Success (and disappointment) obtaining LAP Safety Funding
2/9/2021

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BlazoP@Michigan.gov
Fatalities by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Trunkline</th>
<th>Local</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>2011</td>
<td>419</td>
<td>351</td>
<td>770</td>
</tr>
<tr>
<td>2012</td>
<td>427</td>
<td>329</td>
<td>756</td>
</tr>
<tr>
<td>2013</td>
<td>427</td>
<td>329</td>
<td>756</td>
</tr>
<tr>
<td>2014</td>
<td>382</td>
<td>425</td>
<td>707</td>
</tr>
<tr>
<td>2015</td>
<td>454</td>
<td>425</td>
<td>879</td>
</tr>
<tr>
<td>2016</td>
<td>432</td>
<td>454</td>
<td>886</td>
</tr>
<tr>
<td>2017</td>
<td>432</td>
<td>454</td>
<td>886</td>
</tr>
<tr>
<td>2018</td>
<td>440</td>
<td>440</td>
<td>880</td>
</tr>
<tr>
<td>2019</td>
<td>381</td>
<td>440</td>
<td>821</td>
</tr>
</tbody>
</table>
Serious (A-Type) Injuries by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Trunkline</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>2286</td>
<td>3412</td>
</tr>
<tr>
<td>2012</td>
<td>2295</td>
<td>3366</td>
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<td>2013</td>
<td>2262</td>
<td>3003</td>
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<td>2014</td>
<td>2084</td>
<td>2796</td>
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<tr>
<td>2015</td>
<td>1999</td>
<td>2851</td>
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<tr>
<td>2016</td>
<td>2360</td>
<td>3262</td>
</tr>
<tr>
<td>2017</td>
<td>2564</td>
<td>3499</td>
</tr>
<tr>
<td>2018</td>
<td>2410</td>
<td>3163</td>
</tr>
<tr>
<td>2019</td>
<td>2406</td>
<td>3210</td>
</tr>
</tbody>
</table>
Local (non-trunkline) Fatalities by Crash Type

**2018**
- Rear End: 5%
- Non-Motorized (Ped/Bike): 17%
- Angle (total non-drive): 21%
- Drive Related: 1%
- Lane Departure: 47%

**2019**
- Rear End: 2%
- Non-Motorized (Ped/Bike): 18%
- Angle (total non-drive): 23%
- Drive Related: 2%
- Lane Departure: 47%
Eligible for Federal safety funds?

Who?
- Any Act 51 agency
  - 83 county road commissions
  - 274 cities
  - 259 incorporated villages
- Tribes (federally recognized)
- Townships (submitted thru their County)

Which Roads?
- Any non-MDOT roadway open to the general public
  - Regardless of National Functional Classification

Does not have to be on the Fed-Aid network
- Regardless of ADT
What type of projects are eligible?
2023 Safety Program (~$15M)

The Call Letter published February 1, 2021
Will be split between HRRR, general HSIP, streamlined systemic HSIP
Applications due May 3, 2021
Selections announced at the end of August (estimated)
Sharing Federal Funds with Local Agencies

- Requirements per State Law – ACT 51
  - 25% of Federal Aid to Local Agencies
  - Equality Across Programs
  - ~$15M annually in local HSIP
Local HSIP Funding Breakdown

$6 M HRRR
- Rural (based on Urban Area Census Boundary)
- Minor/Major Collector or Local (NFC Classification)
- ≥ 1 Fatality or Serious (Type A) Injury

$1.5M Streamlined Systemic
- Specific work types
- Reduced submittal documentation

$7.5 M General HSIP
- Anything that doesn’t fit in the above categories

A conference hosted by...

CEW 2021
County Engineers' Workshop
Maximum Awarded Funds per Agency

- **HSIP**
  - $600,000 cap per project
  - Unlimited applications

- **HRRR**
  - $600,000 cap per project
  - Unlimited applications

- **Streamlined Systemic**
  - $200,000 cap per project
  - Max of 3 applications total
  - Max of 2 applications for the same work type

$1.5 M max per Agency
FY 2022 Selection Results

- **$3.3 M HRRR**
  - 18 *Eligible* applications scored
  - 15 projects selected
  - 83%

- **$0.9M Streamlined Systemic**
  - 7 applications scored
  - 6 projects selected
  - 86%

- **$13.4 M General HSIP**
  - 95 applications scored
  - 48 projects selected
  - 51%
Which types of projects are selected most frequently?
FY 2022 Selected HRRR Projects

<table>
<thead>
<tr>
<th>Treatments in Project Application</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Object Removal</td>
<td>47%</td>
</tr>
<tr>
<td>Signs</td>
<td>27%</td>
</tr>
<tr>
<td>Shoulder Widening</td>
<td>27%</td>
</tr>
<tr>
<td>Rumble Strips</td>
<td>20%</td>
</tr>
<tr>
<td>Flashing Beacons</td>
<td>20%</td>
</tr>
<tr>
<td>Pavement Markings</td>
<td>13%</td>
</tr>
<tr>
<td>High Friction Surface Treatment</td>
<td>13%</td>
</tr>
<tr>
<td>Vertical Curve Modification</td>
<td>7%</td>
</tr>
<tr>
<td>Superelevation Modifications</td>
<td>7%</td>
</tr>
</tbody>
</table>

- Project total cost (not federal share) ranged from $27k - $655k
- Average cost of $242k per project
- Average Time of Return (TOR) of 2.57 years
FY 2022 HRRR – Selected Projects by Federal Share

More than 50% of projects less than $200K

15 Total Projects
Min = $23K
Max = $589K
Average = $206K

Also includes projects on higher end
Streamlined Systemic Eligible Project Types

- Rumble Strips / Stripes
  - Centerline, Shoulder, or both
  - Traditional or ‘Mumble’
- Enhanced Curve Signing
- Edgeline pavement markings
- Dual Stop and Stop Ahead signs
- Signal Backplates
- Countdown ped signals
<table>
<thead>
<tr>
<th>FY 2022 Selected Streamlined Systemic Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rumble Strips / Stripes</td>
</tr>
<tr>
<td>$173k</td>
</tr>
<tr>
<td>Edgeline pavement markings</td>
</tr>
<tr>
<td>$0</td>
</tr>
<tr>
<td>Signal Backplates</td>
</tr>
<tr>
<td>$172k</td>
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</table>
## FY 2022 Selected HSIP Projects

- Project total cost (not federal share) ranged from $10k - $826k
- Average cost of $329k per project
- Average Time of Return (TOR) of 4.70 years

<table>
<thead>
<tr>
<th>Treatments in Project Application</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Signs</td>
<td>23%</td>
</tr>
<tr>
<td>Signal Upgrades</td>
<td>17%</td>
</tr>
<tr>
<td>Non-motorized</td>
<td>15%</td>
</tr>
<tr>
<td>Shoulder Widening</td>
<td>13%</td>
</tr>
<tr>
<td>Roundabouts</td>
<td>13%</td>
</tr>
<tr>
<td>High Friction Surface Treatment</td>
<td>13%</td>
</tr>
<tr>
<td>Fixed Object Removal</td>
<td>8%</td>
</tr>
<tr>
<td>Pavement Markings</td>
<td>6%</td>
</tr>
<tr>
<td>Road Safety Audits</td>
<td>6%</td>
</tr>
<tr>
<td>Rumble Strips</td>
<td>6%</td>
</tr>
<tr>
<td>Guardrail</td>
<td>4%</td>
</tr>
<tr>
<td>Center Left Turn Lane Installation</td>
<td>4%</td>
</tr>
<tr>
<td>Superelevation Modifications</td>
<td>4%</td>
</tr>
<tr>
<td>Signal Optimization / Timing</td>
<td>4%</td>
</tr>
<tr>
<td>Intersection Realignment</td>
<td>2%</td>
</tr>
<tr>
<td>Vertical Curve Modifications</td>
<td>2%</td>
</tr>
<tr>
<td>Road Diet</td>
<td>2%</td>
</tr>
<tr>
<td>Slope Flattening</td>
<td>2%</td>
</tr>
</tbody>
</table>
FY 2022 HSIP – Selected Projects by *Federal Share*

- **48 Total Projects**
  - Min = $8K
  - Max = $600K
  - Average = $278K

Half of projects (50%) less than $250K
FY 2022 Overall Selection

<table>
<thead>
<tr>
<th>Category</th>
<th>Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment</td>
<td>$10,064,687.67</td>
</tr>
<tr>
<td>Intersection</td>
<td>$7,511,216.04</td>
</tr>
<tr>
<td>Signalized</td>
<td>$4,166,565.04</td>
</tr>
<tr>
<td>Stop control</td>
<td>$3,344,651.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>$4,493,454.93</td>
</tr>
<tr>
<td>Urban</td>
<td>$9,537,915.23</td>
</tr>
<tr>
<td>Combo Rural/Urban</td>
<td>$3,544,533.55</td>
</tr>
</tbody>
</table>
Scoring and Selection Process

- Projects are ultimately selected based upon:
  1. Available funding
  2. Project scope in relation to observed crashes and/or reduction of crash risk
  3. Cost-effectiveness
  4. Financial goals

- Applications are scored by a committee
  - Includes representatives from MDOT, FHWA, the County Road Association (CRA), and Michigan Municipal League (MML)
HRRR Eligibility Criteria

NFC = Major Collector, Minor Collector, or Local

Classified as Rural per the area urban census boundary (AUCB).

If any portion of the roadway segment or intersection touches the urban boundary, the roadway is not eligible in the HRRR category.

At least one K/A crash within last 5 years

MDOT-NFC (state.mi.us)
Most common point deductions:

- Missing documents
- Missing ADT info
- Incorrect TOR / HSM
- Including non-applicable UD-10s
- Including maintenance work (common with Guardrail applications)
Required Application Documents (HRRR and HSIP)

- Project Narrative
- Location Map
- Form 1627
- Cost Estimate
- Time of Return (TOR) and/or Highway Safety Manual (HSM) Analysis
- UD-10S (Crash Reports)
Required Application Documents – Project Narrative
Required Application Documents – Location Map
Required Application Documents - Form 1627
Required Application Documents | Cost Estimate

I NEED A BUDGET ESTIMATE FOR MY PROJECT, BUT I DON'T HAVE A SCOPE OR A DESIGN FOR IT YET.

OKAY, MY ESTIMATE IS $3,583,729.

YOU DON'T KNOW ANYTHING ABOUT MY PROJECT.

THAT MAKES TWO OF US.

This Photo by Unknown Author is licensed under CC BY-SA
Required Application Documents

TOR and/or HSM Analysis

- Each crash can only be applied to one CRF
- Crashes vs Injuries
- 3-5 years of data
- Always download the latest version

A conference hosted by...
Required Application Documents

UD-10 Crash Reports
Streamlined Systemic Application
Only 1 Required Document

- Enter basic information
- Choose Project Type from Dropdown
- Enter number of curves (or miles, or intersections, or signal faces, etc)
- Enter locations or simply attach a map
- Enter total project cost

<table>
<thead>
<tr>
<th>STEP 1</th>
<th>Name:</th>
<th>Date:</th>
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<tbody>
<tr>
<td>Local Agency:</td>
<td>Secondary Contact Name:</td>
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</tr>
<tr>
<td>Contact Name:</td>
<td>Secondary Phone Number:</td>
<td></td>
</tr>
<tr>
<td>Phone Number:</td>
<td>Secondary Email:</td>
<td></td>
</tr>
<tr>
<td>Email:</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>STEP 2</th>
<th>Project Type: Horizontal Curve Signing</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>STEP 3</th>
<th>Number of Curves: 5</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>STEP 4</th>
<th>Number</th>
<th>Roadway Name</th>
<th>Nearest Cross Road</th>
<th>PR</th>
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<td>2</td>
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</table>

<table>
<thead>
<tr>
<th>STEP 5</th>
<th>Total Project Cost Estimate</th>
</tr>
</thead>
</table>

This form and, if possible, print it to a PDF. Email either the PDF (preferred) or Excel version of this form to MDOT-DesignLP@michigan.gov. Attach a map of each location if.

Save As PDF

A conference hosted by...

CRA
County Road Association of Michigan

CEW 2021
County Engineers’ Workshop
HRRR and HSIP items to keep in mind:

- Any new Guardrail or Guardrail Endings must be MASH compliant (regardless of NFC).

- Any NEW drive culverts must meet a minimum 1:6 slope from top of pipe to the driveway surface.

- Any NEW culvert end treatments must meet Table 5.1 of the MDOT Drainage Manual.
Adequate Drive Culvert Length

If you see home-made headwalls, it is a clue that the culvert is too short.
Adequate Drive Culvert Length

- Want 1:6 from top of pipe to top of drive
- Proper length leads to traversable slopes
- Helps prevent soil erosion
- Add end sections to culverts ≥ 18 inches

MDOT RDM 12.08.04
NEW REQUIREMENT – FY 2023
SAFETY EDGE

• Required for:
  • Projects involving shoulders that are newly constructed, resurfaced (1 ½’’ or greater) or widened without shoulder corrugations on roadways where the posted speed is 45 mph.
  • May be omitted in developed rural areas where driveway density exceeds 30 access points within ½ mile. The Safety Edge may also be omitted in locations where the shoulder is terminated by valley gutter or curb and gutter.
Safety Edge (per R-110 Series)

- Reduces concerns related to vertical pavement drop off
- Increase edge durability
- Minimal cost when added with a repaving project
Commonly forgotten items:

- Span Wire Tethers when installing signal backplates
Commonly forgotten items:

- RRFB on EACH side of roadway per direction per Interim Approval (IA-21).
Projects that score well:

Data Driven

Focused
Focused / Targeted Projects

- Focus on the observed crash types and crash risks
- Don’t ask for money for non-safety related items
Data Driven

- Network Screening / Risk Based Models
  - LRSP
  - Roadsoft Ranking Tools
  - LOSS maps
  - Excess crashes maps
  - usRAP
  - etc.
Not Sure What Countermeasure to Choose?

Common Safety Countermeasures for Local Agencies

- Quick Reference Guides for Local Agencies
- FHWA Proven Safety Countermeasures
  [Proven Safety Countermeasures - Safety | Federal Highway Administration (dot.gov)]
- CMF Clearinghouse
  [Crash Modification Factors Clearinghouse (cmfclearinghouse.org)]

Roadside Design Improvements at Curves
- Increased clear zone:
  - A 16.7-foot clear zone (increased from 3 feet) can provide a 22 percent reduction in crashes.
  - A 30-foot clear zone can provide a 44 percent reduction in crashes.
- Roadside barriers:
  - Guardrail can be used when fixed objects cannot be removed from the clear zone or if space is limited.

Benefits of Using Enhanced Deliberation and Friction for Horizontal Curves in Michigan
- Chevron signs:
  - 20 percent reduction in crashes on curves.
- High-friction surface treatment:
  - 35 percent fewer wet roadway crashes.

Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections
- Doubled-up, oversized signs (Stop Ahead and Stop).
- Reflective sheeting on sign posts.
- Clearing obstructions that limit sight distance.
- Double-arrow warning sign (for T-intersections).
Have a location but can’t decide on Fix?

- Apply for a Road Safety Audit
  A formal safety performance examination of an existing or future road or intersection by an independent, multi-disciplinary RSA team.

- 80/20 Funding split
2023 Safety Program (~$15M)

The Call Letter published
February 1, 2021

Will be split between HRRR, general HSIP, streamlined systemic HSIP

Applications due
May 3, 2021

Selections announced at the end of August (estimated)
Questions

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517-335-2224