

# Data Needs Analysis



## Scoping Study



Bridge Replacement on  
US 60A Over South Fork  
Beargrass Creek  
Jefferson County  
MP 5.698 to 5.738  
Item No. 5-1064.00

Prepared by the KYTC  
Division of Planning and  
KYTC District 5

February 2013



I. PRELIMINARY PROJECT INFORMATION

County:	Jefferson	Item No.:	5-1064.00
Route Number(s):	US 60A	Road Name:	Eastern Parkway
Program No.:	N/A	UPN:	056 60A 005 - 006
Federal Project No.:	N/A	Type of Work:	Bridge Replacement

2012 Highway Plan Project Description:

Replace bridge on Eastern Parkway (US 60A) over South Fork Beargrass Creek 0.2 mile NE of Poplar Level Rd (KY 864) (SR 43.6) 056B00139N

Beginning MP: 5.698 Ending MP 5.738 Project Length: 0.04 mi

Functional Class.:	<input checked="" type="checkbox"/> Urban <input type="checkbox"/> Rural	State Class.:	<input checked="" type="checkbox"/> Primary <input type="checkbox"/> Secondary
	Arterial	Route is on:	<input type="checkbox"/> NHS <input checked="" type="checkbox"/> NN <input type="checkbox"/> Ext Wt
MPO Area:	KIPDA	Truck Class.:	AAA
In TIP:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	% Trucks:	8.3

ADT (current):	19100 (2010)	Terrain:	Rolling
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 checked="" type="checkbox"/> Sidewalk
Posted Speed:	<input checked="" type="checkbox"/> 35 mph <input type="checkbox"/> 45 mph <input type="checkbox"/> 55 mph <input type="checkbox"/> Other (Specify):		

KYTC Guidelines Preliminarily Based on : 35 MPH Proposed Design Speed

COMMON GEOMETRIC PRACTICES\*

Roadway Data:	EXISTING	PRACTICES*
No. of Lanes	4	4 min
Lane Width	10'	12'
Shoulder Width	0	0
Max. Superelevation**	N/A	8%
Minimum Radius**	707'	314'
Maximum Grade	2%	8%
Minimum Sight Dist.	N/A	250'
Sidewalk Width(urban)	3.8'	4' min/8' desirable
Clear-zone***		

[Existing Rdwy. Plans available?](#)

Yes  No

Year of Plans: 1953

[Traffic Forecast Requested](#)

Date Requested:

Mapping/Survey Requested

Date Requested:

Type:

Project Notes/Design Exceptions?:

\*Based on proposed Design Speed, \*\*AASHTO's A Policy on Geometric Design of Highways and Streets, \*\*\*AASHTO's Roadside Design Guide

Bridge No. *:	056B00139N
Sufficiency Rating	45.9
Total Length	72'
Width, curb to curb	46'
Span Lengths	72'
Year Built	1954
Posted Weight Limit	T1/20T T2/27T T3/34T T4/40T
Structurally Deficient?	Yes
Functionally Obsolete?	No
Existing Bridge Type	Concrete Arch

[Existing Geotech data available?](#)

Yes  No

Detour Length(s): 2.6 mi

\*If more than two bridges are located on the project, include additions sheets.

**II. PROJECT PURPOSE AND NEED**

**A. Legislation**

This project was approved by the General Assembly as part of the Bridge Replacement Program in the 2012 Highway Plan.	Funding	Phase	Year	Amount
	BRO	D	2014	\$250,000
	BRO	R	2015	\$10,000
	BRO	U	2015	\$100,000
	BRO	C	2016	\$850,000

**B. Project Status**

As of the completion date of this report, there are no design funds authorized. There are also no projects within the vicinity of or on Eastern Parkway (US 60A) listed in the Unscheduled Needs List (UNL) or the District Transportation Plan (DTP). Lastly, this project is ready to be advertised and is grouped with two other bridge replacement projects in Jefferson County (5-1061.00 and 5-1068.00). See Alternative 3 for the preferred alternative.

**C. System Linkage**

US 60A is functionally classified as an Urban Minor Arterial (State Primary Route) with a current ADT (2010) of 19100, at the segment where the bridge replacement is proposed. US 60A, also known as "Alt 60", was originally built to bypass the heavily congested downtown Louisville. This route links the western part of Louisville, Shively, to the eastern part, St. Matthews. The segment of Eastern Parkway provides a connection from I-65 to I-64 that bypasses the heavily congested area of "Spaghetti Junction".

**D. Modal Interrelationships**

No airport, rail, or port facilities are served by this route, US 60A. The Louisville transit service, TARC, uses Eastern Parkway (US 60A) for many of its routes. Furthermore, according to louisvilleky.gov, Eastern Parkway is a direct bike route from the area just west of Poplar Level Rd. (KY 864) to the St. Matthews area, but it is not considered a safe route.

**E. Social Demands & Economic Development**

The area surrounding Eastern Parkway is located on the outskirts of the inner city and has saturated population growth with not much land area for future development. US 60A facilitates a connection between many institutions including but not limited to: schools, churches, businesses, and hospitals.

**F. Transportation Demand**

The last actual count for this route is shown in CTS as 18,600 for 2008. FHWA documents the ADT for this location as 19,100 as of 2010. Additionally, CTS gives historical counts for the last 10 years that compares to both current traffic counts and future computer estimates - for example: 19,800 in 2002 and 20,000 in 2011. In conclusion, this justifies that the growth within this particular area has leveled out.

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

### G. Capacity

There are currently no capacity issues with the bridge and none are anticipated.

### H. Safety

Refer to Table 1 and Exhibit 3, shown on page 8 of this report. The collision data shown was drawn from the KY State Police Analysis Database from the dates 1/16/10 - 1/16/13 (3 years). There were a total of 18 collisions within approximately 0.2 miles on each side of the bridge location. A single vehicle collision with injury occurred on the western side bridge approach. Most of the other collisions were rear-end or sideswipe/angle type due to the traffic signal located just east of the bridge at Castlevale Dr.

### I. Roadway Deficiencies

This bridge (056B00139N) has a sufficiency rating of 45.9 and is rated structurally deficient. The four lanes on the bridge measure 10-feet in width which is below the minimum standard of 12-feet. This cannot be changed unless the approaching roadway (US 60A) widens each of its 10-foot lanes to 12-feet. Another deficiency is that sidewalks located on each side of the bridge are only 3.8-feet wide. The minimum design standard is 4-feet. However, there is an 8-foot wide sidewalk (bridge) located parallel to the bridge on the North side which matches standards for a commercial area. There are no other geometric known deficiencies within the project area.

### Draft Purpose and Need Statement:

**Need:** This project is necessary to rehabilitate a four lane bridge (056B00139N) that is structurally deficient. Section loss in the flanges of the two main steel beams, spalling and exposed resteel under the arch, and deterioration of the arch footings have given this bridge a sufficiency rating of 45.9.

**Purpose:** To provide a safe, structurally sound bridge (056B00139N)(single-span arch, 72 feet in length) located at MP 5.718 on US 60A, running over South Fork Beargrass Creek.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

Project is in:  Attainment area  Nonattainment or Maintenance Area  PM 2.5 County  
STIP Pg.#: FY 2011-2014 Ad. Mod. 2010 TIP Pg.#: FY 2011-2015 P. 71 of 80

B. Archeology/Historic Resources

Known Archeological or Historic Resources are present

This concrete arch bridge has been updated with steel beams which would probably eliminate any chance that it would be considered potentially eligible for the National Register of Historic Places (NRHP). The concrete railings are of sufficient integrity that they may be eligible for the NRHP. A section 106 review will be necessary to determine eligibility of structure during design phase.

C. Threatened and Endangered Species

Threatened and endangered species are listed in Jefferson County. The list includes; Indiana bat, Gray bat, Running Buffalo Clover, Interior Least Tern, Clubshell mussel, Fanshell mussel, Fat pocketbook mussel, Ring Pink mussel, Pink Mucket mussel, Orangefoot pimpleback mussel, Sheepnose mussel, Rough pigtoe mussel. There is no potential for T&E habitat in the project area as the area is highly urban with South Fork Beargrass Creek a concrete channel with no instream habitat for freshwater mussels or aquatic invertebrates. No T&E habitat in project area with the exception of a few trees that might be outside of impact area.

D. Hazardous Materials

Potentially Contaminated Sites are present  Potential Bridge or Structure Demolition

Bridge to be demolished and with new bridge to be replaced in same location. Potential for asbestos in the structural component of the bridge concrete as it was poured prior to 1980. An NOI will be required for submittal to the Division of Air Quality for structure demolition.

E. Permitting

Check all that may apply:  Waters of the US  MS4 area  Floodplain Impacts  Navigable Waters of the US Impacts  
Are 401/404 Permits likely to be required?  Yes  No Impacts to:  Wetlands  Stream/Lake/Pond  
 ACE LON  ACE NW  ACE IP  DOW IWQC  Special Use Waters

South Fork Beargrass Creek is a concrete lined perennial stream that will be affected by removal of old bridge and installation of new bridge. It is expected that the project will require a NW 14 LON with no mitigation.

F. Noise

Are existing or planned noise sensitive receptors adjacent to the proposed project?  Yes  No  
Is this considered a "Type I Project" according to the [KYTC Noise Analysis and Abatement Policy?](#)  Yes  No

Bridge replacement projects not typically found to be type I projects unless adding capacity. No noise survey required for this project.

G. Socioeconomic

Check all that may apply:  Low Income/Minority Populations affected  Relocations  Local Land Use Plan available

No anticipated socioeconomic issues with the simple bridge replacement project.

H. Section 4(f) or 6(f) Resources

The following are present on the project:  Section 4(f) Resources  Section 6(f) Resources

No 4(f) issues anticipated unless bridge is found to be eligible for the NRHP, which would then require a programmatic 4(f).

Anticipated Environmental Document:

CE Level 1



IV. POSSIBLE ALTERNATIVES

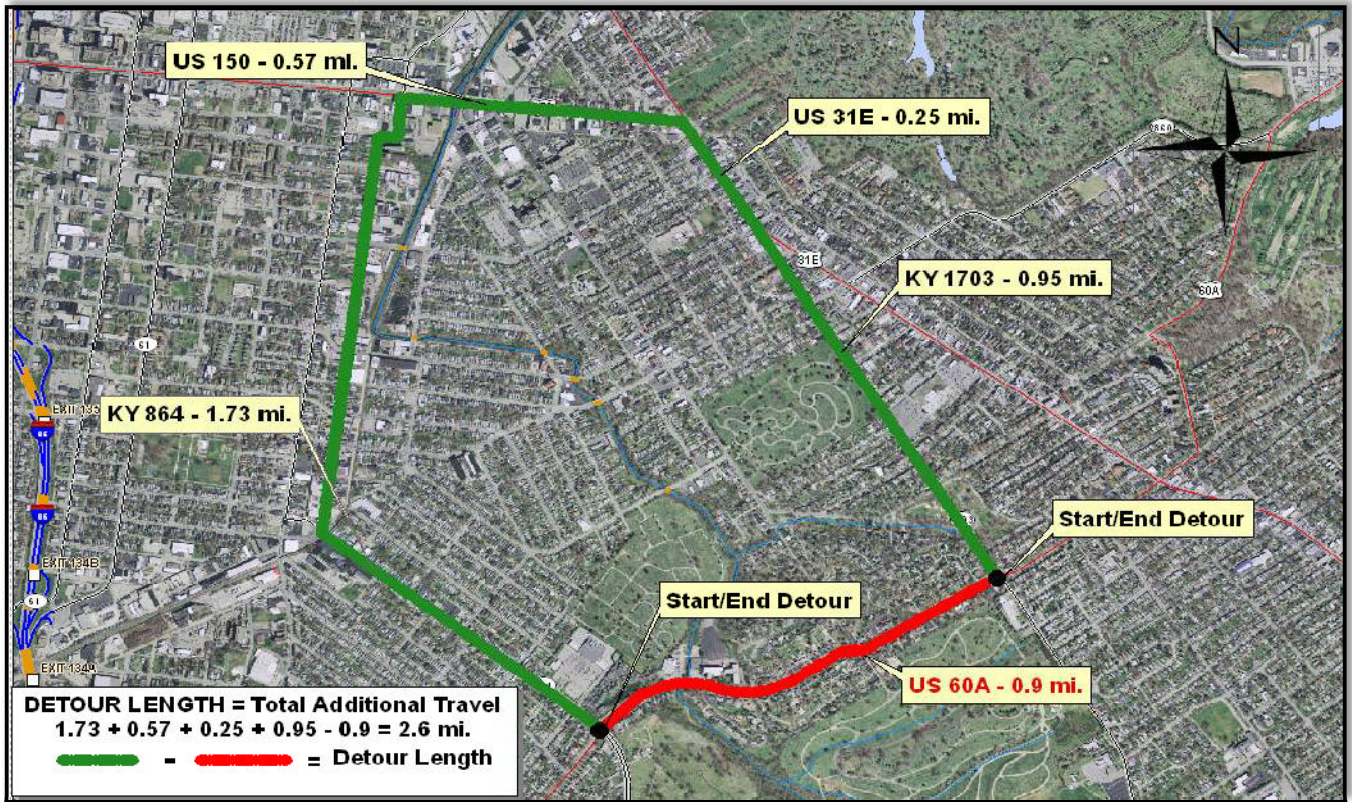
A. Alternative 1: No Build

This alternative should be carried forward but does not meet the purpose and need of the project.

B. Alternative 2

Alternative 2 proposes to replace the bridge in its existing location. In this alternative Eastern Pkwy. (US 60A) would need to be closed at the location of the bridge, and as a result a detour would need to be put in place. This alternative would be the most cost effective with respect to construction and take the shortest amount of time to construct. However, a detour is not desirable for this roadway which experiences an ADT of 19,000+.

Detour Route for Alternate 2



Phase	Estimate
Design	\$200,000
R/W	\$10,000
Utilities	\$180,000
Const	\$1,000,000
<b>Total</b>	<b>\$1,390,000</b>

IV. POSSIBLE ALTERNATIVES (cont.)

C. Alternative 3

Alternative 3 proposes to replace the bridge in its existing location with the use of part width construction. This construction method should not increase the cost of right-of-way and utility phases by any significant amount (or by any amount). However, construction costs would be slightly more compared to Alternative 2, because the method used would result in a later completion date and an increased amount of resources.

Planning Level Cost Estimate:	<u>Phase</u>	<u>Estimate</u>
	Design	\$200,000
	R/W	\$10,000
	Utilities	\$180,000
	Const	\$1,100,000
	Total	\$1,490,000

V. Summary

This is a DNA scoping study for a bridge replacement (056B00139N) located on Eastern Pkwy. (US 60A) over South Fork Beargrass Creek, item number 5-1064.00. After analysis of the roadway's and the bridge's geometrics, reviewing of the last inspection report, and a site visit, the project team has decided that the purpose and need of this project is to improve the safety of US 60A by eliminating the structural deficiency of this bridge. Alternative 3 is the recommended alternative, because it meets the purpose and need of this project and is the most feasible. The highway plan cost estimate does not cover the estimates of all alternatives but does not fall significantly short.

Alt #	Description	D (\$)(Fund)	R (\$)(Fund)	U (\$)(Fund)	C (\$)(Fund)	Total (\$mil)
1	No build	-	-	-	-	-
2	Replace Bridge w/ Detour	\$200,000	\$10,000	\$180,000	\$1,000,000	\$1,390,000
3	Replace Bridge (Part Width Const.)	\$200,000	\$10,000	\$180,000	\$1,100,000	\$1,490,000
-	Current Hwy Plan Estimated Cost	\$250,000	\$10,000	\$100,000	\$850,000	\$1,210,000
-	Current Pre-Con Estimated Cost					

VI. Tables and Exhibits

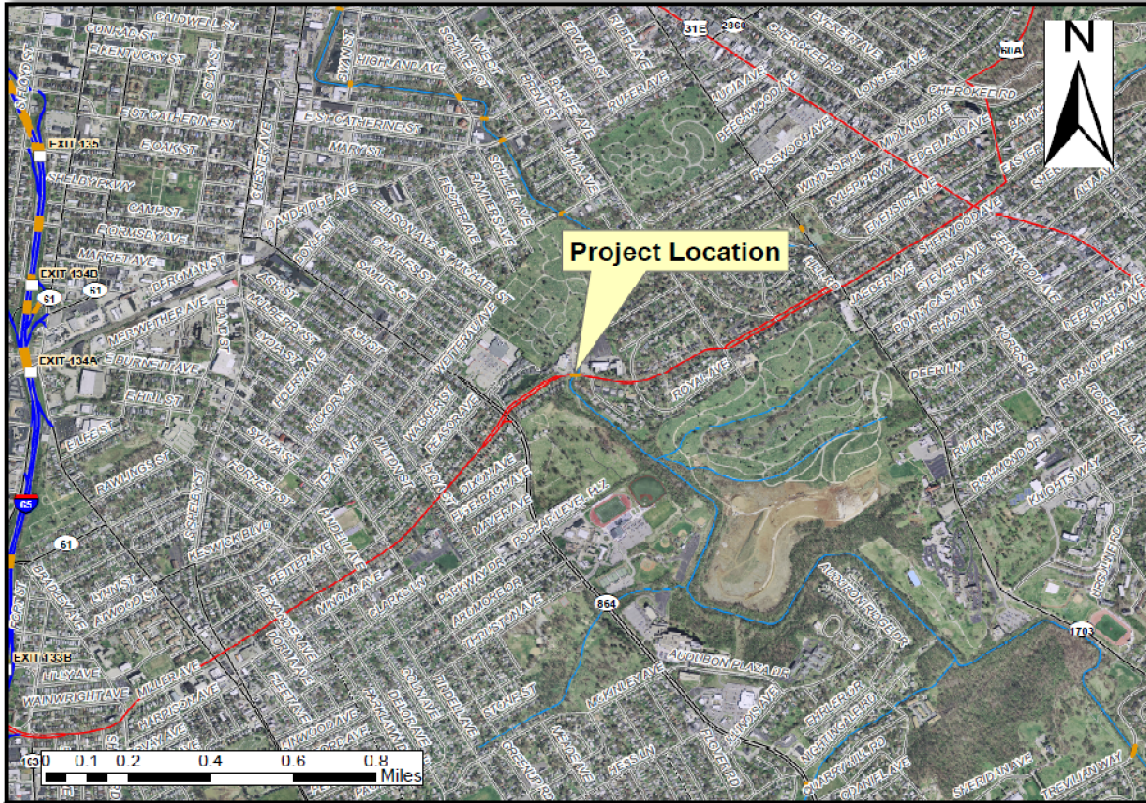


Exhibit 1: Location Map

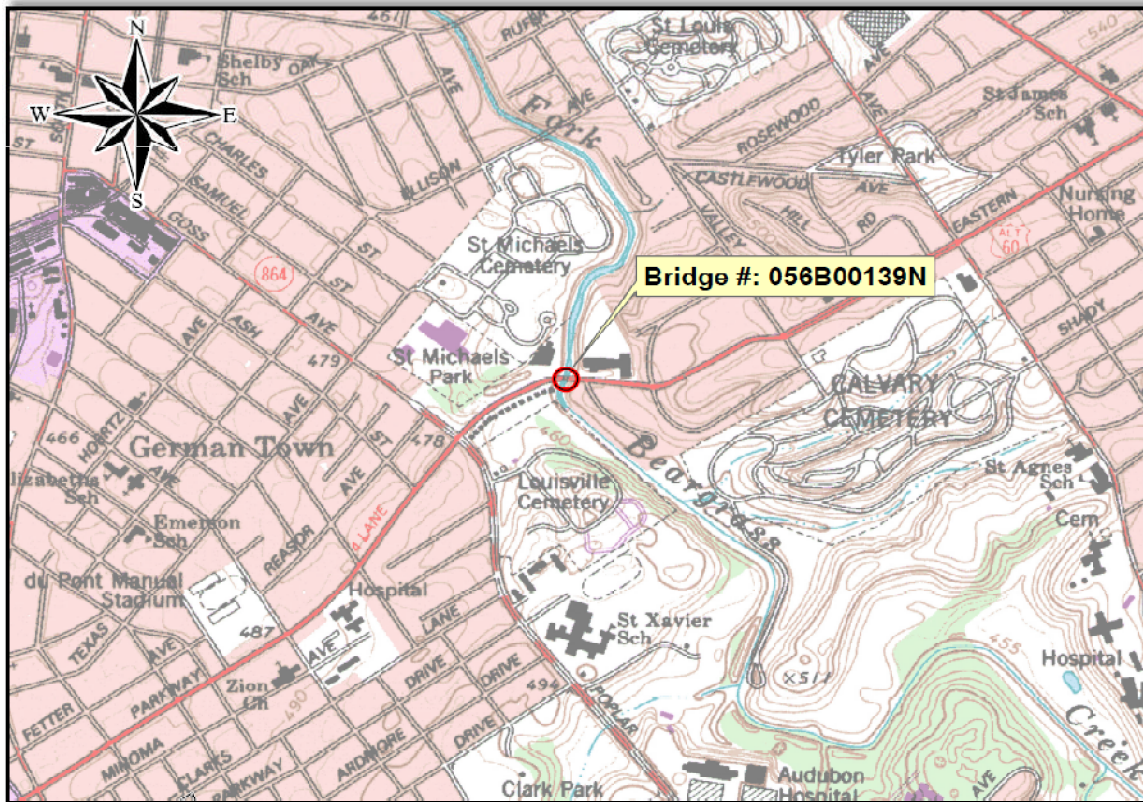


Exhibit 2: Topographic Map



VI. Tables and Exhibits (cont.)

Collision Data: 1/16/10 - 1/16/13

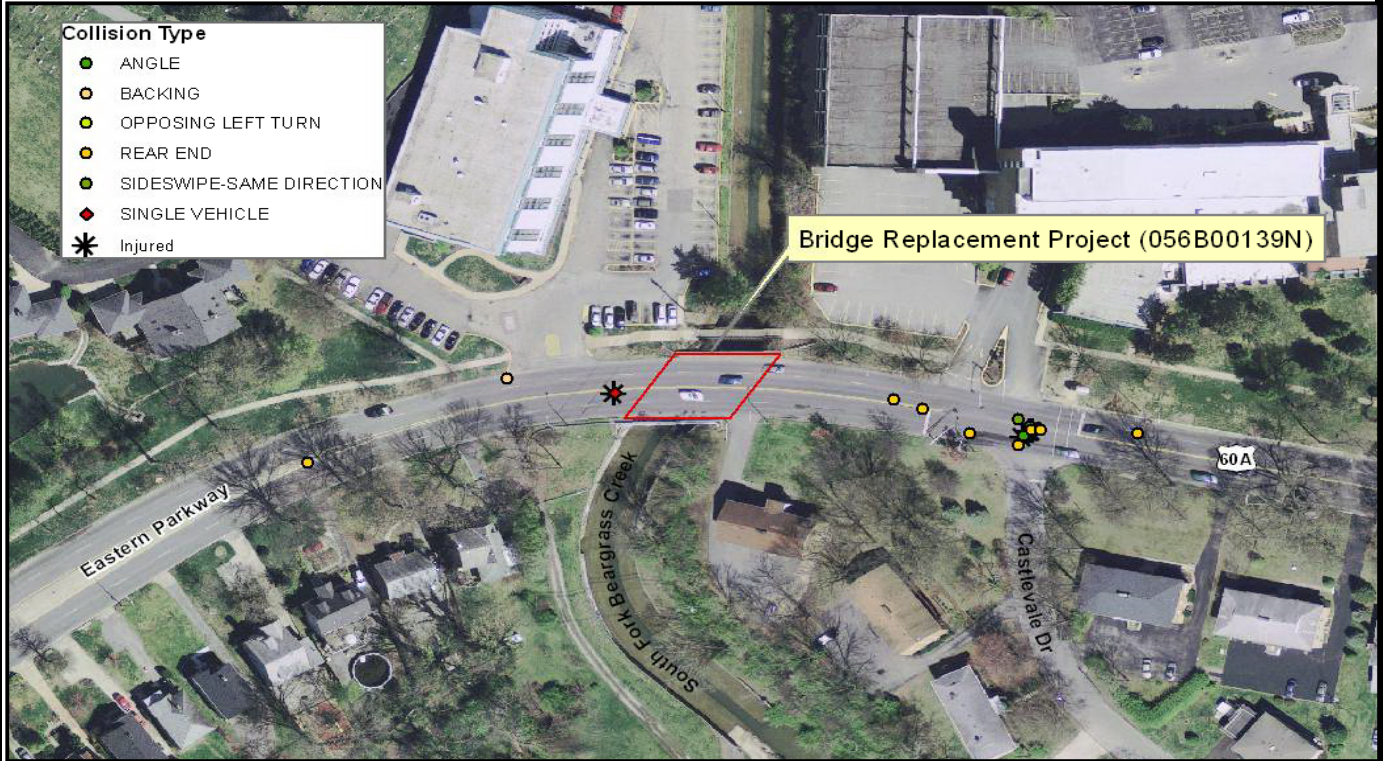


Exhibit 3: Collision Data

MP	COLLISION DATE	TIME	INJURED	WEATHER	LIGHT CONDITION
5.774	6/4/2010	1133	0	CLEAR	DAYLIGHT
5.731	6/7/2010	1652	0	CLOUDY	DAYLIGHT
5.745	10/22/2010	0945	2	CLEAR	DAYLIGHT
5.734	3/23/2011	0813	0	RAINING	DAYLIGHT
5.745	4/11/2011	1415	1	RAINING	DAYLIGHT
5.743	10/3/2011	1612	0	CLEAR	DAYLIGHT
5.744	11/9/2011	1150	0	CLOUDY	DAYLIGHT
5.744	12/15/2011	1145	2	CLOUDY	DAYLIGHT
5.663	4/12/2012	1825	0	CLEAR	DAYLIGHT
5.744	9/28/2012	1531	0	CLOUDY	DAYLIGHT
5.76	10/31/2012	1230	1	CLEAR	DAYLIGHT
5.738	3/20/2012	1702	0	CLEAR	DAYLIGHT
5.701	5/28/2012	0118	1	CLEAR	DARK-HWY LIGHTED/ON
5.746	6/23/2012	1020	0	CLEAR	DAYLIGHT
5.69	6/29/2012	1527	0	CLEAR	DAYLIGHT
5.746	7/24/2012	2152	0	RAINING	DARK-HWY LIGHTED/ON
5.744	9/5/2012	1602	0	RAINING	DAYLIGHT
5.761	10/26/2012	1605	0	RAINING	DAYLIGHT

Table 1: Collision Data

VI. Tables and Exhibits (cont.)



Figure 1: Looking North