

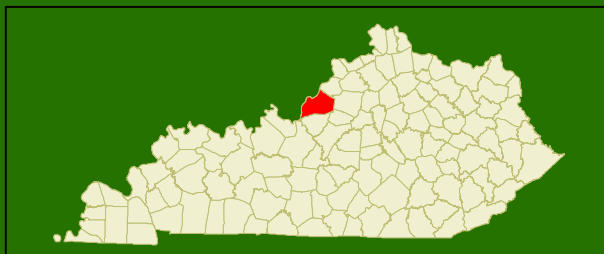
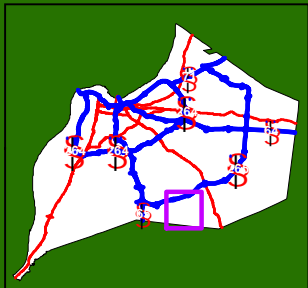
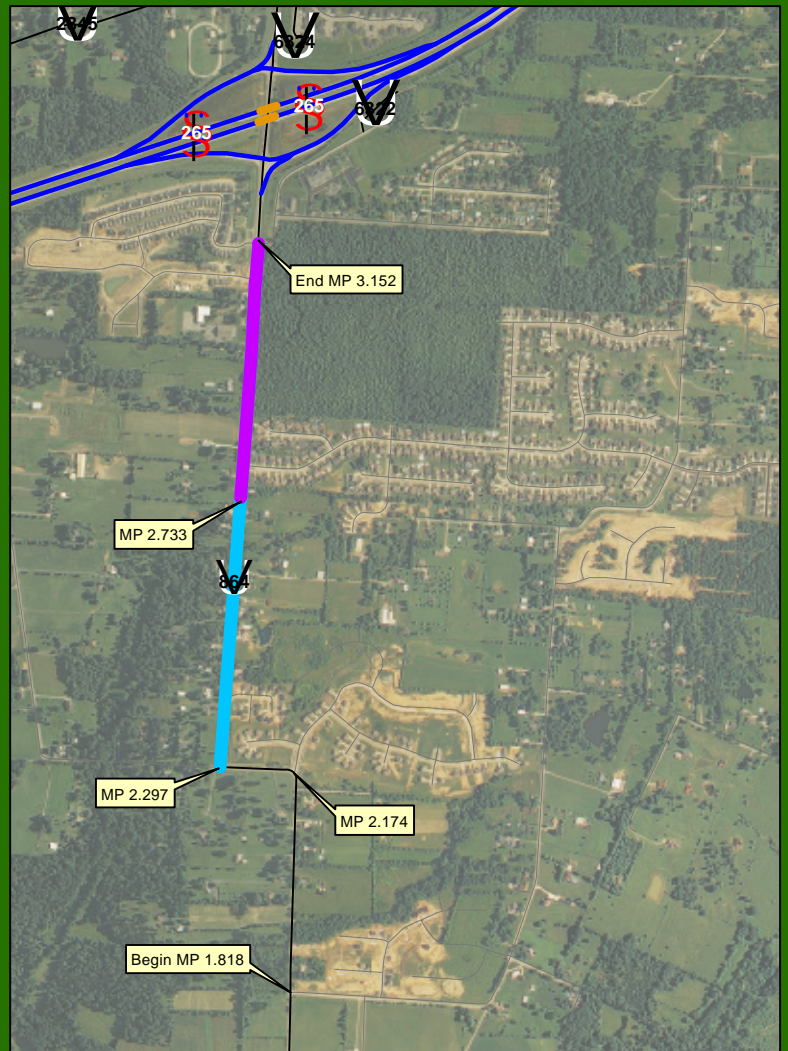
Data Needs Analysis

Final Report

KY 864
Jefferson County
From Cedar Creek Road to I-265
Item No. 5-481.00

Prepared by the KYTC
Division of Planning

July 2012



I. PRELIMINARY PROJECT INFORMATION

County: Jefferson Item No.: 5-481.00
Route Number(s): KY 864 Road Name: Beulah Church Road
Program No.: 86313 01D UPN: FD52 056 0864 001-004
Federal Project No.: STPM 8743 004 Type of Work: Widening

2012 Highway Plan Project Description:

KY 864 - Widen Beulah Church Road from 2 to 3 lanes from I-265 to Cedar Creek Road

Beginning MP: 1.818 Ending MP: 3.152 Project Length: 1.334

Functional Class.: ☒ Urban ☐ Rural State Class.: ☐ Primary ☒ Secondary
Collector ☐ NHS ☒ NN ☐ Ext Wt

MPO Area: KIPDA

Truck Class. AAA

In TIP: ☒ Yes ☐ No

% Trucks: 3.7

ADT (current): 7020

Terrain: Rolling

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

Median Type: ☒ Undivided ☐ Divided (Type):

Existing Bike Accomodations: Shared Lane ☐ Ped: ☐ Sidewalk

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

KYTC Guidelines Preliminarily Based on : 35 MPH Proposed Design Speed

COMMON GEOMETRIC

Roadway Data:	EXISTING	PRACTICES*	
No. of Lanes	2	Min. 2	Existing Rdwy. Plans available? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Lane Width	11 ft	12 ft	
Shoulder Width	3 ft	8 ft	Year of Plans:
Max. Superelevation**		4%	<input checked="" type="checkbox"/> Traffic Forecast Requested
Minimum Radius**		371 ft	Date Requested: 5/8/2012
Maximum Grade	6.5 - 8.4%	5%	<input type="checkbox"/> Mapping Requested
Minimum Sight Dist.		250 ft	Date Requested:
Sidewalk Width(urban)	4 ft: MP 2.174 - 2.445, MP 3.095 - 3.152	Min. 4 ft	Type:

Clear-zone***

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.*: (Bridge #1) (Bridge #2)

Sufficiency Rating

Total Length

Width, curb to curb

Span Lengths

Year Built

Posted Weight Limit

Structurally Deficient?

Functionally Obsolete?

[Existing Geotech data available?](#)
☐ Yes ☒ No

II. PROJECT PURPOSE AND NEED

A. Legislation

This project is not listed in the 2012 General Assembly's Enacted Highway Plan. It is programmed in KIPDA's 2011-2015 Transportation Improvement Program with KIPDA ID 1879.	<i>Funding</i>	<i>Phase</i>	<i>Year</i>	<i>Amount</i>
	SLO	D	2012	\$700,000

B. Project Status

Design funds for this project have been authorized. Item 5-404.01 is currently in Phase II design and would extend Cooper Chapel Road to the east from Beulah Church Road to Bardstown Road. See **Exhibit 3** for a map of the corridor showing the preferred alternative. There are also two projects on the Unscheduled Projects List (UPL) that call for widening on KY 864 from two to three lanes from Mt. Washington Road to I-265, for accomodation of all modes of transportation including bicycles and pedestrians. See **Exhibit 1** for a map of the project area for Beulah Church Road (KY 864).

C. System Linkage

This segment of KY 864 connects the rapidly growing residential communities in south Louisville to I-265 (the Gene Snyder Freeway) before continuing downtown. It is classified as an Urban Collector. The classification is not likely to change as a result of the minor widening from this project.

D. Modal Interrelationships

The section of KY 864 north of Arbor Manor Way is used as part of a bicycle route in Kentucky. McNeely Lake Park is also to the west, off Cedar Creek Road. As a result, bicyclists often travel along KY 864.

E. Social Demands & Economic Development

As the city of Louisville continues to expand away from downtown, residential growth has occurred and will continue to occur both along this route and to the south. A new fire station, Hillview Fire District Station 3 has recently been constructed on Cedar Creek Road at the intersection of Justice Way, just south of the study limits. Louisville Bible College relocated in 1990 to the northern study limits and there are numerous commercial and retail developments to the north that generate traffic. Additionally, the McNeely Lake Park Master Plan includes ongoing actions to improve connections within and through the park.

F. Transportation Demand

The last actual traffic count for this route from CTS is 7,020 in 2010. Over the past nine years, traffic has increased approximately 250% from 2,760 in 2001 due to residential growth along the southern portion of the study limits and to the south, toward Mt. Washington in Bullitt County.

II. PROJECT PURPOSE AND NEED (cont.)

G. Capacity

Although the traffic count data is the same for this entire section of KY 864, the Gene Snyder Freeway (I-265) is the intersection directly north of the study limits at Rocky Lane (MP 3.152). North of I-265 the route becomes more commercial than residential. The current volume to capacity (v/c) ratio is 0.37 and the LOS is D along the study area. The only traffic signal in the vicinity is just north of the study limits, at the ramps for the Gene Snyder Freeway. Continued residential development in the future and the extension of Cooper Chapel Road could impact the capacity of the roadway.

H. Safety

Collision locations can be seen in **Exhibit 2**. There were 12 total collisions including 0 fatality and 2 injury crashes. The Critical Rate Factor (CRF) along the route is 0.26. One-third (4/12) of the collisions were single vehicle crashes, and one-fourth (3/12) were angle collisions. One-third (4/12) of the crashes were at the intersection of KY 864 and Adams Run Road. Additionally, nearly half (5/12) of the crashes occurred at night or at dusk.

Collision data was obtained from the Kentucky State Police database for a three year period from January 1, 2009 to December 31, 2011 for the project limits.

I. Roadway Deficiencies

The route is classified as an Urban Collector Street. There are two undivided 11-ft lanes throughout. In the residential section from Cedar Creek Road (MP 1.818) to Arbor Manor Way (MP 3.095), shoulders are 3-ft. For the commercial portion, from Arbor Manor Way to Rocky Lane (MP 3.152), paved 8-ft shoulders are present. KYTC's Common Geometric Practices for Urban Collector Streets recommends 11-ft lanes throughout, with 4-ft sidewalks in the residential portion and 8-ft sidewalks in the commercial area. 4-ft sidewalks are present on one side of the route from Hornbeam Boulevard (MP 2.174) to just past Trotter Trace (MP 2.411). 4-ft sidewalks also exist in the commercial portion, beginning prior to Arbor Manor Way (MP 3.095). Additionally, KYTC's Common Geometric Practices for Urban Collector Streets recommends 10-ft wide turning lanes. There are no turning lanes on this section of KY 864. The existing alignment satisfies the minimum criteria for horizontal curvature and grade, with the exception of the 90° intersections that were originally constructed along farmland boundaries at Hornbeam Boulevard (MP 2.174) and Cooper Chapel Road (MP 2.297). As a result, both of these intersections are stop controlled. All intersections along the studied portion are non-signalized, and there are several access points.

Draft Purpose and Need Statement:

Need: KY 864 is an urban collector with many access points and carries traffic from growing residential suburbs to the Gene Snyder Freeway (I-265) and downtown. Growth is expected to continue. Currently Cooper Chapel Road is in design to extend to Bardstown Road (US 31E), which will bring additional traffic to the route.

Purpose: The purpose of this study is to address the increasing traffic demand in a rapidly developing section of Louisville in an effort to improve access, safety and mobility.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

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

STIP Pg. #: FY 2011-14 Admin. Mod. #2010.148 pg 3 **TIP Pg. #:** pg 32 in Sept. 2011 Comprehensive Proj., KIPDA 1879

PM 2.5 coordination with the IAC group and MSAT statement would be required for this project.

B. Archaeology/Historic Resources

☐ Known Archeological or Historic Resources are present

It is anticipated that much of the area is previously disturbed by road, residential, and utility construction and the likelihood of impacting an archaeological site is very low. Some homes in the project area are over 50 years old and would require an architectural historian to review for potential eligibility for the NRHP.

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, and rough pigtoe mussel. The potential for T&E habitat in the project area exists for the two bat species and the running buffalo clover. There is no habitat for any of the listed mussel species or interior least tern in the project area. The project area is within the priority area for Indiana bats (maternity colony) and requires special coordination with USFWS should a habitat be impacted.

D. Hazardous Materials

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

No UST/HAZ concerns since most of the area is residential. No gas stations or service marts in project area.

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 crosses three intermittent blueline streams that will potentially require new culverts and impact waters of the U.S. Impacts should be small enough to fall under the Corps LON. No wetlands identified on NWI maps.

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

This project would widen an existing roadway in a residential setting. With entrances along the existing road, it would be difficult to build a noise barrier that would not negatively affect the safety of the roadway and/or improve the future noise situation.

G. Socioeconomic


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

Greater than 50 parcels could be impacted in the project area depending upon alternative selection. It is not anticipated that any EJ populations exist. While relocations would probably not be required with the addition of a single lane, potential relocations would be dependent upon alternative selection. Some home rental property does probably exist in the project area. Two churches are found in this predominantly residential area.

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

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

Possible Historic Sites located in project area. 6(f) sites located southwest of project area at McNeely Lake Park.

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 needs identified for the project.

B. Alternative 2: Spot Improvement at Cedar Creek Road intersection

There is a T-intersection at KY 864 and Cedar Creek Road at the southern study limits (MP 1.818). Currently vehicles traveling southbound do not stop, while those going in the northbound or westbound direction encounter a stop sign. Remove tree and vegetation on the southeast quadrant of intersection along KY 864 to provide vehicles on Cedar Creek Road better sight distance before their turn movement. If necessary, shave top of bank to achieve adequate sight distance, approximately 260' of tree and bank removal. An aerial of the intersection is shown to the right.

Preliminary Cost Estimate:

<u>Phase</u>	<u>Estimate</u>
Design	\$35,000
R/W	\$85,000
Utilities	\$10,000
Const	\$225,000
Total	\$355,000



B. Alternative 3: Minor widening from Adams Run Road to Rocky Lane

Widen KY 864 from 2 lanes to 3 lanes from Adams Run Road (MP 2.785) to Rocky Lane (MP 3.152), a distance of 0.367 miles. The template should be urban at the northern study limits at Rocky Lane -- a 2' curb and gutter, two 11' driving lanes, a 13' two way center left turn lane, a 10' shared use path and a 5' sidewalk. The inclusion of the 10' shared use path is to accommodate bicyclists from nearby McNeely Lake Park and pedestrians from residential development growth. The largest subdivision utilizes Adams Run Road for access. Consequently, the intersection of KY 864 and Adams Run Road is the only location within the study limits with much of a crash history. If funding is an issue, this segment should be addressed first. Currently there is only a stop sign requiring vehicles to stop exiting Adams Run Road, this situation will not change. In addition to the widening north of Adams Run Road, a 275' right turn lane should be constructed south of the intersection on northbound KY 864 to help with rear end crashes. A sketch of the proposed project limits for this alternative is shown to the right.

Preliminary Level Cost Estimate:

<u>Phase</u>	<u>Estimate</u>
Design	\$260,000
R/W	\$625,000
Utilities	\$460,000
Const	\$1,655,000
Total	\$3,000,000



IV. POSSIBLE ALTERNATIVES (cont.)

B. Alternative 4: Minor widening from Cooper Chapel Road to Rocky Lane

Widen KY 864 from 2 lanes to 3 lanes from Cooper Chapel Road (MP 2.297) to Rocky Lane (MP 3.152), a distance of 0.855 miles. The template should be urban -- a 2' curb and gutter, two 11' driving lanes, a 13' two way center turn lane, a 10' shared use path and a 5' sidewalk. This alternative widens the driving route to 3 lanes on KY 864 from the Gene Snyder Freeway (I-265) to the stop controlled intersection at Cooper Chapel Road. This alternative would tie in to the Cooper Chapel Road extension currently in Phase II Design (Item No. 5-404.01) as shown in **Exhibit 3**. A sketch of the proposed project limits for this alternative is shown to the right.



Preliminary Cost Estimate:	<u>Phase</u>	<u>Estimate</u>
	Design	\$600,000
	R/W	\$1,460,000
	Utilities	\$1,340,000
	Const	\$3,850,000
	Total	\$7,250,000

V. Summary

This study is a Data Needs Analysis (DNA) of a roadway project for the KY 864 corridor in Jefferson County, Item Number 5-481.00. Through analysis of the existing roadway geometrics, crash data, a site visit, and discussion with the project team, needs were identified within the project limits. The following project needs were identified:

- KY 864 connects the rapidly growing residential communities to the south, in which traffic is up 250% over the last ten years, while accommodating bicyclists from nearby McNeely Lake Park.
- There is a cluster of collisions at the intersection of Adams Run Road.
- There is a sight distance issue at the intersection of Cedar Creek Road.

The purpose of this study is to address the increasing traffic demand in a rapidly developing section of Louisville in an effort to improve access, safety and mobility.

After a review of traffic data and the crash history, the project team decided widening along the entire corridor was not a viable option and was not considered an alternative at this time. Included in the alternatives were a no build recommendation, a spot improvement at Cedar Creek Road, and two widening alternatives of varying lengths for KY 864. It was determined that Alternative #3, the widening of KY 864 to Adams Run Road from MP 2.785 to MP 3.152, would best address the purpose and need of the project at this stage. Funding has been authorized for design only.

Alt #	Description	D (\$) (SLO)	R (\$)	U (\$)	C (\$)	Total (\$mil)
1	No Build	-	-	-	-	-
2	Spot Improvement -- Cedar Creek Road	\$35,000	\$85,000	\$10,000	\$225,000	\$355,000
3	Widening to Adams Run Road	\$260,000	\$625,000	\$460,000	\$1,655,000	\$3,000,000
4	Widening to Cooper Chapel Road	\$600,000	\$1,460,000	\$1,340,000	\$3,850,000	\$7,250,000
-	Current Hwy Plan Estimated Cost	\$700,000	N/A	N/A	N/A	
-	Current Pre-Con Estimated Cost	Authorized				

Collisions

Manner of Collision

- ANGLE
- HEAD ON
- OPPOSING LEFT TURN
- REAR END
- SIDESWIPE-OPPOSITE DIRECTION
- SIDESWIPE-SAME DIRECTION
- SINGLE VEHICLE

0 660 1,320 1,980 2,640 Feet

End MP 3.152

MP 2.174

Begin MP 1.818

265 6322 2845 6324 964

N
W
S
E

7/9/2012

VI. Tables and Exhibits (cont.)

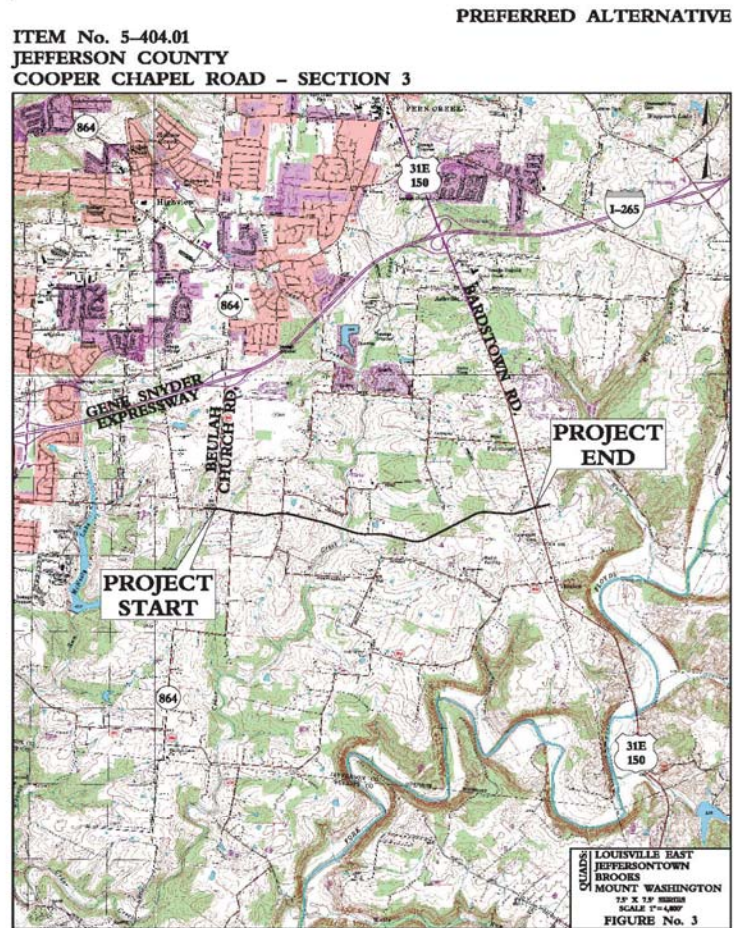


Exhibit 3: Extension of Cooper Chapel Road (Item No. 5-404.01) -- Preferred Alternative