

4. Performance-Based Planning

This chapter describes the performance-based transportation planning approach, newly incorporated by the MIC in the development of *Sustainable Choices 2050*.

Duluth-Superior Long-Range Transportation Plan



Sustainable Choices 2050

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Introduction

23 CFR 450.306(d)(1) requires MPO's, within their transportation planning processes, to establish and use a performance-based approach to transportation decision-making. This chapter identifies and summarizes the performance-based transportation planning approach used in *Sustainable Choices 2050*, the MIC's first MTP to fully incorporate performance –based planning.

Purpose

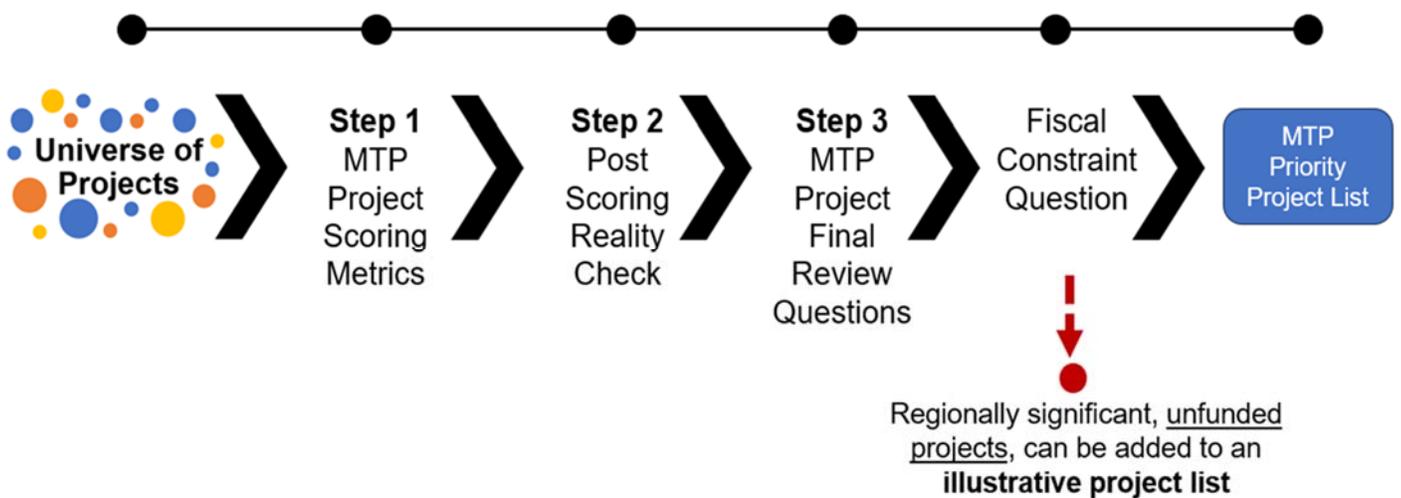
The purpose of the performance-based planning process used within *Sustainable Choices 2050* is to evaluate all proposed projects listed in the MTP and provide a shorter list of priority projects that are expected to best carry out the vision of *Sustainable Choices 2050* and implement its goals and objectives.

Summary of Approach

The performance-based planning approach used within *Sustainable Choices 2050* incorporates a multi-step MTP project prioritization framework. This framework supports and incorporates the MTP's goals and objectives and is used to inform MTP project evaluation and prioritization of the entire submitted list of proposed projects from the MIC-area jurisdictions. The result is a priority list of projects to consider for funding and implementation.

The framework is depicted in Figure 4.1. Each step of the framework is summarized below:

Figure 4.1. MTP Project Prioritization Framework



Step 1: MTP Project Scoring Metrics

Step 1 uses eight metrics in a data-driven, spatially-based scoring approach. Metrics selected align generally with the plan’s vision, as well as some of its specific goals and objectives. Additionally, all metrics have spatial datasets available in order to run the analyses. Figure 4.2 lists the 8 metrics and summarizes the basic methodology used for each metric. Figure 4.3 summarizes each metric analysis, including identifying thresholds used and scores associated with each threshold.

All projects submitted by MIC area jurisdictions were scored for all 8 metrics. Cumulative score (the sum of all 8 metric scores) was calculated for each project. All projects were ordered from highest score to lowest score, and this list of scored projects was presented to jurisdiction staff to review and conduct Step 2. A natural break in the scores that included approximately 30-40 projects was used as the starting point cut-off of priority projects.

Figure 4.2. Project Scoring Metrics—Methods Summary

ID	MTP Project Scoring Metric	Quantification / Threshold	Methodology Notes
1	Number of Bike/Pedestrian Crashes (supports a PM1 target)	Range of thresholds with scores (Max = 15 points)	200-foot buffer around each project; count all bike and ped crashes within each buffer
2	Fatal and Serious Injury Vehicle Crashes (supports a PM1 target)	Range of thresholds with scores (Max = 15 points)	200-foot buffer around each project; count all severe and fatal crashes within each buffer
3	Existing Level of Service (LOS) (identify current areas within the MIC area that are experiencing operational deficiencies - <50% means that road is at 50% or less of its total capacity) LOS is determined by comparing model results and AADT to the total capacity of the road segment	Range of thresholds with scores (Max = 10 points)	100-foot buffer used around each project. Use baseline existing year travel demand model run to determine level of service being addressed by project (MIC V/C ratios used in previous plan would be used).
4	Future Year (2050) LOS (identify future areas within the MIC area that are projected to be experiencing operational deficiencies)	Range of thresholds with scores (Max = 10 points)	100-foot buffer used around each project. Use 2050 E+C travel demand model run to determine level of service for the project.
5	Community Connectivity (identifying community resources in close proximity to the project; connecting people with community resources)	Range of thresholds with scores (Max = 10 points)	Use community layer to compute number of schools, churches, parks, community centers within a 600-foot buffer of the project
6	Multimodal Connectivity (identifying existing dedicated pedestrian, bicycle, and transit options in close proximity to the project)	Range of thresholds with scores (Max = 15 points)	Use mapped bicycle, transit and pedestrian infrastructure/routes to compute number of existing dedicated pedestrian ways, bicycle lanes/ways, and transit routes within a 100-foot buffer.
7	Short-Trip Analysis (number of 1-mile or less short trips per TAZ, identifies areas where there is latent demand and opportunity for increased bicycle and pedestrian trips)	Range of thresholds with scores (Max = 10 points)	Use existing replica/short trip data by TAZ to compute number of short trips within TAZ of proposed project. Higher density of short-trips receives a higher score.
8	Challenging Areas (helps identify whether a project is likely to impact or be impacted by floodplains, historical areas, outstanding or exceptional resource waters, and wetlands)	Range of thresholds with scores (Max = 15 points)	Use 100-foot buffer around each project; count all cases of challenging areas within each buffer.

Figure 4.3. Project Scoring Metrics—Analysis Summary

ID	MTP Project Scoring Metric	Analysis	Thresholds	Score
1	Number of Bike/Pedestrian Crashes	Calculated raw number of crashes within 200-foot buffer of project location. Range: 0 - 13	0 1-3 4-7 >8	0 5 10 15
2	Fatal and Serious Injury Vehicle Crashes	Calculated raw number of crashes within 200-foot buffer of project location. Range: 0 - 10	0 1-2 3-6 >7	0 5 10 15
3	Existing Level of Service (LOS)	Calculated maximum existing LOS within proposed project area. Range: 0 – 1.8	<0.8 0.8 – 0.99 1.0 – 1.19 1.2 – 1.39 1.4 – 1.69 > 1.7	0 2 4 6 8 10
4	Future Year (2050) LOS	Calculated maximum future LOS within proposed project area. Range: 0 – 1.8	<0.8 0.8 – 0.99 1.0 – 1.19 1.2 – 1.39 1.4 – 1.69 > 1.7	0 2 4 6 8 10
5	Community Connectivity	Calculated number of community facilities within 600 feet of proposed project area. Range: 0 - 33	0 - 1 1 - 14 >15	0 5 10
6	Multimodal Connectivity	Projects were assigned a point for presence of sidewalks, bike facilities and transit route. Range: 0 - 3	0 1 2 3	0 5 10 15
7	Short-Trip Analysis	The number of short trips was totaled for each TAZ and split into quartiles. Points are awarded based on the quartiles. Range: 0 - 2900	0 - 200 (1) 201 - 400(2) 401 - 700 (3) 701 – 2900 (4)	0 3 7 10
8	Challenging Areas	One point was given to a project for each occurrence of a challenge or sensitive area. Range: 0 - 3	0 1 2 3	15 10 5 0

Step 2: Post-Scoring Reality Check

The purpose of Step 2 is to ensure the priority project list generated under Step 1 makes logical sense — that the list truly includes the MIC area’s most regionally significant projects that best carry out the vision of *Sustainable Choices 2050* and implement its goals and objectives. Step 2 is more qualitative in nature and includes making sure the highest scored projects included in the priority project list are deemed regionally significant, and offer the opportunity for a jurisdiction to make the case that a project scored lower than the priority project cutoff under Step 1 should be included in the priority project list. A jurisdiction was able to accomplish this by answering yes to one or more of the following and explaining why:

- The project is within a corridor or intersection of significant importance to freight movement through or within the MIC area.

- The project is within a corridor or intersection of significant importance to regional connectivity within the MIC area.
- The project will significantly improve safety within the MIC area transportation network.
- The project is of significant importance to the transportation network within the MIC area.

Step 2 was completed by bringing forward any of the above submitted by a jurisdiction and asking the MIC's Technical Advisory Committee (TAC) if they supported the inclusion of the particular project into the priority project list.

Step 3: MTP Project Final Review Questions

The purpose of Step 3 is to provide one additional layer of scoring for those projects within the priority project list following Step 2 that more specifically aligns with the plan's goals and objectives. For each project the appropriate jurisdiction answered 18 yes/no/unknown questions covering a wide variety topics to more precisely determine how well the project would help meet the plan's goals and objectives, and thus be able to help implement the plan's vision. Five points were scored for each "yes" answer, while zero points were scored for a "no" or "unknown" answer. Figure 4.3 lists the 18 Step 3 final review questions and associated scores per threshold.

The total points for Step 3 for each project (a possible maximum total of 90 points) were summed and then added to the total points calculated under Step 1 to calculate a final priority project score. The final scores were ordered from highest to lowest to produce a final rank of the priority projects. TAC members decided for this first time to not list the ranks in this plan, and instead leave the list as an unranked priority project list. However, should any jurisdiction want to use the rank in reporting, grant application, or general planning they can do so. Regardless, Step 3 did confirm the priority projects do align well with the plan's goals and objectives, and as such do represent regionally significant projects.

Figure 4.4. Project Final Review Questions

ID	MTP Project Final Review Question	Threshold *	Scores
1	Will the project include a robust public engagement component/opportunity from its onset?	Y/N/U	5/0/0
2	Does the project improve or maintain critical infrastructure to ensure good condition and performance?	Y/N/U	5/0/0
3	Does the project help build or expand resiliency within the transportation system?	Y/N/U	5/0/0
4	Does the project design specifically incorporate snow storage for year-round use and maintenance?	Y/N/U	5/0/0
5	Does the project include an enhanced stormwater management feature, rain garden, or other "green infrastructure" in addition to or beyond what is typically installed?	Y/N/U	5/0/0
6	Does the project directly include additional or improved pedestrian facility integration or connection within the transportation system?	Y/N/U	5/0/0
7	Does the project directly include additional or improved bike and/or micromobility facility integration or connection within the transportation system?	Y/N/U	5/0/0
8	Does the project help meet a specific local bike plan, pedestrian plan, and/or Safe Routes to School plan goal(s)?	Y/N/U	5/0/0
9	Does the project intentionally improve connection between transit and other modes of transportation through sidewalk extension to bus stops, additional and/or improved bus stops, bike parking options near transit stop, park and ride associated with transit, etc.?	Y/N/U	5/0/0
10	Does the project intentionally improve accessibility for older adults, children, and/or persons with disabilities?	Y/N/U	5/0/0
11	Does the project expand and/or improve transportation options for disadvantaged populations?	Y/N/U	5/0/0
12	Will the project have a direct or indirect benefit on the human health, environmental, social, and economic components of minority populations and/or low-income populations?	Y/N/U	5/0/0
13	Does the project directly address a known safety problem?	Y/N/U	5/0/0
14	Does the project include technology designed to intentionally improve efficient use and/or safety of the system?	Y/N/U	5/0/0
15	Does the project intentionally help meet a goal(s) of a local or state transportation safety plan, and/or incorporate FHWA Proven Safety Countermeasures?	Y/N/U	5/0/0
16	Does the project intentionally help meet a goal(s) of a local small area plan or similar type plan?	Y/N/U	5/0/0
17	Does the project intentionally help meet a goal(s) of a local economic development or strategic plan, including the D-S Port Land Use Plan or other port economic development or strategic plan?	Y/N/U	5/0/0
18	Does the project intentionally improve access, mobility, and travel connections for the movement of freight throughout and across the system?	Y/N/U	5/0/0

*: Y = Yes, N = No, U = Unknown

Fiscal Constraint Question

The appropriate jurisdiction was asked to answer one question to indicate whether each project in the priority project list was fiscally constrained. The question was, *“Are all funds necessary to complete this project currently in hand or specifically allocated (fully fiscally constrained)?”* This was a direct way to know if the priority project list was fiscally constrained or not.

Results—MTP Priority Projects List

The final *Sustainable Choices 2050* Priority Projects List, ordered by jurisdiction, is shown in Figure 4.4. Of the 40 included projects, 25 are fiscally constrained. Map 4.1 depicts the priority projects by project type. Map 4.2 depicts which priority projects are fiscally constrained and which are not.

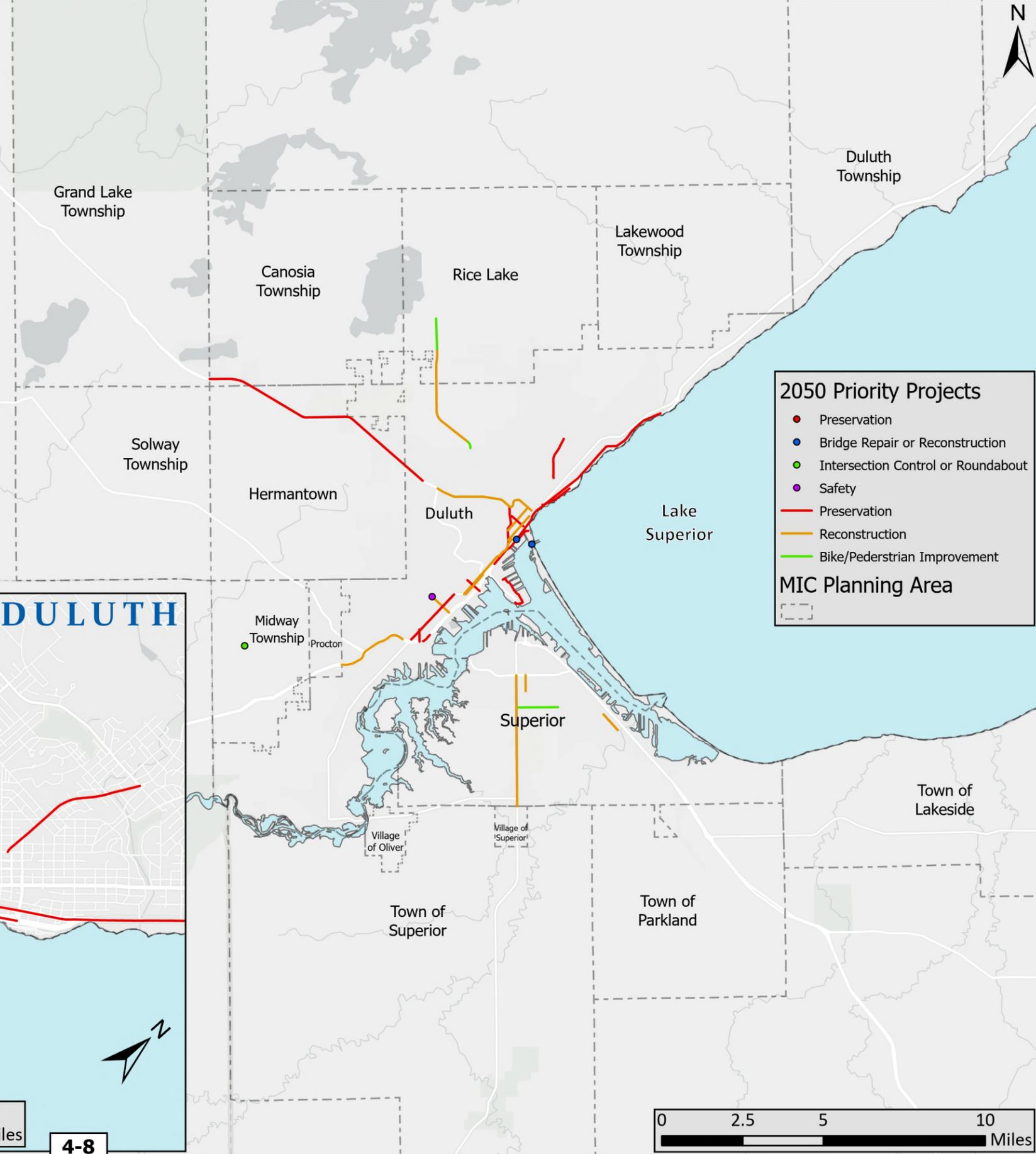
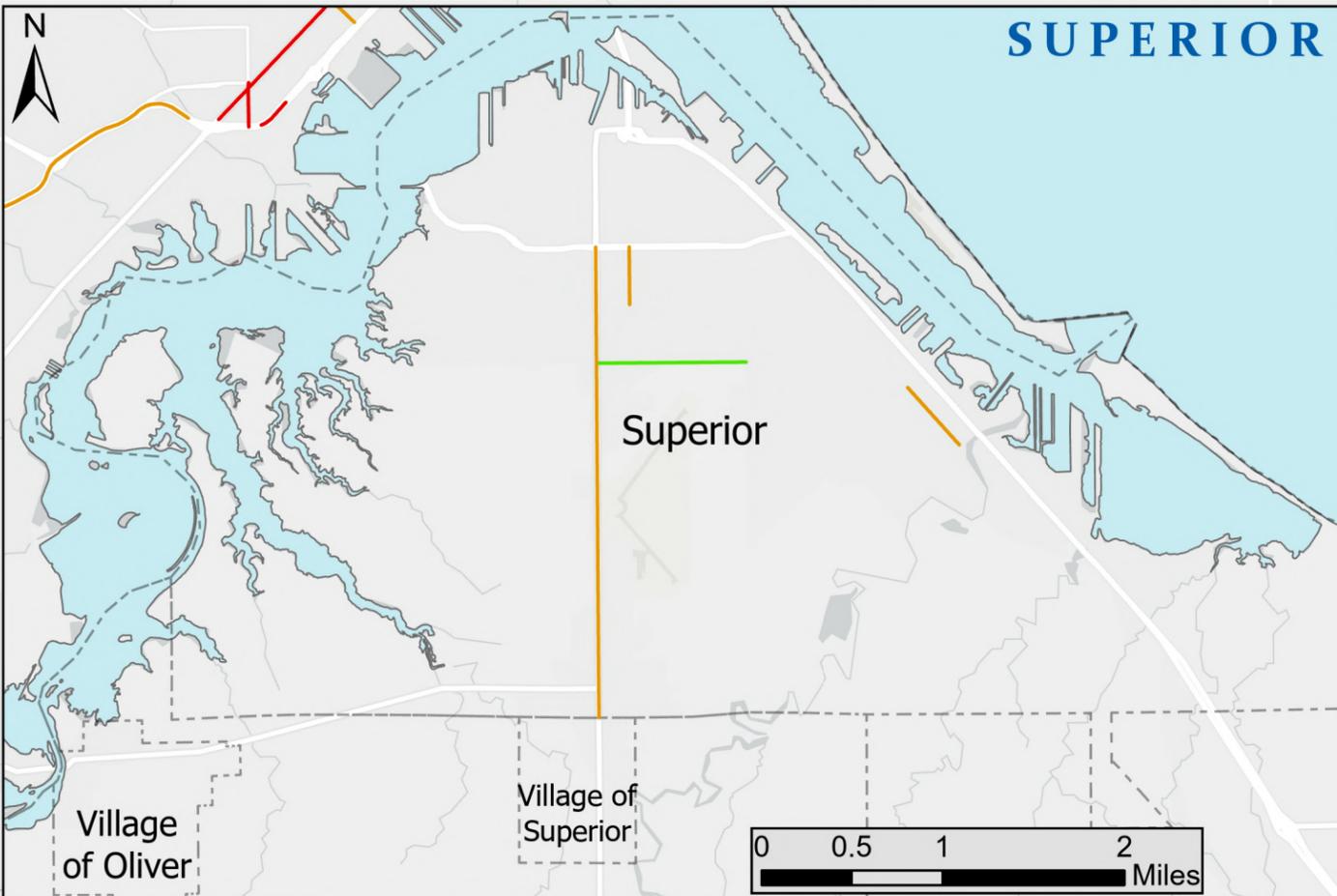
This represents the MIC’s first true performance-based planning (PBP) approach to project selection within an MTP. The PBP approach resulted in reducing the total list of 254 projects in the MTP (see pages 6-17—6-43) to a final list of 40 priority projects that are confidently expected to best carry out the vision of *Sustainable Choices 2050* and implement its goals and objectives.

Figure 4.5. MIC Area Priority Projects List by Jurisdiction

Project ID	Project Location	Project Description	Project Type	Fiscally Constrained?	Jurisdiction
MN-03-91	W Superior St	Michigan St to 6th Ave W	Reconstruction	Y	Duluth
MN-03-11	40th Ave W	Grand Ave to I-35	Reconstruction	Y	Duluth
MN-03-07	W Superior Street	Carlton St to Michigan St	Reconstruction	Y	Duluth
MN-03-29	Grand Ave	Carlton St to 59th Ave W	Preservation	N	Duluth
MN-03-25	6th Ave East/Central Entrance	2nd Street to Mesaba Ave	Reconstruction	N	Duluth
MN-03-13	London Road	21st Ave E to 26th Ave E	Preservation	Y	Duluth
MN-03-28	4th Street	Mesaba Ave to 6th Ave E	Reconstruction	N	Duluth
MN-03-51	Woodland Ave	4th Street to Arrowhead Rd	Preservation	Y	Duluth
MN-03-73	Central Ave	I-35 to Cody St	Preservation	N	Duluth
MN-03-89	1st Street	Mesaba Ave to 4th Ave E	Reconstruction	N	Duluth
MN-03-42	27th Ave W	Courtland St to 3rd St	Preservation	N	Duluth
MN-03-35	London Rd	Superior St to 21st Ave E	Preservation	N	Duluth
MN-03-84	Lake Ave	Superior St to 7th St	Preservation	N	Duluth
MN-03-90	W Michigan St	TH 53 overpass to Carlton St	Reconstruction	Y	Duluth
MN-03-02	Railroad Street	Lake Ave to 5th Ave W	Preservation	Y	Duluth
MN-03-01	Aerial Lift Bridge	Structural & Mechanical maintenance, paint top span & lift span, sidewalk and deck replacement	Preservation	Y	Duluth
MN-03-37	Aerial Lift Bridge	Structural Rehabilitation and Painting	Preservation	N	Duluth
MN-03-18	Port Terminal Rd	Garfield Ave to Helberg Dr	Preservation	N	Duluth
MN-03-20	Helberg Dr	Garfield Ave to Port Terminal Dr	Preservation	N	Duluth
MN-01-06	London Rd	26th Ave E to 60th Ave E Roundabouts at 26th Ave E and 40th Ave E	Preservation	Y	MnDOT
MN-01-05	Central Entrance Corridor	Partial Reconstruction & Multi-Modal Improvements Mesaba to Trinity	Reconstruction	Y	MnDOT
MN-01-01	I-35	Lake Ave to 21st Ave E Concrete Repair and Intersection Ramps	Preservation	Y	MnDOT
MN-01-43	I-35/I-35 Tunnels	Segment(s) to be determined	Preservation	Y	MnDOT
MN-01-42	Hwy 194	Segment(s) to be determined	Preservation	Y	MnDOT
MN-01-39	Hwy 53	Segment(s) to be determined	Preservation	Y	MnDOT
MN-01-08	I-35	Under 5th Ave W Bridge and MN 23 to 50th Ave W	Preservation	Y	MnDOT
MN-01-35	5th Ave	5th Ave Bridge #69870 Over I-35	Bridge Repair or Reconstruction	Y	MnDOT
MN-01-17	Haines Rd/40th Ave W RR Crossing	RR Crossing improvements DOT #251887W	Safety	Y	MnDOT
MN-01-30	I-35	Boundary Ave to Bridge over Grand Ave/Replace Bridges	Reconstruction	Y	MnDOT
MN-01-38	Boundary Ave Interchange	I-35 at Boundary Ave	Bridge Repair or Reconstruction	Y	MnDOT
MN-01-37	Bong Bridge	Redecking	Preservation	Y	MnDOT
MN-02-30	40th Ave W	Grand Ave to 8th St	Reconstruction	Y	Saint Louis Co
Unfunded-2	Rice Lake Road	Technology Dr. to N. Tischer Rd.	Reconstruction	N	Saint Louis Co
MN-02-71	Rice Lake Road	Separated Bike and Ped Trail	Bike/Pedestrian Improvement	Y	Saint Louis Co
MN-02-39	Midway Rd.	Midway Rd at N Cloquet Rd	Intersection Control or Roundabout	Y	Saint Louis Co
WI-03-03	Hammond Ave	Belknap St to 21st St	Reconstruction	Y	Superior
WI-03-11	Tower Ave	South of Belknap	Reconstruction	N	Superior
WI-03-05	E 5TH ST	24th Ave E and 31st Ave E	Reconstruction	Y	Superior
WI-03-06	28th St	Paved Trail	Bike/Pedestrian Improvement	N	Superior
WI-03-01	Tower Ave	South of Belknap	Preservation	N	Superior

Map 4.1

MIC Area Priority Transportation Projects

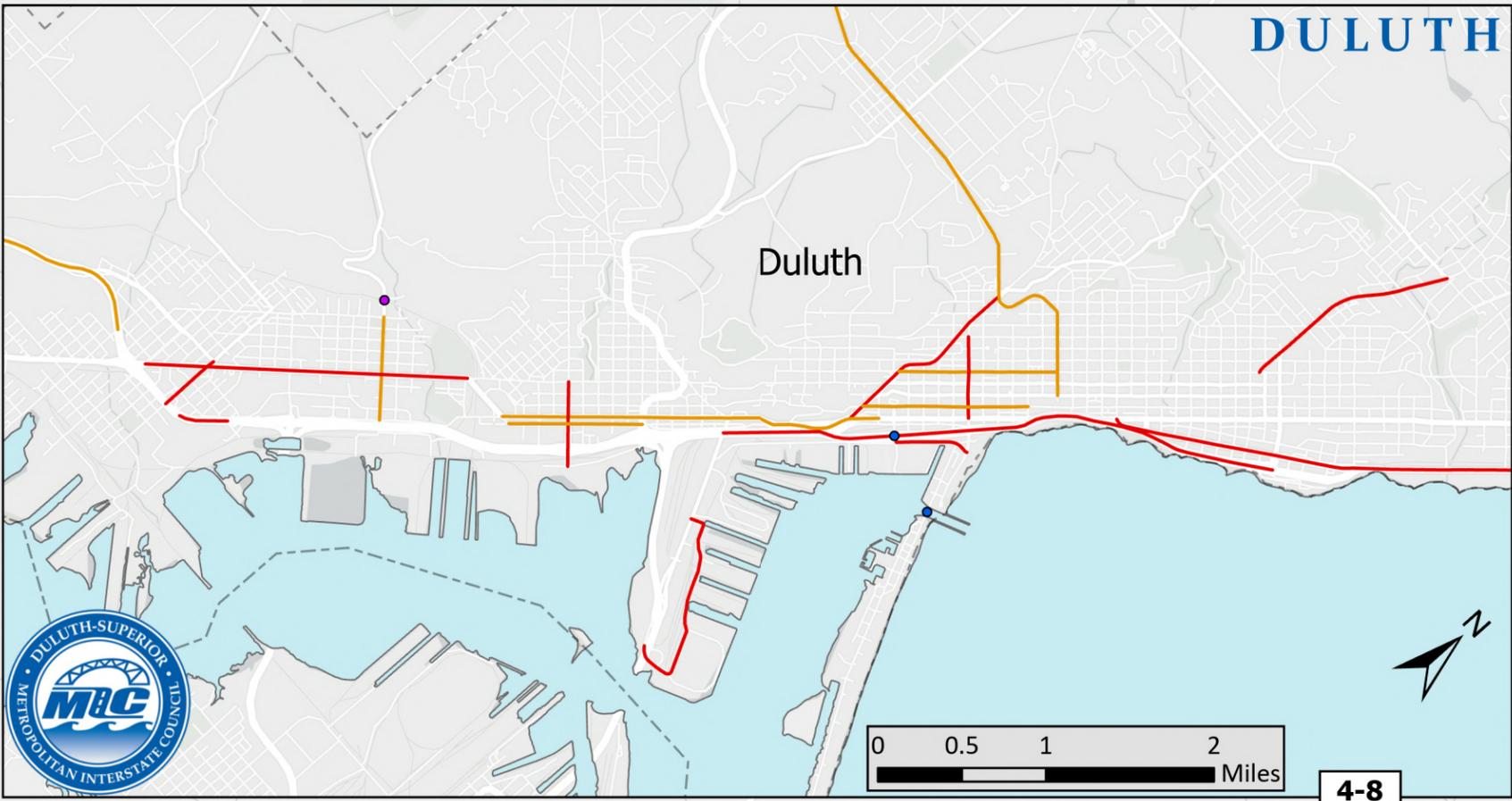


2050 Priority Projects

- Preservation
- Bridge Repair or Reconstruction
- Intersection Control or Roundabout
- Safety
- Preservation
- Reconstruction
- Bike/Pederstrian Improvement

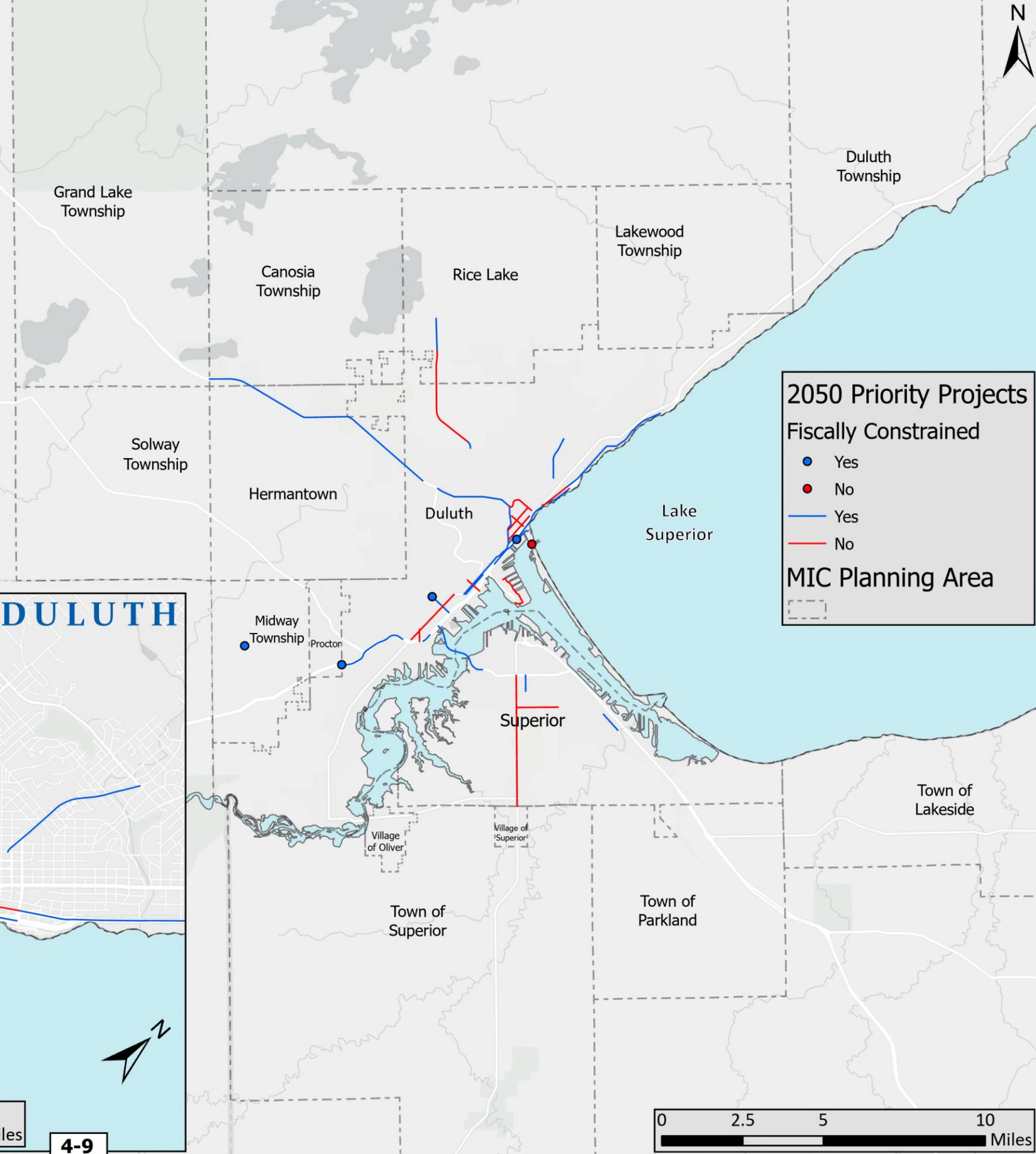
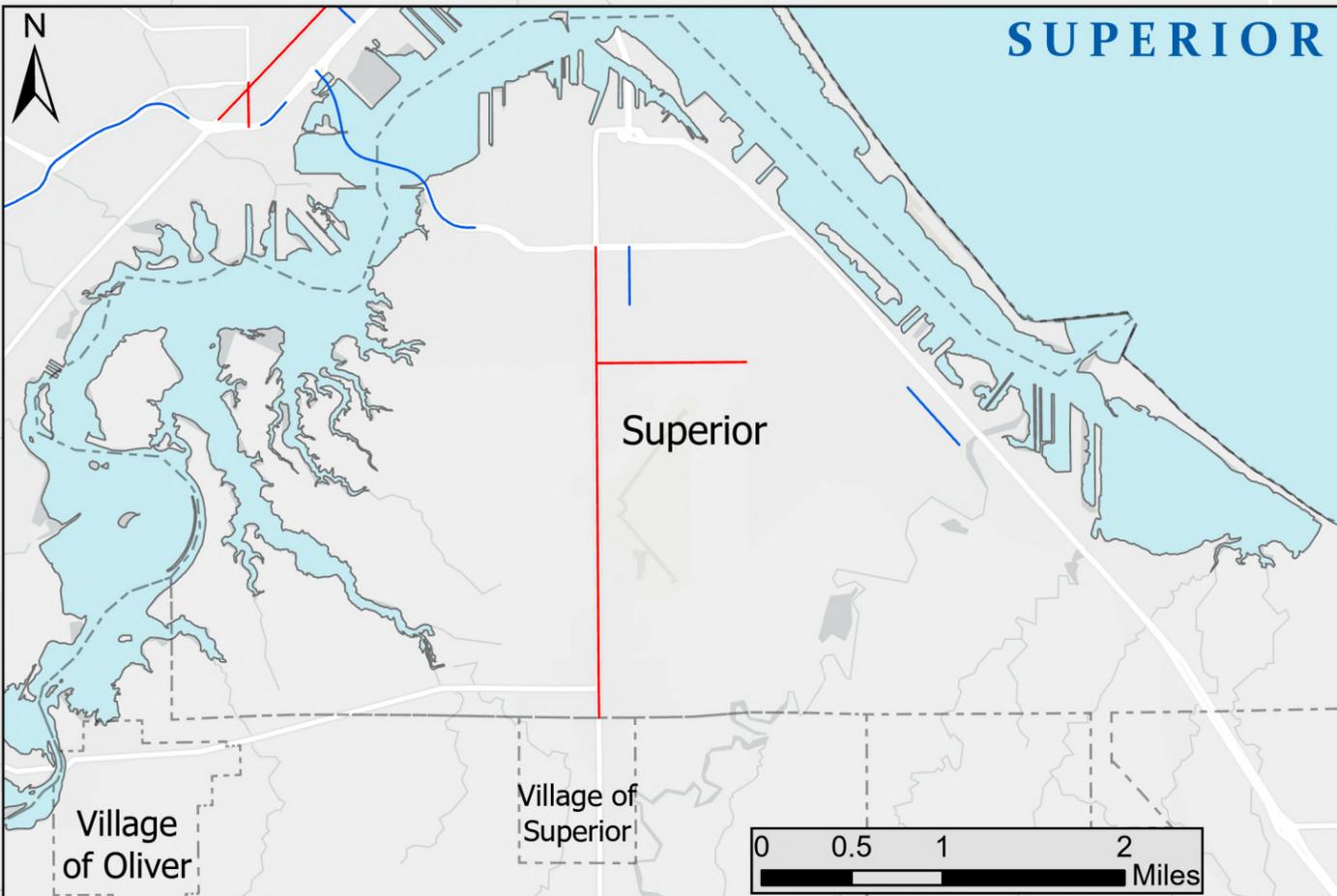
MIC Planning Area

(Dashed line boundary)



Map 4.2

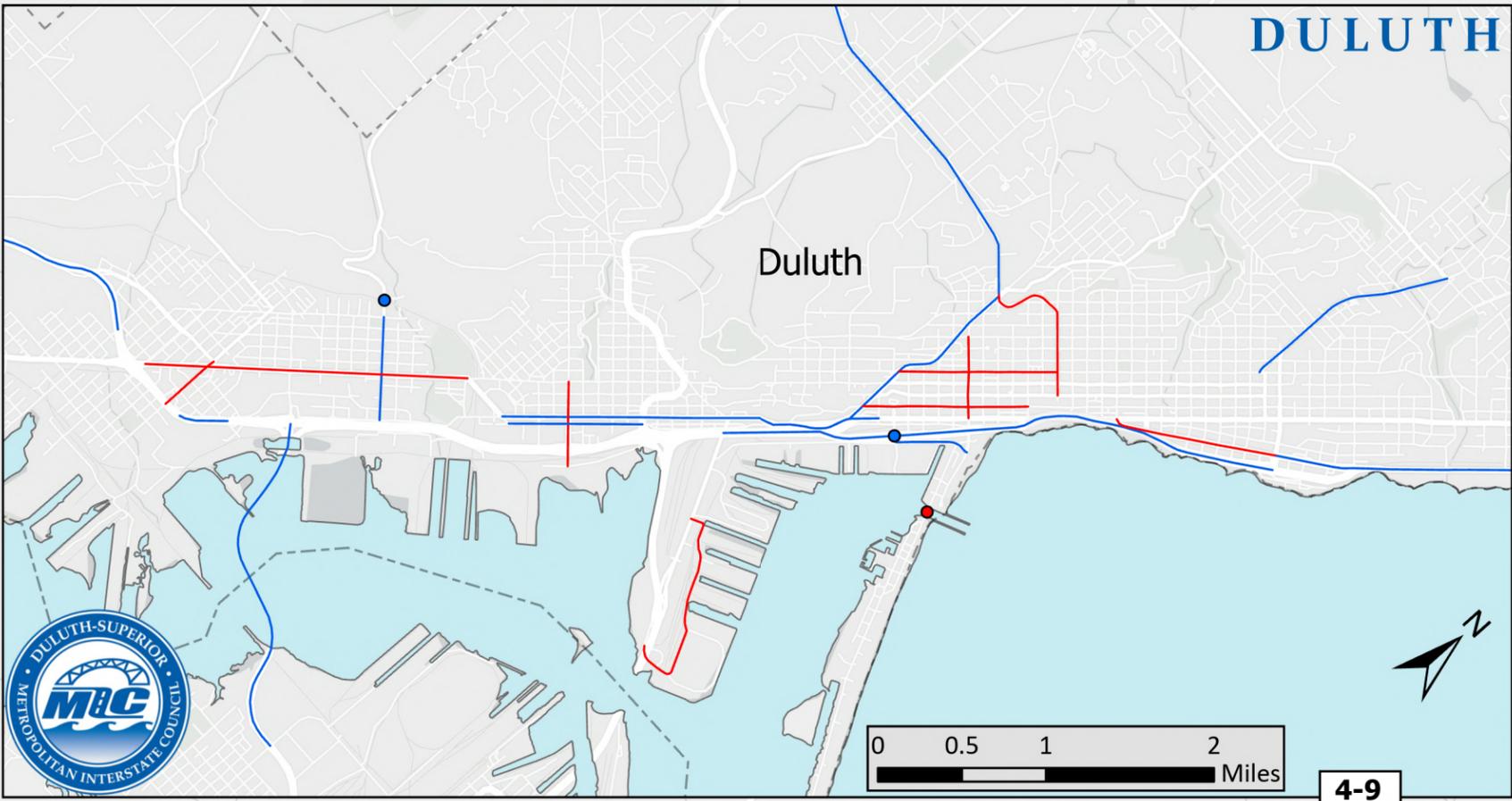
MIC Area Priority Transportation Projects - Fiscally Constrained



2050 Priority Projects
Fiscally Constrained

- Yes
- No
- Yes
- No

MIC Planning Area



Summary

Given this is the MIC's first true use of a performance-based planning approach to identifying priority projects within an MTP, the following is a MIC perspective summary on this significant new tool.

In short, the Priority Project List and rankings generally make sense. While it is possible that the case could be made that some project in the MTP list should also be included in the Priority Project List, the Step 2 (Reality Check) offered that opportunity. That said:

- The final priority project list and ranking show the performance-based planning process generally worked, as the projects that scored high in Step 1 that MIC staff and TAC members felt should not be the highest ranked, fell down the rankings following Step 3, and vice versa, while others remained at relatively the same ranking. Also, the Step 2 reality check included regionally-significant projects that did not score high during Step 1. In fact, 12 of the 40 projects in the final list were added during the Step 2 reality check.
- The Step 3 questions really did help to provide a much more robust ranking that incorporated MTP goals and objectives. They are the most direct way we are going to be able to show progress in connecting the project list (now focused on a priority list of projects) with the MTP's goals and objectives.
- The Priority Project List seems to cover projects that one would logically say, "yes, those are regionally significant transportation projects in the MIC area." And they are projects that can incorporate many of the MTP's goals and objectives, and thus help to implement the MTP's vision — which is the point!
- The Priority Project List includes a variety of project types. None are for roadway capacity expansion projects. Most are for preservation or reconstruction, but the list also includes projects dedicated for bike/pedestrian trails, an intersection control or roundabout, safety, and bridges.

Thus, the MIC is confident that the new performance-based planning approach described in this chapter is useful and worked well in the development of used in *Sustainable Choices 2050*.