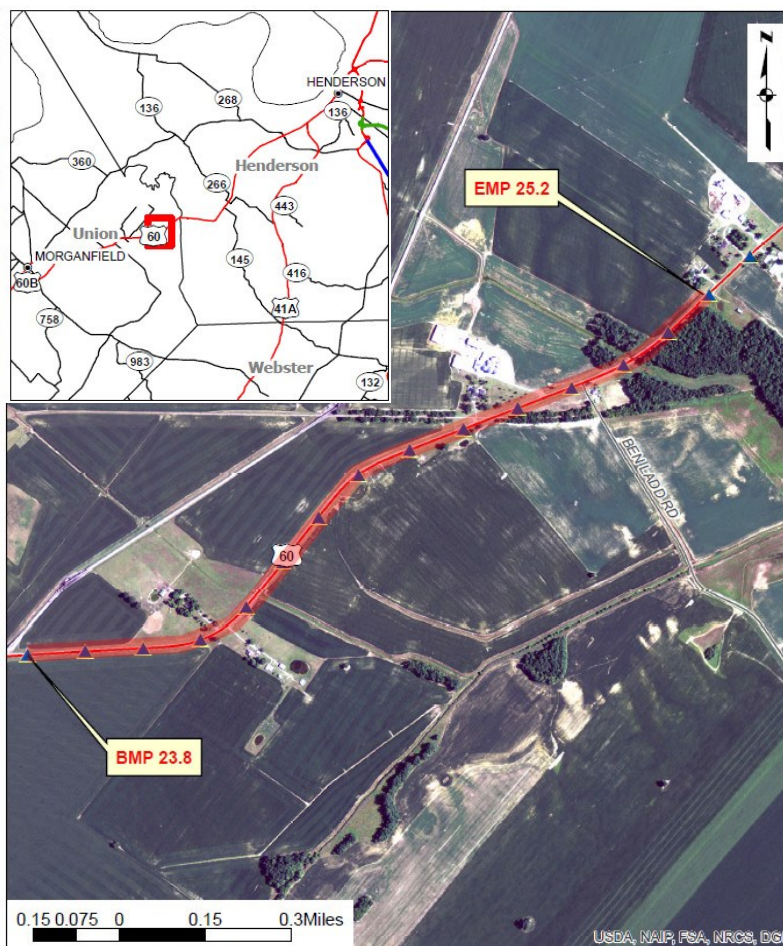
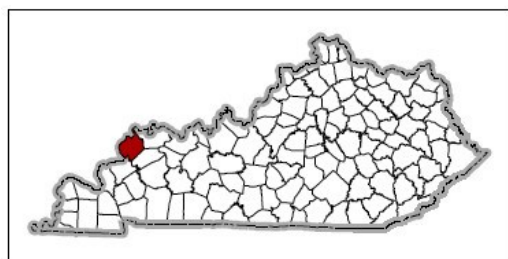


Data

Needs

Analysis



## Scoping Study



Union County—US 60

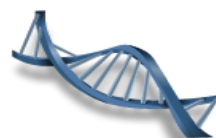
Improve roadway to reduce flooding on US 60 from east of CR1027 to the Henderson County line - MP 23.8 to MP 25.2.

Item No. **2-8955.00**

Prepared by

KYTC District 2

Planning July 2018



## I. PRELIMINARY PROJECT INFORMATION

County:	Union	Item No.:	02-8955.00			
Route Number(s):*	US 60	Road Name:	NA			
Program No.:	9414601D	UPN:	CD01	113	0060	023-026
Federal Project No.:	NA	Type of Work:	033-Reconstruct w/ wider lanes			

## 2018-2020 Highway Plan Project Description:

Improve roadway to reduce flooding on US-60 from east of House Bridge Road (CR-1027) to Union/Henderson County line

Beginning MP:	23.8	Ending MP:	25.2	Project Length:	1.4
In TIP:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <a href="#">Reconcile Project Information in Clearview</a>				
State Class.:	<input checked="" type="checkbox"/> Primary <input type="checkbox"/> Secondary		Route is on:	<input type="checkbox"/> NHS <input type="checkbox"/> NN <input checked="" type="checkbox"/> Ext Wt	
Functional Class.:	<input type="checkbox"/> Urban <input checked="" type="checkbox"/> Rural Arterial ▼		Truck Class.:	AAA ▼	% Trucks: 24.102
MPO Area:	Not Applicable ▼		Terrain:	Rolling ▼	
ADT (current):	5866	(Year)	2017		
Access Control:	<input type="checkbox"/> None <input checked="" type="checkbox"/> Permit <input type="checkbox"/> Fully Controlled <input type="checkbox"/> Partial Spacing: ▼				
Median Type:	<input checked="" type="checkbox"/> Undivided <input type="checkbox"/> Divided (Type): ▼				
Existing Bike Accommodations:	Shared Lane ▼		Ped:	<input type="checkbox"/> Sidewalk	
Posted Speed:	<input type="checkbox"/> 35 mph <input type="checkbox"/> 45 mph <input checked="" type="checkbox"/> 55 mph <input type="checkbox"/> Other (Specify): ▼				
KYTC Guidelines Preliminarily Based on :	55 MPH Proposed Design Speed				

## COMMON GEOMETRIC

Roadway Data:	EXISTING	PRACTICES**	
No. of Lanes	2		<a href="#">Existing Rdwy. Plans available?</a> <input type="checkbox"/> Yes <input type="checkbox"/> No Year of Plans: 1953
Lane Width	12	12	
Shoulder Width	4	8	<input type="checkbox"/> <a href="#">Traffic Forecast Requested</a> Date Requested: ▼
Max. Superelevation***			
Minimum Radius***		965	<input type="checkbox"/> Mapping/Survey Requested Date Requested: ▼
Maximum Grade		5%	
Minimum Sight Dist.		1985	Type: ▼
Sidewalk Width(urban)			
Clear-zone <sup>†</sup>			
Project Notes/Design Exceptions?			

Bridge No.: <sup>‡</sup>	113B0012N	113B0013N	
Sufficiency Rating	81.9	85.1	<a href="#">Existing Geotech Data Available?</a> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Total Length	28.9	45.9	
Width, curb to curb	42	44.3	Detour Length(s): 15.5
Span Lengths	7.9	14.1	
Year Built	1954	1954	
Posted Weight Limit			
Structurally Deficient?	no	no	
Functionally Obsolete?			
Existing Bridge Type	3 span culvert	3 span culvert	

\*If more than one road is included in the project, include additional sheets.

\*\*Based on proposed Design Speed

\*\*\*AASHTO's A Policy on Geometric Design of Highways and Streets

+AASHTO's Roadside Design Guide

‡If more than two bridges are located on the project, include additional sheets.

## II. PROJECT PURPOSE AND NEED

### A. Legislation

This project was in the enacted 2018 Highway plan.

<i>Funding</i>	<i>Phase</i>	<i>Year</i>	<i>Amount</i>
STP	D	2019	\$300,000
STP	R	2023	\$150,000
STP	U	2023	\$250,000
STP	C	2024	\$2,000,000

### B. Project Status

In 2016, this project was created when a spot improvement was identified within the larger project, 2-79.2, reconstruction of US 60 from Waverly to Corydon. This section was broken out to address the high-frequency flooding that results in crashes and/or road closures.

### C. System Linkage

This portion of US 60 provides the shortest AAA truck route connection to Henderson, Evansville, Owensboro and I-69 via KY 425 in Henderson for trucks coming from Illinois across the Shawneetown Bridge and/or coming from Paducah. A 24.102 truck percentage was counted in 2014.

### D. Modal Interrelationships

This route had a truck percentage of 24.102 in 2014 and is the connection to Henderson which has a riverport and airport.

### E. Social Demands & Economic Development

When the roadway floods and has to be closed, motorist commuting to Henderson and Evansville to work experience an increased travel time with added travel distance of approximately 15 miles. An alternate AAA route for economic freight movement in the area is an approximate 40 mile detour.

## II. PROJECT PURPOSE AND NEED (cont.)

### F. Transportation Demand

A 2017 traffic count shows an ADT of 5866. This is a slight decrease from the 2014 ADT of 6085, but over all the trend has remained consistent over the last few years. This is a AAA route and it is vital for the transport of freight and grain to market from the surrounding agricultural area.

### G. Capacity

The scope of work for this project is not to address capacity issues. The 2-79.20 project covers the capacity needs.

### H. Safety

Safety becomes a concern when any roadway floods. Water can rise quickly and be over the road before personnel can get to the location. Flooding does not mean that water is completely over the road either. Water as high as onto the shoulder is of concern, but once it moves into the travel lane and wheel path, then hydroplaning could occur. At this location, there were 12 crashes from 5/13 to 5/17 (see map below in the exhibit section) and four listed wet pavement as a factor. The curve and darkness were also mentioned as contributing factors.

The road is low in this area and is prone to flooding in heavy rains. This sometimes results in the road having to be closed.

<b>III. PRELIMINARY ENVIRONMENTAL OVERVIEW</b>	
<b>A. Air Quality</b> Project is in: <input type="checkbox"/> Attainment area <input type="checkbox"/> Nonattainment or Maintenance Area <input type="checkbox"/> PM 2.5 County STIP Pg. #: SHIFT pg 8 of 44 <span style="float: right;">TIP Pg. #:</span>	
<b>B. Archeology/Historic Resources</b> <input type="checkbox"/> Known Archeological or Historic Resources are present STP funded so needed only if COE water permit needed or obvious issue seen. No known issues seen at this time. If needed, investigation and clearance of archaeology and historic farmland that may be disturbed. Most land along road has been continuously disturbed by agriculture and flooding.	
<b>C. Threatened and Endangered Species</b> Tree removal effect on bat habitat is the primary issue on project. IPaC states no critical habitat within project boundaries. Individual tree removal is still a matter of concern and may require mitigation fees depending on amount removed and time of year removed. Required no matter funding.	
<b>D. Hazardous Materials</b> <input type="checkbox"/> Potentially Contaminated Sites are present <input type="checkbox"/> Potential Bridge or Structure Demolition No seen hazardous materials	
<b>E. Permitting</b> Check all that may apply: <input checked="" type="checkbox"/> Waters of the US <input type="checkbox"/> MS4 area <input type="checkbox"/> Floodplain Impacts <input checked="" type="checkbox"/> Navigable Waters of the US Impacts Are 401/404 Permits likely to be required? <input type="checkbox"/> Yes <input type="checkbox"/> No <span style="margin-left: 20px;">Impacts to:</span> <input type="checkbox"/> Wetlands <input checked="" type="checkbox"/> Stream/Lake/Pond <input checked="" type="checkbox"/> ACE LON <input type="checkbox"/> ACE NW <input type="checkbox"/> ACE IP <input type="checkbox"/> DOW IWQC <span style="float: right;"><input type="checkbox"/> Special Use Waters</span> This is contingent upon disturbance of 2 creeks involved: Branch of Casey Creek and Highland Creek (county line)	
<b>F. Noise</b> Are existing or planned noise sensitive receptors adjacent to the proposed project? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is this considered a "Type I Project" according to <a href="#">KYTC Noise Analysis and Abatement Policy?</a> <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>G. Socioeconomic</b> Check all that may apply: <input type="checkbox"/> Low Income/Minority Populations <input type="checkbox"/> Relocations <input type="checkbox"/> Local Land Use Plan available None.	
<b>H. Section 4(f) or 6(f) Resources</b> The following are present on the project: <input type="checkbox"/> Section 4(f) Resources <input type="checkbox"/> Section 6(f) Resources None	
<b>Anticipated Environmental Document:</b> <span style="float: right;"> <div style="border: 1px solid black; padding: 2px; display: inline-block;">None (Completely State funded) ▼</div> </span>	

#### IV. PROJECT NEED, PURPOSE & SCOPE

**A. Need:**

This section of US 60, a Rural Minor Arterial (and AAA KY truck route) experiences road closures due to frequent flooding. Detours from these occurrences increased travel time and distance for commuter traffic to/from Henderson/Evansville. Also, AAA truck traffic from this route are impacted by an approximate 40 mile detour interrupting commerce.

**B. Purpose:**

The purpose of this project is to improve the roadway to alleviate the flooding issue, therefore alleviating road closures, and improving safety.

**C. Scope:**

The road way needs to be improved along the existing alignment by raising the roadway and/or improving drainage to alleviate the flooding.

V. PROJECT ESTIMATE & METHODOLOGY	
Estimate Methodology:	Current Estimate
The original estimate was based on similar past projects in the district such as 2-237.00. A field visit and closer look has resulted in an increase in both the ROW and utility estimates. The design and Construction estimates remain the same as in the Highway plan.	<u>Phase</u> <u>Estimate</u>
	Planning
	Design                      300,000
	R/W                         300,000
	Utilities                    500,000
	Const                      2,000,000
	<b>Total                      3,100,000</b>
VI. UTILITIES POTENTIALLY AFFECTED - CONTACT INFORMATION	
<p>Union County Water District Contact: Gary Sheffer 409 North Court Street Morganfield, KY 42437 270-389-3868</p> <p>KU Contact: Keith Marks 220 North Main Street Morganfield, KY 42437 270-389-2912</p> <p>Kenergy Contact: Scott Atherton 6402 Old Corydon Road Henderson, KY 42420 270-826-3991</p> <p>AT&amp;T Contact: Glenn Shane 120 Clark Street Henderson, KY 42420 270-831-3025</p> <p>Spectrum Contact: Mike Wisotzkey 30 Oakdale Street Madisonville, KY 42431 270-619-2429</p>	



## VII. TABLES AND EXHIBITS

### Traffic Count Map



### Traffic Count History

#### Historical Traffic Volume Summary

##### Station Details:

Sta ID:	113009
Sta Type:	Full Coverage
Map:	<a href="#">MapIt</a>
District:	2
County:	Union
Route:	113-US-0060 -000
Route Desc:	US-60

Begin MP:	22.6670
Begin Desc:	KY 760
End MP:	26.0690
End Desc:	HENDERSON COUNTY LINE
Impact Year:	
Year Added:	

##### Newest Count:

AADT:	5866
Year:	2017
% Single:	18.0220
% Combo:	6.08
K Factor:	8.60
D Factor:	56

#### Definitions:

Sta. ID - Three digit county number + station number

MP - milepoint

Impact Year - year of significant change to traffic pattern within station segment

AADT - Annual Average Daily Traffic - the annualized average 24-hour volume of vehicles on a segment of roadway

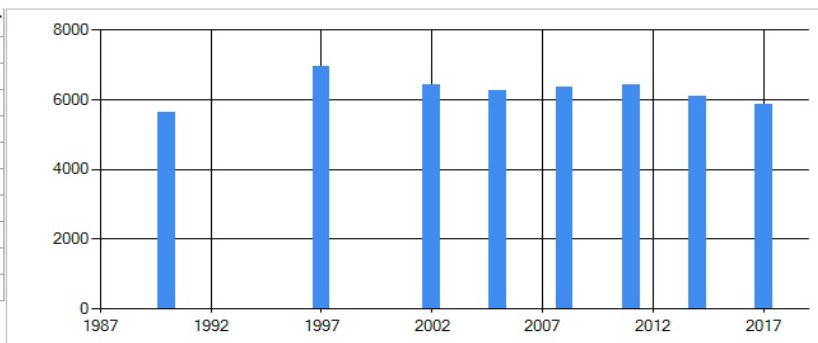
% Single - single unit truck volume as a percentage of the AADT

% Combo - combination truck volume as a percentage of the AADT

K Factor - peak hour volume as a percentage of the AADT

D Factor - percentage of peak hour volume flowing in the peak direction

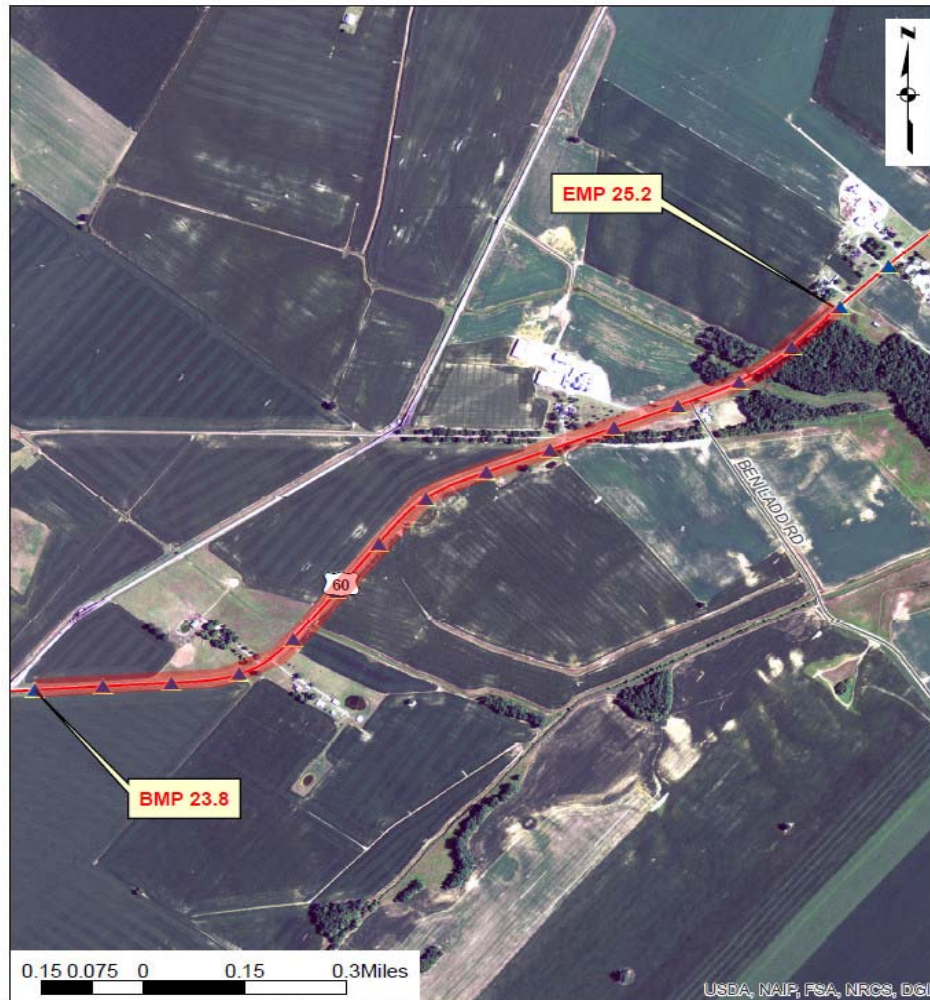
Year	AADT	Year	AADT	Year	AADT
2018		2008	6380	1998	
2017	5866	2007		1997	6970
2016		2006		1996	
2015		2005	6280	1995	
2014	6085	2004		1994	
2013		2003		1993	
2012		2002	6440	1992	
2011	6420	2001		1991	
2010		2000		1990	5650
2009		1999		1989	





## VII. TABLES AND EXHIBITS (cont.)

### Vicinity



### CRASH Locations

