

Highway **169** Mobility Study

US 169 Corridor Coalition Project Update October 12, 2017

*Evaluating the potential for Bus Rapid Transit and MnPASS Express Lanes in the southwest Metro,
Investigating options for improved bus service between the Twin Cities and Mankato*



Agenda

- Study Overview
- BRT/MnPASS Study Status
- Spot Mobility Improvements
- Next Steps

Study Overview

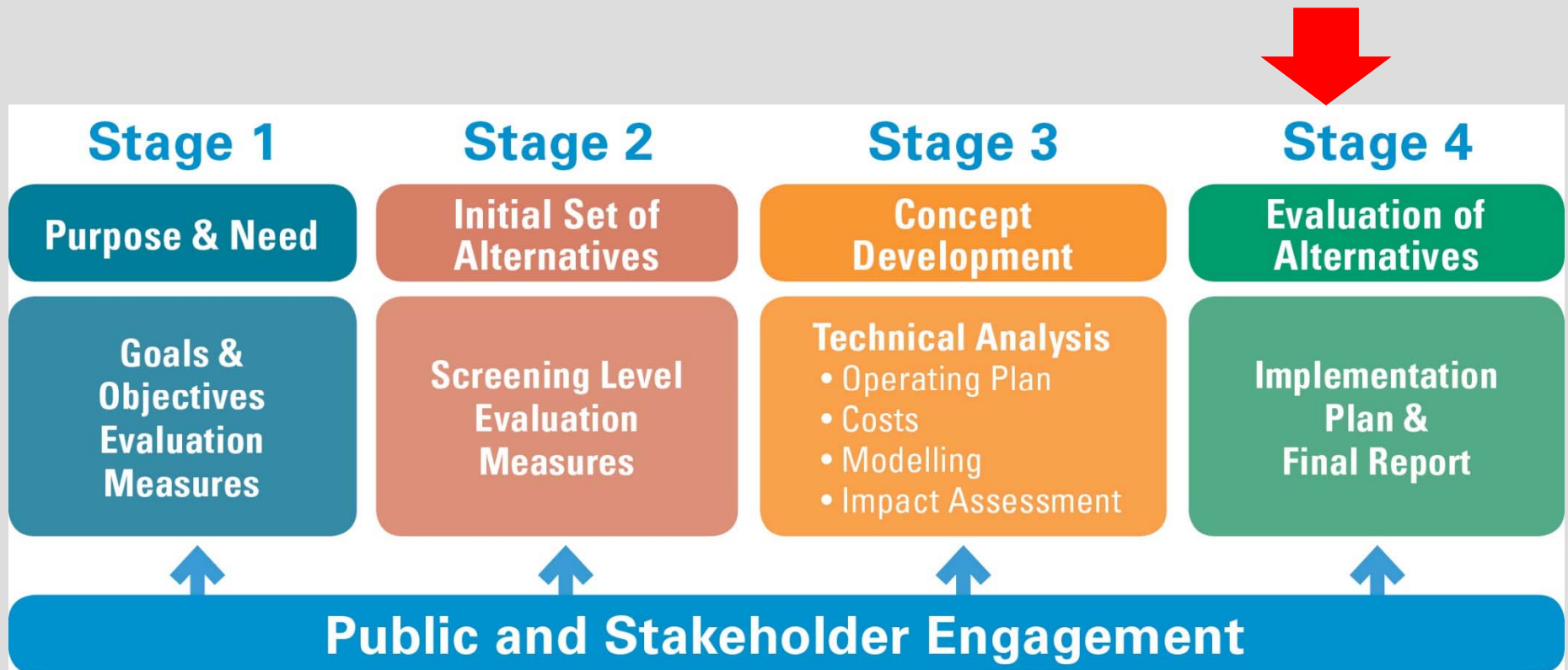
Study was commenced to identify cost-effective options for **improving transit** and **reducing congestion** on Hwy 169

Collaborative effort between MnDOT, Met Council, and Scott County

- Bus Rapid Transit (BRT) alternatives along Hwy. 169 between Shakopee & downtown Mpls.
- Highway improvements on 169 between Shakopee & Golden Valley
 - MnPASS Express Lanes
 - Spot Mobility Improvements



Study Process & Schedule



Coordination throughout process with the I-494/Hwy. 62 Congestion Relief Study, MnPASS Phase 3 System Study, and CMSP 4 Study

Alternatives

Alternative 1

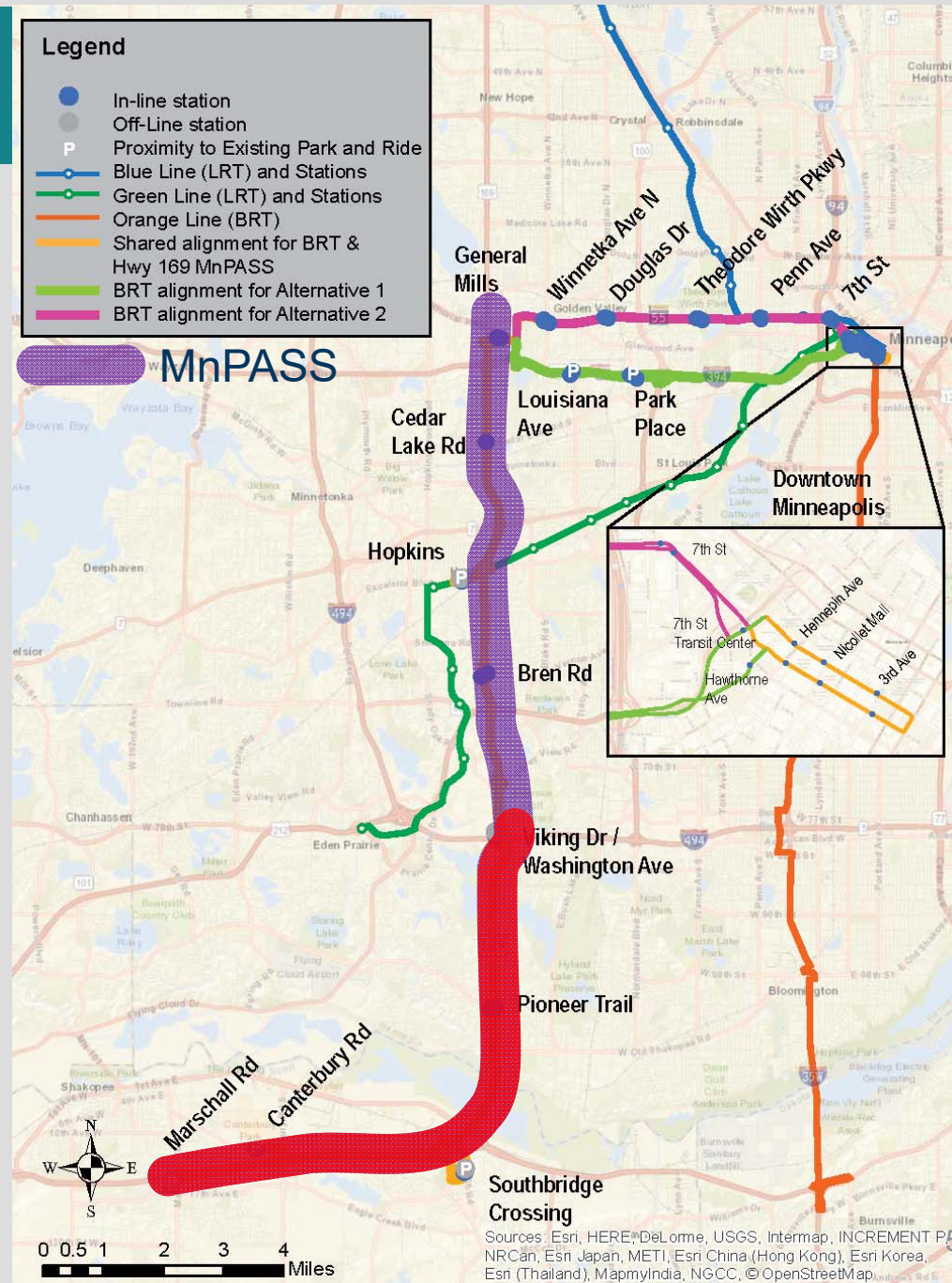
- BRT service between Marschall Rd and downtown Minneapolis via Hwy 169 and I-394
- Hwy 169 MnPASS between Marschall Rd and I-394/TH 55

Alternative 2

- BRT service between Marschall Rd and downtown Minneapolis via Hwy 169 and I-394
- Hwy 169 MnPASS between Marschall Rd and I-394/TH 55

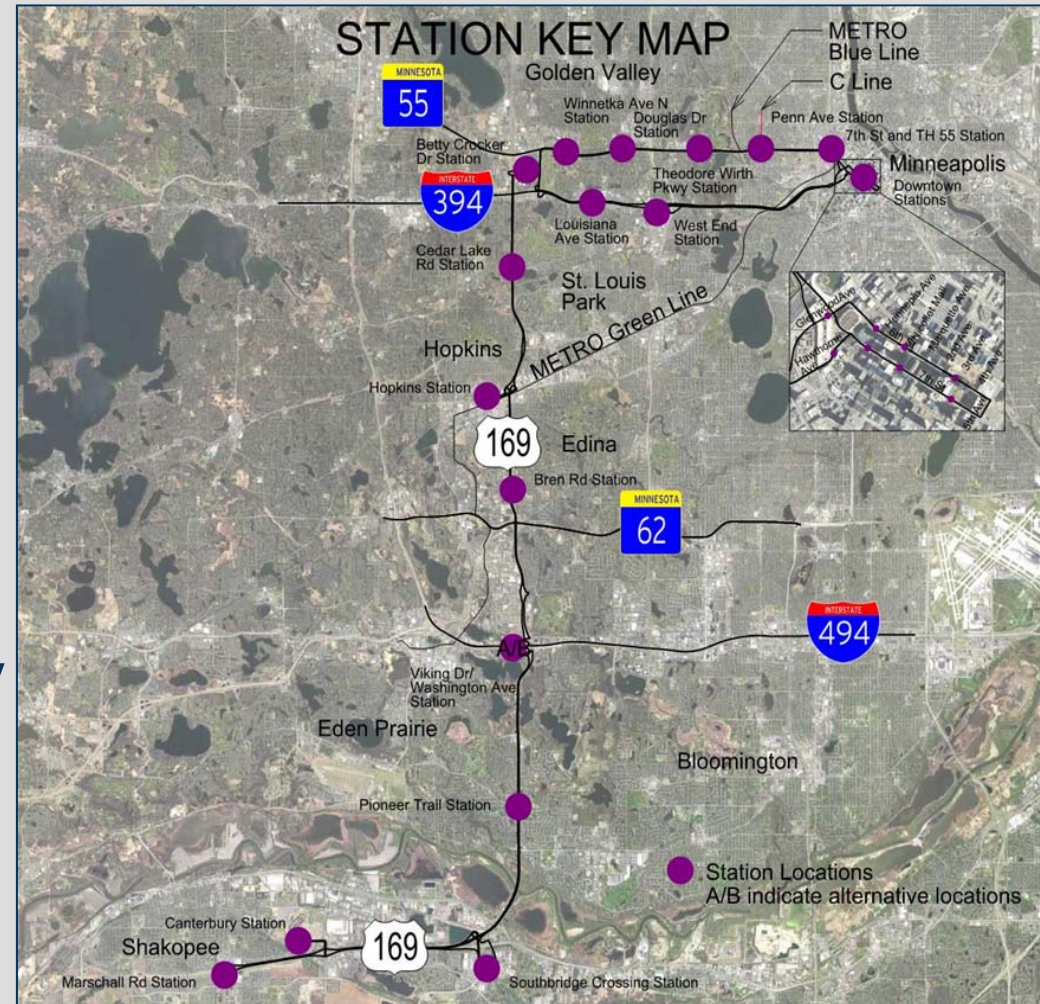
Alternative 3

- Hwy 169 MnPASS between Marschall Rd and I-394/TH 55
- No additional transit service



BRT Alternatives

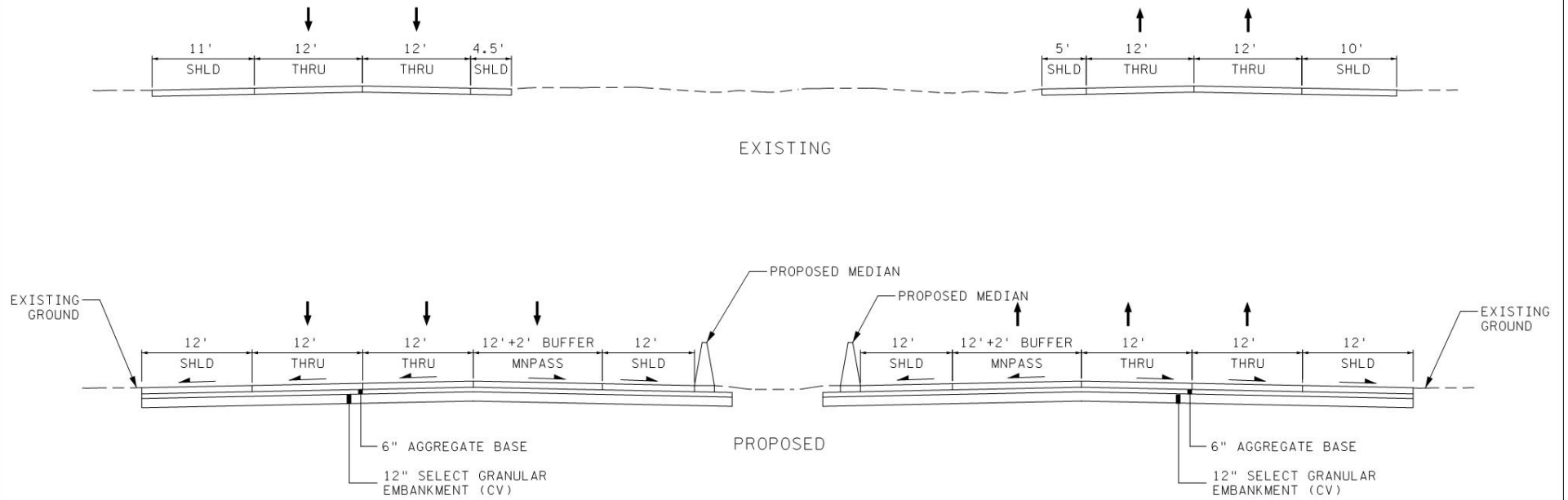
- I-394 alternative – 12 stations
- Hwy. 55 alternative – 15 stations
- 18-hr/day service, seven days per week
- 10-30 min. frequency depending on time of day
- Mostly right shoulder running



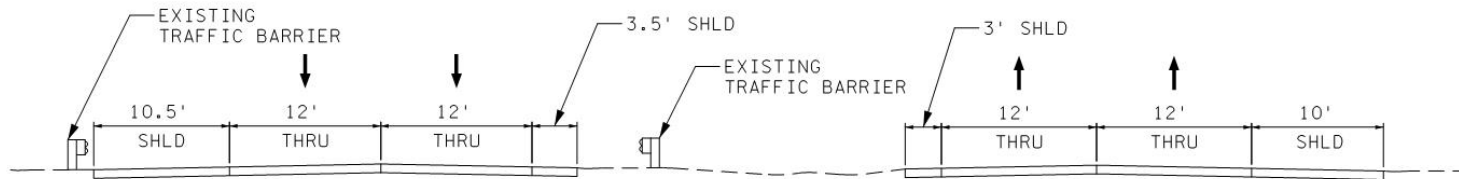
MnPASS Alternatives

- Marschall Rd. – I-394; Marschall Rd. – Hwy. 55; Marschall Rd. – I-494
- Added inside lane in each direction w/current MnPASS concept of operations
- South of Hwy. 62: Mostly standard MnPASS lane design w/widening to the inside
- North of Hwy. 62: Mostly minimum MnPASS lane design w/widening to the outside
- Multiple concept design options being evaluated at certain locations (e.g. I-394, Hwy. 55, Cedar Lake Rd., Excelsior Blvd., I-494, Bloomington Ferry Bridge)
- Detailed evaluation of alternatives
- Some spot mobility improvements

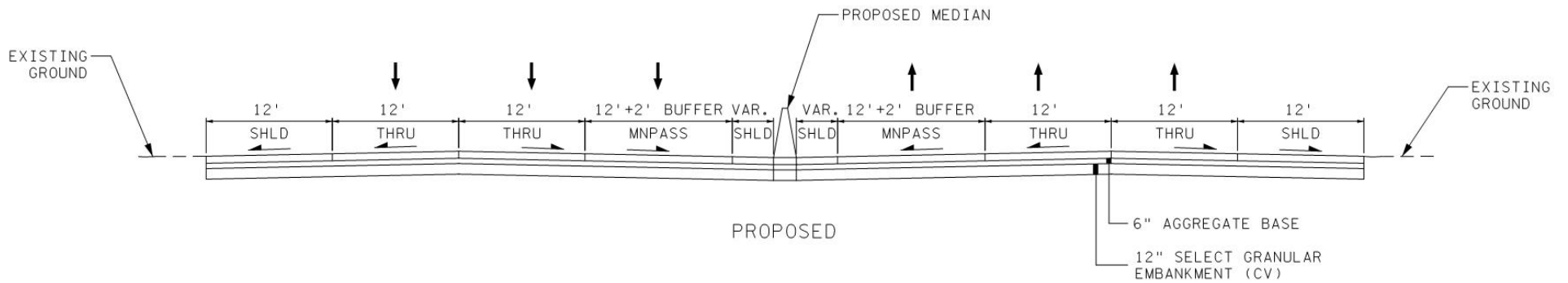
Marschall Rd to I-494



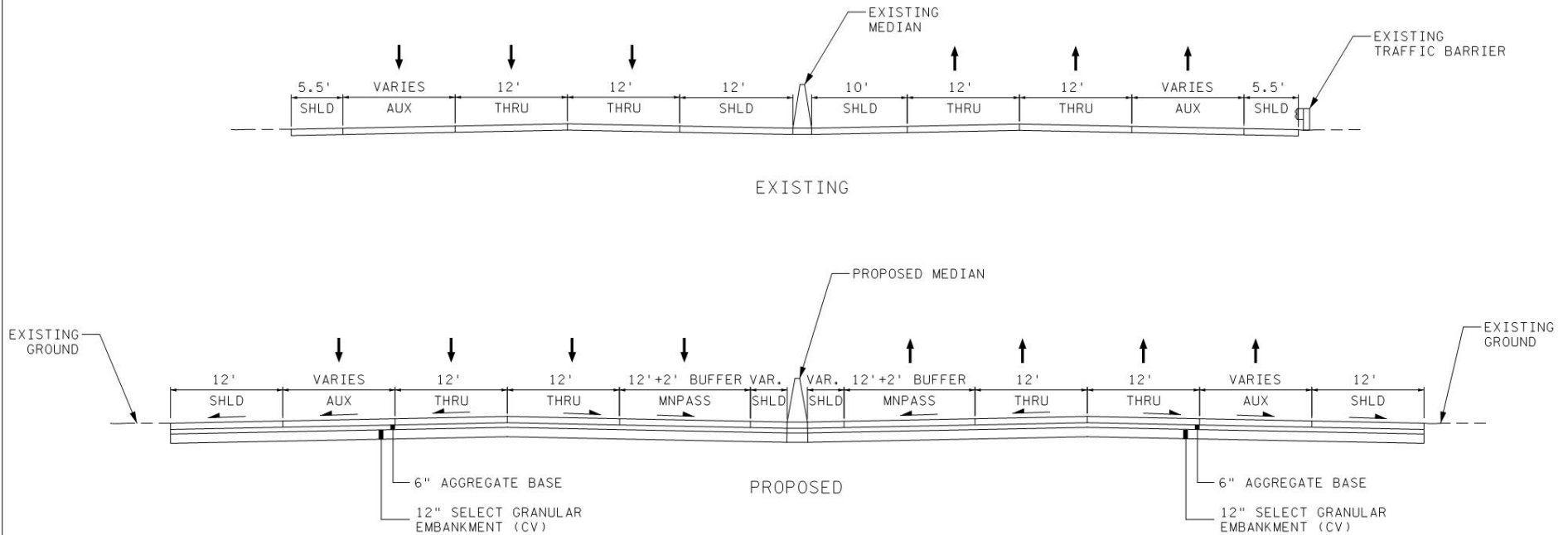
I-494 to TH 62



EXISTING



North of TH 62



MnPASS Concepts

Corridor Overview

- South end (South of TH 62)
 - Widening to inside for MnPASS
 - Bloomington Ferry Bridge Challenges
 - Minor Impacts and Moderate Costs
- North end (North of TH 62)
 - Widening to Outside for MnPASS
 - Interchange Challenges
 - Higher Impacts and Higher Costs

F. I-394 / TH 55

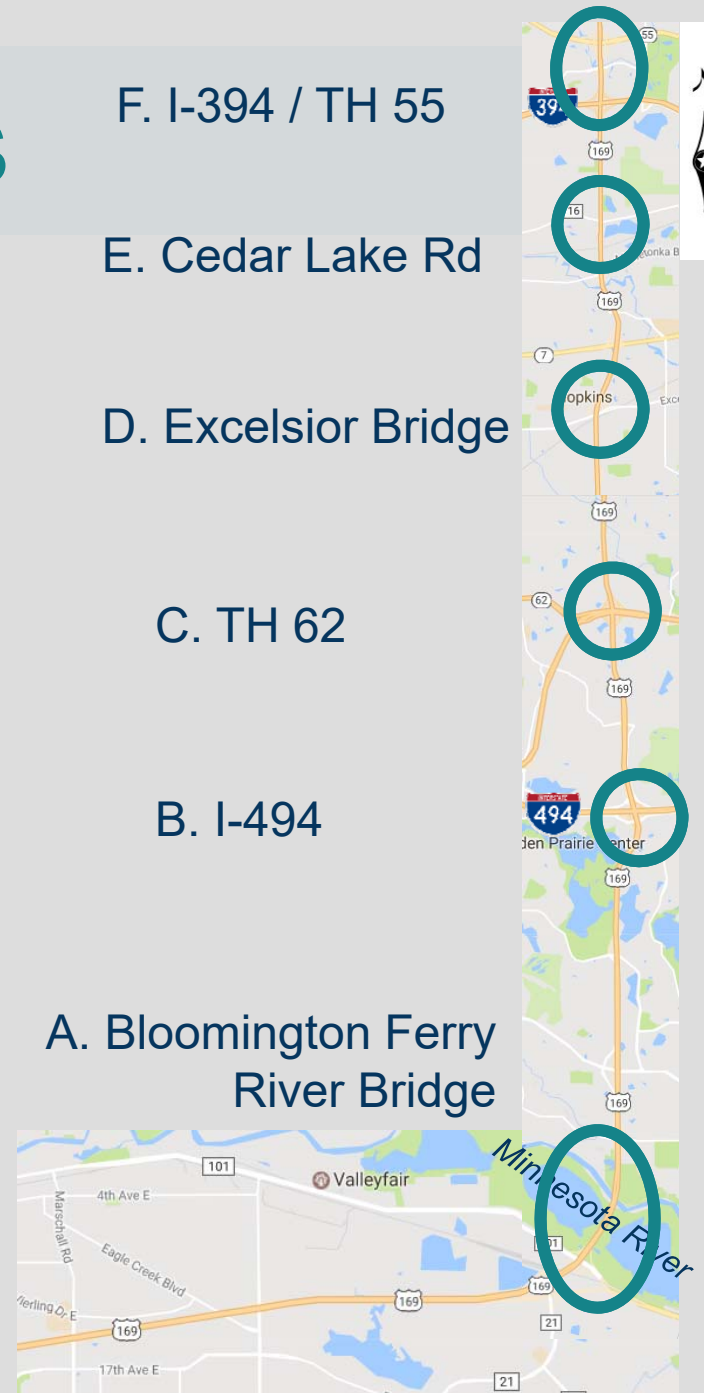
E. Cedar Lake Rd

D. Excelsior Bridge

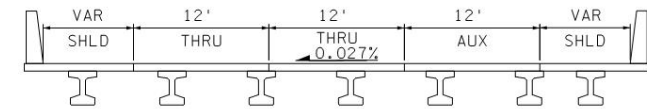
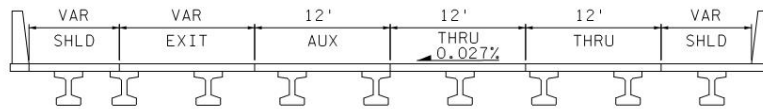
C. TH 62

B. I-494

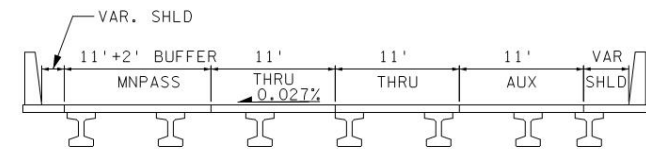
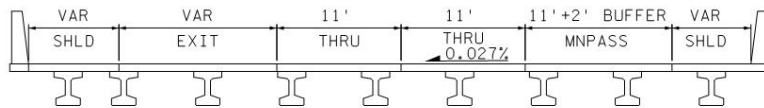
A. Bloomington Ferry River Bridge



Bloomington Ferry Bridge



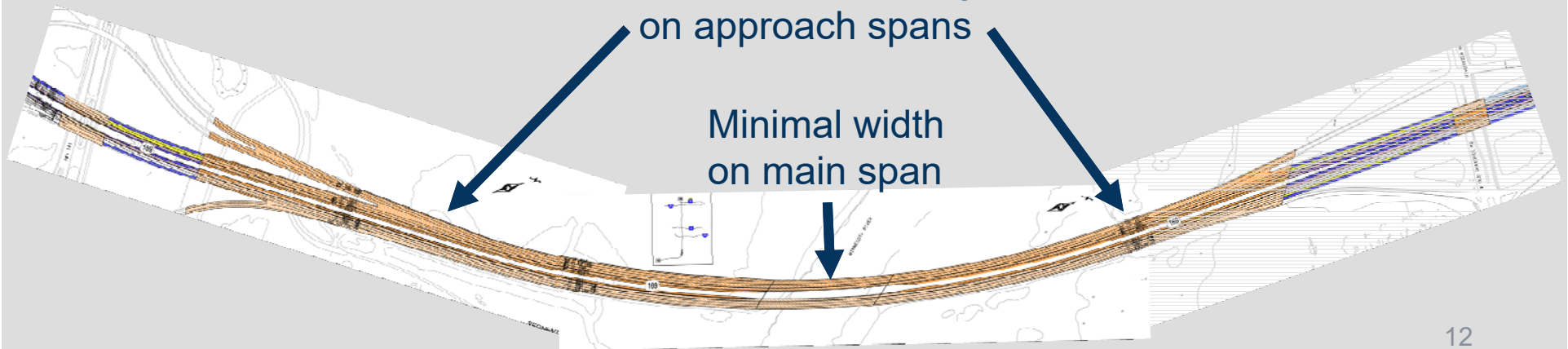
EXISTING



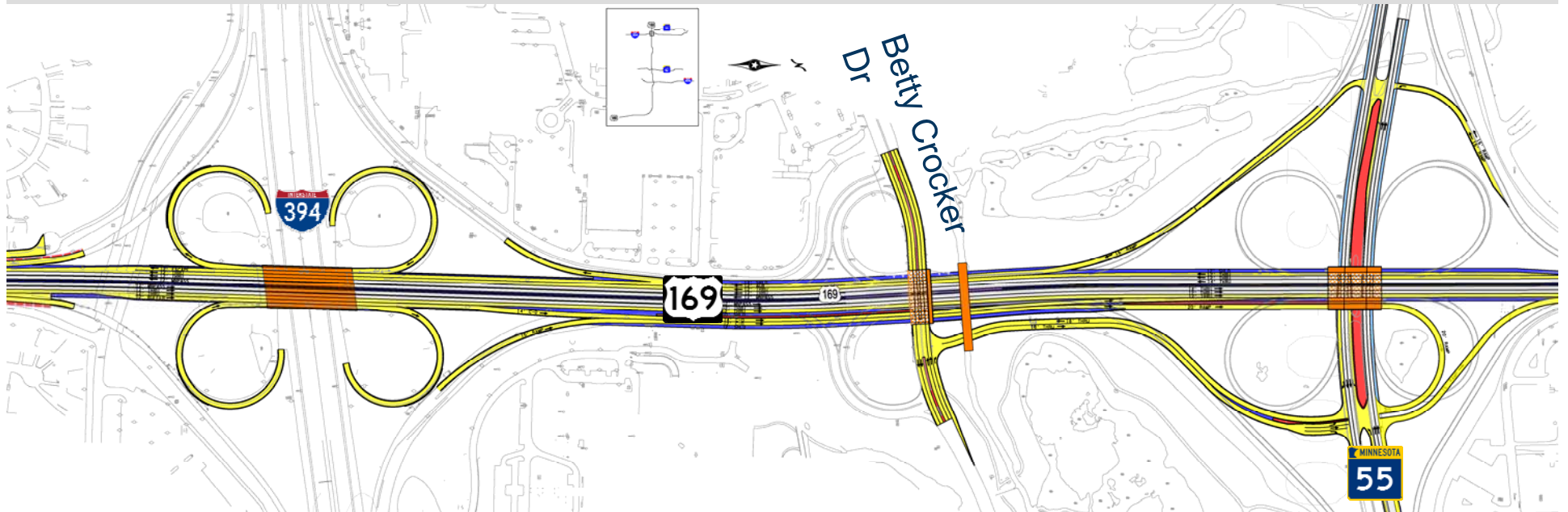
PROPOSED (STRIPING ONLY)

Additional widening
on approach spans

Minimal width
on main span



I-394 to TH 55





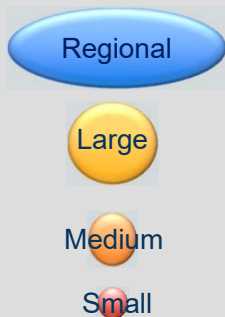
Project Goals

Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6
Improve Access	Mobility	Ridership	Return on Investment	Supportive Conditions	Preserve Environment
Current Population	Peak-Hour Congestion	BRT Ridership	Capital Costs	Multi-Modal Policies	Natural Environment
Current Employment	Delay Per User	Transit-Dependent Ridership	Operations and Maintenance Costs	Bicycle and Pedestrian Connections	Built Environment
Travel Time Reliability	Vehicle Hours Traveled	Reverse-Commute Ridership	Cost per Reliable Trip	Forecast Population	
Employment Centers	Crash Risk Factor Reduction	Off-Peak Ridership	Cost Effectiveness	Forecast Employment	
		SW Transit Routes Shift	O&M factors		
		Total Corridor Ridership			

Goal 1 – Improve Access

Improve access to local and regional destinations, activity centers, and employment concentration

Measure	Alternative 1: I-394	Alternative 2: TH 55
Current Population	16,300	21,900
Current Employment	38,100	32,800
Travel Time Reliability (Peak Period Trips)	28,100	28,100
Employment Centers		



- Alternative 2 has 5,600 more residents and Alternative 1 has 5,300 more jobs within ½ mile of station areas
- Alternative 2 serves more employment centers

Goal 2 – Mobility

Provide better mobility in the corridor and options to lessen congestion

Measure	Alternative 1: I-394	Alternative 2: TH 55
Person throughput	12,300-13,400	12,400-13,600
Delay per user	0:30 to 6:10 (-60%)	0:30 to 6:10 (-60%)
Change in VHT	-5,500	-5,500
Reduction in crash risk	-44% congestion (mi-hr) -35% bottleneck conflicts	-44% congestion (mi-hr) -35% bottleneck conflicts

- MnPASS improvements are effective in achieving the mobility goal and associated measures:
 - Increased person throughput along corridor
 - Meaningful reductions in delay
 - Reduction in VHT (important for benefit-cost)
 - Improvement to bottlenecks and congestion

Goal 3 – Ridership

Improve the attractiveness of transit to serve more people in the corridor

Measure	Alternative 1: I-394	Alternative 2: TH 55
Station-to-Station BRT	7,400	6,600
Transit-Dependent	2,000	2,400
Reverse Commute	2,800	3,600
Off-Peak	3,100	2,700
Express Bus	1,000	1,000
Guideway Total	8,400	7,600
Express Bus Routes w/ potential to use 169	2,500	2,500

Goal 4 – Return on Investment

Provide a high long-term return on the transportation investment

Measure	Alternative 1: I-394	Alternative 2: TH 55
BRT Capital Cost	\$67 million	\$69.0 million
BRT Operating & Maint Costs	\$16.5 million	\$17.1 million
Annualized Capital + Operating Costs per Trip (BRT only)	\$8.85	\$10.25

Cost Range for MnPASS: \$329 million to \$591 million

- Alternative 1 is slightly more cost effective for BRT.

Goal 5 – Supportive Conditions

Prioritize service to existing transit-supportive areas and to those committed to implementing development patterns that support transit service



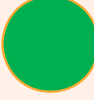
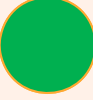








Measure	Alternative 1 I-394	Alternative 2 TH 55
Projected Population	26,300	30,400
Projected Employment	57,100	49,800
Transit-Supportive Plans & Policies	Somewhat supportive policies	Somewhat supportive policies
Bicycle/Pedestrian Policies & Connections	Supportive policies More difficult to implement overall	Slightly less supportive policies Existing infrastructure easier to supplement

Goal 6 – Preserve Environment

Preserve and enhance the quality of the built and natural environments

- Very few sites with hazardous material near the alternatives
- Alternative 2 has fewer locations that are sensitive to noise and vibration receptors
- No cultural or historic resources impacts expected for either alternative
- Few/no property acquisition impacts expected for both alternatives
- Alternative 2 serves greater concentrations of minority populations and low-income residents than Alternative 1

Results Summary

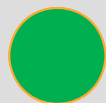
Goal	Alternative 1: I-394	Alternative 2: TH 55
1. Improve Access		
2. Mobility		
3. Ridership		
4. Return on Investment		
5. Supportive Conditions		
6. Preserve Environment		



Does not satisfy goal



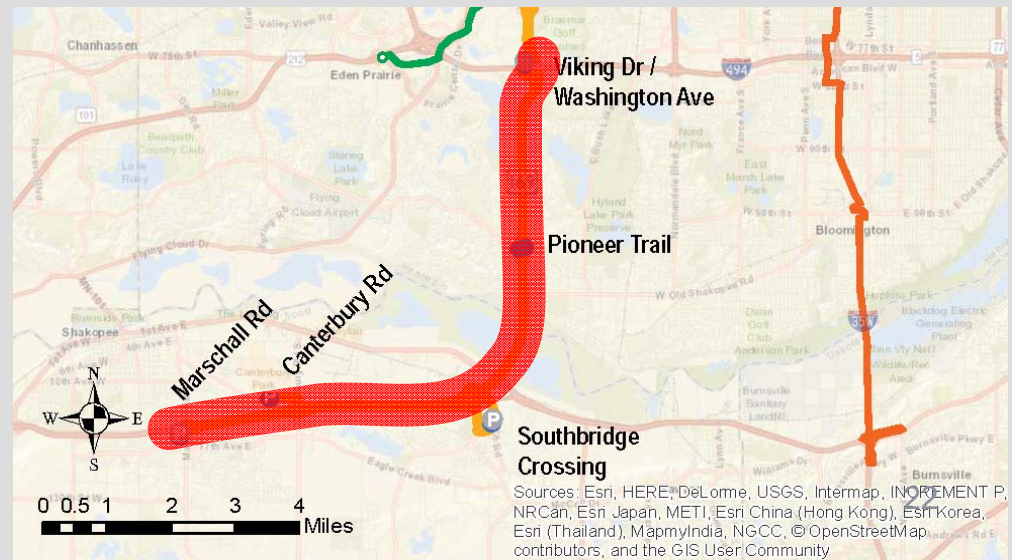
Satisfies goal



Best satisfies goal

Alternative 3

- MnPASS lanes on Hwy 169 between Marschall Road and I-494
- No BRT component or other additional transit service
- Limited ability to compare directly to BRT Alternatives (1&2)
- Potential to consider for phasing within Implementation Plan?
- MnPASS lanes between Marschall Road and I-494 perform sufficiently to merit consideration as a separate phase in the Implementation Plan



Goal 1 - Access

Measure	Alternatives 1 & 2	Alternative 3
Travel Time Reliability (Peak Period Trips)	28,100	23,300

- Approximately 20% fewer reliable trips compared to Alternatives 1 & 2

Goal 2 – Mobility

Measure	Alternative 1 & 2	Alternative 3
Person throughput	12,300-13,400	10,100-13,100
Delay per user	0:30 to 6:10 (-60%)	0:40 to 7:50 (-37%)
Change in VHT	-5,500	-2,200
Reduction in crash risk	-44% congestion (mi-hr) -35% bottleneck conflicts	-23% congestion (mi-hr) -4% bottleneck conflicts

- Effective at improving throughput and reducing delay along Hwy 169 south of I-494

Goal 4 – Return on Investment

Measure	Alternatives 1 & 2	Alternative 3
MnPASS Capital Cost	\$329-591 million	\$136 million
Cost per Reliable Trip	\$2.25 - \$4.05	\$1.11

- Lower cost commitments for MnPASS operations & enforcement and incident management

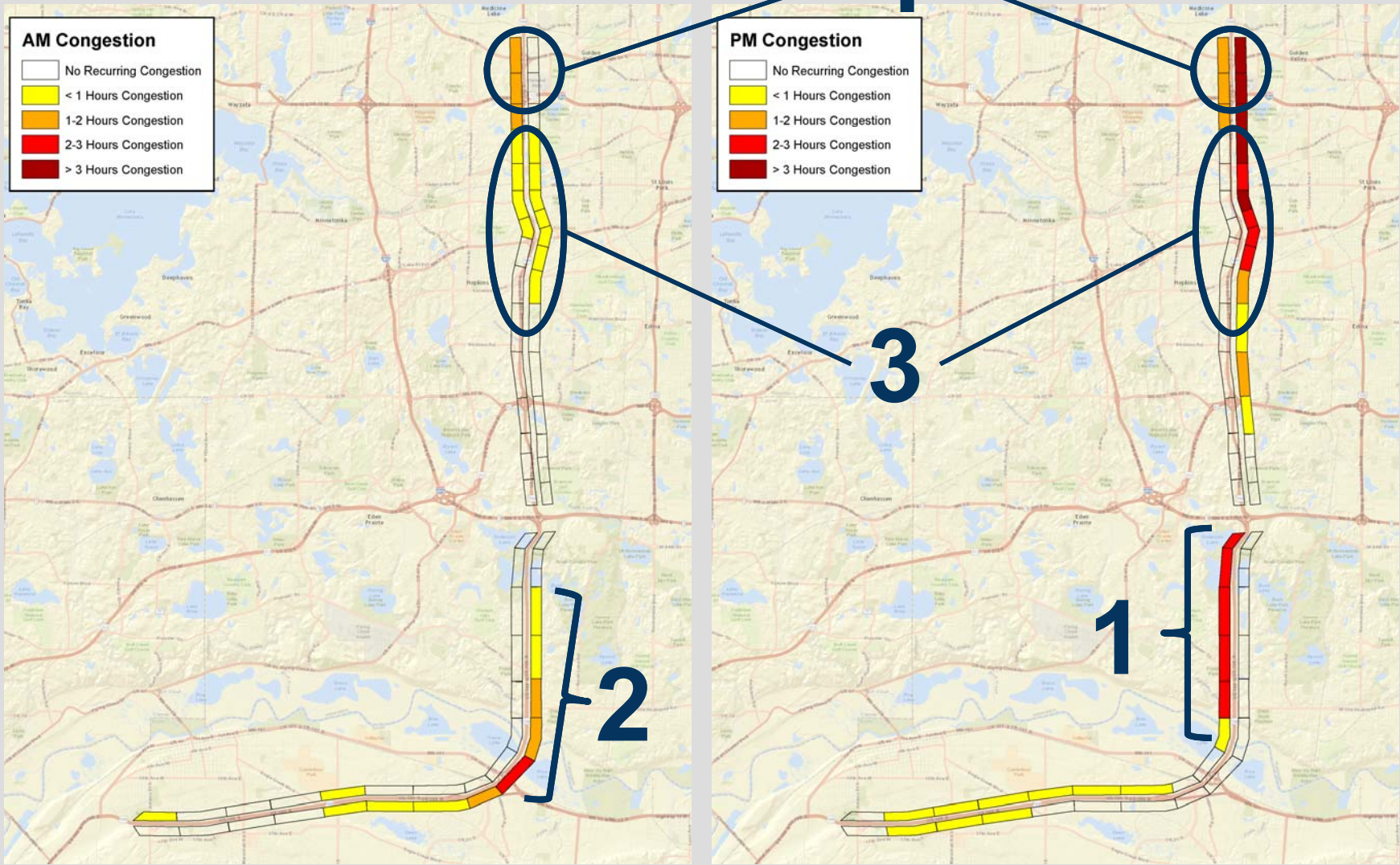
SPOT MOBILITY IMPROVEMENTS

Spot Mobility Improvements

- Focus on bottleneck locations identified in Existing Conditions Report
- Develop solutions to help improve traffic flow and safety
- Evaluate based on stand-alone traffic benefits as well as compatibility with MnPASS lanes
- Include beneficial solutions in Implementation Plan
- Coordination with CMSP and TPP updates

Spot Mobility Improvements

- Solution focus areas



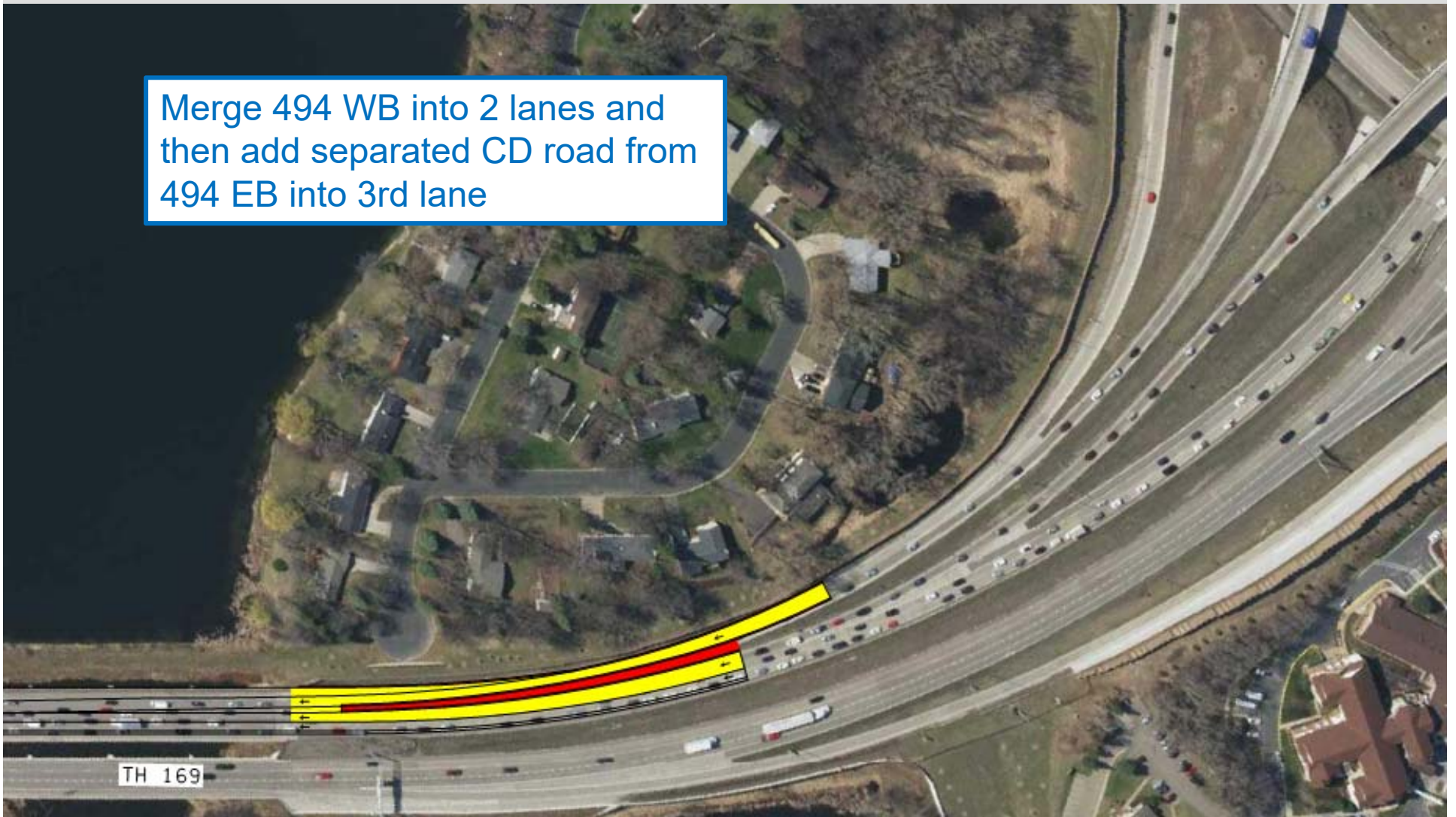
SB TH 169 – Old Shakopee Rd to Hwy 101

Restripe Hwy 101 exits as center decision lane instead of right lane add and 2-2 split



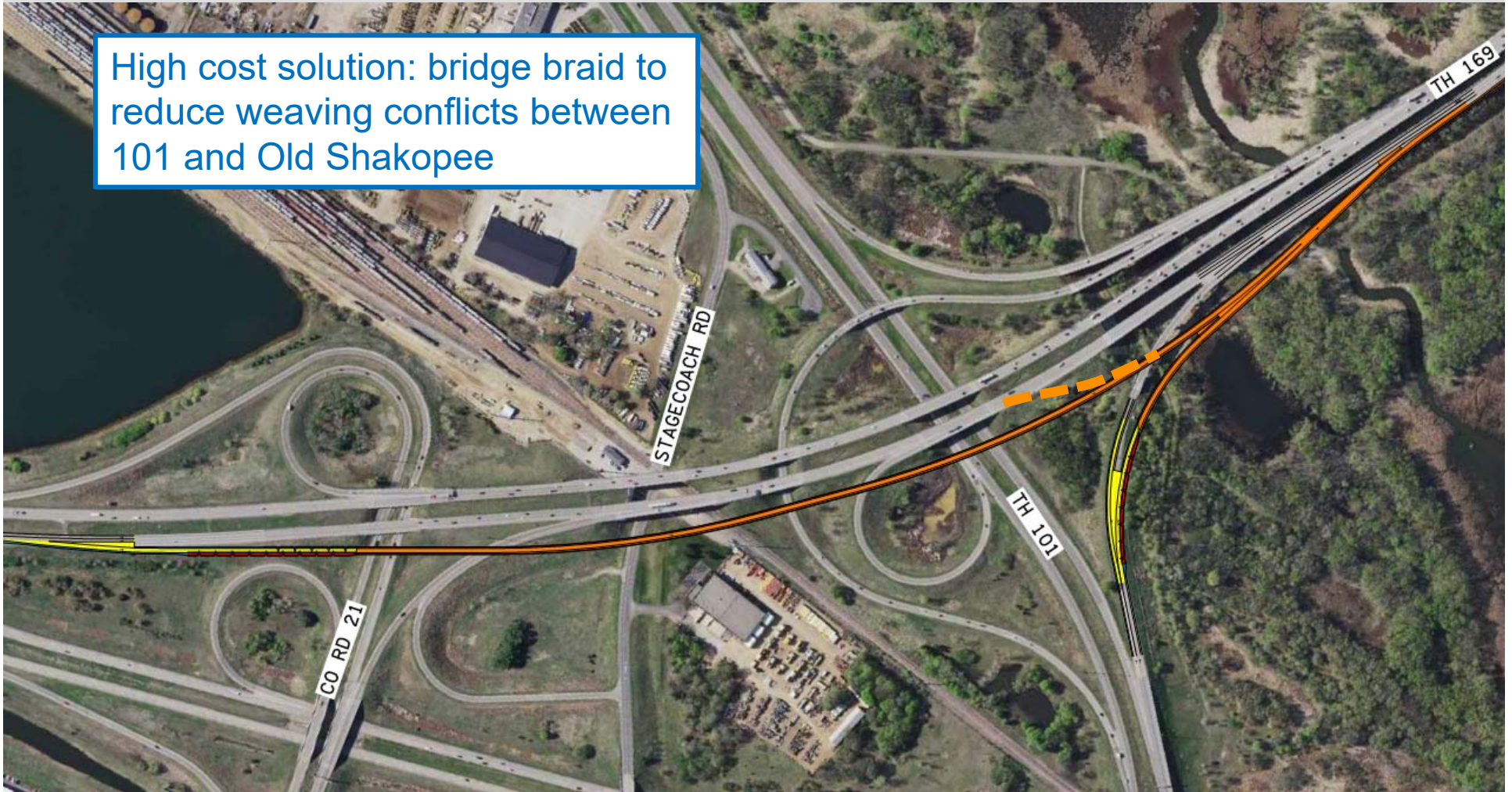
SB TH 169 at I-494

Merge 494 WB into 2 lanes and then add separated CD road from 494 EB into 3rd lane



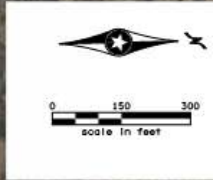
NB TH 169 – Hwy 101 to Old Shakopee Rd

High cost solution: bridge braid to reduce weaving conflicts between 101 and Old Shakopee



NB TH 169 at Anderson Lakes Pkwy

High cost solution: widen bridge to provide 3 lanes + shoulder

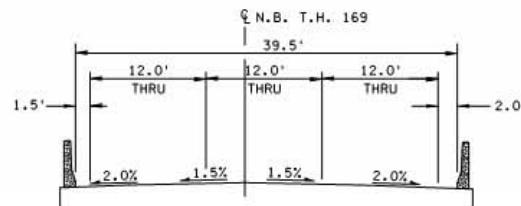
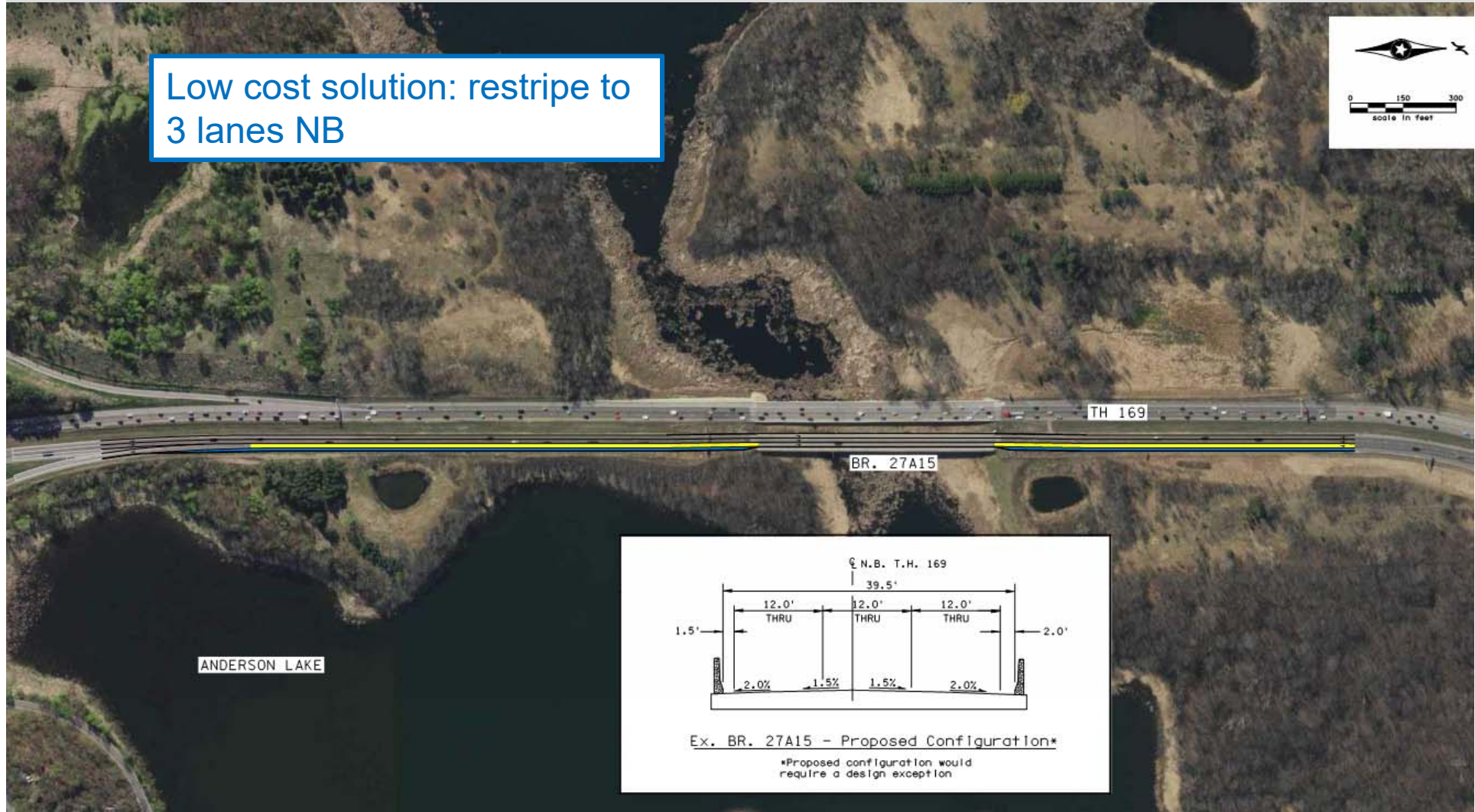


NB TH 169 at Anderson Lakes Pkwy

Low cost solution: restripe to 3 lanes NB



0 150 300
scale in feet



Ex. BR. 27A15 - Proposed Configuration*

*Proposed configuration would require a design exception

NEXT STEPS

Study Outcomes

Study results will be incorporated into the Met Council's 2040 Transportation Policy Plan Update

The recommended implementation plan of improvements will be used by MnDOT and corridor partners to help determine whether to:

- Advance specific improvements into project scoping and the environmental/pre-design process;
- Add specific improvements to projects already programmed or planned within the corridor; and
- Otherwise get improvements ready should additional funding become available.

Next Steps

- Finalize spot mobility improvements
- Develop Optimized Scenario
- Prepare Implementation Plan
- Complete public involvement (share findings)
- Final Report

Questions?

Thank you!

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