



# Overview

- **FRA Rail Planning Framework**
- **The CONNECT Tool**
- **More about Regional Rail Plans**

# **FRA Planning Framework**

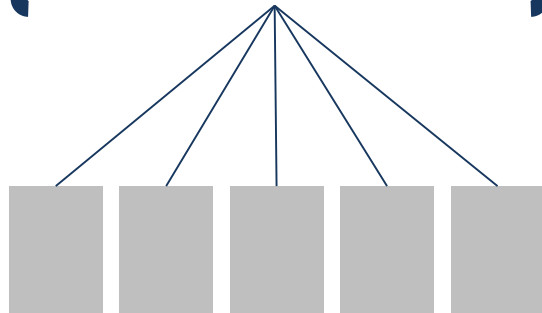
- **National Rail Planning**
- **Regional Rail Plans**
- **Corridor Plans**
- **Project-level Plans**
- **State Rail Plans**

# National Rail Planning

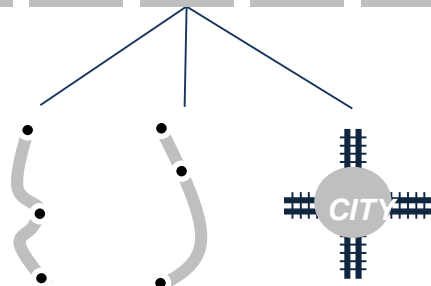
**National Planning Parameters**

*STANDARDIZED CRITERIA, TOOLS, & GUIDANCE*

“Tier 0”  
Regional Rail Plans



Tier I  
Corridors &  
Terminal  
Areas



Tier II  
Projects



<b>Contents</b>	<ul style="list-style-type: none"> <li>• Criteria for federal investment</li> <li>• Models, methodologies, &amp; guidance</li> </ul>
<b>NEPA</b>	Guidance for project sponsors
<b>FRA Role</b>	Establish investment policies and develop models/guidance

*What does the map look like?*



# Regional Planning

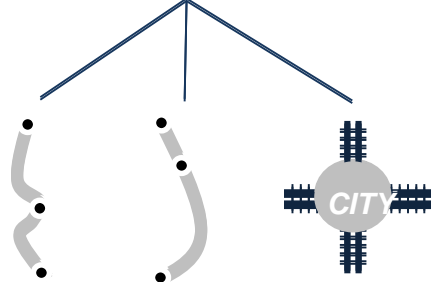
National Planning Parameters



“Tier 0” Regional Rail Plans



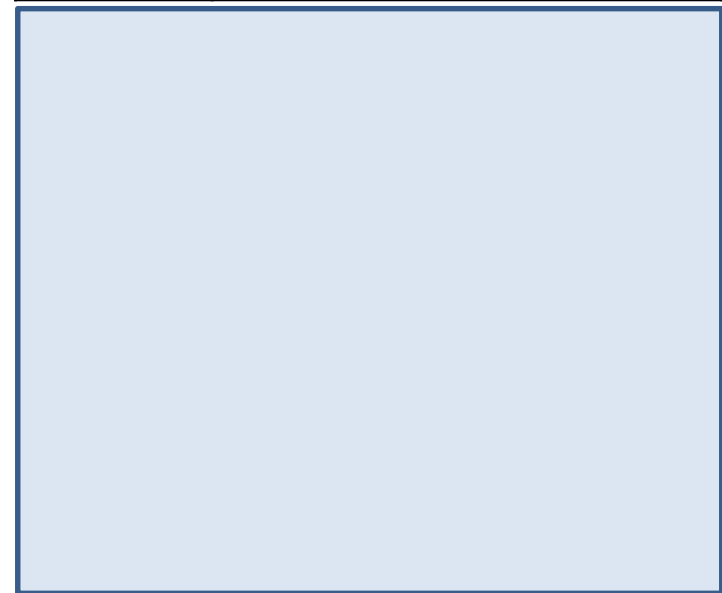
Tier I Corridors & Terminal Areas



Tier II Projects



<b>Contents</b>	<ul style="list-style-type: none"> <li>• Regional network vision</li> <li>• Regional service plan</li> <li>• Institutional/financial plans</li> </ul>
<b>NEPA</b>	n/a
<b>FRA Role</b>	<ul style="list-style-type: none"> <li>• Provide toolkits and best practices</li> <li>• Facilitate cross-border institutional relationships</li> <li>• Fund projects consistent with adopted regional plans</li> </ul>

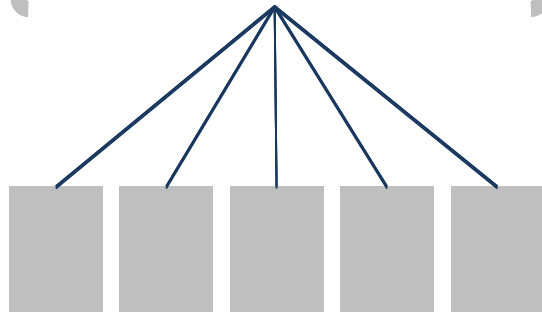


# Corridor Planning (Tier I)

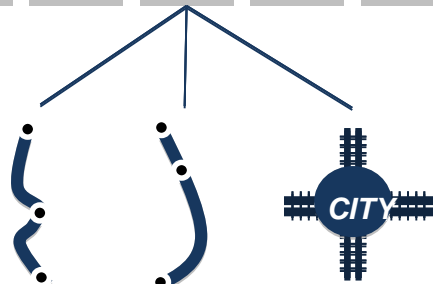
National Planning Parameters

*STANDARDIZED CRITERIA, TOOLS, & GUIDANCE*

“Tier 0” Regional Rail Plans



Tier I Corridors & Terminal Areas

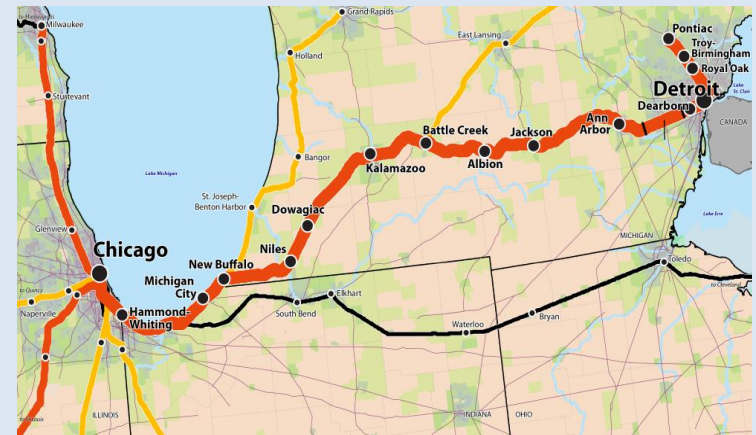


Tier II Projects



<b>Contents</b>	<ul style="list-style-type: none"> <li>• Corridor alignments</li> <li>• Terminal area plans</li> <li>• Detailed service plans</li> </ul>
<b>NEPA</b>	Service-level (Tier I)
<b>FRA Role</b>	<ul style="list-style-type: none"> <li>• Provide service development planning and NEPA guidance</li> <li>• Review/approve grant or loan deliverables</li> </ul>

*What does the map look like?*

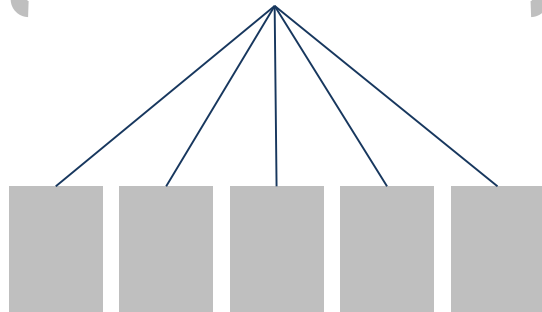


# Project-level Planning (Tier II)

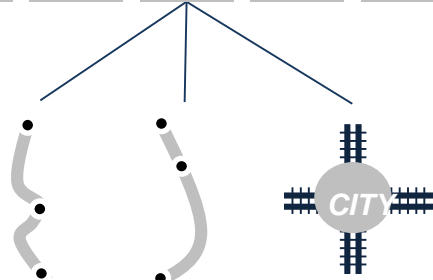
National Planning Parameters

STANDARDIZED CRITERIA, TOOLS, & GUIDANCE

“Tier 0” Regional Rail Plans



Tier I Corridors & Terminal Areas



Tier II Projects

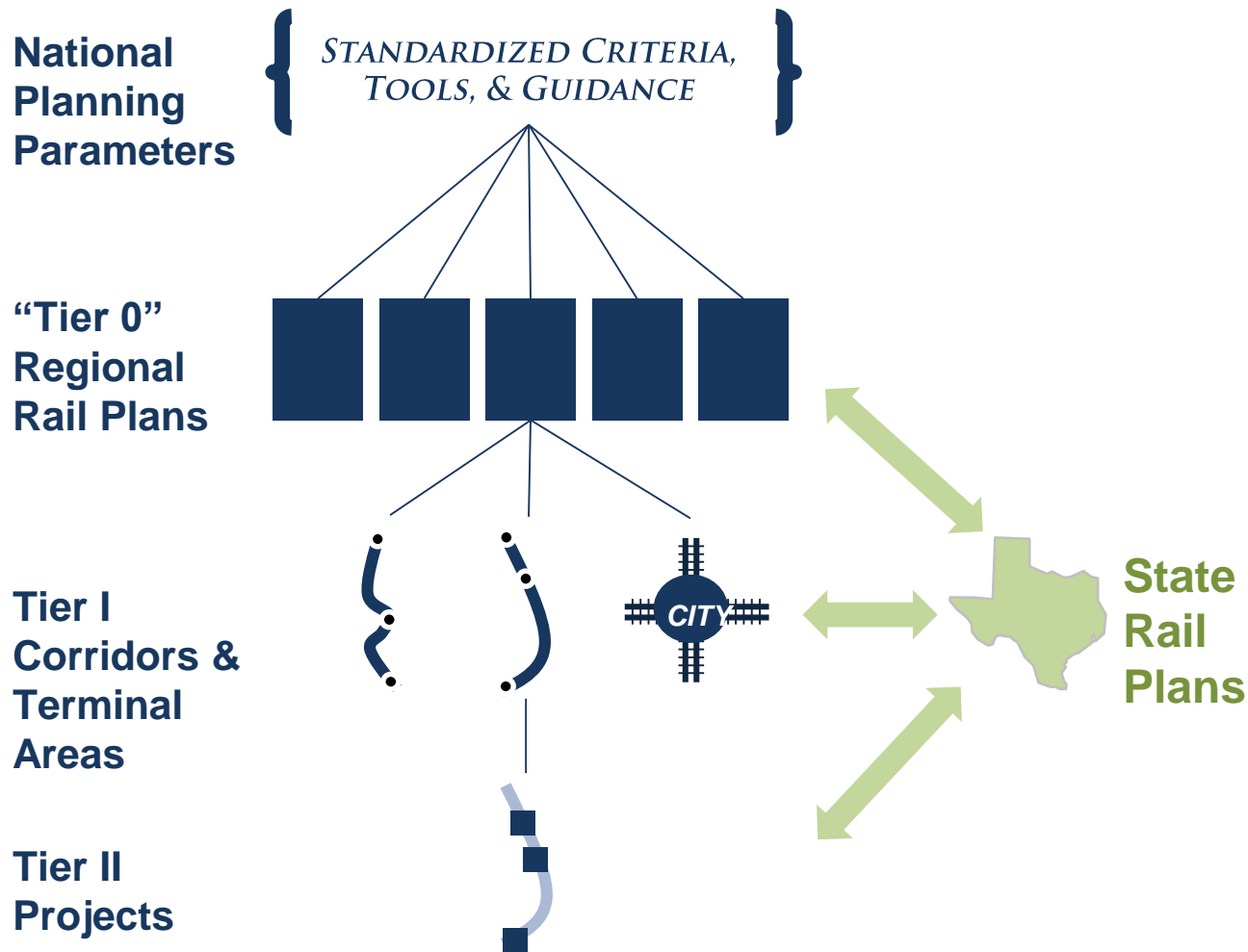


<b>Contents</b>	<ul style="list-style-type: none"> <li>• Project-level engineering</li> <li>• Construction/delivery plans</li> <li>• Project management plans</li> </ul>
<b>NEPA</b>	Project-level (Tier II)
<b>FRA Role</b>	<ul style="list-style-type: none"> <li>• Provide project delivery guidance</li> <li>• Review/approve grant or loan deliverables</li> </ul>

*What does the map look like?*



# State Rail Plans Within the FRA Planning Framework

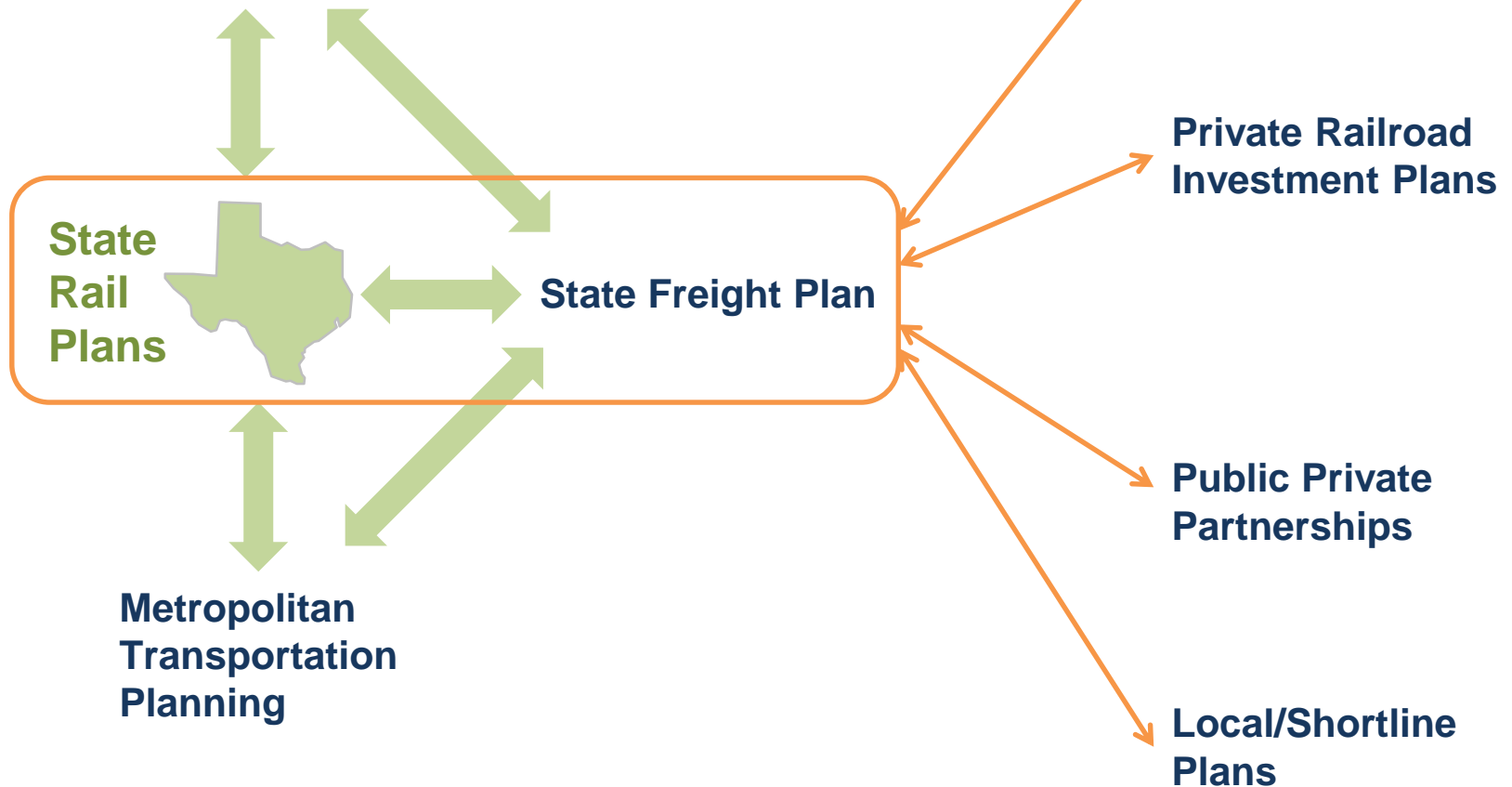




# Integration of State Rail Plans with Other Plans

## State Rail Plan

Statewide LRTP



# The **CONNECT** Tool

- **Overview**
- **Sample of CONNECT Data**
- **Sample of CONNECT Outputs**
- **Network Scenario Testing Example**

## CONNECT Overview



- CONNECT is a regional-level, sketch-planning tool developed by FRA that estimates the performance of intercity passenger rail corridors and networks
- Relies on a national trip table for MSA pairs less than 800 miles apart
- Provides high-level MSA-to-MSA forecasts based on proposed frequencies and estimated trip times as well as capital and O&M cost estimates

## CONNECT Overview

- **Excel-based:** Broad-based platform
- **User-defined:** Network customized by user
- **Fully integrated:** A single action by user runs ridership, revenue, and cost calculations
- **Flexible:** Advanced users can adjust assumptions
- **Complete:** National database
- **Costs and benefits linked:** Evaluates costs associated with achieving higher levels of service and ridership

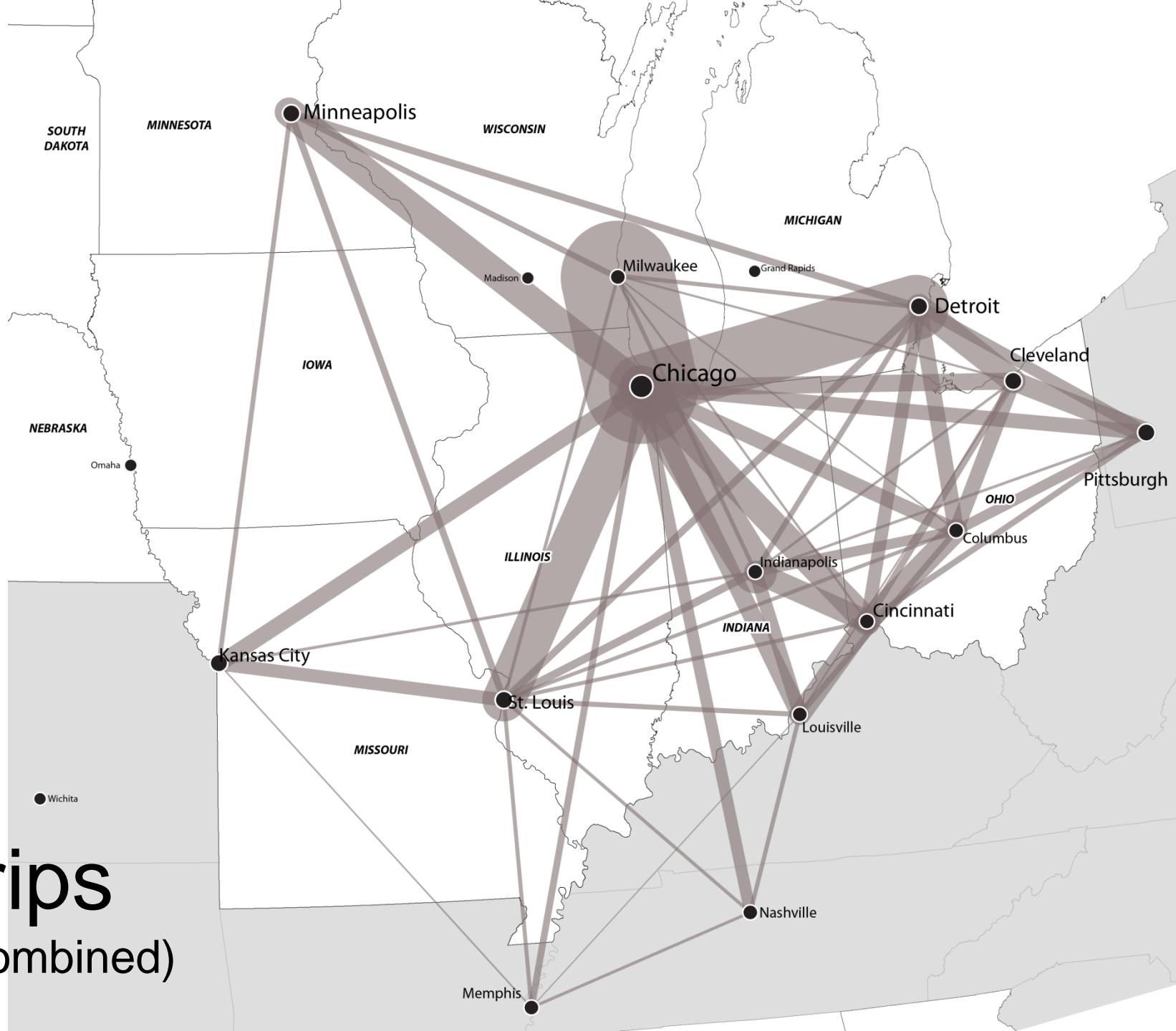
## CONNECT Overview

- Provides an analytic base to decision making process in early phases of planning
- Provides relative comparisons between corridors and networks
- Acts as a coarse screen to identify most compelling visions for further study
- Analyzes importance of connecting corridors in the context of a more detailed study
- Estimates existing travel market between metro regions and develop estimates for future travel

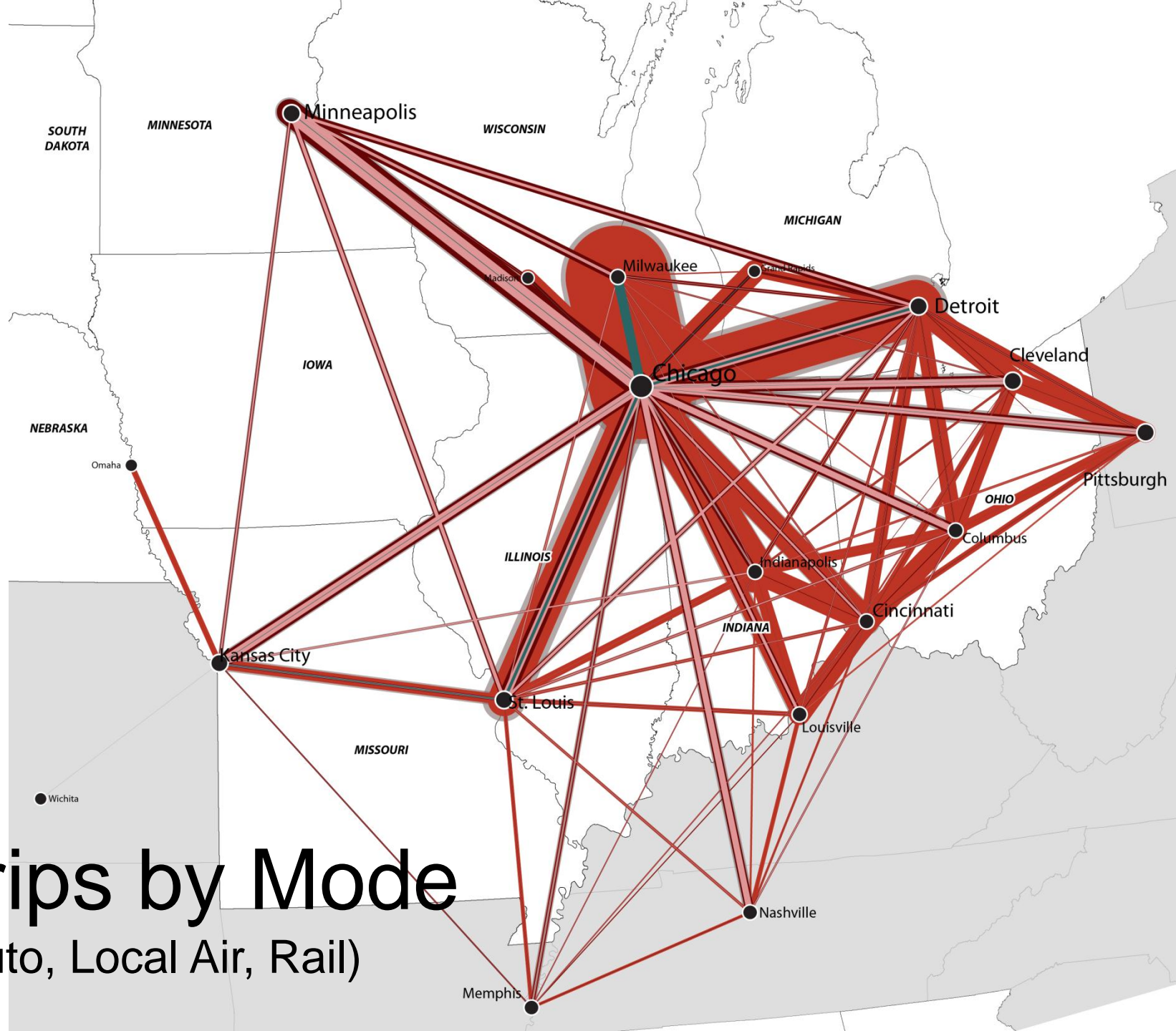
***Provides Data, not Answers***

## CONNECT Data Sample

- A sample of 2010 travel flows from the CONNECT database showing the following trips between the largest Midwest metro areas:
  - Rail Trips
  - Auto Trips
  - Air Trips
    - Local Air (Trips Between Sampled MSA Pair Only)
    - Connect Air (Multi-State Air Trips With One Leg on Sampled MSA Pair)



# All Trips (Local Combined)



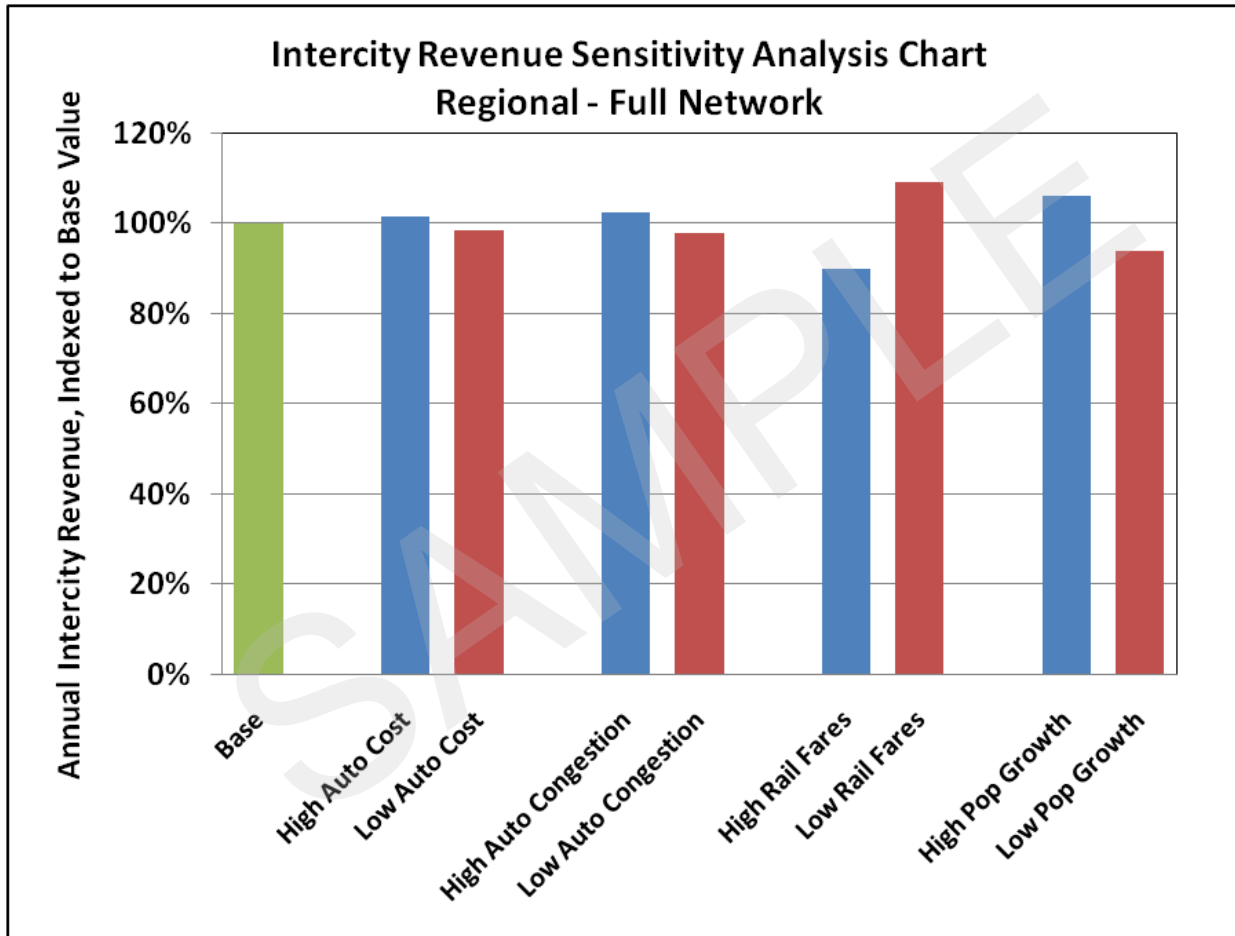
**All Trips by Mode**  
(Total, Auto, Local Air, Rail)



# CONNECT Outputs

	Forecast year:		2050
	CORE EXPRESS		
	Low	Medium	High
<b>Performance of Primary Corridor in Stand-Alone Context</b>			
Frequency - All Stop		16	
Frequency - Limited Stop		28	
Ridership (Annual Passengers)	7,400,000	7,800,000	8,100,000
O&M Cost Recovery Ratio	1.64	2.03	2.58
Initial Capital Investment	\$2,200,000,000	\$2,200,000,000	\$2,200,000,000
Annual Ticket Revenue	\$725,000,000	\$762,000,000	\$797,000,000
Annual O&M Cost	\$309,000,000	\$375,000,000	\$441,000,000
Annual O&M Profit/(Subsidy)	\$284,000,000	\$387,000,000	\$488,000,000
Annual O&M Subsidy/Passenger-Mile	-	-	-
Rail Share of Total Intercity Travel Market	34%	36%	35%
<b>Performance of Primary Corridor in Network Context (Infrastructure Corridor)</b>			
Ridership (Annual Passengers)	13,600,000	16,900,000	20,000,000
O&M Cost Recovery Ratio	1.86	2.40	3.17
Initial Capital Investment	\$2,200,000,000	\$2,200,000,000	\$2,200,000,000
Annual Ticket Revenue	\$818,000,000	\$900,000,000	\$978,000,000
Annual O&M Cost	\$309,000,000	\$375,000,000	\$440,000,000
Annual O&M Profit/(Subsidy)	\$378,000,000	\$525,000,000	\$669,000,000
Annual O&M Subsidy/Passenger-Mile	-	-	-
Rail Share of Total Intercity Travel Market	34%	36%	35%
<b>Performance of Full Network</b>			
Annual Ridership	14,000,000	17,000,000	20,000,000
Annual Ticket Revenue	\$996,000,000	\$1,160,000,000	\$1,317,000,000
Initial Capital Investment	\$3,200,000,000	\$3,200,000,000	\$3,200,000,000
Annual O&M Cost	\$381,000,000	\$466,000,000	\$552,000,000
<b>Max Segment Load Factor</b>			
CORE EXPRESS			
Primary Corridor - Stand-Alone Context	0.40		
Primary Corridor - Network Context (Infrastructure Corridor)	0.77		
Full Network	0.88		

# CONNECT Outputs



# CONNECT Texas Scenario Tests

## 2A) DFW-HOU

*Total Network Capital:*

**\$22.5 Billion**

*Additional Capital for non-OKC to  
SAN:*

**\$7.6 Billion**

*Total Network Ridership:*

**24.9 Million**

*HOU-DFW Ridership:*

**10,630,075**

*DFW-AUS/SAN Ridership:*

**8,509,322**

*HOU-AUS/SAN Ridership:*

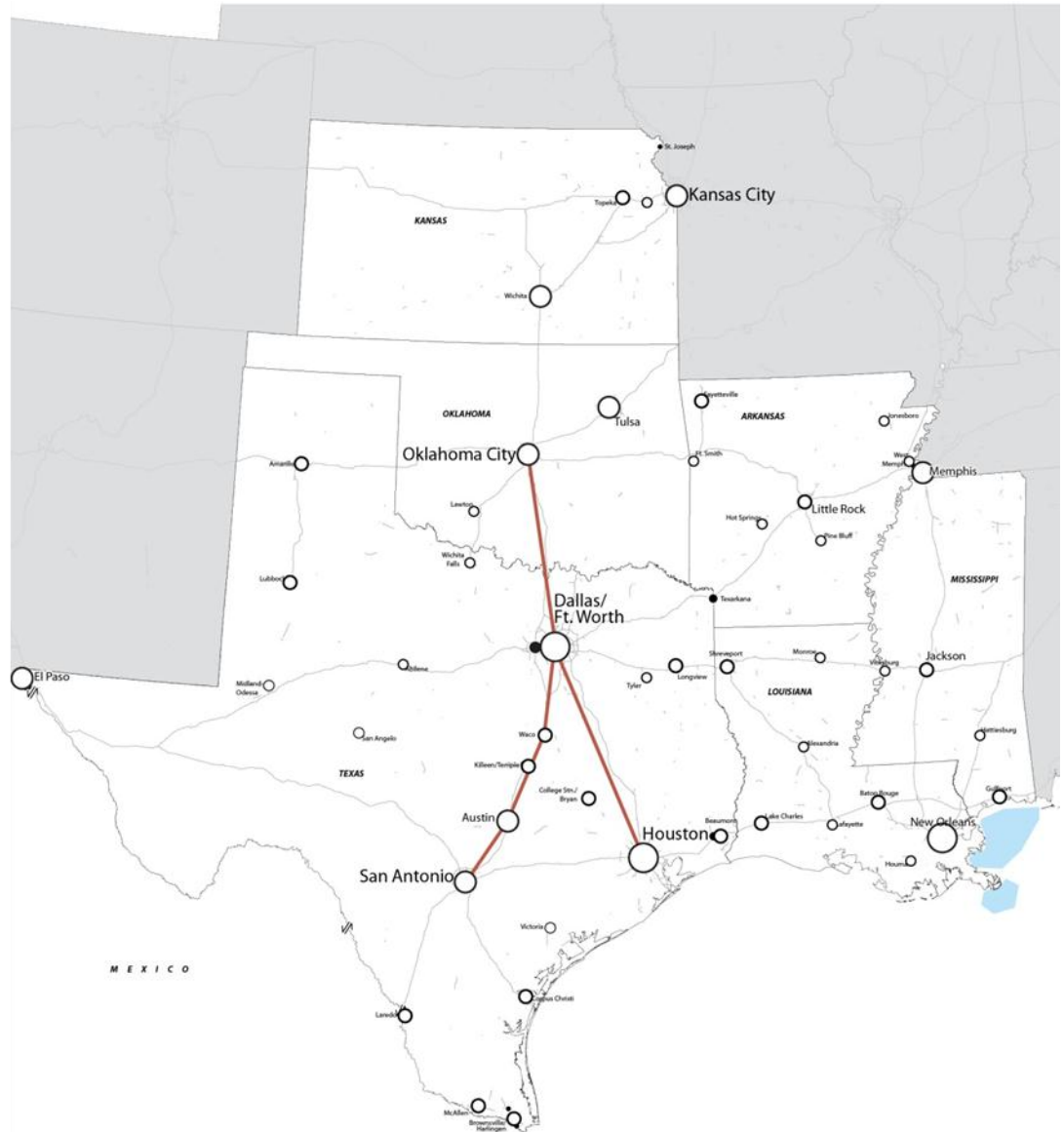
**3,442,897**

*Total Small Market Boardings:*

**291,158**

*Network Rail Mode Share:*

**32.3%**



# CONNECT Texas Scenario Tests

## 4B) AUS-CST-HOU, DFW-WAC-CST-HOU

*Total Network Capital:*

**\$23.3 Billion**

*Additional Capital for non-OKC to  
SAN:*

**\$8.4 Billion**

*Total Network Ridership:*

**25.7 Million**

*HOU-DFW Ridership:*

**10,400,109**

*DFW-AUS/SAN Ridership:*

**8,509,322**

*HOU-AUS/SAN Ridership:*

**4,221,887**

*Total Small Market Boardings:*

**425,286**

*Network Rail Mode Share:*

**33.4%**



# More about Regional Rail Plans

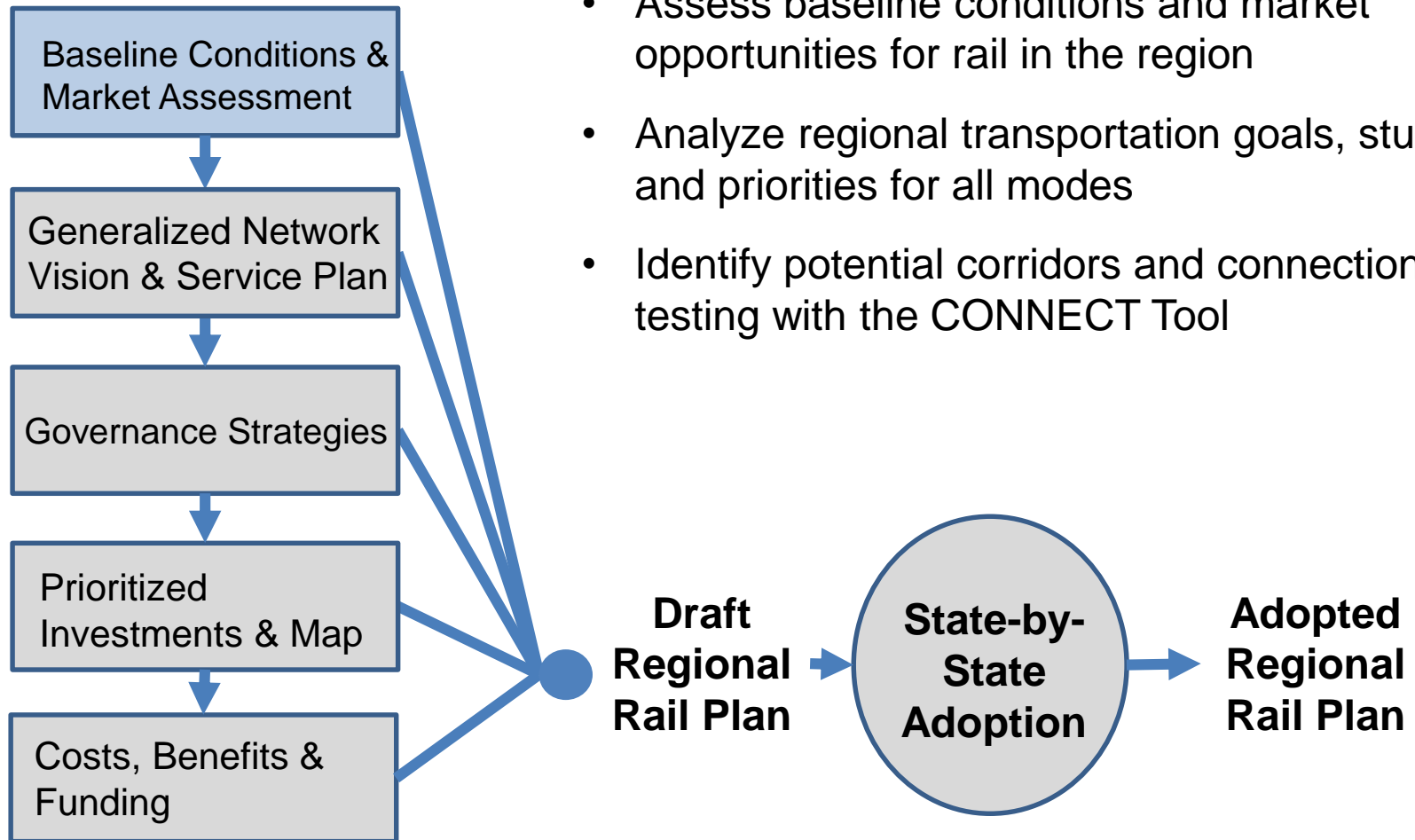


# Purpose of a Regional Rail Plan

## A regional rail plan:

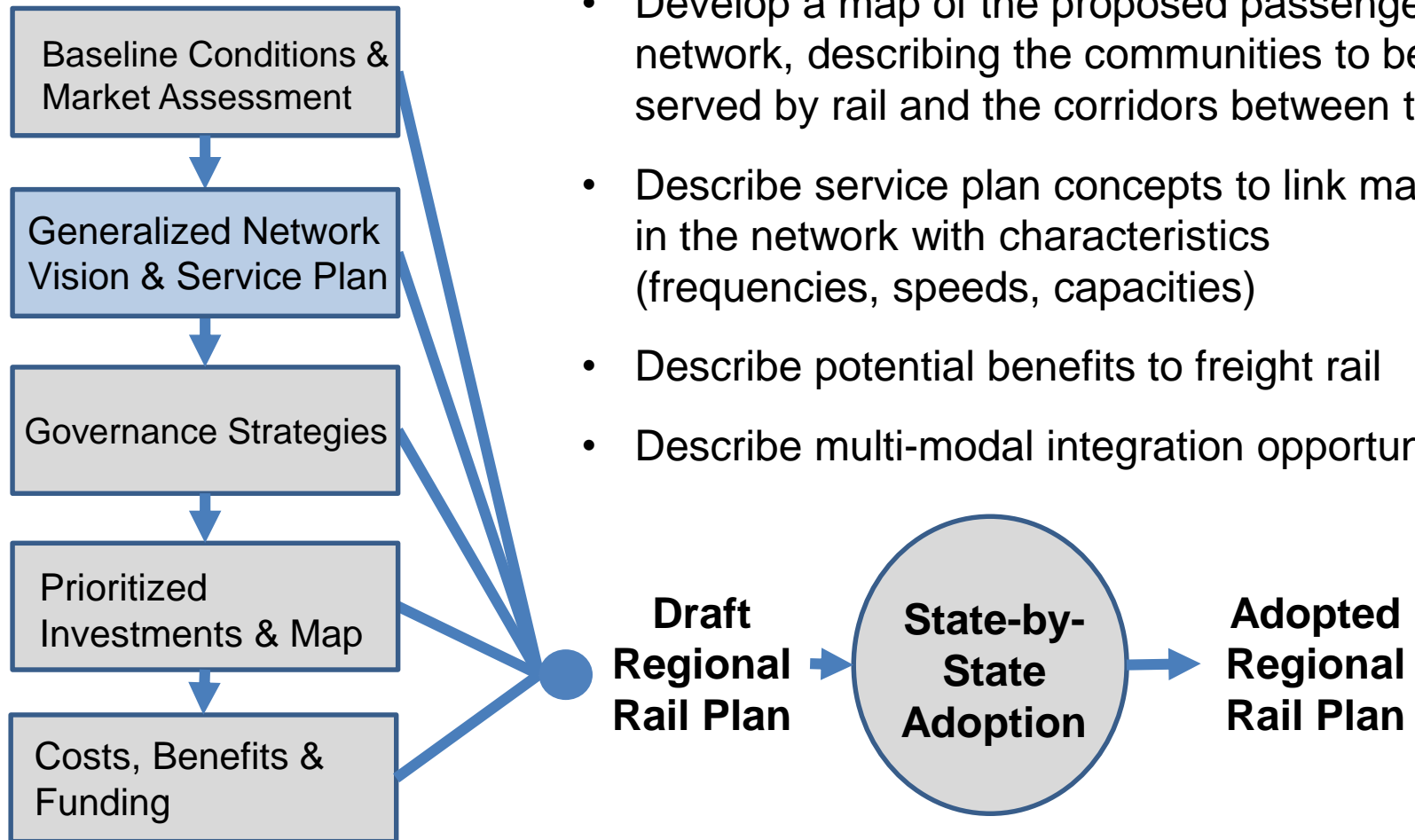
- **Is a visioning plan led by the FRA in partnership with regional stakeholders that develops a long-term concept for a high-performance rail network within a (mega)region**
- **Will help the region and FRA determine the priorities, studies, and investment needs to advance projects within a multi-state, network context**
- **Identifies the potential institutional arrangements, financial requirements, phasing, planning and development activities needed to achieve the vision**

# Elements of a Regional Rail Plan



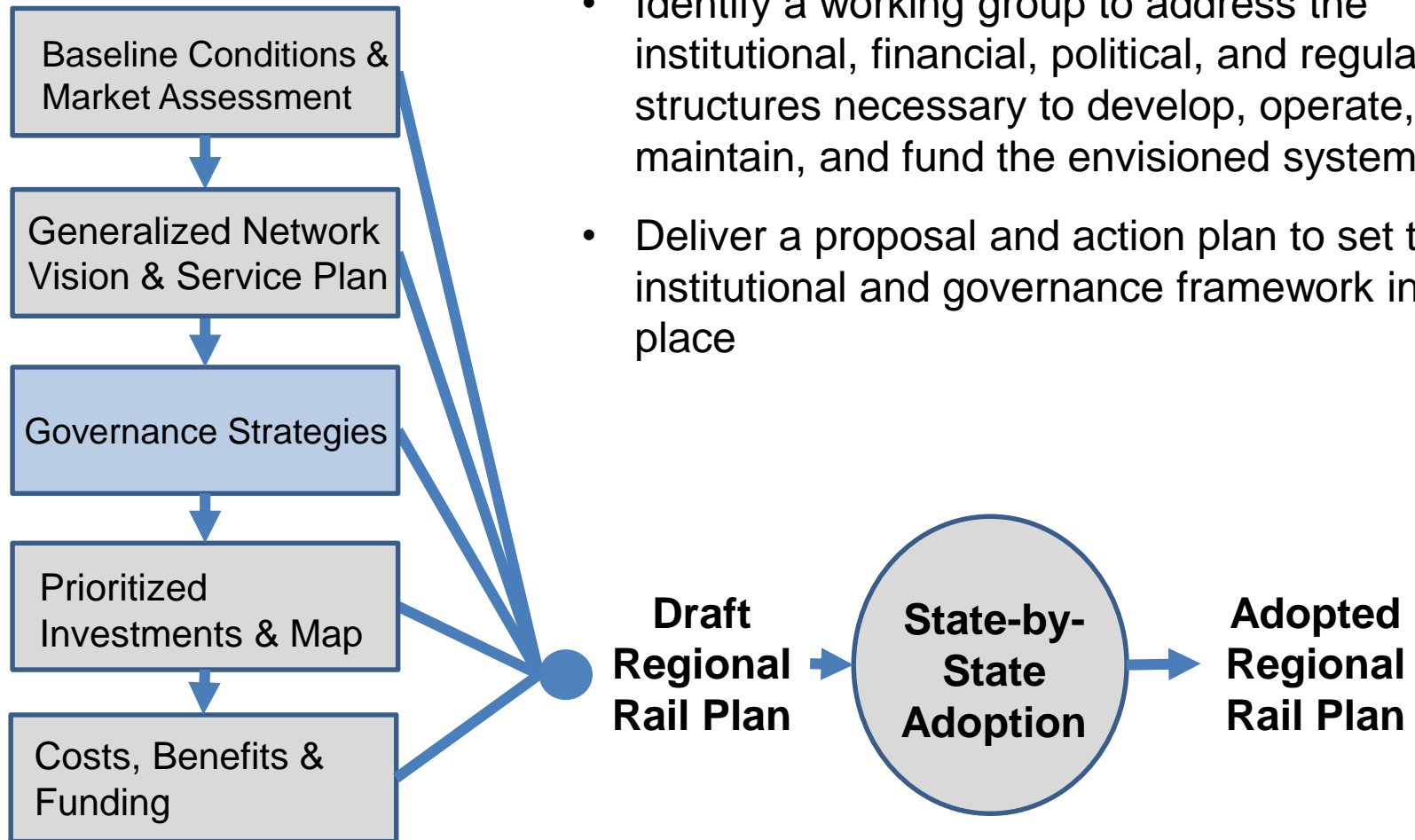
- Assess baseline conditions and market opportunities for rail in the region
- Analyze regional transportation goals, studies, and priorities for all modes
- Identify potential corridors and connections for testing with the CONNECT Tool

# Elements of a Regional Rail Plan

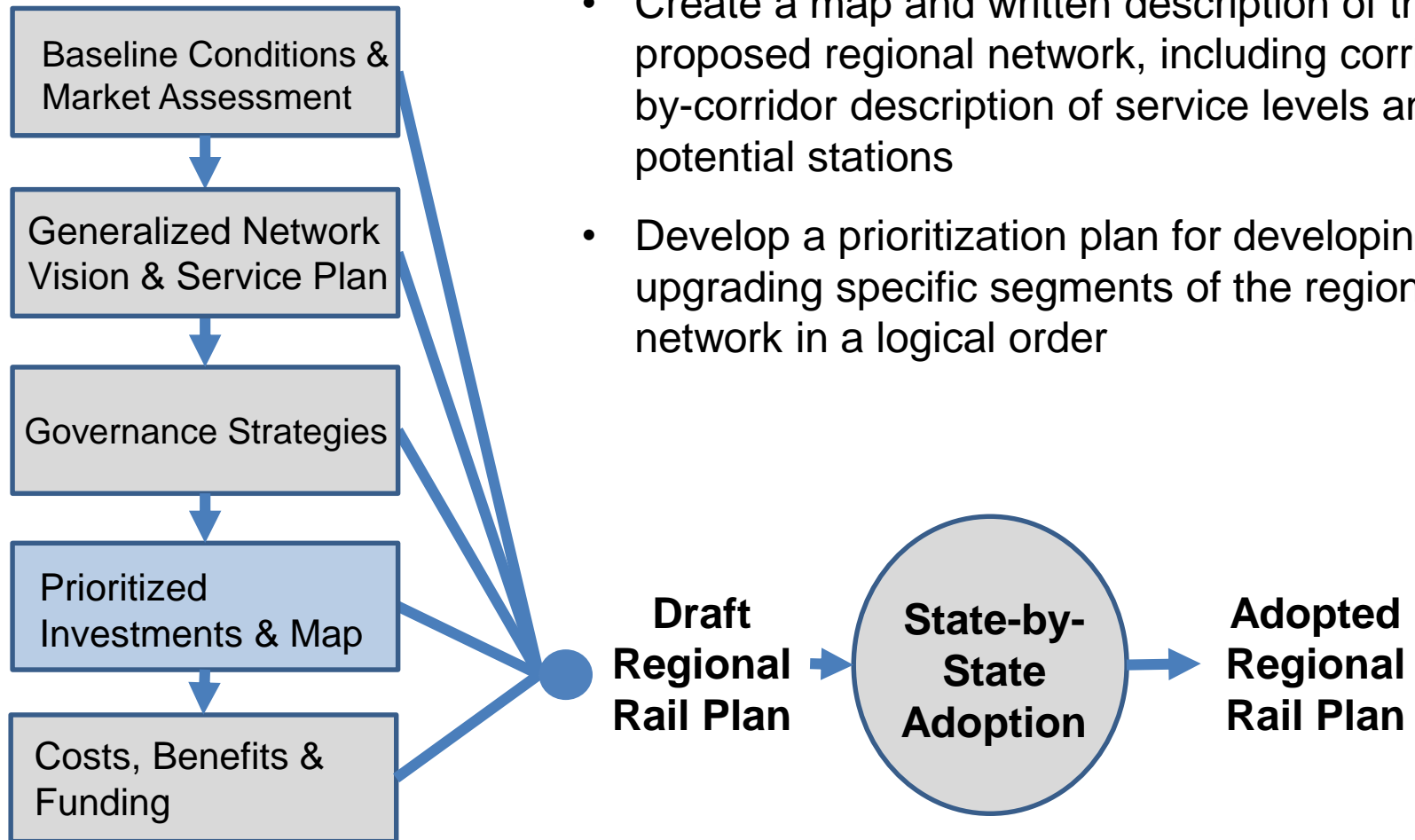




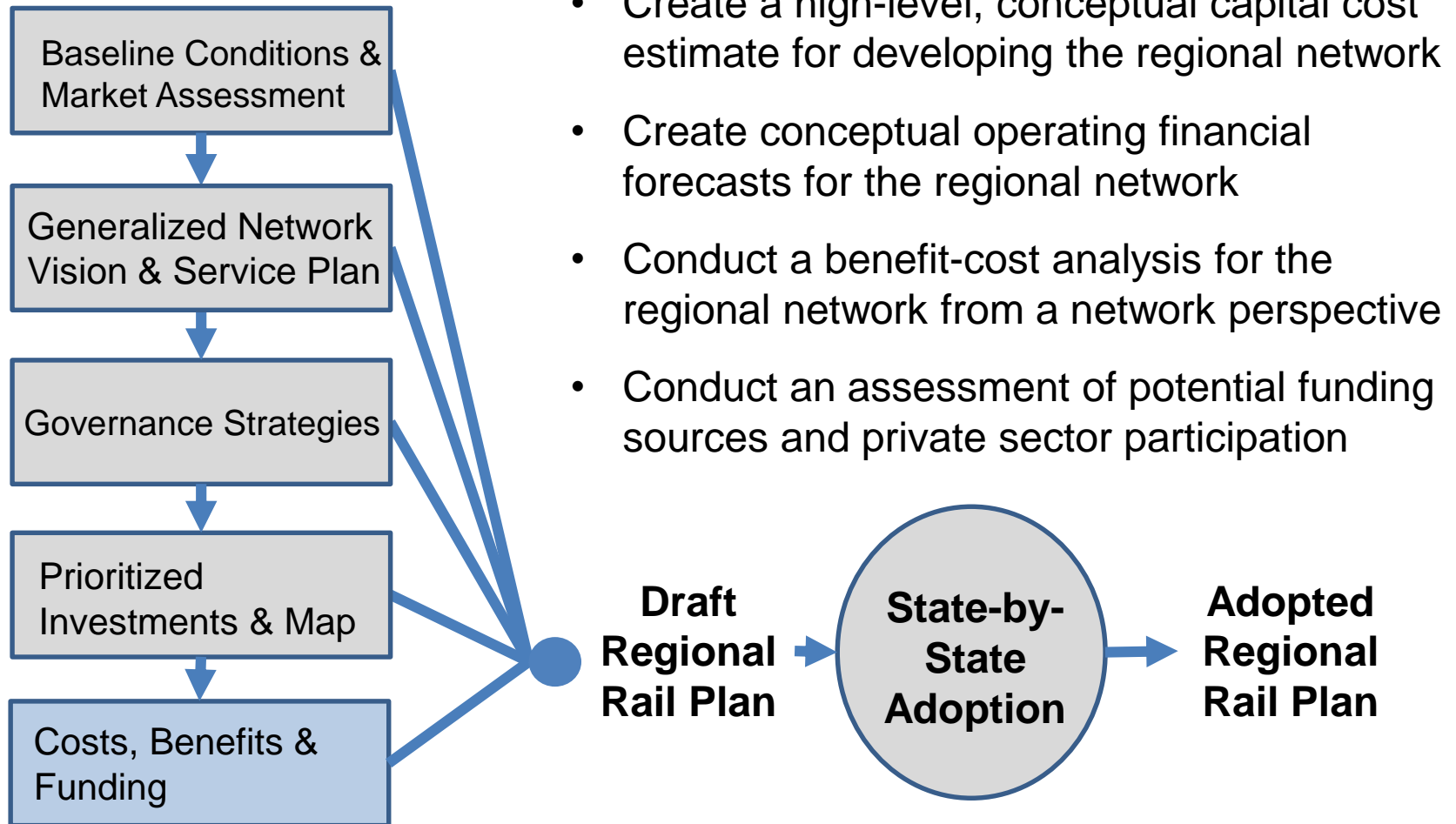
# Elements of a Regional Rail Plan



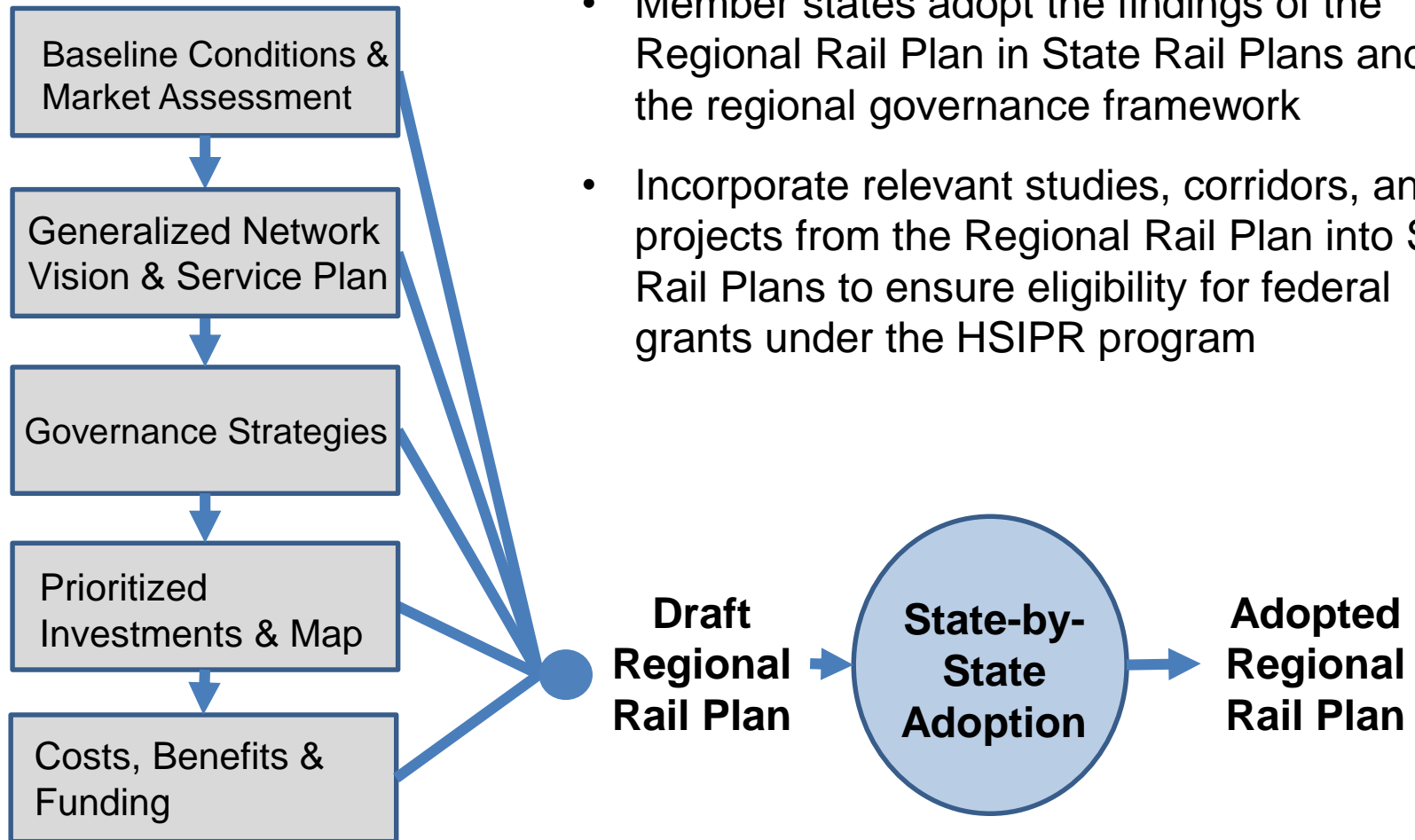
# Elements of a Regional Rail Plan



# Elements of a Regional Rail Plan

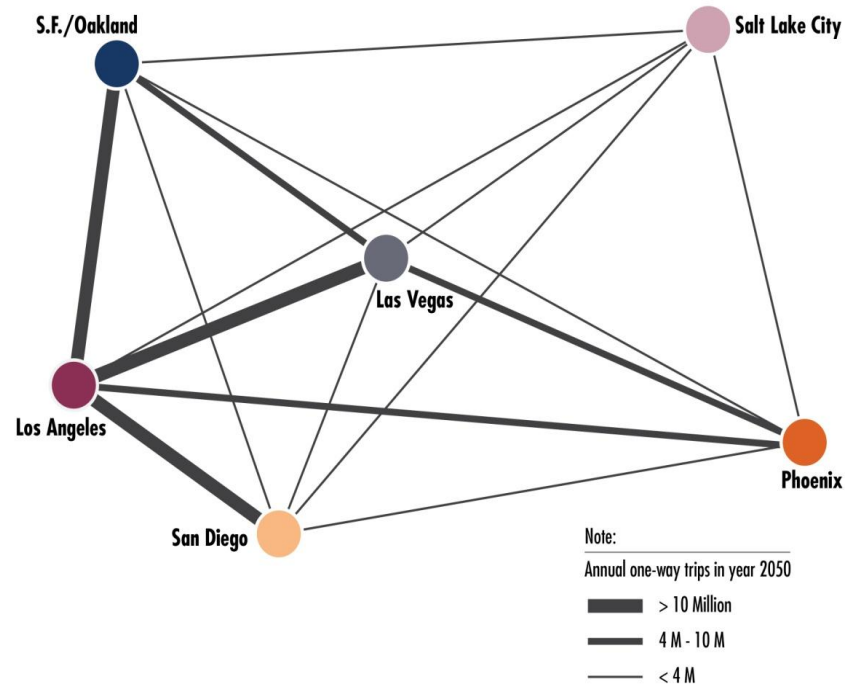
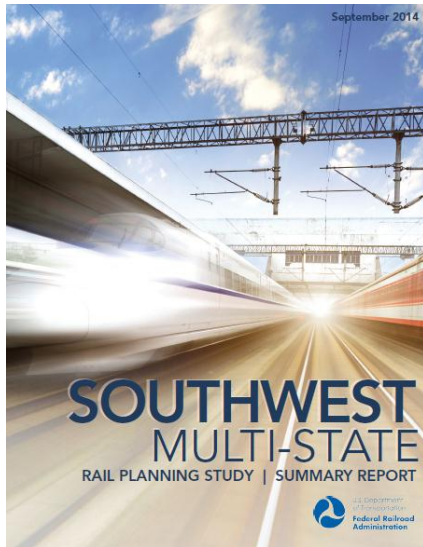


# Elements of a Regional Rail Plan

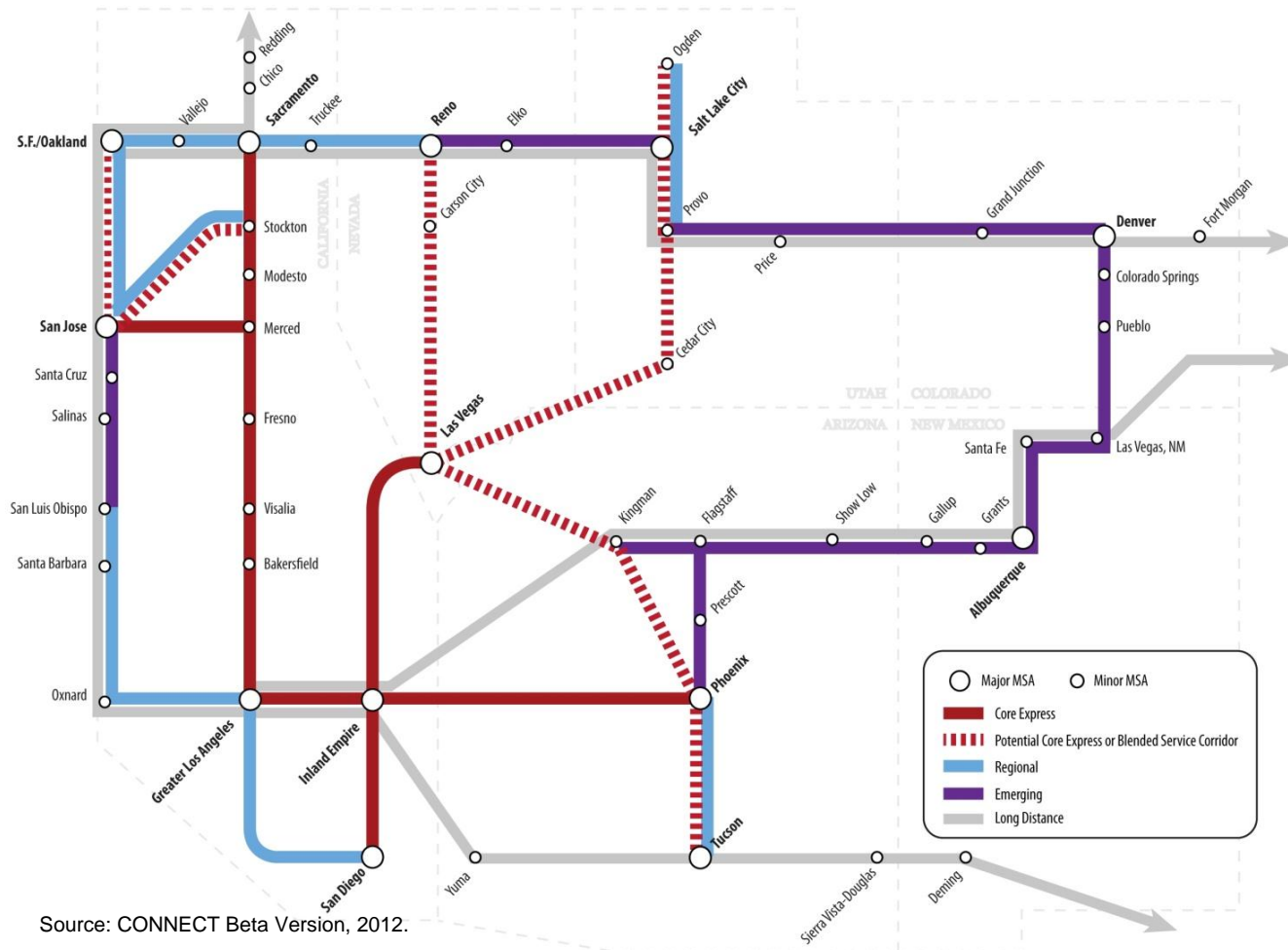


- Member states adopt the findings of the Regional Rail Plan in State Rail Plans and join the regional governance framework
- Incorporate relevant studies, corridors, and projects from the Regional Rail Plan into State Rail Plans to ensure eligibility for federal grants under the HSIPR program

# The Pilot Regional Rail Plan – The Southwest Study



# Southwest Study - Preliminary Network Vision

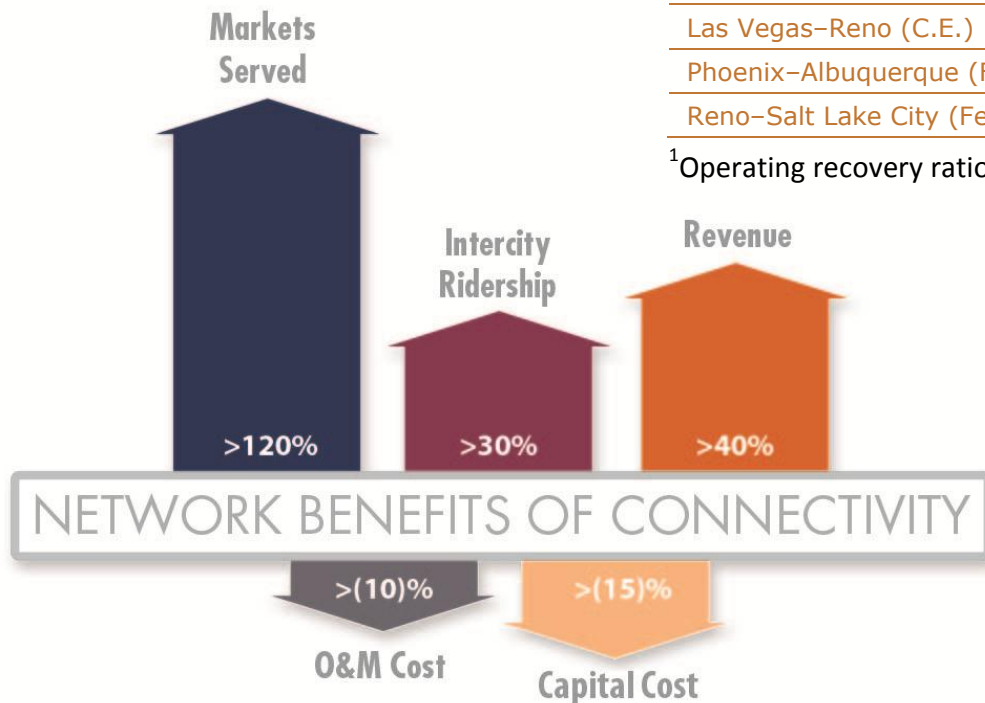


# Southwest Study - Network Analysis Approach

Table 1 Operating recovery ratio performance

		Stand-alone <sup>1</sup>	Network <sup>1</sup>	Multi-state Corridor
San Diego–San Francisco (C.E.)		●	●	
Las Vegas–Los Angeles (C.E.)		●	●	✓
Los Angeles–Phoenix (C.E.)		●	●	✓
San Diego–Phoenix (C.E.)		●	●	✓
Las Vegas–Phoenix–Tucson (C.E.)		●	●	✓
San Francisco–Reno (Regional)		●	●	✓
Las Vegas–Salt Lake City (C.E.)		●	●	✓
Phoenix–Tucson (Regional)		●	●	
Las Vegas–Reno (C.E.)		●	●	
Phoenix–Albuquerque (Feeder)		●	●	✓
Reno–Salt Lake City (Feeder)		●	●	✓

<sup>1</sup>Operating recovery ratio:  $X < 1$ ;  $1 < X < 2$ ;  $X > 2$ ;



## Southwest Study - Lessons Learned

- Federal involvement is important
- Provide clear definition of study purpose and potential outcomes
- Incorporate other modes into process
- Concentrate stakeholder efforts on in-person workshops
- No one-size-fits-all governance approach



## Next Steps – FRA-led Regional Planning

- FRA has funding authority provided under the FY14 Omnibus Appropriations Act to lead two regional rail plans and has selected the Midwest and Southeast as the geographic focus of those efforts
- FRA will procure contractors to assist with the planning efforts and to update/improve the CONNECT Tool
- FRA is meeting with regional partners to identify stakeholders and gain feedback about regional needs

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<https://www.fra.dot.gov/Page/P0522>