

**SOUTHWEST**

Green Line LRT Extension



# Metropolitan Council Town Hall Community Meetings

February, 2014



# Today's Topics

- Welcome, Introductions and Meeting Overview
- Draft Reports
  - Water Resources Evaluation
    - Q&A
  - Freight Rail Relocation Analysis
    - Q&A
- General Project Q&A
- How to Comment/Next Steps



# Water Resources

# Southwest Light Rail Transit: Kenilworth Shallow LRT Tunnels Water Resources Evaluation

**DRAFT**

Della Schall Young, PMP, CPESC, ENV SP

Jeffrey J Thuma, PG

- Serving Minnesota since 1913
- 4,300 Employee Owners (EOs)
- 75 Local EOs

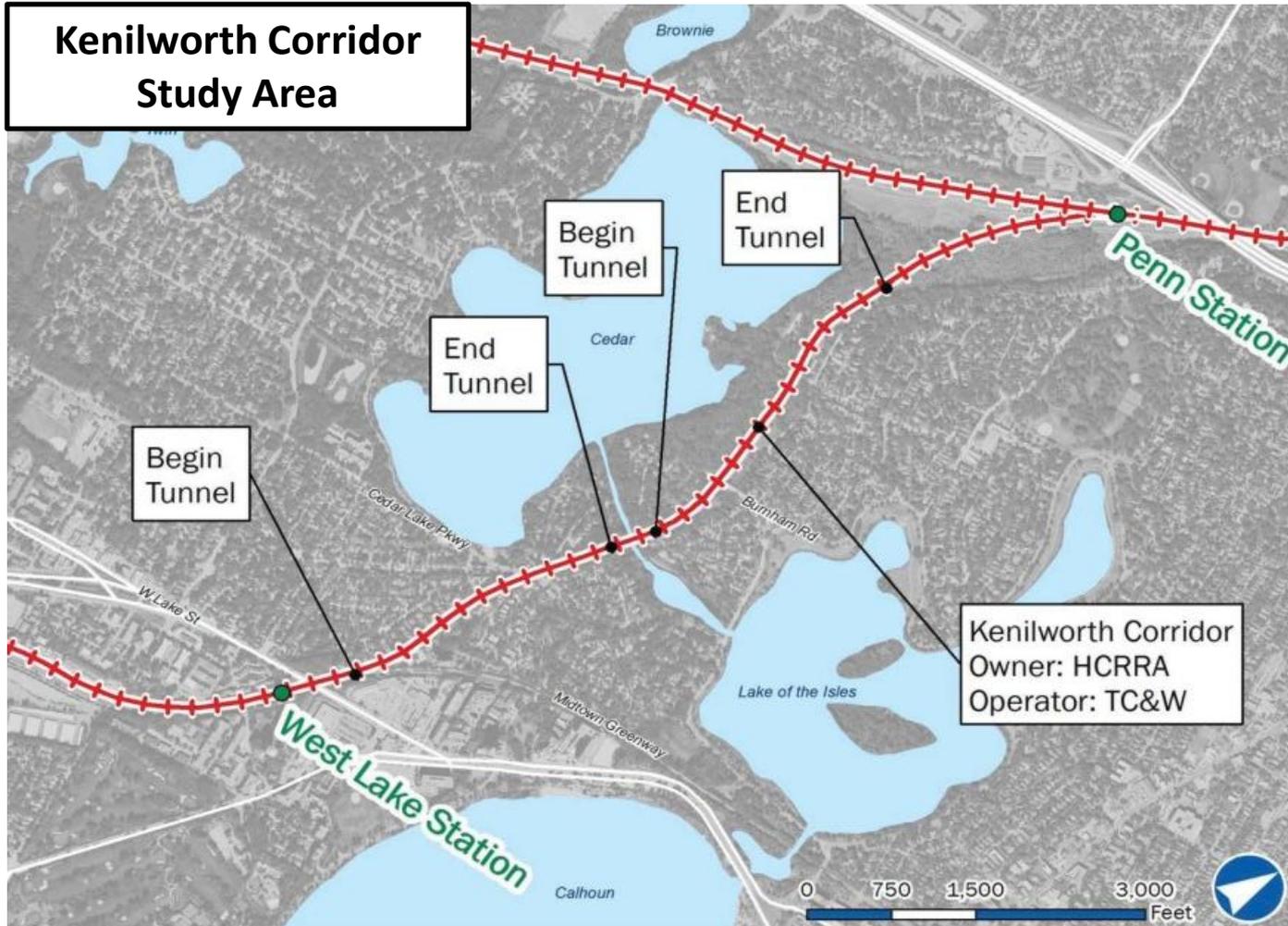


Bloomington, MN Office



**FORTUNE**  
**100**  
**BEST**  
**COMPANIES**  
**TO WORK FOR**  
2014

- Background
  - Scope
  - Team
  - Project Understanding
- Approach
- Evaluation/Key Findings
- Recommendations



- Conduct an independent engineering evaluation and technical review
  - Kenilworth Shallow LRT Tunnel Basis of Design Report – Draft (BODR)
  - September 4, 2013 SWLRT Project Office (SPO) letter to Minnehaha Creek Watershed District (MCWD)
  - September 10, 2013 MCWD response letter to SPO
  - September 9, 2013 Wenck Associates, Inc., letter to MCWD
  - SWLRT Water Resources Monitoring Program (WMP)
  - Phase I Environmental Site Assessment

- Address the following:
  - Potential Impacts to Groundwater Elevation
  - Potential Impacts to the Chain of Lakes ‘Water Budget’
  - Potential Impacts to Groundwater flow between Cedar Lake and Lake of the Isles
  - Reasonability of Leakage Rates for Permanent Sheet Piling and Waterproofing Systems
  - Reasonability of Construction and Operation Methods to Manage Water in the Project Area
  - Reasonability of the Stormwater Infiltration Design to Address the Potential of Discharging Warmer Water in the Winter
  - Any other potential Impacts to Water Resources in the area



Della Schall Young,  
PMP, CPESC, ENV SP



Jeff Thuma, PG



Pat Higgins, RG



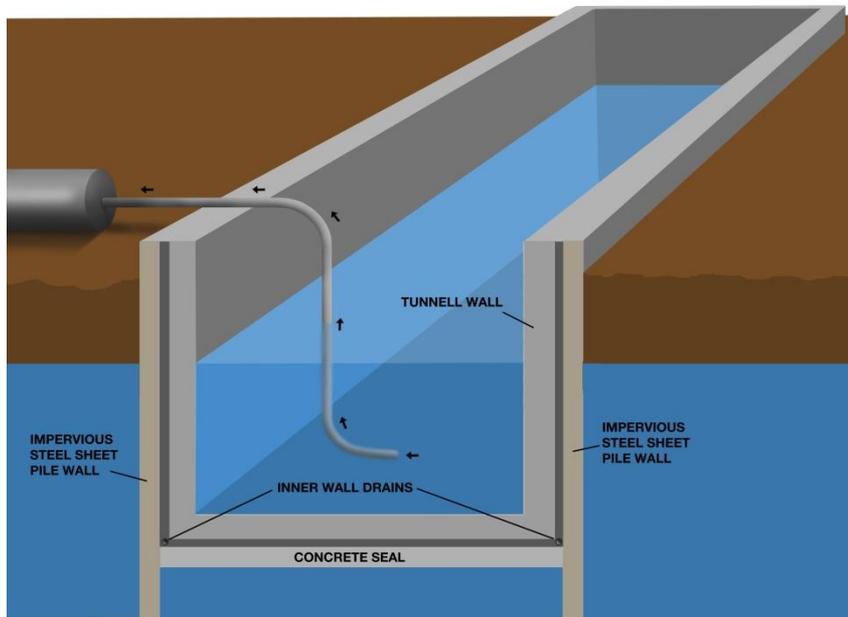
Cathy Stott, PE, PG



Rick Besancon, PE

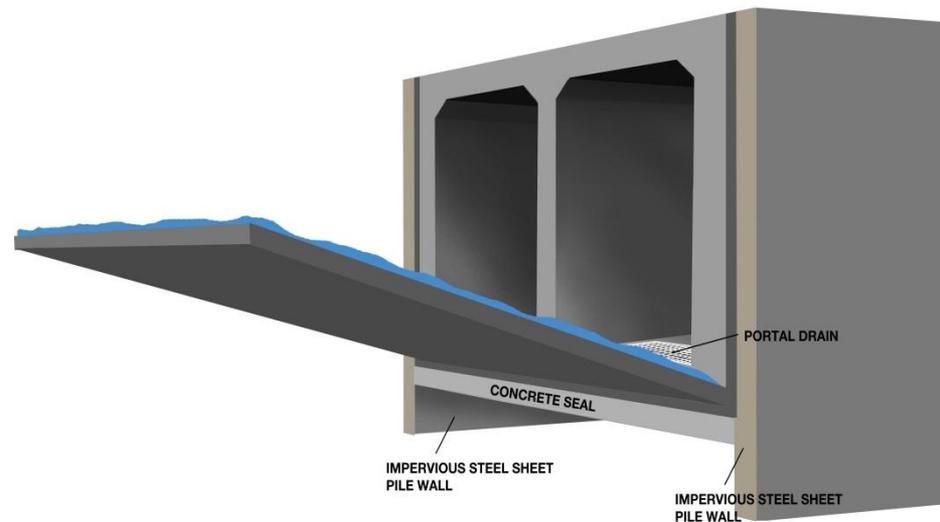


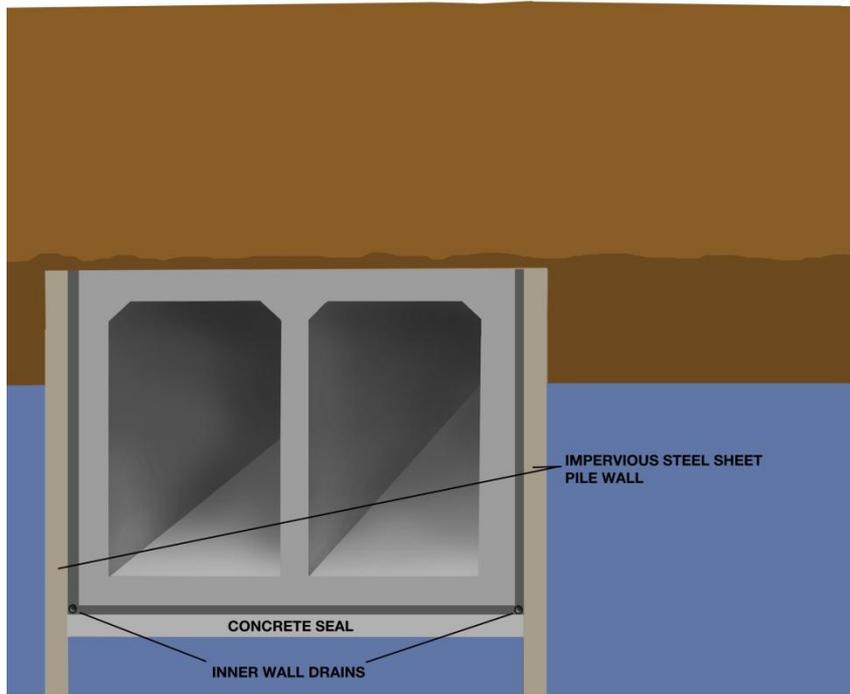
Greg Howick, PhD



- 150-foot long x 37-foot wide cells
- Impervious Steel Sheet Pile Wall
- Concrete seal at base installed prior to any pumping
- Discharges to
  - Temporary Treatment Facilities (Chain of Lakes)
  - Underground Infiltration Chambers (groundwater)

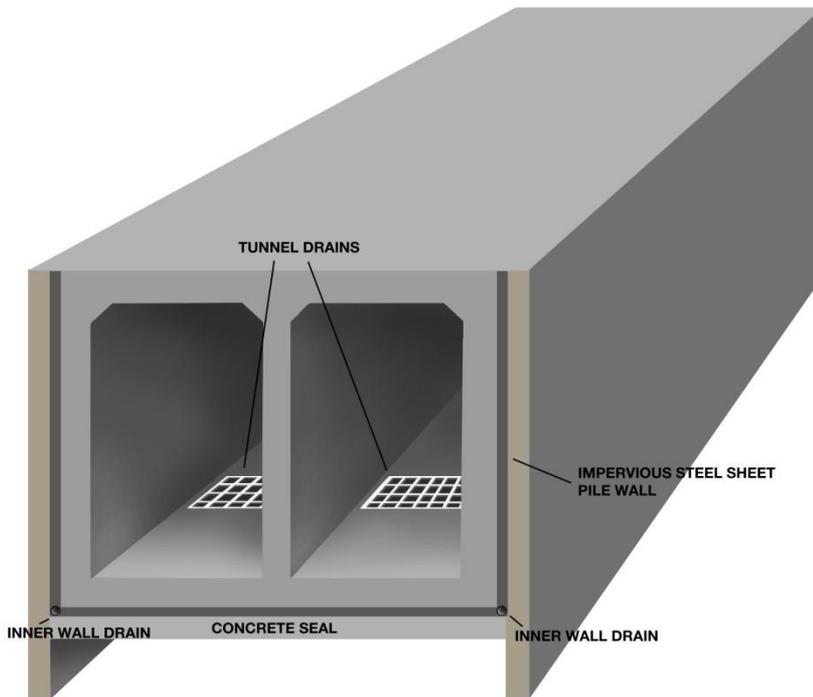
- Portal Water Control System
  - Collects stormwater and snowmelt
  - Discharges to Underground Infiltration Chambers
    - Groundwater recharge
    - Overflows to storm sewer and chain of lakes





- Inner Wall Water Control System
  - Collects groundwater that may seep through sheet pile wall and concrete seal
  - Discharges to Underground Infiltration Chamber (groundwater)

- Tunnel Water Control System
  - Collects groundwater that may seep through tunnel walls and floor, stormwater and snowmelt
  - Discharges to sanitary sewer system



- Regulatory Requirements
  - MN Department of Natural Resources (DNR)
  - MN Pollution Control Agency (MPCA)
  - Minnehaha Creek Watershed District (MCWD)
- Surface and ground water monitoring plan
  - Quantity
  - Quality
- Plan for:
  - Establishing baseline conditions
  - Detecting changes
  - Corrective action, if necessary

- Researched and Gathered Information
- Attended the following meetings:
  - Project Kick-Off Meeting –  
December 10, 2013
  - Project Technical Meeting –  
December 19, 2013

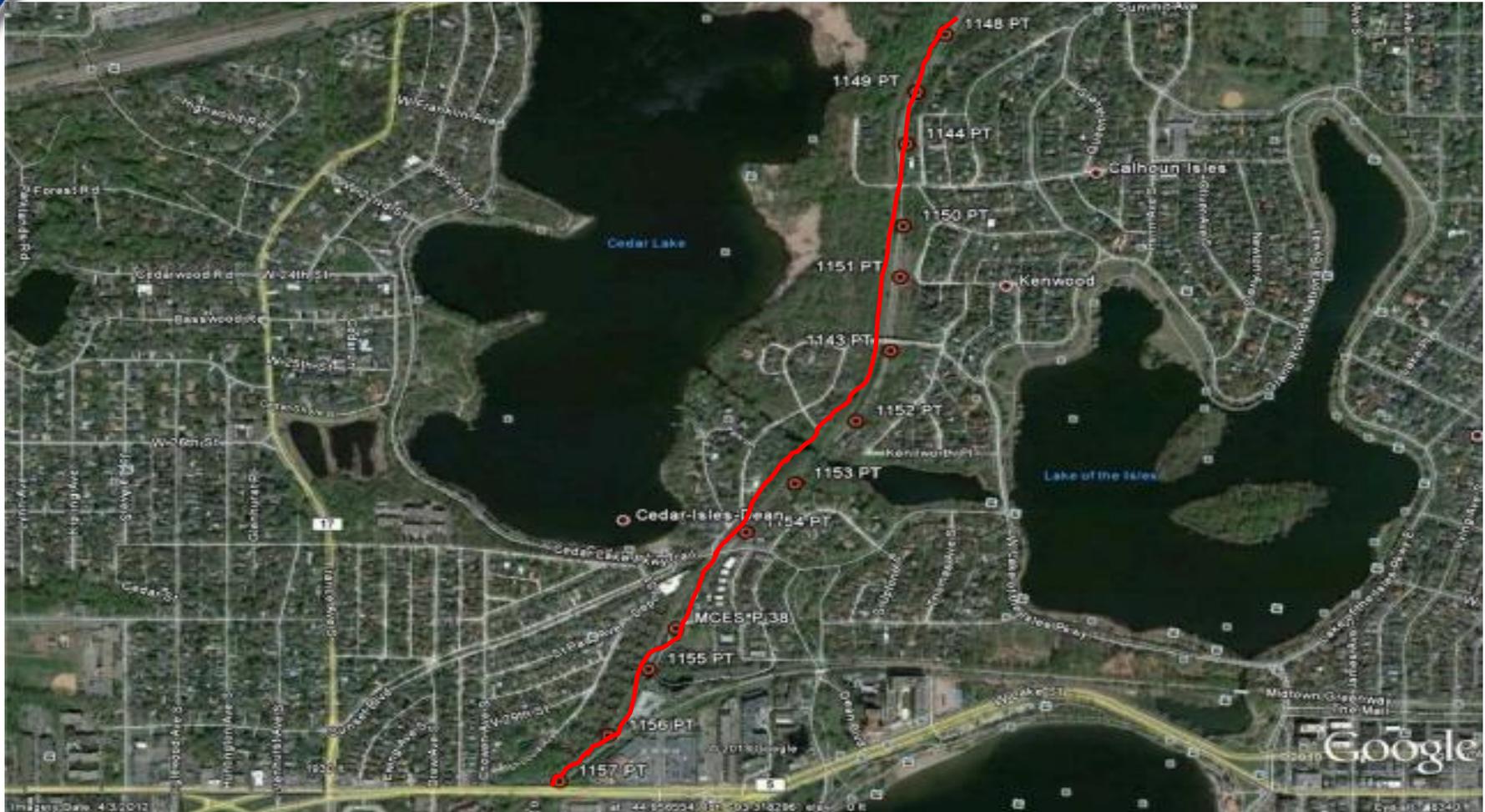
- Attended Town Hall Community Meetings
  - Minneapolis – Jan. 7 and St. Louis Park – Jan. 9, 2014
  - Evaluation Specific Topics:
    - Dewatering impact: thermal, biological and groundwater
    - Contamination from disrupted soils
    - Climate change and design storms
    - Decision criteria: water quality and groundwater and surface water levels
    - 1800 West Lake Street apartment complex dewatering impacts and challenges

- Conducted a Review Charrette
  - Identified the specific statements/conclusions
  - Listed and reviewed:
    - specific data and assumptions
    - potential sources of uncertainty, seasonality, safety factors, sensitivity to change, etc.
  - Suggested alternative lines of evidence
- Documented Findings

## Potential Impacts to Groundwater Elevation

### 1. Hydrogeology

- Fluvial deposits of sand and gravel
- A buried swamp deposit
- Areas of man-placed fill
- Underlain by a thick, coarse sand aquifer
- Difficult to conclusively determine groundwater flow patterns
- Recommendation
  - Additional piezometers (Lateral and Nested)
  - Seasonal water level data



## Potential Impacts to Groundwater Elevation

### 2. Due to Pumping or Leakage into the Tunnels

- Proposed construction method would isolate groundwater from the tunnel
- Proposed method does not include active dewatering
- Not analogous to 1800 West Lake Street
- Should have little or no impact to water level near the tunnels (provided the leakage rates in the BODR are not exceeded)
- Recommendation
  - Remove the term ‘dewatering’ from BODR

## Potential Impacts to Groundwater Elevation

### 3. Due to Blockage of Groundwater Flow

- Alluvial aquifer should be able to easily transmit groundwater under the tunnel system
- Groundwater flow system has not been fully characterized.

## Potential Impacts to the Chain of Lakes 'Water Budget'

- Relatively small portion of the overall water budget leaves the system via sanitary sewer
- Recommendation
  - Comprehensive Sanitary Sewer Capacity Analysis

## Potential Impacts to Groundwater flow between Cedar lake and Lakes of the Isles

- Cedar Lake, Lake of the Isles are equalized by the channel
- No hydraulic driver for groundwater flow across Kenilworth Corridor from one lake to another

- Reasonability of Leakage Rates for Permanent Sheet Piling and Waterproofing Systems
  - Proposed construction method should adequately address provided the assumed seepage rates are not exceeded
  - Errors in the calculations
  - Recommendation
    - Revise calculations and clearly state assumptions and input values

- Reasonability of the Storm Water Infiltration Design to Address the Potential of Discharging Warmer Water in the Winter
  - Proposed underground infiltration chamber adequately addresses thermal concern
  - Recommendations
    - Include Stormwater pre-treatment devices
    - Design underground infiltration chambers to handle 100 year design storm event, instead of 50 year design storm event

- Other Potential Impacts to Water Resources
  - Potential For Groundwater Contamination
    - Chlorides
    - Phase I identified ‘High Risk’ areas
  - Recommendations
    - Investigate snow and ice best management practices
    - Conduct a Phase II investigation

- Water Resources Monitoring Program Assessment
  - Preliminary, does not include sufficient detail for final design
  - Determine key monitoring locations
  - Define parameter and threshold criteria
  - Monitor infiltration chamber system
  - Sample and analyze groundwater for hydrocarbons, chlorides, other potential contaminants

- Additional lateral and nested piezometers
- Seasonal water level data.
- Revise the BODR, removing the term “dewatering”
- Provide a comprehensive stand alone water resources section
- Complete a comprehensive capacity analysis for sanitary and storm sewer systems
- Design the underground infiltration chambers for the 100-year design storm event

- Incorporate stormwater pre-treatment devices in the design
- Complete a Phase II investigation
- Revise the WMP document
  - Determine key monitoring locations
  - Define parameter and threshold criteria
  - Monitor infiltration chamber system
  - Sample groundwater quality nears the chambers and sites in the corridor away from the chambers
- Sample and analyze groundwater for hydrocarbons, chlorides, other potential contaminants

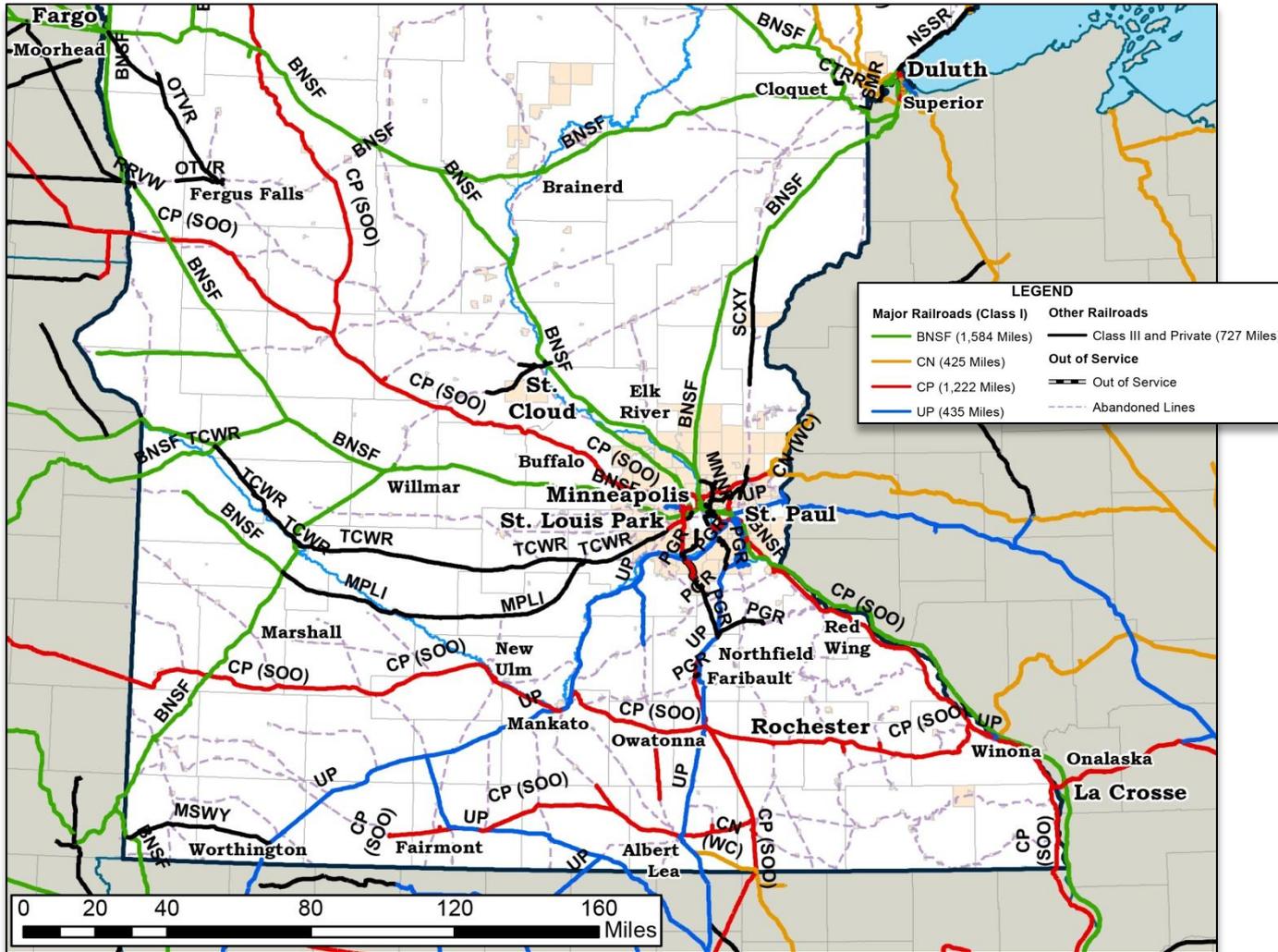
# Freight Rail Relocation Analysis

# Preliminary TC&W Freight Routing Analysis

TranSystems  
Jim Terry, February 2014



# Area Rail System



# Background

- 30% of Minnesota's freight tonnage is moved by rail.
- 5% of the nation's freight rail traffic passes through the Twin Cities.
- Freight rail is economical, safe and efficient.
- Tracks are predominantly privately owned – the Kenilworth Corridor is one exception.

# Background

## **Changes in freight rail:**

- Heavier loads
- Longer trains
- Heavier locomotives
- Shuttle / unit trains
- Safety enhancements

# Purpose of Study

- The local preferred alternative for the SWLRT is on the Kenilworth corridor.
- How to accommodate TC&W traffic?
  - Collocate with LRT and Trail?
  - Move to new route?
- All parties are in agreement that freight rail service to businesses on the TC&W network should be maintained.

# Study Team

**Rail Industry Experts:** Considered routing alternatives from operations/commercial perspective

- Jim Terry: Principal with TranSystems with 40+ years rail industry experience, 32 with Union Pacific Railroad
- Karla Geter: Rail industry expert with 18 years industry experience, 11 with Kansas City Southern Railroad

**Track Design Professionals:**

- Brian Gaddie (Engineer): Developed TranSystems' concepts and reviewed others'; 12 years total experience, including design (UP, KCS & KC Terminal) and planning
- Adam Houk (Engineer): Performed QA/QC reviews and estimated construction costs; 11 years total experience

**Support Staff:** Technicians and others, as needed

# Documents Reviewed for the Study

- St. Louis Park Railroad Study (March 1999)
- TCWR Freight Rail Realignment Study (Nov. 2009)
- Minnesota Comprehensive Statewide Freight and Passenger Rail Plan (Jan. 2010)
- Freight Rail Study – Evaluation of TCWR Routing Alternatives (Nov. 2010)
- SEH Technical Memos (2010 – 2011)
- United Transportation Union Letters (Oct. 2013)

# Documents Reviewed for the Study

## **Additionally:**

- Draft Environment Impact Statement (Oct. 2012)
- The East Metro Rail Capacity Study (Oct. 2012)
- Map and Internet Search
- Public meetings in Minneapolis and Saint Louis Park (Jan. 2014)

# Screening Criteria – First Level

## **Viability, route must not:**

- Impair freight rail operation.
- Impair commercial opportunities for the shippers or the railroad.
- Unduly delay the re-route or the light rail project.

# Screening Criteria – Second Level

## **Route must:**

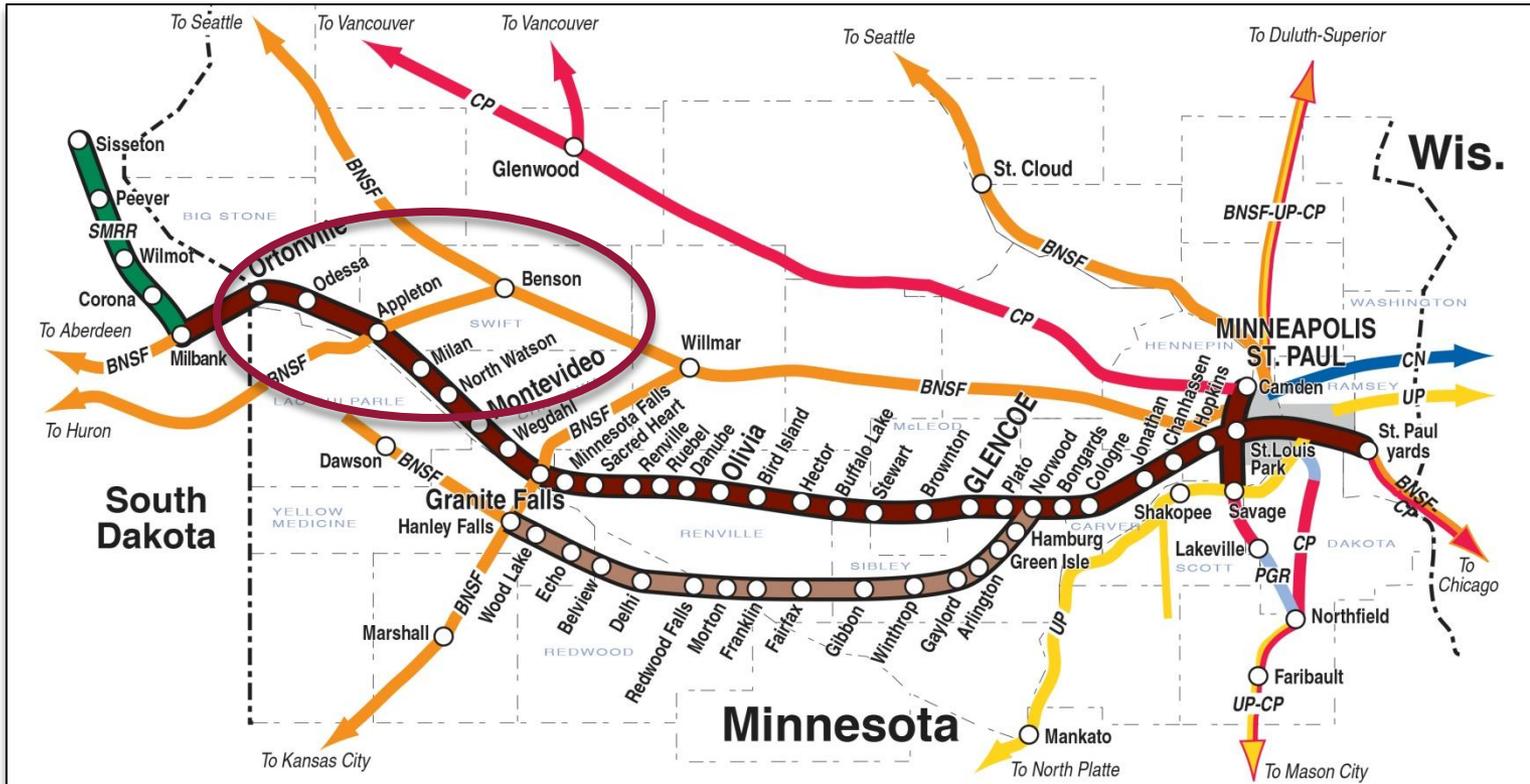
- Be sound and meet industry standards for safety.
- Not unduly impact the surrounding community.
- Have an acceptable cost.

# Screening Criteria - Elements

Element	Metric or Measurement
<b>Operational Considerations</b>	<ul style="list-style-type: none"> <li>• Maximum train speed</li> <li>• Total travel time</li> <li>• Operating costs (e.g., crew, maintenance, fuel, equipment costs)</li> <li>• Preservation of existing and future freight operations</li> <li>• Total freight capacity</li> </ul>
<b>Commercial Considerations</b>	<ul style="list-style-type: none"> <li>• Preservation of railroad interchanges</li> <li>• Access to existing freight customers</li> </ul>
<b>Implementation Considerations</b>	<ul style="list-style-type: none"> <li>• Extent of right of way acquisition required</li> <li>• Permitting issues</li> </ul>
<b>Technical Design and Engineering</b>	<ul style="list-style-type: none"> <li>• Maximum degree of horizontal curves</li> <li>• Maximum vertical grade</li> <li>• Maximum compensated grade</li> <li>• Constructability</li> </ul>
<b>Safety Considerations</b>	<ul style="list-style-type: none"> <li>• Number of at-grade road crossings</li> <li>• Number of potential train-vehicular conflicts at at-grade crossings</li> </ul>
<b>Community Impacts</b>	<ul style="list-style-type: none"> <li>• Property acquisition (Total Acres, Number, or Land Use)</li> <li>• Traffic Impacts (Road Closures, Out of Route Travel, Etc)</li> </ul>
<b>Costs</b>	<ul style="list-style-type: none"> <li>• Construction</li> <li>• Right-of-way</li> </ul>

# Description of Alternatives

## Far Western Minnesota Connection (Appleton to Benson)



- Twin Cities & Western
- Minnesota Prairie Line
- Sisseton Milbank Railroad

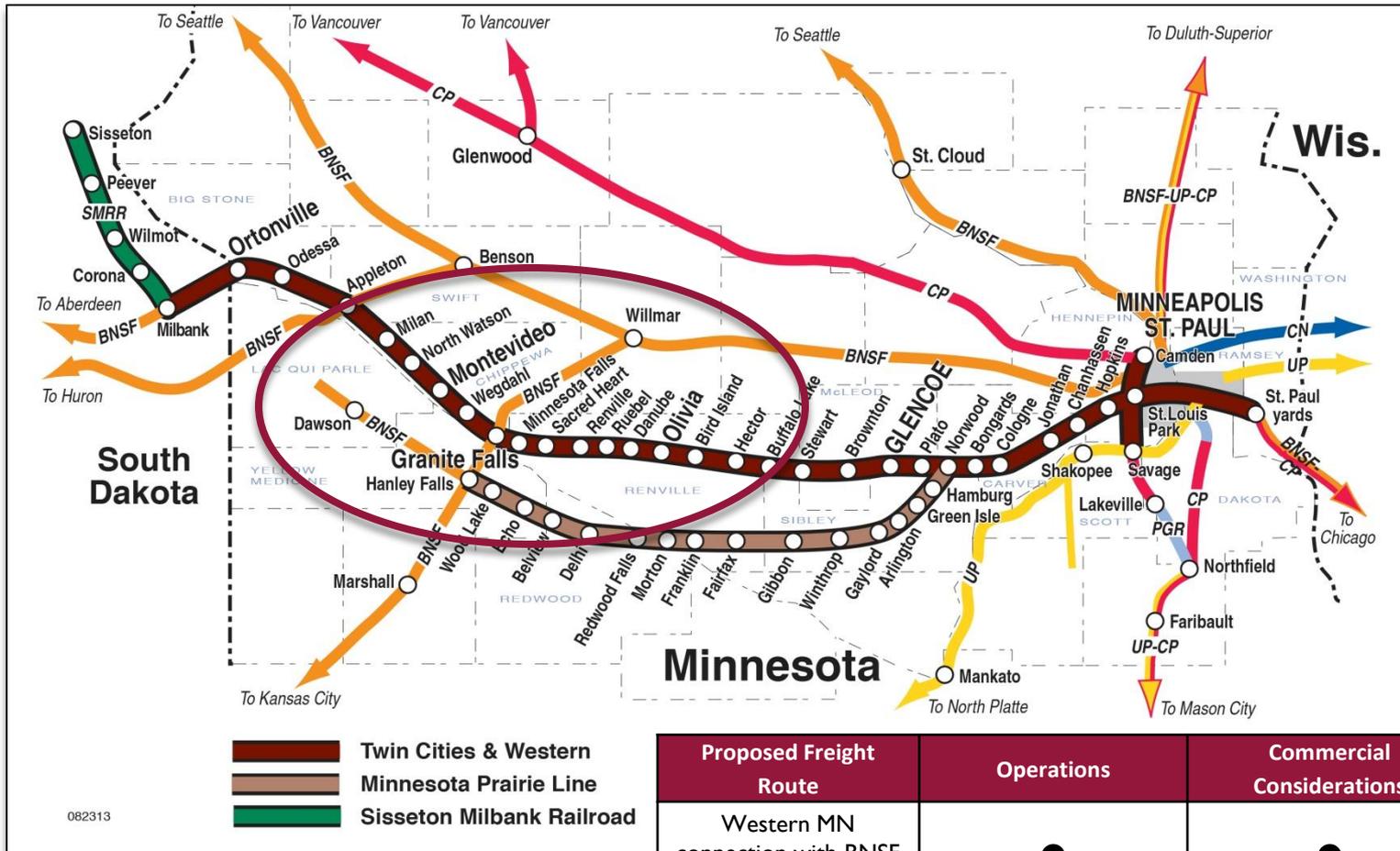
Proposed Freight Route	Operations	Commercial Considerations	Implementation Considerations
Far Western MN connection with BNSF (Appleton-Benson)	●	●	●

○ Strongly supports goal    ◐ Supports goal    ● Does not support goal

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# Description of Alternatives

## Western Minnesota Connection (Granite Falls to Willmar)



○ Strongly supports goal   ● Supports goal   ● Does not support goal

# Description of Alternatives

## Chaska Cutoff

The Chaska Cutoff is an abandoned railroad route that runs parallel to Highway 212 from Bonson Junction (east of Cologne) to Chaska.



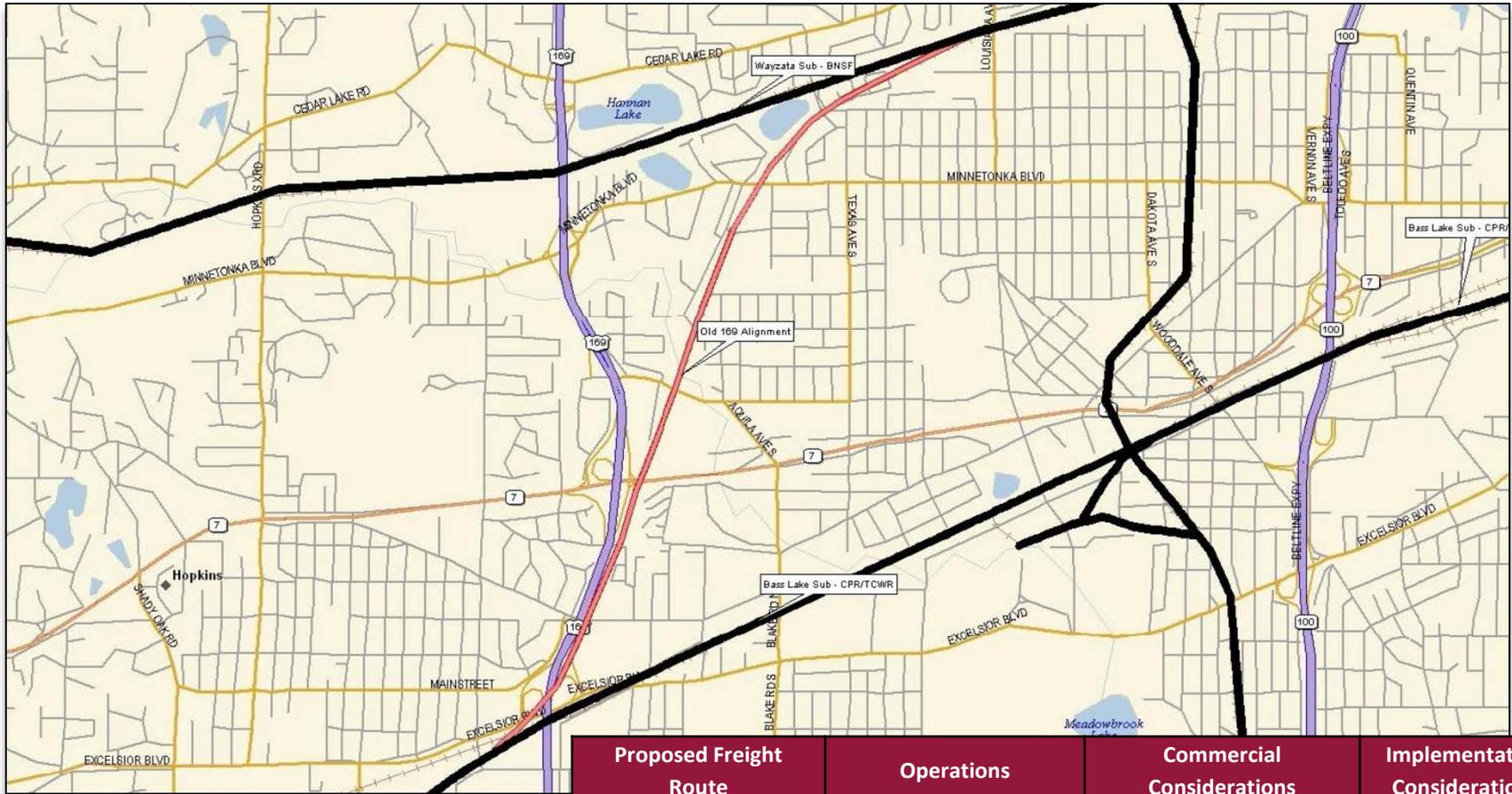
Proposed Freight Route	Operations	Commercial Considerations	Implementation Considerations
Chaska Cut-off	◐	◐	●

◐ Strongly supports goal   ◐ Supports goal   ● Does not support goal

# Description of Alternatives

## Highway 169 Alignment to BNSF

This route is a former railroad abandoned right-of-way.



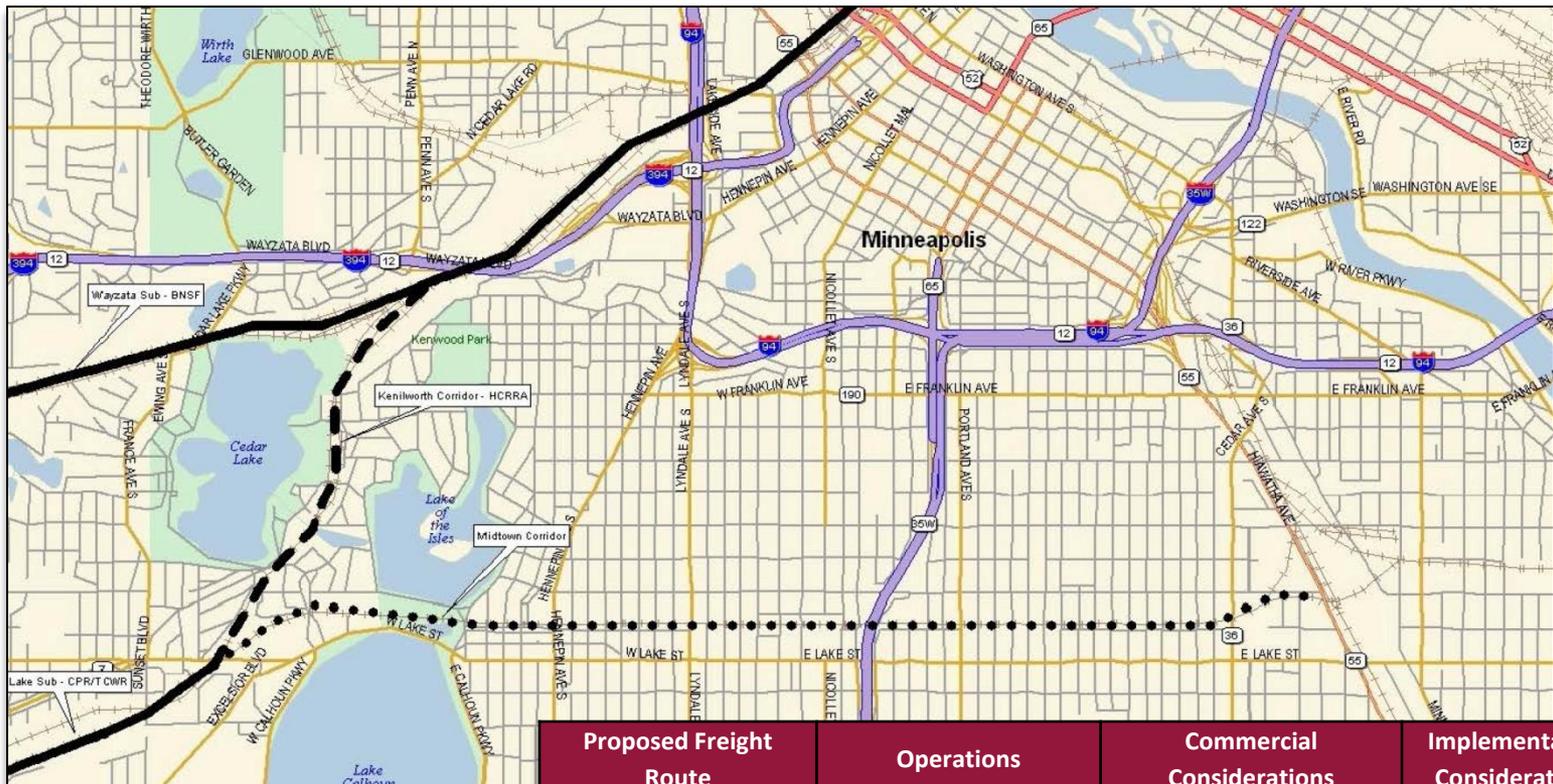
Proposed Freight Route	Operations	Commercial Considerations	Implementation Considerations
Former RR alignment Hwy 169	◐	◐	●

○ Strongly supports goal   ◐ Supports goal   ● Does not support goal

# Description of Alternatives

## Midtown Corridor

The Midtown, or 29<sup>th</sup> Street, Corridor was TC&W's route to the metro area before it was relocated to the Kenilworth Corridor in 1998.

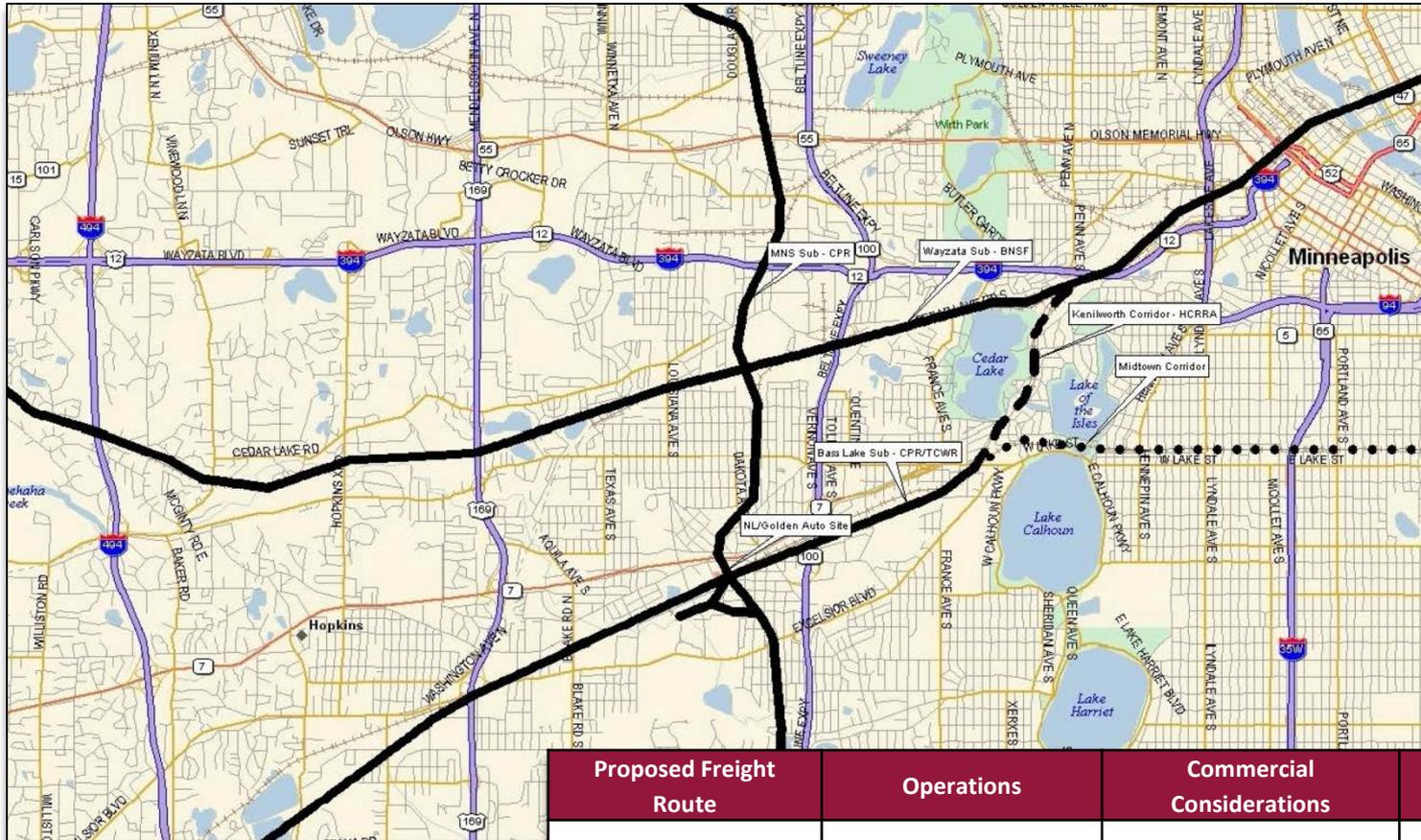


○ Strongly supports goal   ○ Supports goal   ● Does not support goal

# Description of Alternatives

## United Transportation Union (UTU) Route

The UTU route makes use of the MN&S, and continues north via the MN&S Wirth corridor.

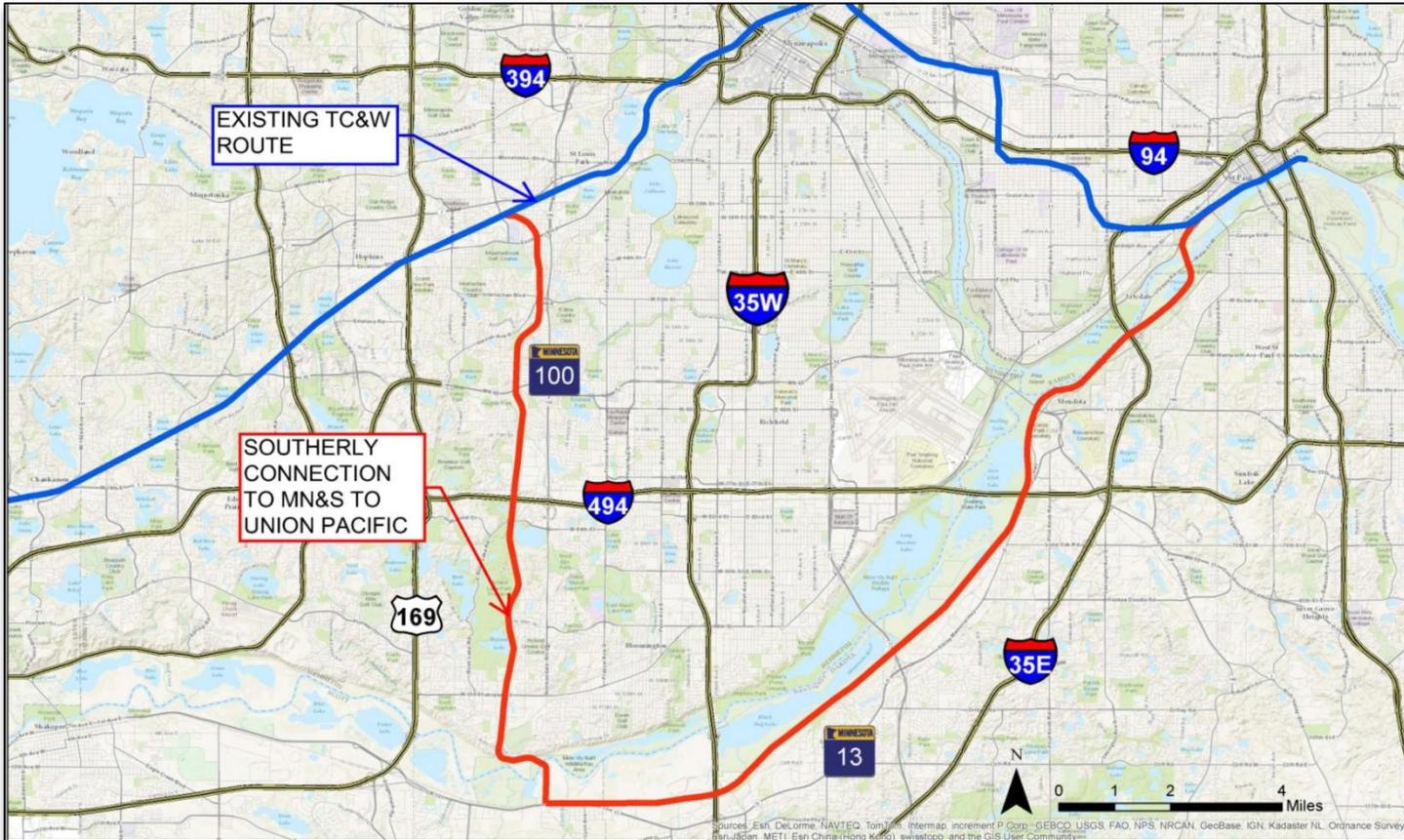


Proposed Freight Route	Operations	Commercial Considerations	Implementation Considerations
UTU route	●	○	●

○ Strongly supports goal   ● Supports goal   ● Does not support goal

# Description of Alternatives

## MN&S South Connection with UP



Proposed Freight Route	Operations	Commercial Considerations	Implementation Considerations
MN&S South	◐	◐	◐

◐ Strongly supports goal   ◑ Supports goal   ● Does not support goal

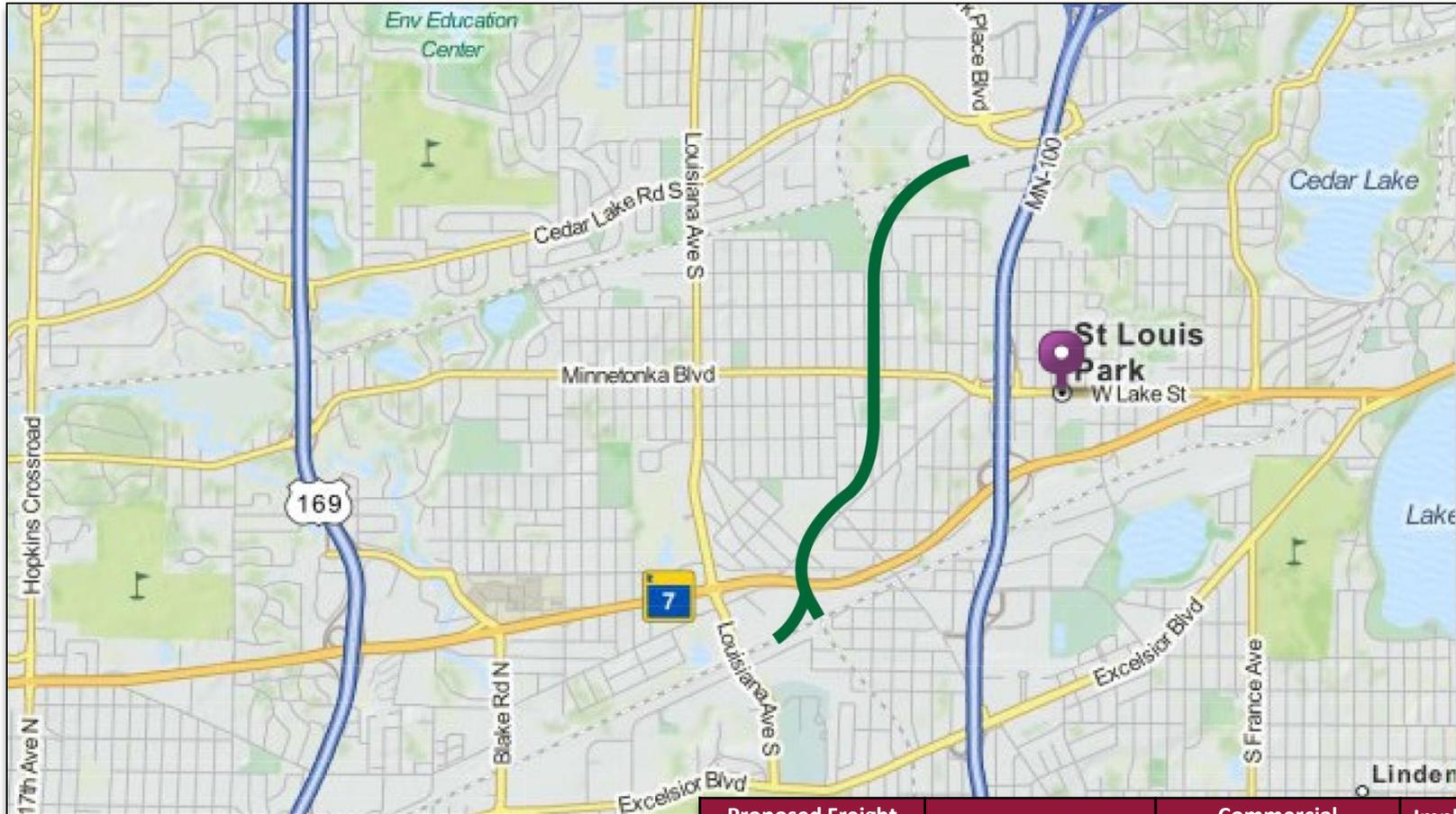
# Second Tier Screening

## **MN&S South Connection to UP**

- Engineering – 12 miles of upgrade needed; refurbishment or replacement of bridge; evaluated with less available information; has some engineering challenges
- Safety –15 grade crossings left; AADT 87,763
- Community – New issues for southern Saint Louis Park, Edina and Bloomington; Over 350 housing units
- Cost – \$185 million (without property)

# Description of Alternatives

## MN&S North Connection with BNSF



Proposed Freight Route	Operations	Commercial Considerations	Implementation Considerations
MN&S North	◐	○	◐

○ Strongly supports goal   ◐ Supports goal   ● Does not support goal



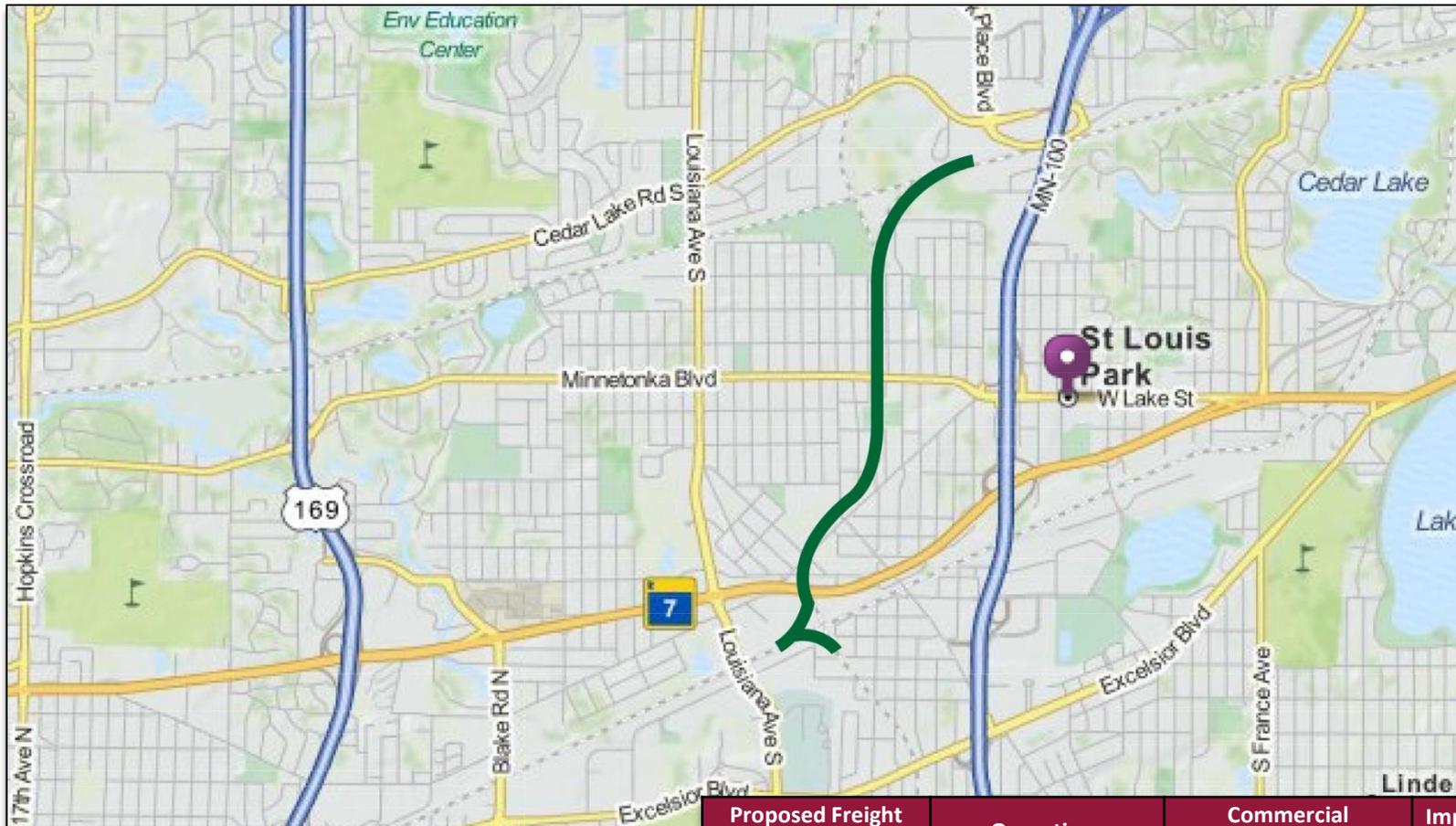
# Second Tier Screening

## **MN&S North – Previous concepts**

- Engineering – Severe operating challenges
- Community – High berms, neighborhoods divided, school and business impacts

# Second Tier Screening

## MN&S North – TranSystems’ Concept



Proposed Freight Route	Operations	Commercial Considerations	Implementation Considerations
MN&S North	◐	○	◐

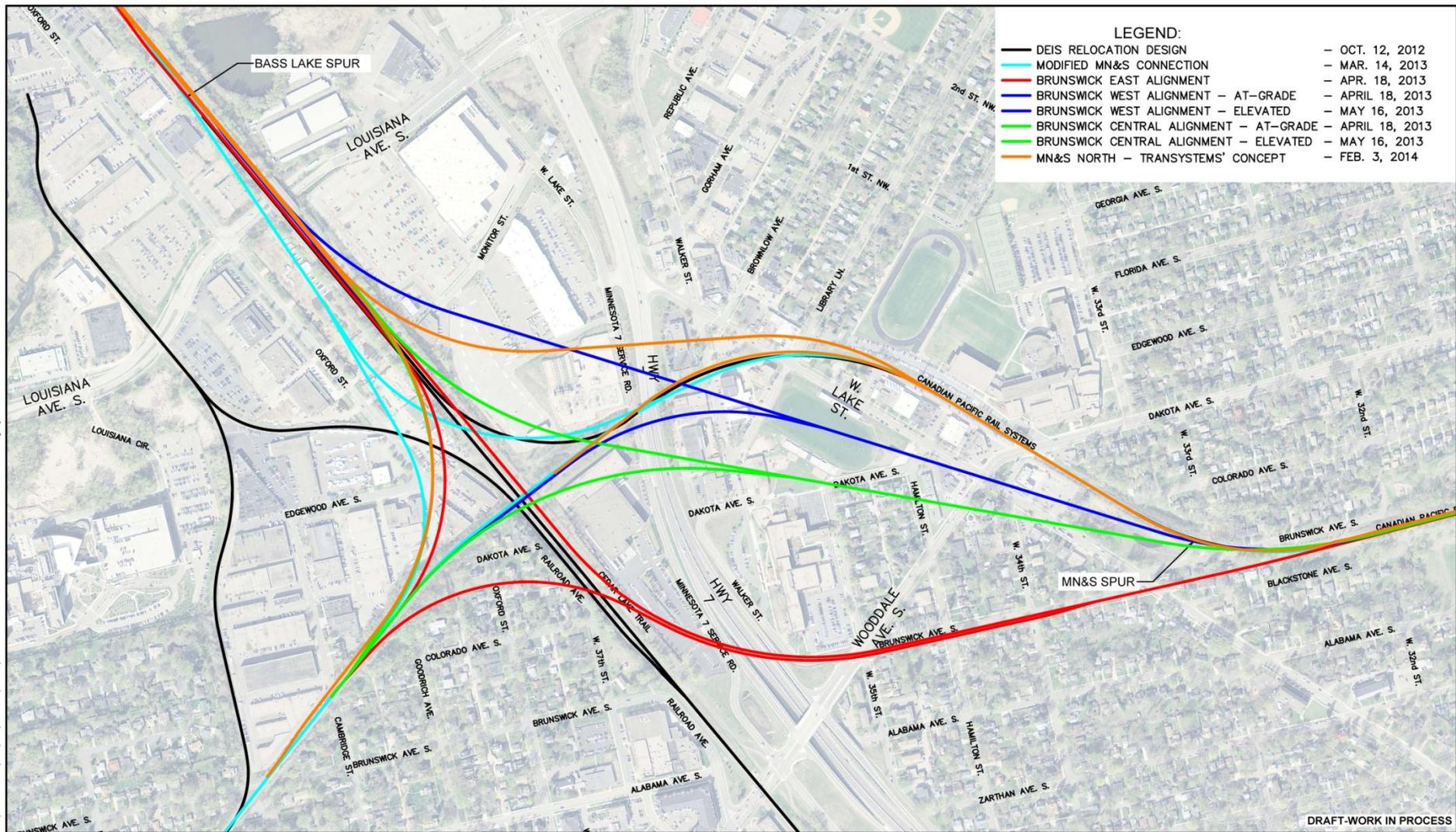
○ Strongly supports goal   ◐ Supports goal   ● Does not support goal

# Second Tier Screening

## **MN&S North – TranSystems' concept**

- Engineering – AREMA Standards
- Safety – 2 at-grade crossings retained (down from 6);  
AADT of 14,125
- Community – Improved but no perfect answer;  
140 housing units within 150 feet
- Cost – \$105 million (without property)

# Freight Rail Relocation



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DRAFT-WORK IN PROCESS

# Safety Enhancements

- Crossing closures
- Quiet zones
- Robust track structure
- Centralized Traffic Control / Positive Train Control
- Defect detection
- Inside guard rails
- Fencing
- Pedestrian bridge

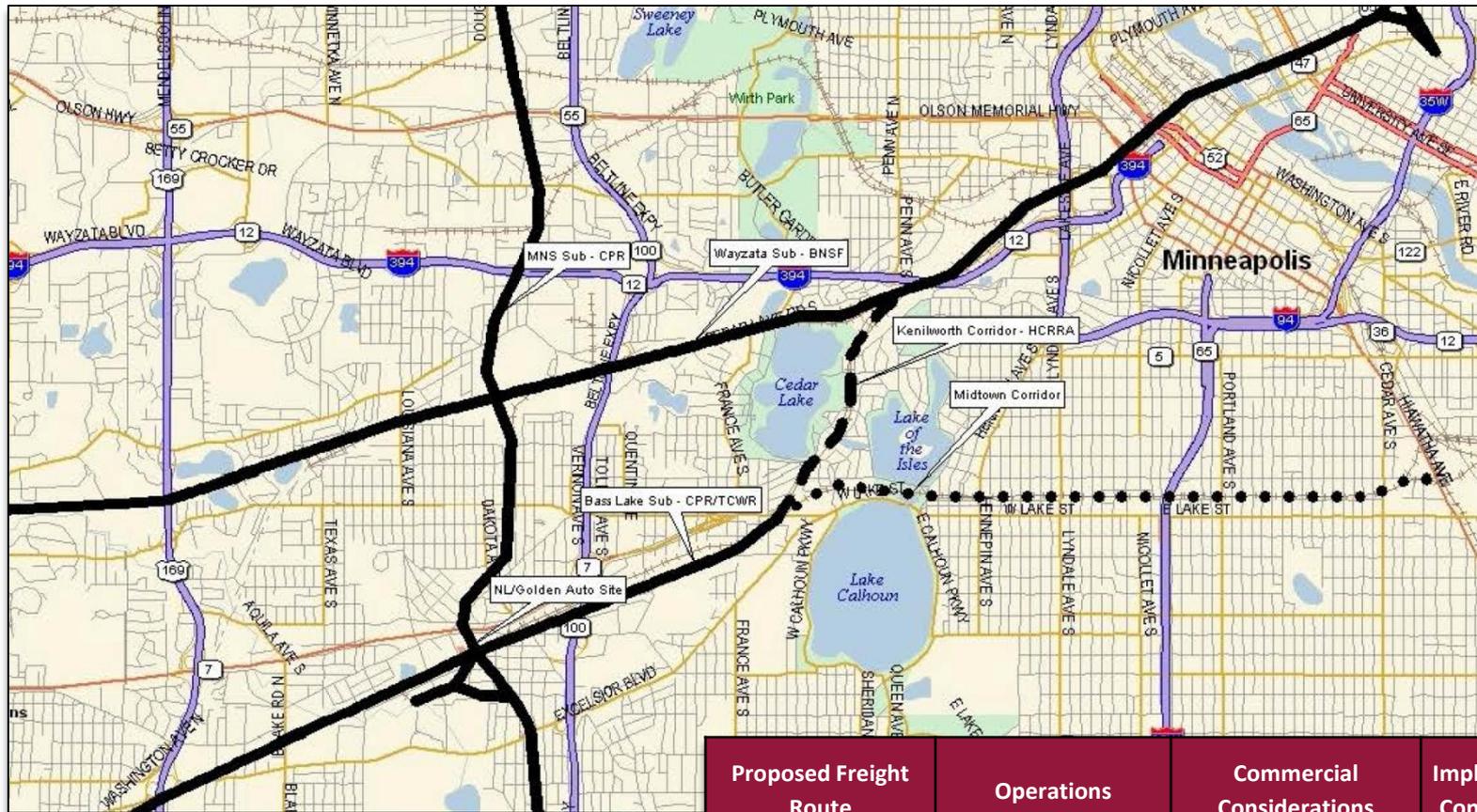
# MN&S North \$105M Cost Estimate

- Based on 2013 costs
- Includes:
  - Capital improvements (new connections, structures, upgrade to route, BNSF siding, TC&W yard tracks, roadway/trail relocations)
  - Safety enhancements (CTC/PTC, inside guard rail, pedestrian bridge, fencing,)
  - 25% contingency
- Does not include:
  - ROW acquisition costs
  - Design related costs
- Primary cost drivers:
  - Rail bridge structures
  - Upgraded track (grading, sub-ballast, rail, ties, ballast)
  - Streets and roads

# Description of Alternatives

## Kenilworth Corridor

TC&W's freight rail traffic currently utilizes the Kenilworth corridor.



Proposed Freight Route	Operations	Commercial Considerations	Implementation Considerations
Kenilworth Corridor	○	○	○

○ Strongly supports goal   ● Supports goal   ● Does not support goal 59

# Second Tier Screening

## Kenilworth Corridor

- Engineering – Current route works!
- Safety – 4 at-grade crossings; AADT 21,924
- Community – 350+ housing units on route
- Cost - \$20 million to \$300+ million (without property)

# Second Tier Screening

Proposed Freight Route	Tier 1 Screening			Tier 2 Screening			
	Operations	Commercial	Implementation Obstacles	Engineering	Safety	Community	Cost
Kenilworth Corridor	○	○	○	○	○	◐	<u>\$20 to \$300</u> Million
MN&S North	◐	○	◐				
DEIS connection				●	◐	◐	NCN
Modified MN&S connection				●	◐	◐	NCN
Brunswick East connection				◐	◐	●	NCN
Brunswick West connection (at-grade and elevated)				◐	◐	●	NCN
Brunswick Central connection (at-grade and elevated)				◐	◐	●	NCN
TranSystems Connection				○	○	◐	\$105 Million
MN&S South				◐	◐	◐	◐

XXX designates discrepancy with page 16 of draft report.

# Preliminary Conclusion

**2 routes are viable**

# How to Submit Comments on Draft Reports by March 3, 2014

- Online: [www.SWLRT.org](http://www.SWLRT.org)
- Email: [SWLRT@metrotransit.org](mailto:SWLRT@metrotransit.org)
- Mail:
  - Southwest Project Office
  - Park Place West Building, Suite 500
  - 6465 Wayzata Boulevard
  - St. Louis Park, MN 55426
  - ATTN: Sophia Ginis
- Filling out a comment card