REGIONAL SOLICITATION EVALUATION

BEFORE-AND-AFTER SUMMARY

Introduction

The Metropolitan Council (Council) completed the first phase of the Before-and-After Study in 2019 and the second phase in 2021. This document summarizes the third phase that was started in 2023. Its main objective is to compare the conditions of a funded project Before-and-After implementation to assess the quantifiable benefits and impacts of the project.

The evaluation builds on phase two work that began in 2021 and focuses on analyzing transportation projects funded in the 2014 solicitation year that were constructed between 2017 and 2019. These projects were analyzed using three years of "before" and "after" data, which aligns with best practices used in previous studies. The “after” data used in the 2021 second phase study was limited due to the availability of data and the COVID-19 pandemic impacts on travel. Therefore, this study seeks to update that analysis to inform the ongoing Regional Solicitation Evaluation.

The 2021 study analyzed projects based on seven established performance measures. For this study the analysis will examine the projects based on the following two performance measures that were used in project scoring and selection:

- Performance Measure #1: Safety Benefits
- Performance Measure #2: Pedestrian/Bicycle Usage

In 2021, only two of the 13 projects had a full three years of “after” crash data due to construction completion dates. In this update, summaries were developed for 28 Regional Solicitation Roadway projects and 27 projects funded through the Highway Safety Improvement Program (HSIP). The analysis aims to provide a clear understanding of the benefits of the projects funded through these two programs.

The study also includes a review of Regional Solicitation Bicycle and Pedestrian Facilities projects awarded funding in 2014. While the effectiveness of active transportation projects is difficult to quantify, this study provides an overview of characteristics related to these projects.

Policy Basis

Improving safety is a local, regional, and national goal. This goal is reflected in the Council’s 2050 Transportation Policy Plan (TPP), which will be finalized for adoption in early 2025, and includes the following objectives related to roadway safety:

Goal: Our communities are healthy and safe.

Objectives:

- People do not die or face life-changing injuries when using any form of transportation.
- People feel safer, more comfortable, and more welcome when using any form of transportation.

In addition to the TPP goal, the Council has also adopted other roadway safety goals through its 2022 Regional Pedestrian Safety Action Plan (2022) and its Regional Safety Action Plan (2024). Together, these plans work towards advancing the Minnesota Department of Transportation’s (MnDOT’s) Toward Zero Deaths (TZD) goal, where traffic fatalities and serious injuries are no longer acceptable.

As the metropolitan planning organization (MPO) for the region, the Council is required by federal law to set regional safety targets on an annual basis. The federally required safety targets include the following:

- the total number and rate (per 100 million vehicle miles traveled [VMT]) of fatal crashes,
- the total number and rate of serious injury crashes, and
- the total number of non-motorized fatalities and serious injuries.

These targets serve not only to fulfill the Council's federal requirements, but to engage with regional partners and set goals to guide the region to a safer transportation network for all modes.

Project Evaluation

In the 2014 Regional Solicitation Cycle, in which all projects evaluated in this study were selected, applicants were only requested to submit the Benefit/Cost ratio of the project's anticipated crash reduction, calculated through an HSIP worksheet.

In the most recent cycle (2024), the safety measures have been expanded to include Pedestrian Crash Reduction as well. Applications are evaluated and scored based on the safety measures as shown below.

Measure	Applicant Submittal	Scoring
Crash Reduction and Benefits	• Calculated crash reduction and monetary benefits using a methodology consistent with the HSIP Worksheet • Crash modification factors used to calculate reduction	Project with highest dollar value of benefits receives full points (305). Remaining applicants receive a proportionate share.
Project-Based Pedestrian Safety Enhancements (Sub-measure 1)	• Description of how project will address pedestrian safety needs • Description of how motorist speed will be managed through project design	Project that provides most improvement across the two questions receives the most points (43.3). Other projects receive a share of the full points, at scorer's discretion.
Existing Location-Based Pedestrian Safety Risk Factors (Sub-measure 2)	• Questions about existing road design and characteristics	Multiply the score from Sub-Measure 1 by the proportion of risk factors indicated to calculate the number of points earned for Sub-Measure 2. Applications where all three factors are present score additional points equal to 100% of their Sub-Measure 1 score. Applications where two of the three factors are present score additional points equal to 2/3 (or 67%) of their Sub-Measure 1 score, and so on.
Existing Location-Based Pedestrian Safety Exposure Factors (Sub-measure 3)	• Questions about transit service and destinations in proximity to the project	Multiply the score from Sub-Measure 1 by the proportion of risk factors indicated to calculate the number of points earned for Sub-Measure 2. Applications where all three factors are present score additional points equal to 100% of their Sub-Measure 1 score. Applications where two of the three factors are present score additional points equal to 2/3 (or 67%) of their Sub-Measure 1 score, and so on.

Study Methodology

This Before-and-After study replicated the methodology of the 2021 phase II study, which analyzed MnDOT crash data in geographic information system (GIS) software. The analysis includes the following measures for built roadway projects that have received federal transportation funds, including through Regional Solicitation and the Highway Safety Improvement Program (HSIP):

- Total crashes
- Fatal crashes
- Serious crashes
- Fatal or serious crashes
- Pedestrian or bike crashes
- Crash cost
- Approximate crash rate
- Fatal and serious crash rate

The analysis was conducted under the following parameters:

- All the projects selected were awarded funding in the 2014 solicitation year and constructed between 2017 and 2019.
- Four of the 55 completed projects were not analyzed as part of this study. These applications included a large geography, and it was determined that there were too many locations within the application to provide an accurate assessment of the projects. These projects include:
    - High Speed Rural System Turn Lane Implementation (Scott County)
    - Bicycle Lane Colored Conflict Zones (Minneapolis)
    - Enhanced Curve Delineation with Chevrons – Metro Wide (MnDOT)
    - Saint Paul Downtown Traffic Signal Enhancement Program (Saint Paul)
- A three-year period of crash data was utilized to evaluate safety outcomes. For all analyzed projects, the pre-implementation “before” period analyzed data for 2015, 2016 and 2017, while the post-implementation “after” period analyzed data for 2021, 2022, and 2023.
- Project boundaries were built in GIS using a 65-foot buffer around segments and a 200-foot buffer around intersections to capture relevant crashes.
- Crash rates for various types of crashes were calculated as total crashes per one million VMT based on the Average Annual Daily Traffic (AADT) within the project boundaries. Severe crash rates were calculated as total crashes per 100 million VMT.
    - Example Segment Total Crash Rate Formula:

$$\frac{(Number\ of\ Total\ Crashes) * (1\ Million)}{(Segment\ Length) * (Number\ of\ Years) * (ADT) * (365)}$$

- The AADT data for crash rate calculations was sourced from the MnDOT traffic mapping application. The "before" analysis utilized data from 2015 to 2017, while the "after" analysis covered 2021 to 2023. If AADT data for those years was unavailable, the nearest year was used instead.

Complete data tables for the “before” and “after” safety analysis can be found in the Appendix. Selected summaries are shown below in Table 1 and Table 2. Table 1 summarizes the total calculated safety benefits of project types based on monetary crash costs. Note that a projected

benefit-cost ratio was the main method of safety evaluation for projects in the 2014 project cycle. The crash difference between the "before" and "after" conditions were monetized using MnDOT's recommended standard values for various types of crashes (from the latest benefit-cost sheet published July 2023). Note that this amount differs from what was shown in the Investment Summary, which relied on applicants' reported safety benefits. For the 2014 cycle, Regional Solicitation roadway applicants reported an expected benefit of $142.2 million, compared to the $41.5 million calculated by this analysis.

The benefit summary shown in Table 1 compares the overall crash cost benefits to the awarded federal funding amount rather than the total project cost to more accurately capture the benefit associated with the Regional Solicitation and HSIP program awards.

Table 1: Safety Benefits Summary by Project Type

Project Type	Awarded Amount	Total Monetary Safety Benefits (Reduction in Crash Cost)	Benefit-Cost (Crash Cost Reduction/ Awarded Amount)
Strategic Capacity	$60,931,774	$9,225,000	0.15
Roadway Modernization	$38,121,675	$8,650,000	0.23
Roadway Traffic Management Technologies	$8,302,726	$7,410,000	0.89
Total Regional Solicitation	**$107,356,175**	**$25,285,000**	**0.23**
Proactive HSIP	$6,832,350	$17,340,000	2.54
Reactive HSIP	$15,132,215	$30,135,000	1.99
Total HSIP	**$21,964,565**	**$47,475,000**	**2.16**
Overall Total	**$129,320,740**	**$72,760,000**	**0.56**

The study also compared the program's impact on total number of crashes and the impact on crash rates for each project. The impact on the number of crashes for each project type is shown in the appendix. This data is not normalized in any way and only reflects the total number of each type of crash for each project type in the "before" and "after" periods.

To understand the impacts on crash rates, each project was analyzed individually. Due to the differing methods used to calculate crash rates for intersections and segments, as well as the significant influence of location factors such as segment length and AADT, it is not feasible to accurately develop an aggregate crash rate for each project type. However, Table 2 below shows the number of projects within each category that experienced a crash rate reduction in the "after" period, the average change in crash rates, and the largest crash rate change observed within each category. The table shows that in most categories, the majority of projects experienced a crash rate reduction, with the exception of Roadway Traffic Management Technologies. The Reactive HSIP projects experienced the highest average change, which makes sense given this category specifically funds safety projects in areas with proven crash problems.

The "before" and "after" crash rates for each individual project are shown in the Appendix.

Table 2: Total Crash Impact Summary by Project Type

Project Type	Total Number of Projects	Total Number of Projects with Crash Rate Reduction	Average Crash Rate Change (%)	Largest Crash Rate Change (%)
Strategic Capacity	10	8	-28%	-73%
Roadway Modernization	8	4	-21%	-93%
Roadway Traffic Management Technologies[1]	9	6	0%	-50%
Proactive HSIP	8	7	-16%	-96%
Reactive HSIP	16	13	-59%	-200%

Findings

- All five project types demonstrate a monetary safety benefit by reducing the total crash cost.
- Of the three regional solicitation project categories, Roadway Traffic Management Technologies typically have a more favorable benefit-cost ratio (likely due to their low awarded amount), indicating greater safety benefits relative to the amount of funding awarded. Strategic Capacity and Roadway Modernization projects demonstrate the lowest benefit-cost ratio, likely due to their larger federal awarded amount.
- The Strategic Capacity and reactive HSIP project types demonstrated a decrease in both fatal and severe injury causing crashes following implementation, while the other project types experienced increases in severe crashes. The reason for this is not clear from the analysis carried out, but may reflect several factors, including changes in AADT and an increase in crashes overall in the region over that time period (see Table 11 in the appendix). However, it may suggest that investing in safety-focused projects (rather than general roadway improvements) is the best way to decrease fatal and severe crashes.
- All five project types demonstrated a reduction in both total crashes and crashes involving pedestrians and bicycles.
- HSIP projects exhibited the highest reduction in total crashes, while the Roadway Modernization project type showed the highest reduction in pedestrian and bicycle crashes. However, these findings are not normalized and may be impacted by total traffic volumes, number of projects in each category, and other factors such as changing

[1] Note that though the crash rate for the Traffic Management Technologies was essentially flat, the category still resulted in a high benefit-cost ratio based on the relatively low cost of these improvements (creating higher benefit ratios).

traffic patterns and regional trends. An analysis of crash rates is a better comparison to accurately define the impact of the project.

- The projects funded through the HSIP program (both proactive and reactive), which has the primary focus of improving safety, had the most reliably positive impact on crash rates, with some notable outliers.
- All three Regional Solicitation project categories showed a pattern of mostly increased fatal and severe crash rates in the after period, and mostly decreased total rates, indicating that while these projects reduced the total number of crashes, the severity of crashes may have increased. However, this follows a general regional trend of increased fatal and severe crashes over the same time period. The overall impact of regional trends vs specific project improvements was unable to be isolated through this analysis. Table 11 in the appendix shows that crash types such as speed-related, inattentive driving, and unbelted occupants generally increased, possibility contributing to the increase in severe crashes.
- It should be noted that the Regional Solicitation Spot Mobility category wasn't added until 2020 and thus was not included in this evaluation. This application category was added to fund projects with a primary focus of improving safety.

Performance Measure #2: Bicycle and Pedestrian Usage

To evaluate how Regional Solicitation funding has enhanced access to active transportation facilities, this study aimed to develop metrics for comparing pedestrian and bicycle usage across various funded projects. The study reviewed three Regional Solicitation project categories related to pedestrian and bicycle projects: Multiuse and Bicycle Facilities, Pedestrian Facilities, and Safe Routes to School. Single-day 24-hour video data was collected for pedestrian and bicycle counts. The data was collected on a typical weekday with favorable weather conditions mostly during the summer months for a total of 17 projects. Data collection for all SRTS projects occurred while school was in session. The "after" count data was subsequently compared with the "before" surrounding population and employment data, as reported in the application, to assess the effectiveness of the projects in attracting nearby users to the facilities. The Before-and-After analysis summary findings in Table 3, Table 4, and Table 5 provide a comparison of the actual collected count data to the surrounding population data as reported in the submitted application.

Table 3: Multiuse Trails and Bicycle Facilities Usage Summary

Project	Existing Population Within 1 Mile	Existing Employment Within 1 Mile	One Day Ped/Bike Count	Count/ Population Within 1 Mile Ratio	Count/ Employment Within 1 Mile Ratio
Three Rivers Nine Mile Creek Trail (Edina)	31,568	51,690	566	1.8%	1.1%
Hennepin Co Green Line Extension Trail	92,135	56,756	930	1.0%	1.6%
TH 5 Regional Trail (Carver County)	17,604	9,053	13	0.1%	0.1%
TH 5 Arboretum Connection Trail (Carver County)	14,441	7,500	120	0.8%	1.6%
5th St SE Pedestrian/Bicycle Bridge Replacement (Minneapolis)	40,892	50,142	1,058	2.6%	2.1%
Gateway State Trail Hadley Avenue Tunnel (Oakdale)	17,718	5,253	368	2.1%	7.0%
Indian Mounds Regional Park Trail (Saint Paul)	40,466	30,352	161	0.4%	0.5%
Margaret Street Bicycle Boulevard and McKnight Trail (Saint Paul)	82,226	35,364	87	0.1%	0.3%
University of Minnesota Protected Bikeways (Minneapolis)	51,053	48,236	1,617	3.2%	3.4%
West Moore Lake Trail (Fridley)	30,941	13,275	90	0.3%	0.7%
High Quality Connections between Orange Line and Midtown Greenway (Minneapolis)	71,643	30,017	214	0.3%	0.7%
Total	490,687	337,638	5,224	1.1%	1.6%

Table 4: Pedestrian Facilities Usage Summary

Project	Existing Population Within 1/2 Mile	Existing Employment Within 1/2 Mile	One Day Ped/Bike Count	Count/ Population Within 1/2 Mile Ratio	Count/ Employment Within 1/2 Mile Ratio
Lake Street Streetscape (Minneapolis)	44,513	20,347	3,119	7.0%	15.3%
Emerson and Fremont Avenues North Pedestrian Enhancements (Minneapolis)	37,406	13,683	85	0.2%	0.6%
North Loop Pedestrian Improvements (Minneapolis)	19,403	115,558	2,849	14.7%	2.5%
Total	101,322	149,588	6,053	6.0%	4.1%

Table 5: Safe Routes to School Usage Summary

Project	Student Population Within 1/2 Mile of the School	One Day Ped/Bike Count	Count/ Student Population Within 1/2 Mile Ratio
CSAH 19 Pedestrian and Bicycle Trail (Stillwater)	342	51	14.9%
Bloomington SRTS Improvements	728	112	15.4%
Forest Lake SRTS Infrastructure	-	7	-
Total	1,096	241	22.0%

Findings

- While both multiuse trail/bicycle and pedestrian facilities projects attracted users, pedestrian facilities projects were most effective, both in attracting a higher number of users on a per-project basis, and as a percentage of the total nearby population.
- Safe Routes to Schools projects attracted a high number of users when compared to the student population in proximity to the project.

None of these quantitative measures are likely to capture the true impact of the projects. Recommendations to further analyze the impacts of these projects might include longer-term counts to capture the true usage of each facility more accurately. Also, it is likely that many users who had already been walking or biking on nearby roadways switched routes to travel on these facilities. In that case, a Before-and-After study of pedestrian and bicycle crashes in the vicinity of these projects might more accurately capture the safety impacts of investing in active transportation infrastructure.

Appendix A: Project Crash Analysis Detail

Table 6: Strategic Capacity Project Crash Statistics

Project	Total Crashes (Before)	Total Crashes (After)	Total K Crashes (Before)	Total K Crashes (After)	Total A Crashes (Before)	Total A Crashes (After)	Total B Crashes (Before)	Total B Crashes (After)	Total C Crashes (Before)	Total C Crashes (After)	Total PDO Crashes (Before)	Total PDO Crashes (After)	Total Ped & Bike Crashes (Before)	Total Ped & Bike Crashes (After)	Total K Ped & Bike Crashes (Before)	Total K Ped & Bike Crashes (After)	Total A Ped & Bike Crashes (Before)	Total A Ped & Bike Crashes (After)
Trunk Highway 41 Expansion (Carver County)	73	41	0	0	1	0	3	3	24	9	45	29	1	1	0	0	0	0
TH 169 and TH 41 Interchange (Scott County)	8	5	0	0	0	0	0	1	1	1	7	3	0	0	0	0	0	0
CSAH 81 (Bottineau Boulevard) Expansion (Hennepin County)	38	39	1	1	1	0	8	5	11	10	17	23	1	0	0	0	0	0
CSAH 13 Expansion & Multi-Modal Improvements (Washington County)	11	7	0	0	0	0	0	1	4	0	7	6	0	0	0	0	0	0
Trunk Highway 36/Hadley Avenue (CSAH 35) Interchange Project – (Washington County)	115	79	0	0	0	0	9	6	28	15	78	58	0	0	0	0	0	0
CSAH 42/TH 52 Interchange (Dakota County)	35	20	0	0	0	0	9	3	3	5	23	12	1	0	0	0	0	0
Reconstruction of CSAH 31 from I-35E to Northwood/Central Parkway (Eagan)	58	57	0	0	1	3	2	2	7	5	48	47	0	0	0	0	0	0
East Bush Lake Road I-494 Westbound Entrance Ramp (Bloomington)	17	20	0	0	1	0	2	1	1	3	13	16	1	0	0	0	0	0
CSAH 78 Expansion from 139th Ln to CSAH 18 (Anoka County)	24	17	0	0	1	1	2	1	6	6	15	9	1	1	0	0	1	0
Roundabout- proposed traffic control revision at the intersection of TH 3 and CSAH 26 (Dakota County)	12	8	0	0	0	0	3	1	1	0	8	7	1	0	0	0	0	0
Total	391	293	1	1	5	4	38	24	86	54	261	210	6	2	0	0	1	0
Total Change	**-98**		**0**		**-1**		**-14**		**-32**		**-51**		**-4**		**0**		**-1**	

Table 7: Roadway Modernization Project Crash Statistics

Project	Total Crashes (Before)	Total Crashes (After)	Total K Crashes (Before)	Total K Crashes (After)	Total A Crashes (Before)	Total A Crashes (After)	Total B Crashes (Before)	Total B Crashes (After)	Total C Crashes (Before)	Total C Crashes (After)	Total PDO Crashes (Before)	Total PDO Crashes (After)	Total Ped & Bike Crashes (Before)	Total Ped & Bike Crashes (After)	Total K Ped & Bike Crashes (Before)	Total K Ped & Bike Crashes (After)	Total A Ped & Bike Crashes (Before)	Total A Ped & Bike Crashes (After)
CSAH 3 (Lake Street Reconstruction) (Hennepin County)	100	59	0	0	2	4	13	8	26	12	59	35	14	2	0	0	1	2
CSAH 42 and TH 13 Intersection Reconstruction (Scott County)	48	42	0	0	1	3	5	4	8	10	34	25	3	0	0	0	1	0
Interstate Highway 94/Dale Street Interchange Reconstruction (Ramsey County)	113	65	1	1	1	3	6	6	15	8	90	47	9	0	0	0	1	0
Brooklyn Boulevard Reconstruction/Modernization (Brooklyn Center EDA)	105	81	0	0	1	3	13	11	33	17	58	50	5	3	0	0	0	0
White Bear Avenue (CSAH 65) Reconstruction- I-94 to Beech Street (Ramsey County)	98	79	0	0	0	1	3	8	20	9	75	61	7	0	0	0	0	0
8th Street South Reconstruction (Minneapolis)	196	58	0	0	1	4	24	9	46	9	125	36	23	3	0	0	0	0
Broadway Street NE Reconstruction/Modernization (Minneapolis)	41	25	0	0	1	1	6	4	5	6	29	14	1	1	0	0	0	0
CSAH 26 (Lone Oak Road) and CSAH 43 (Lexington Avenue) Intersection Improvements (Dakota County)	13	19	0	0	0	0	2	3	2	3	9	13	0	0	0	0	0	0
Total	714	428	1	1	7	19	72	53	155	74	479	281	62	9	0	0	3	2
Total Change	**-286**		**0**		**+12**		**-19**		**-81**		**-198**		**-53**		**0**		**-1**	

Table 8: Roadway Traffic Management Technologies Segment Project Crash Statistics

Project	Total Crashes (Before)	Total Crashes (After)	Total K Crashes (Before)	Total K Crashes (After)	Total A Crashes (Before)	Total A Crashes (After)	Total B Crashes (Before)	Total B Crashes (After)	Total C Crashes (Before)	Total C Crashes (After)	Total PDO Crashes (Before)	Total PDO Crashes (After)	Total Ped & Bike Crashes (Before)	Total Ped & Bike Crashes (After)	Total K Ped & Bike Crashes (Before)	Total K Ped & Bike Crashes (After)	Total A Ped & Bike Crashes (Before)	Total A Ped & Bike Crashes (After)
CSAH 96 Traffic Signal Timing and Intersection Upgrades (Ramsey County)	244	192	1	0	1	6	25	23	48	28	169	135	8	2	0	0	0	0
TH 47 CMAQ Signal Re-timing and Coordination (MnDOT – Anoka County)	236	261	3	3	6	10	42	35	51	41	134	172	11	2	1	0	4	1
TH 41 CMAQ Signal Re-timing and Coordination (MnDOT – Carver County)	149	159	0	1	0	1	11	19	34	21	104	117	6	2	0	0	0	0
TH 120 CMAQ Signal Re-timing and Coordination (MnDOT – Ramsey County)	482	249	1	2	4	4	44	36	103	52	330	155	8	3	0	1	3	1
TH 55 CMAQ Signal Re-timing and Coordination (MnDOT – Dakota County)	93	79	0	0	1	0	9	6	14	17	69	56	2	0	0	0	0	0
TH 61 CMAQ (Signal Re-timing and Coordination (MnDOT – Dakota County)	151	146	0	1	2	0	8	8	24	19	117	118	2	2	0	0	0	0
CSAHs 46 (160th) & 31 (Pilot Knob Rd) Roadway Traffic Flow Improvements (Dakota County)	471	584	3	0	8	10	35	46	84	112	341	416	8	3	1	0	3	0
Traffic Management System (Scott County)	53	58	0	0	1	0	0	5	13	8	39	45	1	0	0	0	0	0
CSAHs 26 28 31 43 Roadway Traffic Flow Improvements (Dakota County)	335	345	2	0	6	5	28	36	51	47	248	257	8	1	1	0	3	0
Total	2,214	2,073	10	7	29	36	202	214	422	345	1,551	1,471	54	15	3	1	13	2
Total Change	**-141**		**-3**		**+7**		**+12**		**-77**		**-80**		**-39**		**-2**		**-11**	

Table 9: Proactive HSIP Project Crash Statistics

Project	Total Crashes (Before)	Total Crashes (After)	Total K Crashes (Before)	Total K Crashes (After)	Total A Crashes (Before)	Total A Crashes (After)	Total B Crashes (Before)	Total B Crashes (After)	Total C Crashes (Before)	Total C Crashes (After)	Total PDO Crashes (Before)	Total PDO Crashes (After)	Total Ped & Bike Crashes (Before)	Total Ped & Bike Crashes (After)	Total K Ped & Bike Crashes (Before)	Total K Ped & Bike Crashes (After)	Total A Ped & Bike Crashes (Before)	Total A Ped & Bike Crashes (After)
TH 212 Rural Intersection Conflict Warning Systems (RICWS) and Lighting Improvements (Carver County)	11	13	0	0	1	0	1	4	4	3	5	6	0	0	0	0	0	0
Advanced Traffic Management System (ATMS) on CSAHs 17, 61, 81, 120 and 152 (Hennepin County)	1101	879	3	3	13	20	107	101	259	169	719	586	16	6	2	0	0	1
TH 10 Lighting Project (MnDOT – Ramsey County)	156	186	0	1	2	2	16	7	20	16	118	160	0	0	0	0	0	0
Convert Intersections to Reduce Conflict Intersections on TH 212 (MnDOT – Ramsey County)	3	1	0	0	0	0	0	0	1	0	2	1	0	0	0	0	0	0
TH 169 Cable Median Barrier Installation (MnDOT – Ramsey County)	116	70	1	0	2	2	13	3	28	12	72	53	0	0	0	0	0	0
Grand Avenue Pedestrian Safety Improvements (St. Paul)	66	46	0	0	0	0	4	1	5	8	57	37	4	0	0	0	0	0
CSAH 78 Traffic Signal Interconnect (Anoka County)	197	158	1	1	2	2	11	21	51	40	132	94	5	2	0	0	1	0
Pedestrian Curb Extensions (Minneapolis)	46	22	0	0	0	1	8	7	6	2	32	12	4	0	0	0	0	0
Total	1,696	1,375	5	5	20	27	160	144	374	250	1,137	949	29	8	2	0	1	1
Total Change	**-321**		**0**		**+7**		**-16**		**-124**		**-188**		**-21**		**-2**		**0**	

Table 10: Reactive HSIP Project Crash Statistics

Project	Total Crashes (Before)	Total Crashes (After)	Total K Crashes (Before)	Total K Crashes (After)	Total A Crashes (Before)	Total A Crashes (After)	Total B Crashes (Before)	Total B Crashes (After)	Total C Crashes (Before)	Total C Crashes (After)	Total PDO Crashes (Before)	Total PDO Crashes (After)	Total Ped & Bike Crashes (Before)	Total Ped & Bike Crashes (After)	Total K Ped & Bike Crashes (Before)	Total K Ped & Bike Crashes (After)	Total A Ped & Bike Crashes (Before)	Total A Ped & Bike Crashes (After)
CSAH 10/Long Lake Road (CSAH 45) Intersection Improvements (Ramsey County)	16	3	0	0	0	0	4	0	1	2	11	1	1	0	0	0	0	0
Maryland Ave (CSAH 45)/Edgerton St (CSAH 58) Intersection Improvements (Ramsey County)	52	22	0	0	0	0	2	0	13	2	37	20	1	0	0	0	0	0
Construct Turn Lanes, Channelization and Traffic Signal at CSAH 17 & CSAH 18 (Anoka County)	5	1	0	0	1	0	3	0	1	0	0	1	0	0	0	0	0	0
6th Street South Overhead Signal Additions (Minneapolis)	121	44	0	0	2	0	18	7	28	6	73	31	16	1	0	0	1	0
7th Street South Overhead Signal Additions (Minneapolis)	155	54	0	0	0	1	17	5	35	11	103	37	9	2	0	0	0	0
8th Street South/11th Avenue Overhead Signal Additions (Minneapolis)	32	4	0	0	0	0	4	0	7	2	21	2	7	0	0	0	0	0
CSAH 33 at CSAH 34 Safety Improvement Project (Carver County)	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
TH 62 Ramps and CSAH 17 (France Avenue) Improvements (Hennepin County)	102	18	0	0	0	0	9	3	21	5	72	10	0	0	0	0	0	0
CSAH 15 (Shoreline Drive) and CSAH 19 (Shadywood Road) Improvements (Hennepin County)	33	11	0	0	0	0	2	2	8	1	23	8	0	1	0	0	0	0
TH 212 Cable Median Barrier Installation (MnDOT – Ramsey County)	67	72	1	1	0	0	4	4	10	12	52	55	0	0	0	0	0	0
CSAH 18 (Broadway Ave NE) (Anoka County)	10	7	0	0	0	0	4	2	2	0	4	5	0	0	0	0	0	0
CSAH 46 and CSAH 86 Roundabout (Scott County)	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0
CSAH 27 and CSAH 68 Roundabout (Scott County)	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
TH 65 (Central Avenue) 47th Avenue NE to 50th Avenue NE - Pedestrian & Vehicle Lighting (Columbia Heights)	51	47	0	0	1	1	8	7	16	10	26	29	7	2	0	0	1	1
CSAH 31 Intersection Improvements (Dakota County)	16	6	0	0	0	0	3	0	1	1	12	5	1	0	0	0	0	0

Project	Total Crashes (Before)	Total Crashes (After)	Total K Crashes (Before)	Total K Crashes (After)	Total A Crashes (Before)	Total A Crashes (After)	Total B Crashes (Before)	Total B Crashes (After)	Total C Crashes (Before)	Total C Crashes (After)	Total PDO Crashes (Before)	Total PDO Crashes (After)	Total Ped & Bike Crashes (Before)	Total Ped & Bike Crashes (After)	Total K Ped & Bike Crashes (Before)	Total K Ped & Bike Crashes (After)	Total A Ped & Bike Crashes (Before)	Total A Ped & Bike Crashes (After)
CSAH 38 (McAndrews Road) 2-Lane to 3-Lane Roadway Conversion (Dakota County)	25	29	0	0	0	0	4	0	4	1	17	28	1	0	0	0	0	0
Total	688	319	1	1	4	2	82	30	147	53	454	233	43	6	0	0	2	1
Total Change	**-369**		**0**		**-2**		**-52**		**-94**		**-221**		**-37**		**0**		**-1**	

Table 11: Total Crash Impact Summary by Project Type

Project Type	**Total Number Crashes**		Total Number of K Crashes		Total Number of A Crashes		Total Number of B Crashes		Total Number of C Crashes		Total Number of PDO Crashes		Total Number of Ped/Bike Crashes		Total Number of Ped/Bike K Crashes		Total Number of Ped/Bike A Crashes		Notes
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	
Strategic Capacity	391	293	1	1	5	4	38	24	86	54	261	210	6	2	0	0	1	0	Average AADT reduced. Speed-related crashes increased for K and A crash types.
Roadway Modernization	714	428	1	1	7	19	72	53	155	74	479	281	62	9	0	0	3	2	Average AADT reduced. Impaired, speed-related, unbelted occupants, and unlicensed driver crashes increased for K and A crash types.
Roadway Traffic Management Technologies	2,214	2,073	10	7	29	36	202	214	422	345	1,551	1,471	54	15	3	1	13	2	Average AADT reduced. Inattention, unbelted occupants, speed, and unlicensed driver crashes increased for K and A crash types.
Proactive HSIP	1,696	1,375	5	5	20	27	160	144	374	250	1,137	949	29	8	2	0	1	1	Average AADT reduced. Impaired, inattention, speed, unbelted occupants, and unlicensed driver crashes increased for K and A crash types.
Reactive HSIP	688	319	1	1	4	2	82	30	147	53	454	233	43	6	0	0	2	1	Average AADT reduced. Inattention and speed crashes increased for K and A crash types.
Total	5,703	4,488	18	15	65	88	554	465	1,184	776	3,882	3,144	194	40	5	1	20	6	
Total Change	**-1,215**		**-3**		**+23**		**-89**		**-408**		**-738**		**-154**		**-4**		**-14**		

Crash Rates by Project Type

Table 12: Strategic Capacity Crash Costs and Rates

Strategic Capacity Projects	Awarded Amount	Monetized Crash Cost (Before)	Monetized Crash Cost (After)	Monetized Crash Cost (Diff.)	Benefit-Cost Ratio (Crash Cost Reduction/Awarded Amount)	Fatal/ Severe Crashes per 100 MVMT (Before)	Fatal/ Severe Crashes per 100 MVMT (After)	Diff. in Fatal/ Severe Crash Rate	Total Crash Rate per 1 MVMT (Before)	Total Crash Rate per 1 MVMT (After)	Diff. in Total Crash Rate
TH 41 Expansion (Carver County)	$7,420,000	$5,345,000	$2,355,000	-$2,990,000	0.40	3.97	0.00	-3.97	2.89	1.65	-1.24
TH 169 and TH 41 Interchange (Scott County)	$7,560,000	$235,000	$425,000	$190,000	-0.03	0.00	0.00	0	6.55	4.32	-2.23
CSAH 81 (Bottineau Boulevard) Expansion (Hennepin County)	$7,560,000	$6,085,000	$4,495,000	-$1,590,000	0.21	4.04	2.08	-1.96	0.77	0.81	0.04
CSAH 13 Expansion & Multi-Modal Improvements (Washington County)	$2,847,774	$625,000	$340,000	-$285,000	0.10	0.00	0.00	0.00	0.69	0.44	-0.26
Trunk Highway 36/Hadley Avenue (CSAH 35) Interchange Project - 1 (Washington County)	$7,560,000	$7,060,000	$4,320,000	-2,740,000	0.36	0.00	0.00	0.00	0.93	0.67	-0.26
Trunk Highway 36/Hadley Avenue (CSAH 35) Interchange Project - 2 (Washington County)						0.00	0.00	0.00	1.01	0.50	-0.5
CSAH 42/TH 52 Interchange (Dakota County)	$7,280,000.00	$2,985,000	$1,580,000	-$1,405,000	0.19	0.00	0.00	0.00	0.94	0.44	-0.5
Reconstruction of CSAH 31 from I-35E to Northwood/Central Parkway in Eagan	$3,744,000	$2,930,000	$4,255,000	$1,325,000	-0.35	3.48	12.33	8.85	2.02	2.34	0.32
East Bush Lake Road I-494 Westbound Entrance Ramp (Bloomington)	$7,280,000	$1,625,000	$880,000	-$745,000	0.10	10.89	0.00	-10.89	1.85	2.39	0.54
CSAH 78 Expansion from 139th Ln to CSAH 18 (Anoka County)	$7,560,000	$2,305,000	$1,965,000	-$340,000	0.04	2.67	2.70	0.03	0.64	0.46	-0.18
Roundabout- proposed traffic control revision at the intersection of TH 3 and CSAH 26 (Dakota County)	$2,120,000	$1,000,000	$355,000	-$645,000	0.30	0.00	0.00	0.00	0.73	0.47	-0.26
Total	**$60,931,774**	**$30,195,000**	**$20,970,000**	**-$9,225,000**	**0.15**	**N/A**					

[1]Projects listed multiple times are not separate projects but were divided during the analysis to provide more accurate crash rate calculations for the project.
[2]Projects listed multiple times were merged to calculate the benefit-cost ratio, but were kept separate for the crash rate calculations.

Table 13: Roadway Modernization Crash Costs and Rates

Roadway Modernization Projects	Awarded Amount	Monetized Crash Cost (Before)	Monetized Crash Cost (After)	Monetized Crash Cost (Diff.)	Benefit-Cost Ratio (Crash Cost Reduction/Awarded Amount)	Fatal/ Severe Crashes per 100 MVMT (Before)	Fatal/ Severe Crashes per 100 MVMT (After)	Diff. in Fatal/ Severe Crash Rate	Total Crash Rate per 1 MVMT (Before)	Total Crash Rate per 1 MVMT (After)	Diff. in Total Crash Rate
CSAH 3 (Lake Street Reconstruction - 1 (Hennepin County)	$3,014,640	$9,115,000	$7,285,000	-$1,830,000	0.61	52.18	123.07	70.88	26.09	13.54	-12.55
CSAH 3 (Lake Street Reconstruction - 2 (Hennepin County)						31.92	78.34	46.42	15.96	14.49	-1.47
CSAH 42 and TH 13 Intersection Reconstruction (Scott County)	$5,936,000	$3,600,000	$5,075,000	$1,475,000	-0.25	3.98	13.40	9.41	1.91	1.88	-0.04
Interstate Highway 94/Dale Street Interchange Reconstruction (Ramsey County)	$6,010,876	$7,200,000	$7,245,000	$45,000	-0.01	13.56	34.22	20.67	7.66	5.56	-2.10
Brooklyn Boulevard Reconstruction/Modernization (Brooklyn Center EDA)	$7,420,000	$9,210,000	$8,110,000	-$1,100,000	0.15	2.15	9.51	7.36	2.25	2.57	0.31
White Bear Avenue (CSAH 65) Reconstruction- I-94 to Beech Street (Ramsey County)	$3,318,023	$4,475,000	$4,885,000	$410,000	-0.12	0.00	3.62	3.62	3.60	2.86	-0.74
8th Street South Reconstruction (Minneapolis)	$6,960,600	$14,655,000	$7,160,000	-$7,495,000	1.08	11.43	56.44	45.00	22.41	8.18	-14.23
Broadway Street NE Reconstruction (Minneapolis)	$3,461,536	$3,385,000	$2,790,000	-$595,000	0.17	6.45	7.33	0.88	2.64	1.83	-0.81
CSAH 26 (Lone Oak Road) and CSAH 43 (Lexington Avenue) Intersection Improvements (Dakota County)	$2,000,000	$895,000	$1,335,000	$440,000	-0.22	0.00	0.00	0.00	1.17	1.82	0.65
Total	**$38,121,675**	**$52,535,000**	**$43,885,000**	**-$8,650,000**	**0.23**	**N/A**					

[1]Projects listed multiple times are not separate projects but were divided during the analysis to provide more accurate crash rate calculations for the project.
[2]Projects listed multiple times were merged to calculate the benefit-cost ratio but were kept separate for the crash rate calculations.

Table 14: Roadway Traffic Management Technologies Crash Costs and Rates

Roadway Traffic Management Technologies Projects	Awarded Amount	Monetized Crash Cost (Before)	Monetized Crash Cost (After)	Monetized Crash Cost (Diff.)	Benefit-Cost Ratio (Crash Cost Reduction/Awarded Amount)	Fatal/ Severe Crashes per 100 MVMT (Before)	Fatal/ Severe Crashes per 100 MVMT (After)	Diff. in Fatal/ Severe Crash Rate	Total Crash Rate per 1 MVMT (Before)	Total Crash Rate per 1 MVMT (After)	Diff. in Total Crash Rate
CSAHs 26 28 31 43 Roadway Traffic Flow Improvements – 1 (Dakota County)	$1,330,560	$25,350,000	$22,965,000	-$2,385,000	1.79	1.97	3.61	1.64	0.85	1.41	0.55
CSAHs 26 28 31 43 Roadway Traffic Flow Improvements – 2 (Dakota County)						0.00	0.00	0	1.57	1.16	-0.41
CSAHs 26 28 31 43 Roadway Traffic Flow Improvements – 3 (Dakota County)						7.36	0.00	-7.36	1.88	1.39	-0.49
CSAHs 26 28 31 43 Roadway Traffic Flow Improvements – 4 (Dakota County)						0.00	0.00	0.00	0.60	0.87	0.27
CSAHs 46 (160th) & 31 (Pilot Knob Rd) Roadway Traffic Flow Improvements – 1(Dakota County)	$1,075,900	$35,985,000	$40,300,000	$4,315,000	-4.01	0.00	0.00	0.00	0.72	0.84	0.12
CSAHs 46 (160th) & 31 (Pilot Knob Rd) Roadway Traffic Flow Improvements – 2 (Dakota County)						3.51	3.08	-0.42	1.31	1.80	0.49
CSAHs 46 (160th) & 31 (Pilot Knob Rd) Roadway Traffic Flow Improvements – 3 (Dakota County)						2.39	3.28	0.89	1.19	1.71	0.52
CSAH 96 Traffic Signal Timing and Intersection Upgrades - 1 (Ramsey County)	$2,007,130	$17,425,000	$16,215,000	-$1,210,000	0.60	0.55	1.63	1.08	0.61	0.55	-0.06
CSAH 96 Traffic Signal Timing and Intersection Upgrades - 2 (Ramsey County)						0.00	2.88	2.88	0.51	0.69	0.18
Traffic Management System (Scott County)	$826,176	$3,075,000	$2,965,000	-$110,000	0.13	11.61	0.00	-11.61	6.15	6.58	0.42
TH 120 CMAQ Signal Re-timing and Coordination (MnDOT – Ramsey County)	$868,320	$34,140,000	$24,485,000	-$9,655,000	11.12	2.66	3.70	1.04	2.57	1.54	-1.03
TH 41 CMAQ Signal Re-timing and Coordination (MnDOT – Carver County)	$597,840	$8,730,000	$11,635,000	$2,905,000	-4.86	0.00	1.92	1.92	1.79	1.52	-0.26
TH 47 CMAQ Signal Re-timing and Coordination (MnDOT – Anoka County)	$1,076,960	$28,740,000	$29,460,000	$720,000	-0.67	2.28	3.44	1.16	0.60	0.69	0.09
TH 55 CMAQ 1 – Signal Re-timing and Coordination (MnDOT – Dakota County)	$299,520	$5,905,000	$4,550,000	-$1,355,000	4.52	2.36	0.00	-2.36	2.07	1.56	-0.51
TH 55 CMAQ 2 – Signal Re-timing and Coordination (MnDOT – Dakota County)						0.00	0.00	0	0.27	0.56	0.29
TH 61 CMAQ 1 – (Signal Re-timing and Coordination (MnDOT – Dakota County)	$220,320	$8,475,000	$7,840,000	-$635,000	2.88	1.67	1.72	0.05	2.12	2.14	0.02

Roadway Traffic Management Technologies Projects	Awarded Amount	Monetized Crash Cost (Before)	Monetized Crash Cost (After)	Monetized Crash Cost (Diff.)	Benefit-Cost Ratio (Crash Cost Reduction/Awarded Amount)	Fatal/ Severe Crashes per 100 MVMT (Before)	Fatal/ Severe Crashes per 100 MVMT (After)	Diff. in Fatal/ Severe Crash Rate	Total Crash Rate per 1 MVMT (Before)	Total Crash Rate per 1 MVMT (After)	Diff. in Total Crash Rate
TH 61 CMAQ 2 – (Signal Re-timing and Coordination (MnDOT – Dakota County)						2.50	0.00	-2.5	0.60	0.54	-0.06
Total	**$8,302,726**	**$167,825,000**	**$160,415,000**	**-$7,410,000**	**0.89**	**N/A**					

[1]Projects listed multiple times are not separate projects but were divided during the analysis to provide more accurate crash rate calculations for the project.
[2]Projects listed multiple times were merged to calculate the benefit-cost ratio but were kept separate for the crash rate calculations.

Table 15: Proactive HSIP Projects Crash Costs and Rates

Proactive HSIP Projects	Awarded Amount	Monetized Crash Cost (Before)	Monetized Crash Cost (After)	Monetized Crash Cost (Diff.)	Benefit-Cost (Crash Cost Reduction/Awarded Amount	Fatal/ Severe Crashes per 100 MVMT (Before)	Fatal/ Severe Crashes per 100 MVMT (After)	Diff. in Fatal/ Severe Crash Rate	Total Crash Rate per 1 MVMT (Before)	Total Crash Rate per 1 MVMT (After)	Diff. in Total Crash Rate
Advanced Traffic Management System (ATMS) on CSAHs 17, 61, 81, 120 and 152 - 1 (Hennepin County)	$1,440,000	$86,405,000	$76,810,000	-$9,595,000	6.66	1.62	2.28	0.66	1.14	1.01	-0.13
Advanced Traffic Management System (ATMS) on CSAHs 17, 61, 81, 120 and 152 - 2 (Hennepin County)						0.94	2.65	1.71	1.22	1.55	0.33
Advanced Traffic Management System (ATMS) on CSAHs 17, 61, 81, 120 and 152 - 3 (Hennepin County)						2.55	2.66	0.11	0.81	0.75	-0.07
Advanced Traffic Management System (ATMS) on CSAHs 17, 61, 81, 120 and 152 - 4 (Hennepin County)						1.27	1.79	0.52	1.17	0.50	-0.67
TH 10 Lighting Project (MnDOT – Ramsey County)	$1,080,000	$9,970,000	$9,430,000	-$540,000	0.50	0.28	0.43	0.16	0.21	0.27	0.05
Convert Intersections to Reduce Conflict Intersections on TH 212 (MnDOT – Ramsey County)	$1,080,000	$160,000	$15,000	-$145,000	0.13	0.00	0.00	0.00	0.21	0.07	-0.14
TH 169 Cable Median Barrier Installation (MnDOT – Ramsey County)	$1,242,000	$11,170,000	$4,705,000	-$6,465,000	5.21	1.03	0.60	-0.43	0.40	0.21	-0.19
Grand Avenue Pedestrian Safety Improvements (St. Paul)	$630,000	$2,505,000	$1,845,000	-$660,000	1.05	0.00	0.00	0.00	2.85	2.68	-0.17
CSAH 78 Traffic Signal Interconnect (Anoka County)	$360,000	$14,560,000	$15,060,000	$500,000	-1.39	1.91	2.05	0.14	1.25	1.08	-0.17
Pedestrian Curb Extensions - 1 (Minneapolis)	$747,000	$3,260,000	$2,990,000	-$270,000	0.36	0.00	90.43	90.43	8.38	8.14	-0.24
Pedestrian Curb Extensions - 2 (Minneapolis)						0.00	0.00	0.00	3.63	2.54	-1.09

TH 212 Rural Intersection Conflict Warning Systems (RICWS) and Lighting Improvements - 1 (Carver County)	$253,350	$1,645,000	$1,480,000	-$165,000	0.65	0.00	0.00	0.00	0.34	0.19	-0.15
TH 212 Rural Intersection Conflict Warning Systems (RICWS) and Lighting Improvements - 2 (Carver County)						6.06	0.00	-6.06	0.36	0.57	0.21
Total	**$6,832,350**	**$129,675,000**	**$112,335,000**	**-$17,340,000**	**2.54**	**N/A**					

[1]Projects listed multiple times are not separate projects but were divided during the analysis to provide more accurate crash rate calculations for the project.
[2]Projects listed multiple times were merged to calculate the benefit-cost ratio but were kept separate for the crash rate calculations.

Table 16: Reactive HSIP Crash Costs and Rates

Reactive HSIP Projects	Awarded Amount	Monetized Crash Cost (Before)	Monetized Crash Cost (After)	Monetized Crash Cost (Diff.)	Benefit-Cost (Crash Cost Reduction/Awarded Amount	Fatal/ Severe Crashes per 100 MVMT (Before)	Fatal/ Severe Crashes per 100 MVMT (After)	Diff. in Fatal/ Severe Crash Rate	Total Crash Rate per 1 MVMT (Before)	Total Crash Rate per 1 MVMT (After)	Diff. in Total Crash Rate
6th Street South Overhead Signal Additions (Minneapolis)	$990,000	$10,835,000	$2,995,000	-$7,840,000	7.92	50.43	0.00	-50.43	30.51	17.15	-13.36
7th Street South Overhead Signal Additions (Minneapolis)	$1,575,000	$10,345,000	$4,035,000	-$6,310,000	4.01	0.00	19.98	19.98	22.72	10.79	-11.93
8th Street South/11th Avenue Overhead Signal Additions (Minneapolis)	$990,000	$2,225,000	$290,000	-$1,935,000	1.95	0.00	0.00	0.00	17.41	6.49	-10.91
TH 62 Ramps and CSAH 17 (France Avenue) Improvements (Washington County)	$945,000	$6,060,000	$1,550,000	-$4,510,000	4.77	0.00	0.00	0.00	59.35	11.96	-47.39
TH 212 cable Median Barrier Installation (MnDOT)	$1,306,800	$4,680,000	$4,985,000	$305,000	-0.23	0.25	0.24	-0.01	0.17	0.17	0.01
CSAH 18 (Broadway Ave NE) (Anoka County)	$990,000	$1,320,000	$575,000	-$745,000	0.75	0.00	0.00	0.00	0.45	0.31	-0.14
TH 65 (Central Avenue) 47th Avenue NE to 50th Avenue NE - Pedestrian & Vehicle Lighting (Scott County)	$801,900	$5,270,000	$4,285,000	-$985,000	1.23	6.76	6.38	-0.38	3.45	3.00	-0.45
CSAH 31 Intersection Improvements (Dakota County)	$675,000	$1,060,000	$205,000	-$855,000	1.27	0.00	0.00	0.00	2.41	1.31	-1.10
CSAH 38 (McAndrews Road) 2-Lane to 3-Lane Roadway Conversion (Dakota County)	$1,080,000	$1,775,000	$550,000	-$1,225,000	1.13	0.00	0.00	0.00	0.76	0.97	0.21
CSAH 10/Long Lake Road (CSAH 45) Intersection Improvements (Ramsey County)	$303,500	$1,295,000	$275,000	-$1,020,000	3.36	0.00	0.00	0.00	0.56	0.12	-0.44

Reactive HSIP Projects	Awarded Amount	Monetized Crash Cost (Before)	Monetized Crash Cost (After)	Monetized Crash Cost (Diff.)	Benefit-Cost (Crash Cost Reduction/Awarded Amount	Fatal/ Severe Crashes per 100 MVMT (Before)	Fatal/ Severe Crashes per 100 MVMT (After)	Diff. in Fatal/ Severe Crash Rate	Total Crash Rate per 1 MVMT (Before)	Total Crash Rate per 1 MVMT (After)	Diff. in Total Crash Rate
Maryland Ave (CSAH 45)/Edgerton St (CSAH 58) Intersection Improvements (Ramsey County)	$943,155	$2,745,000	$560,000	-$2,185,000	2.32	0.00	0.00	0.00	1.69	0.97	-0.72
Construct Turn Lanes, Channelization and Traffic Signal at CSAH 17 & CSAH 18 (Anoka County)	$810,000	$1,680,000	$15,000	-$1,665,000	2.06	19.33	0.00	-19.33	0.97	0.17	-0.80
CSAH 33 at CSAH 34 Safety Improvement Project (Carver County)	$1,404,360	$30,000	-	-$30,000	0.02	0.00	0.00	0.00	0.70	0.00	-0.70
CSAH 15 (Shoreline Drive) and CSAH 19 (Shadywood Road) Improvements (Hennepin County)	$607,500	$1,885,000	$750,000	-$1,135,000	1.87	0.00	0.00	0.00	1.25	0.47	0.77
CSAH 46 and CSAH 86 Roundabout (Scott County)	$810,000	-	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CSAH 27 and CSAH 68 Roundabout (Scott County)	$900,000	$15,000	$15,000	-	0.00	0.00	0.00	0.00	0.21	0.22	-0.01
Total	**$15,132,215**	**$51,205,000**	**$21,070,000**	**-$30,135,000**	**1.99**	**N/A**					