Minnesota Comprehensive Statewide Freight and Passenger Rail Plan

Passenger Technical Advisory Committee

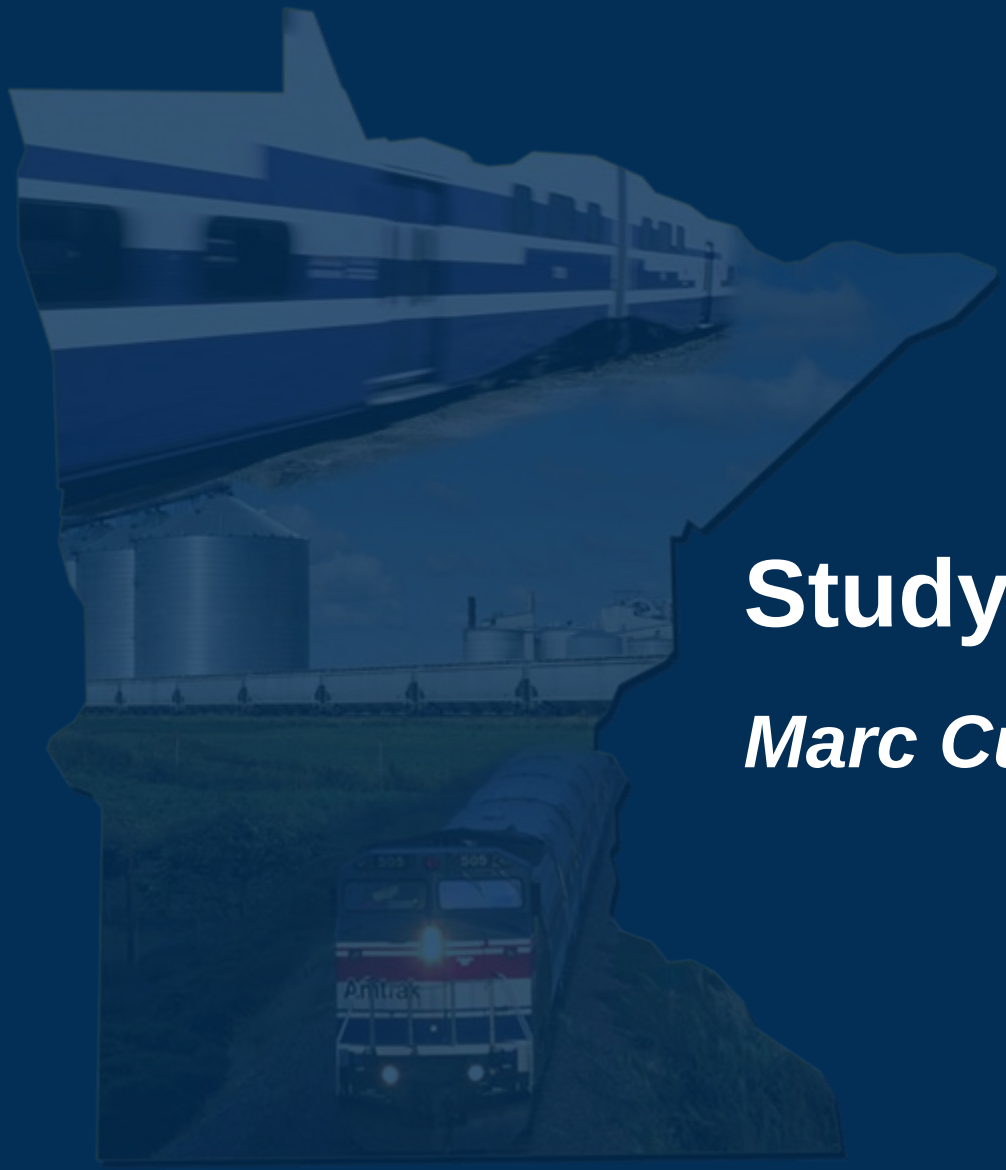
August 13, 2009

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

CAMBRIDGE SYSTEMATICS

Agenda

- Introductions and Opening Comments
  - Dan Krom – Co-Project Manager, MnDOT
- Presentation on State Rail Plan, Cambridge Systematics, Inc.
  - Study Overview, Marc Cutler
  - Outreach Update, Randy Halvorson
  - Passenger Rail Demand, Marc Cutler
  - Passenger/Freight Integration, Paul Danielson
  - Performance Measures, Erika Witzke
  - Next Steps, Marc Cutler
- Discussion – Randy Halvorson



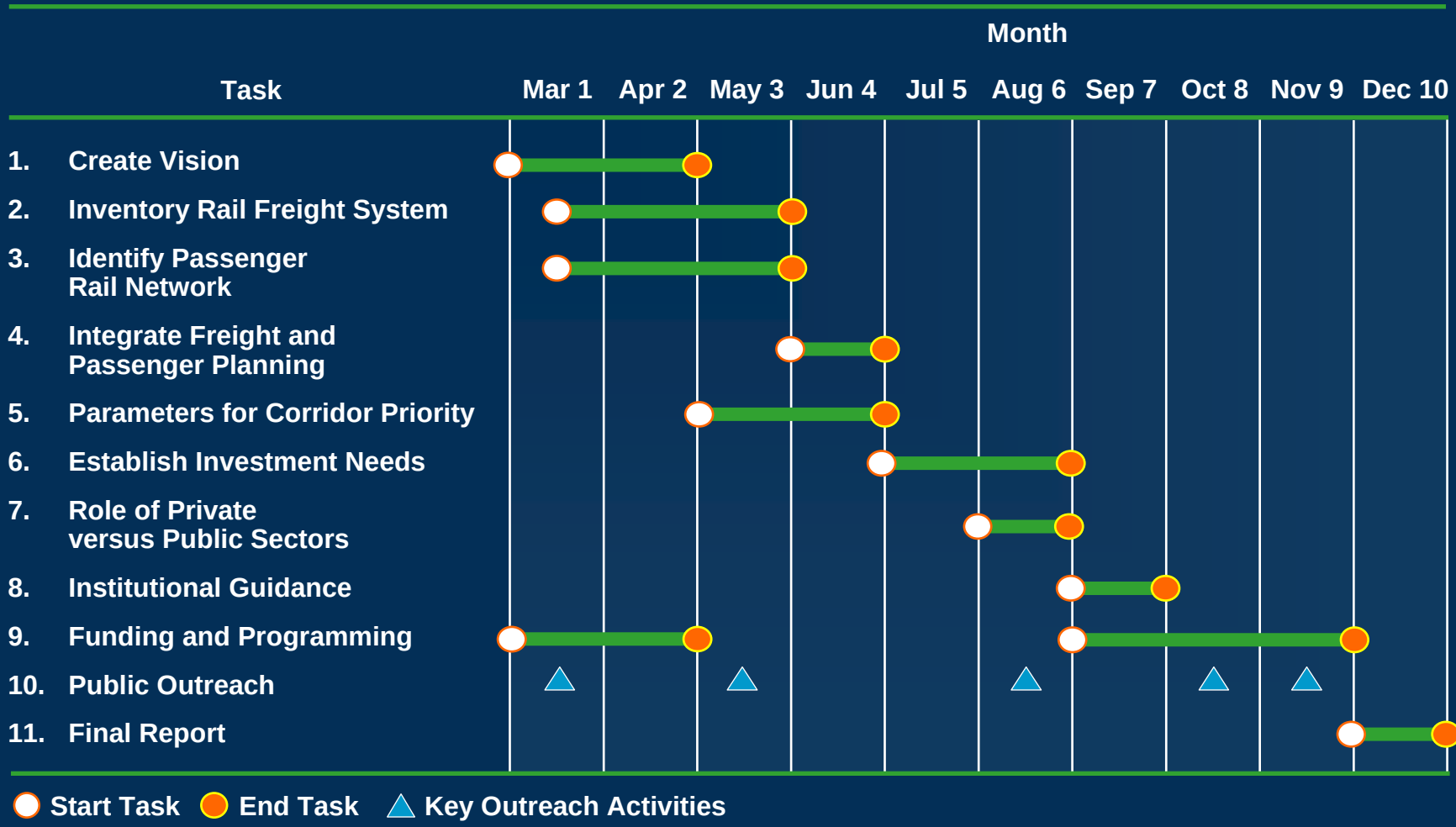
Study Overview

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

Public Outreach

Randy Halvorson, Facilitator

Outreach Activities Since Open Houses and Last PAC/TAC Meetings

- Minnesota HSR Commission – June, July, August
- Joint Meeting – St. Paul, June 26
  - Fresh Energy
  - Housing Preservation Project
  - Transit for Livable Communities
  - Growth and Justice
  - Sierra Club
  - 1,000 Friends of Minnesota
- Minnesota Regional and Shortline Railroads Annual Conference – Grand Rapids, July 12-14
- United Transportation Union (UTU) – St. Paul, July 15
- Twin Cities and Western RR – Glencoe, July 15
- Railroad shippers – West Central MN, August
- Individual stakeholder meetings

Upcoming Meeting Dates

- PAC meeting
  - November 13
- Freight and passenger TAC meetings
  - November 12
- Open houses – second round
  - October 5-15

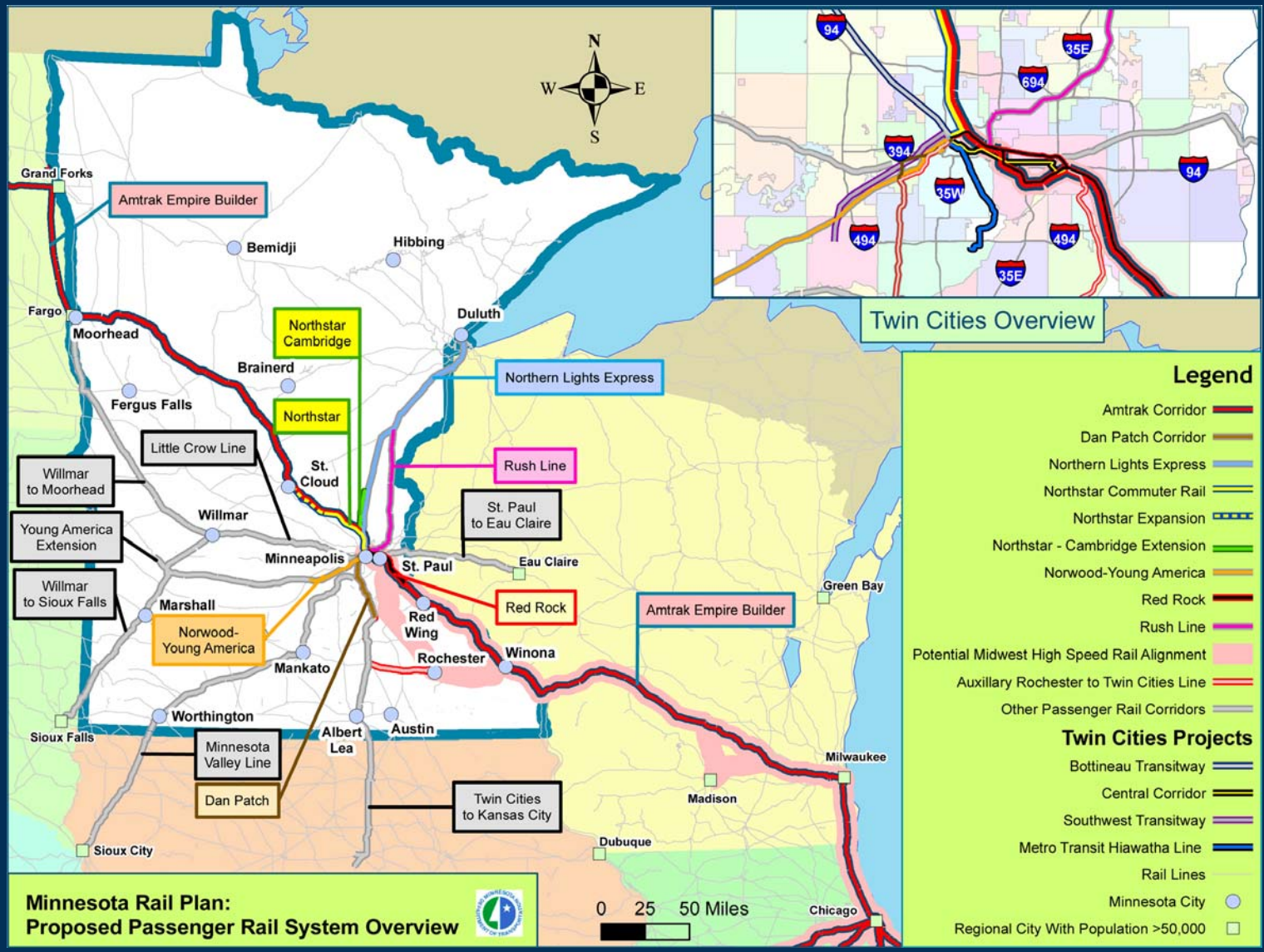
Passenger Rail Demand

Marc Cutler

Passenger Rail Corridors Studied

- Corridors that connect to the Twin Cities
- Some corridors begin with commuter rail studies
- Other corridors have been the subject of intercity passenger rail and high speed rail studies
- Still others have been suggested

Intercity Passenger Rail Corridors



Intercity Passenger Rail Corridors (continued)

Twin Cities to

- Chicago, Milwaukee, Madison (Midwest Regional Rail Initiative-MWRRI) via River Route
- Duluth, Hinckley (Northern Lights Express-NLX
- Rochester (either directly or as route of MWRRI)
- Big Lake, St. Cloud, Fargo/Moorhead
- Norwood/Young America-Montevideo
- Northfield, Des Moines, Kansas City
- Willmar, Sioux Falls

Intercity Passenger Rail Corridors (continued)

Twin Cities to

- Mankato, Sioux City
- Willmar, Fargo/Moorhead
- Northfield
- Eau Claire

Ridership Forecasting Scope

- Synthesize available information about the railroad network and passenger rail demand
- Developed spreadsheet model to analyze future (2030) baseline
  - Consistent demand analysis to integrate with other factors such as cost and capacity
  - Conservative demand assumptions
  - Apples to apples comparison
- What this is NOT
  - A substitute for full regional demand modeling
  - The last word on ridership forecasts
  - Policy direction

Ridership Forecasting Methodology

- Estimate total current (2005) demand between Twin Cities and city pairs
  - Auto
  - Air
  - Intercity Bus
  - Rail
- Estimate travel costs and distances
- Identify special generators (universities, casinos, medical centers, airports)
- Grow total demand to 2030 using agency forecasts

Ridership Forecasting Methodology (continued)

- Estimate rail ridership in 2030
  - Service frequencies 4-8 trains/day
  - Speeds of 79 mph or 110 mph (HSR)
  - Higher fares for HSR
- Conduct sensitivity analyses

Estimated Total Annual Trips (in Millions)
2005

In-State	
St. Cloud	11.0
Hinckley	5.8
Rochester	4.8
Duluth	4.3
Mankato	3.7
Willmar	1.6
Red Wing	1.0

Out of State	
Chicago	9.7
Eau Claire	5.8
Milwaukee	4.4
Madison	4.2
Fargo	3.9
Des Moines	2.9

Forecast Annual Rail Demand – In State
2030

	Ridership (in Thousands)	Mode Share
St. Cloud	713	5.5%
Hinckley	283	4.4%
Mankato	228	5.6%
Rochester	224	3.7%
Northfield	111	5.5%
Duluth	101	2.6%

Forecast Annual Rail Demand – Out of State
2030

	Ridership (in Thousands)	Mode Share
Chicago	299	2.6%
Eau Claire	257	3.9%
Madison	83	1.7%
LaCrosse	43	1.3%

Forecast Rail Mode Share
Other City Pairs – 15 Trains/Day

	90 mph	110 mph	150 mph
SF-LA-SD	4.5%	5.8%	7.4%
Chicago Hub	7.1%	7.9%	8.3%
Chicago-Detroit	6.9%	7.6%	7.5%
Chicago-St. Louis	8.7%	10.5%	11.9%
Florida	3.4%	3.5%	3.8%
Portland-Seattle-Vancouver	6.3%	6.3%	6.6%
Texas Triangle	5.8%	8.5%	10.3%

Source: Statistical Supplement in High Speed Ground Transportation for America, FRA, 1997.

Comparing Results to Other Studies

- Model methodology and algorithms
- Level of service inputs – speed, frequency, fare
- External inputs – growth assumptions, price of gas, etc.
- Treatment of special generators
- Inclusion of intermediate O/D pairs

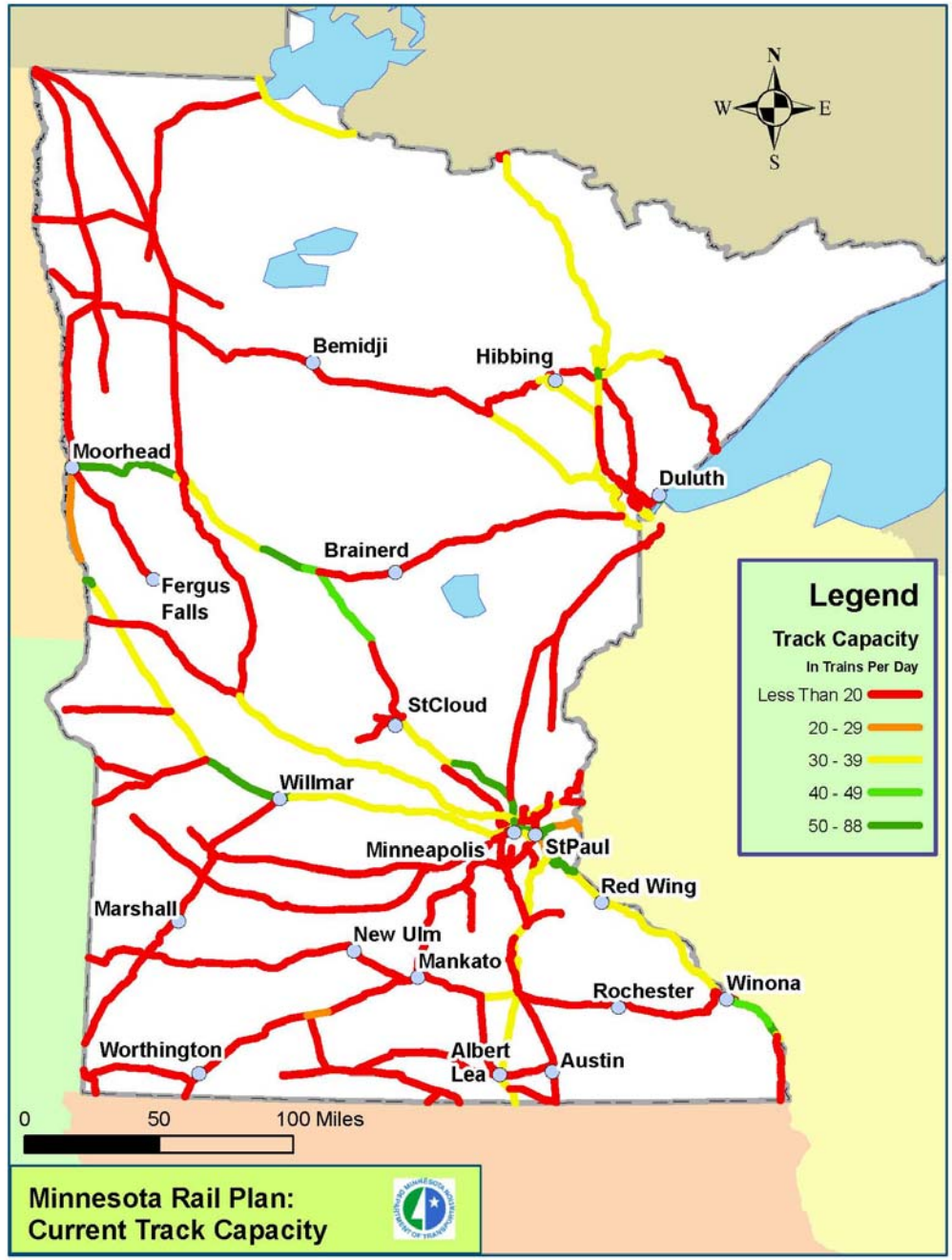
Sensitivity Tests

- Multicentered growth – does not significantly impact conclusions
- Higher overall state growth (+10%) – same as above
- Diversion of all Rochester air trips to HSR via MSP – adds 450,000 trips for a total of 700,000
- Inclusion of Superior adds 28,000 to Duluth ridership for a total of 129,000
- MWRRI via Rochester = 524,000 versus 387,000 via River Route
- Doubling of gas prices = doubling of ridership

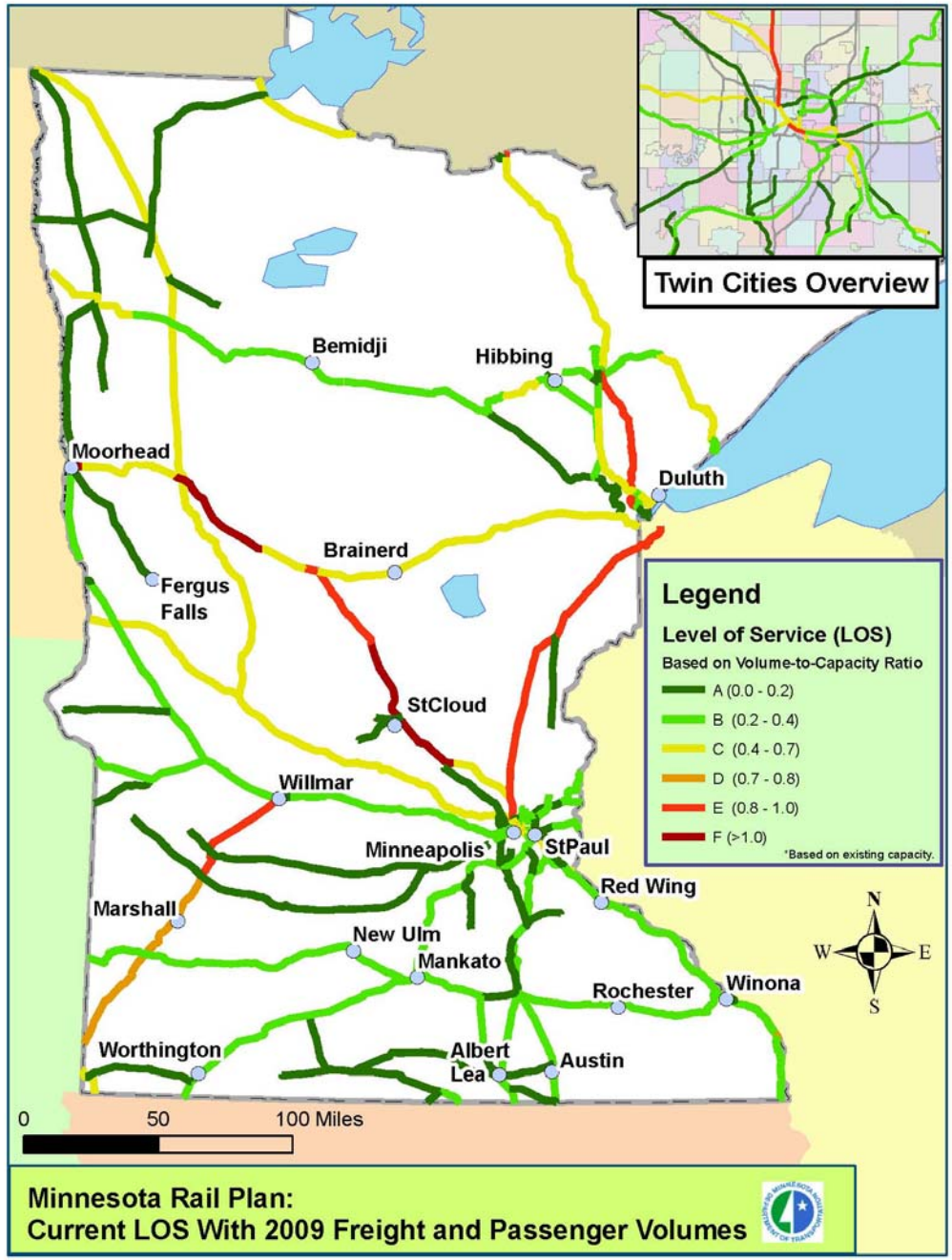
Passenger/Freight Integration

Paul Danielson

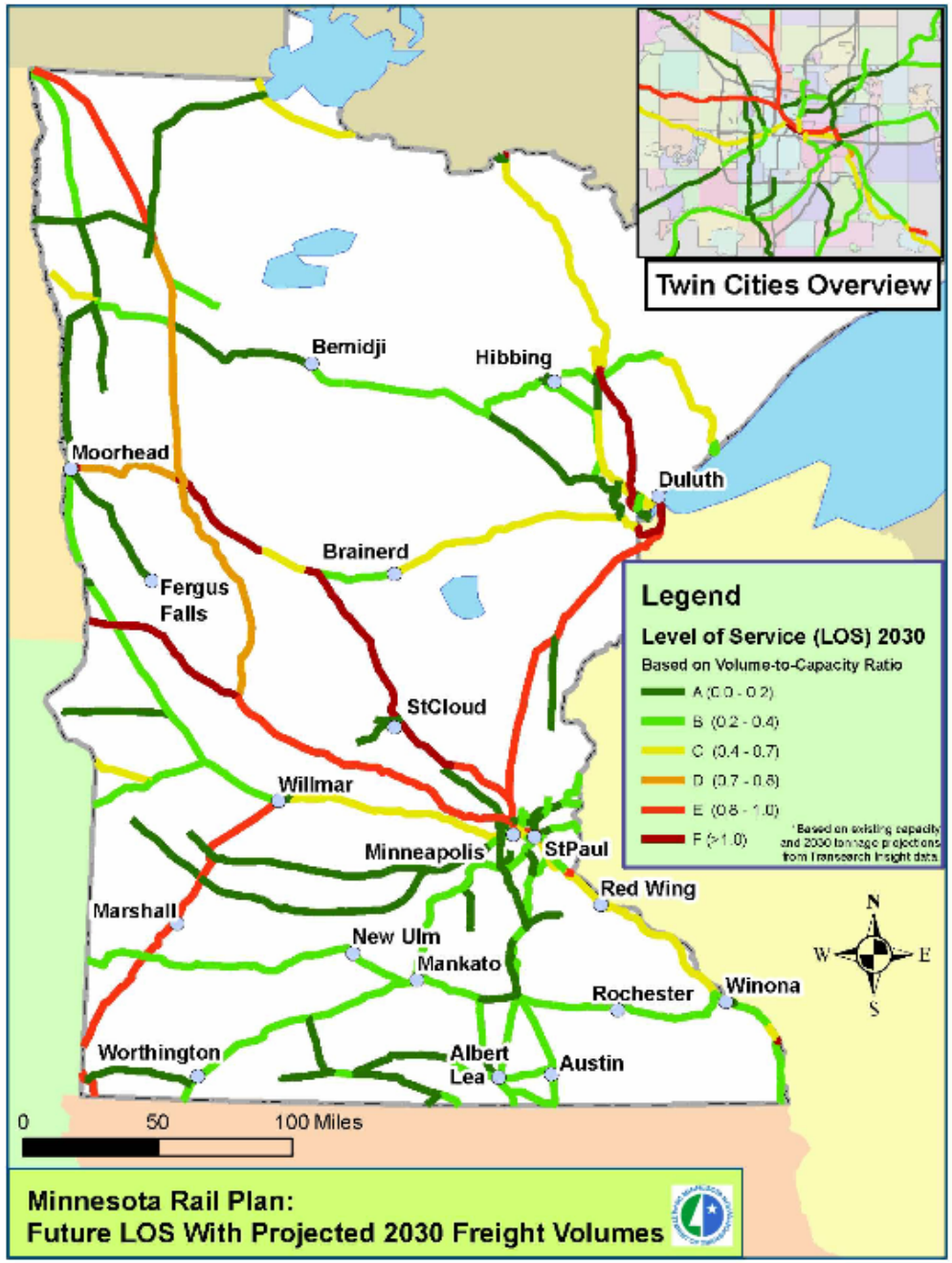
Passenger/ Freight Integration
Track Capacity



Passenger/ Freight Integration
Current LOS



Passenger/ Freight Integration
Future LOS



Passenger/Freight Integration
PTC

- The Rail Safety Improvement Act of 2008 requires widespread installation of Positive Train Control (PTC) systems by 2015 for all Class I railroads and those entities providing regularly scheduled intercity or commuter rail passenger service.
- PTC systems utilize integrated command, control, communications, and information systems technologies to prevent train-to-train collisions, casualties to roadway workers and damage to their equipment, and overspeed derailments.
- The systems can vary in complexity and sophistication.

Passenger/Freight Integration
Corridor Conditions – Tier I

Corridor	Potential Ridership	Track Condition	Available Capacity
Coon Rapids – Big Lake	High	Good	Medium
Big Lake – St. Cloud	High	Good	Low
Minneapolis – Willmar	Medium	Fair	High
Minneapolis – St. Paul (BNSF)	High	Fair	Medium
Minneapolis – St. Paul (CP)	High	Fair	Medium
St. Paul – Hastings	High	Fair	High
Hastings – Winona	High	Fair	High
St. Paul – Northfield	Medium	Fair	High
Northfield – Albert Lea (Kansas City)	Low	Good	High
Minneapolis – Mankato	Medium	Fair	High
St. Paul – Eau Claire, WI	Medium	Fair	High

Passenger/Freight Integration
Corridor Conditions – Tier II

Corridor	Potential Ridership	Track Condition	Available Capacity
Minneapolis – Coon Rapids	High	Fair	Low
St. Cloud – Fargo/Moorhead	Medium	Good	Low
Coon Rapids – Cambridge	Medium	Good	Low
Willmar – Fargo/Moorhead	Low	Fair	High
Willmar – Sioux Falls, SD	Low	Good	Medium
Mankato – Worthington (Sioux City)	Low	Fair	High

Passenger/Freight Integration
Corridor Conditions – Tier III

Corridor	Potential Ridership	Track Condition	Available Capacity
Cambridge – Duluth	Medium	Fair	Low
Rochester – Owatonna – St. Paul	Low	Fair	High
Rochester – Owatonna – Minneapolis	Low	Poor	High
Rochester – Winona	Low	Poor	High
Minneapolis – Norwood/Young America	Low	Poor	High
Norwood/Young America – Montevideo	Low	Poor	High

Performance Measures

Erika Witzke

Performance Measures
Methodology

- Identified relevant topics/issues for evaluation
- Reviewed planning efforts by MnDOT
- Literature search on other DOTs, Amtrak, other rail operators, FRA efforts
- Assembled separate measures for freight and passenger rail
- Developed common list of performance measures

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 & Security – at-grade crossings, hazmat
- Environmental – positive and negative impacts of construction and operations
- Financial/Economic – Capital costs, operations, taxes, jobs, economic development, cost/benefit comparisons

Developing Criteria for Public Rail Investment

- Acceptable Cost versus Public Benefits
- Ability of private sector to contribute to project funding
- Significant Utility – Good Ridership, New Service Access
- Addresses a Verified Need – Accommodates new passenger service, freight growth, or corrects bottleneck
- Exhibits Multiple Benefits – combination of intercity passenger, local/commuter, and freight operations and capacity
- Contributes to State's Priorities – Environmental and green growth goals, reduced energy use, safety, enhanced land use, improved travel options, life style and competitiveness
- Timeliness of Implementation

Next Steps

Marc Cutler

Phase IV Tasks

- Task 6 – Establish Investment Needs
  - Estimate benefits versus performance measures
  - Estimate high-level costs
- Task 7 – Determine Public versus Private Sector Roles
- Task 8 – Provide Public Sector Institutional Guidance
- Task 9 – Funding and Programming
- Task 10 – Outreach
  - Second round of Open Houses – Oct
  - Final PAC/TAC meetings – Nov

Discussion

Randy Halvorson, Facilitator