



I-35 Connects

Moving Duluth People and Goods

ARDC MIC I-35 CORRIDOR PLAN Implementation Plan

10/17/2023 MIC TAC Meeting
10/18/2023 MIC Policy Board





- Phase II Engagement Summary
- Concept Refinements
 - Downtown
 - Spirit Valley
 - Thompson Hill
- Implementation Plan
- Next Steps



STUDY APPROACH

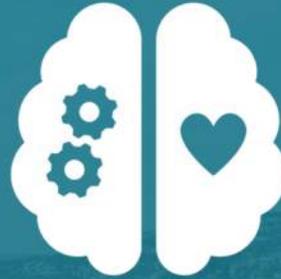


DISCOVER + LISTEN

Summer/Fall 2022

Existing Conditions

Future Conditions



DESIGN + EVALUATE

Winter-Summer 2023

Visioning

Alternatives Analysis



REVIEW + APPROVE

Fall 2023

Implementation

Final Report



Phase II Engagement Summary



- **Prioritize pedestrian and bicycle**
- **Advocacy for freeway removal**
 - **Divides community; pedestrian connectivity; prioritizes cars over other modes;**
- **Criticism for freeway removal**
 - **Negative impacts on traffic flow and event-related congestion**
- **Need for continued planning efforts to consider multimodal transportation (ex: bus, NLX)**



- Common themes
 - Removal of left exits/entrances seen as positive
- Consolidated Interchange
 - Mixed views
 - Concern with adding traffic lights
- Median U-Turn
 - Concern design is complicated and difficult for users



- **Roundabout Parkway**
 - Polarized views
 - Support for enhanced connectivity and aesthetics
 - Concern for traffic impacts including freight and accessibility
- **Lid**
 - Support for aesthetics, green space, connectivity
 - Cost concerns
 - Desire for lid to expand
- **Interchange Improvements**
 - Opposition as too little change or maintaining the status quo





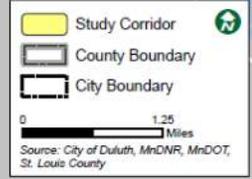
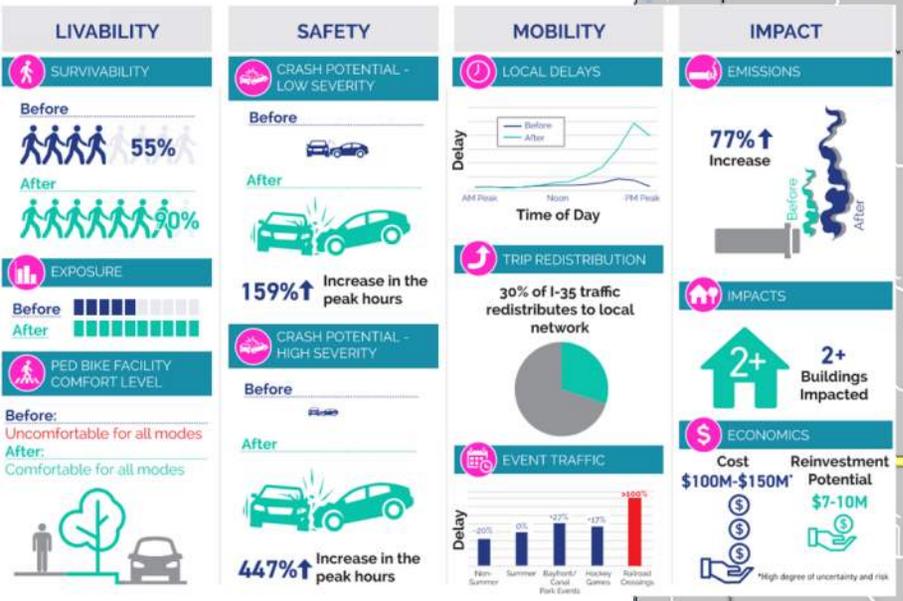
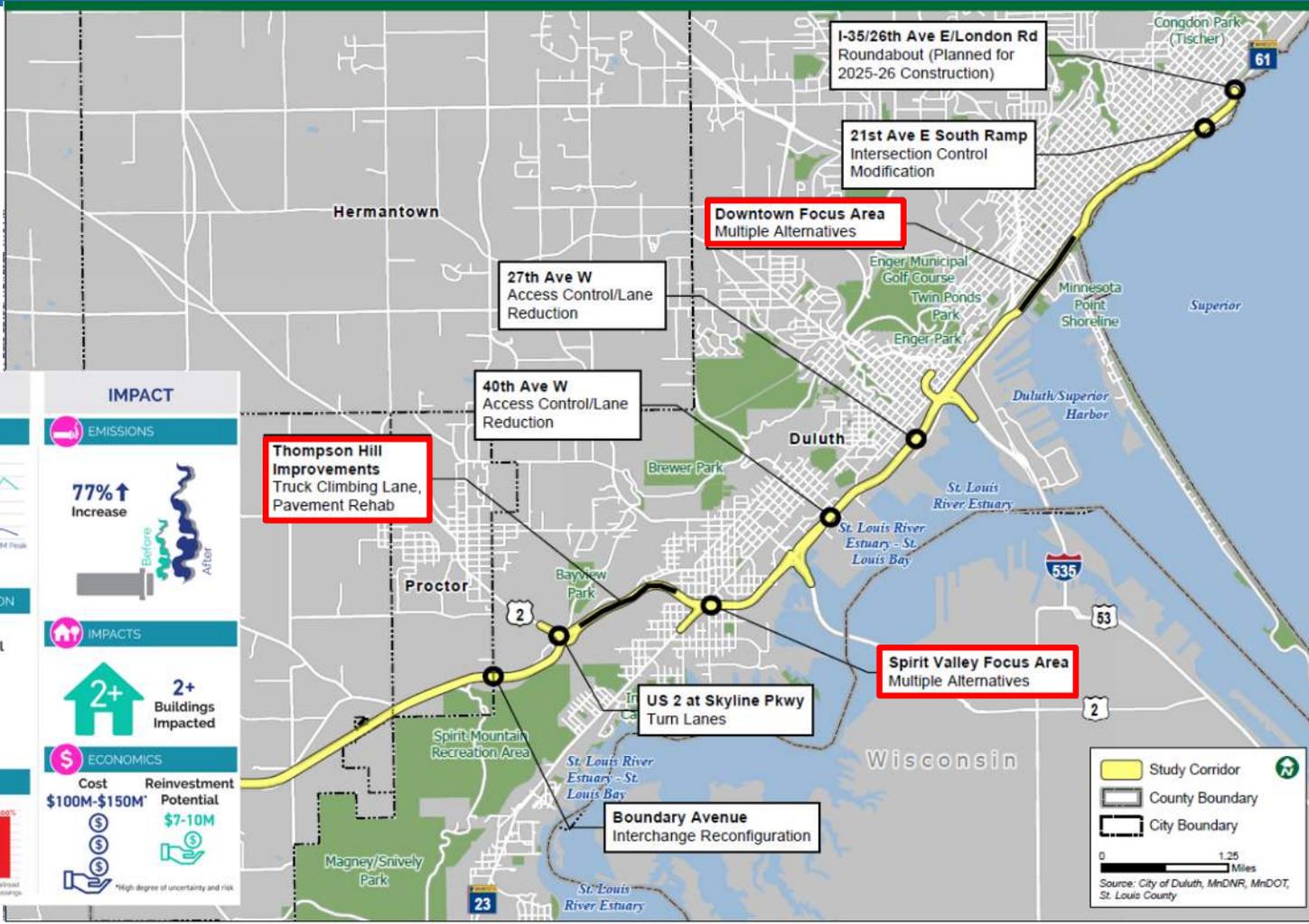
- Downtown
- Grand and Central Avenue
- Thompson Hill Area
- Intelligent Transportation Systems





PREVIOUS UPDATE

- Discussed ~20 Improvement Strategies
- Reviewed evaluation scorecards



Downtown



Original Local Road Concept



PEDESTRIAN OMIT ON FLASHING YELLOW ARROW (POOFYA)
Reduces Vehicle-Pedestrian Crash Potential up to 28%

LEADING PEDESTRIAN INTERVAL
Reduces vehicle-ped crash potential up to 60%

RESTRICTED RIGHT TURN
60%+ Reduction in vehicle-ped crashes

5th Avenue Bridge Rendering

Downtown - S 5th Ave W Concept Rendering



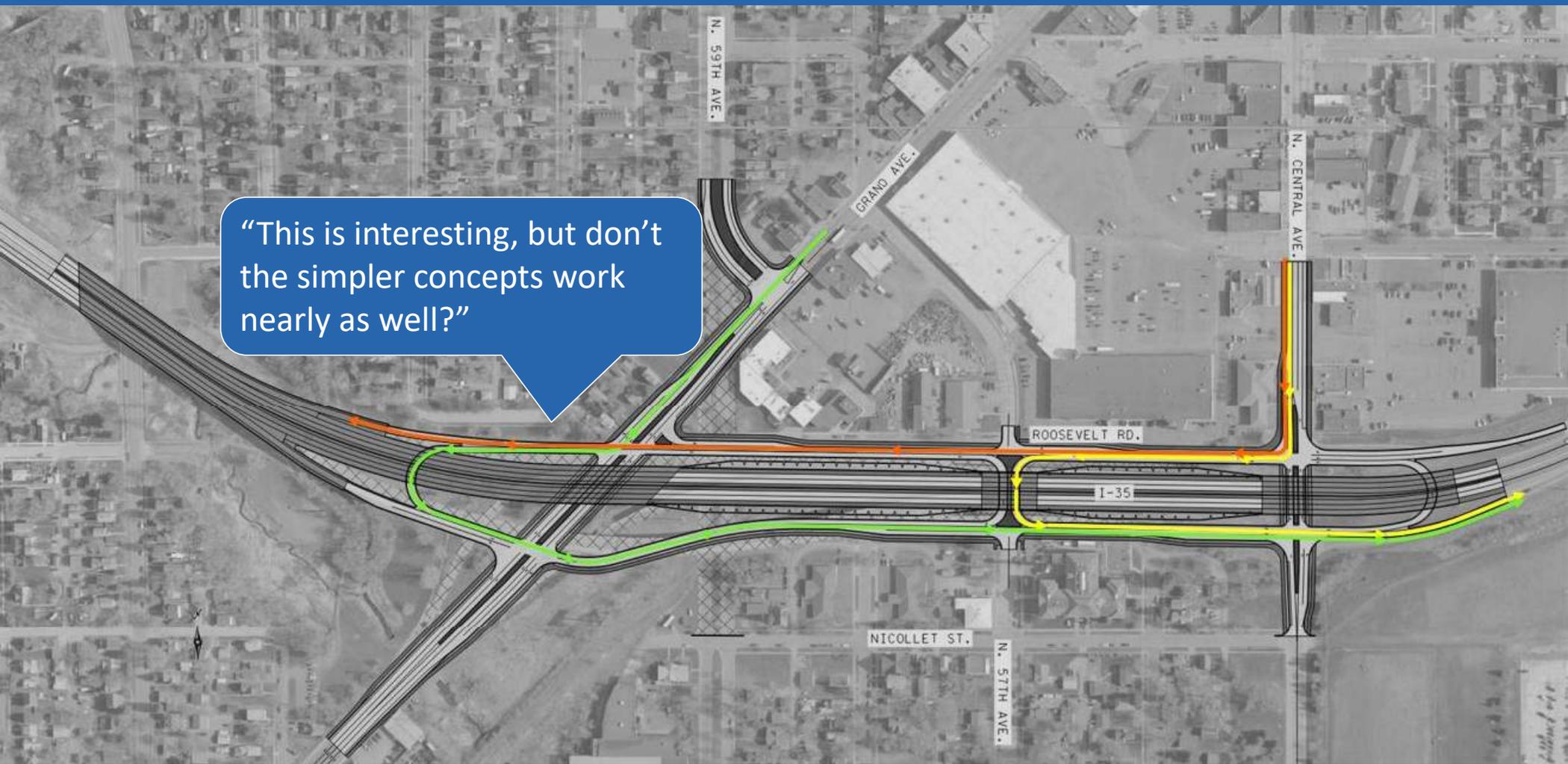
Grand and Central Avenues





MEDIAN U-TURN INTERCHANGE

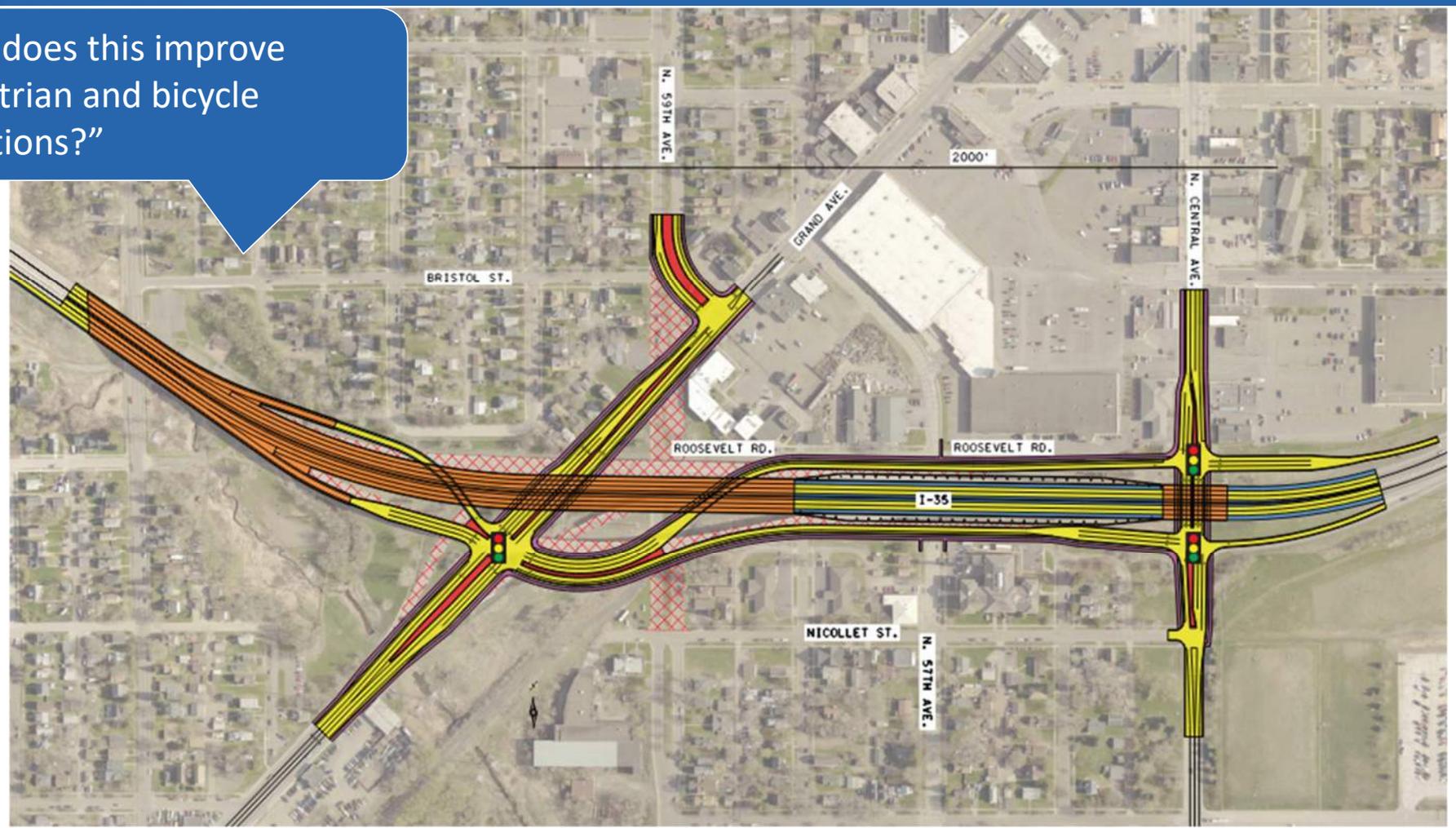
“This is interesting, but don’t the simpler concepts work nearly as well?”





CONSOLIDATED INTERCHANGE

“How does this improve pedestrian and bicycle conditions?”



Consolidated Interchange Rendering

Spirit Valley / West Duluth - N 57th Ave W Underpass Concept Rendering



Thompson Hill



THOMPSON HILL

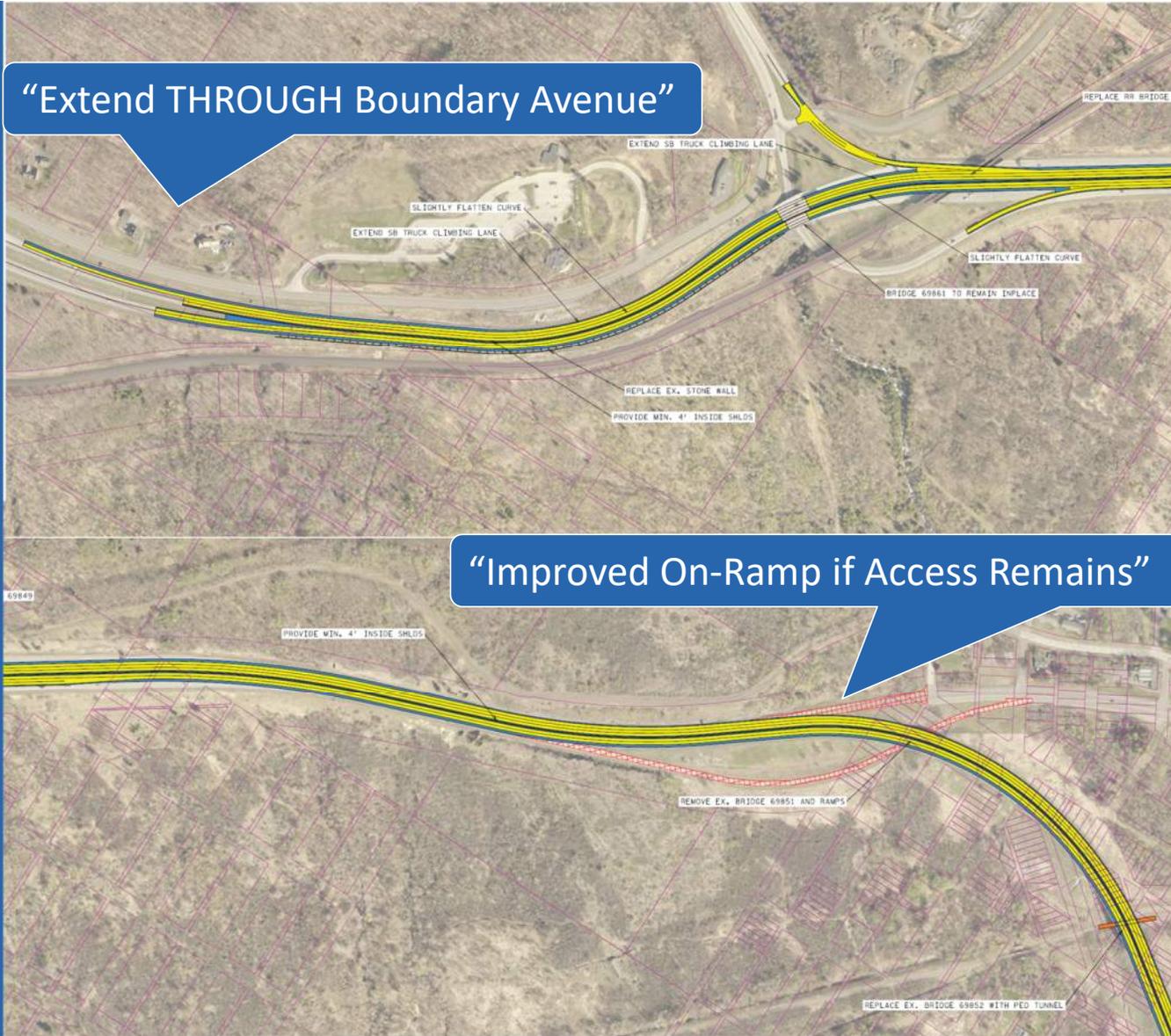
“Extend THROUGH Boundary Avenue”

“Improved On-Ramp if Access Remains”

Criteria

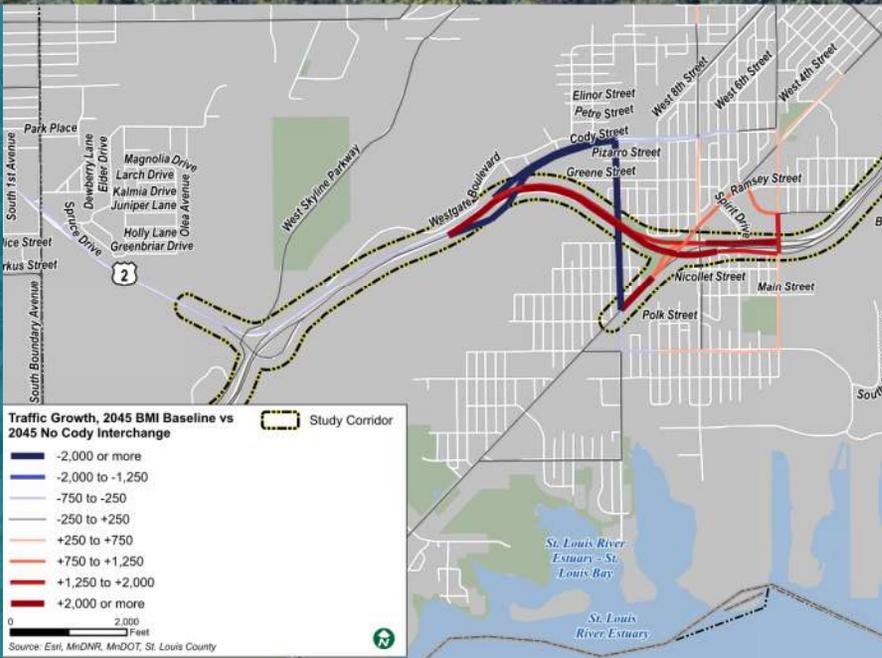
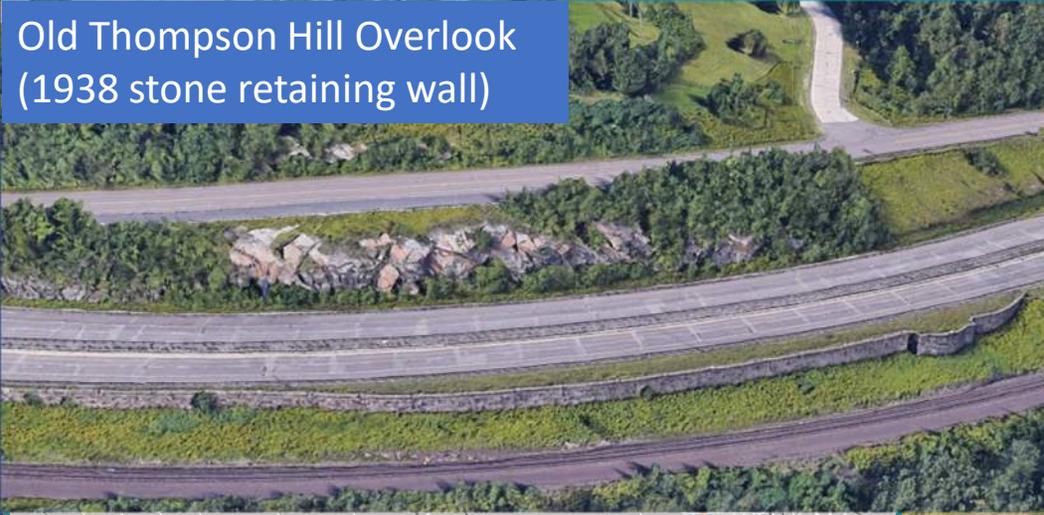
● Worse
 ● Neutral
 ● Better

CRITERIA	BEFORE	AFTER	DESCRIPTION
LIVABILITY			<ul style="list-style-type: none"> Reconstructed trailhead to DWP Trail
SAFETY			<ul style="list-style-type: none"> Substandard shoulders and curvature corrected Remove deficient partial interchange that doesn't meet spacing standards
MOBILITY			<ul style="list-style-type: none"> Truck climbing lane improved freight reliability and mainline operations Turn lanes at US 2 & Skyline Pkwy improve local mobility
IMPACT			<ul style="list-style-type: none"> Environmentally sensitive areas with potential for impacted Potential for 4 bridge replacements at US 2 interchange
COST			<ul style="list-style-type: none"> Estimated Construction Cost - \$35M - \$45M (2023 dollars)



Thompson Hill Challenges

Old Thompson Hill Overlook (1938 stone retaining wall)



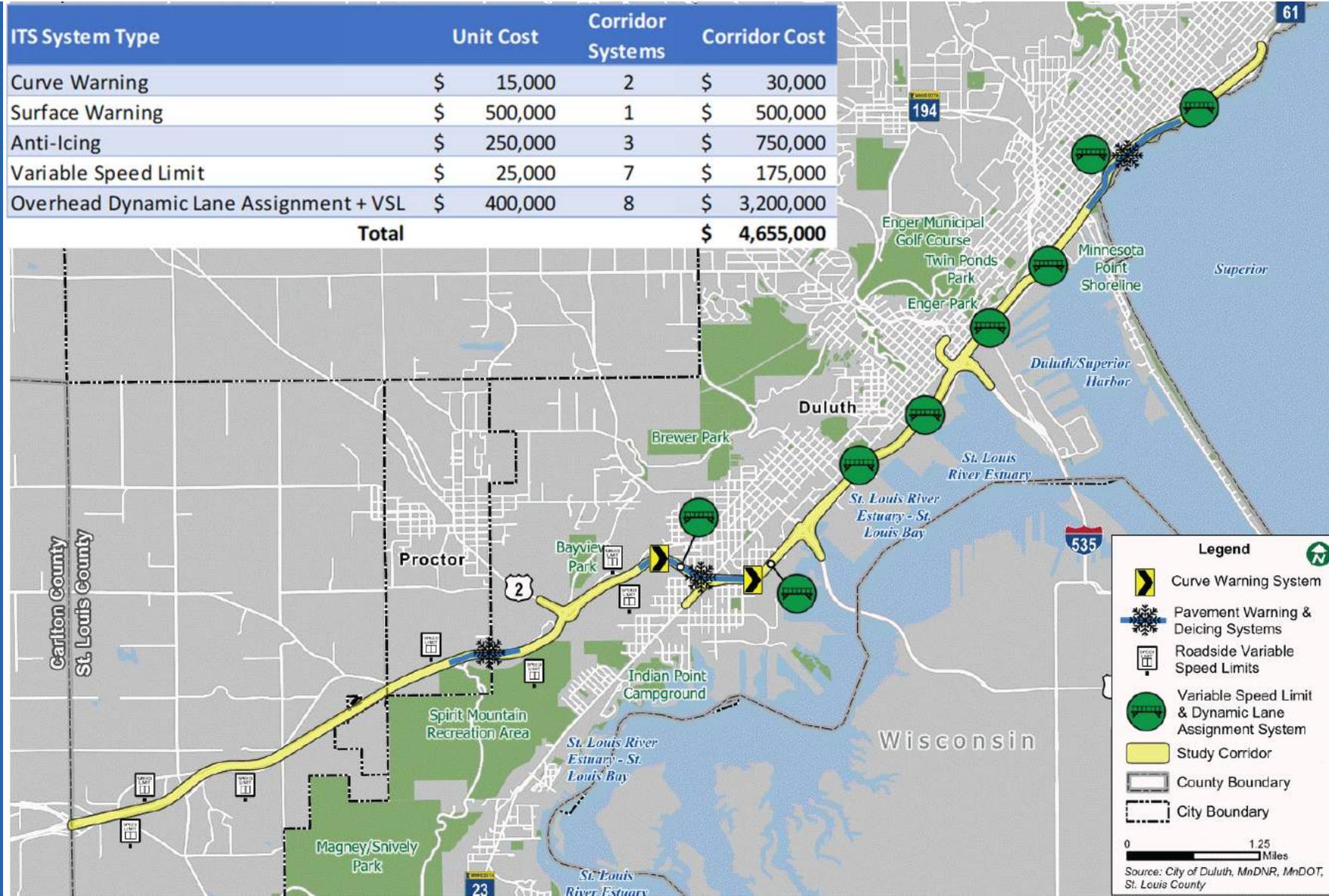
Intelligent Transportation Systems (ITS)



I-35 Connects

ITS CORRIDOR PLAN

ITS System Type	Unit Cost	Corridor Systems	Corridor Cost
Curve Warning	\$ 15,000	2	\$ 30,000
Surface Warning	\$ 500,000	1	\$ 500,000
Anti-Icing	\$ 250,000	3	\$ 750,000
Variable Speed Limit	\$ 25,000	7	\$ 175,000
Overhead Dynamic Lane Assignment + VSL	\$ 400,000	8	\$ 3,200,000
Total			\$ 4,655,000



Legend

- Curve Warning System
- Pavement Warning & Deicing Systems
- Roadside Variable Speed Limits
- Variable Speed Limit & Dynamic Lane Assignment System
- Study Corridor
- County Boundary
- City Boundary

0 1.25 Miles
 Source: City of Duluth, MnDNR, MnDOT, St. Louis County





Variable Speed Limits

U.S. Department of Transportation
Federal Highway Administration



Safety Benefits:
VSLs can reduce crashes on freeways up to:

34%
for total crashes.¹

65%
for rear-end crashes.¹

51%
for fatal and injury crashes.¹

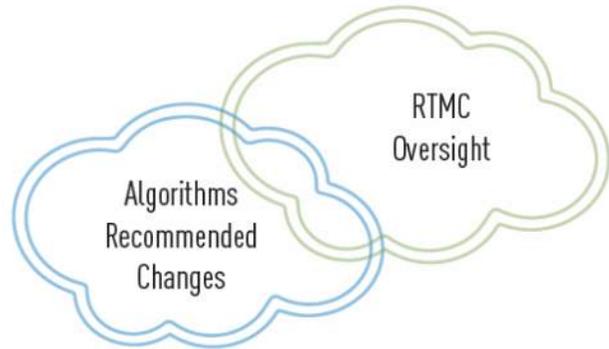
Benefit/Cost Ratios
range between¹

9:1-40:1

RWIS: Surface Friction and Precipitation

Cameras: Visibility and Lane Closures

Probes: Speed Sensors and Volumes



5 MPH Incremental Changes

Lane Designation Queue Warning

DATA INPUTS

DATA PROCESSING

ROADWAY OUTPUTS

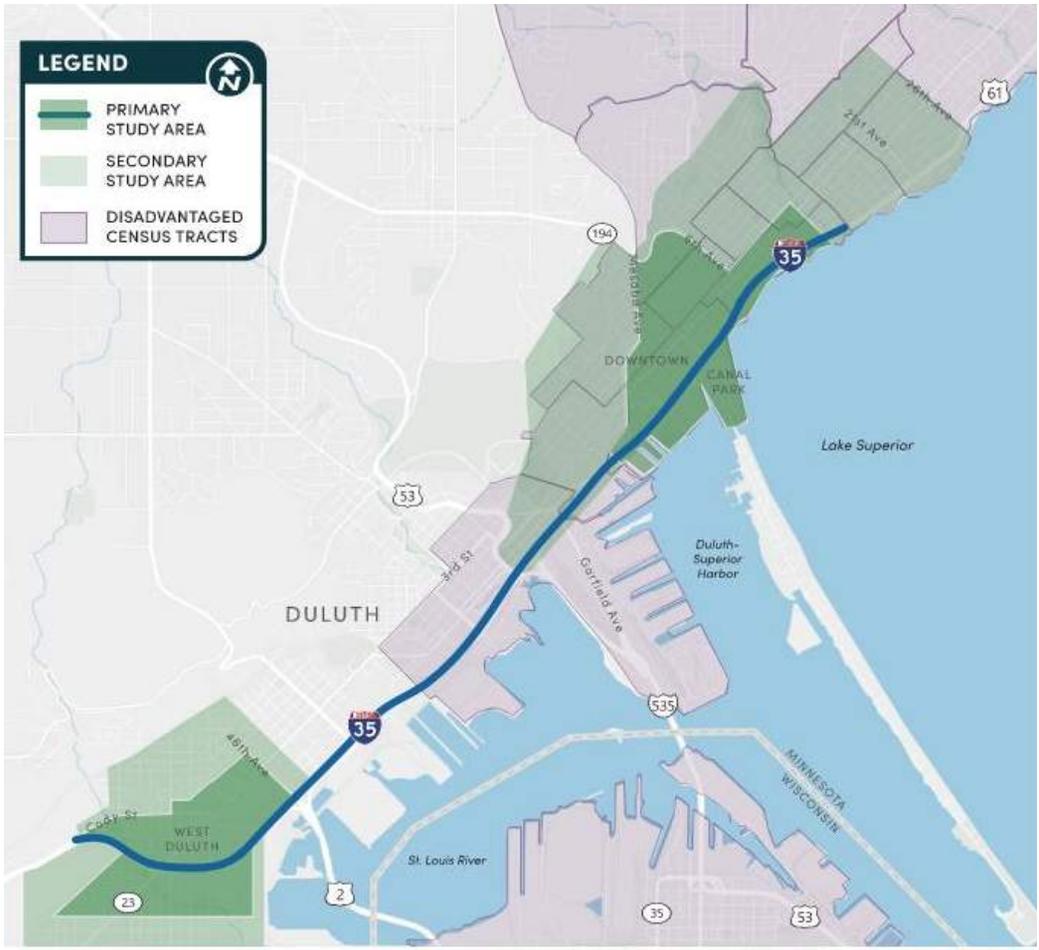


Reconnecting Communities & Neighborhoods (RCN) Planning Grant





RCN Planning Grant



TASK DESCRIPTION	Estimated Total Per Task	% Total	Downtown	% DT	West Duluth	% SV
Study Administration	\$100,000	4.4%	\$60,000	2.7%	\$40,000	1.8%
Community and Agency Engagement	\$400,000	17.8%	\$220,000	9.8%	\$180,000	8.0%
Employment of Community Engagement Liaisons	\$140,000	6.2%	\$70,000	3.1%	\$70,000	3.1%
Existing Conditions Assessment <i>Land Use Inventory</i> <i>Traffic Safety and Congestion Analysis</i> <i>Multimodal Transportation Network</i> <i>Parks and Public Realm Inventory</i> <i>Green Infrastructure and Climate Resiliency Assessment</i> <i>Housing Conditions and Assessment</i> <i>Racial Equity Assessment</i> <i>Health Impact Assessment</i> <i>Market Analysis</i> <i>Historic Places Inventory</i> <i>Utilities & Stormwater Assessment (planning-level)</i> <i>Public Infrastructure Assessment (planning-level)</i>	\$210,000	9.3%	\$120,000	5.3%	\$90,000	4.0%
Concept Development, Evaluation, and Recommendations <i>Concept Health Impact Assessment</i> <i>Future Land Use Recommendations</i> <i>Economic Impact Assessment</i> <i>Key Redevelopment Sites and Concepts</i> <i>Multimodal Transportation Network Recommendations</i> <i>Parks and Public Realm Recommendations</i> <i>Historic Places Preservation Recommendations</i> <i>Utilities & Stormwater Recommendations (planning-level)</i> <i>Public Infrastructure Recommendations (planning-level)</i> <i>Facility Suitability</i>	\$270,000	12.0%	\$150,000	6.7%	\$120,000	5.3%
Community Vision Impact Assessment <i>Climate</i> <i>Anti-Displacement</i> <i>Racial Equity</i> <i>Economic</i>	\$155,000	6.9%	\$90,000	4.0%	\$65,000	2.9%
Community Vision Impact Engagement	\$175,000	7.8%	\$100,000	4.4%	\$75,000	3.3%
Implementation Plan	\$100,000	4.4%	\$50,000	2.2%	\$50,000	2.2%
Conceptual Design of Priority Projects	\$700,000	31.1%	\$400,000	22.9%	\$300,000	16.3%
TOTAL STUDY COSTS	\$2,250,000	100%	\$1,260,000	56%	\$990,000	44%

Implementation Plan



Guide jurisdictional partnerships and clarify project prioritization

PROJECTS TIMELINE

SHORT TERM
2024 – 2029

Aligns with current funding opportunities and/or the STIP

MEDIUM TERM
2030-2034

Aligns with the CHIP and projects anticipated to move into the CHIP

LONG TERM
2035+

Funding is less certain and/or may be safety- or opportunity-driven projects

OPPORTUNITY-DRIVEN

Anticipated to be aligned with other area studies, planned improvements, or safety concerns

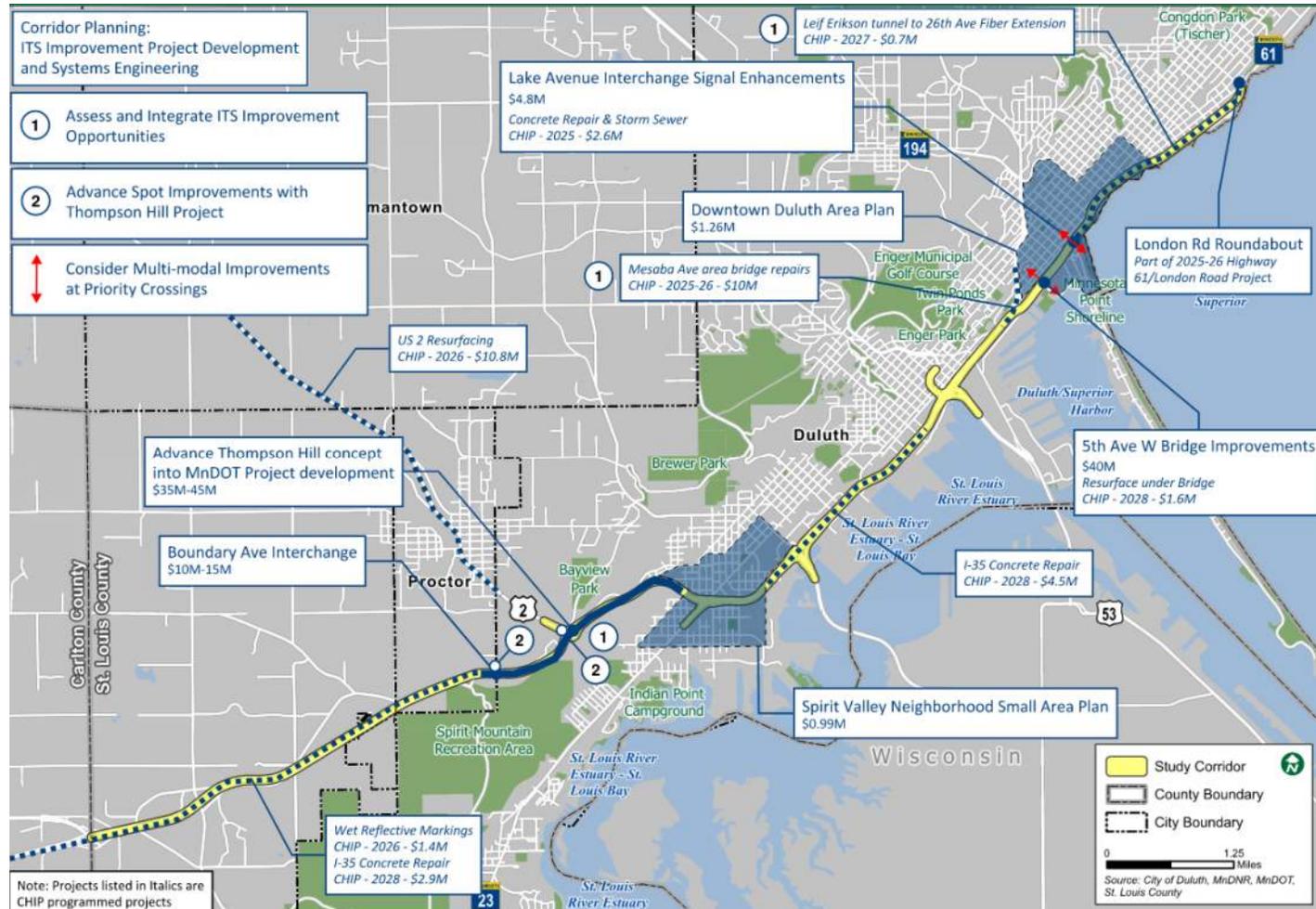
IMPLEMENTATION MATRIX

- **Action Step:** The recommended action to be taken
- **Relationship to I-35 Design Future:** Outline of relationship to I-35 related projects, operations, or design
- **Cost:** Estimated cost using 2023 dollars
- **Lead:** Jurisdiction responsible for delivery of the action step
- **Support:** Jurisdiction responsible for supporting the delivery of the action step
- **Description, Potential Funding:** Summary description of the action step, potential funding sources



Short Term 2024 - 2029

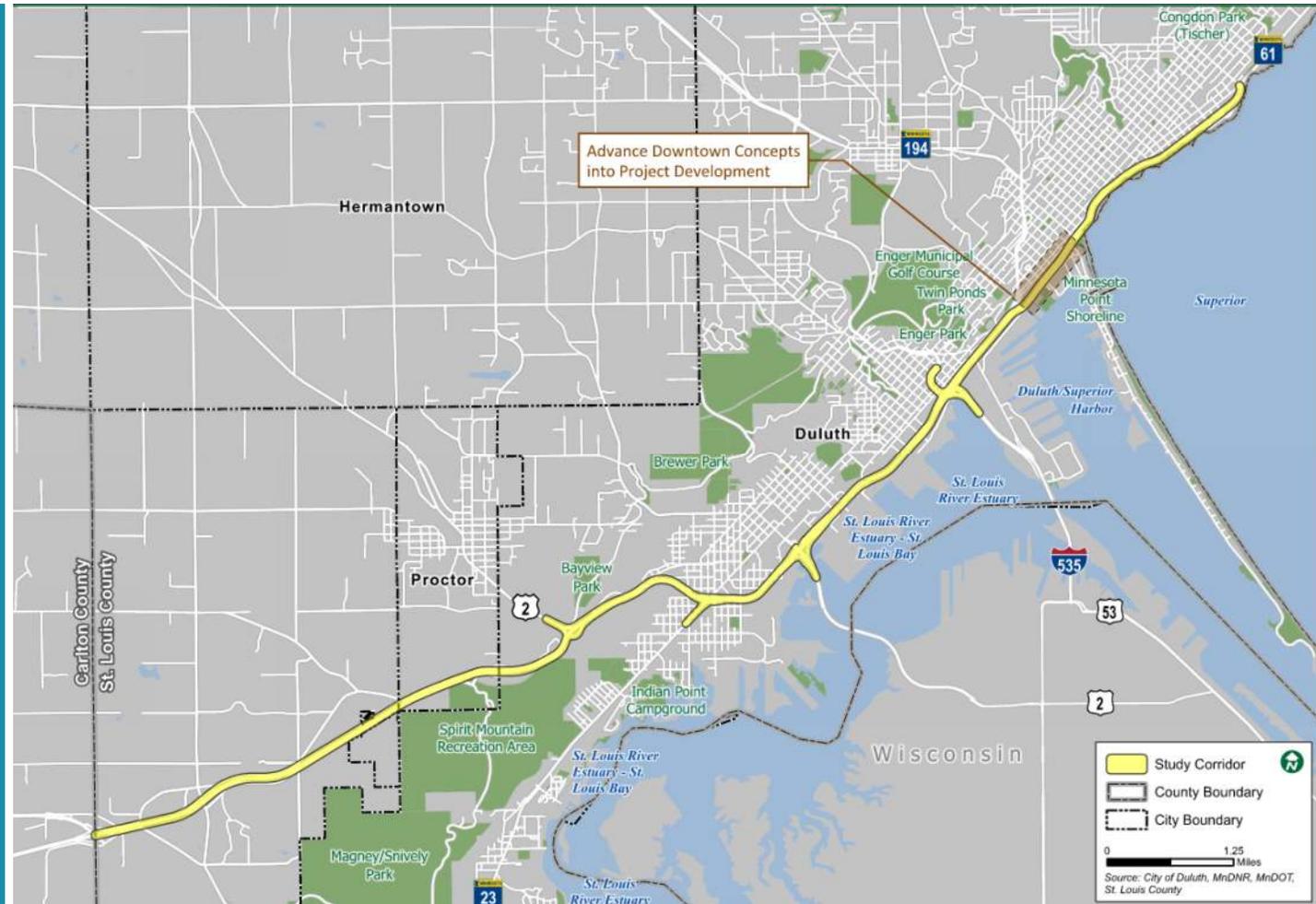
- Downtown Duluth/ Canal Park Area Plan, Recommendations
- West Duluth Area Plan, Recommendations
- 5th Ave Bridge Improvements
- Lake Ave Interchange Signal Enhancements
- Thompson Hill Concept Advancement
- London Road Roundabout
- ITS Improvements with Planned Projects
 - Mesaba Ave
 - Leif Erickson Tunnel
 - West Duluth
 - US 2 Resurfacing
 - Spirit Mountain Area





Long Term 2035+

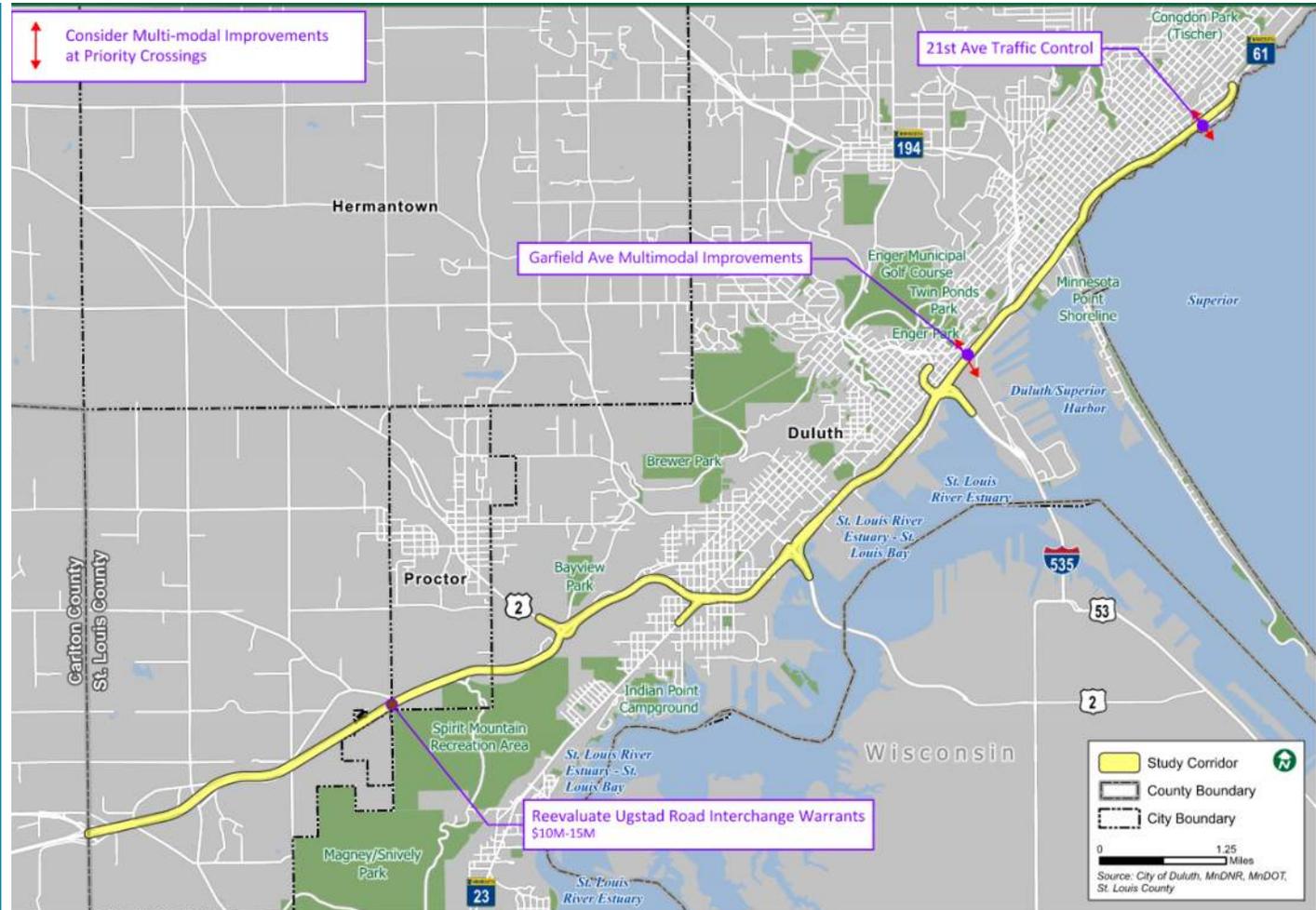
- Continue Advancing Concepts and Recommendations for Downtown Duluth Corridor Segment, Identified in the Area Plan Study for Downtown





Opportunity-Driven

- Reevaluate Ugstad Road Interchange Warrants
- Consider multi-modal improvements during opportunity-driven projects
 - Ugstad Road Interchange Warrants
 - 21st Ave Traffic Control

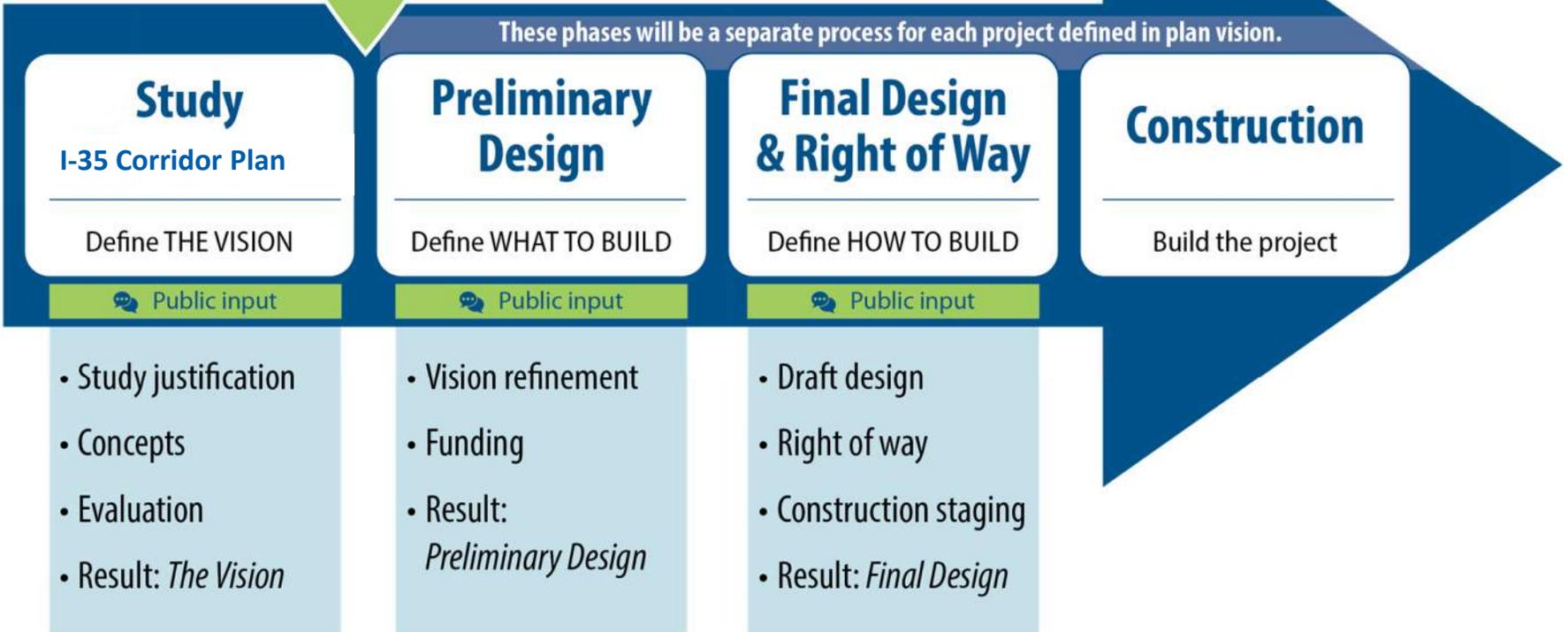




What's Next?



These phases will be a separate process for each project defined in plan vision.



NEXT STEPS



I-35 Connects

Phase	2022												2023											
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
	Discover and Listen												Design and Evaluate						Review and Approve					
A. Project Management																								
Project Management Plan																								
B. Project Management Team Meetings																								
Bi-Weekly Meetings																								
C. Steering Committee Meetings																								
Kickoff and Engagement Workshop																								
Issue Identification Workshop																								
Future Scenario Workshops																								
Visioning Workshop																								
Alternatives Refinement Workshop																								
Implementation Workshop																								
D. Communication and Engagement Plan																								
Communication and Engagement Plan*																								
Phase II - Design and Evaluate																								
Phase II - Design and Evaluate																								
ITS Corridor Plan/VSL Study – Soon!																								
Engagement Appendix																								
E. Current Conditions and System Performance Analysis																								
Technical Memorandum with Appendices																								
F. Future Conditions and System Performance Analysis																								
Technical Memorandum and Appendices																								
G. Vision, Concepts, and Implementation Plan																								
Alternatives Analysis and Development Technical Memorandum																								
Concept Layouts																								
Implementation Plan																								
Draft Report																								
Final Report																								

Schedule Flexibility

- MIC Presentations
- TAC – October 17
- Policy Board – October 18
- Final Report on Website – End Oct/Early Nov
- ITS Corridor Plan/VSL Study – Soon!
- RCN Announcement – Spring 2024