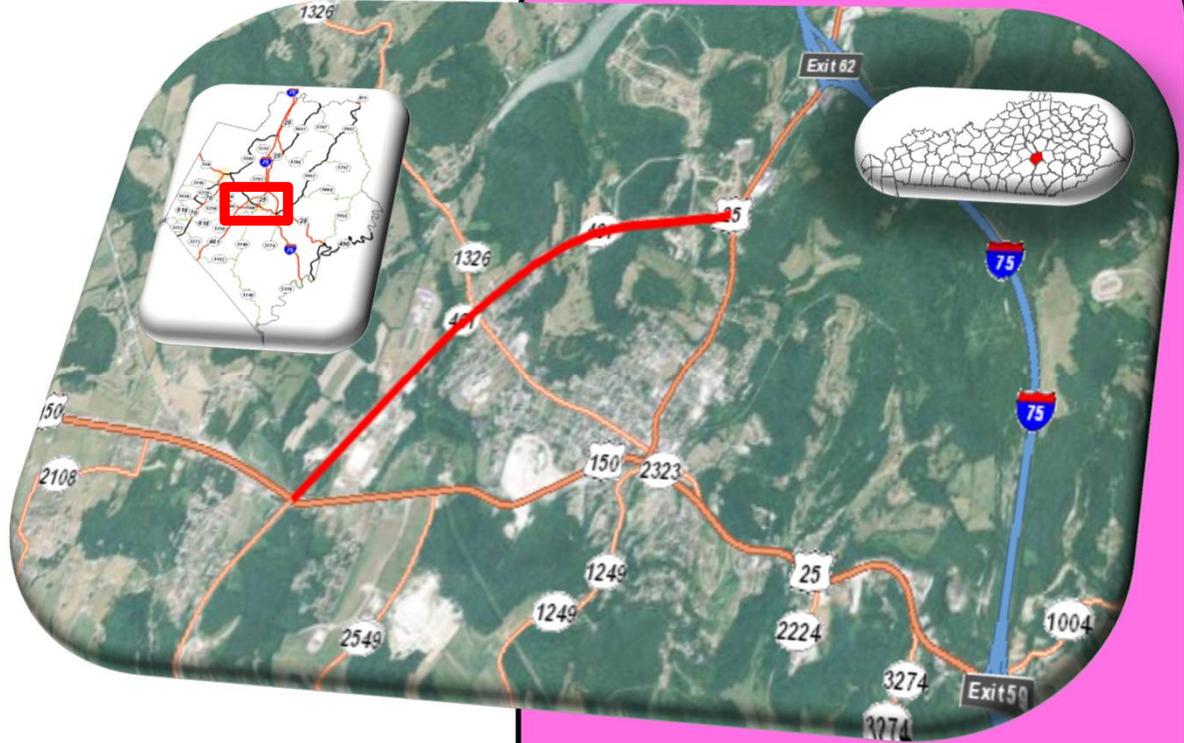


Data Needs Analysis



Scoping Study

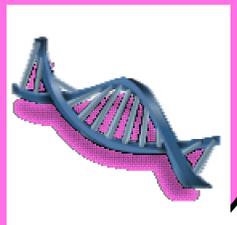


KY 461, Rockcastle County

**KY 461 Improvement
From US 150 to US 25
Item No. 8-8952.00**

**Prepared by the KYTC
Division of Planning and
KYTC District 8**

May 2018



I. PRELIMINARY PROJECT INFORMATION

County: ROCKCASTLE **Item No.:** 8-8952.00
Route Number(s):* KY 461 **Road Name:** LAKE CUMBERLAND ROAD
Program No.: _____ **UPN:** (Function) (County #) (Route) (MPs)
Federal Project No.: _____ **Type of Work:** RECONSTRUCT/RELIABILITY

2018 Highway Plan Project Description:

IMPROVE KY-461 FROM US-150 TO THE EXISTING FOUR LANE APPROACH AT US-25.(16CCN)

Beginning MP: 7 **Ending MP:** 9.404 **Project Length:** 2.404
In TIP: Yes No [Reconcile Project Information in Clearview](#)
State Class.: Primary Secondary **Route is on:** NHS NN Ext Wt
Functional Class.: Urban Rural Arterial **Truck Class.:** AAA **% Trucks:** 14.5
MPO Area: Not Applicable **Terrain:** Rolling
ADT (current): 10588 2016
Access Control: None Permit Fully Controlled Partial Spacing: _____
Median Type: Undivided Divided (Type): FLUSH
Existing Bike Accommodations: Shared Lane **Ped:** Sidewalk
Posted Speed: 35 mph 45 mph 55 mph Other (Specify): _____
KYTC Guidelines Preliminarily Based on : 60 MPH Proposed Design Speed

COMMON GEOMETRIC

Roadway Data:	EXISTING	PRACTICES**	
No. of Lanes	<u>2</u>	<u>2</u>	Existing Rdwy. Plans available?
Lane Width	<u>12</u>	<u>12</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Shoulder Width	<u>10</u>	<u>8</u>	Year of Plans: <u>1985</u>
Max. Superelevation***		<u>8%</u>	<input type="checkbox"/> Traffic Forecast Requested
Minimum Radius***		<u>960</u>	Date Requested: _____
Maximum Grade	<u>8.4%</u>	<u>5%</u>	<input type="checkbox"/> Mapping/Survey Requested
Minimum Sight Dist.		<u>495</u>	Date Requested: _____
Sidewalk Width(urban)	<u>N/A</u>		Type: _____
Clear-zone [†]		<u>32</u>	
Project Notes/Design Exceptions?			

Bridge No.:# 102B00058N (Bridge #2)
Sufficiency Rating 95
Total Length 79.07
Width, curb to curb 51.84
Span Lengths 74.15
Year Built 1987
Posted Weight Limit N/A
Structurally Deficient? NO
Functionally Obsolete? Yes
Existing Bridge Type Stringer/Girder Concrete Cast in place.

[Existing Geotech Data Available?](#)
 Yes No
Detour Length(s): 1.2 mile

*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

THE ADJACENT SHOWN FUNDING WAS APPROVED AS PART OF THE 2018 GENERAL ASSEMBLY'S ENACTED HIGHWAY PLAN. ONLY DESIGN FUNDING IS AVAILABLE IN THE CURRENT BIENNIUM.

<i>Funding</i>	<i>Phase</i>	<i>Year</i>	<i>Amount</i>
NH	D	2019	\$1,200,000
NH	R	2022	\$1,450,000
NH	U	2023	\$2,230,000
	C		

B. Project Status

NO FUNDS HAVE BEEN AUTHORIZED. SEE PART "A" ABOVE FOR FUNDING SCHEDULE OF OUTLYING YEARS. PROJECT SCORED WELL IN THE SHIFT PROCESS, AND WAS A PRIORITY FOR THE DISTRICT AND CUMBERLAND VALLEY AREA DEVELOPMENT DISTRICT.

C. System Linkage

KY 461 BEGINS IN PULASKI COUNTY AT THE INTERSECTION WITH KY 80 (HAL ROGERS PARKWAY - FUTURE I-66) AND EXTENDS NORTH EASTERLY TO US 25 IN MOUNT VERNON. WITH THE NEWLY DEVELOPED US 150, ACCESS FROM THE INDUSTRIAL PARK, AND SUPPORT FROM LINCOLN COUNTY HAS PROVIDED TRAVELERS EASIER ACCESS TO I-75. DURING THE SUMMER MONTHS KY 461 HAS A HIGH VOLUME OF TOURISTS VISITING THE AREA, ESPECIALLY LAKE CUMBERLAND AND RENFRO VALLEY ENTETAINMENT CENTER.

D. Modal Interrelationships

ACCORDING TO THE KYTC TRAFFIC COUNT, TRUCK TRAFFIC IS 14.5% FOR THIS ROUTE AND IS ESSENTIAL FOR THE TRANSPORTING OF GOODS TO AND FROM INDUSTRIAL AREAS LOCATED IN PULASKI, BOYLE, LINCOLN, AND RUSSELL COUNTY.

E. Social Demands & Economic Development

INDUSTRIAL PARK IN PULASKI COUNTY ON KY 461 (INCLUDING TTAI, GATOR MADE TRAILERS, AND OTHER COMPANIES). THIS ROUTE IS AN ESPECIALLY HEAVILY TRAVELED COORIDOR DURING THE SUMMER MONTHS, SINCE IT PROVIDES ACCESS TO THE POPULAR VACATION AREA OF LAKE CUMBERLAND, AND RENFRO VALLEY ENTERTAINMENT CENTER. THE ROCKCASTLE COUNTY HIGH SCHOOL AND MIDDLE SCHOOL IS ALSO LOCATED WITHIN THE PROJECT AREA, AND IMPROVEMENTS TO THIS ROUTE WILL IMPROVE LEVELS OF SERVICE FOR THE SCHOOL SYSTEM TRAVELER AND OTHERS AS WELL.

II. PROJECT PURPOSE AND NEED (cont.)

F. Transportation Demand

FROM KYTC TRAFFIC COUNT REPORTING SYSTEM, ADT IN 2016 WAS 10,588 AADT. THE ADT INCREASES BY APPROXIMATELY 100% DURING HOLIDAY WEEKENDS, DUE TO THE DEMAND OF TOURISM.

G. Capacity

DURING THE SUMMER WEEKENDS AND HOLIDAYS, TRAFFIC BACKS UP FROM US 150 TO I-75 FOR LONG PERIODS OF TIME DUE TO THE AMOUNT OF TOURIST TRAFFIC GOING TO LAKE CUMBERLAND. THERE ARE SEVERAL OF VEHICLE TYPES DRIVING THE CORRIDOR THROUGH THIS TIME FRAME, INCLUDING ONES TOWING BOATS OR CAMPERS.

H. Safety

CRF SOURCE - 5 YR CRASH RATE (2013-2017) - HIVE1 BASIC QUERY

CRASHES ARE DISTRIBUTED THROUGHOUT THE PROJECT LIMITS, WITH HIGHER AMOUNTS AT US 150, US 25, AND KY 1326

HIGHEST CRF FOR ALL CRASHES = 3.038

PER THE KSP CRASH DATABASE, FROM 2013 TO 2017 THE FOLLOWING CRASH SUMMARY BETWEEN MP 6.998 TO 9.404 FOLLOWS:

TOTAL CRASHES=97 -- INCLUDING 1 FATALITY (AT US 150 AND KY 461)

SINGLE VEHICLE= 79 DRY, 17 WET, AND 1 WATER (STANDING OR MOVING);

REAR ENDS=62; 50 DRY COND.; 12 WET COND.

ANGLES=9; 9 DRY COND.

SIDESWIPE, OPPOSITE DIR.=2 DRY COND.; SAME DIR.=3; 2 DRY COND, 1 WET COND.

HEAD ON = 3; 3 DRY COND.

OPPOSING LEFT TURN = 1 DRY COND.; STRAIGHTWAY

REMAINING CRASHES WERE BACKING AND SINGLE VEHICLE = 17

I. Roadway Deficiencies

There are no horizontal or vertical deficiencies. There does not appear to be any drainage issues along the route.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

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

STIP Pg.#: TIP Pg.#:

The project is in an attainment county. The project would be considered low potential for meaningful MSAT effects. A qualitative analysis will be required during Phase I design as part of the NEPA process.

B. Archeology/Historic Resources

Known Archeological or Historic Resources are present

There are some known archaeological sites in close proximity to the project area but it cannot be determined if there will be impacts until alternates are established. An archaeological investigation will be required during phase I design as part of the NEPA process. Additionally, there are some structures in the project corridor that may be 50 years old, but cannot be determined for certain at this time. Further study and coordination will be required during Phase I design to determine any potential impacts to historic structures.

C. Threatened and Endangered Species

Threatened and Endangered Species are listed for the project area. The list includes Gray Bat, Indiana Bat, Northern Long-Eared Bat, Virginia Big-Eared Bat, Cumberland Bean, Cumberland Elktoe, Cumberlandian Combshell, Fluted Kidneyshell, Littlewing Pearlymussel, Tan Riffleshell, and Virginia Spiraea. A Habitat Assessment / Biological Assessment will be required during Phase I Design.

D. Hazardous Materials

Potentially Contaminated Sites are present Potential Bridge or Structure Demolition

There is at least one structure within the project limits and though it is unlikely that suspect materials would result, an ACM inspection/survey will be required during Phase I design.

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

A 404/401 permit will be required for any stream crossing/stream impacts and will be determined during phase I design.

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 [KYTC Noise Analysis and Abatement Policy?](#) Yes No

There is some residential development along the corridor in addition to agricultural, industrial development as well as Rockcastle County High School. Traffic Noise Impact Analysis will be required during Phase I design as part of the NEPA process.

G. Socioeconomic

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

It appears that ultimate ROW has already been acquired, however this project is in the preliminary stage so the status is subject to change as the project advances.

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

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

It appears unlikely that any 6(f) resources will be impacted however the project is in the preliminary stage so that status is subject to change as the project advances. The potential exists for 4(f) resources but that cannot be determined with certainty at this time. Historic and archaeological survey/investigation will take place during Phase I design.

Anticipated Environmental Document:	CE Level 1 
IV. PROJECT NEED, PURPOSE & SCOPE	
A. Need:	
The following needs have been identified for this project: 1) Improve Roadway Safety. 2) Improve Access and Increase Capacity for all vehicle types.	
B. Purpose:	
<ul style="list-style-type: none">•Address safety and access issues along KY-461 from US-150 to I-75 interchange.•Provide a safe and secure highway system on existing and planned corridors to reduce fatalities and injuries in the region.•Maintain and improve existing infrastructure in the region while including all appropriate modes of transportation.•Improve local, regional, global connectivity, and access.•Dependable and easy access to economic and tourism development in the region.	
C. Scope:	
The project includes 2.404 miles of KY 461 in Rockcastle County and widening the bridge structure over an abandoned CSX RR track. Widening along the existing alignment with some deviation to facilitate maintenance of traffic would seem to be most appropriate to accommodate current and future traffic demands. This section of KY 461 was constructed in 1985 with Ultimate Right of Way. Therefore, majority of the construction will be on the west side (left) of the existing alignment of KY 461. (Ultimate Typical and Initial Typical are shown in Exhibits.) The widening of KY 461 will increase the capacity and will benefit the traveling public.	

V. PROJECT ESTIMATE & METHODOLOGY

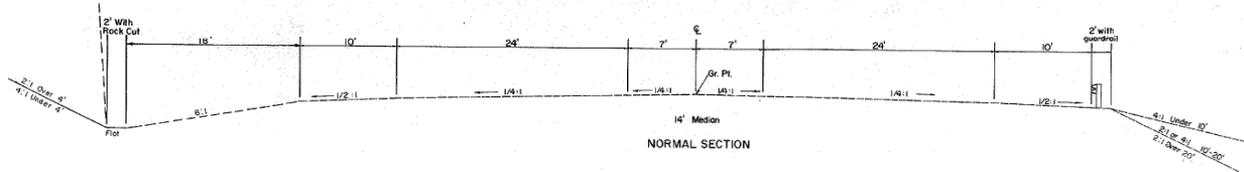
Estimate Methodology:	Current Estimate	
COST PER MILE:	<u>Phase</u>	<u>Estimate</u>
D -\$0.6 Million / Mile	Planning	\$0.00
R -Due to Ultimate Design - no addition R/W expected, but estimating for unforeseen items.	Design	\$1,500,000.00
U -Due to Ultimate Design - only expect water and sewer utilities	R/W	\$500,000.00
C -\$7.5 Million / Mile	Utilities	\$1,500,000.00
	Const	\$18,000,000.00
	Total	\$21,500,000.00

VI. UTILITIES POTENTIALLY AFFECTED - CONTACT INFORMATION

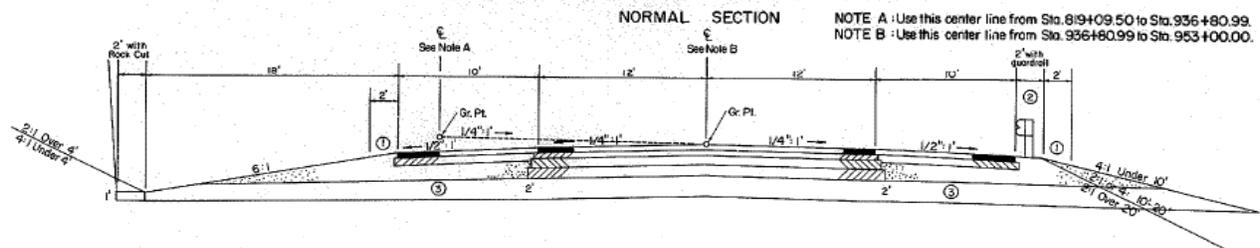
Company Name -	City of Mount Vernon Water
Contact -	Frank Baker
Address -	P.O. Box 1465 Mount Vernon, KY 40456
Phone No. -	606-256-3437
Company Name -	Kentucky Utilities
Contact -	Miles Whaskey
Address -	200 East Water St. Richmond, KY 40475
Phone No. -	859-358-5068
Company Name -	Spectrum
Contact -	Michael Grubbs
Address -	5026 South Hwy 27 Somerset, KY 42501
Phone No. -	606-679-7832
Company Name -	Western Rockcastle Water
Contact -	Paula Deborde
Address -	P.O. Box 627 Mount Vernon, KY 40409
Phone No. -	606-256-8283
Company Name -	Windstream Communications
Contact -	Richard Sadler
Address -	395 N. Main Street Somerset, KY 42501
Phone No. -	606-678-5361
Company Name -	Rockcastle County Board of Education
Contact -	Trent Clark
Address -	245 Richmond St. Mount Vernon, KY 40456
Phone No. -	606-308-1682

VII. TABLES AND EXHIBITS

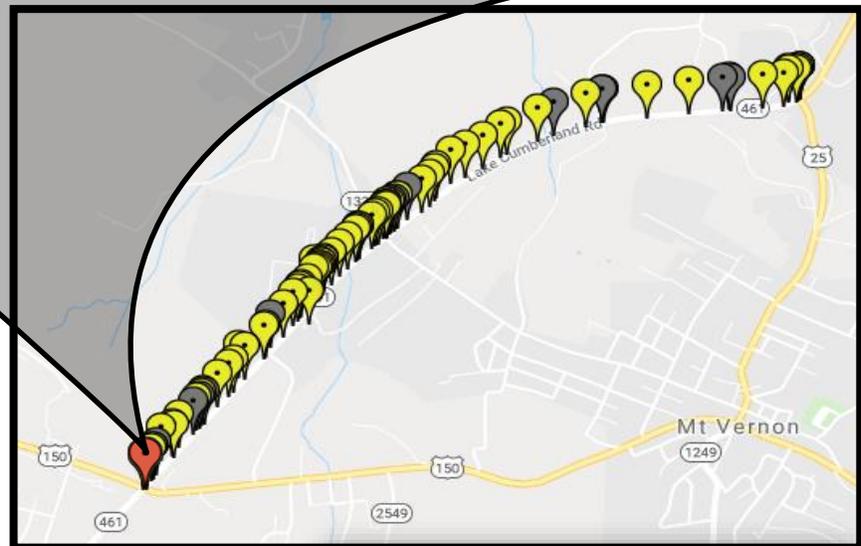
ULTIMATE TYPICAL SECTIONS



INITIAL TYPICAL SECTIONS



Unit 1 was traveling west on US 150. Unit 2 was traveling south on KY 461. Unit 1 was attempting to beat a red light going through the intersection. Unit 2 was traveling south going through a green light at the intersection. Unit 1 and unit 2 collided in the intersection primarily in the lane of travel that unit 2 would had used if she was able to travel south on 461 through this intersection. Unit 1 and unit 2 collided and sent both vehicles right of the intersection if facing south from KY 461. Unit 1 was parallel with KY 461 facing south at final rest. Unit 2 was facing north with the front of the vehicle in a ditch. Both Units sustained moderate to severe damage with air bags deployed. Unit 1 died on the scene and was not wearing a seat belt and got ejected from his seat but remained in the vehicle his head striking the inside of the vehicle causing severe head trauma.



Killed

Injured

Property Damage

Collisions w/injury:	12
Collisions w/fatality:	1
Collisions w/property damage:	84
Collisions w/commercial vehicle:	12
Total injuries:	25
Total fatalities:	1
Total All Reports	97

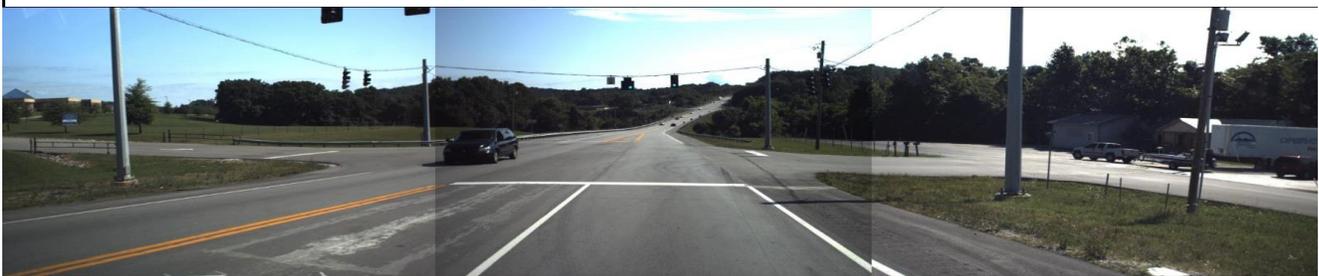
VII. TABLES AND EXHIBITS (cont.)



KY 461 (6.998) AT US 150



KY 461 (7.038) BRIDGE 102B00058N OVER CSX RR



KY 461 (7.7980) ROCKCASTLE HIGH SCHOOL ENTRANCE / JERRI LN



KY 461 (8.073) AT KY 1326



KY 461 (9.404) AT US 25