Highway 169 Mobility Study

I-35W Solutions Alliance

Project Update

July 13, 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

DEPARTMENT OF TRANSPORTATION

Scott

METROPOLITAN COUNCIL

Agenda

- Study Overview
- Intercity Bus Study Outcomes
- BRT/MnPASS Study Status
- Remaining Analysis

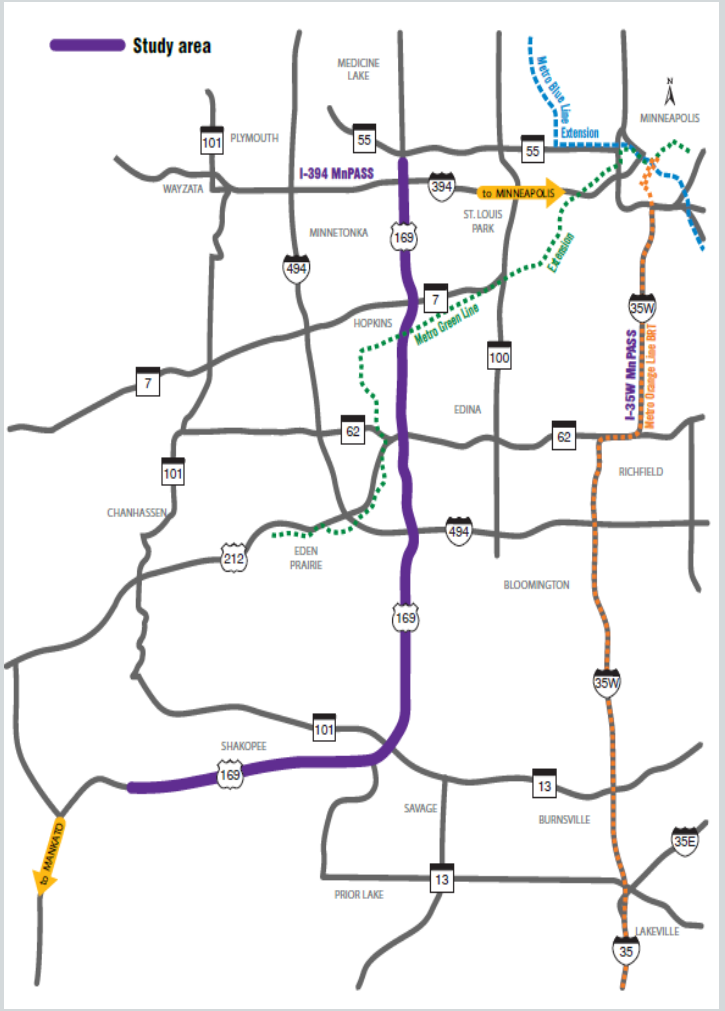
Study Overview

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

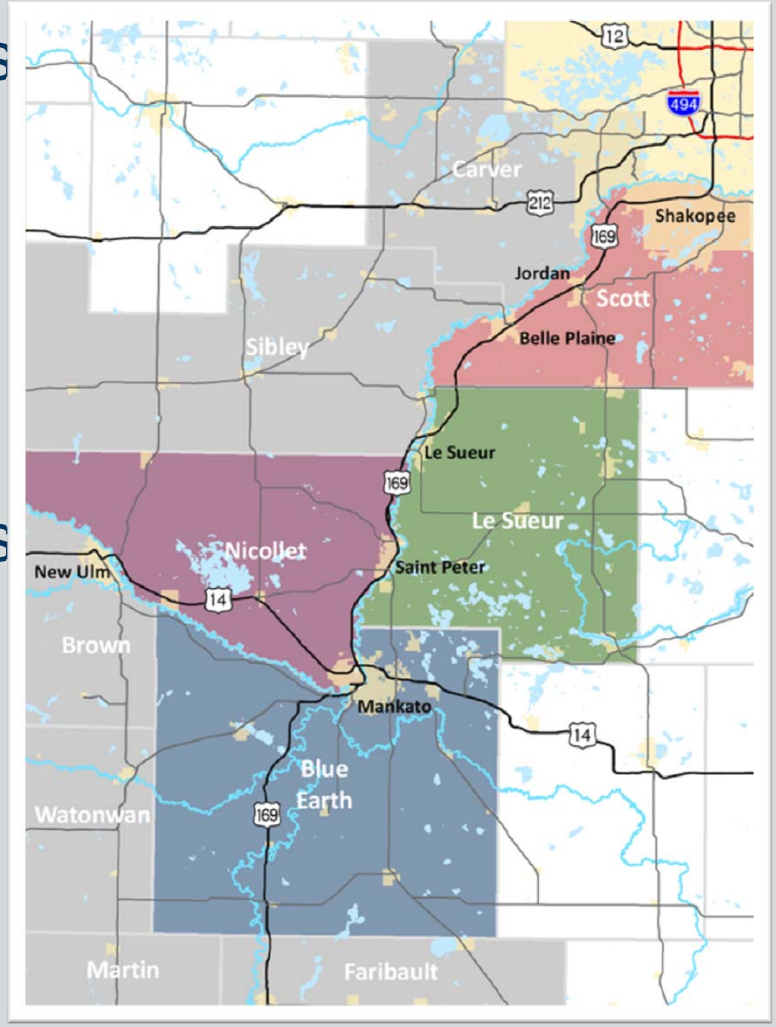
Study scope includes two components:

- Task 1 includes identifying and evaluating:
  - 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
- Task 2 included the evaluation of improved intercity bus service between Mankato & the Twin Cities



Task 2: Project Need

- Improved regional connections between people, jobs, services, and other destinations throughout the corridor
- Expanded travel options for those with limited or no access to a vehicle
- Intercity service that is frequent, affordable, and connected to other transit services



Task 2: Intercity Bus Demand

- Maximum ridership on the entire corridor is forecasted to be approximately 98,000 boardings per year.
- 2017 ridership on Land-to-Air Express is estimated to be 25,000-30,000 boardings
- Evidence supports growth potential on the corridor.

	Estimated Average Daily Boardings	
Origin	Low	High
Mankato	20	25
Saint Peter	30	30
Le Sueur	10	10
Belle Plaine	75	75
Jordan	80	85
Metro	170	180
	385	405

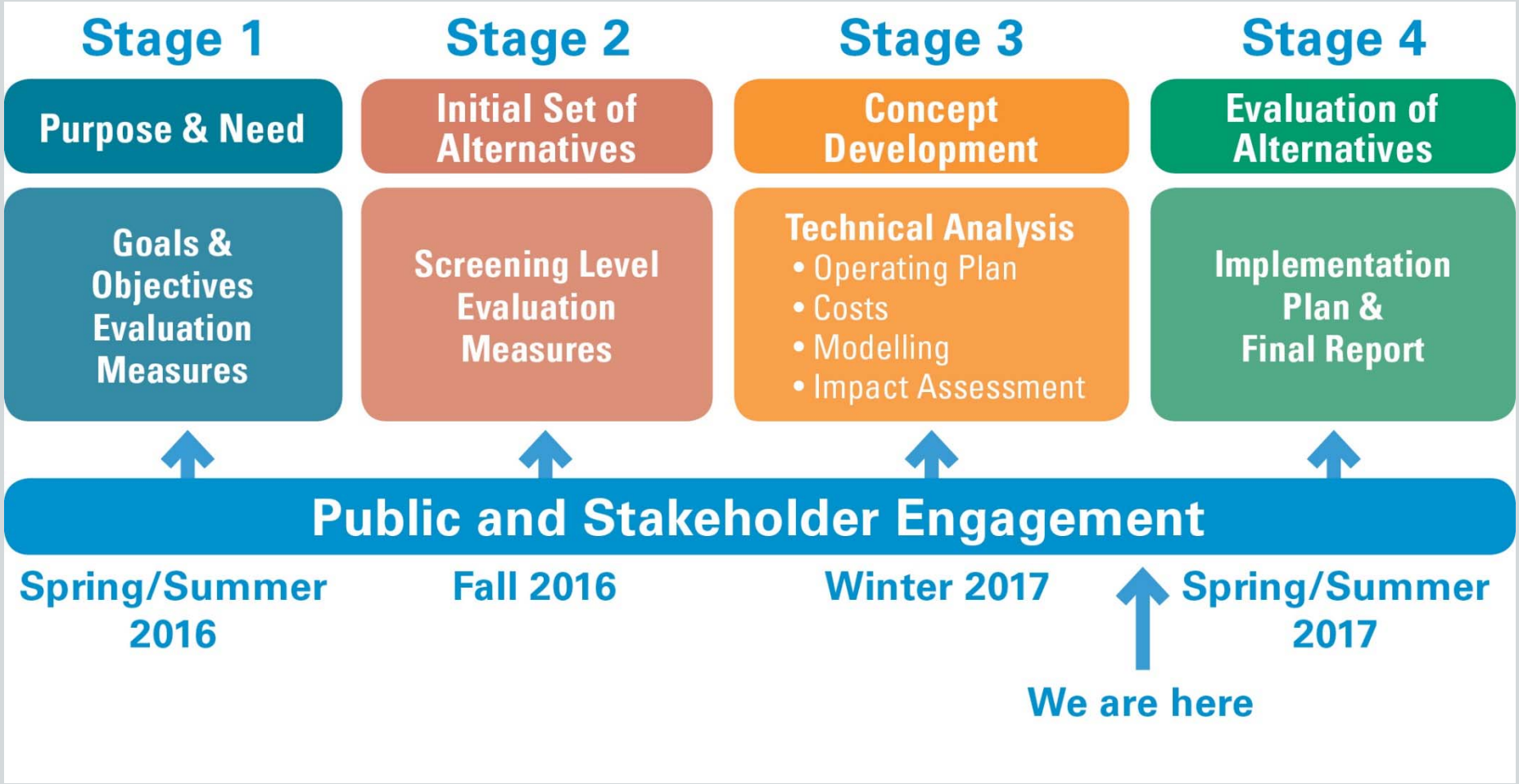
Task 2: Next Steps – Short Term

- Stay involved with Land to Air in terms of the implementation and performance of their 2017 Intercity Bus service along Highway 169 Corridor between Mankato and Minneapolis
- Create an Intercity Bus Service Transit Advisory Committee (TAC) to continue the discussion on expanding service along 169 Corridor and implementation of recommended service plan
- Develop minimum requirements for corridor stop improvements, including minimum size, access, park and ride, shelter and amenities
- Work with communities where a corridor stop is proposed to identify potential sites and entitlement process
- Work with MnDOT on identifying funding opportunities for capital improvements

Task 2: Next Steps – Long Term

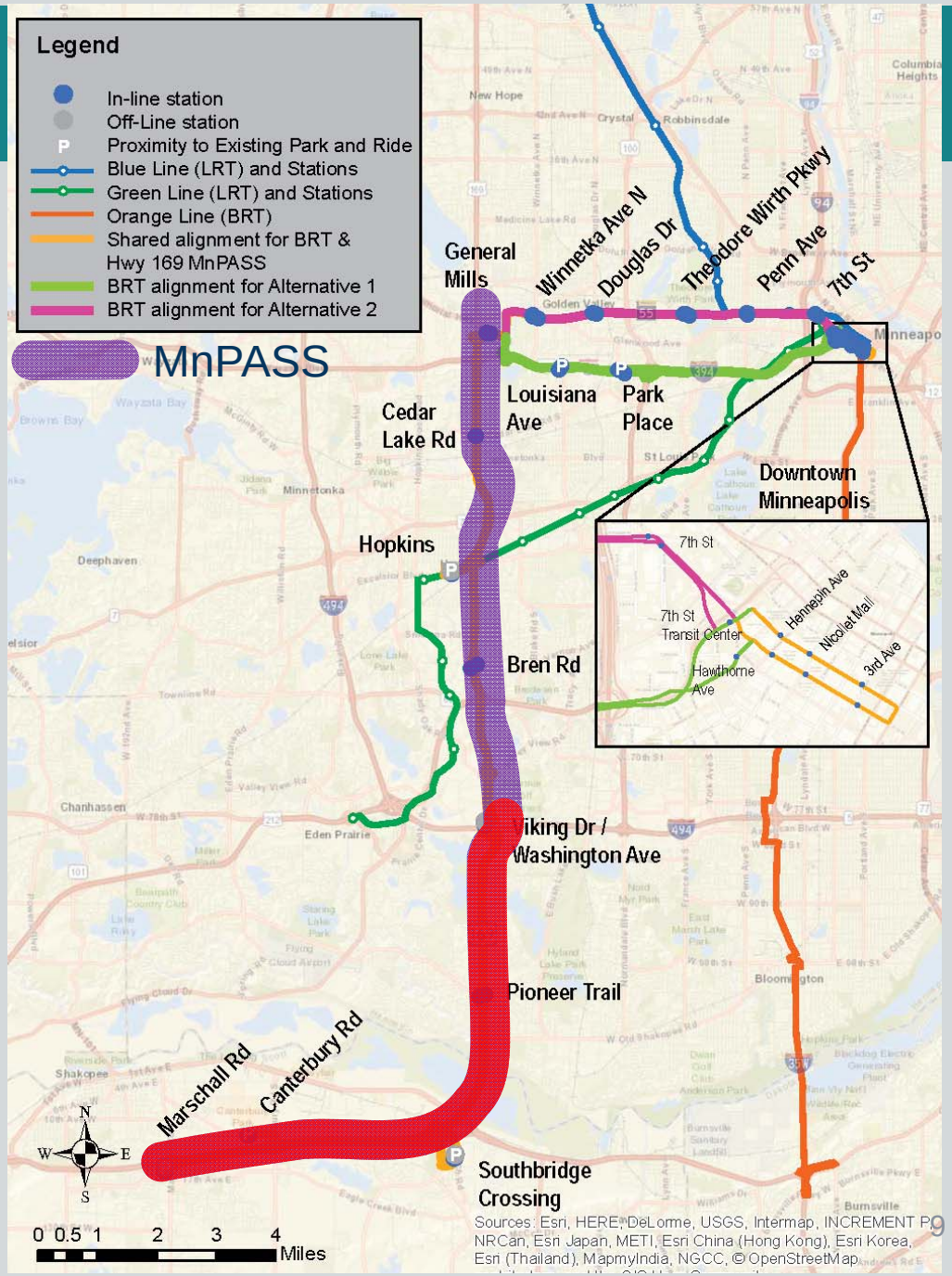
- Intercity Bus Service TAC continue to meet to determine any need for expanded intercity bus service beyond LTA 2017 service, funding opportunities, and how to implement expanded service as proposed by this study
- This will include working closely with LTA, MnDOT, transit agencies, and local communities

Task 1: 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



Task 1: Competed Work

Initial alternative identification & screening

- 7 initial BRT alternatives screened
  - Hwy. 169 North Analysis (Hwy. 55 - Brooklyn Blvd.)
- 11 initial MnPASS alternatives screened (7 termini and 4 cross section options)

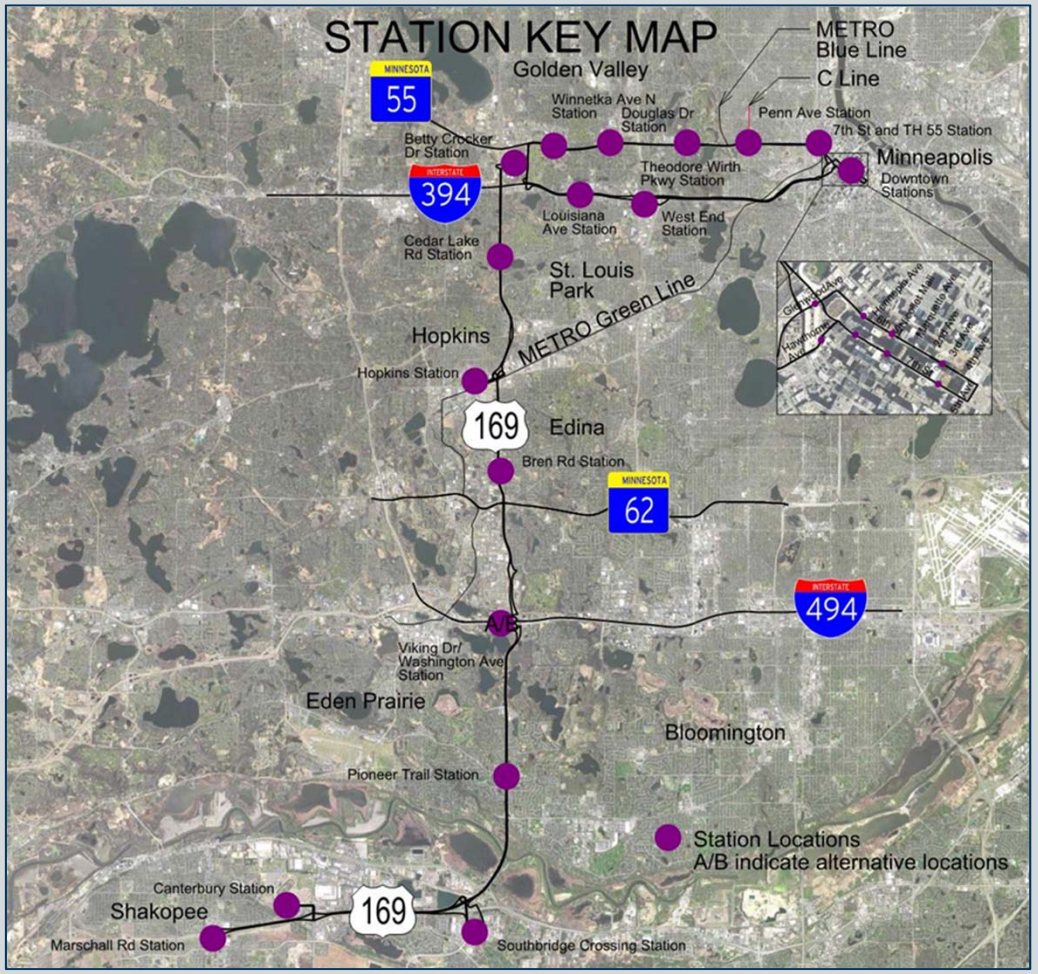
Final alternatives moving into detailed concept development and evaluation

- BRT: Marschall Rd. - downtown Mpls. via Hwy. 169/I-394
- BRT: Marschall Rd. - downtown Mpls. via Hwy. 169/Hwy. 55
- MnPASS: Marschall Rd. – I-394
- MnPASS: Marschall Rd. – Hwy. 55
- MnPASS: Marschall Rd. – I-494

Task 1: Completed Work

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

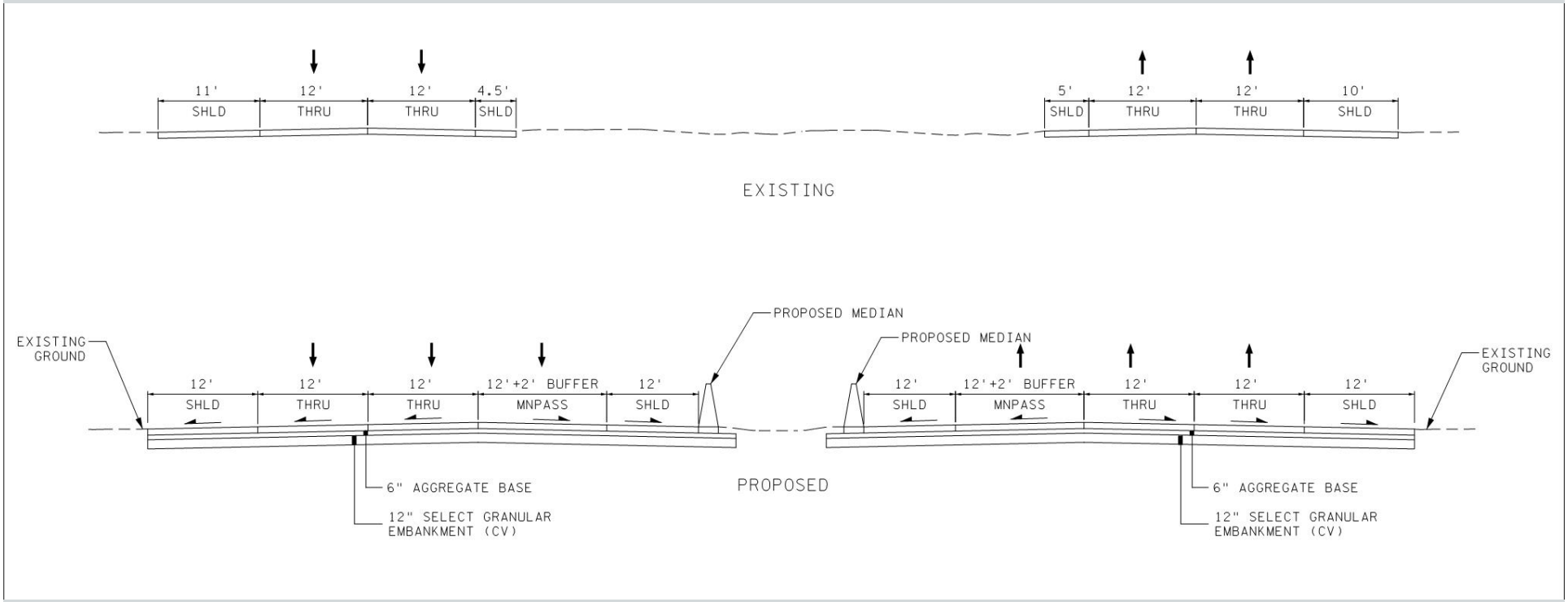


Task 1: Completed Work

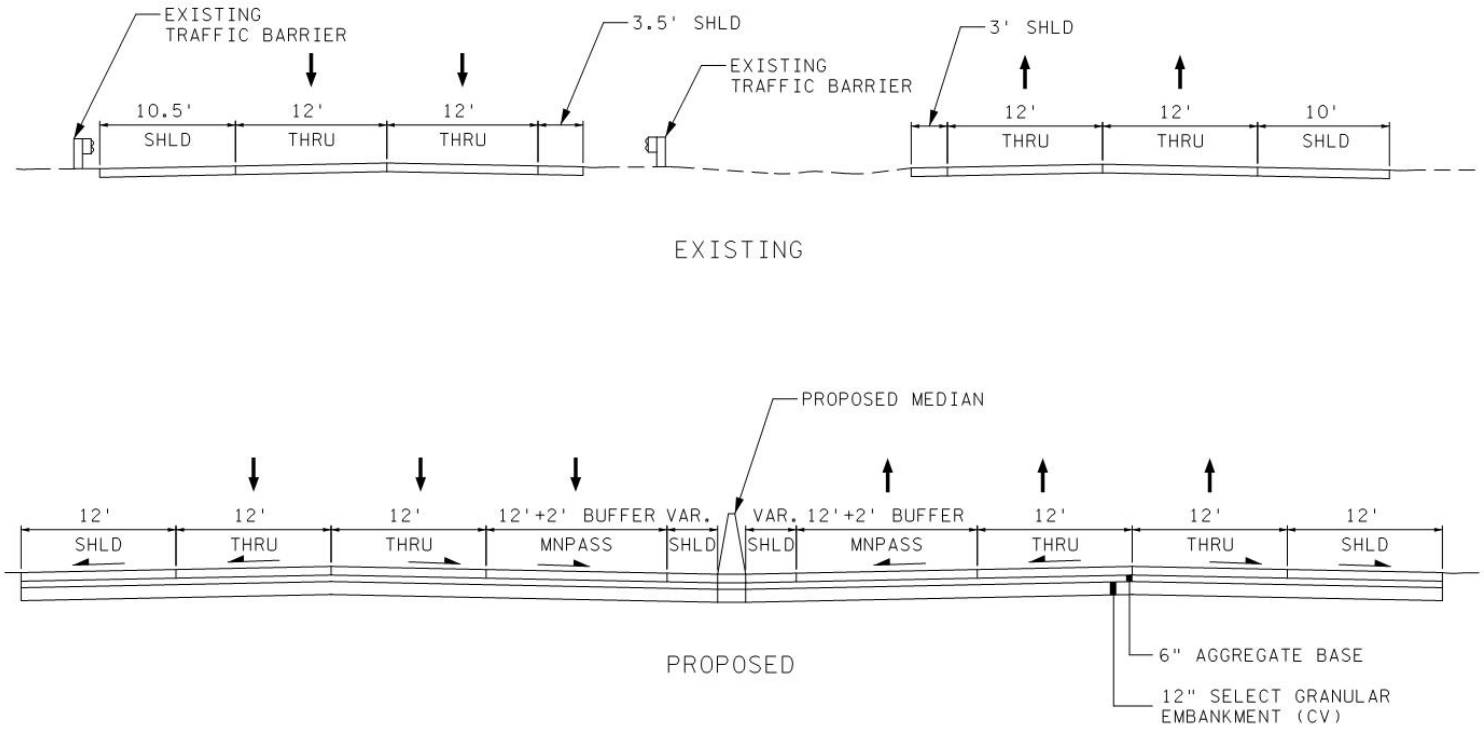
MnPASS Alternatives

- 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

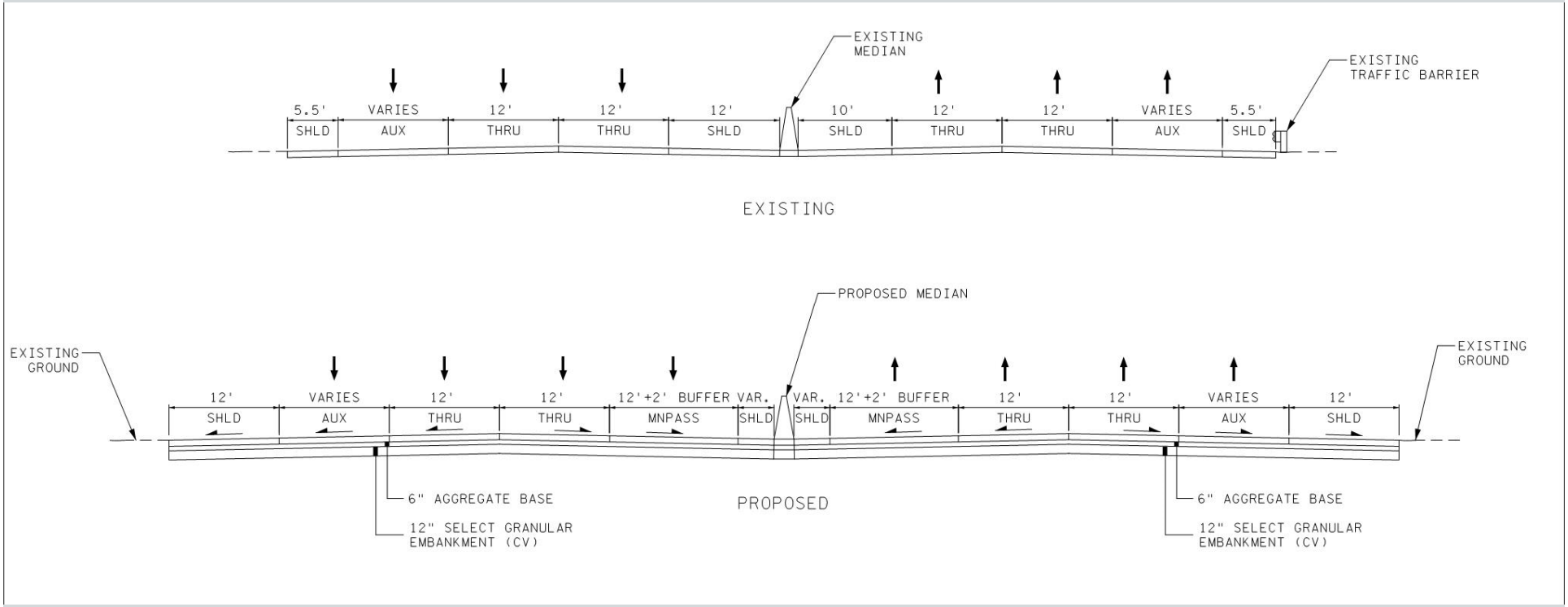
Marschall Rd to I-494



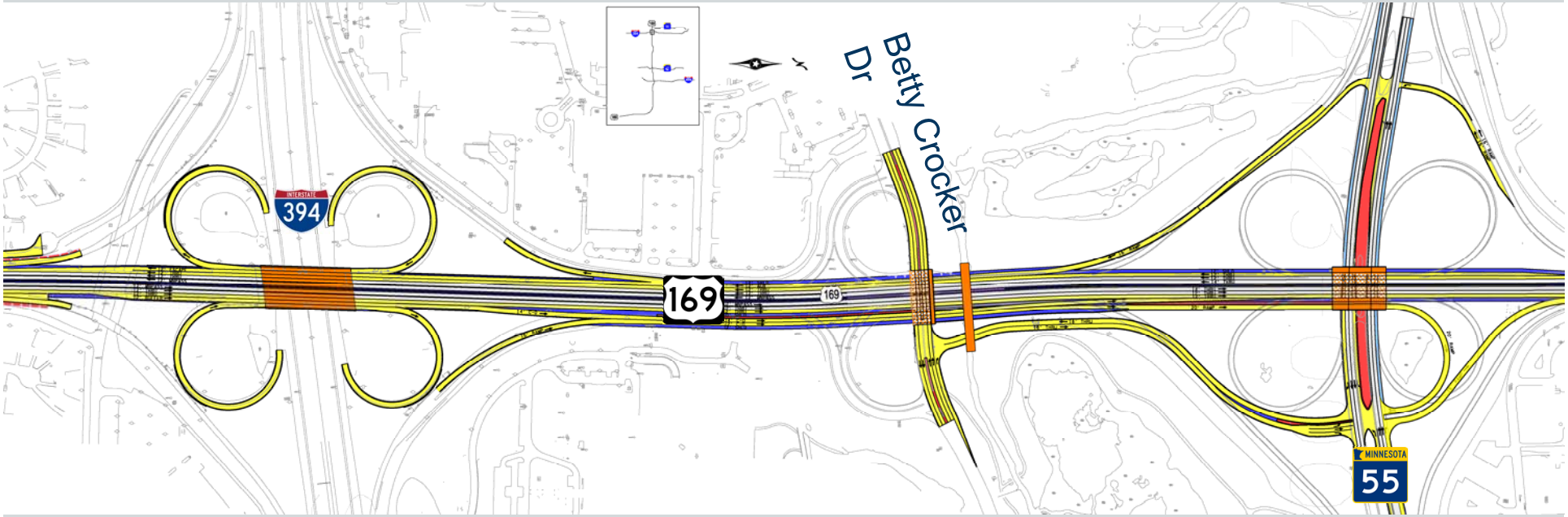
I-494 to TH 62


EXISTING
TRAFFIC BARRIER
3.5' SHLD
EXISTING
TRAFFIC BARRIER
3' SHLD
10.5'
12'
12'
12'
12'
10'
SHLD
THRU
THRU
THRU
THRU
SHLD
EXISTING
PROPOSED MEDIAN
EXISTING
GROUND
EXISTING
GROUND
12'
12'
12'
12'+2' BUFFER VAR.
VAR. 12'+2' BUFFER
12'
12'
12'
SHLD
THRU
THRU
MNPASS
SHLD
SHLD
MNPASS
THRU
THRU
SHLD
PROPOSED
6" AGGREGATE BASE
12" SELECT GRANULAR
EMBANKMENT (CV)

North of TH 62



I-394 to TH 55

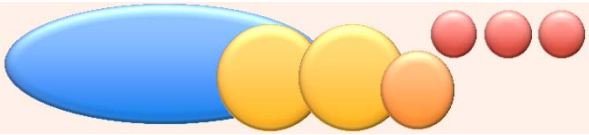


Project Goals

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

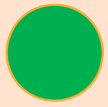
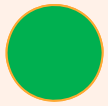
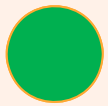
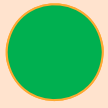
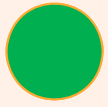
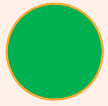
Goal 4 – Return on Investment

Provide a high long-term return on the transportation investment

Measure	Alternative 1: I-394	Alternative 2: TH 55
Overall Capital Costs	$658 million	$660 million
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
MnPASS Capital Cost	$591 million	$591 million
Cost per Reliable Trip	$4.05	$4.05

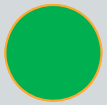
- Alternative 1 is slightly more cost effective for BRT.

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

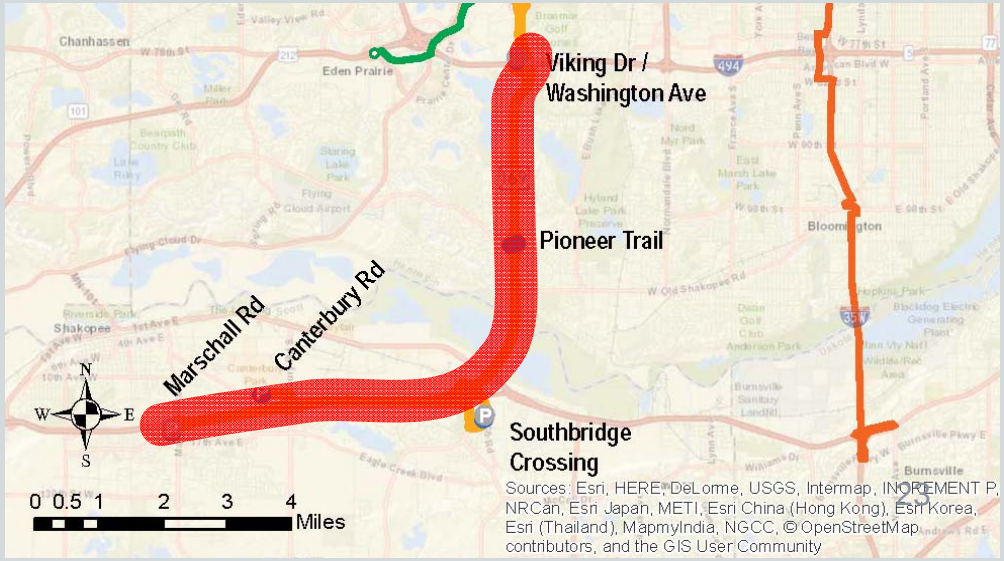
 Satisfies goal

 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
Overall Capital Costs	$658-660 million	$136 million
BRT Operating & Maint Costs	$16,500,000-$17,100,000	-
Annualized Capital + Operating Costs per Trip (BRT only)	$8.85-$10.25	-
MnPASS Capital Cost	$591 million	$136 million
Cost per Reliable Trip	$4.05	$1.11

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

Task 1: 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.

Task 1: Next Steps

- Finalize spot mobility improvements
- Complete Sensitivity Tests
- Optional: Choose Optimized Scenario
- Develop implementation plan
- Complete public involvement (Share Alternatives)
- Final Report

Sensitivity Tests

- Peak period frequency reduction
- BRT without MnPASS
- Station removal

Questions?

Thank you!

Brad Larsen
MnPASS Policy & Planning
brad.larsen@state.mn.us
651-234-7024

Lisa Freese
Scott County
LFreese@co.scott.mn.us
952-496-8363

Cole Hiniker
Metropolitan Council
cole.hiniker@metc.state.mn.us
651-602-1748