Minnesota Comprehensive Statewide Freight and Passenger Rail Plan

Passenger Technical Advisory Committee

November 12, 2009

presented by
Cambridge Systematics, Inc.
Kimley-Horn and Associates, Inc.
TKDA, Inc.

CAMBRIDGE SYSTEMATICS

Agenda

- Welcome – Daniel Krom
- Outreach – Randy Halvorson
- Study Overview Update – Marc Cutler
- Needs Assessment – Marc Cutler and Brian Smalkoski
- Rail Industry Assessment – Andreas Aeppli
- Rail Visions and Programs – Marc Cutler and Andreas Aeppli
- Program Implementation – Allan Rutter
- Discussion – Randy Halvorson

Public Outreach

Randy Halvorson

Open Houses
Round 2 – October 2009

- October 6 – St. Cloud
- October 7 – Rochester
- October 8 – Red Wing
- October 14 – Minneapolis/St. Paul
- October 15 – Duluth/Superior
- October 21 – Moorhead
- October 22 – Mankato
- October 28 – Willmar

Overriding Themes

- Strong support for new passenger rail service
- New passenger rail services cannot degrade existing freight services
- Freight services need more investment, including intermodal facilities
- Corridor prioritization should be data-driven and clearly explained
- Costs of project implementation should be assumed by both public and private sources

Major Themes by Location

- St. Cloud – carefully consider passenger corridor rankings and timeliness; reinforce importance of intermodal
- Rochester – support passenger service between Rochester and Twin Cities; explore opportunity for intermodal; be clear about sources of funding
- Red Wing – select River Route for MWRRI; connect Rochester as spoke from Winona
- MSP – support high speed rail; research project costs and funding; coordinate timing of passenger rail projects
- Duluth – support NLX alignment; coordinate with railroads; support union labor

Major Themes by Location

- **Mankato – support passenger service between Mankato and Twin Cities; sustain and enhance short lines and freight infrastructure**
- **Moorhead – carefully consider issues related to freight regulation, safety, tax equity**
- **Willmar – consider importance of corridor to regional freight operations; don’t underestimate potential for commuter rail**

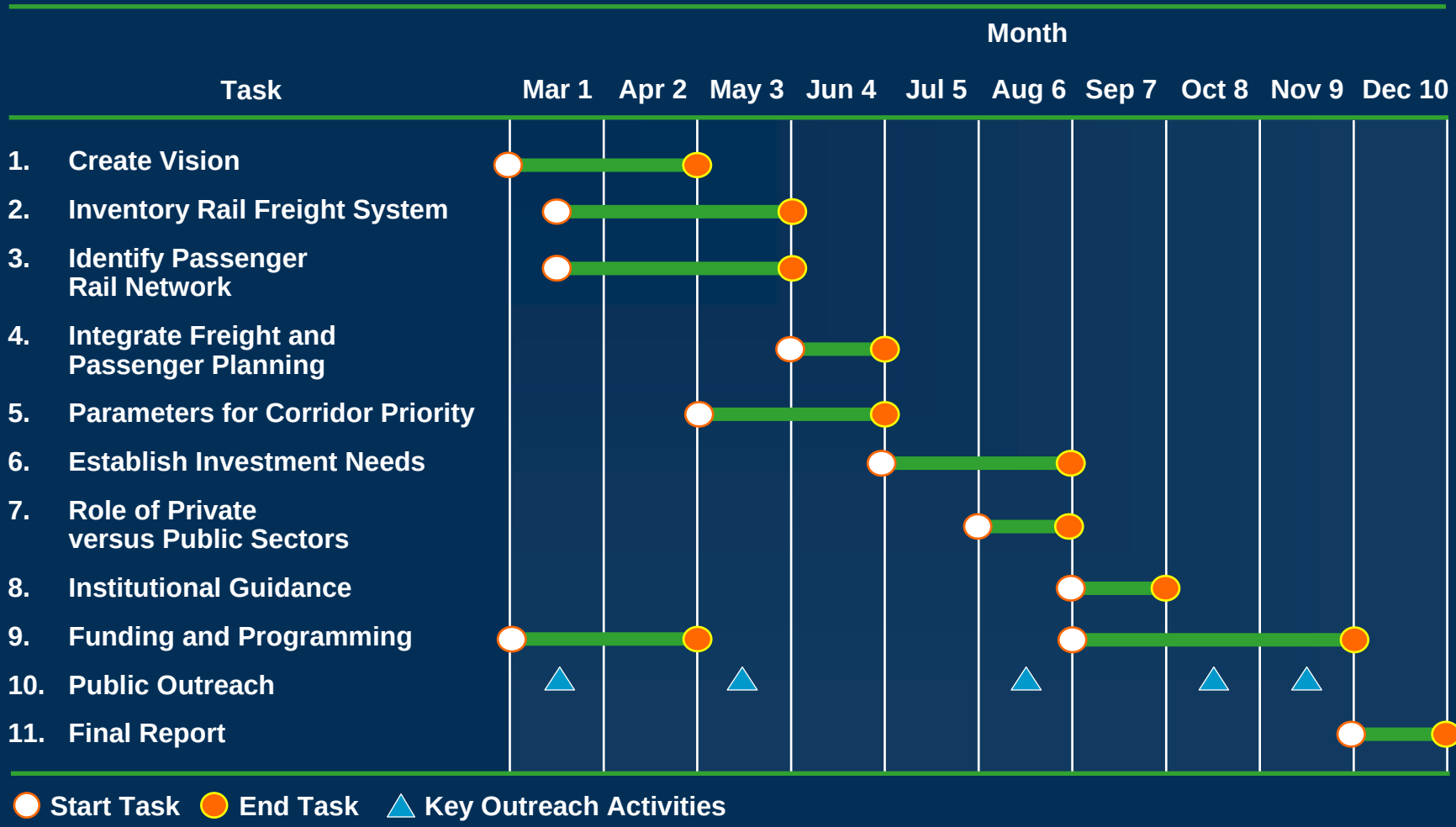
Study Overview

Marc Cutler

Project Phases

Project Phase	Description	Task
Phase I	Rail Vision	Task 1
Phase II	Inventory Freight System and Passenger Rail Plans	Tasks 2 and 3
Phase III	Integration of passenger and freight planning, and development of performance criteria	Tasks 4 and 5
Phase IV	Plan Development – Needs, Institutional Arrangements, Programs, Financing	Tasks 6-9
Continuous Public Outreach		Task 10
Final Report		Task 11

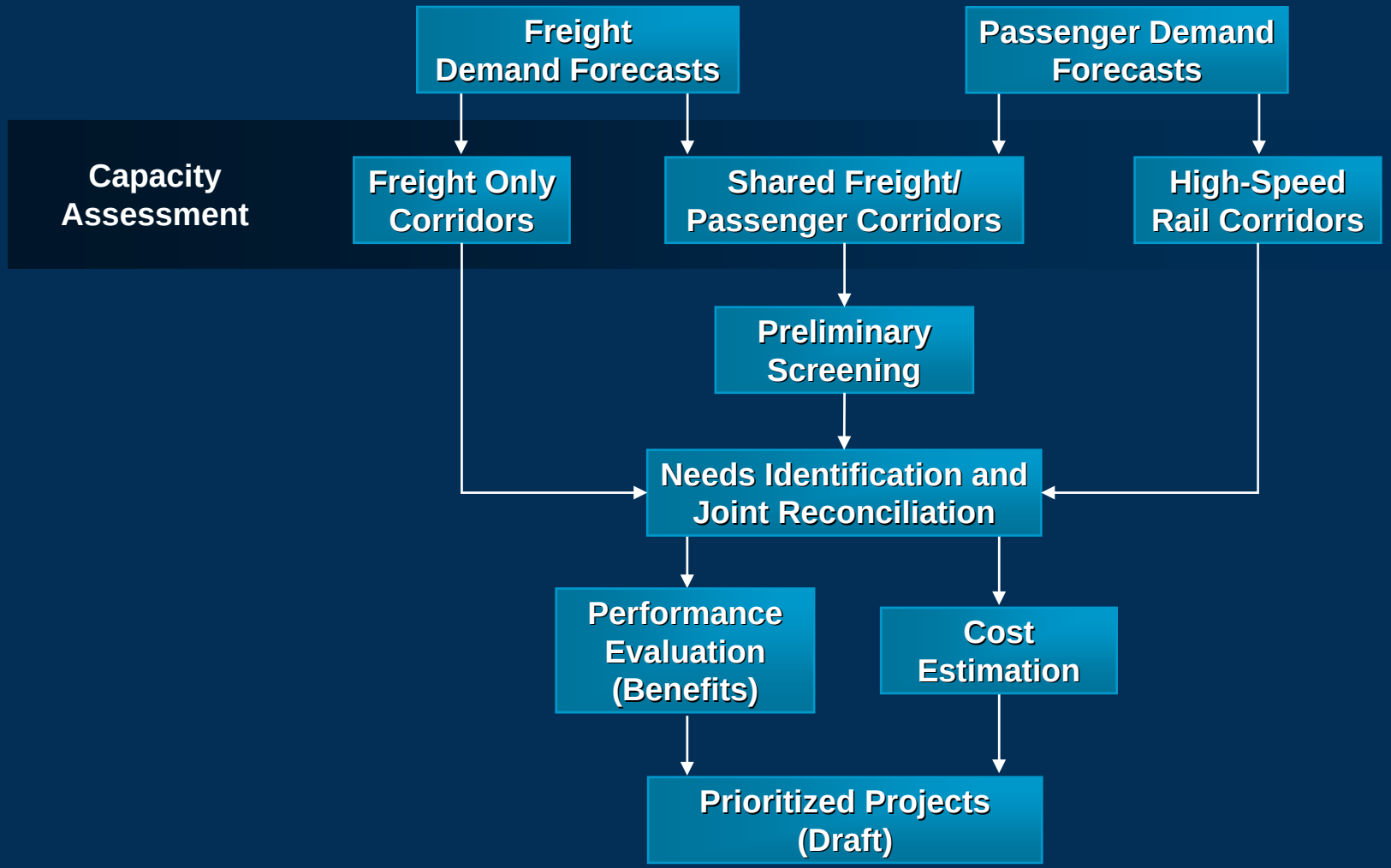
Schedule


Month
Task
Mar 1
Apr 2
May 3
Jun 4
Jul 5
Aug 6
Sep 7
Oct 8
Nov 9
Dec 10
1. Create Vision
2. Inventory Rail Freight System
3. Identify Passenger Rail Network
4. Integrate Freight and Passenger Planning
5. Parameters for Corridor Priority
6. Establish Investment Needs
7. Role of Private versus Public Sectors
8. Institutional Guidance
9. Funding and Programming
10. Public Outreach
11. Final Report
Start Task
End Task
Key Outreach Activities

Needs Assessment

Marc Cutler and Brian Smalkoski

Needs Assessment Methodology



Rail Performance Measures

- ***System Performance*** **– capacity, speed, annual production of ton/miles, ridership**
- ***System Condition*** **– track, bridges, crossings**
- ***Connectivity/Accessibility*** **– proximity to users, commercial terms, modes**
- ***Safety and Security*** **– at-grade crossings, hazmat, inspections**
- ***Environmental*** **– positive and negative impacts of construction and operations**
- ***Financial/Economic*** **– Capital costs, operations, taxes, jobs, economic development, cost/benefit comparisons**

Ridership Forecasts
Overview

- Purpose – provide a consistent comparison across all possible state passenger rail projects
- Conservative, sketch-planning approach
- Analyzes travel only between the Twin Cities and key markets
- Analyzes limited intermediate points and no non-Twin Cities origins/destinations
- OFFICIAL FORECASTS – INDIVIDUAL PROJECT PLANNING PROCESSES

Ridership Forecasts
Results
2030 Annual Trips with Most Favorable Variables Tested

- Over 1 million (selected cities)
  - Chicago
  - St. Cloud
- 400,000-600,000
  - Duluth (NLX)
  - Rochester
- 100,000-300,000
  - Wisconsin points on MWRRI
  - Mankato
  - Eau Claire
  - Northfield
- 100,000 or under
  - Fargo
  - Red Wing
  - Winona
  - Willmar

Cost Estimation Methodology
Unit Costs Based on Actual Experience and Judgment

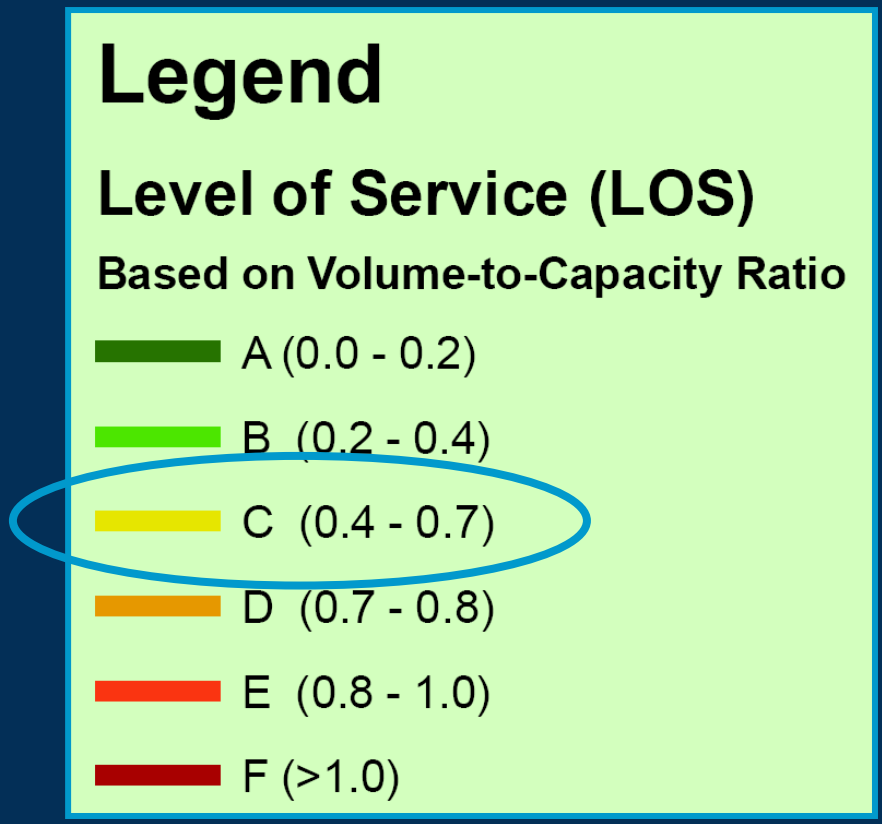
- Freight and Passenger
  - Track and signal upgrades
  - Clearance restrictions
  - Grade crossings
  - Bottlenecks and bridges
- Freight only
  - 286,000 pound and 25 MPH compliant
  - Intermodal
- Passenger only
  - Rolling stock
  - Trackage rights or new ROW
  - Operating and maintenance

Cost Assumptions for Passenger ($M)

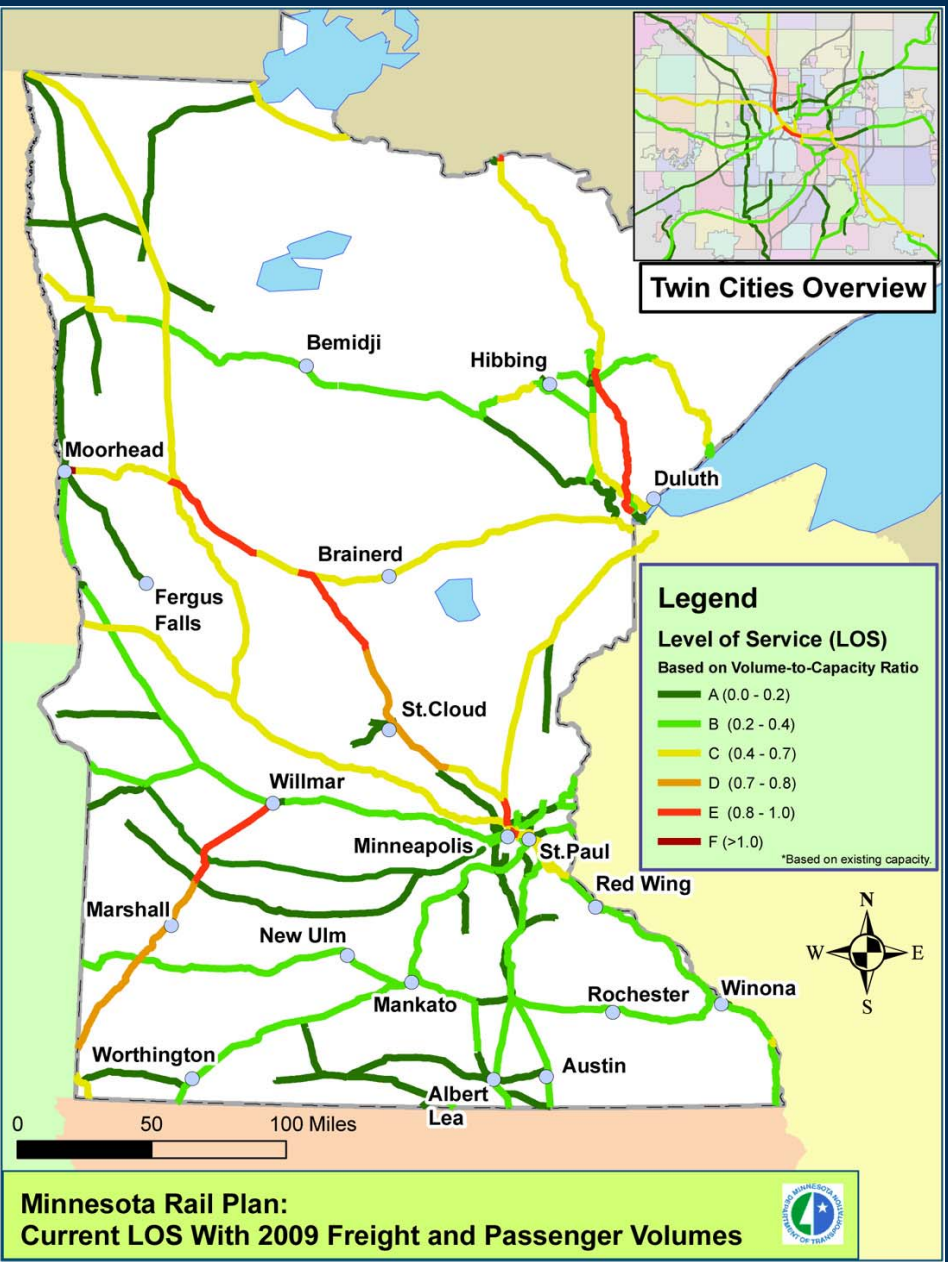
Upgrade track (II to IV)	$.71/mile
New track (IV/VI)	$2.6/mile
Signalization	$.6-.8/mile + $.1/mile PTC
ROW	$.91/mile
Capacity Rights	$.09/train mile
Crossings	$.2-.4/mile
Rolling stock	$18-35/train set
O&M	($70/train mile)
Engineering +10%, Contingency +30%	

Level of Service (LOS)

- Volume-to-Capacity Ratio
- Used to determine when upgrades are warranted
  - A, B, C: Below Capacity
  - D: Near Capacity
  - E: At Capacity
  - F: Above Capacity
- Study focus was to ensure freight and passenger rail lines were LOS C, or better

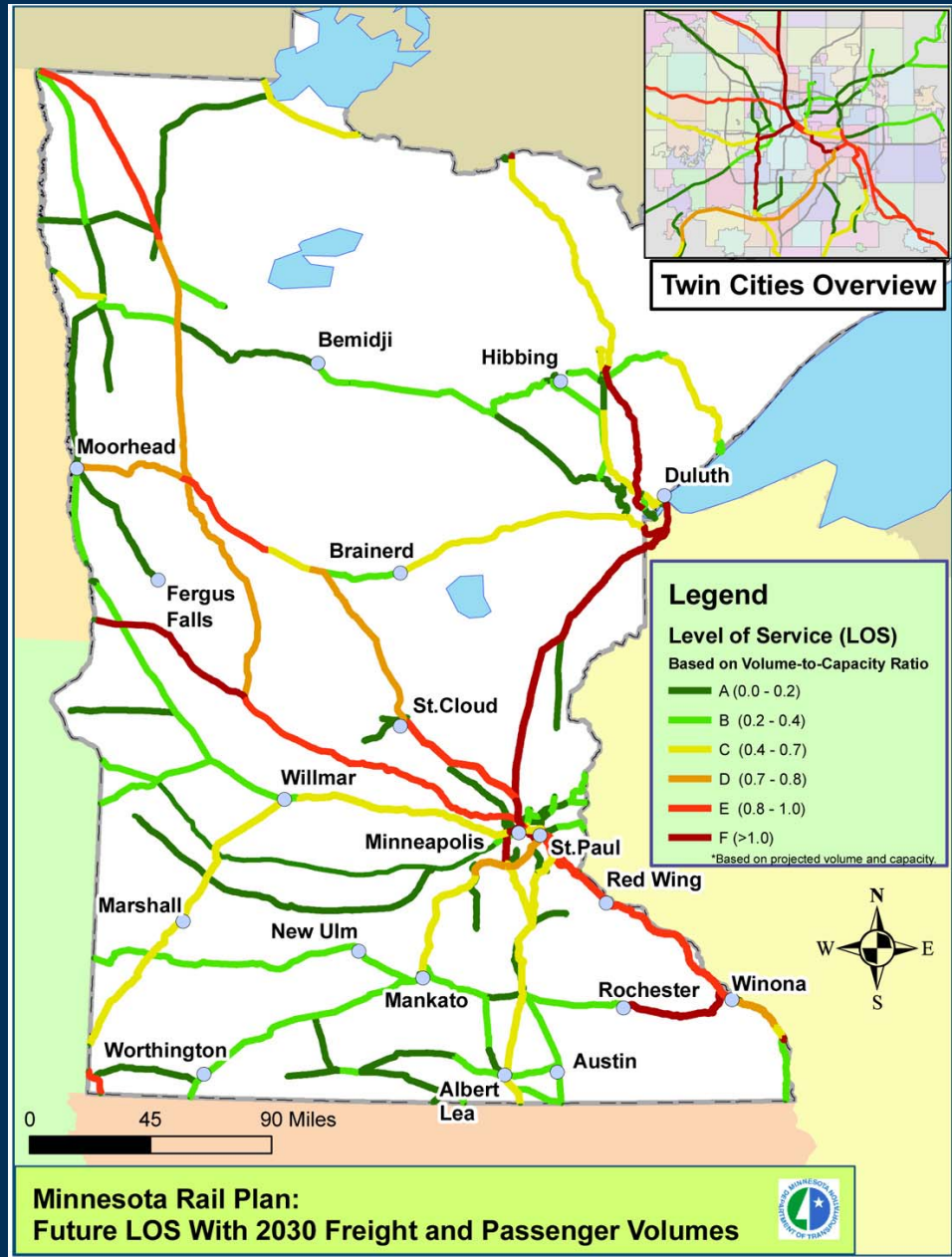


2009 Freight LOS Without Improvements



Minnesota Rail Plan:
Current LOS With 2009 Freight and Passenger Volumes

2030 Freight and Passenger LOS Without Improvements



Minnesota Rail Plan:
Future LOS With 2030 Freight and Passenger Volumes

Rail Industry Assessment

Andreas Aeppli

Economic Structure of Railroad Industry
Class I

- Net rate of return on investment 10.17%
- STB estimated cost of capital 11.33%
- Revenue invested in capital
  - Railroads 16.7%
  - Electric utilities 11.6%
  - All U.S. manufacturers 3.5%
- U.S. investment gap of $1-2 billion annually
- Minnesota investment gap of $100 million annually

Economic Structure of Railroad Industry
Investment Strategy

- Priority is maintenance of core facilities
- Focus on long-haul high density service (“hook & haul”)
- Consolidate carload traffic at mainline centers
- Spin-off low density branch lines to ***short lines*** (or trucks)
  - High cost to upgrade track to 286K lbs compliance
  - Generally, Class I’s control rates and access

Economic Structure of Railroad Industry
Coming Changes?

- Customer base
  - Autos
  - International trade
  - Coal
- Economic regulation
- Modal economics
- Overall traffic growth expected, reduced margins

Rail Vision & Program

Marc Cutler and Andreas Aeppli

Freight Vision

- Rail is a critical part of the state's multimodal freight system, and provides connections to key markets beyond the state
- Many of the state's major industries rely on freight rail
- A strong rail system supports
  - Economic development
  - Environmental sustainability
  - Preservation of the publicly owned roadway infrastructure
  - Business marketability of the State
- ***Therefore, Minnesota should strive to develop a balanced multimodal freight system which can respond to increased regional and international economic competition, constrained highway capacity, environmental challenges, a diverse customer base and rising energy costs***

Passenger Vision

- **Forecast population and employment growth in the state will continue to increase demand on the state's highway system**
- **Availability of Federal funds for rail investment creates a unique opportunity**
- **Macro and global economic and environmental trends are likely to increase fuel costs and impose controls on greenhouse gas emission**
- ***Therefore, Minnesota should develop a robust intra- and interstate intercity passenger rail system which results in improved travel options, costs, and speeds for Minnesota and interstate travelers***

Accomplishing the Passenger Vision

- Continue to participate in the MWRRI and support development of 110 mph service for connections from the Twin Cities to Wisconsin and Chicago Hub Network
- Develop an intrastate (Twin Cities regional) intercity passenger rail network connecting the Twin Cities with viable service to major outlying regional centers
  - Initial start-up as stand-alone projects, coordinated as part of a larger integrated regional/national system
  - Use interchangeable and interoperable equipment
  - Coordinate with local transit services
  - Achieve minimum speeds of 79 mph with goal of 90 mph

Accomplishing the Passenger Vision (continued)

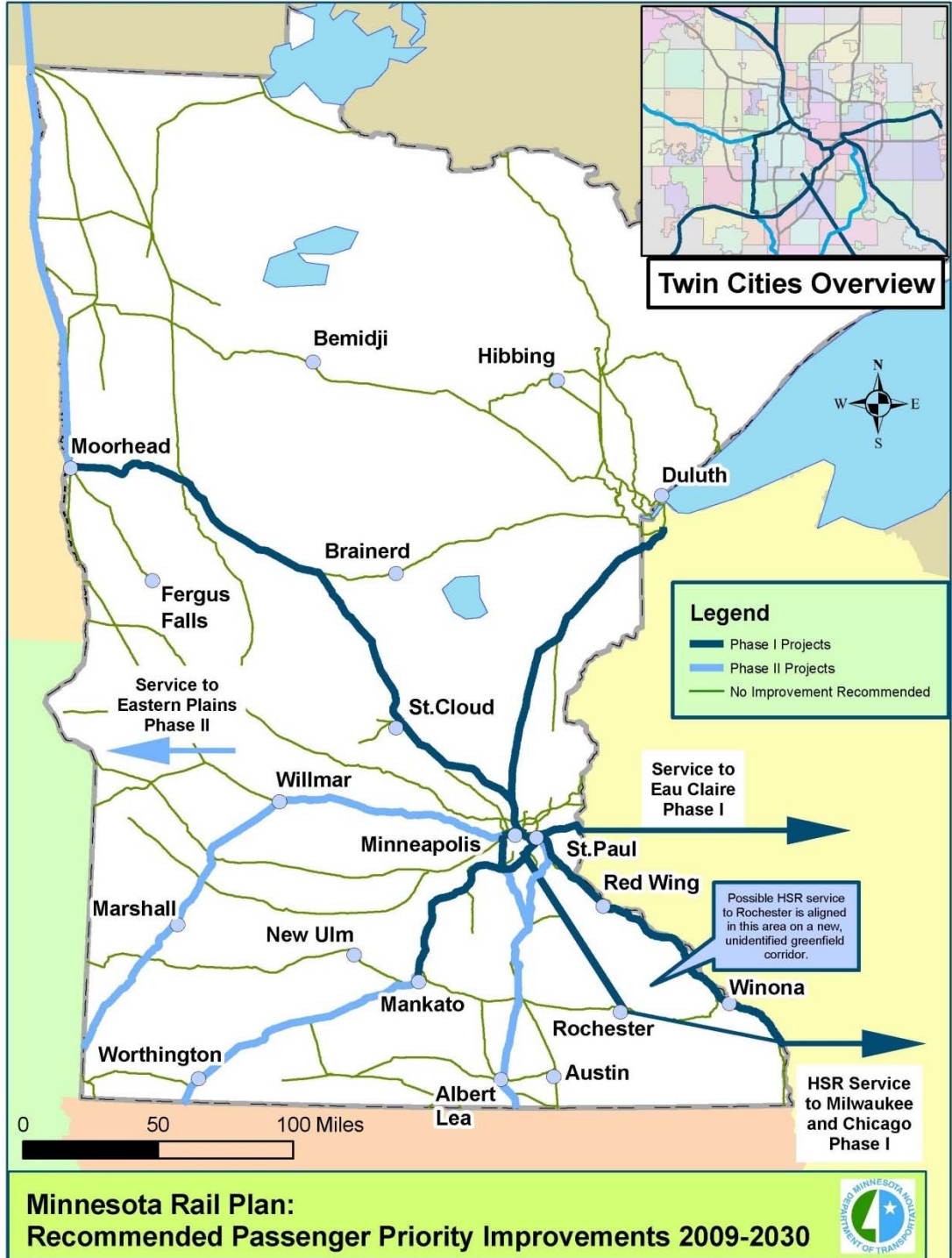
- Goal of 110-150 mph depending on market and track conditions
- Use existing freight track where feasible, new track where necessary

- All services should ultimately connect to both the new Minneapolis downtown terminal and St. Paul Union Depot
- Corridors should be advanced incrementally to build ridership and system advantages, leaving open all future options for viable improvements – stand-alone branches, through routes, new alignments, potential airport connections, and true HSR

Accomplishing the Passenger Vision (continued)

- Projects should advance simultaneously with MnDOT's support; sequencing depending on financing, ROW acquisition and agreements with freight RRs
- In Phase II, rail connections should be established to additional intercity/commuter markets in Minnesota and Wisconsin, and to an Interstate I-35 corridor, Red River Valley, Eastern plains, and Canada

Priority Passenger Rail Needs
Preliminary Draft



Priority Program Elements/Key Needs

- High speed rail to Chicago, Duluth, and Rochester
  - Upgrade/develop corridors to Class 6 conditions
- Enhanced conventional rail to St. Cloud, Mankato, Fargo, Eau Claire and between the Twin Cities
  - Upgrade corridors to Class 4 conditions
- Positive Train Control (PTC) on all shared corridors
- Grade crossing upgrades on all shared corridors
- Upgrade major junctions and bridges

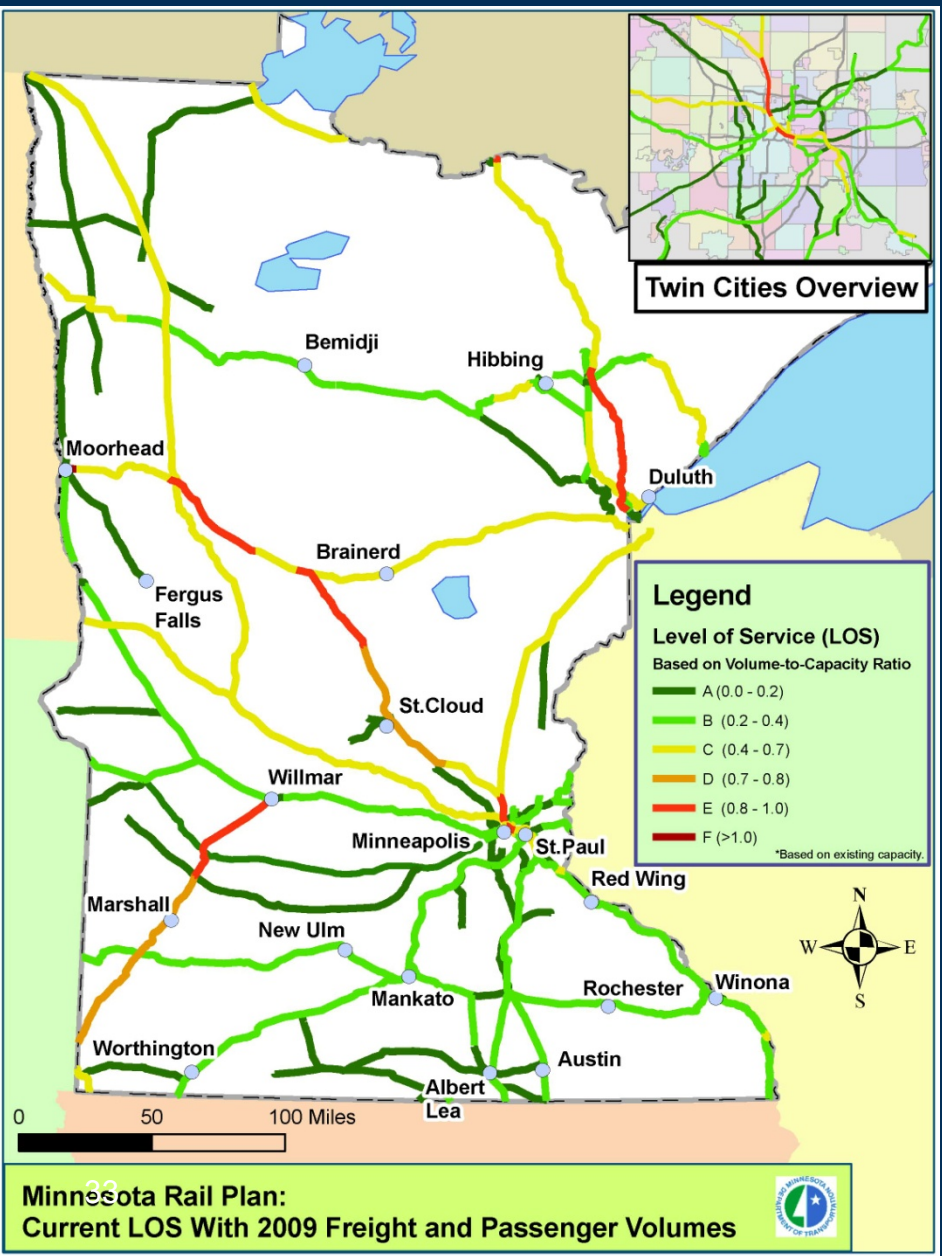
Priority Program Elements/Key Needs (continued)
Preliminary Draft

- All rail upgraded to 286,000 pound capacity
- Programmed upgrades of all active warning devices and signs
- Additional intermodal facilities
- Shortline bridge upgrades

Improvement Scenarios Analyzed and Shown

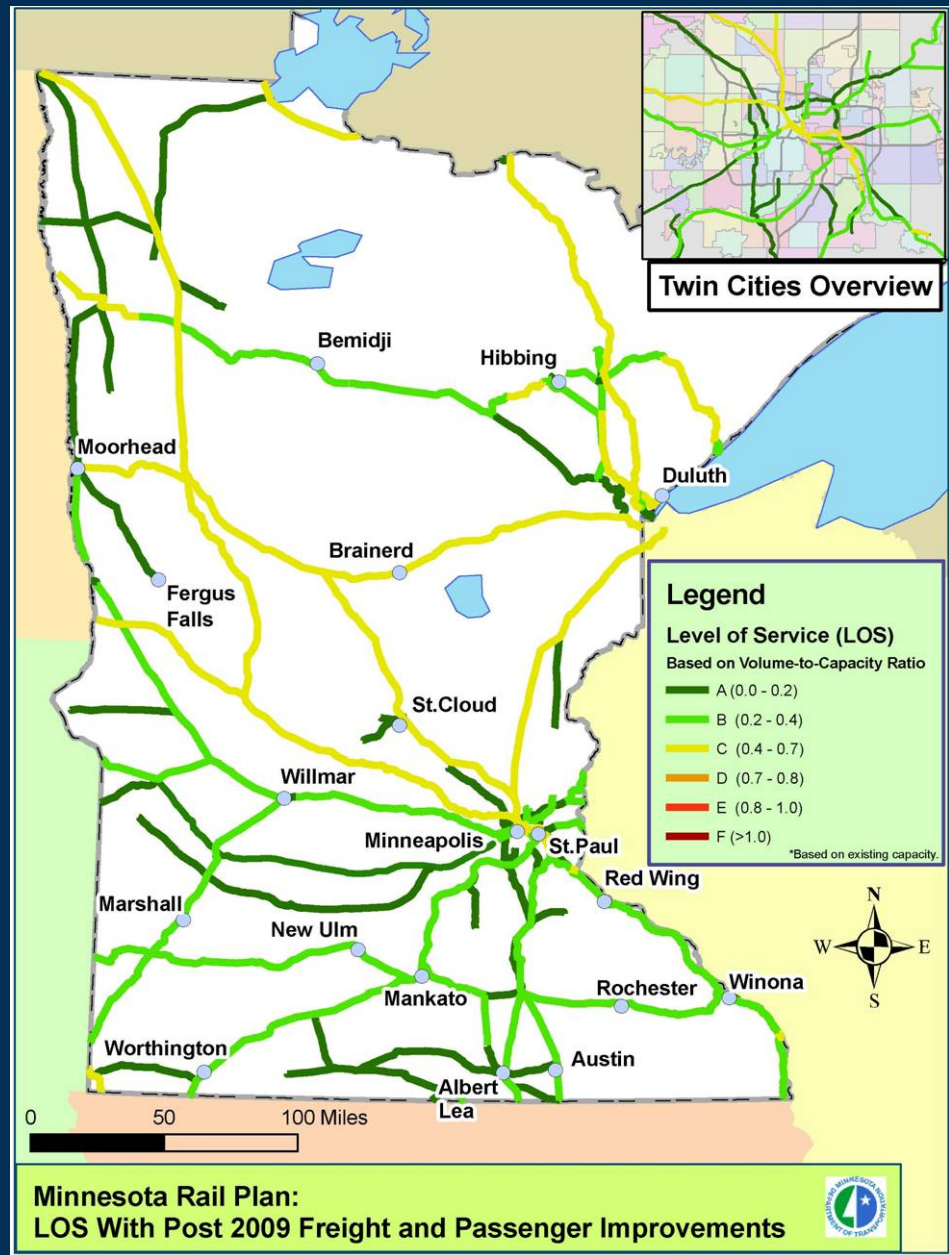
- 2009 Freight-only LOS
- 2030 Freight-only LOS with 2009 passenger volumes
- 2009 Freight/Passenger shared corridors
- 2030 Freight/Passenger shared corridors with 2009 passenger volumes
- 2030 Freight/Passenger shared corridors with 2030 passenger volumes

2009 Freight LOS Without Improvements



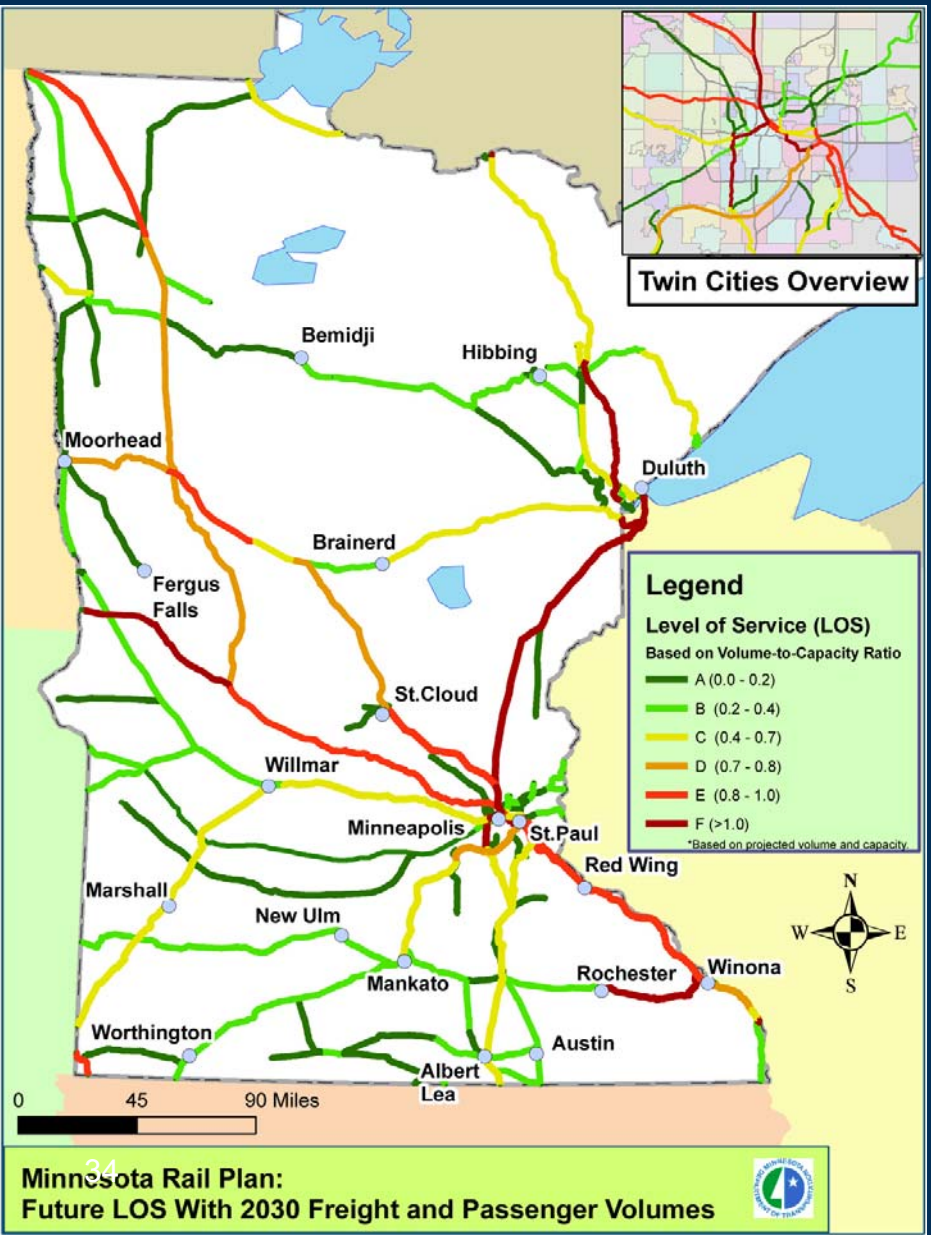
Minnesota Rail Plan:
Current LOS With 2009 Freight and Passenger Volumes

2009 Freight LOS With Improvements



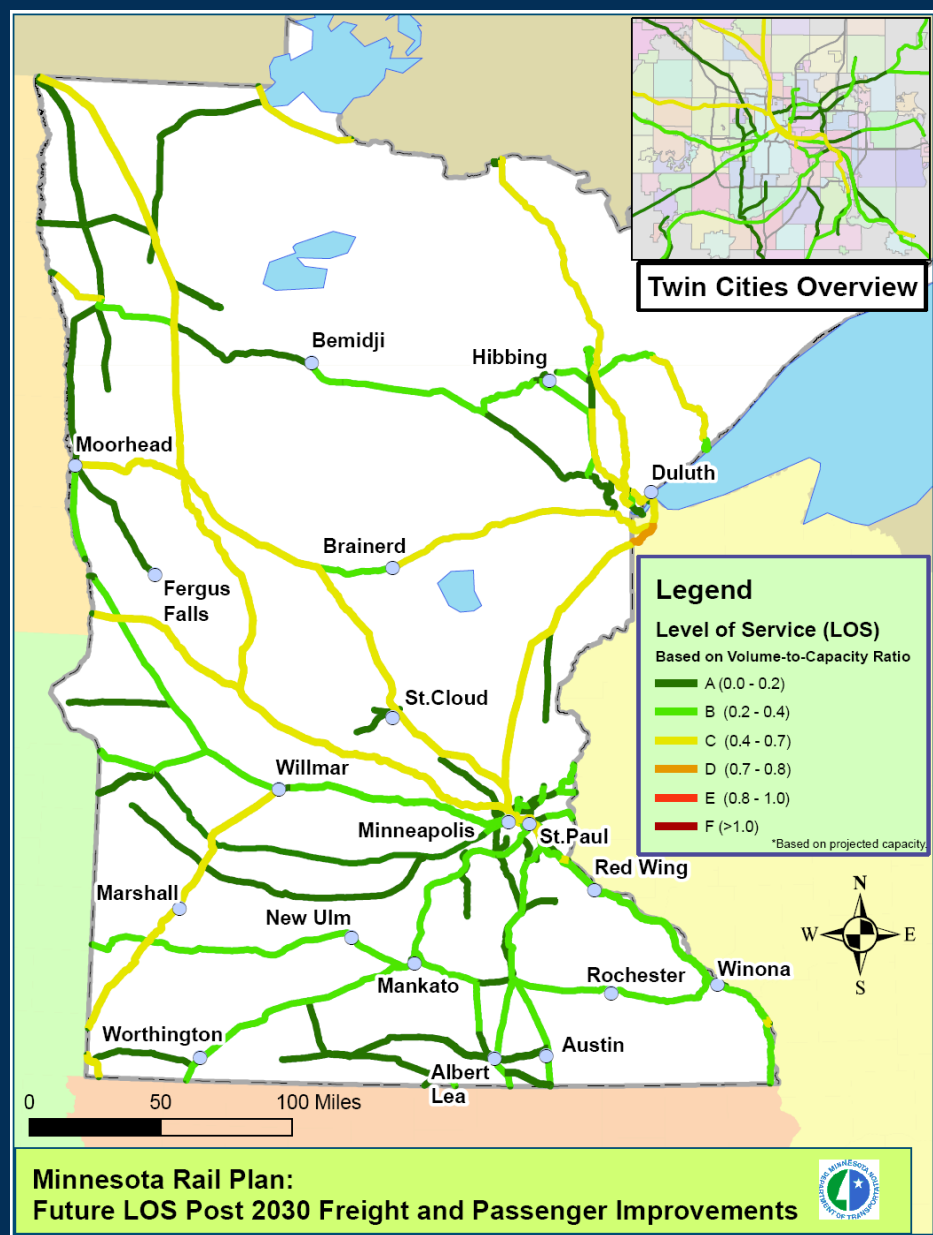
Minnesota Rail Plan:
LOS With Post 2009 Freight and Passenger Improvements

2030 Freight and Passenger LOS Without Improvements



Minnesota Rail Plan:
Future LOS With 2030 Freight and Passenger Volumes

2030 Freight and Passenger LOS With Improvements



Minnesota Rail Plan:
Future LOS Post 2030 Freight and Passenger Improvements

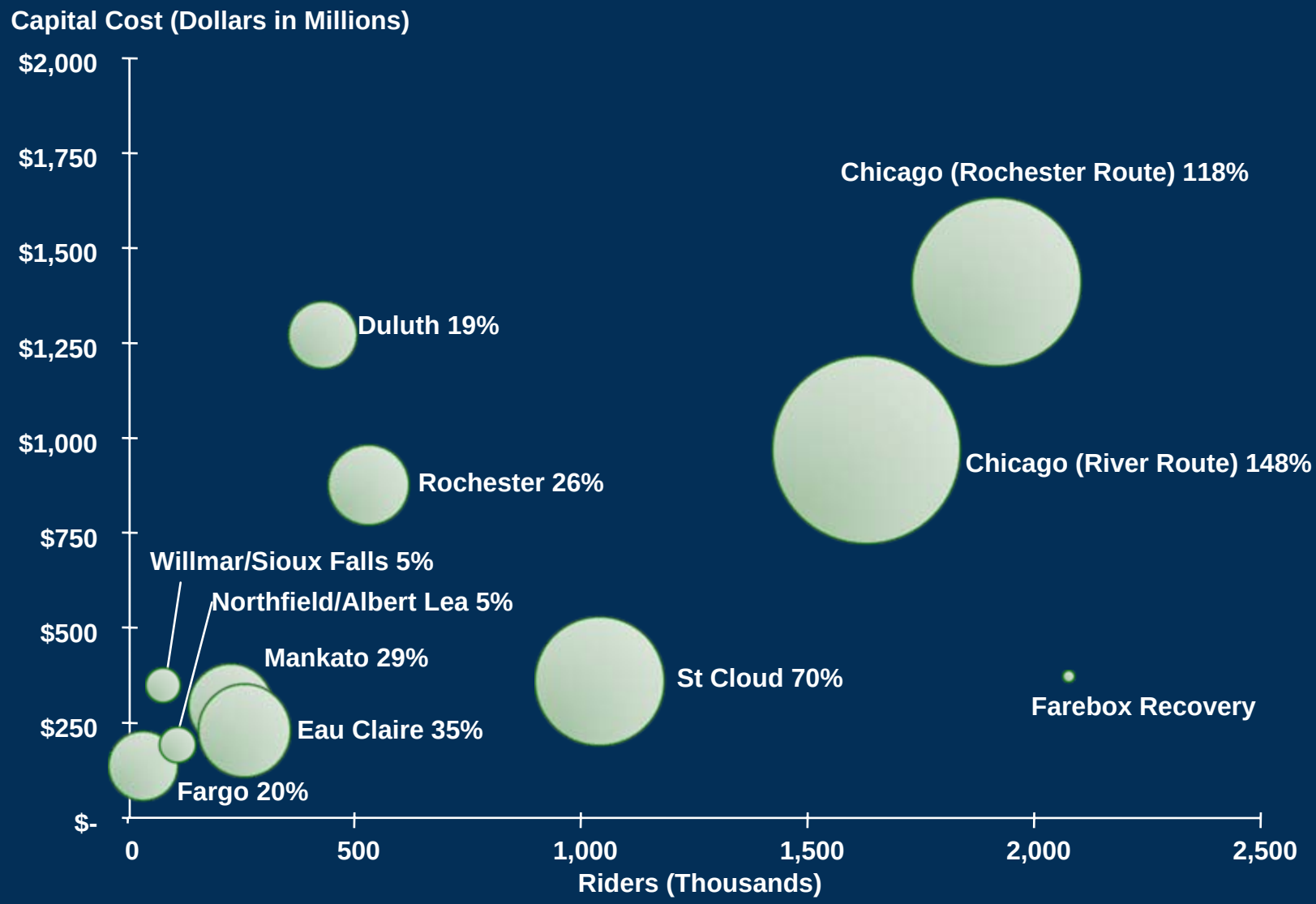
Draft 20 Year Program Summary

- **All freight-only improvement needs = $5.1 Billion**
- **All passenger and shared passenger/freight improvement needs *as individual projects* = $9.3 Billion**
- **All passenger and shared passenger/freight improvement needs *as a system* = $7.1 Billion**
- **All passenger and shared passenger/freight improvement needs *on the priority system* = $6.2 Billion**
- **TOTAL PROGRAM COSTS = $11.3 Billion**

Passenger-Specific Investments
Infrastructure and ROW/Trackage Rights ($M)

Corridor	Capital $	O&M	Revenue	Farebox%
St Cloud	218	23	16	70%
Fargo	120	10	2	20%
Eau Claire	156	15	5	35%
Mankato	223	14	4	29%
Willmar	276	40	2	5%
Albert Lea	119	19	1	5%
Duluth	990	51	10	19%
Rochester	596	30	8	26%
Chicago via River	689	43	63	148%
Chicago via Rochester	1130	54	63	118%

Summary of Passenger Route Performance



Summary of Passenger System Performance
High Priority Corridors

Train Miles (annual)	3,700,000
Ridership (annual)	4,157,000
Avg. Passengers/Train	154
Avg. Passenger/Train Mile	1.1
VMT savings (millions per year)	489
GHG reduced (tons per year)	318
Greater MN population with access by county or MPO of station	1 million (41%)

Summary of Passenger System Performance
Millions of Dollars Annually

O&M	$188
Revenue	$108
Subsidy	$80
Farebox recovery	57%
Operating subsidy/rider	$19

System Metrics versus National Performance

- Passengers per train mile compare favorably to national experience
- Farebox recovery ratios at the high end compare favorably
- Operating subsidies overall per passenger are at high end
- Total VMT reduction is about 1% of current statewide total

Program Implementation

Allan Rutter

Funding Principles

- More than one actor
  - State is not the only party making investments in plan
- More than one method
  - A variety of financial tools will be necessary to implement Plan
- More than one year
  - Investments will be made during 20-year plan horizon

State Rail Investment Fund

- Create dedicated state revenue sources to create three funding pools
  - Set aside revenue stream to support revenue bonds for state shares of capital costs for passenger rail corridors (separate from GO bonds for state capital budget)
  - Annual support
    - Operating assistance for passenger rail services
    - Annual support for freight rail system
    - Provide state credit assistance (state loan funds, access to Federal capital)
  - Revolving study fund for planning, feasibility, environmental studies (refund study costs as part of state bonds when issued for corridor capital costs)

State Passenger Rail Investment Process

- Creation of state travel demand model on which to base all ridership and revenue estimates for corridor investments
- Analysis of public/private benefit/cost allocation for each passenger rail corridor
- Third party due diligence of each corridor investment
  - Clarify capital/operating costs, revenues, financial plan, project management plan
  - Will better position corridors for FRA grants
  - Mn/DOT analysis, Legislative review/acceptance

State Share of Passenger Rail Investments
Assumptions/Recommendations

- **Limit state funding of operating subsidies**
  - State would pay no more than 25% of total O&M costs
  - Overall state-supported Amtrak corridors generate revenues that cover more than 85% of costs
  - This would reduce annual operating subsidy of Phase I corridors from $80M to $42M-45M
- **Assume equal capital cost share of freight investments in shared corridors**
  - Actual state capital costs will depend on benefit/cost allocation with freight rail owner
- **State pays for passenger related capital costs**

Possible Annualized Capital Costs of Shared Corridor Freight Improvements ($M)

	Phase I Corridors
Freight Capital Costs	2,887.5
Possible 50% State Share	1,443.8
Passenger Infrastructure Costs	2,302.1
Total State Infrastructure Costs	3,745.9
Possible Annual Debt Service	300.6

Public Share of Passenger Rail Investments
Assumptions/Recommendations (continued)

- **Rolling stock costs for each corridor**
  - Rolling stock cost estimates are corridor-specific
  - Sharing rolling stock across corridors would reduce total number of vehicles needed
  - Purchasing rolling stock through pooled equipment procurement with other MWRRI states would also reduce costs
- **Capacity access charges**
  - Estimated cost of passenger access to freight rail lines
  - Assumed cost of access regardless of passenger rail operator

Provide Passenger Rail Services Through Corridor Operating Contract

- Includes cost of rolling stock, capacity access, and O&M
- Purchasing/negotiating passenger rail service by corridor (speed, service characteristics, frequencies)
- Similar to international HSR experience
- Could be done for acquiring service through Amtrak or another private operator
- Analogous to availability payments in transit service
- Transfers revenue risk to operator

Possible Annual Costs for Phase I Corridors ($M)

		Phase I Corridors
A	Rolling Stock Cost	1,218.0
B	Capacity Rights	637.3
C	Annual Payments (A+B)	129.0
D	O&M Amount	187.8
E	25% State Share	47.0
	Annual Payment for Passenger Service (C+E)	176.0

Total Annual Public Rail Investments

Freight system needs	$100 M
Freight improvements in shared corridors	$300 M
Operating costs for passenger service	$175 M
Total annual costs	**$575 M**

Institutional Strategies

- Today
  - Mn/DOT
  - Regional Railroad Authorities
  - Joint Powers Boards
  - MWRRI
- Options for the Future
  - Coordinating Committee (Passenger Rail Forum)
  - Multiple-jurisdictional Commissions
  - Rail Division – Mn/DOT
  - Separate Rail Agency
  - Multi-state Compacts

Next Steps

Marc Cutler

Remaining Tasks

- Task 9 – Funding and Programming – November
- Task 11 – Final Report – end of year

Additional Outreach Activities
Tentative

Three informational open houses	Jan 1-15
Final draft report presented to legislative committees	Jan 1-15
Formal public hearing	Jan 20
Commissioner adopts plan	Jan 25
Plan delivered to FRA and legislature	Feb 3
High Speed Rail Forum	Feb-Mar

Discussion