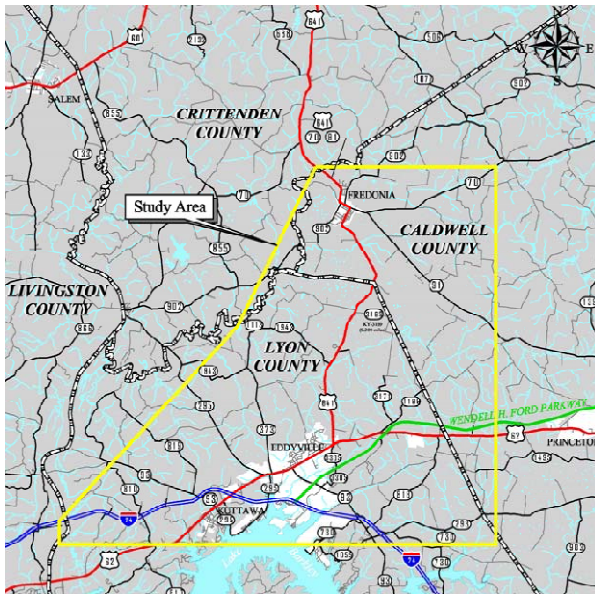


KENTUCKY TRANSPORTATION CABINET
US 641 ALTERNATIVES STUDY, LYON & CALDWELL COUNTY
Reconstruction/Relocation of US 641 from Eddyville to Fredonia
July 2005

The Kentucky Transportation Cabinet (KYTC) has undertaken this planning study to gather critical information necessary to develop and evaluate alternatives for the possible reconstruction of a portion of US 641 in Lyon and Caldwell Counties. The southern terminus for the proposed project is either I-24 or the Wendell H. Ford Western Kentucky Parkway at or near Eddyville in Lyon County. The northern terminus is the proposed improved section of US 641 north of Fredonia in Caldwell County, for which the design phase has been completed.



The existing US 641 corridor is a 2-lane roadway through rolling terrain with travel lanes ranging between 10 feet and 12 feet. Shoulders are approximately four (4) feet, except a short section in Lyon County where they are 10 feet. The posted speed limit ranges from 35 mph to 55 mph.

Project Purpose and Need

The following summarizes the purpose and need established for this project:

- Allow the designation of the route for the legal operation of 102-inch wide trucks between Eddyville and Fredonia;
- Provide improved access to the National Truck Network and National Highway System to support economic development initiatives in the region; and
- Provide improved access from north of and in the vicinity of Eddyville to regional recreational and tourist areas, including Lake Barkley and Kentucky Lake.
- Provide a direct connection to either I-24 or the Ford Parkway through an extension of the programmed US 641 project between Fredonia and Marion. This would provide an improved corridor from I-24 near Eddyville to US 60 near Henderson that could serve as an alternate corridor to the Edward T. Breathitt (Pennyryle) Parkway and the Ford Parkway; and
- Help to alleviate public concerns about safety and level of service (LOS) along the existing US 641 corridor by providing a reconstructed highway or an alternate route with improved roadway geometrics for motorists traveling between Eddyville and Fredonia.



Typical Section along US 641

Traffic Considerations

The existing traffic volumes along US 641 in the study area range between 3,080 and 3,400 vehicles per day (vpd). Existing truck percentages are approximately 16.8% of the total traffic along the study route.

Almost all of US 641 in Lyon County (MP 0.108 to MP 5.715) currently operates at LOS D, while the Caldwell County segment of US 641 (4.629 miles) operates at LOS D and LOS E. Typically, a minimum of LOS D is considered acceptable in urban areas and LOS C is considered acceptable in rural areas. All other study area routes currently operate at LOS C or better except US 62 in Eddyville, which operates at LOS D.

Assuming no transportation improvements, Year 2025 traffic was estimated based on historic traffic growth in Lyon and Caldwell Counties. Traffic along US 641 was forecasted with a compounded annual growth rate of 2.2% through Year 2025, resulting in an increase of over 60 percent from 2003 to 2025, or an average daily traffic (ADT) range from 5,000 to 5,500 vpd. The study portion of US 641 in Lyon County (5.715 miles) is expected to operate at LOS D in the Year 2025, while the Caldwell County segment of US 641 (4.629 miles) would continue to operate at LOS D and E.

With completion of improvements to the US 60/US 641 corridor, some traffic could be diverted from the parkways and volumes on US 641 in the study area could increase to 14,800 vpd in 2027.



Traffic along US 641 slowed because of a mowing crew

Environmental Issues

A number of environmental factors and sensitive land uses were identified through the course of this study, including:

- Mill Bluff Spring;
- Prime farmland and a proposed agricultural district;
- Potential endangered or threatened species habitat;
- Potential water quality issues and impacts to aquatic habitats as a result of karst topography;
- Cemeteries and unmarked graves;
- Environmental justice issues related to low-income populations; and
- Existing and potential historic structures.

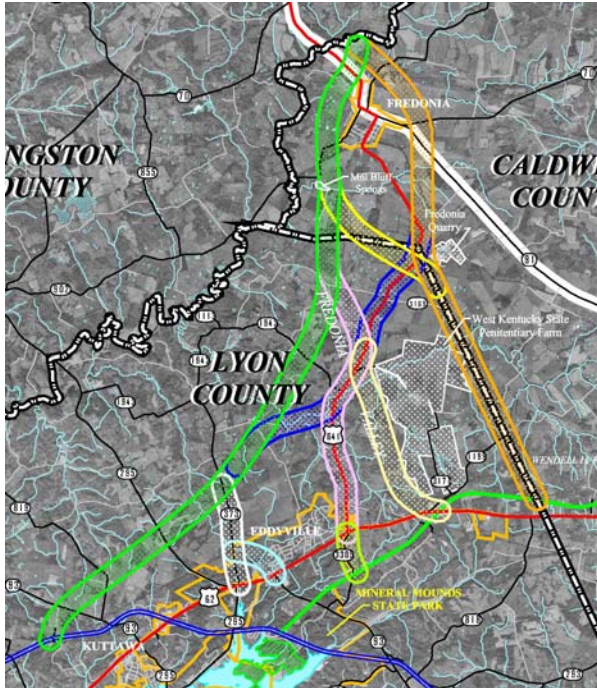
Public Involvement

Throughout the study, local citizens, public officials and interest groups were given the opportunity to provide input. In addition, input was solicited from many local, state, and Federal agencies. Survey responses from the initial public meetings indicated that approximately 75 percent of respondents were in support of the reconstruction/ relocation of US 641.

Alternatives Evaluation Process

A tiered evaluation process was undertaken to evaluate proposed alternative(s). Initially, 12 alternative corridors were developed, and these were evaluated as part of a Level 1 Screening process. Findings were presented to the project team, and minor adjustments were recommended. The project team also added two (2) new alternatives, for a total of 14 alternatives, and recommended that six (6) of the original 12 alternatives be eliminated from further evaluation, leaving eight (8) alternatives for further evaluation.

As part of the Level 2 Screening process, environmental and geotechnical assessments were conducted for the remaining eight (8) alternative corridors. Local citizens, public officials and representatives of government resource agencies were then given the opportunity to react to the proposed improvement alternatives through a second round of public involvement activities. Results of the Level 2 Screening were summarized and presented to the project team for discussion. The result of this meeting was the recommendation of a preferred build alternative.



14 Proposed Alternative Corridors

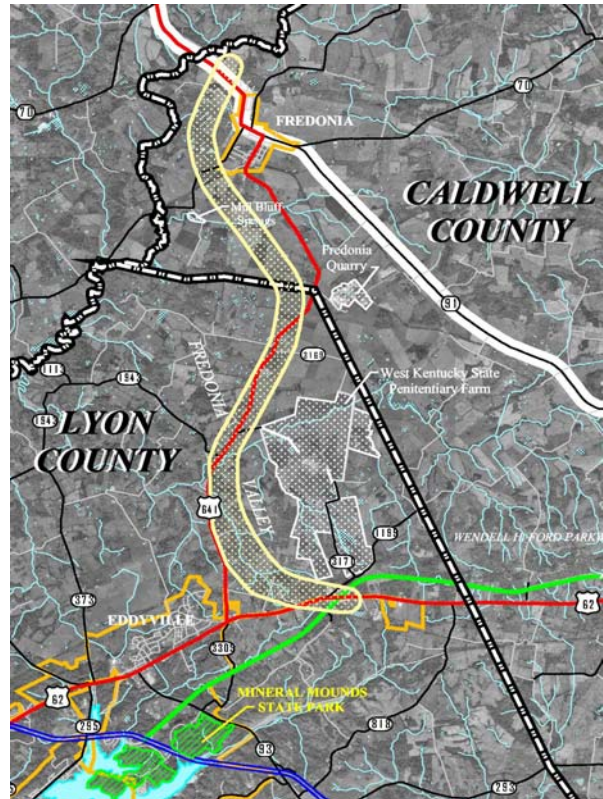
Recommendations

Alternative 4 was selected as the preferred alternative; however, the project team agreed that a revised version should be taken into the next phase of project development to better address public concerns. Specifically, Alternative 4 should be modified to minimize the impacts on farmland and wildlife habitats and be positioned to the south and west of Fredonia as close as deemed practical.

To minimize impacts on farmland and wildlife habitats, Alternative 4 was revised to utilize more of existing US 641. The Alternative 4-Revised section just south of Fredonia was shifted east merging with the existing corridor southwest of the Fredonia Quarry. The corridor closely follows existing US 641 south until it diverges east near the Paducah and Louisville Railway. The corridor also provides improved access to the Pennyriple WestPark Industrial Park and the Fredonia Quarry.

Alternative 4-Revised is closer to Fredonia as a result of the revisions and allows the Mill Bluff Spring to be avoided. The Kentucky Department of Corrections was opposed to the

close proximity of Alternative 4 to the West Kentucky State Penitentiary Farm. The shift of the corridor closer to US 641 helps address their concerns. Alternative 4-Revised would allow US 641 to be re-aligned near the existing Ford Parkway interchange (Exit 4) and US 62 to be re-aligned as a T-intersection with US 641.



Preferred Alternative

In addition to Alternative 4-Revised, the No Build Alternative is recommended to be carried forward to the next phase. However, it should be noted that the No Build Alternative does not meet the project purpose because it does not (1) allow the designation of the route for the legal operation of 102-inch wide trucks between Eddyville and Fredonia, (2) provide improved access to the National Truck Network and National Highway System, (3) provide improved access to regional recreational and tourist areas, (4) provide a direct connection to either I-24 or the Ford Parkway from the northern section, and (5) address safety and level of service concerns, particularly in the Fredonia area.

Typical Section

The typical section is expected to match the northern section now designed for US 641 between Fredonia and Marion. This will likely include:

- Four (4) 12-foot lanes with usable shoulder widths of 10 feet;
- Sixty-foot median;
- A design speed of 70 miles per hour; and
- Minimum stopping sight distance of approximately 730 feet.

Cost Estimates

As shown in the following table, the preferred alternative, Alternative 4-Revised, which is 9.9 miles in length, is expected to cost approximately \$90.81 million. No funds are scheduled at this time in the Six-Year Highway Plan for the design or construction of this project.

Phase	Anticipated Project Cost
Design	\$2,970,000
Right-of-Way	\$6,930,000
Utility Relocation	\$6,930,000
Construction	\$73,980,000
Total	\$90,810,000

Construction Considerations

A number of issues were identified through the course of this study that should be considered as part of future construction phases, as follows:

- Threatened and Endangered Species: With bat habitat known to exist within the project area, tree clearing would need to be conducted between November 15th and March 31st in order to avoid impacting the summer roosting period and fall swarming period.
- Erosion and Sedimentation Control: Measures should be utilized to control erosion and sedimentation during, and after, the commencement of earth-disturbing activities. The construction of this project may initially increase the amount of erosion. There may also be an

increase in non-point source pollution after the construction of this project. Careful consideration should be given to erosion control methods and to decreasing the amount of non-point source pollution that reaches surface and ground water.

- Air Quality Impacts during Construction: Construction period air quality impacts will need to be evaluated to (1) expose the potential short-term effects of site preparation, demolition, materials storage and construction and (2) determine if any appropriate mitigation commitments are to be incorporated into the project plans.
- Geologic Conditions: If deemed necessary, a more detailed study of karst topography within the study area, particularly the structural low condition south of Fredonia, should be considered as the project develops.
- Quarry: The Fredonia Quarry is located southeast of Fredonia along the east side of existing US 641. Blasting for road cuts near the quarry may present some concern for the miner's safety. Coordination with the quarry during construction is recommended.

Additional Information

Additional information regarding the US 641 Alternatives Study can be obtained from the following KYTC Division of Planning staff members:

- Annette Coffey, P.E., Director
- Daryl J. Greer, P.E., Branch Manager
- Jimmy C. Wilson, P.E., Team Leader

The following address and phone number can be used to reach these individuals:

Division of Planning
 Kentucky Transportation Cabinet
 Station: W5-05-01
 200 Mero Street
 Frankfort, KY 40622
 Phone: (502) 564-7183

