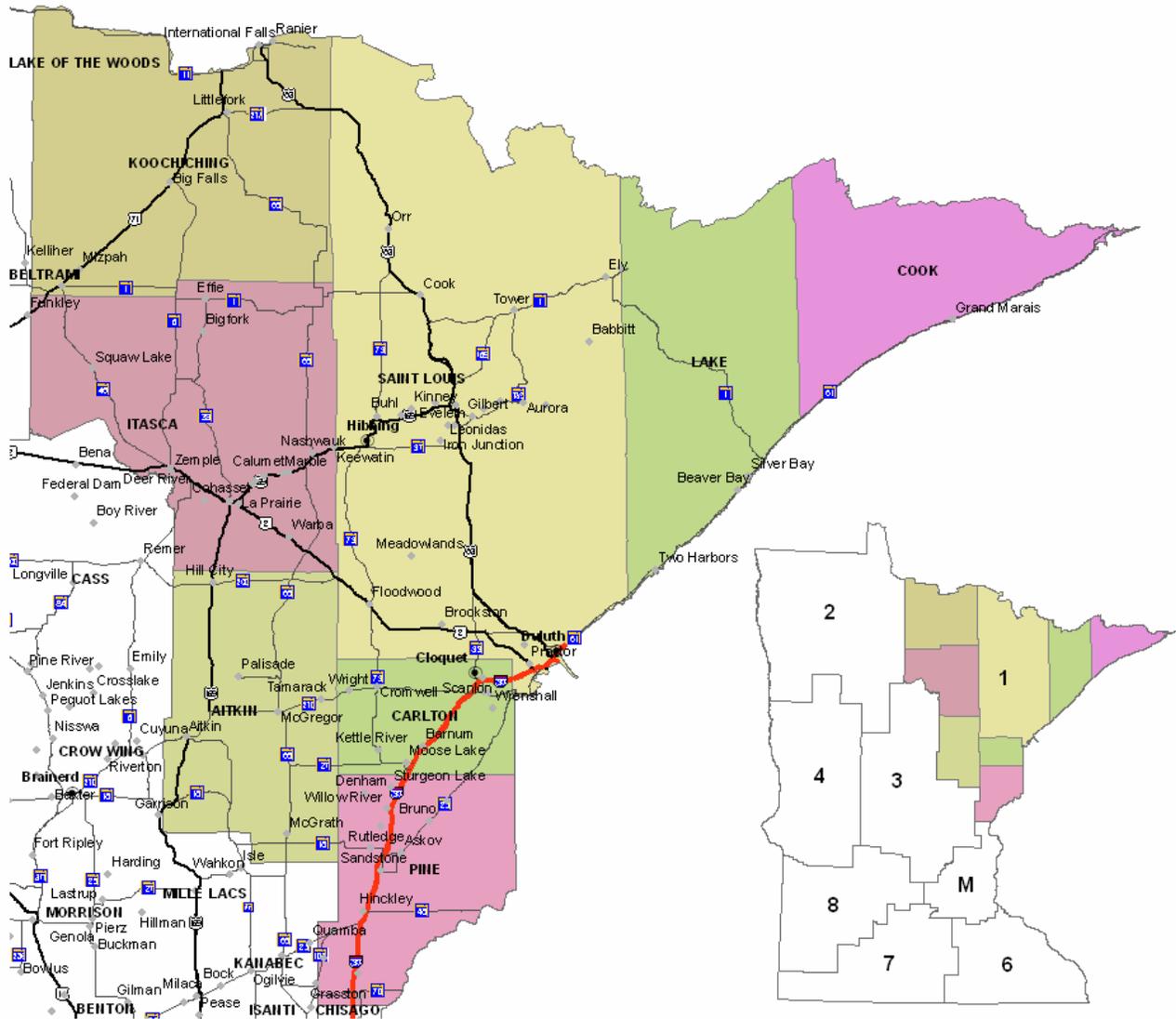


# Mn/DOT District 1 20-year Highway Investment Plan 2009-2028



## Introduction

As part of the 2009 Minnesota Statewide Transportation Policy Plan update, Mn/DOT District 1 updated its 20-year investment plan. The Mn/DOT District 1 20-Year Highway Investment Plan, last updated in 2004, provides the link between the policies and strategies established in the Statewide Transportation Policy Plan and the capital improvements that are made to the state highway system. This 20-year plan is a guide for future capital investments in the state trunk highway system for northeastern Minnesota. It does not address spending for highway operations or other modes of transportation. The Mn/DOT Statewide 20-Year Highway Investment Plan discusses in greater detail the relationship of the highway investment plans to the Statewide Transportation Policy Plan and the methodology and calculation of performance-based investment needs.

This document has three primary sections. The first sets the context, highlighting issues and trends in District 1 that influence its 20-year highway investment plan. The second details the five steps in the development of the plan: (1) identify investment needs, (2) project future revenue, (3) set investment goals, (4) develop investment plan, and (5) prioritize unfunded investment needs. The final section outlines expected system performance and anticipated outcomes resulting from planned investments over the 20-year planning period.

## Setting the Context

District 1 is composed of eight counties in northeast Minnesota (Aitkin, Carlton, Cook, Itasca, Koochiching, Lake, Pine and St. Louis). The District's population is approximately 350,000 and is stable or slightly growing. The region is seeing an increase in its aging population. It has a land area of nearly 21,000 square miles, one-fifth of the state's total land area. The District is responsible for nearly 3,900 lane-miles of state highways and over 600 state bridges. The major industries of northeast Minnesota are forestry, mining, shipping and tourism, all of which rely heavily on a safe and efficient transportation system.

## Social and Economic Issues and Trends

District 1 (Northeast Minnesota) relies on iron mining, logging, paper mills, wood product manufacturing and tourism for its economic foundation. While the region experienced a decline in total employment between 2000 and 2003, it has since seen consistent increases of almost one percent annually. Similar to other regions, the health care and social assistance industry is strong and growing in northeast Minnesota. Global competition in iron ore mining and manufacturing continues today but it is foreign direct investment in regional paper mills and iron ore mining facilities that have kept the region competitive in the global marketplace. Further, increased global demand for natural resources has breathed new life into the region's iron ore mines as well as non-ferrous mining opportunities. The unemployment rate varies considerably in the region, and, while it has been higher than the state's rate, it has decreased over the past few years. Individuals over 55 will comprise the fastest growing segment of the population, which will have a significant impact on the working age population.

The Duluth-Superior Port is a multi-modal and major bulk commodity transshipment facility on the Great Lakes/Saint Lawrence Seaway System. Movements in and out of the port include coal, taconite, grain and large over-dimension loads, including wind turbines. The forest products industry relies on year round ten ton roads and competitive rail access for transporting raw and finished products and the mining industry relies primarily on rail and water transportation.

## Development of the Highway Investment Plan

The District 1 20-year Highway Investment Plan 2009-2028 has been developed within the context of Mn/DOT's decentralized planning and programming process. This process begins with policies, strategies, performance measures, and performance targets set in Chapter 7 of the Statewide Transportation Policy Plan. Five of the ten policies list performance measures and targets that can be directly affected by capital investments in the highway system.

This plan identifies capital investment needs within the framework of four strategic investment priorities: Traveler Safety, Infrastructure Preservation, Mobility, and Regional and Community Improvements. The process culminates in highway system construction projects (Figure 1). Issues and trends discussed previously enter the planning process at all levels, influencing policy, plans, programs, and project design. Statewide guidelines have been established to ensure the District 1 plan has been created in a consistent, objective manner similar to the other seven Mn/DOT district plans.

The District 1 20-year Highway Investment Plan 2009-2028 covers three planning periods:

- **2009 to 2012 State Transportation Improvement Program (STIP):** Updated annually, planned spending in these four years includes specific projects identified in the current four-year STIP plus additional improvements that will be funded by Chapter 152 bonds in years 2011 and 2012 but have not yet been included in the STIP. Projects are generally considered commitments with well-developed scopes, cost estimates, and planned year of construction; however, if projected revenues are not realized, the timing of planned investments may change.
- **2013 to 2018 Mid-Range Highway Investment Plan (Mid-Range HIP):** Investments identified in these six years remain in the planning stage and represent a general spending plan but not a commitment. Major projects under development are given an estimated cost range and construction year but both are subject to change as project development proceeds. Much of the spending plan is comprised of funding allocations within the four strategic investment priority areas, such as roadway safety enhancements and pavement preservation. Specific projects for these funding allocations are generally not identified or fully scoped until the annual development of the STIP. The Mid-Range HIP is also updated annually.
- **2019 to 2028 Long-Range Highway Investment Plan (Long-Range HIP):** Planned spending in this 10-year planning period represents a very rough, long-term outlook on revenues and investment priorities. The Long-Range HIP intends to provide a general comparison of projected revenues, given current trends and conditions, with long-term needs. Planned investments are associated with broad investment categories within the four strategic priorities. The final 10 years of the plan include only a very general outlook of investment estimates due to the high level of uncertainty associated with both revenue and costs in this period.



Figure 1 – Role of District 20-year Highway Investment Plan in Mn/DOT’s Planning and Implementation Process

The development of the District 1 20-year Highway Investment Plan occurred through a five step process (Figure 2):

1. *Identify investment needs* that address system performance or support regional and community improvements.
2. *Project revenues* for each of the three planning periods.
3. *Set investment goals* based on legislative direction, system performance, and stakeholder input as investment needs exceed projected revenue.
4. *Develop investment plan* for each of the three planning periods.
5. *Identify high priority investment options for potential additional funding* over the next ten years.

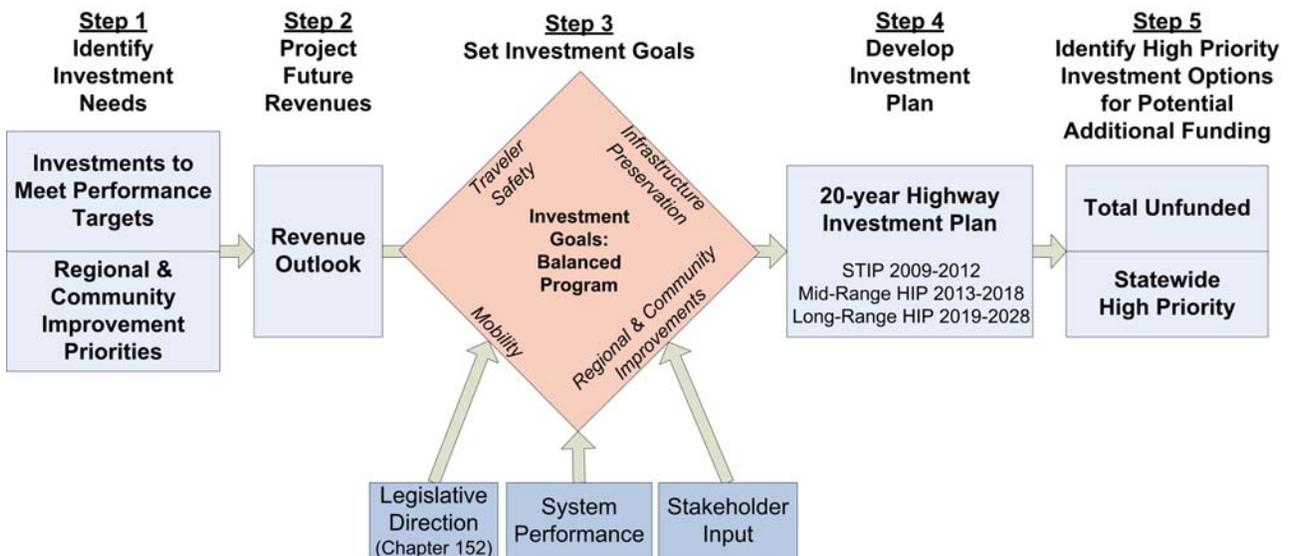


Figure 2 – Mn/DOT 20-year Highway Investment Plan Development Process

## Step 1: Identify Investment Needs

District 1's investment needs for the four strategic priority areas fall into two categories: investments to meet performance targets and improvements to support Regional and Community Improvement Priorities (RCIPs).

### Investments to Meet Performance Targets

For District 1, four of the ten policies discussed in Chapter 7 of the Statewide Transportation Policy Plan address system performance that can be directly affected by capital investment in the highway system. These policies are Policy 1: Traveler Safety, Policy 2: Infrastructure Preservation, Policy 5: Statewide Connections, and Policy 7: Greater Minnesota Metropolitan and Regional Mobility. The Statewide 20-year Highway Investment Plan sets investment direction, performance measures, and performance targets as well as details methodology for determining investment needs.

In migrating from policies to investment needs a broad range of improvements were identified. While any specific improvement would likely address issues and trends associated within several policies, the improvements were categorized into specific policies for the purpose of defining needs. Table 1 identifies investment needs to meet these performance targets by 2018 and maintain them thereafter. An investment need identified in the planning period '2009-2018' or '2019-2028' signifies a need to meet performance targets within that period.

#### *Policy 1: Traveler Safety*

Policy 1 guides investments that reduce the number of traffic-related deaths and serious injuries and has two broad categories:

- *Roadway Enhancements* are proactive, lower-cost strategies applied system-wide to highways generally in conjunction with other types of highway projects.
- *Capacity Improvements* are higher-cost strategies most often initiated as stand alone projects.

### **Performance-based Investment Needs**

*Roadway Enhancements* associated with Traveler Safety represent lower-cost, high-benefit systematic strategies to reduce fatal and serious injury crashes. These strategies were developed as part of the Minnesota Strategic Highway Safety Plan (SHSP) and represent safety improvements that can be included in preservation projects or constructed as stand alone projects. Within this plan, the investment needs are quantified using the forecasted traffic volumes in 2018 and 2028 for the following strategies:

- Edge Treatments
- Centerline Rumble Strips
- Rural Intersection Enhancements
- Right-turn Lanes/Bypass Lanes
- Left-turn Lanes
- Passing Lanes
- Full Standard Shoulders
- Geometric Intersection Changes/Access Management

- Intersection Control Revisions
- Cable Median Barrier

*Capacity Improvements* associated with Traveler Safety represent strategies to reduce fatal and serious injury crashes through proactive and systematic capacity-related investments. Within this plan, these investment needs are quantified for highway corridors and intersections where forecasted traffic volumes are high enough to warrant consideration for improvements beyond the strategies shown under Traveler Safety – Roadway Enhancements. Capacity Improvements are considered based on the criteria below:

- Rural corridors warranted consideration when the average annual daily traffic (AADT) exceeds 11,200 in 2018 or 2028; and
- Intersections warranted consideration when the mainline AADT exceeds 35,000 and the cross street AADT exceeds 10,000 in 2018 or 2028.

If a corridor or intersection meets the above criteria, an average cost is assigned based on a broad range of potential strategies and improvements. The specific improvement and cost will not be clearly defined until the project has gone through the scoping process to identify the appropriate and context sensitive solution and it is programmed in a future STIP. Potential strategies and improvements may include, but are not limited to, the following:

- For corridors: adding right, left, or center turn lanes, improving sight distances, adding passing lanes, constructing a median, or adding lanes; and
- For intersections: changing intersection geometrics or control, constructing grade separation, or constructing an interchange.

Based on the criteria above, the following corridors and intersections warrant consideration under Traveler Safety – Capacity Improvements (corridor length):

2009 to 2018 (Total Needs \$13 M)

TH 2 La Prairie to Blackberry Township (5.5 miles)

2019 to 2028 (Total Needs \$15 M)

TH 135 Gilbert to Biwabik Township (1.2 miles)

TH 210 CSAH 28 to Atkins (3.4 miles)

***Policy 2: Infrastructure Preservation***

Policy 2 guides investments that ensure the structural integrity of the highway transportation system.

**Performance-based Investment Needs**

The investment needs for Infrastructure Preservation were developed in four categories:

- *Chapter 152 Bridge* includes rehabilitation and replacement of 120 structurally deficient and fracture critical bridges statewide as outlined in Minnesota Laws 2008, Chapter 152. Structurally deficient bridges meet a specific condition rating for the bridge deck, superstructure, and substructure or culvert. Fracture

critical bridges are those with a steel superstructure whose members are arranged in a manner in which if one fails, the bridge would collapse. Note, the classification of structurally deficient or fracture critical does not imply the bridge is inherently unsafe. Each of the 120 bridges was reviewed and a cost estimate for either rehabilitation or replacement was developed.

- *Other Bridge* includes rehabilitation and replacement of bridges not included in Minnesota Laws 2008, Chapter 152. Investment needs include bridge and large culvert replacement, redecking, deck overlay, and preventative maintenance activities (e.g., painting).
- *Pavement* reflects a model that optimizes cost-effective improvements for the entire highway system. Investment needs include crack sealing, pavement mill and overlay, and full reconstruction.
- *Other Infrastructure* includes cost-effective replacement of signs, lighting, traffic signals, intelligent transportation systems, safety rest areas, and drainage infrastructure. Investment needs for signs, lighting, and traffic signals are based on the life-cycle replacements. Investment needs for intelligent transportation systems, safety rest areas, and drainage are based on a review of existing conditions and replacement costs.

#### *Policy 5: Statewide Connections*

Policy 5 addresses investments that enhance mobility on key highways, *Interregional Corridors* (IRCs), linking Greater Minnesota regional trade centers that are performing below travel speed targets.

#### **Performance-based Investment Needs**

District 1 has no investment needs under this policy.

#### *Policy 7: Greater Minnesota Metropolitan and Regional Mobility*

Policy 7 guides investments for preserving mobility within *Greater Minnesota Trade Centers* that are linked to Interregional Corridors.

#### **Performance-based Investment Needs**

The investment needs for Greater Minnesota Metropolitan and Regional Mobility address high-volume highway corridors in *Greater Minnesota Trade Centers*. These investment needs are quantified for urban highway corridors where the future Level of Service falls below D by 2018 or 2028. Within this plan, the threshold for Level of Service D/E corresponds to the following criteria:

- An existing 2-lane arterial with a forecasted AADT > 15,000;
- An existing 4-lane arterial with a forecasted AADT > 30,000; or
- An existing 4-lane freeway with a forecasted AADT > 75,000.

If a corridor meets the above criteria, an average cost is assigned based on a broad range of potential strategies and improvements. The specific improvement and cost will not be clearly defined until the project has gone through the scoping process to identify the appropriate and context sensitive solution and it is programmed in a future STIP. Potential strategies and improvements may include, but are not limited

to signal retiming, intersection modification, lane extensions, access management, interchange conversion or expansion.

Based on the criteria above, the following corridors warrant consideration under Greater Minnesota Metropolitan and Regional Mobility (corridor length):

2009 to 2018 (Total Needs \$15 M)

TH 61 London Road in Duluth (3.8 miles)

TH 61 in Two Harbors (1.4 miles)

2019 to 2028 (Total Needs \$61 M)

TH 53 Miller Trunk Highway in Hermantown (2.7 miles)

TH 194 Central Entrance in Duluth (1.9 miles)

**Investments to Meet Performance Targets Summary**

The District’s investments to meet performance targets over the 20-year period are estimated at approximately \$2.7 billion (Table 1). Preservation needs comprise the largest proportion, about \$2.4 billion (87 percent of total need). The following is a percentage summary of District 1 performance-based needs:

- Pavement and Other Infrastructure 70 percent
- Bridge 17 percent
- Safety 10 percent
- Greater MN Trade Center Mobility (Duluth/Hermantown) 3 percent  
100 percent

**Table 1 – District 1 Total Investments to Meet Performance Targets for 2009-2028 (\$ in millions, year of construction)**

STRATEGIC INVESTMENT PRIORITY	PLANNING PERIOD					
	2009 to 2018		2019 to 2028		2009 to 2028	
	Need (\$)	% of Need	Need (\$)	% of Need	TOTAL (\$)	% of Total
<b>Traveler Safety</b>	<b>150</b>	<b>15%</b>	<b>113</b>	<b>7%</b>	<b>263</b>	<b>10%</b>
Roadway Enhancements	137		98		235	
Capacity Improvements	13		15		28	
<b>Infrastructure Preservation</b>	<b>835</b>	<b>83%</b>	<b>1,519</b>	<b>56%</b>	<b>2,354</b>	<b>87%</b>
Chapter 152 Bridge Program	98		-		98	
Other Bridge	56		285		341	
Pavement	659		1,185		1,844	
Other Infrastructure	23		49		71	
<b>Mobility</b>	<b>15</b>	<b>2%</b>	<b>61</b>	<b>4%</b>	<b>76</b>	<b>3%</b>
Interregional Corridors	-		-		-	
Greater MN Trade Centers	15		61		76	
<b>Total Investment</b>	<b>\$1,000 M</b>		<b>\$1,690 M</b>		<b>\$2,690 M</b>	

## Regional and Community Improvement Priorities Summary

Regional and Community Improvement Priorities (RCIPs) represent system improvements identified by the District and regional or local communities and business groups as desirable and supportive of business or community development. The District compiled a list that reflects their understanding of regional and community priorities heard from stakeholders over the last five to ten years.

- Regional and community improvement priorities have been identified over the years through highway corridor task forces, regional, MPO and community plans and stakeholder groups such as specific business or regional partnerships and Chambers of Commerce. The studies have included significant public involvement and emphasize the need for transportation improvements to support local economic development.
- Identified improvement needs include 2 to 4 lane expansion (TH 169 “Cross-Range Expressway”), I-35 Interchange improvements (Hinckley and Proctor), urban area reconstruction and two lane highway reconstruction (shoulder widening/ten ton roads).

A summary of District 1 RCIP projects in year 2009 dollars is listed below:

- Road Reconstruction (\$284 - \$367 million)
  - TH 1 from Kawishiwi River to FR 553 (Forest Highway)
  - TH 1 from Tower to Ely
  - TH 2 from TH 6 to TH 46 in Deer River (3-Lane)
  - TH 23 in Gary/New Duluth
  - TH 46 Northhome to 4 miles South
  - TH 70 from I-35 to the Wisconsin State Line
  - TH 73 Cromwell to 7 miles South
  - TH 169 North Junction TH 53 to TH 1
  - TH 169 North Junction TH 210 to TH 200 (Hill City)
  - TH 210 North Junction TH 169 to McGregor
  - TH 38 Pughole Lake to Marcell (Pavement Reclamation)
- Interchange Improvements (\$30 - \$40 million)
  - I-35 and TH 48 in Hinckley
  - I-35 and Boundary Avenue in Proctor
- 2 to 4 Lane Expansion (\$60 - \$80 million)
  - TH 169 Taconite to Pengilly (Complete “Cross Range Expressway”)
- Passing Lanes (\$8 - \$12 million)
  - TH 53 Cook to International Falls

## Step 2: Project Future Revenue

Future revenues were projected assuming no new sources of revenue or rate increases in existing state or federal revenue sources. Revenue forecasts were prepared in winter 2007 and are intended for long-range planning purposes. The bond funding authorized by Minnesota Laws 2008, Chapter 152 has been included in the forecasts. Statewide revenues were allocated to the Districts according to Mn/DOT's adopted target formula and bonds were allocated to bridges and other projects as outlined in Chapter 152.

Given the volatility in both construction costs and state and federal revenue sources, the revenue forecast represents a snapshot in time and is to be updated annually for purposes of the 4-year STIP. Chapter 5 of the Statewide Transportation Policy Plan provides a more complete description of revenue and cost trends and projections. District 1's projected revenue totals approximately \$1.5 billion over the 20-year planning period.

## Step 3: Set Investment Goals

### Statewide Goals: A Balanced Program

#### *Need for Investment Goals*

For District 1, as well as for the state as a whole, the investment needs identified in Step 1 greatly exceed the projected future revenues identified in Step 2. Since all of the identified needs cannot be funded, it is necessary to set investment goals to guide how capital funds are spent. Based on input from stakeholders, investment goals should represent a balanced program of investments across the four strategic investment priorities of Traveler Safety, Mobility, Infrastructure Preservation, and Regional and Community Improvement Priorities; and result in a consistent, flexible and transparent approach across districts toward statewide system performance targets.

#### *Changes from the 2004 Investment Goals*

These statewide investment goals reflected in this update of the District 1 Highway Investment Plan differ significantly from the 2004 plan. At that time, Mn/DOT identified infrastructure preservation as its top priority. District 1 was directed to fully fund preservation needs before other priorities, including traveler safety, mobility, and local community priorities. The revenue and construction cost outlook in 2004 projected sufficient long term funding to meet not only preservation needs, but other areas of need as well.

Since 2004, revenues have not grown as anticipated and construction costs have increased dramatically. Even with the increased transportation revenues provided through Minnesota Laws 2008, Chapter 152, the cost to fully preserve bridges, pavements and other road infrastructure over the next 20 years will exceed projected funding.

### *2009 Statewide Investment Goals*

The investment goals in this plan update reflect Chapter 152 legislative direction, consideration of system performance trends, and stakeholder input. While infrastructure preservation continues to be an important investment priority for Mn/DOT, it cannot be the exclusive priority. The statewide investment goals for a balanced program are as follows:

1. Fully fund all Chapter 152 bridges by 2018;
2. Fund at least 85 percent of all other bridge preservation needs;
3. Fund at least three times the district's Highway Safety Improvement Program (HSIP) goal;
4. Use at least 70 percent of the remaining available revenues to fund pavement preservation (*District 3 and Metro District: Fully fund pavement preservation needs*);
5. Identify some level of investment in other infrastructure preservation; and
6. Remaining funds may be invested at the district's discretion.

### **District Goals**

The District 1 Highway Investment Plan addresses the four strategic priorities of System Preservation, Traveler Safety, Mobility and Regional and Community Improvements. The top priority in District 1 is to preserve the existing transportation system. This means maintaining and replacing the key components of the in-place highway system. The plan emphasizes pavement and drainage improvements, bridge rehabilitation and replacement and intersection improvements.

As the District 1 construction program moves into 2009 and beyond, virtually all of the limited state road construction funding will be needed to preserve the in-place transportation system and to match federal funds that are designated to High Priority Projects. Other projects to improve the functionality of the highways and travel mobility will not happen according to projected funding levels. The unique priorities for District 1 include the following:

#### *Infrastructure Preservation Priorities*

The top priority in District 1 is to preserve the existing transportation system, however, forecast funding falls short of meeting pavement and bridge needs. The cost to maintain the pavement conditions continue to rise and will increase greatly during the latter years of this plan;

The District will also see major bridge project needs in the latter years of this plan (increase from \$9 million/year to \$29 million/year), including the budget buster I-535/I-35/TH 53 "Can of Worms" Interchange in Duluth.

#### *Traveler Safety Priorities*

District 1 has high cost safety improvement needs that are not funded, including completing the reconstruction of TH 61 between Two Harbors and Grand Marais (49 miles remaining to be reconstructed at an estimated cost of \$160 to \$180 million in 2009 dollars).

Low cost safety improvements are funded at approximately \$3 to \$4 million/year and include improving the design and operation of intersections (geometric improvements, lighting and turn lanes), reducing head-on crashes (centerline rumble strips) and minimizing leave the road crashes (edgeline rumble stripes, sharp curve delineation and eliminate shoulder drop offs).

### *Mobility Priorities*

District 1 mobility needs in the Duluth-Superior Metropolitan Area are also not funded. These improvement needs include the TH 53 Miller Trunk Highway in Hermantown, TH 61 London Road in Duluth and TH 194 Central Entrance in Duluth.

### *Regional and Community Priorities*

Future mining operations may require the relocation of major highways such as TH 53 in Virginia and TH 169 in Hibbing, which are also not funded.

The completion of the TH 169 “Cross-Range Expressway” (Taconite to Pengilly) also is not funded, along with the reconstruction and shoulder widening of a number of highways in the District.

## **Step 4: Develop Investment Plan**

District 1’s 20-year Highway Investment Plan is a subset of projects and improvements identified as either investments to meet performance targets or Regional and Community Improvement Priorities.

### **2009–2012 STIP**

The 2009-2012 STIP is a historically large program that averages approximately \$108 M/year. The program is higher than normal due to specially funded federal High Priority Projects (\$70 million) and state bond projects (\$125 million). State bond projects include six bridge replacements and 90 miles of pavement improvements.

Federal High Priority Projects include:

- TH 1, Tower to Ely "Eagles Nest Area" - Reconstruction
- TH 53, Rice River to Cook - 2 to 4 Lane Expansion
- TH 61, Onion River to CR 34 - Reconstruction
- TH 61, Split Rock River to Chapins Curve - Reconstruction

### **2013-2018 HIP**

Funding for the 2013-2018 HIP averages approximately \$61 million/year, with investments focused on pavement, bridge and low cost safety improvements. Forecasted funding falls short of meeting pavement improvement needs and no funding is available for high cost safety needs (TH 61 reconstruction along the North Shore) mobility improvements in Duluth (TH 53-Miller Trunk, TH 61-London Road and TH 194-Central Entrance) or completion of the TH 169 Cross-Range Expressway between Taconite and Pengilly.

**2019-2028 LRP**

Funding for the 2019-2028 LRP averages \$70 million/year and investments continue to be focused on pavement, bridge and low cost safety improvements. Forecast funding falls short of meeting pavement and bridge improvement needs. Bridge improvement needs increase from \$9 M/year in the HIP to \$29 million/year in the LRP. The improvement/replacement of the I-535/I-35/TH 53 "Can-of-Worms" Interchange in Duluth is a budget buster project that will require additional/special funding. Again in this timeframe, funding is not available for high cost safety, reconstruction, mobility or regional and community involvement projects. In addition, future taconite mining operations may require the relocation of TH 53 in Virginia and TH 169 in Hibbing, which are also not funded in the long range plan.

**District 20-year Highway Investment Plan**

District 1 investments over the next 20 years total \$1.5 billion (Table 2) and include anticipated Chapter 152 Bridge Program bonds in years 2009 through 2012. Preservation investments comprise the largest proportion, about \$1.3 billion (87 percent of total estimated investments), which still falls short of funding all pavement and bridge preservation needs.

**Table 2 – District 1 Highway Investment Plan 2009-2028**  
(\$ in millions, year of construction)

STRATEGIC INVESTMENT PRIORITY	PLANNING PERIOD							
	2009 to 2012		2013 to 2018		2019 to 2028		2009 to 2028	
	STIP (\$)	% of STIP	HIP (\$)	% of HIP	LRP (\$)	% of LRP	TOTAL (\$)	% of Total
<b>Traveler Safety</b>	27	6%	27	7%	36	5%	90	6%
Roadway Enhancements	27		27		36		90	
Capacity Improvements	-		-		-		-	
<b>Infrastructure Preservation</b>	315	73%	322	87%	663	95%	1,301	87%
Chapter 152 Bridge Program	91		6		-		98	
Other Bridge	18		67		251		336	
Pavement	177		234		377		788	
Other Infrastructure	28		15		35		78	
<b>Mobility</b>	11	2%	2	1%	-	-	13	1%
Interregional Corridors	-		-		-		-	
Greater MN Trade Centers	11		2		-		13	
<b>Regional and Community Improvement Priorities</b>	51	12%	17	5%	-	-	68	5%
Right of Way, Consultants, Supplemental Agreements	27	6%	NA		NA		27	2%
<b>Total Investment</b>	<b>\$430 M</b>		<b>\$370 M</b>		<b>\$700 M</b>		<b>\$1,500 M</b>	

**Anticipated Projects 2009-2018**

The following is a list of anticipated major projects in the strategic investment priority areas of Traveler Safety, Mobility, Infrastructure Preservation, and Regional and Community Improvement Priorities. Anticipated projects address only the first planning period, 2009 to 2018, comprised of the STIP and Mid-Range HIP. The timing of investments is better known in 2009 to 2018 relative to 2019 to 2028; the latter period having a high level of uncertainty associated with both revenue and costs. Mn/DOT examines the STIP and Mid-Range HIP together as both update annually in succession, STIP then Mid-Range HIP, as the new construction cycle begins.

The anticipated projects listed are typically greater than \$5 million in construction cost. If projected revenues are not realized, the timing of planned investments may change. This is particularly true in the Mid-Range HIP where projects remain in the planning stage and represent a general spending plan, but not a commitment. Figures 3 and 4 identify the location of anticipated projects in the STIP and Mid-Range HIP, respectively.

### *Traveler Safety*

#### **Capacity Improvement – Anticipated Projects**

- TH 61, Onion River to CR 34, Reconstruction (2009)
- TH 61, Split Rock River to Chapins Curve, Reconstruction (2010)

### *Mobility*

#### **Greater Minnesota Metropolitan and Regional Mobility**

- TH 53, Miller Hill Mall Area Capacity, Intersection, and Access Management Improvements (2009)

### *Infrastructure Preservation*

#### **Pavement Preservation – Anticipated Major Projects**

- TH 2, Deer River to Cohasset, Unbonded Concrete Overlay (2009)
- TH 53 Midway Road to Independence, Reconstruct (portion) and Thin Unbonded Concrete Overlay (2009)
- I-35, Pine County Line to Moose Lake, Unbonded Concrete Overlay (2010)
- TH 169, Taconite to Pengilly, Reclaim/Mill and Overlay (2010)
- TH 210, McGregor to Cromwell, Mill and Overlay (2010)
- I-35, Proctor (Boundary Ave) to 26<sup>th</sup> Ave East in Duluth, Concrete Pavement Replacement/Repair (2010)
- TH 65, Nashwauk to Togo (TH 1), Pavement Reclamation (2010)
- I-35, Hinckley to 17 Miles North, Unbonded Concrete/Thick Bituminous Overlay (2011-2012)
- TH 71, TH 1 to Margie, Pavement Reclamation (2011)
- TH 169, Pengilly to Hibbing, Bituminous Overlay (2012)

#### **Bridge Preservation – Anticipated Major Projects**

- I-35, Freeway Bridges in Duluth (2009-2010)
- TH 210, Jay Cooke Park, Bridge Replacement (2012)

### *Regional and Community Improvement Priorities*

- TH 1, Eagles Nest Area, Reconstruction and Passing Lane (2011 – HPP Funds)
- TH 1, FR 553 to FR 424 (Phase 2), Reconstruction (2011 – Forest Highway Funds)
- TH 53, 4 Miles South of TH 1 to Cook, 2 to 4 Lane (2012 – HPP Funds)
- TH 169, TH 53 to Tower, Thirteen Hills Reconstruction (2013-2018 – HPP Funds)
- TH 1, Kawishiwi River to FR 553 (Phase 3) Reconstruction (2014 – Forest Highway Funds)

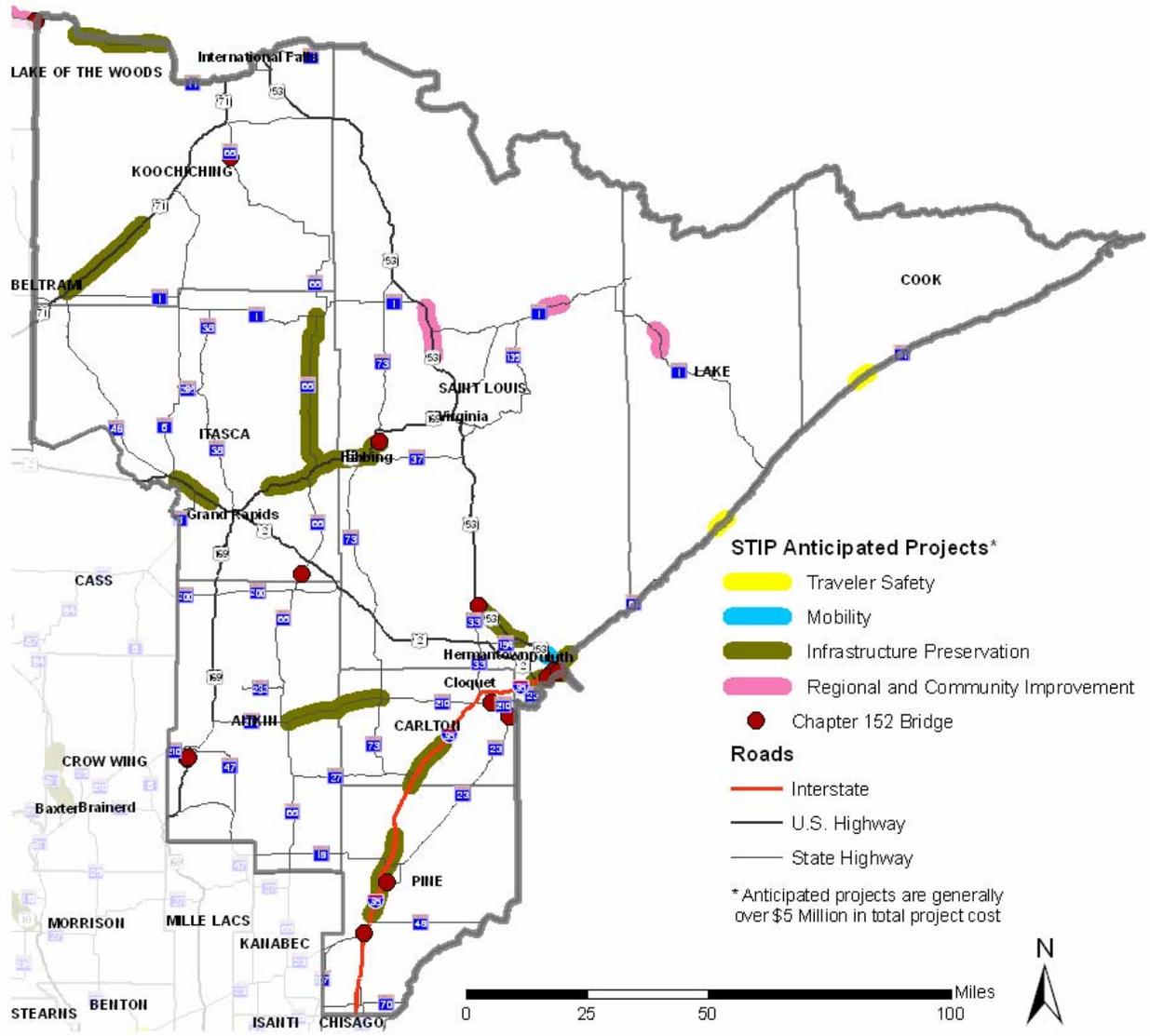


Figure 3 – District 1 Anticipated Projects for the STIP 2009 to 2012

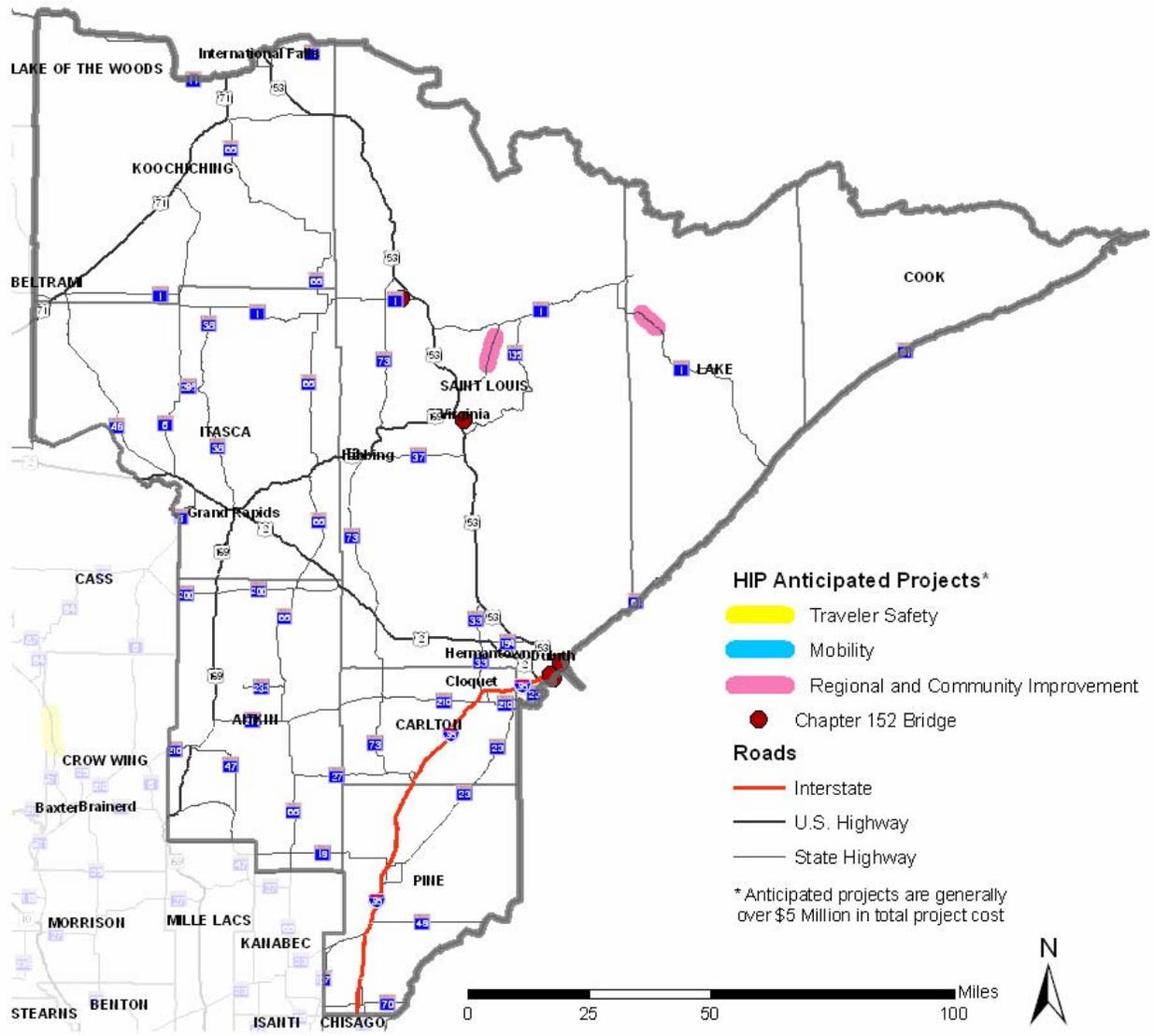


Figure 4 – District 1 Anticipated Projects for the Mid-Range HIP 2013 to 2018

## **Step 5: Identify High Priority Investment Options for Potential Additional Funding**

With a total estimated statewide investment need exceeding \$65 billion over the next 20 years, and projected investments of about \$15 billion, almost \$50 billion remains in unfunded needs. It is unlikely that future transportation funding will ever be increased to meet this degree of unmet need. Mn/DOT's policies and strategies, therefore, emphasize a new approach to meeting system improvement needs through stronger partnerships and innovation.

To place this level of funding in perspective, every 5 cents on the motor vehicle fuel tax in Minnesota increases total revenues by \$150 million per year and provides just under \$100 million per year to the State Road Construction fund. To generate an additional \$2.5 billion in revenue over 10 years would require the equivalent of a 12.5-cent increase in the motor vehicle fuel tax.

### **District Unfunded Investment Needs**

District 1's unfunded investment needs total \$1.8 billion and are distributed across the four strategic priorities as follows:

- Nine Percent – Improve Traveler Safety
  - TH 61, Two Harbors to Grand Marais
  - TH 210, Aitkin to N. TH 169
- Three Percent – Improve Mobility
  - TH 53, Miller Trunk Highway in Hermantown
  - TH 61, London Road in Duluth
  - TH 194, Central Entrance in Duluth
- 54 Percent – Preserve Infrastructure in Safe and Sound Condition
  - I-535/I-35/TH 53 “Can-of-Worms” Interchange in Duluth
- 34 Percent – Support Regional and Community Improvement Priorities
  - I-35, Proctor and Hinckley Interchanges
  - TH 73, Cromwell to 7 Miles South Reconstruction
  - TH 169, Virginia to Ely Reconstruction
  - TH 169, “Cross Range Expressway” Taconite to Pengilly

### **Statewide High Priority Investment Options for Potential Additional Funding**

Given the magnitude of unfunded investment needs each district prepared an approach to high priority investment options should additional funding become available. District 1 emphasized investments in Preserve Infrastructure in Safe and Sound Condition and Improve Traveler Safety – Capacity Improvements. Mn/DOT's Transportation Program Committee used the information provided by the districts to develop a statewide approach.

The statewide approach identified five percent (or \$2.5 billion) of the total unfunded investment needs as high priority should additional revenue be available during the next 10 years. Since additional funding, such as the American Recovery and Reinvestment Act, would likely carry specific eligibility criteria or investment direction, the statewide approach is distributed across all four strategic investment categories.

The statewide approach provides the opportunity to enhance traveler safety on rural roads across the state as well as Twin Cities Metropolitan Area highways, upgrade underperforming IRCs, fund a lower-cost/high-benefit congestion management program as well as some key capacity expansion projects in the Twin Cities, preserve pavement and bridge infrastructure, and support partnership projects for local economic development efforts throughout Minnesota.

- 15 Percent – Improve Traveler Safety \$385 Million
- 41 Percent – Improve Mobility on Interregional Corridors and Congested Metro Freeways \$1 Billion
- 39 Percent – Preserve Infrastructure in Safe and Sound Condition \$970 Million
- Five Percent – Support Regional and Community Improvement Priorities \$115 Million

### **District High Priority Investment Options for Potential Additional Funding**

In District 1, the three strategic priority areas additional funding would address includes the following:

- 13 Percent – Improve Traveler Safety
- 83 Percent – Preserve Infrastructure in Safe and Sound Condition
- Four Percent – Support Regional and Community Improvement Priorities

## **System Performance and Anticipated Outcomes**

The District 1 20-year Highway Investment Plan 2009-2028 was developed as a planning document that links the policies and strategies established in the Statewide Transportation Policy Plan and the capital improvements that are made to the state highway system. District 1 has approximately \$3.5 billion in investment needs and \$1.5 billion in total investments over the 20-year planning period, resulting in \$2.0 billion of unfunded investment needs.

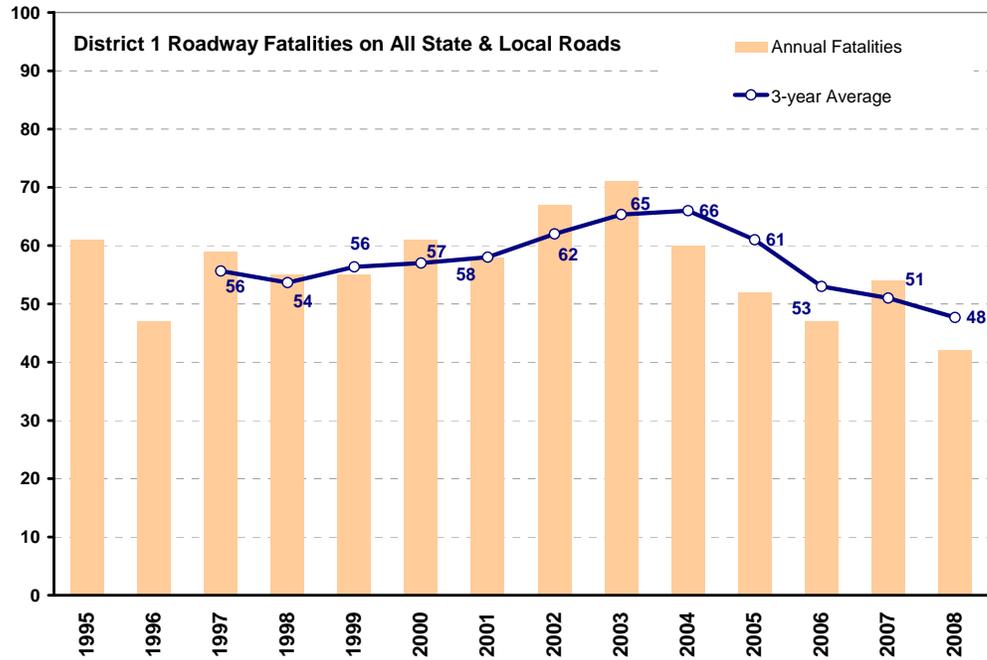
The plan, however, is a snapshot in time. Anticipated project timing and expected highway system performance will change as revenues are realized and construction costs change. Highway system needs change continuously as District 1 completes its annual STIP/Mid-Range HIP update. As part of this process, District 1 tracks investments using system performance targets and responds with appropriate changes to its investment plan on an annual basis. This section focuses on the first planning period, 2009 to 2018, comprised of the STIP and Mid-Range HIP. The timing of investments, and therefore the accuracy of outcomes and system performance, is better known in 2009 to 2018 relative to 2019 to 2028.

### **2009-2018 STIP/Mid-Range HIP Outlook**

#### **Traveler Safety**

District 1 will continue to invest systematically in safety add-ons to pavement projects, such as edge treatments and cable median barriers. The District also plans to fund proactive stand alone projects such as intersection improvements (geometric improvements, turn lanes, and lighting) and access management. As a result of these safety investments, District 1 anticipates:

- A decrease in the number of fatalities and serious injury crashes on state highways. Following a peak in fatalities, District 1 has since realized a reduction (Figure 5). Lower-cost safety investments have been shown to address run-off-the-road, head-on, cross-median, and intersection related crashes. These crashes are typical of those on rural highways where 70 percent of Minnesota's fatal crashes occur.



**Figure 5 – District 1 Annual Fatalities on All Roads (& 3-year Average)**

Source: Mn/DOT Office of Traffic, Safety and Technology

**Mobility**

- District 1 has no performance-based mobility needs on the Interregional Corridor (IRC) system that connects cities in northeast Minnesota.

**Infrastructure Preservation**

District 1 will work to maintain the condition of its pavement and bridge infrastructure on both principal and non-principal arterials as funding allows. Principal arterials are state highways that have the highest level of traffic and connect major trade centers. Non-principal arterials include all other state highways. District 1 anticipates to:

*Bridge Preservation*

Fund 100 percent of bridge preservation needs through 2018. As a result, District 1 has been forecasted to meet its performance targets in 2018 for the number of bridges with a condition rating of “good”, “fair and poor”, and “poor” on both principal and non-principal arterials.

*Pavement Preservation*

District 1 will make significant investments in pavements; however pavement conditions will still be significantly below performance targets and particularly on the Non-Principal Arterials (Figures 6 and 7).

### Predicted "Good" Ride Quality Index (miles with RQI > 3.0) ATP-1 Only

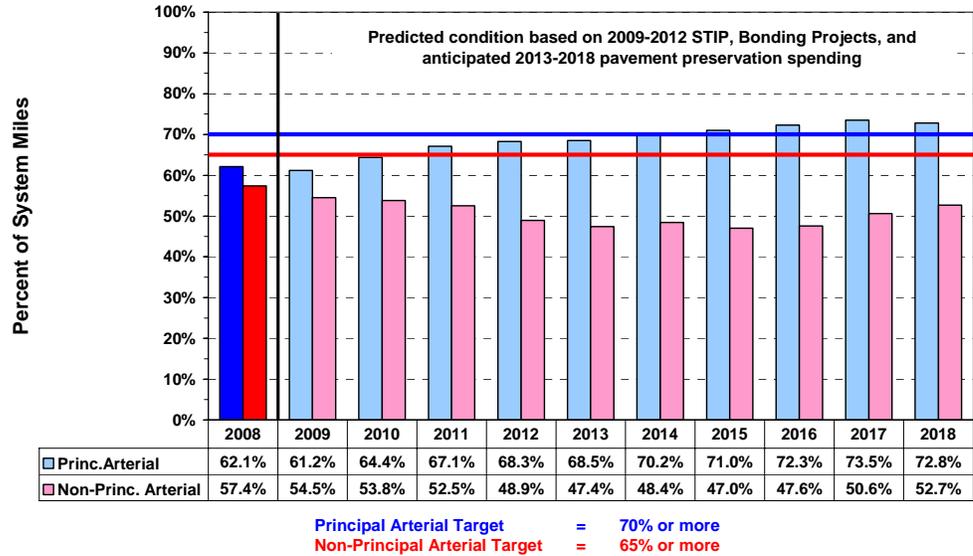


Figure 6 – Predicted “Good” Ride Quality Index for District 1

Source: Mn/DOT Office of Materials Services

### Predicted "Poor" Ride Quality Index (miles with RQI <= 2.0) ATP-1 Only

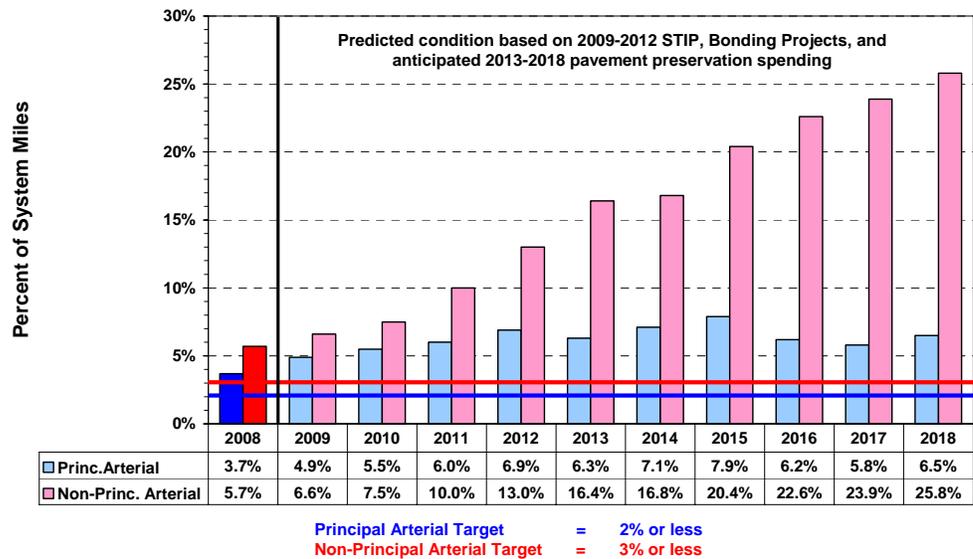


Figure 7 – Predicted “Poor” Ride Quality Index for District 1

Source: Mn/DOT Office of Materials Services

### *Other Infrastructure Preservation*

Continue to systematically fund other infrastructure. Additional outcomes and system performance will be known in the future as measures and targets in this area are developed.

## **Long-Range HIP 2019-2028 Outlook**

### **Infrastructure Preservation**

District 1 expects to fund approximately 75 to 80 percent of the bridge preservation needs and will continue to invest remaining available funds on pavement improvements. However, pavement conditions are projected to be significantly below performance targets and particularly on the Non-Principal Arterials.

### **Mobility and Traveler Safety**

High cost mobility and safety improvement projects are not funded due to higher priority preservation and low cost safety needs.

## **Further Information**

Please contact Mn/DOT District 1 for additional information.

Website: <http://www.dot.state.mn.us/d1.html>