

MEMORANDUM

TO: BILL GULICK, P.E.
DIRECTOR, DIVISION OF HIGHWAY DESIGN

ATTENTION: TRAVIS CARRICO, P.E.
LOCATION ENGINEER

FROM: JOE PLUNK, P.E.
T.E.B.M. FOR PROJECT DEVELOPMENT, DISTRICT 3

BY: STEWART LICH, P.E.
DESIGN SECTION, DISTRICT 3

DATE: APRIL 24, 2014

SUBJECT: 3-0319.00, ALLEN/SIMPSON COUNTY
KY 100 RECONSTRUCTION FROM KY 622 TO LEE KEEN ROAD
emars no. 8687801D
FD04 107 0100 016-020
FD04 002 0100 000-001

A Preliminary Line & Grade/Project Team Meeting was held on April 22, 2014, at the District 3 Office in Bowling Green. The purpose of this meeting was to recommend an alternative for final design. A list of attendees and discussion topics are listed below.

Those in attendance were:

Greg Meredith	KYTC District 3 - Chief District Engineer
Joseph Plunk	KYTC District 3 - Project Development
Andrew Stewart	KYTC District 3 - Design
Deneatra Henderson	KYTC District 3 - Planning
Renee Slaughter	KYTC District 3 - Environmental Coordinator
Kelly Divine	KYTC District 3 - Right of Way
J.C. Puryear, Jr.	KYTC District 3 - Utilities
Jonathon Ross	KYTC District 3 - Utilities
Stewart Lich	KYTC District 3 - Design
Kevin Gearlds	KYTC District 3 - PD&P II
Aaron Wallace	KYTC District 3 - PD&P II
Daryl Price	KYTC District 3 - Traffic
Travis Carrico	KYTC Central Office - Location Engineer
Rusty Wallace	KYTC Central Office - Maintenance

Introduction

The meeting began with the review of the typical section. The selected typical section is the same section used on the previous section of the KY 100 improvements (3-8306) and consists of 2-12' lanes with 8' shoulders (4' paved). The only difference is that this project will have truck climbing lanes for approximately ½ mile which will introduce a third 12' lane. The issue of whether or not to narrow the shoulder as a cost savings effort was brought up and Travis Carrico said that the preferred KYTC standard is to maintain a full shoulder through the truck climbing lane. Since the project cost estimate falls within the Highway Plan programmed funding for FY2018 it was agreed to maintain the full shoulder unless it required excessive right of way for some reason. It should also be noted that an unmarked cemetery on the south side of KY 100 opposite of Clay Smith Road was brought to our attention through the public meeting comment forms. The cemetery markers were removed by the landowner in the 1970s but no graves were relocated. This has been confirmed by multiple landowners in the area.

Public Meeting Summary

On March 25, 2014, an open house style public information meeting was held at the Franklin-Simpson Center from 4:00pm to 6:00pm, CDT. Large display exhibits of the two proposed alignments including typical sections were on display for the 26 meeting attendees. Project handouts were provided as well as survey questionnaires. Upon the expiration of the public comment period on April 9, 2014, there were 30 survey questionnaires received from the public. The following table shows a breakdown of the responses and if they preferred Alternate 1, Alternate 2, or a No Build option. Responses were identified as a result of clear sentiment on the part of the respondent.

Response Type	Quantity	People Represented (individual)	Alternate 1 Preference (Individual)	Alternate 2 Preference (individual)	No Build Preference (Individual)
Survey Questionnaire	30	35	11	18	1

The survey questionnaires from the public meeting show more support for Alternate 2 than Alternate 1 or the No Build Alternate. All public responses said there was a dire need for major road improvement in the project area. We learned of one cemetery in the project limits that was not located in our aerial survey.

Existing Road Concerns:

- Safety
- Dangerous vertical curves
- Heavy tractor trailer truck traffic
- Dangerous hill with limited sight distance at Clay Smith Road intersection
- Several accidents including fatalities
- Narrow driving lanes

General Comments:

- The intersection of KY 100 and Clay Smith Road (Hop Over Hill) was cited by several individuals as a dangerous intersection with inadequate sight distance, especially at night.
- The majority of the respondents acknowledged that the road is unsafe and needs to be improved.
- KY 100 has high traffic with a lot of big truck traffic between Scottsville and I-65.
- Farm equipment safety
- Kathryn Gibson said their farm has a cave, a spring, and several sinkholes that would probably be negatively impacted by Alternate 1.
- Jimmy & Vicki Law said their property has a natural water supply spring that will be impacted by Alternate 1 and a natural spring that will be impacted by Alternate 2. They prefer a “no build” with a couple spot improvements.
- Bobby Hughes said there is an unmarked cemetery on the south side of KY 100 near the intersection of Clay Smith Road. This cemetery has been verified through other landowners.

Alternate 1 Comment Summary:

- The large majority of the comments that supported Alternate 1 said they felt that it was the safer of the two alternates.
- The residents that did not support Alternate 1 did not want their property to be split and felt that Alternate 1 would severely de-value their property. They did not feel that a new cross country route was needed in order to fix the problem.

Alternate 2 Comment Summary:

- Several had concerns that the existing KY 100 would become a county road or a secondary state highway and would not be well maintained like it is now. Their main concern was snow removal. Kathryn Gibson is concerned about the disruption to their farming operations and their ability to move livestock and farm equipment from one side of the road to another.

Alternate 2

The design team reviewed Alternate 2 first. Alternate 2 connects to the proposed 3-8306 project at Hickory Flats Road (KY 622) and continues its horizontal tangent. Alternate 1 and Alternate 2 are identical until Sta. 670+41.14 where Alternate 2 continues along the existing KY 100 corridor. The proposed Alternate 2 route parallels on the north and south and crosses the existing KY 100 roadway at 5 locations. This creates a complex design which will result in difficulties of maintaining the existing KY 100 traffic during construction. From Sta. 750+00 to Sta. 785+00, the existing roadway has a down grade of approximately 8%-9%. According to current KYTC design standards,

this type of roadway should be limited to a 7% maximum grade. In order to maintain a 7% down grade and vertical crest curve with the appropriate sight distance, the proposed vertical alignment creates elevation differences between existing and proposed of approximately 10'-15'. This results in steep driveways that range in grade from 10%-13% and some required the addition of sharp horizontal curves to increase the length of the driveway just to keep the vertical grades within an acceptable limit. Alternate 2 has right of way impacts to 42 parcels and 3 relocations. The following are some of the main issues discussed during the meeting.

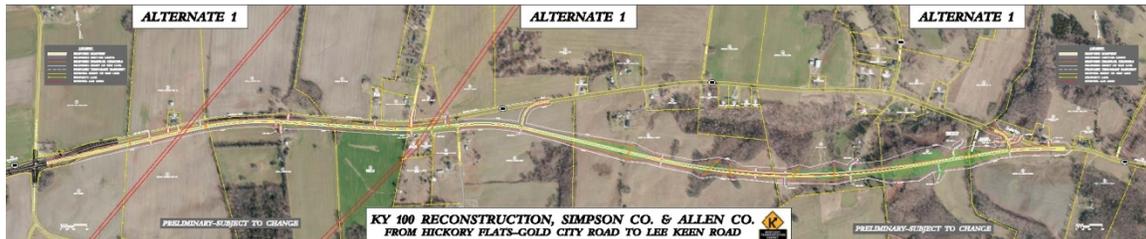


- Switches to the north side of the road at Sta. 685+00 and does not impact historic property.
- This alternative has approximately half of the earthwork as Alternate 2; however when the diversions and maintenance of traffic is considered, Alternate 2 is more expensive and much more complicated to construct.
- Alternate 2 has more stream impacts and mitigation requirements than Alternate 1.
- Alternate 2 also impacts a natural spring that will require a spring box to be installed in the proposed embankment.
- Alternate 2 has much more significant impacts to the telephone, water, and overhead power utilities. This not only adds cost to the project but will add time to the construction schedule.
- Alternate 2 results in only one roadway and bridge to maintain.

Alternate 1

Alternate 1 was reviewed next. Alternate 1 also connects to the proposed 3-8306 project and continues its horizontal tangent. This alternate remains parallel to the existing KY 100 alignment and then diverges on a cross county route to the south at Sta. 710+00. Alternate 1 provides a straighter, better geometric route than Alternate 2 and has right of way impacts to only 24 parcels and 2 relocations. On Monday, April 21, 2014, the Simpson County Judge Executive, Jim Henderson, came to the KYTC District Office and had a meeting with Greg Meredith, Joe Plunk, and Stewart Lich. During this meeting, the Public Meeting Exhibits were laid out and various issues were discussed with the Judge Executive about the project. Judge Henderson also informed us that the Simpson County Court had passed unanimously Resolution #2014-04-15HWY100E which states that Alternate 1 will severely negatively impact the quality of life of several residents and landowners along the eastern most part of the corridor. It also stated

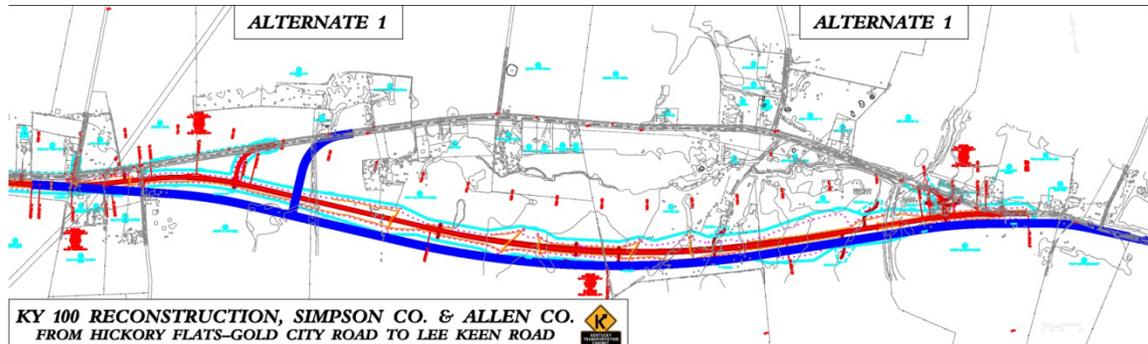
that the Simpson County Fiscal Court requests that decision-makers select “Alternate 2” as the route for improvements to above mentioned section of Highway 100 East, and abandon any efforts to choose “Alternative 1”. This resolution was discussed and considered during the meeting. The following are some of the main issues discussed during the meeting.



- Residential house located at Right Sta. 685+00 is a potential historic property but is not on the national registry. Alternative 1 will impact this property.
- Clay Smith Road and McKendree Church Road is an area of concern geometrically. Have had sight distance complaints in the past. Recommended to refine this area during Final Design.
- Alternate 1 & 2 cross two major gas transmission lines. Comment was made to check these areas closely during Final Design to ensure that we have roadway embankment and that there are no roadway ditches here.
- Earthwork does balance, however most of the excavation is located on the east end of the project which would result in long hauls for the excavation equipment.
- The current alignment has an approach road at left Sta. 796+50 which will serve as a connector to the existing KY 100. It was discussed as to whether this should be eliminated and the existing bridge removed and close the existing road just west of the Simpson/Allen County line. The design team chose to look at shifting this connector to the west of Sulphur Creek to eliminate the existing bridge to see if this is a cost effective option. After further investigation, it was determined that an approach road at Sta. 787+75 Lt. would cost approximately \$550,000 for construction and \$390,000 for stream impacts, which results in a total of \$940,000 more than if the existing bridge was left in place. It was also estimated that if the existing bridge had to be replaced in the future, the estimated replacement cost would be approximately \$525,000. Kevin Gearlds also brought up the issue that construction of this approach along the bluff line would be very difficult and would result in a higher chance of roadway slides in the future. After considering the difference in cost and the construction issues the project team agreed to leave the Existing KY 100 bridge in place.
- It was noted that this alternate has no telephone impacts in Simpson County. Which could result in a more expedited construction schedule.

Alternate 1A

During the meeting with Judge Henderson, the idea of a modified Alternate 1 was developed which was referred to as Alternate 1A during the meeting. This alternate will take the Alternate 1 alignment and shift it farther to the south from Sta. 669+64.59 to Lee Keen Road to lessen the impacts on the Ewell, Gibson, and Law properties. This would also shift the end of the project approximately 1000' to the east and eliminate the relocation of the Harold & Barbara Walker parcel. The following exhibit represents the proposed Alternate 1A in blue.



Additional Property Owner Meeting

On June 18, 2014, a meeting was held in the KYTC District 3 main conference room to show concerned property owners the Preferred Alignment 1A and how it compared to the original Alternate 1 that was presented at the Public Meeting. In attendance were as follows:

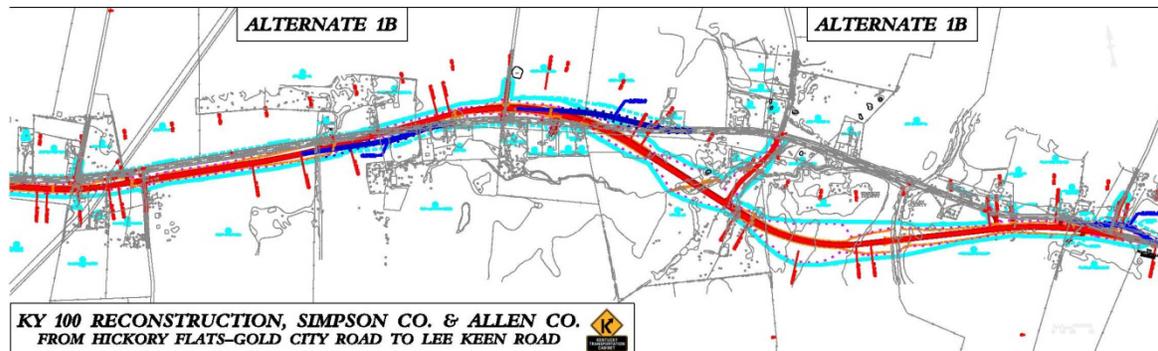
Kenneth & Anita Ewell	Property Owner
Ralph & Kathryn Gibson	Property Owner
David Broderick, attorney	Representative for Mr. & Mrs. Gibson
Harry Law	Property Owner
Mickey & Melissa Gregory	Property Owner
Harold & Barbara Walker	Property Owner
Philip Walker	Property Owner
Will & Eleanor Brown	Property Owner
Judge Jim Henderson	Simpson County Judge Executive
Marty Chandler	Simpson County Magistrate
Greg Meredith	KYTC
Joe Plunk	KYTC
Andrew Stewart	KYTC
Stewart Lich	KYTC
Kevin Gearlds	KYTC

During this meeting the property owners in attendance were shown exhibits showing the differences between Alternate 1 and Alternate 1A. During this meeting the property owners expressed their support for Alternate 2 and did not support the selection of

Alternate 1A as the preferred alignment. Their support for Alternate 2 was mainly due to the fact that Alternate 1A would impact three farms, and that after the construction of Alternate 1A some of the residents would live on a secondary state highway that would not receive the same maintenance that it currently does. It should be noted that this meeting was only intended to show the affected property owners the difference between Alternate 1 and Alternate 1A and therefore the potential relocatees involved on Alternate 2 were not invited to this meeting, and thus were not able to voice their support for an alternative. It should also be noted that the majority (or all) of the potential relocatees involved on Alternate 2 are located in Allen County and did not have an elected official at the meeting like the Simpson County property owners did.

Alternate 1B

During this meeting Judge Jim Henderson developed the idea of an Alternate 1B that would continue along the existing KY 100 route for an additional $\frac{1}{4}$ of a mile before detouring south across the Harry Law property, thus minimizing impacts to the Ewell and Gibson parcels. Over the next few days, Alternate 1B was analyzed geometrically and a construction cost estimate was developed. Due to the terrain that Alternate 1B crossed and the additional earthwork and drainage structures that would be required, it resulted in approximately \$1,100,000 of increased construction cost. This alternate would also have additional utility relocation cost as well due to the additional length of roadway that follows the existing KY 100 route. Due to these issues the design team determined that Alternate 1B was not a feasible design alternative.



Cost Analysis

The following chart shows the preliminary estimates for each alternative.

Cost Comparison						
	Alternate 1	(Preferred) Alternate 1A	(W/out Existing Bridge) Alternate 1A	Alternate 1B	Alternate 2	Latest Approved Highway Plan
Right-of-Way	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$1,950,000	\$640,000
Utilities	\$6,940,000	\$6,940,000	\$6,940,000	\$7,340,000	\$7,740,000	\$1,500,000
Construction	\$8,400,000	\$8,600,000	\$9,540,000	\$9,700,000	\$8,600,000	\$9,600,000
Total	\$17,340,000	\$17,540,000	\$18,480,000	\$19,040,000	\$18,290,000	\$11,740,000
% Above SYP	48%	50%	57%	62%	56%	

Preferred Alternative

It is the opinion of the design team that **Alternate 1A** would provide the best alternative for the relocation of KY 100 from KY 622 to Lee Keen Road. This alternative is the least intrusive to the community, impacts the fewest number of residents, and provides the safest geometric alignment for the roadway. The Project Team also recommends that the existing bridge be left in place versus constructing a new connector on the east end to serve the existing route.