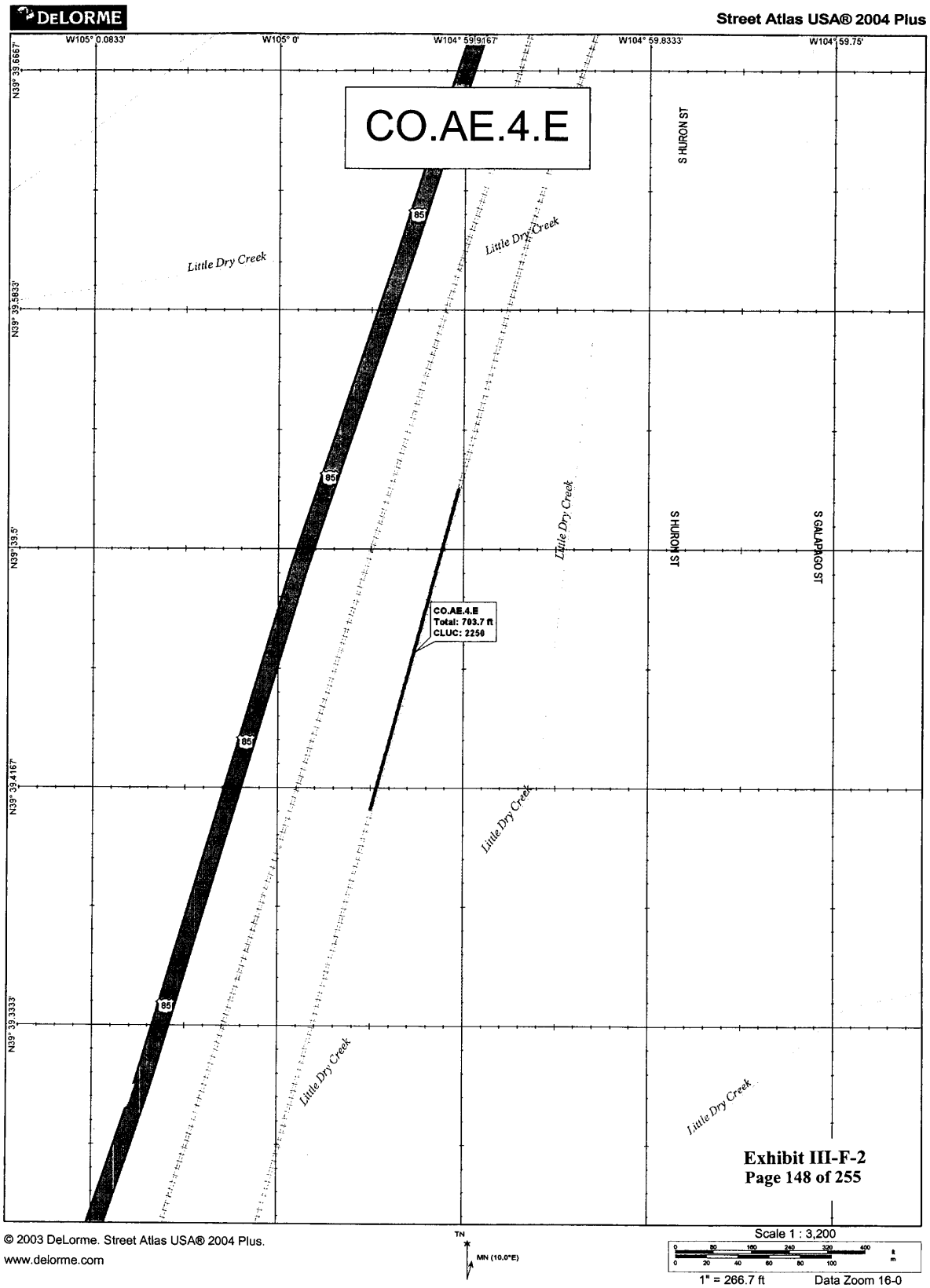


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DeLORME
Street Atlas USA® 2004 Plus
CO.AE.4.E
W105° 0.0833'
W105° 0'
W104° 59.9167'
W104° 59.8333'
W104° 59.75'
N39° 39.6667'
N39° 39.5833'
N39° 39.5'
N39° 39.4167'
N39° 39.3333'
S HURON ST
S GALAPAGO ST
Little Dry Creek
85
CO.AE.4.E
Total: 703.7 ft
CLUC: 2250
Exhibit III-F-2
Page 148 of 255
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www.delorme.com
TN
MN (10.0°E)
Scale 1 : 3,200
1" = 266.7 ft
Data Zoom 16-0

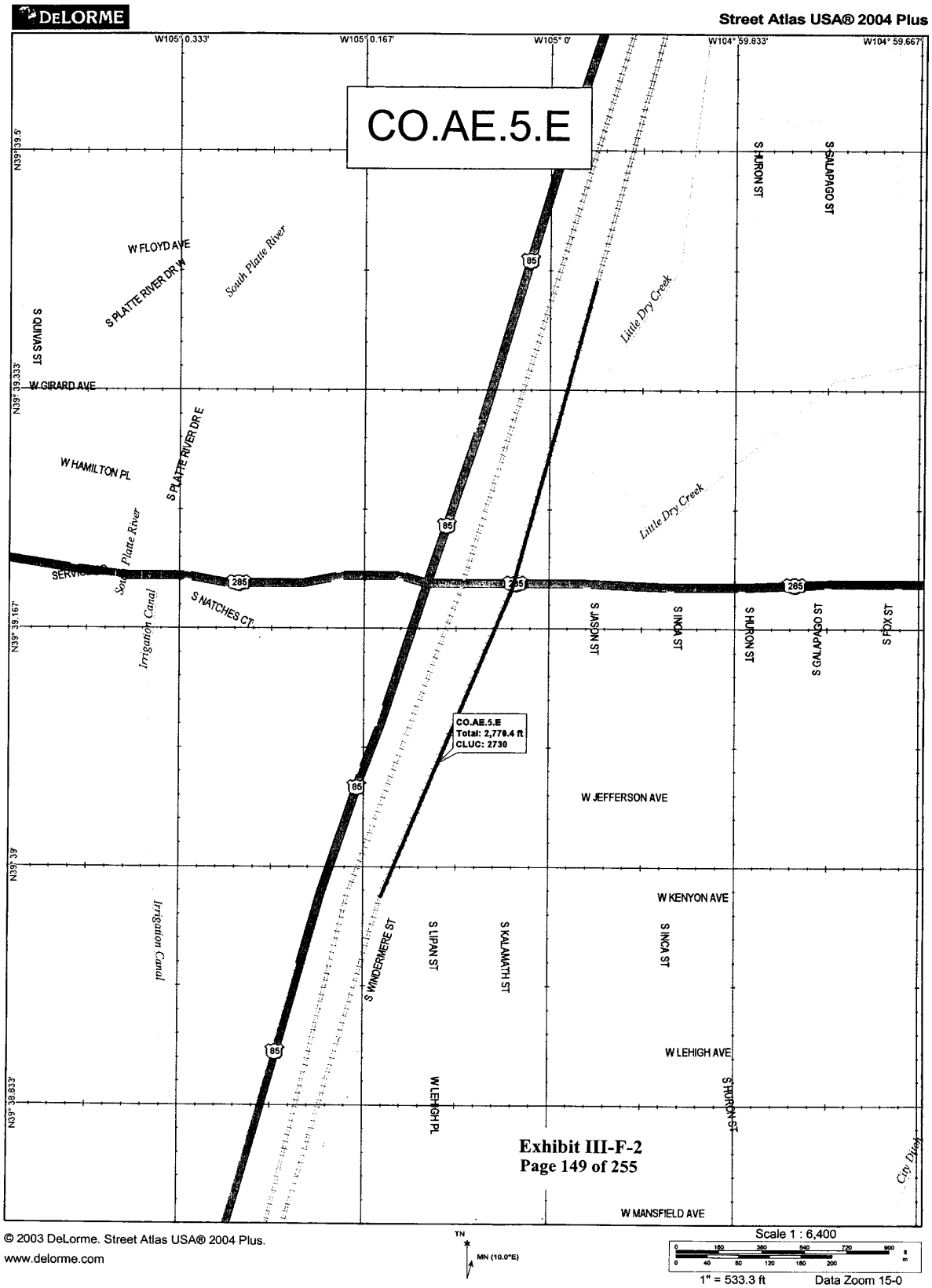
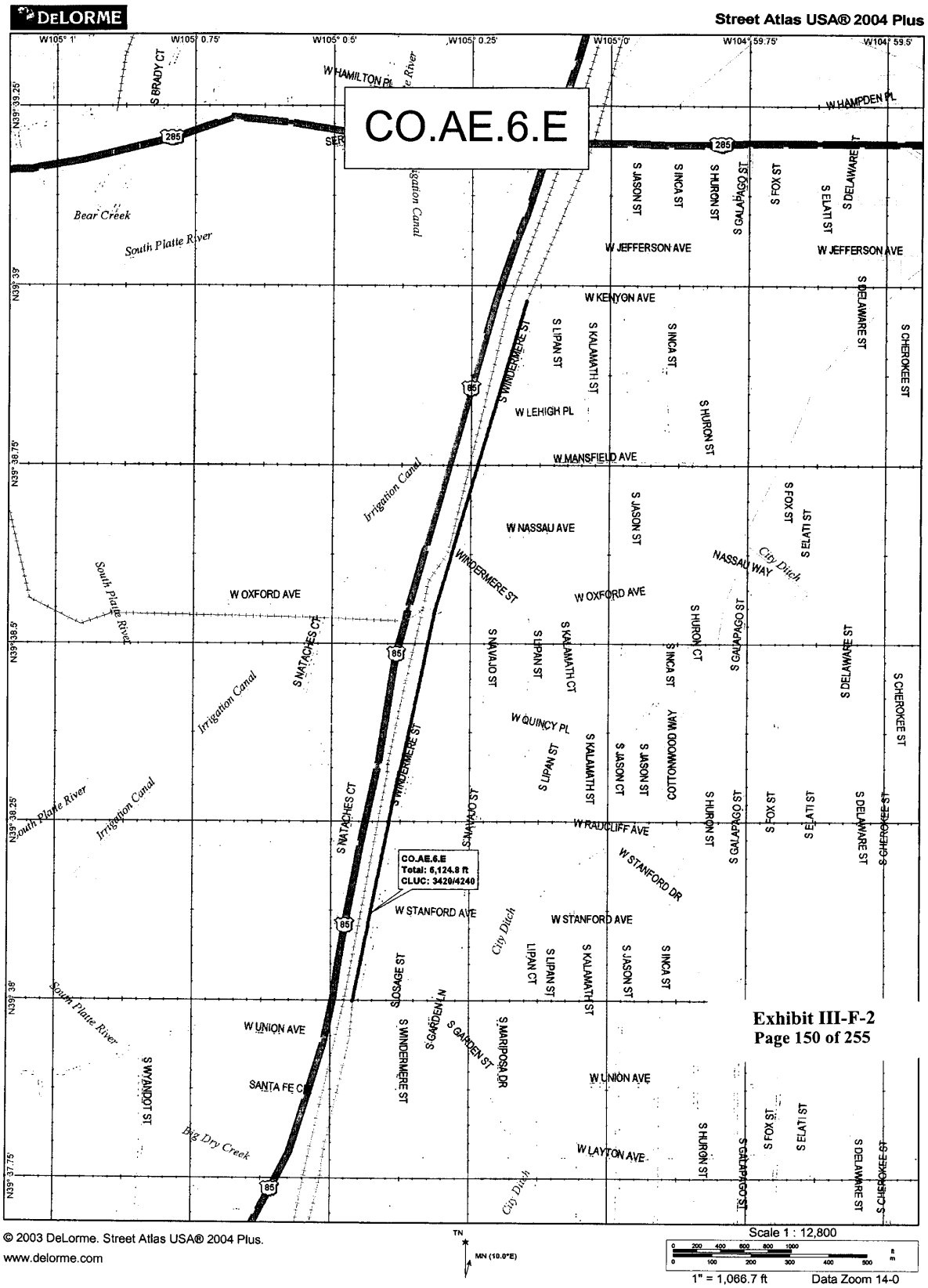


Exhibit III-F-2
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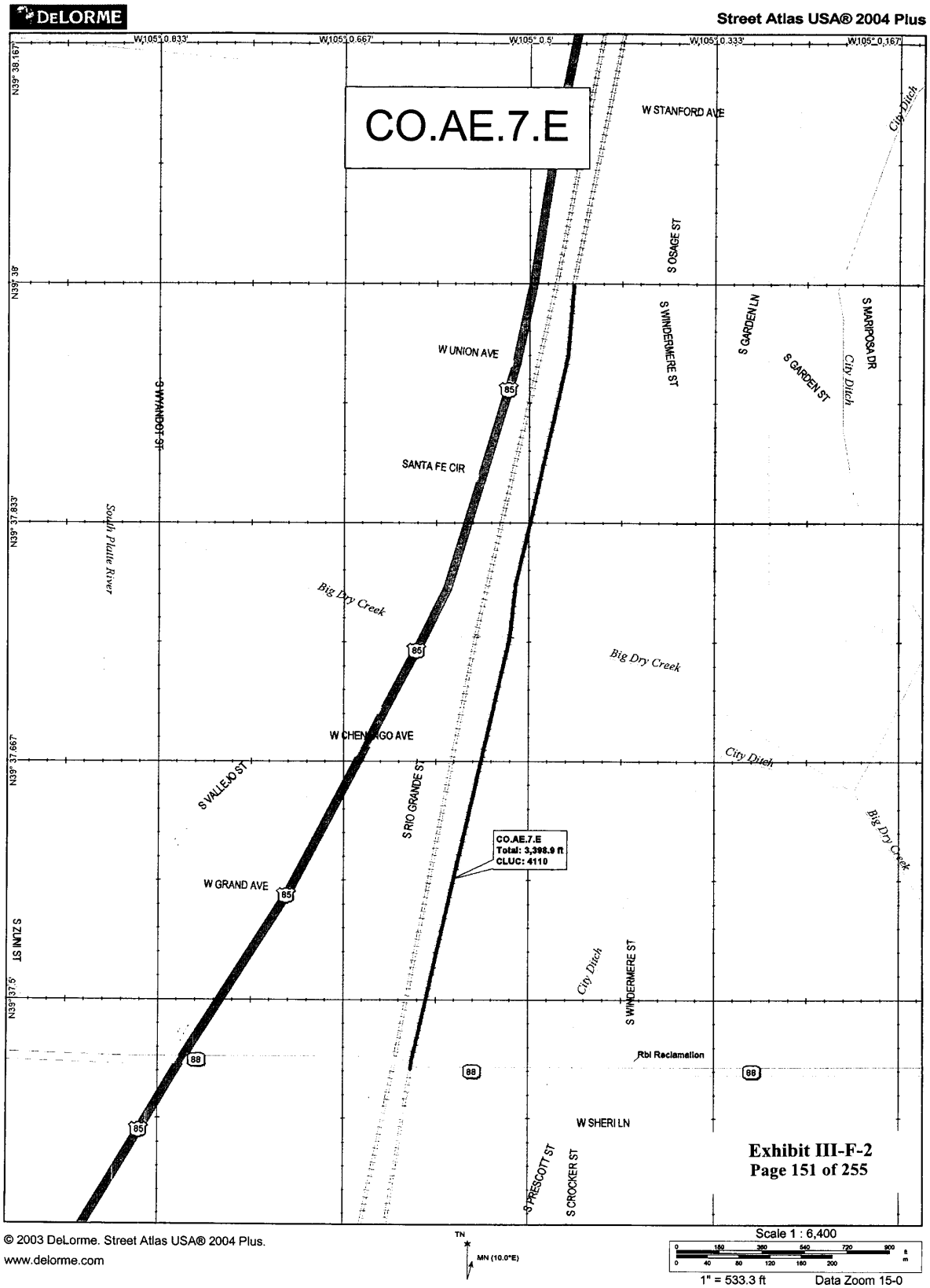


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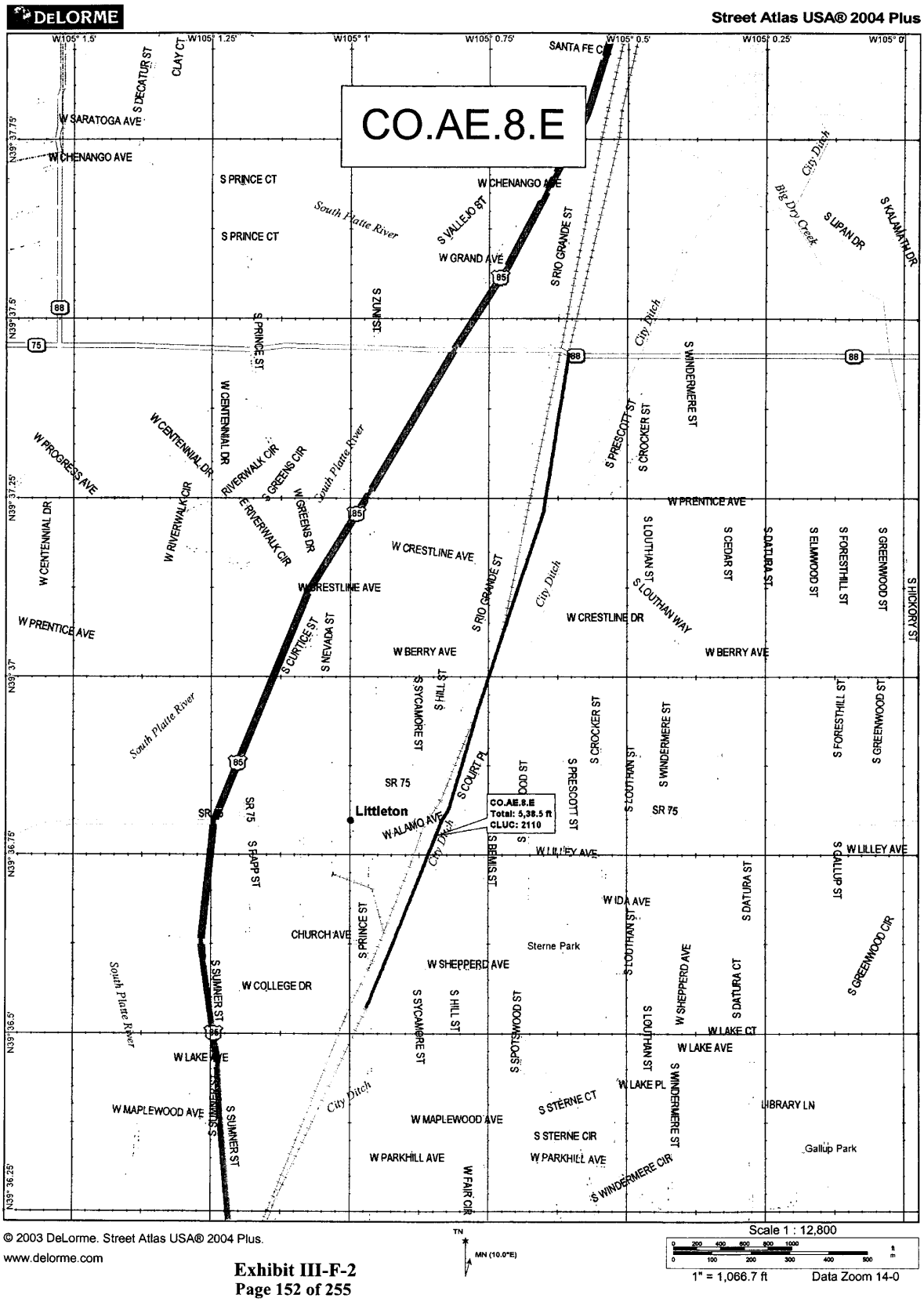
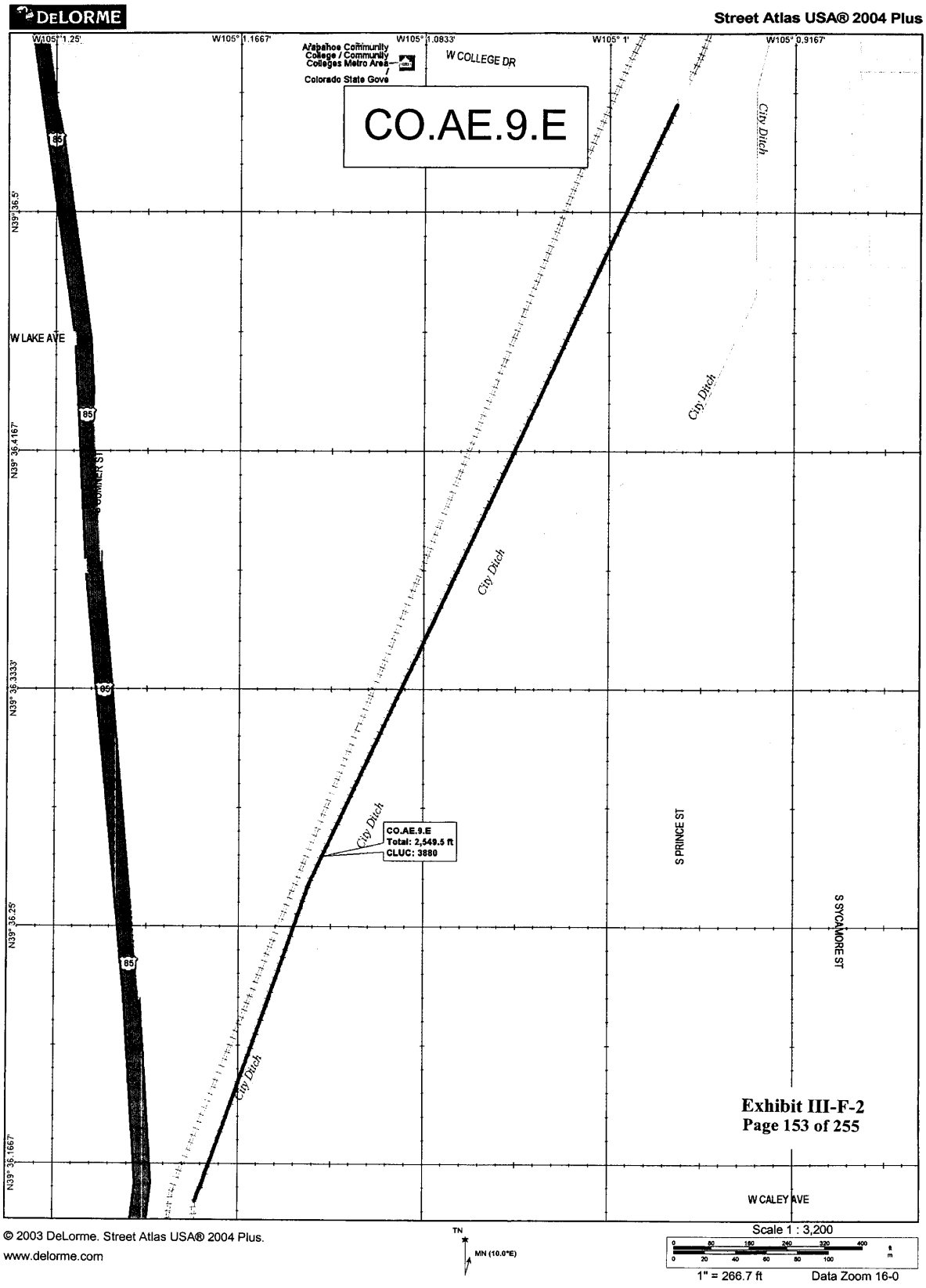


Exhibit III-F-2
Page 152 of 255


DeLORME
Street Atlas USA® 2004 Plus
W105° 1.25'
W105° 1.1667'
W105° 1.0833'
W105° 1'
W105° 0.9167'
Arapahoe Community College / Community Colleges Metro Area / Colorado State Gove
W COLLEGE DR
CO.AE.9.E
City Ditch
N39° 36.5'
W LAKE AVE
85
S SUMNER ST
N39° 36.4167'
N39° 36.3333'
CO.AE.9.E
Total: 2,549.5 ft
CLUC: 3880
S PRINCE ST
S SYCAMORE ST
N39° 36.25'
N39° 36.1667'
W CALEY AVE
Exhibit III-F-2
Page 153 of 255
© 2003 DeLorme. Street Atlas USA® 2004 Plus.
www.delorme.com
TN
MN (10.0°E)
Scale 1 : 3,200
1" = 266.7 ft
Data Zoom 16-0

DeLORME

Street Atlas USA® 2004 Plus

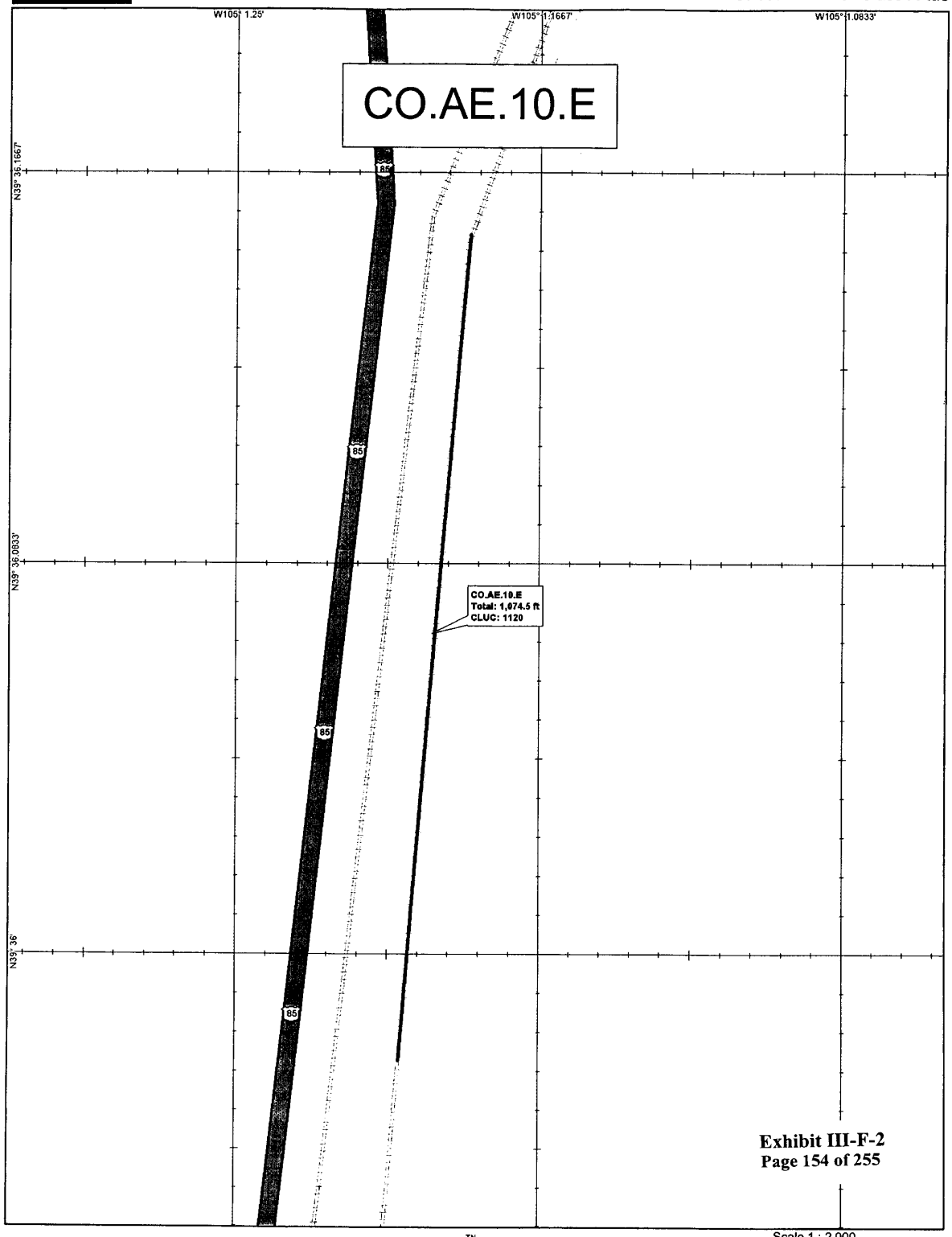
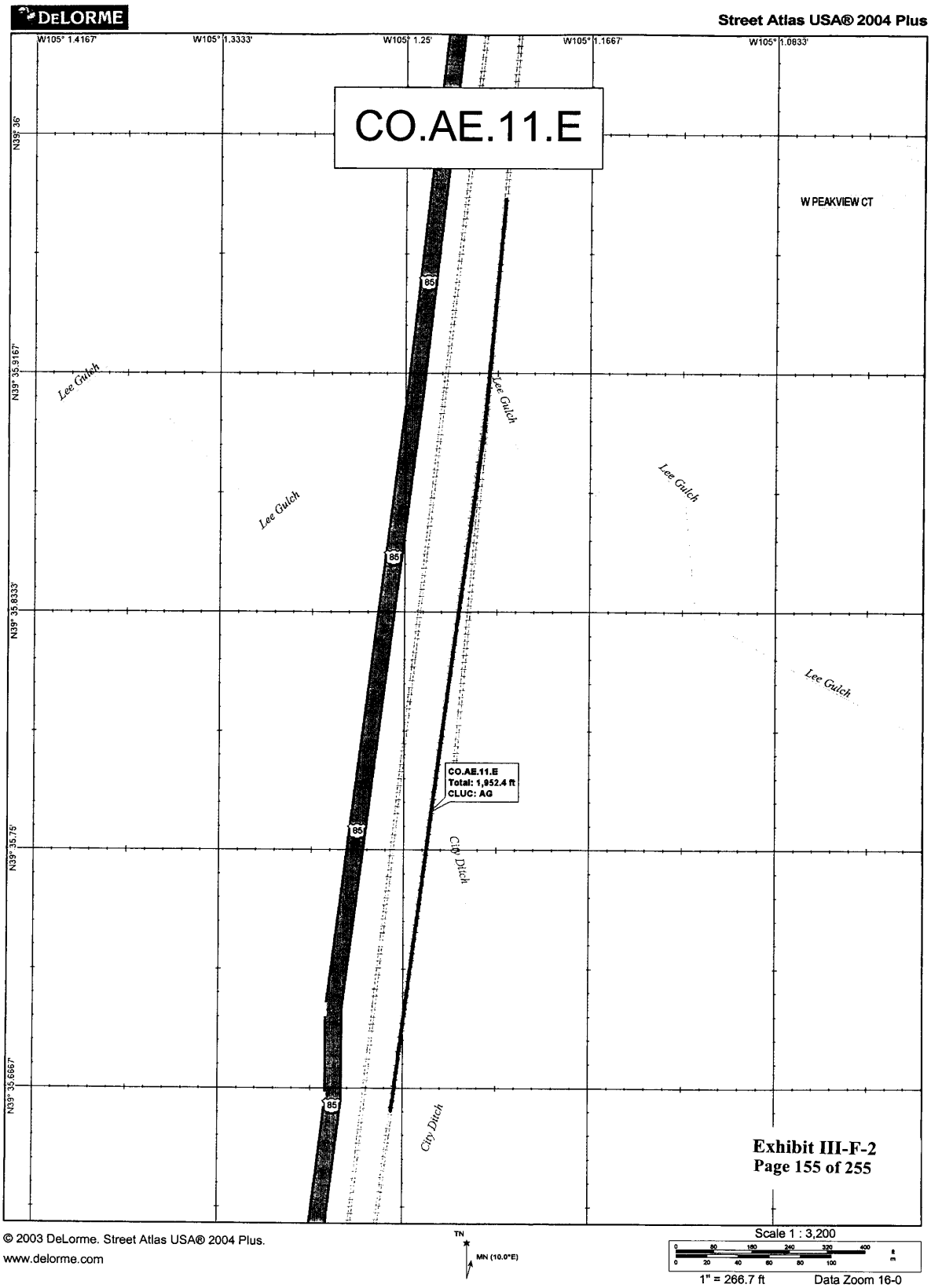
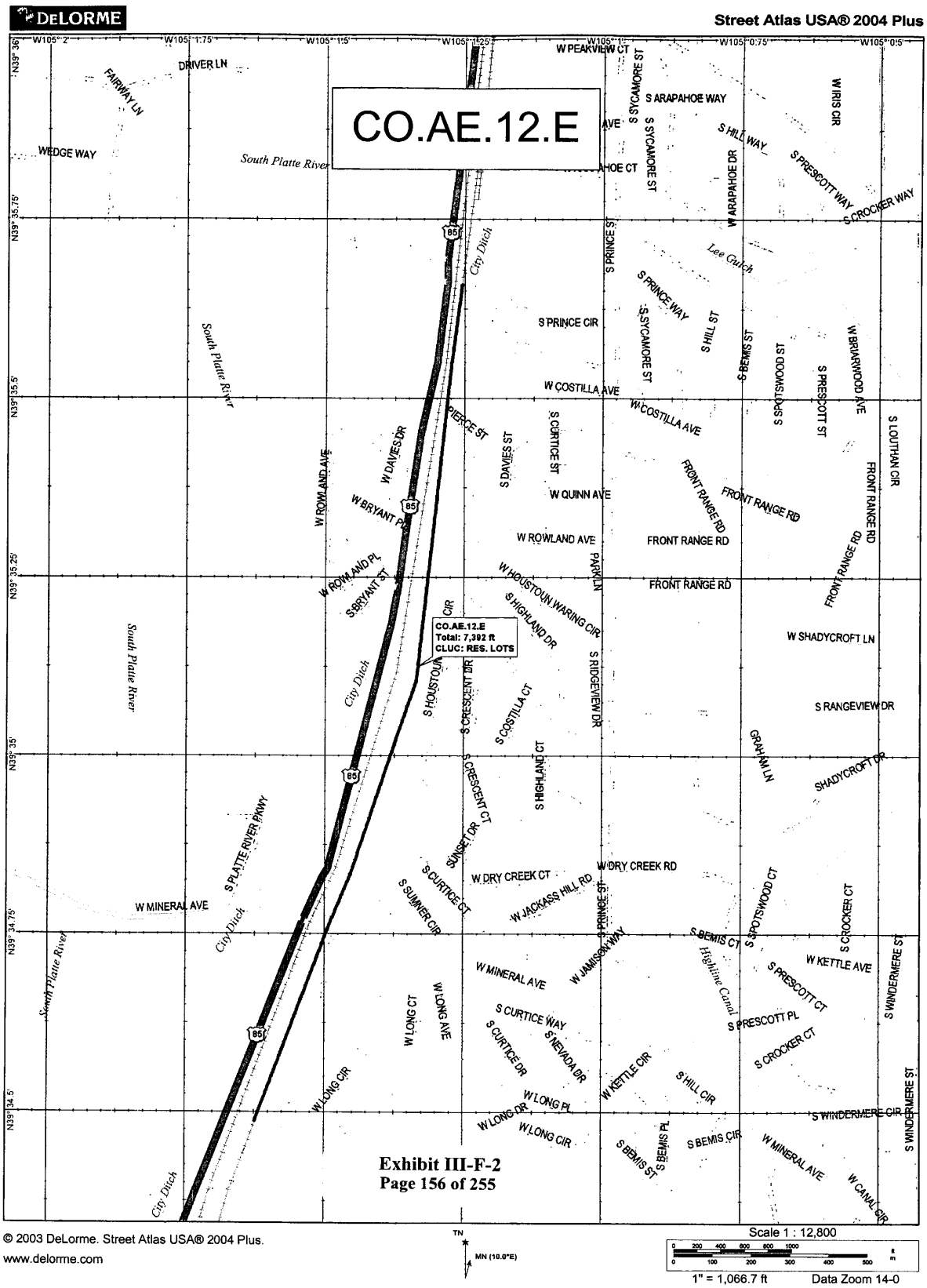


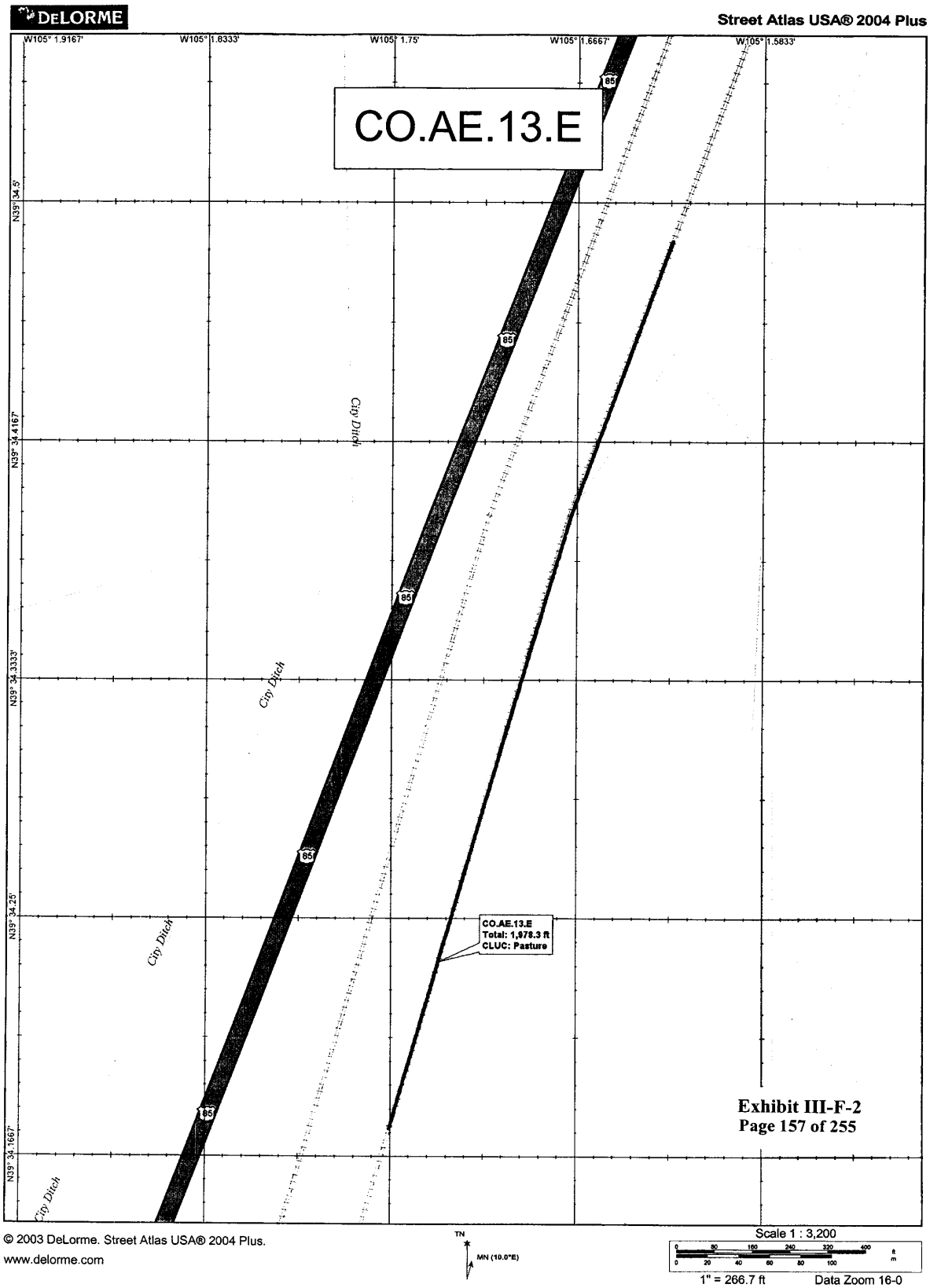
Exhibit III-F-2
Page 154 of 255

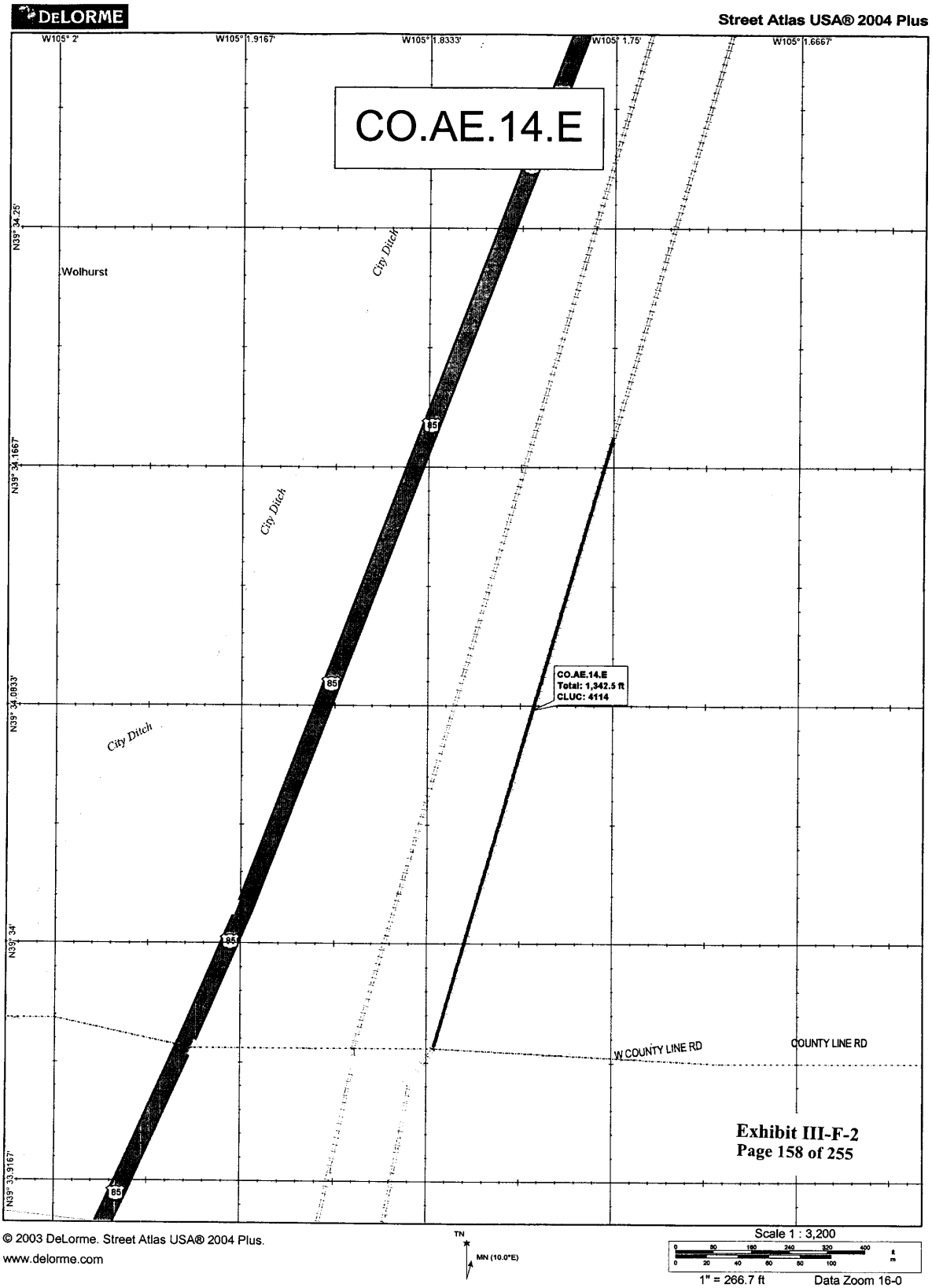
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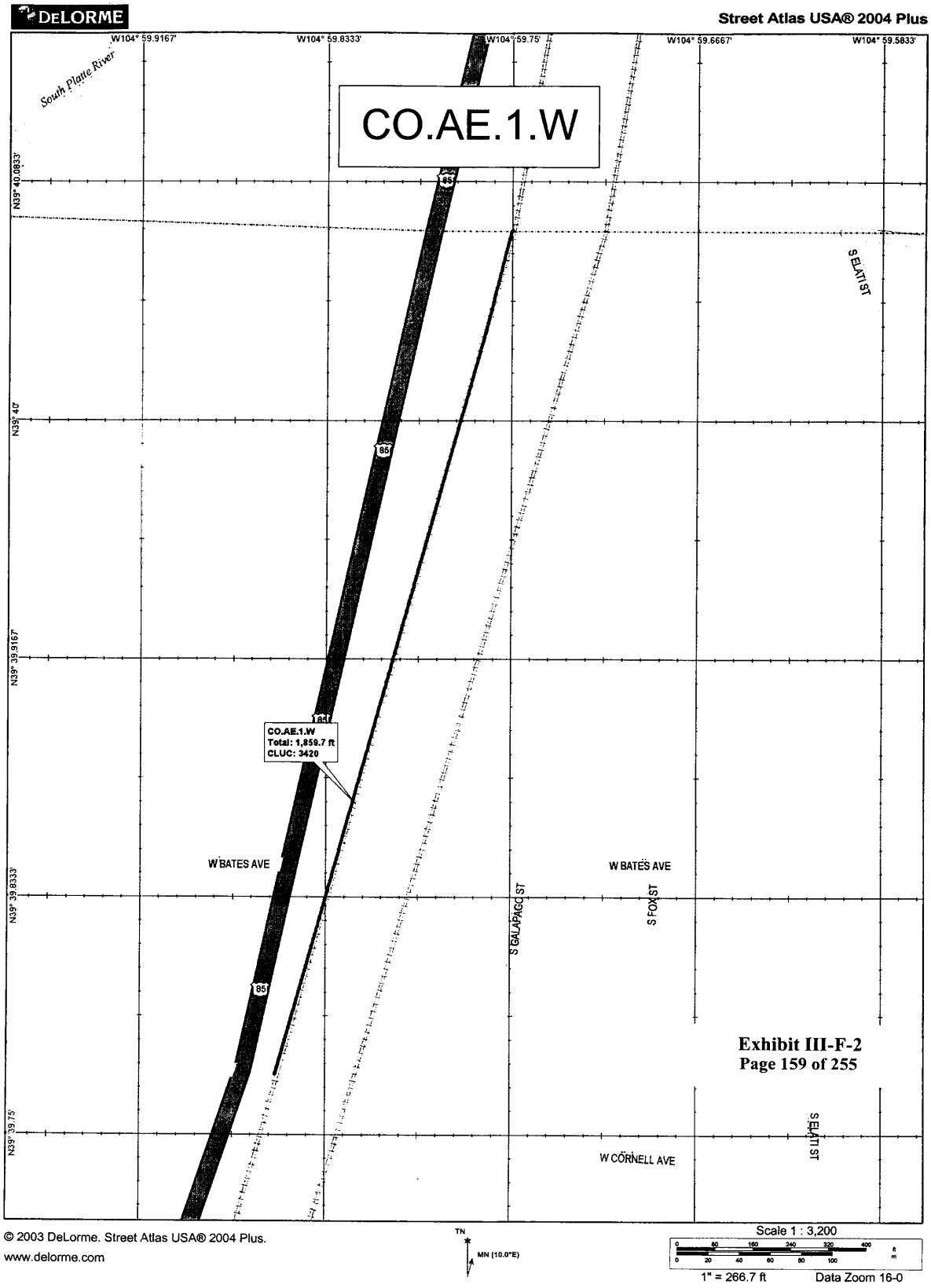

DeLORME
Street Atlas USA® 2004 Plus
W105° 1.4167'
W105° 1.3333'
W105° 1.25'
W105° 1.1667'
W105° 1.0833'
N39° 36'
N39° 35.9167'
N39° 35.8333'
N39° 35.75'
N39° 35.6667'
CO.AE.11.E
W PEAKVIEW CT
Lee Gulch
Lee Gulch
Lee Gulch
Lee Gulch
Lee Gulch
85
85
85
85
CO.AE.11.E
Total: 1,952.4 ft
CLUC: AG
City Ditch
City Ditch
Exhibit III-F-2
Page 155 of 255
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www.delorme.com
TN
MN (10.0°E)
Scale 1 : 3,200
1" = 266.7 ft
Data Zoom 16-0

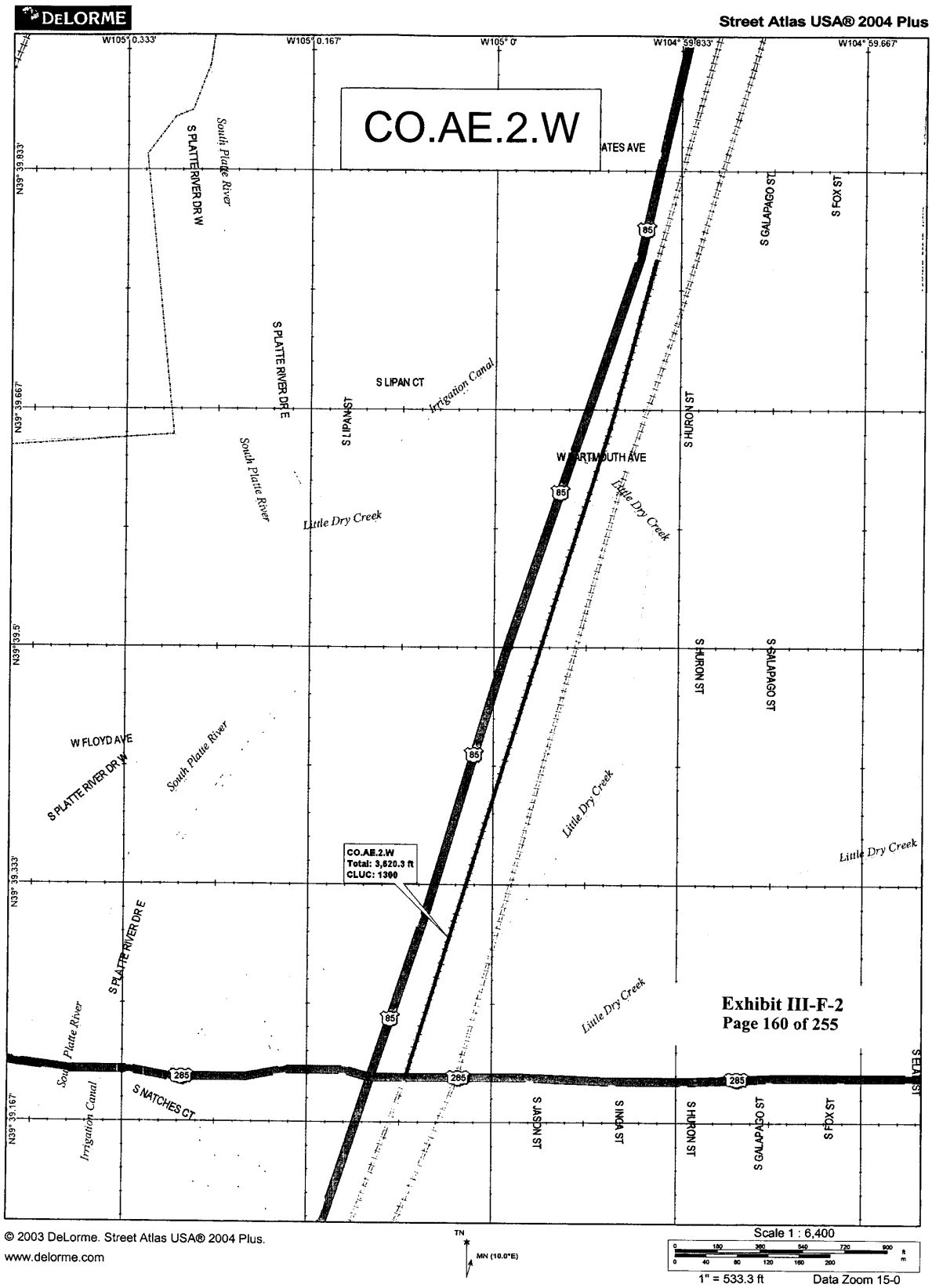


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DeLORME
Street Atlas USA® 2004 Plus
CO.AE.13.E
W105° 1.9167'
W105° 1.8333'
W105° 1.75'
W105° 1.6667'
W105° 1.5833'
N39° 34.5'
N39° 34.4167'
N39° 34.3333'
N39° 34.25'
N39° 34.1667'
85
City Ditch
CO.AE.13.E
Total: 1,978.3 ft
CLUC: Pasture
Exhibit III-F-2
Page 157 of 255
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TN
MN (10.0°E)
Scale 1 : 3,200
1" = 266.7 ft
Data Zoom 16-0


DeLORME
Street Atlas USA® 2004 Plus
CO.AE.14.E
W105° 2'
W105° 1.9167'
W105° 1.8333'
W105° 1.75'
W105° 1.6667'
N39° 34.25'
N39° 34.1667'
N39° 34.0833'
N39° 34'
N39° 33.9167'
Wolhurst
City Ditch
City Ditch
City Ditch
25
85
85
85
CO.AE.14.E
Total: 1,342.5 ft
CLUC: 4114
W COUNTY LINE RD
COUNTY LINE RD
Exhibit III-F-2
Page 158 of 255
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TN
MN (10.0°E)
Scale 1 : 3,200
1" = 266.7 ft
Data Zoom 16-0


DeLORME
Street Atlas USA® 2004 Plus
CO.AE.1.W
W104° 59.9167'
W104° 59.8333'
W104° 59.75'
W104° 59.6667'
W104° 59.5833'
South Platte River
N39° 40.0833'
N39° 40'
N39° 39.9167'
N39° 39.8333'
N39° 39.75'
S ELATI ST
CO.AE.1.W
Total: 1,859.7 ft
CLUC: 3420
W BATES AVE
W BATES AVE
S GALAPAGO ST
S FOX ST
W CORNELL AVE
S ELATI ST
85
Exhibit III-F-2
Page 159 of 255
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TN
MN (10.0°E)
Scale 1 : 3,200
1" = 266.7 ft
Data Zoom 16-0


DeLORME
Street Atlas USA® 2004 Plus
CO.AE.2.W
W105° 0.333'
W105° 0.167'
W105° 0'
W104° 59.833'
W104° 59.667'
N39° 39.833'
N39° 39.667'
N39° 39.5'
N39° 39.333'
N39° 39.167'
S PLATTE RIVER DR W
S PLATTE RIVER DR E
South Platte River
Irrigation Canal
Little Dry Creek
S LIPAN CT
S LIPAN ST
W HARTMOUTH AVE
W FLOYD AVE
S NATCHES CT
S HURON ST
S GALAPAGO ST
S FOX ST
S JASON ST
S INCA ST
S ELATI ST
85
285
CO.AE.2.W
Total: 3,620.3 ft
CLUC: 1300
Exhibit III-F-2
Page 160 of 255
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www.delorme.com
TN
MN (10.0°E)
Scale 1 : 6,400
1" = 533.3 ft
Data Zoom 15-0

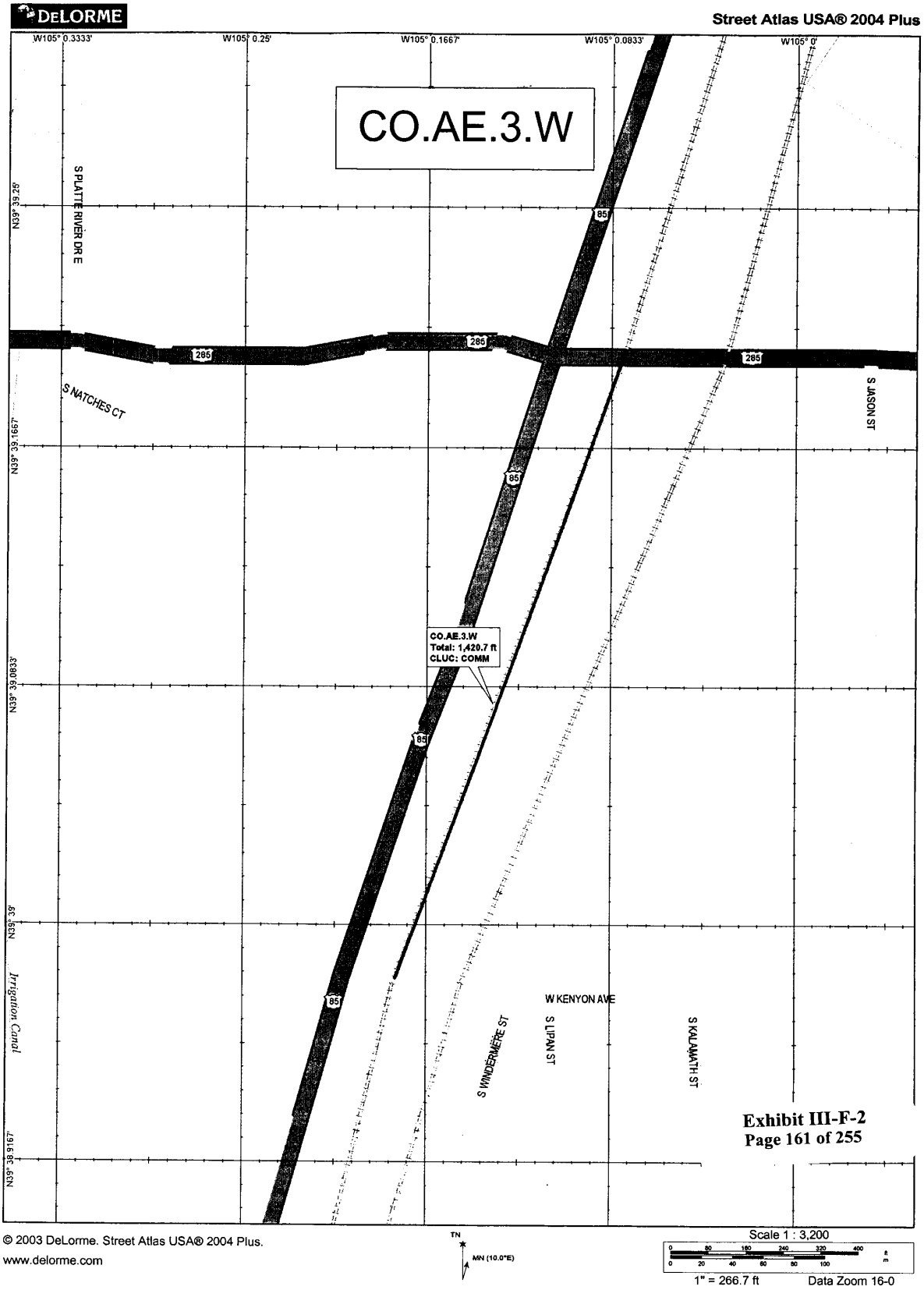
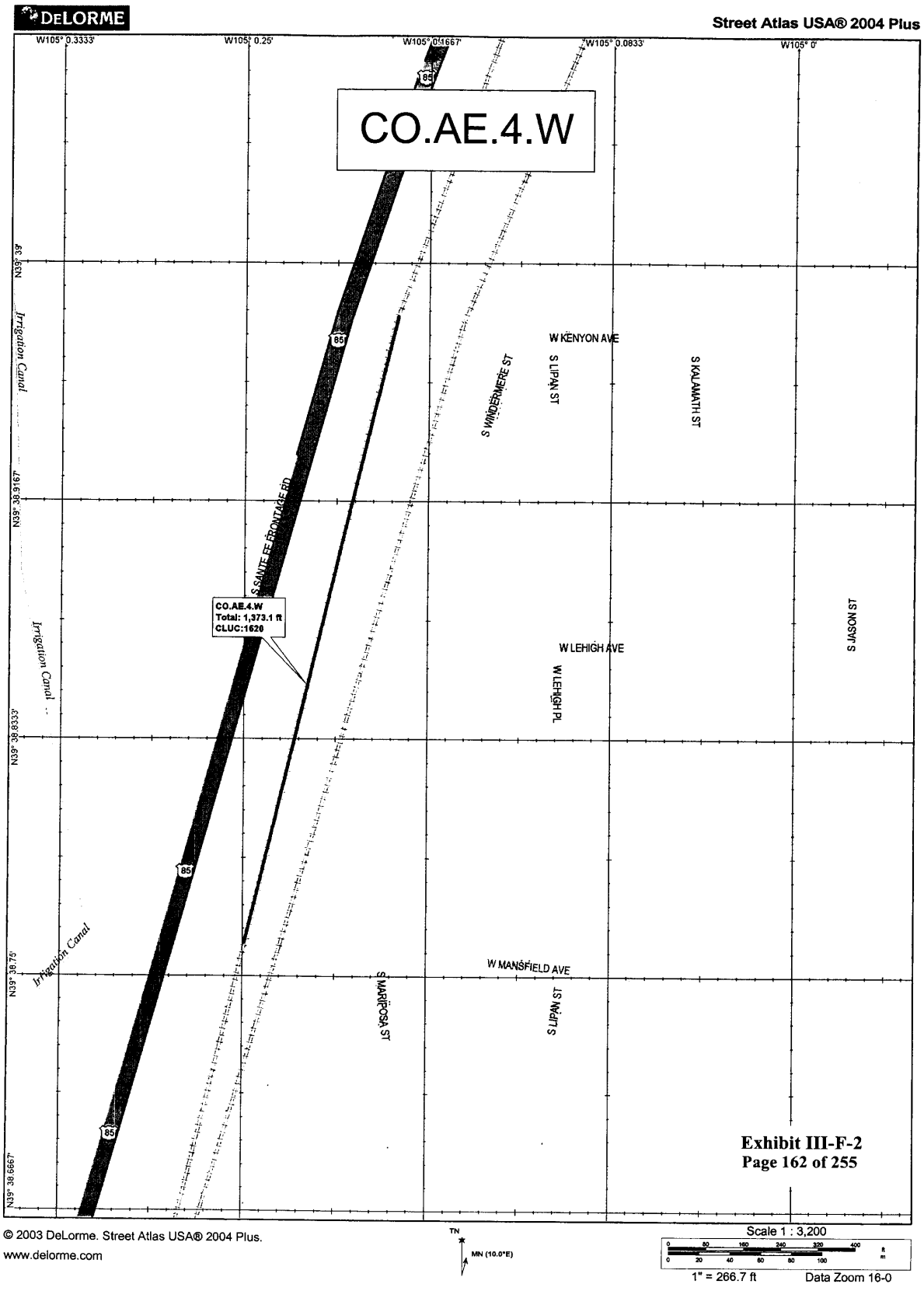
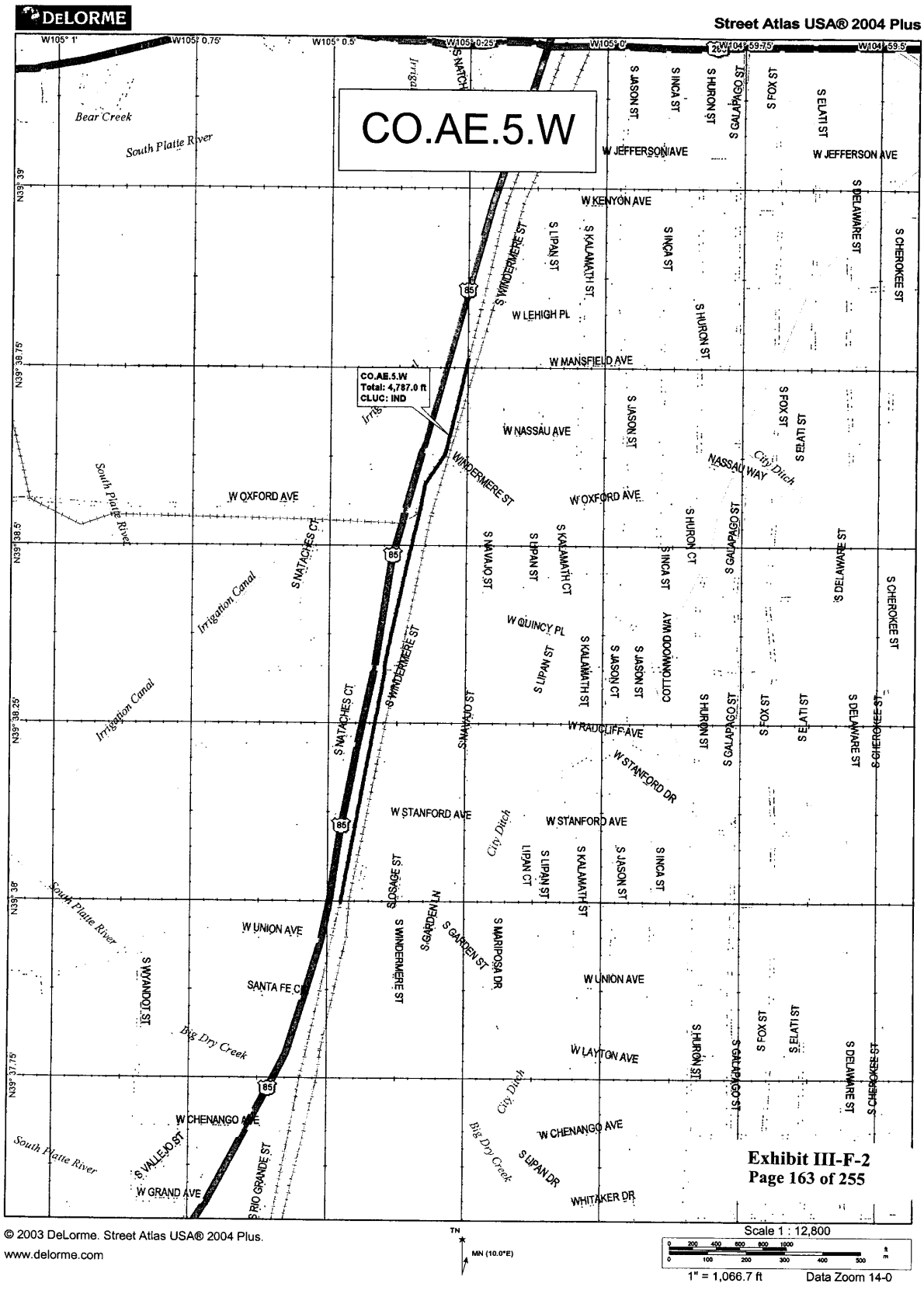
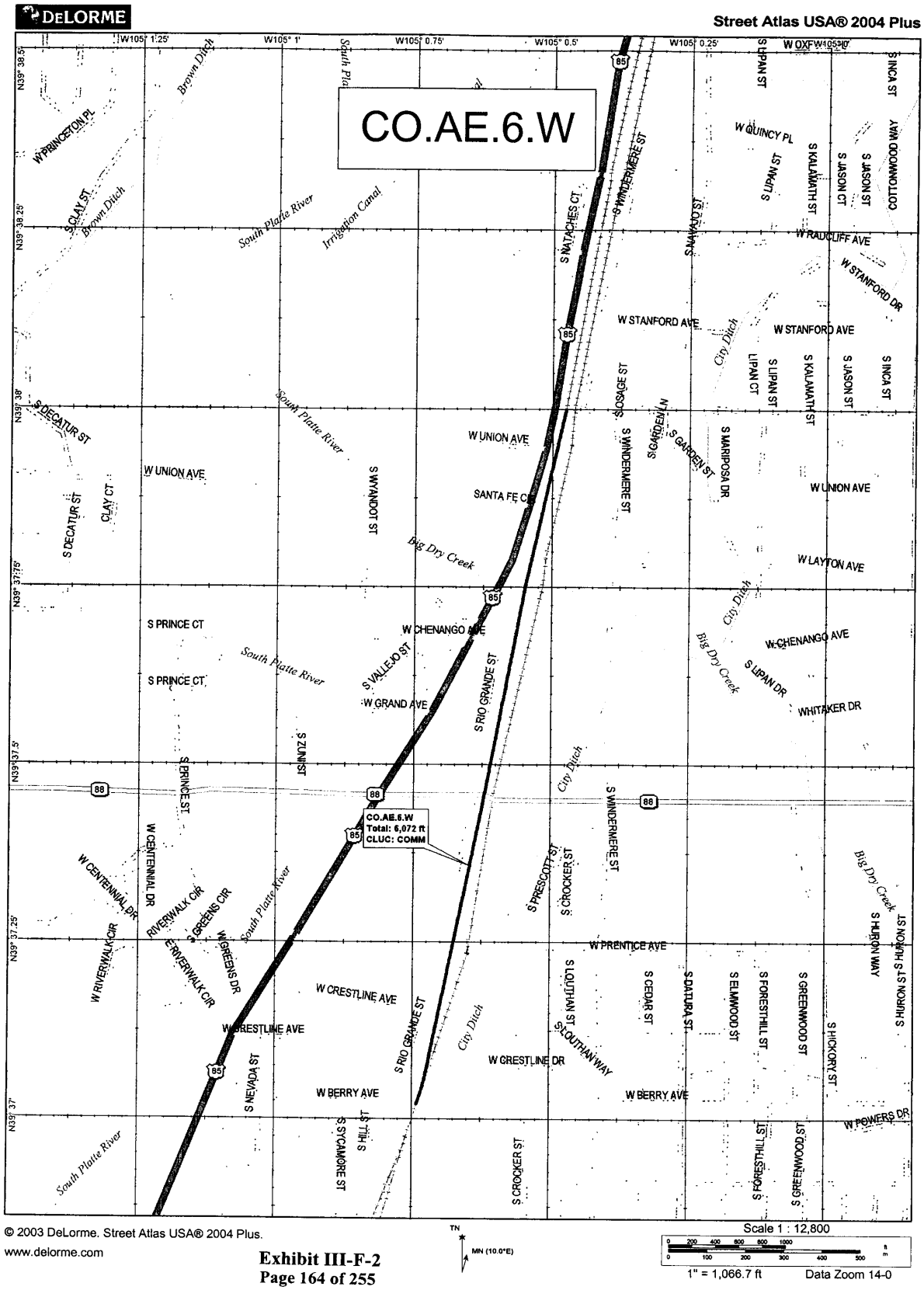


Exhibit III-F-2
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DeLORME
Street Atlas USA® 2004 Plus
CO.AE.4.W
W105° 0.3333'
W105° 0.25'
W105° 0.1667'
W105° 0.0833'
W105° 0'
N39° 39'
N39° 38.9167'
N39° 38.8333'
N39° 38.75'
N39° 38.6667'
Irrigation Canal
S SANTE FE FRONTAGE RD
S WINDERMERE ST
S LIPAN ST
S KALAMATH ST
S JASON ST
W KENYON AVE
W LEHIGH AVE
W LEHIGH PL
W MANSFIELD AVE
S MARIPOSA ST
CO.AE.4.W
Total: 1,373.1 ft
CLUC:1620
85
Exhibit III-F-2
Page 162 of 255
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TN
MN (10.0°E)
Scale 1 : 3,200
1" = 266.7 ft
Data Zoom 16-0


DeLORME
Street Atlas USA® 2004 Plus
CO.AE.5.W
CO.AE.5.W
Total: 4,787.0 ft
CLUC: IND
W JEFFERSON AVE
W KENYON AVE
W LEHIGH PL
W MANSFIELD AVE
W NASSAU AVE
W OXFORD AVE
W QUINCY PL
W RADCLIFF AVE
W STANFORD AVE
W STANFORD DR
W UNION AVE
SANTA FE CT
W LAYTON AVE
W CHENANGO AVE
W GRAND AVE
WHITAKER DR
WINDERMERE ST
S WINDERMERE ST
S NATCHES CT
S NAVAJO ST
S LIPAN ST
S LIPAN CT
S LIPAN DR
S KALAMATH ST
S KALAMATH CT
S INCA ST
S HURON ST
S HURON CT
S GALAPAGO ST
S FOX ST
S ELATI ST
S DELAWARE ST
S CHEROKEE ST
S JASON ST
S JASON CT
S GARDEN ST
S MARIPOSA DR
S SIOUX ST
S SAGE ST
S WYANDOT ST
S VALLEJO ST
S RIO GRANDE ST
COTTONWOOD WAY
NASSAU WAY
Bear Creek
South Platte River
Irrigation Canal
City Ditch
Big Dry Creek
W105° 1'
W105° 0.75'
W105° 0.5'
W105° 0.25'
W105° 0'
W104° 59.75'
W104° 59.5'
N39° 39'
N39° 38.75'
N39° 38.5'
N39° 38.25'
N39° 38'
N39° 37.75'
85
26
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TN
MN (10.0°E)
Scale 1 : 12,800
1" = 1,066.7 ft
Data Zoom 14-0
Exhibit III-F-2
Page 163 of 255



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TN
MN (10.0°E)

Scale 1 : 12,800
1" = 1,066.7 ft
Data Zoom 14-0

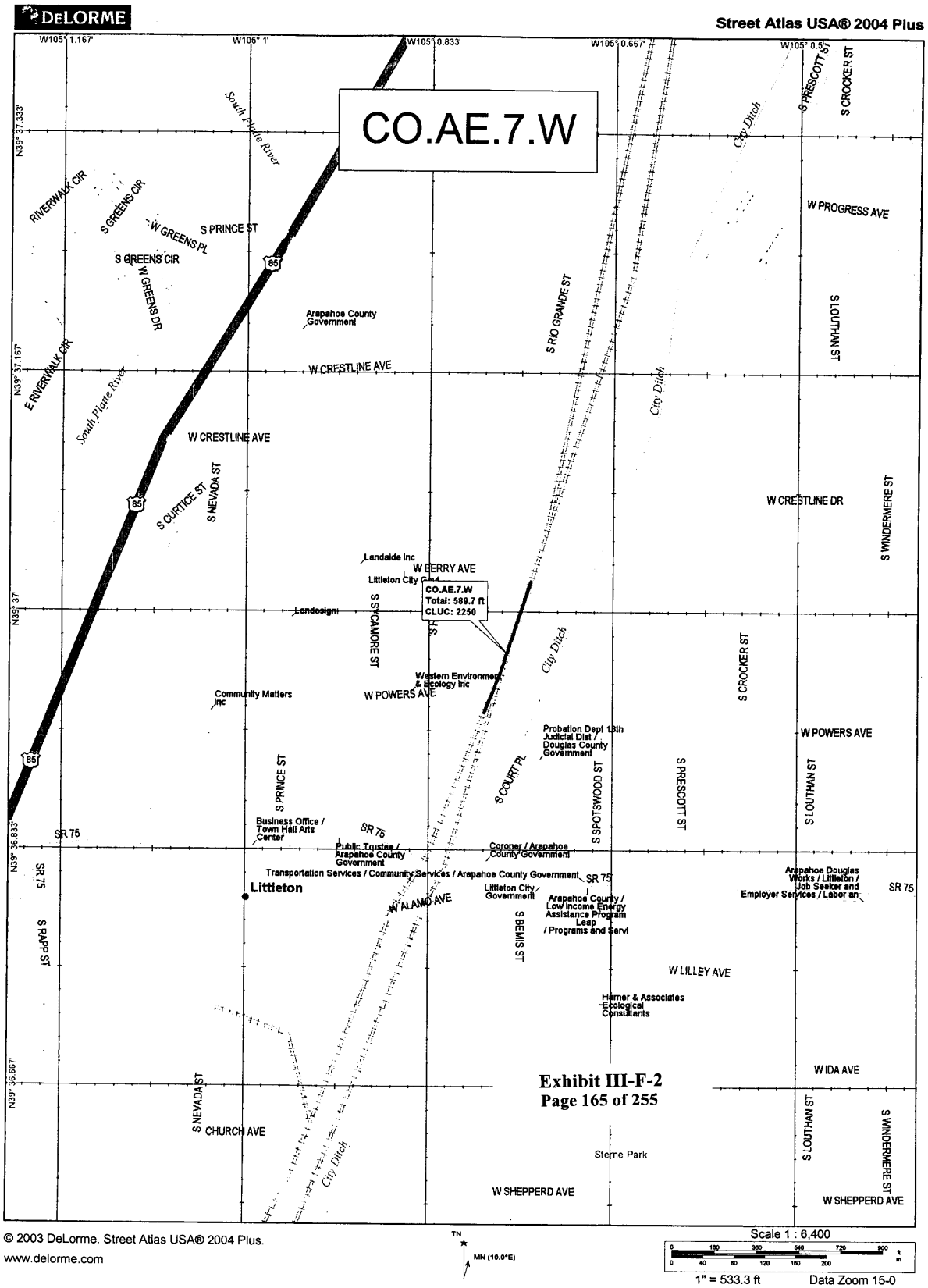
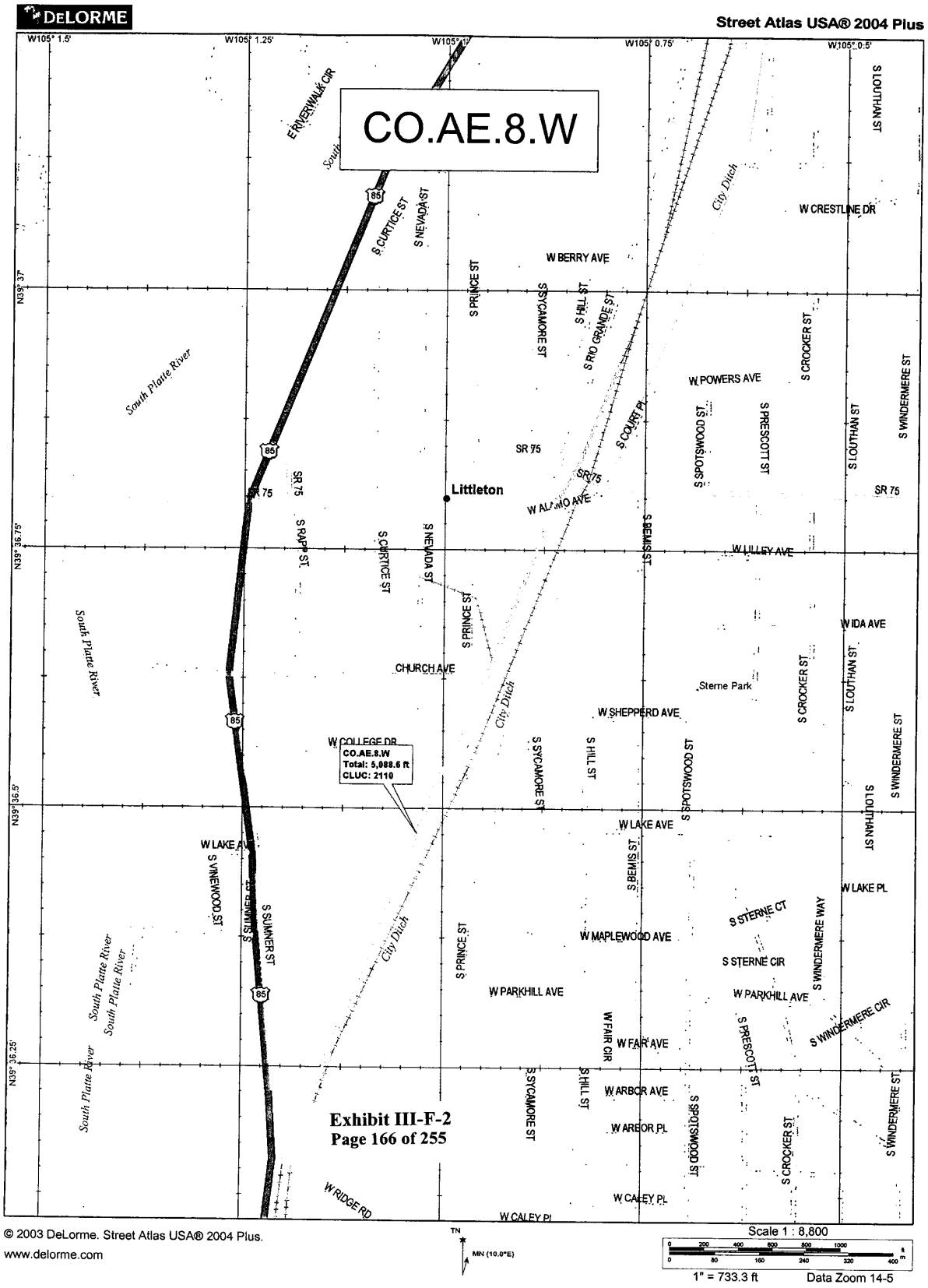


Exhibit III-F-2
Page 165 of 255



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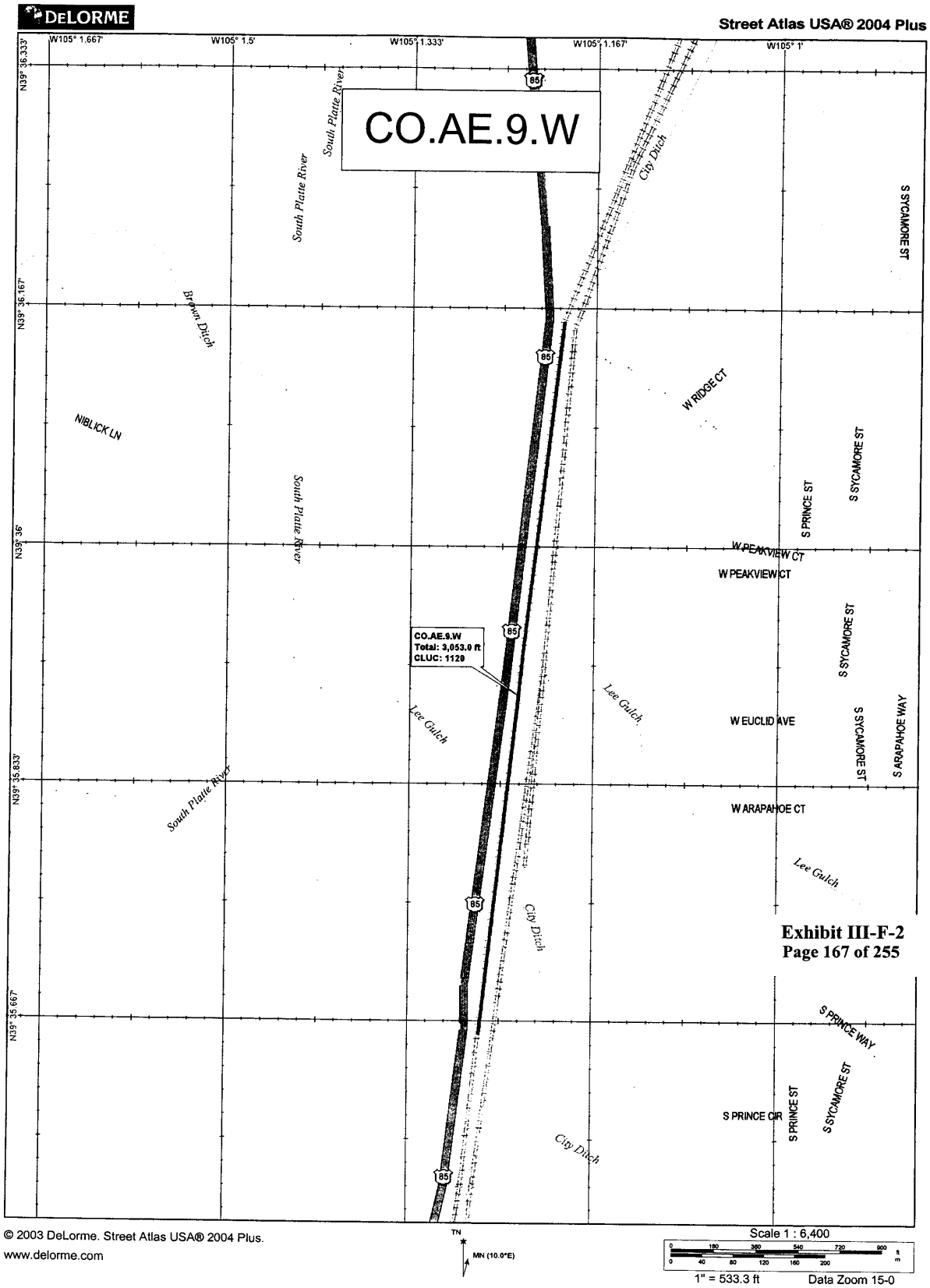
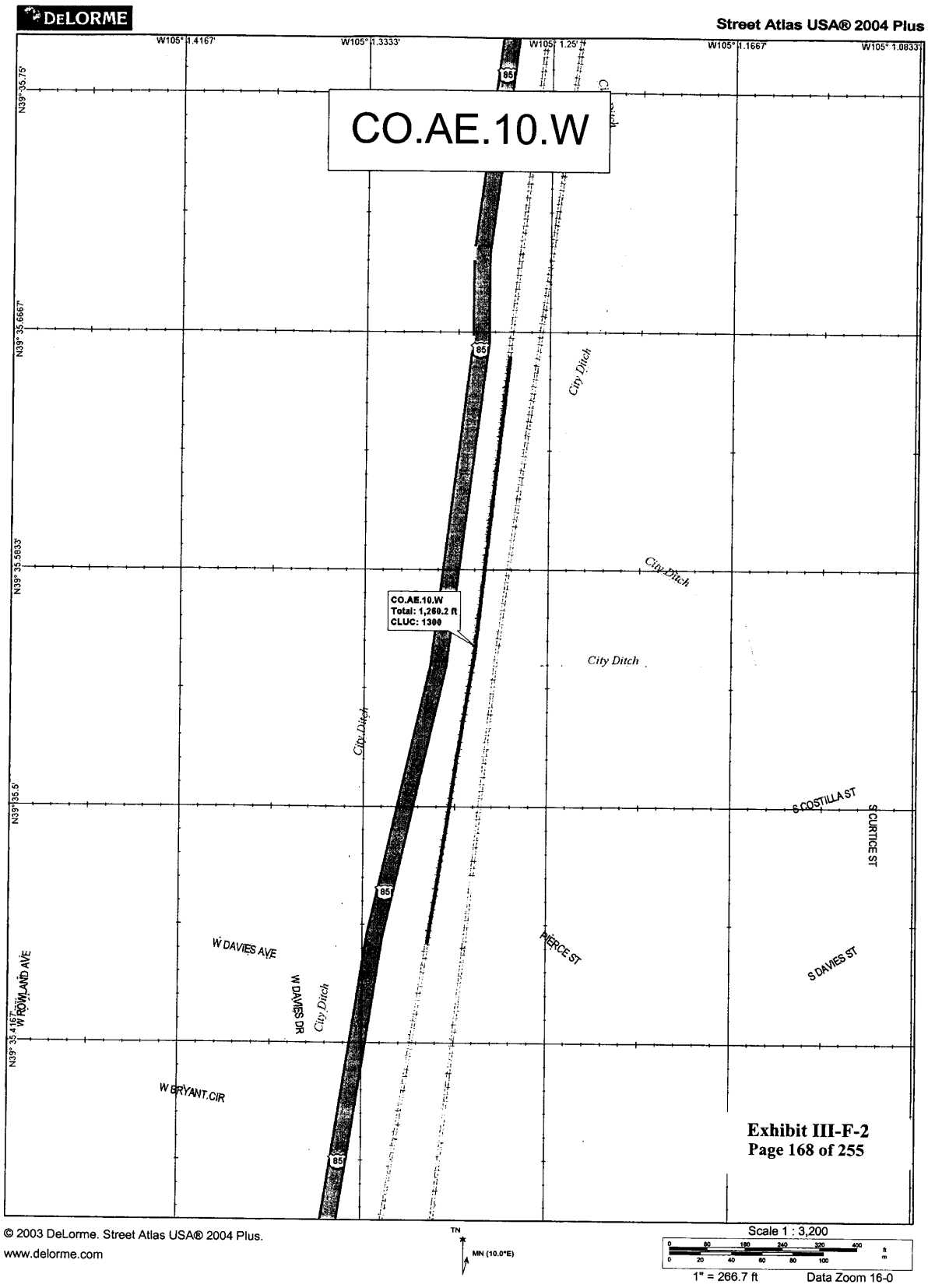


Exhibit III-F-2
Page 167 of 255


DeLORME
Street Atlas USA® 2004 Plus
CO.AE.10.W
CO.AE.10.W
Total: 1,260.2 ft
CLUC: 1300
City Ditch
City Ditch
City Ditch
City Ditch
City Ditch
W105° 1.4167'
W105° 1.3333'
W105° 1.25'
W105° 1.1667'
W105° 1.0833'
N39° 35.75'
N39° 35.6667'
N39° 35.5833'
N39° 35.5'
N39° 35.4167'
85
S COSTILLA ST
S CURTICE ST
W DAVIES AVE
W DAVIES DR
PIERCE ST
S DAVIES ST
W ROWLAND AVE
W BRYANT CIR
Exhibit III-F-2
Page 168 of 255
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TN
MN (10.0°E)
Scale 1 : 3,200
0 80 160 240 320 400 ft
0 20 40 60 80 100 m
1" = 266.7 ft
Data Zoom 16-0

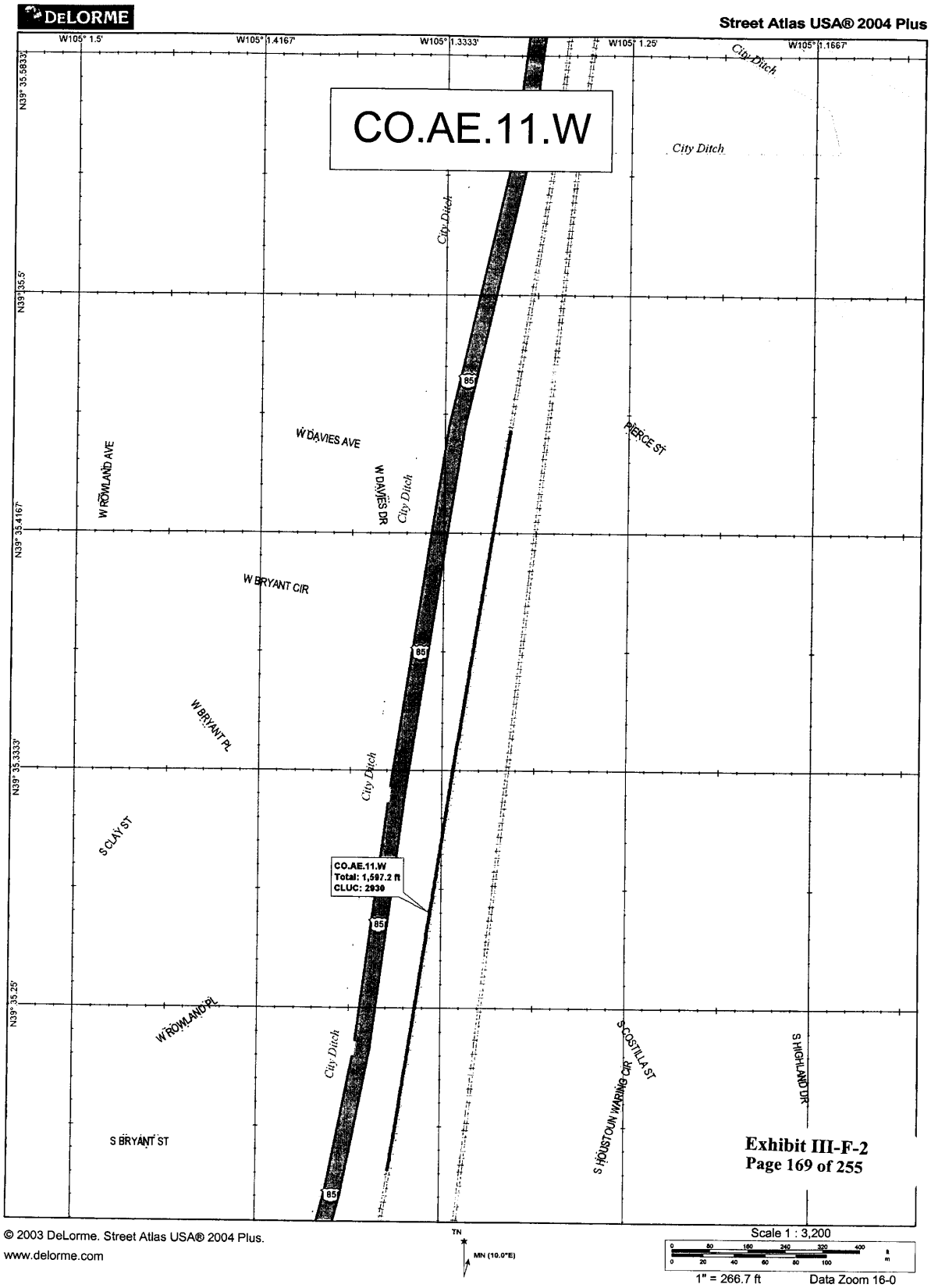
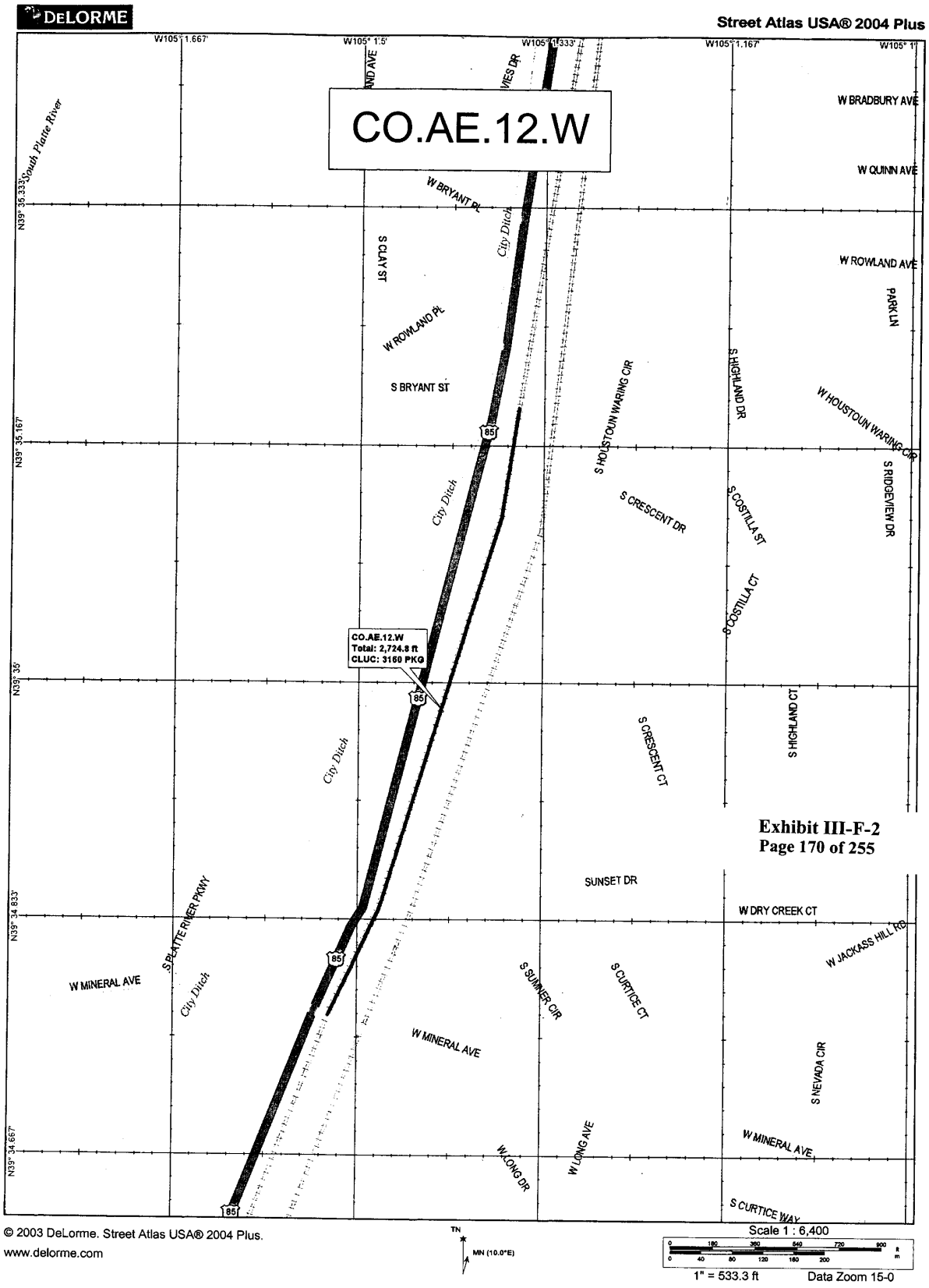
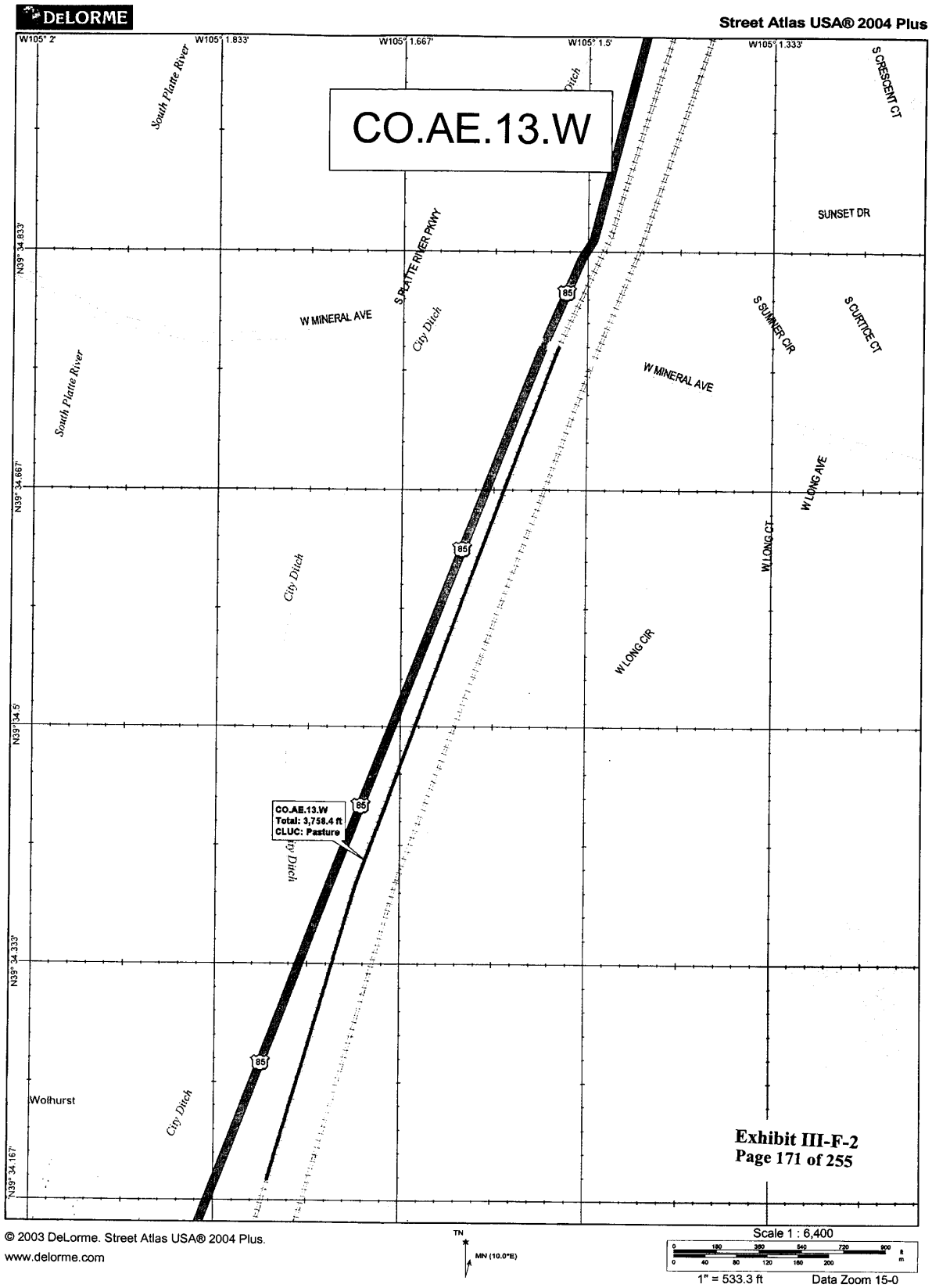
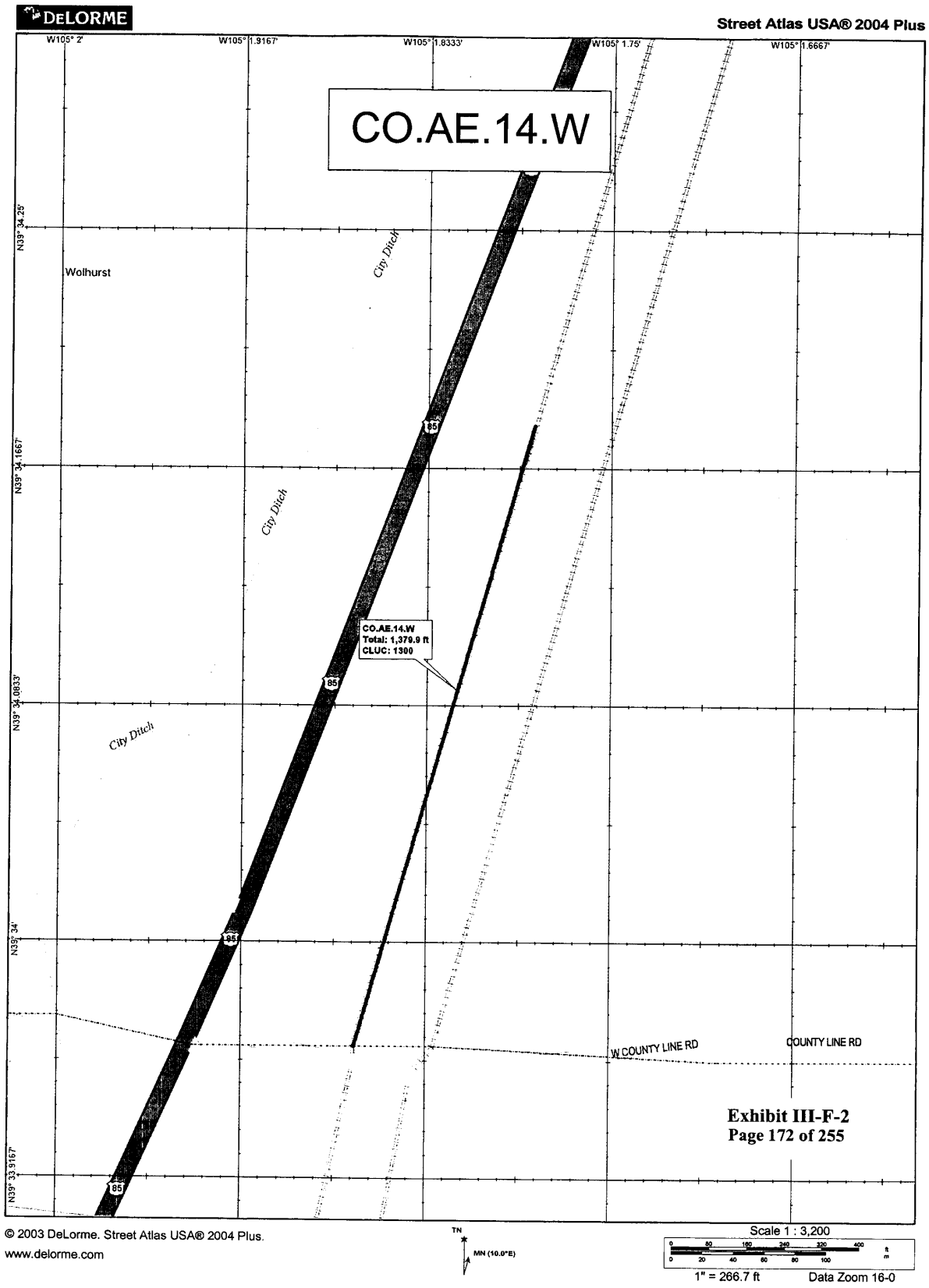
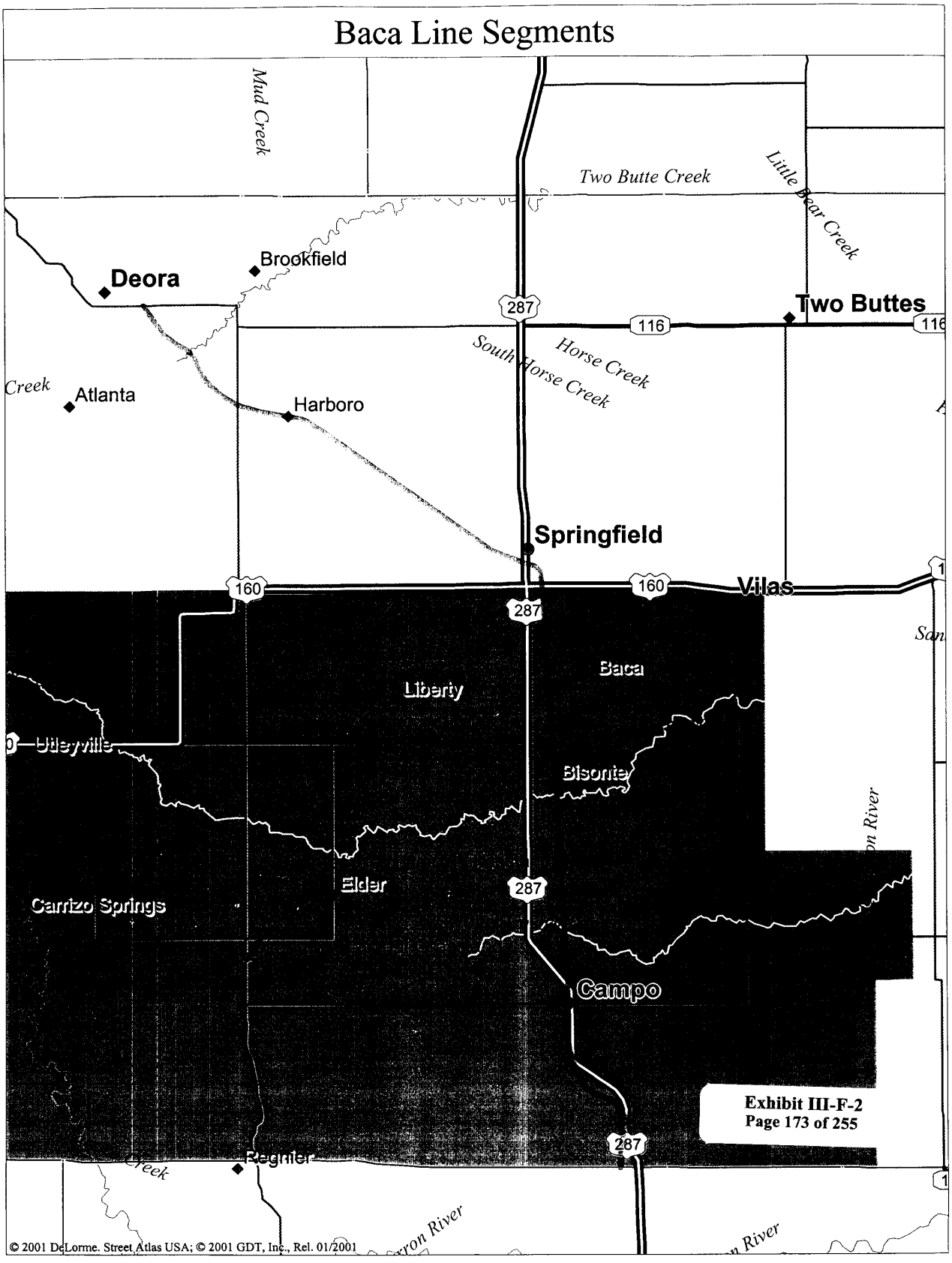


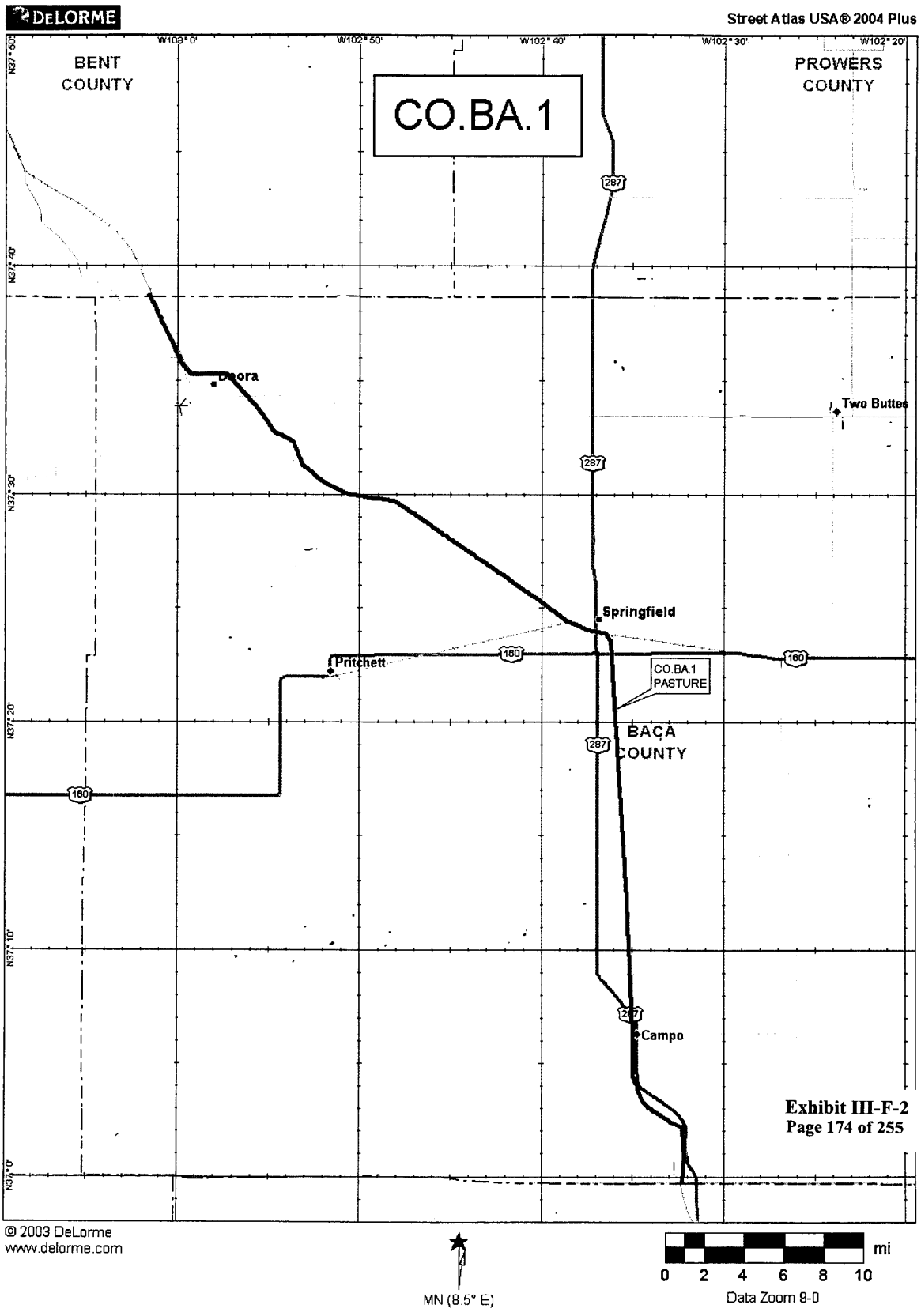
Exhibit III-F-2
Page 169 of 255

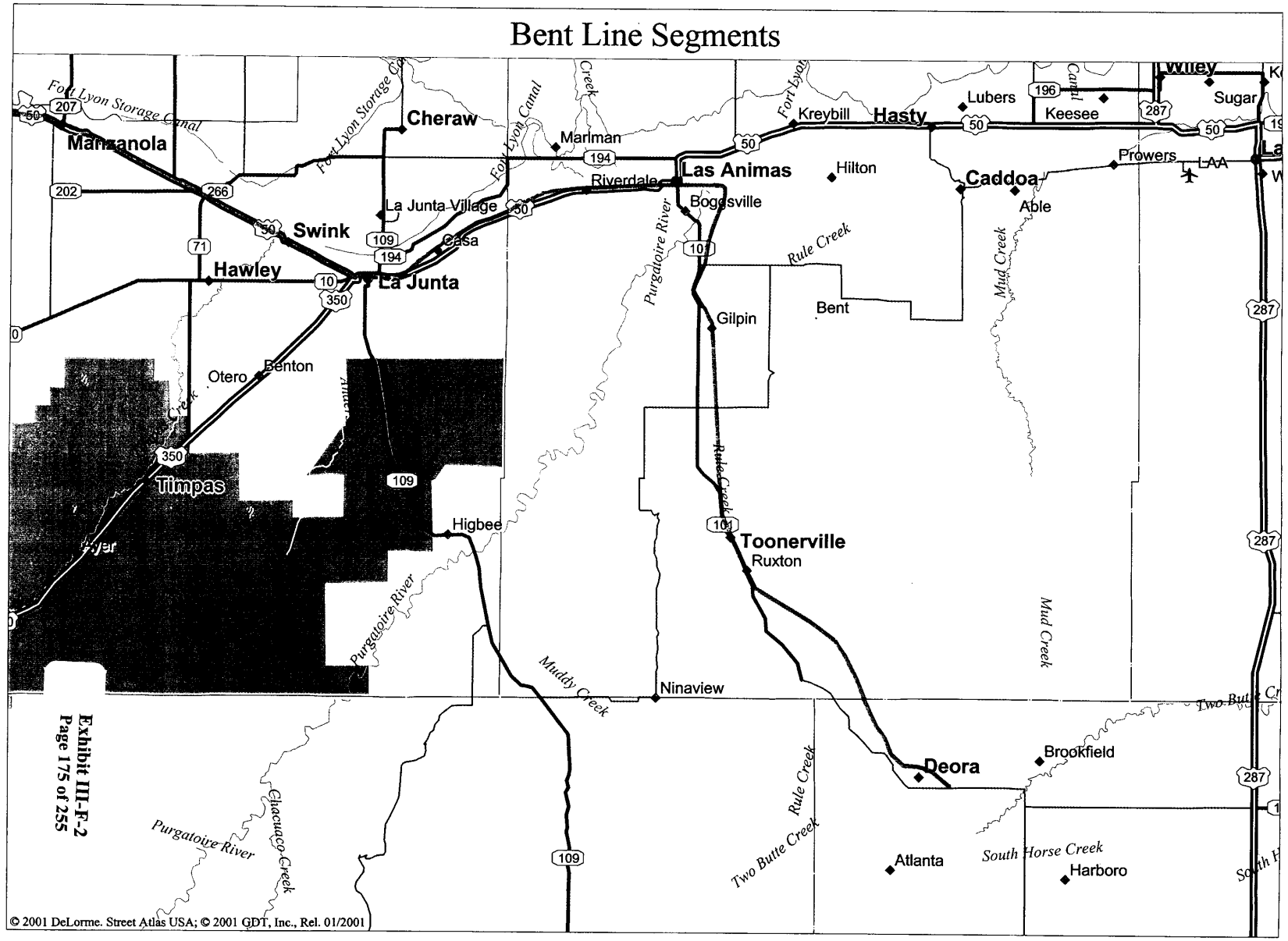

DeLORME
Street Atlas USA® 2004 Plus
CO.AE.12.W
CO.AE.12.W
Total: 2,724.8 ft
CLUC: 3160 PKG
W BRADBURY AVE
W QUINN AVE
W ROWLAND AVE
PARK LN
W BRYANT PL
S CLAY ST
W ROWLAND PL
S BRYANT ST
City Ditch
S HOUSTOUN WARING CIR
S HIGHLAND DR
S CRESCENT DR
S COSTILLA ST
S COSTILLA CT
S RIDGEVIEW DR
S HIGHLAND CT
S CRESCENT CT
SUNSET DR
W DRY CREEK CT
W JACKASS HILL RD
S PLATTE RIVER PKWY
W MINERAL AVE
S SUMMER CIR
S CURTICE CT
S NEVADA CIR
W LONG DR
W LONG AVE
S CURTICE WAY
South Platte River
N39° 35.333'
N39° 35.167'
N39° 35'
N39° 34.833'
N39° 34.667'
W105° 1.667'
W105° 1.5'
W105° 1.333'
W105° 1.167'
85
Exhibit III-F-2
Page 170 of 255
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TN
MN (10.0°E)
Scale 1 : 6,400
1" = 533.3 ft
Data Zoom 15-0

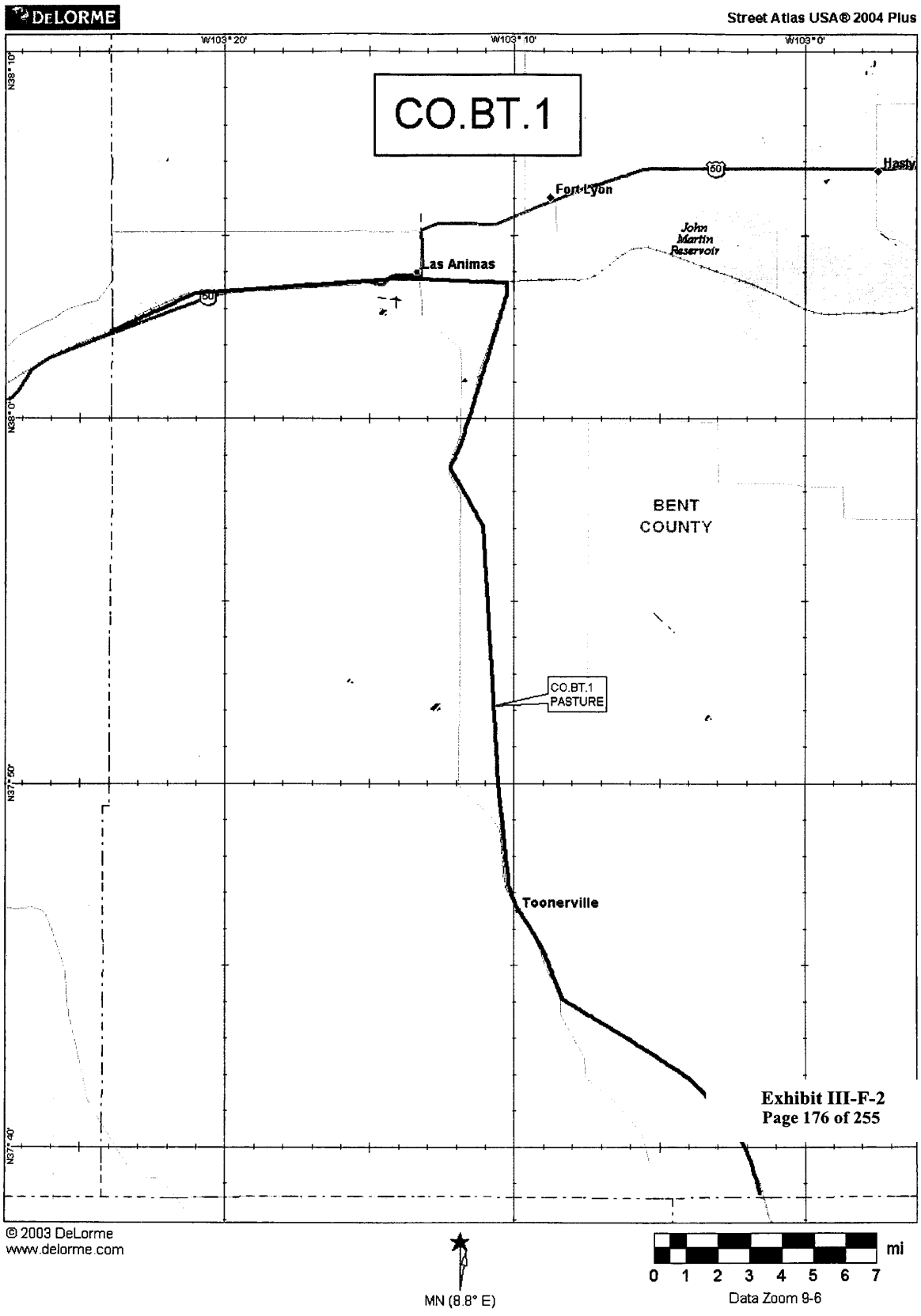

DeLORME
Street Atlas USA® 2004 Plus
CO.AE.13.W
W105° 2'
W105° 1.833'
W105° 1.667'
W105° 1.5'
W105° 1.333'
N39° 34.833'
N39° 34.667'
N39° 34.5'
N39° 34.333'
N39° 34.167'
South Platte River
City Ditch
S CRESCENT CT
SUNSET DR
S SUMMER CIR
S CURTICE CT
S PLATTE RIVER PKWY
W MINERAL AVE
W LONG AVE
W LONG CT
W LONG CIR
85
CO.AE.13.W
Total: 3,758.4 ft
CLUC: Pasture
Wolhurst
Exhibit III-F-2
Page 171 of 255
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TN
MN (10.0°E)
Scale 1 : 6,400
1" = 533.3 ft
Data Zoom 15-0


DeLORME
Street Atlas USA® 2004 Plus
CO.AE.14.W
W105° 2'
W105° 1.9167'
W105° 1.8333'
W105° 1.75'
W105° 1.6667'
N39° 34.25'
N39° 34.1667'
N39° 34.0833'
N39° 34'
N39° 33.9167'
Wolhurst
City Ditch
City Ditch
City Ditch
85
85
85
85
CO.AE.14.W
Total: 1,379.9 ft
CLUC: 1300
W COUNTY LINE RD
COUNTY LINE RD
Exhibit III-F-2
Page 172 of 255
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www.delorme.com
TN
MN (10.0°E)
Scale 1 : 3,200
1" = 266.7 ft
Data Zoom 16-0

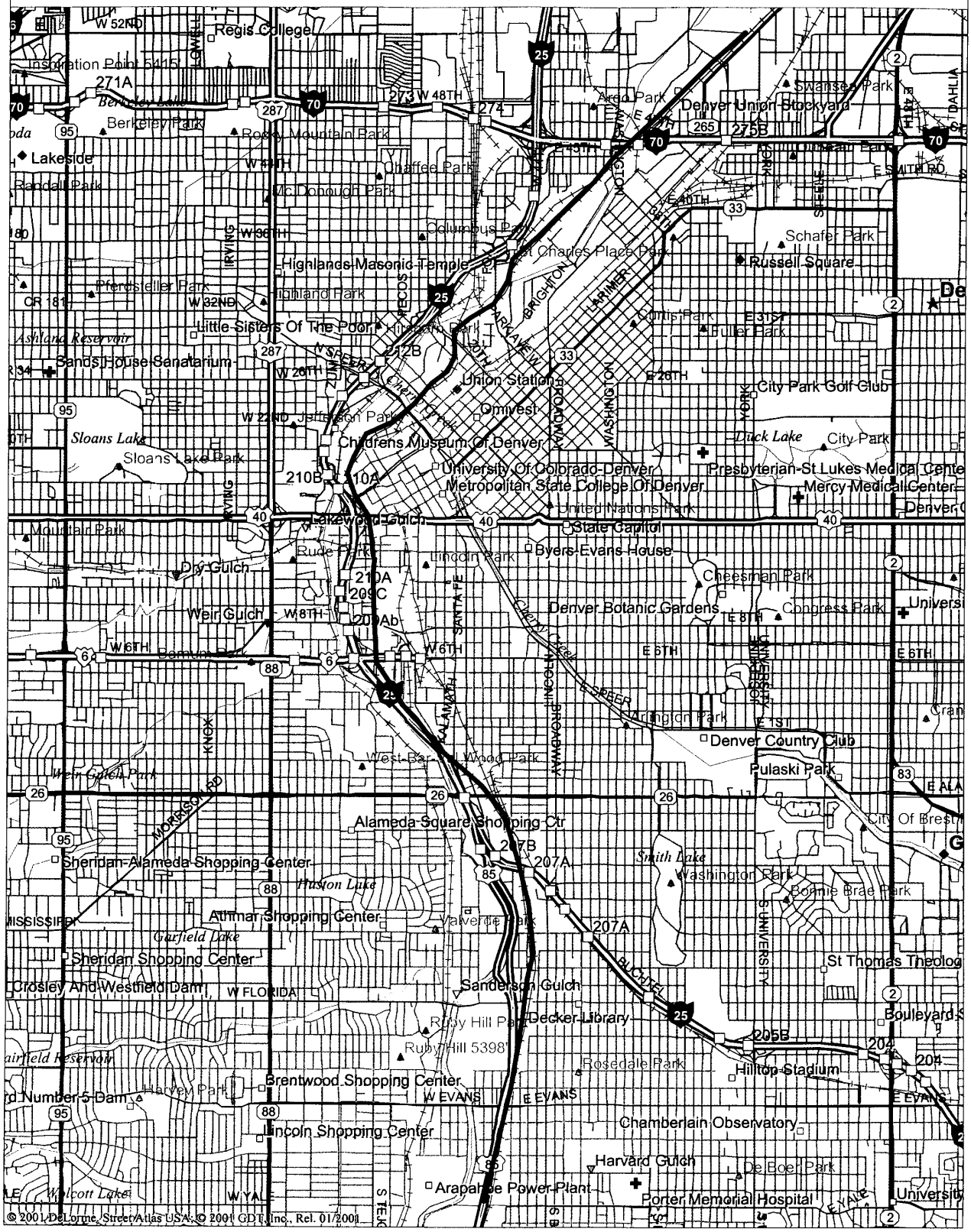

Baca Line Segments
Mud Creek
Two Butte Creek
Little Bear Creek
Deora
Brookfield
Two Buttes
287
116
South Horse Creek
Horse Creek
Creek
Atlanta
Harboro
Springfield
160
160
Vilas
287
Liberty
Baca
Bisonte
Elder
Carrizo Springs
287
Campo
Exhibit III-F-2
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287
Regnier
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DeLORME
Street Atlas USA® 2004 Plus
BENT
COUNTY
CO.BA.1
PROWERS
COUNTY
Las Animas
Two Buttes
Springfield
Pritchett
CO.BA.1
PASTURE
BACA
COUNTY
Campo
287
160
W103° 0'
W102° 50'
W102° 40'
W102° 30'
W102° 20'
38° 50' N
38° 40' N
38° 30' N
38° 20' N
38° 10' N
38° 0' N
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MN (8.5° E)
0 2 4 6 8 10
mi
Data Zoom 9-0


Bent Line Segments
Fort Lyon Storage Canal
Cheraw
Manzanola
Marlman
Kreybill
Hasty
Lubers
Keesee
Wiley
Sugar
Prowers
Las Animas
Hilton
Caddoa
Able
Riverdale
Boggsville
La Junta Village
Swink
Casa
Hawley
La Junta
Purgatoire River
Rule Creek
Mud Creek
Gilpin
Bent
Otero
Benton
Timpas
Higbee
Toonerville
Ruxton
Ninaview
Muddy Creek
Deora
Brookfield
Atlanta
South Horse Creek
Harboro
Two Butte Creek
Chacuaco Creek
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DELORME
Street Atlas USA® 2004 Plus
CO.BT.1
W103° 20'
W103° 10'
W103° 0'
N38° 10'
N38° 0'
N37° 50'
N37° 40'
Fort Lyon
Hasty
John Martin Reservoir
Las Animas
BENT COUNTY
CO.BT.1 PASTURE
Toonerville
© 2003 DeLorme
www.delorme.com
MN (8.8° E)
0 1 2 3 4 5 6 7 mi
Data Zoom 9-6

Denver County, Colorado



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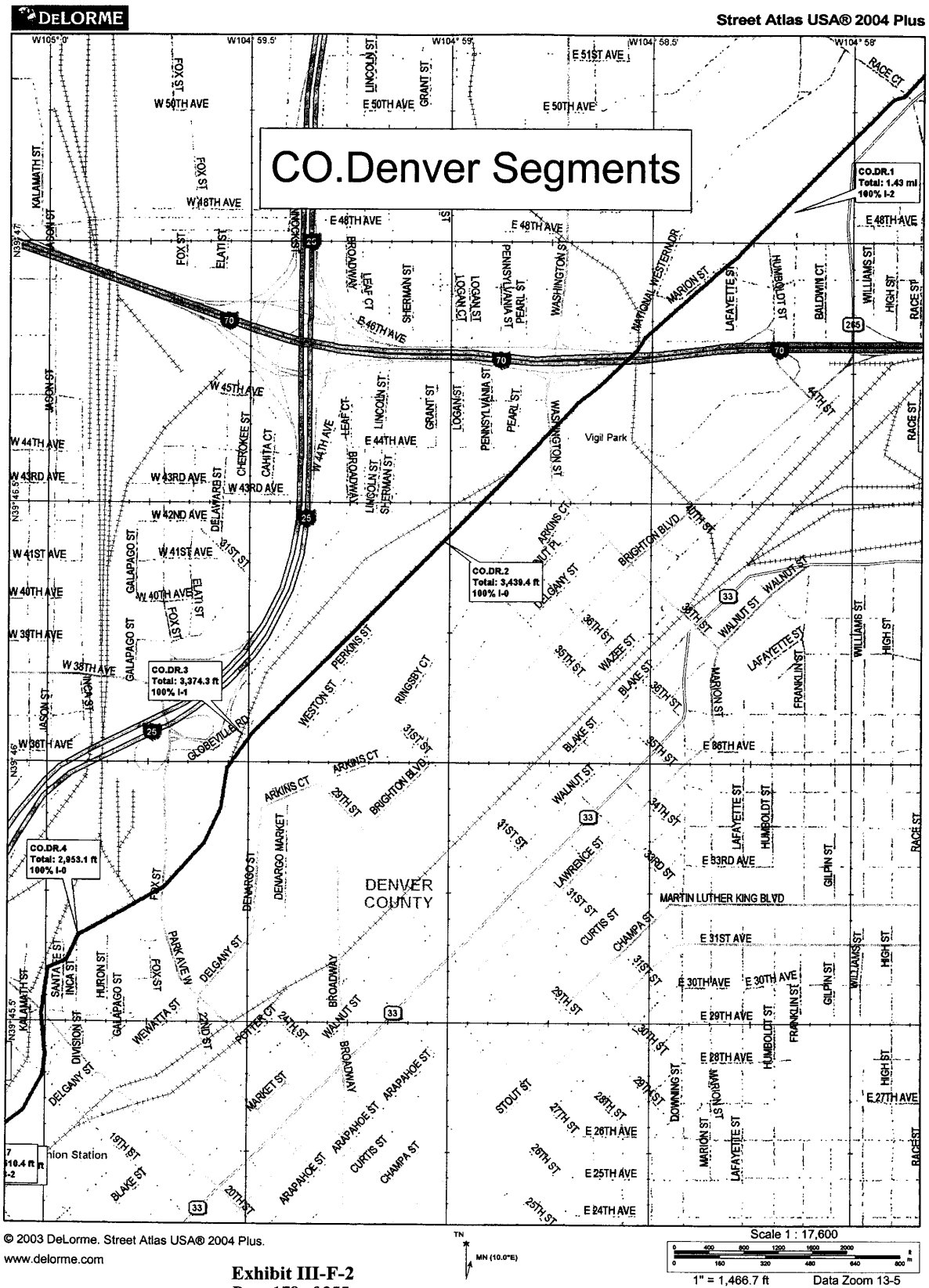
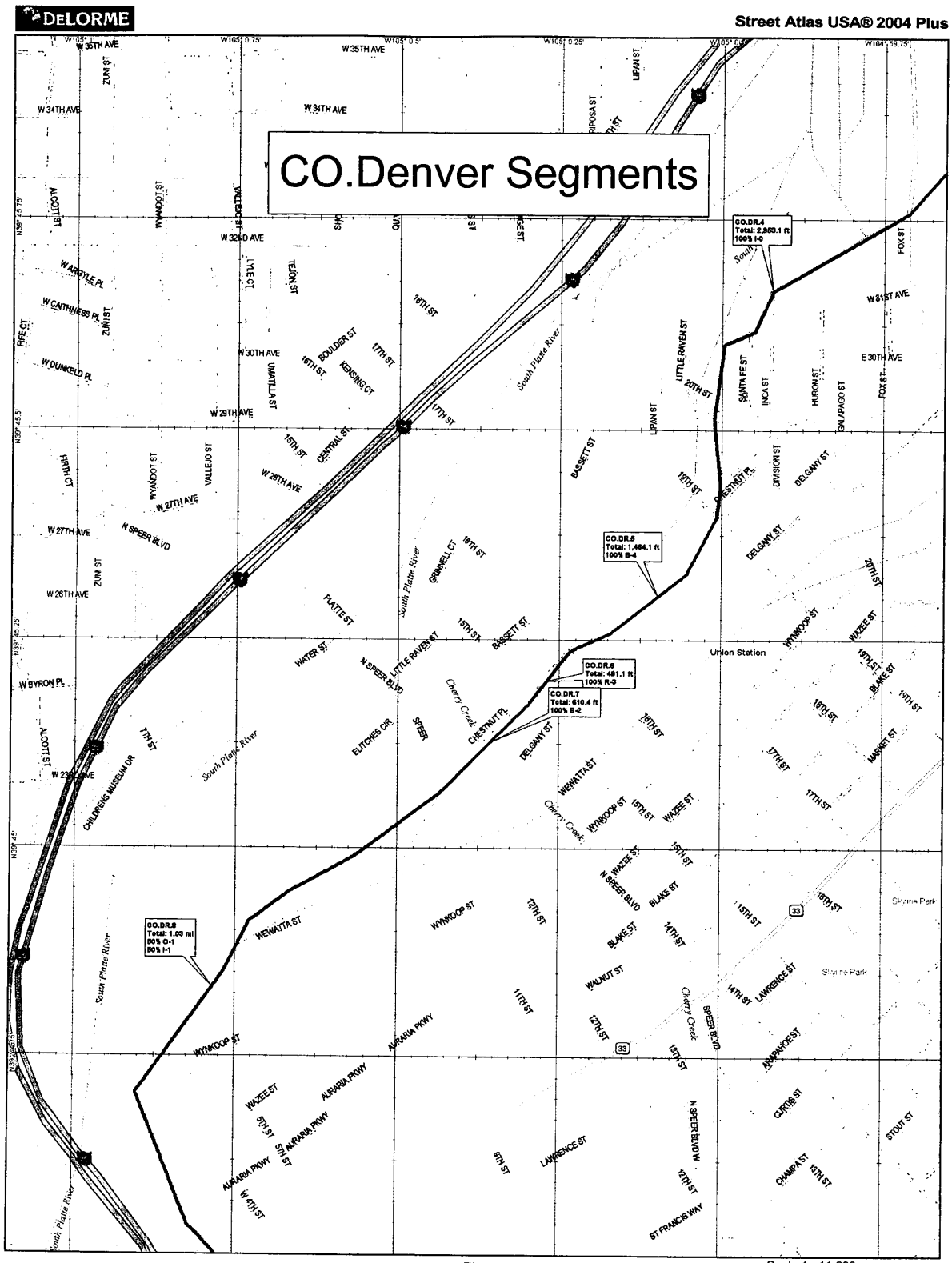
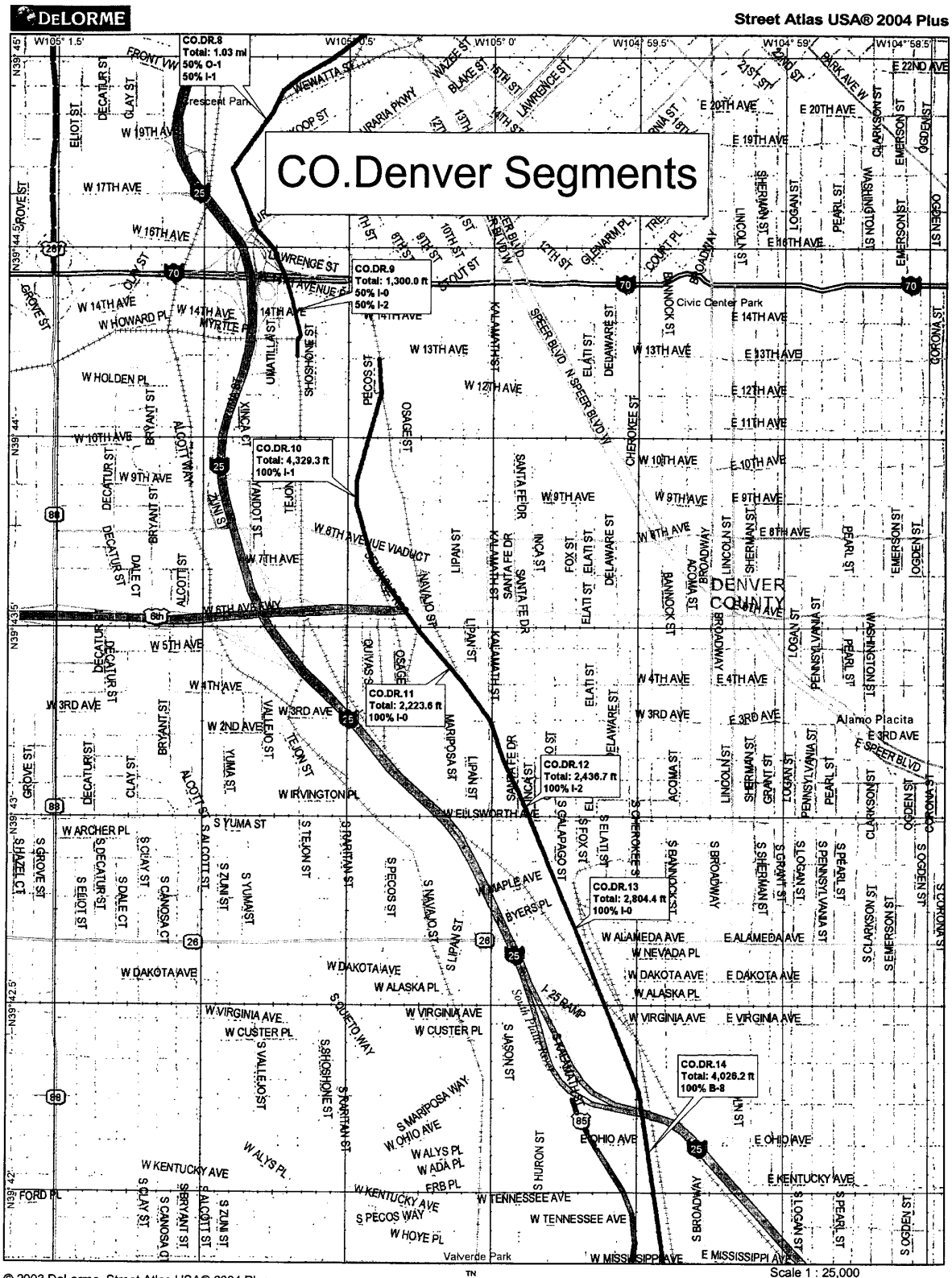


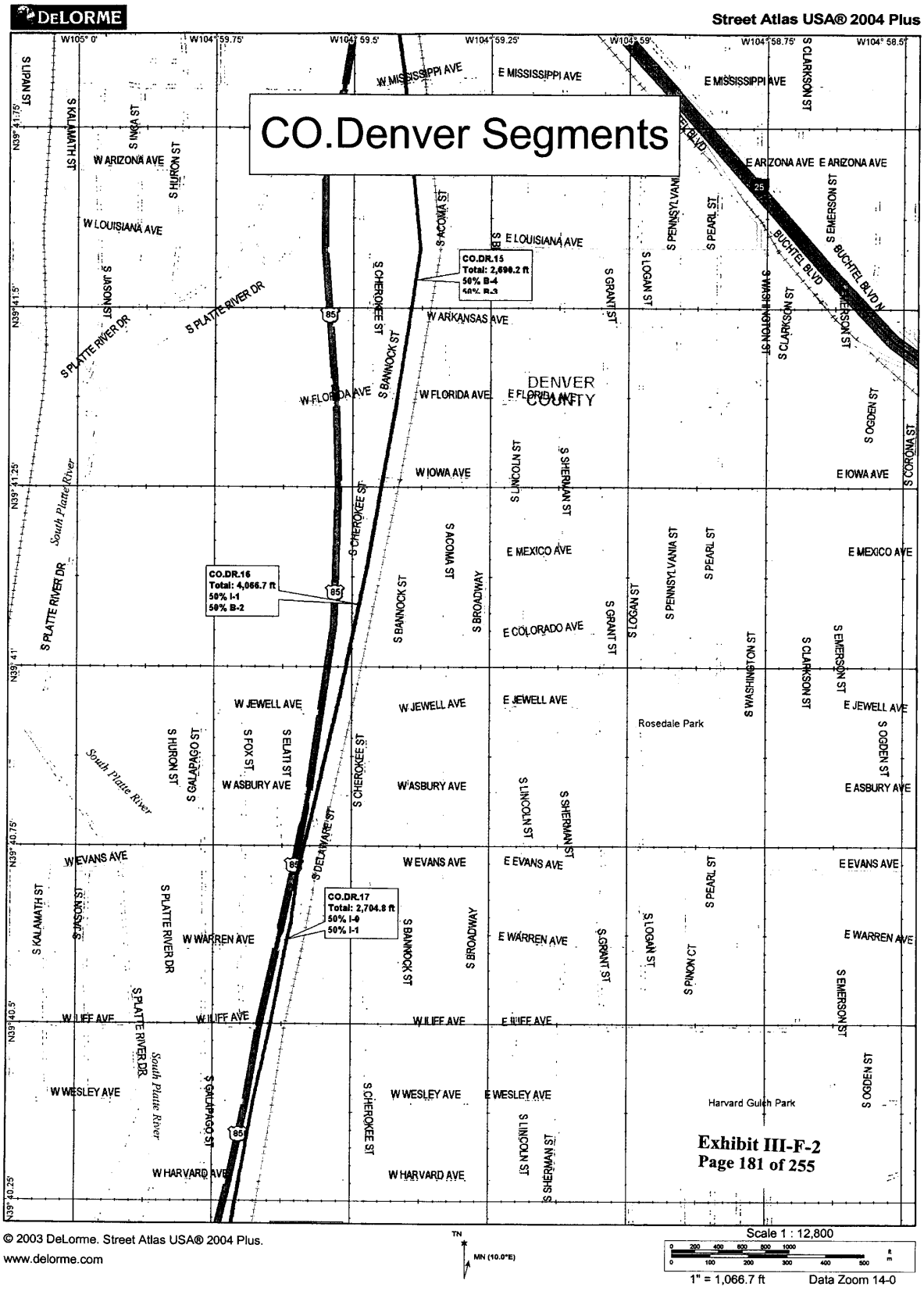
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DeLORME
Street Atlas USA® 2004 Plus
CO.Denver Segments
CO.DR.15
Total: 2,696.2 ft
50% B-4
50% B-3
CO.DR.16
Total: 4,066.7 ft
50% I-1
50% B-2
CO.DR.17
Total: 2,704.8 ft
50% I-0
50% I-1
DENVER COUNTY
Rosedale Park
Harvard Gulch Park
E MISSISSIPPI AVE
W ARIZONA AVE
E ARIZONA AVE
W LOUISIANA AVE
E LOUISIANA AVE
W ARKANSAS AVE
W FLORIDA AVE
E FLORIDA AVE
W IOWA AVE
E IOWA AVE
E MEXICO AVE
E COLORADO AVE
W JEWELL AVE
E JEWELL AVE
W ASBURY AVE
E ASBURY AVE
W EVANS AVE
E EVANS AVE
W WARREN AVE
E WARREN AVE
W ILIFF AVE
E ILIFF AVE
W WESLEY AVE
E WESLEY AVE
W HARVARD AVE
S PLATTE RIVER DR
South Platte River
S CHEROKEE ST
S BANNOCK ST
S BROADWAY
S LINCOLN ST
S SHERMAN ST
S GRANT ST
S LOGAN ST
S PENNSYLVANIA ST
S PEARL ST
S WASHINGTON ST
S CLARKSON ST
S EMERSON ST
S OGDEN ST
S CORONA ST
S ACOMA ST
S HURON ST
S FOX ST
S ELATI ST
S DELAWARE ST
S GALAPAGO ST
S KALAMATH ST
S JASON ST
S INCA ST
S JULIAN ST
S PINNOCK CT
BUCHTEL BLVD
BUCHTEL BLVD N
Exhibit III-F-2
Page 181 of 255
© 2003 DeLorme. Street Atlas USA® 2004 Plus.
www.delorme.com
TN
MN (10.0°E)
Scale 1 : 12,800
1" = 1,066.7 ft
Data Zoom 14-0

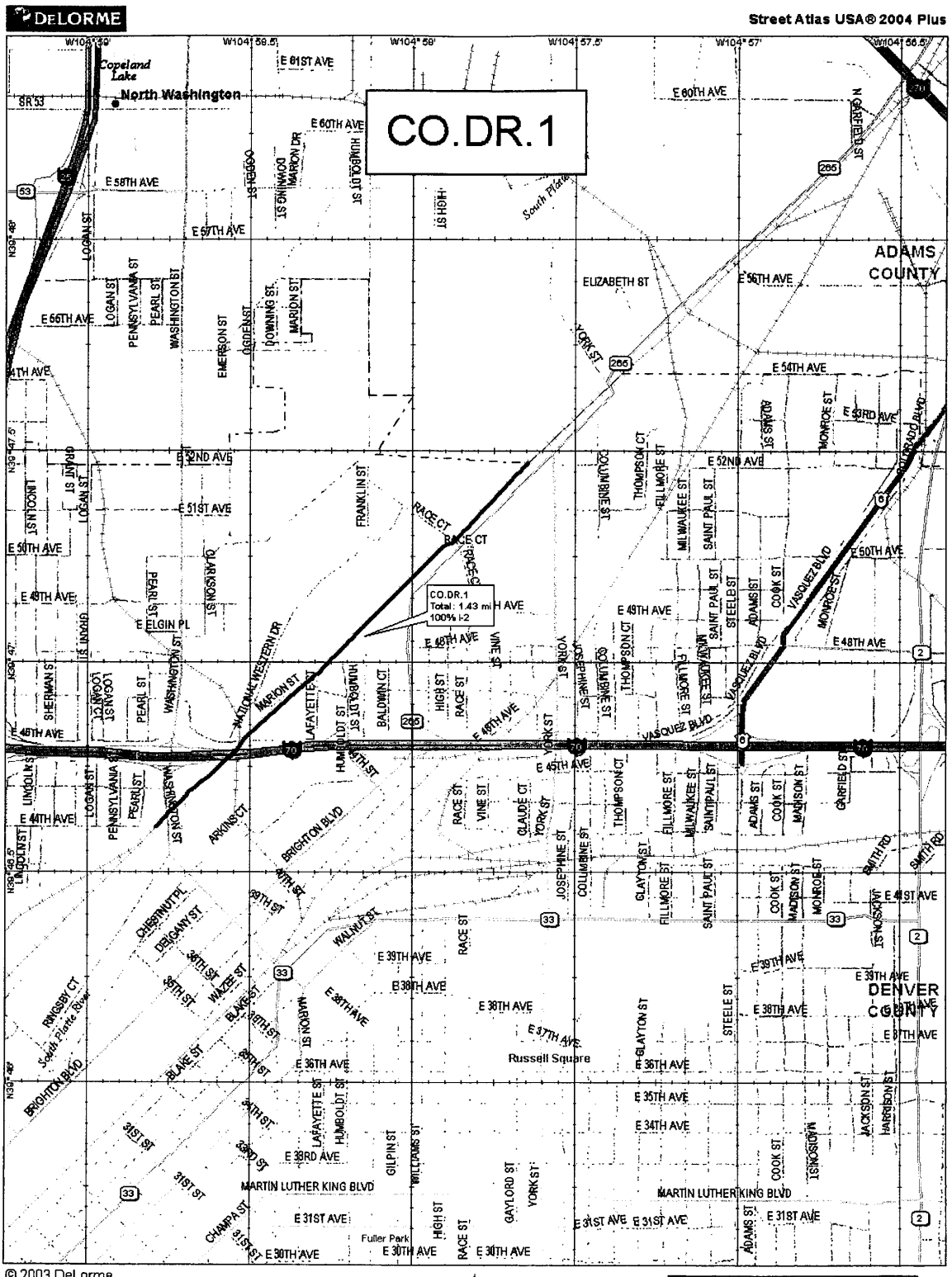
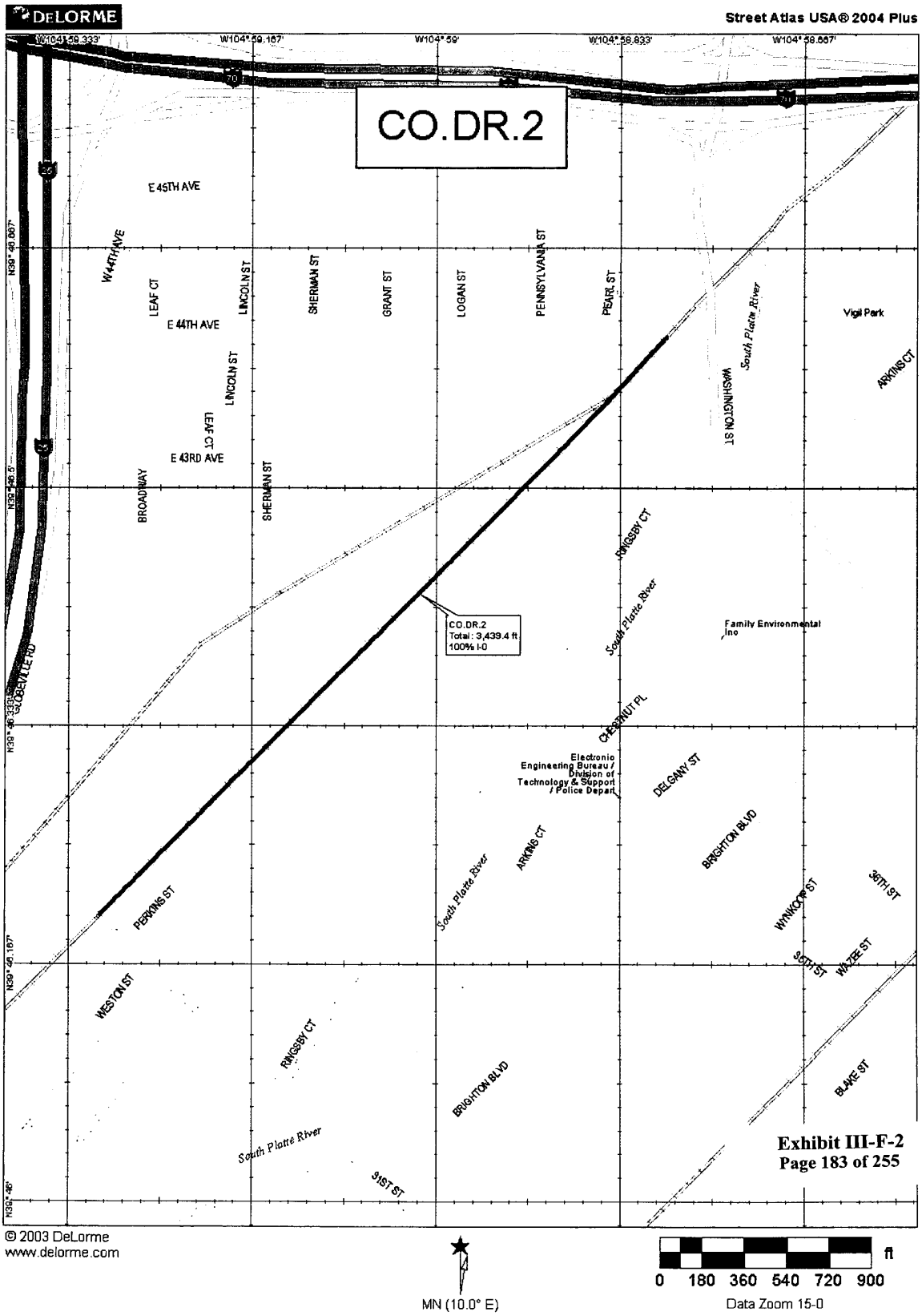
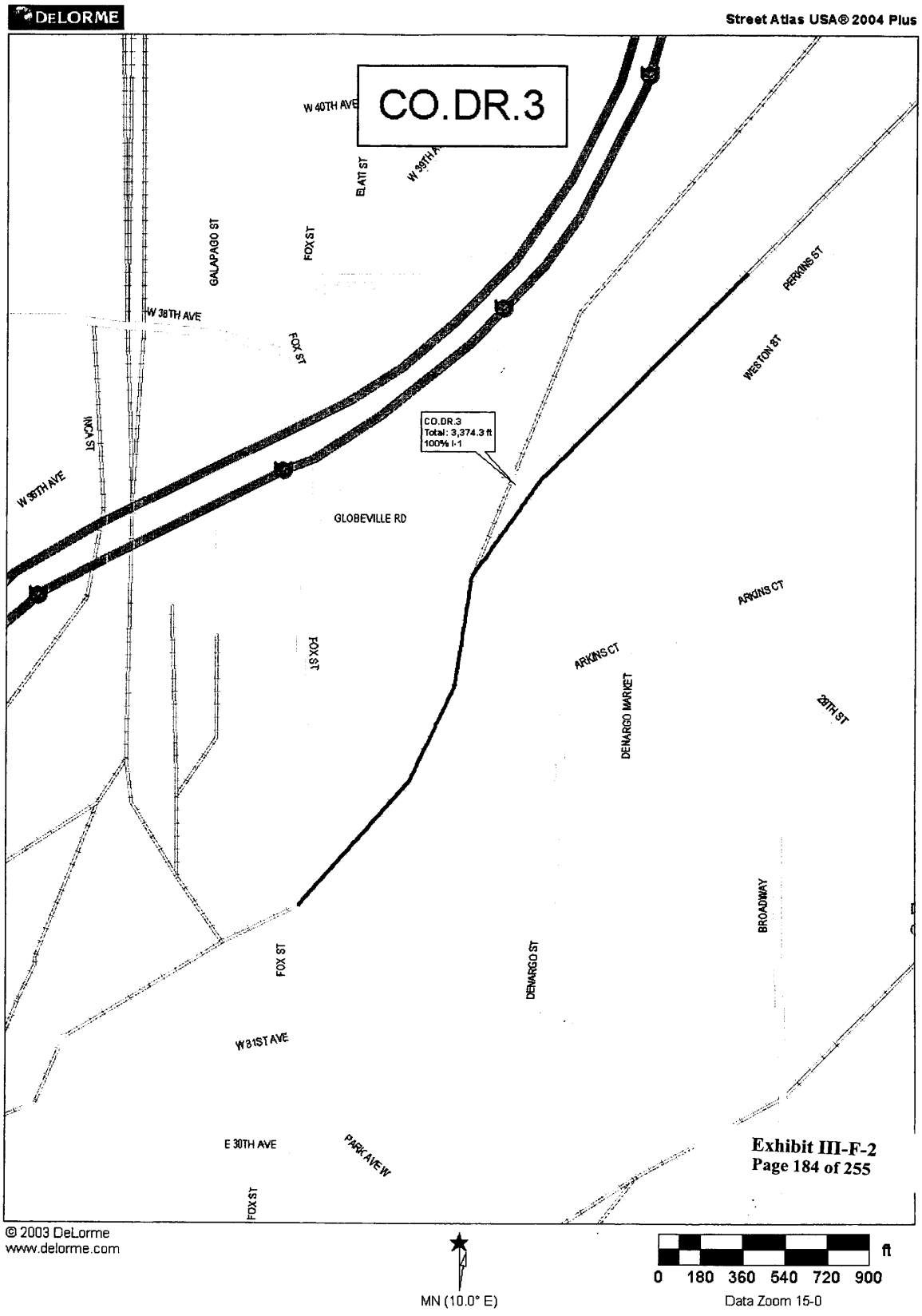


Exhibit III-F-2
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DELORME
Street Atlas USA® 2004 Plus
CO.DR.2
E 45TH AVE
E 44TH AVE
E 43RD AVE
W 44TH AVE
LEAF CT
LINCOLN ST
SHERMAN ST
GRANT ST
LOGAN ST
PENNSYLVANIA ST
PEARL ST
WASHINGTON ST
South Platte River
Vigil Park
ARKINS CT
BROADWAY
SUBLETTE RD
RINGSBY CT
CO.DR.2
Total: 3,439.4 ft
100% I-0
Family Environmental Inc
CHESTNUT PL
Electronic Engineering Bureau / Division of Technology & Support / Police Depart
DELGANY ST
BRIGHTON BLVD
PERKINS ST
WYNKOOP ST
36TH ST
WAZEE ST
WESTON ST
BLAKE ST
91ST ST
W104°59.333'
W104°59.167'
W104°59'
W104°58.833'
W104°58.667'
N39°46.667'
N39°46.5'
N39°46.333'
N39°46.167'
N39°46'
© 2003 DeLorme
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MN (10.0° E)
0 180 360 540 720 900 ft
Data Zoom 15-0


DELORME
Street Atlas USA® 2004 Plus
CO.DR.3
W 40TH AVE
W 39TH AVE
ELATI ST
GALAPAGO ST
FOX ST
W 38TH AVE
FOX ST
PERKINS ST
WESTON ST
INCA ST
CO.DR.3
Total: 3,374.3 ft
100% I-1
W 35TH AVE
GLOBEVILLE RD
ARKINS CT
FOX ST
ARKINS CT
DENARGO MARKET
20TH ST
BROADWAY
FOX ST
DENARGO ST
W 31ST AVE
E 30TH AVE
PARK AVE W
FOX ST
© 2003 DeLorme
www.delorme.com
MN (10.0° E)
0 180 360 540 720 900 ft
Data Zoom 15-0

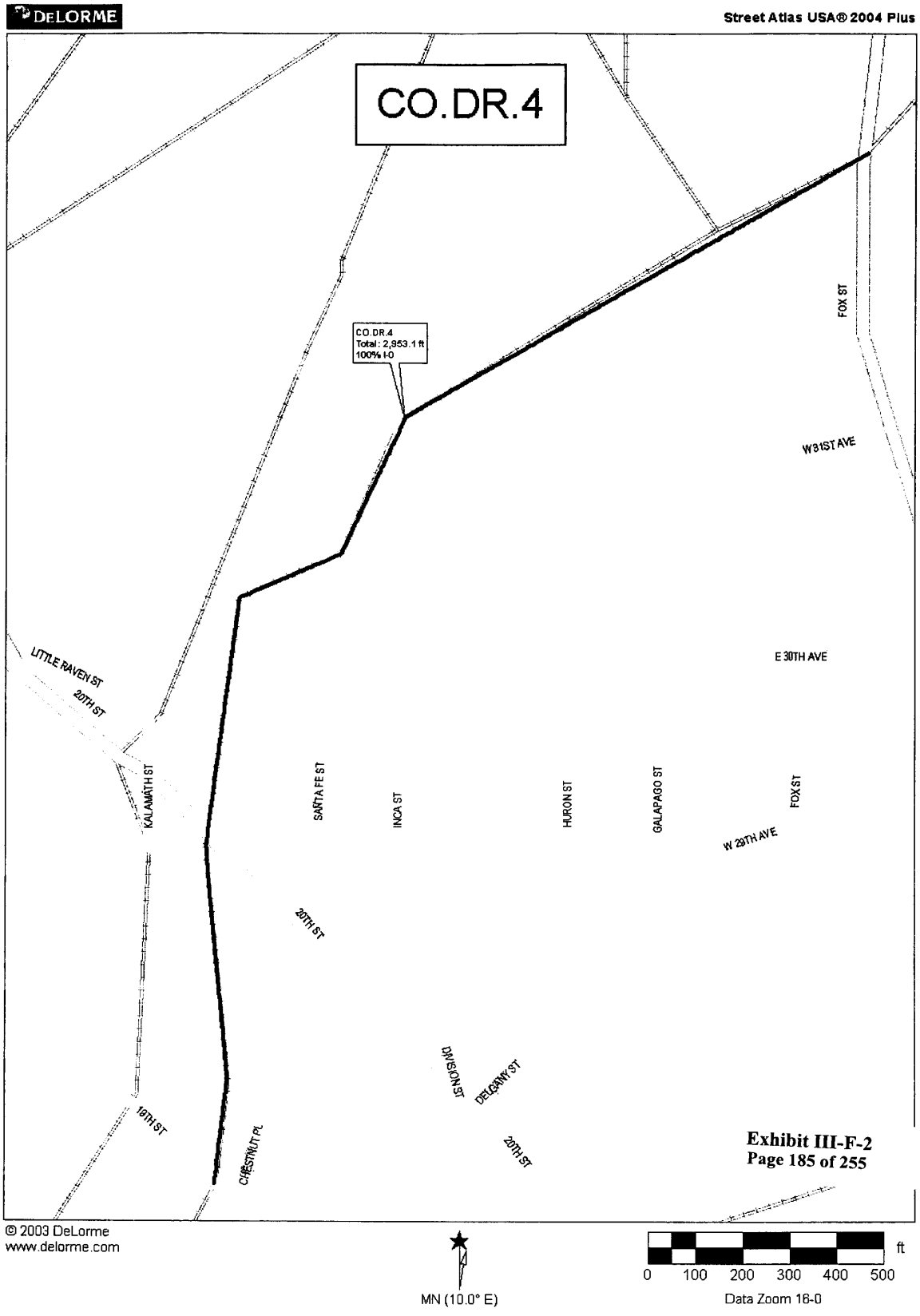


Exhibit III-F-2
Page 185 of 255

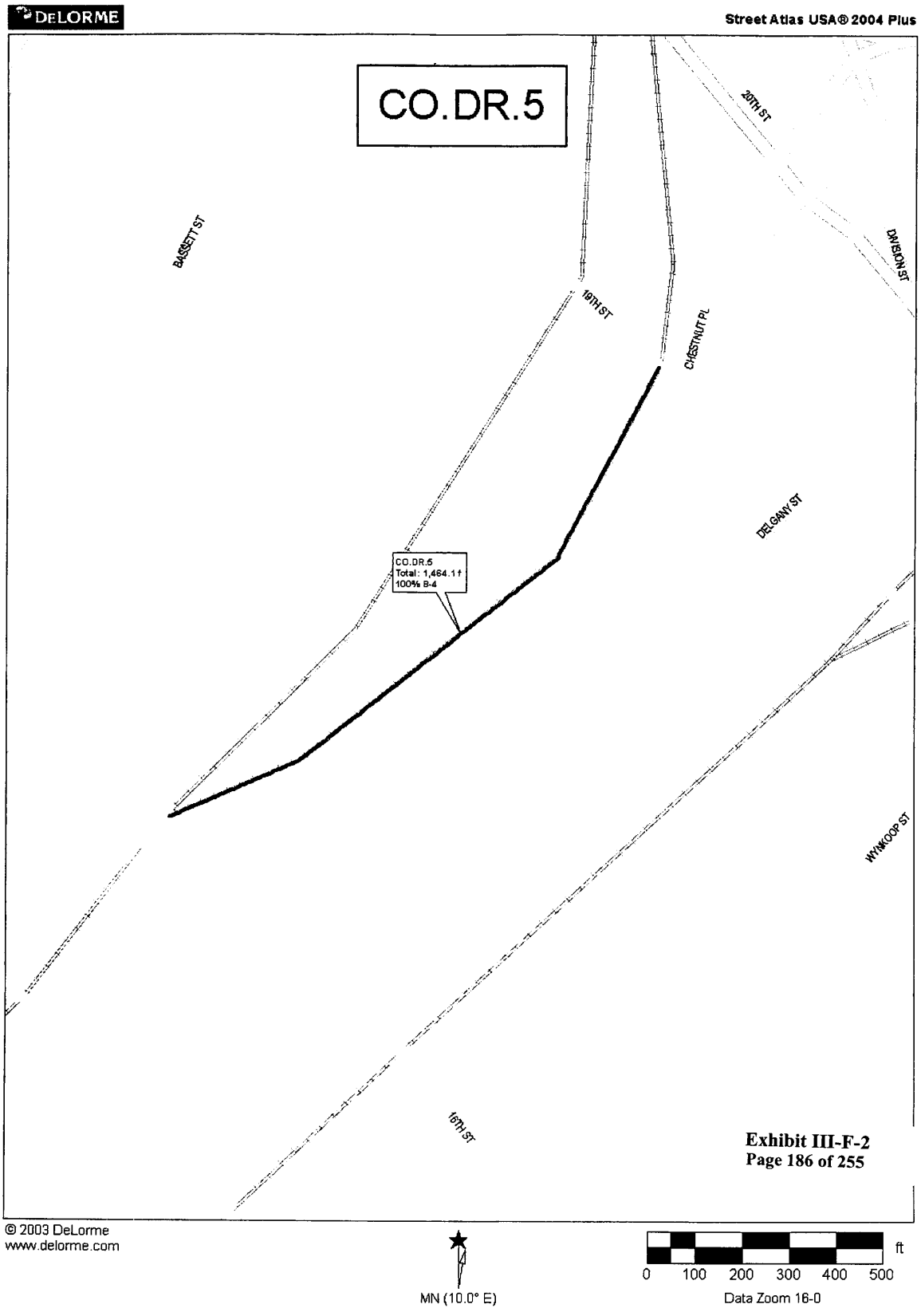


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Page 186 of 255

DELORME

Street Atlas USA® 2004 Plus

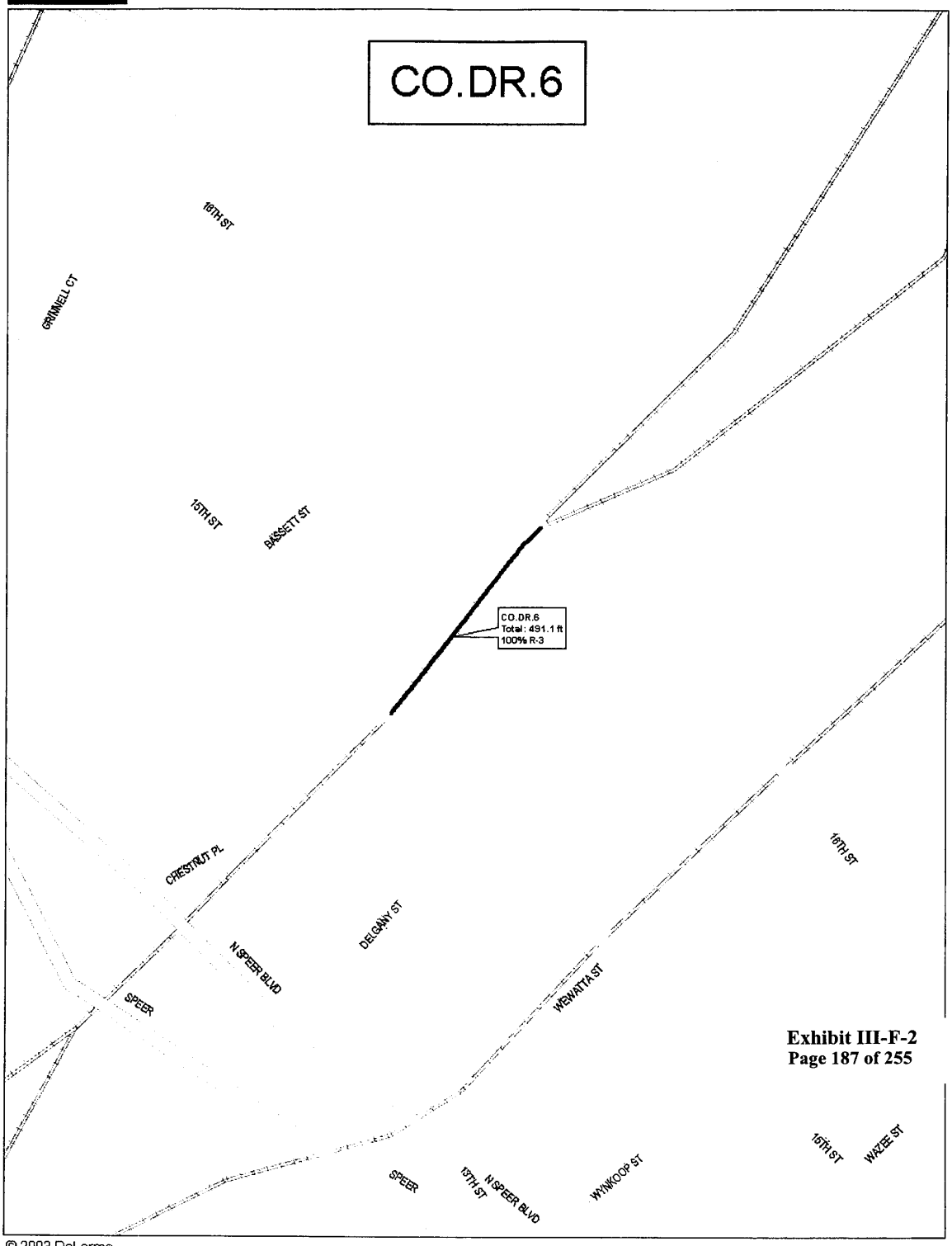


Exhibit III-F-2
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MN (10.0° E)

0 100 200 300 400 500 ft

Data Zoom 16-0

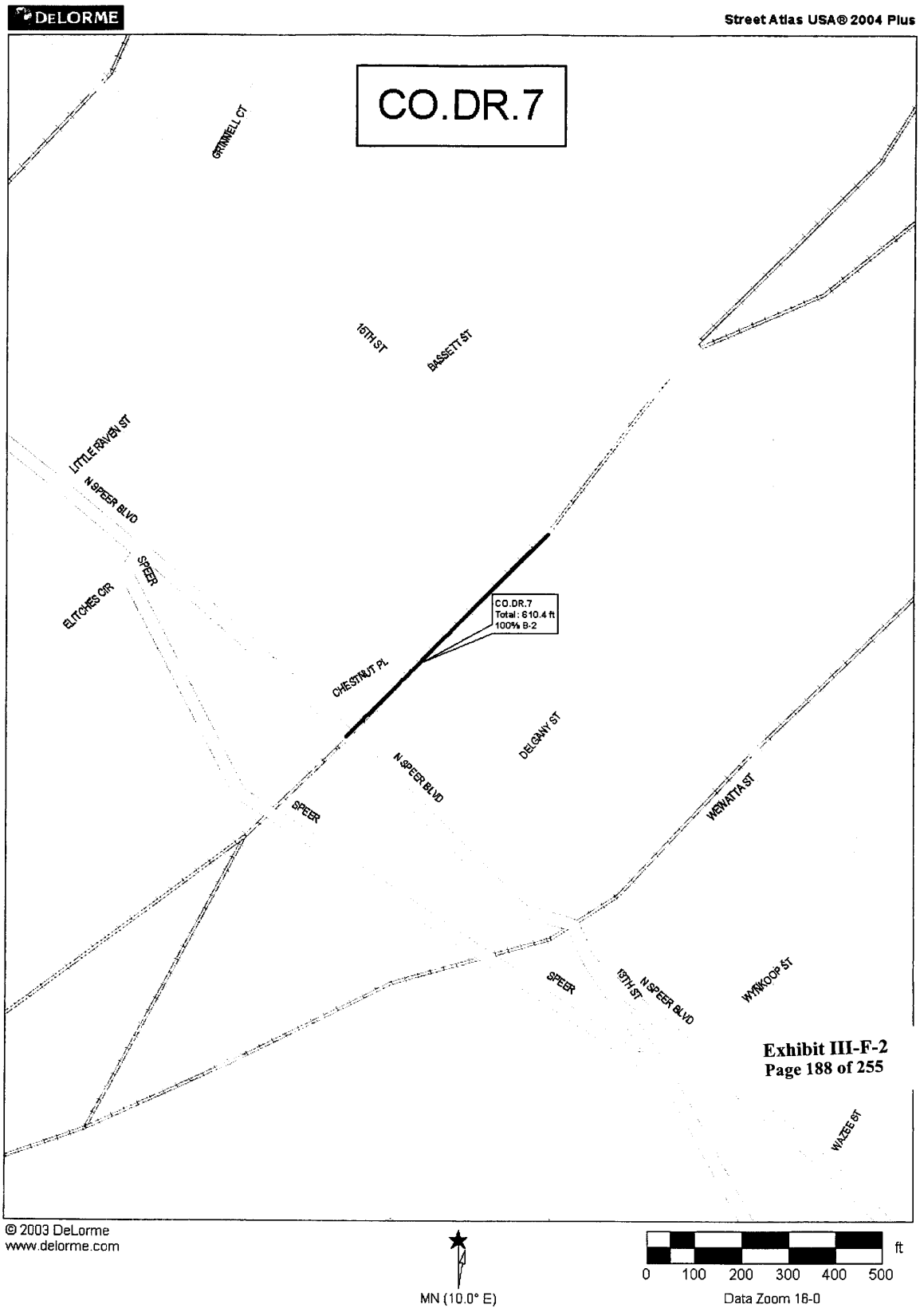
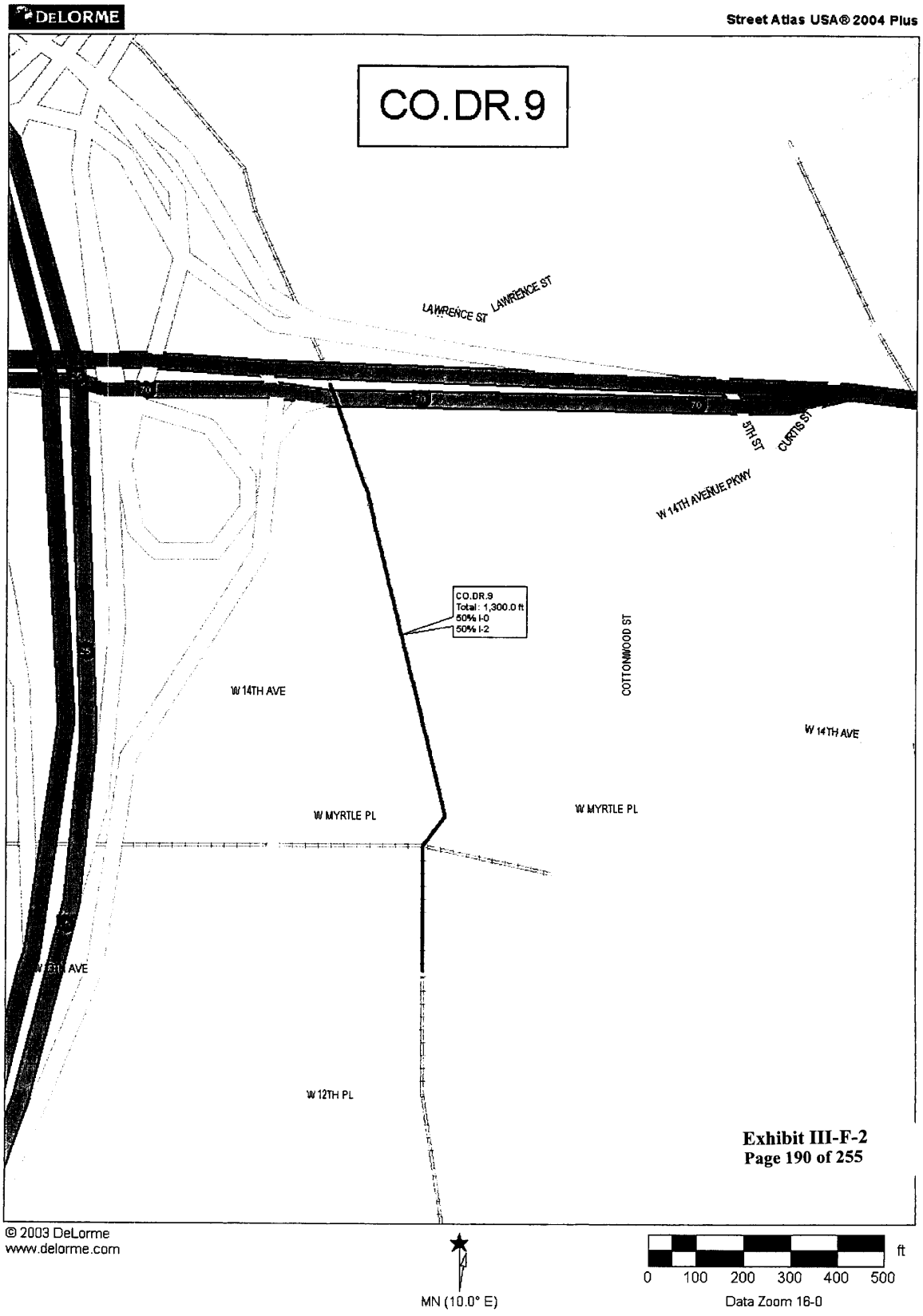
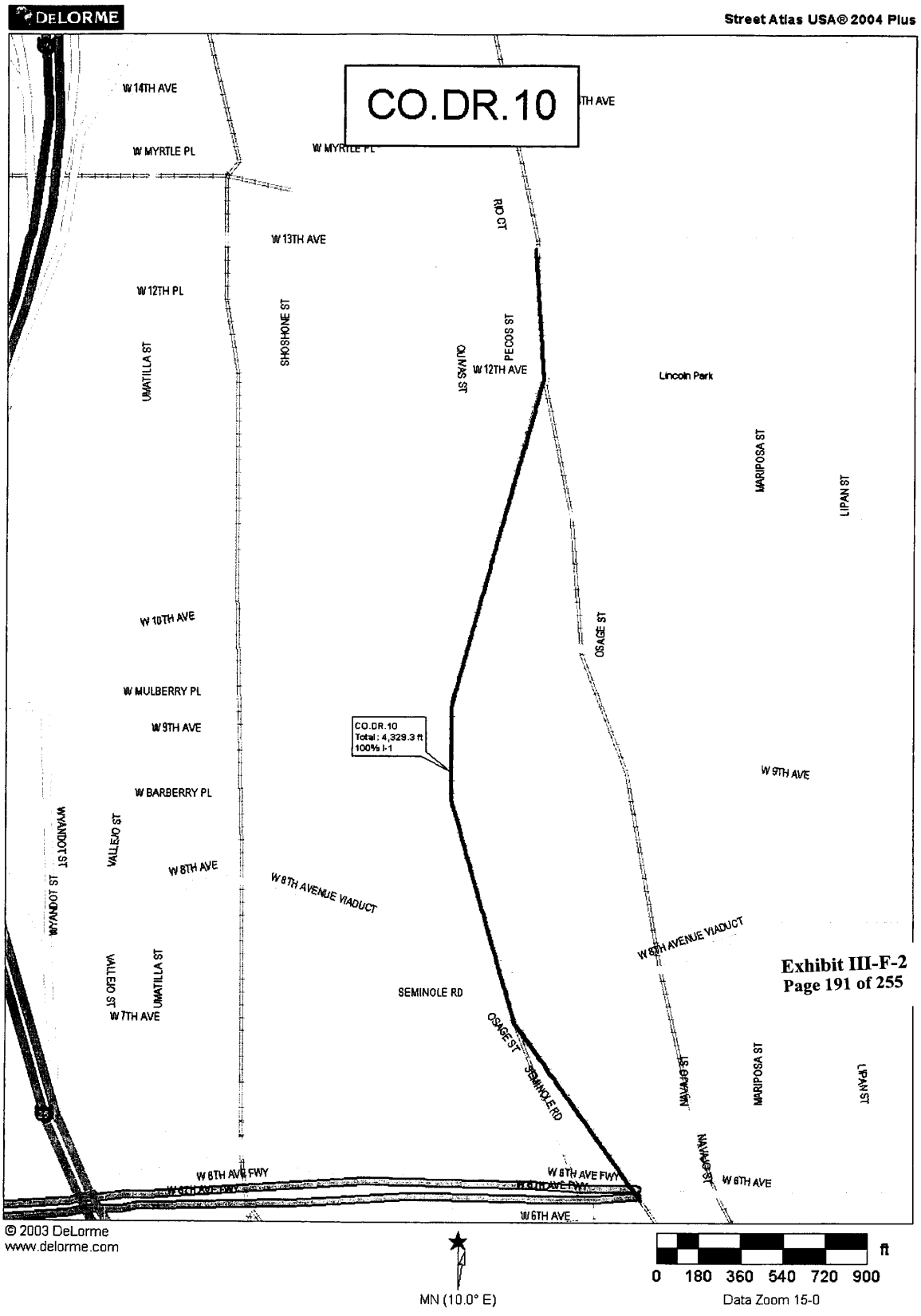
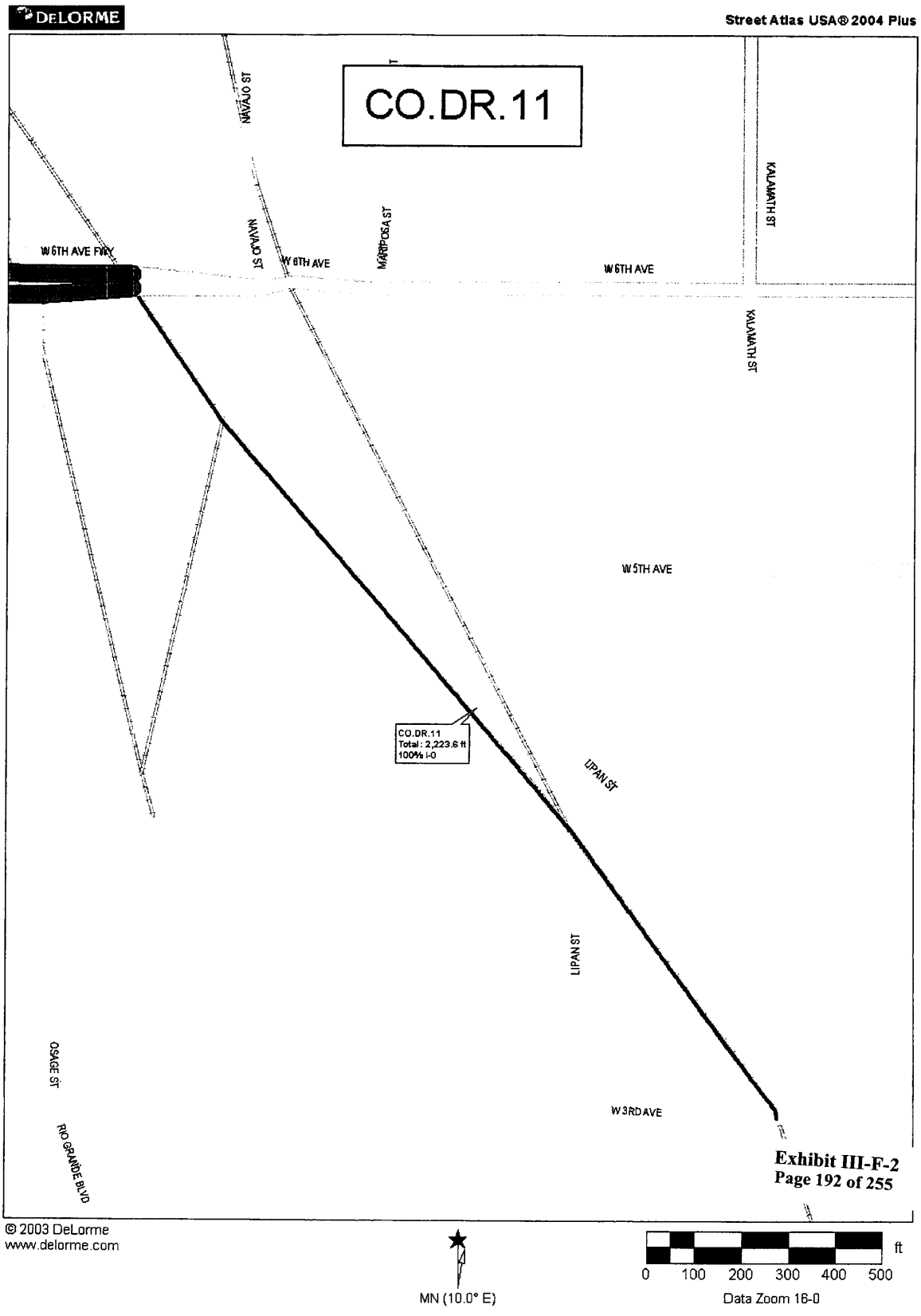

DELORME
Street Atlas USA® 2004 Plus
CO.DR.7
GRINNELL CT
15TH ST
BASSETT ST
LITTLE RAVEN ST
N SPEER BLVD
SPEER
ELITCHES CIR
CO.DR.7
Total: 610.4 ft
100% B-2
CHESTNUT PL
DELGANY ST
N SPEER BLVD
SPEER
WEWATTA ST
SPEER
15TH ST
N SPEER BLVD
WYNKOOP ST
WAZEE ST
© 2003 DeLorme
www.delorme.com
MN (10.0° E)
0 100 200 300 400 500 ft
Data Zoom 16-0

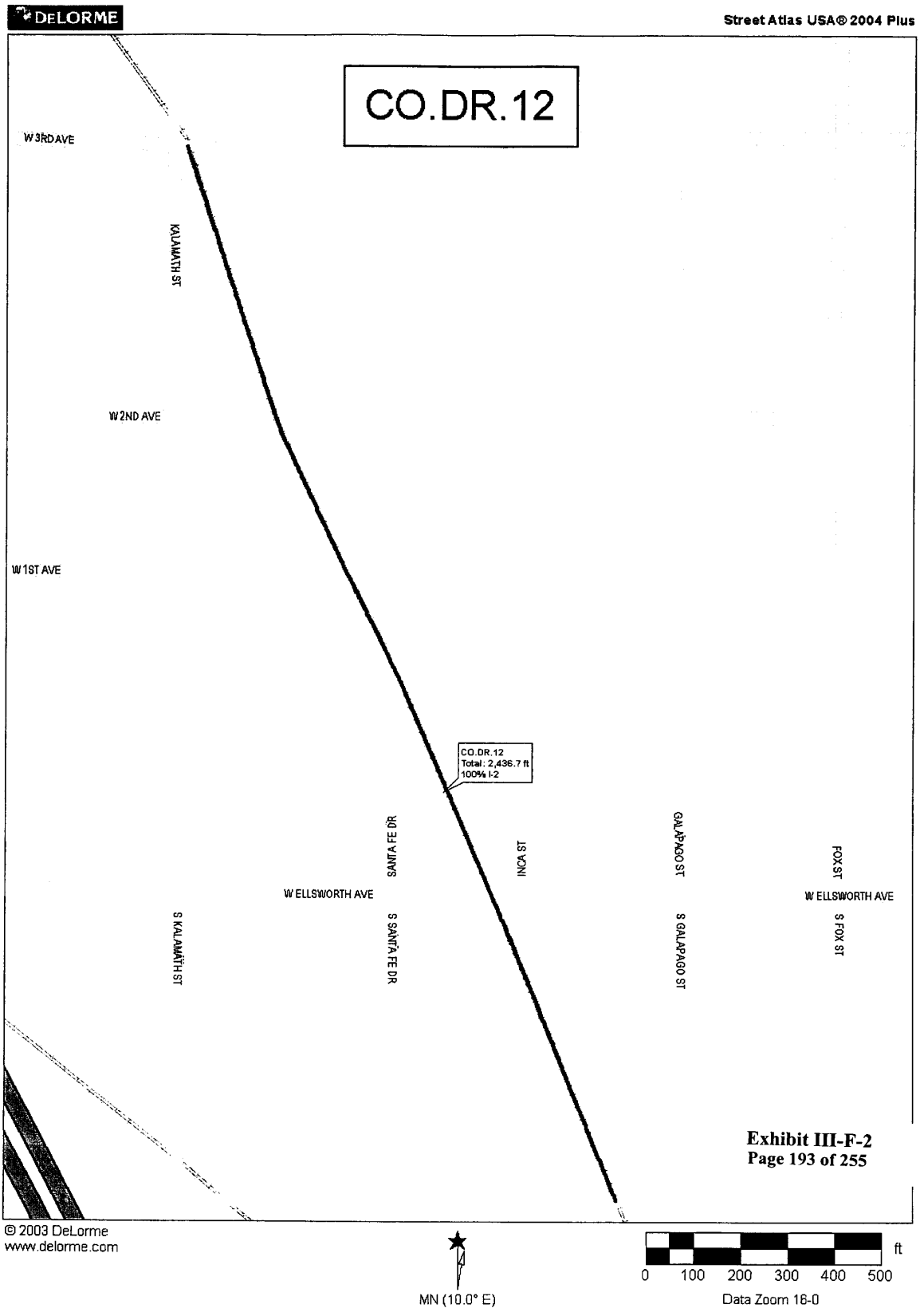


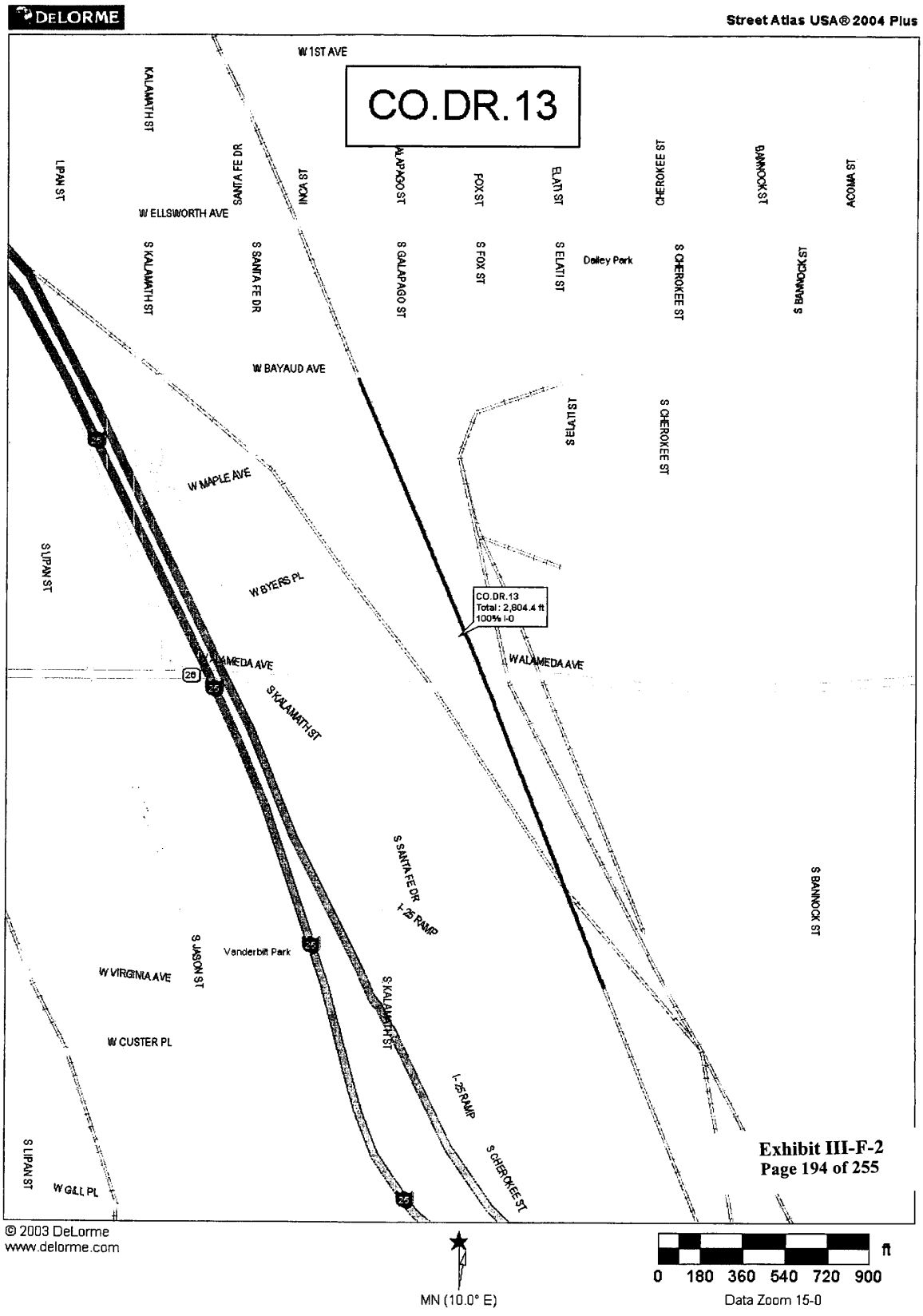
Exhibit III-F-2
Page 189 of 255

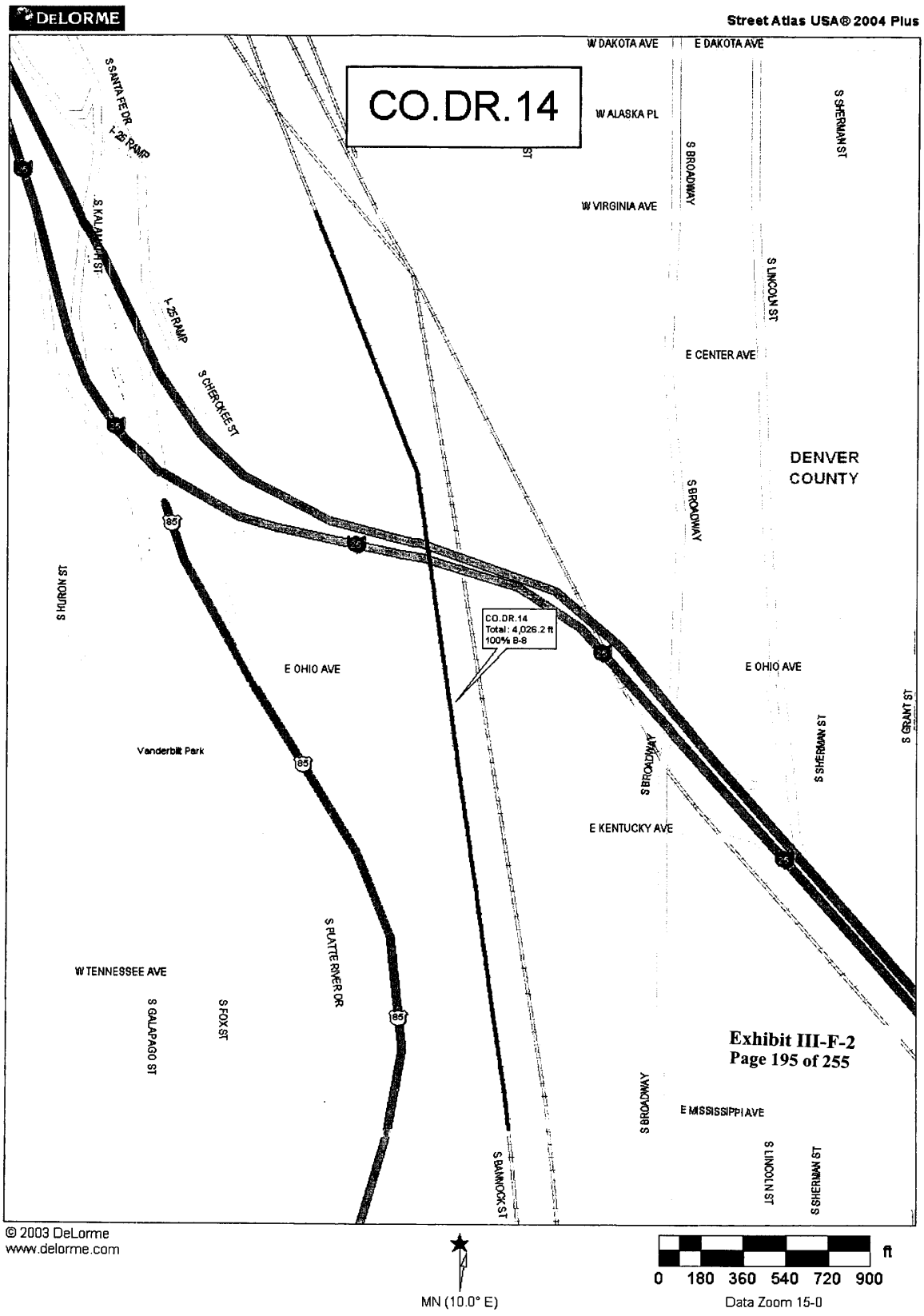

DELORME
Street Atlas USA® 2004 Plus
CO.DR.9
LAWRENCE ST
LAWRENCE ST
70
70
70
5TH ST
CURTIS ST
W 14TH AVENUE PKWY
CO.DR.9
Total: 1,300.0 ft
50% I-0
50% I-2
COTTONWOOD ST
W 14TH AVE
W 14TH AVE
W MYRTLE PL
W MYRTLE PL
W 12TH PL
© 2003 DeLorme
www.delorme.com
MN (10.0° E)
0 100 200 300 400 500 ft
Data Zoom 16-0

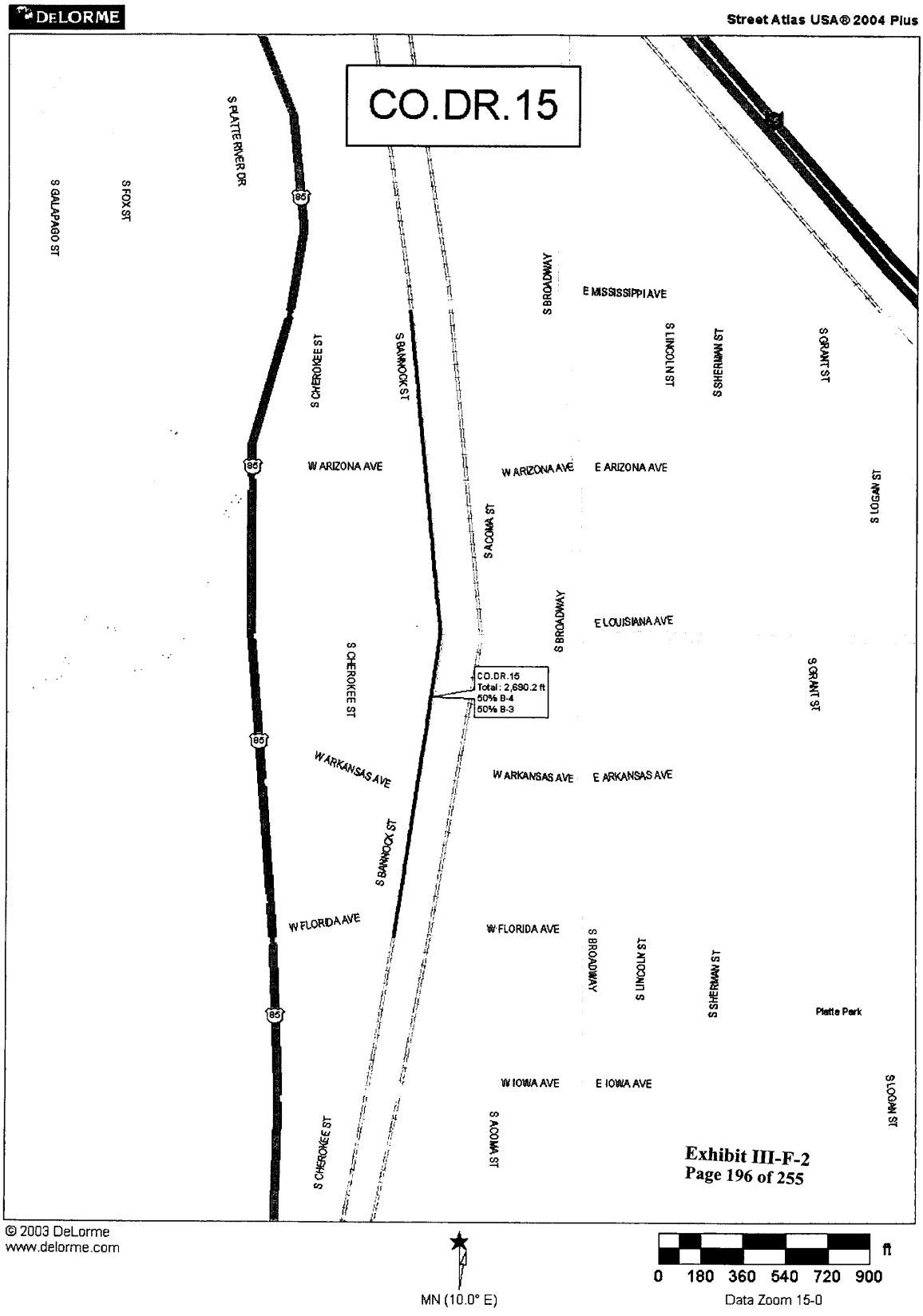

DELORME
Street Atlas USA® 2004 Plus
CO.DR.10
W 14TH AVE
W MYRTLE PL
W 13TH AVE
W 12TH PL
W 12TH AVE
W 10TH AVE
W MULBERRY PL
W 9TH AVE
W BARBERRY PL
W 8TH AVE
W 7TH AVE
W 6TH AVE
W 8TH AVENUE VIADUCT
W 8TH AVE FWY
UMATILLA ST
SHOSHONE ST
OLMOS ST
PECOS ST
RIO CT
Lincoln Park
MARIPOSA ST
LIPAN ST
OSAGE ST
VALLEJO ST
WYANDOT ST
SEMINOLE RD
NAVAJO ST
CO.DR.10
Total: 4,329.3 ft
100% I-1
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MN (10.0° E)
0 180 360 540 720 900 ft
Data Zoom 15-0

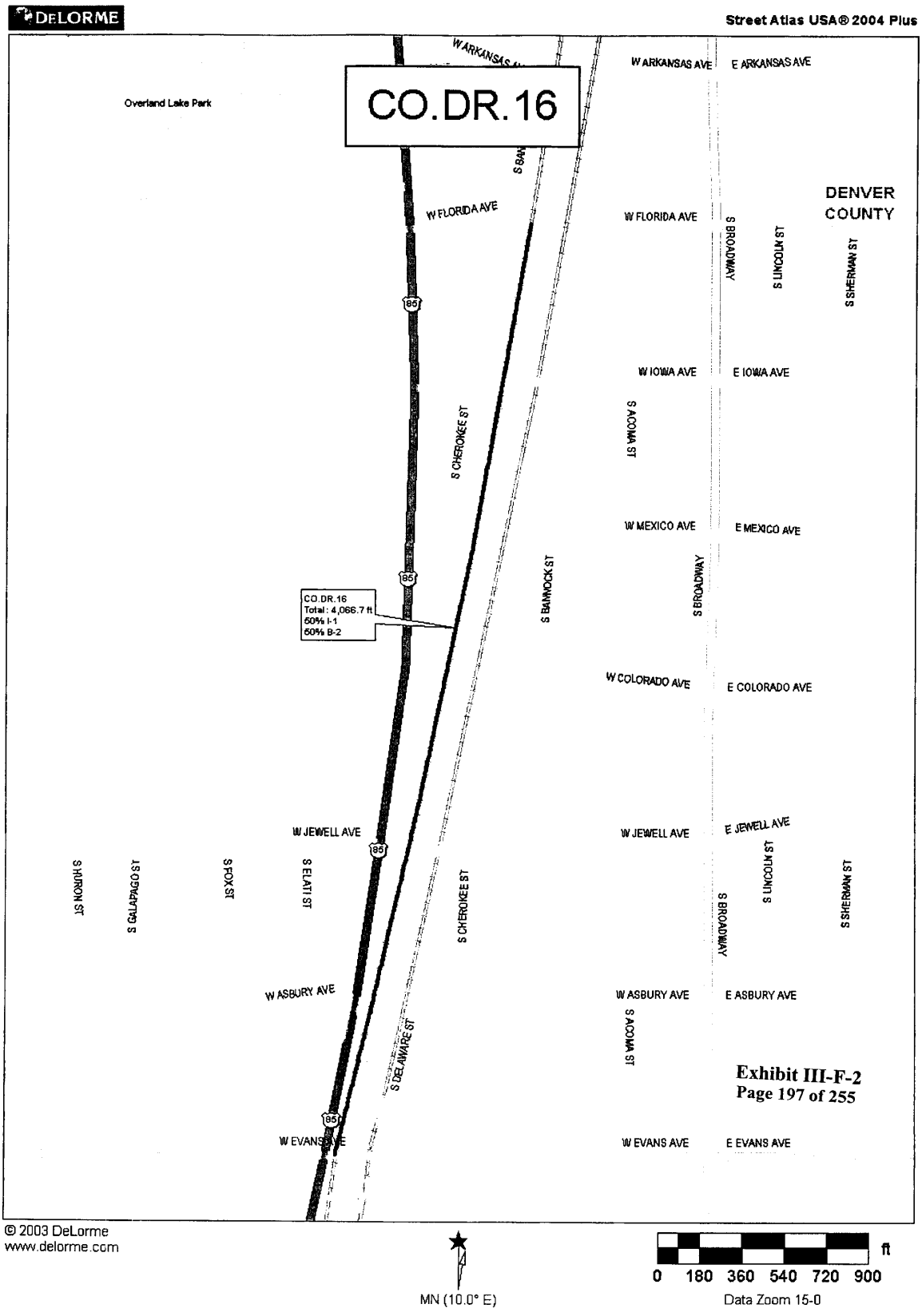

DELORME
Street Atlas USA® 2004 Plus
CO.DR.11
NAVAJO ST
MARIPOSA ST
KALAMATH ST
W 6TH AVE FWY
W 6TH AVE
W 5TH AVE
W 3RD AVE
LIPAN ST
OSAGE ST
RIO GRANDE BLVD
CO.DR.11
Total: 2,223.6 ft
100% I-0
© 2003 DeLorme
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MN (10.0° E)
0 100 200 300 400 500 ft
Data Zoom 16-0

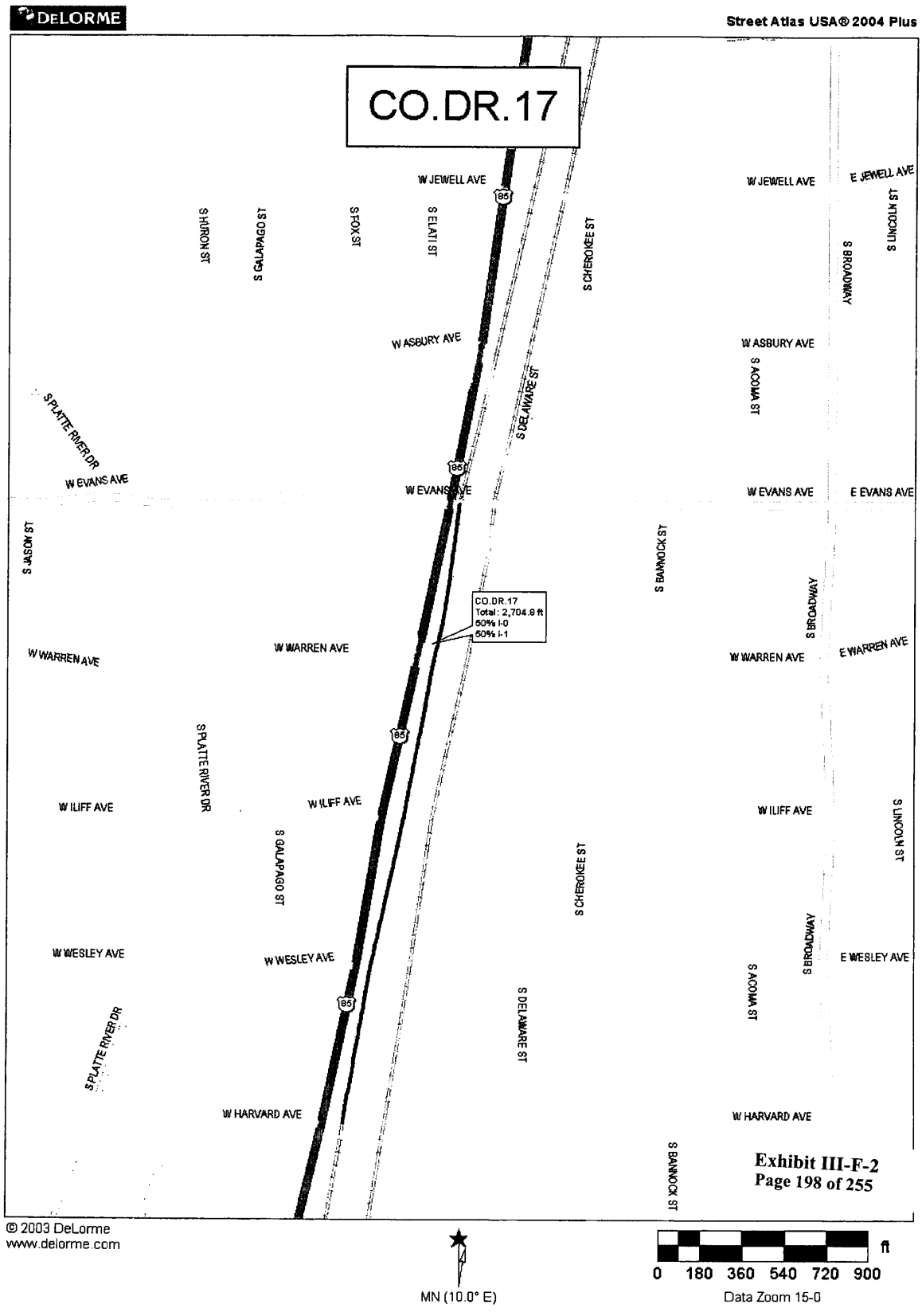

DELORME
Street Atlas USA® 2004 Plus
CO.DR.12
W 3RD AVE
KALAMATH ST
W 2ND AVE
W 1ST AVE
CO.DR.12
Total: 2,436.7 ft
100% I-2
SANTA FE DR
INCA ST
GALAPAGO ST
FOX ST
W ELLSWORTH AVE
W ELLSWORTH AVE
S KALAMATH ST
S SANTA FE DR
S GALAPAGO ST
S FOX ST
Exhibit III-F-2
Page 193 of 255
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MN (10.0° E)
0 100 200 300 400 500 ft
Data Zoom 16-0


DELORME
Street Atlas USA® 2004 Plus
CO.DR.13
W 1ST AVE
KALAMATH ST
LIPAN ST
SANTA FE DR
INCA ST
GALAPAGO ST
FOX ST
ELATI ST
CHEROKEE ST
BANNOCK ST
ACOMA ST
W ELLSWORTH AVE
S KALAMATH ST
S SANTA FE DR
S GALAPAGO ST
S FOX ST
S ELATI ST
Dailey Park
S CHEROKEE ST
S BANNOCK ST
W BAYAUD AVE
W MAPLE AVE
S LIPAN ST
W BYERS PL
CO.DR.13
Total: 2,804.4 ft
100% I-0
W ALAMEDA AVE
S KALAMATH ST
S SANTA FE DR
I-25 RAMP
Vanderbilt Park
S JASON ST
W VIRGINIA AVE
W CUSTER PL
S LIPAN ST
W GILL PL
I-25 RAMP
S CHEROKEE ST
Exhibit III-F-2
Page 194 of 255
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MN (10.0° E)
ft
0 180 360 540 720 900
Data Zoom 15-0


DELORME
Street Atlas USA® 2004 Plus
CO.DR.14
W DAKOTA AVE
E DAKOTA AVE
W ALASKA PL
W VIRGINIA AVE
E CENTER AVE
E OHIO AVE
E KENTUCKY AVE
E MISSISSIPPI AVE
W TENNESSEE AVE
S SANTA FE DR
I-25 RAMP
S KALAMATH ST
S CHEROKEE ST
S BROADWAY
S LINCOLN ST
S SHERMAN ST
S GRANT ST
S HURON ST
S PLATTE RIVER DR
S GALAPAGO ST
S FOX ST
S BANNOCK ST
DENVER COUNTY
Vanderbilt Park
CO.DR.14
Total: 4,026.2 ft
100% B-8
Exhibit III-F-2
Page 195 of 255
© 2003 DeLorme
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MN (10.0° E)
0 180 360 540 720 900 ft
Data Zoom 15-0


DeLORME
Street Atlas USA® 2004 Plus
CO.DR.15
S PLATTE RIVER DR
S GALAPAGO ST
S FOX ST
S CHEROKEE ST
S BANNOCK ST
S BROADWAY
E MISSISSIPPI AVE
S LINCOLN ST
S SHERMAN ST
S GRANT ST
W ARIZONA AVE
E ARIZONA AVE
S ACOMA ST
S LOGAN ST
E LOUISIANA AVE
CO.DR.15
Total : 2,690.2 ft
50% B-4
50% B-3
W ARKANSAS AVE
E ARKANSAS AVE
W FLORIDA AVE
Platte Park
W IOWA AVE
E IOWA AVE
Exhibit III-F-2
Page 196 of 255
© 2003 DeLorme
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MN (10.0° E)
0 180 360 540 720 900 ft
Data Zoom 15-0


DELORME
Street Atlas USA® 2004 Plus
CO.DR.16
Overland Park
DENVER
COUNTY
W ARKANSAS AVE
E ARKANSAS AVE
W FLORIDA AVE
W IOWA AVE
E IOWA AVE
W MEXICO AVE
E MEXICO AVE
W COLORADO AVE
E COLORADO AVE
W JEWELL AVE
E JEWELL AVE
W ASBURY AVE
E ASBURY AVE
W EVANS AVE
E EVANS AVE
S BROADWAY
S LINCOLN ST
S SHERMAN ST
S CHEROKEE ST
S ACOMA ST
S BANNOCK ST
S DELAWARE ST
S HURON ST
S GALAPAGO ST
S FOX ST
S ELATI ST
CO.DR.16
Total: 4,066.7 ft
50% I-1
50% B-2
© 2003 DeLorme
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MN (10.0° E)
0 180 360 540 720 900 ft
Data Zoom 15-0


DeLORME
Street Atlas USA® 2004 Plus
CO.DR.17
W JEWELL AVE
E JEWELL AVE
S HURON ST
S GALAPAGO ST
S FOX ST
S ELATI ST
S CHEROKEE ST
S BROADWAY
S LINCOLN ST
W ASBURY AVE
S ACOMA ST
S DELAWARE ST
S PLATTE RIVER DR
W EVANS AVE
E EVANS AVE
S JASON ST
S BANNOCK ST
CO.DR.17
Total: 2,704.8 ft
50% I-0
50% I-1
W WARREN AVE
E WARREN AVE
W ILIFF AVE
E ILIFF AVE
W WESLEY AVE
E WESLEY AVE
W HARVARD AVE
85
© 2003 DeLorme
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MN (10.0° E)
0 180 360 540 720 900 ft
Data Zoom 15-0

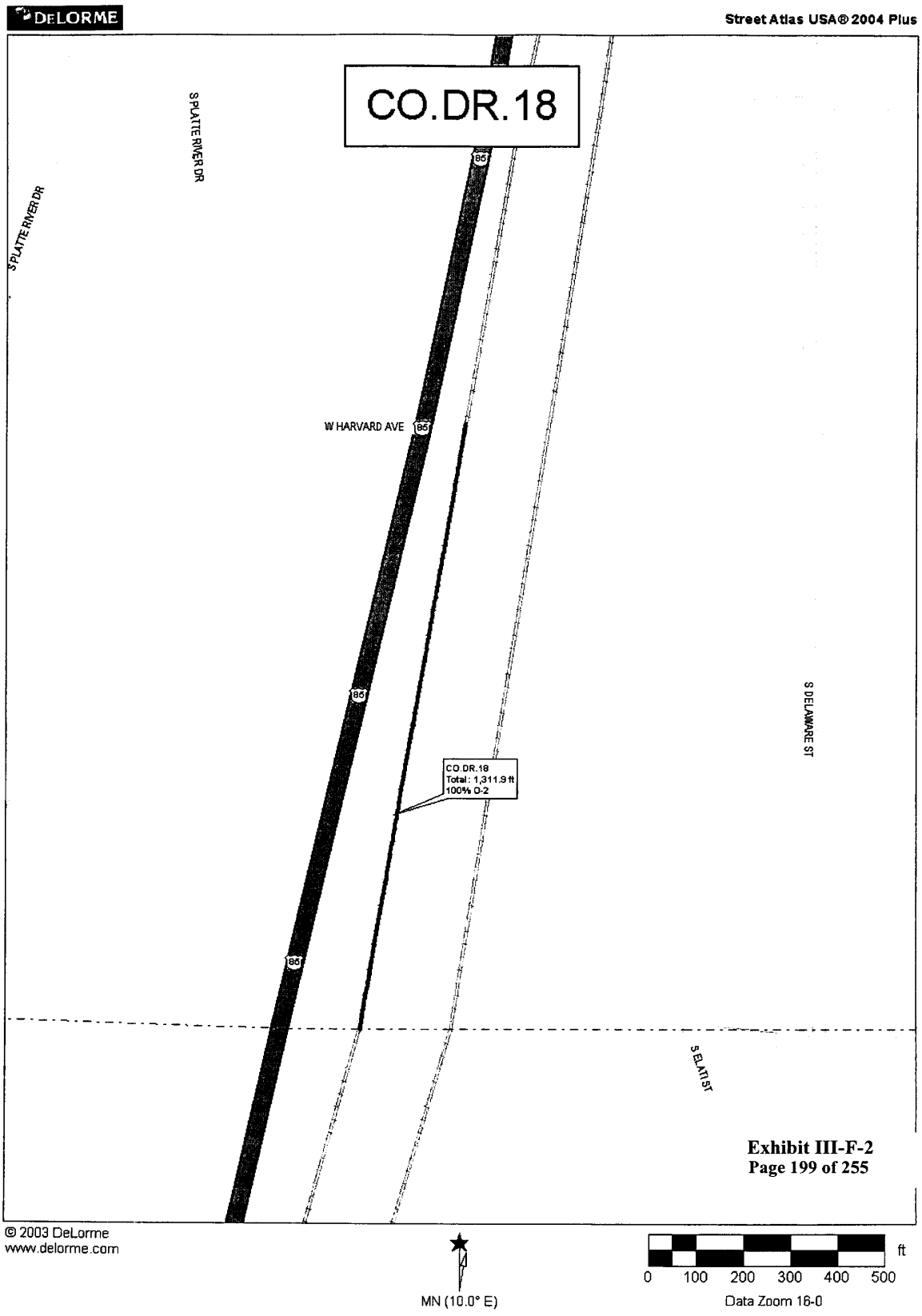
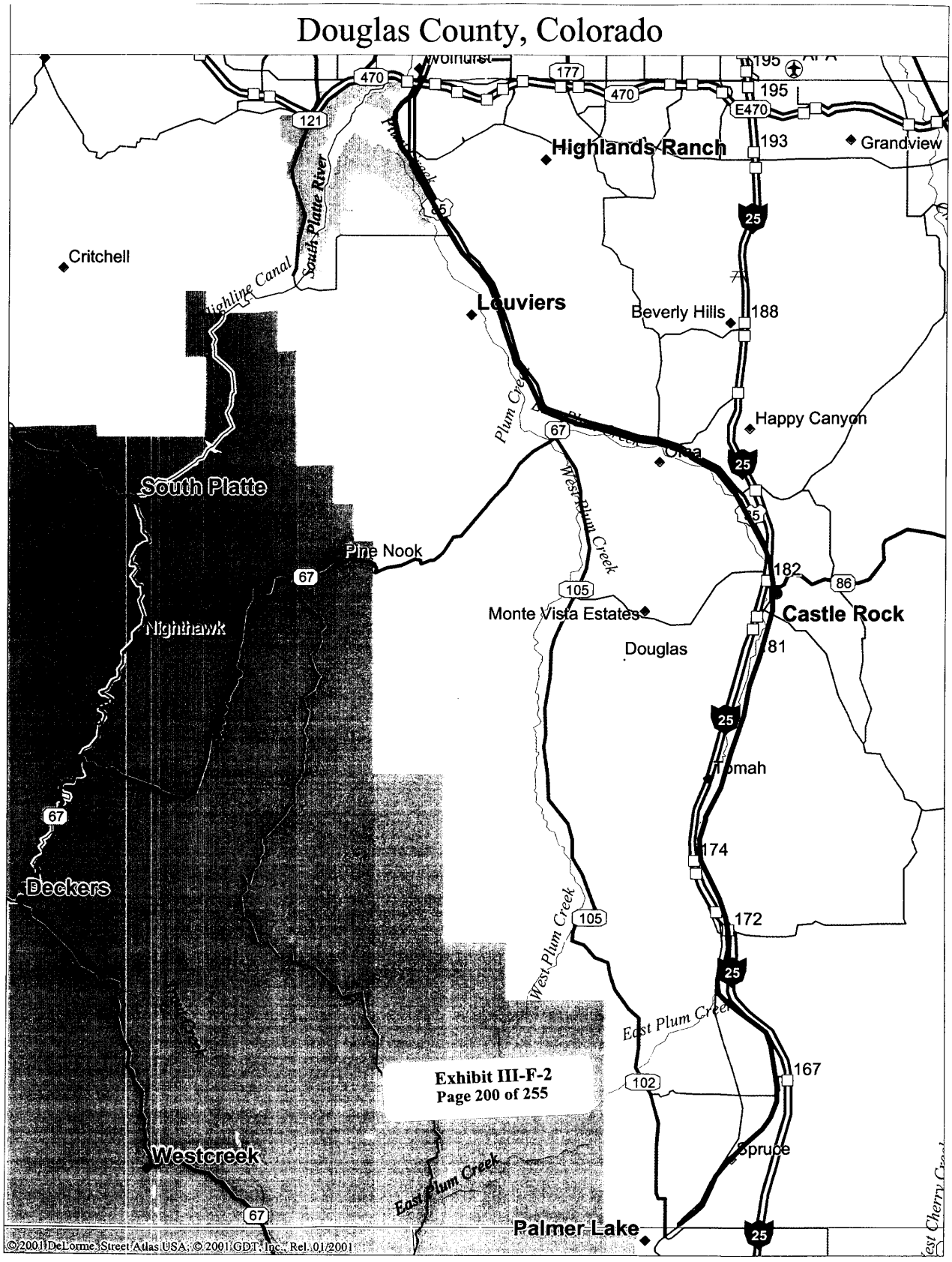
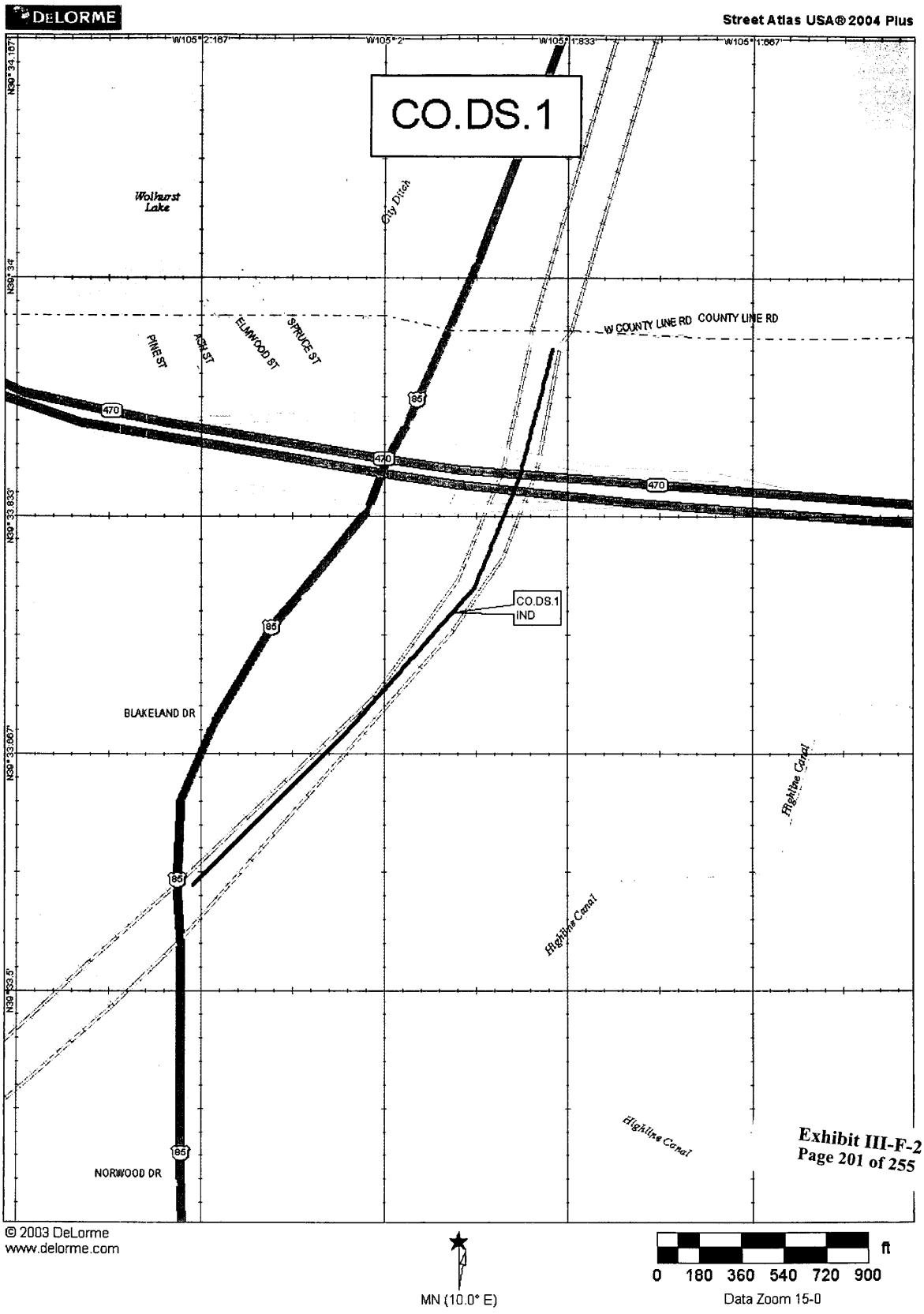
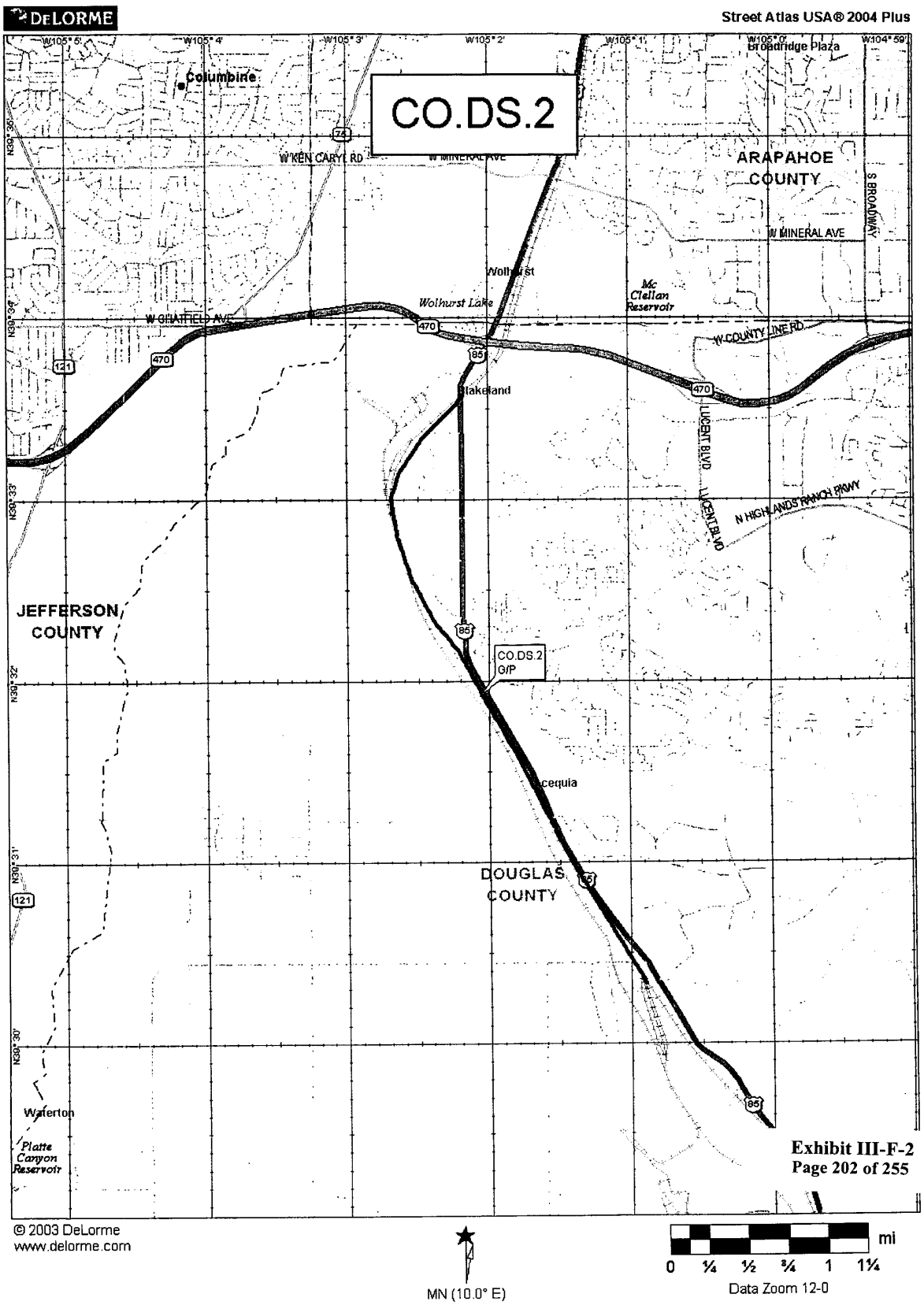
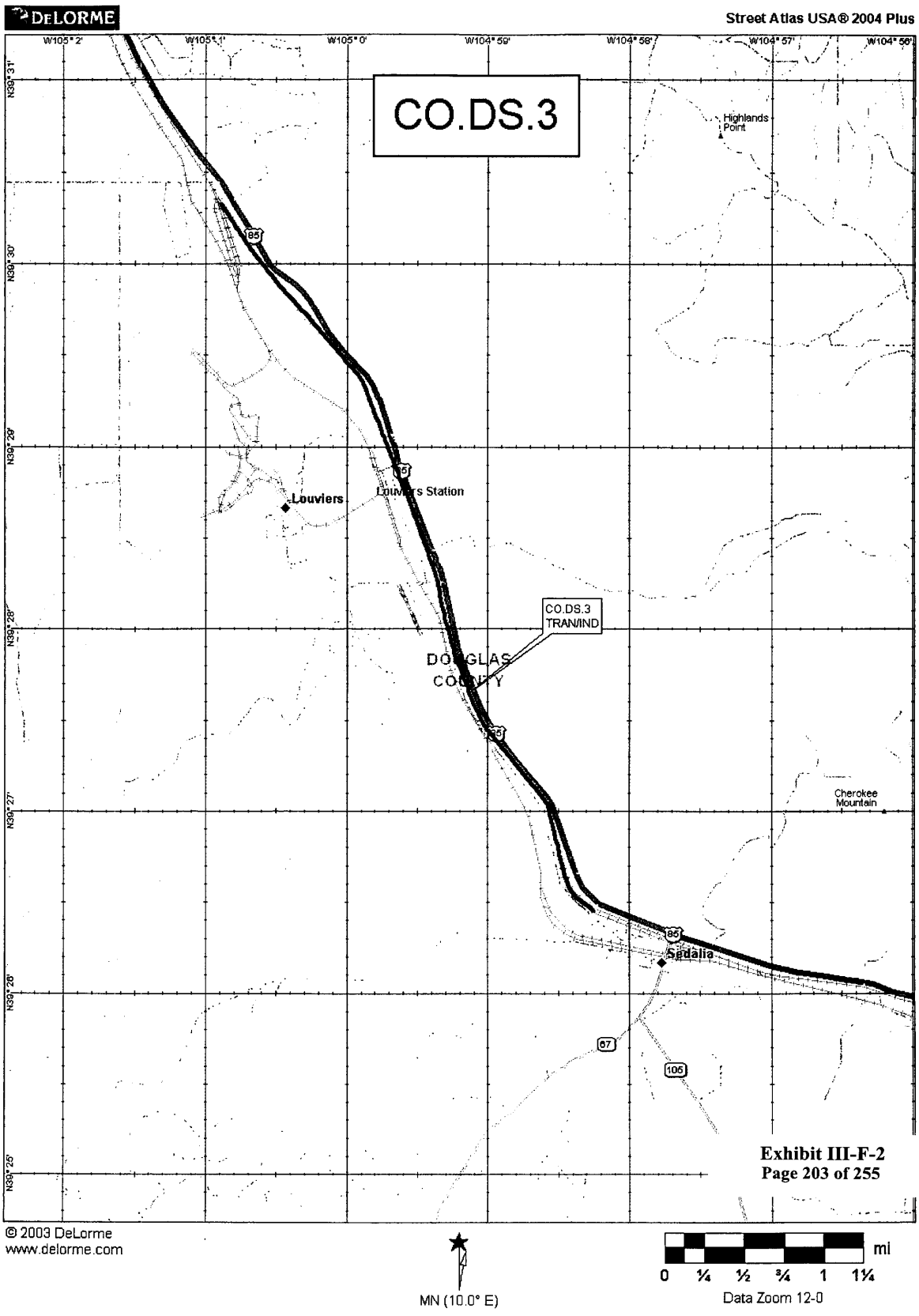


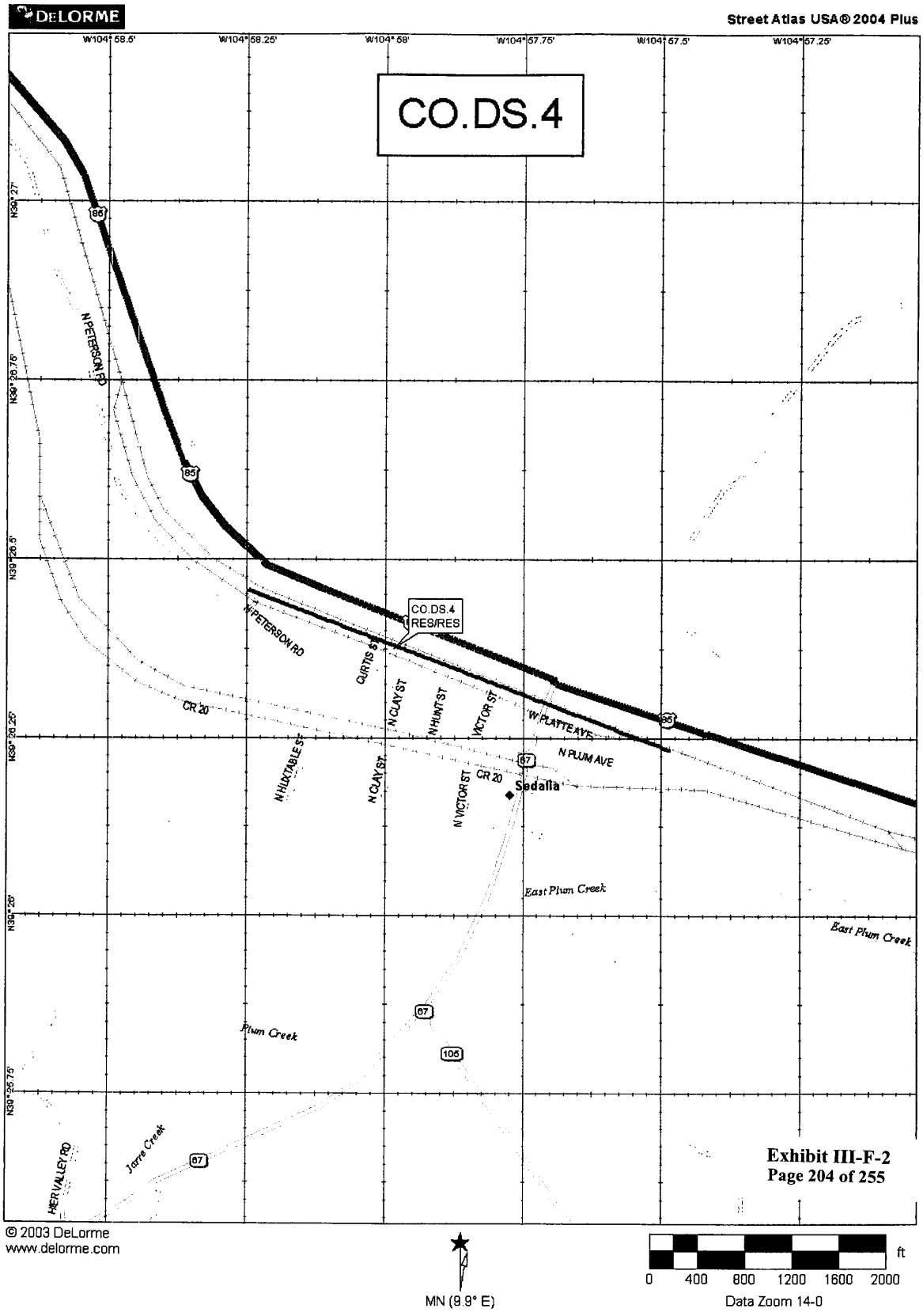
Exhibit III-F-2
Page 199 of 255

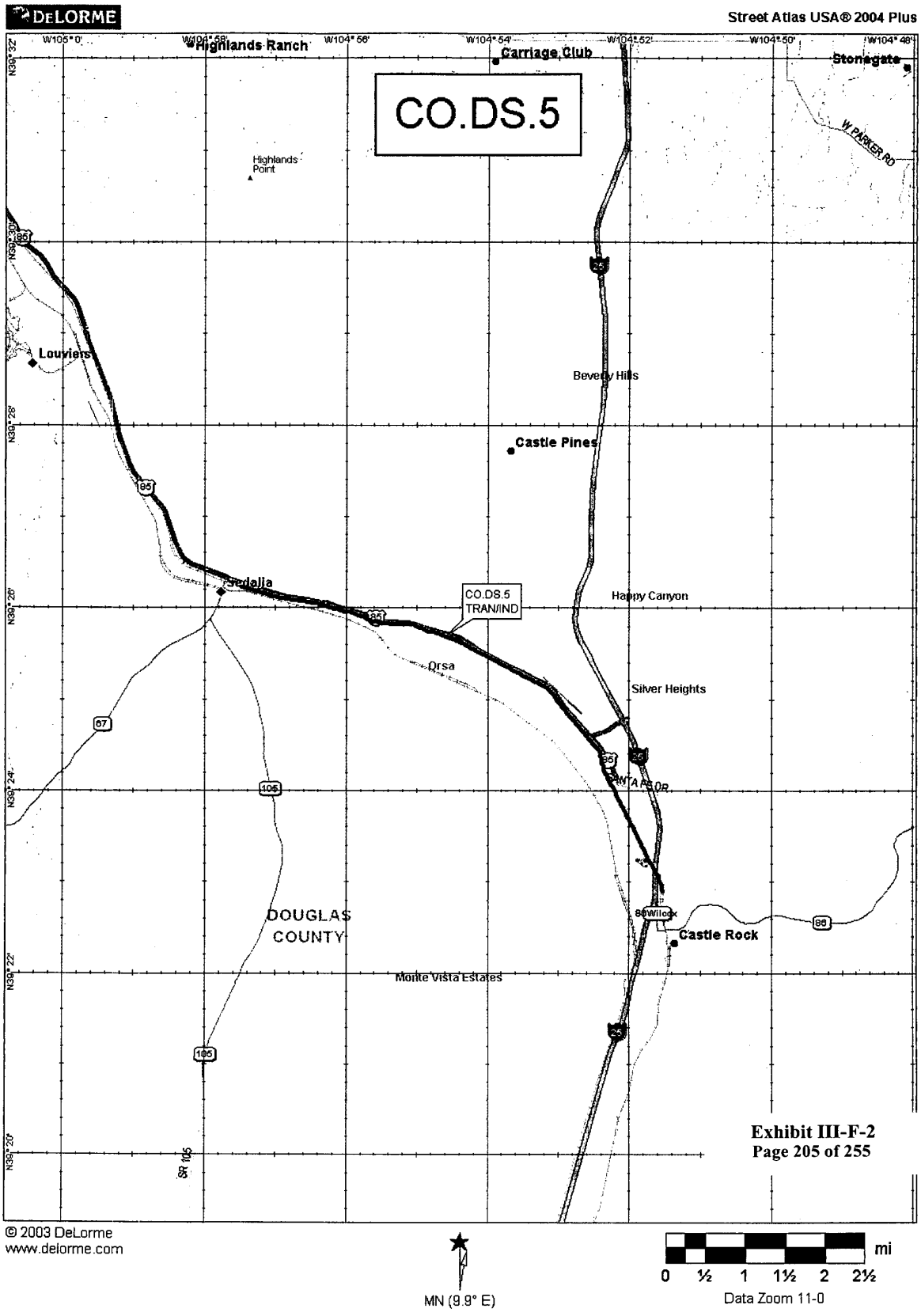

Douglas County, Colorado
Wolhurst
470
177
470
195
E470
121
Highlands Ranch
193
Grandview
South Platte River
Critchell
Louviers
Beverly Hills
188
Happy Canyon
67
Plum Creek
West Plum Creek
South Platte
Pine Nook
67
105
Monte Vista Estates
182
86
Castle Rock
Nighthawk
Douglas
181
25
Perry Park
67
Deckers
174
105
172
West Plum Creek
East Plum Creek
102
167
Spruce
Westcreek
67
East Plum Creek
Palmer Lake
25
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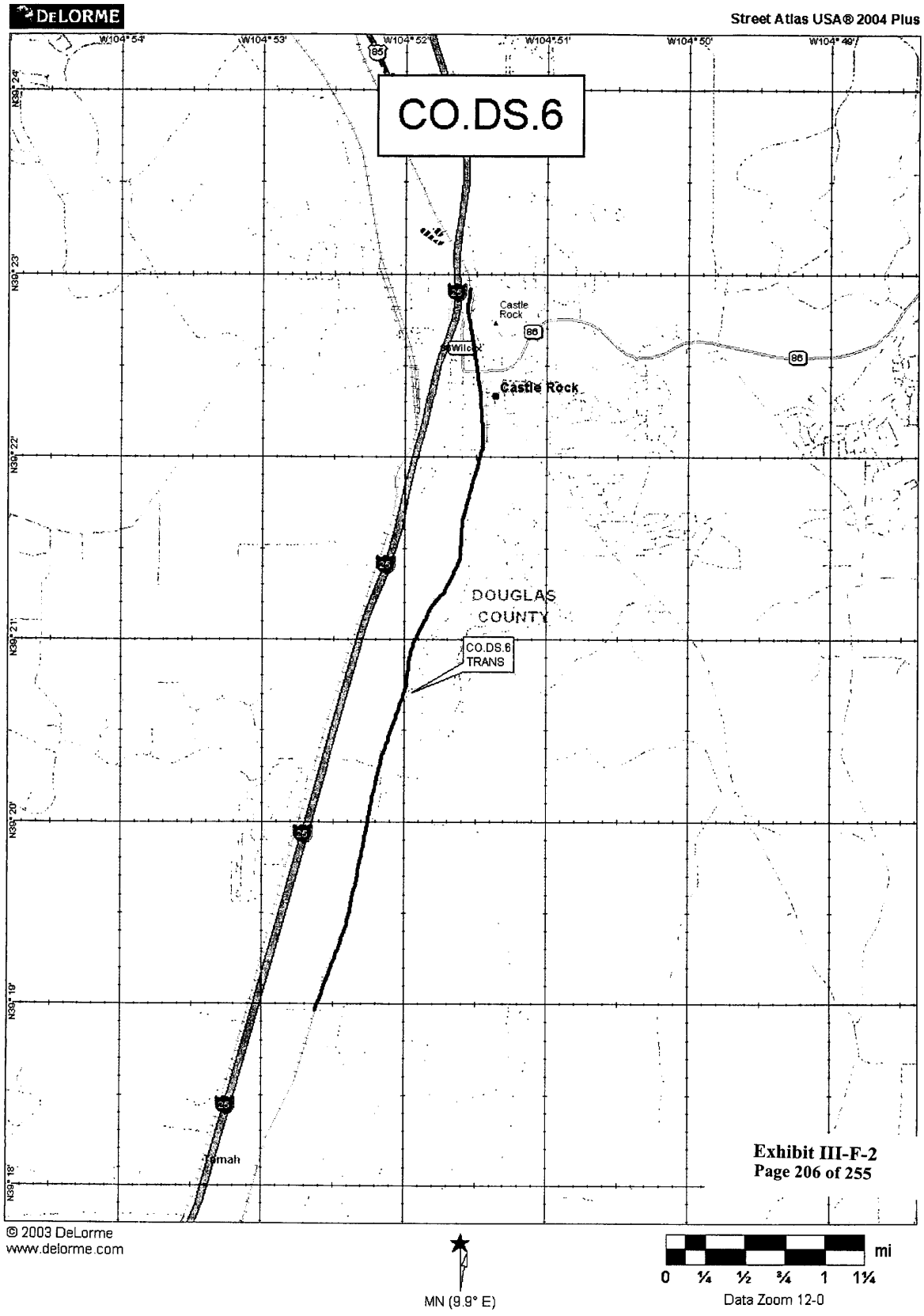

DELORME
Street Atlas USA® 2004 Plus
CO.DS.1
Wolhurst Lake
City Ditch
W COUNTY LINE RD
COUNTY LINE RD
PINE ST
ASH ST
ELMWOOD ST
SPRUCE ST
470
85
CO.DS.1
IND
BLAKELAND DR
NORWOOD DR
Highline Canal
© 2003 DeLorme
www.delorme.com
MN (10.0° E)
0 180 360 540 720 900 ft
Data Zoom 15-0


DeLORME
Street Atlas USA® 2004 Plus
CO.DS.2
Columbine
W KEN CARYL RD
W MINERAL AVE
ARAPAHOE COUNTY
S BROADWAY
Broadridge Plaza
Wolhurst
Wolhurst Lake
Mc Clellan Reservoir
W GLATFIELD AVE
W COUNTY LINE RD
Blakeland
LUCENT BLVD
N HIGHLANDS RANCH PKWY
JEFFERSON COUNTY
CO.DS.2 G/P
Acequia
DOUGLAS COUNTY
Waterton
Platte Canyon Reservoir
Exhibit III-F-2
Page 202 of 255
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www.delorme.com
MN (10.0° E)
mi
0 ¼ ½ ¾ 1 1¼
Data Zoom 12-0


DeLORME
Street Atlas USA® 2004 Plus
CO.DS.3
Highlands Point
Louviers
Louviers Station
CO.DS.3 TRAN/IND
DOUGLAS COUNTY
Cherokee Mountain
Sedalia
85
67
105
Exhibit III-F-2
Page 203 of 255
© 2003 DeLorme
www.delorme.com
MN (10.0° E)
0 ¼ ½ ¾ 1 1¼ mi
Data Zoom 12-0


DELORME
Street Atlas USA® 2004 Plus
CO.DS.4
CO.DS.4
RES/RES
N PETERSON RD
CR 20
W PLATTE AVE
N PLUM AVE
Sedalia
East Plum Creek
Plum Creek
Jarre Creek
HER VALLEY RD
© 2003 DeLorme
www.delorme.com
MN (9.9° E)
0 400 800 1200 1600 2000 ft
Data Zoom 14-0


DELORME
Street Atlas USA® 2004 Plus
CO.DS.5
Highlands Ranch
Carriage Club
Stonegate
W PARKER RD
Highlands Point
Louviers
Beverly Hills
Castle Pines
Sedalia
CO.DS.5 TRAN/IND
Happy Canyon
Orsa
Silver Heights
DOUGLAS COUNTY
Castle Rock
Monte Vista Estates
SR 105
© 2003 DeLorme
www.delorme.com
MN (9.9° E)
0 ½ 1 1½ 2 2½ mi
Data Zoom 11-0


DELORME
Street Atlas USA® 2004 Plus
CO.DS.6
Castle Rock
Castle Rock
DOUGLAS COUNTY
CO.DS.6 TRANS
Exhibit III-F-2
Page 206 of 255
© 2003 DeLorme
www.delorme.com
MN (9.9° E)
mi
0 ¼ ½ ¾ 1 1¼
Data Zoom 12-0

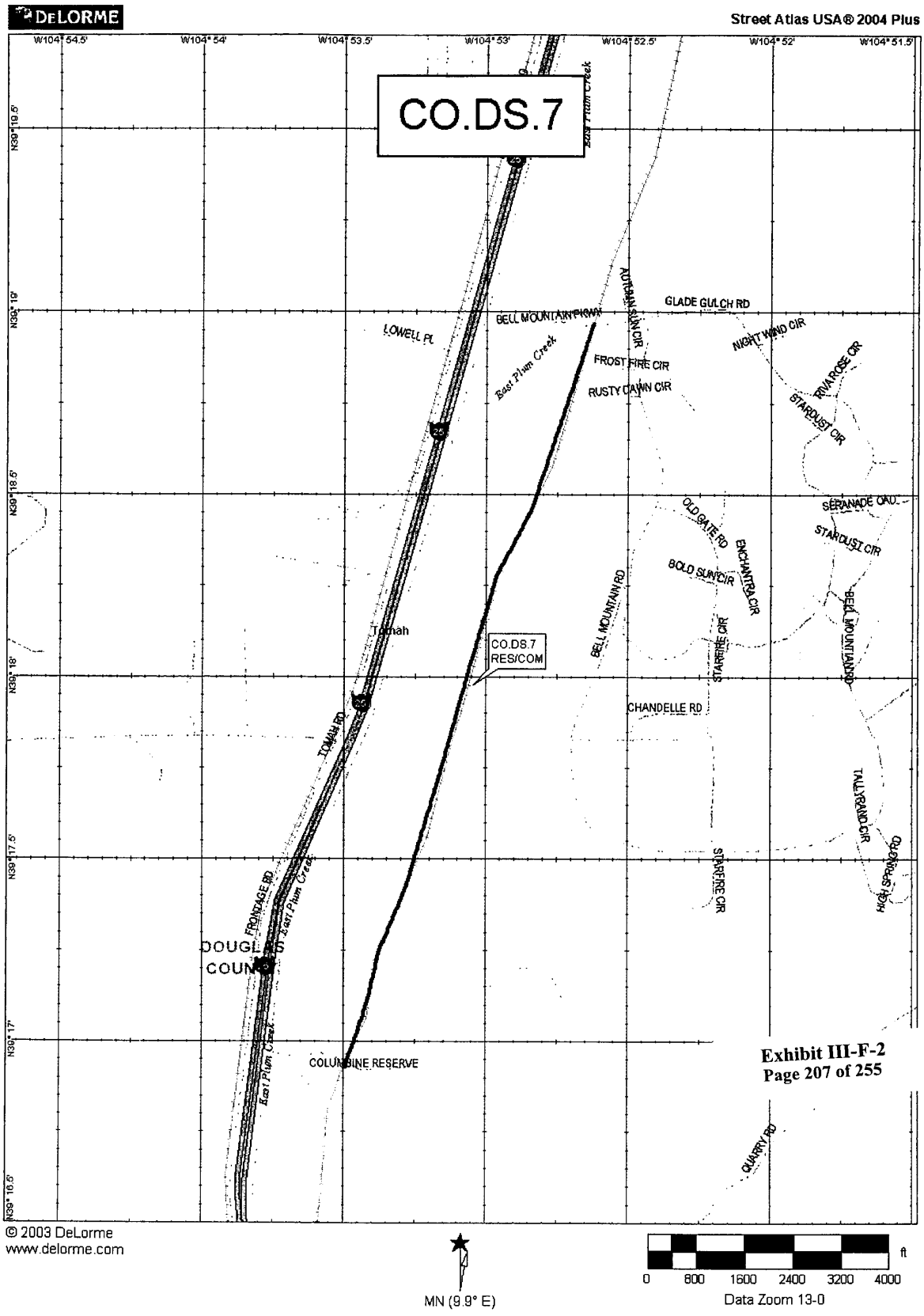
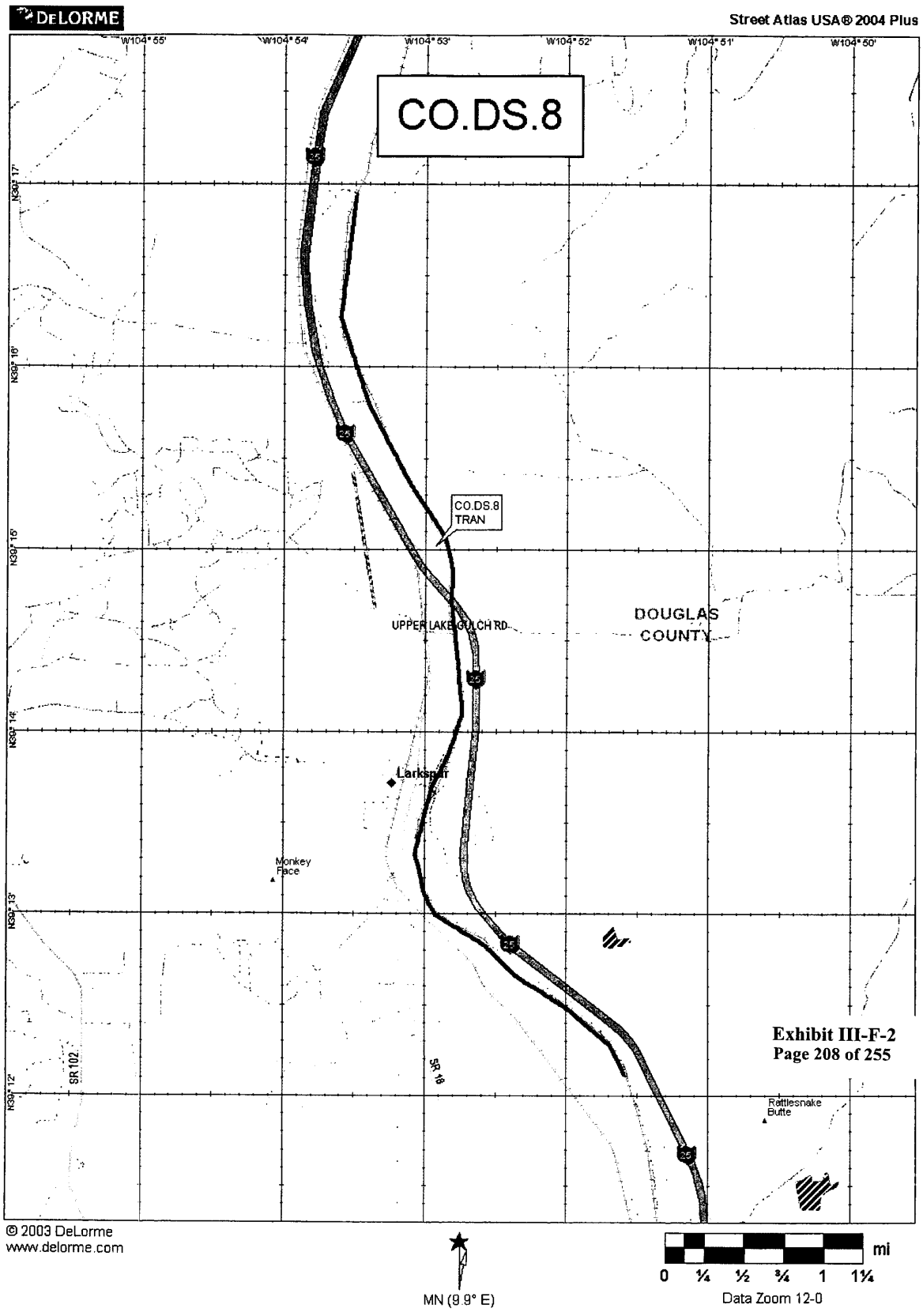
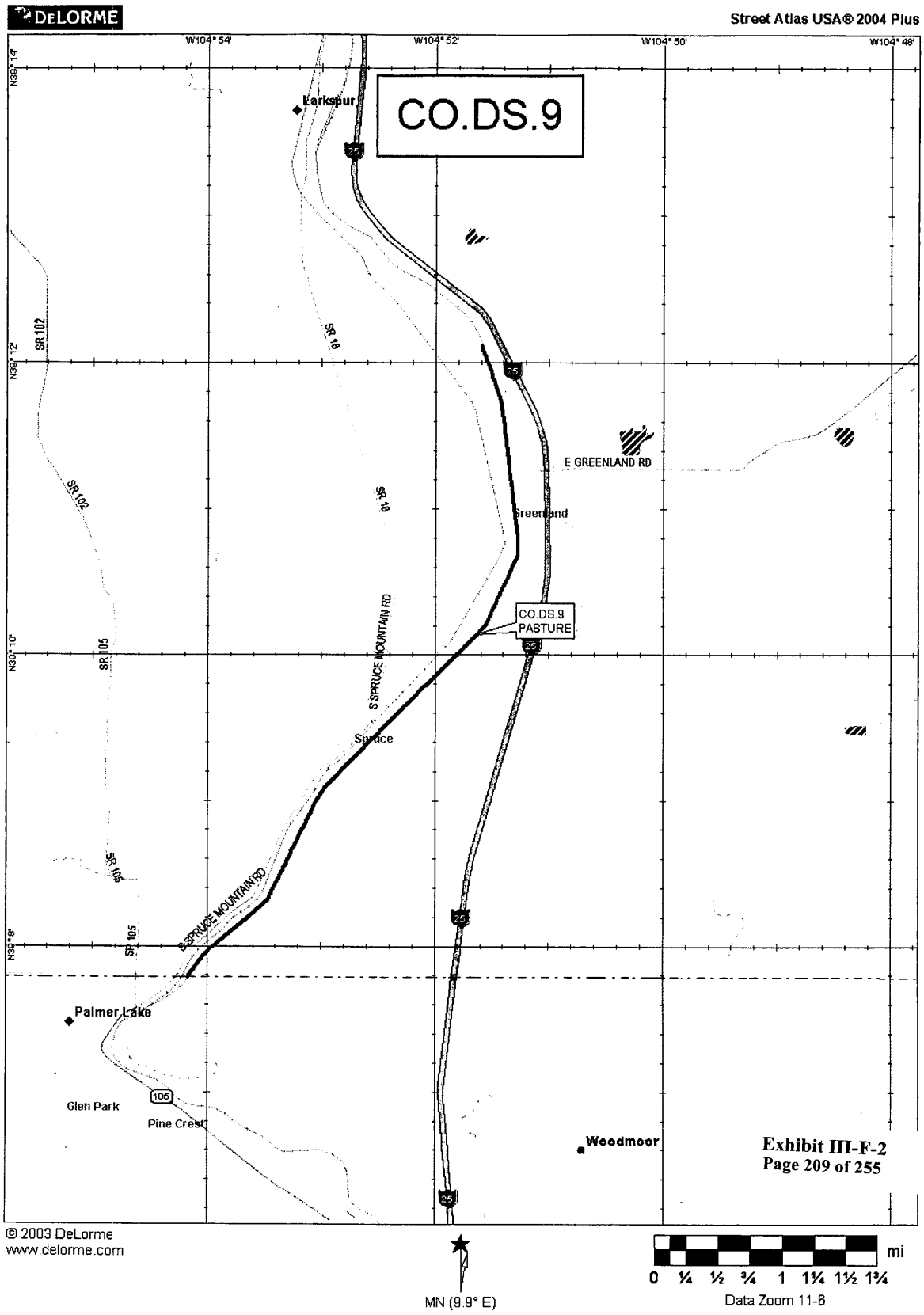
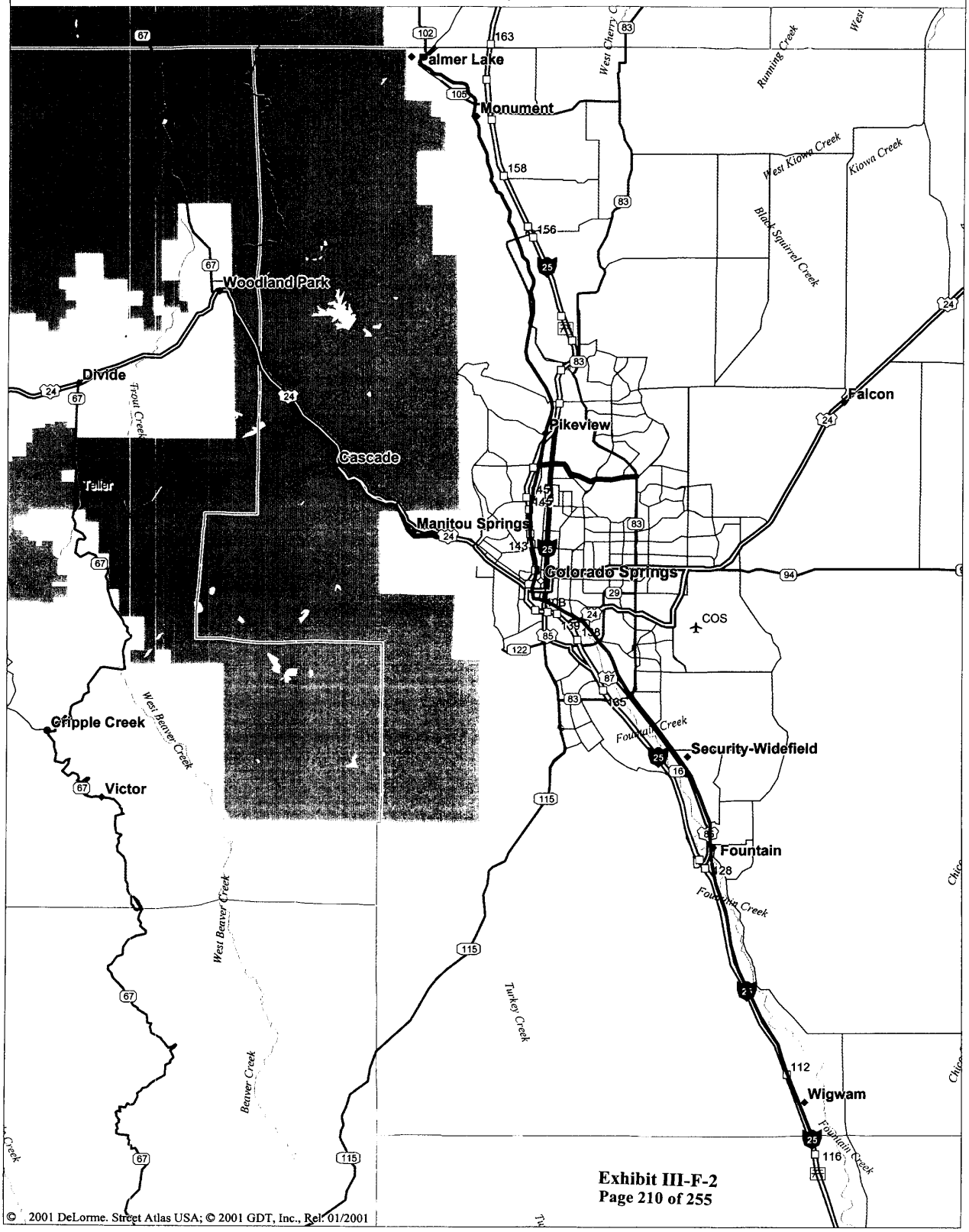


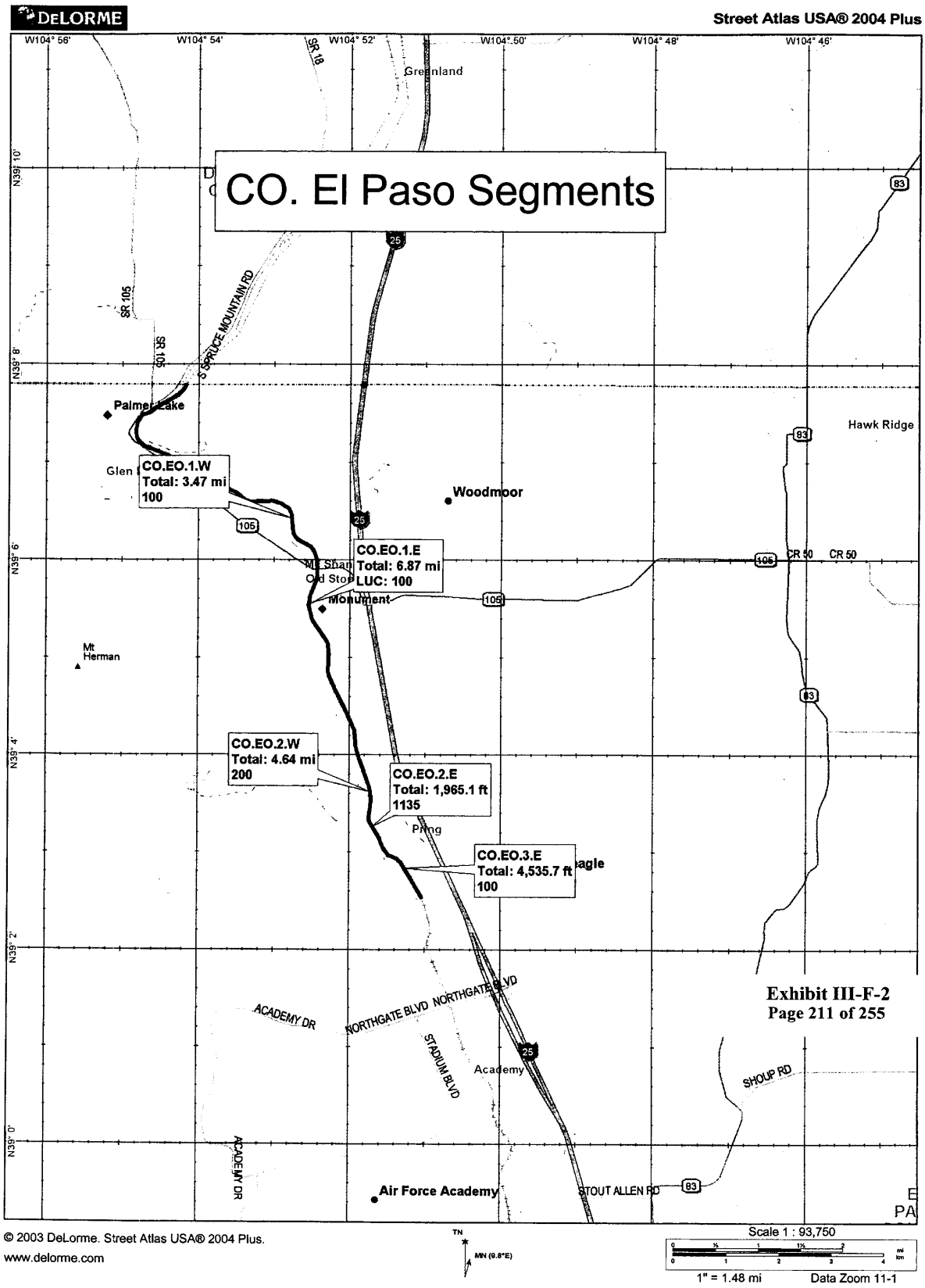
Exhibit III-F-2
Page 207 of 255

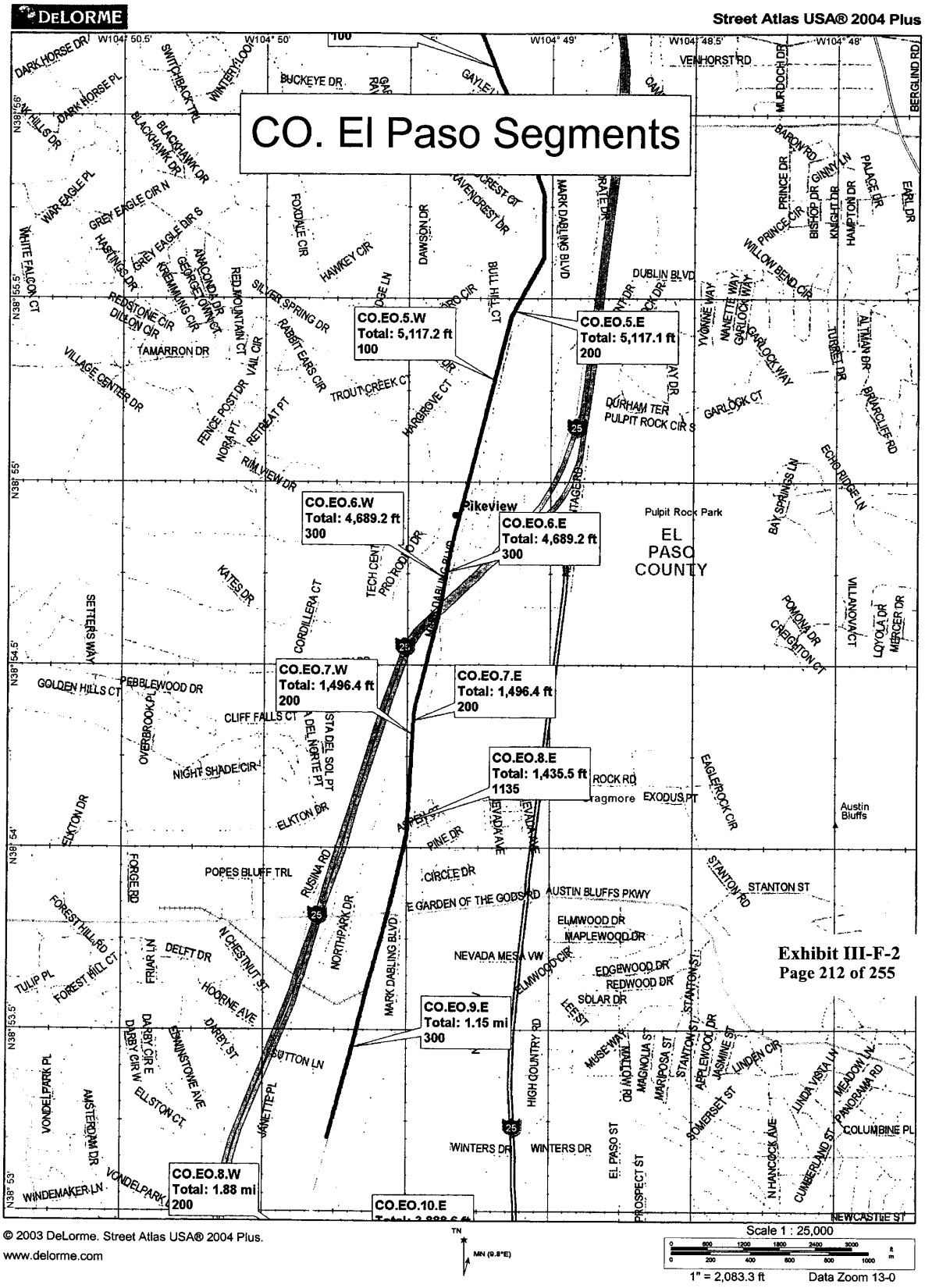

DELORME
Street Atlas USA® 2004 Plus
CO.DS.8
CO.DS.8
TRAN
UPPER LAKE GULCH RD
DOUGLAS
COUNTY
Larkspur
Monkey
Face
SR 102
SR 18
Rattlesnake
Butte
W104° 55'
W104° 54'
W104° 53'
W104° 52'
W104° 51'
W104° 50'
N39° 17'
N39° 16'
N39° 15'
N39° 14'
N39° 13'
N39° 12'
© 2003 DeLorme
www.delorme.com
MN (9.9° E)
0 ¼ ½ ¾ 1 1¼ mi
Data Zoom 12-0


DELORME
Street Atlas USA® 2004 Plus
CO.DS.9
W104° 54'
W104° 52'
W104° 50'
W104° 48'
N39° 14'
N39° 12'
N39° 10'
N39° 8'
Larkspur
SR 102
SR 105
SR 18
E GREENLAND RD
Greenland
CO.DS.9
PASTURE
S SPRUCE MOUNTAIN RD
Spruce
Palmer Lake
Glen Park
Pine Crest
Woodmoor
105
25
© 2003 DeLorme
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MN (9.9° E)
mi
0 ¼ ½ ¾ 1 1¼ 1½ 1¾
Data Zoom 11-6

El Paso County, Colorado




DeLORME
Street Atlas USA® 2004 Plus
CO. El Paso Segments
CO.EO.1.W
Total: 3.47 mi
100
CO.EO.1.E
Total: 6.87 mi
LUC: 100
CO.EO.2.W
Total: 4.64 mi
200
CO.EO.2.E
Total: 1,965.1 ft
1135
CO.EO.3.E
Total: 4,535.7 ft
100
Palmer Lake
Woodmoor
Monument
Mt Herman
Air Force Academy
Academy
Hawk Ridge
Greenland
S SPRUCE MOUNTAIN RD
SR 105
ACADEMY DR
NORTHGATE BLVD
STADIUM BLVD
SHOUP RD
STOUT ALLEN RD
CR 50
W104° 56'
W104° 54'
W104° 52'
W104° 50'
W104° 48'
W104° 46'
N39° 10'
N39° 8'
N39° 6'
N39° 4'
N39° 2'
N39° 0'
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www.delorme.com
Scale 1 : 93,750
1" = 1.48 mi
Data Zoom 11-1


DELORME
Street Atlas USA® 2004 Plus
CO. El Paso Segments
CO.EO.5.W
Total: 5,117.2 ft
100
CO.EO.5.E
Total: 5,117.1 ft
200
CO.EO.6.W
Total: 4,689.2 ft
300
CO.EO.6.E
Total: 4,689.2 ft
300
CO.EO.7.W
Total: 1,496.4 ft
200
CO.EO.7.E
Total: 1,496.4 ft
200
CO.EO.8.E
Total: 1,435.5 ft
1135
CO.EO.9.E
Total: 1.15 mi
300
CO.EO.8.W
Total: 1.88 mi
200
CO.EO.10.E
Pikeview
Pulpit Rock Park
EL PASO COUNTY
Austin Bluffs
Exhibit III-F-2
Page 212 of 255
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www.delorme.com
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0

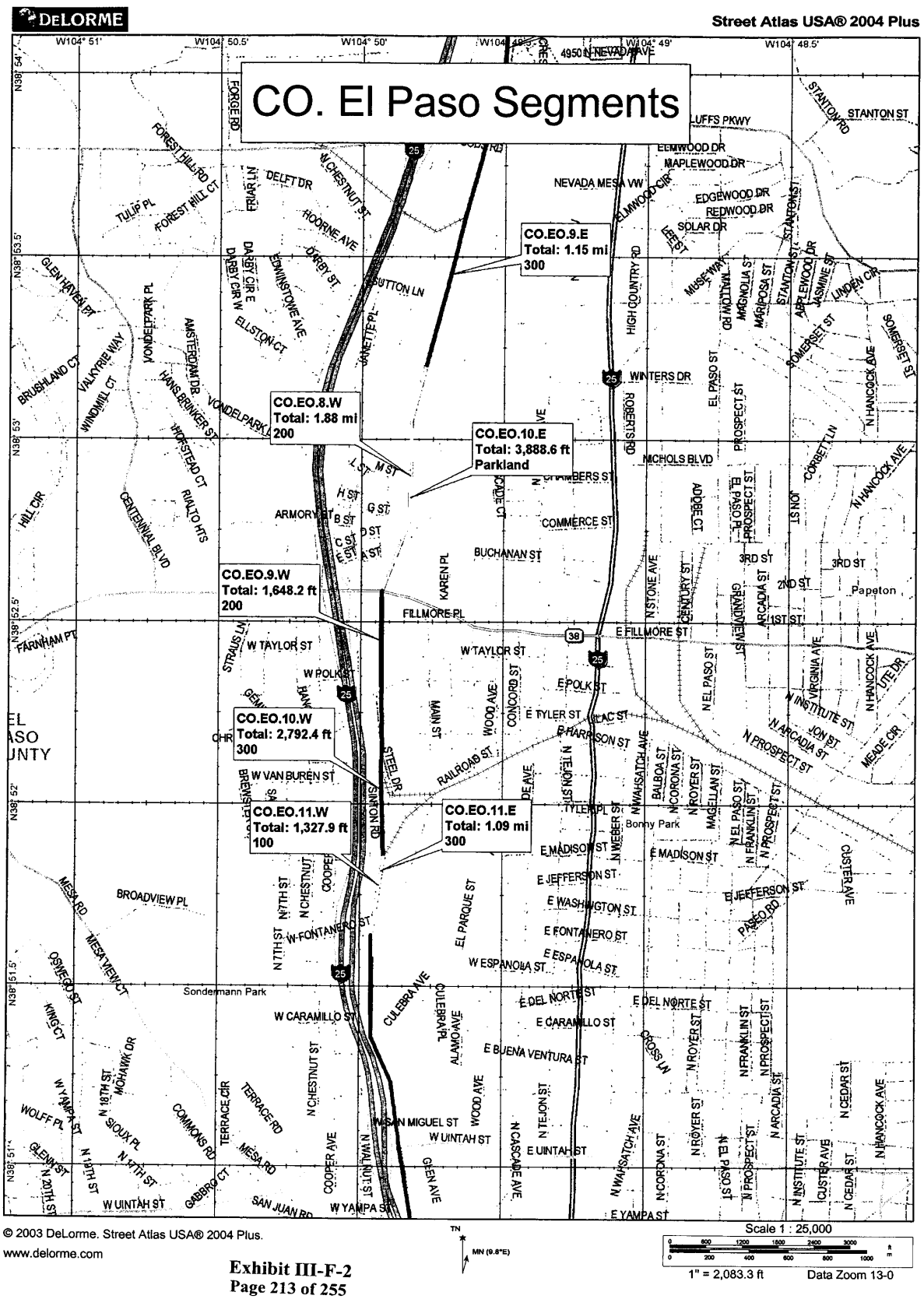
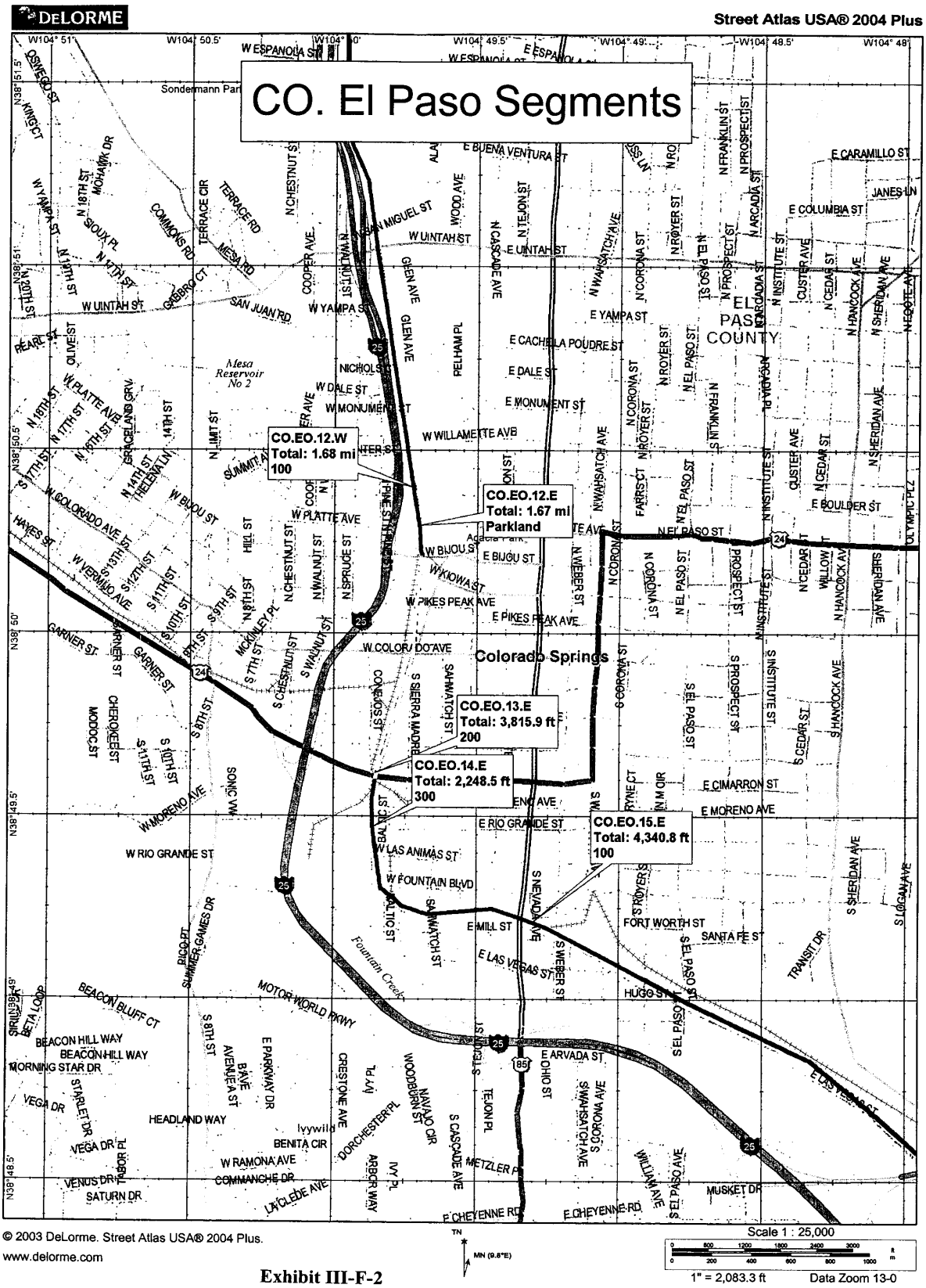
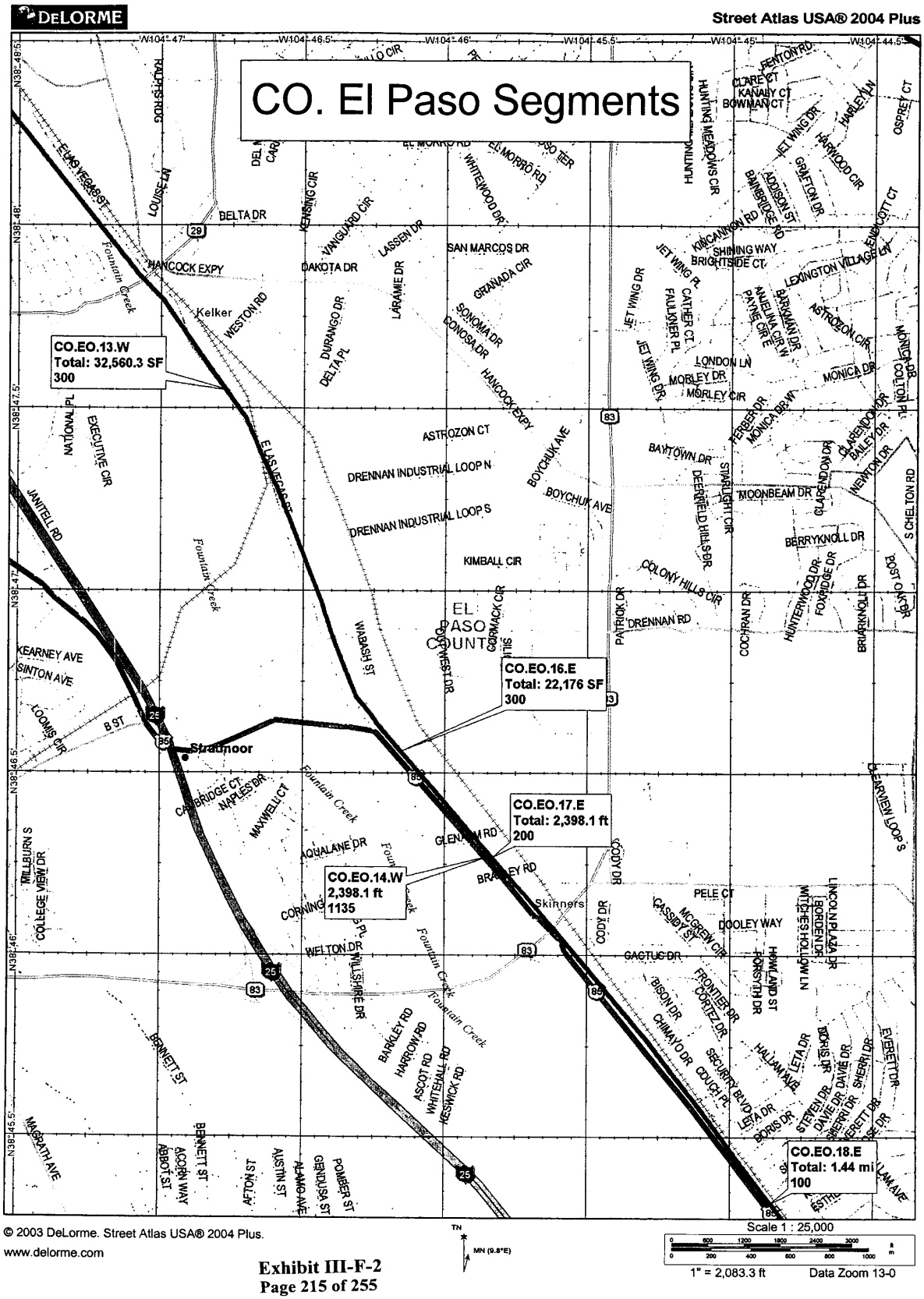
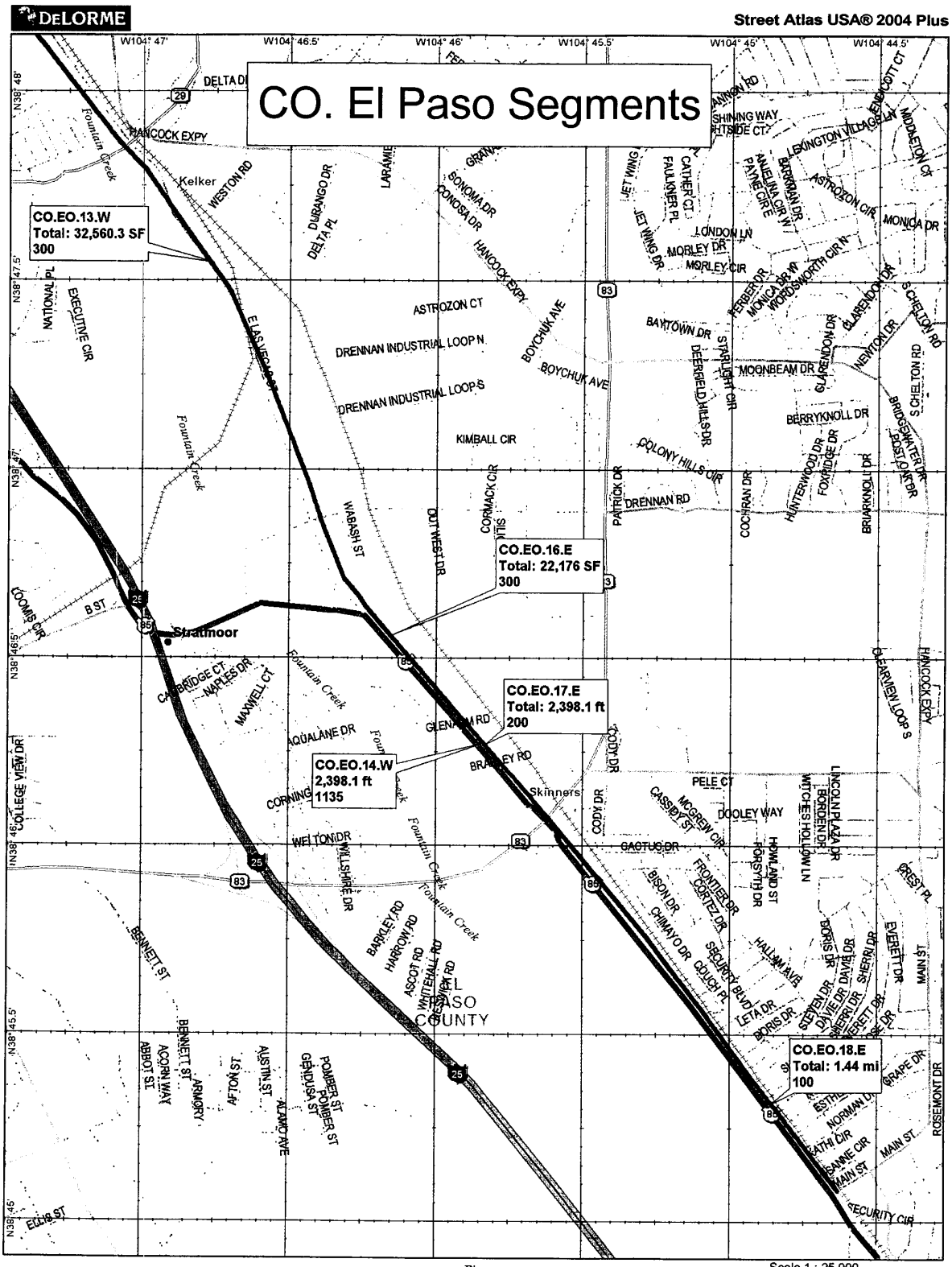
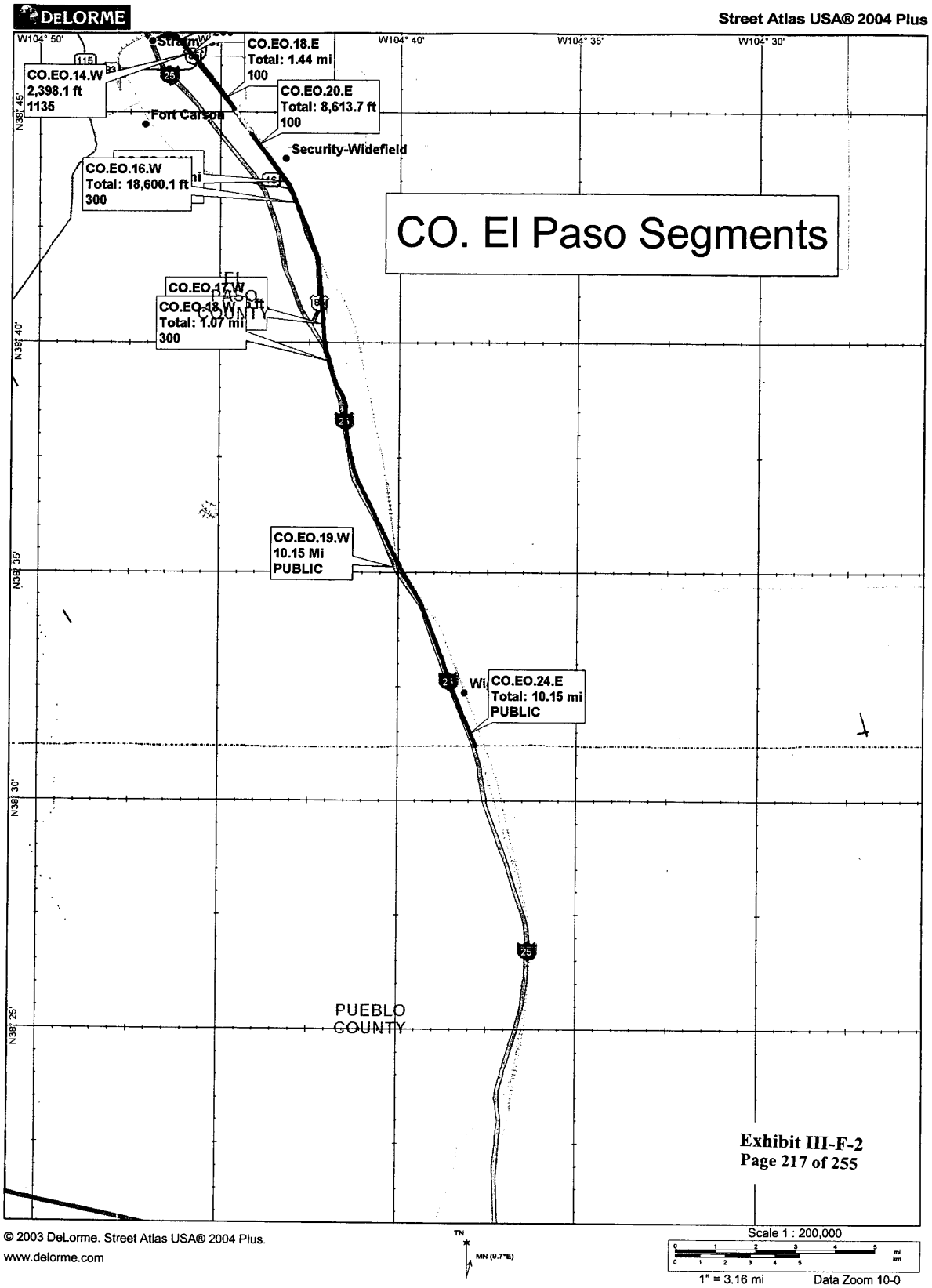


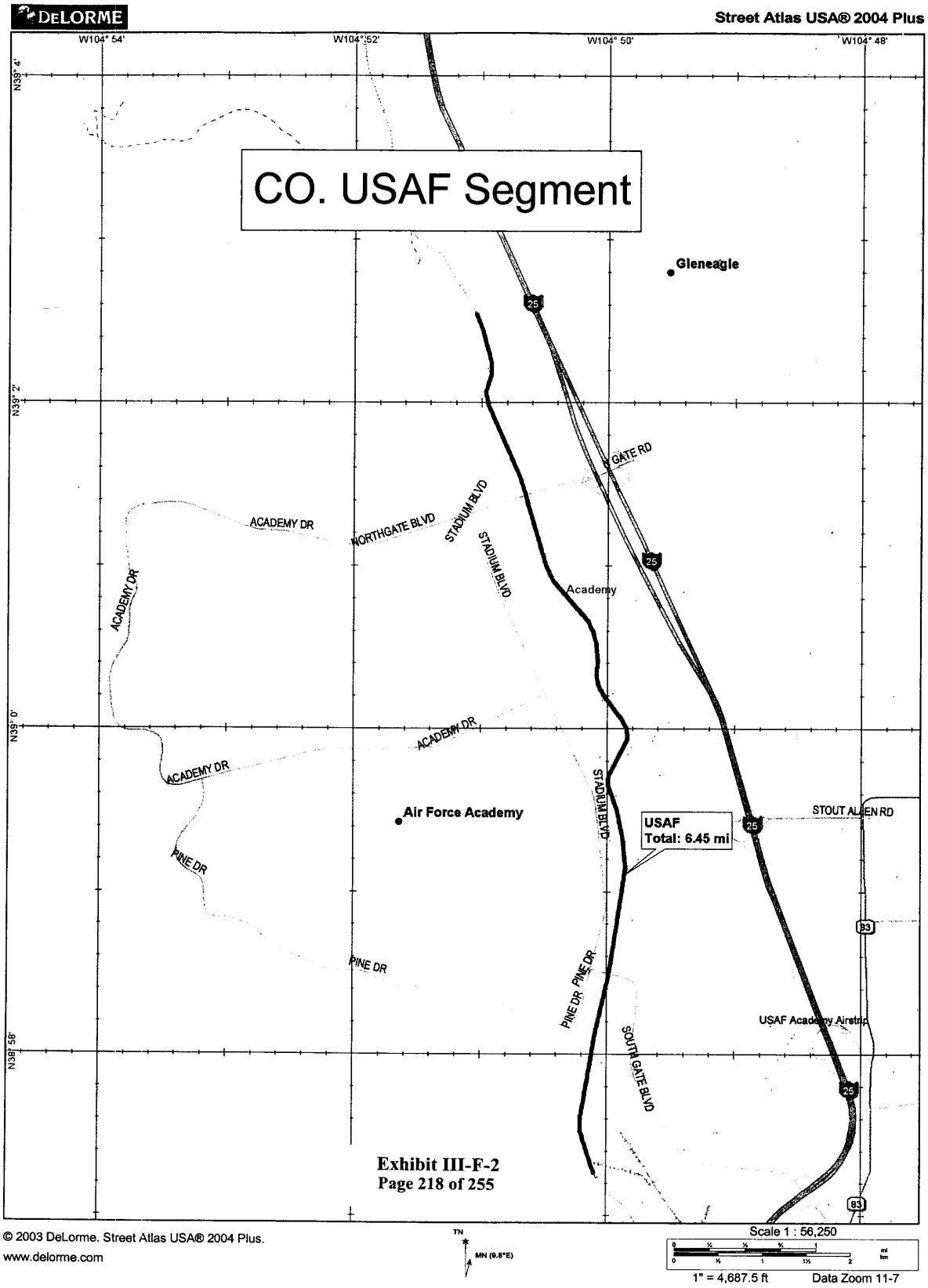
Exhibit III-F-2
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DeLORME
Street Atlas USA® 2004 Plus
CO. El Paso Segments
CO.EO.12.W
Total: 1.68 mi
100
CO.EO.12.E
Total: 1.67 mi
Parkland
CO.EO.13.E
Total: 3,815.9 ft
200
CO.EO.14.E
Total: 2,248.5 ft
300
CO.EO.15.E
Total: 4,340.8 ft
100
EL PASO COUNTY
Colorado Springs
Mesa Reservoir No 2
Fountain Creek
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www.delorme.com
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0


DELORME
Street Atlas USA® 2004 Plus
CO. El Paso Segments
CO.EO.13.W
Total: 32,560.3 SF
300
CO.EO.16.E
Total: 22,176 SF
300
CO.EO.17.E
Total: 2,398.1 ft
200
CO.EO.14.W
2,398.1 ft
1135
CO.EO.18.E
Total: 1.44 mi
100
Stratmoor
Kelker
EL PASO COUNTY
Fountain Creek
HANCOCK EXPY
E LAS VEGAS ST
BELTA DR
DRENNAN INDUSTRIAL LOOP N
DRENNAN INDUSTRIAL LOOP S
DRENNAN RD
KIMBALL CIR
ASTROZON CT
BOYCHUK AVE
WABASH ST
JANITELL RD
KEARNEY AVE
SINTON AVE
B ST
LOOMIS DR
WELTON DR
Skinners
PELE CT
DOOLEY WAY
CACTUS DR
BARKLEY RD
HARROW RD
ASCOT RD
WHITEHALL RD
KESWICK RD
BENNETT ST
MAGRATH AVE
ACORN WAY
ABBOT ST
AFTON ST
AUSTIN ST
ALAMO AVE
POMBER ST
GENOUSA ST
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www.delorme.com
TN
MN (9.8°E)
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0


DELORME
Street Atlas USA® 2004 Plus
CO. El Paso Segments
CO.EO.13.W
Total: 32,560.3 SF
300
CO.EO.16.E
Total: 22,176 SF
300
CO.EO.17.E
Total: 2,398.1 ft
200
CO.EO.14.W
2,398.1 ft
1135
CO.EO.18.E
Total: 1.44 mi
100
Stratmoor
EL PASO COUNTY
Fountain Creek
HANCOCK EXPY
DRENNAN INDUSTRIAL LOOP N
DRENNAN INDUSTRIAL LOOP S
DRENNAN RD
KIMBALL CIR
ASTROZON CT
BOYCHUK AVE
MOONBEAM DR
BERRYKNOLL DR
COLONY HILLS CIR
WABASH ST
CORMACK CIR
DUTWEST DR
PATRICK DR
COCHRAN DR
HUNTERWOOD DR
FOXRIDGE DR
BRIARKNOLL DR
CLARENDON DR
NEWTON DR
BRIDGEWATER DR
POSTOAK DR
S CHELTON RD
CLARENVIEW LOOP S
MONICA DR
LONDON LN
MORLEY DR
MORLEY CIR
WORDSWORTH CIR N
FERBER DR
BAYTOWN DR
STARLIGHT CIR
DEERFIELD HILLS DR
ANNELINA CIR W
PAYNE CIRE
BARKMAN DR
ASTROZON CIR
LEXINGTON VILLAGE LN
MIDDLETON CT
ELLICOTT CT
SHINING WAY
HILLSIDE CT
JET WING DR
FAULKNER PL
CATHER CT
DURANGO DR
DELTA PL
LARAMIE
BONOMA DR
CONOSA DR
GRANA
WESTON RD
Kelker
NATIONAL PL
EXECUTIVE CIR
LOOMIS DR
B ST
CAMBRIDGE CT
NAPLES DR
MAXWELL CT
AQUALANE DR
GLENEAGLE RD
BRADLEY RD
CORNING
WELTON DR
WILLSHIRE DR
BARKLEY RD
HARROW RD
ASCOT RD
WHITEHALL RD
BENNETT ST
ACORN WAY
ABBOT ST
ARMORY
AFTON ST
AUSTIN ST
ALAMO AVE
POMBER ST
GENDUSA ST
ELLIS ST
COLLEGE VIEW DR
CODY DR
PELE CT
CASSIDY ST
MCGREW CIR
DOOLEY WAY
MITCHESHOLLOW LN
LINCOLN PLAZA DR
BORDEN DR
CACTUS DR
HOWLAND ST
FORSYTH DR
FRONTIER DR
CORTEZ DR
BISON DR
CHIMAYO DR
COLICH PL
SECURITY BLVD
HALLMAN AVE
LETA DR
BORIS DR
STEVEN DR
DAVIE DR
SHERRI DR
EVERETT DR
DOE DR
CREST PL
MAIN ST
ESTHER
NORMAN DR
KATHI CIR
JEANNE CIR
GRAPE DR
ROSEMONT DR
SECURITY CIR
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TN
MN (9.8°E)
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0


DeLORME
Street Atlas USA® 2004 Plus
CO. El Paso Segments
CO.EO.14.W
2,398.1 ft
1135
CO.EO.18.E
Total: 1.44 mi
100
CO.EO.20.E
Total: 8,613.7 ft
100
Fort Carson
Security-Widefield
CO.EO.16.W
Total: 18,600.1 ft
300
CO.EO.17.W
CO.EO.18.W
Total: 1.07 mi
300
CO.EO.19.W
10.15 Mi
PUBLIC
CO.EO.24.E
Total: 10.15 mi
PUBLIC
PUEBLO
COUNTY
W104° 50'
W104° 40'
W104° 35'
W104° 30'
N38° 45'
N38° 40'
N38° 35'
N38° 30'
N38° 25'
Exhibit III-F-2
Page 217 of 255
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TN
MN (9.7°E)
Scale 1 : 200,000
1" = 3.16 mi
Data Zoom 10-0



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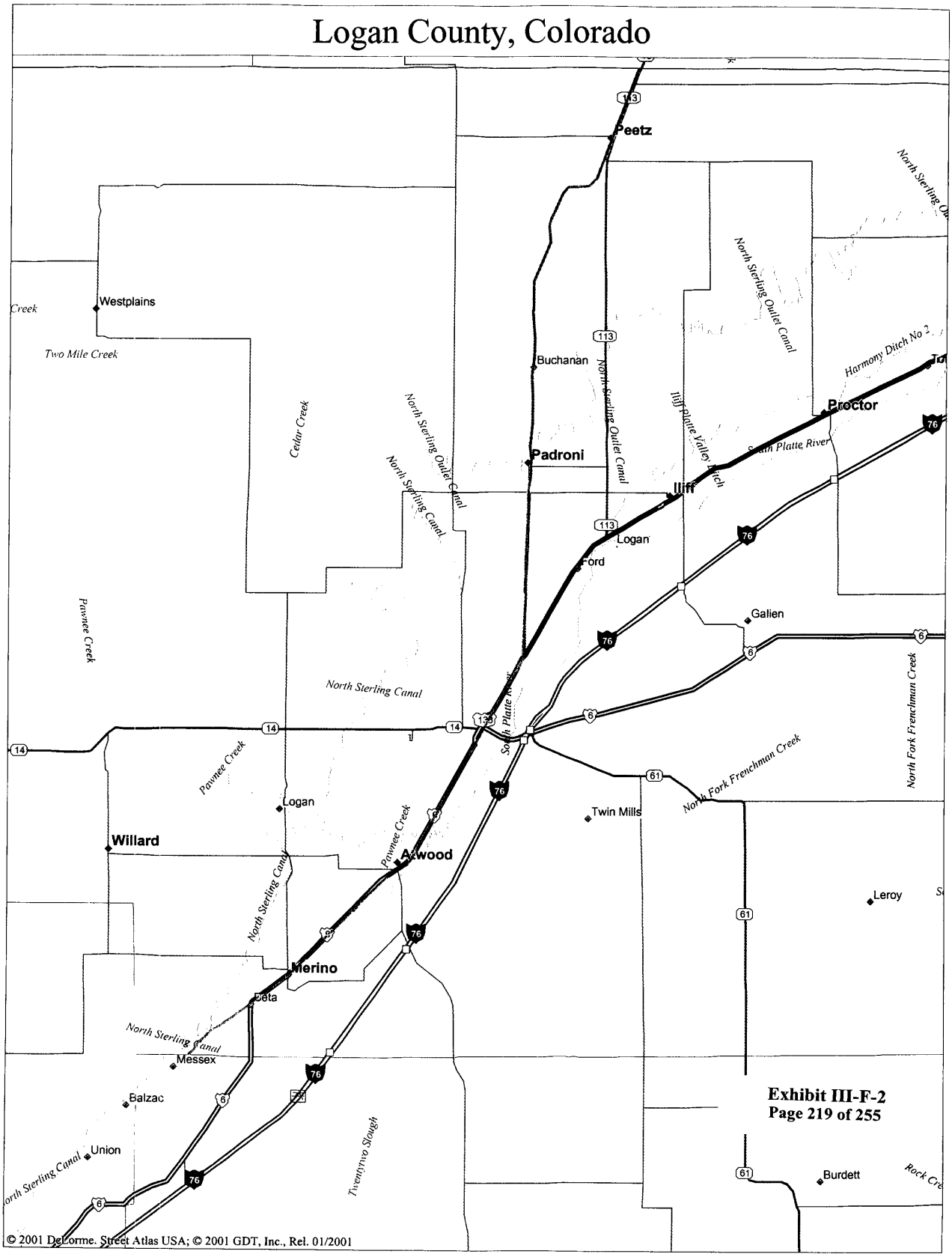
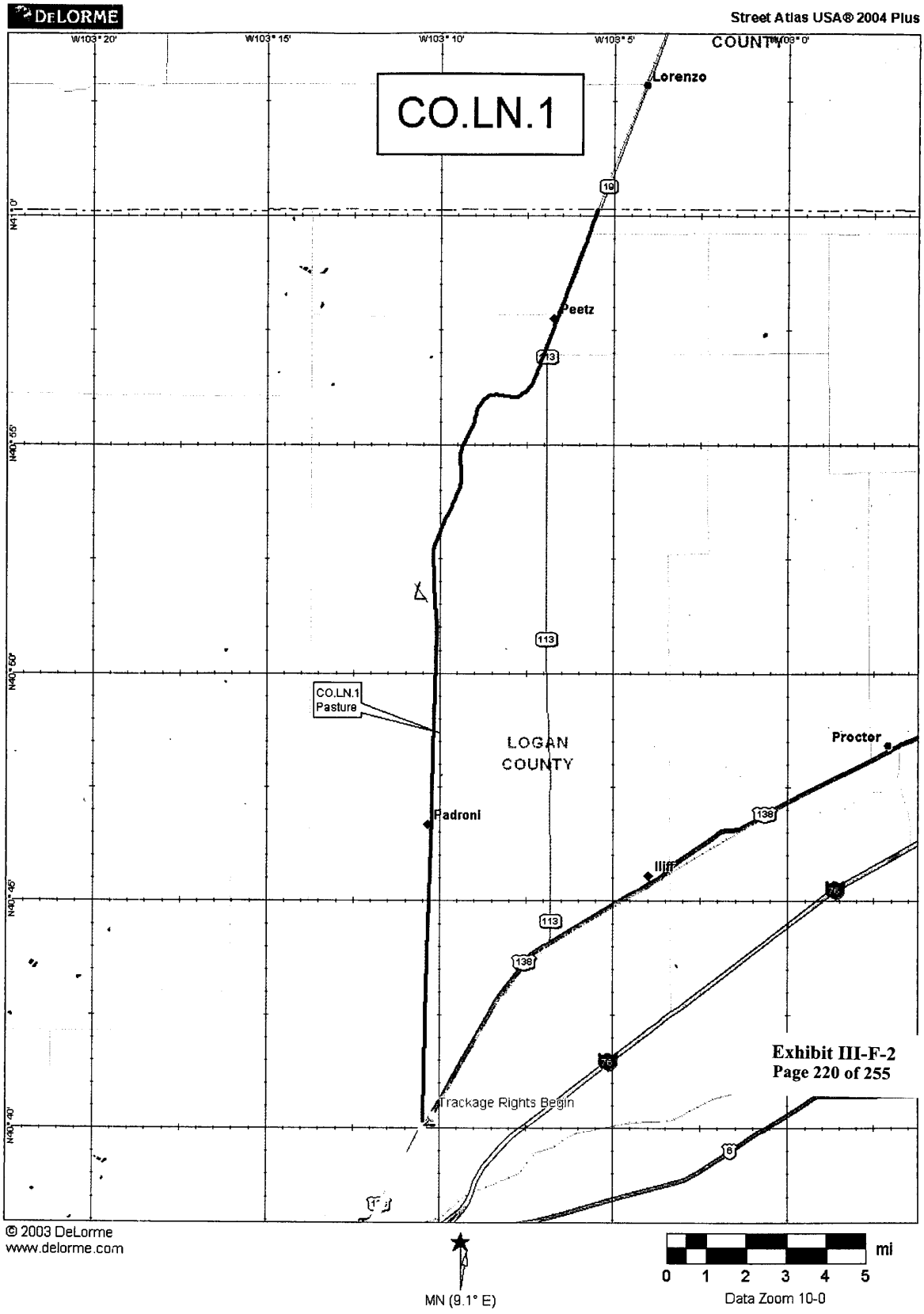
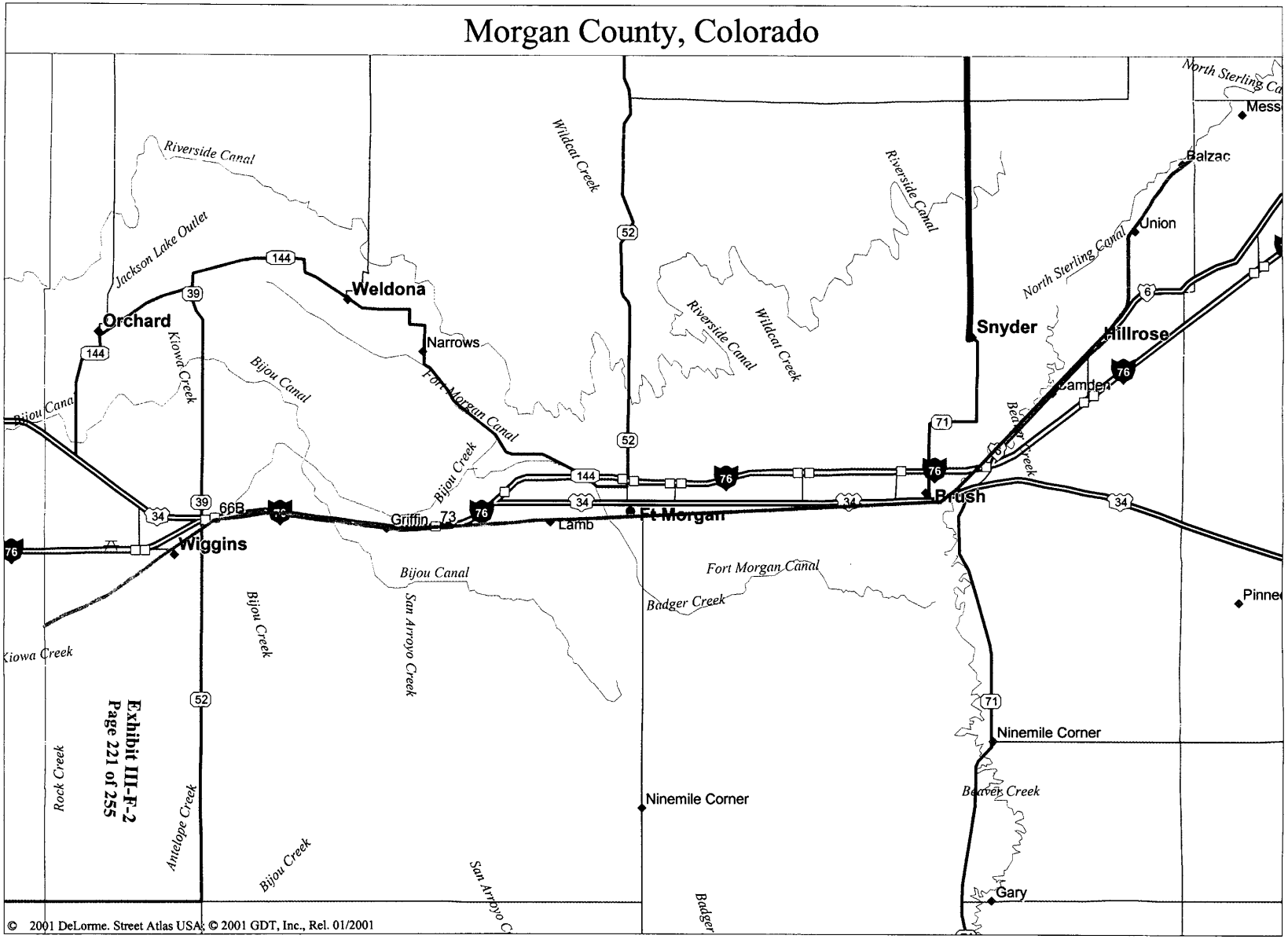
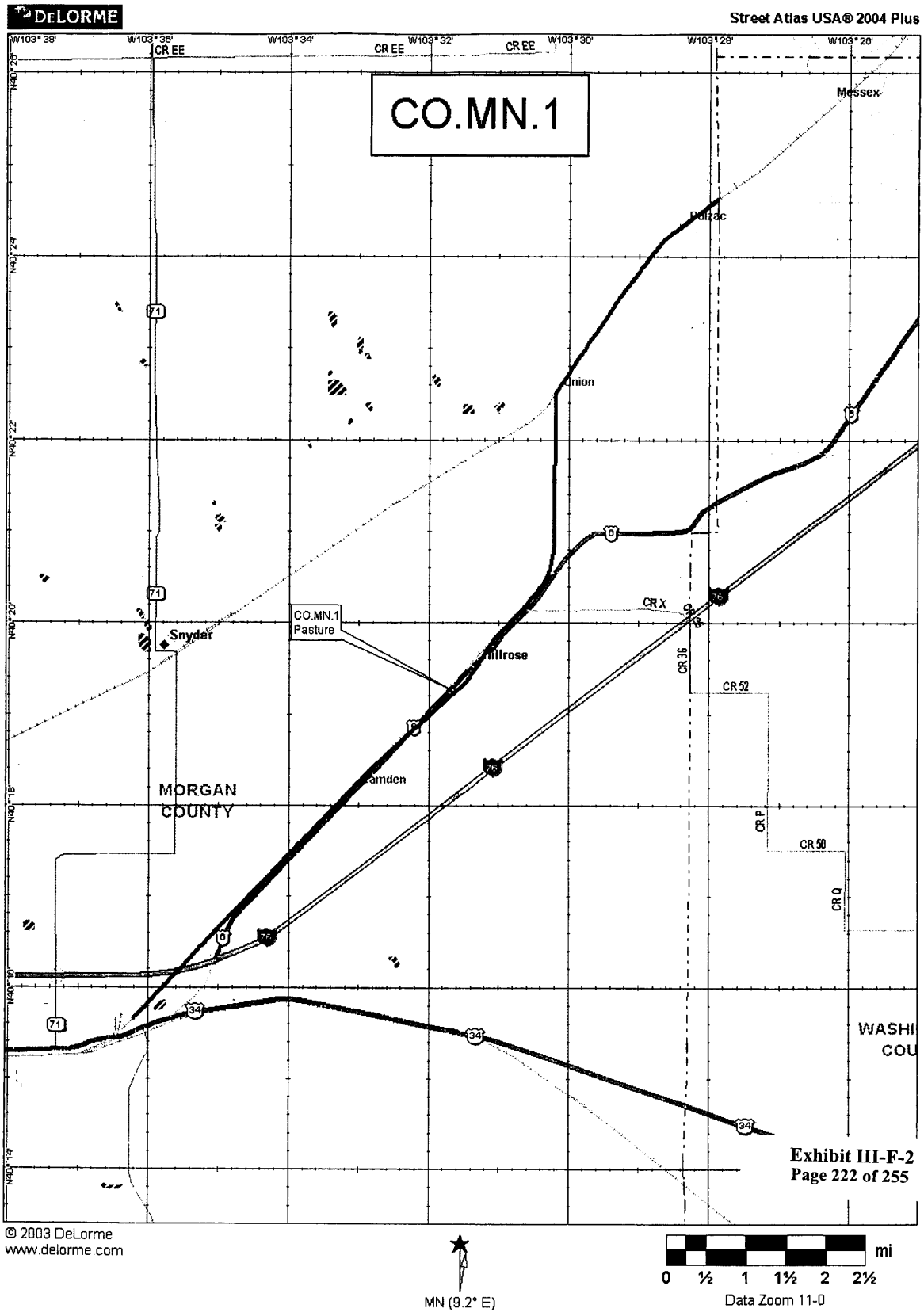
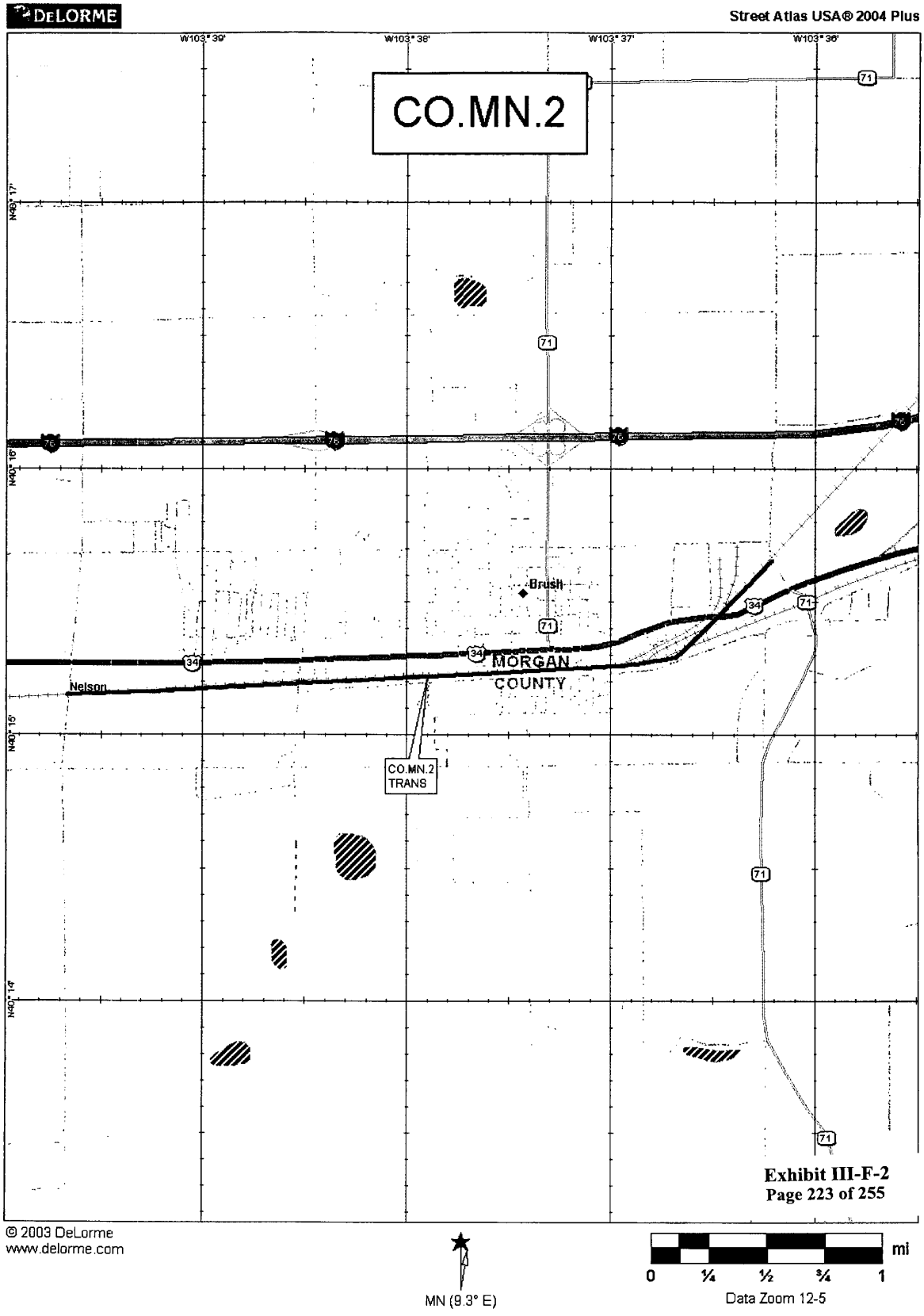


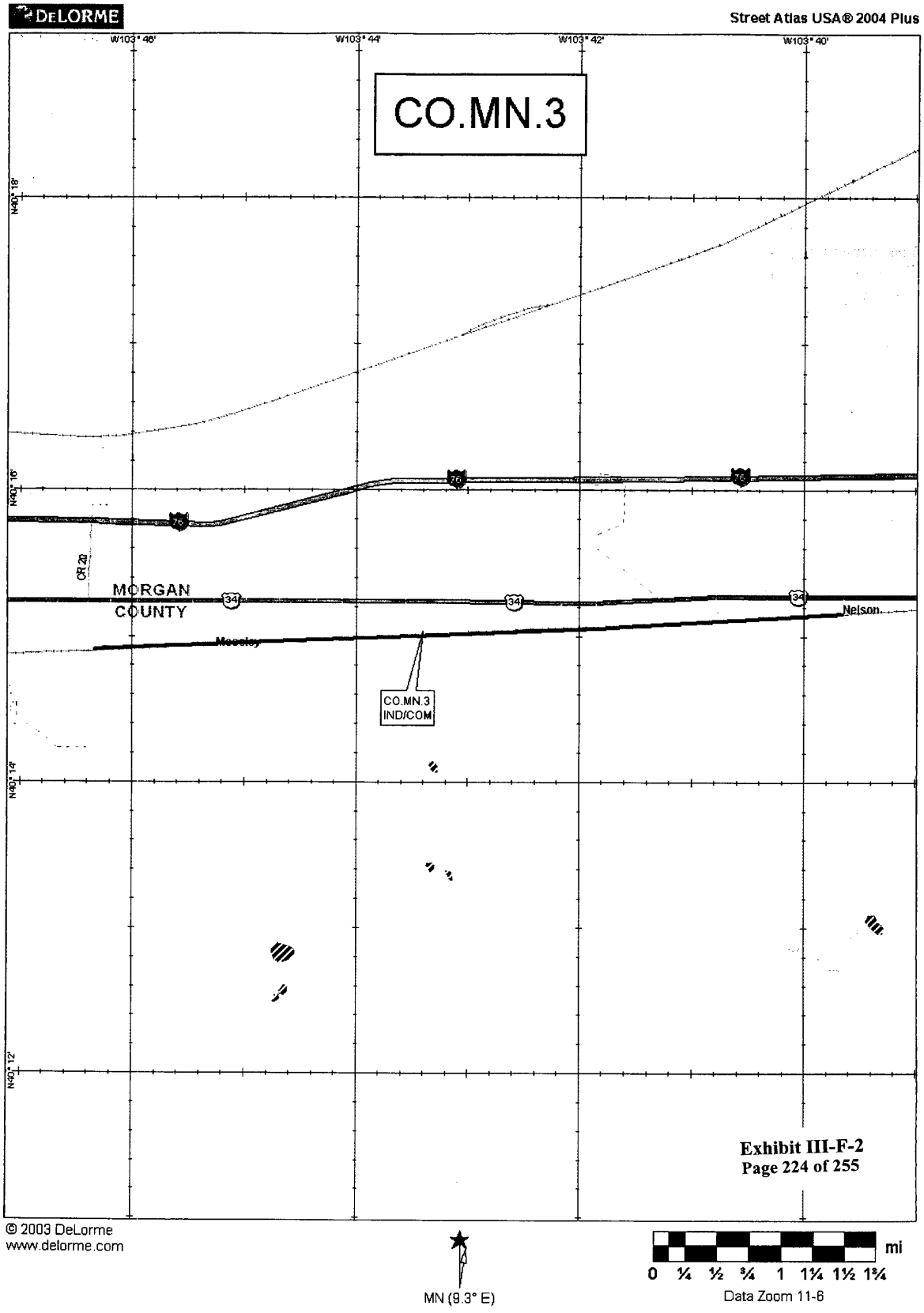
Exhibit III-F-2
Page 219 of 255

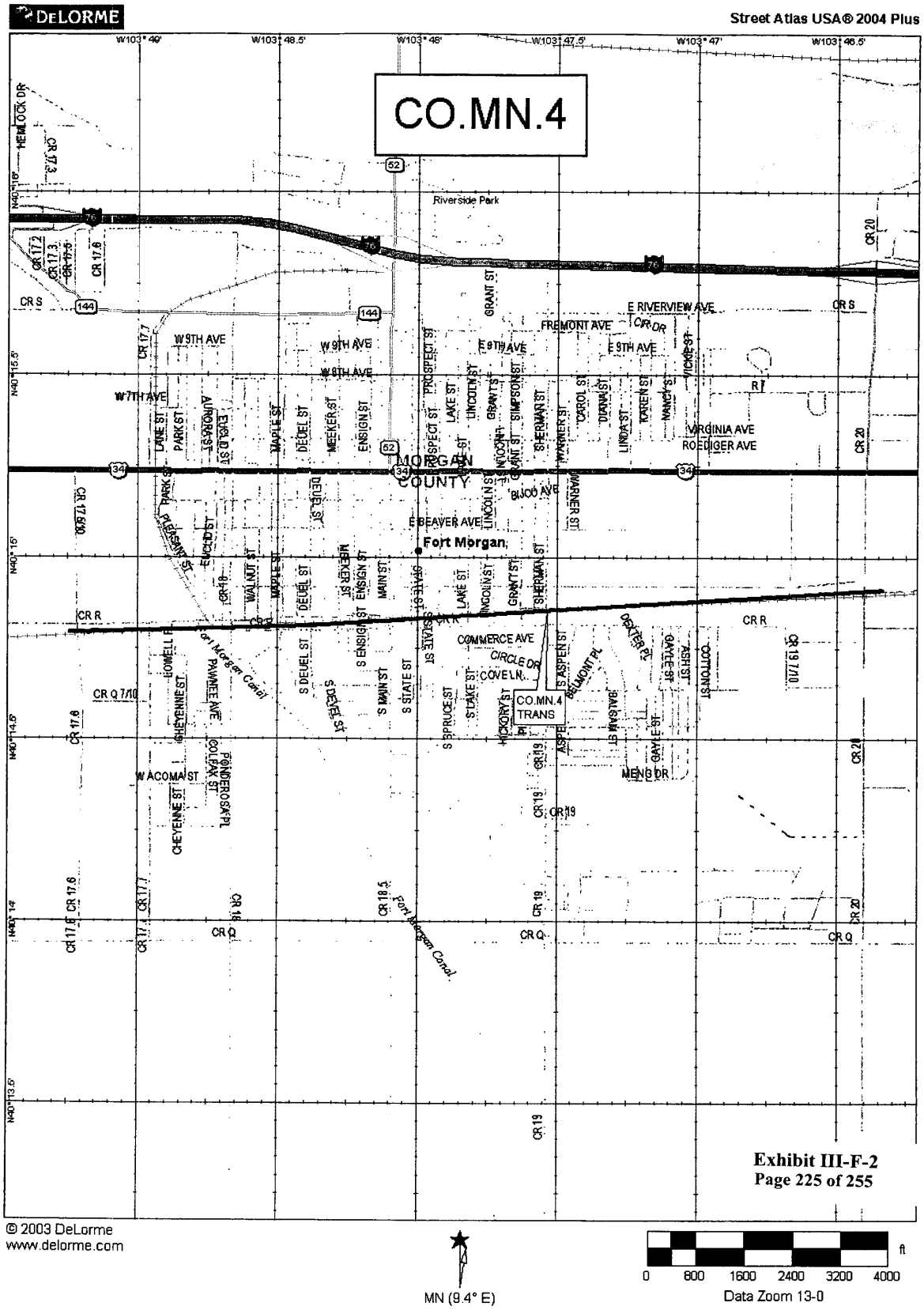

DeLORME
Street Atlas USA® 2004 Plus
W103° 20'
W103° 15'
W103° 10'
W103° 5'
W103° 0'
N41° 10'
N40° 55'
N40° 50'
N40° 45'
N40° 40'
CO.LN.1
Lorenzo
Peetz
CO.LN.1 Pasture
LOGAN COUNTY
Padroni
Iliff
Proctor
Trackage Rights Begin
113
138
76
6
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www.delorme.com
MN (9.1° E)
0 1 2 3 4 5 mi
Data Zoom 10-0


Morgan County, Colorado
Riverside Canal
Jackson Lake Outlet
Weldona
Orchard
Narrows
Kiowa Creek
Bijou Canal
Fort Morgan Canal
Wildcat Creek
Bijou Creek
Wiggins
Griffin
Lamb
Ft Morgan
Snyder
Brush
Balzac
Union
North Sterling Canal
Hillrose
Camden
Pinnee
Badger Creek
San Arroyo Creek
Rock Creek
Antelope Creek
Ninemile Corner
Beaver Creek
Gary
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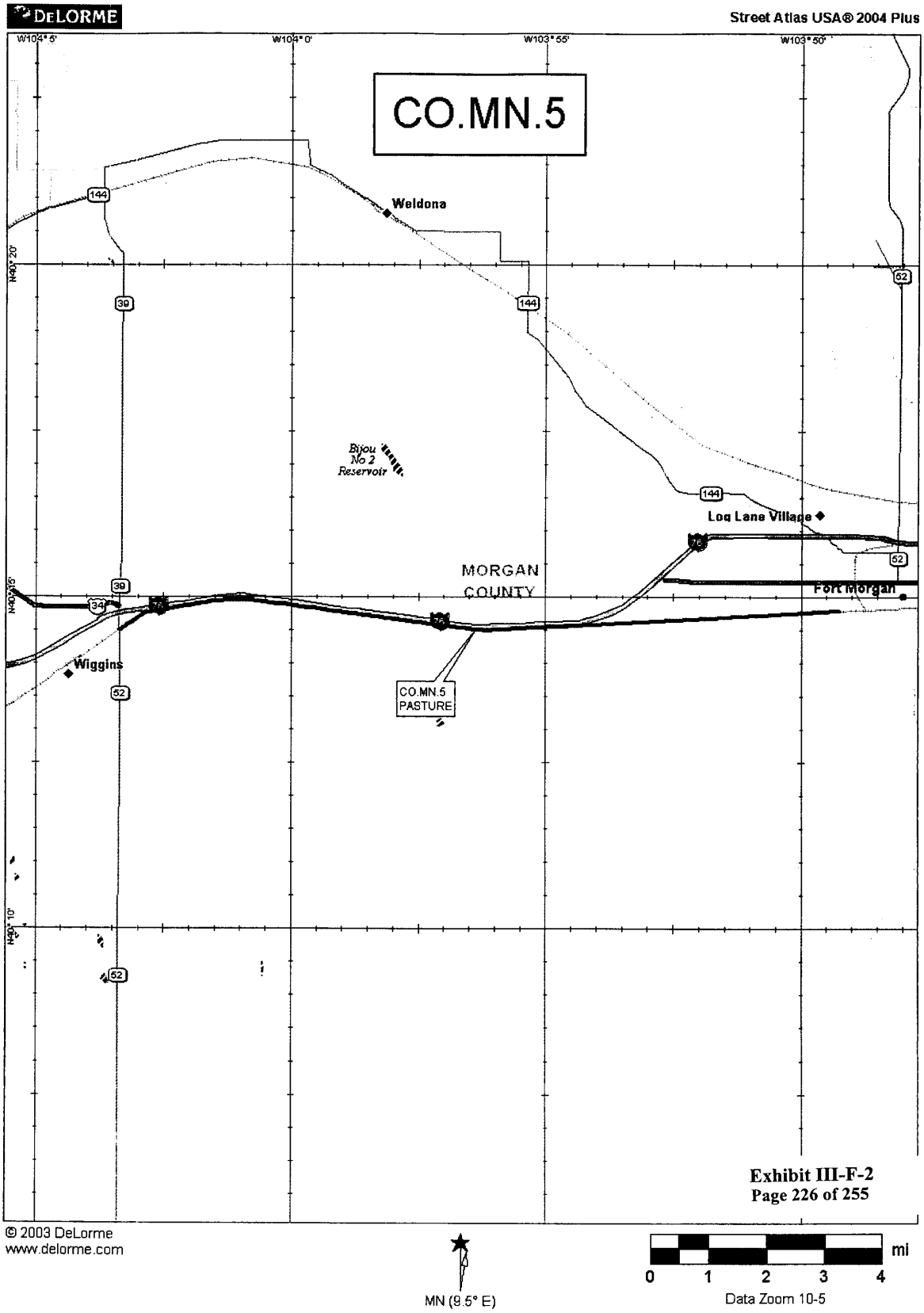

DeLORME
Street Atlas USA® 2004 Plus
CO.MN.1
Messex
Dalzac
Union
Snyder
CO.MN.1
Pasture
Hillrose
Camden
MORGAN
COUNTY
CR X
CR 36
CR 52
CR P
CR 50
CR Q
WASHI
COU
71
76
34
Exhibit III-F-2
Page 222 of 255
© 2003 DeLorme
www.delorme.com
MN (9.2° E)
0 ½ 1 1½ 2 2½ mi
Data Zoom 11-0


DeLORME
Street Atlas USA® 2004 Plus
CO.MN.2
W103° 39'
W103° 38'
W103° 37'
W103° 36'
N40° 17'
N40° 16'
N40° 15'
N40° 14'
71
76
34
Brush
MORGAN
COUNTY
Nelson
CO.MN.2
TRANS
Exhibit III-F-2
Page 223 of 255
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www.delorme.com
MN (9.3° E)
0
¼
½
¾
1
mi
Data Zoom 12-5

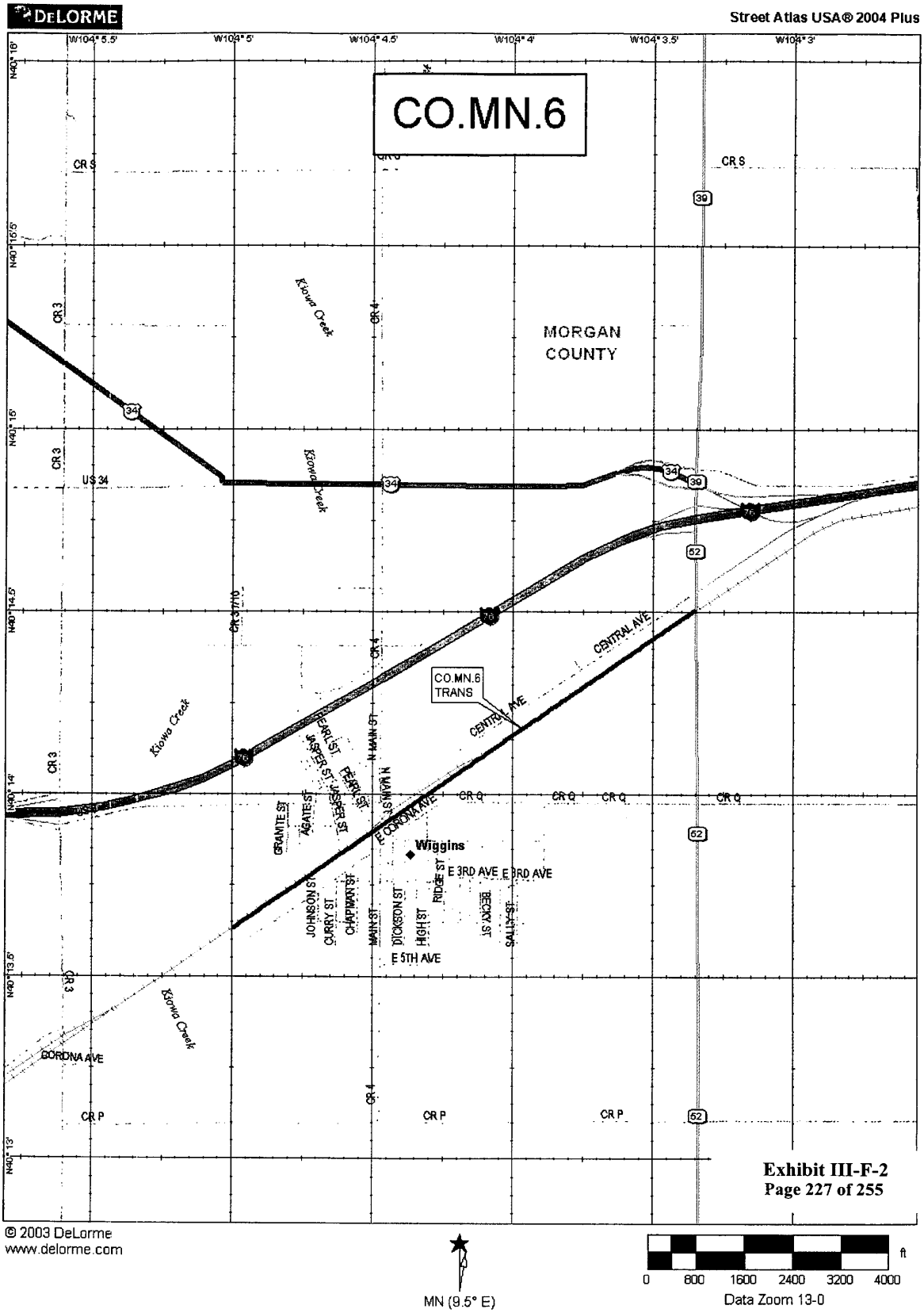

DeLORME
Street Atlas USA® 2004 Plus
W103° 46'
W103° 44'
W103° 42'
W103° 40'
CO.MN.3
N40° 18'
N40° 16'
N40° 14'
N40° 12'
76
34
CR 29
MORGAN
COUNTY
Nelson
Moosley
CO.MN.3
IND/COM
Exhibit III-F-2
Page 224 of 255
© 2003 DeLorme
www.delorme.com
MN (9.3° E)
mi
0 ¼ ½ ¾ 1 1¼ 1½ 1¾
Data Zoom 11-6



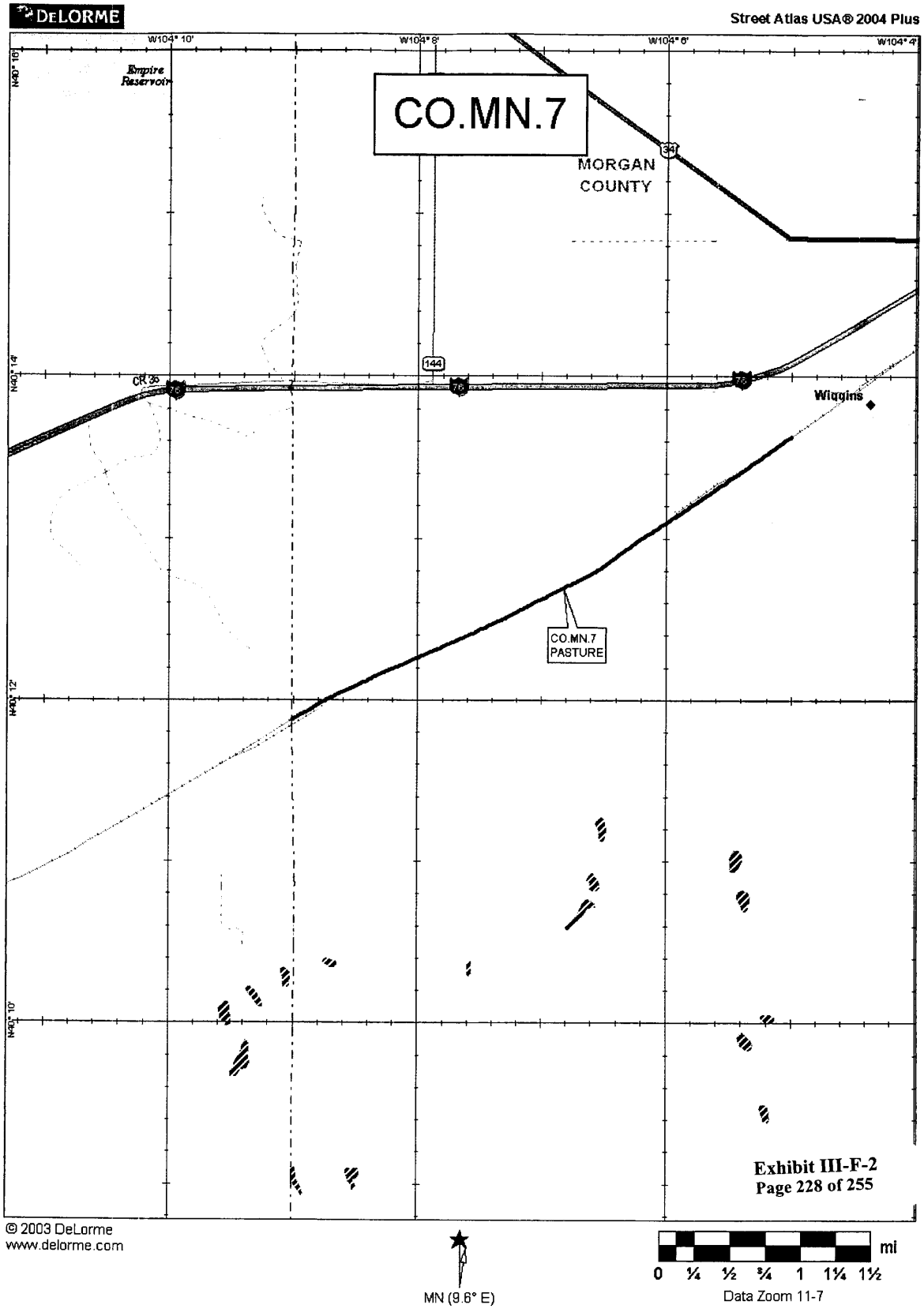
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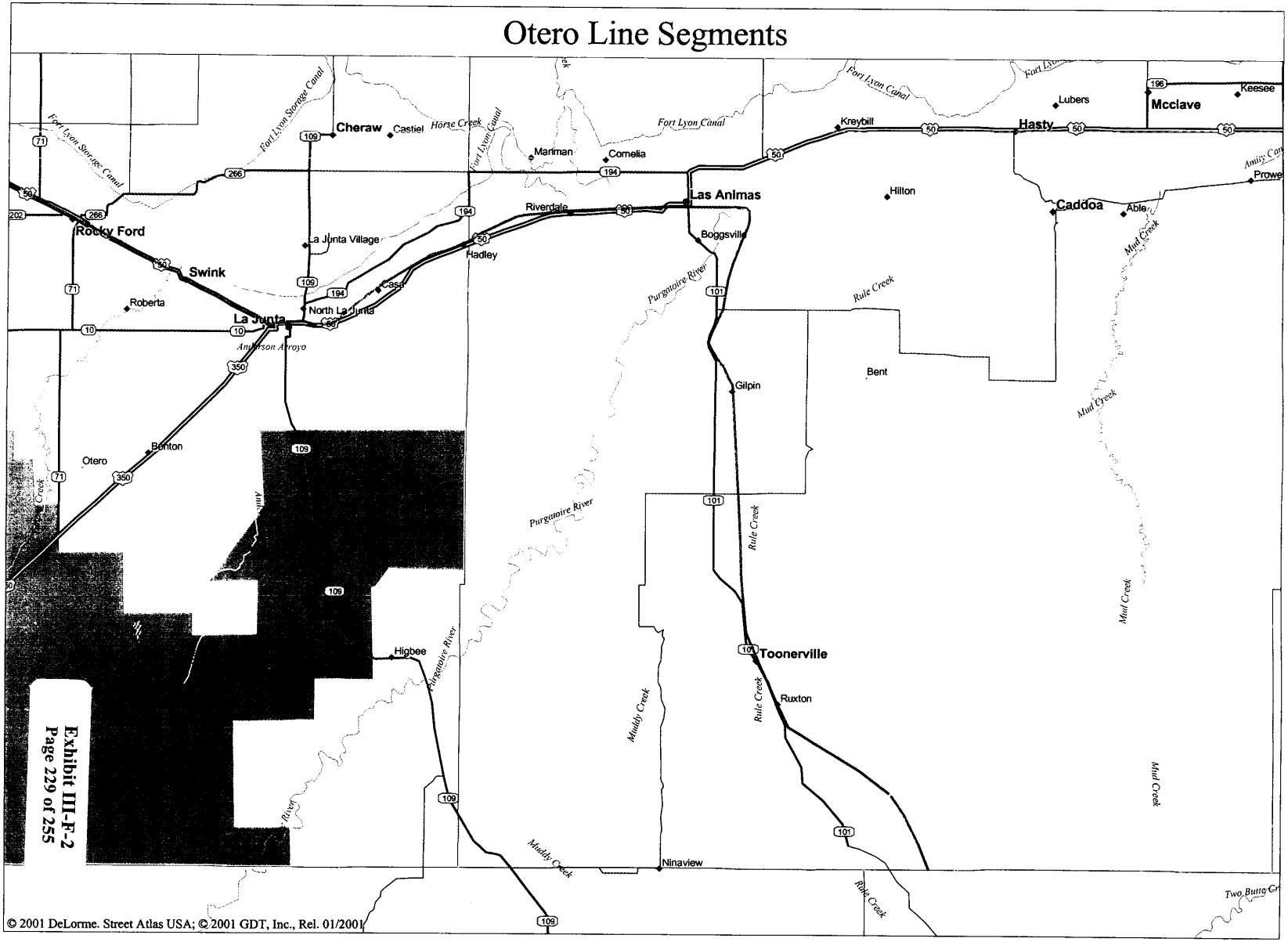
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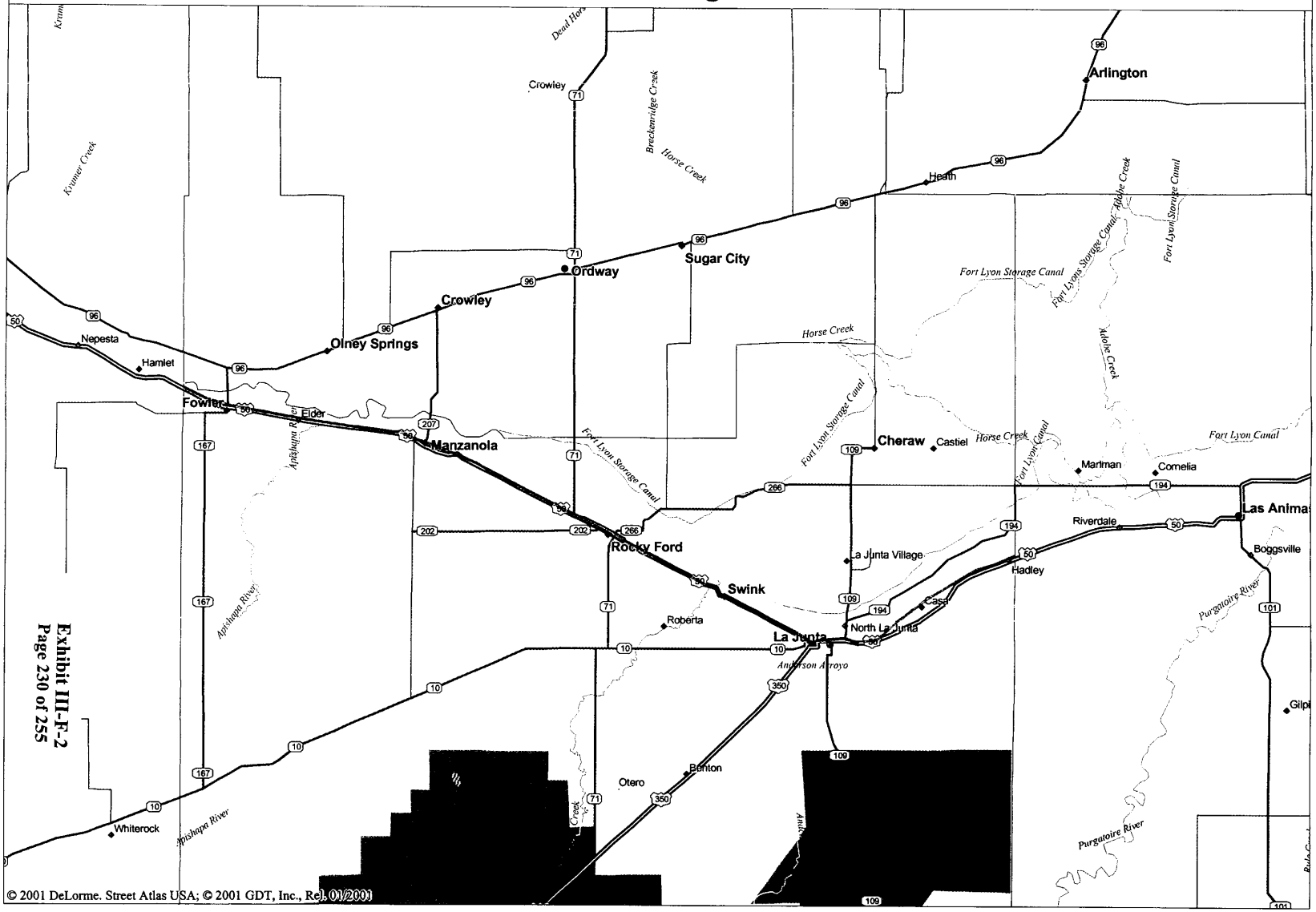
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DeLORME
Street Atlas USA® 2004 Plus
W104° 10'
W104° 8'
W104° 6'
W104° 4'
N40° 16'
N40° 14'
N40° 12'
N40° 10'
Empire Reservoir
CO.MN.7
MORGAN COUNTY
34
144
CR 35
76
Wiggins
CO.MN.7 PASTURE
Exhibit III-F-2
Page 228 of 255
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www.delorme.com
MN (9.6° E)
mi
0 ¼ ½ ¾ 1 1¼ 1½
Data Zoom 11-7

Otero Line Segments



Otero Line Segments



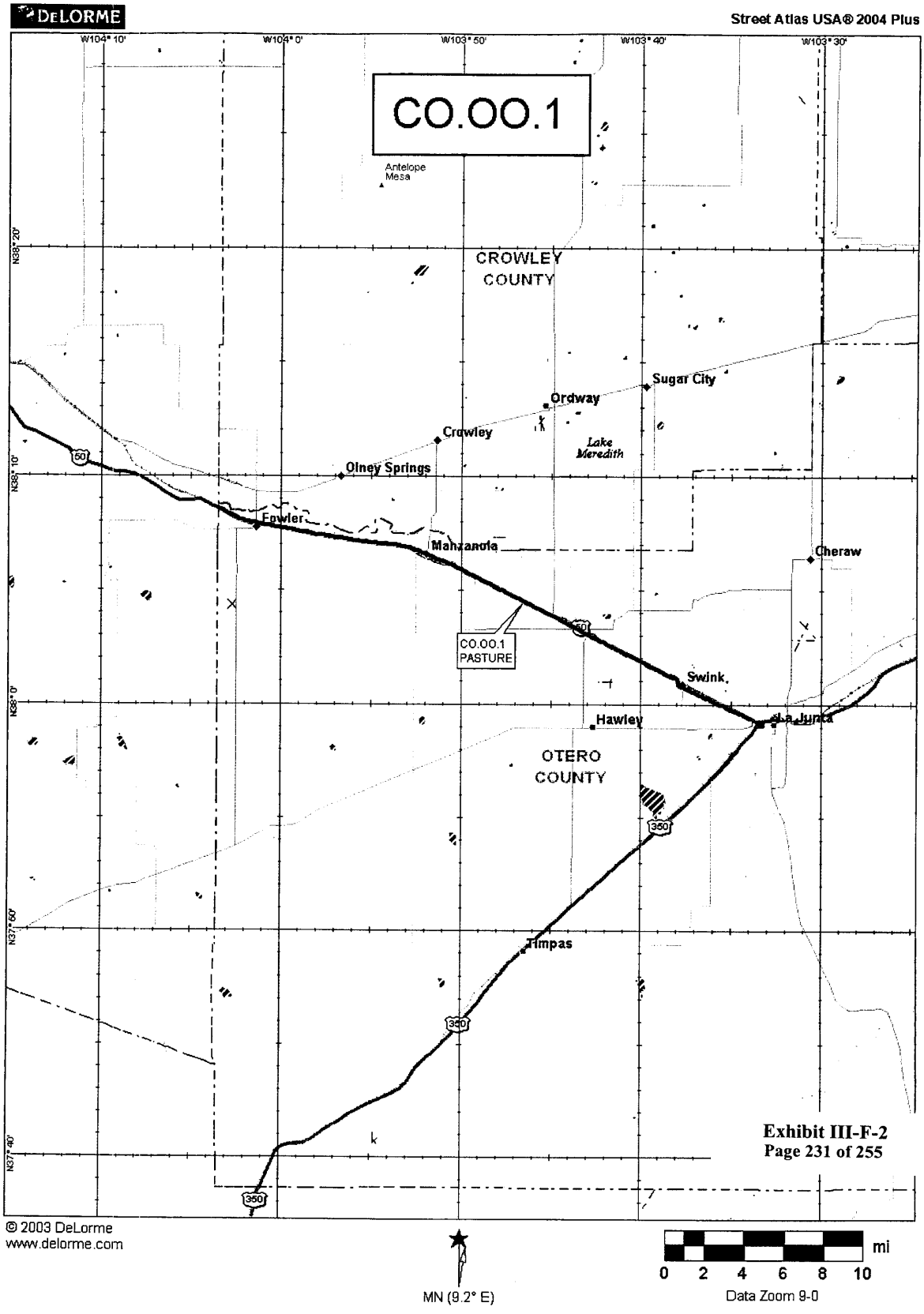
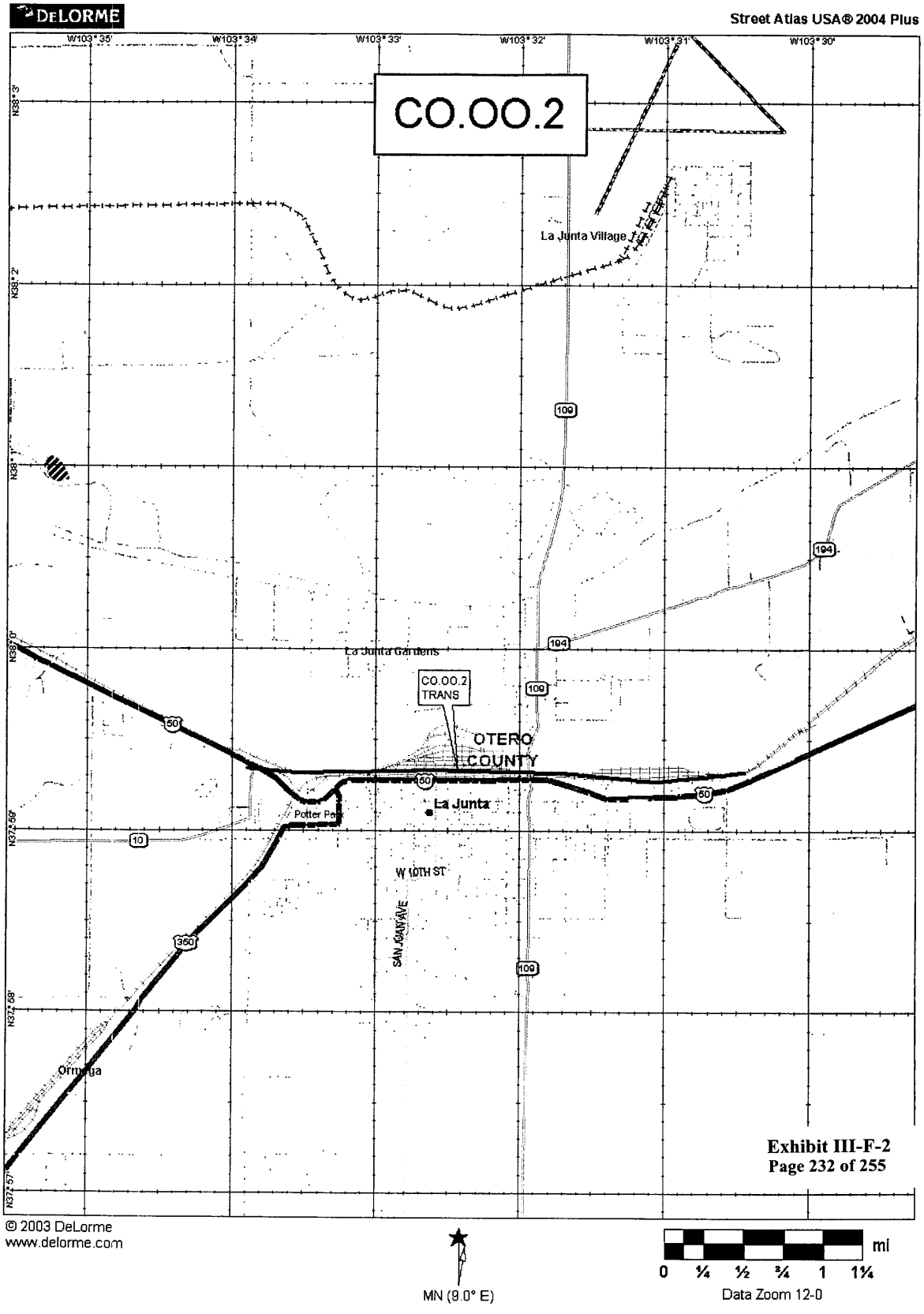
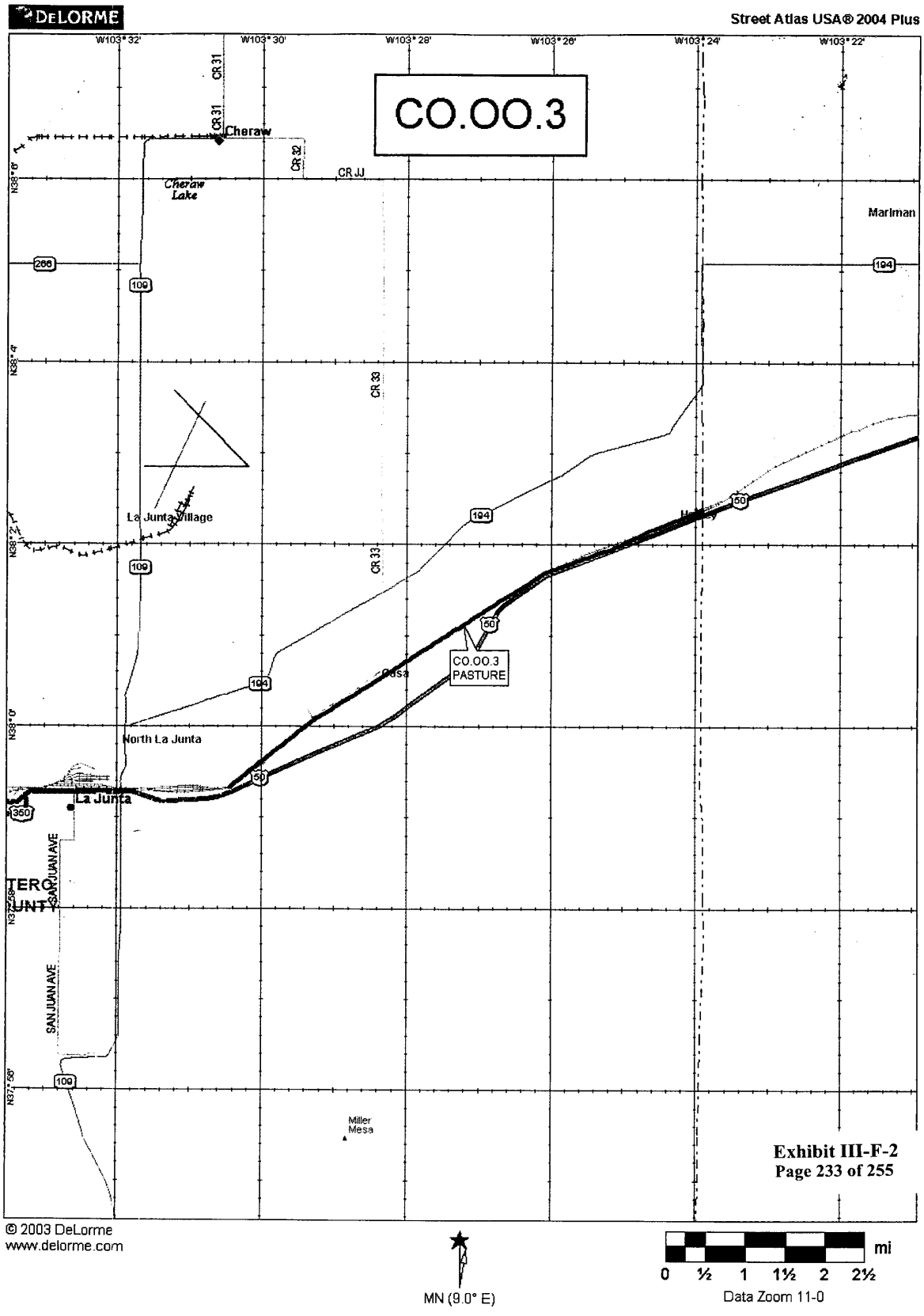
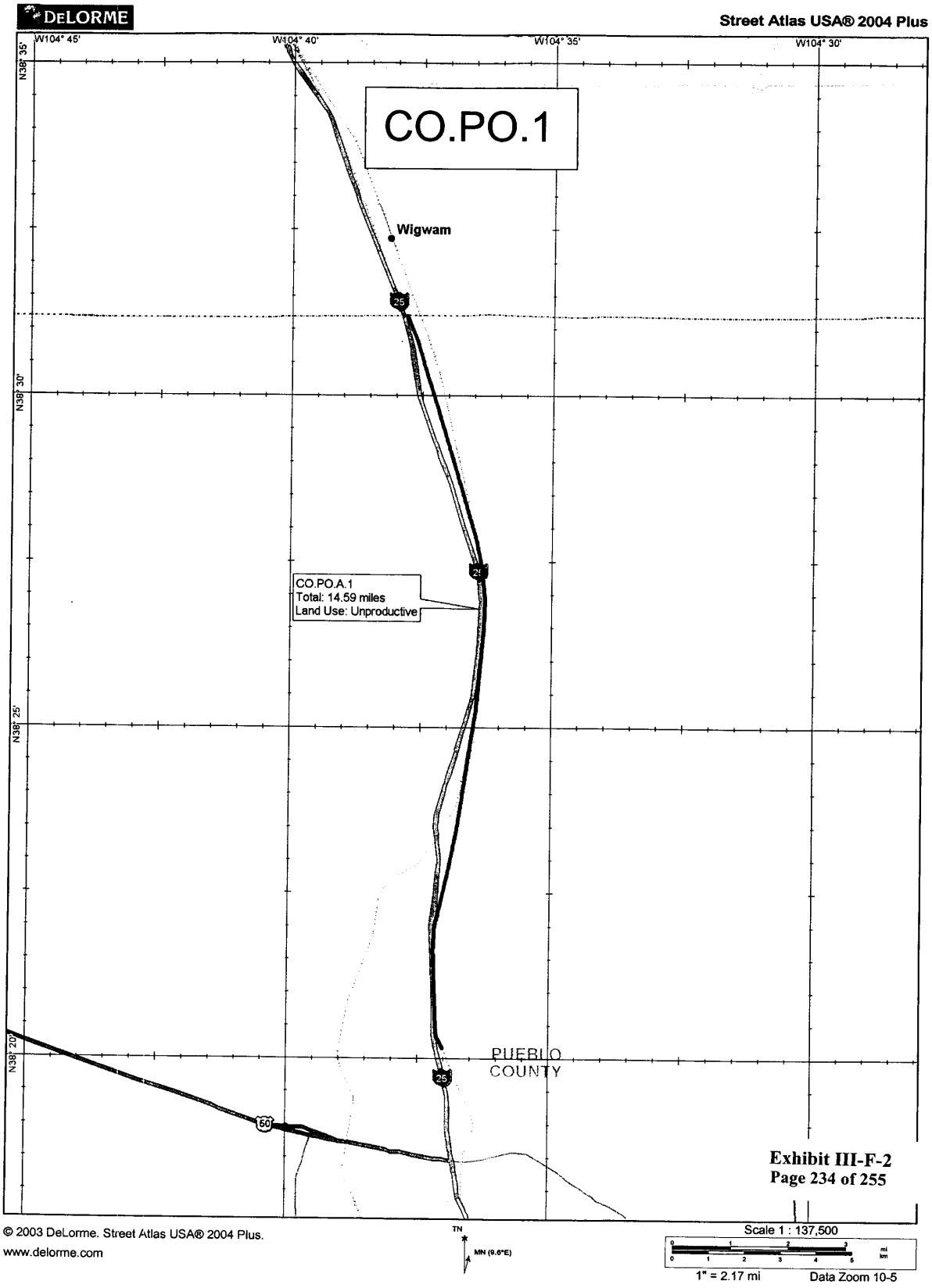
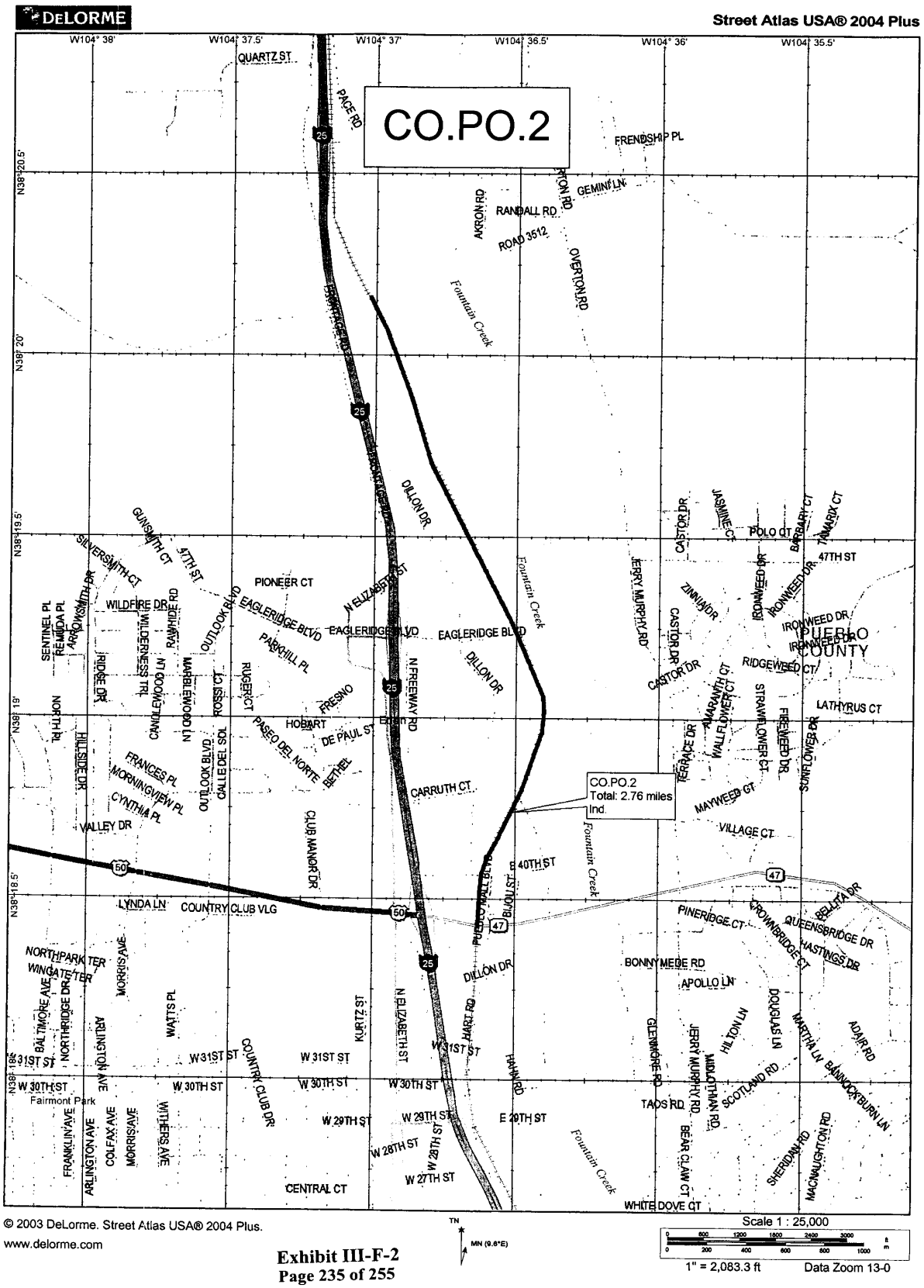


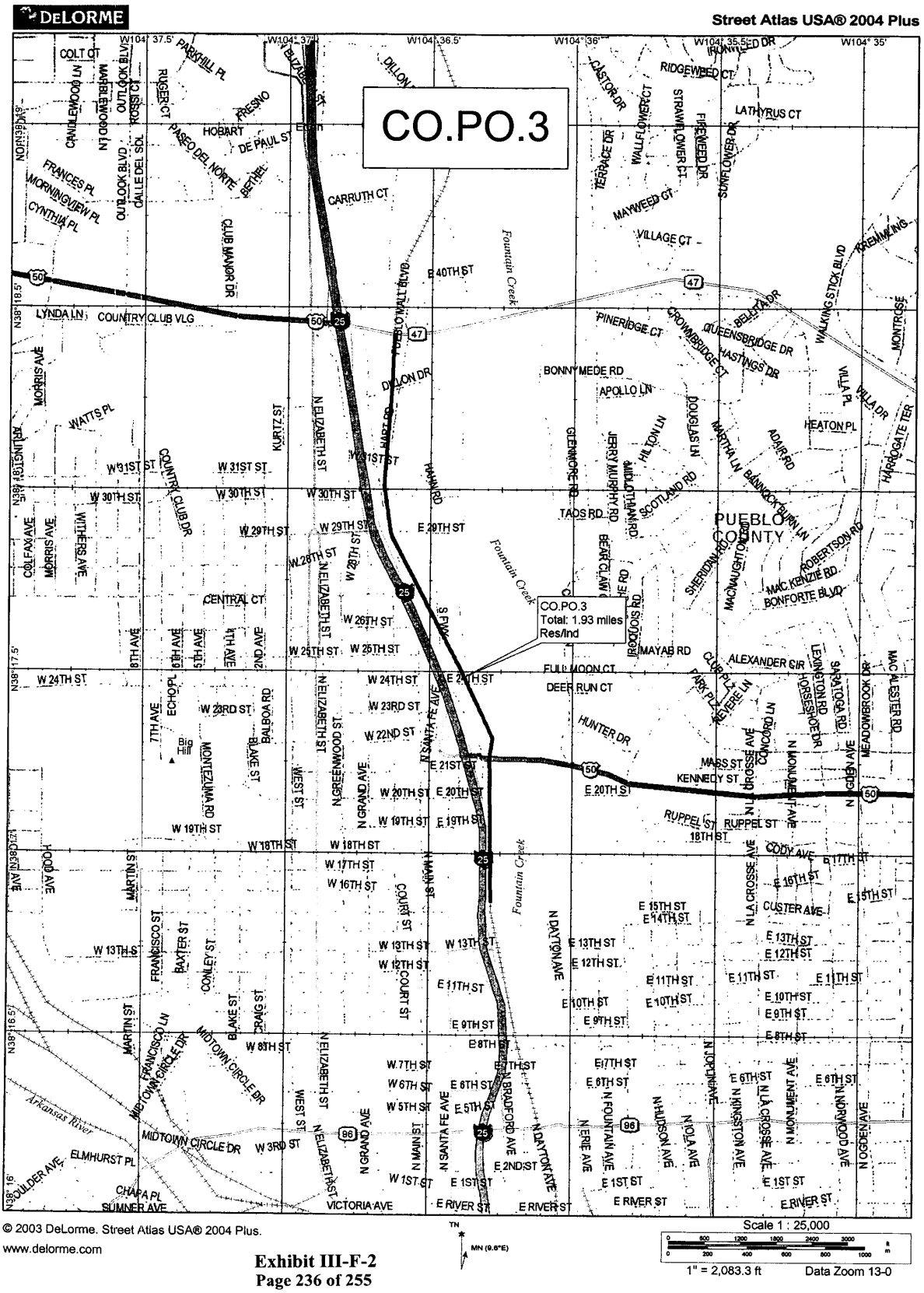
Exhibit III-F-2
Page 231 of 255

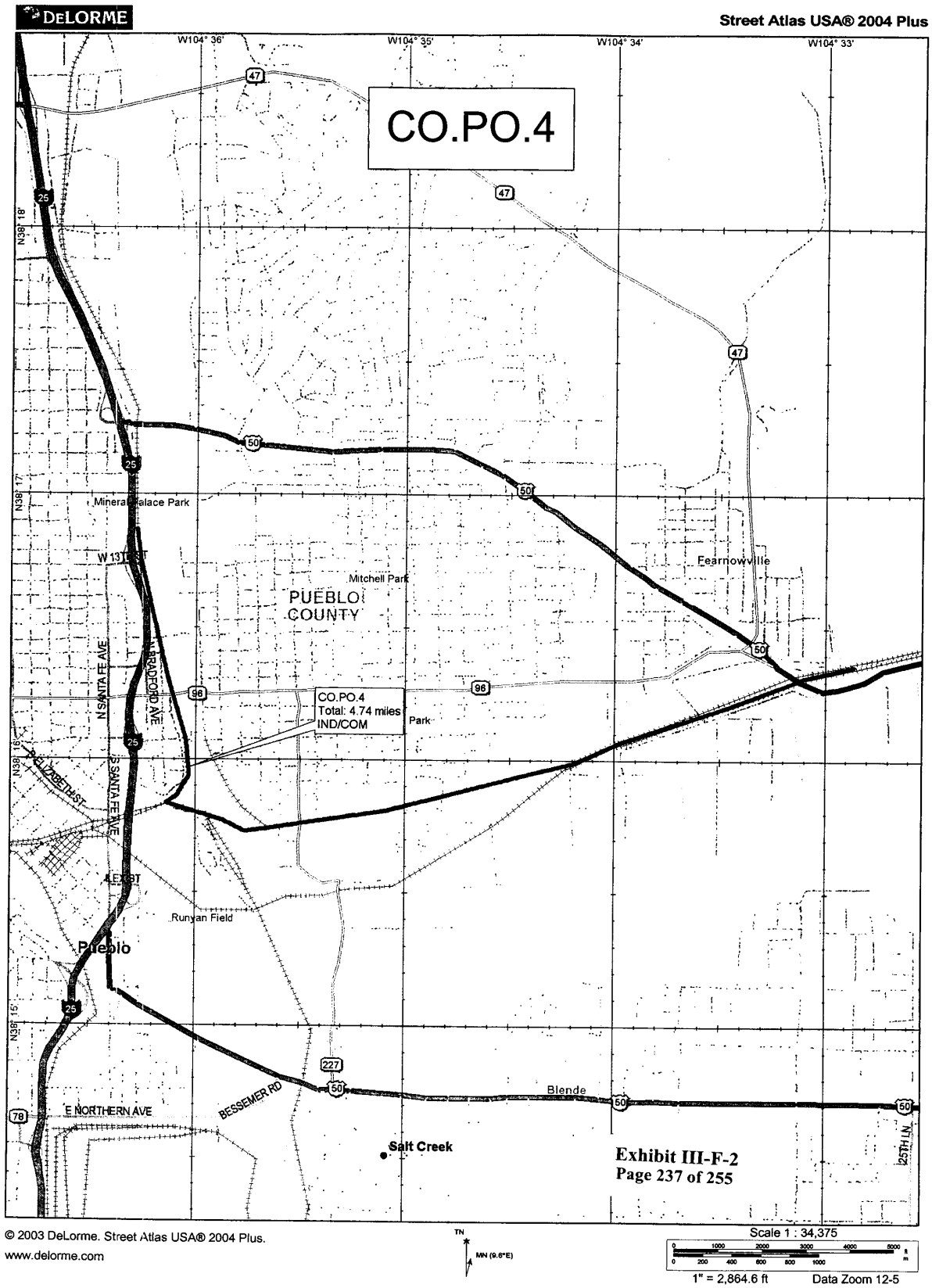

DeLORME
Street Atlas USA® 2004 Plus
CO.OO.2
La Junta Village
La Junta Gardens
CO.OO.2
TRANS
OTERO
COUNTY
La Junta
Potter Park
W 10TH ST
SAN JOAN AVE
Ormega
109
194
50
10
350
Exhibit III-F-2
Page 232 of 255
© 2003 DeLorme
www.delorme.com
MN (9.0° E)
mi
0 ¼ ½ ¾ 1 1¼
Data Zoom 12-0

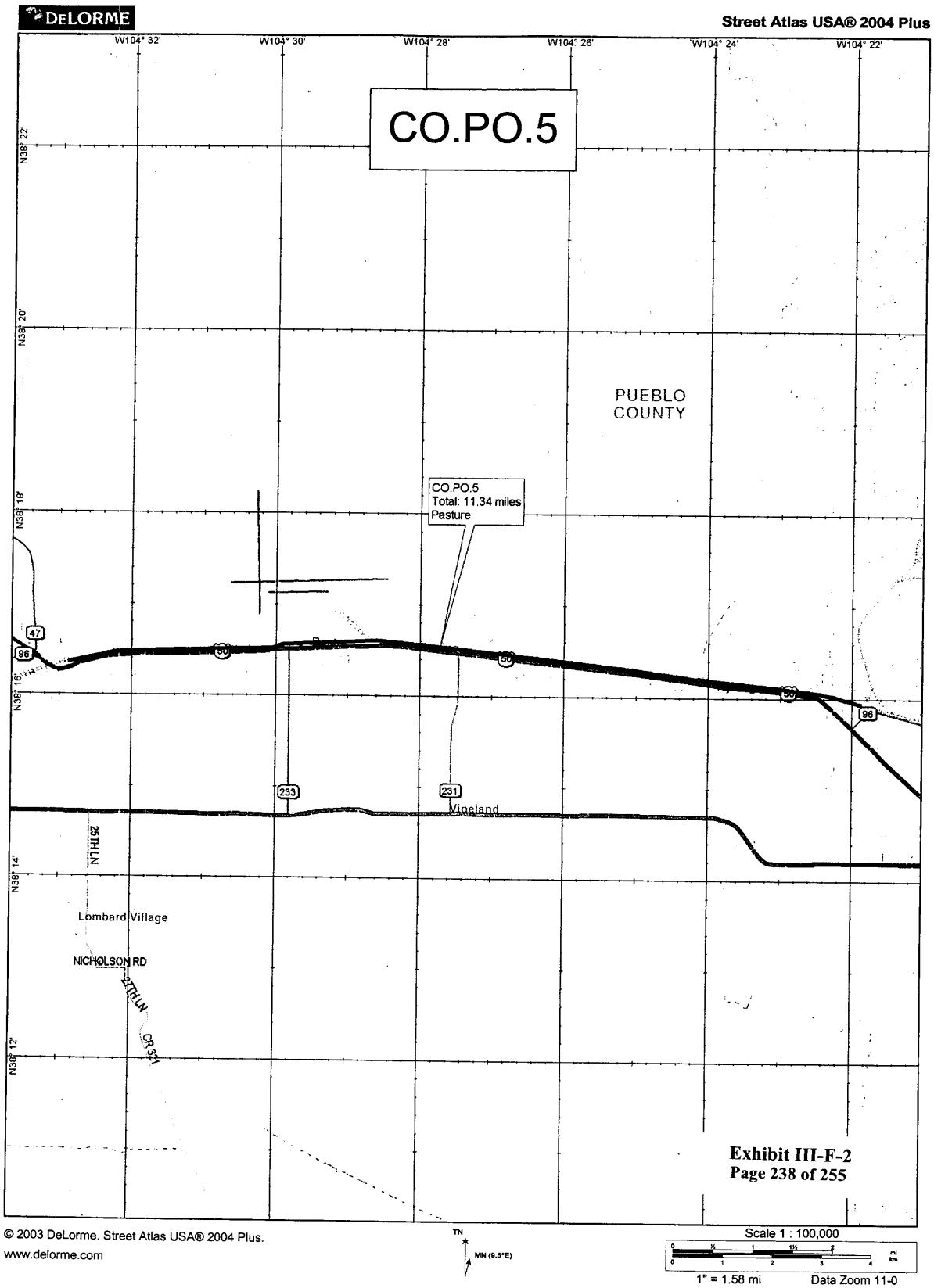

DeLORME
Street Atlas USA® 2004 Plus
CO.00.3
W103° 32'
W103° 30'
W103° 28'
W103° 26'
W103° 24'
W103° 22'
CR 31
Cheraw
CR 32
CR JJ
Cheraw Lake
Mariman
266
109
194
50
CR 33
La Junta Village
CO.00.3 PASTURE
Casa
North La Junta
La Junta
350
SAN JUAN AVE
Miller Mesa
Exhibit III-F-2
Page 233 of 255
© 2003 DeLorme
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MN (9.0° E)
0 ½ 1 1½ 2 2½ mi
Data Zoom 11-0

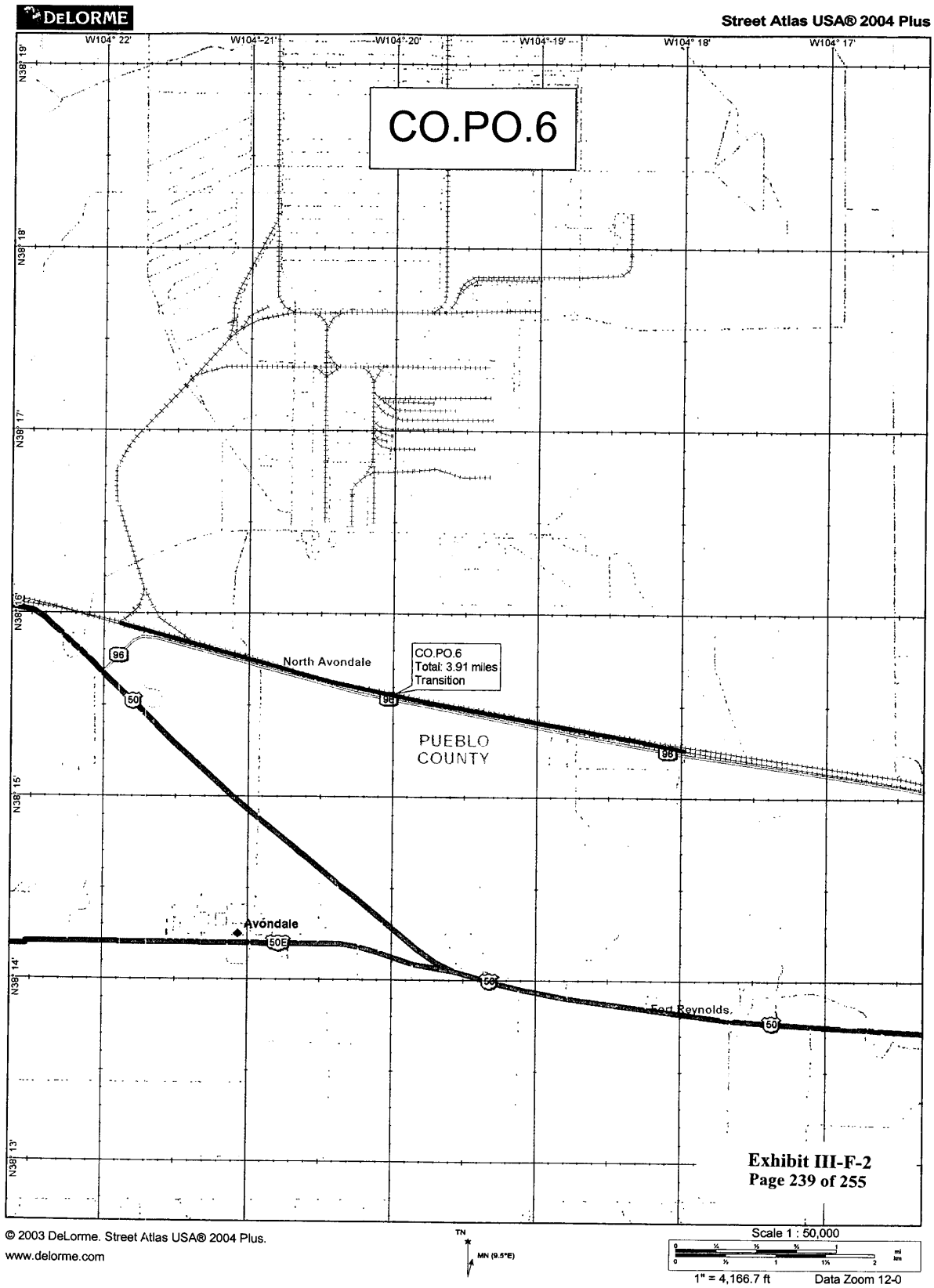

DeLORME
Street Atlas USA® 2004 Plus
W104° 45'
W104° 40'
W104° 35'
W104° 30'
N38° 35'
N38° 30'
N38° 25'
N38° 20'
CO.PO.1
Wigwam
25
CO.PO.A.1
Total: 14.59 miles
Land Use: Unproductive
PUEBLO
COUNTY
50
Exhibit III-F-2
Page 234 of 255
© 2003 DeLorme. Street Atlas USA® 2004 Plus.
www.delorme.com
TN
MN (9.6°E)
Scale 1 : 137,500
1" = 2.17 mi
Data Zoom 10-5

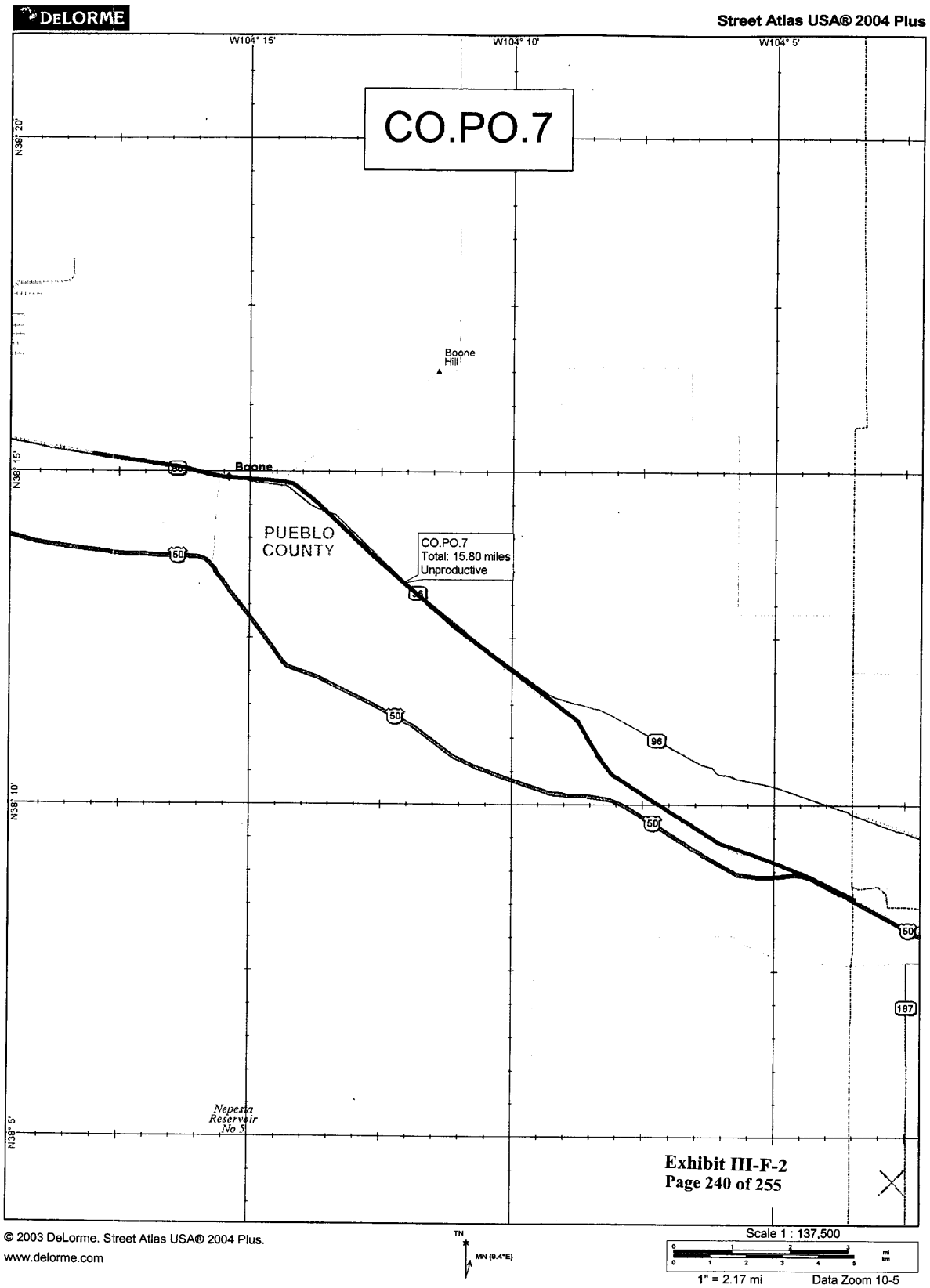

DeLORME
Street Atlas USA® 2004 Plus
CO.PO.2
CO.PO.2
Total: 2.76 miles
Ind.
QUARTZ ST
PACE RD
FRONTAGE RD
FRENDSHIP PL
GEMINI LN
AKRON RD
RANDALL RD
ROAD 3512
OVERTON RD
Fountain Creek
DILLON DR
JASMINE CT
CASTOR DR
POLO CT
BARBARY CT
TAMARON CT
47TH ST
JERRY MURPHY RD
ZINNIA DR
IRONWEED DR
PUEBLO COUNTY
RIDGEWEED CT
LATHYRUS CT
STRAWFLOWER CT
FIREWEED DR
SUNFLOWER DR
AMARANTH CT
WALLFLOWER CT
TERRACE DR
MAYWEED CT
VILLAGE CT
PINERIDGE CT
CROWNBRIDGE CT
QUEENSBRIDGE DR
HASTINGS DR
BELITA DR
BONNY MEDE RD
APOLLO LN
DOUGLAS LN
MARTHA LN
ADAIR RD
BANNOCKBURN LN
HILTON LN
MIDLOTHIAN RD
SCOTLAND RD
SHERIDAN RD
MACNAUGHTON RD
GLENMOORE RD
TAOS RD
BEAR CLAW CT
WHITE DOVE CT
CENTRAL CT
W 28TH ST
W 27TH ST
W 29TH ST
E 29TH ST
W 30TH ST
W 31ST ST
E 40TH ST
HAHN RD
HART RD
N ELIZABETH ST
KURTZ ST
COUNTRY CLUB DR
CLUB MANOR DR
PUEBLO MALL BLVD
BIJOU ST
N FREEWAY RD
EAGLERIDGE BLVD
PARKHILL PL
FRESNO
HOBART
DE PAUL ST
PASEO DEL NORTE
BETHEL
CARRUTH CT
OUTLOOK BLVD
CALLE DEL SOL
ROSS CT
RUGER CT
WHALEWOOD LN
RAWHIDE RD
WILDFIRE DR
PIONEER CT
N ELIZABETH CT
SILVERSMITH CT
GUNSMITH CT
47TH ST
SENTINEL PL
REMUDA PL
ARROWSMITH DR
WILDERNESS TRL
CANDLEWOOD LN
NORTH LN
HILLSIDE DR
FRANCES PL
MORNINGVIEW PL
CYNTHIA PL
VALLEY DR
LYNDA LN
COUNTRY CLUB VLG
NORTHPARK TER
WINGATE TER
NORTHRIDGE DR
BALTIMORE AVE
MORRIS AVE
WATTS PL
ARLINGTON AVE
WITHERS AVE
COLFAX AVE
FRANKLIN AVE
Fairmont Park
W 31ST ST
W 30TH ST
W 29TH ST
W 28TH ST
W 27TH ST
E 29TH ST
W104° 38'
W104° 37.5'
W104° 37'
W104° 36.5'
W104° 36'
W104° 35.5'
N38° 20.5'
N38° 20'
N38° 19.5'
N38° 19'
N38° 18.5'
N38° 18'
25
50
47
TN
MN (9.6°E)
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0
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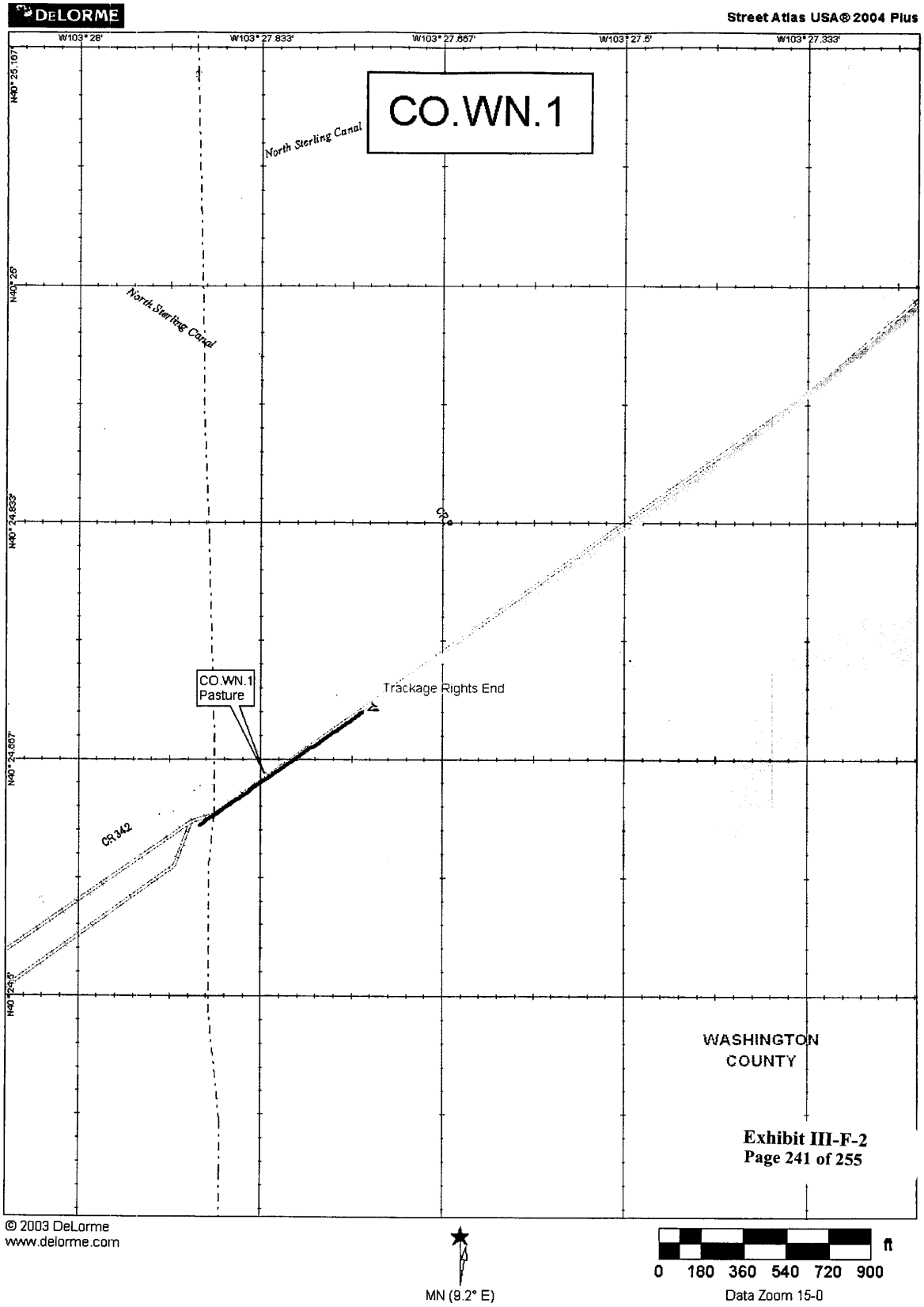

DeLORME
Street Atlas USA® 2004 Plus
CO.PO.3
CO.PO.3
Total: 1.93 miles
Res/Ind
PUEBLO COUNTY
Fountain Creek
Arkansas River
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www.delorme.com
Scale 1 : 25,000
1" = 2,083.3 ft
Data Zoom 13-0


DeLORME
Street Atlas USA® 2004 Plus
CO.PO.4
W104° 36'
W104° 35'
W104° 34'
W104° 33'
N38° 18'
N38° 17'
N38° 16'
N38° 15'
47
25
50
98
227
78
Mineral Palace Park
W 13TH ST
Mitchell Park
PUEBLO COUNTY
Fearnowville
N SANTA FE AVE
N PRAIRIE RD
CO.PO.4
Total: 4.74 miles
IND/COM
Park
W ELIZABETH ST
S SANTA FE AVE
E EXT ST
Runyan Field
Pueblo
E NORTHERN AVE
BESSEMER RD
Blende
Salt Creek
25TH LN
Exhibit III-F-2
Page 237 of 255
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TN
MN (9.6°E)
Scale 1 : 34,375
1" = 2,864.6 ft
Data Zoom 12-5


DeLORME
Street Atlas USA® 2004 Plus
W104° 32'
W104° 30'
W104° 28'
W104° 26'
W104° 24'
W104° 22'
N38° 22'
N38° 20'
N38° 18'
N38° 16'
N38° 14'
N38° 12'
CO.PO.5
PUEBLO COUNTY
CO.PO.5
Total: 11.34 miles
Pasture
47
96
50
233
231
Vineland
25TH LN
Lombard Village
NICHOLSON RD
27TH LN
CR 321
Exhibit III-F-2
Page 238 of 255
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TN
MN (9.5°E)
Scale 1 : 100,000
1" = 1.58 mi
Data Zoom 11-0


DeLORME
Street Atlas USA® 2004 Plus
W104° 22'
W104° 21'
W104° 20'
W104° 19'
W104° 18'
W104° 17'
N38° 19'
N38° 18'
N38° 17'
N38° 16'
N38° 15'
N38° 14'
N38° 13'
CO.PO.6
CO.PO.6
Total: 3.91 miles
Transition
North Avondale
PUEBLO
COUNTY
Avondale
Fort Reynolds
96
50
50E
85
Exhibit III-F-2
Page 239 of 255
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TN
MN (9.5°E)
Scale 1 : 50,000
1" = 4,166.7 ft
Data Zoom 12-0


DeLORME
Street Atlas USA® 2004 Plus
W104° 15'
W104° 10'
W104° 5'
N38° 20'
N38° 15'
N38° 10'
N38° 5'
CO.PO.7
Boone Hill
Boone
PUEBLO COUNTY
CO.PO.7
Total: 15.80 miles
Unproductive
50
96
167
Nepesta Reservoir No 5
Exhibit III-F-2
Page 240 of 255
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TN
MN (9.4°E)
Scale 1 : 137,500
1" = 2.17 mi
Data Zoom 10-5


DeLORME
Street Atlas USA® 2004 Plus
W103° 28'
W103° 27.833'
W103° 27.667'
W103° 27.5'
W103° 27.333'
N40° 25.167'
N40° 25'
N40° 24.833'
N40° 24.667'
N40° 24.5'
CO.WN.1
North Sterling Canal
North Sterling Canal
CO.WN.1
Pasture
Trackage Rights End
CR 342
WASHINGTON
COUNTY
Exhibit III-F-2
Page 241 of 255
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MN (9.2° E)
0 180 360 540 720 900 ft
Data Zoom 15-0

Washington County, Colorado

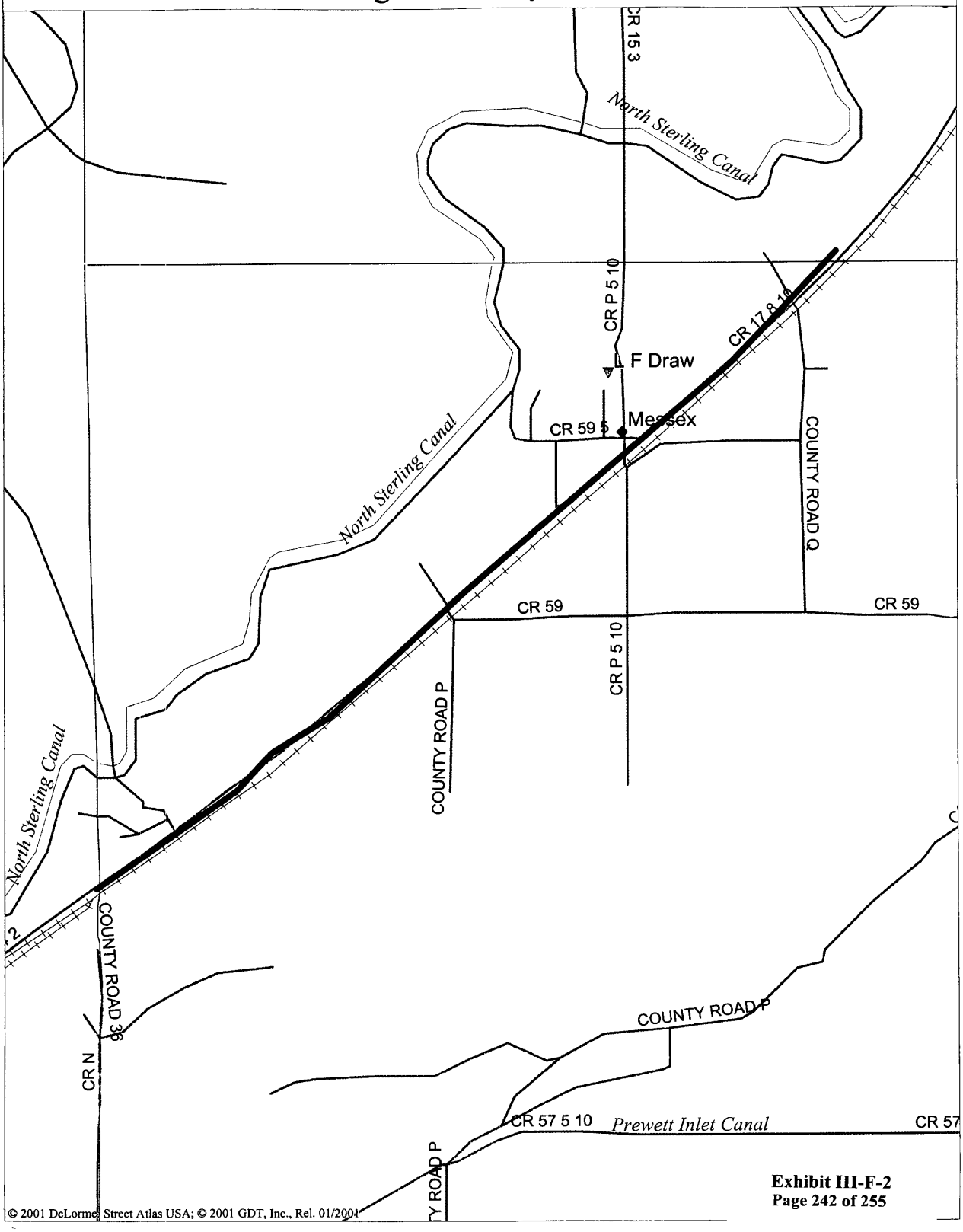
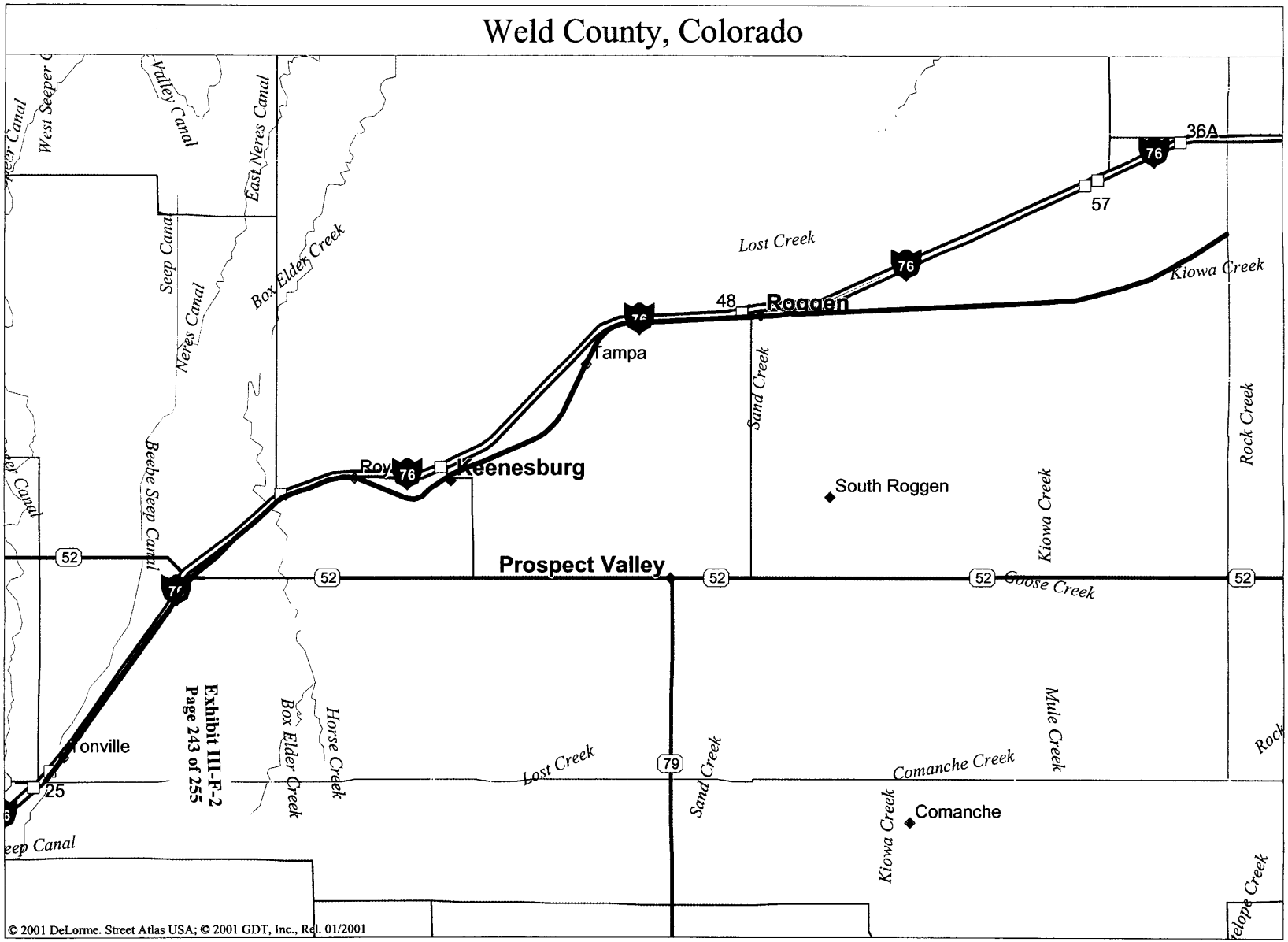
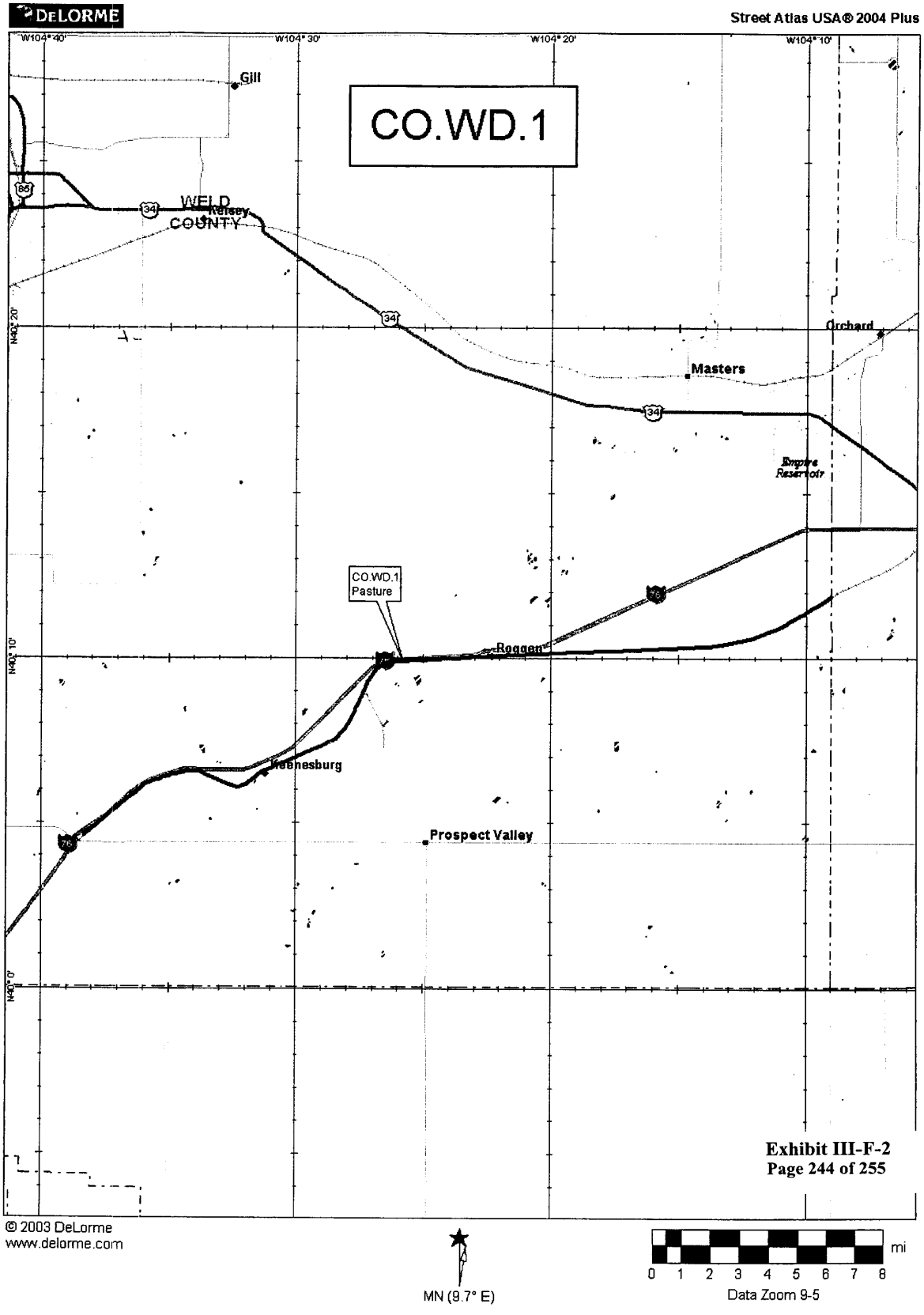


Exhibit III-F-2
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Weld County, Colorado
West Seeper
Valley Canal
East Neres Canal
Seep Canal
Neres Canal
Box Elder Creek
Beebe Seep Canal
Lost Creek
Kiowa Creek
Sand Creek
Rock Creek
Goose Creek
Mule Creek
Horse Creek
Comanche Creek
36A
57
48
Roggen
Tampa
Keenesburg
South Roggen
Prospect Valley
Comanche
76
52
79
25
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DeLORME
Street Atlas USA® 2004 Plus
W104° 40'
W104° 30'
W104° 20'
W104° 10'
N40° 20'
N40° 10'
N40° 0'
CO.WD.1
Gill
WELD
COUNTY
Kelsey
Orchard
Masters
Empire
Reservoir
CO.WD.1
Pasture
Roggen
Hudsonburg
Prospect Valley
85
34
76
Exhibit III-F-2
Page 244 of 255
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MN (9.7° E)
0 1 2 3 4 5 6 7 8
mi
Data Zoom 9-5

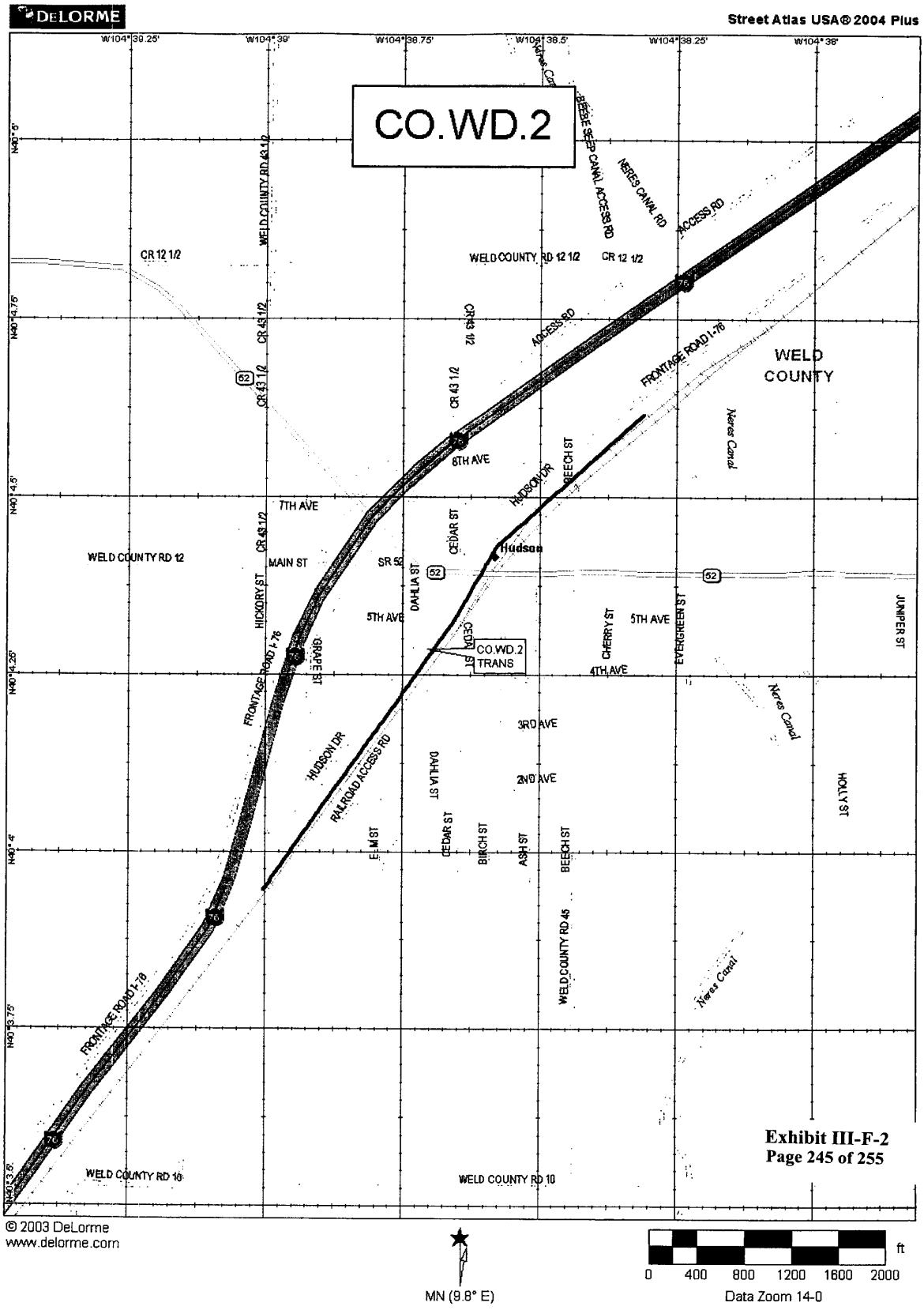
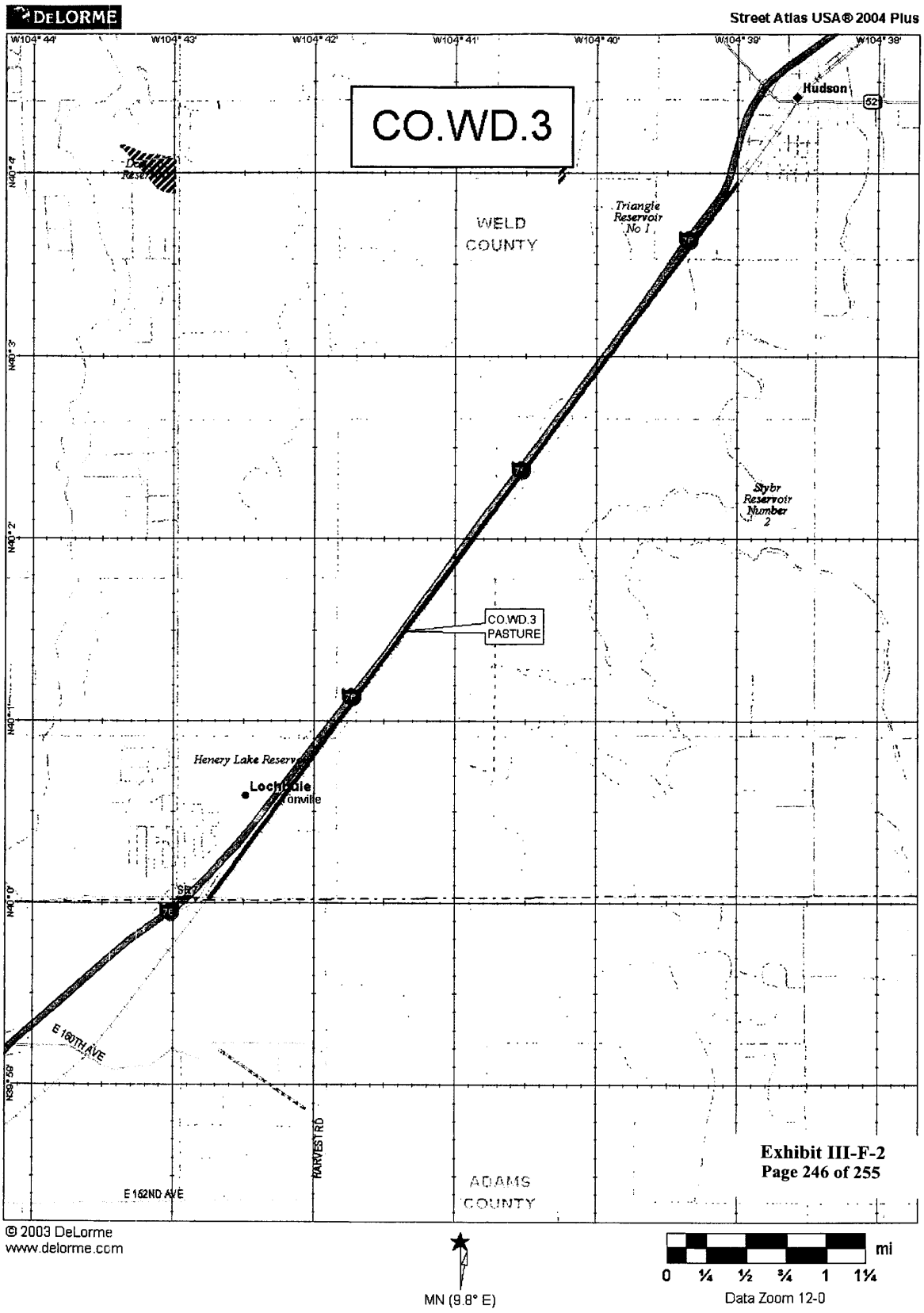


Exhibit III-F-2
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DELORME
Street Atlas USA® 2004 Plus
CO.WD.3
W104° 44'
W104° 43'
W104° 42'
W104° 41'
W104° 40'
W104° 39'
W104° 38'
N40° 4'
N40° 3'
N40° 2'
N40° 1'
N40° 0'
N39° 59'
Hudson
52
WELD
COUNTY
Triangle
Reservoir
No 1
Styhr
Reservoir
Number
2
CO.WD.3
PASTURE
Henery Lake Reserv
Lochbuie
Erie
SH 7
76
E 160TH AVE
HARVEST RD
E 162ND AVE
ADAMS
COUNTY
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MN (9.8° E)
mi
0 ¼ ½ ¾ 1 1¼
Data Zoom 12-0

EASEMENTS

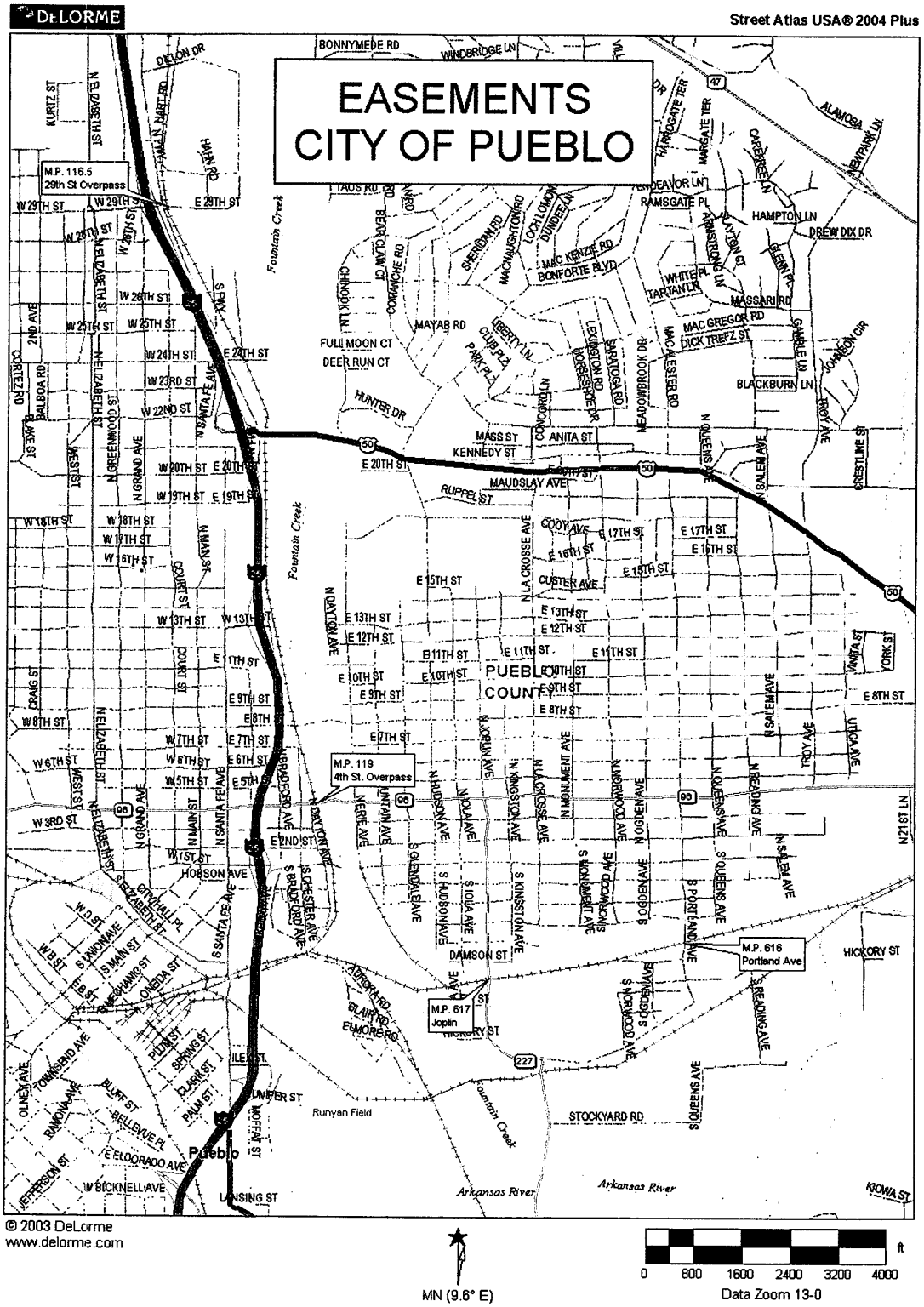
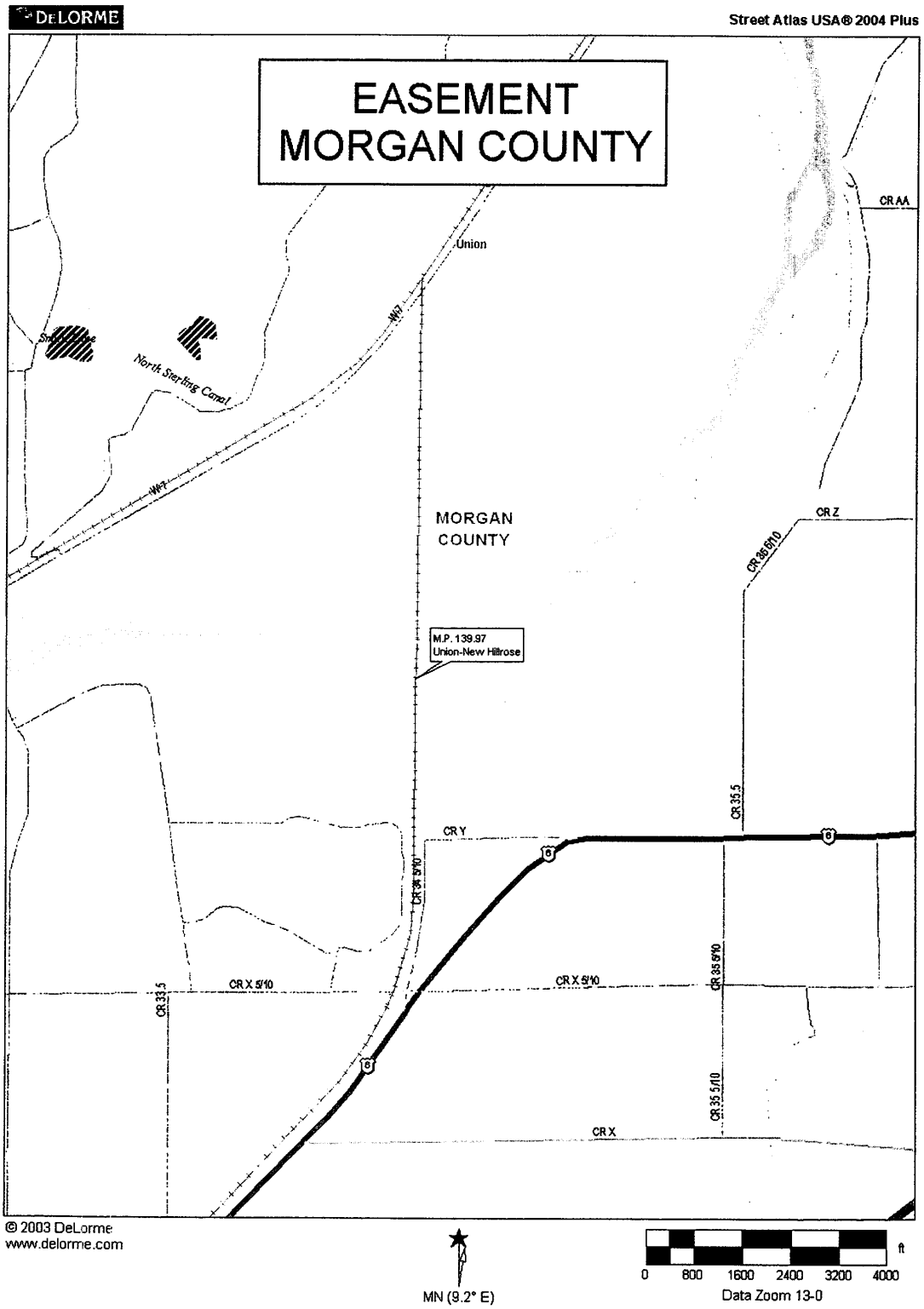
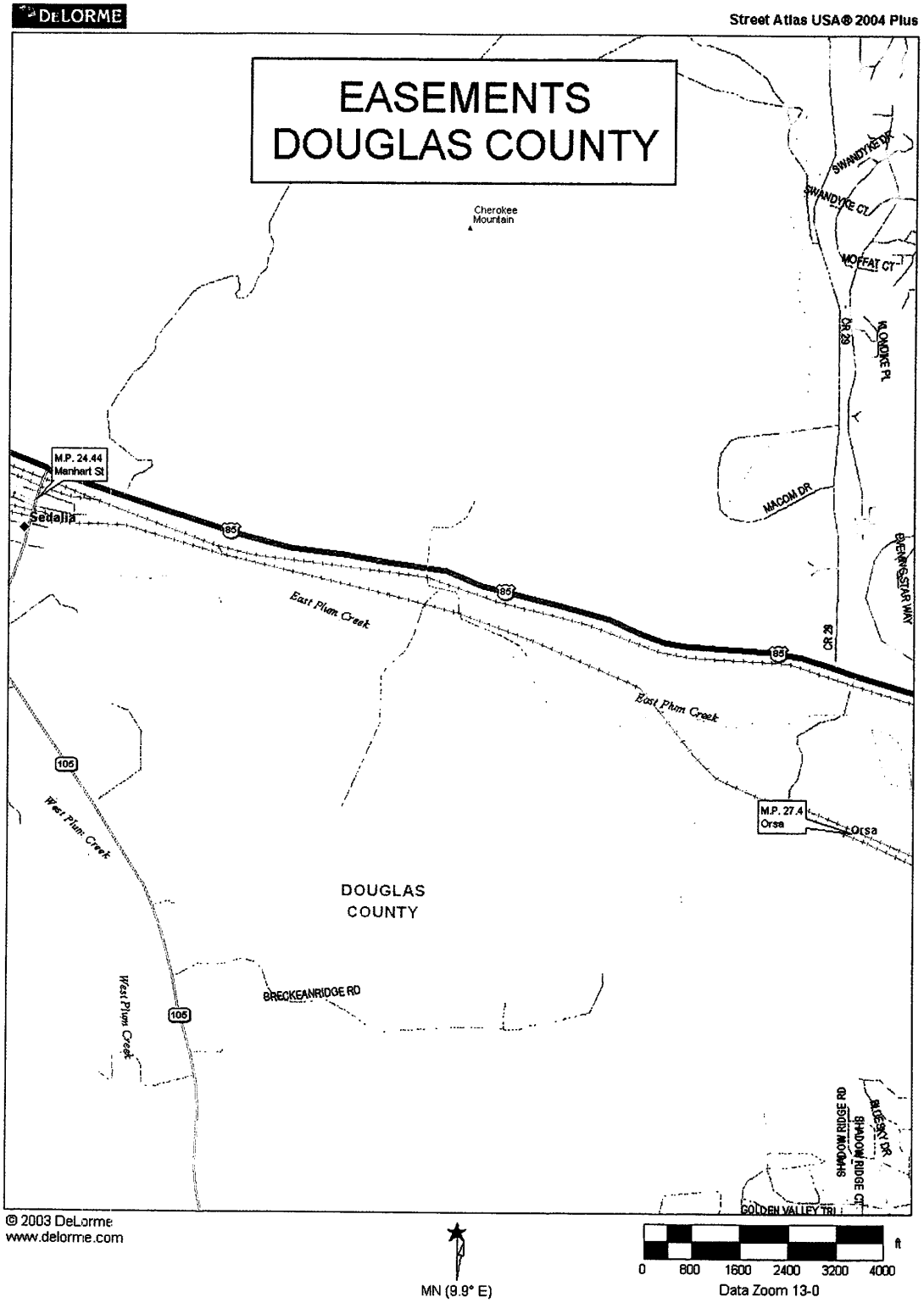
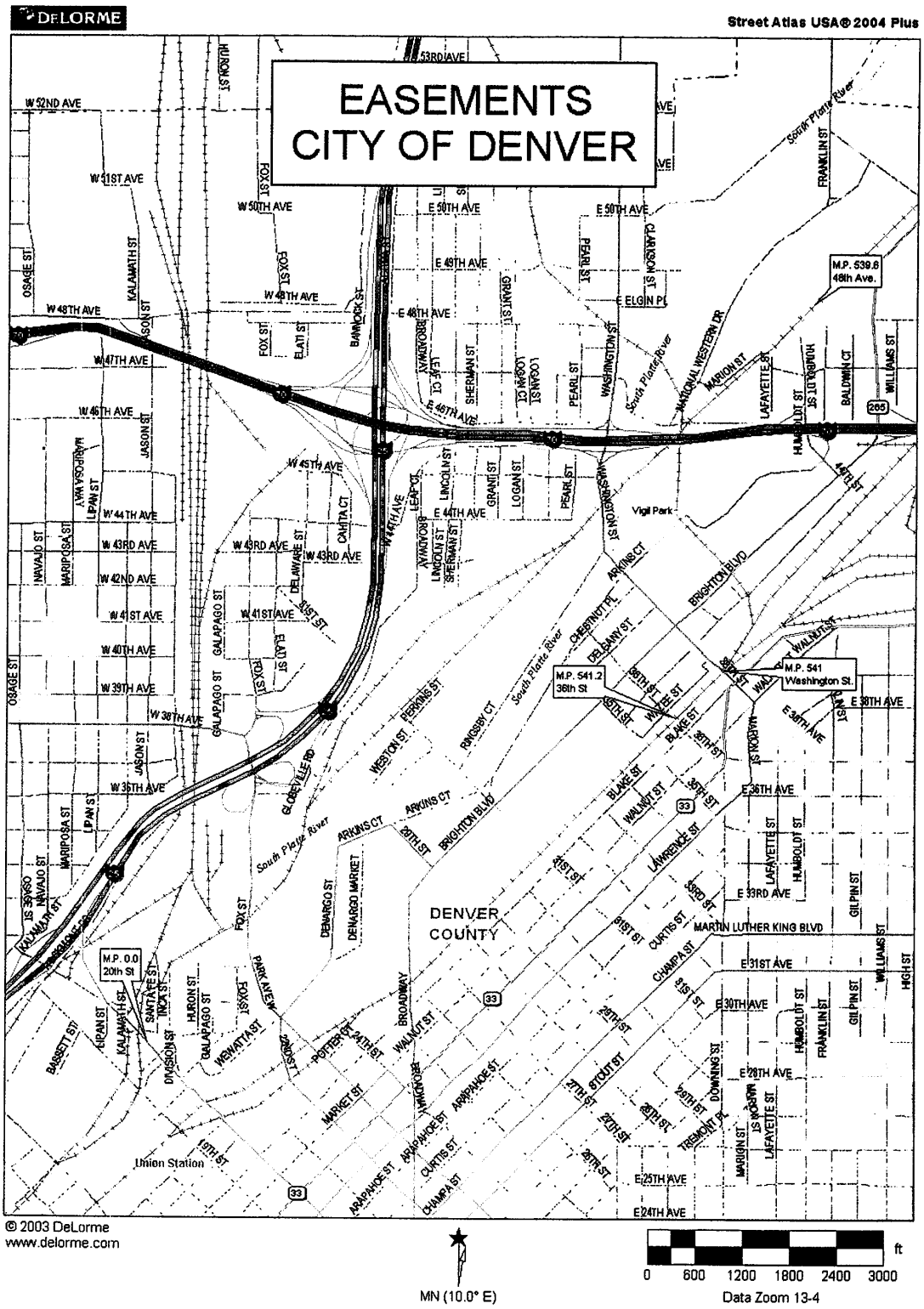
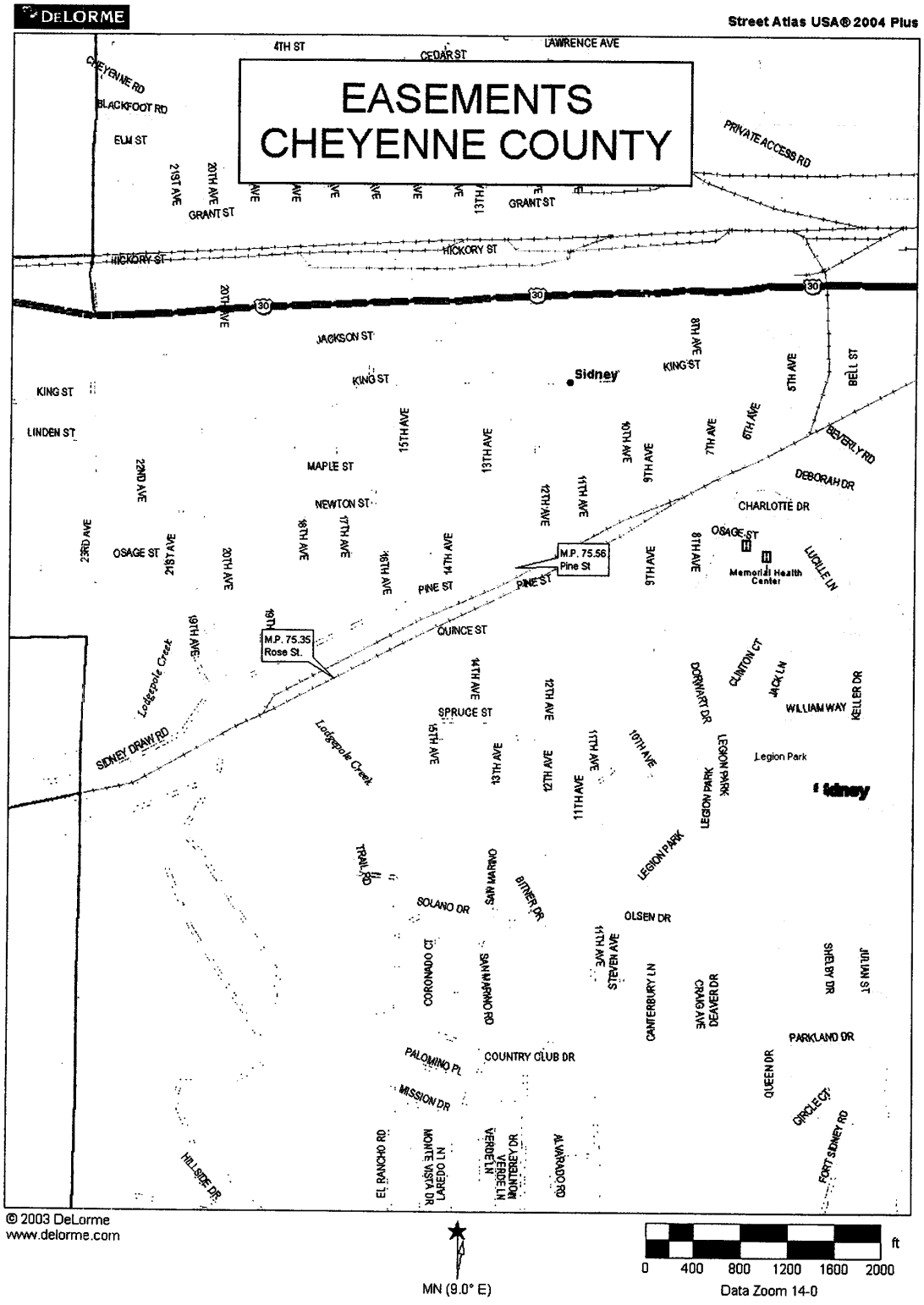


Exhibit III-F-2
Page 248 of 255

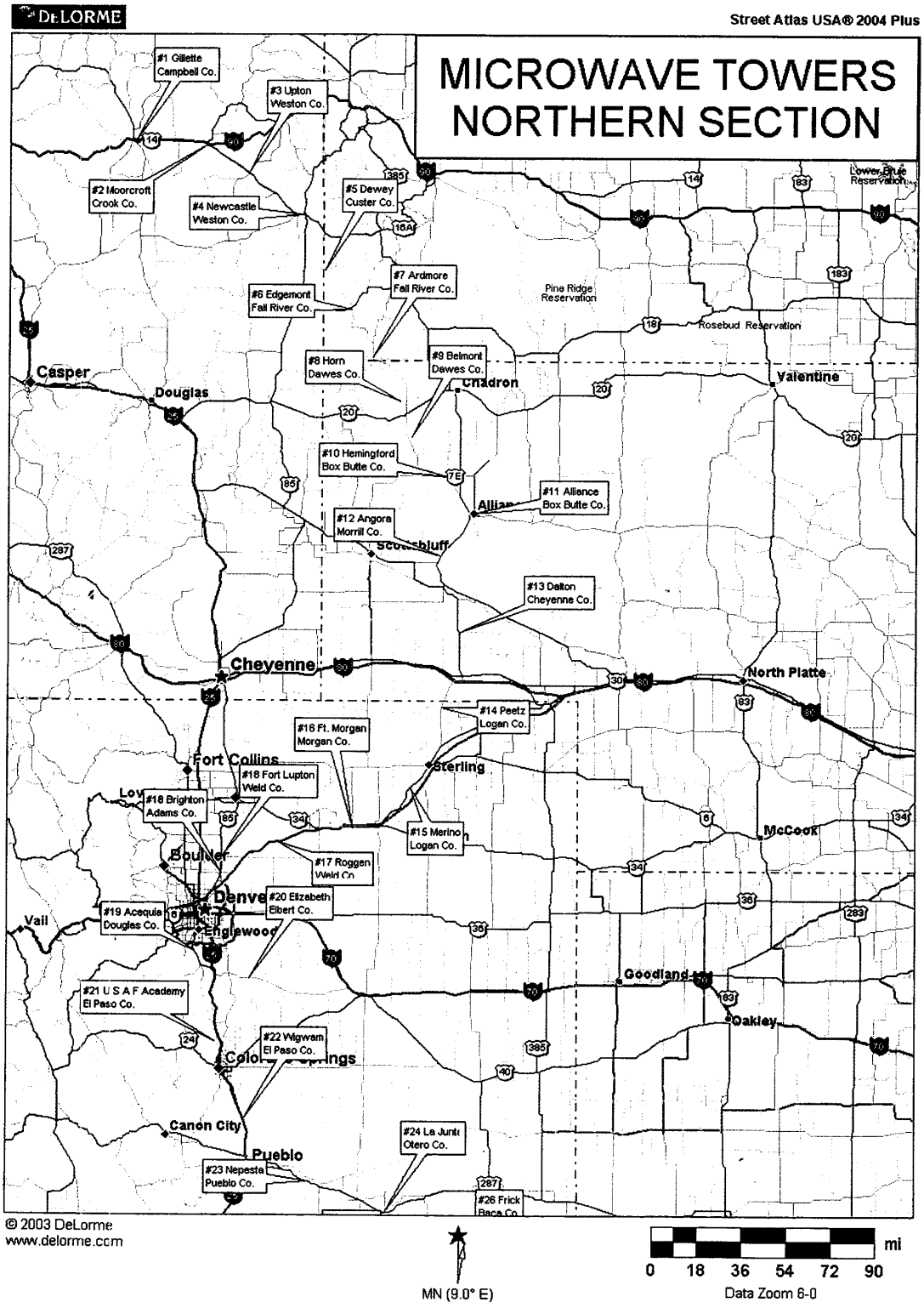

DeLORME
Street Atlas USA® 2004 Plus
EASEMENT
MORGAN COUNTY
CR AA
Union
WP
North Sterling Canal
MORGAN
COUNTY
CR Z
CR 35 5/10
M.P. 139.97
Union-New Hillrose
CR 35.5
CR Y
CR X 5/10
CR 33.5
CR X
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MN (9.2° E)
0 800 1600 2400 3200 4000 ft
Data Zoom 13-0


DELORME
Street Atlas USA® 2004 Plus
EASEMENTS
DOUGLAS COUNTY
Cherokee Mountain
SWANDYKE DR
SWANDYKE CT
MOFFAT CT
CR 29
N OMOKE PL
M.P. 24.44
Manhart St
Sedalia
85
MACOM DR
EVENING STAR WAY
East Plum Creek
CR 29
East Plum Creek
105
West Plum Creek
M.P. 27.4
Orsa
Orsa
DOUGLAS
COUNTY
BRECKEANRIDGE RD
West Plum Creek
105
SHADOW RIDGE RD
SHADOW RIDGE CT
BLUE SKY DR
GOLDEN VALLEY TRL
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MN (9.9° E)
0 800 1600 2400 3200 4000 ft
Data Zoom 13-0

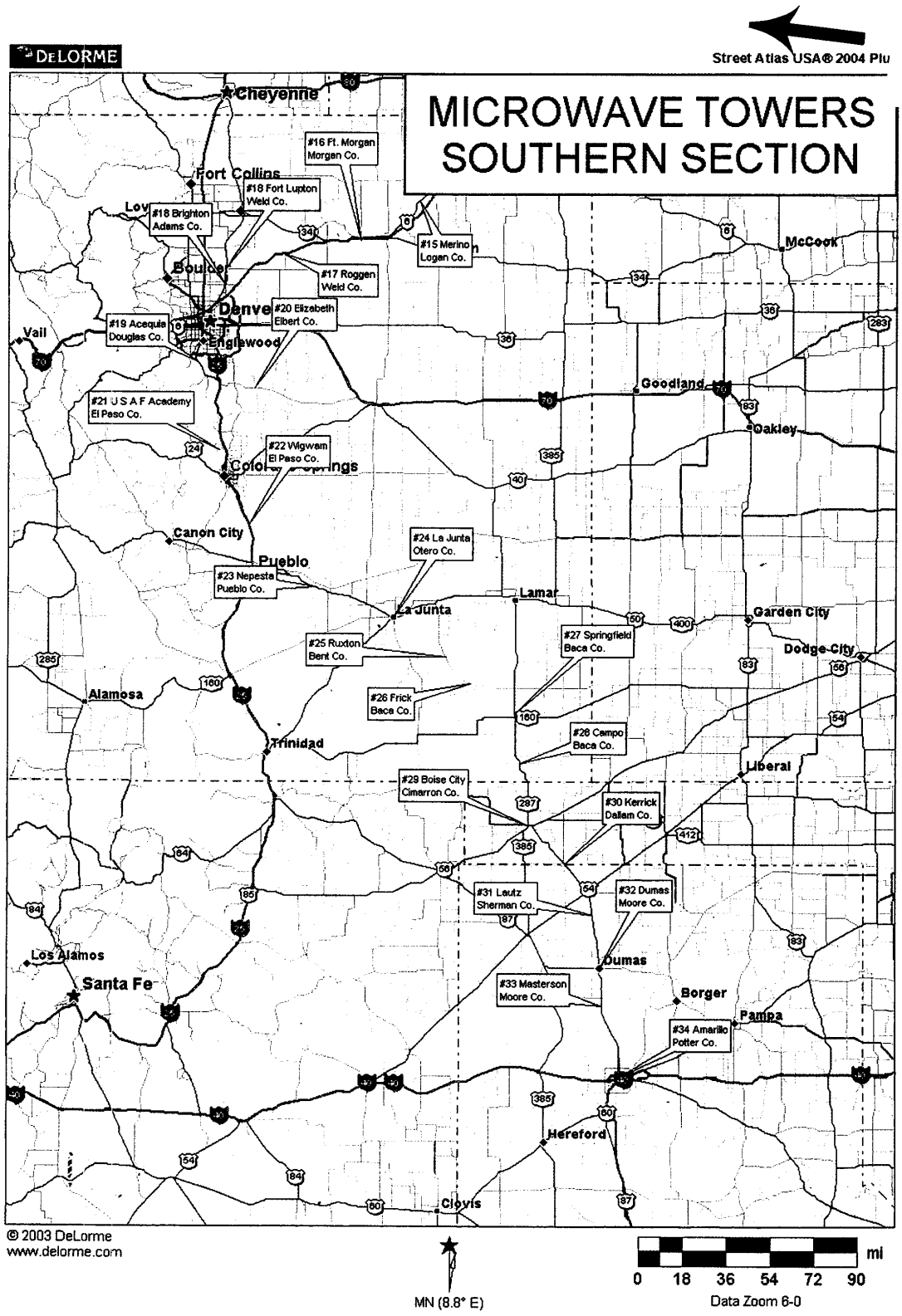

DELORME
Street Atlas USA® 2004 Plus
EASEMENTS
CITY OF DENVER
DENVER
COUNTY
M.P. 539.6
48th Ave.
M.P. 541.2
36th St
M.P. 541
Washington St.
M.P. 0.0
20th St
Union Station
Vigil Park
South Platte River
MARTIN LUTHER KING BLVD
© 2003 DeLorme
www.delorme.com
MN (10.0° E)
0 600 1200 1800 2400 3000 ft
Data Zoom 13-4


DELORME
Street Atlas USA® 2004 Plus
EASEMENTS
CHEYENNE COUNTY
4TH ST
CEDAR ST
LAWRENCE AVE
CHEYENNE RD
BLACKFOOT RD
ELM ST
PRIVATE ACCESS RD
21ST AVE
20TH AVE
GRANT ST
HICKORY ST
30
JACKSON ST
KING ST
Sidney
LINDEN ST
MAPLE ST
NEWTON ST
CHARLOTTE DR
DEBORAH DR
BEVERLY RD
BELL ST
OSAGE ST
M.P. 75.56
Pine St
PINE ST
Memorial Health Center
LUCILLE LN
M.P. 75.35
Rose St.
QUINCE ST
SPRUCE ST
Lodgepole Creek
SIDNEY DRAW RD
WILLIAM WAY
KELLER DR
Legion Park
LEGION PARK
TRAIL RD
SOLANO DR
SAN MARINO
BITNER DR
OLSEN DR
STEVEN AVE
CANTERBURY LN
CRAIG AVE
DEAVER DR
SHERRY DR
JOLYN ST
CORONADO CT
SAN MARINO RD
PARKLAND DR
COUNTRY CLUB DR
PALOMINO PL
MISSION DR
QUEEN DR
CIRCLE CT
FORT SIDNEY RD
HILLSIDE DR
EL RANCHO RD
MONTE VISTA DR
LAREDO LN
VERDE LN
MONTEREY DR
ALVARADO RD
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MN (9.0° E)
0 400 800 1200 1600 2000 ft
Data Zoom 14-0

MICROWAVE TOWERS


DeLORME
Street Atlas USA® 2004 Plus
MICROWAVE TOWERS
NORTHERN SECTION
#1 Gillette
Campbell Co.
#2 Moorcroft
Crook Co.
#3 Upton
Weston Co.
#4 Newcastle
Weston Co.
#5 Dewey
Custer Co.
#6 Edgemont
Fall River Co.
#7 Ardmore
Fall River Co.
#8 Horn
Dawes Co.
#9 Belmont
Dawes Co.
#10 Hemingford
Box Butte Co.
#11 Alliance
Box Butte Co.
#12 Angora
Morrill Co.
#13 Dalton
Cheyenne Co.
#14 Peetz
Logen Co.
#15 Merino
Logen Co.
#16 Ft. Morgan
Morgan Co.
#17 Roggen
Weld Co.
#18 Fort Lupton
Weld Co.
#18 Brighton
Adams Co.
#19 Acequia
Douglas Co.
#20 Elizabeth
Elbert Co.
#21 U S A F Academy
El Paso Co.
#22 Wigwam
El Paso Co.
#23 Nepesta
Pueblo Co.
#24 La Junta
Otero Co.
#26 Frick
Baca Co.
Casper
Douglas
Chadron
Valentine
Cheyenne
North Platte
Fort Collins
Sterling
McCook
Boulder
Denver
Englewood
Vail
Goodland
Oakley
Canon City
Pueblo
Pine Ridge Reservation
Rosebud Reservation
Lower Brule Reservation
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MN (9.0° E)
0 18 36 54 72 90 mi
Data Zoom 6-0

NOTE


DeLORME
Street Atlas USA® 2004 Plu
MICROWAVE TOWERS
SOUTHERN SECTION
Cheyenne
#16 Ft. Morgan
Morgan Co.
Fort Collins
#18 Fort Lupton
Weld Co.
#18 Brighton
Adams Co.
#15 Merino
Logan Co.
McCook
Boulder
#17 Roggen
Weld Co.
Denver
#20 Elizabeth
Elbert Co.
#19 Acequia
Douglas Co.
Englewood
Vail
Goodland
#21 U S A F Academy
El Paso Co.
Oakley
#22 Wigwam
El Paso Co.
Canon City
#24 La Junta
Otero Co.
Pueblo
#23 Nepesta
Pueblo Co.
Lamar
La Junta
Garden City
#27 Springfield
Baca Co.
Dodge City
#25 Ruxton
Bent Co.
Alamosa
#26 Frick
Baca Co.
#28 Campo
Baca Co.
Trinidad
Liberal
#29 Boise City
Cimarron Co.
#30 Kerrick
Dallam Co.
#31 Lautz
Sherman Co.
#32 Dumas
Moore Co.
Los Alamos
Santa Fe
Dumas
#33 Masterson
Moore Co.
Borger
Pampa
#34 Amarillo
Potter Co.
Hereford
Clovis
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MN (8.8° E)
mi
0 18 36 54 72 90
Data Zoom 6-0

EXTRACTION OF QUANTITIES FROM ICC ENGINEERING
REPORTS FOR VALUATION SECTIONS ON THE TEXAS & NORTHERN RAILROAD

						EXCAVATION QUANTITIES				BORROW QUANTITIES						
FROM (1)	TO (2)	Valuation Section (3)	Miles Main Line (4)	Miles Other Main Line 1/ (5)	Miles All Track (6)	Common Excavation (CY) 2/ (7)	Loose Rock Excavation (CY) 3/ (8)	Solid Rock Excavation (CY) 4/ (9)	Total Excavation (CY) 5/ (10)	Common Embankment (CY) 6/ (11)	Train Overhaul >5,000' <10,000' (CY1000') 7/ (12)	Train Overhaul >10,000' <25,000' (CY1000') 7/ (13)	Train Overhaul >25,000' <55,000' (CY1000') 7/ (14)	Loose Rock Embankment (CY) 8/ (15)	Solid Rock Embankment (CY) 9/ (16)	Borrow (CY) 10/ (17)
SD/WY Line	WY/MT Line	CBQ-6AB-WY	236.908	0	339.276	3,297,849	555,676	317,929	4,171,454	8,042,009	0	0	0	1,069	0	8,043,078
SD/WY Line	SD/NE Line	CBQ-1AB-SD	48.959	0	69.764	473,469	50,377	2,196	526,042	1,212,084	0	0	0	181	0	1,212,265
SD/NE Line	Seneca	CBQ-31-NE	191.146	0	249.207	3,126,706	138,435	889,847	4,154,988	6,275,732	0	0	0	0	0	6,275,732
Alliance	NE/CO Line	CBQ-28-NE	86.866	0	104.741	1,113,896	139,268	206,106	1,459,270	2,792,526	0	0	0	10,940	121	2,803,587
Brush	NE/CO Line	CBQ-5AB-CO	39.233	0	56.981	359,230	3,847	11,540	374,617	889,371	0	0	0	0	0	889,371
CO/NE Line	Denver	CBQ-1-CO	169.13	0	218.024	1,030,418	84,390	56,863	1,171,671	4,533,299	0	0	0	0	0	4,533,299
Denver		CBQ-2-CO	9.113	0	48.482	204,867	0	0	204,867	897,305	0	0	0	0	0	897,305
Denver	Littleton	DRG-1BCD-CO	12.644	9.86	64.903	301,285	3,014	0	304,299	251,784	0	0	0	0	0	251,784
Littleton	Eden	RG-2ABCD-C	107.899	14.754	161.773	2,400,060	120,224	10,932	2,531,216	0	0	0	0	0	0	0
Eden	Pueblo	DRG-3-CO	12.329	10.405	72.075	146,600	138,167	67,658	352,425	529,435	0	0	0	0	0	529,435
Pueblo	La Junta	ATSF-3-CO	56.224	0	118.953	170,082	0	25,097	195,179	991,524	0	0	0	18,863	0	1,010,387
La Junta	Kansas Line	ATSF-1-CO	85.744	0	160.981	522,918	8,862	39,725	571,505	2,028,744	0	0	0	393	0	2,029,137
Las Animas	CO/OK Line	DCCV-1A-CO	92.14	0	92.14	550,828	322,434	402,919	1,276,181	2,203,310				0	0	2,203,310
CO/OK Line	Boise City	ESF-2A-OK	20.77	0	20.77	133,119	21,782	246,780	401,681	817,731				0	0	817,731
Boise City	OK/TX Line	ESF-2-OK	21.077	0	22.0808	76,759	5,510	95,375	177,644	368,450	0	0	0	2,034	83,793	454,277
OK/TX Line	Amarillo	NPSF-1-TX	100.4827	0	119.8731	409,267	327,861	588,705	1,325,833	1,629,030	0	0	0	265,465	642,392	2,536,887
Amarillo	Childress	FWD-3-TX	114.618	0	143.803	678,671	76,522	30,460	785,653	1,575,704	0	0	0	0	0	1,575,704
Childress	Wichita Falls	FWD-2-TX	106.442	0	139.92	533,828	46,962	34,275	615,065	1,142,329	0	0	0	0	6,000	1,148,329
Pueblo	Minnequa Jct	CS-8-CO	5.436	0	10.545	87,078	45,319	43,393	175,790	0	10,562	0	0	0	0	1,408

CY= Cubic Yards

1/ Includes 2nd and 3rd main line.
2/ Sum of cubic yards of excavation identified as "common" and "backfill" as shown on the ICC Engineering Reports.
3/ Sum of cubic yards of "loose rock" under "Excavation" as shown on the ICC Engineering Reports.
4/ Sum of cubic yards of "solid rock" under "Excavation" as shown on the ICC Engineering Reports.
5/ Sum of Columns (7) through (9)
6/ Sum of cubic yards of embankment identified as "common" as shown on the ICC Engineering Reports.
7/ Units (CY1000') of "train overhaul" by category under "Excavation" as shown on the ICC Engineering Reports.
8/ Sum of cubic yards of embankment identified as "loose rock" as shown on the ICC Engineering Reports.
9/ Sum of cubic yards of embankment identified as "solid rock" as shown on the ICC Engineering Reports.
10/ Column (11) + [[(Column (12) ÷ 7,500 feet) + (Column (13) ÷ 17,500 feet) + (Column (14) ÷ 40,000 feet)] x 1000]+ Column (15) + Column (16)

EXTRACTION OF QUANTITIES FROM ICC ENGINEERING
REPORTS FOR VALUATION SECTIONS ON THE TEXAS & NORTHERN RAILROAD

			PROTECTION OF ROADWAY																	
			Rip Rap		Retaining Walls										Lateral Drainage					
			Cubic Yards		CY of Masonry		Timber (MBM)		Timber Ties (Each)		Logs (LF)		Piling		LF of Pipe		Clearing (acres)		Grubbing (acres)	
Valuation Section	Miles Main Line	Miles All Track	Total	Per Main Line Mile 1/	Total	Per Main Line Mile 2/	Total	Per Main Line Mile	Total	Per Main Line Mile	Total	Per Main Line Mile 1/	Total	Per Main Line Mile	Total	Per Main Line Mile 3/	Total	Per Track Mile 4/	Total	Per Track Mile 5/
(1)	(2)		(3)	(4)	(5)	(6)									(7)	(8)	(9)	(10)	(11)	(12)
CBQ-6AB-WY	236.908	339.276	12,985	55	0	0	70.90	0.30	763	3	576	2	0	0	15,108	64	256.92	0.76	65.28	0.19
CBQ-1AB-SD	48.959	69.764	10,049	205	0	0	224.60	4.59	116	2	954	19	0	0	0	0	243.93	3.50	13.06	0.19
CBQ-31-NE	191.146	249.207	13,613	71	376	2	0.00	0.00	0	0		0	0	0	0	0	95.71	0.38	30.06	0.12
CBQ-28-NE	86.866	104.741	4,308	50	0	0	0.70	0.01	8	0		0	0	0	0	0	0.00	0.00	0.00	0.00
CBQ-5AB-CO	39.233	56.981	5,709	146	0	0	11.80	0.30	0	0		0	30	1	0	0	0.00	0.00	0.00	0.00
CBQ-1-CO	169.13	218.024	15,099	89	91	1	0	0.00	138	1		0	0	0	0	0	0.00	0.00	0.00	0.00
CBQ-2-CO	9.113	48.482	7,858	862	0	0	0	0.00	0	0		0	0	0	0	0	25.19	0.52	0.00	0.00
DRG-1BCD-CO	12.644	64.903	0	0	0	0	0	0.00	0	0		0	0	0	0	0	2.76	0.04	1.24	0.02
DRG-2ABCD-C	107.899	161.773	5,533	51	2,019	19	49.24	0.46	0	0		0	108	1	28	0	55.05	0.34	23.08	0.14
DRG-3-CO	12.329	72.075	7,092	575	4,698	381	23.60	1.91	0	0		0	6,420	521	21	2	5.04	0.07	0.90	0.01
ATSF-3-CO	56.224	118.953	15,223	271	0	0	10.70	0.19	0	0		0	0	0	0	0	99.30	0.83	6.35	0.05
ATSF-1-CO	85.744	160.981	50,982	595	2,000	23	14.20	0.17	0	0		0	0	0	5,172	60	60.87	0.38	1.65	0.01
DCCV-1A-CO	92.14	92.14	2,992	32	0	0	0.00	0.00	0	0		0	0	0	0	0	0.00	0.00	0.00	0.00
ESF-2A-OK	20.77	20.77	10,273	495		0		0.00	0	0		0		0	0	0	0.00	0.00	0.00	0.00
ESF-2-OK	21.077	22.0808	192	9	0	0	0	0.00	0	0		0	0	0	0	0	4.13	0.19	0.00	0.00
NPSF-1-TX	100.4827	119.8731	1,522	15	142	1	1.46	0.01	6,520	65		0	0	0	946	9	164.65	1.37	162.35	1.35
FWD-3-TX	114.618	143.803	1,881	16	0	0	15.82	0.14	22	0	14,600	127	0	0	0	0	0.00	0.00	0.00	0.00
FWD-2-TX	106.442	139.92	6,858	64	0	0	48.80	0.46	0	0	22,260	209	43,352	407	0	0	53.40	0.38	0.00	0.00
CS-8-CO	5.436	10.545	8,327	1,532	0	0	28.78	5.29	0	0			2,468	454	0	0	4.60	0.44	0.00	0.00

Source: ICC Engineering Reports

1/ Column (3) / Column (2)
2/ Column (5) / Column (2)
3/ Column (7) / Column (2)
4/ Column (9) / Column (2)
5/ Column (11) / Column (2)

DEVELOPMENT OF THE CLEARING, GRUBBING,
LATERAL DRAINAGE, RIP RAP AND RETAINING WALLS QUANTITIES
FOR THE DONKEY CREEK TO SOUTH LOGAN PORTION OF THE TEXAS & NORTHERN RAILROAD

	Item (1)	Bill to Orin (2)	Reno to Bill (3)	Total (4)
A.	Orin Line Quantities			
1.	Lateral drainage (LF of pipe)	0	0	0
2.	Rip Rap (CY)	1,839	2,834	4,673
3.	Retaining Walls (CY)	0	0	0
4.	Clearing (acres)	0	0	0
5.	Grubbing (acres)	0	0	0
B.	Distance 1/			
6.	Total distance - miles 2/	35.53	43.84	79.37
C.	Amount per Mile			
7.	Lateral drainage (LF of pipe) 3/			0
8.	Rip Rap (CY) 4/			59
9.	Retaining Walls (CY) 5/			0
10.	Clearing (acres) 6/			0
11.	Grubbing (acres) 7/			0

1/ Verified Statement of Jerry R. Masters in ICC Docket No. 37029
Iowa Public Service Company v. Burlington Nortern Railroad Company
and Chicago and North Western Transportation Company
dated February 28, 1985, Exhibit JRM-3A and Exhibit JRM-3B
2/ Exhibit III-F-9, Line 6
3/ Line 1 / Line 6
4/ Line 2 / Line 6
5/ Line 3 / Line 6
6/ Line 4 / Line 6
7/ Line 5 / Line 6

DEVELOPMENT OF CLEARING, GRUBBING, LATERAL DRAINAGE, RIP RAP AND RETAINING WALL QUANTITIES AND COSTS FOR THE TEXAS & NORTHERN RAILROAD

	Segment		Valuation	Route	Add.	Yard	Track	Rip Rap Cubic Yards		CY of Masonry		MBM of Timber		Retaining Walls Ties Each		Logs (LF)		LF Piling		Lateral Drainage LF of Pipe		Clearing (acres)			Grubbing (acres)		
	From	To	Section	Miles 1/	Track 2/	Track 3	Miles 4/	Per Main Line Miles 5/	Total 6/	Per Main Line Miles 5/	Total 6/	Per Main Line Miles 5/	Total 6/	Per Main Line Miles 5/	Total 6/	Per Main Line Miles 5/	Total 6/	Per Main Line Miles 5/	Total 6/	Per Main Line Miles 5/	Total 6/	Per Track Miles 5/	Historic to New Ratio	Total 7/	Per Track Miles 5/	Historic to New Ratio	Total 7/
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)					(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1.	Eagle Butte Jct	Campbell	Orin	10.25	3.15		13.40	58.88	603.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.0000	0.00	0.00	1.0000	0.00
2.	Campbell	Donkey Creek Jct	CBQ-6AB-WY	2.78	4.03		6.81	54.81	152.37	0.00	0.00	0.30	0.83	3.22	8.95	2.43	6.76	0.00	0.00	63.77	177.29	0.76	1.2257	6.32	0.19	1.2257	1.61
3.	Donkey Creek Jc	WY/SD Line	CBQ-6AB-WY	89.35	98.90		188.25	54.81	4897.30	0.00	0.00	0.30	26.74	3.22	287.77	2.43	217.24	0.00	0.00	63.77	5697.99	0.76	1.2257	174.73	0.19	1.2257	44.40
4.	WY/SD Line	SD/NE Line	CBQ-1AB-SD	48.87	50.19		99.06	205.25	10030.73	0.00	0.00	4.59	224.19	2.37	115.79	19.49	952.27	0.00	0.00	0.00	0.00	3.50	1.2597	436.32	0.19	1.2597	23.36
5.	SD/NE Line	Alliance	CBQ-31-NE	85.70	106.32	40.95	232.97	71.22	6103.37	1.97	168.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	1.2252	109.63	0.12	1.2252	34.43
6.	Alliance	NE/CO Line	CBQ-28-NE	86.88	21.51	27.30	135.69	49.59	4308.69	0.00	0.00	0.01	0.70	0.09	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.2285	0.00	0.00	1.2285	0.00
7.	CO/NE Line	Sterling	CBQ-5AB-CO	27.84	6.62		34.46	145.52	4051.14	0.00	0.00	0.30	8.37	0.00	0.00	0.00	0.00	0.76	21.29	0.00	0.00	0.00	1.2700	0.00	0.00	1.2700	0.00
8.	Union	Brush	CBQ-5AB-CO	11.34	1.82		13.16	145.52	1650.14	0.00	0.00	0.30	3.41	0.00	0.00	0.00	0.00	0.76	8.67	0.00	0.00	0.00	1.2700	0.00	0.00	1.2700	0.00
9.	Brush	Denver	CBQ-1-CO	87.20	15.28		102.48	89.27	7784.74	0.54	46.92	0.00	0.00	0.82	71.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.2461	0.00	0.00	1.2461	0.00
10.	Denver	Littleton	DRG-1BCD-CO	12.20	6.50		18.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	1.3142	1.05	0.02	1.3142	0.47
11.	Littleton	Eden	RG-2ABCD-C	95.70	11.48		107.18	51.28	4907.44	18.71	1790.73	0.46	43.67	0.00	0.00	0.00	0.00	1.00	95.79	0.26	24.83	0.34	1.3796	50.32	0.14	1.3796	21.10
12.	Eden	Pueblo	DRG-3-CO	12.37	0.22		12.59	575.23	7115.58	381.05	4713.62	1.91	23.68	0.00	0.00	0.00	0.00	520.72	6441.35	1.70	21.07	0.07	1.2479	1.10	0.01	1.2479	0.20
13.	Pueblo	LaJunta	ATSF-3-CO	62.68	5.33		68.01	270.76	16971.00	0.00	0.00	0.19	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	1.2904	73.26	0.05	1.2904	4.68
14.	LaJunta	Las Animas	ATSF-1-CO	21.25	5.12	5.35	31.72	594.58	12634.91	23.33	495.66	0.17	3.52	0.00	0.00	0.00	0.00	0.00	0.00	60.32	1281.78	0.38	1.2719	15.25	0.01	1.2719	0.41
15.	Las Animas	CO/OK Line	DCCV-1A-CO	92.14	7.17		99.31	32.47	2992.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.2560	0.00	0.00	1.2560	0.00
16.	CO/OK Line	Boise City	ESF-2A-OK	20.77	0.83		21.60	494.61	10273.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.2081	0.00	0.00	1.2081	0.00
17.	Boise City	OK/TX Line	ESF-2-OK	22.10	1.17		23.27	9.11	201.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	1.2681	5.52	0.00	1.2681	0.00
18.	OK/TX Line	Amarillo	NPSF-1-TX	99.55	12.21		111.76	15.15	1507.87	1.41	140.75	0.01	1.44	64.89	6459.48	0.00	0.00	0.00	0.00	9.41	937.22	1.37	1.2536	192.44	1.35	1.2536	189.75
19.	Amarillo	Childress	FWD-3-TX	112.42	14.21		126.63	16.41	1844.93	0.00	0.00	0.14	15.52	0.19	21.58	127.38	14320.02	0.00	0.00	0.00	0.00	0.00	1.3243	0.00	0.00	1.3243	0.00
20.	Childress	AEP Texas North	FWD-2-TX	64.08	10.19		74.27	64.43	4128.64	0.00	0.00	0.46	29.38	0.00	0.00	209.13	13400.92	407.28	26098.68	0.00	0.00	0.38	1.3562	38.44	0.00	1.3562	0.00
21.	Donkey Creek Jc	Reno	Orin	44.90	44.83		89.73	58.88	2643.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.0000	0.00	0.00	1.0000	0.00
22.	Reno	Converse Jct	Orin	23.20	6.33		29.53	58.88	1365.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.0000	0.00	0.00	1.0000	0.00
23.	Converse Jct	South Logan	Orin	9.73	3.40		13.13	58.88	572.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.0000	0.00	0.00	1.0000	0.00
24.	Reno	Jacobs Jct	Orin	6.96	3.20		10.16	58.88	409.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.0000	0.00	0.00	1.0000	0.00
25.	South Park Jct	Arapahoe Power Plant	CBQ-2-CO	7.03	0.00		7.03	862.28	6061.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	1.1475	4.19	0.00	1.1475	0.00
26.	Pueblo	Comanche Power Pla	CS-8-CO	3.94	0.00		3.94	1,531.82	6035.39	0.00	0.00	5.29	20.86	0.00	0.00	0.00	0.00	454.01	1788.80	0.00	0.00	0.44	1.3378	2.30	0.00	1.3378	0.00
27.	Amarillo	Harrington Power Plan	NPSF-1-TX	5.17	0.00		5.17	15.15	78.31	1.41	7.31	0.01	0.07	64.89	335.46	0.00	0.00	0.00	0.00	9.41	48.67	1.37	1.2536	8.90	1.35	1.2536	8.78
28.	Amarillo Connection		FWD-3-TX	0.99	0.00		0.99	9.11	9.02	0.00	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1	0.23	0	1	0.00
29.	North Lead to North Rochelle		Orin	0.11	0.00		0.11	58.88	6.48	0.00	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1	0.00	0	1	0.00
30.	North Lead to Antelope		Orin	1.04	0.00		1.04	58.88	61.23	0.00	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1	0.00	0	1	0.00
31.	Subtotal Line Segment Earthwork Quantities:			1168.54	440.01	73.60	1682.15		119403.06		7363.58		414.32		7308.18		28897.20		34454.58		8188.85			1120.00			329.18
																								329.18			
													15344.61 SY		4026.27 SY		3210.80 SY									
32.	Unit Cost 8/								$38.20		$154.86		$154.86		$154.86		$154.86		$13.47		$13.15			$181.65			$2,557.44
																								$4,063.22			
33.	Lateral Drainage - Eagle Butte Spur																				$45,969						
34.	Total Cost by Item 9/								$4,561,059		$1,140,305		$2,376,228		$623,498		$497,217		$464,019		$153,667			$1,481,192			$841,864
35.	Total Cost 10/			$12,139,048																							

1/ Exhibit III-F-10, Column (7)
2/ Exhibit III-F-10, Column (8)
3/ Exhibit III-F-11, Column (3)
4/ Sum of column (4) - column (6)
5/ L.1, L.21-24, L.29,L.30, Exhibit III-F-4; L.2-20,L25-28, Exhibit III-F-3
6/ Column (4) x per mile quantity
7/ Column (7) x historic ratio x per mile quantity
8/ See "TNR Grading.xls"
9/ Line 31 x Line 32
10/ Sum of Line 34

VALUATION SECTIONS COVERING THE TRACKAGE OF THE TEXAS & NORTHERN RAILROAD

Railroad (1)	Val Sec ID (2)	State (3)	Valuation Section Boundaries From Station (4)	Valuation Section Boundaries To Station (5)	Corresponding TNR Segment(s) From Station (7)	Corresponding TNR Segment(s) To Station (8)
1. Burlington Northern and Santa Fe	N/A	WY	Orin	Donkey Creek	Donkey Creek	Bridger Jct
2. Chicago, Burlington and Quincy	WY-6AB	WY	SD/WY Line	WY/MT Line	Campbell	WY/SD Line
3. Chicago, Burlington and Quincy	SD-1AB	WY	WY/SD Line	SD/NE Line	WY/SD Line	SD/NE Line
4. Chicago, Burlington and Quincy	NE-31	NE	SD/NE Line	Seneca	SD/NE Line	Alliance
5. Chicago, Burlington and Quincy	NE-28	NE	Alliance	NE/CO Line	Northport	NE/CO Line
6. Chicago, Burlington and Quincy	CO-5AB	CO	Brush	NE/CO Line	CO/NE Line	Sterling
7. Chicago, Burlington and Quincy	CO-5AB	CO	Brush	NE/CO Line	Union	Brush
8. Chicago, Burlington and Quincy	CO-1	CO	CO/NE Line	Denver	Brush	Denver
9. Chicago, Burlington and Quincy	CO-2	CO	Denver	Denver	Denver	Denver
10. Denver & Rio Grande	CO-1BCD	CO	Denver	Littleton	Denver	Littleton
11. Denver & Rio Grande	CO-2ABCD	CO	Littleton	Eden	Littleton	Eden
12. Denver & Rio Grande	CO-3	CO	Eden	Pueblo	Eden	Pueblo
13. Atchison Topeka & Santa Fe	CO-3	CO	Pueblo	La Junta	Pueblo	La Junta
14. Atchison Topeka & Santa Fe	CO-1	CO	La Junta	Kansas Line	La Junta	Las Animas
15. Dodge City & Cimarron Valley	CO-1A	CO	Las Animas	CO/OK Line	Las Animas	CO/OK Line
16. Elkhart and Santa Fe	OK-2A	OK	CO/OK Line	Boise City	CO/OK Line	Boise City
17. Elkhart and Santa Fe	OK-2	OK	Boise City	OK/TX Line	Boise City	OK/TX Line
18. North Plains and Santa Fe	TX-1	NM	OK/TX Line	Amarillo	OK/TX Line	Amarillo
19. Fort Worth and Denver	TX-3	TX	Amarillo	Childress	Amarillo	Childress
21. Fort Worth and Denver	TX-2	TX	Childress	Wichita Falls	Childress	Oklaunion
22. Colorado and Southern	CO-8	CO	Pueblo	Minnequa Jct	Pueblo	Minnequa Jct
23. Burlington Northern and Santa Fe	N/A	WY	N/A	N/A	Reno Jct.	Black Thunder Jct.
24. Burlington Northern and Santa Fe	N/A	WY	N/A	N/A	Campbell	Eagle Butte Jct

NA = Not Available

DISTRIBUTION OF ICC ENGINEERING REPORT EARTHWORK QUANTITIES BY TYPE OF MATERIAL

Valuation Section	QUANTITIES OF EARTHWORK (CUBIC YARDS)					PERCENT DISTRIBUTION OF EARTHWORK QUANTITIES BY TYPE OF MATERIAL				
	Common 1/	Loose Rock 2/	Solid Rock 3/	Borrow 4/	Total 5/	Common 6/	Loose Rock 7/	Solid Rock 8/	Borrow 9/	Total 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
CBQ-6AB-WY	3,297,849	555,676	317,929	8,043,078	12,214,532	27.00%	4.55%	2.60%	65.85%	100.00%
CBQ-1AB-SD	473,469	50,377	2,196	1,212,265	1,738,307	27.24%	2.90%	0.13%	69.74%	100.00%
CBQ-31-NE	3,126,706	138,435	889,847	6,275,732	10,430,720	29.98%	1.33%	8.53%	60.17%	100.00%
CBQ-28-NE	1,113,896	139,268	206,106	2,803,587	4,262,857	26.13%	3.27%	4.83%	65.77%	100.00%
CBQ-5AB-CO	359,230	3,847	11,540	889,371	1,263,988	28.42%	0.30%	0.91%	70.36%	100.00%
CBQ-1-CO	1,030,418	84,390	56,863	4,533,299	5,704,970	18.06%	1.48%	1.00%	79.46%	100.00%
CBQ-2-CO	204,867	0	0	897,305	1,102,172	18.59%	0.00%	0.00%	81.41%	100.00%
DRG-1BCD-CO	301,285	3,014	0	251,784	556,083	54.18%	0.54%	0.00%	45.28%	100.00%
DRG-2ABCD-CO	2,400,060	120,224	10,932	0	2,531,216	94.82%	4.75%	0.43%	0.00%	100.00%
DRG-3-CO	146,600	138,167	67,658	529,435	881,860	16.62%	15.67%	7.67%	60.04%	100.00%
ATSF-3-CO	170,082	0	25,097	1,010,387	1,205,566	14.11%	0.00%	2.08%	83.81%	100.00%
ATSF-1-CO	522,918	8,862	39,725	2,029,137	2,600,642	20.11%	0.34%	1.53%	78.02%	100.00%
DCCV-1A-CO	550,828	322,434	402,919	2,203,310	3,479,491	15.83%	9.27%	11.58%	63.32%	100.00%
ESF-2A-OK	133,119	21,782	246,780	817,731	1,219,412	10.92%	1.79%	20.24%	67.06%	100.00%
ESF-2-OK	76,759	5,510	95,375	454,277	631,921	12.15%	0.87%	15.09%	71.89%	100.00%
NPSF-1-TX	409,267	327,861	588,705	2,536,887	3,862,720	10.60%	8.49%	15.24%	65.68%	100.00%
FWD-3-TX	678,671	76,522	30,460	1,575,704	2,361,357	28.74%	3.24%	1.29%	66.73%	100.00%
FWD-2-TX	533,828	46,962	34,275	1,148,329	1,763,394	30.27%	2.66%	1.94%	65.12%	100.00%
CS-8-CO	87,078	45,319	43,393	1,408	177,198	49.14%	25.58%	24.49%	0.79%	100.00%

1/ Exhibit III-F-3, page 1 of 2, Column (7)
2/ Exhibit III-F-3, page 1 of 2, Column (8)
3/ Exhibit III-F-3, page 1 of 2, Column (9)
4/ Exhibit III-F-3, page 1 of 2, Column (13)
5/ Sum of Columns (2) through (5)
6/ Column (2) ÷ Column (6)
7/ Column (3) ÷ Column (6)
8/ Column (4) ÷ Column (6)
9/ Column (5) ÷ Column (6)
10/ Sum of Columns (7) through (10)

ICC ENGINEERING REPORT QUANTITIES
ADJUSTED TO REFLECT TEXAS & NORTHERN RAILROAD DESIGN SPECIFICATIONS

	ICC Engineering Report Data			Restated Adjusted Earthwork Quantities Per Mile (24' Roadbed) 4/			Restated Adjusted Earthwork Quantities Per Mile (28' Roadbed) 4/		
Valuation Section	Miles Main Line 1/	Total Earthwork Quantities (CY) 2/	Earthwork Per Main Line Mile (CY) 3/	Single Track (CY)	Double Track (CY)	Additional Track (CY) 5/	Single Track (CY)	Double Track (CY)	Additional Track (CY) 6/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CBQ-6AB-WY	236.908	12,214,532	51,558	63,096	86,460	23,364	69,327	92,691	23,364
CBQ-1AB-SD	48.959	1,738,307	35,505	43,853	61,806	17,953	48,641	66,594	17,953
CBQ-31-NE	191.146	10,430,720	54,569	67,445	91,632	24,187	73,895	98,082	24,187
CBQ-28-NE	86.866	4,262,857	49,074	61,181	84,005	22,824	67,268	90,092	22,824
CBQ-5AB-CO	39.233	1,263,988	32,217	39,721	56,379	16,659	44,163	60,822	16,659
CBQ-1-CO	169.130	5,704,970	33,731	41,992	59,774	17,781	46,734	64,515	17,781
CBQ-2-CO	9.113	1,102,172	120,945	129,054	169,309	40,255	139,789	180,044	40,255
DRG-1BCD-CO	12.644	556,083	43,980	34,166	48,193	14,028	37,907	51,934	14,028
DRG-2ABCD-CO	107.899	2,531,216	23,459	37,579	48,306	10,728	40,439	51,167	10,728
DRG-3-CO	12.329	881,860	71,527	57,789	79,467	21,677	63,570	85,247	21,677
ATSF-3-CO	56.224	1,205,566	21,442	25,676	37,854	12,178	28,924	41,102	12,178
ATSF-1-CO	85.744	2,600,642	30,330	35,129	50,591	15,462	39,252	54,715	15,462
DCCV-1A-CO	92.140	3,479,491	37,763	48,746	67,876	19,130	53,847	72,977	19,130
ESF-2A-OK	20.770	1,219,412	58,710	73,332	99,448	26,116	80,296	106,413	26,116
ESF-2-OK	21.077	631,921	29,982	38,838	55,233	16,395	43,210	59,605	16,395
NPSF-1-TX	100.483	3,862,720	38,442	48,598	67,806	19,208	53,720	72,928	19,208
FWD-3-TX	114.618	2,361,357	20,602	26,433	38,345	11,912	29,610	41,521	11,912
FWD-2-TX	106.442	1,763,394	16,567	21,069	30,901	9,833	23,691	33,524	9,833
CS-8-CO	5.436	177,198	32,597	49,377	62,989	13,612	53,007	66,619	13,612

1/ Exhibit III-F-3, page 1 of 1, column (4)
2/ Exhibit III-F-7, column (6)
3/ Column (3) ÷ Column (2)
4/ Reflects adjustment to ICC Engineering Report quantities to account for theTNR roadbed width requirements.
5/ Column (6) - Column (5)
6/ Column (9) - Column (8)

DEVELOPMENT OF THE EARTHWORK QUANTITIES FOR THE DONKEY CREEK TO SOUTH LOGAN PORTION OF THE TEXAS & NORTHERN RAILROAD

Item	Bill to Orin	Reno to Bill	Total
(1)	(2)	(3)	(4)
A. ORIN LINE QUANTITIES 1/			
1. Common Excavation	5,410,652	7,716,850	13,127,502
2. Special ditch excavation	20,314	116,038	136,352
B. DISTANCE 1/			
3. Beg. Engineering Station	461,414	230,021	
4. End. Engineering Station	649,014	461,500	
5. Total distance - feet	187,600	231,479	
6. Total distance - miles 2/	35.53	43.84	79.37
C. AMOUNT PER MILE - 28 FOOT ROADBED WIDTH			
7. Excavation			
a. Single track 3/			148,837
b. Double track 3/			181,964
8. Special ditch excavation 4/			1,718
9. Total Earthwork			
a. Single track 5/			150,555
b. Double track 6/			183,682
c. Additional track 7/			33,127

Footnotes on Page 2

DEVELOPMENT OF THE EARTHWORK QUANTITIES FOR THE DONKEY CREEK TO SOUTH LOGAN PORTION OF THE TEXAS & NORTHERN RAILROAD

Item	Bill to Orin	Reno to Bill	Total
(1)	(2)	(3)	(4)
D. AMOUNT PER MILE - 24 FOOT ROADBED WIDTH			
10. Excavation			
a. Single track 8/			140,018
b. Double track 8/			173,125
11. Special ditch excavation 4/			1,718
12. Total Earthwork			
a. Single track 9/			141,736
b. Double track 10/			174,843
c. Additional track 11/			33,107

1/ Verified Statement of Jerry R. Masters in ICC Docket No. 37029
Iowa Public Service Company v. Burlington Northern Railroad Company
and Chicago and North Western Transportation Company
dated February 28, 1985, Exhibit JRM-3A and Exhibit JRM-3B
2/ Line 5 ÷ 5,280 feet per mile
3/ Based on 28-foot roadbed and 50% single track and 50% double track.
4/ Line 2 ÷ Line 6
5/ Line 7a + Line 8
6/ Line 7b + Line 8
7/ Line 7b - Line 7a
8/ Based on 24-foot roadbed and 50% single track and 50% double track.
9/ Line 10a + Line 11
10/ Line 10b + Line 11
11/ Line 12b - Line 12a

Total Earthwork Quantities by Line Segment for the Texas & Northern Railroad

	Segment From (1)	Segment To (2)	Valuation Section (3)	Roadbed Width (4)	Adjusted Cubic Yards per Mile 1/ Single Track (5)	Adjusted Cubic Yards per Mile 1/ Additional Track (6)	Route Miles 2/ (7)	Additional Track 3/ (8)	Total Earthwork (CY) (9)
1.	Eagle Butte Jct	Campbell	Orin	24	141,736	33,107	10.25	3.15	1,557,081
2.	Campbell	Donkey Creek Jct	CBQ-6AB-WY	24	63,096	23,364	2.78	4.03	269,565
3.	Donkey Creek Jct	WY/SD Line	CBQ-6AB-WY	28	69,327	23,364	89.35	98.90	8,505,054
4.	WY/SD Line	SD/NE Line	CBQ-1AB-SD	28	48,641	17,953	48.87	50.19	3,278,131
5.	SD/NE Line	Alliance	CBQ-31-NE	28	73,895	24,187	85.70	106.32	8,904,361
6.	Alliance	NE/CO Line	CBQ-28-NE	24	61,181	22,824	86.88	21.51	5,806,373
7.	CO/NE Line	Sterling	CBQ-5AB-CO	24	39,721	16,659	27.84	6.62	1,216,102
8.	Union	Brush	CBQ-5AB-CO	24	39,721	16,659	11.34	1.82	480,750
9.	Brush	Denver	CBQ-1-CO	24	41,992	17,781	87.20	15.28	3,933,418
11.	Denver	Littleton	DRG-1BCD-CO	24	34,166	14,028	12.20	6.50	508,003
12.	Littleton	Eden	DRG-2ABCD-CO	24	37,579	10,728	95.70	11.48	3,719,422
13.	Eden	Pueblo	DRG-3-CO	24	57,789	21,677	12.37	0.22	719,624
14.	Pueblo	LaJunta	ATSF-3-CO	24	25,676	12,178	62.68	5.33	1,674,303
15.	LaJunta	Las Animas	ATSF-1-CO	24	35,129	15,462	21.25	5.12	825,655
16.	Las Animas	CO/OK Line	DCCV-1A-CO	24	48,746	19,130	92.14	7.17	4,628,585
17.	CO/OK Line	Boise City	ESF-2A-OK	24	73,332	26,116	20.77	0.83	1,544,783
18.	Boise City	OK/TX Line	ESF-2-OK	24	38,838	16,395	22.10	1.17	877,497
19.	OK/TX Line	Amarillo	NPSF-1-TX	24	48,598	19,208	99.55	12.21	5,072,427
20.	Amarillo	Childress	FWD-3-TX	24	26,433	11,912	112.42	14.21	3,140,873
21.	Childress	AEP Texas North	FWD-2-TX	24	21,069	9,833	64.08	10.19	1,450,269
22.	Donkey Creek Jct	Reno	Orin	28	150,555	33,127	44.90	44.83	8,245,003
23.	Reno	Converse Jct	Orin	28	150,555	33,127	23.20	6.33	3,702,570
24.	Converse Jct	South Logan	Orin	24	141,736	33,107	9.73	3.40	1,491,655
25.	Reno	Jacobs Jct	Orin	24	141,736	33,107	6.96	3.20	1,092,425
26.	South Park Jct	Arapahoe Power Plant	CBQ-2-CO	24	129,054	40,255	7.03	0.00	907,248
27.	Pueblo	Comanche Power Plan	CS-8-CO	24	49,377	13,612	3.94	0.00	194,546
28.	Amarillo	Harrington Power Plant	NPSF-1-TX	24	48,598	19,208	5.17	0.00	251,250
29.	Amarillo Connection		FWD-3-TX	24			0.99	0.00	117,037
30.	North Lead to North Rochelle		Orin	24	141,736	33,107	0.11	0.00	15,591
31.	North Lead to Antelope		Orin	24			1.04	0.00	365,097
32.	Total						1,168.54	440.01	74,494,698

1/ L.1,L.22-25,L.30-Exhibit III-F-9; L.2-21,26-28-Exhibit III-F-8, Columns (5) and (7) or Columns (8) and (10); L.29,L.31 - workpaper vol. 21 pages 10486-10532

2/ See electronic workpaper "TNR Miles.xls"

3/ Based on double track, passing sidings and set-out track locations and lengths shown in Exhibit III-B-1

4/ (Column (5) x Column (7)) + (Column (6) x Column (8))

EARTHWORK QUANTITIES FOR THE YARDS
OF THE TEXAS & NORTHERN RAILROAD

Item (1)	Track Feet 1/ (2)	Track Miles (3)	Cubic Yard Calculation (4)	Cubic Yards (5)
1. Yard Locations				
a. Alliance - (15 foot)	37,669	7.13	column (2) x 1' fill x 15' spacing /27	20,927
b. Alliance - (25 foot)	322,721	61.12	column (2) x 1' fill x 25' spacing /27	298,816
e. Las Animas - (25 foot)	28,237	5.35	column (2) x 1' fill x 25' spacing /27	26,145
2. Cubic yards of earthwork for all TNR yards	388,627	73.60	Sum of Lines 1a - 1c	345,888

1/ See electronic workpaper "Yardcomputations.xls"

DEVELOPMENT OF TOTAL EARTHWORK QUANTITIES AND COSTS
BY TYPE OF MATERIAL MOVED FOR THE TEXAS & NORTHERN RAILROAD

	Segment From (1)	Segment To (2)	Valuation Section (3)	Total Earthwork (CY) 1/ (4)	DISTRIBUTION PERCENT 2/ Common (5)	Loose Rock (6)	Solid Rock (7)	Borrow (8)	EARTHWORK QUANTITIES (CY) Common 3/ (9)	Loose Rock 4/ (10)	Solid Rock 5/ (11)	Borrow 6/ (12)
1.	Eagle Butte Jct	Campbell	Orin	1,557,081	100.00%	0.00%	0.00%	0.00%	1,557,081	0	0	0
2.	Campbell	Donkey Creek Jct	CBQ-6AB-WY	269,565	27.00%	4.55%	2.60%	65.85%	72,781	12,263	7,016	177,504
3.	Donkey Creek Jct	WY/SD Line	CBQ-6AB-WY	8,505,054	27.00%	4.55%	2.60%	65.85%	2,296,313	386,921	221,376	5,600,445
4.	WY/SD Line	SD/NE Line	CBQ-1AB-SD	3,278,131	27.24%	2.90%	0.13%	69.74%	892,876	95,002	4,141	2,286,111
5.	SD/NE Line	Alliance	CBQ-31-NE	8,904,361	29.98%	1.33%	8.53%	60.17%	2,669,166	118,177	759,633	5,357,385
6.	Alliance	NE/CO Line	CBQ-28-NE	5,806,373	26.13%	3.27%	4.83%	65.77%	1,517,221	189,695	280,734	3,818,723
7.	CO/NE Line	Sterling	CBQ-5AB-CO	1,216,102	28.42%	0.30%	0.91%	70.36%	345,621	3,701	11,103	855,677
8.	Union	Brush	CBQ-5AB-CO	480,750	28.42%	0.30%	0.91%	70.36%	136,631	1,463	4,389	338,267
9.	Brush	Denver	CBQ-1-CO	3,933,418	18.06%	1.48%	1.00%	79.46%	710,445	58,185	39,205	3,125,583
10.	Denver	Littleton	DRG-1BCD-CO	508,003	54.18%	0.54%	0.00%	45.28%	275,235	2,753	0	230,014
11.	Littleton	Eden	DRG-2ABCD-C	3,719,422	94.82%	4.75%	0.43%	0.00%	3,526,699	176,660	16,064	0
12.	Eden	Pueblo	DRG-3-CO	719,624	16.62%	15.67%	7.67%	60.04%	119,630	112,748	55,211	432,035
13.	Pueblo	LaJunta	ATSF-3-CO	1,674,303	14.11%	0.00%	2.08%	83.81%	236,212	0	34,855	1,403,236
14.	LaJunta	Las Animas	ATSF-1-CO	825,655	20.11%	0.34%	1.53%	78.02%	166,017	2,814	12,612	644,213
15.	Las Animas	CO/OK Line	DCCV-1A-CO	4,628,585	15.83%	9.27%	11.58%	63.32%	732,738	428,917	535,982	2,930,948
16.	CO/OK Line	Boise City	ESF-2A-OK	1,544,783	10.92%	1.79%	20.24%	67.06%	168,639	27,594	312,627	1,035,923
17.	Boise City	OK/TX Line	ESF-2-OK	877,497	12.15%	0.87%	15.09%	71.89%	106,589	7,651	132,439	630,817
18.	OK/TX Line	Amarillo	NPSF-1-TX	5,072,427	10.60%	8.49%	15.24%	65.68%	537,439	430,539	773,073	3,331,376
19.	Amarillo	Childress	FWD-3-TX	3,140,873	28.74%	3.24%	1.29%	66.73%	902,710	101,783	40,515	2,095,865
20.	Childress	AEP Texas North	FWD-2-TX	1,450,269	30.27%	2.66%	1.94%	65.12%	439,036	38,623	28,189	944,421
21.	Donkey Creek Jct	Reno	Orin	8,245,003	100.00%	0.00%	0.00%	0.00%	8,245,003	0	0	0
22.	Reno	Converse Jct	Orin	3,702,570	100.00%	0.00%	0.00%	0.00%	3,702,570	0	0	0
23.	Converse Jct	South Logan	Orin	1,491,655	100.00%	0.00%	0.00%	0.00%	1,491,655	0	0	0
24.	Reno	Jacobs Jct	Orin	1,092,425	100.00%	0.00%	0.00%	0.00%	1,092,425	0	0	0
25.	South Park Jct	Arapahoe Power Plant	CBQ-2-CO	907,248	18.59%	0.00%	0.00%	81.41%	168,635	0	0	738,613
26.	Pueblo	Comanche Power Plant	CS-8-CO	194,546	49.14%	25.58%	24.49%	0.79%	95,603	49,756	47,641	1,546
27.	Amarillo	Harrington Power Plant	NPSF-1-TX	251,250	10.60%	8.49%	15.24%	65.68%	26,621	21,326	38,292	165,011
28.	Amarillo Connection		FWD-3-TX	117,037	86.38%	9.74%	3.88%	0.00% 11/	101,100	11,399	4,538	0
29.	North Lead to North Rochelle		Orin	15,591	100.00%	0.00%	0.00%	0.00% 12/	15,591	0	0	0
30.	North Lead to Antelope		Orin	365,097	0.57%	0.00%	0.00%	99.43%	2,064	0	0	363,033
31.	Subtotal Line Segment Earthwork Quantities:			74,494,698					32,350,343	2,277,970	3,359,636	36,506,749
32.	Cubic yard of earthwork for Yards 7/			345,888								345,888
33.	Total Earthwork Quantities 8/			74,840,586					32,350,343	2,277,970	3,359,636	36,852,637
34.	Cost per cubic yard 9/			xxx					$3.42	$5.93	$7.97	$10.78
35.	Total Earthwork Costs 10/			$548,282,090					$110,691,986	$13,498,178	$26,769,921	$397,322,006

1/ Exhibit III-F-10, Column (9)
2/ Lines 1,21-24,29 - based on Masters; Lines 2-20,25-27 - Exhibit III-F-7, Columns (7) through (10)
3/ Column (4) x Column (5)
4/ Column (4) x Column (6)
5/ Column (4) x Column (7)
6/ Column (4) x Column (8)
7/ Exhibit III-F-11
8/ Line 31 + Line 32
9/ See electronic workpaper "TNR Earthwork Costs.xls"
10/ Column (9) through Column (12), Line 33 x Line 34; Column (4), sum of Column (9) through Column (12)
11/ Based on distribution of common, loose rock and solid rock for val. Section FWD-3-TX
12/ Based on distribution of common, loose rock and solid rock for Orin Line

DEVELOPMENT OF OTHER GRADING
REQUIREMENTS FOR THE TEXAS & NORTHERN RAILROAD

A.	**WATER FOR COMPACTION AND SOIL STABLILIZATION**		
1.	Gallons of Water for Compaction - Orin Line	1/	186,800,000
2.	CY of Excavation - Orin Line (70%)	1/	9,284,698
3.	Gallons per CY required for proper compaction	L.1/L.2	20
4.	CY of common excavation	Exhibit III-F-12	32,350,343
5.	Embankment portion	L.4 * 70%	22,645,240
6.	CY Borrow	Exhibit III-F-12	36,852,637
7.	Total CY needing compaction	L.5 + L.6	59,497,877
8.	Gallons of water required	L.7*L.3	1,189,957,549
9.	Cost per Gallon ($9.00 per MGAL/1000)	WYDOT	0.009
10.	Total Cost for Compaction and Soil Stabilization	L.8*L.9	$10,709,618
B.	**ROAD SURFACING FOR DETOURS**		
11.	Private Crossings - 10' x 300' each		
a.	Eagle Butte to E. Campbell		3
b.	Donkey Creek to South Logan		35
c.	Las Animas Jct. To Amarillo		81
d.	Total Private Crossings	sum L.11a-c	119
12.	Cubic yards per road	(10' *300' *0.5') / 27cf	55.56
13.	Cubic yards required for TNR		6,611.11
14.	Gravel, Bank Run, 6" Deep - 2Q2000	R.S. Means	$16.99
15.	Total Cost for Private Crossings	L.13 * L.14	$112,347
16.	Public Crossings - 24' x 500' each		
a.	Eagle Butte to E. Campbell		1
b.	Donkey Creek to South Logan		6
c.	Las Animas Jct. To Amarillo		104
d.	Destination Spurs Arapahoe and Harrington		5
e.	Total number of public crossings	sum L.16a-d	116
17.	Paved roads cost per road - 2Q2000	R.S. Means	$37,382.48
18.	Total Cost for Public Crossings	L.16e * L.17	$4,336,368
19.	Grand Total for Road Surfacing	L.15 + L.18	$4,448,715

DEVELOPMENT OF OTHER GRADING REQUIREMENTS FOR THE TEXAS & NORTHERN RAILROAD

C.	**RELOCATION OF UTILITIES**		
20.	Cost per Route Mile from West Texas Utilities (1994)	5/	$4,635
21.	Indexed to 2Q2000	6/	$5,282
22.	Route Miles	Exhibit III-F-5 2/,3/,4/	343.9
23.	Total Cost for Relocation of Utilities	L.21 * L.22	$1,816,571
D.	**PLACING TOPSOIL**		
24.	Cubic Yards of Topsoil (Orin Line)	1/	654,373
25.	Route Miles (Bill to Orin and Reno to Bill)	1/	79.4
26.	Average Cubic Yards per Route Mile	L.24/L.25	8,245
27.	Route Miles	Exhibit III-F-5 2/	97.2
28.	Route Miles Remaining Right-of-way	1,168.54-L.27	1,071.4
29.	Percentage of right-of-way seeded from Engineering Reports	TNR Grading.xls	0.004%
30.	Route Miles Seeded	L.28*L.29	0.05
31.	Topsoil required for TNR	L.26 * (L.27+L.30)	801,604
32.	Total Cost for Topsoil for the Orin Line	1/	$433,191
33.	1978 Unit Cost	L.32/L.24	$0.66
34.	Index to 2Q00	7/	2.8140
35.	Unit Cost for placing Topsoil 2Q00	L.33*L.34	$1.86
36.	Total Cost for Topsoil Placement	L.31*L.35	$1,493,266
E.	**ENVIRONMENTAL COMPLIANCE**		
37.	Route Miles	Exhibit III-F-5 2/	97.2
38.	Cost for Environmental Miltigation for Orin Line Portion	8/	$1,500,000
39.	Miles from Caballo Jct. to S. Morrill	9/	219.1
40.	Cost per Mile (1997)	L.38./L.39	$6,846
41.	Index to 2Q00	10/	1.0542
42.	Total Cost per Mile	L.40*L.41	$7,217
43.	Total Cost for Environmental Compliance	L.37*L.42	$701,344

DEVELOPMENT OF OTHER GRADING REQUIREMENTS FOR THE TEXAS & NORTHERN RAILROAD

F. ADDITIONAL LAND FOR WASTE QUANTITIES

44.	Total Earthwork Quantities	Exhibit III-F-12	37,987,949
45.	Waste Quantities	L.44 * 30%	11,396,385
46.	Square yards per acre	43,560/9	4,840
47.	Depth - 15'	15/3	5
48.	Cubic Yards of waste per acre	L.46*L.47	24,200
49.	Total acres needed for Waste	L.45/L.48	470.9
50.	Cost per acre	TNR land valuation	$300.00
51.	Total for Waste Excavation	L.49*L.50	$141,277.50

1/ V. S. of Jerry R. Masters in ICC Docket No. 37029 - Exh. JRM-3A and JRM-3B. See Workpaper Vol. 20, pages 10420 through 10428.
2/ Route miles for Eagle Butte Jct. to Campbell, Donkey Creek to Converse Yard, Reno Jct. to Jacobs Jct and new connection at Amarillo 97.18
3/ Route miles for destination spurs to Arapahoe and Harrington Plants 12.20
4/ Route miles from Las Animas, CO to Amarillo, TX 234.56
5/ STB Docket No. 41191, Decision dated April 25, 1996. See Workpaper Vol. 21 pages 10610 through 10612.
6/ AAR Western Region materials, prices, wage rates, and supplements combined, (excluding fuel) for 1994 and 2Q2000, 268.2 and 305.6, respectively.
7/ AAR Western Region Materials prices, wage rates and supplements combined (excl. fuel) for 1978 and 2Q2000, 108.6 and 305.6, respectively.
8/ 1997 cost per route mile from STB's Docket No. 42022, Decision dated May 10, 2000, See Workpaper Vol. 21, pages 10613 through 10615.
9/ PCRail v.8
10/ AAR Western Region Materials prices, wage rates and supplements combined (excl. fuel) for 1997 and 2Q2000, 289.9 and 305.6, respectively.

III-G Discounted Cash Flow Analysis

Exhibit III-G-1

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ANALYSES OF INDEXING PROCEDURES FOR SARR COAL TRANSPORTATION RATES AND SARR OPERATING EXPENSES

At the request of AEP Texas North Company ("AEP Texas"), W. W. Whitehurst & Associates, Inc. has reviewed recent Surface Transportation Board ("STB" or "Board") Decisions in Stand Alone Cost ("SAC") coal rate proceedings to identify the procedures that the Board has selected to index the coal transportation rates and operating expenses of Stand-Alone Railroads ("SARR") over the years in which these railroads would operate. We have analyzed the various indexing approaches that have been suggested and/or used in these proceedings to determine the extent of logical consistency from one approach to another. Based on this review and these analyses, we have developed an alternative approach to indexing SARR rates and operating expenses for future periods that better conforms to the economics of how rational railroads would adjust their rates in response to changes in their costs of operations.

In the following sections of this paper, we address:

¶ The conceptual challenges the STB has faced in selecting indexing procedures to apply in individual proceedings.

¶ The derivation of the Energy Information Administration ("EIA") coal transportation rate index model.

¶ The relationship of productivity improvements reflected in the EIA coal transportation rate index model to the productivity adjustment factor used in the STB's RCAF-A.

¶ Variations in productivity improvements among Class I U.S. railroads over time.

¶ An approach to indexing that provides economic consistency between rates and costs.

CONCEPTUAL CHALLENGES IN SELECTING INDEXING PROCEDURES

Over the past several years, railroads and shippers submitting evidence in SAC proceedings have refined their respective positions on the indexing of transportation rates and operating expenses for SARR forecast years. In response, relevant STB Decisions reflect an evolution of the Board's thinking on how to deal with and find reasonable ground on the issues embedded in proposed indexing procedures. The root question the STB has had to consider is how railroad productivity improvements affect SARR costs and flow though to the rail transportation rates the SARR would receive over the 20-year study period.

To improve our understanding of the alternatives the STB has faced and how it has dealt with them, we have reviewed six of the most recent decisions in SAC proceedings that deal with indexing issues.

At the risk of over-simplification, and with the limitations to which an external observer is subject, our understanding of the STB's positions on indexing as may be summarized as follows:

Generally: (a) if the parties to a proceeding agree on the indexing procedure to use, the STB will accept the agreed position of the parties; (b) more specific evidence is generally preferred over more general evidence; (c) evidence prepared in the ordinary course of business is generally preferred over evidence developed in a "for litigation purposes" context; and (d) evidence obtained from an official or otherwise neutral source is generally regarded as the most reliable evidence.

For indexing of revenue rates: the STB tends to rely on data generated by the U.S. Department of Energy's Energy Information Administration (EIA) as its preferred source. As stated in Carolina Power & Light Company (CP&L) v. NS: ". . . the Board has a preference for coal tonnage and coal rate forecasts developed by the Energy Information Administration (EIA), a statistical arm of the Department of Energy charged with providing policy-neutral data and forecasts." (CP&L Decision, p. 14).

For indexing of operating expenses: the matter is much less settled.The principal issue that has been the focus of the Board's attention is whether and to what extent the RCAF-U (or alternatively RCAF-A) -- historic indexes of input prices and output costs for the entire rail industry – should apply to a new, efficient SARR. More particularly:

-Do differences in average age of assets between a SARR and the railroad industry generally affect the extent to which future changes in costs should

reflect available improvements in productivity?
-To what extent do differences in operations between a SARR and the railroad industry affect the extent to which future changes in costs should reflect continued improvements in productivity?

The question of how best to forecast SARR revenue rates and costs also has an aspect that has not been addressed in the recent STB decisions. That aspect is the interrelationship between: (a) productivity improvements as translated into future changes in SARR coal transportation rates, versus (b) the impact of productivity improvements on operating expenses as experienced by the SARR over future time periods. Stated simply, as a rational economic entity, the SARR should not be expected to set the rates it charges for rail transportation in future time periods at levels below those needed to cover the SARR's costs of doing business. If the SARR experiences no cost-reducing improvements in productivity of operations over time but nevertheless establishes rates *as if* it has realized those productivity gains, eventually it will have to go out of business because it will not be covering its costs.

In the next section of this report, we describe the workings of the EIA coal transportation rate index model. As will be shown in that discussion, the EIA coal transportation rate formulation incorporates factors that reflect improvements in rail coal transportation productivity. Because of the Board's stated preference for coal rate forecasts developed by the EIA, this fact has significant consequences when one turns to consideration of how the SARR's operating expenses should be assumed to change over future time periods.

THE EIA COAL TRANSPORTATION RATE INDEX

At the beginning of each year, the EIA publishes its Annual Energy Outlook. These Annual Energy Outlooks, which present midterm forecasts of energy supply, demand, and prices, include projections 20+ years into the future. For example, the Annual Energy Outlook 2003 ("AEO2003") contains projections through 2025.

Coal production and prices are an important topic in the EIA Annual Energy Outlooks, and coal transportation rates are featured as a key factor for coal markets. An excellent introduction to how coal transportation rate trends are developed for use in Annual Energy Outlook forecasts is presented in a 1997 paper by Jim Watkins of EIA, entitled "Forecasting *Annual Energy Outlook* Coal Transportation Rates." This paper, which was published by the EIA in Issues in Midterm Analysis and Forecasting - 1997, is reproduced as Exhibit III-G-2.

As stated in the Watkins paper at p. 75:

> "The National Energy Modeling System (NEMS) explicitly incorporates coal transportation rate trends in the development of coal forecasts and analyses. The Coal Distribution Submodule (CDS), a component of the NEMS Coal Market Module, is used to simulate the transportation and distribution of coal. . . ."
>
> "Initial transportation rates in the CDS are represented at the interregional level of detail and represent the difference between coal minemouth prices and delivered prices for a particular year that is chosen as the base year. The base-year rates on the CDS network are indexed over time for each year in the forecast. Indexing factors are applied to the base-year coal transportation rates in order to capture future changes in real coal transportation rates relative to general inflation."

The EIA indexing factors for coal transportation rates are developed based on a statistical regression model of historical data that relates: (a) national average changes in prices received by railroad companies for the transport of coal (the dependent variable) to (b) changes in railroad input costs found to significantly affect the cost of producing rail transportation services, and the time trend of changes in railroad productivity for coal transportation (the independent variables). The EIA methodology then assumes that these historical relationships will continue in the future during the forecast horizon of the Annual Energy Outlook. As stated in the Watkins paper at p. 76:

> "The methodology assumes that the statistical relationship between the PPI [Producer Price Index] for coal transportation and railroad productivity gains will continue over the forecast horizon. Absent any improvement in productivity, the methodology assumes that increases in the prices of railroad transportation inputs will raise the price that shippers pay to transport coal and, conversely, that improvements in railroad productivity will reduce the price of transportation services."

EIA STATISTICAL REGRESSION
MODEL BASED ON HISTORICAL DATA

The structure of the EIA statistical regression model, and the resulting relationships derived, is a function of the time period analyzed, the dependent variable being estimated, the independent variables chosen, and the form of the regression equation.

Time Period: In the 1997 Watkins paper, historical data for the years 1978 through 1995 are used to develop the statistical regression model relationships. In the Annual Energy Outlook for 2003, the time period was extended forward through 1998.

Dependent Variable: The dependent variable (INDEXFACTOR) is the Producer Price Index ("PPI") series for railroads, line-haul operating, transportation of coal.

Independent Variables: The independent variables are: (1) railroad labor cost (WAGE); (2) fuel cost (PFUEL); (3) transportation equipment cost (PEQUIP); and (4) a factor that reflects the time trend of increases in railroad productivity (TREND).

Form of Regression Equation: The EIA model uses a log-linear function form.

The EIA equation, variables, and estimated coefficients derived by regression of historical data are shown in Table 1 below.

Table 1

Regression Equation and Coefficients Derived by EIA
Based on Data for Historical Periods.

$$INDEXFACTOR = e^{x} * WAGE_t^{\beta_0} * PFUEL_t^{\beta_1} * PEQUIP_t^{\beta_2} * e^{y},$$

where:

$x = A$

A = the coefficient (or intercept) of INDEXFACTOR

β_0 = elasticity of INDEXFACTOR relative to WAGE

β_1 = elasticity of INDEXFACTOR relative to PFUEL

β_2 = elasticity of INDEXFACTOR relative to PEQUIP

$y = \beta_3 * TREND$

β_3 = the coefficient of TREND

t = trend year

e = the base of natural logarithms

INDEXFACTOR = the value of the price index (i.e., the average price that shippers pay to transport coal) in historical year *t*, which is the producer price index (PPI) for coal transportation divided by the chain-weighted implicit gross domestic product (GDP) deflator.

WAGE = the real wage cost index (i.e., average cost of labor in the railroad industry) in historical year *t*.

PFUEL = the real price of distillate fuel in dollars per million British thermal units (Btu) to the industrial sector (i.e., the average price of fuel paid by the railroad industry) in historical year *t*.

PEQUIP = the average price of railroad equipment in historical year *t*, which is the producer price index (PPI) for transportation equipment divided by the chain-weighted implicit GDP deflator.

TREND = the year *t* and a proxy for productivity, given the stable increase in productivity and the high correlation between time and productivity.

The dependent variable being estimated in the EIA coal transportation rate index equation is rail rates for the transportation of coal. Therefore, the factor in the EIA equation that reflects changes in railroad productivity over time is measuring the portion of railroad productivity improvements that are being passed through to shippers of coal in the form of lower rates than otherwise would be expected based solely on changes in railroad input costs. This EIA productivity factor represents rail rate experience from a few years before the Staggers Rail Act through the present. In the Annual Energy Outlook for 2003, 21 years are included. The annual increase in productivity as estimated in the EIA regression and reflected in the value for β_3, the coefficient of year, for this time period is approximately two (2) percent.

In the Annual Energy Outlook for 2003, the historical regression period covered 1978 - 1998. For this period, EIA determined the value of β_3 to be (-)0.0215 (that is, negative 2.15%, where the negative sign reflects the fact that, when all other input variables are accounted for, productivity gains in the railroad industry reduce the price of shipping coal).

Given the presence of an annual productivity improvement factor in the EIA coal transportation rate index, a next logical step is to examine how this measure of productivity improvement compares to the ICC/STB productivity improvement factor used in converting from the Rail Cost Adjustment Factor that does not take into account changes in railroad productivity ("RCAF-U"), to the Rail Cost Adjustment Factor that does take into account changes in railroad productivity ("RCAF-A").

RELATIONSHIP OF PRODUCTIVITY IMPROVEMENTS IN THE EIA INDEX TO ICC/STB PRODUCTIVITY IMPROVEMENTS

Each year the STB publishes a decision in STB Ex Parte No. 290 (Sub-No. 4) Railroad Cost Recovery Procedures - Productivity Adjustment ("X290 sub 4"). In each of these annual decisions, the STB computes the average change in railroad productivity for the most recent available 5-year period. This measure of productivity, which is computed as a 5-year moving geometric average, then becomes the productivity adjustment factor used in converting from RCAF-U to RCAF-A.

The ICC/STB and EIA average annual productivity improvement computations cover different years and time periods. To make comparisons between these two

productivity estimates more meaningful, we have recalculated each of them so that they both reflect the same years and time period.

The ICC first computed productivity changes using data from 1981 through 1987, which produced 6 year-to-year changes. The annual X290 sub 4 decision served January 12, 2004 uses data from 1997 through 2002. In the time period since the first decision, the ICC/STB has made several refinements in its computational procedures. Exhibit III-G-3 shows the average annual change in railroad productivity for the entire period 1981 through 2002. As part of these calculations, we have carried back to earlier years any refinements in data the ICC/STB has used in its computational procedures.

As noted above, the historical regression period used in the EIA Annual Energy Outlook for 2003 covered the years 1978 through 1998. Input data used in the EIA statistical regressions are now available for years through 2002. Accordingly, we have applied an Excel statistical regression data analysis function that generates the same calculations and output as those produced by the EIA to EIA inputs for the period 1981 through 2002. By making these calculations, which are shown in Exhibit III-G-4, we have produced an EIA average annual productivity improvement factor that covers the same time period as we developed for the ICC/STB immediately above.

The ICC/STB average annual productivity improvement factor for the period 1981 through 2002 is 4.2% (as calculated in Exhibit III-G-3). The EIA average annual productivity improvement for the period 1981 through 2002 is approximately 2.4% (as calculated in Exhibit III-G-4). So the EIA estimate is slightly more than half as large as the ICC/STB estimate (2.4/4.2 = 0.57). This relationship is explained (at least in part) by the difference in what these two formulations are measuring. The ICC/STB estimate is measuring improvements in railroad industry productivity generally, while the EIA estimate is measuring those improvements that are being passed through to shippers of coal in the form of lower rates than would be expected based solely on changes in railroad input costs. It is not illogical to find that the railroads do not pass all of their productivity improvements through to their customers in the rate structure.

VARIATIONS IN PRODUCTIVITY IMPROVEMENTS AMONG RAILROADS OVER TIME

The portions of STB decisions in recent SAC coal rate proceedings that deal with indexing SARR operating expenses for future years contain statements noting that the alternatives presented by the parties were limited to RCAF-A or RCAF-U. These STB decisions state further that the record does not provide an alternative approach that would better reflect the likely expected experience of a coal-dominated SARR.

As noted earlier in this paper, prior STB rulings have asserted a need to take into account differences in average age of assets between a SARR and the railroad industry generally in determining the pace at which a SARR could implement further productivity improvements. For example, in Duke v. NS, at pp 36-37, the STB observed: "NS reasons that, because the ACC would be a new railroad, it would incorporate the latest technology and the efficiencies associated with those technologies, leaving less room for productivity improvements than there is for incumbent railroads, which make such changes incrementally as their older technology assets wear out. NS's points are well taken."

The STB also has raised the issue of how to take into account the consequences of differences in operations between a SARR and the railroad industry generally, in determining the extent to which productivity improvements for the railroad industry generally would also apply to the SARR. This was exemplified in the TMPA v. BNSF decision at p. 161, where the STB noted that the SARR, unlike BNSF and other railroads, would only handle coal trains, and found it "unrealistic to assume that projected industry-wide productivity adjustments would result primarily from the transportation of coal."

In this section of our paper, we demonstrate that to focus too keenly on the age of a railroad's assets is to miss the true basis on which carriers–be it a SARR or a Class I railroad–make decisions regarding replacements and upgrades. Likewise, we show that differences in railroad commodity and operations mixes should not affect the selection of an operating cost index that properly reflects available productivity improvements.

DIFFERENCES IN AVERAGE AGE OF ASSETS: RAILROAD INDUSTRY GENERALLY VS. SARR

The ICC/STB productivity adjustment factor and RCAF-A index are based on the railroad industry generally as represented by the Class I U.S. railroads. Using the Annual Reports (Form R-1) of this group of railroads, the life of assets and average remaining life of these assets for the constituent railroads of the PAF and RCAF-A can be calculated directly. The computations, which utilize data contained in Schedules 332 and 335 of the R-1, are presented on Exhibit III-G-6. As of 2002, the life of railroad assets was approximately 29 years and the average remaining life was approximately 22 years. Stated differently, the average age of railroad assets in 2002 was approximately seven (7) years. As a threshold matter, therefore, it seems clear that there is not such a disparity between average ages of assets--particularly coal-related assets, which tend to

be among the most modernized--to justify ignoring productivity gains by a SARR while fully recognizing them for a Class I railroad.

More important, however, is the principle that a railroad's decision whether to replace a particular asset in order to take advantage of available productivity gains will be based on the overall economic benefit to be derived from the action, not the age of the asset being replaced. Put another way, a rational entity would not forego a productivity-enhancing asset replacement solely because the asset being replaced has not reached the end of its accounting life. If a railroad has the opportunity to replace a seven year-old locomotive with a newer and more efficient unit that will bring a net improvement to the firm's overall economic performance, we expect that it would do so and either sell, salvage, or find an alternate use for the replaced unit (which still could have 20+ years of life left), depending upon the option that produces the highest return.

That a SARR starts operations with new assets is not a justification to assume that it would not behave like its Class I counterparts; that is, take advantage of available opportunities to realize productivity gains through technology improvements and/or asset replacements, irrespective of whether the assets being replaced were worn out or obsolete.

OPERATIONAL DIVERSITY AMONG U.S. RAILROADS

To address the STB's view that differences in commodity focus and operations between a coal-dominated SARR and Class I railroads has a determinative effect on the realization of productivity improvements, we start with the fact that the PAF is a composite measure that reflects all the Class I U.S. railroads. This composite measure is the blended result of combining data for each of the individual Class I U.S. railroads, and then assuming that the composite result can be applied to each of the constituent railroads individually. If the individual railroads, which have varying patterns of commodity mixes and operations, also have productivity improvement experiences that fluctuate or range noticeably above and below the composite value over time, it would not be unreasonable to apply to the SARR the same productivity indicator that the STB uses with BNSF and the other major coal-hauling railroads.

To examine this proposition, we developed a method of estimating productivity improvement performance by individual railroad, and changes in that performance over time. We first recall how the ICC/STB computes the rate of productivity change for the railroad industry. Paraphrasing closely the text in the Appendix to annual X290 sub 4 decisions:

The annual rate of productivity change is calculated by dividing an output index by an input index.

The input index (which uses constant dollar adjusted expenses) consists of freight expenses, fixed charges, and contingent interest - each of which is obtained from railroad Annual Report (Form R-1) data. The input index value for each year is calculated by dividing that year's constant dollar total expense by the prior year's constant dollar total expense.

The output index is developed from the costed waybill sample. Using the costed waybill sample as a base, each movement is assigned to one of the 189 segments or categories used to develop the output index. Segmentation is based on: (a) three mileage blocks; (b) seven car types; (c) three weight brackets; and (d) three shipment sizes. The output index is a composite of the year-to-year change in ton-miles for each of the 189 segments (3 * 7 * 3 * 3) weighted by each segment's base-year share of total revenues.

Input Index

Replicating the input index portion of the annual rate of productivity change at the individual railroad level is straight-forward, as all of the inputs come from the railroad Annual Report (Form R-1), which is publicly available.

Output Index

Replicating the output index portion of the annual rate of productivity change is more of a challenge, because costed waybill sample data are not publicly available at the level of detail needed for segmentation. To solve this part of the equation using publicly available data, we have computed a 1st-order-approximation using changes in revenue ton-miles as the proxy for the output index. Revenue ton-mile data by railroad are included in Schedule 755 of the Annual Report (Form R-1), and hence are publicly available.

To evaluate the reasonableness of this output index approximation, we have compared it to the output index published in the ICC/STB annual X290 sub 4 determinations for the years 1981 through 2002. This comparison is presented in Exhibit III-G-7. The year-by-year comparisons shown on Exhibit III-G-7 may be characterized as follows:

(1) On average, the 1st-order-approximation output index exceeds the STB output index by 9/10ths of a percentage point.

(2) This average relationship is replicated on a consistent basis in the year-by-year pattern of comparisons; that is, the 1st-order-approximation output index is less than the STB output index in only 5 of 21 instances.
(3) In only two of the year-by-year comparisons is the difference between the 1st-order-approximation output index and the STB output index greater than two percentage points.

From these relative characteristics, one would expect that the annual rate of productivity change produced when using the 1st-order-approximation output index (divided by an input index derived from the same R-1 source used by the STB) would be approximately one percentage point higher than when the STB output index is used. For purposes of comparing rates of productivity change among railroads over time, this is a satisfactory result - - because the rates are being examined relative to each other and relative to an average constructed on the same basis, rather than in absolute terms.

Differences in Operating Characteristics
from Railroad to Railroad

The range of operating characteristics of the individual railroads that make up the overall composite for which the ICC/STB computes productivity changes can be demonstrated by considering the segmentation parameters used in the ICC/STB output index. The four ICC/STB output index segmentation categories, our proxy for each from publicly available data for 2002, the composite value for all Class I U.S. Railroads, and the range of values about this composite value for individual railroads, are shown on Table 2. (Sources and computations are listed on Exhibit III-G-8.)

Exhibit III-G-1

Table 2

STB Costed Waybill Sample Output Index
Movement Characteristics for Individual Class I U.S. Railroads
Year 2002

Line No.	Segmentation Measure and Proxy (1)	Composite All Class I U.S. Railroads (2)	Individual Railroad Highest (3)		Individual Railroad Lowest (4)		Ratio Highest to Lowest (5) (3) / (4)
	Mileage Blocks						
1	Average Haul (miles)	858	982	BNSF	304	GTW	3.2
	Freight Car Types						
	% of total Loaded Car-Miles						
2	Box, Refrig, & All Other	15.6%	26.6%	GTW	11.6%	UP	2.3
3	Gondola	12.7%	16.0%	NS	3.7%	KCS	4.3
4	Open Hopper	10.8%	14.8%	CSXT	2.7%	KCS	5.6
5	Covered Hopper	17.8%	30.6%	SOO	12.8%	NS	2.4
6	Flat, except TOFC	13.6%	25.2%	SOO	5.7%	KCS	4.4
7	Tank	8.2%	18.0%	KCS	0.8%	SOO	22.8
8	Flat - TOFC/COFC	21.3%	28.9%	BNSF	13.6%	GTW	2.1
9	Total	100.0%					
	Lading Weight Brackets						
10	Average Lading (tons)	93.7	132.7	BNSF	77.0	CSXT	1.7
	Shipment Size						
	Cars per train by train type						
11	Unit	105.2	112.7	UP	85.4	CSXT	1.3
12	Through	62.5	87.5	GTW	46.6	BNSF	1.9
13	Way	27.1	39.1	KCS	21.4	BNSF	1.8

As Table 2 demonstrates, the range of operating characteristics among individual Class I U.S. railroads is wide. With this broad range of operating characteristics as

context, we examine what influence (if any) differences in operating characteristics appear to have on changes in productivity over time.

Relative Productivity Improvement
Rates of Individual Railroads

Using Annual Report R-1 data for each of the years 1981 through 2002, we have computed: an input index; a 1st-order approximation output index; and an annual rate of productivity change estimate for each Class I U.S. railroad. These annual rates of productivity change computations are for 1982 vs. 1981, 1983 vs. 1982, and so on up to 2002 vs. 2001. To incorporate the same sort of multi-year smoothing that the ICC/STB uses in its annual X290 sub 4 decisions, we have computed the 5-year moving average change in productivity for each railroad for 1986 (based on 1981 - 1986 data) through 2002 (based on 1997 - 2002 data).

The resulting patterns of productivity change are presented graphically on Exhibit III-G-9. Page one of this Exhibit shows the maximum, minimum, and average performance for each 5-year period, while page two shows productivity change results for each individual railroad. (Numerical data used to construct Exhibit III-G-9 are set forth in Exhibit III-G-10.)

Exhibit III-G-10 shows that the 5-year average productivity change experience of individual railroads has varied over time from the overall average by about 10 percentage points on the low side and over 20 percentage points on the high side. Further, the productivity change performance of each individual railroad fluctuates from time period to time period, with each railroad spending some time in above-average territory and some time in below-average territory. These results demonstrate that the composite productivity change factors that the ICC/STB calculates for the Class I U.S. railroads as a whole in its annual X290 sub 4 decisions blend together differing individual railroad productivity experiences in addition to differing operating characteristics.

Keeping in mind the fact that these railroad industry-wide productivity change factors are then used to convert from RCAF-U to RCAF-A, and that the RCAF-A indexes are applied to individual railroads whose productivity experience will vary from the industry average from time period to time period, it is not unreasonable to apply a single productivity measure (the EIA factor advocated herein) to the operating expense indexing mechanism for coal-dominant SARRs.

Commonality of Operations
from Railroad to Railroad .

Another approach to resolution of any concerns over the impact of differences in operations between a SARR and railroads generally is to consider the major functions that make up railroad operations. On this basis, the similarities strongly outweigh the differences.

Railroad operations and operating expenses are most frequently categorized functionally as: Way and Structures; Equipment (further separated between locomotive, freight car, and other); Transportation (further separated between train operations, yard operations, specialized service operations, and administrative support operations); and General and Administrative. To focus attention on the functional components of railroad operations that are the biggest operating expense drivers, Table 3 displays 2002 freight operating expenses by principal functional activity for all Class I U.S. railroads combined.

Exhibit III-G-1

Table 3

Distribution of Freight Operating Expenses by Functional Activity
For U.S. Class I Railroads Combined
2002

Line No.	Functional Activity (1)	Operating Expenses Including Depreciation Amount (2)	% of Total (3)	Operating Expenses Excluding Depreciation Amount (4)	% of Total (5)
1	Way & Structures	$ 5,477,367	19%	$ 3,212,178	12%
	Equipment				
2	Locomotive	2,842,947	10%	2,308,780	9%
3	Freight Car	3,570,546	12%	3,207,748	12%
4	Other Equipment	722,507	2%	535,806	2%
5	Total Equipment	7,136,000	24%	6,052,334	23%
	Transportation				
6	Train Oper excl Fuel	6,354,524	22%	6,354,524	24%
7	Yard Oper excl Fuel	1,993,803	7%	1,993,803	8%
8	Fuel	2,743,260	9%	2,743,260	11%
9	All Other Transportation	1,912,545	6%	1,912,545	7%
10	Total Transportation	13,004,132	44%	13,004,132	50%
11	General & Administrative	3,863,102	13%	3,863,102	15%
12	Grand Total	$29,480,601	100%	$26,131,746	100%

Source: Analysis of Class I Railroads 2002, published by Association of American Railroads, Freight Service Expense, pages 11-13.

Total amounts (including depreciation) are shown in column (2) of Table 3. To take out the annualized impact of asset costs on operating expenses, column (4) shows operating expenses excluding depreciation by principal functional activity. Column (5) states the amounts in column (4) as a percent of total (excluding depreciation).

Over 80% of total operating expenses (excluding depreciation) are accounted for by the six largest amounts in column (4). Therefore, reviewing briefly the operational activities these six amounts reflect should provide a reasonable way of assessing the extent to which these activities would be common to railroads generally, including a SARR.

The functional activities represented are: Way & Structures (12%); Locomotive (9%); Freight Car (12%); Train Operations (excl. fuel) (24%); Fuel (Train and Yard) (11%); and General & Administrative (15%).

Way & Structures - With capital expenditures for replacements, additions, and betterments out of the picture, way & structures operating expenses reflect such activities as: Federal Railroad Administration ("FRA") inspections; maintenance of the right-of-way (weed & brush control, clearing drains and ditches, etc.); routine repairs; storm and wreck work; rail grinding; ultrasonic rail testing; and track geometry testing. Each of these activities would be performed by Class I U.S. railroads generally, as well as by a SARR.

Locomotive - With capital expenditures for replacements, additions, and betterments out of the picture, locomotive operating expenses reflect such activities as: FRA required inspections and tests (daily, 92-day, annual, biennial); and repairs and maintenance. Each of these activities would be performed by Class I U.S. railroads generally, as well as by a SARR. To the extent that the SARR locomotive fleet is newer and has lower maintenance requirements, this difference vis-à-vis Class I U.S. railroads generally will narrow as the SARR fleet ages and as Class I U.S. railroads upgrade their fleets.

Freight Car - With capital expenditures for replacements, additions, and betterments out of the picture, freight car operating expenses reflect such activities as: FRA inspections; and repairs and maintenance. Each of these activities would be performed by Class I U.S. railroads generally, as well as by a SARR in those circumstances where the SARR provides the cars for a particular movement.

Train Operations (excl. fuel) - Train operations operating expenses reflect such activities as: train & engine crews; dispatching trains; train inspection & lubrication; and servicing locomotives. Each of these activities would be performed by Class I U.S. railroads generally, as well as by a SARR.

Fuel - Fuel costs for train and yard operations are a function of: the cost per gallon; consumption rates by locomotive type (which in turn are partly a function of trailing

weight); and the terrain over which trains operate. The cost per gallon would not be different for a SARR than for Class I U.S. railroads operating in the same geographic area. The terrain over which the SARR operates generally replicates a portion of the system of one or more Class I U.S. railroads. To the extent that the SARR locomotive fleet is newer and is more efficient in terms of fuel consumption rates, this difference vis-à-vis Class I U.S. railroads generally will narrow as the SARR fleet ages and as Class I U.S. railroads upgrade their fleets.

General & Administrative - General and administrative operating expenses reflect such activities as: general administrative officers; accounting, auditing & finance; management services and data processing (IT); and marketing & sales. Each of these activities would be performed by Class I U.S. railroads generally, as well as by a SARR.

Similar commonalities of operations (with the exception of specialized services performed by some railroads but not others) flow through the remaining functional areas of railroad operations.

From these comparisons, we can reasonably conclude that, the operations of a SARR and the operations of Class I U.S. railroads generally exhibit strong similarities, such that it is reasonable to assume that opportunities for productivity improvements available to Class I railroads likewise would be available to a SARR.

AN ALTERNATIVE APPROACH TO INDEXING OPERATING EXPENSES

Previous sections of this paper have explored:
(a) the structure of the EIA rail transportation rate index for coal and the role of productivity improvements in that index;
(b) the relationship of productivity improvements reflected in the EIA rail transportation rate index for coal to the productivity adjustment factor computed by the STB; and
(c) differences among individual Class I U.S. railroads in operating characteristics and in rates of change in productivity over time.

We have also pointed out that there is not always a valid correlation between an asset's remaining accounting life and a railroad's decision to replace it with a more efficient and cost-effective asset.

Based on our findings in each of these areas, we have developed an approach to

use in setting the assumed rate of productivity change to be incorporated in indexes of SARR operating expenses for future time periods. This approach assumes that:
1.- the STB will base its projection of coal transportation rates for the SARR on forecasts developed by EIA; and
2.- projections of RCAF-U and RCAF-A by time period over the forecast horizon will be available to the STB from official or otherwise neutral sources. (Either submitted by the parties as part of their evidence or obtained directly by the STB.)

The analyses summarized in this paper point to the following conclusions:

1.- In computing productivity changes applicable to the SARR for future years, no adjustment to the rate of productivity change for the Class I U.S. railroads generally is necessary to take into account either disparities in the average age of assets or differences in operations between the SARR and Class I U.S. railroads. The asset age differentials between a SARR and a Class 1 railroad are not so profound as to support widely differing treatments of productivity gains, and the accounting age of an asset is not the principal determinant of whether it will be replaced with a newer, more efficient asset in any event. Similarly, the range of operations and the fluctuations in rates of productivity change among individual railroads that comprise the Class I U.S. railroads is broad enough to encompass the operations of the SARR. This is particularly the case given that, for each time period, the STB's RCAF-A index applies the same single composite productivity change factor to each of the individual railroads comprising the Class I U.S. railroads, notwithstanding the range of operations and productivity experience present among these individual railroads.

2.- If the STB bases its projection of SARR coal transportation rates on forecasts developed by EIA, then the relationship between EIA productivity changes specific to coal transportation and STB-determined productivity changes should be reflected in the formula for indexing SARR operating expenses for forecast periods. To do otherwise is to assume that a SARR is an economically irrational entity that would not adjust its rates over time to cover changes in actual operating costs.

As developed in this paper: the EIA estimate of average annual improvement in productivity for rail transportation rates for coal for the period 1981 through 2002 is 2.4%; while the ICC/STB average annual productivity improvement factor for this same time period is 4.2%. So the EIA average annual rate of productivity improvements for this time period was 57% (2.4/4.2) of the ICC/STB average annual rate of productivity improvement. Assuming that this same historical relationship continues to hold in future time periods, the SARR's rate of productivity improvements in operating expenses would have to be at least 57% of the productivity improvement rate

incorporated in the forecast RCAF-A in order for the SARR to not be passing through to shippers more in transportation rate reductions than it is accomplishing in cost reductions.

To illustrate how the rate of productivity improvements to be incorporated in the index for SARR operating expenses should be calculated, we have applied the computational process to historical quarterly values from 2Q2000 through 4Q2003 supplemented by a Rail Cost Adjustment Factor Forecast prepared by Global Insight in September 2003. (The Global Insight forecast covers the years 2004-2013. To extend this forecast through 2020, we have applied the Global Insight annual rates of change for 2012-to-2013 to years 2014 and beyond through 2020.)

On Table 4 we display, starting in 2Q2000 and continuing through 2020: the historical and Global Insight values (extended as described immediately above) for RCAF-U, RCAF-A, and productivity changes (columns 2, 3, and 4); the Global Insight productivity change as adjusted by the ratio of the EIA average annual productivity change to the ICC/STB average annual productivity change (column 5); and the adjusted RCAF- value produced by application of this reduced productivity change rate (column 6). (Computational details are set forth on Exhibit III-G-5.)

Exhibit III-G-1

Table 4

Impact of Adjusting RCAF to
Reflect the EIA/STB Productivity Improvement Ratio

Line No.	Year	Global Insight Forecast RCAF-U	RCAF-A	Prod Change	EIA/STB Adj Prod Rate	EIA Adjusted RCAF
	(1)	(2)	(3)	(4)	(5) Note 1	(6) Note 2
	STB Historical					
1	2Q2000	94.7	53.4	1.035	1.035	53.4
2	3Q2000	94.7	53.0	1.020	1.011	53.2
3	4Q2000	95.7	53.1	1.020	1.011	53.5
4	1Q2001	97.8	53.8	1.020	1.011	54.4
5	2Q2001	96.9	52.9	1.016	1.009	53.7
6	3Q2001	97.2	52.7	1.016	1.009	53.6
7	4Q2001	97.3	52.4	1.016	1.009	53.5
8	1Q2002	96.9	51.9	1.016	1.009	53.0
9	2Q2002	95.7	50.7	1.024	1.014	52.1
10	3Q2002	95.7	50.2	1.024	1.014	51.8
11	4Q2002	100.0	51.9	1.024	1.014	51.9
12	1Q2003	99.6	51.2	1.024	1.014	51.4
13	2Q2003	102.0	52.2	1.011	1.006	52.5
14	3Q2003	102.0	51.9	1.011	1.006	52.3
15	4Q2003	101.7	51.5	1.011	1.006	52.0
	Global Insight Forecast[3]					
16	2004	102.7	51.2	1.023	1.013	52.1
17	2005	105.2	51.2	1.031	1.018	52.7
18	2006	107.8	50.9	1.030	1.017	53.0
19	2007	110.4	50.8	1.018	1.010	53.5
20	2008	112.8	51.0	1.019	1.011	54.1
21	2009	115.4	51.2	1.021	1.012	54.8
22	2010	118.1	51.3	1.020	1.011	55.4
23	2011	121.0	51.5	1.020	1.011	56.2
24	2012	123.8	51.7	1.021	1.012	56.8
25	2013	126.9	51.9	1.020	1.011	57.6

Exhibit III-G-1

Table 4

Impact of Adjusting RCAF to
Reflect the EIA/STB Productivity Improvement Ratio

Line No.	Year	Global Insight Forecast RCAF-U	RCAF-A	Prod Change	EIA/STB Adj Prod Rate	EIA Adjusted RCAF
	(1)	(2)	(3)	(4)	(5) Note 1	(6) Note 2
	Projection for 2014-2020[3]					
26	2014	130.1	52.2	1.020	1.011	58.4
27	2015	133.4	52.5	1.020	1.011	59.2
28	2016	136.7	52.7	1.020	1.011	60.0
29	2017	140.1	52.9	1.020	1.011	60.9
30	2018	143.6	53.2	1.020	1.011	61.7
31	2019	147.2	53.5	1.020	1.011	62.6
32	2020	150.9	53.7	1.020	1.011	63.5
	2020 Over/(Under) 2Q2000					
33	Percent	59.3%	0.5%			18.8%

Note 1: Productivity change in column (4) times relationship of EIA average annual change in productivity from 1981-2002 to STB average annual change in productivity for same period (2.4 / 4.2 = 0.57143). Computations assume operations commence 2Q2000; therefore, first adjustment is 3Q2000.
Note 2: Forecast RCAF-A adjusted for EIA/STB ratio from 1981-2002.
Note 3: Global Insight forecast through 2013 from Rail Cost Adjustment Factor Forecast - September 2003. Projection for 2014-2020 based on year 2012-2013 Global Insight forecast (RCAF-U at an assumed annual 2.5% rate, and annual productivity at an assumed 2.0% rate).

To demonstrate the impact of the EIA/STB productivity change ratio adjustment on the RCAF, line 33 of Table 4 computes the percent change from 2Q2000 to 2020 in the Global Insight RCAF-U index (+59.3%), the Global Insight RCAF-A index (+0.5%), and the EIA Adjusted RCAF (+18.8%). Global Insight projects that railroad industry input prices (RCAF-U) will increase by 59.3% over the twenty-plus-year period from 2Q2000 to 2020, but that after taking into account improvements in railroad productivity during this same time period, railroad costs (RCAF-A) essentially will be little changed (up by only 0.5%). Application of the EIA/STB ratio coal-related of productivity improvements to Global Insight's annual productivity changes results in an EIA adjusted RCAF percentage increase of 18.8%.

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Forecasting *Annual Energy Outlook* Coal Transportation Rates

by
Jim Watkins

Coal transportation rates are an important element of the Annual Energy Outlook 1997 (AEO97)[1] *forecast because the shipping charges associated with coal transportation are a major component (along with minemouth prices) of the delivered price of coal and, consequently, an important determinant of coal distribution patterns. This paper examines the new methodology used to forecast coal transportation rates for the* AEO97. *The new method is based on the producer price index (PPI) (from the Bureau of Labor Statistics) for coal transportation by rail to all end-use sectors. It differs from the methodology used prior to* AEO97 *to project coal transportation rates strictly on the basis of input costs. The cost-based rate indexing methodology was satisfactory for capturing railroad input cost trends, but it failed to account adequately for transportation productivity trends. The new methodology, based on PPI data, incorporates improvements in railroad transportation productivity, as well as changes in input costs.*

Background

The National Energy Modeling System (NEMS) explicitly incorporates coal transportation rate trends in the development of coal forecasts and analyses. The Coal Distribution Submodule (CDS), a component of the NEMS Coal Market Module, is used to simulate the transportation and distribution of coal. The CDS distribution network consists of 11 coal supply regions and 13 coal demand regions, resulting in 143 possible coal shipment routes from coal supply to demand. The CDS uses a linear program to establish coal transportation and distribution patterns within the *Annual Energy Outlook* (*AEO*) forecast. The procedure finds the distribution pattern that yields minimum delivered cost for a transportation network of *n* supply regions and *m* demand regions.

Initial transportation rates in the CDS are represented at the interregional level of detail and represent the difference between coal minemouth prices and delivered prices for a particular year that is chosen as the base year. The base-year rates on the CDS network are indexed over time for each year in the forecast. Indexing factors are applied to the base-year coal transportation rates in order to capture future changes in real coal transportation rates relative to general inflation. The indexing factors are applied uniformly over five economic demand sectors: electric power generation, industrial steam generation, coal coke manufacturing, residential/commercial consumption, and coal exports.

Prior to the *Annual Energy Outlook 1997* (*AEO97*), the indexing factors for coal transportation rates were based on index data for railroad input operating costs, published by the Association of American Railroads (AAR). For the *AEO97*, a revised methodology, based on the U.S. Department of Labor, Bureau of Labor Statistics (BLS), producer price index (PPI) for coal transportation, was used for coal transportation rate indexing. This PPI-based methodology tracks the national average changes in prices received by railroad companies for the transport of coal.

The PPI was incorporated into the methodology not only because it measures changes in the prices charged by railroads for the transportation of coal but also because it can be used to correlate transportation rate changes with other statistical measures in the industry, such as level of employment, revenue earnings, operating costs, and productivity. Many coal transportation rates are tied to coal transportation contracts that have escalation clauses to provide for price adjustments. Thus, the PPI-based methodology is expected to provide proper adjustments to coal transportation rates across various scenarios.

[1]Energy Information Administration, *Annual Energy Outlook 1997*, DOE/EIA-0383(97) (Washington, DC, December 1996).

The methodology assumes that the statistical relationship between the PPI for coal transportation and railroad productivity gains will continue over the forecast horizon. Absent any improvement in productivity, the methodology assumes that increases in the prices of railroad transportation inputs will raise the price that shippers pay to transport coal and, conversely, that improvements in railroad productivity will reduce the price of transportation services.

The methodology consists of a statistical regression model fitted to the historical PPI series obtained from the BLS. The key independent variables for this model are diesel fuel cost, transportation equipment cost, wage cost, and a time trend that is intended to capture changes in railroad productivity for coal transportation. The resulting output—the projected PPI or rate indexing factor—reflects both projected changes in input costs and growth in railroad productivity that is expected to result from increased fuel efficiency, technology improvements, more efficient capital equipment, reduction in the workforce, and reengineering of the railroad industry through cost-cutting means such as consolidations and greater use of unit trains.[2]

This paper presents, first, the underlying rationale for the indexing of coal transportation rates, followed by an analysis of the trends in some of the variables that influence coal transportation costs and rate-setting strategies, and how they relate to the coal transportation rate indexing methodology. It then discusses the revised coal transportation rate indexing methodology and presents results, conclusions, and tables that contain historical input data and regression statistics.

Rationale for Coal Transportation Rate Indexing

The objective of indexing coal transportation rates is to produce a time series of coal transportation rates consistent with the economic, competitive, and related market conditions that are likely to prevail within the coal industry over the forecast period. Railroad companies set coal transportation rates in response to incurred costs of primary inputs, market competition, industry productivity, and other industry and technological factors. The level at which transportation rates are set is closely tied to the ability of railroads to earn revenues adequate to cover operating costs and provide a reasonable return on capital.

The Staggers Act of 1980 partially deregulated the railroad industry and accorded the industry greater freedom to raise and lower transportation rates in response to inflation and market conditions, without regulatory control. The Act limited the jurisdiction of the Interstate Commerce Commission (ICC), now the Surface Transportation Board (STB), over maximum rates to cases in which revenues exceed 180 percent of variable costs. The Staggers Act also permitted railroads to change their rates, without challenge, in accordance with a railroad cost adjustment factor (RCAF). The RCAF was to be set by the ICC to account for inflation in the cost of inputs. Revenue-inadequate railroads could increase their rates by an additional 4 percent above the RCAF. Subject to these constraints, carriers were authorized to increase rates to respond to cost increases without ICC review. The ICC was authorized to prescribe a rate index or percentage index that would be available to all carriers to cover inflationary cost increases. Shippers and carriers were permitted to enter into contracts for rates and services with indexing clauses that allow the parties to adjust rates based on market conditions.[3]

Trends in Factors That Influence Rate Setting and Indexing

Several measures of railroad productivity and cost change were analyzed in the process of developing the PPI-based econometric model for projecting future changes in coal transportation rates. The analysis examined railroad labor productivity, railroad multifactor productivity, railroad ton-miles per gallon of fuel consumed, the RCAF, railroad cost recovery (RCR) indexes, the railroad all-inclusive cost index (AII), and how each affects coal transportation rates.[4] Particular attention was given to the railroad PPI for coal transportation and its relationship to the measures of railroad productivity and railroad combined inputs (i.e., capital, intermediate purchases, wages and fuel, and

[2]U.S. Department of Labor, Bureau of Labor Statistics, *Multifactor Productivity Trends for Selected Industries* (Washington, DC, December 1996).

[3]U.S. General Accounting Office, *Railroad Regulation—Economic and Financial Impacts of the Staggers Rail Act of 1980* (Washington, DC, May 1990); Association of American Railroads, Economics and Finance Department, *Railroad Freight Rates in the Five Years Since Staggers* (Washington, DC, February 1986); and J.W. Lawson, "Rail Contract Rate-Making and Deregulation," Presentation at Coal Outlook Conference (Washington, DC, November 11, 1980).

[4]Although several of the productivity measures relate to all railroad traffic, coal accounted for 39 percent of total railroad traffic in 1994. Between 1985 and 1994, the share has ranged from a low of 38 percent in 1988 to nearly 41 percent in 1990 (Association of American Railroads, *Railroad Ten-Year Trends*, Washington, DC, 1995). Railroads transported slightly over 57 percent of all domestic coal in 1995 (Energy Information Administration, *Quarterly Coal Report*, DOE/EIA-0121(95/4Q), Washington, DC, May 1996, Tables 6 and 12).

materials and supplies). Emphasis was placed on the PPI for rate indexing because it plays a significant role in the negotiation of coal transportation contracts. The PPI is also of interest because it is measured monthly by the BLS[5] and is widely recognized among businesses, economists, statisticians, and accountants as an objective measure of prices in the marketplace.

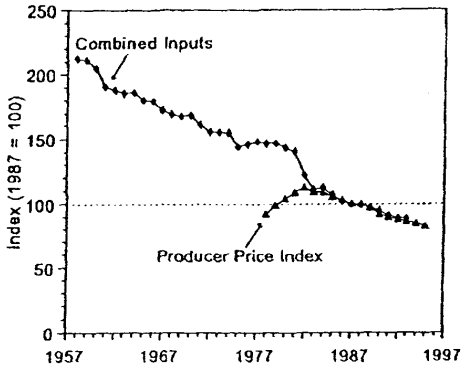
The PPI for coal transportation measures the average change in prices received by railroads for the transport of coal throughout the United States. It is calculated by the BLS from transportation price reports provided to the BLS by railroad companies. A random sampling of railroad companies is conducted by the BLS to obtain the data for this index.[6] The PPI for coal transportation can be used in the indexing of long-term coal transportation contracts in which both parties agree that the contract price will be adjusted periodically in proportion to changes in the PPI series.

Since 1982, both the PPI for coal transportation and the index of railroad combined inputs have been declining, and the trend in the PPI has been parallel to the index of railroad combined inputs (Figure 1). (Between 1980 and 1982, however, the two indexes were divergent. This could have been in response to passage of the Staggers Rail Act of 1980; high railroad fuel costs, which increased by 15 percent in this period; or railroad wage costs, which increased by 26 percent.)

One major reason for the decline in the PPI is that railroad labor productivity has been increasing. The inverse relationship between the PPI for coal transportation and railroad labor productivity is incorporated into the transportation rate indexing methodology. Railroad labor productivity is a measure of the change in the ratio of the output index (based on a composite, revenue-weighted average of the year-to-year changes in ton-miles for various segments of traffic in the ICC/STB Waybill[7]) over the labor input index.

The effect of multifactor productivity has also been incorporated into the transportation rate indexing methodology. Railroad multifactor productivity is a measure of output per unit of combined inputs and relates railroad output to the combined inputs of labor, capital, and intermediate purchases.[8] Capital includes the services of equipment (such as freight cars), structures (such as tracks), land, and inventories. Intermediate purchases include materials, fuels, electricity, and purchased services.

Figure 1. Trends in Railroad PPI for Coal Transportation and Index of Combined Inputs, 1958-1995



Source: U.S. Department of Labor, Bureau of Labor Statistics, *Multifactor Productivity Trends for Selected Industries* (Washington, DC, December 1996).

Multifactor productivity (Figure 2) for railroad transportation has steadily increased over time, and the analysis showed that the growth in multifactor productivity has been closely matched by the growth in output per unit of capital and the growth in output per unit of intermediate purchases. Whereas intermediate purchases input has increased slightly in the presence of these improvements, capital input has been decreasing, and labor input has fallen even more rapidly than capital input. The substitution of capital and intermediate purchases for labor has been an important factor in labor productivity growth in the railroad industry. These productivity improvements are incorporated in the projected transportation rate index factors.

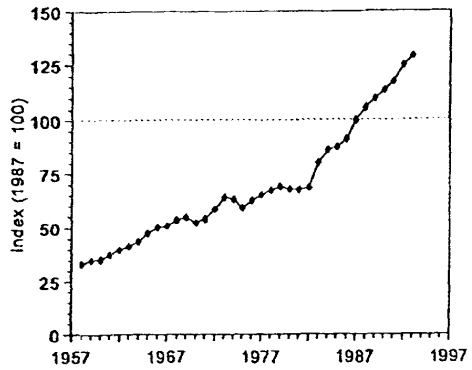
[5]Although the PPI from the BLS for coal transportation represents only rail transportation, analysis of coal transportation data from the EIA Coal Transportation Rate Data Base (CTRDB) indicates that the composite PPI for all modes of coal transportation has been declining since 1984. The CTRDB represents utility coal transportation by all types of rail, barge, truck, conveyor, and various combinations of these modes. Data for the CTRDB are collected on Federal Energy Regulatory Commission (FERC) Form 580, "Interrogatory on Fuel and Energy Purchase Practices," survey pursuant to Section 205(f)(2) of the Federal Power Act of 1920.

[6]U.S. Department of Labor, Bureau of Labor Statistics, *The Producer Price Index: An Introduction to Its Derivation and Uses* (Washington, DC, March 1989).

[7]A waybill is the document covering a shipment and showing the forwarding and receiving stations, the name of consignor and consignee, the car initials and number, the routing, the description and weight of the commodity, instructions for special services, the rate, total charges, advances, and waybill reference for previous services, and the amount paid.

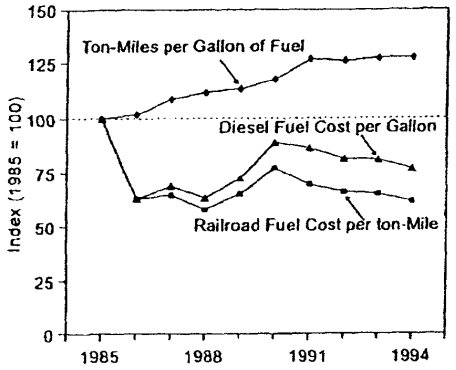
[8]U.S. Department of Labor, Bureau of Labor Statistics, "Multifactor Productivity in Railroad Transportation," *Monthly Labor Review* (August 1992).

Figure 2. Multifactor Productivity for Railroad Transportation, 1958-1993



Source: U.S. Department of Labor, Bureau of Labor Statistics, *Multifactor Productivity Trends for Selected Industries* (Washington, DC, December 1996).

Figure 3. Indexes of Railroad Coal Transportation Cost Inputs, 1985-1994



Source: Association of American Railroads, *Railroad Ten-Year Trends 1985-1995* (Washington, DC, 1995).

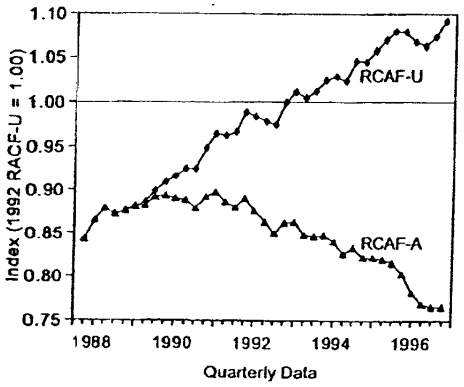
Another reason for the productivity improvement that is reflected in the projected transportation rate index factors is the efficiency gain in fuel cost per ton-mile, which is determined by the product of the fuel cost per gallon and the fuel usage rate as measured in gallons per mile (Figure 3). Fuel cost plays an integral role in the delivery of railroad transportation and transportation rate setting and is a major component of railroad intermediate purchases. In recent years, railroad companies have been able to increase their freight ton-miles per gallon of fuel consumed at a relatively stable pace (Figure 3). Fuel efficiency came from the use of more efficient modern diesel engines that produce twice as much power as earlier diesels.[9] Also, larger and lighter aluminum cars have contributed to the lowering of the fuel cost per ton-mile.

A brief analysis of the Railroad Cost Adjustment Factor Adjusted (RCAF-A), the RCR series, and the AII was also performed. These indexes, computed by the AAR and the STB, play an important role in coal transportation rate setting. The RCR measures changes in the price that railroads pay for: labor, fuel, materials and supplies, equipment, rent, purchased services, depreciation, interest, taxes, and wage supplements. The AII measures changes in the price that railroads pay for each component of the RCR plus casualties, insurance, loss and damage, taxes other than income and payroll, and general and administrative expenses. The RCAF is the ICC/STB term for the AII divided by 100.[10]

The AII is filed with the STB by the AAR. The STB develops the RCAF from the AII series. Starting in the second quarter of 1989, the ICC (now the STB) started developing an adjusted RCAF (the RCAF-A) to reflect gains in productivity. The RCAF-A is obtained by dividing the RCAF Unadjusted (RCAF-U) by a productivity adjustment factor (PAF). Figure 4 shows the relationship between the RCAF-A and the RCAF-U. If railroad transportation rates track the RCAF-U, then one can assume that railroad transportation rates have been increasing over time. However, a productivity adjustment makes a significant difference in the RCAF-A, and if rail transportation rates track the RCAF-A then one can conclude that there has been a downward trend in rates. The downward trend in the RCAF-A is expected to continue because activities such as the accelerated pace of line sales by major railroads to other operators, railroad consolidations (such as the current Norfolk Southern and CSX proposals to acquire Conrail), business reengineering by railroad companies to cut costs, and new national labor agreements between the railroad industry and most of the major railroad unions are ongoing processes.

[9]U.S. Department of Labor, Bureau of Labor Statistics, "Multifactor Productivity in Railroad Transportation."
[10]Association of American Railroads, *Association of American Railroad Cost Indexes* (Washington, DC, September 1996 and prior issues).

Figure 4. Trends in Unadjusted and Adjusted Railroad Cost Adjustment Factors, 1987-1996



Source: Association of American Railroads, *Association of American Railroad Cost Indexes* (Washington, DC, September 1996 and prior issues).

Description of the PPI-Based Indexing Methodology

Model Objectives

The coal transportation rate indexing methodology is the mechanism by which base-year coal transportation rates for the NEMS forecasts are changed over time to capture transportation rate fluctuations resulting from changing railroad costs and other market conditions in the coal industry. The methodology is aimed at ensuring that projected changes in coal transportation rates conform to reasonable economic assumptions concerning railroad transportation costs, market competition, and rate-setting strategies. The methodology also aims at ensuring that the indexing of base-year coal transportation rates embodies the effects of railroad labor cost, fuel cost, equipment cost, and the incorporation of the price-dampening effects of productivity increases.

Base-year coal transportation rates are estimates of average transportation costs for each origin-destination pair. The costs are computed as the difference between the average delivered price of coal for a demand region (by end-use sector) and the average minemouth price for a supply region.[11]

Theoretical Approach and Rationale

The technical approach to the development of the coal transportation rate indexing methodology was to design an econometric model that conforms to economic theory and relevant market conditions within the coal transportation industry and that yields parameter estimates that are unbiased and statistically significant. The methodology should account for a significant amount of the variation in coal transportation rates over the historic period of study and should incorporate the measures of railroad productivity (operating efficiency).

Equation Specification

The equation below specifies that the average price that shippers pay to transport coal is a function of the average cost of labor in the railroad industry, the average price of fuel paid by the railroad industry, the average price of railroad equipment, and a railroad productivity trend. Specifically:

$$INDEXFACTOR = f(WAGE, PFUEL, PEQUIP, TREND) \quad (1)$$

where:

INDEXFACTOR is the value of the price index in year *t*. This variable equals the PPI for coal transportation divided by the chain-weighted implicit gross domestic product (GDP) deflator, and has a value of 1 in 1995 because it was rebased to 1995.

WAGE is the real wage cost index in year *t*.

PFUEL is the real price of distillate fuel in dollars per million British thermal units (Btu) to the industrial sector in year *t*.

PEQUIP is the producer price index for transportation equipment divided by the chain-weighted implicit GDP deflator, obtained from the NEMS Macroeconomic Activity Module.

TREND is the year *t*. Given the stable increase in productivity and the high correlation between time and productivity, time is a good proxy for productivity.

Historical data were available for each of the input variables for 1978 through 1995 (Table 1). A linear function of the regressors and a constant elasticity specification were considered in the mathematical formulation

[11]Delivered price data are from Energy Information Administration, Form EIA-3, "Quarterly Coal Consumption Report: Manufacturing Plants"; Form EIA-5, "Coke Plant Report: Quarterly"; FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants"; and U.S. Bureau of the Census, *Monthly Report EM-545*. Minemouth price data are from Energy Information Administration, Form EIA-7A, "Coal Production Report."

Table 1. Historical Data for Coal Transportation Rate Index Input Variables, 1978-1995

Year	Variable Name			
	WAGE	*PFUEL*	*PEQUIP*	*INDEXFACTOR*
1978	0.76	4.63	1.13	1.11
1979	0.77	5.87	1.13	1.20
1980	0.77	7.62	1.14	1.26
1981	0.80	8.20	1.19	1.32
1982	0.84	7.85	1.18	1.36
1983	0.89	7.23	1.17	1.32
1984	0.90	6.86	1.15	1.32
1985	0.88	6.36	1.14	1.28
1986	0.90	3.99	1.14	1.25
1987	0.92	4.30	1.13	1.21
1988	0.93	3.77	1.10	1.21
1989	0.93	4.26	1.09	1.18
1990	0.91	4.99	1.08	1.12
1991	0.93	4.29	1.08	1.08
1992	0.95	4.04	1.08	1.06
1993	0.93	3.89	1.08	1.04
1994	0.92	3.66	1.09	1.03
1995	0.94	3.58	1.08	1.00

Sources: The historical producer price index data for coal transportation were obtained from the U.S. Department of Labor, Bureau of Labor Statistics. The wage cost index was obtained from the Association of American Railroads. All other historical inputs were obtained from the NEMS Macroeconomic Activity Module.

of the model. Alternative formulations of both specifications were examined, including the effect of regulatory change in the railroad industry and interactions among the independent variables. Based on the results of this analysis, a log-linear function was chosen. Detailed regression statistics for the mathematical specification are described in Table 2. The log-linear specification has high explanatory power as indicated by the R^2 value and by a comparison of predicted versus actual values of the index factor. The log-linear equation explains variations in coal transportation rates over the sample period very well, and the parameter estimates are statistically significant as indicated by their t-statistic (Table 2).

Based on the regression results, the equation for forecasting coal transportation rate index factors is:

$$INDEXFACTOR = \psi \exp^{x} WAGE_t^{\beta_0} PFUEL_t^{\beta_1} PEQUIP_t^{\beta_2} \exp^{y} \quad (2)$$

where:

$x = A + (k \cdot SE \cdot INITIALYEAR)$.

$A = 32.3303$.

INITIALYEAR = first year of forecast.

β_0 = elasticity of *INDEXFACTOR* relative to *WAGE* = 1.08192.

β_1 = elasticity of *INDEXFACTOR* relative to *PFUEL* = 0.10022.

β_2 = elasticity of *INDEXFACTOR* relative to *PEQUIP* = 1.23010.

$y = (\beta_3 + k \cdot SE) \cdot TREND$.

$\beta_3 = -0.016273$.

The parameter ψ is a benchmark factor that calibrates the function to the actual value of the index factor in 1995. A user-determined parameter (k) enables the user to incorporate judgment into the forecast to reflect

Table 2. Equation Results

Method of estimation: Ordinary Least Squares
Dependent variable: Ln(*INDEXFACTOR*)
Number of observations: 18
Mean of dependent variable: 0.166775
Standard deviation of dependent variable: 0.097467
Sum of squared residuals: 0.010247
Variance of residuals: 0.788218^{-3}
Standard error of regression: 0.028075
R^2: 0.936551
Adjusted R^2: 0.917028
Durbin-Watson statistic: 1.31884
Jarque-Bera normality test: 0.633885 [0.728]
F-statistic (zero slopes): 47.9723
Log of likelihood function: 41.6995

Variable	Estimated Coefficient	Standard Error	t-Statistic
A	32.3303	7.82517	4.13158
Ln(*WAGE*)	1.08192	0.204369	5.29396
Ln(*PFUEL*)	0.100220	0.043656	2.29565
Ln(*PEQUIP*)	1.23010	0.482512	2.54937
YEAR	-0.016273	0.391185^{-2}	-4.16000

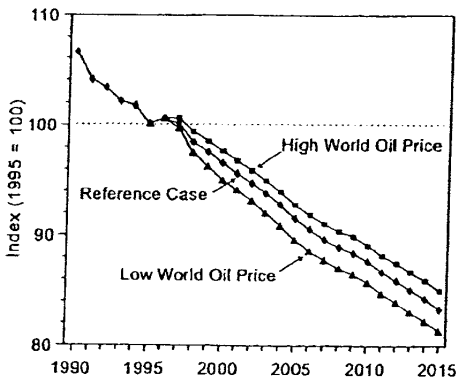
Source: Energy Information Administration, Office of Integrated Analysis and Forecasting.

changes in expected saturation or slowing of productivity improvements. SE is the standard error of the estimate of β_3, and *INITIALYEAR* is 1995, the first year of the forecast. For example, a portion of the decline in transportation costs over the past 10 years may be the result of unique technology or regulatory changes. Accordingly, assuming a zero value for k might overstate the effect over the long term of projected productivity on the cost of transporting coal. The index factor that was used in the *AEO97* forecasts was calculated using k = -2. This moderates the effect of the estimated time trend. When k = -2, the effect of productivity over the forecast period is two standard deviations less than the estimate of β_3. If k is positive, the effect of productivity is greater than that implied by the estimate of β_3. Regression statistics are shown in Table 2. The value of β_3, the coefficient for TREND, is negative because when all the other input variables are accounted for, productivity gains in the railroad industry reduce the price of shipping coal.

Results

All the explanatory variables (or their proxies) used in the rate index equation are from other components of NEMS. The NEMS supplies the transportation rate index equation with a set of employee wage cost indexes, the industrial diesel fuel price in dollars per million Btu, and the PPI for transportation equipment. The equation uses these variables as input, along with a previously estimated time trend, and produces a forecast of coal transportation rate index factors for the forecast period. Figure 5 shows an output set of index factors produced by the methodology. The index factors in Figure 5 represent the *AEO97* reference case, high world oil price case, and low world oil price case forecasts.

Figure 5. *AEO97* Projected Coal Transportation Rate Indexes, 1996-2015



Source: AEO97 National Energy Modeling System, runs AEO97B.D100296K, LWOP97.D100696A, and HWOP97.D100296B.

The index factors were applied to the base-year coal transportation rates to produce a set of corresponding coal transportation rates for the *AEO97* forecast. The reference case index factors reduce transportation rates by 0.9 percent per year. In the high and low world oil price cases, the index factor decreases by 0.8 and 1.0 percent per year, respectively, over the 1995 to 2015 period.

The projected coal transportation rates reflect the historical trend of railroad productivity (operating efficiency), and the projected coal transportation rate changes are responsive to projected variations in the *AEO97* reference case fuel cost (No. 2 diesel fuel in the industrial sector), labor cost, and the PPI for transportation equipment. Coal transportation rates are projected to continue the decline reflected in the historic PPI for coal transportation, as competition among carriers and pressure from shippers for lower rates continue to force improvements in operating efficiency.

The delivered coal price to electricity generators in the reference case was projected to be $1.11 per million Btu in 2015. In the world oil price cases, variations in fuel cost yielded delivered coal prices to electricity generators that were 3.6 percent higher in the high oil price case ($1.15 per million Btu in 2015) and 2.7 percent lower in the low oil price case ($1.08 per million Btu in 2015). Approximately one-third of the price difference was attributable to changes in coal transportation costs.

Conclusion

The PPI-based coal transportation rate indexing methodology described here enhances the representation of various aspects of the railroad and coal industries relative to coal supply, demand, delivered price, transportation, and distribution patterns in the *AEO97* forecasts. The projected coal transportation rates reflect the influence of standard measures of railroad productivity, and the projected coal transportation rate changes are responsive to projected variations in the *AEO97* reference case fuel cost (No. 2 diesel fuel in the industrial sector). Coal transportation rates are projected to continue the decline reflected in the historic PPI for coal transportation, as competition among carriers and pressure from shippers for lower rates continue to force improvements in operating efficiency.

The methodology is integrated into the NEMS Coal Market Module to allow the impact of competition between coal and other fuels to influence coal transportation rates. The NEMS simulation enables rate changes to be influenced by economic factors such as fuel substitution, the tradeoff between purchase of low-sulfur coal and the use of scrubbers to meet emissions standards, and corresponding shifts in regional coal supply and distribution patterns.

Regional differences in coal transportation rates and coal production are expected to continue to exert an impact on coal distribution patterns over the forecast period. Western coal has already begun gaining shares in midwestern and southeastern coal markets, and export coal has begun movements on different domestic routes.[12] Shifts to supplies of western low-sulfur coal by some eastern seacoast consumers are expected to continue as coal transportation rates decrease, making it more economical on a per-ton-mile basis to ship western coal over long distances.

[12]Energy Information Administration, *Annual Energy Outlook 1997*, p. 69.

W. W. Whitehurst & Associates, Inc.

Exhibit III-G-3

STB PRODUCTIVITY ADJUSTMENT BY YEAR
FOR 1982 TO 2002

Line No.	Year (1)	Cost (2)	AAR RCR Index (3) Note 1	Restated to Current Year (4) L.22(3)/(3)*100	Constant Cost (5) (2)*(4)/100	Change from Prior Year Input Index (6) (5)/Prior Yr(5)	Output Index (7) Note 2	Productivity Change Annual (8) (7) / (6)	Multi-Year From 1982 (9) Note 3	Multi-Year 5-Year Moving (10) Note 4
1	1981	27,123,641	157.7	193.8	52,578,929					
2	1982	25,274,691	168.3	181.6	45,908,931	0.873	0.838	0.960	0.960	
3	1983	24,810,507	175.5	174.2	43,216,934	0.941	1.037	1.102	1.029	
4	1984	26,561,421	181.7	168.2	44,688,092	1.034	1.100	1.064	1.040	
5	1985	26,035,595	183.9	166.2	43,279,399	0.968	0.951	0.982	1.025	
6	1986	26,304,629	185.3	165.0	43,396,250	1.003	0.981	0.978	1.016	1.016
7	1987	24,655,338 [5]	191.2	159.9	39,420,172	0.908	1.068 [6]	1.176	1.041	1.058
8	1988	25,709,827	201.3	151.9	39,043,687	0.990	1.040	1.051	1.042	1.048
9	1989	25,899,288	210.1	145.5	37,684,019	0.965	1.023	1.060	1.044	1.047
10	1990	25,760,159	220.6	138.6	35,697,555	0.947	1.001	1.057	1.046	1.063
11	1991	29,096,584	230.2	132.8	38,639,556	1.082	0.987	0.912	1.032	1.048
12	1992	26,230,797	236.3	129.4	33,934,637	0.878	1.045	1.190	1.045	1.050
13	1993	25,331,287	238.1	128.4	32,523,202	0.958	1.051	1.097	1.049	1.059
14	1994	26,346,382 [7]	241.7	126.5	33,322,669	1.025	1.084	1.058	1.050	1.059
15	1995	28,818,781	252.9	120.9	34,835,513	1.045	1.058	1.012	1.047	1.050
16	1996	27,516,772 [9]	263.0	116.2	31,984,324	0.918	1.038 [8]	1.131	1.053	1.096
17	1997	28,479,279 [9]	267.1	114.5	32,594,967	1.019	1.008 [9]	0.989	1.049	1.056
18	1998	29,401,587 [9]	270.9	112.8	33,178,535	1.018	1.006 [9]	0.988	1.045	1.034
19	1999	29,557,600 [9]	270.3	113.1	33,428,629	1.008	1.032 [9]	1.024	1.044	1.028
20	2000	30,751,071 [9]	295.0	103.6	31,866,449	0.953	1.029 [9]	1.080	1.046	1.041
21	2001	30,215,650	303.4	100.8	30,444,707	0.955	0.971	1.017	1.044	1.019
22	2002	30,635,036	305.7	100.0	30,635,036	1.006	1.012	1.006	1.042	1.022

[1] AAR Railroad Cost Indexes, Table A - Annual Indexes of Chargeout Prices and Wage Rates - U.S., Railroad Cost Recovery (RCR) Index.

[2] As published in Ex Parte 290 Sub-No. 4 decisions.

[3] Geometric mean of cumulative annual productivity change from 1982.

[4] Geometric mean of annual productivity change in moving 5-year increments (1982-1986, 1983-1987, etc.).

[5] Revised in Ex Parte 290 Sub-No. 4 decided 11/23/1993.

[6] Revised, per STB spreadsheet PROD2002-withcsxiallyears.xls.

[7] Revised in Ex Parte 290 Sub-No. 4 decided 02/09/1998.

[8] Revised in Ex Parte 290 Sub-No. 4 decided 03/04/1998.

[9] Revised in Ex Parte 290 Sub-No. 4 decided 01/24/2003.

EIA Regression Analysis for Years 1981 to 2002
INPUTS

Line No.	Year	PPI Transportation of Coal INDEX FACTOR	AAR RCR Index Wages & Supplements	AAR Wages Adjusted to National Wages	Fuel Cost per million BTUs	PPI Transportation Equipment Cost	GDP Chain-Type Price Index	Independent Variables in 1987 Dollars			Dependent Variable INDEX FACTOR	
								WAGE	PFUEL	PEQUIP	in $1987	in $2001
	(1)	(2) Note 1	(3) Note 2	(4) Note 3	(5) Note 4	(6) Note 5	(7) Note 6	(8) (4)/((7)*100)	(9) (5)/(7)	(10) (6)/((7)*100)	(11) (2)/(7)	(12) (11)/L.21(11)
1	1981	86.9	149.4	65.691	6.52	94.3	0.806	0.82	8.09	1.17	107.87	1.3971
2	1982	95.4	167.0	73.429	6.63	100.0	0.854	0.86	7.76	1.17	111.65	1.4461
3	1983	96.5	184.2	80.992	6.37	102.8	0.889	0.91	7.16	1.16	108.50	1.4053
4	1984	99.9	193.9	85.257	6.27	105.2	0.922	0.92	6.80	1.14	108.30	1.4027
5	1985	100.0	196.7	86.488	6.01	107.9	0.951	0.91	6.32	1.13	105.12	1.3615
6	1986	100.7	206.1	90.621	3.87	110.5	0.972	0.93	3.98	1.14	103.59	1.3417
7	1987	100.1	215.7	94.843	4.30	112.5	1.000	0.95	4.30	1.13	100.10	1.2965
8	1988	104.3	228.3	100.383	3.91	114.3	1.036	0.97	3.77	1.10	100.68	1.3039
9	1989	105.3	235.6	103.592	4.60	117.7	1.079	0.96	4.26	1.09	97.59	1.2640
10	1990	104.2	242.9	106.802	5.62	121.5	1.115	0.96	5.04	1.09	93.45	1.2104
11	1991	105.2	256.9	112.958	5.03	126.4	1.156	0.98	4.35	1.09	91.00	1.1787
12	1992	105.9	269.1	118.322	4.87	130.4	1.184	1.00	4.11	1.10	89.44	1.1584
13	1993	106.6	269.3	118.410	4.81	133.7	1.212	0.98	3.97	1.10	87.95	1.1392
14	1994	107.5	272.8	119.949	4.62	137.2	1.238	0.97	3.73	1.11	86.83	1.1247
15	1995	107.3	286.4	125.929	4.64	139.7	1.265	1.00	3.67	1.10	84.82	1.0986
16	1996	106.7	294.3	129.403	5.56	141.7	1.289	1.00	4.31	1.10	82.78	1.0721
17	1997	107.0	300.9	132.305	5.13	141.6	1.314	1.01	3.91	1.08	81.43	1.0547
18	1998	108.7	308.4	135.602	4.01	141.2	1.330	1.02	3.01	1.06	81.73	1.0585
19	1999	107.3	304.9	134.063	4.61	141.8	1.350	0.99	3.41	1.05	79.48	1.0294
20	2000	108.7	323.3	142.154	7.15	143.8	1.378	1.03	5.19	1.04	78.88	1.0217
21	2001	110.6	340.3	149.629	6.54	145.2	1.411	1.06	4.63	1.03	78.38	1.0152
22	2002	110.1	355.7	156.400	5.95	144.6	1.426	1.10	4.17	1.01	77.21	1.0000

EIA Regression Analysis for Years 1981 to 2002
INPUTS

Line No.		Natural Log of Variables			
		Independent Variables			Dependent Variable
	YEAR	WAGE	PFUEL	PEQUIP	INDEX FACTOR
	(13) (1)	(14) LN(8)	(15) LN(9)	(16) LN(10)	(17) LN(12)
1	1981	(0.204)	2.091	0.157	0.334
2	1982	(0.152)	2.049	0.157	0.369
3	1983	(0.094)	1.968	0.145	0.340
4	1984	(0.079)	1.917	0.131	0.338
5	1985	(0.095)	1.844	0.126	0.309
6	1986	(0.070)	1.382	0.128	0.294
7	1987	(0.053)	1.460	0.118	0.260
8	1988	(0.032)	1.328	0.098	0.265
9	1989	(0.041)	1.450	0.087	0.234
10	1990	(0.043)	1.618	0.086	0.191
11	1991	(0.023)	1.470	0.089	0.164
12	1992	(0.001)	1.414	0.097	0.147
13	1993	(0.023)	1.378	0.098	0.130
14	1994	(0.032)	1.317	0.103	0.117
15	1995	(0.005)	1.300	0.099	0.094
16	1996	0.004	1.462	0.095	0.070
17	1997	0.007	1.363	0.075	0.053
18	1998	0.019	1.103	0.060	0.057
19	1999	(0.007)	1.228	0.049	0.029
20	2000	0.031	1.646	0.043	0.021
21	2001	0.059	1.534	0.029	0.015
22	2002	0.092	1.428	0.014	0.000

EIA Regression Analysis for Years 1981 to 2002
INPUTS

Line No.	Year	PPI Transportation of Coal INDEX FACTOR	AAR RCR Index Wages & Supplements	AAR Wages Adjusted to National Wages	Fuel Cost per million BTUs	PPI Transportation Equipment Cost	GDP Chain-Type Price Index	Independent Variables in 1987 Dollars			Dependent Variable INDEX FACTOR	
								WAGE	PFUEL	PEQUIP	in $1987	in $2001
	(1)	(2) Note 1	(3) Note 2	(4) Note 3	(5) Note 4	(6) Note 5	(7) Note 6	(8) (4)/((7)*100)	(9) (5)/(7)	(10) (6)/((7)*100)	(11) (2)/(7)	(12) (11)/L.21(11)

[1] Bureau of Labor Statistics, Producer Price Index for Railroads - line haul operating, transportation of coal - not seasonally adjusted (PCU4011#A03).

[2] AAR Railroad Cost Recovery Index, all U.S. Class I railroads, Wages & Supplements combined.

[3] AAR Wages & Supplements by year adjusted to 2001 National Wages using relationship between Bureau of Labor Statistics private industry wages & salaries for all workers seasonally adjusted (ECS20002I - simple average of 4 quarters in 2001) to AAR Wages & Supplements index for 2001:
(154.8+156.2+156.9+157.7)/4 = 156.4 / 355.7 = 0.4397.
0.439696373

[4] U.S. Energy Information Administration (EIA) fuel cost in cents per gallon (Table 15) adjusted to dollars per million Btu - source: EIA spreadsheet rtpence_121503.xls.

[5] Bureau of Labor Statistics, Producer Price Index for Transportation Equipment - not seasonally adjusted (WPU14).

[6] Bureau of Economic Analysis, Gross Domestic Product, chain-type price index, adjusted to 1987 - source: EIA spreadsheet rtpence_121503.xls.

EIA Regression Analysis for Years 1981 to 2002
OUTPUTS

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.99400908
R Square	0.988054051
Adjusted R Square	0.985243239
Standard Error	0.0150372
Observations	22

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	0.317938341	0.079484585	351.5191282	4.26022E-16
Residual	17	0.003843996	0.000226117		
Total	21	0.321782336			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	47.50284706	3.315497034	14.32751909	6.39637E-11	40.50775	54.49794412	40.50775	54.49794412
YEAR	-0.023747858	0.00165289	-14.36747316	6.12154E-11	-0.027235157	-0.020260559	-0.027235157	-0.020260559
WAGE	0.274484188	0.150121989	1.828407618	0.085089956	-0.042245965	0.591214341	-0.042245965	0.591214341
PFUEL	0.012760802	0.017869887	0.714095297	0.484858395	-0.024941416	0.05046302	-0.024941416	0.05046302
PEQUIP	-0.476161663	0.27023384	-1.762035662	0.096033591	-1.046306025	0.093982698	-1.046306025	0.093982698

Computation of EIA Adjusted RCAF
Based on Global Insight Forecast and EIA/STB Productivity Change Ratio

Line No.	Quarter	Global Insight Forecast RCAF-U	Productivity Annual	Productivity 4th Root	PAF	RCAF-A	EIA/STB Adjusted Productivity Annual	Productivity 4th Root	EIA Revised PAF	EIA Adjusted RCAF
	(1)	(2)	(3)	(4) Note 1	(5) Prior(5)*(4)	(6) (2)/(5)	(7) Note 2	(8) Note 1	(9) Prior(9)*(8)	(10) (2)/(9) Note 3
					QUARTERLY					
	STB Historical									
1	2Q 2000	94.7	1.035	1.0086	1.7719	53.4	1.035	1.0086	1.7719	53.4
2	3Q 2000	94.7	1.035	1.0086	1.7871	53.0	1.020	1.0050	1.7808	53.2
3	4Q 2000	95.7	1.035	1.0086	1.8025	53.1	1.020	1.0050	1.7897	53.5
4	1Q 2001	97.8	1.035	1.0086	1.8180	53.8	1.020	1.0050	1.7986	54.4
5	2Q 2001	96.9	1.028	1.0069	1.8305	52.9	1.016	1.0040	1.8058	53.7
6	3Q 2001	97.2	1.028	1.0069	1.8431	52.7	1.016	1.0040	1.8130	53.6
7	4Q 2001	97.3	1.028	1.0069	1.8558	52.4	1.016	1.0040	1.8203	53.5
8	1Q 2002	96.9	1.028	1.0069	1.8686	51.9	1.016	1.0040	1.8276	53.0
9	2Q 2002	95.7	1.042	1.0103	1.8878	50.7	1.024	1.0059	1.8384	52.1
10	3Q 2002	95.7	1.042	1.0103	1.9072	50.2	1.024	1.0059	1.8492	51.8
11	4Q 2002	100.0	1.042	1.0103	1.9268	51.9	1.024	1.0059	1.9268	51.9
12	1Q 2003	99.6	1.042	1.0103	1.9466	51.2	1.024	1.0059	1.9382	51.4
13	2Q 2003	102.0	1.019	1.0047	1.9557	52.2	1.011	1.0027	1.9434	52.5
14	3Q 2003	102.0	1.019	1.0047	1.9649	51.9	1.011	1.0027	1.9486	52.3
15	4Q 2003	101.7	1.019	1.0047	1.9741	51.5	1.011	1.0027	1.9539	52.0
	Global Insight Forecast[4]									
16	1Q 2004	101.7	1.019	1.0047	1.9834	51.3	1.011	1.0027	1.9592	51.9
17	2Q 2004	101.7	1.023	1.0057	1.9947	51.0	1.013	1.0032	1.9655	51.7
18	3Q 2004	103.0	1.023	1.0057	2.0061	51.3	1.013	1.0032	1.9718	52.2
19	4Q 2004	104.2	1.023	1.0057	2.0175	51.6	1.013	1.0032	1.9781	52.7
20	1Q 2005	104.4	1.023	1.0057	2.0290	51.5	1.013	1.0032	1.9844	52.6
21	2Q 2005	104.6	1.031	1.0077	2.0446	51.2	1.018	1.0045	1.9933	52.5
22	3Q 2005	105.4	1.031	1.0077	2.0603	51.2	1.018	1.0045	2.0023	52.6
23	4Q 2005	106.4	1.031	1.0077	2.0762	51.2	1.018	1.0045	2.0113	52.9
24	1Q 2006	107.8	1.031	1.0077	2.0922	51.5	1.018	1.0045	2.0204	53.4
25	2Q 2006	107.8	1.030	1.0074	2.1077	51.1	1.017	1.0042	2.0289	53.1
26	3Q 2006	107.8	1.030	1.0074	2.1233	50.8	1.017	1.0042	2.0374	52.9
27	4Q 2006	107.8	1.030	1.0074	2.1390	50.4	1.017	1.0042	2.0460	52.7
28	1Q 2007	110.4	1.030	1.0074	2.1548	51.2	1.017	1.0042	2.0546	53.7
29	2Q 2007	110.4	1.018	1.0045	2.1645	51.0	1.010	1.0025	2.0597	53.6
30	3Q 2007	110.4	1.018	1.0045	2.1742	50.8	1.010	1.0025	2.0648	53.5
31	4Q 2007	110.4	1.018	1.0045	2.1840	50.5	1.010	1.0025	2.0700	53.3
32	1Q 2008	112.8	1.018	1.0045	2.1938	51.4	1.010	1.0025	2.0752	54.4
33	2Q 2008	112.8	1.019	1.0047	2.2041	51.2	1.011	1.0027	2.0808	54.2
34	3Q 2008	112.8	1.019	1.0047	2.2145	50.9	1.011	1.0027	2.0864	54.1
35	4Q 2008	112.8	1.019	1.0047	2.2249	50.7	1.011	1.0027	2.0920	53.9
36	1Q 2009	115.4	1.019	1.0047	2.2354	51.6	1.011	1.0027	2.0976	55.0
37	2Q 2009	115.4	1.021	1.0052	2.2470	51.4	1.012	1.0030	2.1039	54.9
38	3Q 2009	115.4	1.021	1.0052	2.2587	51.1	1.012	1.0030	2.1102	54.7
39	4Q 2009	115.4	1.021	1.0052	2.2704	50.8	1.012	1.0030	2.1165	54.5
40	1Q 2010	118.1	1.021	1.0052	2.2822	51.7	1.012	1.0030	2.1228	55.6
41	2Q 2010	118.1	1.020	1.0050	2.2936	51.5	1.011	1.0027	2.1285	55.5
42	3Q 2010	118.1	1.020	1.0050	2.3051	51.2	1.011	1.0027	2.1342	55.3
43	4Q 2010	118.1	1.020	1.0050	2.3166	51.0	1.011	1.0027	2.1400	55.2
44	1Q 2011	121.0	1.020	1.0050	2.3282	52.0	1.011	1.0027	2.1458	56.4

Computation of EIA Adjusted RCAF
Based on Global Insight Forecast and EIA/STB Productivity Change Ratio

Line No.	Quarter	Global Insight Forecast RCAF-U	Productivity Annual	Productivity 4th Root	PAF	RCAF-A	EIA/STB Adjusted Productivity Annual	Productivity 4th Root	EIA Revised PAF	EIA Adjusted RCAF
	(1)	(2)	(3)	(4) Note 1	(5) Prior(5)*(4)	(6) (2)/(5)	(7) Note 2	(8) Note 1	(9) Prior(9)*(8)	(10) (2)/(9) Note 3
45	2Q 2011	121.0	1.020	1.0050	2.3398	51.7	1.011	1.0027	2.1516	56.2
46	3Q 2011	121.0	1.020	1.0050	2.3515	51.5	1.011	1.0027	2.1574	56.1
47	4Q 2011	121.0	1.020	1.0050	2.3633	51.2	1.011	1.0027	2.1632	55.9
48	1Q 2012	123.8	1.020	1.0050	2.3751	52.1	1.011	1.0027	2.1690	57.1
49	2Q 2012	123.8	1.021	1.0052	2.3875	51.9	1.012	1.0030	2.1755	56.9
50	3Q 2012	123.8	1.021	1.0052	2.3999	51.6	1.012	1.0030	2.1820	56.7
51	4Q 2012	123.8	1.021	1.0052	2.4124	51.3	1.012	1.0030	2.1885	56.6
52	1Q 2013	126.9	1.021	1.0052	2.4249	52.3	1.012	1.0030	2.1951	57.8
53	2Q 2013	126.9	1.020	1.0050	2.4370	52.1	1.011	1.0027	2.2010	57.7
54	3Q 2013	126.9	1.020	1.0050	2.4492	51.8	1.011	1.0027	2.2069	57.5
55	4Q 2013	126.9	1.020	1.0050	2.4614	51.6	1.011	1.0027	2.2129	57.3
	Projection for 2014-2020[4]									
56	1Q 2014	130.1	1.020	1.0050	2.4737	52.6	1.011	1.0027	2.2189	58.6
57	2Q 2014	130.1	1.020	1.0050	2.4861	52.3	1.011	1.0027	2.2249	58.5
58	3Q 2014	130.1	1.020	1.0050	2.4985	52.1	1.011	1.0027	2.2309	58.3
59	4Q 2014	130.1	1.020	1.0050	2.5110	51.8	1.011	1.0027	2.2369	58.2
60	1Q 2015	133.4	1.020	1.0050	2.5236	52.9	1.011	1.0027	2.2429	59.5
61	2Q 2015	133.4	1.020	1.0050	2.5362	52.6	1.011	1.0027	2.2490	59.3
62	3Q 2015	133.4	1.020	1.0050	2.5489	52.3	1.011	1.0027	2.2551	59.2
63	4Q 2015	133.4	1.020	1.0050	2.5616	52.1	1.011	1.0027	2.2612	59.0
64	1Q 2016	136.7	1.020	1.0050	2.5744	53.1	1.011	1.0027	2.2673	60.3
65	2Q 2016	136.7	1.020	1.0050	2.5873	52.8	1.011	1.0027	2.2734	60.1
66	3Q 2016	136.7	1.020	1.0050	2.6002	52.6	1.011	1.0027	2.2795	60.0
67	4Q 2016	136.7	1.020	1.0050	2.6132	52.3	1.011	1.0027	2.2857	59.8
68	1Q 2017	140.1	1.020	1.0050	2.6263	53.3	1.011	1.0027	2.2919	61.1
69	2Q 2017	140.1	1.020	1.0050	2.6394	53.1	1.011	1.0027	2.2981	61.0
70	3Q 2017	140.1	1.020	1.0050	2.6526	52.8	1.011	1.0027	2.3043	60.8
71	4Q 2017	140.1	1.020	1.0050	2.6659	52.6	1.011	1.0027	2.3105	60.6
72	1Q 2018	143.6	1.020	1.0050	2.6792	53.6	1.011	1.0027	2.3167	62.0
73	2Q 2018	143.6	1.020	1.0050	2.6926	53.3	1.011	1.0027	2.3230	61.8
74	3Q 2018	143.6	1.020	1.0050	2.7061	53.1	1.011	1.0027	2.3293	61.6
75	4Q 2018	143.6	1.020	1.0050	2.7196	52.8	1.011	1.0027	2.3356	61.5
76	1Q 2019	147.2	1.020	1.0050	2.7332	53.9	1.011	1.0027	2.3419	62.9
77	2Q 2019	147.2	1.020	1.0050	2.7469	53.6	1.011	1.0027	2.3482	62.7
78	3Q 2019	147.2	1.020	1.0050	2.7606	53.3	1.011	1.0027	2.3545	62.5
79	4Q 2019	147.2	1.020	1.0050	2.7744	53.1	1.011	1.0027	2.3609	62.3
80	1Q 2020	150.9	1.020	1.0050	2.7883	54.1	1.011	1.0027	2.3673	63.7
81	2Q 2020	150.9	1.020	1.0050	2.8022	53.9	1.011	1.0027	2.3737	63.6
82	3Q 2020	150.9	1.020	1.0050	2.8162	53.6	1.011	1.0027	2.3801	63.4
83	4Q 2020	150.9	1.020	1.0050	2.8303	53.3	1.011	1.0027	2.3865	63.2

Computation of EIA Adjusted RCAF
Based on Global Insight Forecast and EIA/STB Productivity Change Ratio

Line No.	Quarter	Global Insight Forecast RCAF-U	Productivity Annual	Productivity 4th Root	PAF	RCAF-A	EIA/STB Adjusted Productivity Annual	Productivity 4th Root	EIA Revised PAF	EIA Adjusted RCAF
	(1)	(2)	(3)	(4) Note 1	(5) Prior(5)*(4)	(6) (2)/(5)	(7) Note 2	(8) Note 1	(9) Prior(9)*(8)	(10) (2)/(9) Note 3
					ANNUALLY					
	Annual	Simple Average of 4 Quarters					Simple Average of 4 Quarters			
84	2001	97.3	1.030	1.0073	1.8369	52.97	1.017	1.0043	1.8094	53.77
85	2002	97.1	1.039	1.0095	1.8976	51.16	1.022	1.0054	1.8605	52.18
86	2003	101.3	1.025	1.0061	1.9603	51.69	1.014	1.0035	1.9460	52.07
87	2004	102.7	1.022	1.0055	2.0004	51.31	1.013	1.0031	1.9687	52.14
88	2005	105.2	1.029	1.0072	2.0525	51.25	1.017	1.0042	1.9978	52.66
89	2006	107.8	1.030	1.0075	2.1156	50.96	1.017	1.0043	2.0332	53.02
90	2007	110.4	1.021	1.0052	2.1694	50.89	1.012	1.0029	2.0623	53.53
91	2008	112.8	1.019	1.0047	2.2093	51.06	1.011	1.0027	2.0836	54.14
92	2009	115.4	1.021	1.0051	2.2529	51.22	1.012	1.0029	2.1071	54.77
93	2010	118.1	1.020	1.0051	2.2994	51.36	1.011	1.0028	2.1314	55.41
94	2011	121.0	1.020	1.0050	2.3457	51.58	1.011	1.0027	2.1545	56.16
95	2012	123.8	1.021	1.0052	2.3937	51.72	1.012	1.0029	2.1788	56.82
96	2013	126.9	1.020	1.0051	2.4431	51.94	1.011	1.0028	2.2040	57.58
97	2014	130.1	1.020	1.0050	2.4923	52.20	1.011	1.0027	2.2279	58.40
98	2015	133.4	1.020	1.0050	2.5426	52.47	1.011	1.0027	2.2521	59.23
99	2016	136.7	1.020	1.0050	2.5938	52.70	1.011	1.0027	2.2765	60.05
100	2017	140.1	1.020	1.0050	2.6461	52.95	1.011	1.0027	2.3012	60.88
101	2018	143.6	1.020	1.0050	2.6994	53.20	1.011	1.0027	2.3262	61.73
102	2019	147.2	1.020	1.0050	2.7538	53.45	1.011	1.0027	2.3514	62.60
103	2020	150.9	1.020	1.0050	2.8093	53.72	1.011	1.0027	2.3769	63.49

[1] Fourth root of annual productivity in previous column.

[2] Productivity in column (3) or column (7) times relationship of cumulative EIA productivity from 1981-2002 to cumulative STB productivity for same period (2.4 / 4.2 = 0.57142857). Computations assume operations commence 2Q2000; therefore, first adjustment is 3Q2000.

[3] Forecast RCAF-A adjusted for EIA/STB ratio from 1981-2002.

[4] Global Insight forecast through year 2013 from Rail Cost Adjustment Factor Forecast - September 2003. Projection for 2014-2020 based on year 2012-2013 Global Insight forecast (RCAF-U at an assumed annual 2.5% rate, and annual productivity at an assumed 2.0% rate).

W. W. Whitehurst & Associates, Inc.

Exhibit III-G-6
Page 1 of 2

Calculation of Average Age of Railroad-Owned and Used Assets - 2002

Line No.	Description (1)	Source or Computation (2)	BNSF (3)	CSXT (4)	NS (5)	GTW (6)	KCS (7)	SOO (8)	UP (9)	Total or Composite (10)
	Annual Composite Depr Rate									
1	Total Assets	Note 1	3.65%	3.37%	3.25%	2.50%	3.10%	3.30%	3.73%	3.48%
2	Road	Sch 332, L.30(d)	3.19%	2.89% [2]	2.71%	2.11%	3.14%	3.37% [3]	3.54%	3.11% [4]
3	Equipment	Sch 332, L.39(d)	5.86%	4.33% [2]	4.16%	5.32%	2.91%	3.15% [3]	4.35%	4.58% [4]
4	Computer Systems	Sch 332, L.38(d)	16.89%	14.29%	16.67%	14.10%	2.26%	14.98% [3]	15.63%	15.82% [4]
	Average Life of Assets (Years)									
5	Total Assets	1 / L.1	27.4	29.7	30.8	39.9	32.2	30.3	26.8	28.8
6	Road	1 / L.2	31.3	34.6	36.9	47.4	31.8	29.7	28.2	32.1
7	Equipment	1 / L.3	17.1	23.1	24.0	18.8	34.4	31.7	23.0	21.9
8	Computer Systems	1 / L.4	5.9	7.0	6.0	7.1	44.2	6.7	6.4	6.3
	Depreciation Base (at 12/31)									
9	Total Assets	L.10 + L.11	26,379,944	16,828,642	14,861,344	6,669,666	1,741,364	1,373,076	31,244,047	99,098,083
10	Road	Sch 332, L.30(c)	21,812,720	11,184,659	9,354,413	5,849,139	1,471,808	914,973	23,859,529	74,447,241
11	Equipment	Sch 332, L.39(c)	4,567,224	5,643,983	5,506,931	820,527	269,556	458,103	7,384,518	24,650,842
12	Computer Systems	Sch 332, L.38(c)	255,651	38,802	256,558	32,666	23,648	5,606	257,388	870,319
	Average Annual Depreciation									
13	Total Assets	L.9 * L.1	963,465	566,986	482,593	167,069	54,059	45,265	1,165,854	3,445,291
14	Road	L.10 * L.2	695,826	322,852	253,505	123,417	46,215	30,835	844,627	2,317,276
15	Equipment	L.11 * L.3	267,639	244,134	229,088	43,652	7,844	14,430	321,227	1,128,014
16	Computer Systems	L.12 * L.4	43,179	5,545	42,768	4,606	534	840	40,230	137,702
	Accumulated Depreciation (at 12/31)									
17	Total Assets	L.18 + L.19	4,893,570	4,722,673	5,380,551	1,003,579	688,378	412,840	7,818,589	24,920,180
18	Road	Sch 335, L.30(g)	3,754,390	2,479,235	2,971,215	706,144	558,121	225,028	5,438,271	16,132,404
19	Equipment	Sch 335, L.40(g)	1,139,180	2,243,438	2,409,336	297,435	130,257	187,812	2,380,318	8,787,776
20	Computer Systems	Sch 335, L.38(g)	78,017	44,310	118,660	31,420	19,806	2,636	136,858	431,707
	Average Life Expended (Years)									
21	Total Assets	L.17 / L.13	5.1	8.3	11.1	6.0	12.7	9.1	6.7	7.2
22	Road	L.18 / L.14	5.4	7.7	11.7	5.7	12.1	7.3	6.4	7.0
23	Equipment	L.19 / L.15	4.3	9.2	10.5	6.8	16.6	13.0	7.4	7.8
24	Computer Systems	L.20 / L.16	1.8	8.0	2.8	6.8	37.1	3.1	3.4	3.1

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Calculation of Average Age of Railroad-Owned and Used Assets - 2002

Line No.	Description (1)	Source or Computation (2)	BNSF (3)	CSXT (4)	NS (5)	GTW (6)	KCS (7)	SOO (8)	UP (9)	Total or Composite (10)
	Average Remaining Life (Years)									
25	Total Assets	L.5 - L.21	22.3	21.4	19.6	33.9	19.5	21.2	20.1	21.5
26	Road	L.6 - L.22	26.0	27.0	25.2	41.7	19.8	22.4	21.8	25.2
27	Equipment	L.7 - L.23	12.8	13.9	13.5	12.0	17.8	18.7	15.6	14.1
28	Computer Systems	L.8 - L.24	4.1	(1.0)	3.2	0.3	7.2	3.5	3.0	3.2
	% of Life Remaining									
29	Total Assets	L.25 / L.5	81%	72%	64%	85%	60%	70%	75%	75%
30	Road	L.26 / L.6	83%	78%	68%	88%	62%	75%	77%	78%
31	Equipment	L.27 / L.7	75%	60%	56%	64%	52%	59%	68%	64%
32	Computer Systems	L.28 / L.8	69%	(14%)	54%	4%	16%	53%	47%	50%

[1] Composite rate for all assets calculated as: ((L.2*L.10) + (L.3*L.11)) / L.9

[2] Composite depr rates for CSXT for Road and Equipment calculated as:
weighted average of (depr base * annual Composite depr rate) by account.

[3] Annual Report R-1 for SOO unavailable for year 2002. Rates taken from 2001 R-1.

[4] Composite depr rates for Road, for Equipment, and for Computer Systems for all railroads calculated as:
weighted average of (depr base * annual Composite depr rate) by railroad for each of Road, Equipment, and Computer Systems.

COMPARISON OF OUTPUT INDEX BY YEAR FOR ALL RAILROADS
1ST ORDER APPROXIMATION VS. STB
FOR 1982 TO 2002

Line No.	Year (1)	1st Order Approximation Revenue Ton-Miles (2) Note 1	1st Order Approximation Output Index (3) (2)/Prior Yr(2)	STB Output Index (4) Note 2	1st Order Approximation Over/(Under) STB Output Index Amount (5) (3) - (4)	1st Order Approximation Over/(Under) STB Output Index Percent (6) (5) / (4)
1	1981	899,202,533				
2	1982	788,710,137	0.877	0.838	0.039	4.7%
3	1983	818,021,147	1.037	1.037	0.000	0.0%
4	1984	910,149,108	1.113	1.100	0.013	1.1%
5	1985	872,553,477	0.959	0.951	0.008	0.8%
6	1986	863,387,237	0.989	0.981	0.008	0.9%
7	1987	939,665,140	1.088	1.068 [3]	0.020	1.9%
8	1988	989,183,414	1.053	1.040	0.013	1.2%
9	1989	1,013,820,992	1.025	1.023	0.002	0.2%
10	1990	1,033,969,032	1.020	1.001	0.019	1.9%
11	1991	1,038,819,811	1.005	0.987	0.018	1.8%
12	1992	1,066,780,885	1.027	1.045	(0.018)	(1.7%)
13	1993	1,109,308,968	1.040	1.051	(0.011)	(1.1%)
14	1994	1,200,700,907	1.082	1.084	(0.002)	(0.1%)
15	1995	1,305,687,667	1.087	1.058	0.029	2.8%
16	1996	1,355,567,769	1.038	1.038 [4]	0.000	0.0%
17	1997	1,358,906,439	1.002	1.008 [5]	(0.006)	(0.5%)
18	1998	1,388,310,340	1.022	1.006 [5]	0.016	1.6%
19	1999	1,452,072,173	1.046	1.032 [5]	0.014	1.3%
20	2000	1,487,696,352	1.025	1.029 [5]	(0.004)	(0.4%)
21	2001	1,473,956,704	0.991	0.971	0.020	2.0%
22	2002	1,507,010,907	1.022	1.012	0.010	1.0%
23	Average		1.026	1.017	0.009	0.9%

[1] Railroad Annual Reports R-1.
[2] As published in Ex Parte 290 Sub-No. 4 decisions.
[3] Revised, per STB spreadsheet PROD2002-withcsxiallyears.xls.
[4] Revised in Ex Parte 290 Sub-No. 4 decided 03/04/1998.
[5] Revised in Ex Parte 290 Sub-No. 4 decided 01/24/2003.

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Page 1 of 2

Movement Characteristics for Individual Class I U.S. Railroads - 2002
Proxies for STB Output Index Categories

Line No.	Description (1)	Source or Computation (2)	BNSF (3)	CSXT (4)	NS (5)	GTW (6)	KCS (7)	SOO (8)	UP (9)	Total or Composite (10)
	MILEAGE BLOCKS									
1	Average Haul (miles)	Note 1	982	516	446	306	304	398	895	858
	FREIGHT CAR TYPES									
	Railroad + Private-Line Loaded Car-Miles									
2	Box, Refrig, & All Othe	Note 2	664,534	396,206	516,881	135,611	45,550	25,656	723,495	2,507,933
3	Gondola	Note 3	302,736	396,089	366,597	34,288	6,708	8,006	932,145	2,046,569
4	Open Hopper	Note 4	164,632	439,878	203,605	46,548	4,808	13,220	866,276	1,738,967
5	Covered Hopper	Note 5	832,942	514,308	294,240	95,616	48,902	61,480	1,015,409	2,862,897
6	Flat except TOFC	Note 6	319,304	439,849	327,632	105,970	10,320	50,617	929,594	2,183,286
7	Tank	Note 7	332,743	281,072	214,075	21,495	32,578	1,582	433,467	1,317,012
8	Flat-TOFC/COFC	Note 8	1,061,799	497,294	375,209	69,368	32,497	40,438	1,349,563	3,426,168
9	Total RR+Private	Sum(L.2toL.8)	3,678,690	2,964,696	2,298,239	508,896	181,363	200,999	6,249,949	16,082,832
	Railroad + Private-Line %s									
10	Box, Refrig, & All Othe	L.2/L.9	18.06%	13.36%	22.49%	26.65%	25.12%	12.76%	11.58%	15.59%
11	Gondola	L.3/L.9	8.23%	13.36%	15.95%	6.74%	3.70%	3.98%	14.91%	12.73%
12	Open Hopper	L.4/L.9	4.48%	14.84%	8.86%	9.15%	2.65%	6.58%	13.86%	10.81%
13	Covered Hopper	L.5/L.9	22.64%	17.35%	12.80%	18.79%	26.96%	30.59%	16.25%	17.80%
14	Flat except TOFC	L.6/L.9	8.68%	14.84%	14.26%	20.82%	5.69%	25.18%	14.87%	13.58%
15	Tank	L.7/L.9	9.05%	9.48%	9.31%	4.22%	17.96%	0.79%	6.94%	8.19%
16	Flat-TOFC/COFC	L.8/L.9	28.86%	16.77%	16.33%	13.63%	17.92%	20.12%	21.59%	21.30%
17	Total RR+Private	Sum(L.10toL.16)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
	LADING WEIGHT BRACKETS									
	Total RR+Private Line									
18	Loaded Car-Miles	L.9	3,678,690	2,964,696	2,298,239	508,896	181,363	200,999	6,249,949	16,082,832
19	Revenue ton-miles	Sch 755, L.108(b)	488,330,590	228,175,827	179,012,532	50,097,506	20,146,038	22,548,349	518,700,065	1,507,010,907
20	Revenue tons/car	L.19/L.18	132.7	77.0	77.9	98.4	111.1	112.2	83.0	93.7

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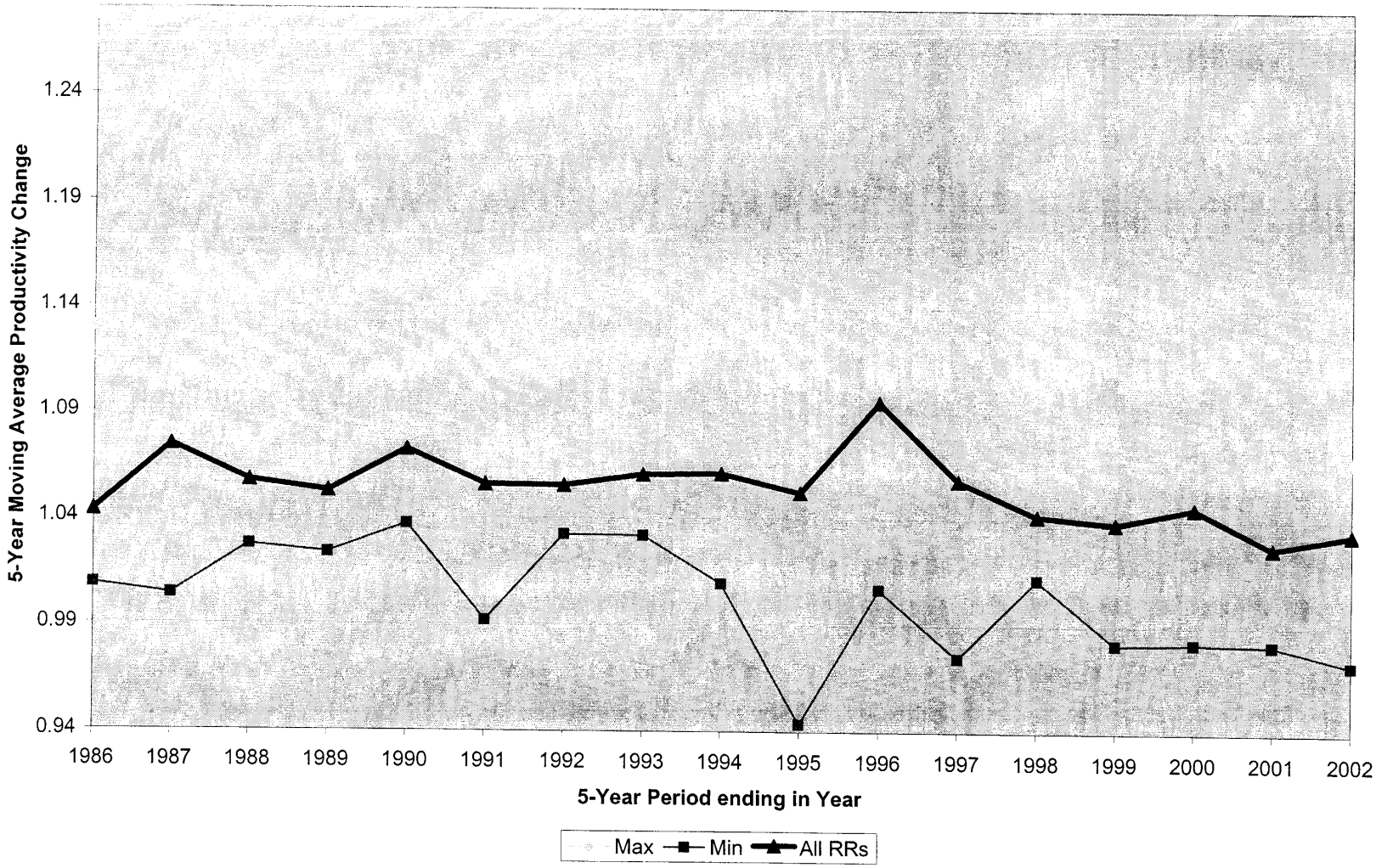
Movement Characteristics for Individual Class I U.S. Railroads - 2002
Proxies for STB Output Index Categories

Line No.	Description (1)	Source or Computation (2)	BNSF (3)	CSXT (4)	NS (5)	GTW (6)	KCS (7)	SOO (8)	UP (9)	Total or Composite (10)
	SHIPMENT SIZE									
	Car-Miles by Train Type									
21	Unit Trains	Sch 755, L.85(b)	4,636,966	1,690,684	1,000,411	140,274	125,347	147,563	4,923,657	12,664,902
22	Through Trains	Sch 755, L.87(b)	4,311,732	3,509,828	3,004,602	1,107,473	228,088	370,672	8,201,319	20,733,714
23	Way Trains	Sch 755, L.86(b)	230,237	278,783	326,044	97,109	69,892	16,932	262,687	1,281,684
	Train-Miles by Train Type									
24	Unit Trains	Sch 755, L.2(b)	42,019,587	19,801,392	10,586,560	1,327,359	1,413,514	1,519,786	43,692,680	120,360,878
25	Through Trains	Sch 755, L.4(b)	92,475,878	58,306,082	49,908,022	12,654,539	3,874,605	5,260,075	109,454,801	331,934,002
26	Way Trains	Sch 755, L.3(b)	10,737,524	11,168,414	12,097,303	3,097,920	1,789,616	628,982	7,853,644	47,373,403
	Cars per Train by Train Type									
27	Unit Trains	L.21*1,000/L.24	110.4	85.4	94.5	105.7	88.7	97.1	112.7	105.2
28	Through Trains	L.22*1,000/L.25	46.6	60.2	60.2	87.5	58.9	70.5	74.9	62.5
29	Way Trains	L.23*1,000/L.26	21.4	25.0	27.0	31.3	39.1	26.9	33.4	27.1

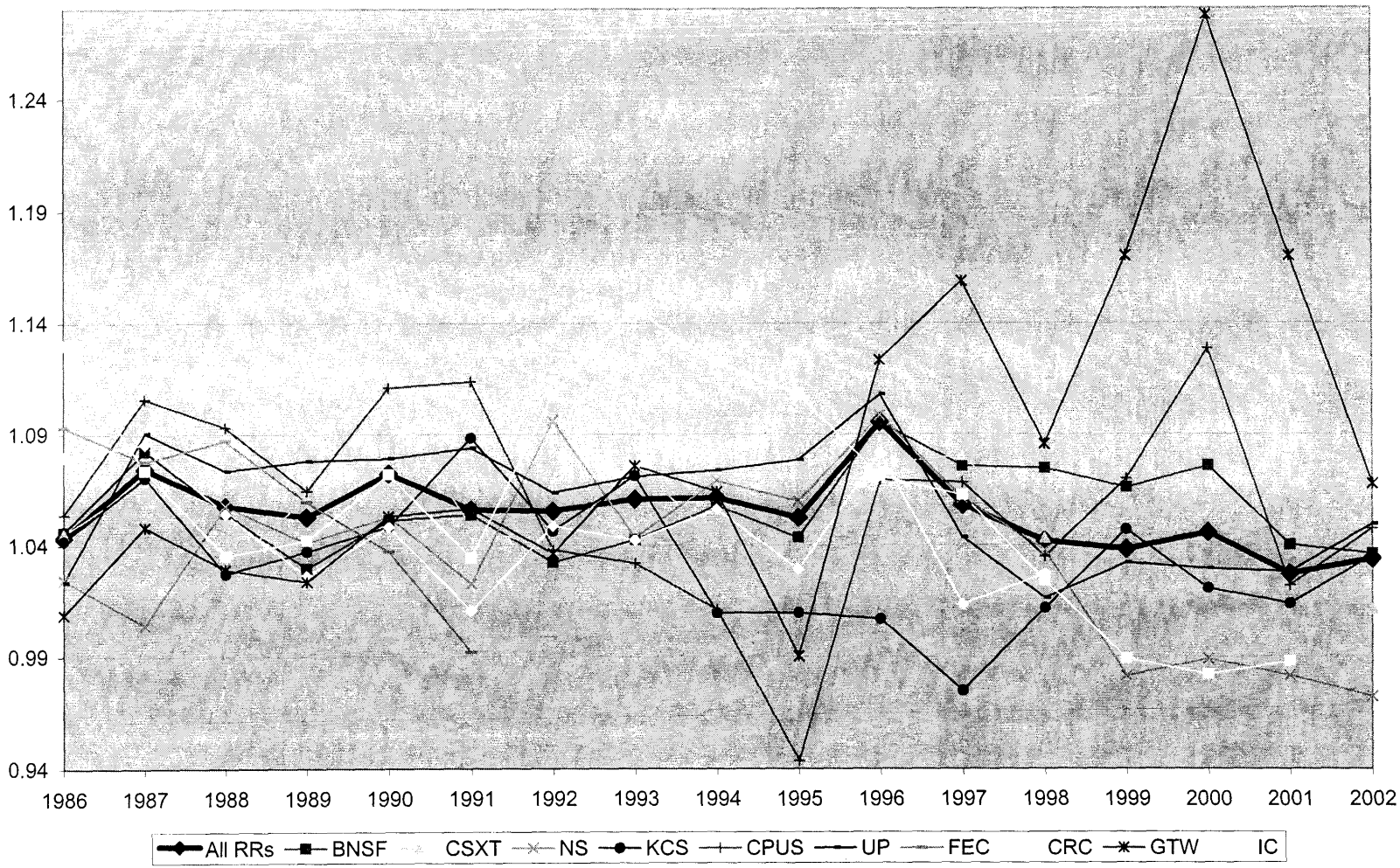
[1] Analysis of Class I Railroads - 2001, L.737.
[2] Annual Report R-1, Schedule 755, L.15(b)+16(b)+17(b)+23(b)+24(b)+29(b)+47(b)+48(b)+49(b)+55(b)+56(b)+63(b).
[3] Annual Report R-1, Schedule 755, L.18(b)+19(b)+50(b)+51(b).
[4] Annual Report R-1, Schedule 755, L.21(b)+22(b)+53(b)+54(b).
[5] Annual Report R-1, Schedule 755, L.20(b)+52(b).
[6] Annual Report R-1, Schedule 755, L.26(b)+27(b)+28(b)+58(b)+59(b)+60(b).
[7] Annual Report R-1, Schedule 755, L.61(b)+62(b).
[8] Annual Report R-1, Schedule 755, L.25(b)+57(b).

denotes minimum
denotes maximum

5-Year Moving Average Productivity Change for All RRs and Dispersion of Maximum and Minimum Values by Year



5-Year Moving Average Productivity Change in Total and by Railroad



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Exhibit III-G-10

COMPARISON OF ESTIMATED R-1 PRODUCTIVITY ADJUSTMENTS BY RAILROAD
FOR 1982 TO 2002

		5-Year Moving Average Productivity Change from 1982													
Line No.	Year (1)	All Class I RRs (2)	BNSF (3)	CSXT (4)	NS (5)	CRC (6)	GTW (7)	IC (8)	KCS (9)	CPUS (10)	UP (11)	FEC (12)	Maximum (13)	Minimum (14)	Max - Min (15) (13)-(14)
1	1986	1.043	1.046	1.045	1.024	1.080	1.009	1.130	1.042	1.054	1.023	1.093	1.130	1.009	0.121
2	1987	1.074	1.082	1.069	1.004	1.086	1.048	1.074	1.070	1.106	1.090	1.078	1.106	1.004	0.102
3	1988	1.057	1.054	1.030	1.058	1.054	1.029	1.035	1.027	1.093	1.073	1.087	1.093	1.027	0.066
4	1989	1.053	1.030	1.061	1.041	1.026	1.024	1.042	1.037	1.064	1.078	1.059	1.078	1.024	0.054
5	1990	1.072	1.051	1.106	1.053	1.048	1.053	1.072	1.048	1.111	1.079	1.037	1.111	1.037	0.074
6	1991	1.056	1.054	1.048	1.023	1.010	1.056	1.034	1.088	1.114	1.084	0.992	1.114	0.992	0.122
7	1992	1.055	1.032	1.038	1.096	1.049	1.036	1.108	1.046	1.038	1.064	n/a	1.108	1.032	0.075
8	1993	1.061	1.042	1.077	1.043	1.042	1.076	1.147	1.071	1.032	1.071	n/a	1.147	1.032	0.115
9	1994	1.061	1.058	1.041	1.069	1.056	1.064	1.122	1.009	1.011	1.074	n/a	1.122	1.009	0.113
10	1995	1.052	1.043	1.032	1.060	1.029	0.990	1.108	1.009	0.944	1.078	n/a	1.108	0.944	0.164
11	1996	1.095	1.095	1.076	1.098	1.081	1.123	1.071	1.007	1.069	1.108	n/a	1.123	1.007	0.117
12	1997	1.058	1.076	1.081	1.061	1.013	1.159	1.062	0.975	1.068	1.043	n/a	1.159	0.975	0.184
13	1998	1.042	1.075	1.043	1.037	1.027	1.085	1.024	1.012	1.035	1.016	n/a	1.085	1.012	0.074
14	1999	1.038	1.066	1.010	0.981	n/a	1.170	0.989	1.047	1.070	1.032	n/a	1.170	0.981	0.189
15	2000	1.046	1.076	1.028	0.989	n/a	1.277	0.982	1.020	1.128	1.029	n/a	1.277	0.982	0.295
16	2001	1.027	1.040	0.997	0.981	n/a	1.170	0.988	1.013	1.022	1.028	n/a	1.170	0.981	0.189
17	2002	1.034	1.036	1.011	0.972	n/a	1.068	n/a	1.035	1.047	1.049	n/a	1.068	0.972	0.095

denotes minimum
denotes maximum

Source: Workpaper "ProductivityByIndivRailroad-Ex9+10.xls", sheet "Prod-5-Yr Moving-Ex10".

Ramsey Pricing Principles and the Generalized Percentage Reduction Method

1. The Theoretical Basis for Ramsey Pricing

The objective of Ramsey pricing is to maximize economic value while allowing the supplier just to recover costs. Alternatively, this can be viewed as recovering fixed costs by raising prices differentially above marginal cost in a manner than minimizes economic inefficiency or deadweight loss.

The constrained optimization, also called a "second-best" problem,[1] is

$$\underset{P_i,\lambda}{\text{Maximize}} \quad \sum_i \int -Q_i(P_i)\, dP_i + \sum P_i\, Q_i(P_i) - C(Q_1(P_1), Q_2(P_2), \ldots, Q_n(P_n)) + \lambda[\sum P_i\, Q_i(P_i) - C(Q_1(P_1), Q_2(P_2), \ldots, Q_n(P_n)) - F] \qquad (1)$$

where Q_is are outputs, P_is are prices, C is variable cost, F is fixed cost and λ is the LaGrange multiplier on the breakeven constraint.

The first-order conditions to the Ramsey pricing problem are

$$-Q_i + (Q_i + P_i\, \partial Q_i/\partial P_i) - MC_i\, \partial Q_i/\partial P_i + \lambda[(Q_i + P_i\, \partial Q_i/\partial P_i) - MC_i\, \partial Q_i/\partial P_i] = 0 \qquad (2a)$$

$$\sum P_i\, Q_i(P_i) - C(Q_1(P_1), Q_2(P_2), \ldots, Q_n(P_n)) - F] = 0 \qquad (2b)$$

where MC_i is the marginal cost in the ith market.

The first term in equation (2a), $-Q_i$, indicates the marginal loss of consumer surplus as price in the ith market is increased. The second term, $(Q_i + P_i\, \partial Q_i/\partial P_i)$, is the marginal revenue to the supplier resulting from increasing the ith price. $-MC_i\, \partial Q_i/\partial P_i$ is

[1] Marginal cost pricing, also called "first-best" pricing, maximizes the economic value in allocating resources, but may result in economic losses for the supplier.

the marginal decrease in cost to the supplier as the ith price is increased. Finally, the last term in equation (2a) indicates how the breakeven constraint, equation (2b), changes as the ith price is increased.

2. The Generalized Percentage Reduction Rule

Using the definition of the price elasticity of demand, Equation (2a) can be manipulated to give

$$[(P_i - MC_i)/P_i)] = [\lambda/(1+\lambda)] (-1/\varepsilon_i) \quad (3)$$

where ε_i is the price elasticity of demand in the ith market. This result shows that the optimal markup of price over marginal cost is inversely proportional to the price elasticity of demand in the market.

Combining the first-order conditions given by equation (3), yields

$$[(P_i - MC_i)/P_i)] / [(P_j - MC_j)/P_j)] = E_{ji} \quad (4)$$

where E_{ji} is the relative elasticity of demand given by $\varepsilon_j/\varepsilon_i$. This result shows that Ramsey pricing implies that the *ratios of price markups* are determined by the relative elasticities.

Equation (4) can be rearranged to give

$$1 - MC_i/P_i = (1 - MC_j/P_j) E_{ji} \quad (5)$$

Treating MC_i , MC_j and E_{ji} as constants and differentiating equation (5) gives

$$(MC_i/P_i^2)dP_i = (MC_j/P_j^2) E_{ji} dP_j \quad (6)$$

which can be reorganized as

$$(dP_i/P_i) / (dP_j/P_j) = (P_i/P_j) (MC_j/MC_i) E_{ji} . \quad (7)$$

Equation (7) is the generalization of the percentage reduction rule that remains consistent with Ramsey pricing. The left-hand side of the equation is the percentage change in the price in market i divided by the percentage change in the price in market j.

The current equal percentage reduction rule is a special case of the generalized percentage reduction rule (i.e., the left-hand side of equation (7) is 1). An equal percentage reduction is only appropriate when the relative elasticity of demand is 1. However, this is the degenerative case where differentiated pricing, as called for by Ramsey principles, produces no efficiency gains relative to an equal percentage reduction rule.[2]

3. Relative Percentage Reductions and Absolute Percentage Reductions

The generalized percentage reduction rule solves the problem of the relative percentages by which to reduce prices. However, as with the current equal percentage reduction rule, the question of the absolute level of individual price reductions remains unanswered. At a minimum, rates need to be reduced on average by the percent of excess revenue collection.[3] In arriving at the overall required average reduction, individual price reductions are determined based on relative elasticities of demand.

---

[2] Differentiated pricing means different price to marginal cost ratios in different markets. As seen in equation (3), Ramsey pricing improves efficiency, or more accurately minimizes pricing inefficiency, by differentiated pricing according to an inverse elasticity rule. However, if the demand elasticities are the same, then no efficiency gain can be obtained by differentiated pricing.

[3] This conclusion is based upon the assumption of constant or decreasing marginal costs.

4. Simple Example of the Generalized Percentage Reduction Method

We use a simple three-shipper example to illustrate the generalized percentage reduction method for a SARR.

Demand and Cost Structures

The demands for rail services by the shippers are given by the following constant elasticity of demand equations:

D1: $Q_1 = 100\ P_1^{-0.5}$

D2: $Q_2 = 100\ P_2^{-1.0}$

D3: $Q_3 = 100\ P_3^{-1.25}$

D1, D2 and D3 are referred to as "inelastic" ($\varepsilon_1 = -0.5$), "unit elastic" ($\varepsilon_2 = -1.0$) and "elastic" ($\varepsilon_3 = -1.25$), respectively.

The SARR cost structure is

$$SAC = \$50 + \$4 + \$8 + \$12 + \$1\ Q_1 + \$1\ Q_2 + \$1\ Q_3$$

$$= \$74 + Q_1 + Q_2 + Q_3.$$

That is, the fixed cost is \$74 and the marginal cost to serve each shipper is \$1. Furthermore, the fixed cost can be separated into unattributable common cost of \$50 and shipper-specific attributable fixed costs of \$4, \$8 and \$12, for the inelastic, unit elastic and elastic shippers, respectively.

Ramsey Prices

Pricing at marginal cost for each shipper, while efficient, would result in a revenue shortfall of \$74. Thus, it is necessary to raise price above marginal cost.[4] As

[4] A non-linear pricing structure (a non-volumetric fee + a per-unit charge) can reduce the required per-unit price markup.

discussed above, Ramsey prices minimize the efficiency loss from raising prices above marginal costs by marking up prices in inverse proportion to the elasticity of demand. For this example, the Ramsey prices and resulting quantities and contributions to margin are

$P_1 = \$1.53$ $Q_1 = 80.72$ $CTM_1 = \$39.16$

$P_2 = \$1.21$ $Q_2 = 82.58$ $CTM_2 = \$\ 9.42$

$P_3 = \$1.16$ $Q_3 = 82.90$ $CTM_3 = \$\ 1.42$

Impact of Cost Decreases

Now, assume that the common cost, shipper-specific fixed costs and shipper-specific marginal costs each decrease by 20%. At the above Ramsey prices, revenues would now exceed SAC by 25%. Following the generalized percentage reduction method, which embodies the Ramsey pricing principles, the prices would be reduced by 30%, 24% and 23%, respectively, for the inelastic, unit elastic and elastic shippers. The new Ramsey prices, quantities and CTMs are

$P_1 = \$1.07$ $Q_1 = 96.52$ $CTM_1 = \$23.18$

$P_2 = \$0.92$ $Q_2 = 109.08$ $CTM_2 = \$\ 9.53$

$P_3 = \$0.89$ $Q_3 = 115.56$ $CTM_3 = \$\ 7.29$

In contrast, the equal percentage reduction method would require a price decrease of 26% for all three shippers to eliminate the excess revenue.

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MARGINAL COSTS FOR BNSF UNIT COAL TRAIN MOVEMENTS

At the request of AEP Texas North Company ("AEP Texas"), W. W. Whitehurst & Associates, Inc. has calculated marginal costs for standard BNSF system-average unit coal train movements based on the Surface Transportation Board's ("STB") Uniform Railroad Costing System ("URCS") for the year 2001.

For purposes of this analysis, we have assumed the following coal unit train movement characteristics:

a.- Alternative movement distances of 300 miles, 600 miles, 900 miles, and 1200 miles;
b.- Each movement originates on BNSF;
c.- At each distance, the movement may either be terminated on BNSF, or interchanged to another railroad;
e.- Interchange may or may not be on a run-through basis;
d.- BNSF system average unit train factors for number of cars, trailing weight, and number of locomotive units are as reflected in the STB's BNSF URCS for the year 2001.

Marginal Cost Approach

The variable unit costs developed in URCS reflect an intermediate-term (3-to-5 years) perspective and the railroad as a whole. Marginal costs focus on costs that are directly affected by the movement (or category of traffic) being analyzed. Therefore, in order to estimate BNSF system-average coal unit train movement costs on a marginal cost basis, we have made several adjustments to the BNSF variable unit costs contained in the STB's BNSF URCS for the year 2001. Our marginal cost assumptions and the associated adjustments we have made to BNSF variable unit costs are listed below.

1.- We have assumed that general and administrative and related functions would not be marginally affected. Therefore, we have deleted the URCS general overhead ratio ("GOH") add-on.

2.- We have assumed that departmental supervision/superintendence (Maintenance of Way, Maintenance of Equipment, Transportation) would not be marginally affected. Therefore, we have deleted these cost components from variable unit costs that contain them.

3.- We have assumed that the size of fixed plant would not be marginally affected, but that program maintenance of existing track structure would be marginally affected. Therefore, we have deleted fixed plant depreciation and lease rentals ("DLR"), and fixed plant return on investment ("ROI"); but have added current year's replacement costs for track structure to maintenance of way operating expenses (GTM D1 costs).

4.- We have assumed that the movement would marginally affect locomotive fleet size requirements. Therefore, we have included locomotive capital costs (DLR and ROI) in marginal costs.

5.- For movements in private freight cars, we have assumed that the cars are provided by the shipper at no cost to the railroad.

6.- For movements in railroad supplied freight cars, we have assumed that the movement would marginally affect freight car fleet size requirements. Therefore, we have included freight car capital costs (DLR and ROI) in marginal costs.

7.- Since the unit train movements being costed are coal unit trains, we have deleted from CLOR unit costs components that are not used by coal unit train service.

To calculate BNSF system-average marginal costs for each of the movements, we substituted the marginal unit costs developed as described immediately above for BNSF system-average variable costs. We then calculated BNSF system average marginal costs for each of the movements using URCS Phase III costing procedures for a trainload movement, including the Ex Parte 270 trainload movement adjustments contained in URCS Phase III.

Cost Results

Movement costs, stated on a per-train basis and converted to a per-ton basis, are presented in Table 1.

More generally, for other lengths of haul, termination vs. interchange alternatives, and car supply alternatives (shipper-supplied vs. railroad-supplied), movement costs may be approximated using the cost factors presented in Table 2. Supporting calculations for these Tables are included in electronic workpapers "BNSF Variable-Marginal-2001.xls" and "BNSF Unit Train Calcs-2001.xls."

TABLE 1
BNSF URCS 2001 Unit Train Costs Excluding Loss & Damage
Marginal Costs by Freight Car Ownership and Various Movement Distances

Line No.	Description	Source or Computation	URCS Marginal Costs: Originate & Terminate	URCS Marginal Costs: Originate & Forward	URCS Marginal Costs: Originate & Forward (Run-Through)
	(1)	(2)	(3)	(4)	(5)
	MOVEMENT COST PER TRAIN				
	Shipper Provided Cars at No Cost to Carrier				
1	300 miles		$ 21,600.92	$ 21,588.02	$ 20,584.29
2	600 miles		$ 41,121.91	$ 41,109.01	$ 40,105.28
3	900 miles		$ 60,642.90	$ 60,630.00	$ 59,626.27
4	1200 miles		$ 80,163.89	$ 80,150.99	$ 79,147.26
	Railroad-Owned Freight Cars				
5	300 miles		$ 29,782.18	$ 28,565.72	$ 27,341.42
6	600 miles		$ 54,195.05	$ 52,978.60	$ 51,754.30
7	900 miles		$ 78,607.93	$ 77,391.48	$ 76,167.18
8	1200 miles		$103,020.81	$101,804.35	$100,580.06
	MOVEMENT COST PER TON OF LADING (Note 1)				
	Shipper Provided Cars at No Cost to Carrier				
9	300 miles	L.1/12,210 tons	$ 1.77	$ 1.77	$ 1.69
10	600 miles	L.2/12,210 tons	$ 3.37	$ 3.37	$ 3.28
11	900 miles	L.3/12,210 tons	$ 4.97	$ 4.97	$ 4.88
12	1200 miles	L.4/12,210 tons	$ 6.57	$ 6.56	$ 6.48
	Railroad-Owned Freight Cars				
13	300 miles	L.5/12,210 tons	$ 2.44	$ 2.34	$ 2.24
14	600 miles	L.6/12,210 tons	$ 4.44	$ 4.34	$ 4.24
15	900 miles	L.7/12,210 tons	$ 6.44	$ 6.34	$ 6.24
16	1200 miles	L.8/12,210 tons	$ 8.44	$ 8.34	$ 8.24

Note 1: 110 cars per train * 111 tons of lading per car = 12,210 tons.

TABLE 2
BNSF URCS 2001 Unit Train Costs Excluding Loss & Damage
Marginal Unit Costs
By Freight Car Ownership and Cost Category

Line No.	Description	Source or Computation	Marginal Unit Costs
	(1)	(2)	(3)
	Shipper Provided Cars at No Cost to Carrier		
1	Line Haul cost per CM		$ 0.296
2	Origination cost per CL		$ 9.244
3	Termination cost per CL	Note 1	$ 9.244
4	Interchange cost per CL	Note 2	$ 9.125
	Railroad-Owned Freight Cars		
	Costs before Freight Car Cost:		
5	Line Haul cost per CM		$ 0.297
6	Origination cost per CL		$ 9.244
7	Termination cost per CL	Note 1	$ 9.244
8	Interchange cost per CL	Note 2	$ 9.125
	Add for RR Freight Car Cost:		
9	CM+CD Line Haul cost per CM		$ 0.074
10	Origination cost per CL		$14.952
11	Termination cost per CL	Note 1	$14.952
12	Interchange cost per CL	Note 2	$ 2.005

Note 1: Not used for Originate & Forward Moves.

Note 2: Used for Originate & Forward moves. Not used for Run-Through moves

III-H Results of SAC Analysis

TABLE A: TNRR ANNUAL COST OF CAPITAL

Year (1)		Industry Cost of Capital (2)	Industry Cost of Debt (3)	Industry Cost of Preferred Equity (4)	Industry Cost of Equity (5)	TNRR's Cost of Debt (6)	TNRR's Cost of Preferred Equity (7)	TNRR's Cost of Equity (8)	Debt as a Percent of Total Investment (9)	Preferred Equity as a Percent of Total Investment (10)	Equity as a Percent of Total Investment (11)	Composite Cost of Capital (12)	1 + Cost of Capital (13)	STB Prescribed Debt as a % of Capital (14)	STB Prescribed Preferred Equity as a % of Capital (15)
1998	1/	10.69%	6.64%	6.19%	13.11%	6.64%	6.19%	13.11%	36.01%	1.35%	62.64%	10.69%	1.1069	36.01%	1.35%
1999	2/	10.76%	7.20%	6.30%	12.90%	7.20%	6.30%	12.90%	35.50%	1.80%	62.70%	10.76%	1.1076	35.50%	1.80%
2000	3/	11.57%	8.00%	6.30%	13.90%	8.00%	6.30%	13.90%	37.14%	1.88%	60.98%	11.57%	1.1157	45.40%	2.50%
2001	4/	10.48%	6.88%	6.26%	12.80%	7.29%	6.29%	12.80%	37.14%	1.88%	60.98%	10.63%	1.1063		
2002	5/	9.80%	6.00%	6.30%	12.60%	6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980	41.20%	2.10%
2003						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2004						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2005						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2006						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2007						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2008						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2009						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2010						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2011						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2012						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2013						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2014						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2015						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2016						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2017						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2018						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2019						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		
2020						6.00%	6.30%	12.60%	41.20%	2.10%	56.70%	9.80%	1.0980		

1/ Decision in STB Ex Parte No. 558 (Sub No. 2) - Railroad Cost of Capital - 1998.
2/ Decision in STB Ex Parte No. 558 (Sub No. 3) - Railroad Cost of Capital - 1999.
3/ Decision in STB Ex Parte No. 558 (Sub No. 4) - Railroad Cost of Capital - 2000.
4/ Decision in STB Ex Parte No. 558 (Sub No. 5) - Railroad Cost of Capital - 2001.
5/ Decision in STB Ex Parte No. 558 (Sub No. 6) - Railroad Cost of Capital - 2002.

TABLE B: TNRR INFLATION INDEXES

Period (1)	Land 2/ (2)	RCAF-A 3/ (3)	MWSExFuel 4/ (4)	Mat & Suppl 5/ (5)	Wages & Supps 6/ (6)
1998 1 Qtr	100.0		295.5	234.0	308.5
1998 2 Qtr	100.7		294.7	231.3	308.1
1998 3 Qtr	101.4		292.6	232.7	305.2
1998 4 Qtr	102.1		292.6	231.0	305.6
1999 1 Qtr	102.8		290.7	229.3	303.7
1999 2 Qtr	103.5		290.8	229.1	303.8
1999 3 Qtr	104.3		294.3	233.1	307.2
1999 4 Qtr	105.0		293.8	231.5	306.9
2000 1 Qtr	105.7		305.8	227.5	322.0
2000 2 Qtr	106.5	0.516	305.6	226.4	322.0
2000 3 Qtr	107.2	0.514	309.0	229.4	325.4
2000 4 Qtr	108.0	0.517	309.1	230.0	325.4
2001 1 Qtr	108.7	0.526	316.6	229.9	334.4
2001 2 Qtr	109.5	0.519	318.1	234.9	335.3
2001 3 Qtr	110.2	0.519	320.5	235.5	338.0
2001 4 Qtr	111.0	0.516	320.5	235.6	338.0
2002 1 Qtr	111.8	0.513	329.9	234.6	349.4
2002 2 Qtr	112.6	0.503	329.8	233.5	349.3
2002 3 Qtr	113.4	0.500	331.9	226.3	353.2
2002 4 Qtr	114.1	0.519	330.8	218.0	353.4
2003 1 Qtr	114.9	0.514	335.0	213.1	359.3
2003 2 Qtr	115.7	0.522	339.1	235.4	360.1
2003 3 Qtr	116.6	0.523	343.2	232.0	365.6
2003 4 Qtr	117.4	0.520	343.5	235.6	365.3
2004 1 Qtr	118.2	0.519	345.2	235.6	367.5
2004 2 Qtr	119.0	0.517	345.3	234.7	367.9
2004 3 Qtr	119.8	0.522	350.3	235.4	374.1
2004 4 Qtr	120.7	0.527	354.4	236.3	379.0
2005 1 Qtr	121.5	0.526	356.1	236.3	381.3
2005 2 Qtr	122.4	0.525	356.4	236.3	381.6
2005 3 Qtr	123.2	0.526	358.6	236.8	384.3
2005 4 Qtr	124.1	0.529	359.1	237.5	384.7
2006 1 Qtr	125.0	0.534	361.7	238.2	387.9
2006 2 Qtr	125.8	0.531	364.4	238.9	391.0
2006 3 Qtr	126.7	0.529	367.0	239.6	394.2
2006 4 Qtr	127.6	0.527	369.7	240.3	397.4
2007 1 Qtr	128.5	0.537	372.2	241.2	400.4
2007 2 Qtr	129.4	0.536	374.7	242.1	403.3
2007 3 Qtr	130.3	0.535	377.3	243.0	406.3
2007 4 Qtr	131.2	0.533	379.9	243.9	409.3
2008 1 Qtr	132.1	0.544	382.3	244.8	412.3
2008 2 Qtr	133.0	0.542	384.8	245.6	415.2
2008 3 Qtr	134.0	0.541	387.4	246.5	418.2
2008 4 Qtr	134.9	0.539	389.9	247.4	421.2
2009 1 Qtr	135.8	0.550	392.6	248.2	424.4
2009 2 Qtr	136.8	0.549	395.3	249.0	427.7
2009 3 Qtr	137.7	0.547	398.1	249.8	431.0
2009 4 Qtr	138.7	0.545	400.8	250.6	434.3
2010 1 Qtr	139.7	0.556	403.5	251.4	437.5
2010 2 Qtr	140.7	0.555	406.2	252.2	440.7
2010 3 Qtr	141.6	0.553	408.9	253.0	444.0
2010 4 Qtr	142.6	0.552	411.7	253.8	447.3

1/ 4Q2020 ÷ 1Q1998^(1/21) - 1. The Annual Rate is used to develop asset replacement values at the end of asset lives.
2/ Used to index Road Property Account 2 developed in TNR Land Appreciation.xls.
3/ Used to index expenses in Table K developed and shown in Exhibit III-G.
4/ Used to index Road Property Accounts 3, 6, 13, 17, 19, 20, 26, 27, and 39. Acutal RCR-West indices through 4Q2003 the forecasted using Col (5) & (6).
5/ Used to index Road Property Accounts 8, 9, and 11. Actual RCR-West index through 4Q2003 and then forecasted by Global Insight Material & Supp.index.
6/ Used to index Road Property Accounts 1, 1A and 12. Actual RCR-West through 4Q2003 and then forecasted by Global Insight Labor index.

TABLE B: TNRR INFLATION INDEXES
(Continued)

Period (1)	Land 2/ (2)	RCAF-A 3/ (3)	MWSExFuel 4/ (4)	Mat & Suppl 5/ (5)	Wages & Supps 6/ (6)
2011 1 Qtr	143.8	0.564	414.6	254.8	450.7
2011 2 Qtr	145.0	0.562	417.5	255.7	454.2
2011 3 Qtr	146.2	0.561	420.4	256.7	457.7
2011 4 Qtr	147.4	0.559	423.3	257.6	461.2
2012 1 Qtr	148.6	0.571	426.2	258.5	464.6
2012 2 Qtr	149.8	0.569	429.1	259.4	468.0
2012 3 Qtr	151.0	0.567	432.0	260.3	471.5
2012 4 Qtr	152.3	0.566	434.9	261.2	475.0
2013 1 Qtr	153.5	0.578	438.0	262.3	478.6
2013 2 Qtr	154.8	0.577	441.0	263.3	482.3
2013 3 Qtr	156.1	0.575	444.1	264.4	486.0
2013 4 Qtr	157.4	0.573	447.3	265.4	489.7
2014 1 Qtr	158.6	0.586	450.4	266.5	493.5
2014 2 Qtr	160.0	0.585	453.6	267.5	497.3
2014 3 Qtr	161.3	0.583	456.8	268.6	501.1
2014 4 Qtr	162.6	0.582	460.0	269.7	504.9
2015 1 Qtr	163.9	0.595	463.2	270.7	508.8
2015 2 Qtr	165.3	0.593	466.5	271.8	512.7
2015 3 Qtr	166.6	0.592	469.8	272.9	516.6
2015 4 Qtr	168.0	0.590	473.1	274.0	520.6
2016 1 Qtr	169.4	0.603	476.4	275.1	524.5
2016 2 Qtr	170.8	0.601	479.8	276.2	528.6
2016 3 Qtr	172.2	0.600	483.2	277.3	532.6
2016 4 Qtr	173.6	0.598	486.6	278.4	536.7
2017 1 Qtr	175.0	0.611	490.0	279.5	540.8
2017 2 Qtr	176.5	0.610	493.4	280.6	545.0
2017 3 Qtr	177.9	0.608	496.9	281.7	549.1
2017 4 Qtr	179.4	0.606	500.4	282.8	553.3
2018 1 Qtr	180.9	0.620	503.9	283.9	557.6
2018 2 Qtr	182.3	0.618	507.5	285.1	561.8
2018 3 Qtr	183.8	0.616	511.1	286.2	566.2
2018 4 Qtr	185.4	0.615	514.7	287.3	570.5
2019 1 Qtr	186.9	0.629	518.3	288.5	574.9
2019 2 Qtr	188.4	0.627	521.9	289.6	579.3
2019 3 Qtr	190.0	0.625	525.6	290.8	583.7
2019 4 Qtr	191.5	0.623	529.3	291.9	588.2
2020 1 Qtr	193.1	0.637	533.0	293.1	592.7
2020 2 Qtr	194.7	0.636	536.8	294.3	597.2
2020 3 Qtr	196.3	0.634	540.6	295.4	601.8
2020 4 Qtr	197.9	0.632	544.4	296.6	606.4
Annual Inflation Rate 1/	3.15%	xxx	2.82%	1.08%	3.12%

1/ 4Q2020 ÷ 1Q1998^(1/21) - 1. The Annual Rate is used to develop asset replacement values at the end of asset lives.
2/ Used to index Road Property Account 2 developed in TNR Land Appreciation.xls.
3/ Used to index expenses in Table K developed and shown in Exhibit III-G.
4/ Used to index Road Property Accounts 3, 6, 13, 17, 19, 20, 26, 27, and 39. Acutal RCR-West indices through 4Q2003 the forecasted using Col (5) & (6).
5/ Used to index Road Property Accounts 8, 9, and 11. Actual RCR-West index through 4Q2003 and then forecasted by Global Insight Material & Supp.index.
6/ Used to index Road Property Accounts 1, 1A and 12. Actual RCR-West through 4Q2003 and then forecasted by Global Insight Labor index.

TABLE C: TNRR ROAD PROPERTY INVESTMENT VALUES

Construction of the TNRR occurs between January 1, 1998 and June 15, 2000.
Investments are assumed to be in June 16, 2000 dollars.

Road Property Account (1)	Road Property Component (2)	Service Life In Years 1/ (3)	Investment In 3Q1998 Dollars 2/ (4)	Investment In 3Q1999 Dollars 3/ (5)	Investment In 6/16/2000 Dollars 4/ (6)	1998 Investment Value 5/ (7)	1999 Investment Value 6/ (8)	2000 Investment Value 7/ (9)	Total Property Investment June 16, 2000 8/ (10)
1	Engineering	NA	$129,038,482	$129,884,081	$137,579,037	$96,778,861	$32,471,020	$0	$129,249,882
2	Land	NA	88,075,652	89,934,049	89,000,000	66,056,739	22,483,512	0	88,540,251
3	Grading	95	611,792,715	615,347,218	646,083,216	0	615,347,218	0	615,347,218
1A	Training & Startup	NA	6,874,855	7,193,848	7,527,643	0	0	7,527,643	7,527,643
6	Bridges & Culverts	80	207,231,534	208,435,545	218,846,699	0	164,664,081	45,957,807	210,621,888
8	Ties	30	178,753,032	179,060,300	176,218,073	0	134,295,225	44,054,518	178,349,743
9	Rails and OTM	26	474,934,220	475,750,609	468,199,012	0	356,812,956	117,049,753	473,862,709
11	Ballast	23	188,646,483	188,970,757	185,971,221	0	141,728,068	46,492,805	188,220,873
12	Labor	26	332,507,174	334,686,120	354,514,529	0	251,014,590	88,628,632	339,643,222
13	Fences and Roadway Signs	80	8,267,187	8,315,219	8,730,556	0	6,236,414	2,182,639	8,419,053
16	Station and Office Buildings	32	1,834,525	1,919,647	2,008,718	0	1,439,735	502,180	1,941,915
17	Roadway Buildings	27	3,384,429	3,404,093	3,574,124	0	2,553,070	893,531	3,446,601
19	Fuel Stations	31	8,216,134	8,263,869	8,676,642	0	6,197,902	2,169,160	8,367,062
20	Shops and Enginehouses	50	14,183,824	14,266,232	14,978,816	0	10,699,674	3,744,704	14,444,378
26	Communications Systems	25	13,870,073	13,950,658	14,647,480	0	10,462,994	3,661,870	14,124,863
27	Signals and interlockers	33	116,211,276	116,886,461	122,724,827	0	87,664,846	30,681,207	118,346,053
39	Public improvements	55	10,802,912	10,865,677	11,408,407	0	8,149,258	2,852,102	11,001,359
	Total		$2,394,624,507	$2,407,134,382	$2,470,688,999	$162,835,601	$1,852,220,562	$396,398,551	$2,411,454,713

1/ BNSF Discovery BNSF/AEPTX 00007.
2/ June 16, 2000 (Column (6)), indexed to 1998 dollars; Column (6) ÷ Inflation Index from Table B, 2Q2000 ÷ 3Q1998.
3/ June 16, 2000 (Column (6)), indexed to 1999 dollars; Column (6) ÷ Inflation Index from Table B, 2Q2000 ÷ 3Q1999.
4/ June 16, 2000 (Column (6)), indexed to June 16, 2000 dollars; Column (6) ÷ Inflation Index from Table B, 2Q2000 ÷ 2Q2000.
5/ Column (4) x Percent constructed in 1998 identified in Construction Schedule.xls.
6/ Column (5) x Percent constructed in 1999 identified in Construction Schedule.xls.
7/ Column (6) x Percent constructed in 2000 identified in Construction Schedule.xls.
8/ Sum of Column's (7) through (9).

TABLE D: INTEREST DURING CONSTRUCTION

Month of Installation (1)	Cost of Funds 1/ (2)	Timing of Account 1 invesment 2/ (3)	Timing of Account 2 invesment 2/ (4)	Timing of Accounts 3 And 6 invesment 2/ (5)	Timing of Accounts 8 Through 39 Invesment 2/ (6)	Total Investment by Month 3/ (7)	Interest During Construction 4/ (8)	Cost of Debt 5/ (9)	Deductible Interest During Construction 6/ (10)
Jan-98	0.85%	$8,064,905				$8,064,905	$0	0.54%	0
Feb-98	0.85%	8,064,905				8,064,905	68,528	0.54%	15,600
Mar-98	0.85%	8,064,905				8,064,905	137,638	0.54%	31,334
Apr-98	0.85%	8,064,905				8,064,905	207,335	0.54%	47,200
May-98	0.85%	8,064,905				8,064,905	277,625	0.54%	63,202
Jun-98	0.85%	8,064,905				8,064,905	348,512	0.54%	79,339
Jul-98	0.85%	8,064,905	$11,009,457			19,074,362	420,001	0.54%	94,260
Aug-98	0.85%	8,064,905	11,009,457			19,074,362	585,646	0.54%	131,435
Sep-98	0.85%	8,064,905	11,009,457			19,074,362	752,698	0.54%	168,926
Oct 98	0.85%	8,064,905	11,009,457			19,074,362	921,169	0.54%	206,736
Nov 98	0.85%	8,064,905	11,009,457			19,074,362	1,091,072	0.54%	244,867
Dec 98	0.85%	8,064,905	11,009,457			19,074,362	1,262,419	0.54%	283,322
Jan 99	0.86%	8,117,755	11,241,756			19,359,511	1,444,320	0.58%	348,421
Feb 99	0.86%	8,117,755	11,241,756	$117,527,332		136,886,843	1,622,212	0.58%	391,335
Mar 99	0.86%	8,117,755		117,527,332		125,645,087	2,806,591	0.58%	677,049
Apr 99	0.86%	8,117,755	0	117,527,332	$113,028,303	238,673,390	3,904,970	0.58%	942,017
May 99	0.86%	0	0	117,527,332	113,028,303	230,555,635	5,979,237	0.58%	1,442,403
Jun 99	0.86%	0	0	117,527,332	113,028,303	230,555,635	8,001,826	0.58%	1,930,323
Jul 99	0.86%	0	0	117,527,332	113,028,303	230,555,635	10,041,710	0.58%	2,534,052
Aug 99	0.86%	0	0	14,969,462	113,028,303	127,997,765	12,099,038	0.58%	3,053,224
Sep 99	0.86%	0	0	14,969,462	113,028,303	127,997,765	13,296,993	0.58%	3,355,532
Oct 99	0.86%	0	0	14,969,462	113,028,303	127,997,765	14,505,193	0.58%	3,660,424
Nov 99	0.86%	0	0	14,969,462	113,028,303	127,997,765	15,723,723	0.58%	3,967,924
Dec 99	0.86%	0	0	14,969,462	113,028,303	127,997,765	16,952,674	0.58%	4,278,052
Jan 00	0.92%	0	0	15,319,269	114,304,367	129,623,636	19,492,532	0.64%	5,083,344
Feb 00	0.92%	0	0	15,319,269	114,304,367	129,623,636	20,858,756	0.64%	5,439,633
Mar 00	0.92%	0	0	15,319,269	114,304,367	129,623,636	22,237,497	0.64%	5,799,187
Apr 00	0.92%	0	0	0	0	0	23,628,871	0.64%	6,162,036
May 00	0.92%	0	0	0	0	0	23,845,362	0.64%	6,218,493
Jun-00	0.92%	0	0	0	0	0	24,063,837	0.64%	6,275,468
Total		$129,249,882	$88,540,251	$825,969,106	$1,360,167,832	$2,403,927,071	$246,577,983		$62,925,138

1/ ((1 + Cost of Capital from Table A for the applicable year)^(1/12) - 1) x 100.
2/ Applicable account value from Table C for the applicable investment period.
3/ Sum of Columns (3) through (6).
4/ Feb 98 equals Column (2) x prior Column (7), all other periods equal Column (2) x ((Sum of Column (7) for all prior periods) + (Sum of Column (8) for all prior periods)).
5/ ((1 + Cost of Debt from Table A for the applicable year)^(1/12) - 1) x 100.
6/ Feb 98 equals prior Column (7) x Column (9) x Table A, Column (9) for 1998, all other periods equal Column (9) x ((Sum of Column (7) for all prior periods) + (Sum of Column (8) for all prior periods)) x Table A, Column (9) for the applicable year.

TABLE E: TNRR AMORTIZATION SCHEDULE OF ASSETS PURCHASED WITH DEBT CAPITAL

AMORTIZATION SCHEDULE FOR THE TNRR 1998 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT $162,835,601 1/
2. IDC $6,072,642 2/
3. PRINCIPAL $60,823,858 3/
4. INTEREST 6.6% 4/
5. TERM 212 Quarters 5/
6. PAYMENT ====>> $1,019,292 Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(1)	(2)	(3)	(4)	(5)	(6)
1	$60,823,858	$60,818,283	$168,015	$5,576	$162,440
2	60,818,283	60,784,367	1,019,292	33,916	985,376
3	60,784,367	60,749,902	1,019,292	34,465	984,827
4	60,749,902	60,714,878	1,019,292	35,024	984,268
5	60,714,878	60,679,287	1,019,292	35,591	983,701
6	60,679,287	60,643,119	1,019,292	36,168	983,124
7	60,643,119	60,606,366	1,019,292	36,754	982,538
8	69,341,357	69,292,687	$1,066,174	48,670	1,017,504
9	69,292,687	69,243,303	1,066,174	49,384	1,016,790
10	69,243,303	69,193,194	1,066,174	50,109	1,016,066
11	69,193,194	69,142,350	1,066,174	50,844	1,015,330
12	69,142,350	69,090,759	1,066,174	51,590	1,014,584
13	69,090,759	69,038,412	1,066,174	52,347	1,013,827
14	69,038,412	68,985,297	1,066,174	53,115	1,013,059
15	68,985,297	68,931,402	1,066,174	53,895	1,012,280
16	68,931,402	68,876,716	1,066,174	54,686	1,011,489
17	68,876,716	68,821,228	1,066,174	55,488	1,010,686
18	68,821,228	68,764,926	1,066,174	56,302	1,009,872
19	68,764,926	68,707,797	1,066,174	57,129	1,009,046
20	68,707,797	68,649,830	1,066,174	57,967	1,008,208

AMORTIZATION SCHEDULE FOR THE TNRR 1999 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT $1,852,220,562 1/
2. IDC $106,378,487 2/
3. PRINCIPAL $695,302,662 3/
4. INTEREST 7.2% 4/
5. TERM 212 Quarters 5/
6. PAYMENT ====>> $12,505,503 Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(7)	(8)	(9)	(10)	(11)	(12)
1	$695,302,662	$695,250,830	$2,061,347	$51,832	$2,009,515
2	695,250,830	694,935,475	12,505,503	315,355	12,190,148
3	694,935,475	694,614,591	12,505,503	320,884	12,184,619
4	694,614,591	694,288,080	12,505,503	326,511	12,178,992
5	694,288,080	693,955,845	12,505,503	332,236	12,173,268
6	693,955,845	693,617,784	12,505,503	338,061	12,167,442
7	693,617,784	693,273,796	12,505,503	343,988	12,161,515
8	804,588,180	804,023,447	$12,371,136	564,733	11,806,403
9	804,023,447	803,450,427	12,371,136	573,020	11,798,116
10	803,450,427	802,868,998	12,371,136	581,428	11,789,708
11	802,868,998	802,279,038	12,371,136	589,960	11,781,176
12	802,279,038	801,680,421	12,371,136	598,617	11,772,519
13	801,680,421	801,073,020	12,371,136	607,401	11,763,735
14	801,073,020	800,456,706	12,371,136	616,314	11,754,822
15	800,456,706	799,831,348	12,371,136	625,358	11,745,779
16	799,831,348	799,196,814	12,371,136	634,534	11,736,602
17	799,196,814	798,552,968	12,371,136	643,845	11,727,291
18	798,552,968	797,899,675	12,371,136	653,293	11,717,843
19	797,899,675	797,236,796	12,371,136	662,879	11,708,257
20	797,236,796	796,564,190	12,371,136	672,606	11,698,530

AMORTIZATION SCHEDULE FOR THE TNRR 2000 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT $388,870,908 1/
2. IDC $134,126,854 2/
3. PRINCIPAL $194,220,544 3/
4. INTEREST 8.0% 4/
5. TERM 212 Quarters 5/
6. PAYMENT =====>> $3,838,124 Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(13)	(14)	(15)	(16)	(17)	(18)
1	$194,220,544	$194,209,815	$632,658	$10,729	$621,929
2	194,209,815	194,144,517	3,838,124	65,298	3,772,826
3	194,144,517	194,077,950	3,838,124	66,566	3,771,558
4	194,077,950	194,010,090	3,838,124	67,860	3,770,264
5	194,010,090	193,940,912	3,838,124	69,178	3,768,946
6	193,940,912	193,870,391	3,838,124	70,522	3,767,602
7	193,870,391	193,798,499	3,838,124	71,892	3,766,232
8	175,870,003	175,746,562	$2,704,131	123,442	2,580,689
9	175,746,562	175,621,309	2,704,131	125,253	2,578,878
10	175,621,309	175,494,218	2,704,131	127,091	2,577,040
11	175,494,218	175,365,262	2,704,131	128,956	2,575,175
12	175,365,262	175,234,414	2,704,131	130,848	2,573,283
13	175,234,414	175,101,646	2,704,131	132,768	2,571,363
14	175,101,646	174,966,930	2,704,131	134,716	2,569,415
15	174,966,930	174,830,237	2,704,131	136,693	2,567,438
16	174,830,237	174,691,538	2,704,131	138,699	2,565,432
17	174,691,538	174,550,803	2,704,131	140,734	2,563,397
18	174,550,803	174,408,004	2,704,131	142,799	2,561,332
19	174,408,004	174,263,109	2,704,131	144,895	2,559,236
20	174,263,109	174,116,089	2,704,131	147,021	2,557,110

1/ From Table D, Column (7) for the applicable year investment.
2/ From Table D, Column (8) for the applicable year investment.
3/ (Total Investment + IDC) x (Proportion of Debt from Table A, Column (9)).
4/ From Table A, Column (6) for the applicable year investment.
5/ Weighted life of assets in years x 4.
6/ Line 3 Principal financed over Line 5 Term at Line 4 Interest Rate on a quarterly basis.
7/ Current quarter Beginning Balance - Principal.
8/ Current quarter Payment - Interest.
9/ Current quarter Beginning Balance x (1 + The Quarterly Interest Rate).

TABLE E: TNRR AMORTIZATION SCHEDULE OF ASSETS PURCHASED WITH DEBT CAPITAL

(Continued)

AMORTIZATION SCHEDULE FOR THE TNRR 1998 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT	$162,835,601	1/
2. IDC	$6,072,642	2/
3. PRINCIPAL	$60,823,858	3/
4. INTEREST	6.6%	4/
5. TERM	212	Quarters 5/
6. PAYMENT ====>>	$1,019,292	Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(1)	(2)	(3)	(4)	(5)	(6)
21	$68,649,830	$68,591,013	$1,066,174	$58,817	$1,007,357
22	68,591,013	68,531,332	1,066,174	59,681	1,006,494
23	68,531,332	68,470,776	1,066,174	60,556	1,005,618
24	68,470,776	68,409,331	1,066,174	61,445	1,004,730
25	68,409,331	68,346,985	1,066,174	62,346	1,003,828
26	68,346,985	68,283,723	1,066,174	63,261	1,002,913
27	68,283,723	68,219,534	1,066,174	64,190	1,001,985
28	68,219,534	68,154,402	1,066,174	65,132	1,001,043
29	68,154,402	68,088,315	1,066,174	66,087	1,000,087
30	68,088,315	68,021,258	1,066,174	67,057	999,117
31	68,021,258	67,953,217	1,066,174	68,041	998,133
32	67,953,217	67,884,177	1,066,174	69,039	997,135
33	67,884,177	67,814,125	1,066,174	70,053	996,122
34	67,814,125	67,743,045	1,066,174	71,080	995,094
35	67,743,045	67,670,921	1,066,174	72,123	994,051
36	67,670,921	67,597,739	1,066,174	73,182	992,993
37	67,597,739	67,523,484	1,066,174	74,256	991,919
38	67,523,484	67,448,138	1,066,174	75,345	990,829
39	67,448,138	67,371,687	1,066,174	76,451	989,724
40	67,371,687	67,294,115	1,066,174	77,573	988,602

AMORTIZATION SCHEDULE FOR THE TNRR 1999 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT	$1,852,220,562	1/
2. IDC	$106,378,487	2/
3. PRINCIPAL	$695,302,662	3/
4. INTEREST	7.2%	4/
5. TERM	212	Quarters 5/
6. PAYMENT ====>>	$12,505,503	Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(7)	(8)	(9)	(10)	(11)	(12)
21	$796,564,190	$795,881,714	$12,371,136	$682,476	$11,688,660
22	795,881,714	795,189,224	12,371,136	692,491	11,678,646
23	795,189,224	794,486,572	12,371,136	702,652	11,668,484
24	794,486,572	793,773,609	12,371,136	712,963	11,658,174
25	793,773,609	793,050,184	12,371,136	723,425	11,647,712
26	793,050,184	792,316,144	12,371,136	734,040	11,637,096
27	792,316,144	791,571,333	12,371,136	744,811	11,626,325
28	791,571,333	790,815,593	12,371,136	755,740	11,615,396
29	790,815,593	790,048,763	12,371,136	766,830	11,604,306
30	790,048,763	789,270,681	12,371,136	778,082	11,593,054
31	789,270,681	788,481,181	12,371,136	789,500	11,581,637
32	788,481,181	787,680,096	12,371,136	801,085	11,570,052
33	787,680,096	786,867,256	12,371,136	812,840	11,558,297
34	786,867,256	786,042,489	12,371,136	824,767	11,546,369
35	786,042,489	785,205,619	12,371,136	836,870	11,534,267
36	785,205,619	784,356,469	12,371,136	849,150	11,521,986
37	784,356,469	783,494,859	12,371,136	861,610	11,509,526
38	783,494,859	782,620,606	12,371,136	874,253	11,496,883
39	782,620,606	781,733,524	12,371,136	887,082	11,484,054
40	781,733,524	780,833,425	12,371,136	900,099	11,471,037

AMORTIZATION SCHEDULE FOR THE TNRR 2000 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT	$388,870,908	1/
2. IDC	$134,126,854	2/
3. PRINCIPAL	$194,220,544	3/
4. INTEREST	8.0%	4/
5. TERM	212	Quarters 5/
6. PAYMENT ====>>	$3,838,124	Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(13)	(14)	(15)	(16)	(17)	(18)
21	$174,116,089	$173,966,910	$2,704,131	$149,178	$2,554,953
22	173,966,910	173,815,543	2,704,131	151,367	2,552,764
23	173,815,543	173,661,955	2,704,131	153,588	2,550,543
24	173,661,955	173,506,112	2,704,131	155,842	2,548,289
25	173,506,112	173,347,984	2,704,131	158,129	2,546,002
26	173,347,984	173,187,534	2,704,131	160,449	2,543,682
27	173,187,534	173,024,731	2,704,131	162,804	2,541,327
28	173,024,731	172,859,538	2,704,131	165,193	2,538,938
29	172,859,538	172,691,921	2,704,131	167,617	2,536,514
30	172,691,921	172,521,845	2,704,131	170,076	2,534,055
31	172,521,845	172,349,273	2,704,131	172,572	2,531,559
32	172,349,273	172,174,169	2,704,131	175,104	2,529,027
33	172,174,169	171,996,495	2,704,131	177,674	2,526,457
34	171,996,495	171,816,214	2,704,131	180,281	2,523,850
35	171,816,214	171,633,288	2,704,131	182,926	2,521,205
36	171,633,288	171,447,678	2,704,131	185,610	2,518,520
37	171,447,678	171,259,344	2,704,131	188,334	2,515,797
38	171,259,344	171,068,246	2,704,131	191,098	2,513,033
39	171,068,246	170,874,344	2,704,131	193,902	2,510,229
40	170,874,344	170,677,597	2,704,131	196,747	2,507,384

1/ From Table D, Column (7) for the applicable year investment.
2/ From Table D, Column (8) for the applicable year investment.
3/ (Total Investment + IDC) x (Proportion of Debt from Table A, Column (9)).
4/ From Table A, Column (6) for the applicable year investment.
5/ Weighted life of assets in years x 4.
6/ Line 3 Principal financed over Line 5 Term at Line 4 Interest Rate on a quarterly basis.
7/ Current quarter Beginning Balance - Principal.
8/ Current quarter Payment - Interest.
9/ Current quarter Beginning Balance x (1 + The Quarterly Interest Rate).

TABLE E: TNRR AMORTIZATION SCHEDULE OF ASSETS PURCHASED WITH DEBT CAPITAL
(Continued)

AMORTIZATION SCHEDULE FOR THE TNRR 1998 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT $162,835,601 1/
2. IDC $6,072,642 2/
3. PRINCIPAL $60,823,858 3/
4. INTEREST 6.6% 4/
5. TERM 212 Quarters 5/
6. PAYMENT ====>> $1,019,292 Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(1)	(2)	(3)	(4)	(5)	(6)
41	$67,294,115	$67,215,404	$1,066,174	$78,711	$987,463
42	67,215,404	67,135,538	1,066,174	79,866	986,308
43	67,135,538	67,054,500	1,066,174	81,038	985,137
44	67,054,500	66,972,273	1,066,174	82,227	983,947
45	66,972,273	66,888,839	1,066,174	83,434	982,741
46	66,888,839	66,804,181	1,066,174	84,658	981,517
47	66,804,181	66,718,281	1,066,174	85,900	980,274
48	66,718,281	66,631,120	1,066,174	87,161	979,014
49	66,631,120	66,542,681	1,066,174	88,440	977,735
50	66,542,681	66,452,943	1,066,174	89,737	976,437
51	66,452,943	66,361,889	1,066,174	91,054	975,120
52	66,361,889	66,269,499	1,066,174	92,390	973,784
53	66,269,499	66,175,753	1,066,174	93,746	972,428
54	66,175,753	66,080,631	1,066,174	95,122	971,053
55	66,080,631	65,984,114	1,066,174	96,517	969,657
56	65,984,114	65,886,180	1,066,174	97,934	968,241
57	65,886,180	65,786,809	1,066,174	99,371	966,804
58	65,786,809	65,685,980	1,066,174	100,829	965,346
59	65,685,980	65,583,671	1,066,174	102,309	963,866
60	65,583,671	65,479,862	1,066,174	103,810	962,365

AMORTIZATION SCHEDULE FOR THE TNRR 1999 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT $1,852,220,562 1/
2. IDC $106,378,487 2/
3. PRINCIPAL $695,302,662 3/
4. INTEREST 7.2% 4/
5. TERM 212 Quarters 5/
6. PAYMENT ====>> $12,505,503 Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(7)	(8)	(9)	(10)	(11)	(12)
41	$780,833,425	$779,920,118	$12,371,136	$913,307	$11,457,830
42	779,920,118	778,993,410	12,371,136	926,709	11,444,428
43	778,993,410	778,053,103	12,371,136	940,307	11,430,829
44	778,053,103	777,098,998	12,371,136	954,105	11,417,032
45	777,098,998	776,130,893	12,371,136	968,105	11,403,031
46	776,130,893	775,148,582	12,371,136	982,311	11,388,825
47	775,148,582	774,151,856	12,371,136	996,725	11,374,411
48	774,151,856	773,140,505	12,371,136	1,011,351	11,359,785
49	773,140,505	772,114,314	12,371,136	1,026,192	11,344,945
50	772,114,314	771,073,064	12,371,136	1,041,250	11,329,887
51	771,073,064	770,016,535	12,371,136	1,056,529	11,314,608
52	770,016,535	768,944,503	12,371,136	1,072,032	11,299,104
53	768,944,503	767,856,740	12,371,136	1,087,763	11,283,373
54	767,856,740	766,753,015	12,371,136	1,103,725	11,267,412
55	766,753,015	765,633,095	12,371,136	1,119,921	11,251,216
56	765,633,095	764,496,741	12,371,136	1,136,354	11,234,782
57	764,496,741	763,343,712	12,371,136	1,153,029	11,218,108
58	763,343,712	762,173,764	12,371,136	1,169,948	11,201,188
59	762,173,764	760,986,648	12,371,136	1,187,116	11,184,021
60	760,986,648	759,782,113	12,371,136	1,204,535	11,166,601

AMORTIZATION SCHEDULE FOR THE TNRR 2000 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT $388,870,908 1/
2. IDC $134,126,854 2/
3. PRINCIPAL $194,220,544 3/
4. INTEREST 8.0% 4/
5. TERM 212 Quarters 5/
6. PAYMENT ====>> $3,838,124 Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(13)	(14)	(15)	(16)	(17)	(18)
41	$170,677,597	$170,477,963	$2,704,131	$199,634	$2,504,497
42	170,477,963	170,275,399	2,704,131	202,564	2,501,567
43	170,275,399	170,069,863	2,704,131	205,536	2,498,595
44	170,069,863	169,861,311	2,704,131	208,552	2,495,579
45	169,861,311	169,649,699	2,704,131	211,612	2,492,519
46	169,649,699	169,434,982	2,704,131	214,717	2,489,414
47	169,434,982	169,217,114	2,704,131	217,868	2,486,263
48	169,217,114	168,996,049	2,704,131	221,065	2,483,066
49	168,996,049	168,771,740	2,704,131	224,309	2,479,822
50	168,771,740	168,544,139	2,704,131	227,600	2,476,531
51	168,544,139	168,313,199	2,704,131	230,940	2,473,191
52	168,313,199	168,078,870	2,704,131	234,329	2,469,802
53	168,078,870	167,841,103	2,704,131	237,767	2,466,363
54	167,841,103	167,599,846	2,704,131	241,256	2,462,875
55	167,599,846	167,355,050	2,704,131	244,797	2,459,334
56	167,355,050	167,106,661	2,704,131	248,389	2,455,742
57	167,106,661	166,854,628	2,704,131	252,033	2,452,097
58	166,854,628	166,598,896	2,704,131	255,732	2,448,399
59	166,598,896	166,339,412	2,704,131	259,484	2,444,847
60	166,339,412	166,076,120	2,704,131	263,292	2,440,839

1/ From Table D, Column (7) for the applicable year investment.
2/ From Table D, Column (8) for the applicable year investment.
3/ (Total Investment + IDC) x (Proportion of Debt from Table A, Column (9)).
4/ From Table A, Column (6) for the applicable year investment.
5/ Weighted life of assets in years x 4.
6/ Line 3 Principal financed over Line 5 Term at Line 4 Interest Rate on a quarterly basis.
7/ Current quarter Beginning Balance - Principal.
8/ Current quarter Payment - Interest.
9/ Current quarter Beginning Balance x (1 + The Quarterly Interest Rate).

TABLE E: TNRR AMORTIZATION SCHEDULE OF ASSETS PURCHASED WITH DEBT CAPITAL

(Continued)

AMORTIZATION SCHEDULE FOR THE TNRR 1998 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT	$162,835,601	1/
2. IDC	$6,072,642	2/
3. PRINCIPAL	$60,823,858	3/
4. INTEREST	6.6%	4/
5. TERM	212	Quarters 5/
6. PAYMENT ====>>	$1,019,292	Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(1)	(2)	(3)	(4)	(5)	(6)
61	$65,479,862	$65,374,529	$1,066,174	$105,333	$960,841
62	65,374,529	65,267,650	1,066,174	106,879	959,296
63	65,267,650	65,159,203	1,066,174	108,447	957,727
64	65,159,203	65,049,165	1,066,174	110,038	956,136
65	65,049,165	64,937,512	1,066,174	111,653	954,521
66	64,937,512	64,824,220	1,066,174	113,291	952,883
67	64,824,220	64,709,266	1,066,174	114,954	951,221
68	64,709,266	64,592,626	1,066,174	116,641	949,534
69	64,592,626	64,474,273	1,066,174	118,352	947,822
70	64,474,273	64,354,184	1,066,174	120,089	946,086
71	64,354,184	64,232,333	1,066,174	121,851	944,323
72	64,232,333	64,108,694	1,066,174	123,639	942,535
73	64,108,694	63,983,241	1,066,174	125,453	940,721
74	63,983,241	63,855,947	1,066,174	127,294	938,880
75	63,855,947	63,726,785	1,066,174	129,162	937,012
76	63,726,785	63,595,727	1,066,174	131,057	935,117
77	63,595,727	63,462,747	1,066,174	132,981	933,194
78	63,462,747	63,327,815	1,066,174	134,932	931,243
79	63,327,815	63,190,903	1,066,174	136,912	929,263
80	63,190,903	63,051,982	1,066,174	138,921	927,254
81	63,051,982	62,911,023	1,066,174	140,959	925,215
82	62,911,023	62,767,995	1,066,174	143,028	923,147
83	62,767,995	62,622,868	1,066,174	145,127	921,048

AMORTIZATION SCHEDULE FOR THE TNRR 1999 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT	$1,852,220,562	1/
2. IDC	$106,378,487	2/
3. PRINCIPAL	$695,302,662	3/
4. INTEREST	7.2%	4/
5. TERM	212	Quarters 5/
6. PAYMENT ====>>	$12,505,503	Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(7)	(8)	(9)	(10)	(11)	(12)
61	$759,782,113	$758,559,902	$12,371,136	$1,222,211	$11,148,926
62	758,559,902	757,319,757	12,371,136	1,240,145	11,130,991
63	757,319,757	756,061,415	12,371,136	1,258,343	11,112,794
64	756,061,415	754,784,607	12,371,136	1,276,807	11,094,329
65	754,784,607	753,489,064	12,371,136	1,295,543	11,075,593
66	753,489,064	752,174,510	12,371,136	1,314,554	11,056,583
67	752,174,510	750,840,667	12,371,136	1,333,843	11,037,293
68	750,840,667	749,487,251	12,371,136	1,353,416	11,017,720
69	749,487,251	748,113,975	12,371,136	1,373,276	10,997,861
70	748,113,975	746,720,548	12,371,136	1,393,427	10,977,709
71	746,720,548	745,306,674	12,371,136	1,413,874	10,957,262
72	745,306,674	743,872,054	12,371,136	1,434,621	10,936,515
73	743,872,054	742,416,381	12,371,136	1,455,672	10,915,464
74	742,416,381	740,939,349	12,371,136	1,477,033	10,894,104
75	740,939,349	739,440,642	12,371,136	1,498,706	10,872,430
76	739,440,642	737,919,944	12,371,136	1,520,698	10,850,438
77	737,919,944	736,376,932	12,371,136	1,543,013	10,828,124
78	736,376,932	734,811,277	12,371,136	1,565,655	10,805,482
79	734,811,277	733,222,648	12,371,136	1,588,629	10,782,508
80	733,222,648	731,610,708	12,371,136	1,611,940	10,759,196
81	731,610,708	729,975,115	12,371,136	1,635,593	10,735,543
82	729,975,115	728,315,521	12,371,136	1,659,594	10,711,543
83	728,315,521	726,631,575	12,371,136	1,683,946	10,687,190

AMORTIZATION SCHEDULE FOR THE TNRR 2000 ROAD PROPERTY INVESTMENT FOR THE 2Q2000 START-UP

1. TOTAL INVESTMENT	$388,870,908	1/
2. IDC	$134,126,854	2/
3. PRINCIPAL	$194,220,544	3/
4. INTEREST	8.0%	4/
5. TERM	212	Quarters 5/
6. PAYMENT ====>>	$3,838,124	Per Quarter 6/

Quarter	Beginning Balance	Ending Balance 7/	Payment	Principal 8/	Interest 9/
(13)	(14)	(15)	(16)	(17)	(18)
61	$166,076,120	$165,808,964	$2,704,131	$267,156	$2,436,975
62	165,808,964	165,537,888	2,704,131	271,076	2,433,055
63	165,537,888	165,262,835	2,704,131	275,053	2,429,078
64	165,262,835	164,983,745	2,704,131	279,090	2,425,041
65	164,983,745	164,700,560	2,704,131	283,185	2,420,946
66	164,700,560	164,413,220	2,704,131	287,340	2,416,791
67	164,413,220	164,121,664	2,704,131	291,557	2,412,574
68	164,121,664	163,825,829	2,704,131	295,835	2,408,296
69	163,825,829	163,525,653	2,704,131	300,176	2,403,955
70	163,525,653	163,221,072	2,704,131	304,581	2,399,550
71	163,221,072	162,912,022	2,704,131	309,050	2,395,081
72	162,912,022	162,598,437	2,704,131	313,585	2,390,546
73	162,598,437	162,280,251	2,704,131	318,186	2,385,944
74	162,280,251	161,957,395	2,704,131	322,856	2,381,275
75	161,957,395	161,629,802	2,704,131	327,593	2,376,538
76	161,629,802	161,297,402	2,704,131	332,400	2,371,731
77	161,297,402	160,960,124	2,704,131	337,278	2,366,853
78	160,960,124	160,617,897	2,704,131	342,227	2,361,904
79	160,617,897	160,270,649	2,704,131	347,249	2,356,882
80	160,270,649	159,918,305	2,704,131	352,344	2,351,787
81	159,918,305	159,560,790	2,704,131	357,514	2,346,617
82	159,560,790	159,198,030	2,704,131	362,760	2,341,370
83	159,198,030	158,829,946	2,704,131	368,084	2,336,047

1/ From Table D, Column (7) for the applicable year investment.
2/ From Table D, Column (8) for the applicable year investment.
3/ (Total Investment + IDC) x (Proportion of Debt from Table A, Column (9)).
4/ From Table A, Column (6) for the applicable year investment.
5/ Weighted life of assets in years x 4.
6/ Line 3 Principal financed over Line 5 Term at Line 4 Interest Rate on a quarterly basis.
7/ Current quarter Beginning Balance - Principal.
8/ Current quarter Payment - Interest.
9/ Current quarter Beginning Balance x (1 + The Quarterly Interest Rate).

TABLE F: TNRR PRESENT VALUE OF REPLACEMENT COST

Road Property Account (1)	Road Property Component (2)	Service Life In Years 1/ (3)	Investment 2/ (4)	Salvage 3/ (5)	Replacement Year Asset Net Cost 4/ (6)	Replacement Cost Adjusted To Reflect An Infinite Life 5/ (7)	Present Value Of Replacement Cost Adjusted To Reflect An Infinite Life (2000 Dollars) 6/ (8)
3	Grading	95	$9,687,644,346	$0	$8,537,500,620	$8,543,829,899	$566,734
5	Tunnels	NA	0	0	0	0	0
6	Bridges & Culverts	80	2,184,929,622	13,402,214	1,525,247,065	1,528,781,375	463,233
8	Ties	30	276,029,485	-112,776,632	243,198,614	271,027,663	12,988,498
9	Rails and OTM	26	702,545,712	29,073,045	422,263,014	490,482,836	35,244,911
11	Ballast	23	270,205,470	0	169,404,984	205,249,269	19,984,794
12	Labor	26	851,188,653	0	533,651,669	618,534,365	43,656,882
13	Fences and Roadway Signs	80	87,336,788	0	61,311,086	61,453,156	18,621
16	Station and Office Buildings	21	3,904,683	0	3,441,108	4,318,953	514,944
17	Roadway Buildings	27	8,188,647	0	6,410,589	7,359,398	477,896
19	Fuel Stations	29	21,015,967	0	18,520,894	20,828,091	1,104,528
20	Shops and Enginehouses	40	49,263,903	338,115	43,099,628	45,276,603	788,136
26	Communications Systems	25	32,023,756	1,186,701	19,377,050	22,702,797	1,748,298
27	Signals and interlockers	33	332,231,304	0	186,857,107	203,498,698	7,197,165
39	Public improvements	55	56,942,995	0	39,974,413	40,599,942	154,712
	Total		$14,563,451,332	-$68,776,556	$11,810,257,841	$12,063,943,045	$124,909,351

1/ From Table C, Column (3).

2/ (Table C, Column (10) after allocation of Engineering) x (Table B, 1.0 + Annual Inflation Index)^(Column (3)).

3/ [(Column (4) x Salvage %) - (Table C, Column (10) after allocation of Engineering x Salvage %)] x (1 - Current Federal Tax Rate) + (Table C, Column (10) after allocation of Engineering x Salvage %). Salvage% from BNSF Discovery BNSF/AEPTX 00007.

4/ Column (4) - (Present Value of the remaining tax deductions for depreciation, interest expense and the Present Value of any salvage).

5/ Column (6) + [(Column (6) / ((1 + Real Cost of Capital)^Column (3) - 1)].

6/ Column (7) / ((1 + Nominal Cost of Capital)^Column (3)).

TABLE G: TNRR TAX DEPRECIATION SCHEDULES

Depreciation of Start-up investment for tax purposes using
accounting lives from Modified Accelerated Cost Recovery System (MACRS) 1/

Road Property Account (1)	Road Property Component (2)	Asset Lives Per MACRS (3)	Total June 16, 2000 Investment (4)	Depreciable Base (5)
1	Engineering	5	$129,249,882	$129,249,882
2	Land	N/A	$88,540,251	0
3	Grading	50	$615,347,218	615,347,218
1A	Training & Startup	5	$7,527,643	7,527,643
6	Bridges & Culverts	15	$210,621,888	210,621,888
8	Ties	7	$178,349,743	178,349,743
9	Rails and OTM	7	$473,862,709	473,862,709
11	Ballast	7	$188,220,873	188,220,873
12	Labor	7	$339,643,222	339,643,222
13	Fences and Roadway Signs	15	$8,419,053	8,419,053
16	Station and Office Buildings	15	$1,941,915	1,941,915
17	Roadway Buildings	15	$3,446,601	3,446,601
19	Fuel Stations	15	$8,367,062	8,367,062
20	Shops and Enginehouses	15	$14,444,378	14,444,378
26	Communications Systems	7	$14,124,863	14,124,863
27	Signals and interlockers	7	$118,346,053	118,346,053
39	Public improvements	15	$11,001,359	11,001,359
	Total		$2,411,454,713	$2,322,914,462

1/ Applicable Depreciation Method: 200 or 150 percent
Declining Balance Switching to Straight Line
Applicable Recovery Periods: 7, 15 and 50 a/ years
Applicable Convention: Mid-quarter(property placed in service in second quarter)

The Depreciation Rates are as follows for the corresponding
Recovery Period and Recovery year:

Recovery		--- Recovery Period ---			Recovery	--- Recovery Period ---		
Year	5-Year	7-year	15-year	50-year	Year	7-year	15-year	50-year
1	20.00%	17.85%	6.250%	2.00%	10	0.00%	5.900%	2.00%
2	20.00%	23.47%	9.380%	2.00%	11	0.00%	5.910%	2.00%
3	20.00%	16.76%	8.440%	2.00%	12	0.00%	5.900%	2.00%
4	20.00%	11.97%	7.590%	2.00%	13	0.00%	5.910%	2.00%
5	20.00%	8.87%	6.830%	2.00%	14	0.00%	5.900%	2.00%
6		8.87%	6.150%	2.00%	15	0.00%	5.910%	2.00%
7		8.87%	5.910%	2.00%	16	0.00%	2.210%	2.00%
8		3.33%	5.900%	2.00%	17	0.00%	0.000%	2.00%
9		0.00%	5.910%	2.00%	18	0.00%	0.000%	2.00%
					19-50	0.00%	0.000%	2.00%

a/ 50 year property uses the Straight Line Method for all time periods

TABLE G: TNRR TAX DEPRECIATION SCHEDULES
(Continued)

	Amortization - 5 Years			Depreciation - MACRS 7 Years			Depreciation - MACRS 15 Years			Depreciation - MACRS 50 Years			
Year	Unamortized Investment 1/	Rate 2/	Annual Amort. 3/	Undepreciated Investment 4/	Rate 2/	Annual Amount 5/	Undepreciated Investment 6/	Rate 2/	Annual Amount 7/	Unamortized Investment 8/	Rate 2/	Annual Amount 9/	Total Annual Depreciation 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	$136,777,524	20.00%	$27,355,505	$1,312,547,464	17.85%	$234,289,722	$258,242,256	6.25%	$16,140,141	$622,874,861	2%	$12,457,497	$290,242,865
2	109,422,019	20.00%	27,355,505	1,078,257,741	23.47%	308,054,890	242,102,115	9.38%	24,223,124	610,417,364	2%	12,457,497	372,091,015
3	82,066,515	20.00%	27,355,505	770,202,852	16.76%	219,982,955	217,878,991	8.44%	21,795,646	597,959,866	2%	12,457,497	281,591,603
4	54,711,010	20.00%	27,355,505	550,219,897	11.97%	157,111,931	196,083,345	7.59%	19,600,587	585,502,369	2%	12,457,497	216,525,521
5	27,355,505	20.00%	27,355,505	393,107,965	8.87%	116,422,960	176,482,758	6.83%	17,637,946	573,044,872	2%	12,457,497	173,873,908
6				276,685,005	8.87%	116,422,960	158,844,812	6.15%	15,881,899	560,587,375	2%	12,457,497	144,762,356
7				160,262,045	8.87%	116,422,960	142,962,913	5.91%	15,262,117	548,129,878	2%	12,457,497	144,142,575
8				43,839,085	3.34%	43,839,085	127,700,796	5.90%	15,236,293	535,672,380	2%	12,457,497	71,532,876
9							112,464,502	5.91%	15,262,117	523,214,883	2%	12,457,497	27,719,615
10							97,202,385	5.90%	15,236,293	510,757,386	2%	12,457,497	27,693,790
11							81,966,092	5.91%	15,262,117	498,299,889	2%	12,457,497	27,719,615
12							66,703,975	5.90%	15,236,293	485,842,391	2%	12,457,497	27,693,790
13							51,467,682	5.91%	15,262,117	473,384,894	2%	12,457,497	27,719,615
14							36,205,564	5.90%	15,236,293	460,927,397	2%	12,457,497	27,693,790
15							20,969,271	5.91%	15,262,117	448,469,900	2%	12,457,497	27,719,615
16							5,707,154	2.21%	5,707,154	436,012,403	2%	12,457,497	18,164,651
17										423,554,905	2%	12,457,497	12,457,497
18										411,097,408	2%	12,457,497	12,457,497
19										398,639,911	2%	12,457,497	12,457,497
20										386,182,414	2%	12,457,497	12,457,497
21										373,724,917	2%	12,457,497	12,457,497
										361,267,419			

1/ From Table G, Page 11, Column (5), Road Property Accounts 1 and 1A.
2/ From Table G, Footnote 1/, Page 11.
3/ Column (2), Year 1 x Column (3).
4/ From Table G, Page 11, Column (5), Road Property Accounts 8, 9, 11, 12, 26, and 27.
5/ Column (5), Year 1 x Column (6).
6/ From Table G, Page 11, Column (5), Road Property Accounts 6, 13, 16, 17, 19, 20 and 39.
7/ Column (8), Year 1 x Column (9).
8/ From Table G, Page 11, Column (5), Road Property Account 3.
9/ Column (11), Year 1 x Column (12).

TABLE H: TNRR AVERAGE ANNUAL INFLATION IN ASSET PRICES

Development of average annual inflation factors for all capital assets

1.	2Q2000 Land value	$88,540,251 1/
2.	2Q2000 Road Property asset value accounts 3, 6, 13, 17, 26, 27, and 39	$1,013,588,033 1/
3.	2Q2000 Road Property asset value accounts 8, 9, and 11	$840,433,325 1/
4.	2Q2000 Road Property asset value account 1,1A and 12	$468,893,104 1/

Period	Quarter	Inflation Index For Land 2/	Inflation Index For Line 2 Road Property Assets 3/	Inflation Index For Line 3 Road Property Assets 4/	Inflation Index For Line 4 Road Property Assets 5/	Land Value 6/	Road Property Value 7/	2Q2000 Inflation Index 8/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0		1.000	1.000	1.000	1.000	$88,540,251	$2,322,914,462	1.000
1	2000 2 Qtr	1.007	0.999	0.995	1.000	89,158,792	2,318,187,919	0.998
2	2000 3 Qtr	1.014	1.010	1.008	1.011	89,781,653	2,345,491,056	1.010
3	2000 4 Qtr	1.021	1.011	1.011	1.011	90,408,866	2,348,039,038	1.011
4	2001 1 Qtr	1.028	1.035	1.011	1.039	91,040,460	2,385,634,417	1.027
5	2001 2 Qtr	1.035	1.040	1.033	1.041	91,676,467	2,410,387,868	1.038
6	2001 3 Qtr	1.043	1.048	1.035	1.050	92,316,916	2,424,491,017	1.044
7	2001 4 Qtr	1.050	1.048	1.036	1.050	92,961,840	2,424,860,438	1.044
8	2002 1 Qtr	1.057	1.079	1.031	1.085	93,611,269	2,468,923,518	1.063
9	2002 2 Qtr	1.065	1.078	1.026	1.085	94,265,236	2,464,382,810	1.061
10	2002 3 Qtr	1.072	1.085	0.995	1.097	94,923,771	2,450,424,167	1.056
11	2002 4 Qtr	1.080	1.082	0.958	1.098	95,586,906	2,416,407,441	1.042
12	2003 1 Qtr	1.087	1.095	0.937	1.116	96,254,674	2,420,818,412	1.044
13	2003 2 Qtr	1.095	1.109	1.035	1.118	96,927,107	2,517,953,937	1.084
14	2003 3 Qtr	1.102	1.122	1.020	1.135	97,604,237	2,526,992,295	1.088
15	2003 4 Qtr	1.110	1.123	1.036	1.134	98,286,099	2,540,848,967	1.094
16	2004 1 Qtr	1.118	1.129	1.036	1.141	98,972,723	2,549,724,267	1.098
17	2004 2 Qtr	1.126	1.129	1.031	1.142	99,664,144	2,546,961,056	1.098
18	2004 3 Qtr	1.134	1.146	1.035	1.162	100,360,396	2,575,431,484	1.110
19	2004 4 Qtr	1.141	1.159	1.039	1.177	101,061,511	2,599,331,114	1.120
20	2005 1 Qtr	1.149	1.165	1.039	1.184	101,767,525	2,608,505,467	1.124

1/ Table C, Page 4, Column (10).
2/ Previous Column (3) x (1 + Quarterly Inflation Rate Change from Table B).
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4/ Previous Column (5) x (1 + Quarterly Inflation Rate Change from Table B).
5/ Previous Column (6) x (1 + Quarterly Inflation Rate Change from Table B).
6/ Line 1 x Column (3) for applcable quarter.
7/ (Line 2 x Column (4) for applicable quarter) + (Line 3 x Column (5)for applicable quarter) + (Line 4 x Column (6)for applicable quarter).
8/ (Column (7) + Column (8)) ÷ (Period 0; (Column (7) + Column (8))).

TABLE H: TNRR AVERAGE ANNUAL INFLATION IN ASSET PRICES
(Continued)

Development of average annual inflation factors for all capital assets

1. 2Q2000 Land value $88,540,251 1/
2. 2Q2000 Road Property asset value accounts 3, 6, 13, 17, 26, 27, and 39 $1,013,588,033 1/
3. 2Q2000 Road Property asset value accounts 8, 9, and 11 $840,433,325 1/
4. 2Q2000 Road Property asset value account 1,1A and 12 $468,893,104 1/

Period (1)	Quarter (2)	Inflation Index For Land 2/ (3)	Inflation Index For Line 2 Road Property Assets 3/ (4)	Inflation Index For Line 3 Road Property Assets 4/ (5)	Inflation Index For Line 4 Road Property Assets 5/ (6)	Land Value 6/ (7)	Road Property Value 7/ (8)	2Q2000 Inflation Index 8/ (9)
21	2005 2 Qtr	1.157	1.166	1.039	1.185	102,478,470	2,610,042,715	1.125
22	2005 3 Qtr	1.166	1.173	1.041	1.193	103,194,383	2,622,955,903	1.131
23	2005 4 Qtr	1.174	1.174	1.044	1.195	103,915,296	2,627,882,497	1.133
24	2006 1 Qtr	1.182	1.183	1.047	1.205	104,641,246	2,643,736,944	1.140
25	2006 2 Qtr	1.190	1.192	1.050	1.214	105,372,268	2,659,699,555	1.147
26	2006 3 Qtr	1.198	1.200	1.053	1.224	106,108,396	2,675,771,114	1.154
27	2006 4 Qtr	1.207	1.209	1.056	1.234	106,849,667	2,691,952,416	1.161
28	2007 1 Qtr	1.215	1.217	1.060	1.243	107,596,116	2,707,885,217	1.168
29	2007 2 Qtr	1.224	1.225	1.064	1.253	108,347,780	2,723,918,822	1.175
30	2007 3 Qtr	1.232	1.234	1.068	1.262	109,104,695	2,740,053,897	1.182
31	2007 4 Qtr	1.241	1.242	1.072	1.271	109,866,898	2,756,291,114	1.189
32	2008 1 Qtr	1.250	1.250	1.076	1.280	110,634,426	2,771,953,927	1.195
33	2008 2 Qtr	1.258	1.258	1.080	1.290	111,407,316	2,787,712,386	1.202
34	2008 3 Qtr	1.267	1.267	1.084	1.299	112,185,605	2,803,567,102	1.209
35	2008 4 Qtr	1.276	1.275	1.087	1.308	112,969,331	2,819,518,692	1.216
36	2009 1 Qtr	1.285	1.284	1.091	1.318	113,758,532	2,836,113,677	1.223
37	2009 2 Qtr	1.294	1.293	1.094	1.328	114,553,247	2,852,816,070	1.231
38	2009 3 Qtr	1.303	1.302	1.098	1.338	115,353,513	2,869,626,607	1.238
39	2009 4 Qtr	1.312	1.311	1.101	1.349	116,159,370	2,886,546,026	1.245
40	2010 1 Qtr	1.321	1.319	1.105	1.359	116,970,857	2,903,150,330	1.252

1/ Table C, Page 4, Column (10).
2/ Previous Column (3) x (1 + Quarterly Inflation Rate Change from Table B).
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4/ Previous Column (5) x (1 + Quarterly Inflation Rate Change from Table B).
5/ Previous Column (6) x (1 + Quarterly Inflation Rate Change from Table B).
6/ Line 1 x Column (3) for applcable quarter.
7/ (Line 2 x Column (4) for applicable quarter) + (Line 3 x Column (5)for applicable quarter) + (Line 4 x Column (6)for applicable quarter).
8/ (Column (7) + Column (8)) ÷ (Period 0; (Column (7) + Column (8))).

TABLE H: T&NRR AVERAGE ANNUAL INFLATION IN ASSET PRICES
(Continued)

Development of average annual inflation factors for all capital assets

1.	2Q2000 Land value	$88,540,251 1/
2.	2Q2000 Road Property asset value accounts 3, 6, 13, 17, 26, 27, and 39	$1,013,588,033 1/
3.	2Q2000 Road Property asset value accounts 8, 9, and 11	$840,433,325 1/
4.	2Q2000 Road Property asset value account 1,1A and 12	$468,893,104 1/

Period	Quarter	Inflation Index For Land 2/	Inflation Index For Line 2 Road Property Assets 3/	Inflation Index For Line 3 Road Property Assets 4/	Inflation Index For Line 4 Road Property Assets 5/	Land Value 6/	Road Property Value 7/	2Q2000 Inflation Index 8/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
41	2010 2 Qtr	1.330	1.328	1.109	1.369	$117,788,013	$2,919,858,997	1.260
42	2010 3 Qtr	1.340	1.337	1.112	1.379	118,610,877	2,936,672,721	1.267
43	2010 4 Qtr	1.349	1.346	1.116	1.389	119,439,490	2,953,592,197	1.274
44	2011 1 Qtr	1.360	1.356	1.120	1.400	120,421,643	2,971,632,255	1.282
45	2011 2 Qtr	1.371	1.365	1.124	1.411	121,411,872	2,989,790,465	1.290
46	2011 3 Qtr	1.383	1.375	1.128	1.421	122,410,244	3,008,067,637	1.298
47	2011 4 Qtr	1.394	1.384	1.132	1.432	123,416,825	3,026,464,587	1.306
48	2012 1 Qtr	1.405	1.394	1.136	1.443	124,431,684	3,044,238,950	1.314
49	2012 2 Qtr	1.417	1.403	1.140	1.454	125,454,887	3,062,125,839	1.322
50	2012 3 Qtr	1.429	1.413	1.144	1.464	126,486,505	3,080,126,000	1.330
51	2012 4 Qtr	1.440	1.422	1.148	1.475	127,526,605	3,098,240,186	1.338
52	2013 1 Qtr	1.452	1.432	1.153	1.486	128,575,259	3,117,528,291	1.346
53	2013 2 Qtr	1.464	1.442	1.157	1.498	129,632,535	3,136,943,744	1.355
54	2013 3 Qtr	1.476	1.452	1.162	1.509	130,698,505	3,156,487,422	1.363
55	2013 4 Qtr	1.488	1.463	1.167	1.521	131,773,241	3,176,160,206	1.372
56	2014 1 Qtr	1.501	1.473	1.171	1.533	132,856,815	3,195,962,982	1.380
57	2014 2 Qtr	1.513	1.483	1.176	1.544	133,949,298	3,215,896,645	1.389
58	2014 3 Qtr	1.525	1.494	1.181	1.556	135,050,766	3,235,962,096	1.398
59	2014 4 Qtr	1.538	1.504	1.185	1.568	136,161,290	3,256,160,240	1.407
60	2015 1 Qtr	1.550	1.515	1.190	1.580	137,280,947	3,276,491,991	1.416

1/ Table C, Page 4, Column (10).
2/ Previous Column (3) x (1 + Quarterly Inflation Rate Change from Table B).
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7/ (Line 2 x Column (4) for applicable quarter) + (Line 3 x Column (5)for applicable quarter) + (Line 4 x Column (6)for applicable quarter).
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TABLE H: T&NRR AVERAGE ANNUAL INFLATION IN ASSET PRICES
(Continued)

Development of average annual inflation factors for all capital assets

1. 2Q2000 Land value $88,540,251 1/
2. 2Q2000 Road Property asset value accounts 3, 6, 13, 17, 26, 27, and 39 $1,013,588,033 1/
3. 2Q2000 Road Property asset value accounts 8, 9, and 11 $840,433,325 1/
4. 2Q2000 Road Property asset value account 1,1A and 12 $468,893,104 1/

Period	Quarter	Inflation Index For Land 2/	Inflation Index For Line 2 Road Property Assets 3/	Inflation Index For Line 3 Road Property Assets 4/	Inflation Index For Line 4 Road Property Assets 5/	Land Value 6/	Road Property Value 7/	2Q2000 Inflation Index 8/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
61	2015 2 Qtr	1.563	1.526	1.195	1.592	138,409,810	3,296,958,267	1.425
62	2015 3 Qtr	1.576	1.536	1.200	1.604	139,547,956	3,317,559,995	1.434
63	2015 4 Qtr	1.589	1.547	1.204	1.617	140,695,461	3,338,298,107	1.443
64	2016 1 Qtr	1.602	1.558	1.209	1.629	141,852,402	3,359,173,542	1.452
65	2016 2 Qtr	1.615	1.569	1.214	1.642	143,018,857	3,380,187,245	1.461
66	2016 3 Qtr	1.629	1.580	1.219	1.654	144,194,903	3,401,340,168	1.470
67	2016 4 Qtr	1.642	1.591	1.224	1.667	145,380,620	3,422,633,272	1.480
68	2017 1 Qtr	1.655	1.602	1.228	1.680	146,576,087	3,444,067,520	1.489
69	2017 2 Qtr	1.669	1.614	1.233	1.692	147,781,385	3,465,643,887	1.498
70	2017 3 Qtr	1.683	1.625	1.238	1.705	148,996,593	3,487,363,350	1.508
71	2017 4 Qtr	1.697	1.636	1.243	1.718	150,221,795	3,509,226,897	1.518
72	2018 1 Qtr	1.711	1.648	1.248	1.732	151,457,071	3,531,235,521	1.527
73	2018 2 Qtr	1.725	1.660	1.253	1.745	152,702,505	3,553,390,222	1.537
74	2018 3 Qtr	1.739	1.671	1.258	1.758	153,958,180	3,575,692,008	1.547
75	2018 4 Qtr	1.753	1.683	1.263	1.772	155,224,180	3,598,141,892	1.556
76	2019 1 Qtr	1.768	1.695	1.268	1.785	156,500,591	3,620,740,897	1.566
77	2019 2 Qtr	1.782	1.707	1.273	1.799	157,787,498	3,643,490,052	1.576
78	2019 3 Qtr	1.797	1.719	1.278	1.813	159,084,987	3,666,390,392	1.586
79	2019 4 Qtr	1.812	1.731	1.283	1.827	160,393,146	3,689,442,961	1.596
80	2020 1 Qtr	1.826	1.743	1.288	1.841	161,712,061	3,712,648,810	1.607
81	2020 2 Qtr	1.841	1.755	1.294	1.855	163,041,822	3,736,008,997	1.617
82	2020 3 Qtr	1.857	1.768	1.299	1.869	164,382,517	3,759,524,588	1.627
83	2020 4 Qtr	1.872	1.780	1.304	1.883	165,734,237	3,783,196,656	1.638
Annual Average 9/								2.57%

1/ Table C, Page 4, Column (10).
2/ Previous Column (3) x (1 + Quarterly Inflation Rate Change from Table B).
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6/ Line 1 x Column (3) for applicable quarter.
7/ (Line 2 x Column (4) for applicable quarter) + (Line 3 x Column (5)for applicable quarter) + (Line 4 x Column (6)for applicable quarter).
8/ (Column (7) + Column (8)) ÷ (Period 0; (Column (7) + Column (8))).
9/ Annual weighted inflation using the last two quarters, used to calculate real cost of capital.

TABLE I: TNRR DISCOUNTED CASH FLOW

Discounted Cash Flow
Present Value of the Cash Flow Discounted at the Cost of Capital in Table A
Inflation In Asset Values From Table J

1. June 16, 2000 Road Property Investment	$2,411,454,713 1/	Federal Tax Rate	35.0%
2. Interest During Construction (June 16, 2000 Invest.)	$246,577,983 2/		
3. Total June 16, 2000 Investment	$2,658,032,697 3/	Route Mile Weighted	
4. Present Value Of Replacement Cost for the TNRR	$124,909,351 4/	Average State Tax Rate	3.1% 6/
5. Total Cost Recovered From Quarterly Revenue Flow	$2,782,942,048 5/		

Period (1)	Quarter (2)	Quarterly Levelized Capital Carrying Charge Requirement 7/ (3)	Interest on Investment Financed With Debt 8/ (4)	Tax Depreciation 9/ (5)	Actual Federal Tax Payments 10/ (6)	Actual State Tax Payments 11/ (7)	Cash Flow 12/ (8)	Present Value Cash Flow 13/ (9)	Cumulative Present Value 14/ (10)
1	June 16 - 30, 2000	$10,494,951	$460,530	$21,877,603	$0	$0	$10,494,951	$10,591,104	$10,591,104
2	2000 3 Qtr	64,407,958	16,948,350	134,182,631	0	0	64,407,958	63,243,729	73,834,833
3	2000 4 Qtr	64,491,935	16,941,003	134,182,631	0	0	64,491,935	61,616,992	135,451,824
4	2001 1 Qtr	65,502,960	16,933,525	93,022,754	0	0	65,502,960	60,957,840	196,409,664
5	2001 2 Qtr	66,174,459	16,925,915	93,022,754	0	0	66,174,459	60,046,682	256,456,346
6	2001 3 Qtr	66,564,397	16,918,169	93,022,754	0	0	66,564,397	58,893,937	315,350,282
7	2001 4 Qtr	66,591,224	16,910,285	93,022,754	0	0	66,591,224	57,448,085	372,798,367
8	2002 1 Qtr	61,966,169	15,404,597	70,397,901	0	0	61,966,169	52,173,851	424,972,218
9	2002 2 Qtr	61,872,181	15,393,785	70,397,901	0	0	61,872,181	50,891,247	475,863,465
10	2002 3 Qtr	61,550,564	15,382,814	70,397,901	0	0	61,550,564	49,457,153	525,320,618
11	2002 4 Qtr	60,744,021	15,371,682	70,397,901	0	0	60,744,021	47,681,513	573,002,131
12	2003 1 Qtr	60,866,833	15,360,386	54,131,380	0	0	60,866,833	46,674,171	619,676,301
13	2003 2 Qtr	63,231,985	15,348,925	54,131,380	0	0	63,231,985	47,367,682	667,043,984
14	2003 3 Qtr	63,466,921	15,337,296	54,131,380	0	0	63,466,921	46,445,342	713,489,326
15	2003 4 Qtr	63,818,486	15,325,496	54,131,380	0	0	63,818,486	45,623,715	759,113,041
16	2004 1 Qtr	64,049,708	15,313,523	43,468,477	0	0	64,049,708	44,731,218	803,844,259
17	2004 2 Qtr	63,999,609	15,301,374	43,468,477	0	0	63,999,609	43,663,677	847,507,936
18	2004 3 Qtr	64,704,906	15,289,047	43,468,477	0	0	64,704,906	43,125,049	890,632,985
19	2004 4 Qtr	65,299,791	15,276,539	43,468,477	0	0	65,299,791	42,516,118	933,149,103
20	2005 1 Qtr	65,538,714	15,263,848	36,190,589	0	0	65,538,714	41,685,896	974,834,999
21	2005 2 Qtr	65,593,079	15,250,970	36,190,589	0	0	65,593,079	40,756,667	1,015,591,666
22	2005 3 Qtr	65,922,652	15,237,903	36,190,589	0	0	65,922,652	40,015,176	1,055,606,842
23	2005 4 Qtr	66,059,218	15,224,645	36,190,589	0	0	66,059,218	39,171,743	1,094,778,585
24	2006 1 Qtr	66,460,158	15,211,192	36,035,644	0	0	66,460,158	38,499,072	1,133,277,657
25	2006 2 Qtr	66,863,837	15,197,542	36,035,644	0	0	66,863,837	37,838,124	1,171,115,781

TABLE I: TNRR DISCOUNTED CASH FLOW
(Continued)

Period	Quarter	Quarterly Levelized Capital Carrying Charge Requirement 7/	Interest on Investment Financed With Debt 8/	Tax Depreciation 9/	Actual Federal Tax Payments 10/	Actual State Tax Payments 11/	Cash Flow 12/	Present Value Cash Flow 13/	Cumulative Present Value 14/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
26	2006 3 Qtr	$67,270,274	$15,183,691	$36,035,644	$0	$0	$67,270,274	$37,188,693	$1,208,304,473
27	2006 4 Qtr	67,679,488	15,169,637	36,035,644	0	0	67,679,488	36,550,574	1,244,855,047
28	2007 1 Qtr	68,082,819	15,155,377	17,883,219	0	0	68,082,819	35,918,987	1,280,774,034
29	2007 2 Qtr	68,488,714	15,140,908	17,883,219	0	0	68,488,714	35,298,396	1,316,072,430
30	2007 3 Qtr	68,897,189	15,126,226	17,883,219	0	0	68,897,189	34,688,608	1,350,761,038
31	2007 4 Qtr	69,308,262	15,111,329	17,883,219	0	0	69,308,262	34,089,435	1,384,850,473
32	2008 1 Qtr	69,705,574	15,096,213	6,929,904	0	0	69,705,574	33,492,820	1,418,343,293
33	2008 2 Qtr	70,105,328	15,080,876	6,929,904	0	0	70,105,328	32,906,724	1,451,250,016
34	2008 3 Qtr	70,507,540	15,065,313	6,929,904	0	0	70,507,540	32,330,960	1,483,580,976
35	2008 4 Qtr	70,912,227	15,049,522	6,929,904	0	0	70,912,227	31,765,345	1,515,346,321
36	2009 1 Qtr	71,332,604	15,033,500	6,923,448	0	0	71,332,604	31,215,475	1,546,561,796
37	2009 2 Qtr	71,755,712	15,017,242	6,923,448	10,944,909	997,735	59,813,069	25,569,802	1,572,131,598
38	2009 3 Qtr	72,181,569	15,000,746	6,923,448	17,046,207	1,553,927	53,581,435	22,376,648	1,594,508,247
39	2009 4 Qtr	72,610,195	14,984,007	6,923,448	17,197,265	1,567,698	53,845,232	21,967,335	1,616,475,581
40	2010 1 Qtr	73,031,336	14,967,023	6,929,904	17,343,678	1,581,045	54,106,614	21,564,028	1,638,039,609
41	2010 2 Qtr	73,455,139	14,949,790	6,929,904	17,493,267	1,594,681	54,367,190	21,167,318	1,659,206,927
42	2010 3 Qtr	73,881,619	14,932,304	6,929,904	17,643,851	1,608,409	54,629,360	20,778,035	1,679,984,961
43	2010 4 Qtr	74,310,796	14,914,561	6,929,904	17,795,437	1,622,227	54,893,133	20,396,037	1,700,380,998
44	2011 1 Qtr	74,770,784	14,896,558	6,923,448	17,959,750	1,637,206	55,173,828	20,026,742	1,720,407,740
45	2011 2 Qtr	75,233,824	14,878,291	6,923,448	18,122,999	1,652,088	55,458,737	19,665,119	1,740,072,859
46	2011 3 Qtr	75,699,937	14,859,755	6,923,448	18,287,381	1,667,073	55,745,483	19,310,152	1,759,383,011
47	2011 4 Qtr	76,169,145	14,840,948	6,923,448	18,452,906	1,682,162	56,034,078	18,961,717	1,778,344,728
48	2012 1 Qtr	76,623,498	14,821,865	6,929,904	18,611,295	1,696,600	56,315,603	18,616,738	1,796,961,466
49	2012 2 Qtr	77,080,775	14,802,502	6,929,904	18,772,961	1,711,338	56,596,476	18,277,368	1,815,238,834
50	2012 3 Qtr	77,540,993	14,782,854	6,929,904	18,935,721	1,726,175	56,879,097	17,944,294	1,833,183,127
51	2012 4 Qtr	78,004,174	14,762,919	6,929,904	19,099,584	1,741,113	57,163,478	17,617,397	1,850,800,524
52	2013 1 Qtr	78,495,950	14,742,690	6,923,448	19,275,434	1,757,143	57,463,372	17,300,698	1,868,101,222
53	2013 2 Qtr	78,991,013	14,722,165	6,923,448	19,450,310	1,773,085	57,767,618	16,990,509	1,885,091,730
54	2013 3 Qtr	79,489,387	14,701,339	6,923,448	19,626,412	1,789,138	58,073,837	16,685,985	1,901,777,716
55	2013 4 Qtr	79,991,095	14,680,207	6,923,448	19,803,748	1,805,304	58,382,043	16,387,022	1,918,164,738
56	2014 1 Qtr	80,496,160	14,658,765	6,929,904	19,980,138	1,821,384	58,694,639	16,094,171	1,934,258,908
57	2014 2 Qtr	81,004,606	14,637,009	6,929,904	20,159,971	1,837,777	59,006,858	15,806,003	1,950,064,912
58	2014 3 Qtr	81,516,455	14,614,933	6,929,904	20,341,067	1,854,286	59,321,103	15,523,091	1,965,588,003
59	2014 4 Qtr	82,031,733	14,592,533	6,929,904	20,523,435	1,870,911	59,637,387	15,245,337	1,980,833,340
60	2015 1 Qtr	82,550,462	14,569,805	4,541,163	21,517,294	1,961,511	59,071,657	14,751,867	1,995,585,206

TABLE I: TNRR DISCOUNTED CASH FLOW
(Continued)

Period	Quarter	Quarterly Levelized Capital Carrying Charge Requirement 7/	Interest on Investment Financed With Debt 8/	Tax Depreciation 9/	Actual Federal Tax Payments 10/	Actual State Tax Payments 11/	Cash Flow 12/	Present Value Cash Flow 13/	Cumulative Present Value 14/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
61	2015 2 Qtr	$83,072,667	14,546,743	$4,541,163	$21,702,237	$1,978,370	$59,392,060	$14,489,241	$2,010,074,447
62	2015 3 Qtr	83,598,372	14,523,342	4,541,163	21,888,482	1,995,348	59,714,542	14,231,372	2,024,305,819
63	2015 4 Qtr	84,127,601	14,499,599	4,541,163	22,076,038	2,012,445	60,039,117	13,978,172	2,038,283,991
64	2016 1 Qtr	84,660,379	14,475,506	3,114,374	22,748,852	2,073,779	59,837,748	13,609,455	2,051,893,446
65	2016 2 Qtr	85,196,730	14,451,061	3,114,374	22,939,062	2,091,118	60,166,550	13,368,110	2,065,261,555
66	2016 3 Qtr	85,736,680	14,426,256	3,114,374	23,130,614	2,108,580	60,497,486	13,131,116	2,078,392,672
67	2016 4 Qtr	86,280,254	14,401,088	3,114,374	23,323,519	2,126,165	60,830,569	12,898,393	2,091,291,065
68	2017 1 Qtr	86,827,476	14,375,550	3,114,374	23,517,787	2,143,875	61,165,815	12,669,863	2,103,960,928
69	2017 2 Qtr	87,378,373	14,349,638	3,114,374	23,713,428	2,161,709	61,503,236	12,445,448	2,116,406,375
70	2017 3 Qtr	87,932,970	14,323,345	3,114,374	23,910,453	2,179,670	61,842,847	12,225,073	2,128,631,448
71	2017 4 Qtr	88,491,293	14,296,667	3,114,374	24,108,873	2,197,758	62,184,662	12,008,663	2,140,640,111
72	2018 1 Qtr	89,053,367	14,269,597	3,114,374	24,308,698	2,215,974	62,528,696	11,796,147	2,152,436,258
73	2018 2 Qtr	89,619,220	14,242,130	3,114,374	24,509,939	2,234,319	62,874,962	11,587,452	2,164,023,710
74	2018 3 Qtr	90,188,877	14,214,259	3,114,374	24,712,607	2,252,794	63,223,475	11,382,509	2,175,406,219
75	2018 4 Qtr	90,762,365	14,185,980	3,114,374	24,916,713	2,271,401	63,574,251	11,181,249	2,186,587,468
76	2019 1 Qtr	91,339,710	14,157,286	3,114,374	25,122,269	2,290,139	63,927,302	10,983,603	2,197,571,071
77	2019 2 Qtr	91,920,940	14,128,171	3,114,374	25,329,285	2,309,010	64,282,645	10,789,507	2,208,360,579
78	2019 3 Qtr	92,506,082	14,098,629	3,114,374	25,537,772	2,328,016	64,640,294	10,598,896	2,218,959,474
79	2019 4 Qtr	93,095,164	14,068,653	3,114,374	25,747,743	2,347,157	65,000,264	10,411,704	2,229,371,179
80	2020 1 Qtr	93,688,211	14,038,237	3,114,374	25,959,208	2,366,434	65,362,569	10,227,871	2,239,599,050
81	2020 2 Qtr	94,285,254	14,007,375	3,114,374	26,172,180	2,385,849	65,727,225	10,047,334	2,249,646,384
82	2020 3 Qtr	94,886,318	13,976,060	3,114,374	26,386,669	2,405,401	66,094,248	9,870,033	2,259,516,417
83	2020 4 Qtr	95,491,433	13,944,285	3,114,374	26,602,688	2,425,094	66,463,652	9,695,910	2,269,212,327
	Future	4,986,792,125	1,214,864,091	361,267,419	1,156,821,773	105,455,549	3,724,514,803	543,342,998	2,782,942,048

1/ From Table C, Column (10).
2/ From Table D, Column (8).
3/ Line 1 + Line 2.
4/ Table F Column (8).
5/ Line 3 + Line 4.
6/ Route mile weighted average state tax rates for Wyoming, South Dakota, Nebraska, Colorado, Oklahoma and Texas.
7/ Quarterly carrying costs needed to recover the total investment over 83 quarters after consideration of the applicable interest payments, tax depreciation and tax liability. The Future value is an estimate of a perpetual income stream for the TNRR and is calculated by taking the Period 83, Column (3) value and dividing it by the TNRR's estimated quarterly Real Cost of Capital.
8/ Value from Table E.
9/ Value from Table G, Page 12, Column (14) divided by 4 quarters.
10/ Table J: Part 1 Pages 20, 21 of 28.
11/ Table J: Part 2 Pages 22, 23 of 28.
12/ (Column (3) - Column (6) - Column (7)).
13/ Column (8) discounted by the fourth root of the annual Cost of Capital adjusted to midquarter dollars from Table A.
14/ Cumulative total of Column (9).

TABLE J - PART 1: COMPUTATION OF FEDERAL TAX LIABILITY - TAXABLE INCOME

Time Period	Taxable Income B/4 NOL's T&NRR 1/	Net Operating Losses Generated 2/	NOL's Generated Plus Carryforward 3/	Carryfoward Utilized 4/	Carryfoward Remaining 5/	Carryback Available 6/	Carryback Utilized 7/	Carryback Remaining 8/	Annual Taxable Income 9/	Annual Tax Liability 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1998	($1,366,220)	($1,366,220)	($1,366,220)	$0	($1,366,220)	($1,366,220)	$0	($1,366,220)	$0	$0
1999	(26,580,756)	(26,580,756)	(27,946,977)	0	(27,946,977)	(27,946,977)	0	(27,946,977)	0	0
2000	(34,978,161)	(34,978,161)	(62,925,138)	0	(62,925,138)	(62,925,138)	0	(62,925,138)	0	0
2000 2 Qtr	(11,843,182)	(11,843,182)	(74,768,319)	0	(74,768,319)	(74,768,319)	0	(74,768,319)	0	0
2000 3 Qtr	(86,723,024)	(86,723,024)	(161,491,343)	0	(161,491,343)	(161,491,343)	0	(161,491,343)	0	0
2000 4 Qtr	(86,631,699)	(86,631,699)	(248,123,042)	0	(248,123,042)	(248,123,042)	0	(248,123,042)	0	0
2001 1 Qtr	(44,453,319)	(44,453,319)	(292,576,361)	0	(292,576,361)	(292,576,361)	0	(292,576,361)	0	0
2001 2 Qtr	(43,774,210)	(43,774,210)	(336,350,571)	0	(336,350,571)	(336,350,571)	0	(336,350,571)	0	0
2001 3 Qtr	(43,376,526)	(43,376,526)	(379,727,097)	0	(379,727,097)	(379,727,097)	0	(379,727,097)	0	0
2001 4 Qtr	(43,341,815)	(43,341,815)	(423,068,912)	0	(423,068,912)	(423,068,912)	0	(423,068,912)	0	0
2002 1 Qtr	(23,836,329)	(23,836,329)	(446,905,241)	0	(446,905,241)	(446,905,241)	0	(446,905,241)	0	0
2002 2 Qtr	(23,919,504)	(23,919,504)	(470,824,745)	0	(470,824,745)	(470,824,745)	0	(470,824,745)	0	0
2002 3 Qtr	(24,230,151)	(24,230,151)	(495,054,895)	0	(495,054,895)	(495,054,895)	0	(495,054,895)	0	0
2002 4 Qtr	(25,025,562)	(25,025,562)	(520,080,457)	0	(520,080,457)	(520,080,457)	0	(520,080,457)	0	0
2003 1 Qtr	(8,624,934)	(8,624,934)	(528,705,391)	0	(528,705,391)	(528,705,391)	0	(528,705,391)	0	0
2003 2 Qtr	(6,248,320)	(6,248,320)	(534,953,711)	0	(534,953,711)	(534,953,711)	0	(534,953,711)	0	0
2003 3 Qtr	(6,001,755)	(6,001,755)	(540,955,467)	0	(540,955,467)	(540,955,467)	0	(540,955,467)	0	0
2003 4 Qtr	(5,638,390)	(5,638,390)	(546,593,857)	0	(546,593,857)	(546,593,857)	0	(546,593,857)	0	0
2004 1 Qtr	5,267,708	0	(546,593,857)	5,267,708	(541,326,149)	(541,326,149)	0	(541,326,149)	0	0
2004 2 Qtr	5,229,758	0	(541,326,149)	5,229,758	(536,096,391)	(536,096,391)	0	(536,096,391)	0	0
2004 3 Qtr	5,947,382	0	(536,096,391)	5,947,382	(530,149,009)	(530,149,009)	0	(530,149,009)	0	0
2004 4 Qtr	6,554,775	0	(530,149,009)	6,554,775	(523,594,235)	(523,594,235)	0	(523,594,235)	0	0
2005 1 Qtr	14,084,277	0	(523,594,235)	14,084,277	(509,509,958)	(509,509,958)	0	(509,509,958)	0	0
2005 2 Qtr	14,151,520	0	(509,509,958)	14,151,520	(495,358,438)	(495,358,438)	0	(495,358,438)	0	0
2005 3 Qtr	14,494,160	0	(495,358,438)	14,494,160	(480,864,278)	(480,864,278)	0	(480,864,278)	0	0
2005 4 Qtr	14,643,984	0	(480,864,278)	14,643,984	(466,220,294)	(466,220,294)	0	(466,220,294)	0	0
2006 1 Qtr	15,213,322	0	(466,220,294)	15,213,322	(451,006,972)	(451,006,972)	0	(451,006,972)	0	0
2006 2 Qtr	15,630,651	0	(451,006,972)	15,630,651	(435,376,320)	(435,376,320)	0	(435,376,320)	0	0
2006 3 Qtr	16,050,939	0	(435,376,320)	16,050,939	(419,325,382)	(419,325,382)	0	(419,325,382)	0	0
2006 4 Qtr	16,474,207	0	(419,325,382)	16,474,207	(402,851,174)	(402,851,174)	0	(402,851,174)	0	0
2007 1 Qtr	35,044,223	0	(402,851,174)	35,044,223	(367,806,951)	(367,806,951)	0	(367,806,951)	0	0
2007 2 Qtr	35,464,587	0	(367,806,951)	35,464,587	(332,342,365)	(332,342,365)	0	(332,342,365)	0	0
2007 3 Qtr	35,887,744	0	(332,342,365)	35,887,744	(296,454,621)	(296,454,621)	0	(296,454,621)	0	0
2007 4 Qtr	36,313,714	0	(296,454,621)	36,313,714	(260,140,907)	(260,140,907)	0	(260,140,907)	0	0
2008 1 Qtr	47,679,457	0	(260,140,907)	47,679,457	(212,461,450)	(212,461,450)	0	(212,461,450)	0	0
2008 2 Qtr	48,094,548	0	(212,461,450)	48,094,548	(164,366,902)	(164,366,902)	0	(164,366,902)	0	0
2008 3 Qtr	48,512,324	0	(164,366,902)	48,512,324	(115,854,578)	(115,854,578)	0	(115,854,578)	0	0
2008 4 Qtr	48,932,801	0	(115,854,578)	48,932,801	(66,921,777)	(66,921,777)	0	(66,921,777)	0	0
2009 1 Qtr	49,375,657	0	(66,921,777)	49,375,657	(17,546,120)	(17,546,120)	0	(17,546,120)	0	0
2009 2 Qtr	48,817,288	0	(17,546,120)	17,546,120	0	0	0	0	31,271,168	10,944,909
2009 3 Qtr	48,703,449	0	0	0	0	0	0	0	48,703,449	17,046,207
2009 4 Qtr	49,135,042	0	0	0	0	0	0	0	49,135,042	17,197,265
2010 1 Qtr	49,553,365	0	0	0	0	0	0	0	49,553,365	17,343,678
2010 2 Qtr	49,980,764	0	0	0	0	0	0	0	49,980,764	17,493,267
2010 3 Qtr	50,411,004	0	0	0	0	0	0	0	50,411,004	17,643,851

TABLE J - PART 1: COMPUTATION OF FEDERAL TAX LIABILITY - TAXABLE INCOME
(Continued)

Time Period	Taxable Income B/4 NOL's T&NRR 1/	Net Operating Losses Generated 2/	NOL's Generated Plus Carryforward 3/	Carryfoward Utilized 4/	Carryfoward Remaining 5/	Carryback Available 6/	Carryback Utilized 7/	Carryback Remaining 8/	Annual Taxable Income 9/	Annual Tax Liability 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2010 4 Qtr	50,844,105	0	0	0	0	0	0	0	50,844,105	17,795,437
2011 1 Qtr	51,313,572	0	0	0	0	0	0	0	51,313,572	17,959,750
2011 2 Qtr	51,779,998	0	0	0	0	0	0	0	51,779,998	18,122,999
2011 3 Qtr	52,249,661	0	0	0	0	0	0	0	52,249,661	18,287,381
2011 4 Qtr	52,722,588	0	0	0	0	0	0	0	52,722,588	18,452,906
2012 1 Qtr	53,175,129	0	0	0	0	0	0	0	53,175,129	18,611,295
2012 2 Qtr	53,637,031	0	0	0	0	0	0	0	53,637,031	18,772,961
2012 3 Qtr	54,102,060	0	0	0	0	0	0	0	54,102,060	18,935,721
2012 4 Qtr	54,570,239	0	0	0	0	0	0	0	54,570,239	19,099,584
2013 1 Qtr	55,072,668	0	0	0	0	0	0	0	55,072,668	19,275,434
2013 2 Qtr	55,572,315	0	0	0	0	0	0	0	55,572,315	19,450,310
2013 3 Qtr	56,075,462	0	0	0	0	0	0	0	56,075,462	19,626,412
2013 4 Qtr	56,582,136	0	0	0	0	0	0	0	56,582,136	19,803,748
2014 1 Qtr	57,086,107	0	0	0	0	0	0	0	57,086,107	19,980,138
2014 2 Qtr	57,599,916	0	0	0	0	0	0	0	57,599,916	20,159,971
2014 3 Qtr	58,117,333	0	0	0	0	0	0	0	58,117,333	20,341,067
2014 4 Qtr	58,638,386	0	0	0	0	0	0	0	58,638,386	20,523,435
2015 1 Qtr	61,477,984	0	0	0	0	0	0	0	61,477,984	21,517,294
2015 2 Qtr	62,006,392	0	0	0	0	0	0	0	62,006,392	21,702,237
2015 3 Qtr	62,538,519	0	0	0	0	0	0	0	62,538,519	21,888,482
2015 4 Qtr	63,074,394	0	0	0	0	0	0	0	63,074,394	22,076,038
2016 1 Qtr	64,996,719	0	0	0	0	0	0	0	64,996,719	22,748,852
2016 2 Qtr	65,540,177	0	0	0	0	0	0	0	65,540,177	22,939,062
2016 3 Qtr	66,087,469	0	0	0	0	0	0	0	66,087,469	23,130,614
2016 4 Qtr	66,638,626	0	0	0	0	0	0	0	66,638,626	23,323,519
2017 1 Qtr	67,193,677	0	0	0	0	0	0	0	67,193,677	23,517,787
2017 2 Qtr	67,752,652	0	0	0	0	0	0	0	67,752,652	23,713,428
2017 3 Qtr	68,315,580	0	0	0	0	0	0	0	68,315,580	23,910,453
2017 4 Qtr	68,882,494	0	0	0	0	0	0	0	68,882,494	24,108,873
2018 1 Qtr	69,453,422	0	0	0	0	0	0	0	69,453,422	24,308,698
2018 2 Qtr	70,028,397	0	0	0	0	0	0	0	70,028,397	24,509,939
2018 3 Qtr	70,607,449	0	0	0	0	0	0	0	70,607,449	24,712,607
2018 4 Qtr	71,190,609	0	0	0	0	0	0	0	71,190,609	24,916,713
2019 1 Qtr	71,777,911	0	0	0	0	0	0	0	71,777,911	25,122,269
2019 2 Qtr	72,369,385	0	0	0	0	0	0	0	72,369,385	25,329,285
2019 3 Qtr	72,965,063	0	0	0	0	0	0	0	72,965,063	25,537,772
2019 4 Qtr	73,564,980	0	0	0	0	0	0	0	73,564,980	25,747,743
2020 1 Qtr	74,169,166	0	0	0	0	0	0	0	74,169,166	25,959,208
2020 2 Qtr	74,777,656	0	0	0	0	0	0	0	74,777,656	26,172,180
2020 3 Qtr	75,390,483	0	0	0	0	0	0	0	75,390,483	26,386,669
2020 4 Qtr	76,007,680	0	0	0	0	0	0	0	76,007,680	26,602,688
Future	3,305,205,067	0	0	0	0	0	0	0	3,305,205,067	1,156,821,773

1/ Table I, Column (3) - Table E, Columns (6),(12) & (18) - Table G, Column (14) / 4 - Table J Part 2, Column (11).
Values for 1998-2000 from Table D, Sum of Column (10).
2/ Column (2) if less than zero, otherwise zero.
3/ Cumulative total of Column (2).
4/ If Column (2) is greater than zero, and (Column (2) + Column (4) is less than zero, than Column (2), otherwise Column (4).
5/ Column (4) + Column (5) + Column (8).
6/ Previous period Column (9) + current period Column (3) - current period Column (5).
7/ If previous Column (10) is greater than zero, and previous Column (10) is less than current Column (7), then previous Column (10), otherwise zero.
8/ Column (7) + Column (8).
9/ If Column (2) is greater than zero, then Column (2) - Column (5) - Column (8), otherwise zero.
10/ Column (10) times applicable Federal Statutory Tax Rate.

TABLE J - PART 2: COMPUTATION OF STATE TAX LIABILITY - TAXABLE INCOME

Time Period	Taxable Income B/4 NOL's T&NRR 1/	Net Operating Losses Generated 2/	NOL's Generated Plus Carryforward 3/	Carryfoward Utilized 4/	Carryfoward Remaining 5/	Carryback Available 6/	Carryback Utilized 7/	Carryback Remaining 8/	Annual Taxable Income 9/	Annual Tax Liability 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1998	($1,366,220)	($1,366,220)	($1,366,220)	$0	($1,366,220)	($1,366,220)	$0	($1,366,220)	$0	$0
1999	(26,580,756)	(26,580,756)	(27,946,977)	0	(27,946,977)	(27,946,977)	0	(27,946,977)	0	0
2000	(34,978,161)	(34,978,161)	(62,925,138)	0	(62,925,138)	(62,925,138)	0	(62,925,138)	0	0
2000 2 Qtr	(11,843,182)	(11,843,182)	(74,768,319)	0	(74,768,319)	(74,768,319)	0	(74,768,319)	0	0
2000 3 Qtr	(86,723,024)	(86,723,024)	(161,491,343)	0	(161,491,343)	(161,491,343)	0	(161,491,343)	0	0
2000 4 Qtr	(86,631,699)	(86,631,699)	(248,123,042)	0	(248,123,042)	(248,123,042)	0	(248,123,042)	0	0
2001 1 Qtr	(44,453,319)	(44,453,319)	(292,576,361)	0	(292,576,361)	(292,576,361)	0	(292,576,361)	0	0
2001 2 Qtr	(43,774,210)	(43,774,210)	(336,350,571)	0	(336,350,571)	(336,350,571)	0	(336,350,571)	0	0
2001 3 Qtr	(43,376,526)	(43,376,526)	(379,727,097)	0	(379,727,097)	(379,727,097)	0	(379,727,097)	0	0
2001 4 Qtr	(43,341,815)	(43,341,815)	(423,068,912)	0	(423,068,912)	(423,068,912)	0	(423,068,912)	0	0
2002 1 Qtr	(23,836,329)	(23,836,329)	(446,905,241)	0	(446,905,241)	(446,905,241)	0	(446,905,241)	0	0
2002 2 Qtr	(23,919,504)	(23,919,504)	(470,824,745)	0	(470,824,745)	(470,824,745)	0	(470,824,745)	0	0
2002 3 Qtr	(24,230,151)	(24,230,151)	(495,054,895)	0	(495,054,895)	(495,054,895)	0	(495,054,895)	0	0
2002 4 Qtr	(25,025,562)	(25,025,562)	(520,080,457)	0	(520,080,457)	(520,080,457)	0	(520,080,457)	0	0
2003 1 Qtr	(8,624,934)	(8,624,934)	(528,705,391)	0	(528,705,391)	(528,705,391)	0	(528,705,391)	0	0
2003 2 Qtr	(6,248,320)	(6,248,320)	(534,953,711)	0	(534,953,711)	(534,953,711)	0	(534,953,711)	0	0
2003 3 Qtr	(6,001,755)	(6,001,755)	(540,955,467)	0	(540,955,467)	(540,955,467)	0	(540,955,467)	0	0
2003 4 Qtr	(5,638,390)	(5,638,390)	(546,593,857)	0	(546,593,857)	(546,593,857)	0	(546,593,857)	0	0
2004 1 Qtr	5,267,708	0	(546,593,857)	5,267,708	(541,326,149)	(541,326,149)	0	(541,326,149)	0	0
2004 2 Qtr	5,229,758	0	(541,326,149)	5,229,758	(536,096,391)	(536,096,391)	0	(536,096,391)	0	0
2004 3 Qtr	5,947,382	0	(536,096,391)	5,947,382	(530,149,009)	(530,149,009)	0	(530,149,009)	0	0
2004 4 Qtr	6,554,775	0	(530,149,009)	6,554,775	(523,594,235)	(523,594,235)	0	(523,594,235)	0	0
2005 1 Qtr	14,084,277	0	(523,594,235)	14,084,277	(509,509,958)	(509,509,958)	0	(509,509,958)	0	0
2005 2 Qtr	14,151,520	0	(509,509,958)	14,151,520	(495,358,438)	(495,358,438)	0	(495,358,438)	0	0
2005 3 Qtr	14,494,160	0	(495,358,438)	14,494,160	(480,864,278)	(480,864,278)	0	(480,864,278)	0	0
2005 4 Qtr	14,643,984	0	(480,864,278)	14,643,984	(466,220,294)	(466,220,294)	0	(466,220,294)	0	0
2006 1 Qtr	15,213,322	0	(466,220,294)	15,213,322	(451,006,972)	(451,006,972)	0	(451,006,972)	0	0
2006 2 Qtr	15,630,651	0	(451,006,972)	15,630,651	(435,376,320)	(435,376,320)	0	(435,376,320)	0	0
2006 3 Qtr	16,050,939	0	(435,376,320)	16,050,939	(419,325,382)	(419,325,382)	0	(419,325,382)	0	0
2006 4 Qtr	16,474,207	0	(419,325,382)	16,474,207	(402,851,174)	(402,851,174)	0	(402,851,174)	0	0
2007 1 Qtr	35,044,223	0	(402,851,174)	35,044,223	(367,806,951)	(367,806,951)	0	(367,806,951)	0	0
2007 2 Qtr	35,464,587	0	(367,806,951)	35,464,587	(332,342,365)	(332,342,365)	0	(332,342,365)	0	0
2007 3 Qtr	35,887,744	0	(332,342,365)	35,887,744	(296,454,621)	(296,454,621)	0	(296,454,621)	0	0
2007 4 Qtr	36,313,714	0	(296,454,621)	36,313,714	(260,140,907)	(260,140,907)	0	(260,140,907)	0	0
2008 1 Qtr	47,679,457	0	(260,140,907)	47,679,457	(212,461,450)	(212,461,450)	0	(212,461,450)	0	0
2008 2 Qtr	48,094,548	0	(212,461,450)	48,094,548	(164,366,902)	(164,366,902)	0	(164,366,902)	0	0
2008 3 Qtr	48,512,324	0	(164,366,902)	48,512,324	(115,854,578)	(115,854,578)	0	(115,854,578)	0	0
2008 4 Qtr	48,932,801	0	(115,854,578)	48,932,801	(66,921,777)	(66,921,777)	0	(66,921,777)	0	0
2009 1 Qtr	49,375,657	0	(66,921,777)	49,375,657	(17,546,120)	(17,546,120)	0	(17,546,120)	0	0
2009 2 Qtr	49,815,023	0	(17,546,120)	17,546,120	0	0	0	0	32,268,903	997,735
2009 3 Qtr	50,257,376	0	0	0	0	0	0	0	50,257,376	1,553,927
2009 4 Qtr	50,702,740	0	0	0	0	0	0	0	50,702,740	1,567,698
2010 1 Qtr	51,134,410	0	0	0	0	0	0	0	51,134,410	1,581,045
2010 2 Qtr	51,575,445	0	0	0	0	0	0	0	51,575,445	1,594,681
2010 3 Qtr	52,019,412	0	0	0	0	0	0	0	52,019,412	1,608,409

TABLE J - PART 2: COMPUTATION OF STATE TAX LIABILITY - TAXABLE INCOME
(Continued)

Time Period	Taxable Income B/4 NOL's T&NRR 1/	Net Operating Losses Generated 2/	NOL's Generated Plus Carryforward 3/	Carryfoward Utilized 4/	Carryfoward Remaining 5/	Carryback Available 6/	Carryback Utilized 7/	Carryback Remaining 8/	Annual Taxable Income 9/	Annual Tax Liability 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2010 4 Qtr	52,466,332	0	0	0	0	0	0	0	52,466,332	1,622,227
2011 1 Qtr	52,950,778	0	0	0	0	0	0	0	52,950,778	1,637,206
2011 2 Qtr	53,432,085	0	0	0	0	0	0	0	53,432,085	1,652,088
2011 3 Qtr	53,916,734	0	0	0	0	0	0	0	53,916,734	1,667,073
2011 4 Qtr	54,404,749	0	0	0	0	0	0	0	54,404,749	1,682,162
2012 1 Qtr	54,871,730	0	0	0	0	0	0	0	54,871,730	1,696,600
2012 2 Qtr	55,348,369	0	0	0	0	0	0	0	55,348,369	1,711,338
2012 3 Qtr	55,828,235	0	0	0	0	0	0	0	55,828,235	1,726,175
2012 4 Qtr	56,311,352	0	0	0	0	0	0	0	56,311,352	1,741,113
2013 1 Qtr	56,829,812	0	0	0	0	0	0	0	56,829,812	1,757,143
2013 2 Qtr	57,345,400	0	0	0	0	0	0	0	57,345,400	1,773,085
2013 3 Qtr	57,864,600	0	0	0	0	0	0	0	57,864,600	1,789,138
2013 4 Qtr	58,387,440	0	0	0	0	0	0	0	58,387,440	1,805,304
2014 1 Qtr	58,907,491	0	0	0	0	0	0	0	58,907,491	1,821,384
2014 2 Qtr	59,437,693	0	0	0	0	0	0	0	59,437,693	1,837,777
2014 3 Qtr	59,971,619	0	0	0	0	0	0	0	59,971,619	1,854,286
2014 4 Qtr	60,509,296	0	0	0	0	0	0	0	60,509,296	1,870,911
2015 1 Qtr	63,439,495	0	0	0	0	0	0	0	63,439,495	1,961,511
2015 2 Qtr	63,984,762	0	0	0	0	0	0	0	63,984,762	1,978,370
2015 3 Qtr	64,533,867	0	0	0	0	0	0	0	64,533,867	1,995,348
2015 4 Qtr	65,086,839	0	0	0	0	0	0	0	65,086,839	2,012,445
2016 1 Qtr	67,070,498	0	0	0	0	0	0	0	67,070,498	2,073,779
2016 2 Qtr	67,631,295	0	0	0	0	0	0	0	67,631,295	2,091,118
2016 3 Qtr	68,196,050	0	0	0	0	0	0	0	68,196,050	2,108,580
2016 4 Qtr	68,764,792	0	0	0	0	0	0	0	68,764,792	2,126,165
2017 1 Qtr	69,337,552	0	0	0	0	0	0	0	69,337,552	2,143,875
2017 2 Qtr	69,914,361	0	0	0	0	0	0	0	69,914,361	2,161,709
2017 3 Qtr	70,495,251	0	0	0	0	0	0	0	70,495,251	2,179,670
2017 4 Qtr	71,080,252	0	0	0	0	0	0	0	71,080,252	2,197,758
2018 1 Qtr	71,669,396	0	0	0	0	0	0	0	71,669,396	2,215,974
2018 2 Qtr	72,262,716	0	0	0	0	0	0	0	72,262,716	2,234,319
2018 3 Qtr	72,860,243	0	0	0	0	0	0	0	72,860,243	2,252,794
2018 4 Qtr	73,462,010	0	0	0	0	0	0	0	73,462,010	2,271,401
2019 1 Qtr	74,068,050	0	0	0	0	0	0	0	74,068,050	2,290,139
2019 2 Qtr	74,678,395	0	0	0	0	0	0	0	74,678,395	2,309,010
2019 3 Qtr	75,293,080	0	0	0	0	0	0	0	75,293,080	2,328,016
2019 4 Qtr	75,912,137	0	0	0	0	0	0	0	75,912,137	2,347,157
2020 1 Qtr	76,535,600	0	0	0	0	0	0	0	76,535,600	2,366,434
2020 2 Qtr	77,163,505	0	0	0	0	0	0	0	77,163,505	2,385,849
2020 3 Qtr	77,795,884	0	0	0	0	0	0	0	77,795,884	2,405,401
2020 4 Qtr	78,432,774	0	0	0	0	0	0	0	78,432,774	2,425,094
Future	3,410,660,616	0	0	0	0	0	0	0	3,410,660,616	105,455,549

1/ Table I, Column (3) - Table E, Columns (6),(12) & (18) - Table G, Column (14) / 4.
Values for 1998-2000 from Table D, Sum of Column (10).
2/ Column (2) if less than zero, otherwise zero.
3/ Cumulative total of Column (2).
4/ If Column (2) is greater than zero, and (Column (2) + Column (4) is less than zero, than Column (2), otherwise Column (4).
5/ Column (4) + Column (5) + Column (8).
6/ Previous period Column (9) + current period Column (3) - current period Column (5).
7/ If previous Column (10) is greater than zero, and previous Column (10) is less than current Column (7), then previous Column (10), otherwise zero.
8/ Column (7) + Column (8).
9/ If Column (2) is greater than zero, then Column (2) - Column (5) - Column (8), otherwise zero.
10/ Column (10) times applicable route mile weighted State Statutory Tax Rates.

TABLE K: TNRR OPERATING EXPENSES

Item (1)		2000 (2)	2001 (3)	2002 (4)	2003 (5)	2004 (7)	2005 (8)	2006 (9)	2007 (10)	2008 (11)	2009 (12)
1. Train & Engine Personnel		$41,831,156	$44,285,992	$43,557,775	$44,710,396	$47,429,310	$46,617,978	$47,066,748	$47,778,197	$48,346,746	$48,943,463
2. Locomotive Lease Expense		$30,094,047	$31,860,098	$31,336,206	$32,165,421	$34,121,455	$33,537,768	$33,860,621	$34,372,450	$34,781,474	$35,210,762
3. Locomotive Maintennce Expense		$24,877,581	$26,337,507	$25,904,426	$26,589,906	$28,206,883	$27,724,372	$27,991,262	$28,414,371	$28,752,495	$29,107,371
4. Locomotive Operating Expense		$85,732,988	$90,764,176	$89,271,694	$91,633,992	$97,206,410	$95,543,583	$96,463,338	$97,921,454	$99,086,694	$100,309,666
5. Railcar Lease Expense		$9,715,218	$10,285,349	$10,116,222	$10,383,916	$11,015,380	$10,826,949	$10,931,175	$11,096,408	$11,228,453	$11,367,039
6. Material & Supply Operating		$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124
7. Ad Valorem Tax		$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347
8. Joint Facility		$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606
9. Operating Managers		$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039
10. General & Administration		$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007
11. Loss and Damage		$833,799	$882,730	$868,215	$891,190	$945,384	$929,213	$938,158	$952,339	$963,671	$975,565
12. Insurance	2.94%	7,558,478	7,891,376	7,792,623	7,948,929	8,317,638	8,207,614	8,268,471	8,364,950	8,442,051	8,522,971
13. Maintenance of Way		27,886,966	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966
14. Total Operating Expenses		$264,831,356	$276,495,317	$273,035,251	$278,511,840	$291,430,551	$287,575,567	$289,707,863	$293,088,259	$295,789,673	$298,624,927
15. Expense Per Quarter		$66,207,839	$69,123,829	$68,258,813	$69,627,960	$72,857,638	$71,893,892	$72,426,966	$73,272,065	$73,947,418	$74,656,232

TABLE K: TNRR OPERATING EXPENSES
(Continued)

Item (1)	2010 (2)	2011 (3)	2012 (4)	2013 (5)	2014 (7)	2015 (8)	2016 (9)	2017 (10)	2018 (11)	2019 (12)	2020 (13)
1. Train & Engine Personnel	$50,061,119	$50,610,531	$50,945,975	$51,178,452	$51,399,772	$51,586,925	$51,840,909	$52,145,384	$52,324,568	$52,554,093	$52,804,176
2. Locomotive Lease Expense	$36,014,823	$36,410,080	$36,651,403	$36,818,652	$36,977,873	$37,112,514	$37,295,234	$37,514,279	$37,643,187	$37,808,311	$37,988,225
3. Locomotive Maintennce Expense	$29,772,057	$30,098,801	$30,298,294	$30,436,551	$30,568,173	$30,679,476	$30,830,524	$31,011,599	$31,118,163	$31,254,665	$31,403,392
4. Locomotive Operating Expense	$102,600,304	$103,726,325	$104,413,817	$104,890,280	$105,343,874	$105,727,445	$106,247,986	$106,872,007	$107,239,245	$107,709,657	$108,222,201
5. Railcar Lease Expense	$11,626,613	$11,754,213	$11,832,119	$11,886,112	$11,937,513	$11,980,979	$12,039,967	$12,110,680	$12,152,295	$12,205,602	$12,263,684
6. Material & Supply Operating	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124	$1,151,124
7. Ad Valorem Tax	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347	$6,127,347
8. Joint Facility	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606	$4,130,606
9. Operating Managers	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039	$11,950,039
10. General & Administration	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007	$12,942,007
11. Loss and Damage	$997,843	$1,008,794	$1,015,480	$1,020,114	$1,024,526	$1,028,256	$1,033,319	$1,039,387	$1,042,959	$1,047,534	$1,052,519
12. Insurance	8,674,535	8,749,040	8,794,530	8,826,056	8,856,069	8,881,448	8,915,891	8,957,180	8,981,479	9,012,605	9,046,518
13. Maintenance of Way	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966	27,886,966
14. Total Operating Expenses	$303,935,384	$306,545,874	$308,139,708	$309,244,307	$310,295,888	$311,185,133	$312,391,919	$313,838,606	$314,689,985	$315,780,557	$316,968,805
15. Expense Per Quarter	$75,983,846	$76,636,469	$77,034,927	$77,311,077	$77,573,972	$77,796,283	$78,097,980	$78,459,651	$78,672,496	$78,945,139	$79,242,201

TABLE K: TNRR OPERATING EXPENSES, INDEXED
(Continued)

Period (1)	Quarter (2)	Rail Cost Adjustment Factor Index 1/ (3)	Operating Expense Indexed For Inflation 2/ (4)	Period (5)	Quarter (6)	Rail Cost Adjustment Factor Index 1/ (7)	Operating Expense Indexed For Inflation 2/ (8)	Period (9)	Quarter (10)	Rail Cost Adjustment Factor Index 1/ (11)	Operating Expense Indexed For Inflation 2/ (12)
NA	1999 3 Qtr	0.000	NA	27	2006 4 Qtr	0.527	73,970,951	56	2014 1 Qtr	0.586	88,097,573
NA	1999 4 Qtr	0.000	NA	28	2007 1 Qtr	0.537	76,254,067	57	2014 2 Qtr	0.585	87,947,236
NA	2000 1 Qtr	0.000	NA	29	2007 2 Qtr	0.536	76,112,067	58	2014 3 Qtr	0.583	87,646,561
1	June 16 - 30, 2000	0.516	$10,913,380	30	2007 3 Qtr	0.535	75,970,067	59	2014 4 Qtr	0.582	87,496,224
2	2000 3 Qtr	0.514	65,951,219	31	2007 4 Qtr	0.533	75,686,067	60	2015 1 Qtr	0.595	89,706,954
3	2000 4 Qtr	0.517	66,336,149	32	2008 1 Qtr	0.544	77,960,069	61	2015 2 Qtr	0.593	89,405,418
4	2001 1 Qtr	0.526	70,463,438	33	2008 2 Qtr	0.542	77,673,451	62	2015 3 Qtr	0.592	89,254,650
5	2001 2 Qtr	0.519	69,525,712	34	2008 3 Qtr	0.541	77,530,142	63	2015 4 Qtr	0.590	88,953,115
6	2001 3 Qtr	0.519	69,525,712	35	2008 4 Qtr	0.539	77,243,524	64	2016 1 Qtr	0.603	91,265,662
7	2001 4 Qtr	0.516	69,123,829	36	2009 1 Qtr	0.550	79,575,441	65	2016 2 Qtr	0.601	90,962,957
8	2002 1 Qtr	0.513	67,861,959	37	2009 2 Qtr	0.549	79,430,758	66	2016 3 Qtr	0.600	90,811,604
9	2002 2 Qtr	0.503	66,539,114	38	2009 3 Qtr	0.547	79,141,393	67	2016 4 Qtr	0.598	90,508,899
10	2002 3 Qtr	0.500	66,142,260	39	2009 4 Qtr	0.545	78,852,028	68	2017 1 Qtr	0.611	92,904,742
11	2002 4 Qtr	0.519	68,655,666	40	2010 1 Qtr	0.556	81,874,067	69	2017 2 Qtr	0.610	92,752,689
12	2003 1 Qtr	0.514	69,358,084	41	2010 2 Qtr	0.555	81,726,811	70	2017 3 Qtr	0.608	92,448,581
13	2003 2 Qtr	0.522	70,437,588	42	2010 3 Qtr	0.553	81,432,300	71	2017 4 Qtr	0.606	92,144,474
14	2003 3 Qtr	0.523	70,572,525	43	2010 4 Qtr	0.552	81,285,045	72	2018 1 Qtr	0.620	94,528,968
15	2003 4 Qtr	0.520	70,167,712	44	2011 1 Qtr	0.564	83,765,442	73	2018 2 Qtr	0.618	94,224,036
16	2004 1 Qtr	0.519	73,281,229	45	2011 2 Qtr	0.562	83,468,402	74	2018 3 Qtr	0.616	93,919,104
17	2004 2 Qtr	0.517	72,998,835	46	2011 3 Qtr	0.561	83,319,882	75	2018 4 Qtr	0.615	93,766,638
18	2004 3 Qtr	0.522	73,704,820	47	2011 4 Qtr	0.559	83,022,841	76	2019 1 Qtr	0.629	96,233,513
19	2004 4 Qtr	0.527	74,410,804	48	2012 1 Qtr	0.571	85,246,014	77	2019 2 Qtr	0.627	95,927,524
20	2005 1 Qtr	0.526	73,287,184	49	2012 2 Qtr	0.569	84,947,429	78	2019 3 Qtr	0.625	95,621,535
21	2005 2 Qtr	0.525	73,147,855	50	2012 3 Qtr	0.567	84,648,844	79	2019 4 Qtr	0.623	95,315,546
22	2005 3 Qtr	0.526	73,287,184	51	2012 4 Qtr	0.566	84,499,552	80	2020 1 Qtr	0.637	97,824,190
23	2005 4 Qtr	0.529	73,705,172	52	2013 1 Qtr	0.578	86,600,392	81	2020 2 Qtr	0.636	97,670,620
24	2006 1 Qtr	0.534	74,953,488	53	2013 2 Qtr	0.577	86,450,565	82	2020 3 Qtr	0.634	97,363,480
25	2006 2 Qtr	0.531	74,532,401	54	2013 3 Qtr	0.575	86,150,909	83	2020 4 Qtr	0.632	97,056,339
26	2006 3 Qtr	0.529	74,251,676	55	2013 4 Qtr	0.573	85,851,254				

1/ 2Q00 equals 51.6, all other quarters equal Quarterly Inflation Indexes for the RCAFA from Table B).

2/ (Quarterly expense from Table K, Pages 24 and 25, for the applicable time period x Column (3), Column (7) or Column (11) ÷ 2Q00.

TABLE L: TNRR CALCULATED CASH FLOW

Quarterly Revenue Requirements to Cover Total Stand-Alone

Period (1)	Quarter (2)	Quarterly Capital Requirement Road Property (3)	Quarterly Operating Expense (4)	Annual Stand-Alone Requirement (5)	Quarterly Stand-Alone Revenues (6)	Annual Stand-Alone Revenues (7)	Overpayments Or Shortfalls In Revenues (8)	Reduction In Rates (9)	Rate Charged (10)	SAC Rate Based on Equalized % Reduction (11)	SAC Rate Based on Generalized % Reduction (12)
1	June 16-30, 2000	$10,494,951	$10,913,380	$21,408,332	$30,711,753		$9,303,421	30.29%	$15.33	$10.69	$10.59
2	2000 3 Qtr	64,407,958	65,951,219	130,359,177	188,365,418		58,006,241	30.79%	15.33	10.61	10.27
3	2000 4 Qtr	64,491,935	66,336,149	130,828,084	188,365,418	$407,442,589	57,537,334	30.55%	15.33	10.65	10.27
4	2001 1 Qtr	65,502,960	70,463,438	135,966,398	191,828,194		55,861,796	29.12%	15.59	11.05	10.89
5	2001 2 Qtr	66,174,459	69,525,712	135,700,171	191,828,194		56,128,023	29.26%	15.59	11.03	10.89
6	2001 3 Qtr	66,564,397	69,525,712	136,090,109	191,828,194		55,738,085	29.06%	15.59	11.06	10.89
7	2001 4 Qtr	66,591,224	69,123,829	135,715,053	191,828,194	767,312,777	56,113,141	29.25%	15.59	11.03	10.89
8	2002 1 Qtr	61,966,169	67,861,959	129,828,128	193,050,377		63,222,249	32.75%	15.36	10.33	10.23
9	2002 2 Qtr	61,872,181	66,539,114	128,411,295	193,050,377		64,639,082	33.48%	15.36	10.22	9.50
10	2002 3 Qtr	61,550,564	66,142,260	127,692,824	193,050,377		65,357,553	33.86%	15.36	10.16	9.50
11	2002 4 Qtr	60,744,021	68,655,666	129,399,687	193,050,377	772,201,509	63,650,690	32.97%	15.36	10.30	10.23
12	2003 1 Qtr	60,866,833	69,358,084	130,224,917	196,024,194		65,799,277	33.57%	16.49	10.95	9.70
13	2003 2 Qtr	63,231,985	70,437,588	133,669,572	196,024,194		62,354,621	31.81%	16.49	11.24	9.70
14	2003 3 Qtr	63,466,921	70,572,525	134,039,446	196,024,194		61,984,748	31.62%	16.49	11.28	9.70
15	2003 4 Qtr	63,818,486	70,167,712	133,986,197	196,024,194	784,096,775	62,037,996	31.65%	16.49	11.27	9.70
16	2004 1 Qtr	64,049,708	73,281,229		210,209,209						
17	2004 2 Qtr	63,999,609	72,998,835		210,209,209						
18	2004 3 Qtr	64,704,906	73,704,820		210,209,209						
19	2004 4 Qtr	65,299,791	74,410,804	552,449,701	210,209,209	840,836,834	288,387,133	34.30%	$18.83	$12.37	$9.68
20	2005 1 Qtr	65,538,714	73,287,184		207,669,080						
21	2005 2 Qtr	65,593,079	73,147,855		207,669,080						
22	2005 3 Qtr	65,922,652	73,287,184		207,669,080						
23	2005 4 Qtr	66,059,218	73,705,172	556,541,058	207,669,080	830,676,319	274,135,261	33.00%	$18.83	$12.62	$9.91
24	2006 1 Qtr	66,460,158	74,953,488		212,758,120						
25	2006 2 Qtr	66,863,837	74,532,401		212,758,120						
26	2006 3 Qtr	67,270,274	74,251,676		212,758,120						
27	2006 4 Qtr	67,679,488	73,970,951	565,982,273	212,758,120	851,032,481	285,050,208	33.49%	$18.83	$12.52	$9.98
28	2007 1 Qtr	68,082,819	76,254,067		219,654,487						
29	2007 2 Qtr	68,488,714	76,112,067		219,654,487						
30	2007 3 Qtr	68,897,189	75,970,067		219,654,487						
31	2007 4 Qtr	69,308,262	75,686,067	578,799,252	219,654,487	878,617,948	299,818,696	34.12%	$18.83	$12.40	$9.57
32	2008 1 Qtr	69,705,574	77,960,069		229,031,630						
33	2008 2 Qtr	70,105,328	77,673,451		229,031,630						
34	2008 3 Qtr	70,507,540	77,530,142		229,031,630						
35	2008 4 Qtr	70,912,227	77,243,524	591,637,855	229,031,630	916,126,519	324,488,664	35.42%	$18.83	$12.16	$9.67
36	2009 1 Qtr	71,332,604	79,575,441		234,796,719						
37	2009 2 Qtr	71,755,712	79,430,758		234,796,719						
38	2009 3 Qtr	72,181,569	79,141,393		234,796,719						
39	2009 4 Qtr	72,610,195	78,852,028	604,879,701	234,796,719	939,186,877	334,307,177	35.60%	$18.83	$12.13	$9.78
40	2010 1 Qtr	73,031,336	81,874,067		242,477,518						

TABLE L: TNRR CALCULATED CASH FLOW
(Continued)

Period	Quarter	Quarterly Capital Requirement Road Property	Quarterly Operating Expense	Annual Stand-Alone Requirement	Quarterly Stand-Alone Revenues	Annual Stand-Alone Revenues	Overpayments Or Shortfalls In Revenues	Reduction In Rates	Rate Charged	SAC Rate Based on Equalized % Reduction	SAC Rate Based on Generalized % Reduction
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
41	2010 2 Qtr	$73,455,139	$81,726,811		242,477,518						
42	2010 3 Qtr	73,881,619	81,432,300		242,477,518						
43	2010 4 Qtr	74,310,796	81,285,045	620,997,114	242,477,518	969,910,072	348,912,958	35.97%	$18.83	$12.06	$9.93
44	2011 1 Qtr	74,770,784	83,765,442		247,633,349						
45	2011 2 Qtr	75,233,824	83,468,402		247,633,349						
46	2011 3 Qtr	75,699,937	83,319,882		247,633,349						
47	2011 4 Qtr	76,169,145	83,022,841	635,450,256	247,633,349	990,533,397	355,083,141	35.85%	$18.83	$12.08	$10.02
48	2012 1 Qtr	76,623,498	85,246,014		252,340,385						
49	2012 2 Qtr	77,080,775	84,947,429		252,340,385						
50	2012 3 Qtr	77,540,993	84,648,844		252,340,385						
51	2012 4 Qtr	78,004,174	84,499,552	648,591,280	252,340,385	1,009,361,539	360,770,259	35.74%	$18.83	$12.10	$10.14
52	2013 1 Qtr	78,495,950	86,600,392		257,003,734						
53	2013 2 Qtr	78,991,013	86,450,565		257,003,734						
54	2013 3 Qtr	79,489,387	86,150,909		257,003,734						
55	2013 4 Qtr	79,991,095	85,851,254	662,020,564	257,003,734	1,028,014,935	365,994,372	35.60%	$18.83	$12.13	$10.28
56	2014 1 Qtr	80,496,160	88,097,573		261,445,052						
57	2014 2 Qtr	81,004,606	87,947,236		261,445,052						
58	2014 3 Qtr	81,516,455	87,646,561		261,445,052						
59	2014 4 Qtr	82,031,733	87,496,224	676,236,548	261,445,052	1,045,780,210	369,543,662	35.34%	$18.83	$12.18	$10.96
60	2015 1 Qtr	82,550,462	89,706,954		265,957,887						
61	2015 2 Qtr	83,072,667	89,405,418		265,957,887						
62	2015 3 Qtr	83,598,372	89,254,650		265,957,887						
63	2015 4 Qtr	84,127,601	88,953,115	690,669,240	265,957,887	1,063,831,547	373,162,307	35.08%	$18.83	$12.22	$11.11
64	2016 1 Qtr	84,660,379	91,265,662		269,666,149						
65	2016 2 Qtr	85,196,730	90,962,957		269,666,149						
66	2016 3 Qtr	85,736,680	90,811,604		269,666,149						
67	2016 4 Qtr	86,280,254	90,508,899	705,423,165	269,666,149	1,078,664,596	373,241,431	34.60%	$18.83	$12.31	$11.21
68	2017 1 Qtr	86,827,476	92,904,742		273,742,293						
69	2017 2 Qtr	87,378,373	92,752,689		273,742,293						
70	2017 3 Qtr	87,932,970	92,448,581		273,742,293						
71	2017 4 Qtr	88,491,293	92,144,474	720,880,600	273,742,293	1,094,969,172	374,088,573	34.16%	$18.83	$12.40	$11.32
72	2018 1 Qtr	89,053,367	94,528,968		277,481,819						
73	2018 2 Qtr	89,619,220	94,224,036		277,481,819						
74	2018 3 Qtr	90,188,877	93,919,104		277,481,819						
75	2018 4 Qtr	90,762,365	93,766,638	736,062,575	277,481,819	1,109,927,275	373,864,699	33.68%	$18.83	$12.49	$11.71
76	2019 1 Qtr	91,339,710	96,233,513		281,308,041						
77	2019 2 Qtr	91,920,940	95,927,524		281,308,041						
78	2019 3 Qtr	92,506,082	95,621,535		281,308,041						
79	2019 4 Qtr	93,095,164	95,315,546	751,960,014	281,308,041	1,125,232,165	373,272,151	33.17%	$18.83	$12.58	$11.85
80	2020 1 Qtr	93,688,211	97,824,190		281,308,041						
81	2020 2 Qtr	94,285,254	97,670,620		281,308,041						
82	2020 3 Qtr	94,886,318	97,363,480		281,308,041						
83	2020 4 Qtr	95,491,433	97,056,339	768,265,846	281,308,041	1,142,232,930	373,967,084	32.74%	$18.83	$12.67	$11.97

Exhibit III-H-2
Redacted