

2016

FRA Rail Program Delivery Meeting

California's Network Integration & State Rail Plan

EXHIBIT
CSXNS 148

Agenda

- ▶ State Rail Planning Legislation & Guidance Update – Lyle Leitelt
- ▶ Efforts Leading to California's Network Integration – David Solow
- ▶ California's Approach to Network Integration – Chad Edison
- ▶ 2018 California State Rail Plan (SRP) Overview – Ken Sislak

State Rail Planning Legislation

PRIIA Requirements

- ▶ Section 303 of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) requires states to develop FRA-accepted state rail plans and encourages state involvement in rail policy, planning, and development.
 - States must develop State Rail Plans (SRPs) based on FRA guidelines to be eligible for PRIIA authorized funding.
 - FRA encourages all States to develop SRPs, even if they do not intend to pursue PRIIA grant funding.
- ▶ FRA published State Rail Plan Guidance in September 2013:
<https://www.fra.dot.gov/Page/P0511>

State Rail Planning Legislation

FAST Act Requirements

- ▶ Section 11315 of the Fixing America's Surface Transportation Act of 2015 (FAST) amended the frequency of when SRPs are to be updated:
 - Removed “5 years for reapproval by the Secretary”.
 - Inserted “4 years of acceptance by the Secretary”.
- ▶ FRA is updating the existing September 2013 State Rail Plan Guidance to accommodate the FAST Act requirements and other minor changes.

Efforts Leading to California's Network Integration

David Solow

Federal Capital Grants to CHSRA FFY 2010-2012

- ▶ Sept. 2010: \$2.5 billion (ARRA)
- ▶ Nov. 2011: \$.928 billion (FY 10)

Total: \$3.428 billion

Federal Planning Grants to Caltrans DOR

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Date	Grant	Amount	FY
Jan. 2011	LOSSAN North Rail CIP	\$1.36M	2010
April 2011	Pacific Surfliner Corridor SAP	\$200k	2009
June 2011	CA State Rail Plan	\$1M	2010
Nov. 2011	San Joaquin CIP	\$300k	2010

Total: \$2.86 million

Caltrans Division of Rail Planning Timeline

- ▶ California State Rail Plan
- ▶ Three separate SDPs in three corridors

Initiated : Jan. 2012, completed by June 2013

Concurrent with the initiation of work on the CHSRA First Construction Segment (FCS)

CA State Legislative Activities as of July 2013

- ▶ CA State Transportation Agency (CalSTA) created-Cabinet level agency including CHSRA and Caltrans
- ▶ Caltrans DOR directed to divest day to day management of intercity corridors to regional JPAs upon approval of annual business plan by CalSTA.

FRA Challenges

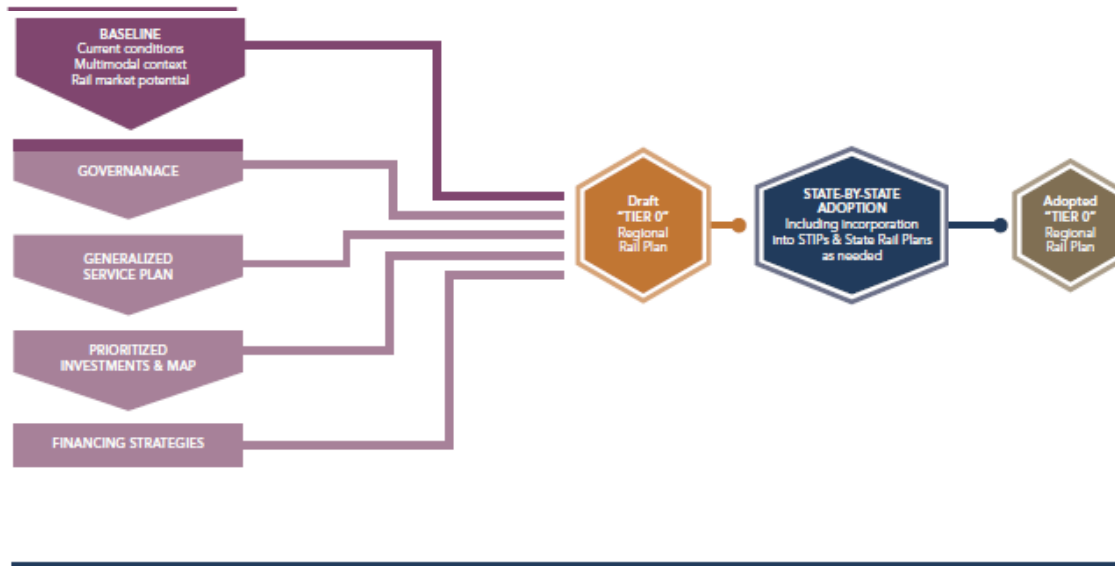
- ▶ Ensure the CA internal agencies are working together despite institutional changes
- ▶ Integrate Intercity and HSR service planning consistent with the new SDPs and the SRP
- ▶ “Do No harm” review of plans being published by the CA agencies and approved by the FRA
- ▶ Ensure there is a service plan for the FCS
- ▶ End Result: The Network Integration Strategic Service Plan (NISSP)

California's Approach to Network Integration

Chad Edison

Southwest Multi-State Rail Planning Study

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Visioning

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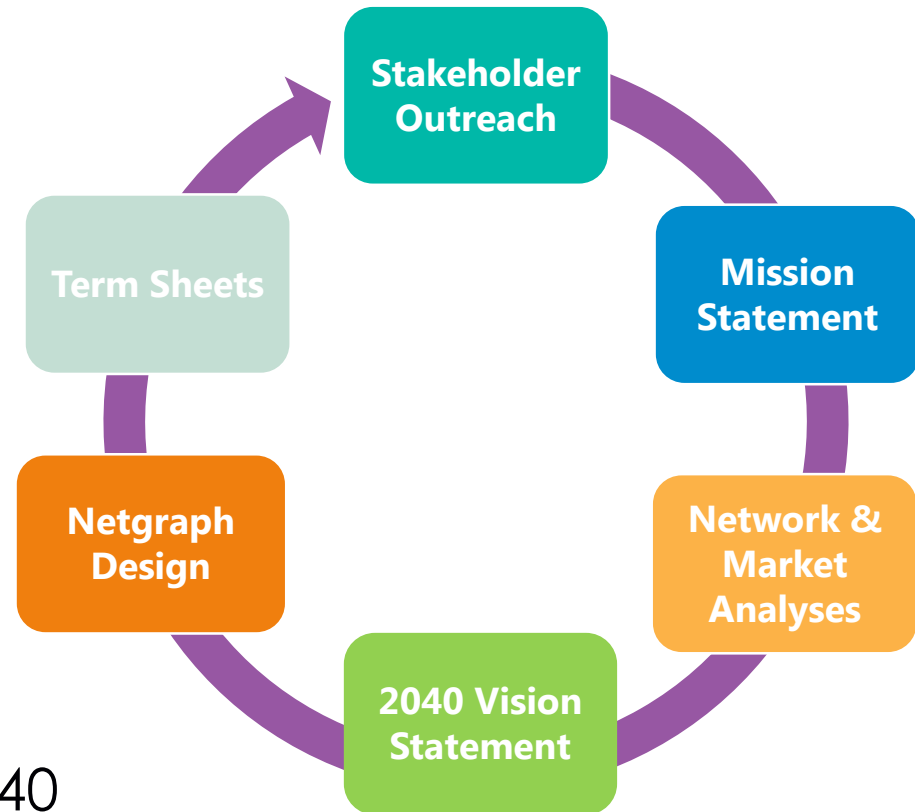
- ▶ Visioning is the process of imagining how rail services will develop in the future shaped by the perception of the travel market.
- ▶ Strategic planning is the steps taken today to focus efforts to realize the future vision of California.



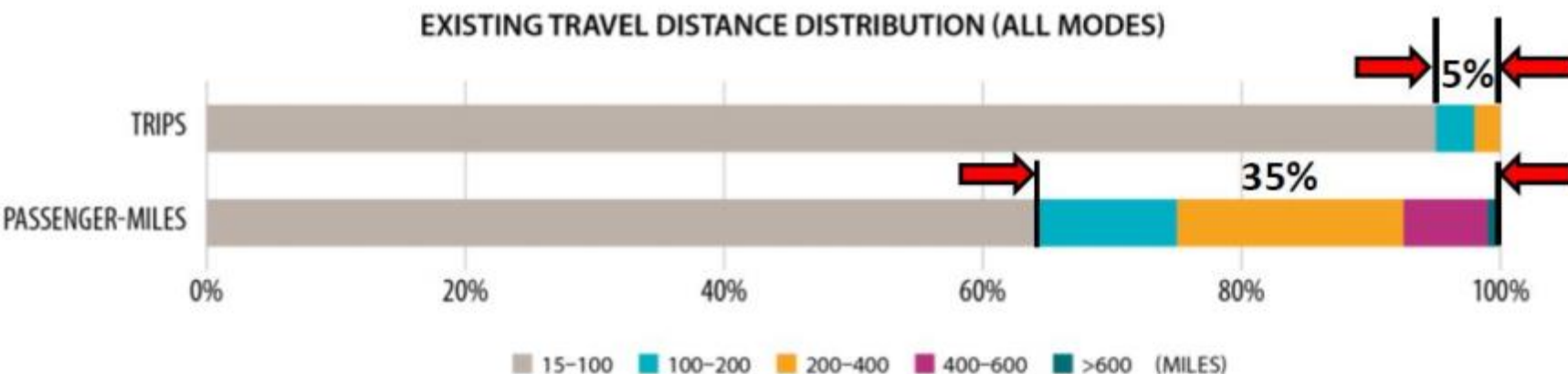
Visioning Process

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- Ongoing, engaged, iterative process, dependent on stakeholder feedback
- Understanding our market
- Analyzing our network
- Working toward achieving a shared 2040 Vision for rail in California



Why is a Statewide Vision Warranted?



For trips over 15 miles, about 5% of those trips are longer than 100 miles and generate about 35% of passenger miles!

California Rail Services: Regional and High Speed

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Existing Amtrak + Bus

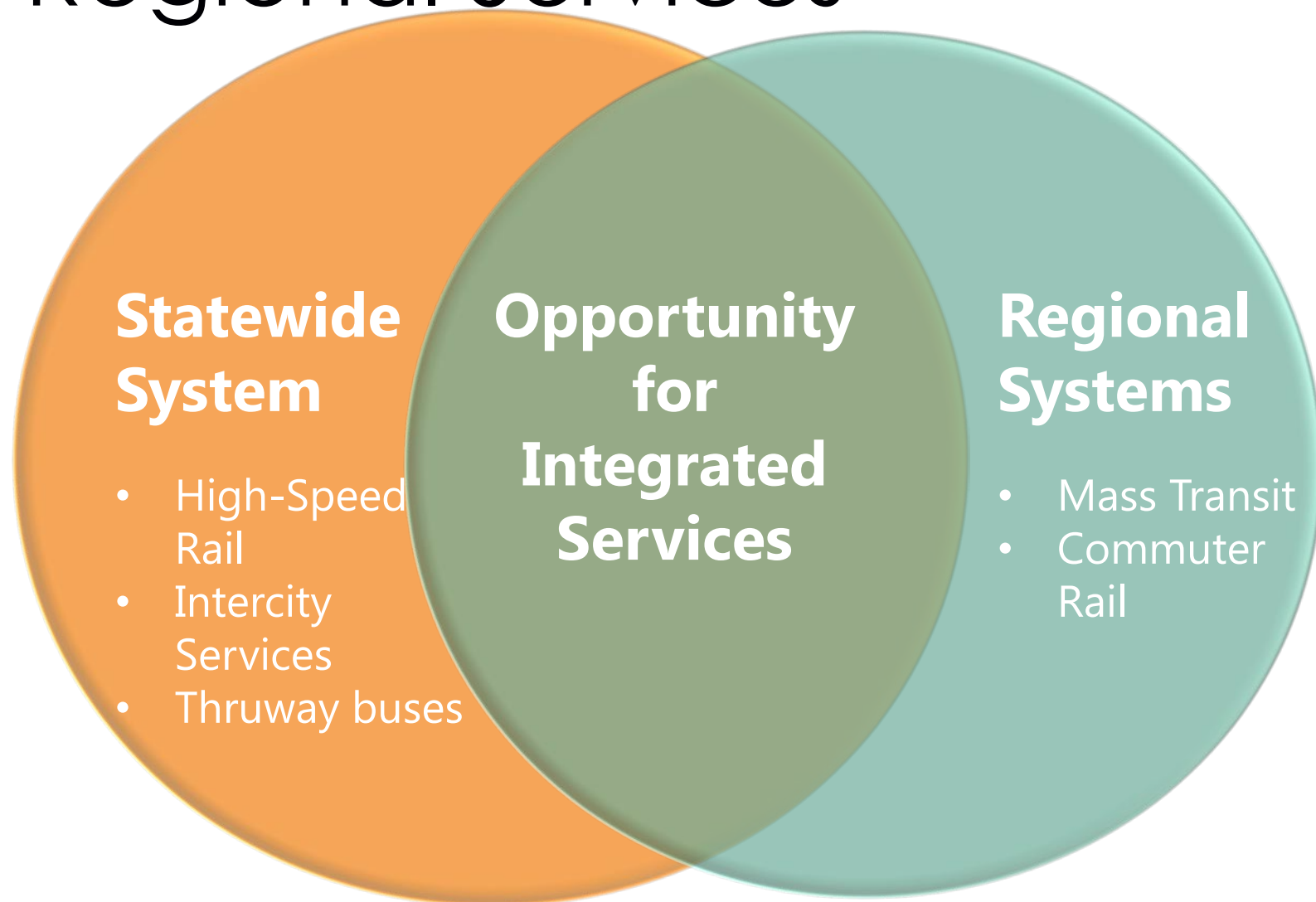


High Speed Rail



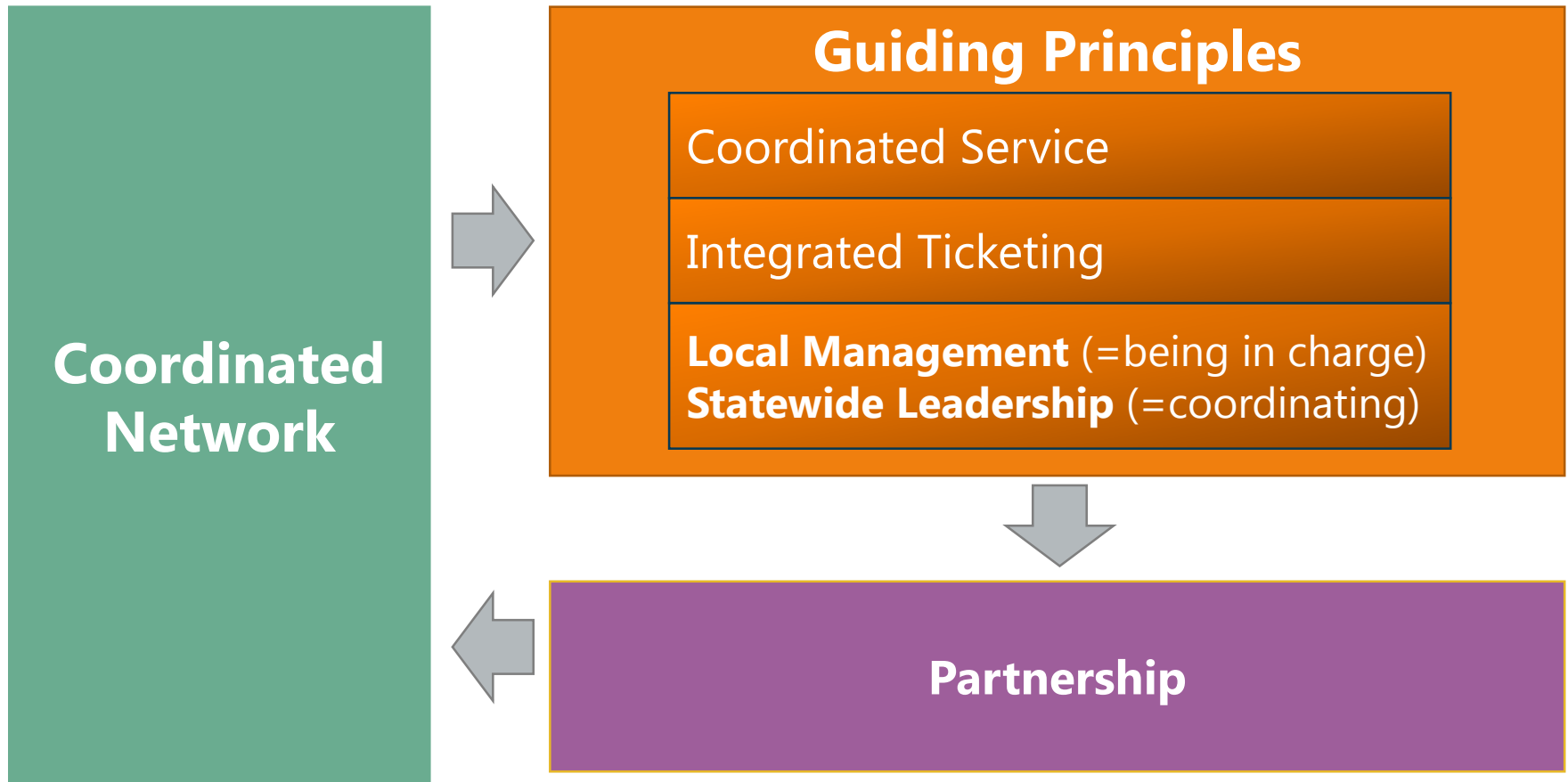
Leveraging State and Regional Services

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Potential Components of a Unified Vision

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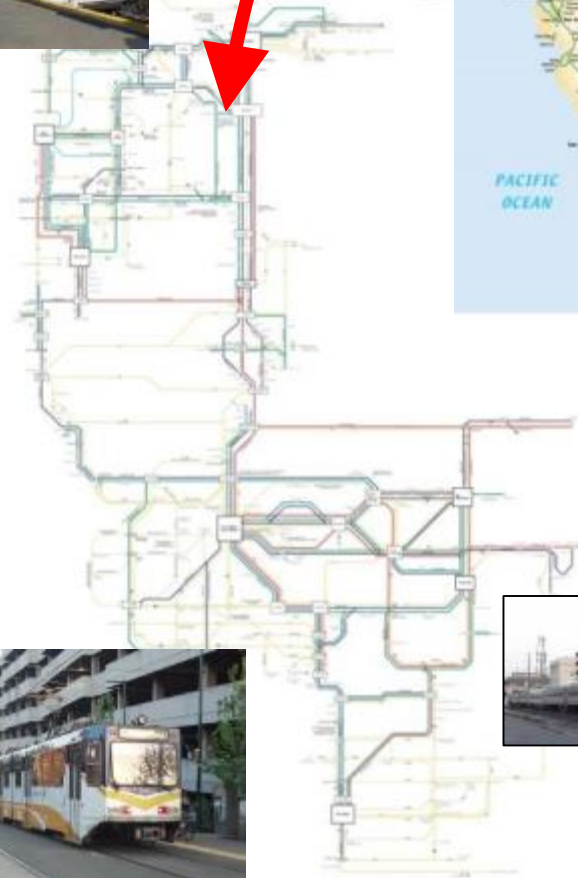
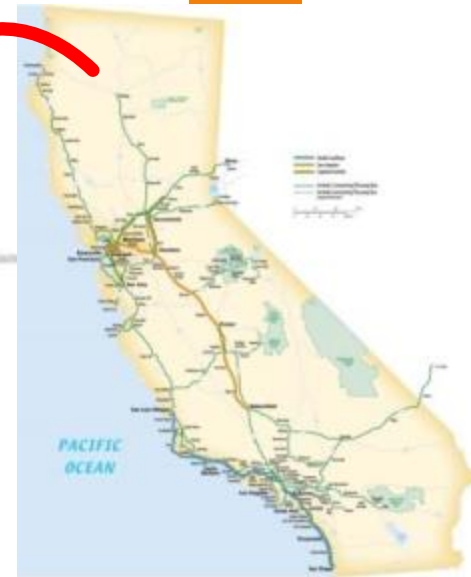


Statewide Vision

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Potential Characteristics:

- ▶ Useful and efficient
- ▶ Comprehensive network
- ▶ Leverages investment in high-speed rail system
- ▶ Auto-competitive travel times
- ▶ Seamless door-to-door travel experience
- ▶ State serving as a coordinator for planning, funding and technology decisions with system-wide impacts
- ▶ Relying on local agencies to know what's best for their region



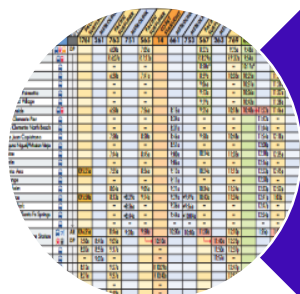
Attributes of an Integrated Network

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Integrated Mobility Solution

- Integrated multimodal transportation network.
- All services are connected (Local->HSR).
- Common transfer point locations.



Synchronized Timetables

- Timed pulsed transfer points.
- Connectivity at transfer points.
- Easy connections among all services.



Meeting Customer Expectations

- Integrated fare and ticketing system.
- Journeys can be made on a single ticket.
- Reliable, competitive journey times.

Prioritizing Investment Strategies

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Tailored to market demand

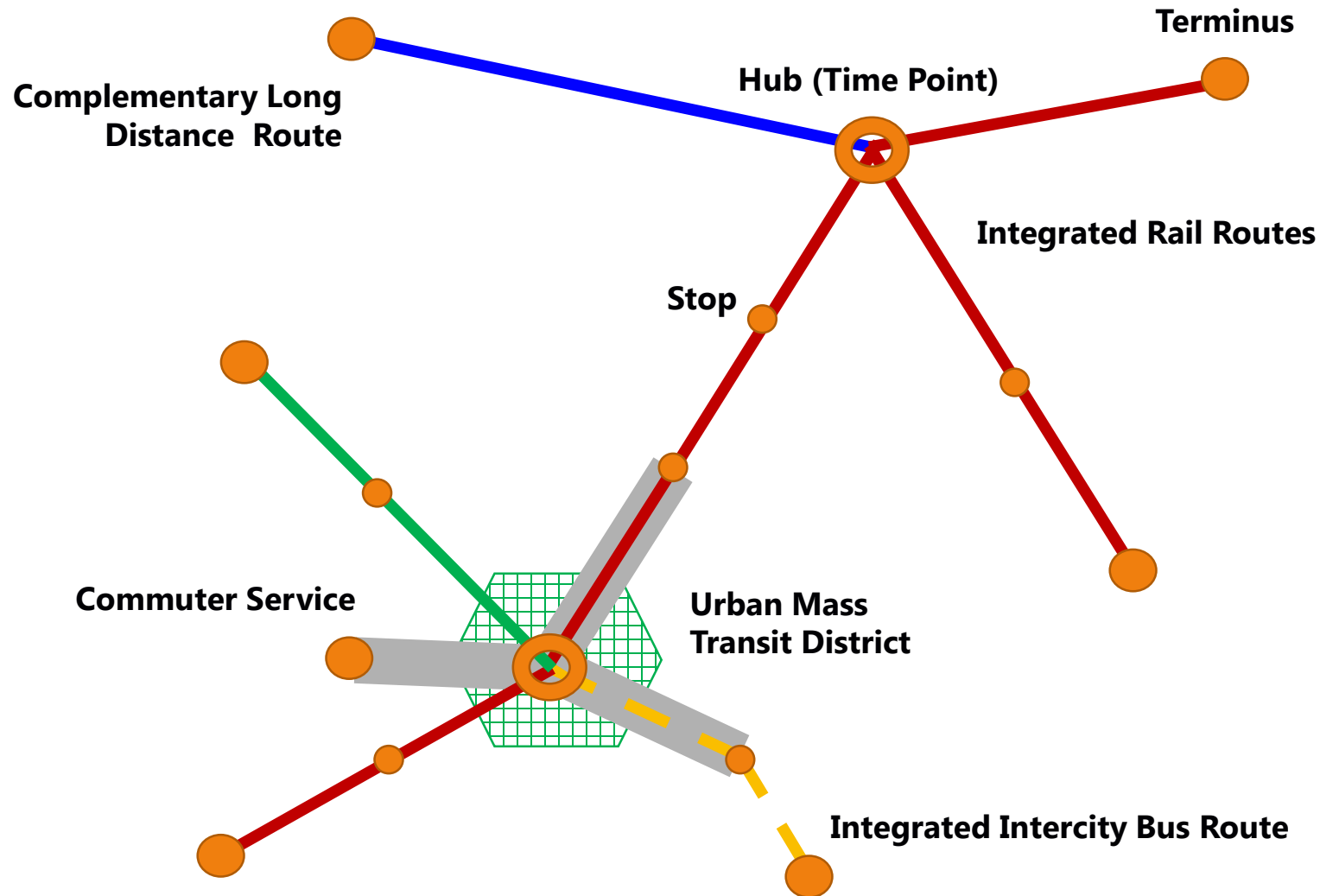
Minimize
freight rail
conflicts

Avoid
redundant
infrastructure

Minimize
temporary
investments

Integrated Statewide Rail Network

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Why? – Service Coordination

23

High-Speed Rail

Intercity Rail

Intercity Bus

Regional Rail

Urban Rail

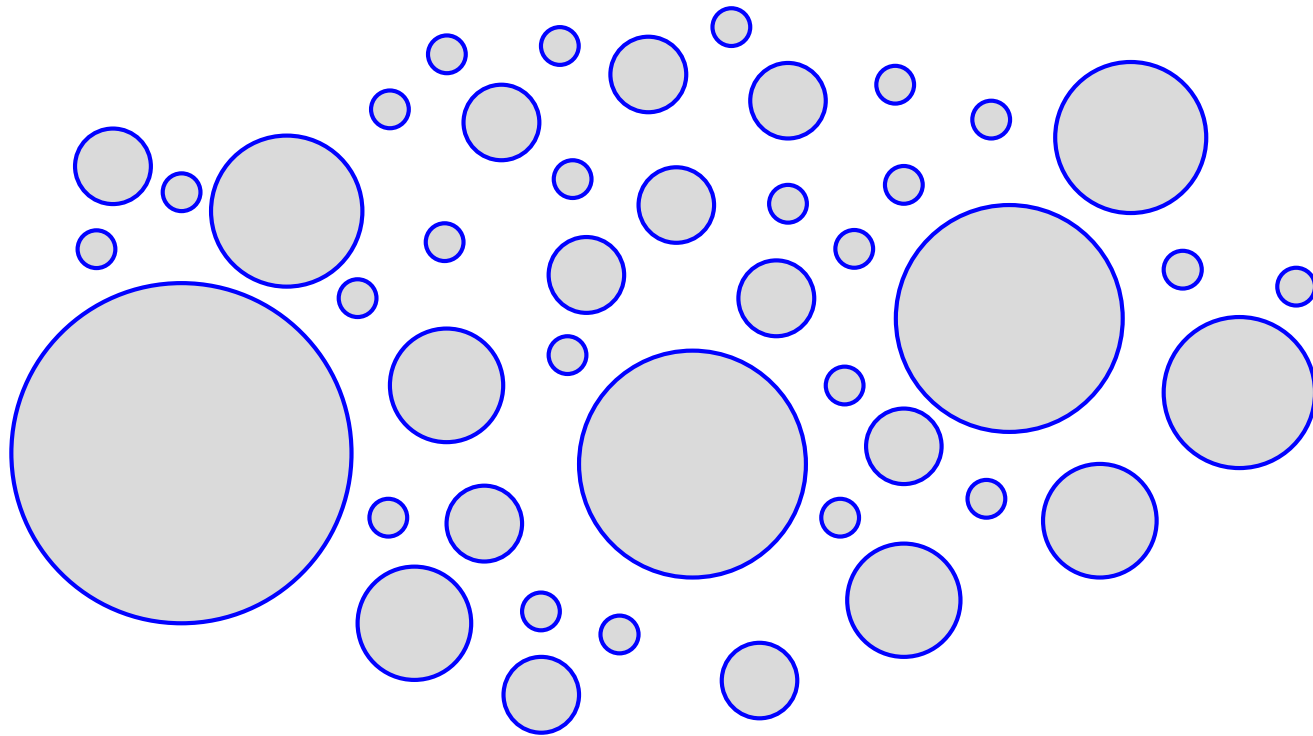
Local Bus

Last-Mile/On-Demand Services

We want to integrated these services together because...

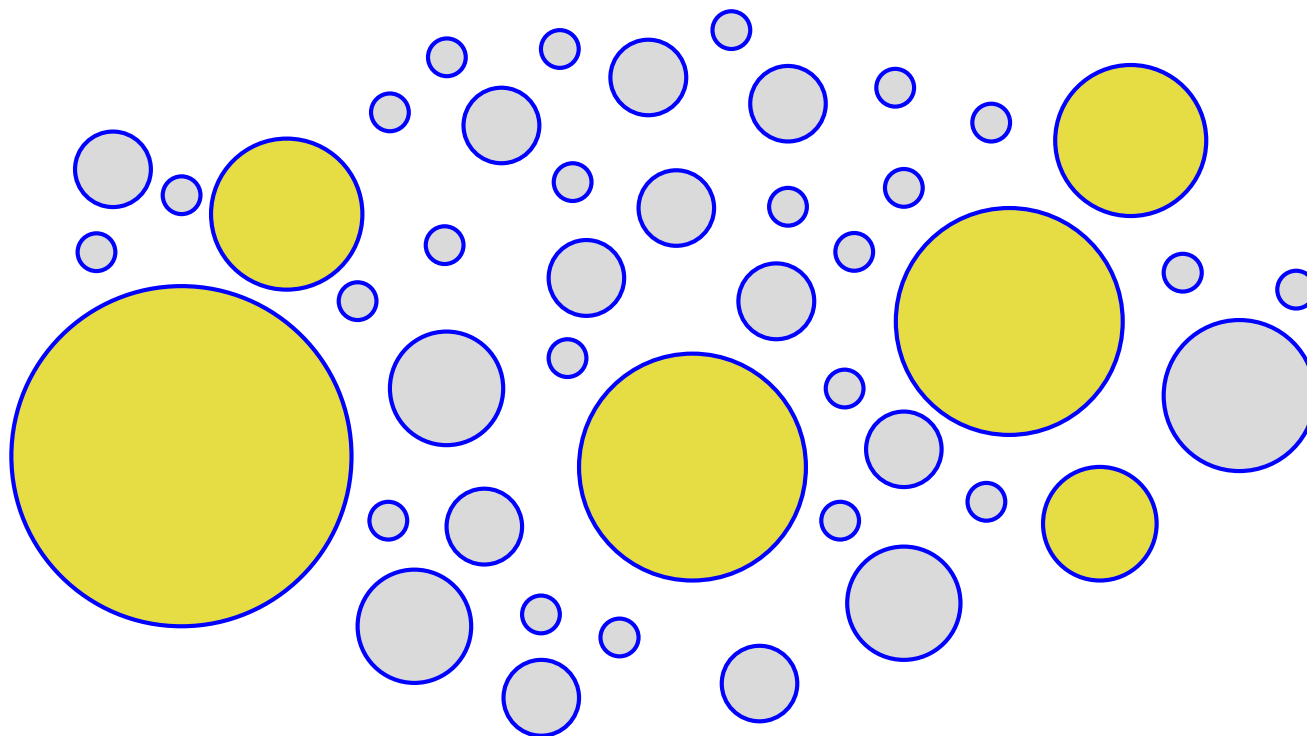
Why? – Service Coordination

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Why? – Service Coordination

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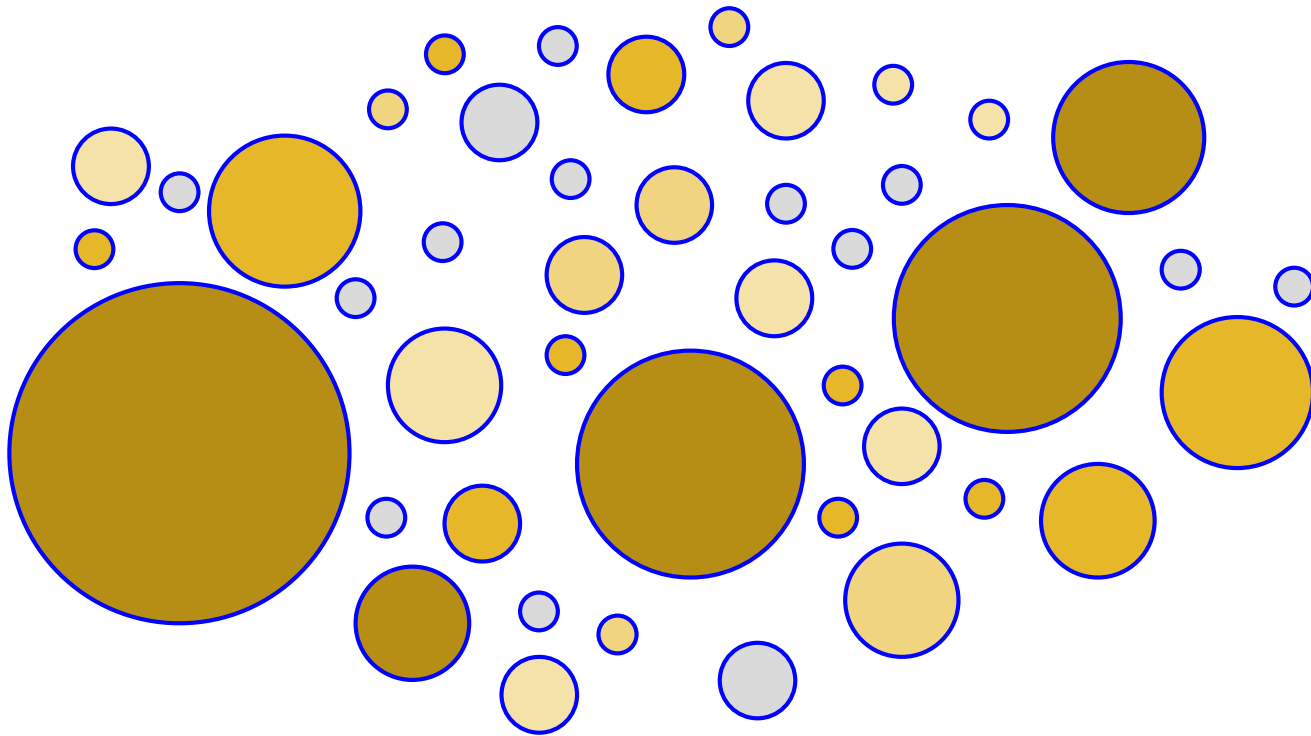


"A train or corridor for individual markets"

Captures share of target markets but leaves many others out.

Why? – Service Coordination

26

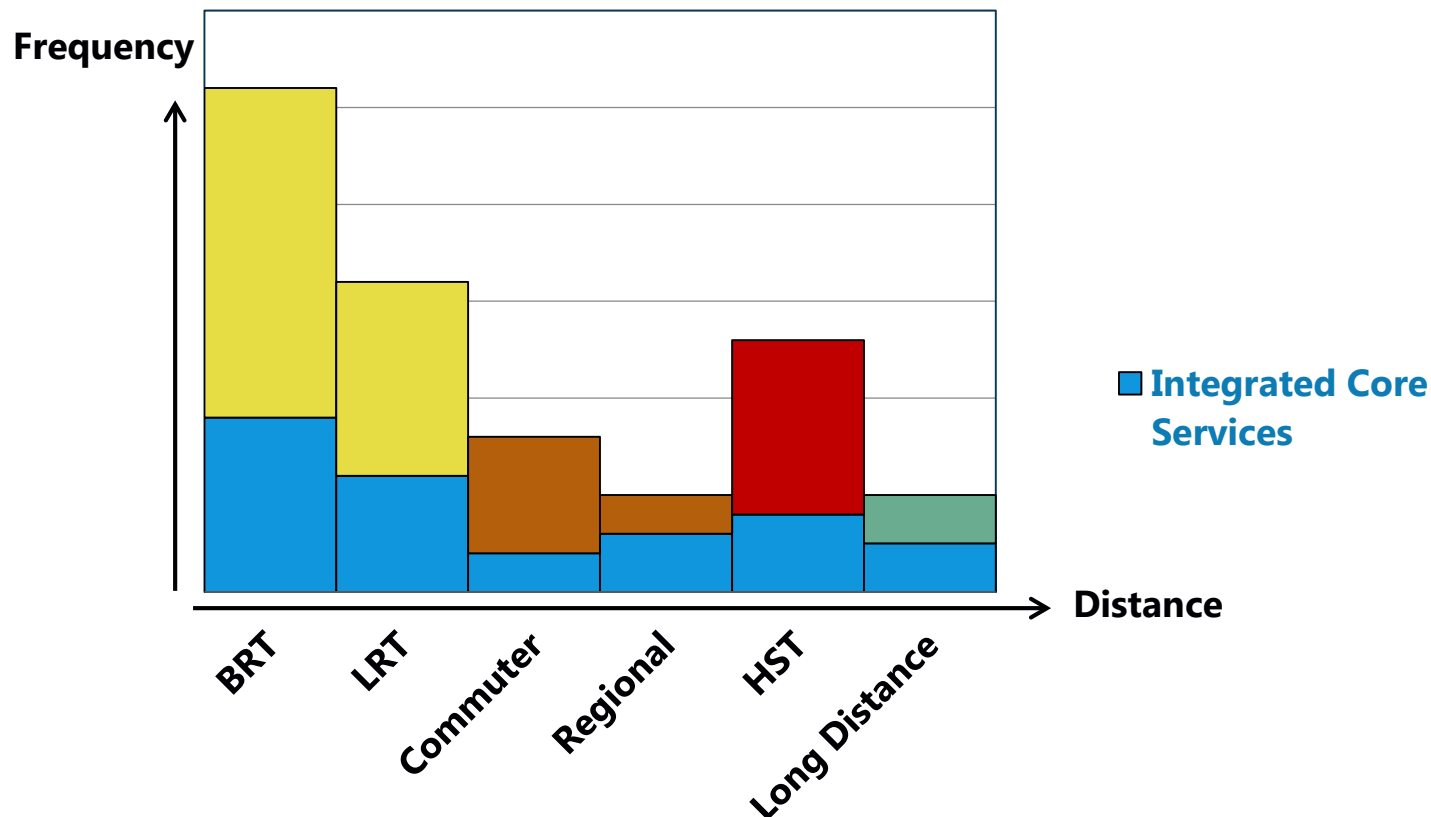


A network serving the big markets and linking in many small ones also

Complementary Services Integration

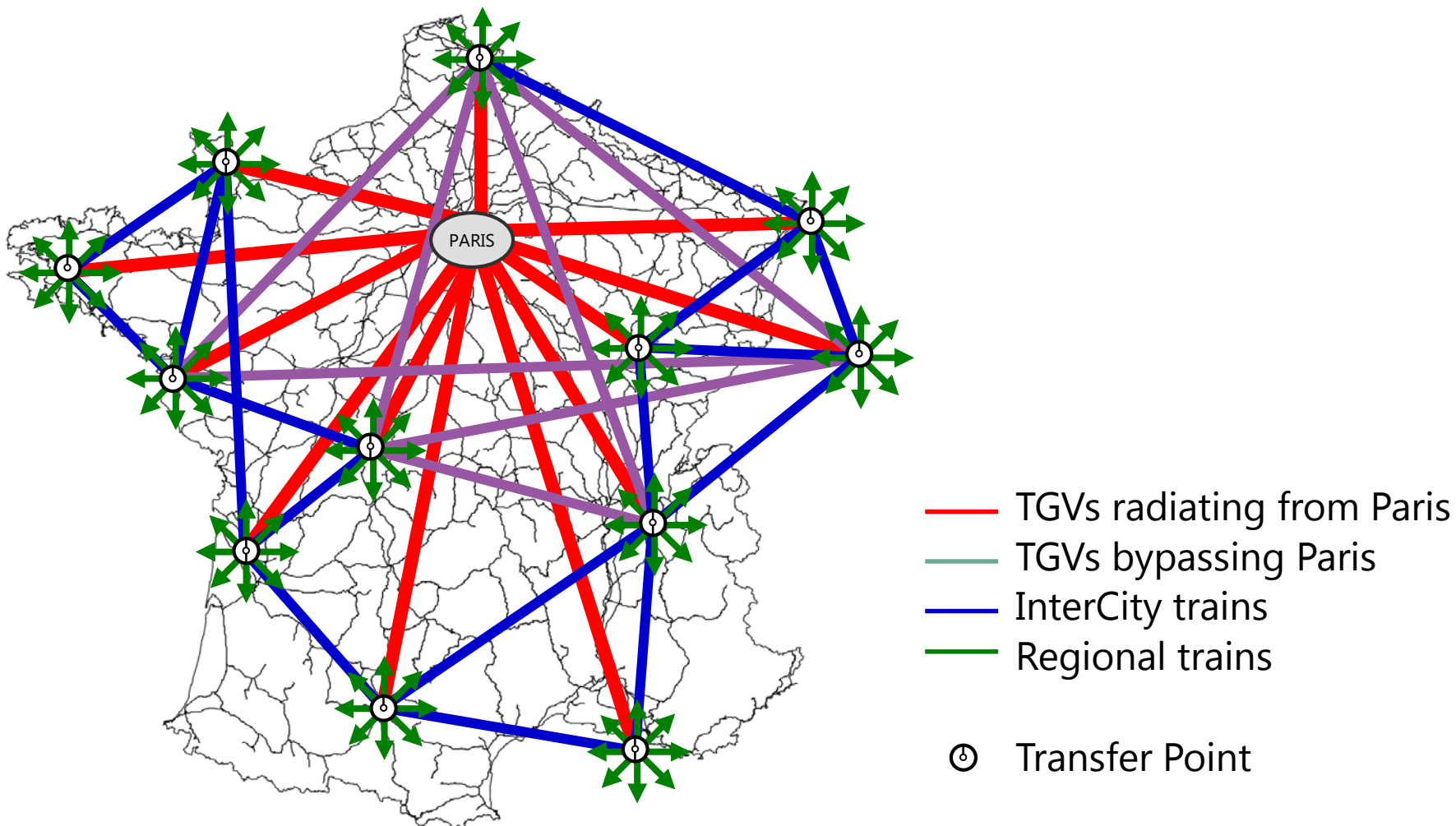
27

Complementary services will connect to Core Services at transfer points with physical accommodation and consideration to schedule coordination.



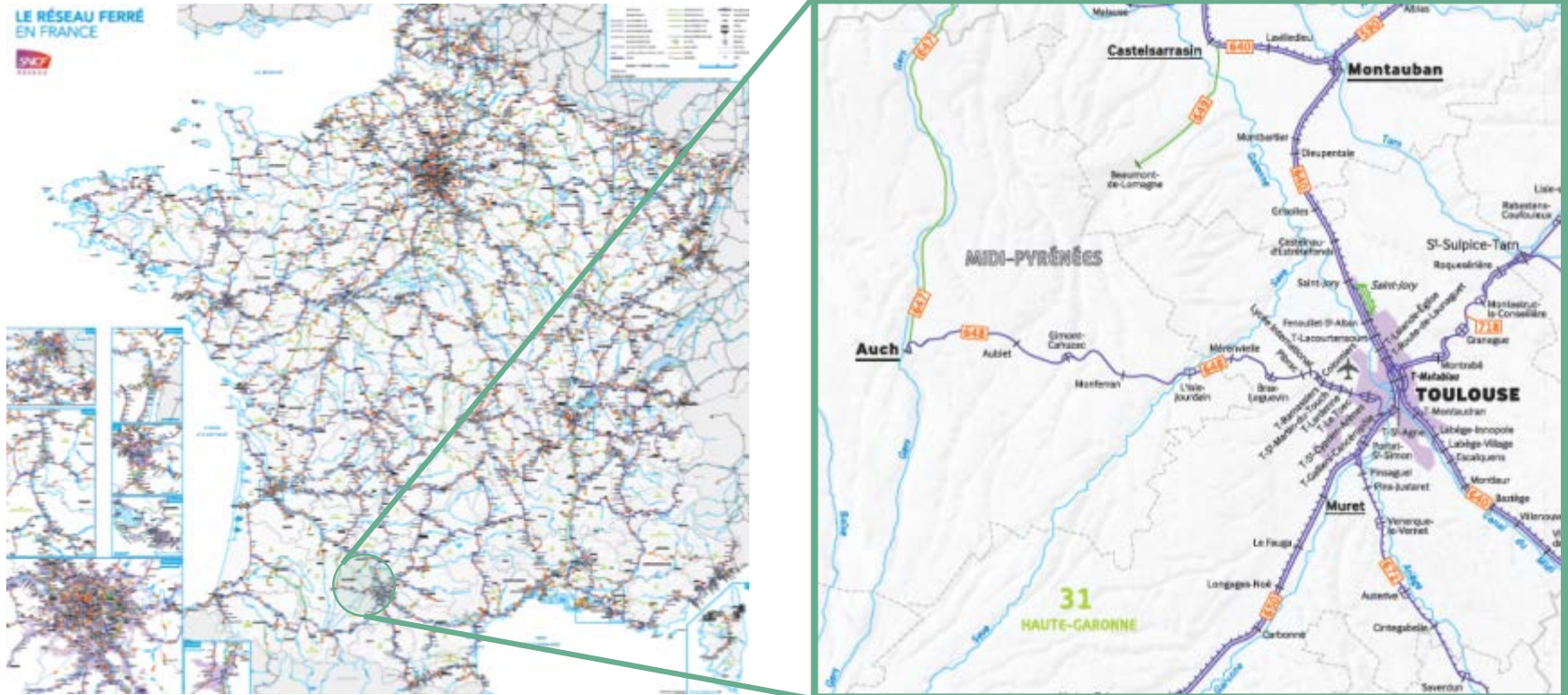
French Timetable and Network Restructuring

28



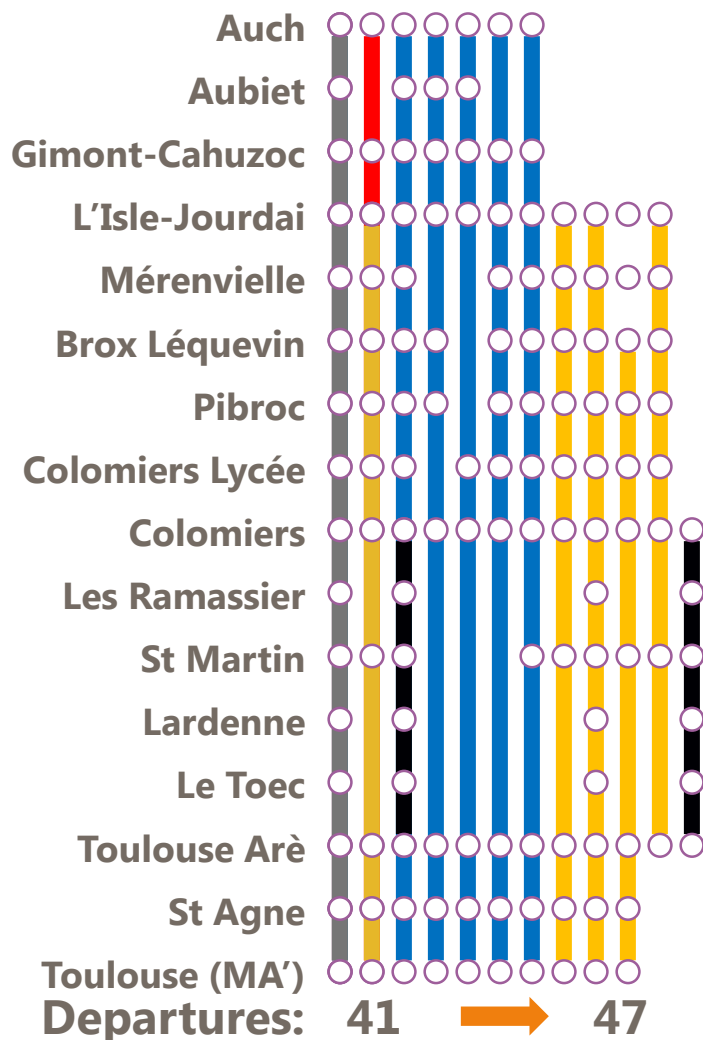
Toulouse – Auch Service Plan Restructuring

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Toulouse – Auch:

Simplification and Standardization

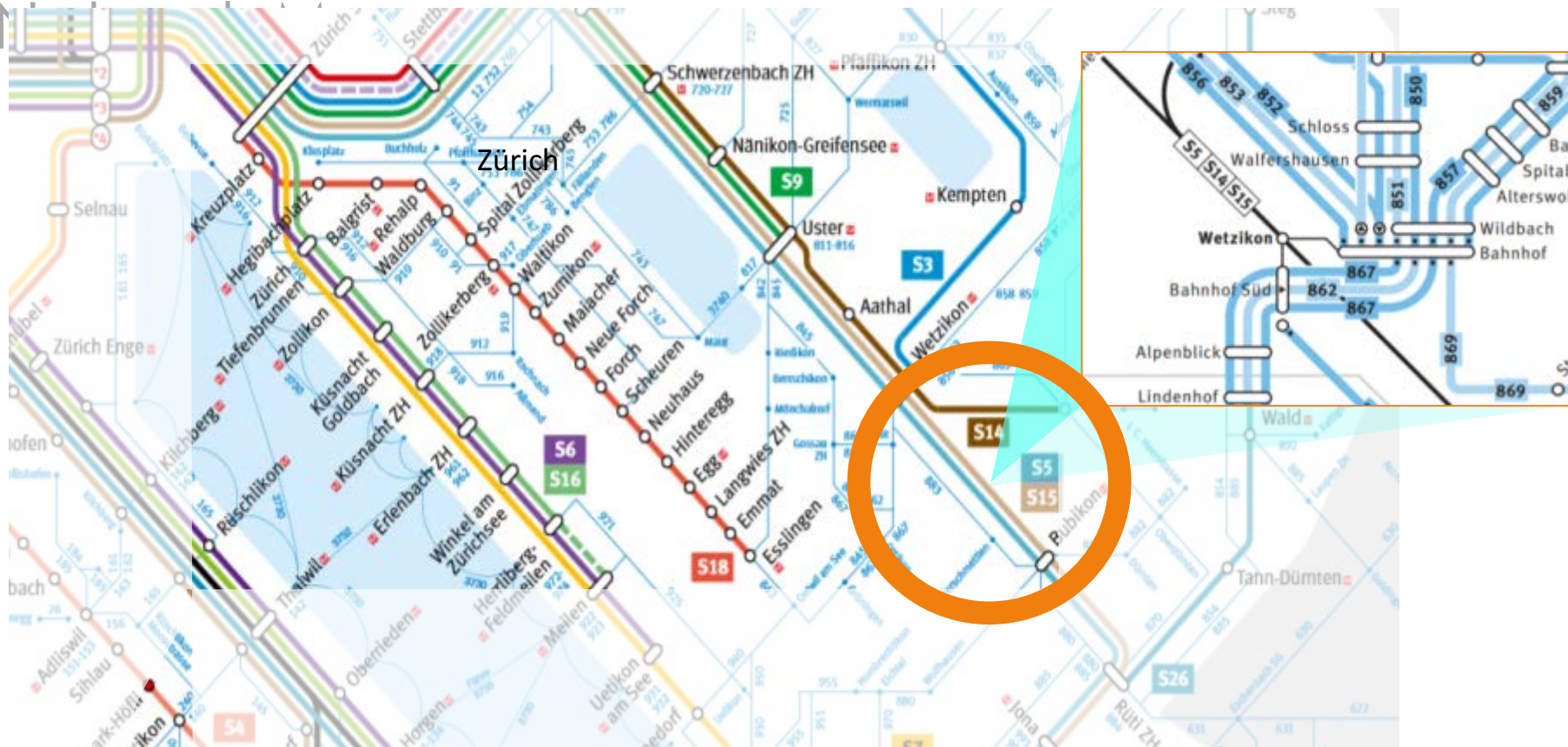


Departure Times

Hour	Before (2003)		
05:00			
06:00		28 35	53
07:00	06 18	35	43
08:00	08	33	58
09:00	18		
10:00	0311		4448
11:00		33	42
12:00	13		53
13:00	19	33	
14:00	03 18		
15:00	03		43
16:00	10 25		37
17:00	04	31 37	58
18:00		25	4352
19:00			37 48
20:00		22 32	
21:00	07		52

An Example of an Integrated Network - Wetzikon

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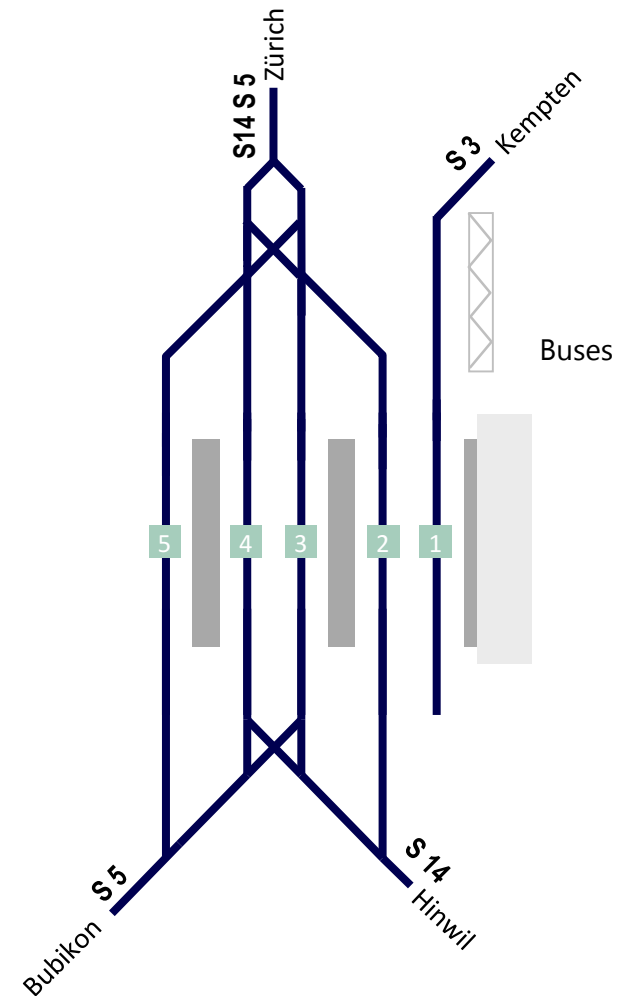
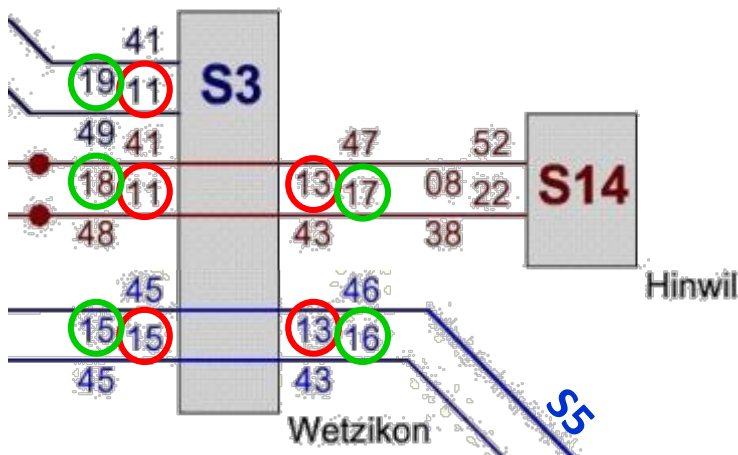


- Multimodal Connectivity:
 - Facilitates Bus-Rail connections
- Transfers occur half-hourly at minutes 15 and 45
- Connections between 3 regional rail lines and 12 bus lines

Wetzikon

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1. Buses arrive in advance of the trains
2. Trains arrive in the station
3. All services are in the station
4. Trains depart from the station
5. Buses depart from the station



Phasing Network Integration

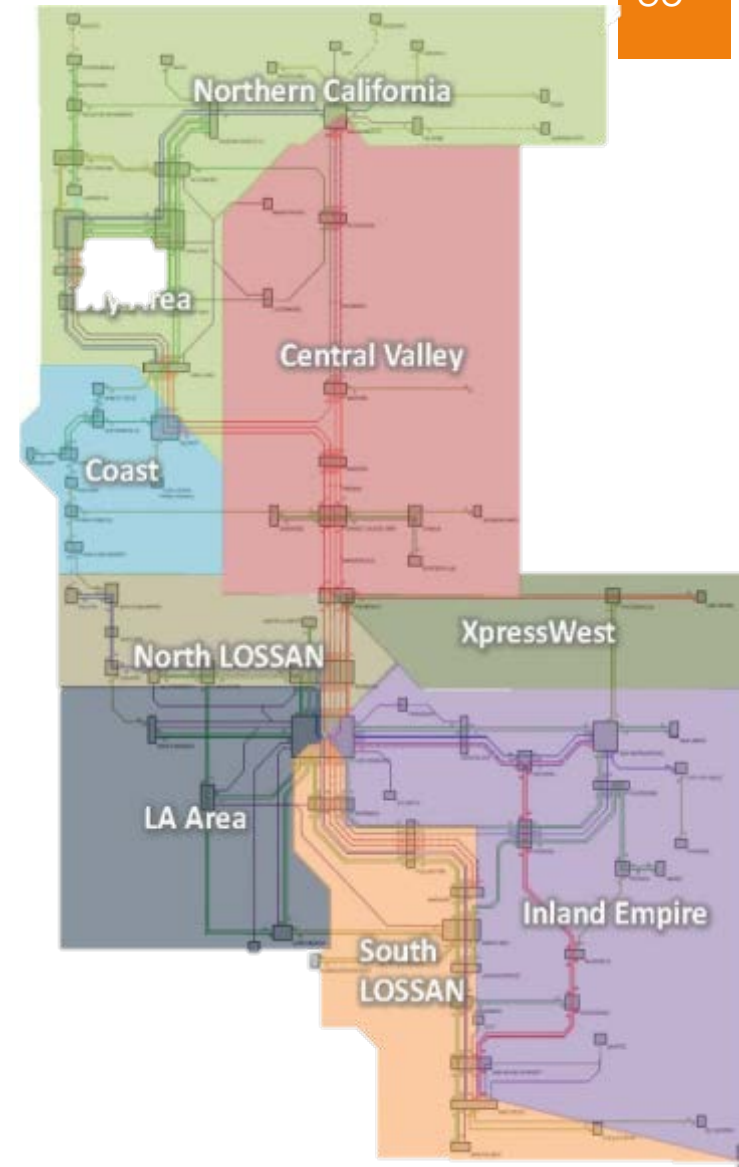
CalSTA initiative with Caltrans to establish a statewide vision for an integrated passenger rail system:

- ▶ **Phase I:** Market Assessment and Rail Infrastructure Review completed 12/2015 – analyzed statewide rail market potential, provided initial network service scenarios.
- ▶ **Phase 2:** CSRP - statewide passenger rail vision and refinement of network service scenarios. Nearing completion 12/2016.
- ▶ **Implementation phases:** will involve implementation planning and analysis of organizational structures and is not in the scope of the CA SRP.

Planning Districts

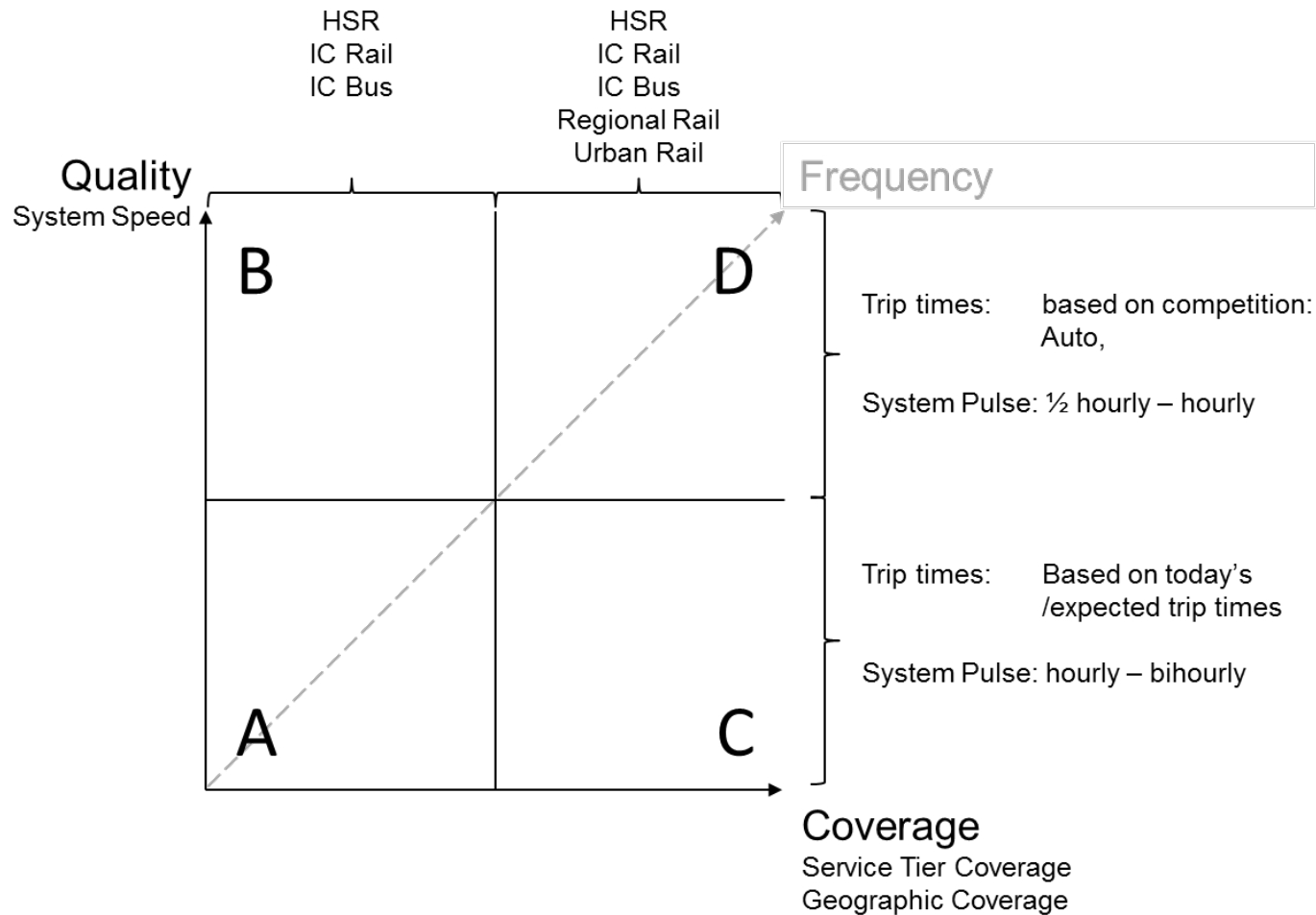
35

- ▶ Eight planning districts based on general geography
- ▶ Used to focus discussions and organize information



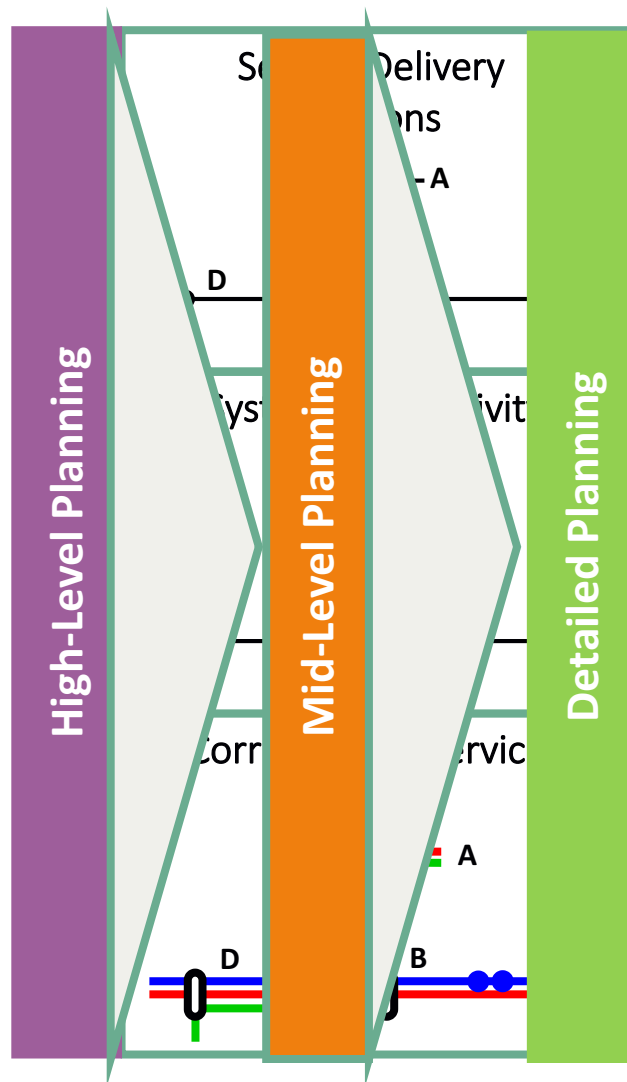
Methodology: Phase 1 Visioning

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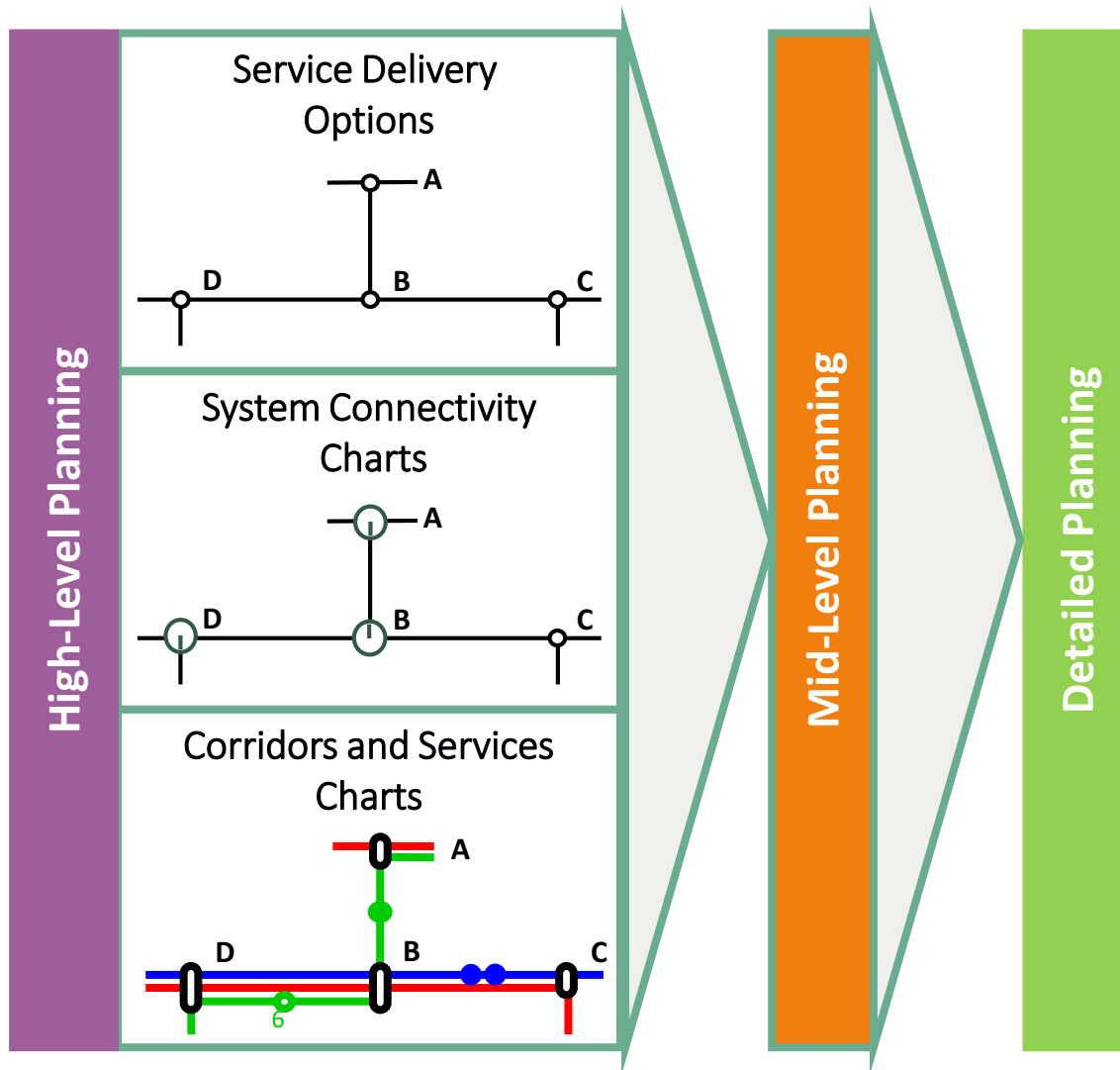
Methodology

37



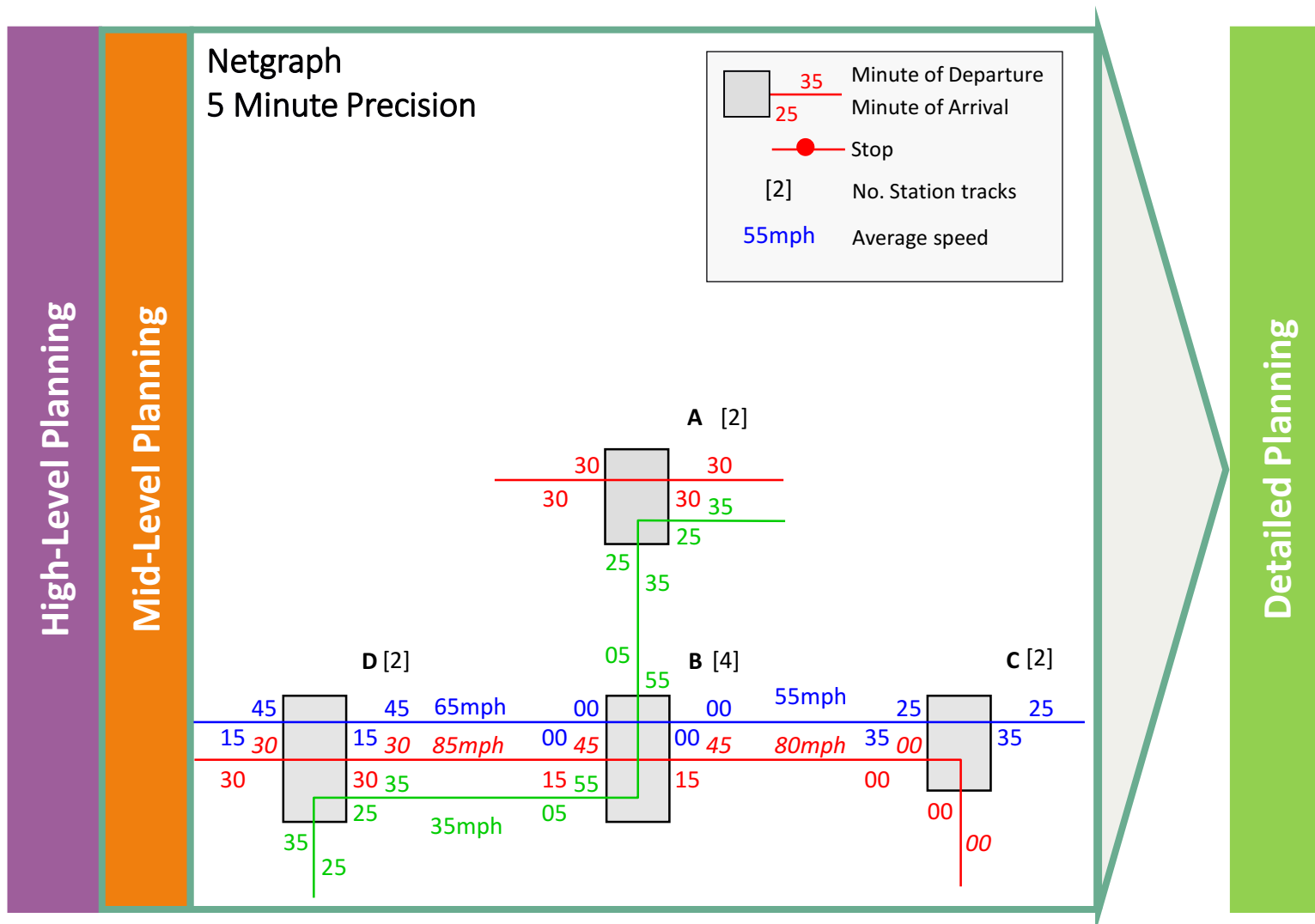
Methodology

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Methodology

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High-Level Planning



Corridor Services Term Steets and System Maps

- ▶ Indicative levels of service
- ▶ Transfer opportunities identified

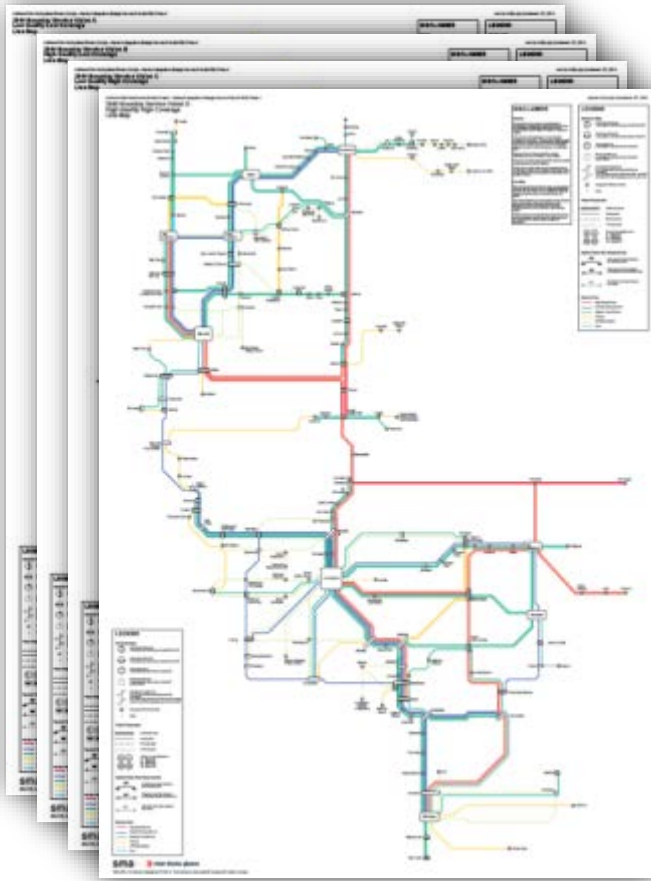
System Connectivity Charts: Netgraphs

- ▶ 15 Minute precision
- ▶ Conceptual edge times between nodes

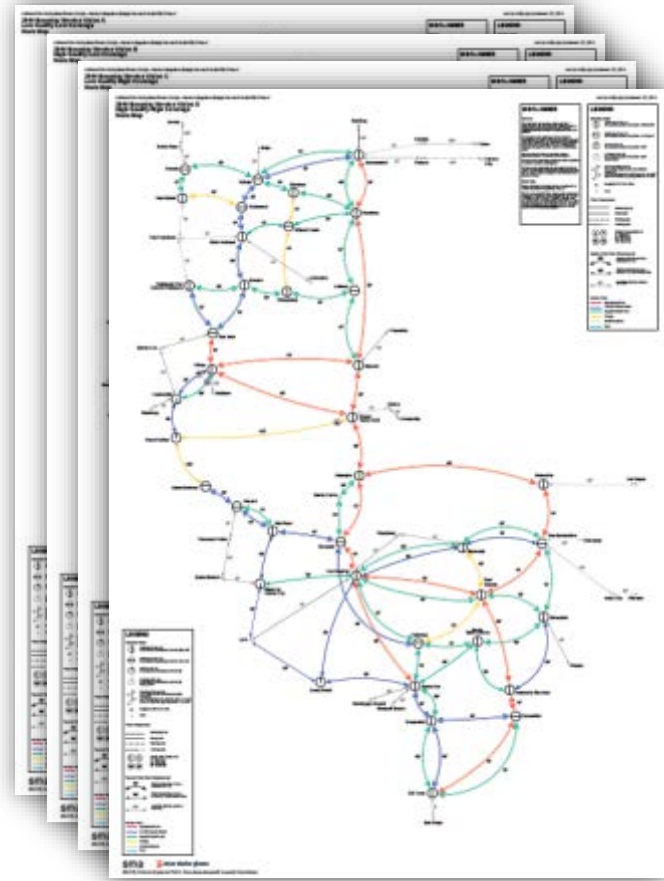
Tools

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Corridor Services Term Sheets and System Maps



System Connectivity Charts and Netgraphs



Methodology: Mid-Level Planning

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Netgraphs

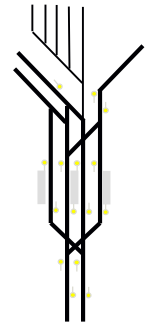
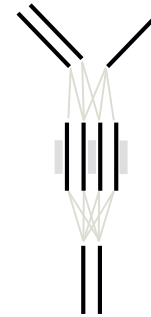
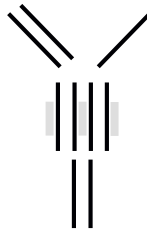
- ▶ Scenarios refined to a precision of 5 minutes
- ▶ Indicative levels of service
- ▶ Infrastructure requirements
 - ▶ Number of tracks
 - ▶ Required average speeds

Methodology: Detailed Planning

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Level
of
Detail



Time
and
Cost

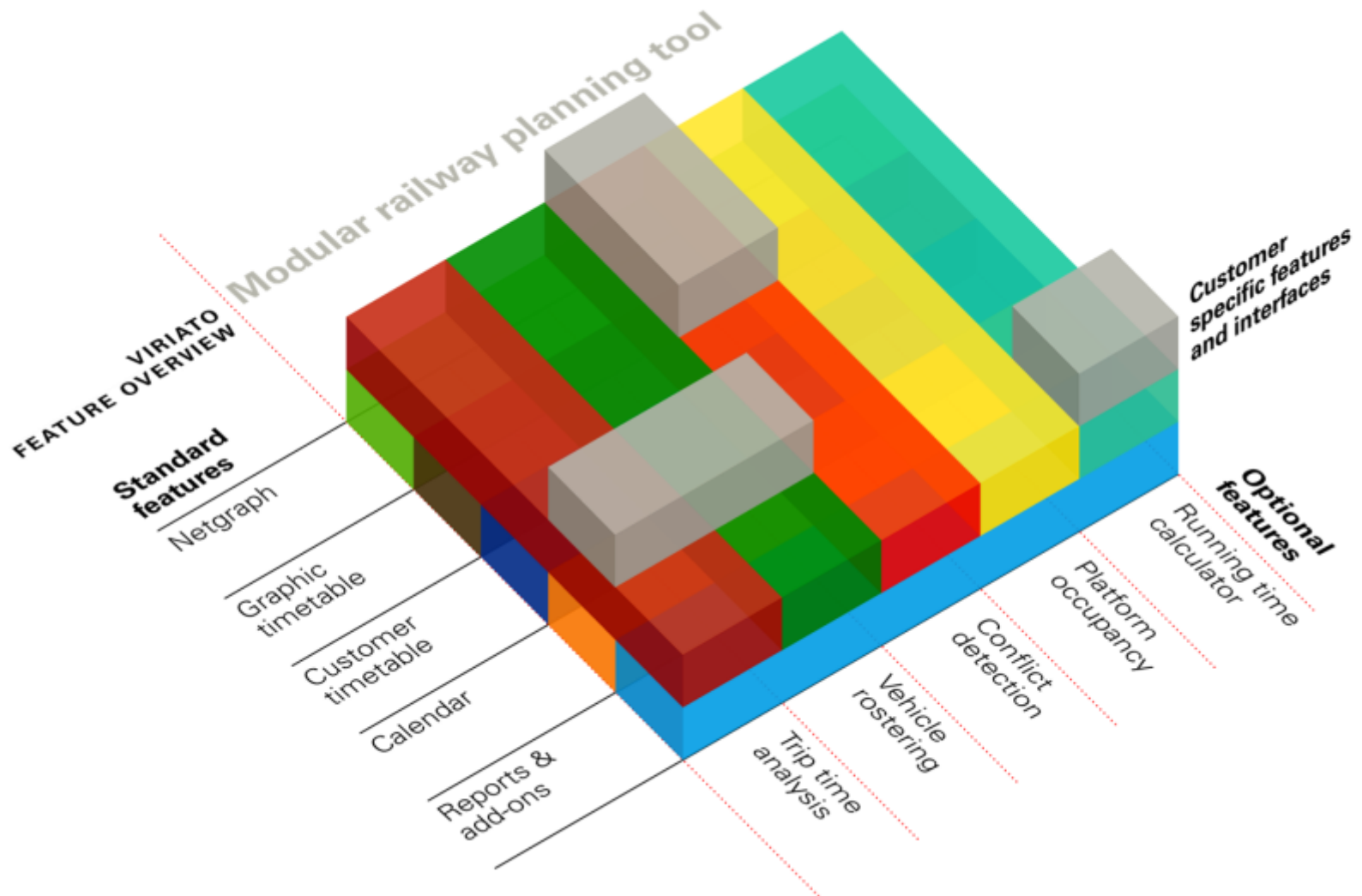


Tasks and
deliverables

- Conceptual infrastructure design
- Service concept design
- Running time calculations
- Infrastructure / equipment
- Capacity validation
- Service refinement
- Capacity validation for major stations
- Timetable design
- Track / platform allocation
- Robustness testing
- Detailed Analysis

Viriato: A Modular Timetabling Tool

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Northern California

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Northern California

Key Features:

- ▶ Full build out of HSR Phase 1
- ▶ Caltrain Electrification
- ▶ Completion of Second Transbay Tube
- ▶ East Bay connections and frequency improvements
- ▶ Increased Coastal and Central Valley Services
- ▶ SMART rail build out

Southern California

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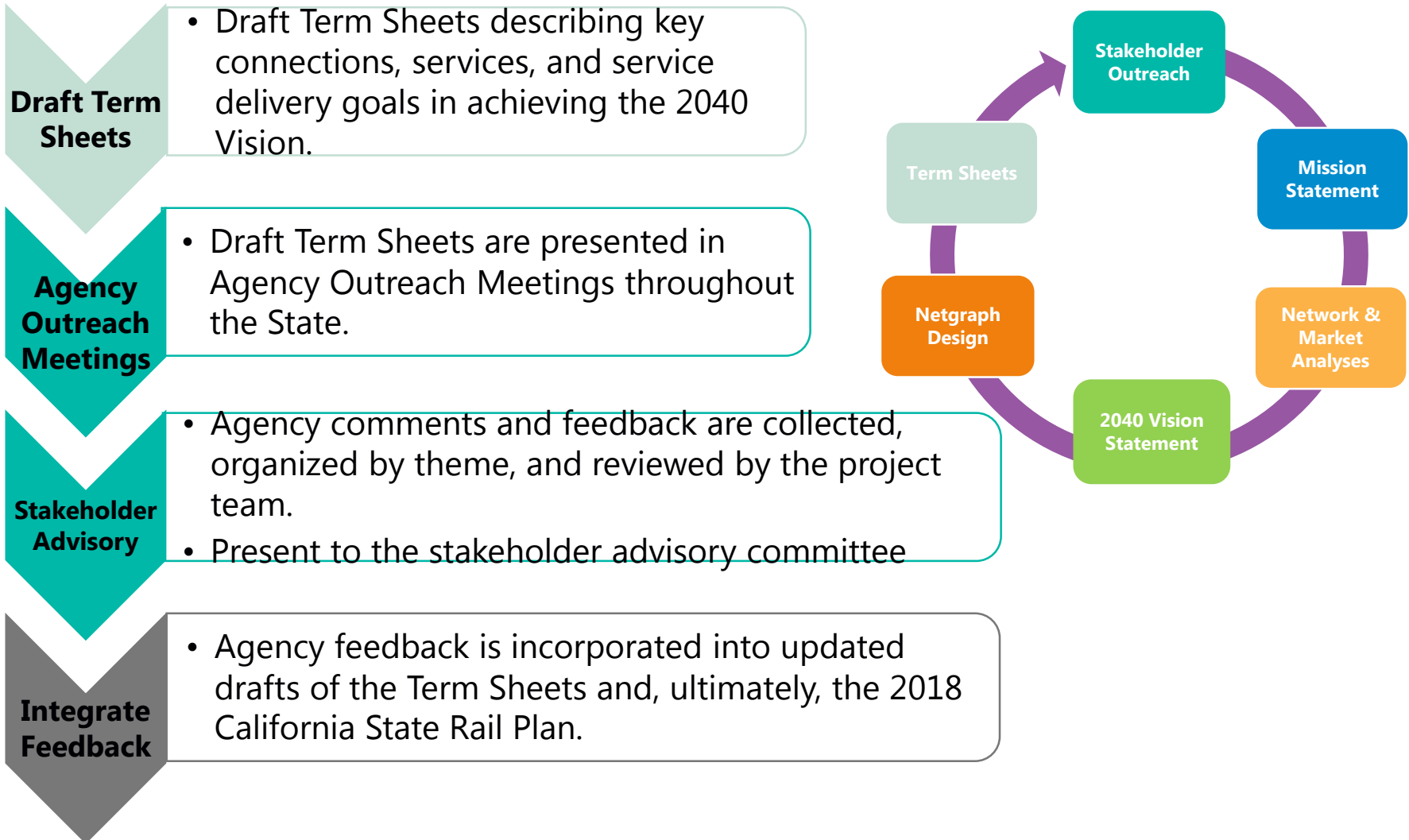
Southern California

Key Features:

- ▶ Completion of HSR Phases I and II
- ▶ Increased Coastal and Central Valley services
- ▶ LA Metro Rail build out
- ▶ Redlands Rail Build Out
- ▶ Coachella Valley service
- ▶ XpressWest to NV
- ▶ AZ Connection
- ▶ Local and Express Services

Collaboration

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Stakeholder Advisory Committee Meetings

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- ▶ **September 2015**
- ▶ **December 2015**
- ▶ **May 2016**
- ▶ **October 2016**
- ▶ **January 2017**
 - ▶ Program Effects Analysis
 - ▶ Draft Rail Plan Status



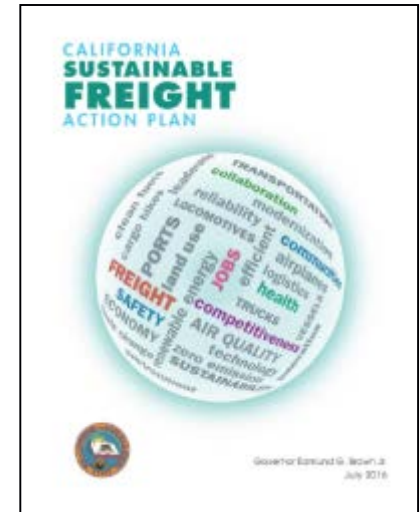
Meeting Date	Individual Agency Meetings on Term Sheet and System Maps
June 27	Transportation Agency for Monterey County San Luis Obispo Council of Governments Santa Cruz County Regional Transportation Commission San Benito Council of Governments
June 28	Metropolitan Transportation Commission
June 28	Caltrain
July 6	California High Speed Rail Authority
July 6	Los Angeles-San Diego-San Luis Obispo Joint Powers Agency Orange County Transportation Authority
July 7	Alameda County Transportation Commission
July 8	Sacramento Area Council of Governments
July 8	Sonoma Marin Rail Transit Agency
July 11	MetroLink
July 12	San Bernardino Associated Governments
July 13	San Diego Association of Governments North County Transit District San Diego Metropolitan Transit System
July 14	Southern California Association of Governments California High Speed Rail Authority
July 15	Santa Barbara County Association of Governments
July 19	Placer County Transportation Commission
August 1	Transportation Agency for Monterey County
August 9	California High Speed Rail Authority
August 10	San Joaquin Joint Powers Authority
August 17	California Short Line Railroad Association Teleconference



2018 California State Rail Plan

Ken Sislak

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- ▶ A multimodal plan with integrated rail, bus and transit services
 - ▶ Responsive to federal and state requirements
 - ▶ Network Integration Strategic Service Plan
 - ▶ Needed to integrate high speed rail, intercity rail, and transit, as well as to amplify ridership and achieve environmental goals
- ▶ Establishes vision for statewide rail network, including multi-state connections

2018 California State Rail Plan

Mission Statement

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The mission of the 2018 State Rail Plan is to provide a path to achieve a safe, sustainable, integrated, and efficient California rail network that successfully moves people and goods while enhancing the State's economy and livability.



Compliance

FRA State Rail Plan

- ▶ Executive Summary
- ▶ 1 Role of Rail in Statewide
- ▶ 2 Existing Rail System
 - ▶ Description and inventory
 - ▶ Trends and forecasts
 - ▶ Needs and opportunities
- ▶ 3 Proposed Passenger
- ▶ 4 Proposed Freight
- ▶ 5 Investments & Program Effects
- ▶ 6 Coordination and Review

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Compliance

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Supporting the Vision

▶ **State Funding Priority on Transit-Rail Integration**

- ▶ Focus of cap and trade funding for transit and rail
- ▶ Guiding future interregional project selection

▶ **Improved Existing Services**

- ▶ Improved network planning & operations
- ▶ Significantly increased capital investment

▶ **Improved Customer Experience**

- ▶ Next generation smart cards and mobile ticketing
- ▶ More extensive ticketing and service integration

▶ **Long Range Planning with Vision in Mind**

- ▶ Not-to-preclude framework for planning and investment
- ▶ Regional strategic planning focused on future goals

Components of Rail Travel Demand

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Rail Travel Demand from Changes in Modal Split

- Increase due to increased speeds and frequencies
- Schedule coordination reduces wait times
- Timed transfer reduces "transfer penalty"



Rail Travel Demand from Tourism

- Increase due to growth in tourism
- Extrapolate data from "Visit California" to 2040
- Distribution of tourism based on spending activity



Improved Service Induces Rail Demand

- Theory of constant travel time budget of users

Existing Intercity Ridership

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Rail Ridership Potential by Travel Distance Existing Conditions

(Thousand Annual
Person Trips)



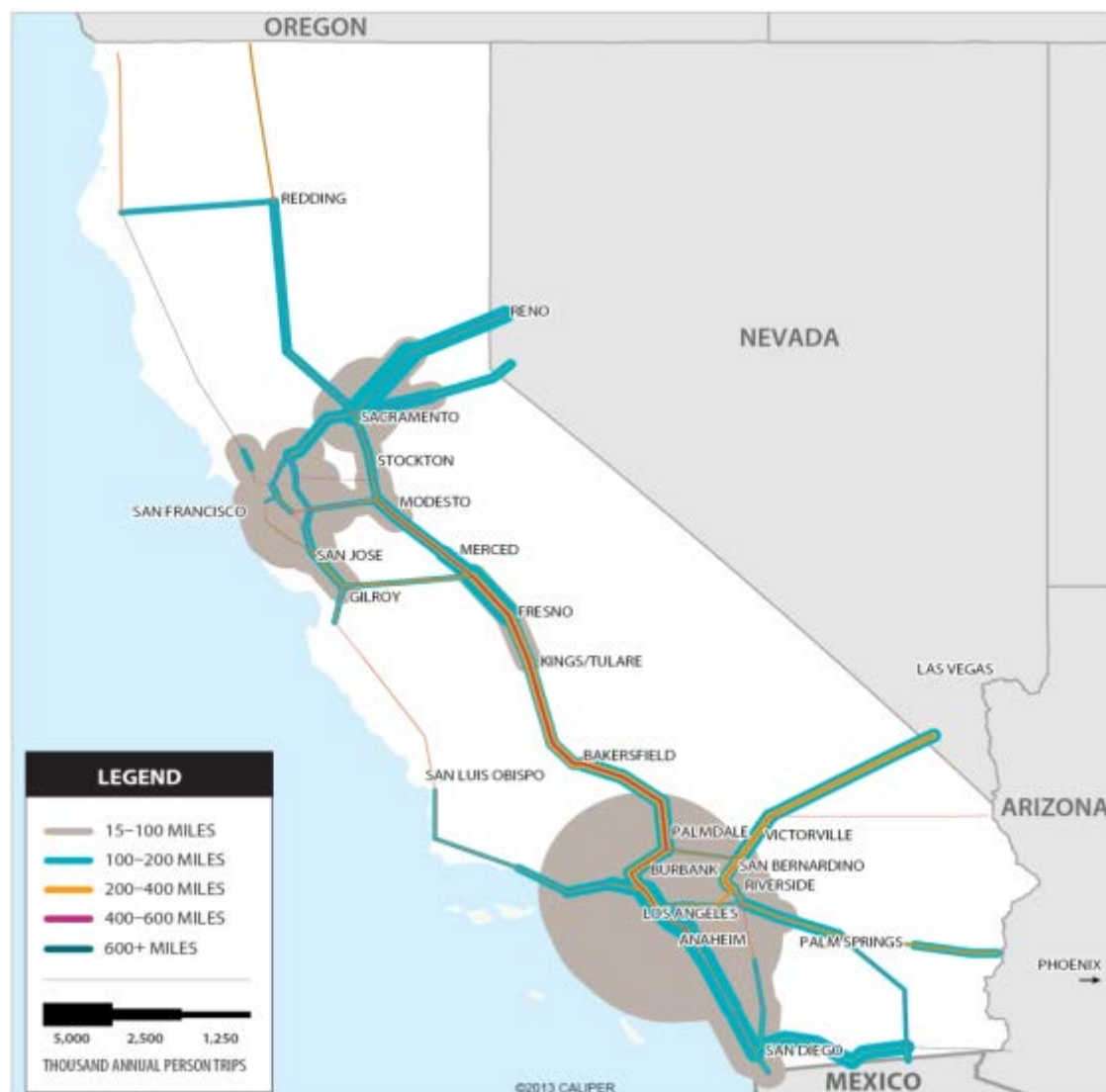
Source:
Rail Market Analysis Tool, CalSTA

Potential Intercity Ridership

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Rail Ridership Potential by Travel Distance Base Conditions

(Thousand Annual
Person Trips)



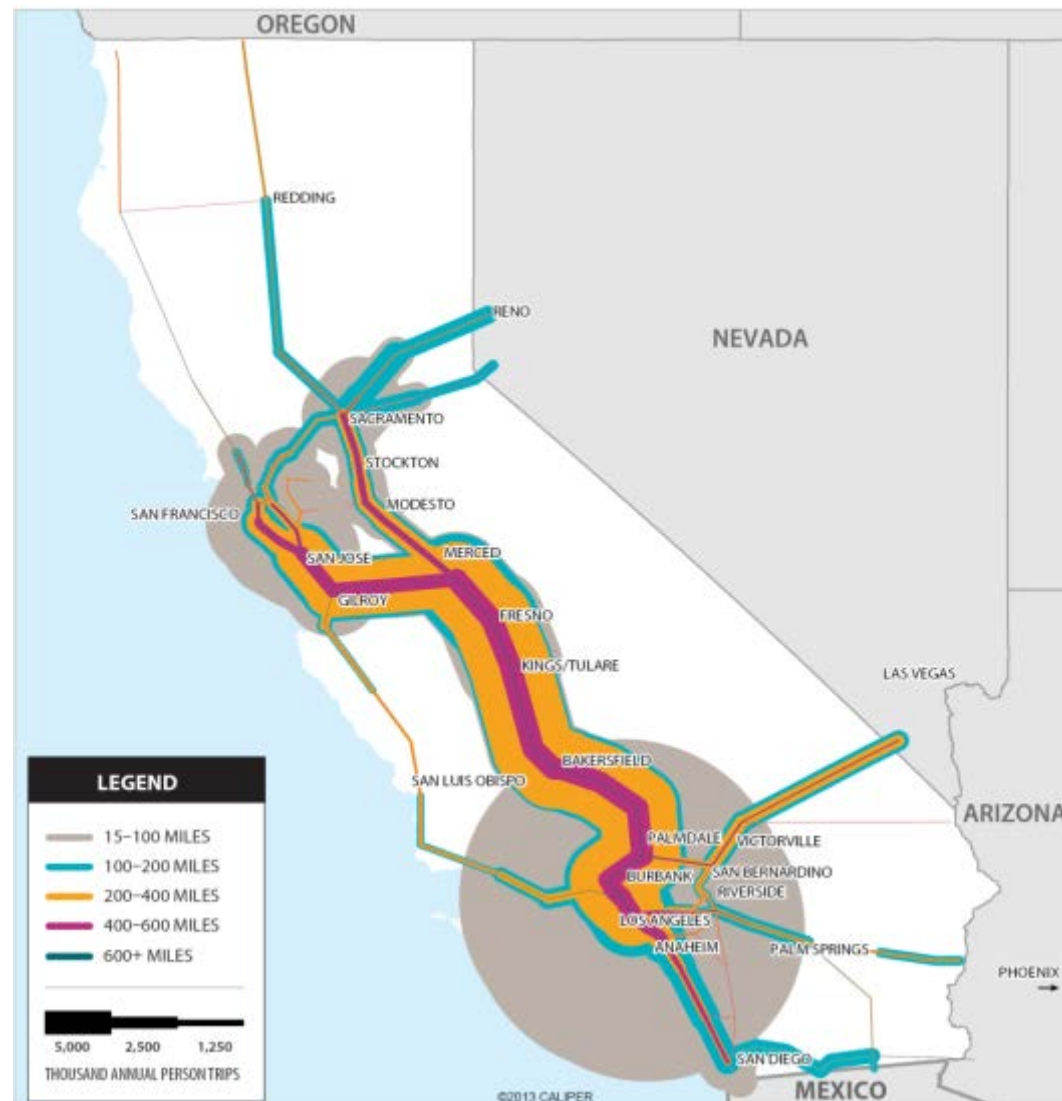
Source:
Rail Market Analysis Tool, CalSTA

Potential Intercity Ridership

60

Rail Ridership Potential by Travel Distance HSR Phase 1 Conditions

(Thousand Annual
Person Trips)



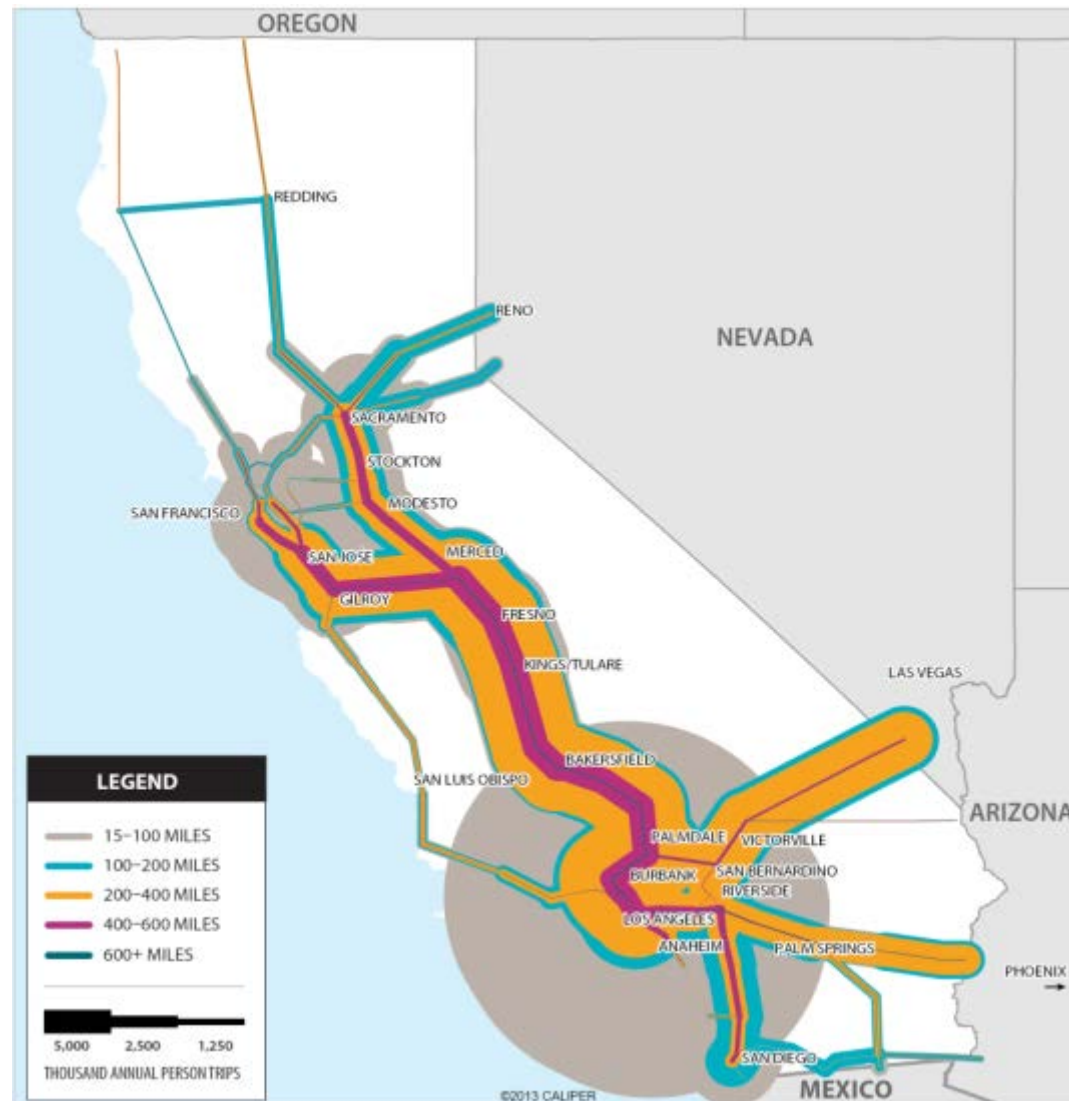
Source:
Rail Market Analysis Tool, CalSTA

Potential Intercity Ridership

61

Rail Ridership Potential by Travel Distance HSR Phase 2 Conditions

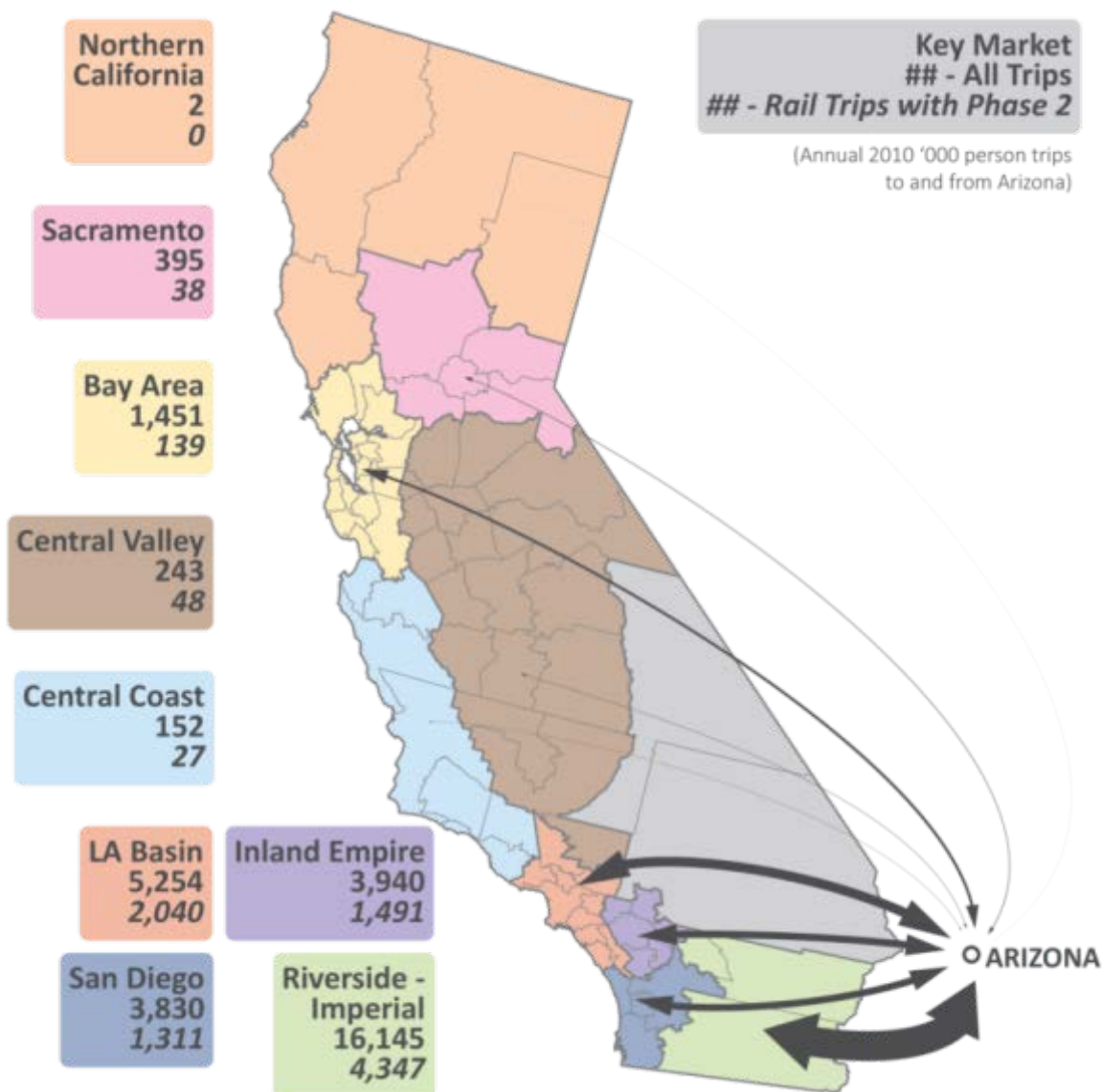
(Thousand Annual
Person Trips)



Source:
Rail Market Analysis Tool, CalSTA

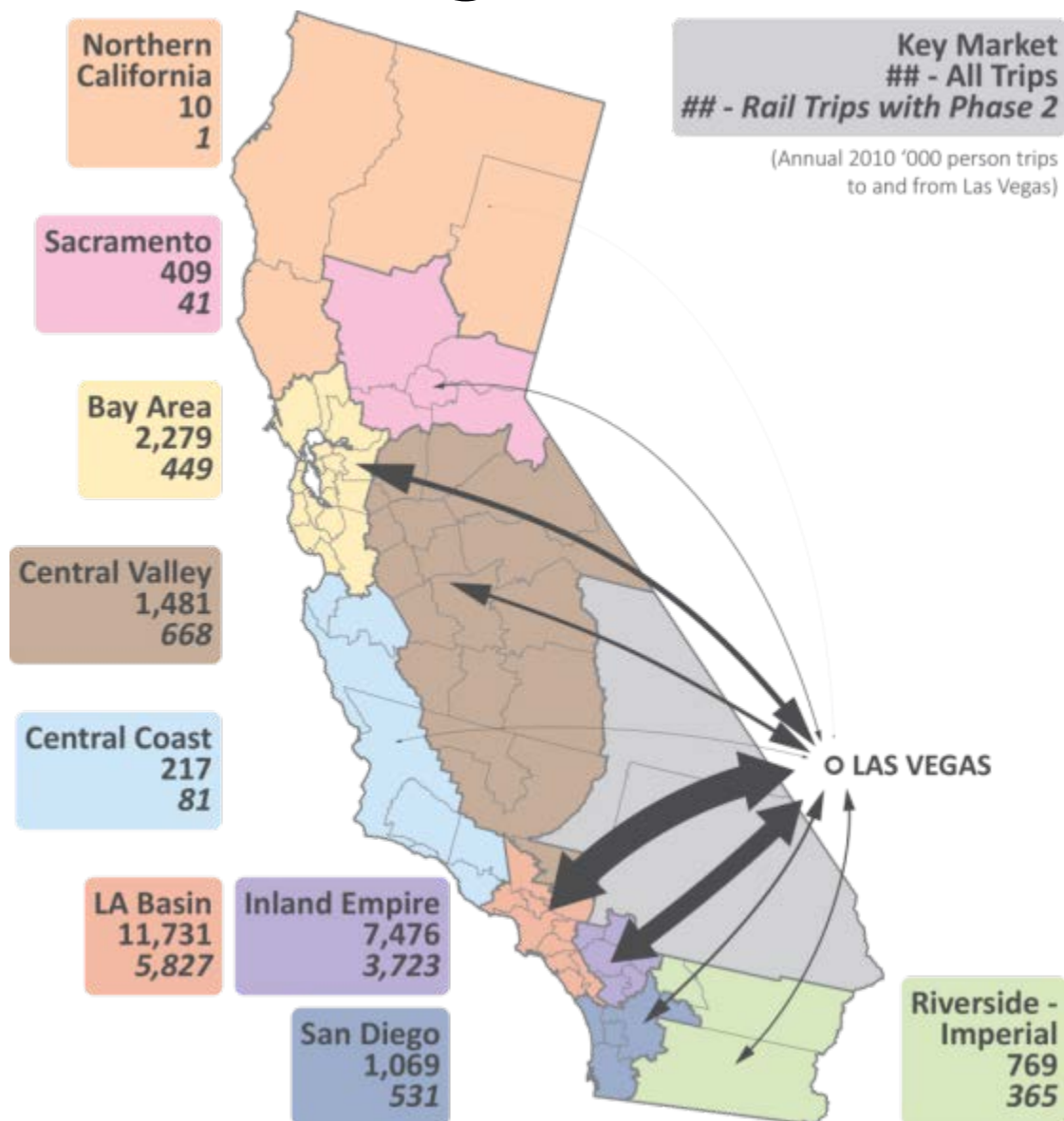
Trips to Arizona

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Trips to Las Vegas

63



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- ▶ Integrated Statewide Network
- ▶ Integrated HSR, Blended Rail, Express, and Local Services with Urban Mass Transit and Express Bus
- ▶ Multimodal connection points at key hubs with regular pulsed service
- ▶ Auto and air competitive service throughout the State

2040 Vision

Travel Competitiveness

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Los Angeles to San Francisco	 <2.7 Hours	 3.5 Hours	 >5.5 Hours
San Jose to San Diego	 <4.5 Hours	 3.5 Hours	 >7 Hours
San Bernardino to Sacramento	 <4 Hours	 3.25 Hours	 >6.5 Hours
Fresno to San Francisco	 <2 Hours	 3 Hours	 >3 Hours

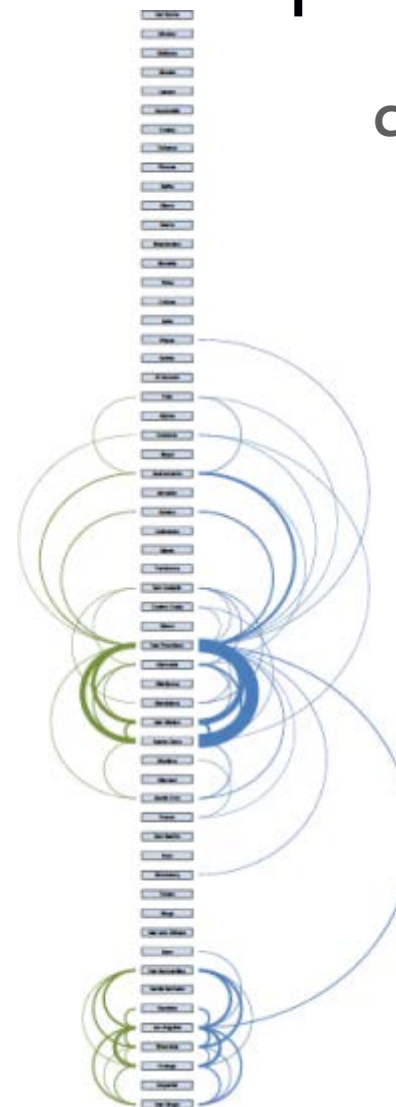
Baseline 2040 Ridership

County to County
Draw Loads

- ▶ Results show large increase in rail ridership demand due to HSR in 2040
- ▶ However, market potential for networked services is **unrealized**

Base Year

2040
Baseline



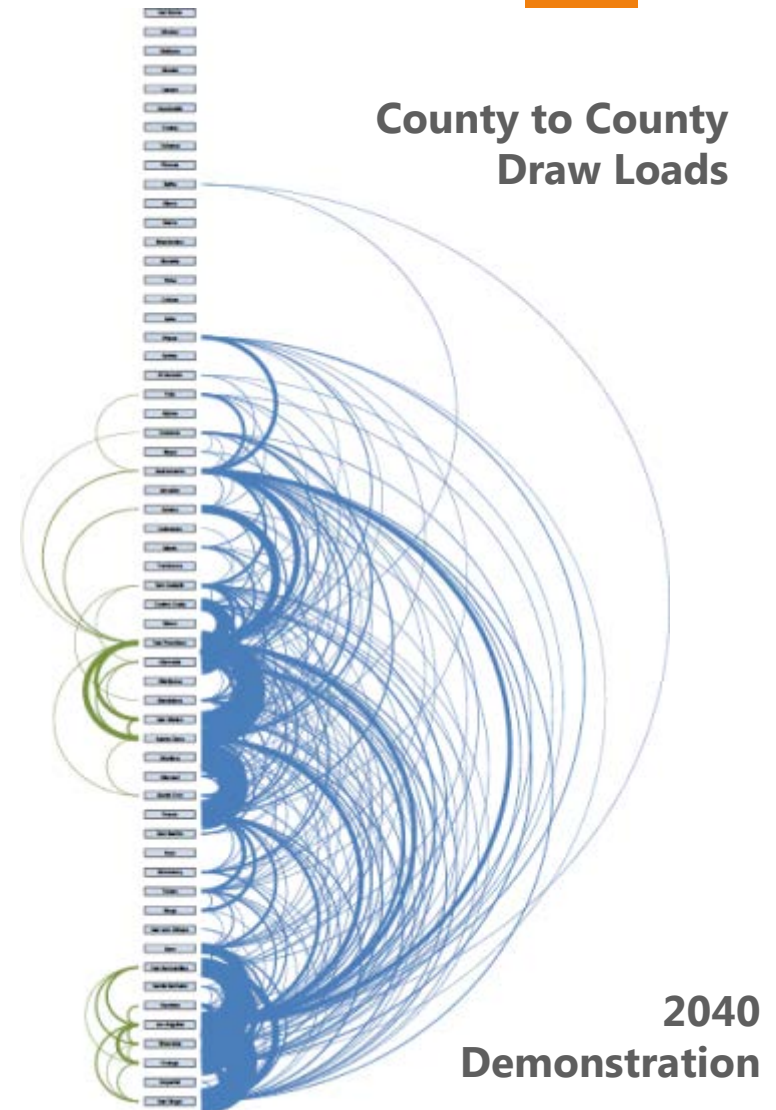
Integrated Network 2040 Scenario

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County to County
Draw Loads

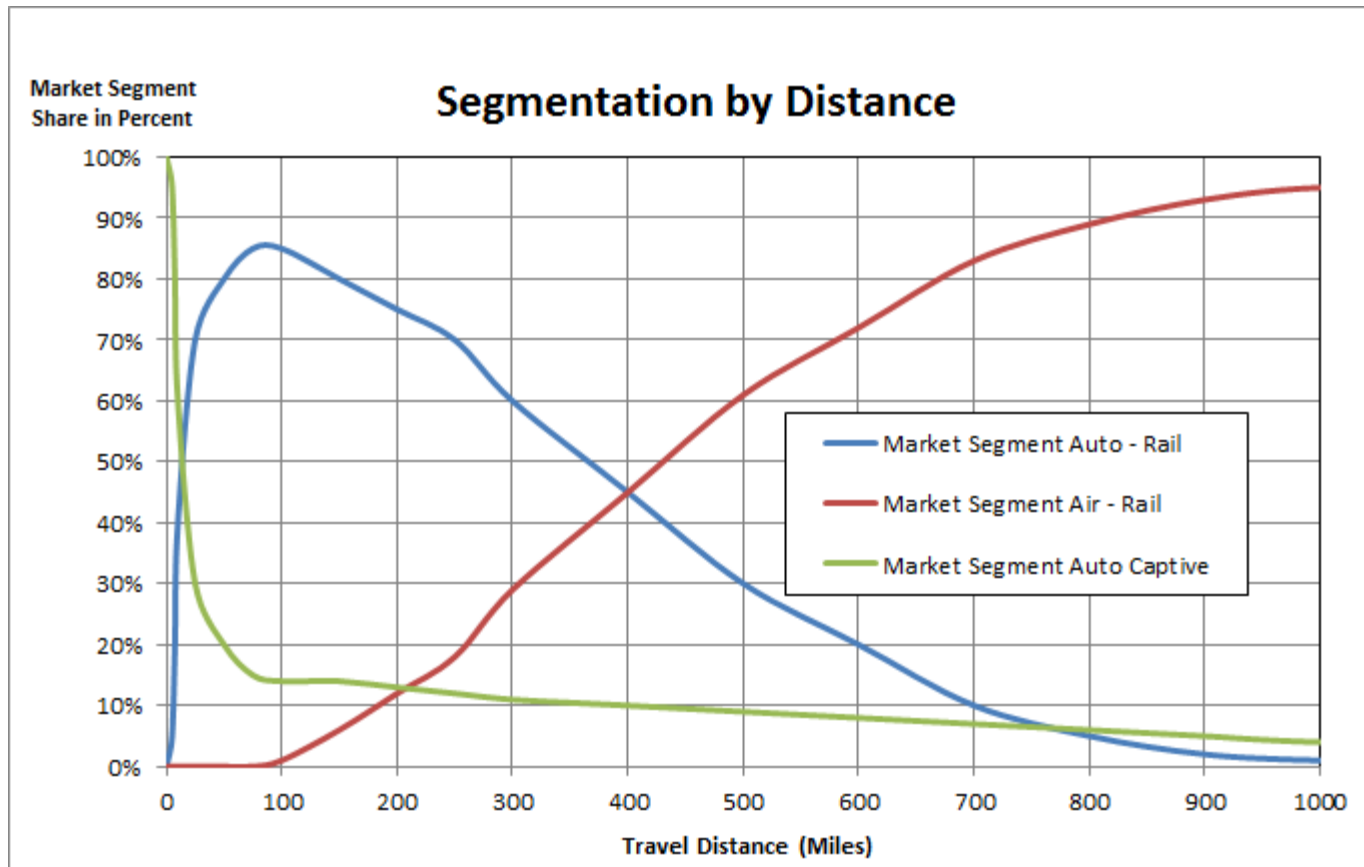
- ▶ Results show **huge increase** in rail ridership demand
- ▶ Satisfies a hugely **large market** potential for **networked services**

Base Year



Market Shares

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Project Schedule

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Project Milestones	Timeframe
Draft Vision Development & Technical Work	Fall 2015 – December 2016
Presentation to Stakeholder Advisory Committee	January 2017
Development of Administrative Draft	June 2016 - March 2017
Release of Public Review Draft	March 2017
Public Comment Period Public Workshops on Draft CSRP	March – May 2017
Revision of Draft	May – August 2017
CTC, FRA & CalSTA Reviews Submittal to Legislature	Sept 2017 – Winter 2018 May 2018

Questions?

2016

FRA Rail Program Delivery Meeting

Thank you!

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