

Request for HSIP Funds by Tippecanoe County

Project: Improvements to the Concord Road (CR
250E) and CR 430S Intersection

Submitted by the Area Plan Commission of Tippecanoe County
September 2015

Tippecanoe County is seeking Highway Safety Improvement Program funds to improve the intersection of Concord Road (CR 250E) and CR 430S. The Tippecanoe County Commissioners have reviewed the safety audit and concur with its findings (attached letter). They have requested HSIP funds for the improvements. The cost estimates, project time line, and agreement to fund all future maintenance can be found below.

1) Addresses SHSP Emphasis Area

Strategic Highway Safety Plan Emphasis Area Targeted:
Emphasis Area 2, Intersection Crashes

2) Needs Analysis

A Road Safety Audit was conducted on June 18, 2015 and a copy of the report is attached. The report includes the following background information: aerial photography, volume counts, functional classification, intersection geometrics, crash history (January 2010 – February 2015), zoning, parcel boundary, and elevation contours. It also includes the team observations, analysis and recommendations.

RSA Observations and Analysis section clearly defined the problems:

- a) Sight distance deficiencies because of elevation changes and vegetation,
- b) Wet pavement issues,
- c) Shoulder widths and radii do not meet current standards, and
- d) Driveway location.

The team recommended the following solutions:

- a) Reconstruct intersection with improved sight distances,
- b) Add passing blister on Concord Road,
- c) Widen travel lanes and shoulders,
- d) Install advanced signage,
- d) Use high friction pavement, and
- e) Construct trail.

It should be noted that the report includes an option to relocate the roadway so it would align with CR 450S. The County is currently exploring that option and may pursue it depending on the outcome of the analysis.

3) Financial Analysis

The following parameters were used in calculating the benefit to cost ratio.

Total Project Cost: \$1,529,062

This amount includes preliminary engineering, right-of-way acquisition and construction. The following table summarizes the cost per phase and amount of federal funds sought.

	Federal	Local	Total
PE	180,000	20,000	200,000
RW	180,000	20,000	200,000
CN	<u>967,671</u>	<u>161,391</u>	<u>1,129,062</u>
Total	1,327,671	201,391	1,529,062

Transportation Alternative funds will be used to build the trail component as a separate project in FY 2021. The trail will extend beyond the intersection, approximately 1,100 to the north and 1,000 feet to the south. It connects to the existing trail along Concord Road and to the trail along CR 450S.

The total cost to construct the trail is \$673,656 with a federal participation of \$209,438.

The following table summarizes the additional parameters used with the HAT software:

	CRF PD	CRF IF	Service Life	Capital Cost	Annual Maintenance	Salvage Cost
Improve Sight Distance	34.0	39.0	20	\$1,041,291	\$5,000	\$0
Passing Blister	28.0	36.0	20	\$275,231	\$1,000	\$0
High Friction Pavement	45.0	30.0	20	\$206,423	\$1,000	\$0
Advanced Warning Signs	40.0	40.0	20	\$1,529	\$1,000	\$0
Remove Fixed Objects	38.0	38.0	20	\$3,058	\$2,000	\$0
Install Larger Stop Signs	19.0	19.0	20	\$1,529	\$1,000	\$0

Source of CRF is located at the end of the request.

A benefit to cost ratio was calculated through the HAT software. When factoring in the cost of engineering, right-of-way and construction, the B/C ratio is 0.91. If only the construction cost was used in the calculation, the ratio is 1.15.

4) Project Development Timeline

Preliminary Engineering: This phase is scheduled to begin this fiscal year.

Right-of-Way: This phase is scheduled to begin in FY 2018

Construction: This phase is scheduled to begin in FY 2019

5) Maintenance of HSIP Installation

Tippecanoe County will maintain the improvements when the project has been completed. Please see the attached letter.

6) Post Construction Safety Evaluation

The Area Plan Commission will perform a post construction evaluation.

Crash Reduction Factor Sources

Improve Sight Distance:

New York State Department of Transportation (NYSDOT)
PIES – Reduction Factor Report
Type: L
Group Code: 41
Group Description: Improve Sight Distance
Description: All Improvement Codes
Page: 11

Passing Blister:

Federal Highway Administration
Desktop Reference for Crash Reduction Factors
Table 2, Geometric Countermeasures
Countermeasure: Install Turn and Bypass Lanes (Left Turn Crashes)

High Friction Pavement:

FHWA Desk Top Administration
Desktop Reference for Crash Reduction Factors
Table 9, Signs/Marking/Operational Countermeasures
Countermeasure: Improve pavement friction (increase skid resistance)

Advanced Warning Signs:

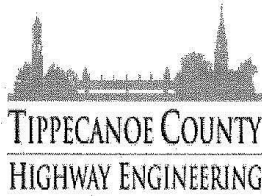
FHWA Desk Top Administration
Desktop Reference for Crash Reduction Factors
Table 3, Signs/Markings/Operational Countermeasures
Countermeasure: Install advance warning signs (positive guidance)
Area Type: Rural

Remove objects & vegetation:

FHWA Desk Top Administration
Desktop Reference for Crash Reduction Factors
Table 8, Roadside Countermeasures
Countermeasure: Remove or relocate fixed objects outside of clear zone

Larger Stop Signs:

FHWA Desk Top Administration
Desktop Reference for Crash Reduction Factors
Table 3, Signs/Markings/Operational Countermeasures
Countermeasure: Install larger stop signs



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August 6, 2015

Mike Holowaty
Safety Programs Manager
Indiana Department of Transportation
100 N. Senate Avenue - Room N955-PL
Indianapolis, IN 46204

Re: Road Safety Audit – CR 250 E and CR 430 S

Dear Mr. Holowaty,

The Tippecanoe County Commissioners and I have reviewed the Road Safety Audit for CR 250 E and CR 430 S in Tippecanoe County. The Audit was conducted on June 18, 2015. We appreciate the effort that all parties put forth to complete the report.


We are already implementing the short term recommendations listed in the Road Safety Audit concerning vegetation, signage, and pavement markings. The Commissioners and I concur with the long term recommendations in the Road Safety Audit. We would like to see the CR 250 E hill on the south approach removed to improve sight distance. This improvement, along with a high friction pavement, signage, and lighting would help to improve the safety of the roadway. The improvements planned at the intersection - additional lanes, wider lanes, a passing blister and signage would increase the awareness and visibility of the intersection. Both the Lafayette Trail Master Plan and the 2040 Metropolitan Transportation Plan call for a multi-use trail at this location so provisions for a trail should be included. Another option that needs explored during the planning stage is the concept of relocating the roadway to align with CR 450 S.

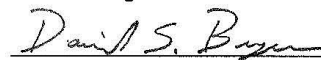
Tippecanoe County is requesting HSIP funds to plan and construct the needed long term improvements at CR 250 E and CR 430 S. Thank you for reviewing this project for the recommended safety improvements. We believe this is a necessary project to improve safety in our county.


Respectfully Submitted,


Opal Kuhl, P.E.
Executive Director
Highway Department

Tippecanoe County Commissioners


Tom Murtaugh


David Byers


Tracy Brown