

## INFORMATION ITEM

**DATE:** July 11 2019  
**TO:** TAC Funding and Programming Committee  
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**SUBJECT:** 2020 Regional Solicitation: HSIP Draft

Attached is the draft Highway Safety Improvement Program (HSIP) solicitation language along with new draft scoring guidance. A work group is in the process of suggesting updates. Input from the Funding & Programming Committee can be conveyed to that group.

### HSIP Solicitation

The attached draft Solicitation language includes several changes, including:

- The federal maximum award is increased from \$1.8M to \$2.0M.
- The maximum total project cost (\$2.0M in 2018) limitation is eliminated
- The stated intent to use 70% of the funds on reactive projects and 30% of the funds on proactive projects has been removed to provide more flexibility in project selection.
- To reflect the Regional Solicitation, the draft HSIP solicitation includes the requirement of a “before” photo.
- Reflective of the Regional Solicitation, completion of an ADA transition plan is shown as a qualifying criterion. Only substantial work toward completion was required in 2018.
- For reactive projects, the number of fatal and serious injury crashes will be provided for 2009-2018.
- Shoulders beyond two feet in width can be provided, though any width beyond two feet cannot be paid for with federal funds.

### Draft Scoring Guidance

The attached draft HSIP scoring guidance awards points as follows:

- Reactive Projects
  - Benefit/Cost Ratio: 75%
  - Meets Intent of the HSIP Program: 25%
- Proactive Projects
  - Connection to 2014-19 Minnesota Strategic Highway Safety Plan: 10%
  - Cost per Mile or Cost per Intersection: 20%
  - Wide Strategy Deployment vs. Single Spot Location: 20%
  - Average Annual Daily Traffic (AADT): 5%
  - Fatal and Serious Injury Crashes (10 years): 5%
  - Crash Reduction Factor: 25%
  - Part of a Plan: 15%

**DRAFT** July 8, 2019

**HSIP**

*Highway Safety  
Improvement Program*

For State Fiscal Years ~~2022~~2024 and ~~2023~~2025

Metro District  
Program Criteria

Minnesota Department of Transportation  
Metro District Traffic Engineering  
~~June 2018~~ February 2020

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# Introduction

This document explains the requirements, and gives guidance for the Highway Safety Improvement Program (HSIP) to applicants desiring to obtain federal funds under the Federal FAST Act legislation. In FAST Act, the purpose of HSIP is to achieve a significant *reduction in traffic fatalities and serious injuries* on all public roads. Projects submitted should have the greatest potential of achieving this objective. See Appendix B for a timeline flowchart of the HSIP solicitation, application and evaluation process.

## General Policies:

1. HSIP funds are available to MnDOT; the counties of Anoka, Carver, Chisago, Dakota, Hennepin, Ramsey, Scott, and Washington; and the State Aid eligible cities and towns within those ~~Counties. Other local or special governmental agencies~~ counties. Applicants that ~~do~~ are not ~~have~~ State Aid cities or counties in the ~~ability to receive and administer federal funds~~ eight-county metro area with populations over 5,000 must ~~work with these specified governmental units~~ contact the MnDOT Metro State Aid Office prior to submitting their application to ~~develop and submit eligible projects.~~ determine if a public agency sponsor is required.
2. ~~This solicitation~~ The maximum HSIP federal award is ~~for projects with a total cost up to \$2,000,000, with a cap of \$1,800,000 federal funds.~~ per project. A minimum local match of 10% of the total project cost is required. ~~After a project is selected for federal HSIP funding, if the project costs go above \$2,000,000 the additional costs are the responsibility of the submitting agency.~~ The match must be in “hard dollars”~~.”~~ Soft matches (i.e.; volunteer labor, donated materials, professional services) cannot be included in the match.
3. HSIP funding cannot be used as a “payback” source of funding, whereby local agencies construct a project and anticipate future reimbursement monies from HSIP funds.
4. This solicitation is for both “Proactive” and “Reactive” projects. ~~It is anticipated that approximately 70% of the funds will be used for reactive projects and 30% of the funds on proactive projects.~~ Distribution of funds between these two project types will depend on a number of factors including the dollar amount and number of projects submitted in each category, types of projects submitted and geographic balance of projects throughout the Metro District.
5. Funding is for roadway construction and reconstruction projects designed to decrease the frequency and/or severity of ~~vehicular~~ crashes. These crashes can involve pedestrians,

bicycles, and other non-motorized vehicles. ~~The specifics of the improvement must be related to reducing historical vehicular crashes.~~ The project must be a permanent improvement. Right-of-way, design, and construction engineering costs are not fundable and shall not be included in the project cost. Please refer to <http://safety.fhwa.dot.gov/hsip/>

6. The amount of federal funds awarded is based upon the original submission. Any increase in scope or costs will be the responsibility of the applicant. Projects awarded funding through the regional HSIP solicitation are subject to the Region's "Program Year Policy" and "Scope Change Policy" available at <https://metro council.org/Transportation/Planning-2/Transportation-Planning-Process/Transportation-Advisory-Board/TAB-Policies.aspx?source=child>.

HSIP is a federally funded traffic safety program. The amount of funding available for this ~~2018~~2020 Metro District solicitation for State Fiscal Years ~~2022~~2024 and ~~2023~~2025 is up to ~~\$22.7~~\$?? million for the two-year period. ~~Some of the~~Additional funding ~~will~~may be available in State Fiscal Years ~~2019, 2020~~2021, 2022, and ~~2021-2023.~~

~~The funding will be split up evenly between the two years. Approximately 70% of the funding will be awarded to "Reactive" projects, with the remaining awarded to "Proactive" projects. The project selection committee may elect to award a larger percent of total funds to either the "Reactive" or "Proactive" projects, depending on the number of projects or quality of the projects submitted in each category.~~

The objective of the HSIP program is to identify, implement, and evaluate low-cost / high-benefit, or smaller stand-alone safety projects focused on reducing fatal and serious injury crashes.

# Qualifying Criteria

The objective of the Highway Safety Improvement Program (HSIP) is to identify, implement, and evaluate cost effective construction safety projects with a primary goal of **reducing and preventing fatal and serious injury crashes on all public roads.**

~~Only~~ Priority will be given to smaller stand-alone ~~or~~ low-cost / high-benefit projects ~~will be considered~~. Applicants should submit focused safety projects and not asset replacement projects unless the replacement project by itself increases safety. ~~It is recognized that portions of larger projects have elements that improve the safety of an intersection or section of roadway.~~ See Appendix C for additional traffic signal requirements. Safety features, such as guardrails, that are routinely provided as part of a broader project should be funded from the same source as the broader project. In some instances, narrow shoulder paving in conjunction with resurfacing projects may be allowed. See Appendix D for this exception.

## **FOR PROACTIVE PROJECTS:**

For MnDOT Metro District and the Metro counties, their road safety plans should be the starting point for selecting projects for this solicitation. For state and county roads, projects that originate from a road safety plan will be given priority. For local streets, a city may propose strategies similar to what is in their county's safety plan if applicable.

The following crash data is provided to assist cities in focusing on the types of projects to submit. On local roads (MSAS and city streets) in the Metro District over the latest 5 year period available (~~2011-2015~~ 2014-2018) there have been ~~508~~ 1315 fatal and serious injury crashes:

- ~~160~~ 314 ~~58~~ (35%) involved two or more vehicles colliding
- ~~121~~ 243 ~~39~~ (26%) involved a pedestrian
- ~~57~~ 111 ~~18~~ (9%) involved a bicyclist
- ~~43~~ 89 ~~6~~ (7%) involved hitting a tree or shrub

Seventy-five percent of the fatal and serious injury crashes fall into these four categories listed above, so the focus should be on low-cost solutions that are geared toward impacting those types of crashes.

Reactive projects should propose safety improvements that directly address the types of crashes experienced within the project area.

Priority will be given to applications that are making impacts throughout the network (at multiple locations) or via a corridor-based approach.

~~Cities are encouraged to provide other levels of support to make their case on why the project is justified. For example, they could cite the high pedestrian volumes or a generator of a high volume of non-motorized traffic if they are requesting funds for an improvement in that area.~~

Signalized intersections in urban areas tend to involve more risk than other types of intersections. A focus on signalized intersections, such as countdown timers, signal retiming, enforcement lights, curb extensions, etc. would have an impact at these target crashes.

The following is a list of example projects that would be considered for proactive funding with this program:

- |   |   |
|---|---|
| Reduced-conflict intersections (RCI's)                | Construct ped refuge islands & raised medians |
| Rumble strips   | Enforcement lights on signals                 |
| Rumble stripEs  | Turn lanes                                    |
| Wider striping (6")                                   | New guardrail (not replacement)               |
| Embedded wet reflective striping                      | Frontage roads (with access removals)         |
| Delineation for sharp curves (chevrons)               | Sidewalks or trails                           |
| Cable median barrier                                  | Narrow shoulder paving (see Appendix D)       |
| <del>Active intersection warning systems</del>        | Signal coordination (interconnect)            |
| <u>Crosswalk enhancements (ex. RRFb's)</u>            | Pavement messages                             |
| Intersection lighting                                 | <u>Roundabouts</u>                            |
| <u>Corridor lighting (Freeways &amp; Expressways)</u> | Stop bars                                     |
| Curb extensions (bump-outs)                           | Safety edge                                   |
| Sight distance improvements                           | Friction treatments                           |
| Remove hazards in clear zones                         |   |
| Pedestrian countdown timers                           |   |
| Road diets  |   |

### **FOR REACTIVE PROJECTS:**

For this solicitation, proposed projects qualify for the HSIP program by ~~meeting the following criteria:~~

~~Must have Benefit/Cost~~having a benefit/cost (B/C) ratio of 1.0 or greater\*. (Note: The B/C ratio shall exclude right-of-way costs. The cost used should be the total project cost, not the amount of requested HSIP dollars.

~~1. Emphasis is given to Fatal or A injury crashes within time frame.~~



\*Only crashes contained within the Minnesota Department of Public Safety's database can be used to determine the B/C for project submittals. Crash data must be obtained from MnDOT. MnDOT Metro District Traffic Office will provide a crash listing, upon request.  
(See Appendix A)

# Prioritization Criteria

The HSIP project evaluation committee will determine if the submitted projects have met the intent of the qualifying criteria and HSIP.

## FOR REACTIVE PROJECTS:

As in the past solicitation, the reactive projects will be prioritized ~~using the Benefit/Cost (by:~~

- Highest B/C ratio ~~and~~
- The scoring committee will review ~~of the proposed~~ projects ~~by the selection committee relative to the~~ to determine how well they meet the qualifying criteria and ~~meeting the~~ intent of the HSIP program.

## FOR PROACTIVE PROJECTS:

For Proactive projects, priority will be given to projects identified in road safety plans, and projects that have the highest possibility of reducing the chance of fatal and serious injury crashes. The following criteria will be used in ranking proactive projects:

- Connection to the 2014-2019 Minnesota Strategic Highway Safety Plan (SHSP). This Plan can be found at the following link:  
[http://www.dot.state.mn.us/trafficeng/safety/shsp/Minnesota\\_SHSP\\_2014.pdf](http://www.dot.state.mn.us/trafficeng/safety/shsp/Minnesota_SHSP_2014.pdf)
- Cost/mile or cost/intersection
- Is strategy a wide deployment vs a single spot location
- Average annual daily traffic (AADT)
- Fatal (K) & serious (A) injury crashes (10 years)
- Crash factor for the specific strategy
- Part of a plan (safety plan or road safety audit recommendations) – include a link to or an excerpt from the existing plan

## **EVALUATION PROCESS:**

Project proposals will be reviewed by MnDOT's Metro District Traffic Engineering unit initially to determine if they meet the qualifying criteria. The HSIP committee will finalize a prioritized list of projects to be funded.

The HSIP committee will consist of:

- MnDOT Metro District Traffic Engineer - Program Support
- MnDOT Metro Traffic Safety Specialist
- MnDOT State Traffic Safety Engineer
- Two County/City Engineers
- Metropolitan Council Regional Highway Planner

# Required Material and Special Instructions

Following is a list of materials required to submit per project. Failure to provide this information may exclude the submission from consideration:

- HSIP application (Form 1) (See appendix for Form 1)
- Project information sheet (Form 2) (See appendix for Form 2)
- Location map

A photograph showing the existing conditions within the project area. If awarded funds, this photograph will be utilized in the Metropolitan Council's online mapping tool to show a before-and-after comparison of the improvement. By submitting the application, the applicant is agreeing to allow the Council to use this photograph.

- Project plan or preliminary layout/scope of work proposed.
- Provide the AADT or an average AADT for your project area.
- For intersection projects only, provide collision diagrams. Include crash listing obtained from MnDOT. MnDOT will not provide collision diagrams.
- The applicant must include a letter of support from the agency that owns/operates the facility (if different from the applicant) indicating that it is aware of and understands the project being submitted, and that it commits to operate and maintain the facility for its design life.
- The project applicant must send written notification regarding the proposed project to all affected state and local units of government prior to submitting the application.
- Projects on MSAS and CSAH roadways must meet state aid standards.
- The project must comply with the Americans with Disabilities Act (ADA).
- In order for a selected project to be included in the Transportation Improvement Program (TIP) and approved by USDOT, the public agency sponsor must either have, ~~or be~~

~~substantially working towards, completing~~ a current Americans with Disabilities Act (ADA) self-evaluation ~~(for agencies with less than 50 employees)~~ or transition plan ~~(for agencies with 50 or more employees)~~ that covers the public right of way/transportation, as required under Title II of the ADA. The plan must be adopted by the local agency before the application deadline. For the 2022 funding cycle, this requirement may include that the plan is updated within the past five years. Please document which of these apply:

The applicant is a public agency that employs 50 or more people and has an adopted ADA transition plan that covers the public right of way/transportation. Date plan adopted by governing body and link to plan:  
\_\_\_\_\_

The applicant is a public agency that employs 50 or more people and does not have an adopted ADA transition plan that covers the public right of way/transportation.

The applicant is a public agency that employs fewer than 50 people and has a completed ADA self-evaluation that covers the public rights of way/transportation. Date self-evaluation completed and link to plan: \_\_\_\_\_

The applicant is a public agency that employs fewer than 50 people and does not have a completed ADA self-evaluation that covers the public rights of way/transportation.

## **FOR PROACTIVE PROJECTS:**

- Provide total miles of strategy deployment.

Provide a reasonable Crash Reduction Factor (CRF) from the FHWA's CMF Clearinghouse (MUST include a printout of the CRF reference page)  
<http://www.cmfclearinghouse.org/>

- Number of fatal (K) and serious (A) injuries in the past 10 years ~~(2006-2015)~~ 2009-2018 that have occurred where you propose to implement an HSIP project. MnDOT will provide this crash data upon request. (Projects may be eligible for HSIP even if no fatal (K) or Severe (A) injuries have occurred in your implementation area.)
- Collision diagrams may be submitted but are not required.
- Crash data must be obtained from MnDOT. MnDOT Metro District will provide a crash listing upon request. See Appendix A. Crash data requests should be made as soon as possible, but before ~~July 18, 2018~~ February 20, 2020. The applicant is responsible to convert the crash listing provided by MnDOT into collision diagrams when applicable.

- **Provide** If on a trunk highway, provide signed Intersection Control Evaluation (ICE) report for proposed intersection traffic control changes.
- MnDOT and counties, please attach copy of the appropriate page(s) from your highway safety plan for projects submitted that are referenced in your Plan.

### **FOR REACTIVE PROJECTS:**

- Provide a reasonable Crash Reduction Factor (CRF) from the FHWA's CMF Clearinghouse (MUST include a printout of the CRF reference page) <http://www.cmfclearinghouse.org/>
- Crash Data - The crash data shall include crashes from calendar years ~~2013-2015~~2016-2018. Only crashes contained within the Minnesota Department of Public Safety's database can be shown. This is to ensure that all project proposals can be equally compared. A crash listing can be obtained from MnDOT upon request (see Appendix A for contact information). Crash data should include all crash types and severities, including pedestrian and bicycle crashes.
- Number of fatal (K) and serious (A) injuries in the past 10 years (2009-2018) that have occurred where you propose to implement a HSIP project. MnDOT will provide this crash data upon request. (Projects may be eligible for HSIP even if no fatal (K) or severe (A) injuries have occurred in your implementation area.)

If an individual crash is not in the DPS crash database, it cannot be included in the analysis or the submittal, unless the agency provides acceptable proof of the existence of the crash. Acceptable proof is a copy of the police or citizen accident report. If a crash report was not written, the crash may not be included. If the crash had no injuries and the minimum dollar amount was not met ("N" in the "\$min" box on a police report), the crash cannot be included.

*Crash data requests to MnDOT should be made as soon as possible but before **July 18<sup>th</sup>, 2018**; ~~2018~~ **February 20, 2020**. Requests made after **July 18<sup>th</sup> February 20** may be significantly delayed due to limited resources. MnDOT will not provide collision diagrams.*

- HSIP B/C Worksheet – A sample HSIP B/C worksheet is included in Appendix E. Refer to Appendix F for recommended service life criteria.

For the Excel version, click on [HSIP Benefit Cost Worksheet](#) All crash types and severities, including pedestrian and bicycle crashes from calendar years 2016 - 2018 need to be identified in the HSIP B/C worksheet.

- **Approved** If on a trunk highway, provide signed Intersection Control Evaluation (ICE) report for proposed intersection traffic control changes.
- Description of how the project meets the intent of the HSIP program (i.e. reduce fatal and A injury crashes within the proposed project area)
- Proposed roundabouts must address mini-roundabouts as an option

**Must SUBMISSION OF APPLICATION:**

Applicants must send 2 two paper ~~copy~~ copies of each project ~~submittals~~ submittal along with an electronic submittal.

**Paper copies to:**

MnDOT, Traffic Engineering  
Attn: Lars Impola  
1500 West County Road B2  
Roseville, MN 55113

**~~Must send an electronic~~**

**Electronic submittal to:** [Lars.Impola@state.mn.us](mailto:Lars.Impola@state.mn.us)

# Crash Reduction Factors

A Crash Reduction Factor (CRF) is the percentage crash reduction that may be expected after implementing a given countermeasure. A CRF should be regarded as a generic estimate of the effectiveness of a countermeasure. The estimate is a useful guide, but it remains necessary to apply engineering judgment and to consider site-specific environmental, traffic volume, traffic mix, geometric, and operational conditions, which will affect the safety impact of a countermeasure.

The proposal should reference the FHWA Crash Modification Factors (CMF) Clearinghouse, which can be found at the following website <http://www.cmfclearinghouse.org>

**For all applications, the applicant is required to write a brief logical explanation on why they chose a particular CRF.**

In lieu of relying on crash reduction tables, proposals may contain an estimate of crash reductions based upon logical assumptions. The proposal will have to thoroughly demonstrate in a logical fashion how each improvement will impact each type of crash. The HSIP Committee will review the documentation for accuracy and concurrence with logic.

Some examples of acceptable estimates are listed below:

**Example 1:** A project is proposing closure of a median at an intersection. Logically, all left turning and cross street right angle crashes will be eliminated. (100% reduction in these types of crashes).

**Example 2:** A project is proposing a traffic signal revision including creating a protected left turning phase for the minor leg of the intersection. This project should reduce the amount of minor leg left turn crashes significantly (90% reduction). Additionally, any significant improvement in capacity would reduce rear end collisions slightly (10% reduction for minor capacity improvements, 20% for significant improvements).

**Example 3:** A project is proposing a traffic signal revision including adding left and right turn lanes. Adding turn lanes should reduce rear end collisions and some turning collisions depending on proposed versus existing phasing. (20% reduction in impacted rear end collisions is reasonable).

The project initiator may contact a member of the MnDOT review team (see Appendix A) to discuss crash reduction assumptions for each improvement project prior to submittal.



If only one improvement is included in the proposed project, the crash reduction factors from the FHWA CMF Clearinghouse, or a percentage reduction based on an estimated procedure described above can be entered directly into the benefit/cost (B/C) worksheet. If two improvements are included in the proposed project, the overall crash reduction factor should be determined using the “multiple safety improvement crash reduction formula” described below.

**Multiple Safety Improvement Crash Reduction Formula:**

- $CRF = 1 - [(1 - CRF1) \times (1 - CRF2) \times \dots]$

CRF is the overall crash reduction factor expressed as a decimal (to two significant digits) to be used on the B/C worksheet

CRF1 is the crash reduction factor for the first improvement expressed as a decimal

CRF2 is the crash reduction factor for the second improvement expressed as a decimal, ~~and so on.~~

- **Each crash may only be used on one B/C worksheet.**
- **Use the total cost of the project in the denominator on the B/C worksheet(s).**
- **Submit all B/C worksheets for documentation purposes.**
- **No more than two CRF’s per ~~project~~ worksheet and location will be allowed.**

## Use of Fatal and Injury Crashes

Type of Crash	Crash Severity	Cost per Crash
Fatal (F)	K	\$11,000,000
Personal Injury (PI)	A Incapacitating	\$590,000
Personal Injury (PI)	B Non-Incapacitating	\$170,000
Personal Injury (PI)	C Possible	\$87,000
Property Damage (PD)	N	\$7,800

Since fatal crashes are often randomly located, there is considerable debate as to whether they should be treated as personal injury crashes or as fatalities. Furthermore, the value assigned is subject to many considerations. With the above in mind, the following criteria shall be used when computing expected crash reduction benefits:

1. The cost assigned to a fatal crash may be used if there are two or more “correctable” fatal crashes within a three-year period (correctable is defined as the type of crash that the improvement is designed to correct).

OR

2. The cost per fatal crash may be used when there is at least one correctable fatal crash **and** two or more type “A” injury crashes within a three-year period.

If the above criteria are not satisfied, the correctable fatal crash shall be treated as two type “A” personal injury crashes ( $K = 2 \times A$ ) when computing the benefit-cost ratio. To do this, enter the correctable fatal crash as two type “A” personal injury crashes in the “A” category on the HSIP B/C worksheet.

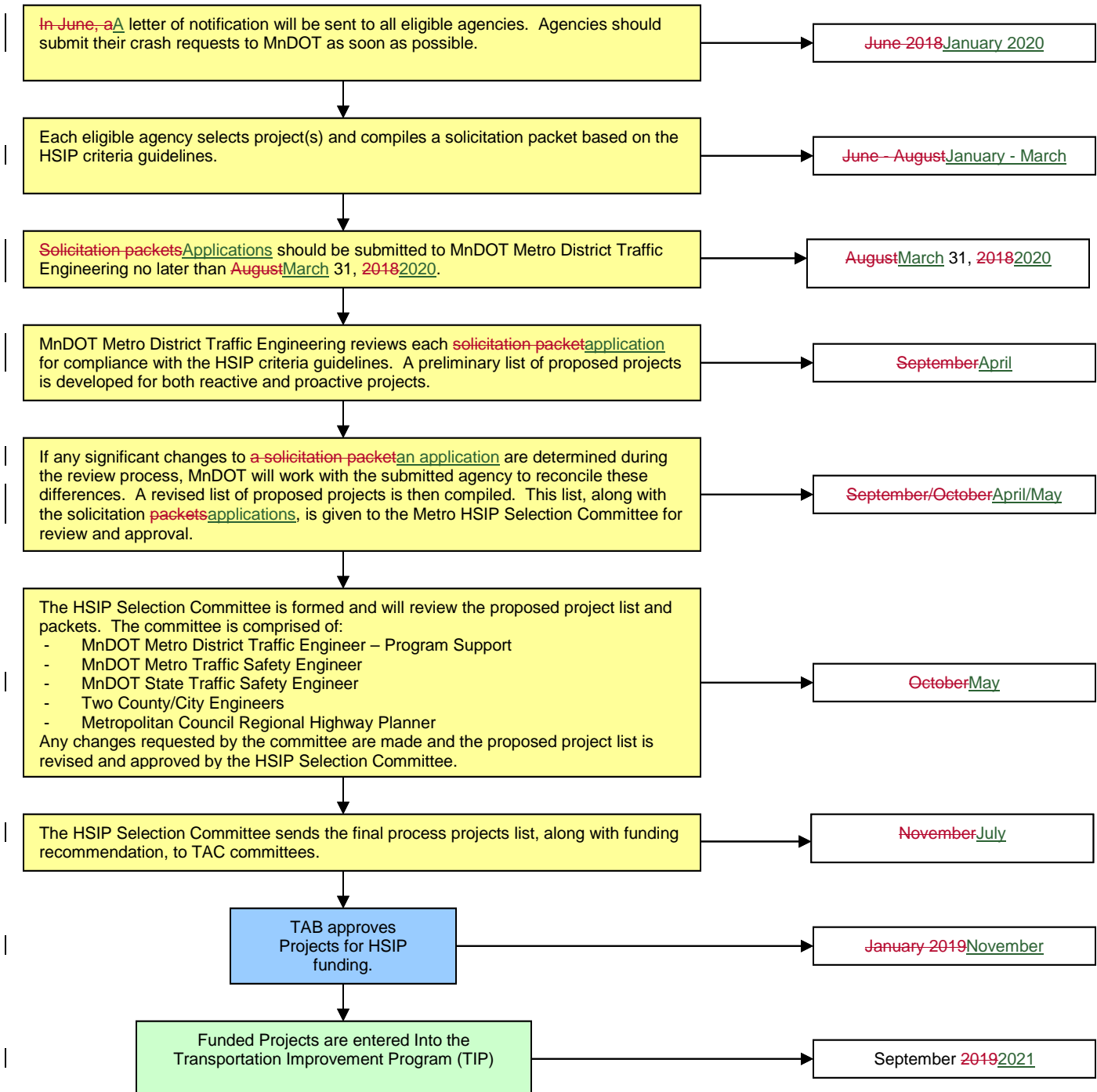
# Appendix A

## MnDOT Metro District Traffic Engineering Program Support Contacts

<u>Information</u>	<u>Contact</u>	<u>E-Mail</u>	<u>Phone Number</u>
Proposal Content	Gayle Gedstad Kaare Festvog	<a href="mailto:gayle.gedstad@state.mn.us">gayle.gedstad@state.mn.us</a> <a href="mailto:kaare.festvog@state.mn.us">kaare.festvog@state.mn.us</a>	651/234- 78157814
Proposal Content	Lars Impola	<a href="mailto:lars.impola@state.mn.us">lars.impola@state.mn.us</a>	651/234-7820
Crash Information	Cherzon Riley	<a href="mailto:cherzon.riley@state.mn.us">cherzon.riley@state.mn.us</a>	651/234-7836

# Appendix B

## Highway Safety Improvement Program (HSIP) Metro District Process Timeline (~~2018~~2020)



# Appendix C

## Traffic Signals:

In most cases, traffic signals are not safety control devices. They assign right of way for vehicles and are necessary for operational purposes. However, in some cases they can improve safety. The objective for the Highway Safety Improvement Program is to reduce the occurrence of and the potential for fatalities and serious injuries resulting from crashes on all public roads” (23 CRF 924.5). Signal projects will be considered for funding provided they meet the following criteria.

### 1. New Signals:

- Warrant 7, Crash Experience from the Minnesota Manual on Uniform Traffic Control Devices (MMUTCD) must be met. Specifically, “5 or more reported crashes, of the types susceptible to correction by a traffic control signal, have occurred within a 12-month period.” Exceptions to meeting this warrant may be made if an adequate case is made on how the new signal will “reduce the number of, or potential for, fatalities and serious injuries” as required by FAST Act.
- All new signals on a trunk highway shall meet current MnDOT design standards. If exceptions to incorporating these standards are necessary due to site-specific conditions, explanation should be included with the application.
- Installation of red light running (enforcement) lights is strongly encouraged. Installation costs are low when installed with new signals and they provide the benefit of red light running enforcement to be accomplished by one law enforcement officer, instead of two.
- Documentation should be provided confirming that other intersection types were considered but are not feasible. Those considered should include intersection types that reduce the probability of severe right-angle crashes. Roundabouts, reduced conflict intersections (RCI) and some alternative intersection types fall into this category.

## 2. Existing Signals:

- Rebuilding an existing signal system may be eligible for HSIP funding if it is necessary for implementation of a geometric improvement, where the signal system cost is incidental to the primary geometric safety improvement on the project.
- Rebuilding an existing signal system without geometric improvements may be eligible for HSIP funding if additional safety devices are included, such as: adding mast arms, adding signal heads, interconnect with other signals, etc.

## 3. Retiming of Signal Systems:

- The development and implementation of new signal timing plans for a series of signals, a corridor, or the entire system may be eligible for HSIP funds (to be approved by the HSIP project evaluation committee).

# Appendix D






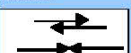
## **Guidelines for HSIP-funded narrow shoulder paving in conjunction with resurfacing projects:**

If narrow shoulder paving projects are funded through HSIP, it makes sense under certain circumstances to do the work in conjunction with a resurfacing project, rather than as a separate, stand-alone project. Work involving the paving of existing aggregate or turf shoulders with 1 to 2 feet of pavement may be allowed within the following guidelines:

- Narrow shoulder paving can be done in conjunction with resurfacing if the project is along one of the segments specifically identified in the County Road Safety Plan for this type of work.
- The project can be at a different location than those identified in the CRSP if it is along a higher-risk segment, as identified in the CRSP. The CRSP assigns a risk rating to highway segments based on the following criteria: traffic volume, rate and density of road departure crashes, curve density and edge assessment. The risk rating ranges from 0 (lower risk) to 5 (higher risk). **If the proposed project is along a highway segment with a rating of 4 or 5, then it can be done in conjunction with a resurfacing project.** This process ensures that narrow shoulder paving is being done at locations of higher risk rather than being driven by the schedule of pavement rehabilitation projects.
- The shoulder paving must include a safety edge and either shoulder or edgeline rumble strips.
- If a project is required to construct more than 2 foot shoulders per State Aid requirements, or if the applicant plans for more than 2 foot shoulders, HSIP funding can not be used.
- The applicant should use regular construction dollars to upgrade guardrail and other safety hardware as part of the resurfacing project.

# Appendix E

## (B/C Worksheet Example)

<b>HSIP</b> worksheet		Control Section	T.H. / Roadway	Location			Beginning Ref. Pt.	Ending Ref. Pt.	State, County, City or Township	Study Period Begins	Study Period Ends	
										1/1/2013	12/31/2015	
		Description of Proposed Work										
Accident Diagram Codes		1 Rear End	2 Sideswipe Same Direction	3 Left Turn Main Line	5 Right Angle	4,7 Ran off Road	8, 9 Head On / Sideswipe -Opposite Direction			6, 90, 99	Total	
										Pedestrian	Other	
Study Period: Number of Crashes	Fatal	F										
	Personal Injury (PI)	A										
		B										
		C										
Property Damage	PD											
% Change in Crashes	Fatal	F										
	PI	A										
		B										
		C										
Property Damage	PD											
Change in Crashes	Fatal	F										
	PI	A										
		B										
		C										
Property Damage	PD											
= No. of crashes x % change in crashes												
Year (Safety Improvement Construction)												
Project Cost (exclude Right of Way)				Type of Crash	Study Period: Change in Crashes	Annual Change in Crashes	Cost per Crash	Annual Benefit	<div style="border: 1px solid black; padding: 5px; display: inline-block;">B/C=</div>  <i>Using present worth values,</i> <b>B= \$</b> _____ - <b>C= \$</b> _____ -  <i>See "Calculations" sheet for amortization.</i>  Office of Traffic Engineering July 2018			
Right of Way Costs (optional)				F			\$ 1,180,000					
Traffic Growth Factor			0.5%	A			\$ 590,000					
Capital Recovery				B			\$ 170,000					
1. Discount Rate			1.3%	C			\$ 87,000					
2. Project Service Life (n)				PD			\$ 7,800					
				Total			\$	-				



# Appendix F

## Recommended Service Life Criteria

<u>Description</u>	<u>Service Life</u> <u>(years)</u>	<u>Description</u>	<u>Service Life</u> <u>(years)</u>
<b><u>Intersection &amp; Traffic Control</u></b>		<b><u>Roadway &amp; Roadside</u></b>	
Construct Turning Lanes	20	Widen Traveled Way (no lanes added)	20
Provide Traffic Channelization	20	Add Lane(s) to Traveled Way	20
Improve Sight Distance	20	Construct Median for Traffic Separation	20
Install Traffic Signs	10	Wide or Improve Shoulder	20
Install Pavement Marking	2	Realign Roadway (except at railroads)	20
Install Delineators	10	Overlay for Skid Treatment	10
Install Illumination	20	Groove Pavement for Skid Treatment	10
Upgrade Traffic Signals	20	Install Breakaway Sign Supports	10
Install New Traffic Signals	20	Install Breakaway Utility Poles	10
Retime Coordinated System	5	Relocate Utility Poles	20
Construct Roundabout	20	Install Guardrail End Treatment	10
		Upgrade Guardrail	10
		Upgrade or Install Concrete Median Barrier	20
<b><u>Pedestrian &amp; Bicycle Safety</u></b>		Upgrade or Install Cable Median Barrier	10
Construct Sidewalk	20	Install Impact Attenuators	10
Construct Pedestrian & Bicycle		Flatten or Re-grade Side Slopes	20
Overpass/Underpass	30	Install Bridge Approach Guardrail	
Install Fencing & Pedestrian Barrier	10	Transition	10
Construct Bikeway	20	Remove Obstacles	20
		Install Edge Treatments	7
<b><u>Structures</u></b>		Install Centerline Rumble Strips	7
Widen or Modify Bridge for Safety	20		
Replace Bridge for Safety	30		
Construct New Bridge for Safety	30		
Replace/Improve Minor Structure for Safety	20		
Upgrade Bridge Rail	20		

Source: Federal Highway Administration (FHWA)

## Federal HSIP Funding Application (Form 1)

**INSTRUCTIONS:** Complete and return completed application to Lars Impola, MnDOT, —Metro District, 1500 West County Road B2, Roseville, Minnesota —55113. (651) 234-7820. **Applications must be received by 4:30 pm or postmarked on ~~August 31, 2018...~~ \*April 30, 2020.\*** Be sure to complete and —attach the Project Information form. (Form 2)

### I. GENERAL INFORMATION

1. APPLICANT:

2. JURISDICTIONAL AGENCY (IF DIFFERENT):

3. MAILING ADDRESS:

CITY:

STATE:

ZIP CODE:

4. COUNTY:

5. CONTACT PERSON:

TITLE:

PHONE NO.  
(     )

CONTACT E-MAIL ADDRESS:

### II. PROJECT INFORMATION

6. PROJECT NAME:

7. BRIEF PROJECT DESCRIPTION - Include location, road name, type of improvement, etc... (A complete description can be submitted separately):

8. HSIP PROJECT CATEGORY – Circle which project grouping in which you wish your project to be scored.

Proactive

Reactive

### III. PROJECT FUNDING

9. Are you applying or have you applied for funds from another source(s) to ~~implement~~ fund this project? — Yes  No  If yes, please identify the source(s):

10. FEDERAL AMOUNT: \*\$:

13. MATCH % OF PROJECT TOTAL:

11. MATCH AMOUNT: \$

14. SOURCE OF MATCH FUNDS:

**\*\*Would you accept a federal award that covers 80% of the total project cost if non-HSIP federal funds were awarded?**

**\*\*NOTE: If funding should become available in ~~2019, 2020, or 2021~~, 2022, or 2023 would this project be able to be advanced to meet this schedule? Which years would work?**

12. PROJECT TOTAL: \$	15. REQUESTED PROGRAM YEAR(S) : SEE NOTE BELOW** <input type="checkbox"/> <del>2022</del> 2024 <input type="checkbox"/> <del>2023</del> 2025 <input type="checkbox"/> Either year
16. SIGNATURE:	17. TITLE:

**\*\*Would you accept a federal award that covers 80% of the total project cost if non-HSIP federal funds were awarded?**

**\*\*NOTE: If funding should become available in ~~2019, 2020, or 2021~~, 2022, or 2023 would this project be able to be advanced to meet this schedule? Which years would work?**

## PROJECT INFORMATION (Form 2)

(To be used to assign State Project Number after project is selected)

Please fill in the following information as it pertains to your proposed project. Items that do not apply to your project, please label N/A. **Do not send this form to the State Aid Office. For project solicitation package only.**

COUNTY, CITY, or LEAD AGENCY \_\_\_\_\_

FUNCTIONAL CLASS OF ROAD \_\_\_\_\_

ROAD SYSTEM \_\_\_\_\_ (TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET)

NAME OF ROAD \_\_\_\_\_ (Example: 1<sup>st</sup> Street, Main Avenue)

ZIP CODE WHERE MAJORITY OF WORK IS BEING PERFORMED \_\_\_\_\_

APPROXIMATE BEGIN CONSTRUCTION DATE (MO/YR) \_\_\_\_\_

APPROXIMATE END CONSTRUCTION DATE (MO/YR) \_\_\_\_\_

LOCATION: From: \_\_\_\_\_

To: \_\_\_\_\_

(DO NOT INCLUDE LEGAL DESCRIPTION)

TYPE OF WORK \_\_\_\_\_

\_\_\_\_\_  
(Examples: GRADE, AGG BASE, BIT BASE, BIT SURF, SIDEWALK, CURB AND GUTTER, STORM SEWER, SIGNALS, LIGHTING, GUARDRAIL, BIKE PATH, PED RAMPS, BRIDGE, PARK AND RIDE, ETC)

**DRAFT** July 8, 2019

**HSIP**

*Highway Safety  
Improvement Program*

For State Fiscal Years 2024 and 2025

**Scoring Guidance for  
Reactive and Proactive Projects**

## **SCORING GUIDANCE FOR REACTIVE PROJECTS:**

### Reactive Project Scoring:

<b>Criteria and Measures</b>	<b>Points</b>	<b>% of Total Points</b>
1. Benefit/Cost (B/C) Ratio	750	75%
2. Meets Intent of the HSIP Program	250	25%
<b>Total</b>	<b>1,000</b>	<b>100%</b>

- 1. Benefit/Cost Ratio (750 Points)** – Only projects with a B/C ratio of 1.0 or greater can be funded. Projects with a higher B/C ratio will receive more points.

#### SCORING GUIDANCE:

The applicant with highest B/C ratio will receive the full points for the measure. Remaining projects will receive a proportionate share of the full points. For example, if the application being scored had a B/C ratio of 7.5 and the top project had a B/C ratio of 11.0, this applicant would receive  $(7.5/11.0) * 750$  points or 511 points. The scoring committee may reduce the points awarded if the methodology or data provided by the applicant is not reasonable.

- 2. Meets Intent of the HSIP Program (250 Points)** – Projects will be scored based on their ability to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.

#### SCORING GUIDANCE

Projects will be awarded between 0 and 5 points based on the ability of the project to reduce fatal and serious injuries crashes. Scorers will assess the types of crashes that have occurred in the project area and the potential for the proposed solution to reduce the fatal and serious injury crash risk that has been documented.

Scorers will respond to the following statement:

The proposed project meets the intent of the HSIP program.

Strongly disagree: 0 points

Disagree: 1 point

Neutral: 2 points

Slightly Agree: 3 points

Agree: 4 points

Strongly agree: 5 points

Multiple projects can receive 5 points in this scoring measure. Points awarded (0-5) will be multiplied by 50 to get a final score out of 250 points possible.

## **SCORING GUIDANCE FOR PROACTIVE PROJECTS:**

Proactive Project Scoring:

<b>Criteria and Measures</b>	<b>Points</b>	<b>% of Total Points</b>
1. Connection to 2014-19 MN Strategic Highway Safety Plan (SHSP)	100	10%
2. Cost per Mile or Cost per Intersection	200	20%
3. Wide Strategy Deployment vs. Single Spot Location	200	20%
4. Average Annual Daily Traffic (AADT)	50	5%
5. Fatal and Serious Injury Crashes (10 years)	50	5%
6. Crash Reduction Factor	250	25%
7. Part of a Plan	150	15%
<b>Total</b>	<b>1,000</b>	<b>100%</b>

**1. Connection to 2014-19 Minnesota Strategic Highway Safety Plan (SHSP) (100 Points)** – The [Minnesota Strategic Highway Safety Plan](#) provides insight and direction on how to reduce traffic-related crashes that involve motor vehicles on Minnesota’s roads. The plan has 20 focus-area priorities and associated strategies identified for Minnesota. This measure rewards project applications that help to further strategies (shown as bullet points below) in this plan. The pertinent infrastructure-based focus areas and strategies include the following:

1. Lane Departure

- Install shoulder and centerline rumble strips
- Install enhanced pavement markings and edge line rumble strips on roads with narrow or no paved shoulders
- Provide buffer space between opposite travel directions
- Provide wider shoulders, enhanced pavement markings and chevrons for high-risk curves
- Eliminate shoulder drop-offs, provide safety edges and widen or pave shoulders

2. Intersections

- Use indirect left-turn treatments and access management to minimize conflicts at divided highway intersections
- Provide dynamic warning signs to alert drivers of conflicts at stop-controlled intersections
- Improve intersection visibility by providing enhanced signing, delineation and lighting
- Provide roundabouts at appropriate locations
- Optimize signal operations with phasing, timing, coordination and clearance intervals
- Supplement conventional red-light running enforcement with traffic signal confirmation lights and other technology enhancements that support enforcement efforts

3. Inattentive Driving

- Install edge and centerline rumble strips on at-risk rural roads to alert drivers of possible lane departure
- Install lighting and dynamic warnings at rural intersections to improve visibility of other vehicles and roadway user

4. Speed

- Install dynamic speed feedback signs at rural/urban transitions, school zones and work zones
- Incorporate curbs, sidewalks, lighting and other design elements to indicate lower speeds in transition areas

5. Pedestrians

- Strategies aimed specifically at improving safety for pedestrians

6. Bicyclists

- Strategies aimed specifically at improving safety for bicyclists

7. Trains

- Strategies aimed specifically at improving safety at train crossings

SCORING GUIDANCE

Projects will be awarded between 0 and 5 points based on the ability of the project to implement one or more of the strategies identified in the Minnesota Strategic Highway Safety Plan. Applicants could be awarded full points for either proposing a project that strongly advances one of the Plan's strategies or for a project that implements multiple strategies.

Scorers will respond to the following statement:

The project implements one or more of the strategies listed in the Minnesota Strategic Highway Safety Plan.

Strongly disagree: 0 points

Disagree: 1 point

Neutral: 2 points

Slightly Agree: 3 points

Agree: 4 points

Strongly agree: 5 points

Multiple projects can receive 5 points in this scoring measure. Points awarded (0-5) will be multiplied by 20 to get a final score out of 100 points possible.



**2. Cost Per Mile or Cost per Intersection (200 Points)** – This criterion will assess cost effectiveness of the infrastructure being proposed. Each application for a linear project will be scored on its total cost per mile while each application at an intersection will be scored on its total cost per intersection.

**LINEAR PROJECTS**

- Total project cost: \_\_\_\_\_
- Project length: \_\_\_\_\_
- Cost effectiveness (project length / cost): \_\_\_\_\_

**INTERSECTION PROJECTS**

- Total project cost: \_\_\_\_\_
- Number of intersections: \_\_\_\_\_
- Cost effectiveness (intersections / cost): \_\_\_\_\_

**SCORING GUIDANCE**

The linear project application with the highest cost effectiveness will be awarded full points. Remaining applications will receive a proportionate share of the full points. Similarly, the intersection project with the highest cost effectiveness will be awarded full points with remaining applicants receiving a proportionate share. For example if the linear application being scored was 0.00000089 miles/intersections per cost and the highest-rated project was 0.00000110 miles/intersections per cost, the application would receive  $(0.00000089/0.00000110)*200$  points or 162 points.

Note: Because of the two different scales, two projects will be awarded the full 200 points.

**3. Wide Strategy Deployment vs. Single Spot Location (200 Points)** – This criterion addresses how far-reaching the project is by showing the number of separate project locations that are made safer by the project.

**SCORING GUIDANCE**

- 11 or more separate project locations: 200 points
- 6 - 10 separate project locations: 150 points
- 2 - 5 separate project locations: 100 points
- 1 project location: 50 points

**4. Average Annual Daily Traffic (50 Points)** – This criterion quantifies the proposed project’s potential impact by measuring the average annual daily traffic (AADT). The applicant must identify the location along the project length and provide the current AADT volume from the MnDOT 50-series maps (select *Twin Cities Metro Area Street Series* under *Traffic Volume (AADT)*).

**SCORING GUIDANCE**

The applicant with the highest AADT will receive the full points for the measure. Remaining projects will receive a proportionate share of the full points. For example, if the application being scored had an AADT of 1,000 vehicles and the top project had AADT of 1,500 vehicles,

this applicant would receive  $(1,000/1,500)*50$  points or 33 points.

Projects will be split into freeways and non-freeway facilities for the scoring of this measure. The top scoring freeway project will receive full points and the top scoring non-freeway project will receive full points.

**5. Fatal and Serious Injury Crashes (50 Points)** – This criterion measures the history of fatal (K) and serious injury crashes (A) from 2006 to 2015 that have occurred along the proposed project. Total K and A crashes for 2006-2015 will be tallied with each K crash being worth two times the number of each A crash.

- Total crashes = 2\* “K” Crashes + “A” Crashes

**SCORING GUIDANCE**

The applicant with the highest number of fatal and serious injury crashes will receive the full points for the measure. Remaining projects will receive a proportionate share of the points. For example, if the application being scored had 10 total crashes and the top application had 30 crashes, this application would receive  $(10/30)*50$  points, or 17 points.

**6. Crash Reduction Factor (250 Points)** – This criterion awards points based on the crash reduction factor (CRF). Applicants must provide a reasonable crash reduction factor (CRF) via printout from the [Crash Modification Factor Clearinghouse](#).

The score will be based on the aggregate of up to the maximum of two CRFs.

**SCORING GUIDANCE**

The applicant with the highest CRF for the proposed improvement will be awarded full points. Remaining applications will receive a proportionate share of the full points. For example if the application being scored has a CRF of 36 and the highest-rated project has a CRF of 48, the application would receive  $(36/48)*250$  points or 188 points.

**7. Part of a Plan (150 Points)** – The project or the transportation problem/need that the project addresses must be in a planning or programming document. Reference the name of the appropriate safety plan, road safety audit, comprehensive plan, Safe Routes to School plan, regional/statewide plan, capital improvement program, corridor study document, or other official plan or program of the applicant agency that the project is included in and/or a transportation problem/need that the project addresses. Studies on a trunk highway must be supported by the Minnesota Department of Transportation and the Metropolitan Council. Applicants should include a link to a plan or plan excerpt and list the applicable:

**SCORING GUIDANCE**

Projects will be awarded points as follows:

150 pts – if the project is specifically listed or addresses a specific transportation need that is included in a stand alone SAFETY plan such as a County Safety Plan, District Safety Plan, Road Safety Audit, Road Safety Analysis, etc.

75 pts – If the project addresses a transportation need that is part of a safety discussion in a larger broader Plan such as a City Comprehensive Plan, etc.

0 pts – the project is not included in nor addresses a safety need in a plan.