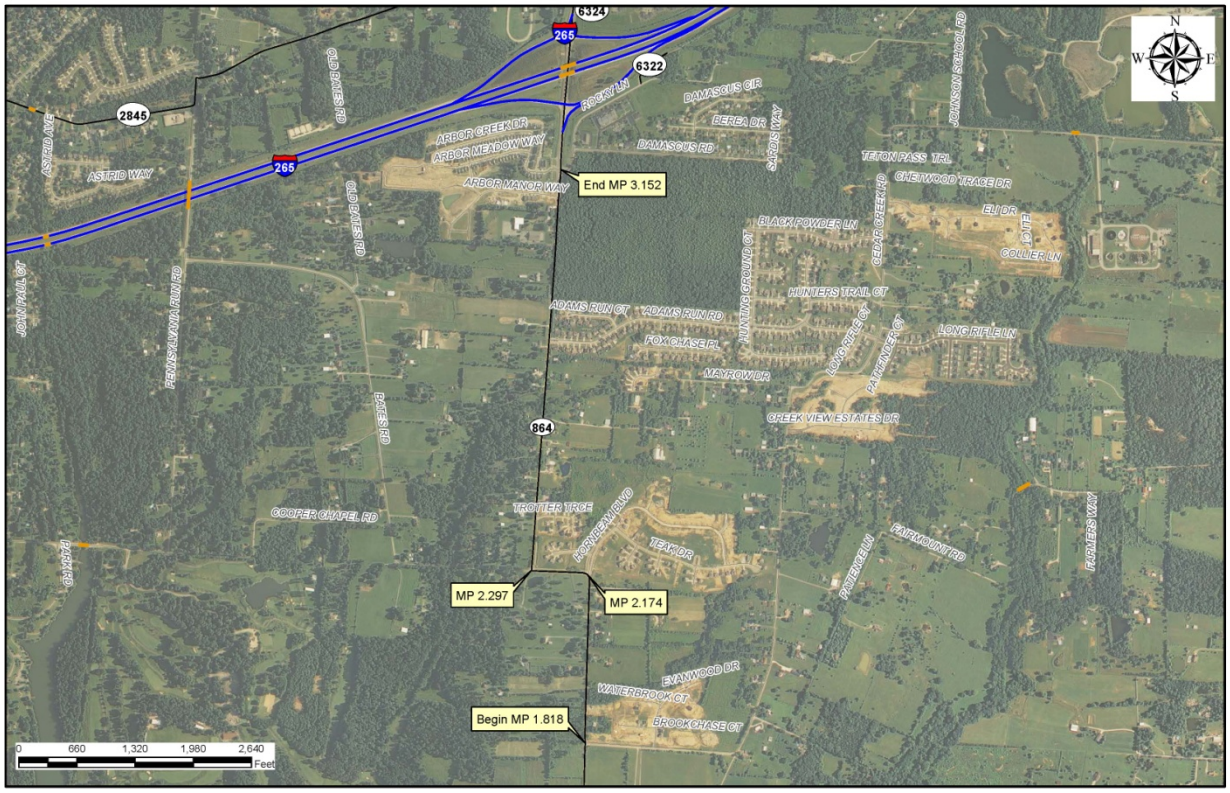
APPENDIX A

MAP



PROJECT LOCATION MAP

APPENDIX B

PROJECT AUTHORIZATION

PROJECT AUTHORIZATION

AUTHORIZATION NO: 863130

It is hereby ordered that the project herein described be undertaken and accomplished within the funding level authorized

Project Id	Project Id Number	Federal Project No.	District		County	6 Yrp Item Number
	056 8640 01-004	STPM 8776 029	HWY: 05	ADD:	JEFFERSON	05-00481

TYPE OF PROJECT	ROUTE NUMBER	FACILTY NAME	SYSTEMS
032 - RECONST W/ADD LNS	KY 864	BEULAH CHURCH ROAD	

PROJECT LENGTH	SCOPE OF PROJECT
1.547 MI	KY 864 - WIDEN BEULAH CHURCH ROAD FROM 2 TO 3 LANES FROM I-265 TO CEDAR CREEK ROAD.

NUMBER OF BRIDGES	PROGRAM PRIORITY	RS ITEM NUMBER	6 YR PLAN ITEM PARENT NUMBER
			5-00965.12-2012

PROJECT PHASE AND RESPONSIBILITY	PLANNING	DESIGN	RIGHT OF WAY	UTILITIES
	DOH	DOH		
	CONSTRUCTION	TITLE DEEDED TO:	MAINTENANCE	OTHER

FUNDING & TIME ACCOUNTABILITY	PARTICIPATING AGENCIES			
	FEDERAL FHWA	STATE	LOCAL	OTHER

REQUESTED FUNDS FOR THIS AUTHORIZATION

ITEM NUMBER SUFFIX	PHASE	FUND	PROGRAM	FISCAL YEAR		FEDL APPR. CODE	ENACTED 6YR PLAN AMOUNT	% DIFFERENCE VS 6YP AMT	CURRENT FUNDING REQUEST
				FEDERAL	STATE				
05-00481.00	D	12	FD52	2012	2012	L230			700,000

Current Estimate Approved by	KD	Date 4/5/2012	Current Funding Request Total	700,000

AUTHORIZATION SUMMARY FOR THIS 10-1 SERIES

PHASE	INITIAL PROJECT ESTIMATE	CURRENT PROJECT ESTIMATE	TOTAL AUTHORIZATION TO DATE (INCL. CURRENT REQUEST)
Design	$ 700,000	$ 700,000	$ 700,000
Total	$ 700,000	$ 700,000	$ 700,000

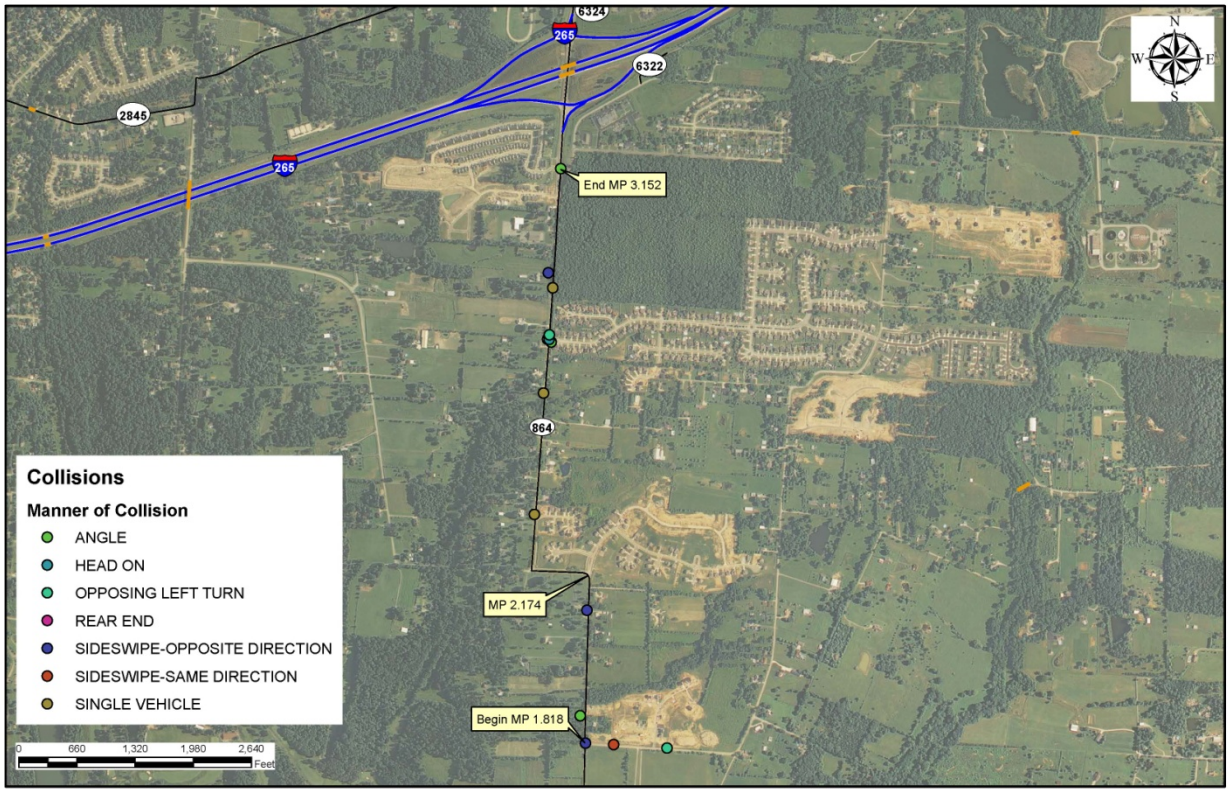
REMARKS: THIS AUTHORIZATION PROVIDES INITIAL DESIGN FUNDS TO BEGIN THE DESIGN PHASE OF THE PROJECT. DE.

Project Approval Recommended By:	Signed and Approved by:
KFD	MWH
4/10/2012	4/11/2012

APPENDIX C

CRASH DATA

ROADWAY	LATITUDE	LONGITUDE	MILEPOINT	DATE	INJURED	WEATHER	ROAD CONDITION	MANNER OF COLLISION	LIGHT CONDITION
COOPER CHAPEL	38.1047	-85.6142	1.877	2/25/2010	0	CLOUDY	DRY	ANGLE	DAYLIGHT
COOPER CHAPEL	38.1079	-85.6139	2.1	5/1/2009	0	CLOUDY	WET	SIDESWIPE-OPPOSITE DIRECTION	DARK-HWY LIGHTED/OFF
BEULAH CHURCH	38.1109	-85.6160	2.416	11/8/2010	1	CLEAR	DRY	SINGLE VEHICLE	DUSK
BEULAH CHURCH	38.1136	-85.6157	2.599	7/9/2011	0	CLEAR	DRY	REAR END	DAYLIGHT
BEULAH CHURCH	38.1147	-85.6156	2.672	3/5/2009	0	CLEAR	DRY	SINGLE VEHICLE	DAYLIGHT
BEULAH CHURCH	38.1163	-85.6153	2.78	2/4/2009	0	CLEAR	ICE	ANGLE	DAYLIGHT
BEULAH CHURCH	38.1164	-85.6155	2.785	1/5/2009	0	CLEAR	DRY	SINGLE VEHICLE	DARK-HWY LIGHTED/ON
BEULAH CHURCH	38.1164	-85.6154	2.785	5/20/2009	2	CLEAR	DRY	HEAD ON	DARK-HWY LIGHTED/OFF
BEULAH CHURCH	38.1165	-85.6154	2.795	10/1/2009	0	CLOUDY	DRY	OPPOSING LEFT TURN	DAYLIGHT
BEULAH CHURCH	38.1180	-85.6153	2.897	6/24/2009	0	CLEAR	DRY	SINGLE VEHICLE	DARK-HWY NOT LIGHTED
BEULAH CHURCH	38.1184	-85.6154	2.929	7/2/2010	0	CLEAR	DRY	SIDESWIPE-OPPOSITE DIRECTION	DAYLIGHT
BEULAH CHURCH	38.1217	-85.6149	3.154	2/4/2009	0	CLEAR	DRY	ANGLE	DAYLIGHT
CEDAR CREEK	38.1038	-85.6129		4/30/2009	0	CLEAR	DRY	SIDESWIPE-SAME DIRECTION	DAYLIGHT
CEDAR CREEK	38.1038	-85.6140	0.001	2/19/2009	1	CLOUDY	DRY	SIDESWIPE-OPPOSITE DIRECTION	DARK-HWY NOT LIGHTED
CEDAR CREEK	38.1037	-85.6108	0.181	10/1/2011	0	CLOUDY	DRY	OPPOSING LEFT TURN	DAYLIGHT



COLLISION LOCATIONS

APPENDIX D

KYTC'S COMMON GEOMETRIC PRACTICE GUIDELINES

COMMON GEOMETRIC PRACTICES
URBAN ROADWAYS (OTHER THAN FREEWAYS) (13)

		URBAN LOCAL STREETS	URBAN COLLECTOR STREETS	URBAN ARTERIAL STREETS
DESIGN SPEED (14)		20 M.P.H. - 30 M.P.H.	MIN. 30 M.P.H.	30 M.P.H. - 60 M.P.H.
NUMBER OF LANES		MINIMUM 2	MINIMUM 2 (4)	MINIMUM 2 (4)
LANE WIDTH	RESIDENTIAL	MIN, 10' (1)	MIN, 10' (2)	12' FREE FLOW CONDITION (2)
	COMMERCIAL	MIN. 11'	MIN. 11'	11' MIN. INTERRUPTED FLOW CONDITION
	INDUSTRIAL	MIN. 12' (3)	MIN. 12' (3)	
SIDEWALK	RESIDENTIAL COMMERCIAL	MINIMUM 4' DESIRABLE 8' (16)		
MINIMUM CLEAR ROADWAY WIDTH OF NEW AND RECONSTRUCTED BRIDGES (11)		MINIMUM CURB TO CURB WIDTH		
BERM AREA (5)		10' TYPICAL		
MINIMUM RADIUS (FEET)		(6)		

MAXIMUM GRADE (PERCENT) (12)

- R) - MAX. 15%
- C) - MAX. 8%
- I) - MAX. 8%

M.P.H.	30	35	40	45	50
LEVEL	9			8	7
ROLLING	11	10		9	8
MOUNTAIN	12			11	10

(9)

M.P.H.	30	35	40	45	50	55	60
LEVEL	8	7		6		5	
ROLLING	9	8		7		6	
MOUNTAIN	11	10		9		8	

NORMAL PAVEMENT CROSS SLOPE (8)	RATE OF CROSS SLOPE = 2%
NORMAL SHOULDER CROSS SLOPE	EARTH - 8% / PAVED - 4%
SUPERELEVATION	(10) 4% MAX. / 4% MAX. / 4% - 6% MAX.

MINIMUM STOPPING SIGHT DISTANCE (FEET) (7)

M.P.H.	20	25	30	35	40	45	50	55	60
MIN.	115	155	200	250	305	360	425	495	570

- R) = RESIDENTIAL - C) = COMMERCIAL - I) = INDUSTRIAL

(1) TURNING LANES : 9' MINIMUM – 12' DESIRABLE; PARKING LANES : RESIDENTIAL – 7' MINIMUM – 10' DESIRABLE; COMMERCIAL & INDUSTRIAL – 9' MINIMUM – 12' DESIRABLE.

(2) TURNING LANES : 10' MINIMUM – 12' DESIRABLE; PARKING LANES : 9' MINIMUM – 12' DESIRABLE.

(3) VERTICAL CURBS WITH HEIGHTS OF 6" OR GREATER ADJACENT TO TRAVELED WAY SHOULD BE OFFSET A MINIMUM OF 1 FOOT. WHEN A CURB AND GUTTER SECTION IS PROVIDED, THE GUTTER PAN WIDTH, NORMALLY 2 FEET, SHOULD BE USED AS THE OFFSET DISTANCE.

(4) THE NUMBER OF LANES TO BE PROVIDED ON STREETS WITH A CURRENT ADT OF 2000 OR GREATER SHOULD BE DETERMINED BY A HIGHWAY CAPACITY ANALYSIS OF THE DESIGN TRAFFIC VOLUMES. SUCH ANALYSIS SHOULD BE MADE FOR FUTURE DESIGN TRAFFIC. (DESIRABLE)

(5) THE BERM AREA IS TYPICALLY FROM FACE OF CURB TO 2 FEET BEHIND BACK OF SIDEWALK.

(6) REFER TO CHAPTER 3 OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" CURRENT EDITION.

(7) MINIMUM STOPPING SIGHT DISTANCES ARE BASED ON HEIGHT OF EYE 3.5 FT. & HEIGHT OF OBJECT OF 2.0 FT. BOTH HORIZONTAL & VERTICAL ALIGNMENTS CONSIDERED.

(8) NORMAL PAVEMENT CROSS SLOPES ON BRIDGES SHALL BE 2 PERCENT.

(9) ARTERIALS WITH LARGE NUMBERS OF TRUCKS AND OPERATING NEAR CAPACITY SHOULD CONSIDER GRADES FLATTER THAN THOSE IN RURAL SECTIONS TO AVOID UNDESIRABLE REDUCTIONS IN SPEEDS.

(10) SUPERELEVATION MAY NOT BE REQUIRED ON LOCAL STREETS IN RESIDENTIAL AND COMMERCIAL AREAS.

(11) THE BRIDGE WIDTH FOR URBAN ROADWAYS WITH SHOULDERS AND NO CURBS SHOULD NOT BE LESS THAN WIDTHS SHOWN FOR RURAL ROADS APPROVED ROADWAY WIDTHS.

(12) MAXIMUM GRADES OF SHORT LENGTHS (LESS THAN 500') AND ON ONE-WAY DOWN GRADES MAY BE ONE PERCENT STEEPER.

(13) FOR GUIDANCE ON FREEWAYS, REFER TO AASHTO, "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."

(14) INTERMEDIATE DESIGN SPEEDS (5 M.P.H. INCREMENTS) MAY BE APPROPRIATE WHERE TERRAIN AND OTHER ENVIRONMENTAL CONDITIONS DICTATE.

(15) REFER TO AASHTO'S "GUIDE FOR THE DEVELOPMENT OF BICYCLY FACILITIES", CURRENT EDITION, WHEN COMBINING A PEDESTRIAN SIDEWALK WITH A BICYCLE PATH.

APPENDIX E

HIGHWAY CAPACITY SOFTWARE ANALYSIS

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	
Agency/Co.	KYTC
Date Performed	3/8/2012
Analysis Time Period	
Highway	KY 864
From/To	MP 1.818 to MP 3.082
Jurisdiction	Louisville
Analysis Year	2012
Description	KY 864 widening

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.89	
Shoulder width	3.0	ft	% Trucks and buses	4	%
Lane width	11.0	ft	% Trucks crawling	0.0	%
Segment length	1.3	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	1	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	25	/mi

Analysis direction volume, Vd	450	veh/h
Opposing direction volume, Vo	300	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		2.1	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.968		0.957	
Grade adj. factor,(note-1) fg	0.95		0.86	
Directional flow rate,(note-2) vi	550	pc/h	410	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	45.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	3.0	mi/h
Adj. for access point density,(note-3) fA	6.3	mi/h
Free-flow speed, FFSd	35.8	mi/h
Adjustment for no-passing zones, fnp	2.7	mi/h
Average travel speed, ATSd	25.6	mi/h
Percent Free Flow Speed, PFFS	71.7	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.2	1.6
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.992	0.977
Grade adjustment factor,(note-1) fg	0.96	0.87
Directional flow rate,(note-2) vi	531 pc/h	397 pc/h
Base percent time-spent-following,(note-4) BPTSFd	51.6 %	
Adjustment for no-passing zones, fnp	38.3	
Percent time-spent-following, PTSFd	73.5 %	

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.37	
Peak 15-min vehicle-miles of travel, VMT15	164	veh-mi
Peak-hour vehicle-miles of travel, VMT60	585	veh-mi
Peak 15-min total travel time, TT15	6.4	veh-h
Capacity from ATS, CdATS	1470	veh/h
Capacity from PTSF, CdPTSF	1494	veh/h
Directional Capacity	2566	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.3	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	25.6	mi/h
Percent time-spent-following, PTSFd (from above)	73.5	
Level of service, LOSd (from above)	D	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	-	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	505.6
Effective width of outside lane, We	14.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.94
Bicycle LOS	E

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	
Agency/Co.	KYTC
Date Performed	3/8/2012
Analysis Time Period	
Highway	KY 864
From/To	MP 3.082 to MP 3.152
Jurisdiction	Louisville
Analysis Year	2012
Description	

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.89	
Shoulder width	8.0	ft	% Trucks and buses	4	%
Lane width	11.0	ft	% Trucks crawling	0.0	%
Segment length	0.1	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Rolling		% Recreational vehicles	1	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	25	/mi

Analysis direction volume, Vd	450	veh/h
Opposing direction volume, Vo	300	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.8		2.1	
PCE for RVs, ER	1.1		1.1	
Heavy-vehicle adj. factor,(note-5) fHV	0.968		0.957	
Grade adj. factor,(note-1) fg	0.95		0.86	
Directional flow rate,(note-2) vi	550	pc/h	410	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	45.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	0.4	mi/h
Adj. for access point density,(note-3) fA	6.3	mi/h
Free-flow speed, FFSd	38.3	mi/h
Adjustment for no-passing zones, fnp	2.7	mi/h
Average travel speed, ATSd	28.2	mi/h
Percent Free Flow Speed, PFFS	73.7	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.2	1.6
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.992	0.977
Grade adjustment factor,(note-1) fg	0.96	0.87
Directional flow rate,(note-2) vi	531 pc/h	397 pc/h
Base percent time-spent-following,(note-4) BPTSFd	51.6 %	
Adjustment for no-passing zones, fnp	38.3	
Percent time-spent-following, PTSFd	73.5 %	

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.37	
Peak 15-min vehicle-miles of travel, VMT15	13	veh-mi
Peak-hour vehicle-miles of travel, VMT60	45	veh-mi
Peak 15-min total travel time, TT15	0.5	veh-h
Capacity from ATS, CdATS	1470	veh/h
Capacity from PTSF, CdPTSF	1494	veh/h
Directional Capacity	2566	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.1	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	28.2	mi/h
Percent time-spent-following, PTSFd (from above)	73.5	
Level of service, LOSd (from above)	D	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	-	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	505.6
Effective width of outside lane, We	27.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	2.27
Bicycle LOS	B

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

APPENDIX F

PROJECT TEAM MEETING MINUTES

Meeting Minutes – KY 864 Beulah Church Road (Project Team Meeting No. 1)

The first project team meeting for the KY 864 Data Needs Analysis (DNA) Study was held on May 7, 2012 at 10:00 a.m. EST at the District 5 Design conference room in Louisville. The following individuals were in attendance:

Jill Asher	KYTC – Central Office Planning
Dane Blackburn	KYTC District 5 Planning
Paul Davis	KYTC District 5 Design
Keith Downs	KYTC District 5 Design
Robert Farley	KYTC – Central Office Design
Tom Hall	KYTC District 5 Planning
Brian Meade	KYTC District 5 Project Development
Mikael Pelfrey	KYTC – Central Office Planning
Tala Quinio	KYTC District 5 Design

Keith Downs welcomed those in attendance and said the purpose of the meeting was to discuss the KY 864 Beulah Church Road widening project (Item 5-481.00) in Louisville, specifically the DNA study being prepared by Mikael Pelfrey.

Mikael Pelfrey then took over and began going through the aspects in the DNA study. This study will be one of the first completed under the new eight page format. Existing conditions of the project were explained. Project limits are Cedar Creek Road to the south and Rocky Lane to the north. This was modified slightly from the initial project listing of the Gene Snyder Freeway (I-265) to the north, because the existing segment between I-265 and Rocky Lane is three lanes. There are no existing plans available.

The extension of Cooper Chapel Road (Item 5-404.01) is currently in design. This project is within the KY 864 project limits and proposes extended Cooper Chapel Road to the east to eventually intersect with Bardstown Road. It was stated by those in attendance from District 5 this project wasn't high priority, and right-of-way money was being withheld by FHWA until later phases of design were complete.

Each of the nine elements of the project purpose and need were highlighted. The McNeely Lake Master Plan was brought to attention. This plan proposes the addition of a road through the park, which would affect traffic patterns. There aren't a high number of collisions, only 12 along the entire project limits within a three year period, but four were at the intersection with Adams Run Road.

The Preliminary Environmental Overview was completed by Jeff Schaefer, of District 5 environmental.

Three alternatives were developed in addition to the no build. The first called for widening KY 864 from the proposed tie-in at the Cooper Chapel Road extension to Rocky Lane, which would make the most heavily travelled stretch of road from the extension to the Gene Snyder Freeway three lanes. Another alternative focused on the collisions at Adams Run Road and suggested adding a turning lane. The final alternative widened the route to three lanes along the entire project limits.

Several recommendations were then suggested by the district. These are summarized below:

- Consider an alternative to eliminate the 90° curves (later eliminated once it was realized it would be extremely costly due to right-of-way expenses).
- The typical section for Cooper Chapel Road should not be used, but a map should be added showing the location of the proposed project in relation to the widening on KY 864.
- Add a map with projects from the Highway Plan and the Unscheduled Project List.
- Traffic volumes may lead to widening considerations of more than three lanes.
- A sight distance problem at the beginning of the project limits at the intersection with Cedar Creek Road.
- Consider a 10' shared use path on one side of the roadway because of the proximity of McNeely Lake Park to help with bicycle traffic.
- Louisville Metro had a permit to improve some cross drains and fixed headwall. Box culverts were also extended. Ditches were filled in and drainage was piped to avoid steep drop offs. No drainage problems to the knowledge of the district.
- Travis Thompson (District 5 design) stopped in for a period. Mr. Thompson lives in the area and stated the three way stops were not a current problem.

Ultimately it was advised three alternatives be incorporated into the final DNA, in addition to the no build. The first alternative would address the sight distance issues at the intersection of KY 864 and Beulah Church Road. The second alternative would widen KY 864 to three lanes from Adams Run Road to Rocky Lane, to help with collisions. The final alternative would widen the route from Cooper Chapel Road to Rocky Lane. It was determined widening along the entire project limits was unnecessary at this time.

Mikael Pelfrey would make the needed modifications and send the DNA to Keith Downs, who would complete the cost estimates for each alternative.

The meeting adjourned at approximately 11:45 EST.

APPENDIX G

COST ESTIMATES

Explanation of Estimates
Project: 5-0481.00 KY 864 Beulah Church Road
DNA Study

PHASE	ALTERNATE 1	ALTERNATE 2	ALTERNATE 3	ALTERNATE 4
DESIGN:	NO BUILD	$35,000	$257,000	$599,000
R/W:	"	$84,000	$624,000	$1,454,000
UTILITIES:	"	$9,000	$455,000	$1,335,000
CONST:	"	$221,000	$1,652,000	$3,848,000
TOTAL	"	$349,000	$2,988,000	$7,236,000

Alternate #1 - No Build - This alternate should be carried forward, but does not meet the needs identified for the project.

Alternate #2: Spot Improvement at Cedar Creek Road Intersecton - There is a T-legged 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. Trim vegetation along KY 864 to provide vehicles on Cedar Creek Road better sight distance before having to make their turning movement.

Alternate #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 match the existing template at the northern study limits at Rocky Lane -- two 11' driving lanes and a 14' two way center left turn lane. Shoulders at minimum should be 3' but could be up to 8' in width depending on available right-of-way. The typical section should also include a 10' shared use path to accomodate bicyclists from nearby McNeely Lake Park and pedestrians from residential development growth. The largest subdivision utilizes Adams Run Road for access. Conseqently, 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. In addition to the widening north of Adams Run Road, a 225 ft right turn lane should be constructed south of the intersection on northbound KY 864 to help with rear end crashes.

Alternate #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 rural -- two 11' driving lanes, a 14' two way center turn lane, 3' to 8' shoulders (depending on available right-of-way), and a 10' shared use path. 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.

NOTES:

Design Cost:

Estimated on Per Mile basis: $750,000

Right of Way Cost::

Estimated on Per Mile basis: Ron Geveden, ROW Supervisor, recommended $1,700,000 per mile

Utility Cost:

Estimated by D5 Utility Section:

Notes:

The Utility poles are PACKED with utility companies on them. But they all appear to be on the ROW line and therefore, we would not have to reimburse.

The estimate appears high for the water and sewer, but it was worst case of total relocation.

The water is close to the edge of road in many areas.

There is a MSD pump station near Cedar Creek Road. All design should avoid (Alt #4). That relocation would add $500

Project Identification Form
Preliminary Cost Estimate

General Information:		County	JEFFERSON	Route	KY 864	MP	1.818
UNL # or Item #	5-0481		Prepared By:	AKD	DATE:		May 18, 2012
Length (Mi.)	0.049	Median wid.	0	# Lanes	3	Pave. Depth (in.)	14.5
Ex.R/W (Ft.)	30	NewR/W(Ft.)	75	Total Width (all lanes)	35	Shoulder Width (each side)	2
Brief Description Summary from Project ID Form	Alternate #2: Spot Improvement at Cedar Creek Road Intersecton - There is a T-legged intersection at KY 864 and Cedar Creek Road at the southern study limits (MP 1.818).						

TOTAL PROJECT ESTIMATE:	$ 347,100				
Planning:	$ -	Design:	$ 34,300	Right of Way:	$ 83,300
Utilities:	$ 9,000	Construction:		$ 220,500	

Construction: Total Construction Cost $ 220,500

☑ **PerMile AverageCost:** $4,500,000

Total Project Cost = $ 220,500

☐ **Itemized Construction Estimate:** (Use Best Available Information)

	Quantity	Unit	Unit Price	Total Cost
Excavation:				
Asphalt				
DGA				
Detour				
Bridge				
Other				
Other				
Other				
Other				
Other				
Other				
*Miscellaneous	30	%	$0	$ -
		Total Construction Cost =		$ -

* Miscellaneous charges are a Percentage of all other major cost not listed above. This cost might include cost of Clearing and Grubbing, Mobilization, Demobilization, Guardrail, Seeding, Staking, Striping, Culvert Pipes, etc. Any of these individual cost could be added above in the OTHER cell if approximate quantities are known.

CONSTRUCTION COMMENTS and NOTES

Design: Total Design Cost $ 34,300

☐ **Per Mile Average Design Estimate:** $700,000

Total Design Estimate (mileage) = $ 34,300

☐ **Percent of Construction, Design Estimate** Percent 0

Total Design Estimate (percent) = $ -

DESIGN COMMENTS and NOTES:

Planning: Total Planning Cost $ -

☐ **Per Mile Average Planning Estimate:**

Total Planning Estimate (mileage) = $ -

☐ **Percent of Design, Planning Estimate** Percent

Total Planning Estimate (percent) = $ -

PLANNING COMMENTS and NOTES:

Project Identification Form
Preliminary Cost Estimate

Right of Way: **Total Estimated R/W Cost** **$ 83,300**

☐ **Per Mile Average Estimated R/W Cost:** $1,700,000

Total R/W Estimated Cost (mileage) = $ 83,300

☐ **Itemized Right of Way Estimate**

	Quantity	Avg. Value	Total Value
Farm Acres			
Commercial Acres			
Non-Developable Acre			
# of Homes			
# of Buildings			
# Commercials Bldgs			
# of Graves			
Other			
Other			
Other			
Administrative & Legal %of R/W		$ -	
**Total Right of Way Cost =			$ -

☐ **Per Acre Average Estimated R/W Cost:**

Total R/W Estimated Cost (mileage) =

** Right of Way estimates are based on best assumptions at the time of estimate.

RIGHT-OF-WAY COMMENTS and NOTES:	ROW Supervisor: Ron Geveden Recommended $1,700,000 per mile

Utilities: **Total Utility Cost** **$ 9,000**

☐ **Per Mile Average Utility Cost:** $0

Total Utility Estimated Cost = $ -

☐ **Itemized Utility Estimate**

	Quantity	Unit	Unit Price	Total Cost
Gas				
Power				
Telephone				
Sewer				
Water				
Cont & St. 25%+20%	1	1	9,000	$ 9,000
**Total Utility Cost =				$ 9,000

** Utility estimates are based on best assumptions at the time of estimate.

UTILITY COMMENTS and NOTES:	The Utility poles are PACKED with utility companies on them. But they all appear to be on the ROW line and therefore, we would not have to reimburse. Contingencies, Misc (25%) + State Forces Engineering (20%)

Notes:

Alternative 2: Spot Improvement at Cedar Creek Road intersection
There is a T-legged 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 trees and vegetation on the southeast quadrant of the intersection along KY 864 to the south to provide vehicles on Cedar Creek Road better sight distance before having to make their turning movement and if necessary shave the top of bank to achieve adequate sight distance, approximately 260 ft of tree removal.

Project Identification Form
Preliminary Cost Estimate

General Information:		County	JEFFERSON	Route	KY 864	MP	2.785-3152
UNL # or Item #	5-0481		Prepared By:	AKD	DATE:		May 18, 2012
Length (Mi.)	0.367	Median wid.	0	# Lanes	3	Pave. Depth (in.)	14.5
Ex.R/W (Ft.)	30	NewR/W(Ft.)	64	Total Width (all lanes)	35	Shoulder Width (each side)	0
Brief Description Summary from Project ID Form	Alternate #3: Minor widening :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.						

TOTAL PROJECT ESTIMATE:	$ 2,984,156				
Planning:	$ -	Design:	$ 256,900	Right of Way:	$ 623,900
Utilities:	$ 451,856	Construction:		$ 1,651,500	

Construction: Total Construction Cost $ 1,651,500

☑ **PerMile AverageCost:** $4,500,000

Total Project Cost = $ 1,651,500

☐ **Itemized Construction Estimate:** (Use Best Available Information)

	Quantity	Unit	Unit Price	Total Cost
Excavation:	9780	CY	$15	$ 146,700
Asphalt	6010	Ton	$75	$ 450,731
DGA	3141	Ton	$20	$ 62,829
Detour				
Bridge				
Sidewalk	1077	SY	$40	$ 43,061
Curb & Gutter	3876	LF	$15	$ 58,133
L&W	311	SY	$70	$ 21,759
Other				
Other				
Other				
Other				
*Miscellaneous	30	%	$783,214	$ 234,964
		Total Construction Cost =		$ 1,018,178

* Miscellaneous charges are a Percentage of all other major cost not listed above. This cost might include cost of Clearing and Grubbing, Mobilization, Demobilization, Guardrail, Seeding, Staking, Striping, Culvert Pipes, etc. Any of these individual cost could be added above in the OTHER cell if approximate quantities are known.

CONSTRUCTION COMMENTS and NOTES

Design: Total Design Cost $ 256,900

☐ **Per Mile Average Design Estimate:** $700,000

Total Design Estimate (mileage) = $ 256,900

☐ **Percent of Construction, Design Estimate** Percent 0

Total Design Estimate (percent) = $ -

DESIGN COMMENTS and NOTES:

Planning: Total Planning Cost $ -

☐ **Per Mile Average Planning Estimate:**

Total Planning Estimate (mileage) = $ -

☐ **Percent of Design, Planning Estimate** Percent

Total Planning Estimate (percent) = $ -

PLANNING COMMENTS and NOTES:

Project Identification Form
Preliminary Cost Estimate

Right of Way: **Total Estimated R/W Cost** **$ 623,900**

☐ **Per Mile Average Estimated R/W Cost:** $1,700,000

Total R/W Estimated Cost (mileage) = $ 623,900

☐ **Itemized Right of Way Estimate**

	Quantity	Avg. Value	Total Value
Farm Acres			
Commercial Acres			
Non-Developable Acre			
# of Homes			
# of Buildings			
# Commercials Bldgs			
# of Graves			
Other			
Other			
Other			
Administrative & Legal %of R/W		$ -	
**Total Right of Way Cost =			$ -

☐ **Per Acre Average Estimated R/W Cost:**

Total R/W Estimated Cost (mileage) =

** Right of Way estimates are based on best assumptions at the time of estimate.

RIGHT-OF-WAY COMMENTS and NOTES:	ROW Supervisor: Ron Geveden Recommended $1,700,000 per mile

Utilities: **Total Utility Cost** **$ 451,856**

☐ **Per Mile Average Utility Cost:** $0

Total Utility Estimated Cost = $ -

☐ **Itemized Utility Estimate**

	Quantity	Unit	Unit Price	Total Cost
Gas				
Power				
Telephone				
Sewer	1	Lump sum	138,535	$ 138,535
Water	1	Lump sum	173,090	$ 173,090
Cont & St. 25%+20%	1	1	140,231	$ 140,231
**Total Utility Cost =				$ 451,856

** Utility estimates are based on best assumptions at the time of estimate.

UTILITY COMMENTS and NOTES:	The Utility poles are PACKED with utility companies on them. But they all appear to be on the ROW line and therefore, we would not have to reimburse. Contingencies, Misc (25%) + State Forces Engineering (20%)

Notes:

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 match the existing template at the northern study limits at Rocky Lane -- two 11' driving lanes and a 14' two way center left turn lane. Shoulders at minimum should be 3' but could be up to 8' in width depending on available right-of-way. The typical section should also include a 10' shared use path 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. In addition to the widening north of Adams Run Road, a 225 ft right turn lane should be constructed south of the intersection on northbound KY 864 to help with rear end crashes.

Template: 2' C&G, 10' Shared use path, 5' Sidewalk, 2-11' Lanes and 13' CLTL

Pavement Width : 35' gutter to gutter.

Sidewalk: one side: 5' wide

Embankment: 10,000 CY per Mi x 0.978mi = 9,780 CY

Project Identification Form
Preliminary Cost Estimate

General Information:		County	JEFFERSON	Route	KY 864	MP	2.297-3.152
UNL # or Item #	5-0481		Prepared By:	AKD	DATE:		May 21, 2012
Length (Mi.)	0.855	Median wid.	0	# Lanes	3	Pave. Depth (in.)	14.5
Ex.R/W (Ft.)	30	NewR/W(Ft.)	64	Total Width (all lanes)	35	Shoulder Width (each side)	0
Brief Description Summary from Project ID Form	Alternate #4: 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.						

TOTAL PROJECT ESTIMATE:	$ 7,229,694				
Planning:	$ -	Design:	$ 598,500	Right of Way:	$ 1,453,500
Utilities:	$ 1,330,194	Construction:		$ 3,847,500	

Construction: Total Construction Cost $ 3,847,500

☑ **PerMile AverageCost:** $4,500,000

Total Project Cost = $ 3,847,500

☐ **Itemized Construction Estimate:** (Use Best Available Information)

	Quantity	Unit	Unit Price	Total Cost
Excavation:	13340	CY	$15	$ 200,100
Asphalt	14001	Ton	$75	$ 1,050,068
DGA	7319	Ton	$20	$ 146,373
Detour				
Bridge				
Sidewalk	5016	SY	$40	$ 200,640
Curb & Gutter				
L & W	724	SY	$70	$ 50,693
Other				
Other				
Other				
Other				
*Miscellaneous	30	%	$1,647,874	$ 494,362
		Total Construction Cost =		$ 2,142,237

* Miscellaneous charges are a Percentage of all other major cost not listed above. This cost might include cost of Clearing and Grubbing, Mobilization, Demobilization, Guardrail, Seeding, Staking, Striping, Culvert Pipes, etc. Any of these individual cost could be added above in the OTHER cell if approximate quantities are known.

CONSTRUCTION COMMENTS and NOTES

Design: Total Design Cost $ 598,500

☐ **Per Mile Average Design Estimate:** $700,000

Total Design Estimate (mileage) = $ 598,500

☐ **Percent of Construction, Design Estimate** Percent 0

Total Design Estimate (percent) = $ -

DESIGN COMMENTS and NOTES:

Planning: Total Planning Cost $ -

☐ **Per Mile Average Planning Estimate:**

Total Planning Estimate (mileage) = $ -

☐ **Percent of Design, Planning Estimate** Percent

Total Planning Estimate (percent) = $ -

PLANNING COMMENTS and NOTES:

Project Identification Form
Preliminary Cost Estimate

Right of Way: **Total Estimated R/W Cost** **$ 1,453,500**

☐ **Per Mile Average Estimated R/W Cost:** $1,700,000

Total R/W Estimated Cost (mileage) = $ 1,453,500

☐ **Itemized Right of Way Estimate**

	Quantity	Avg. Value	Total Value
Farm Acres			
Commercial Acres			
Non-Developable Acre			
# of Homes			
# of Buildings			
# Commercials Bldgs			
# of Graves			
Other			
Other			
Other			
Administrative & Legal %of R/W		$ -	
**Total Right of Way Cost =			$ -

☐ **Per Acre Average Estimated R/W Cost:**

Total R/W Estimated Cost (mileage) =

** Right of Way estimates are based on best assumptions at the time of estimate.

RIGHT-OF-WAY COMMENTS and NOTES:	ROW Supervisor: Ron Geveden Recommended $1,700,000 per mile

Utilities: **Total Utility Cost** **$ 1,330,194**

☐ **Per Mile Average Utility Cost:** $0

Total Utility Estimated Cost = $ -

☑ **Itemized Utility Estimate**

	Quantity	Unit	Unit Price	Total Cost
Gas				
Power				
Telephone				
Sewer	1	Lump Sum	386,825	$ 386,825
Water	1	Lump Sum	530,550	$ 530,550
Cont & St. 25%+20%	1	1	412,819	$ 412,819
**Total Utility Cost =				$ 1,330,194

** Utility estimates are based on best assumptions at the time of estimate.

UTILITY COMMENTS and NOTES:	The Utility poles are PACKED with utility companies on them. But they all appear to be on the ROW line and therefore, we would not have to reimburse. Contingencies, Misc (25%) + State Forces Engineering (20%)

Notes:

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 rural -- two 11' driving lanes, a 14' two way center turn lane, 3' to 8' shoulders (depending on available right-of-way), and a 10' shared use path. 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 in Phase II Design (Item No. 5-404.01) as shown in Exhibit 3.

Template: 2' C&G, 10' Shared use path, 5' Sidewalk, 2-11' Lanes and 13' CLTL

Pavement Width : 35' gutter to gutter.

Sidewalk: one side: 5' wide

Embankment: 10,000 CY per Mi x 1.334mi = 13,340 CY

APPENDIX H

PROJECT PHOTOS

KY 864 at Cedar Creek Road, heading north

KY 864, heading north

KY 864 at Hornbeam Boulevard, heading north

Hornbeam Boulevard at KY 864 intersection, looking south

KY 864 approaching Cooper Chapel Road/Beulah Church Road intersection, heading west

Cooper Chapel Road at KY 864/Beulah Church Road intersection, looking east

KY 864, north of Trotter Trace, heading north

KY 864, heading north with vertical elevation changes

KY 864 approaching Adams Run Road, heading north

Adams Run Road at KY 864 intersection, looking north

Adams Run Road at KY 864 intersection highlighting sight distance issue, looking south

KY 864, between Adams Run Road and Rocky Lane, heading north

Rocky Lane at KY 864 intersection, looking south

Rocky Lane at KY 864 intersection, looking north