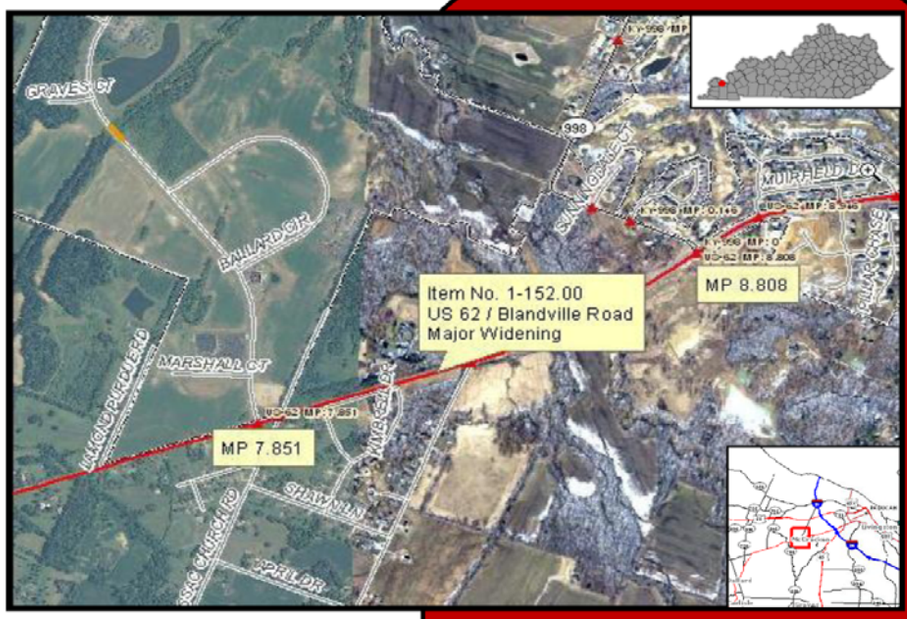
Data Needs Analysis



Scoping Study

US 62
McCracken County
Major Widening
Item No. 1-152.00

Prepared by
KYTC District 1

August 2012

KENTUCKY TRANSPORTATION CABINET

I. PRELIMINARY PROJECT INFORMATION

County:	McCracken	**Item No.:**	1-152.00
Route Number(s):	US 62	**Road Name:**	Blandville Road
Program No.:	86705	**UPN:**	073 0062 007-009
Federal Project No.:	n/a	**Type of Work:**	Major Widening

2012 **Highway Plan Project Description:**

Major Widening of US 62 from KY 998 to Paducah Information Age Park

Beginning MP: 7.851 **Ending MP:** 8.808 **Project Length:** 0.957

Functional Class.: ☑ Urban ☐ Rural

MPO Area: Not Applicable

In TIP: ☐ Yes ☑ No

ADT (current): 6378 (2010)

Access Control: ☐ None ☑ Permit ☑ Fully Controlled ☐ Partial Spacing:

Median Type: ☑ Undivided ☐ Divided (Type):

Existing Bike Accommodations:

State Class.: ☐ Primary ☑ Secondary

Route is on: ☐ NHS ☐ NN ☐ Ext Wt

Truck Class.:

% Trucks: 6.7

Terrain:

Ped: ☐ Sidewalk

Posted Speed: ☐ 35 mph ☐ 45 mph ☑ 55 mph ☐ Other (Specify):

KYTC Guidelines Preliminarily Based on : 55 **MPH Proposed Design Speed**

Roadway Data:	**EXISTING**	**COMMON GEOMETRIC PRACTICES***
No. of Lanes	2	2
Lane Width	10'	12'
Shoulder Width	3' Combination	6' paved + 2' earth
Max. Superelevation**		6%
Minimum Radius**		1060'
Maximum Grade		6%
Minimum Sight Dist.		495
Sidewalk Width(urban)	n/a	n/a
Clear-zone***		30'

Existing Rdwy. Plans available?
☐ Yes ☑ No
Year of Plans:

☑ Traffic Forecast Requested
Date Requested: 7/11/2012

☐ Mapping/Survey Requested
Date Requested:

Type:

Project Notes/Design Exceptions?: No

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

Bridge No.*:	073B00026N	073B00027N	073B00028N
Sufficiency Rating	64.7	62.8	80.5
Total Length	43	151.9	22
Width, curb to curb	27.9	27.9	23.95
Span Lengths	40	35.1	9.8
Year Built	1955	1955	1955
Posted Weight Limit	Open****	Open****	Open****
Structurally Deficient?	No	No	No
Functionally Obsolete?	Yes	Yes	No

Truck Detour Length: 55.4 miles

Existing Geotech data available?
☐ Yes ☑ No

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

****Open, No Restrictions

II. PROJECT PURPOSE AND NEED

A. Legislation

The following funding was listed in the FY 2012 - FY 2018 Highway Plan.

Funding	*Phase*	*Year*	*Amount*
SPP	D	2012	$1,500,000
SPP	R	2014	$2,500,000
SPP	U	2014	$2,500,000
SPP	C	2016	$8,400,000

B. Project Status

Design funds for this project have been requested and authorized.

This project is for the major widening of US 62 from KY 998 to Paducah Information Age Park/McCracken Blvd (from MP 7.851 to MP 8.808).

C. System Linkage

US 62 from KY 998 to Paducah Information Age Park/McCracken Blvd (from MP 7.851 to MP 8.808) is classified as Urban Minor Arterial. It is on the State Secondary system. Please see Exhibit 1 on Page 14 for more detail.

D. Modal Interrelationships

US 62 is rated Truck Class AAA. Current traffic data shows 6.7% truck traffic. US 62 is not a part of any known bike routes in Kentucky.

E. Social Demands & Economic Development

Most of the property along this project is residential, however there is an industrial park entrance located at the beginning of the project (MP 7.851).

It is expected that with the Fall 2013 opening of McCracken County Consolidated High School, the social demand for this roadway will increase substantially.

F. Transportation Demand

The last actual traffic count on US 62 from MP 7.851 to MP 8.808 was in 2010 and showed an ADT of 6378 (this data can be found in CTS). According to the traffic count data shown in CTS, the ADT has been declining since 1995 (there was one slight rise in 2006, but it again returned to declining in 2007). However, with the upcoming opening of McCracken County Consolidated High School (Fall 2013) traffic along this roadway is expected to increase substantially.

A traffic forecast was requested on 7/11/2012.

II. PROJECT PURPOSE AND NEED (cont.)

G. Capacity

Based upon the current traffic count of 6378 ADT (2010), and the roadway geometrics of two 10' lanes with 1.5' shoulders, capacity does not look to be an issue at this time. However, with the expected increase in traffic (please see Section F. Transportation Demand for further explanation) capacity may become an issue with the current roadway geometry in the future.

H. Safety

The collision data was obtained from the Kentucky State Police database for a ten year period from January 1, 2002 to July 27, 2012 and stretching along US 62 from MP 7.851 to MP 8.808 for the project. 25 collisions were found using these criteria. Collision locations can be seen in Exhibit 2 on Page 14. Included in the list of collisions are 8 with injuries, 17 with property damage, and 0 fatalities. 16 of the 25 collisions occurred during daylight hours. 11 of the 25 occurred in wet/slush conditions. 19 of the 25 are listed as having roadway characteristics of straight and level grade. The collisions consist of 13 instances of rear ends, 5 events with fixed objects, 3 instances where the vehicles left the pavement and could not recover, 2 animals, and 2 angled collisions. Please see Table 1 on Page 15 for details.

The CRF for this section of US 62 is 0.571

I. Roadway Deficiencies

The existing roadway on US 62 consists of two 10' lanes with 1.5' shoulders. These findings are consistent with the HIS assessment of two 10' lanes and 3' shoulders (provided that HIS is combining the paved shoulder with some of the earth shoulder in some locations). Since this road is classified as an Urban Minor Arterial, AASHTO's Policy on Geometric Design of Highways and Streets (aka. The Green Book) recommends use of 55mph to match current conditions and using 12' lanes with 8' shoulders (6' paved + 2' earth).

There appears to be 3 Environmental/Drainage issues to address: 2 stream crossings and 1 wetland area.

Depending upon the alternate chosen for this project, there may be a major utility relocation involved with this project.

There are 3 bridges on US62 between MP 7.851 and MP 8.808 that will be effected by this project: 1 bridge culvert at MP 8.377 (073B00028N) (SR 80.5), 1 bridge at MP 8.469 (073B00027N) (SR62.8), and 1 bridge at MP 8.536 (073B00026N) (SR 64.7). Please see Exhibit 3 on Page 15 for location information and Table 2 on Page 15 for details. Also, links to the Bridge Report and Bridge Pictures for each bridge are included at the end of this report under the section Helpful Links on Page 16 for more information.

Draft Purpose and Need Statement:

Need: The roadway along US 62 / Blandville Road needs to be improved due to poor roadway geometrics, future capacity and demand issues, and supportive crash data.

Purpose: The purpose of this study is to identify all necessary concerns involved with the major widening of US 62 / Blandville Road and to improve the reliability of this roadway.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

Project is in: ☑ Attainment area ☐ Nonattainment or Maintenance Area ☐ PM 2.5 County

STIP Pg.#: pg.99 2012-2018 **TIP Pg.#:**

B. Archeology/Historic Resources

☐ Known Archeological or Historic Resources are present

No known archaeological sites are in the project area. Most of current row within project area disturbed by prior construction of US62. Area will require Phase 1 study. The bridges and culvert will require review for eligibility status for sec. 106. No homes or other structures appear to be over 50 years old, but the project area will require sec. 106 review for eligibility status.

C. Threatened and Endangered Species

Cumberlandia monodonta (spectaclecase)SCM(402)(USFWS); Cyprogenia stegaria (fanshell) FSM (403)(USFWS); Epioblasma torulosa torulosa (turbercled blossom) EPTT (424)(KDFWR); Lampsilis abrupta (pink mucket) PMM (409)(USFWS, KDFWR, KSNPC); Obovaria retusa (ring pink) RPM (412)(USFWS, KSNPC); Plethobasus cooperianus (orangefoot pimpleback) OFPM (414)(USFWS, KDFWR, KSNPC); Plethobasus cyphus (sheepnose) SNM (415)(USFWS, KDFWR, KSNPC); Pleuroblema clava (clubshell) CM (416)(USFWS); Pleauroblema plenum (rough pigtoe) RPTM (417)(USFWS); Potamilis capax (fat pocketbook) FPBM(USFWS, KDFWR, KSNPC); Quadrula cylindrica cylindrica (rabbitsfoot) RFM (430)(KDFWR, KSNPC); Sterna antillarum athalassos (interior least tern) ILT (802)(USFWS, KSNPC); Myotis sodalis (Indiana bat) IB (903)(USFWS, KDFWR, KSNPC)

D. Hazardous Materials

☐ Potentially Contaminated Sites are present ☑ Potential Bridge or Structure Demolition

1 culvert and 2 bridges will be replaced and will require asbestos clearance. Project may require acquisition of homes and they will also require asbestos clearances. No other known or suspected UST/Hazmat concerns were found in the project area. Further study by DEA haz/mat SME is required.

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

Project is within the 100 year floodplain. Industrial Park property is within the City of Paducah MS4 limits. Project will impact East Fork of Massac Creek at the bridge crossings and also an unidentified stream at the culvert location. Other stream impacts are possible on the north side of the road depending on the classification of the drainage in that area. Wetlands are present in the project area as shown on the National Wetlands Inventory. A wetland delineation is required on the project.

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

The majority of the noise receptors are to the south of current US62. If a southern alternate is chosen it is highly probable that noise impacts will occur.

G. Socioeconomic

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

Relocations are possible if a southern alternate is chosen. Project is not within a low income/minority population center. Environmental Justice review will be required for those properties affected.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

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

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

No Section 4(f) or 6(f) resources are present.

Anticipated Environmental Document: None (Completely State funded)

IV. POSSIBLE ALTERNATIVES

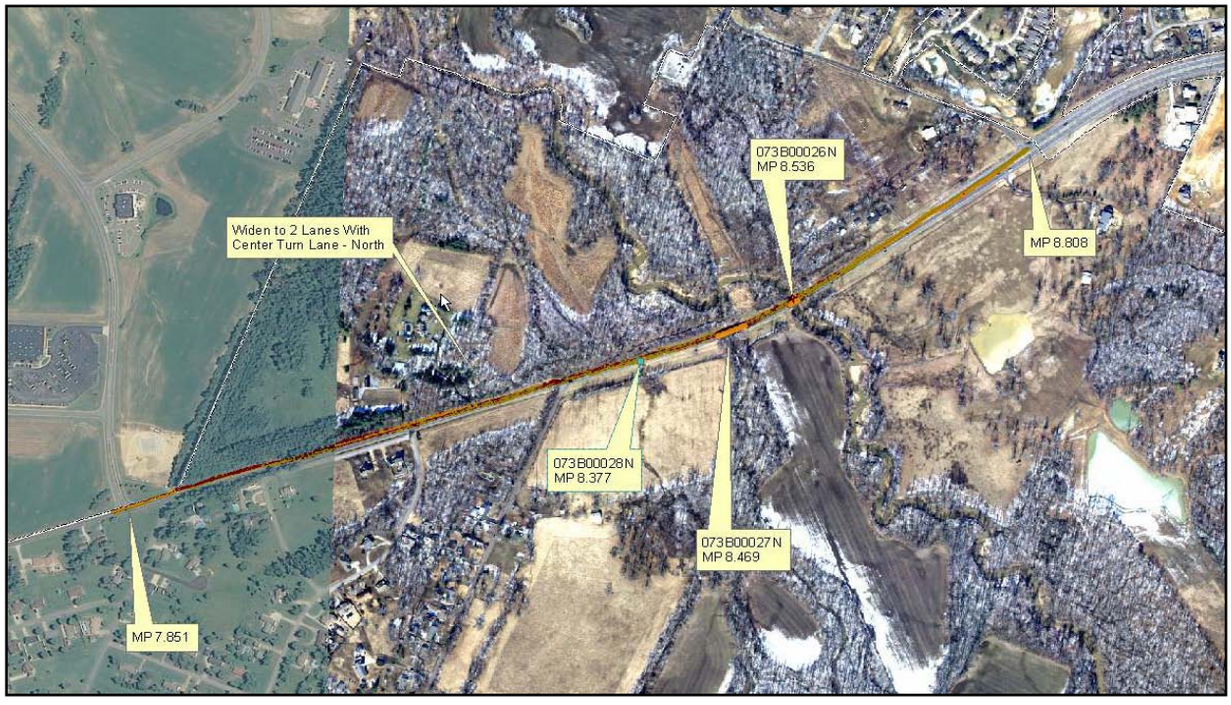
A. Alternative 1: No Build

This alternative may be carried forward, but does not address the needs identified. Future congestion and restriction of this roadway would cause traffic to be redirected and impact local residents.

B. Alternative 2a: Widen to 2 Lanes With Center Turn Lane - North

Widen the two 10' lanes and 1.5' paved and 1.5' earth shoulders to two 12' lanes with 12' center turn lane and 6' paved and 2' earth shoulders utilizing the existing alignment and adding the necessary Right Of Way and Pavement to the North of the existing.

Traffic will remain on existing roadway during construction. A sketch of the proposed project can be seen below.



Planning Level Cost Estimate:

Phase	Estimate	
Design	$1,350,000	*
R/W	$1,500,000	
Utilities	$1,000,000	
Const	$6,650,000	**
Total	**$10,500,000**	

* Design $ 650,000 + Environmental $ 100,000 + Bridges $ 600,000

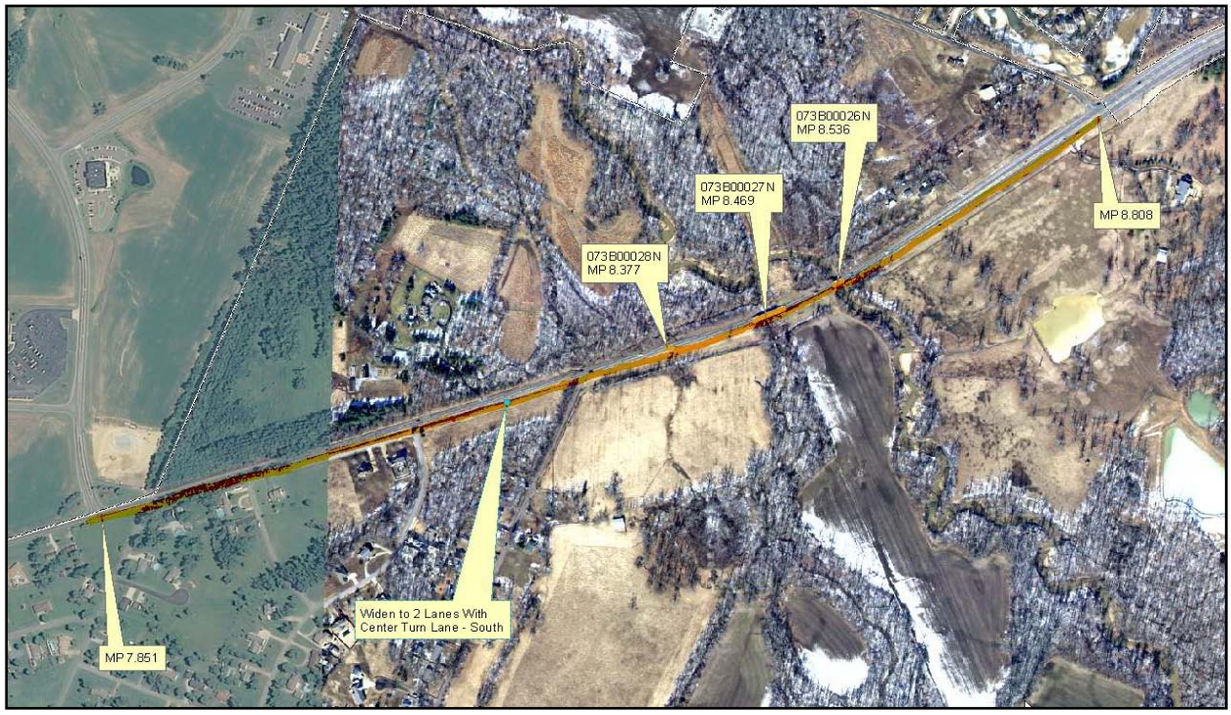
** Construction $ 3,400,000 + Bridges $ 3,250,000

IV. POSSIBLE ALTERNATIVES

B. Alternative 2b: Widen to 2 Lanes With Center Turn Lane - South

Widen the two 10' lanes and 1.5' paved and 1.5' earth shoulders to two 12' lanes with 12' center turn lane and 6' paved and 2' earth shoulders utilizing the existing alignment and adding the necessary Right Of Way and Pavement to the South of the existing.

Traffic will remain on existing roadway during construction. A sketch of the proposed project can be seen below.



Planning Level Cost Estimate:

Phase	Estimate	
Design	$1,350,000	*
R/W	$2,500,000	
Utilities	$2,500,000	
Const	$6,750,000	**
Total	**$13,100,000**	

* Design $ 650,000 + Environmental $ 100,000 + Bridges $ 600,000

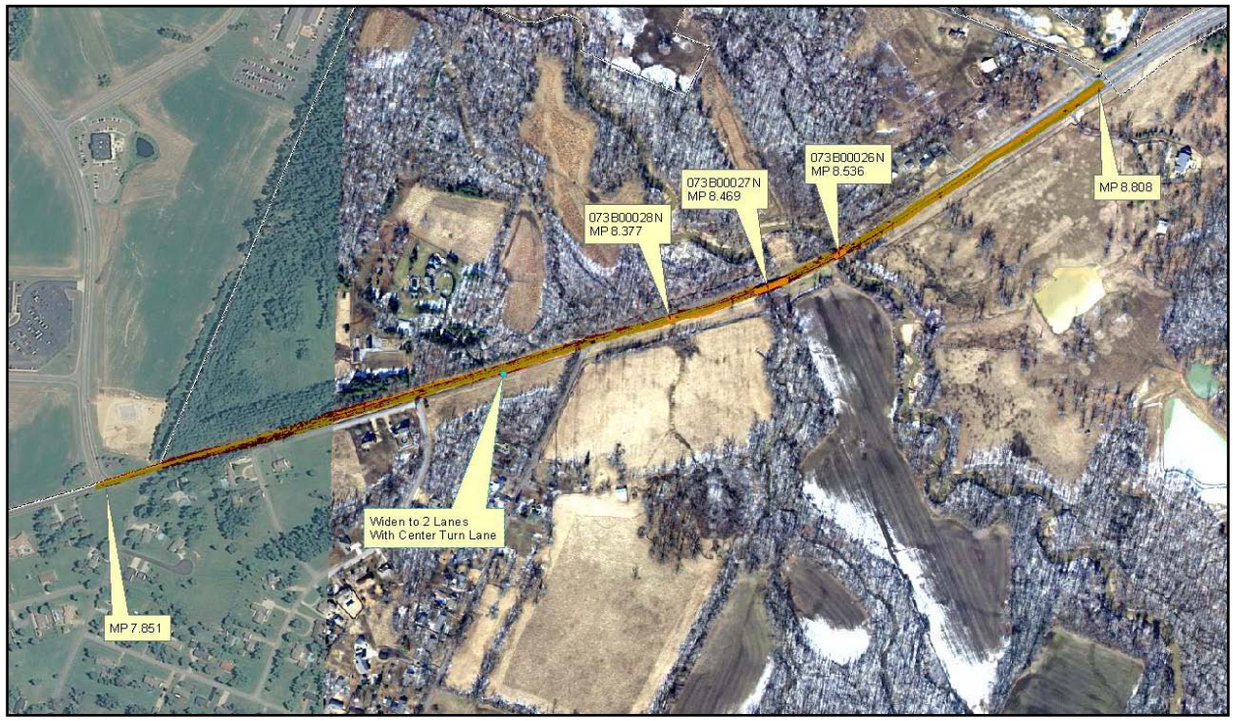
** Construction $ 3,500,000 + Bridges $ 3,250,000

IV. POSSIBLE ALTERNATIVES

B. Alternative 2c: Widen to 2 Lanes With Center Turn Lane - Split

Widen the two 10' lanes and 1.5' paved and 1.5' earth shoulders to two 12' lanes with 12' center turn lane and 6' paved and 2' earth shoulders utilizing the existing alignment and adding the necessary Right Of Way and Pavement on each side of the existing.

Traffic will remain on existing roadway during construction. A sketch of the proposed project can be seen below.



Planning Level Cost Estimate:

Phase	Estimate	
Design	$1,330,000	*
R/W	$2,000,000	
Utilities	$2,250,000	
Const	$6,750,000	**
Total	**$12,330,000**	

* Design $ 650,000 + Environmental $ 80,000 + Bridges $ 600,000

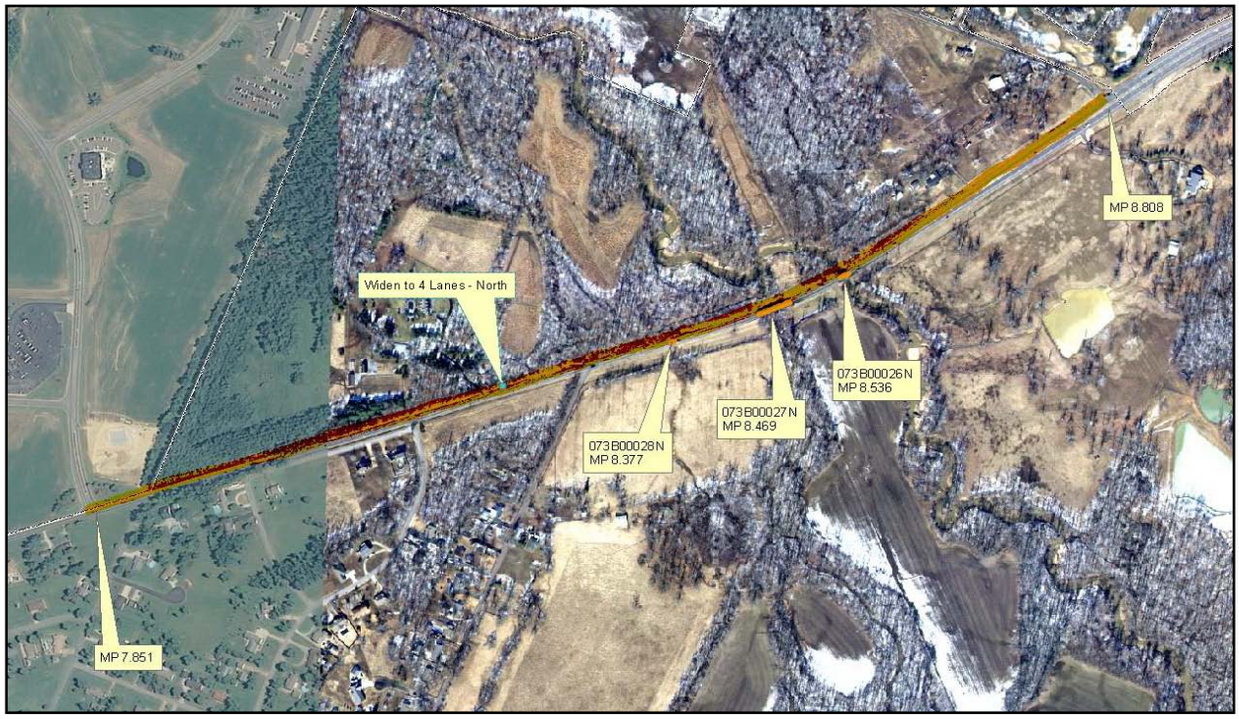
** Construction $ 3,500,000 + Bridges $ 3,250,000

IV. POSSIBLE ALTERNATIVES (cont.)

B. Alternative 3a: Widen to 4 Lanes - North

Widen the two 10' lanes and 1.5' paved and 1.5' earth shoulders to four 12' lanes with 6' paved and 2' earth shoulders utilizing the existing alignment and adding the necessary Right Of Way and Pavement to the North of the existing.

Traffic will remain on existing roadway during construction. A sketch of the proposed project can be seen below.



Planning Level Cost Estimate:

Phase	Estimate	
Design	$1,650,000	*
R/W	$2,000,000	
Utilities	$1,500,000	
Const	$8,050,000	**
Total	**$13,200,000**	

* Design $ 800,000 + Environmental $ 250,000 + Bridges $ 600,000

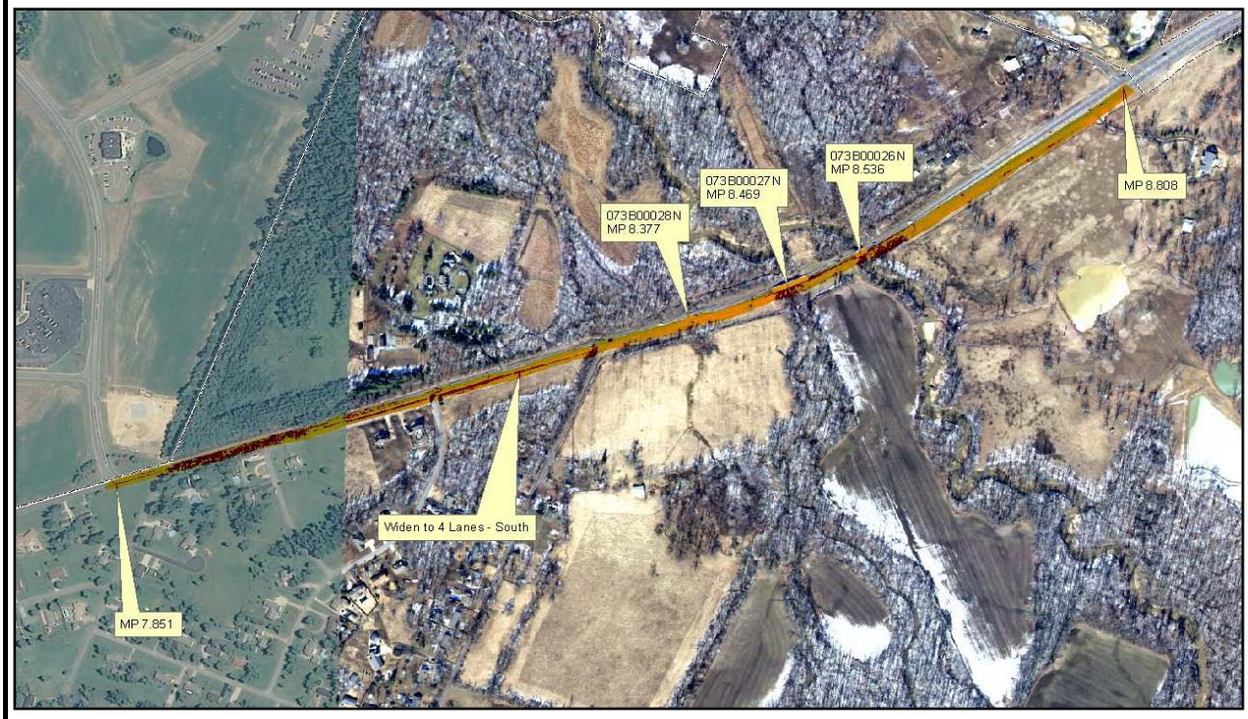
** Construction $ 4,800,000 + Bridges $ 3,250,000

IV. POSSIBLE ALTERNATIVES (cont.)

B. Alternative 3b: Widen to 4 Lanes - South

Widen the two 10' lanes and 1.5' paved and 1.5' earth shoulders to four 12' lanes with 6' paved and 2' earth shoulders utilizing the existing alignment and adding the necessary Right Of Way and Pavement to the South of the existing.

Traffic will remain on existing roadway during construction. A sketch of the proposed project can be seen below.



Planning Level Cost Estimate:

Phase	Estimate	
Design	$1,650,000	*
R/W	$3,000,000	
Utilities	$4,250,000	
Const	$8,150,000	**
Total	**$17,050,000**	

* Design $ 800,000 + Environmental $ 250,000 + Bridges $ 600,000

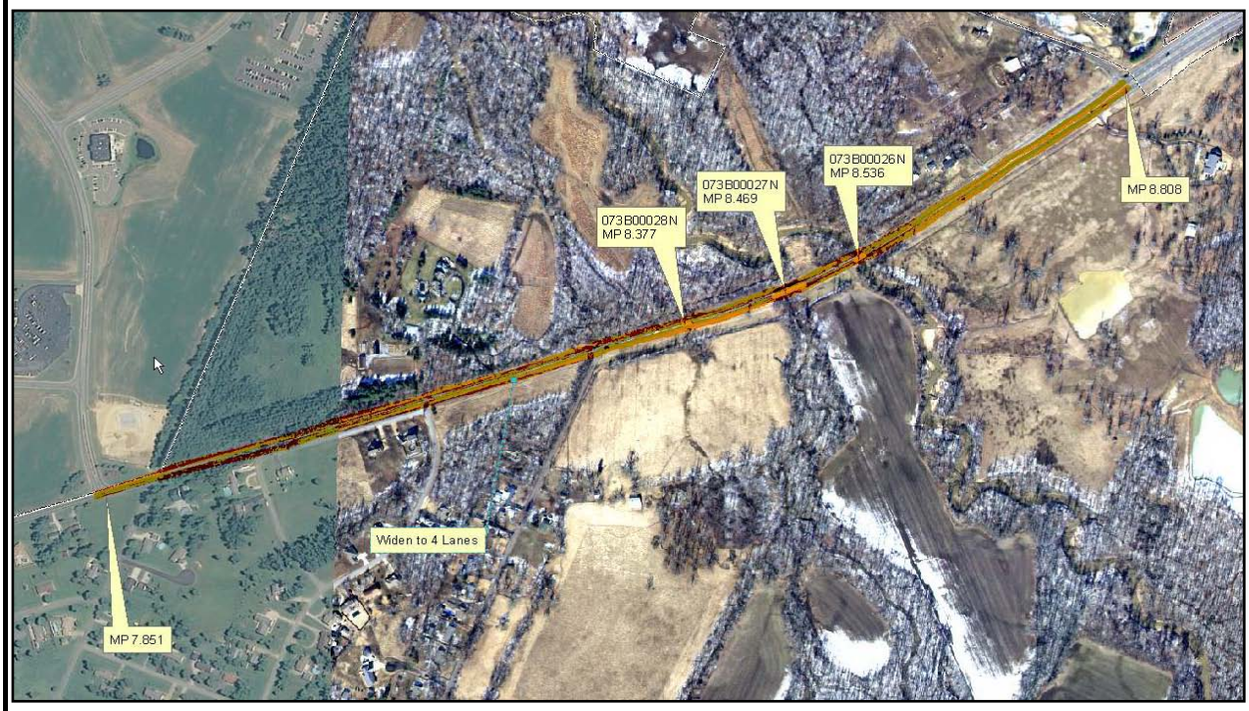
** Construction $ 4,900,000 + Bridges $ 3,250,000

IV. POSSIBLE ALTERNATIVES (cont.)

B. Alternative 3c: Widen to 4 Lanes - Split

Widen the two 10' lanes and 1.5' paved and 1.5' earth shoulders to four 12' lanes with 6' paved and 2' earth shoulders utilizing the existing alignment and adding the necessary Right Of Way and Pavement on each side of the existing.

Traffic will remain on existing roadway during construction. A sketch of the proposed project can be seen below.



Planning Level Cost Estimate:

Phase	Estimate	
Design	$1,600,000	*
R/W	$2,500,000	
Utilities	$2,250,000	
Const	$8,250,000	**
Total	**$14,600,000**	

* Design $ 800,000 + Environmental $ 200,000 + Bridges $ 600,000

** Construction $ 5,000,000 + Bridges $ 3,250,000

V. Summary

This study is a Data Need Analysis (DNA) of a Major Widening project of US 62 / Blandville Road from KY 998 to Paducah Information Age Park/McCracken Blvd (MP 7.851 to MP 8.808) in McCracken County, Item Number 1-152.00. Through analysis of the existing roadway geometrics, crash data, site visits, and discussion with the project team, several needs were identified within the project limits. The following were identified as project needs:

There is a collision pattern within the project limits on US62 / Blandville Road.

US62 / Blandville Road has poor roadway geometrics.

The social demand on US62 / Blandville Road is expected to increase with the Fall 2013 opening of McCracken County Consolidated High School, which will cause not only an increase in Traffic/Transportation Demand, but also a Capacity issue.

The purpose of this study is to identify all necessary concerns involved with the major widening of US62 / Blandville Road in order to improve the capacity and reliability of this roadway.

Included in the alternatives were a (1) no build recommendation, (2a) going over the existing roadway and widening to the North to 2 Lanes with Center Turn Lane, (2b) going over the existing roadway and widening to the South to 2 Lanes with Center Turn Lane, (2c) going over the existing roadway and splitting the widening to both the North and South sides equally to widen to 2 Lanes with Center Turn Lane, (3a) going over the existing roadway and widening to the North to 4 Lanes, (3b) going over the existing roadway and widening to the South to 4 Lanes, and (3c) going over the existing roadway and splitting the widening to both the North and South sides equally to widen to 4 Lanes.

After review of the data and discussion with the project team, it was determined that Alternative 2a, 2 Lane w/ Center Turn Lane - North (going over the existing roadway and widening to the North to 2 Lanes with Center Turn Lane), would best address the purpose and need for the project. The estimate for this alternative ($10.5 million) is well within the funding listed in the current Hishway Plan (see phases D, R, U, and C).

Alt #	Description	D ($)SPP	R ($)SPP	U ($)SPP	C ($)SPP	Total ($mil)
1	No Build	-	-	-	-	-
2 a	2 Lane w/Center Turn Lane - North	1,350,000	1,500,000	1,000,000	6,650,000	10,500,000
2 b	2 Lane w/Center Turn Lane - South	1,350,000	2,500,000	2,500,000	6,750,000	13,100,000
2 c	2 Lane w/Center Turn Lane - Split	1,330,000	2,000,000	2,250,000	6,750,000	12,330,000
3 a	Widen 4 Lane - North	1,650,000	2,000,000	1,500,000	8,050,000	13,200,000
3 b	Widen 4 Lane - South	1,650,000	3,000,000	4,250,000	8,150,000	17,050,000
3 c	Widen 4 Lane - Split	1,600,000	2,500,000	2,250,000	8,250,000	14,600,000
-	Current Hwy Plan Estimated Cost	1,500,000	2,500,000	2,500,000	8,400,000	14,900,000
-	Current Pre-Con Estimated Cost	1,500,000	2,500,000	2,500,000	8,400,000	14,900,000

VI. Tables and Exhibits

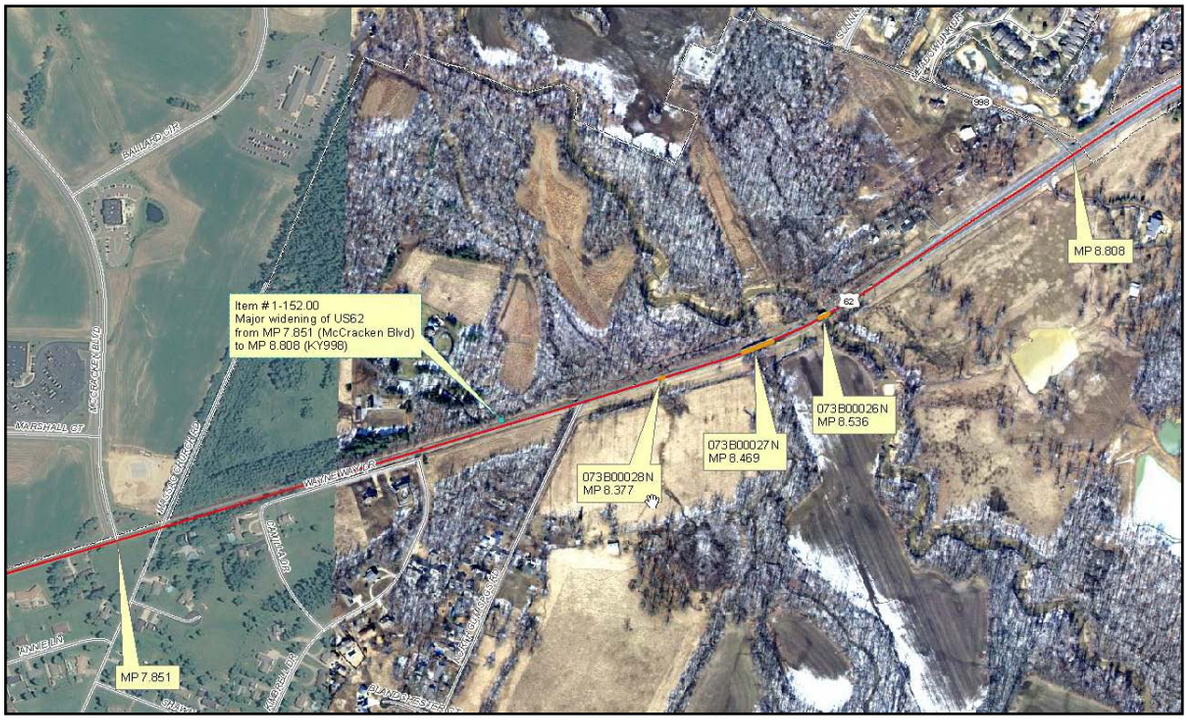


Exhibit 1: Project Location Map

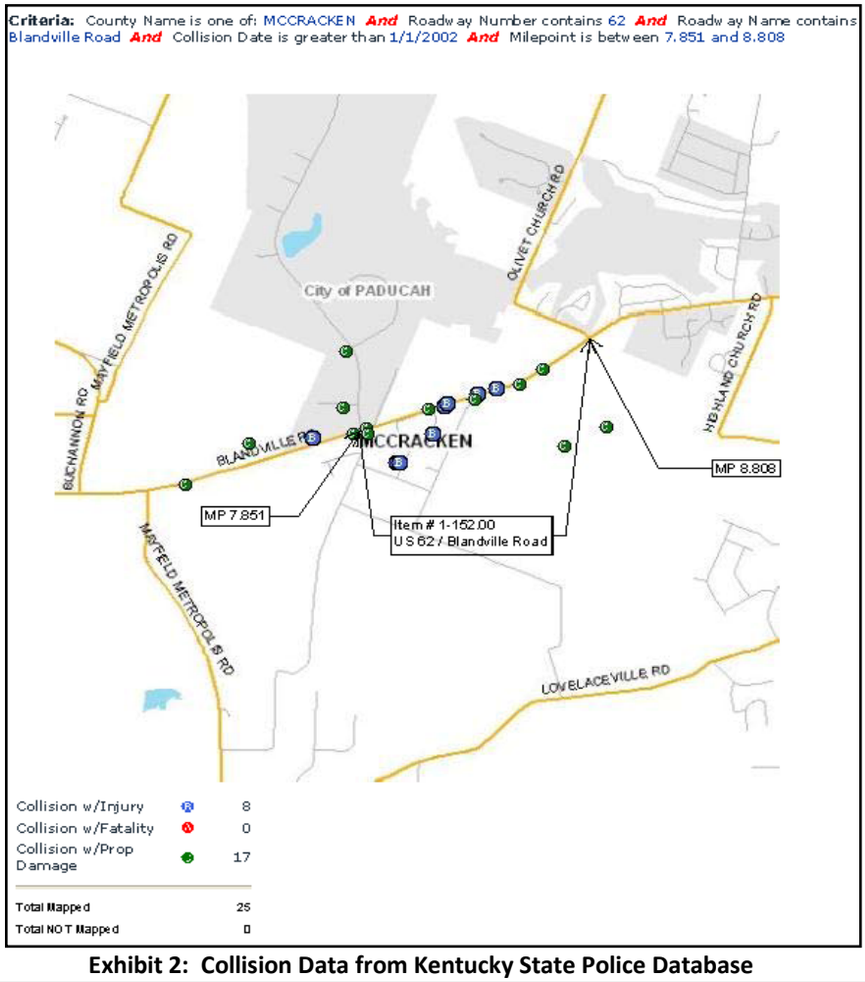


Exhibit 2: Collision Data from Kentucky State Police Database

VI. Tables and Exhibits (cont.)

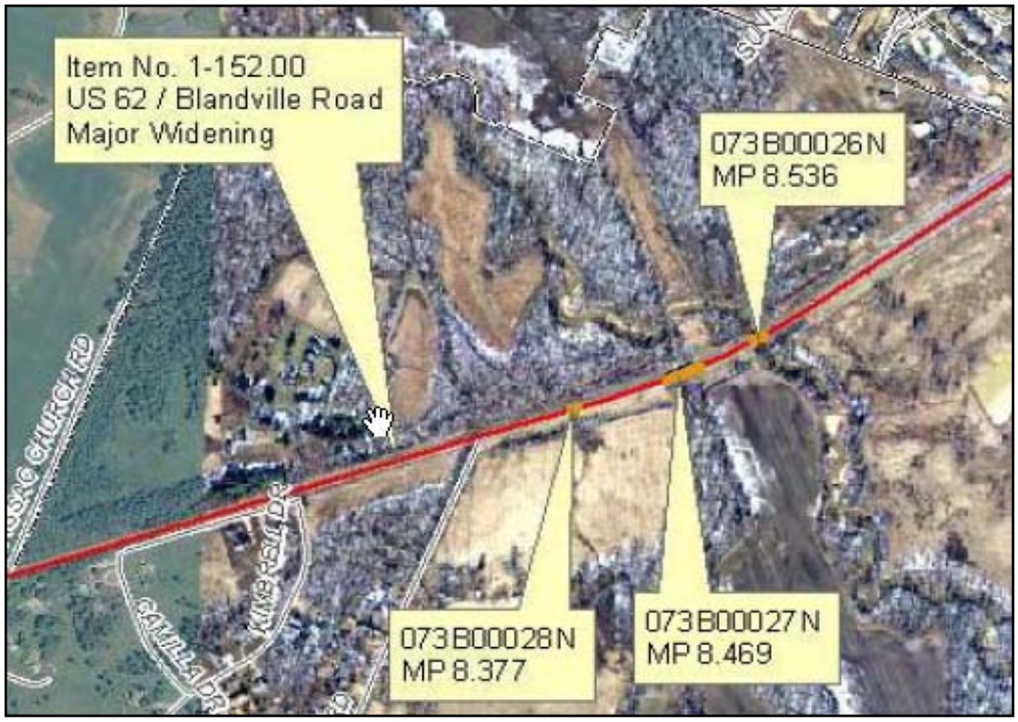


Exhibit 3: 3 Bridge Locations within Project Limits

Tables

Table 1: Manners of Collisions	
Rear Ends	13
Fixed Object	5
Left Pavement	3
Angled Collision	2
Animal	2
Total	**25**

Table 2: Bridges Effected		
BRIDGE #	MP	SR
073B00026N	8.536	64.7
073B00027N	8.469	62.8
073B00028N	8.377	80.5

Helpful Links:

Projectwise folder containing all DNA Study documents: Studies

Bridges:	073B00026N	073B00026N - Bridge Report.pdf 073B00026N - Bridge Pictures.pdf
	073B00027N	073B00027N - Bridge Report.pdf 073B00027N - Bridge Pictures.pdf
	073B00028N	073B00028N - Bridge Report.pdf 073B00028N - Bridge Pictures.pdf

Collision Data: 152 Collision Data.accdb

No Geotech Report: No Geotech Data.pdf

Traffic Forecast: Not yet available

(A printed version of these documents can be made available to those without Projectwise access.)