Highway Safety Improvement Program
Data Driven Decisions

HIGHWAY SAFETY IMPROVEMENT PROGRAM

Division of Transportation Investment Management
Bureau of State Highway Programs

HSIP General Information
SFY2021-2024 Program Cycle

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The Basics of HSIP

Program Areas, Funding, Typical Projects

HSIP Program Areas

- **Highway Safety Improvement Program (HSIP)**

- **Railway-Highway Crossings: Warning Devices**
- **Railway-Highway Crossings: Elimination of Hazards**

Highway Safety Improvement Program

- Projects that reduce the number and severity of crashes on all public roads.
- Focused on infrastructure improvements identified and selected through a data-driven approach.
- Lower-cost treatments should be given first consideration.
- Includes the ***High Risk Rural Roads subprogram***, which funds projects for construction and operational improvements on county rural major and minor collector roads.

Program Funding

- **A federal reimbursement program and NOT a federal grant program**
- **90% federal HSIP funds available for most projects**
- **10% match required**
  - State pays match for STH projects
  - Locals pay match for non-STH projects (local streets and highways)

90:10

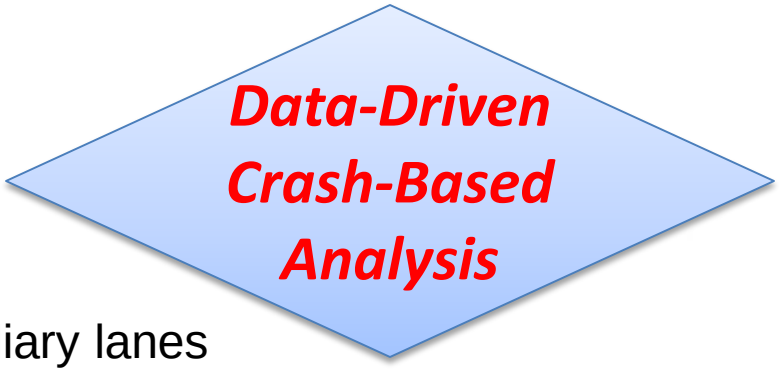
Program Cycle & Application Deadlines

- **Four-year program[1] of projects**
- **Program on an annual cycle**
- **Current program is SFY2021-2024**
- **Next application cycle deadline for SFY2021-2024 is August 15th, 2020**

1 *Projects with longer, more complicated delivery schedules (at least 4 years) will be considered for approval in Years 5 and 6; but will be given lower priority than projects that can be delivered quickly.*

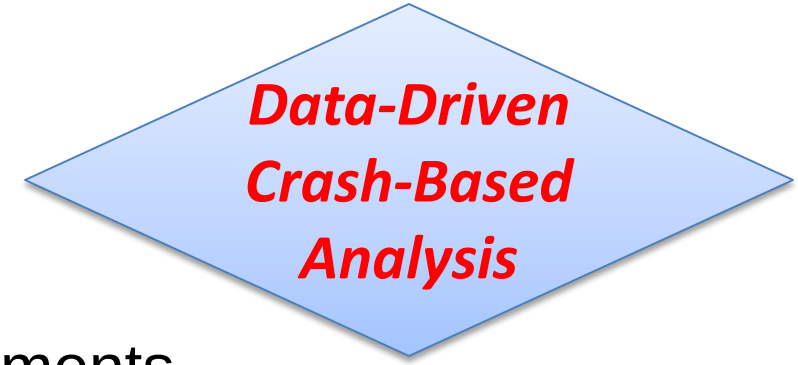
Typical Eligible Spot Projects

- Intersection safety improvements (including installing/modifying traffic signals, roundabouts and channelization/turning radii improvements)
- Straightening isolated curves or hills
- Improving sight distance
- Access modifications
- Constructing turning, bypass or other auxiliary lanes
- Eliminating a roadside obstacle
- Installing guardrails, barriers and crash attenuators
- Installing signs, pavement markings, and delineators



Typical Corridor-Level Projects

- Corridor signal upgrades
- Stand-alone beam guard installations and end treatments
- Larger or additional signing
- Chevrons
- Pavement marking
- Rumble strips
- Eliminating clear zone encroachments
- Pedestrian countdown timers



High Risk Rural Road Subprogram

- Focus is on:
  - Local rural minor and major collector corridors
  - Run-off-the-road crashes
  - Fatal and serious injury crashes
  - Low complexity, low cost treatments that can be implemented in < 3 years

- Program development starts with annual review of crash data statewide by WisDOT and UW-Madison TOPS Lab.

- After initial screening and more detailed review of crash information by WisDOT safety engineers, approximately 10 corridors are selected for further review and analysis.

High Risk Rural Road Subprogram

- With local involvement, WisDOT consultant reviews each corridor and develops a Corridor Safety Evaluation (CSE)

- CSE includes:
  - Summary of locations in the corridor with safety issues.
  - List of safety treatments within the corridor eligible for HRRRP funding.
  - Cost estimates for design and construction of eligible treatments.

- Local entity has the option of using the CSE to develop an application for HRRRP funding.

- A project that requires real estate acquisition is not eligible in the HRRRP.

High Risk Rural Road Treatments

- **Edgeline and/or centerline pavement markings**
- **Shoulder rumble strips**
- **Centerline rumble stripes**
- **Spot shoulder widening**
- **Chevrons and/or night arrows**
- **Post-mounted delineation**
- **Guide signs and/or advanced warning signs**
- **Obstacle removal for adequate clear zone**

Larger, more complex projects may be submitted separately through the "standard" HSIP program.

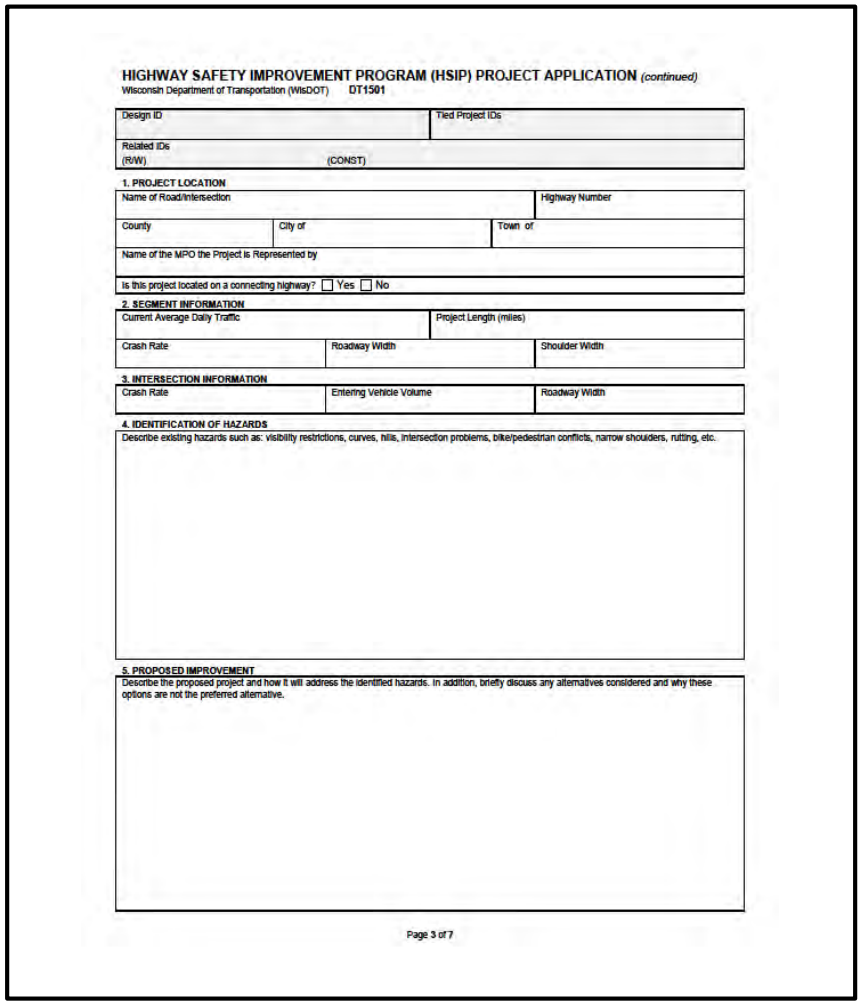
The HSIP Process

Applications, Approval, and Programming Details

Application Requirements

- Completed HSIP Project Application Form
- General sketch of project proposal
- Collision diagrams
- Crash history (most current consecutive 5 yrs.) and appropriate crash analysis
- Site photos
- Itemized cost estimate
- Project Evaluation Factor (PEF) analysis worksheets

The HSIP Application Form



HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION *(continued)*
Wisconsin Department of Transportation (WisDOT) DT1501

Design ID	Tied Project IDs
Related IDs (R/W) (CONST)	

1. PROJECT LOCATION

Name of Road/Intersection		Highway Number
County	City of	Town of
Name of the MPO the Project is Represented by		

Is this project located on a connecting highway? ☐ Yes ☐ No

2. SEGMENT INFORMATION

Current Average Daily Traffic	Project Length (miles)	
Crash Rate	Roadway Width	Shoulder Width

3. INTERSECTION INFORMATION

Crash Rate	Entering Vehicle Volume	Roadway Width

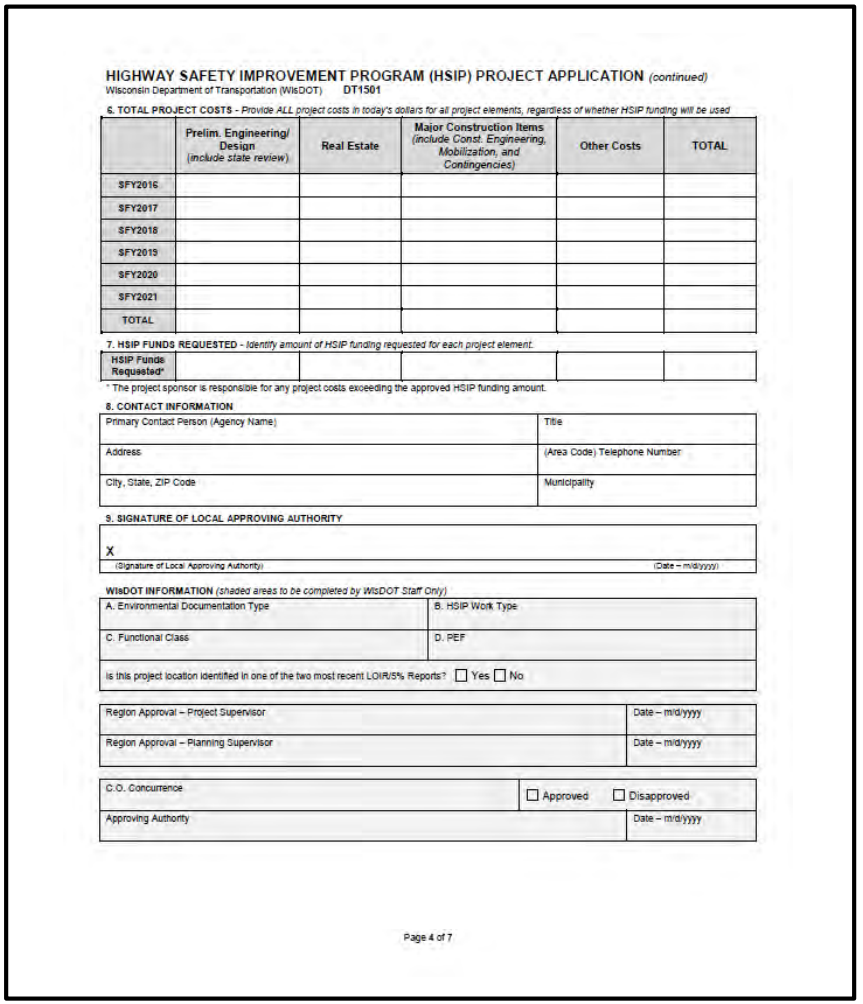
4. IDENTIFICATION OF HAZARDS

Describe existing hazards such as: visibility restrictions, curves, hills, intersection problems, bike/pedestrian conflicts, narrow shoulders, rutting, etc.

5. PROPOSED IMPROVEMENT

Describe the proposed project and how it will address the identified hazards. In addition, briefly discuss any alternatives considered and why these options are not the preferred alternative.

Page 3 of 7



HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION *(continued)*
Wisconsin Department of Transportation (WisDOT) DT1501

6. TOTAL PROJECT COSTS - *Provide ALL project costs in today's dollars for all project elements, regardless of whether HSIP funding will be used*

	Prelim. Engineering/ Design *(include state review)*	Real Estate	Major Construction Items *(include Const. Engineering, Mobilization, and Contingencies)*	Other Costs	TOTAL
SFY2016					
SFY2017					
SFY2018					
SFY2019					
SFY2020					
SFY2021					
TOTAL					

7. HSIP FUNDS REQUESTED - *Identify amount of HSIP funding requested for each project element.*

HSIP Funds Requested*					

* The project sponsor is responsible for any project costs exceeding the approved HSIP funding amount.

8. CONTACT INFORMATION

Primary Contact Person (Agency Name)	Title
Address	(Area Code) Telephone Number
City, State, ZIP Code	Municipality

9. SIGNATURE OF LOCAL APPROVING AUTHORITY

X
(Signature of Local Approving Authority) (Date – m/d/yyyy)

WisDOT INFORMATION *(shaded areas to be completed by WisDOT Staff Only)*

A. Environmental Documentation Type	B. HSIP Work Type
C. Functional Class	D. PEF

Is this project location identified in one of the two most recent LOIR/5% Reports? ☐ Yes ☐ No

Region Approval – Project Supervisor	Date – m/d/yyyy
Region Approval – Planning Supervisor	Date – m/d/yyyy

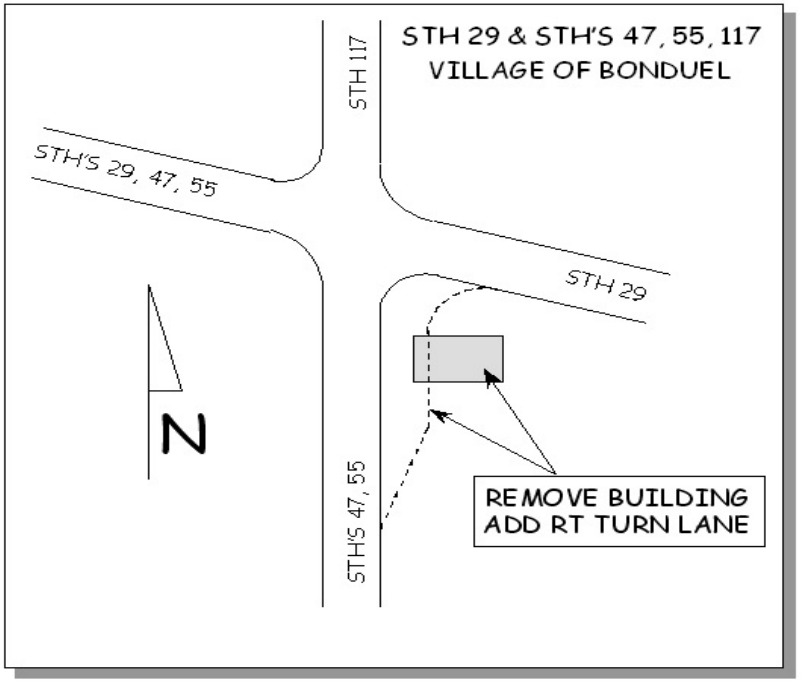
C.O. Concurrence	☐ Approved ☐ Disapproved
Approving Authority	Date – m/d/yyyy

Page 4 of 7

Form is available at the **Programs for Local Gov't**. website and from Regional HSIP Coordinators and Safety Engineers

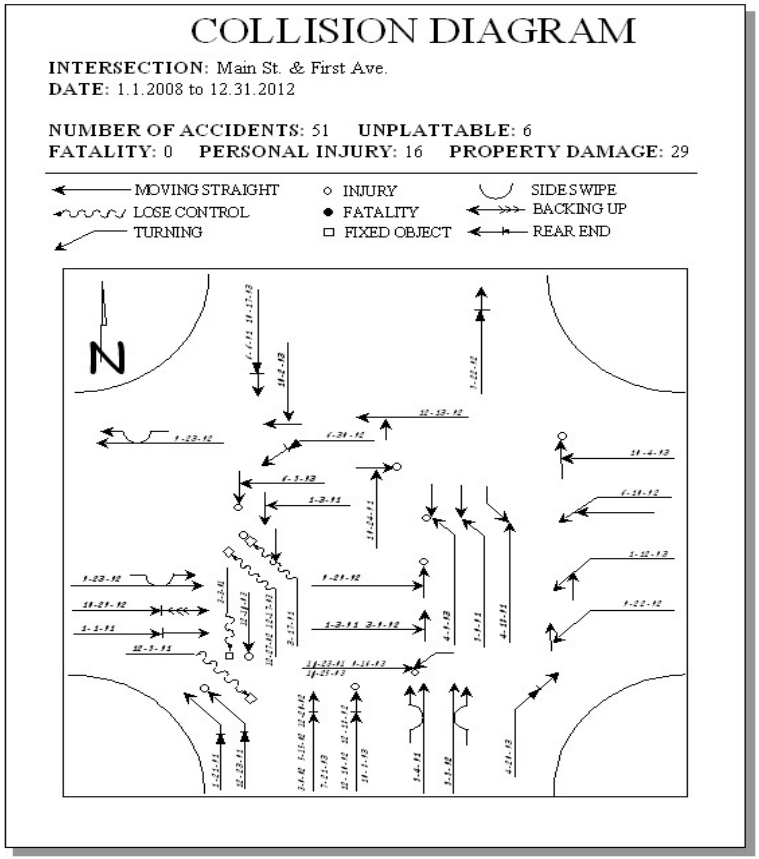
Other Application Materials

Site Photos



Sketch of
Project Proposal

Other Application Materials



COLLISION DIAGRAM

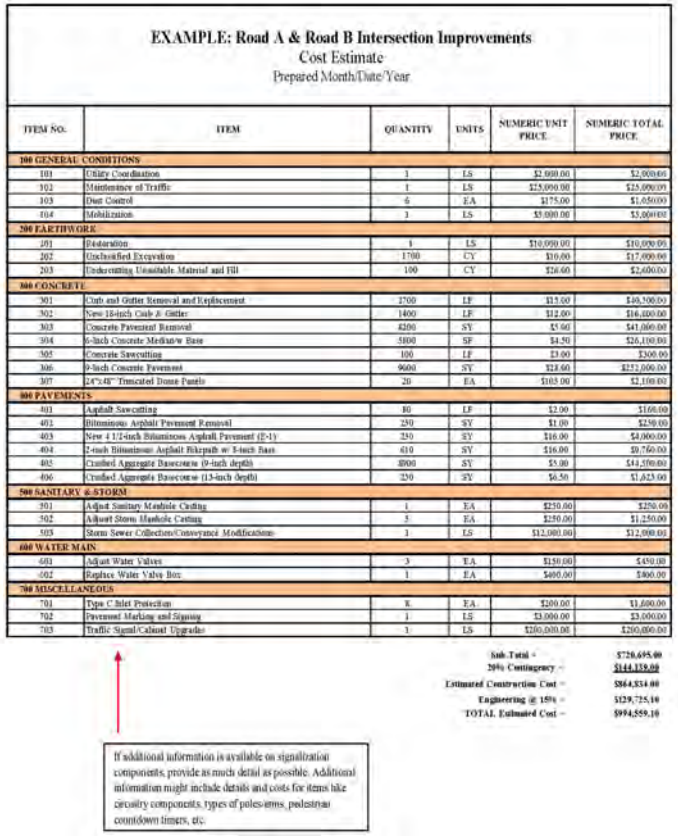
INTERSECTION: Main St. & First Ave.
DATE: 1.1.2008 to 12.31.2012

NUMBER OF ACCIDENTS: 51 UNPLATTABLE: 6
FATALITY: 0 PERSONAL INJURY: 16 PROPERTY DAMAGE: 29

MOVING STRAIGHT
LOSE CONTROL
TURNING
INJURY
FATALITY
FIXED OBJECT
SIDE SWIPE
BACKING UP
REAR END

N

Collision Diagram(s)



EXAMPLE: Road A & Road B Intersection Improvements
Cost Estimate
Prepared Month/Date/Year

ITEM NO.	ITEM	QUANTITY	UNITS	NUMERIC UNIT PRICE	NUMERIC TOTAL PRICE
100 GENERAL CONDITIONS					
101	Utility Coordination	1	LS	$2,000.00	$2,000.00
102	Maintenance of Traffic	1	LS	$25,000.00	$25,000.00
103	Dust Control	6	EA	$175.00	$1,050.00
104	Mobilization	1	LS	$5,000.00	$5,000.00
200 EARTHWORK					
201	Restoration	1	LS	$10,000.00	$10,000.00
202	Unclassified Excavation	1700	CY	$10.00	$17,000.00
203	Undercutting Unsuitable Material and Fill	100	CY	$20.00	$2,000.00
300 CONCRETE					
301	Curb and Gutter Removal and Replacement	2700	LF	$15.00	$40,500.00
302	New 18-inch Curb & Gutter	1400	LF	$12.00	$16,800.00
303	Concrete Pavement Removal	8200	SY	$5.00	$41,000.00
304	6-Inch Concrete Median w Base	5800	SF	$4.50	$26,100.00
305	Concrete Sawcutting	100	LF	$3.00	$300.00
306	9-Inch Concrete Pavement	9600	SY	$23.60	$227,000.00
307	24"x48" Truncated Dome Panels	20	EA	$105.00	$2,100.00
400 PAVEMENTS					
401	Asphalt Sawcutting	80	LF	$2.00	$160.00
402	Bituminous Asphalt Pavement Removal	250	SY	$1.00	$250.00
403	New 4 1/2-inch Bituminous Asphalt Pavement (E-1)	250	SY	$16.00	$4,000.00
404	2-inch Bituminous Asphalt Bikepath w/ 8-inch Base	610	SY	$16.00	$9,760.00
405	Crushed Aggregate Basecourse (9-inch depth)	8000	SY	$5.00	$44,500.00
406	Crushed Aggregate Basecourse (13-inch depth)	250	SY	$6.50	$1,625.00
500 SANITARY & STORM					
501	Adjust Sanitary Manhole Casting	1	EA	$250.00	$250.00
502	Adjust Storm Manhole Casting	5	EA	$250.00	$1,250.00
503	Storm Sewer Collection/Conveyance Modifications	1	LS	$12,000.00	$12,000.00
600 WATER MAIN					
601	Adjust Water Valves	3	EA	$150.00	$450.00
602	Replace Water Valve Box	1	EA	$400.00	$400.00
700 MISCELLANEOUS					
701	Type C Inlet Protection	8	EA	$200.00	$1,600.00
702	Pavement Marking and Signing	1	LS	$3,000.00	$3,000.00
703	Traffic Signal/Cabinet Upgrades	1	LS	$200,000.00	$200,000.00

Sub-Total =	$720,695.00
20% Contingency =	$144,139.00
Estimated Construction Cost =	$864,834.00
Engineering @ 15% =	$129,725.10
TOTAL Estimated Cost =	$994,559.10

If additional information is available on signalization components, provide as much detail as possible. Additional information might include details and costs for items like circuitry components, types of poles/arms, pedestrian countdown timers, etc.

Itemized Cost Estimate

Spot Project Analysis

- WisDOT region staff calculates a Project Evaluation Factor (PEF) for each HSIP project submittal.
- PEF is used to evaluate and compare proposed projects.
- PEF estimates crash reduction potential of proposed improvements and compares them to project costs.
- PEF calculation includes:
  - Estimated costs of proposed project.
  - Crash history in the project location.
  - Identification of crashes and/or severity that the proposed project would have reduced.
  - Estimated crash reduction potential of proposed improvements, based on established research and studies.

Corridor Project Analysis

- Individual PEFs must be calculated for each location in the corridor where a safety improvement is proposed.
- A cumulated PEF must be calculated covering all proposed safety improvement in the corridor.
- The cumulative PEF for all locations in the corridor must be greater than or equal to 1.0 for the project to be considered.
- At least 2/3 of the locations proposed must have a PEF greater than or equal to 1.0 for the project to be considered.
- Any individual locations in the corridor with a PEF of less than 1.0 will be evaluated and a determination will be made whether the locations should be approved.

Tips for Successful HSIP Application

- Follow general instructions on HSIP application
- Projects rooted in documented crash problems (crash report)
- Be as specific as possible in “Proposed Improvements” box
- Be realistic with the outlined SFY timeframe
  - Generally, design, R/E, and construction not be scheduled in same FY

Project Funding Caps

CAP BASICS …

- **Applies to all HSIP-funded projects**
- **State Projects - overages charged to Region's allocation**
- **Local Projects - overages charged to Locals**
- **Any funding cap increase must be approved by the Statewide HSIP Coordinator**
- **Any project scope change would require application resubmittal with an updated PEF (using the original submittal's crash history)**

THE BENEFITS …

- **Encourages better project scoping**
- **Promotes more accurate initial cost estimates**
- **Helps limit impacts on program of cost increases on large projects**

Co-Pay Requirement

- **Projects over <u>$1,900,000</u> trigger a co-pay requirement**
  - First $1,900,000 → HSIP Program Funds (90% Fed)
  - Second $1,900,000 → Non-HSIP Funds
  - Balance of Project → Costs shared equally between HSIP & Non-HSIP funding sources

Sunset Provision

THE PROVISION …

- **Annual program review to check on status of previously approved projects**
- **A project may be removed from the program IF:**
  - There is no design action within 2 years[1] of program approval, OR,
  - It is not let to contract within 3 years[1] of program approval (4 years[1] if right of way is needed)
- **Local officials will be notified by letter before a project is removed.**

THE BENEFITS …

- **Ensures safety resources are only reserved for viable projects**
- **Enables adding projects to the Program to replace non-viable ones**

[1] *One year can be added to these timeframes for projects approved in Year 5 and two years added for projects approved in Year 6.*

For More Information

- WisDOT Programs for Local Government
  - http://www.dot.wisconsin.gov/localgov/highways/hsip.htm
  - HSIP application materials available for download at this site

- WisDOT HSIP Staff
  - WisDOT Regional HSIP Coordinators and Safety Engineers
    - General program information
    - Questions about specific potential projects and applications
  - Statewide HSIP Coordinator
    - General program information

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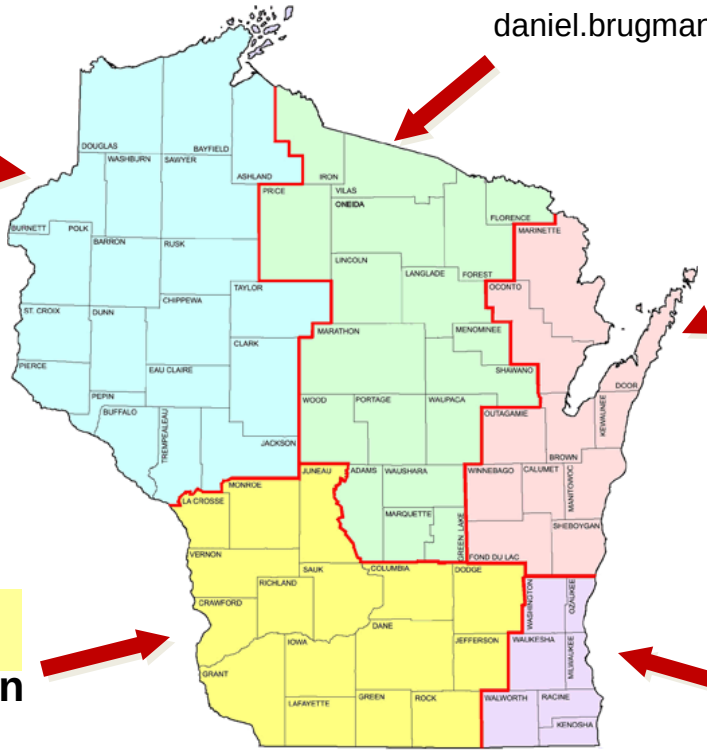

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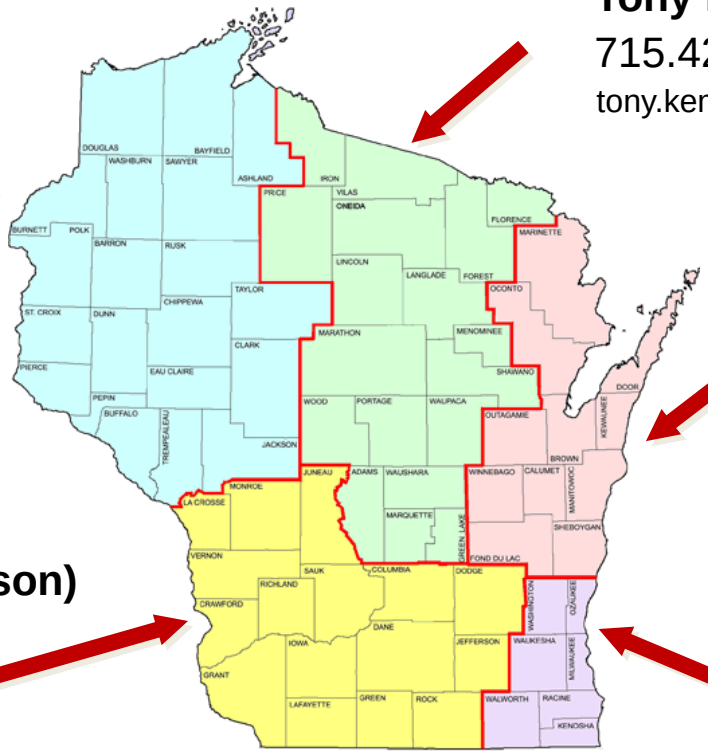

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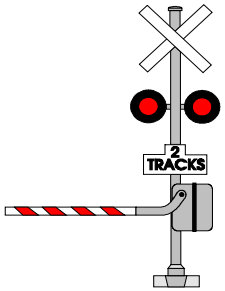
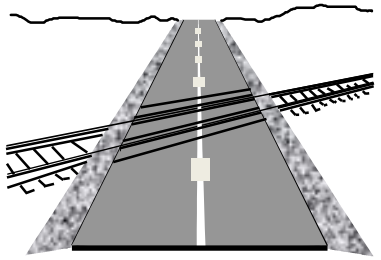
Railway-Highway Crossings Program

Warning Devices & Elimination of Hazards Programs

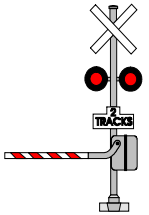




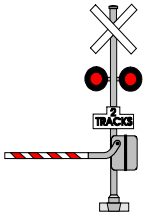
HSIP Program Areas

- **Highway Safety Improvement Program (HSIP)**

- **Railway-Highway Crossings: Warning Devices**
  - Projects that primarily involve electronic signal installations and upgrades
- **Railway-Highway Crossings: Elimination of Hazards**
  - Projects that improve crossing geometrics or eliminate at-grade crossings with a separation structure

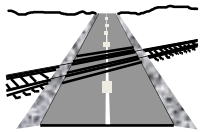


Warning Devices
WisDOT & OCR

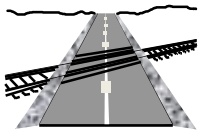


TYPICAL ELIGIBLE PROJECTS…

- Flashing lights
- Flashing lights and gates
- Enhanced flashing lights & gates
  - Examples: with barrier curb, 4-quad gates
- Adding cantilevered lights, gates
- Circuitry adjustments/improvements (such as constant warning time)



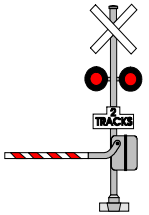
Elimination of Hazards
WisDOT



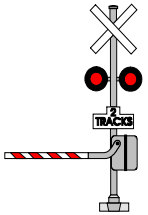
TYPICAL ELIGIBLE PROJECTS …

- Geometric improvements (grades and horizontal alignments)
- Modular crossings
- Grade separations*
- Crossing consolidations
- Crossing closures
- Incentive payments to encourage closures

*Limited to partial funding because of high cost of structures.



Warning Devices
OCR



OCR FUNDING OPTION …

- **Locals or railroads can petition OCR for improvements**
- **OCR may furnish match to federal funds**
  - **If OCR provides match, there is no cost to locals or railroads**
- **Annual Program Target Level = $4.4 million**
  - **$2.7 M in Federal Funds**
  - **$1.7 M in State Funds**

*The **Office of the Commissioner of Railroads** is the state agency with primary responsibility for making determinations of the adequacy of warning devices at railroad crossings, along with other railroad related regulations.*

Warning Devices & Elimination of Hazards
WisDOT

WisDOT FUNDING OPTION …

- **Funding available for both Warning Devices and Elimination of Hazards**
- **Generally a 10% local match is required**
  - **Railroad will pay match in certain situations**
- **Annual Program Target Level = $650,000**

Warning Devices & Elimination of Hazards
WisDOT

APPLICATION MATERIALS …

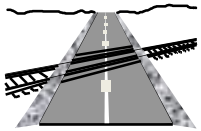
- **A package for each project must include - preferably in electronic form:**

1. Completed Concept Definition Report
2. Rail Crossing Report (Form DT1589)
3. Map showing the rail-highway crossing – and at least 1 alternative crossing, if possible
4. Any engineering diagrams needed to describe the proposed improvement
5. Digital photos of the crossing – from the standard WisDOT designated locations – as specified in WisDOT document: Digital Photographic Standards for Public Railroad Crossings

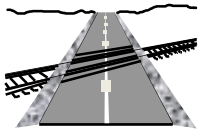
Program Cycle & Application Deadlines

- **Four-year program of projects**
- **Program on an annual cycle**
- **Current program is SFY2021-2024**
- **Next program is SFY2022-2025 (starts July 1, 2021)**

Rail Project applications may be submitted at any time.



Project Analysis



THE PROCESS …

- **Rail Projects Review Committee evaluates proposed projects – reviews benefit-cost analysis and engineering assessment**

- **Crossing Evaluation Procedure used to rank relative merits for the following types of projects:**
  - Flashing lights
  - Flashing lights & gates
  - Enhanced flashing lights & gates
  - Grade Separations
  - Crossing closures

- **The Committee applies collective assessment and judgment to evaluate all other projects such as the addition of cantilevers or constant warning time circuitry**

Crossing Evaluation Procedure

BENEFIT COST-ANALYSIS …

- **Assesses economic viability of projects by comparing safety benefits to life-cycle project costs**
- **Calculates net benefit (benefits – costs) and B/C ratio**
- **Benefits calculated:**
  - Reductions in the economic costs of crashes
  - Reductions in vehicle delay and operating cost (separations only)
- **Costs taken into account:**
  - Initial construction
  - Expected annual maintenance and operating costs
  - Crossing surface replacement – when grade separation is an alternative
  - Miscellaneous costs (e.g. R/W**)**

Railroad Coordinators

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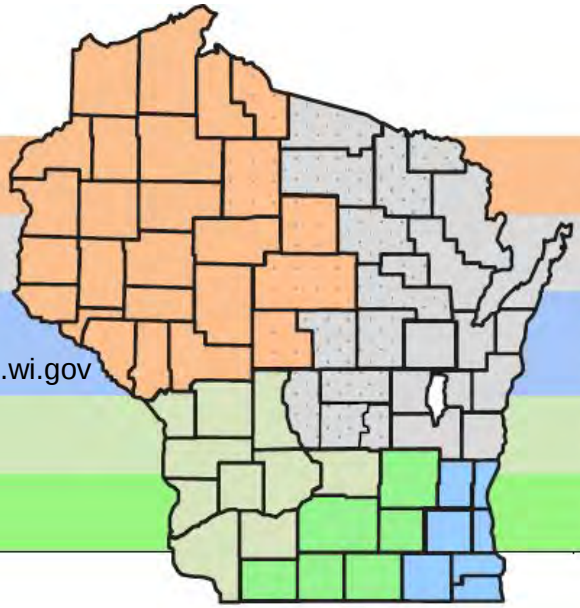

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