



KENTUCKY TRANSPORTATION CABINET
Department of Highways
DIVISION OF HIGHWAY DESIGN

TC 61-9
Rev.07/2013
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KY 55, HEARTLAND PARKWAY, DESIGN EXECUTIVE SUMMARY

COUNTY Adair and Taylor	ITEM # 04-142.00, 4-142.10	FEDERAL PROJECT # HPP 0127(001), HPP 0130(005)	eMARS PROGRAM # 79703 01D, 02D, 03D
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STATE PROJECT NUMBER(S) FD52 109 0055, FD52 001 0055
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PROJECT DESCRIPTION
In Adair County, widen and reconstruct KY 55 (Heartland Parkway) from Columbia Bypass (MP 15.101) to Taylor County line (MP 21.305). In Taylor County, widen and reconstruct KY 55 (Heartland Parkway) from Adair County line (MP 0) to Blue Hole Road (MP 8.003) and construct Campbellsville Bypass on new alignment.

ROADWAY CLASSIFICATION <input type="checkbox"/> Local <input type="checkbox"/> Collector <input checked="" type="checkbox"/> Arterial <input type="checkbox"/> Interstate <input checked="" type="checkbox"/> Rural <input type="checkbox"/> Urban
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ADT (2010) 6,800 to 9,700	ADT (2036) 8,500 to 22,000	DHV (2035) 900 to 2,200
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POSTED SPEED LIMIT <input checked="" type="checkbox"/> 55 (<i>rural</i>) <input type="checkbox"/> 35 (<i>urban</i>) <input type="checkbox"/> Other (<i>Specify.</i>)
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DESIGN SPEED (<i>selected by the project team</i>) 55 mph

Concurrence in noted typical exceptions to be obtained from the Director of Highway Design

DESIGN CRITERIA	EXISTING	TYPICAL	PROJECT TEAM RECOMMENDATION
Number of lanes	2 (3w/Truck Climbing & Passing)	4	4
Pavement width	24 ft - 36 ft	2 x 24 ft	2 x 24 ft
Shoulder width, slope	Varies 4-10 ft, 6.25%	8 ft	12 ft (10 ft paved), 4%**
Bridge width	37' Outside, 29' Clear	38 ft Clear	43' Outside, 40' Clear
Minimum radius ($e_{max}=8\%$)	2,291.83 ft	960 ft	2,750 ft
Maximum grade	5%*	5%	5%*
Minimum sight dist.	460 ft sag, 581 ft crest	495 ft	495 ft (KY 55), 657 ft (Campbellsville Bypass)
Border area (<i>urban</i>)			
Other			

DESIGN CRITERIA NOTES
 * Between Sta. 109+40 and Sta. 131+00, the existing grade is 6% for a distance of 2,160 feet through a cut section in the Tebbs Bend National Historic District and the US Army Corps of Engineers Tailwater Recreation Area. There is an existing truck climbing lane on the upgrade side of the road. Additional flattening of the grade can be evaluated in final design to optimize the grade while avoiding additional environmental impacts.
 ** See Discussion for Typical Sections



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ACCESS CONTROL TYPE

Partial Control of Access (1200 ft spacing)

ENVIRONMENTAL ACTION

EA

COMPLETION DATE *(scheduled or actual)*

EA Approved 6-19-2013 (FONSI Anticipated June 2014)

EXISTING PAVEMENT DEPTHS

(Estimated) 6"-8" asphalt concrete on 12" to 15" aggregate

ATTACHMENTS

1. Map showing project location
2. Typical sections, including bridges *(on 8.5 X 11 inch paper)*
3. Cost comparison table of alternatives vs. Six-year Plan

DISCUSSIONS

1. Alternatives considered including preferred and no build
2. If preferred alternate cost is 15% or more above Six-Year Plan cost
3. Maintenance of traffic plan
4. Avoidance alternatives to water-related impacts
5. Consideration for bicycle and pedestrian facilities
6. Purpose and need statement

SUBMITTED BY PROJECT ENGINEER (*Dept. of Highways* or *Consultant*)

Gary W. Sharpe, PE, PLS

DATE

02-19-2014(Rev -05-5-2014)

RECOMMENDED BY PROJECT MANAGER**DATE****RECOMMENDED BY LOCATION ENGINEER****DATE****RECOMMENDED BY TEBM** *(for location)***DATE****COMMENTS****GEOMETRIC APPROVAL GRANTED BY**

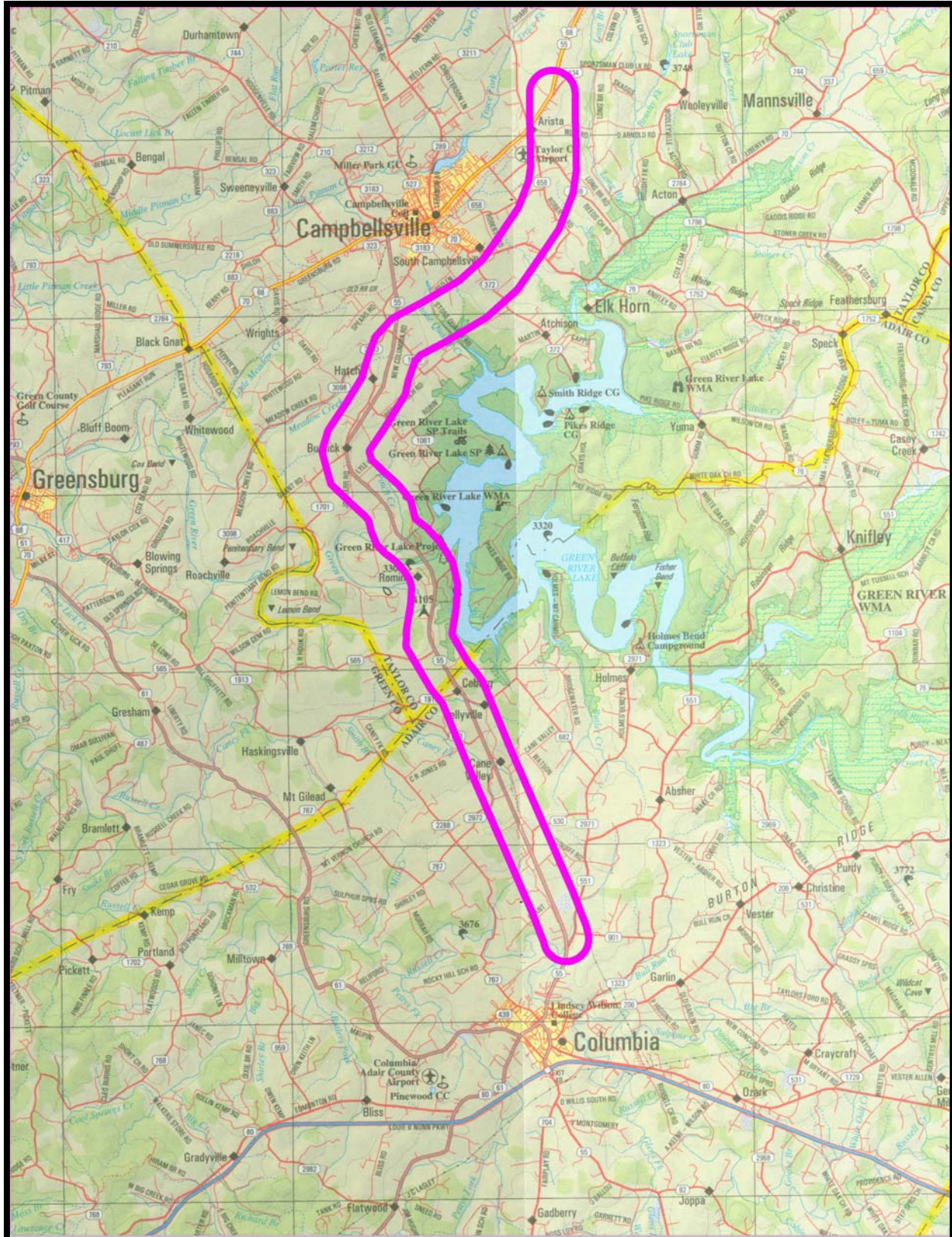
SIGNATURE *(Director, Division of Highway Design)*

DATE



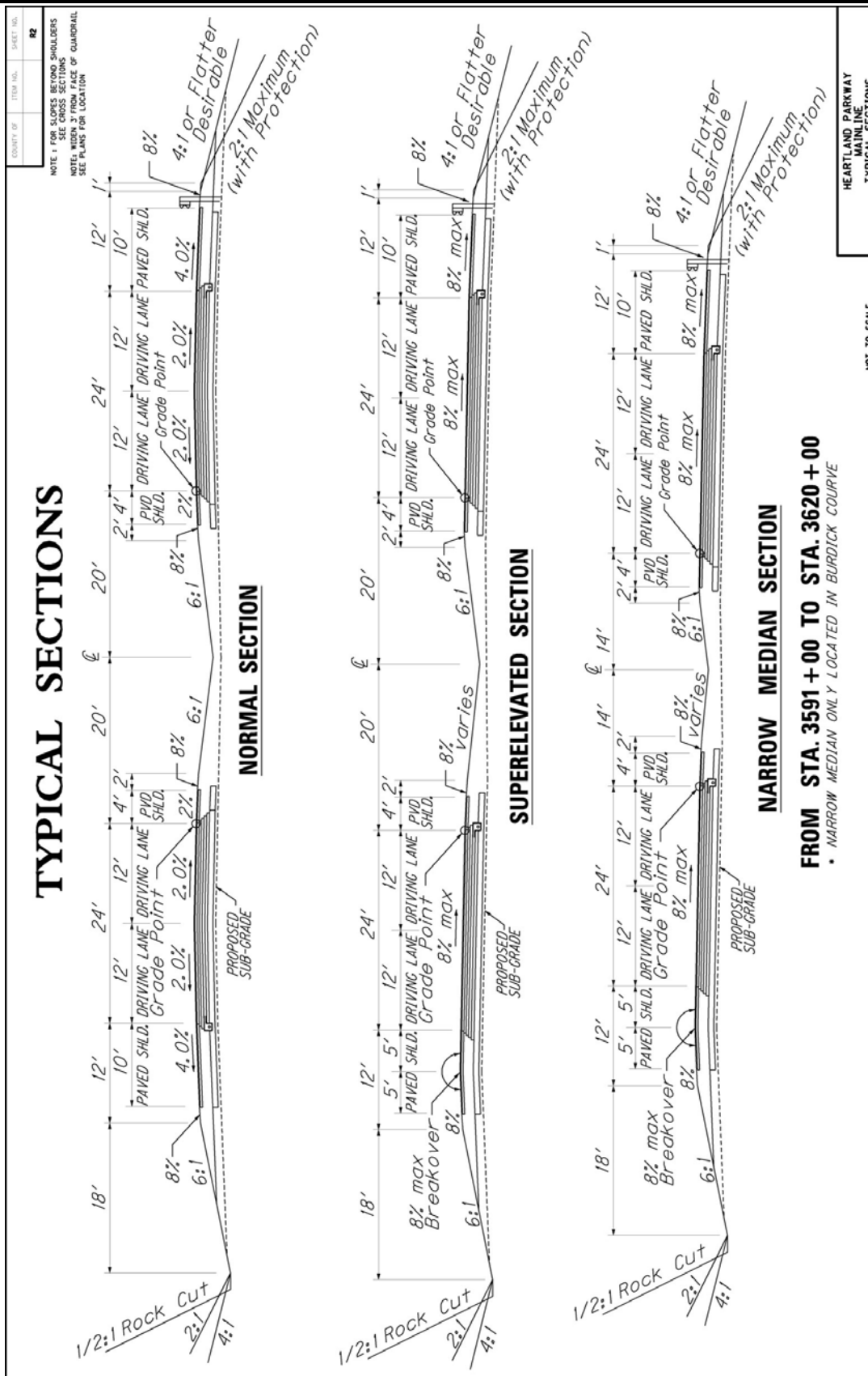
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KY 55, HEARTLAND PARKWAY LOCATION MAP



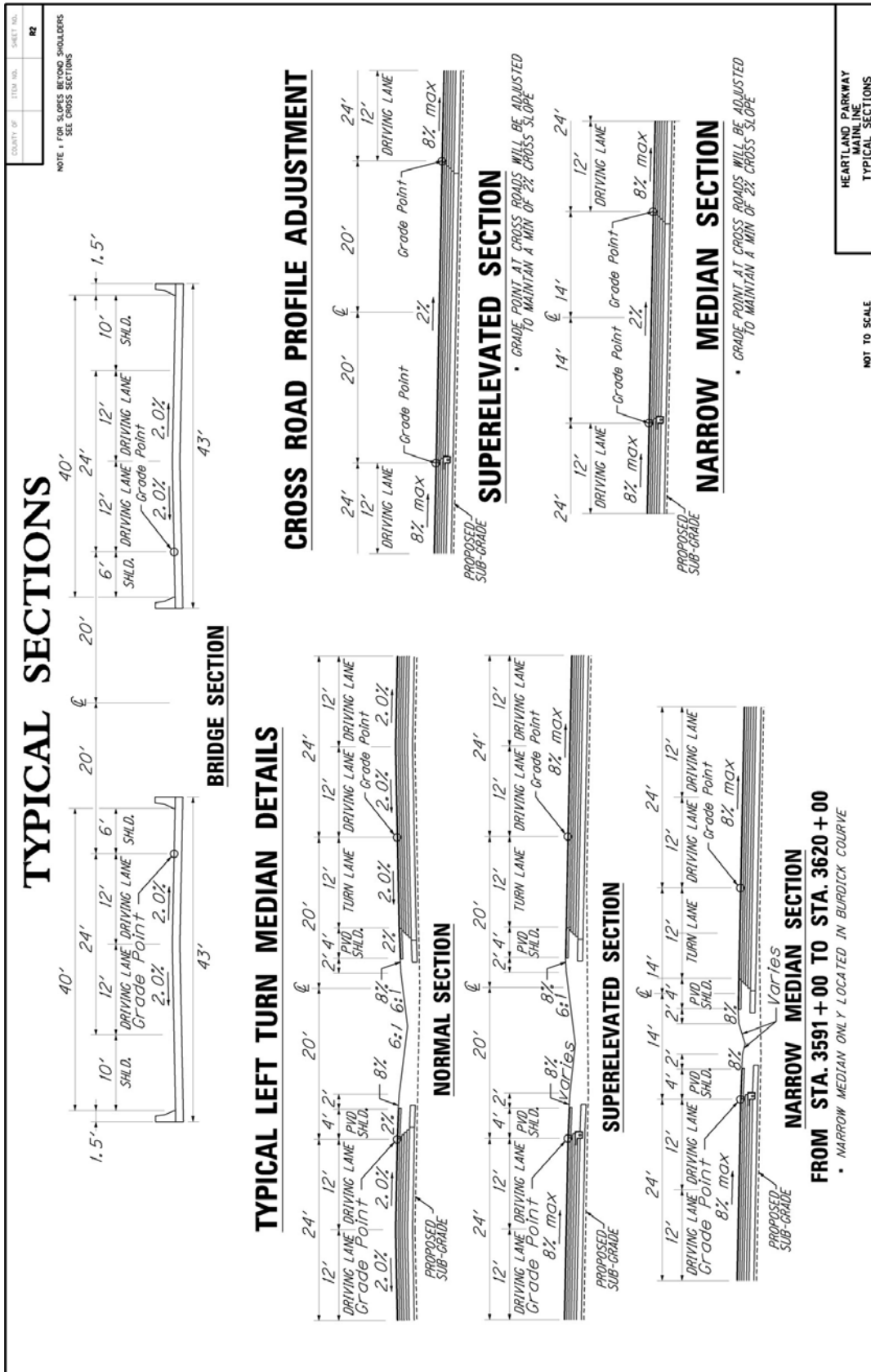


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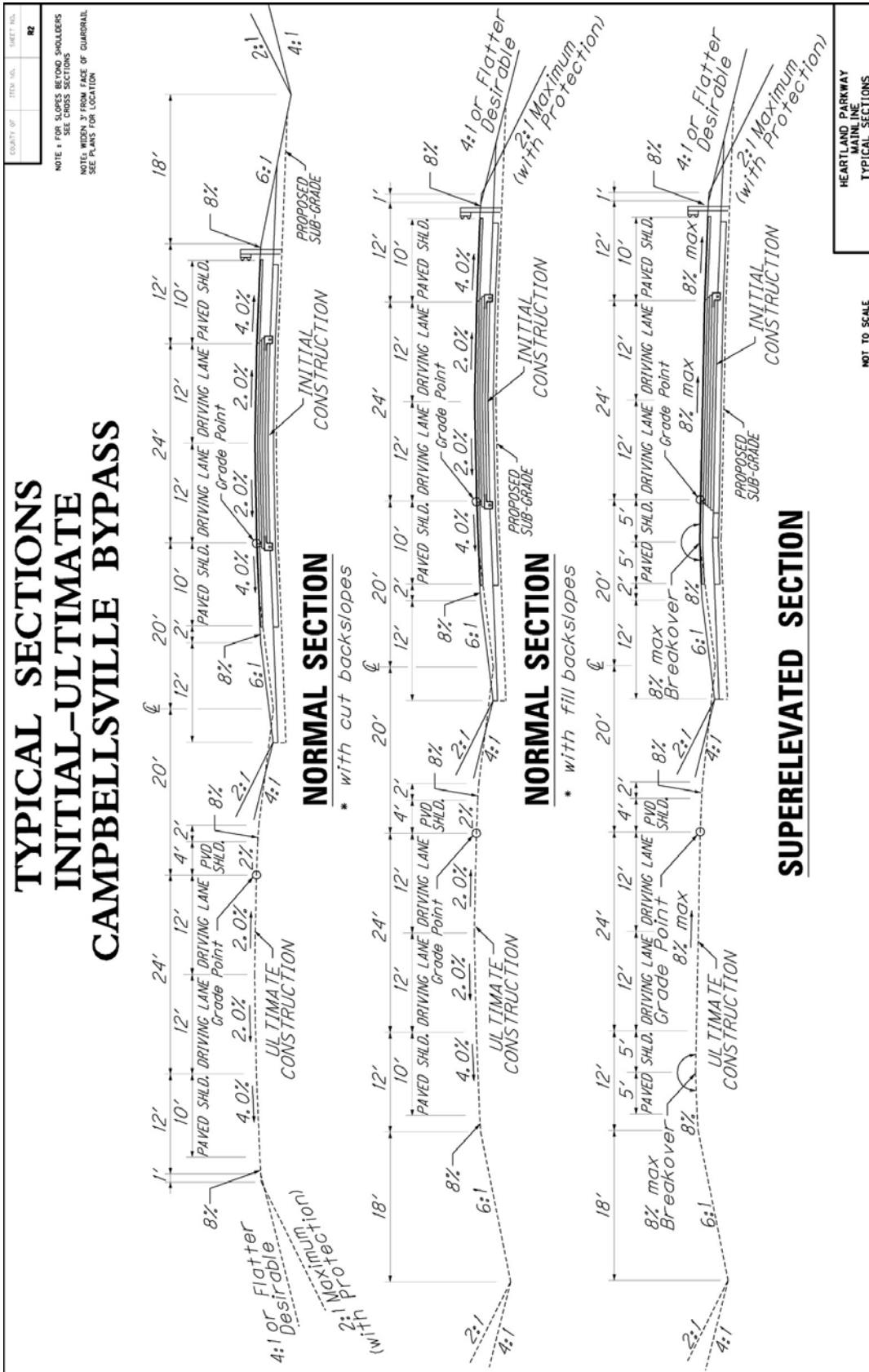


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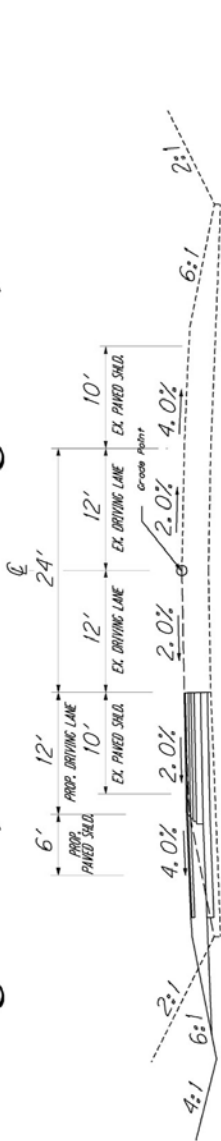


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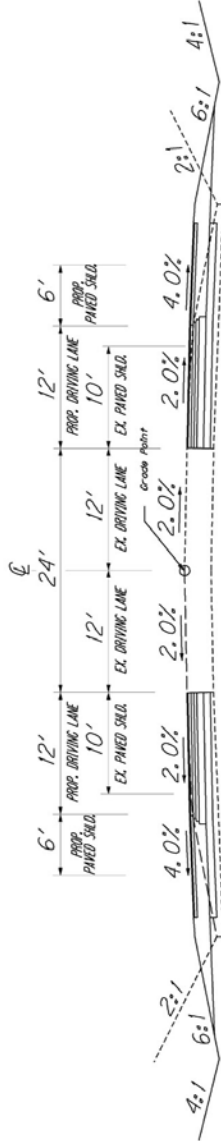
COUNTY OF	DIST. NO.	SHEET NO.
		R2

NOTE: * FOR SLOPES BEYOND SHOULDER
 SEE CROSS SECTIONS

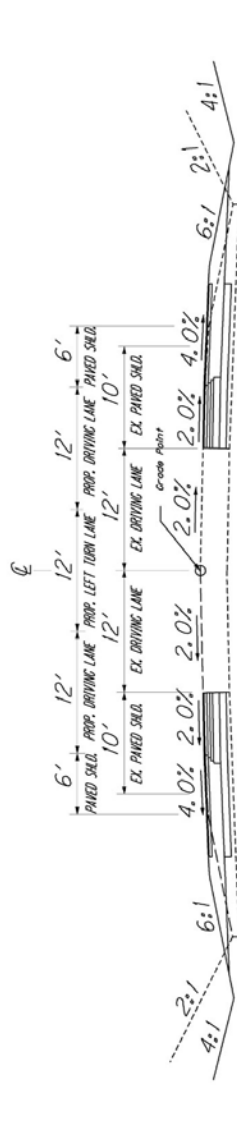
TYPICAL SECTIONS
Passing Lanes, Truck Climbing Lanes, Turn Lanes



NORMAL SECTION - 3 LANE



NORMAL SECTION - 4 LANE



NORMAL SECTION - LEFT TURN BAY

HEARTLAND PARKWAY
 TYPICAL SECTIONS

NOT TO SCALE



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PURPOSE AND NEED STATEMENT

The Heartland Parkway corridor, between the Louie B. Nunn Cumberland and Martha Lane Collins Bluegrass parkways, runs through the heart of west-central Kentucky. The corridor can be characterized as both rural and urban, two-lane and multi-lane, depending on which portion is studied. The *Heartland Parkway Alternatives Planning Study (2005 Planning Study)*¹ addressing the entire parkway corridor was published by KYTC in 2005.

To create within the corridor a wider, more uniform road that would allow for growth and greater ease of long-distance hauling and transportation, the roadway is under study for major improvements. By widening the two-lane sections to four lanes, and bypassing the constricted urban areas, the roadway could become a major alternative to north-south travelers between and generally parallel to the I-65 and I-75 corridors.

This section of the Heartland Parkway project, from just north of Columbia to northeast of Campbellsville, represents a major portion of that goal. The existing roadway (see Figure 4) is two lanes from the Columbia Bypass to approximately 1.0 mile south of KY 1625 (Blue Hole Road), and four lanes from this point to US 68, which is four lanes through Campbellsville. With narrow, constricted lanes, numerous stoplights, considerable side-road traffic, and pedestrian crossings, the route through Campbellsville creates a major constriction to the overall corridor.

Previous planning studies have identified capacity deficiencies along the route. The deficiencies contribute to heavy congestion and a related traffic delays, particularly in Campbellsville's central business district; and to high crash rates at several locations. The purpose and need for the KY 55 project are as follows:

Purpose. To complete the Columbia-to-Campbellsville link in the planned Heartland Parkway, which extends between the two parkways, thereby advancing the overall goals of the *Heartland Parkway Alternatives Planning Study* and addressing the local goals identified through local public involvement initiatives. The overall goals from the 2005 Planning Study were:

- Improve regional access for economic development, existing industry, truck access, tourism, higher education, and agricultural economy.
- Improve safety.
- Improve highway capacity in certain locations.
- Decrease delays through the communities.
- Improve emergency response times.

The local goals identified through the Columbia-to-Campbellsville local public involvement activities reflect those overall goals and expanded upon the tourism element by calling for improved access to tourist attractions in the area, particularly Green River Lake and the state park, which has high summer use; and historic sites such as the Battle of Tebbs Bend Historic District and Homeplace on Green River, a historic farmstead.



Sandusky Steel, north of Columbia Bypass.



Business parking south of Bypass.



Housing area along west side of KY 55.



Heading north on KY 55 south of Green River.

¹ WMB Inc. Engineers. February 2005.



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Need. The need for the improvement within the corridor is demonstrated by the following data showing the projected decline in the level of service (LOS) through the corridor by the year 2036, and the current safety issues related to congestion.

- Along KY 55 in the project corridor, year 2010 average daily traffic (ADT) volumes ranged from 6,800 to 9,700 vehicles per day (vpd). By the year 2036 the ADT volumes are projected to range from 13,000 to 22,000 vpd. The LOS for the baseline years was “D,” and the LOS without any improvements (No-Build) is projected to fall from LOS “D” to “E” at four locations.
- KYTC vehicle classification data south of Campbellsville (in Taylor County) indicated the percent of medium and heavy trucks (see typical scene at right) on KY 55 was 12.5% in the baseline years, and the design year (2036) estimate is 13.0%².
- Five nearly continuous high crash spots have been identified along US 68 (Main Street) in Campbellsville from approximately Hoskins Avenue to just east of Cherokee Drive. These locations would each be bypassed by the proposed Campbellsville Bypass. Several high crash spots in Taylor County are clustered on KY 55 between Green River Bridge and Lone Valley Road (KY 1061).
- Legislative approval for funding is needed for continued advancement of this project for future phases – right of way, utilities, and construction. Funding was proposed for Right of Way, Utilities, and Construction for the Campbellsville Bypass in the 2014 Recommended Six Year Plan. However, as the Six Year Plan evolved through the legislative process, proposed funding was modified. The Conference Committee on HB 237 approved in April 2014 funding for right of way acquisition for the section of the Campbellsville Bypass from KY 55 to KY 70 (\$9.2 million in FY 2016). The Conference Committee on HB 237 also approved in April 2014 \$710,000 for design in FY 2015 and \$1.425 million for Right of Way in FY 2016.



Truck Northbound on KY 55

DISCUSSION OF ALTERNATIVES

The identification and evaluation of alternatives were the most important and critical steps of this study. Alternatives that could meet the purpose and need for the project were identified and given consideration. Starting from a wide range of alternatives, the number of alternatives was reduced as more detailed information was collected and analyzed. Purpose and need, environmental factors, engineering feasibility, public comment, and cost were evaluated before a preferred alternative was recommended. Alternatives considered in determining whether they met the purpose and need for the project included:

- A No-Build (“Do Nothing”) Alternative
- Build a road on new alignment within the same general roadway corridor
- Rebuild the existing road either in total or at selected locations (“spot” improvements)

No-Build Alternative. The No-Build Alternative is one in which KYTC would take no action to improve the existing roadway. No residential displacements or commercial impacts would occur with the No-Build Alternative. Overall, however, selection of the No-Build Alternative would not meet the stated purpose and need of the proposed project. The

² *Heartland Parkway Traffic Forecast Update, Final Report.* Revised March 7, 2012.



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No-Build Alternative would be expected to result in progressively deteriorating conditions for safe, efficient, and economical (time and money) vehicular traffic movement that would, in turn, impede improvement of the socioeconomic environment of Columbia, Campbellsville, Adair County, Taylor County, and the region. Selecting the No-Build Alternative would over time diminish access to the area's major tourist centers, and fail to provide an adequate transportation network for traffic and economic development. Public safety would continue to be a concern. The increasing volume of passenger vehicles, recreational vehicles, and large trucks could result in elevated crash rates in areas that are already experiencing or approaching high rates. These negative impacts would translate to increased costs to drivers and lessened freight accessibility, which can lead to a lack of competitive and locational advantages and can impact opportunities for employment and economic development.

Build Road on New Alignment. In 2005 the *Heartland Parkway Alternatives Planning Study* examined alternatives on new alignment, west of KY 55, but found them to be unacceptable in terms of impacts, and cost. Therefore, the alternatives considered during this phase remain within the existing corridor except for the Campbellsville Bypass section. As recommended in the *Alternatives Planning Study*, a bypass of Campbellsville on new alignment was proposed.

Rebuild the Existing Road. Improving existing KY 55 was recommended in the 2005 *Alternatives Planning Study* and is the approach that is proposed for most of the roadway in this current study.

Identification of Alternatives began with public meetings where input was solicited on the location of items such as historic properties, cemeteries, utilities, and public areas. Applications were also taken to be a member of citizen advisory Focus Groups.

To facilitate preliminary design and environmental analysis within the 21-mile-long corridor, the project corridor was divided into three unique sections:

Section 1 begins near KY 556 at the Columbia Bypass and extends northward to the Adair-Taylor County line, for a distance of 6.2 miles. The project in this section includes a connection to the Columbia Bypass, and road widening alternatives east of, west of, and centered on KY 55.

Section 2 begins at the county line and continues the widening options along KY 55, over the Green River, to just south of KY 1625 (Blue Hole Road), for a distance of 8.0 miles.

Section 3 leaves KY 55 corridor in the vicinity of KY 1625 to bypass Campbellsville, and travels on new alignment east of Campbellsville to US 68/KY 55 northeast of Campbellsville, for a distance of 6.7 miles.

Each section of the corridor was divided into segments to (1) initially, allow for comparisons of alignments within each segment; and (2) ultimately, connect segment alignments to form end-to-end build alternatives (i.e., extending the entire length of the project corridor) for evaluation and recommendation of a preferred alternative.

In all, there were 15 segments, from 1a and 1b in the south end of the corridor to 14 in the north. Each segment contained from two to five alignment options referred to as "segment alternatives." The naming convention used to identify the segment alternatives relied on the segment number plus one of the following colors that illustrated the alternatives on exhibits shown at public meetings, at project team meetings, and in the EA: Yellow (Y), Green (G), Red (R), Light Blue (LB), and Orange (O).

At the first round of Focus Group meetings the groups were asked for ideas and to help identify local issues and locations that needed to be considered. Comments from the public and focus group meetings were used to develop a broad range of alternatives. The public and focus groups were shown the alternatives and their comments used to make modifications through an iterative process. The focus groups also helped pare down the alternatives until there were three build



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alternatives for the existing KY 55 portions of the project with an additional avoidance alternative in some segments. The Campbellsville Bypass had five alternatives that were pared down to three.

In the segments that follow existing KY 55 the Green (G) alternatives add two lanes to the west of the existing road, the Yellow (Y) alternatives add two lanes to the east of the existing road and the Red (R) alternatives construct all four lanes centered along the existing KY 55 centerline. In some segments a Light Blue (LB) alternative on a new alignment was used to avoid unique conditions and circumstances. The Orange (O) alternatives were used only at intersections. In Segment 1a, the Orange alternative and a variation (Orange dashed) were developed as a tight radius free-flowing connection from improved KY 55 to the Columbia Bypass. The Orange alternative (an Orange dashed variation) considered in Segment 1a was eliminated from further consideration because of curvature considerations and superelevation. The Orange alternative shown in Segment 14 was a “T” intersection with existing US 68 / KY 55. This alternative was ultimately selected as the preferred alternative by the Project Team.

In the Campbellsville Bypass segments (10 - 14) the Light Blue (LB) alternatives were closest to town, the Red (R) alternatives were furthest from town and the Yellow (Y) alternatives were in between the others.

Various combinations of segment alternatives have produced four end-to-end “build alternatives”—Alternatives A, B, C, and D (recommended as the preferred alternative)—that are evaluated herein. The No-Build Alternative is included in the evaluation process for the purpose of comparing it with the build alternatives.

The project is proposed as a four lane, divided roadway with 12-foot-wide driving lanes, a median (variable width), 12-foot-wide outside shoulders (10-foot paved and 2-foot gravel) and 6-foot-wide inside shoulders (4-foot paved and 2-foot gravel), left-turn lanes where necessary, and a 55 mile-per-hour (mph) design speed. The proposed KY 55 is to be a partial-access-controlled facility (i.e., access locations spaced at least 1,200 feet apart).

There are potentially five or more locations where either a roundabout or a “T” intersection could be considered as an at-grade intersection configuration:

- At the Columbia Bypass intersection
- At the south and north termini of the proposed Campbellsville Bypass
- At KY 70, Elkhorn Road, along the Campbellsville Bypass
- At KY 372, Smith Ridge Road, along the Campbellsville Bypass
- At any location where a traffic signal could be warranted

Because the No-Build Alternative would not meet the project’s purpose and need, build alternatives were developed that would widen and reconstruct an approximately 14-mile section of the existing road and also provide a bypass of Campbellsville on new alignment. The locations of the alternatives took into account several constraints including USACE requirements/ recommendations related to the Green River crossing and recreational areas (having potential Section 4(f) use); historical resources with potential Section 106 and Section 4(f) involvement; natural resources such as wetlands, streams, and endangered species habitat; farmland and residential/commercial impacts; and engineering constraints related to the crossing of Green River and Green River Dam emergency spillway area.



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COST ESTIMATE (Costs in \$ millions)

Versions of the Six Year Road Plan prior to 2014 included only funding for design. The 2014 Recommended Six Year Plan recommended funding for the Campbellsville Bypass only. This included \$23.9 million for construction, \$17.2 million for right of way, and \$1.2 million for utilities – Total \$42.3 million for the Campbellsville Bypass only. There was no funding recommended for the remainder of the Heartland Parkway Corridor. As the Six-Year Road Plan was developed through the legislative process, fund was modified and ultimately was resolved through Conference Committee on HB 237 in April 2014. The 2014 Conference Committee funding recommendations are included in the Cost Estimate summaries below as appropriate.

Corridor Cost Estimates (Columbia Bypass to North of Campbellsville including Campbellsville Bypass)

	2005 Planning Study	Alt A	Alt B	Alt C	Alt D recommended
		1aY-14Y	1aG-6G, 7Y, 8Y, 9G, 10Y, 11R-14R	1aO, 1bY, 2Y, 3R, 4Y, 5Y, 6LB-13LB, 14Y	1aY, 1bG, 2Y, 3G, 4Y, 5G, 6LB, 7-8Y, 9-10LB, 11-13Y, 14O
Construction:	\$97.4	\$127.3	\$147.5	\$143.7	\$123.0
Right of Way:	\$23.3	\$49.1	\$45.2	\$51.1	\$45.4
Utilities:	\$15.7	\$19.9	\$17.5	\$18.2	\$15.8
Total:	\$136.4	\$197.1	\$210.2	\$213.0	\$184.2

Campbellsville Bypass to Columbia Bypass

	2005 Planning Study 4-lanes	2005 Planning Study 2-lanes (with Spot Imp)	2013 Projected Costs 4-lanes	2013 Projected Costs 2-lanes (with Spot Imp)	Recommended (2 lanes with Spot Imp)	2014 Conference Committee Six Year Plan*
Construction:	\$64.2	\$10.1	\$ 76.2	\$14.20	\$14.20	-
Right of Way:	\$17.5	\$ 0.2	\$ 24.9	\$ 1.42	\$ 1.42	\$1.43*
Utilities:	\$13.8	\$12.0	\$ 10.5	\$1.42	\$ 1.42	-
Total:	\$95.5	\$22.3	\$111.6	\$17.04	\$17.04	\$1.43*

* The April 2014 Conference Committee on HB 237 included these funding recommendations.

Campbellsville Bypass

	2005 Planning Study 4-lanes	2005 Planning Study 2-lanes	2013 Projected Costs 4-lanes	2013 Projected Costs 2-lanes (2 int/4 ult)	Recommended (2 ln int / 4 ln ult)	2014 Conference Committee Six Year Plan
Construction:	\$33.2	\$20.6	\$ 39.1	\$23.9	\$ 23.9	-
Right of Way:	\$ 5.9	\$ 5.9	\$ 17.2	\$17.2	\$ 17.2	\$9.2*
Utilities:	\$ 1.9	\$ 1.9	\$ 1.2	\$ 1.2	\$ 1.2	-
Total:	\$41.0	\$28.4	\$ 57.5	\$42.3	\$42.3	\$9.2*

* The April 2014 Conference Committee on HB 237 included these funding recommendations.



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OPERATIONAL ANALYSES

Design Memorandum No. 03-11, Traffic Engineering Analysis, November 2, 2011, an operational analysis was completed. Initial traffic forecasts were provided May 14, 2007. Revised / updated traffic forecasts were provided February 16, 2012. Based on 2007 traffic forecasts, the v/c ratio was 1.04 for KY 55 which justified four lanes. However, with the 2012 revised traffic forecasts, the v/c ratio now is less than one which does not justify four lanes. However, the v/c ratio is approaching the 1.0 threshold and with any increase in traffic volume, the v/c could again justify four lanes. Thus, an interim strategy of the truck climbing lanes / passing lanes (2+1) was studied as an interim improvement strategy until traffic volumes increased to the point that four lanes were justified. Two lanes are only justified for the bypass based on either traffic forecast. However, the bypass was initially conceived as a free-flowing movement to KY 55 to the south and KY 55/US 68 to the north per the 2005 Planning Study. The combination of reduced traffic volumes and the alternative concept of “T” intersections at either end of the bypass further enhanced the concept of a 2-lane initial / 4-lane ultimate concept. In addition, with the likelihood that traffic on KY 55 will eventually increase to a point that 4 lanes are justified, preserving the corridor for a future corridor four lanes for the bypass was recommended. The table below summarizes the results of the volume / capacity (v/c) ratios.

	2007 Forecast		2012 Forecast	
	2 Lane	4 Lane	2 Lane	4 Lane
KY 55 (South of Bypass)	1.04	0.69	0.86	0.58
Campbellsville Bypass	0.68	0.45	0.38	0.24

TYPICAL SECTION

Page 1 of this document describes the project team recommendations regarding the proposed typical sections for this project. Illustrations for the typical sections are shown on Pages 4-7.

The shoulder width as shown on Page 1 and in the typical sections (Pages 4-7) indicates a 10-foot usable shoulder (10 feet to face of guardrail, 12 feet to shoulder break). This shoulder width was determined based on comments included in presentations to the public that the typical section would mimic the typical section for the Lincoln Parkway between Hodgenville and Elizabethtown. However, all illustrations shown during public meetings were generic and did not show specific dimensions. However, cost estimates used for comparative analyses were based on this typical section. There also were discussions during public meetings, citizen advisory committee meetings, and project team meetings that this segment of roadway traversed through farmland and that using wider shoulders would allow farm equipment more space to get off the roadway. Wider shoulders also would provide additional space for trucks and/or disabled vehicles to exit the roadway in event of emergencies which also contributed to use of the 10-foot paved shoulder.

Information in the Highway Design Manual and draft Design Memorandum No. 02-14, Design Guidance for Proposes Shoulder Widths on New Construction and/or Reconstruction Projects (April 21, 2014) indicated the following:

For average daily traffic (ADT) greater than 2000 and a Rural Arterial roadway, the minimum graded shoulder width is 8 feet. Draft Design Memorandum 02-14 indicated the graded shoulder typically is the usable shoulder + 2 feet. The usable shoulder is the actual width available for vehicles to pull off the roadway. The width of paved shoulder may be any portion of the usable shoulder up to the face of barrier (if present) or to within 2 feet of the normal shoulder slope break. Therefore, on the basis of minimum criteria, the shoulder width could be 8 feet (6 feet paved to the face of barrier).



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However, under this scenario, the 6-foot to the face of barrier will not allow sufficient width to allow a disabled vehicle to completely exit the roadway or to allow for slow moving farm equipment to leave the roadway and be completely off the driving lanes. Additionally, there may also be constructability concerns associated with a 6-foot paved shoulder to face of barrier.

Thus, while it is possible to reduce the width of shoulder based on current design guidance and criteria, many of the issues associated with making these changes have not been fully evaluated through the project team process. Thus, it is recommended that the DES reflect the wider shoulder widths with the discussion that reductions in shoulder width should be considered in final design.

Interim Improvement Concept for KY 55 (Columbia Bypass to Campbellsville Bypass)

Page 7 illustrates conceptual typical sections for adding truck climbing lanes, passing lanes, and turn lanes in a modified 2+1 context. These were identified as an alternative improvement strategy because of reductions in traffic growth along KY 55 between Columbia and Campbellsville as discussed in the Operational Analyses section above and were funded in the 2014 HB 237 Conference Committee Six Year Plan.

MAINTENANCE OF TRAFFIC PLAN

Maintenance of traffic along existing KY 55 will be accomplished through a combination of the existing and proposed roadways. Some temporary widening, slopes, and barriers will be needed to obtain sufficient separation between the traffic and ongoing construction. All work should be able to be done within the footprint of the proposed construction, and existing and proposed right of way. The maintenance of traffic will be phased as follows: Phase I will have traffic on the existing roadway, while constructing as much of the proposed roadway as possible. Phase II will shift traffic to constructed portions of the proposed roadway while constructing the remaining proposed roadway. Phase III will shift traffic onto the proposed alignment while finishing surfacing and striping under traffic. Temporary road closures may be allowed with certain timing and duration restrictions, but most of the project should be constructed without interrupting traffic flow.

The Campbellsville Bypass will be on new alignment so maintenance of traffic will be accomplished on existing roads with temporary diversions and flaggers or signals where existing roads are crossed by the new construction.



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BICYCLE & PEDESTRIAN FACILITIES

Coordination with local governments indicates that both Adair and Taylor counties are in the process of developing master plans for bicycle and pedestrian facilities. In addition, the 232-mile long Central Heartland Bike Tour route lies west of the project corridor from Columbia to north of the Adair-Green County line. The Central Heartland Bike Tour route uses KY 55 in two locations in Taylor County.

The Campbellsville Taylor County Trailtown Task Force (CTCTTF) is currently developing a bicycle and pedestrian plan for Taylor County. Recommendations from the proposed Taylor County bicycle and pedestrian plan will be considered in development of the final design of the Campbellsville Bypass. One trail being considered would lead from the proposed Campbellsville Sports Complex to Green River Lake State Park. The trail would pass under a bridge where the proposed Campbellsville Bypass bridges over a ravine. Details for this location will be coordinated with the CTCTTF during final design.

The Adair County bicycle and pedestrian plan is in the early stages of development. As the Adair County bicycle and pedestrian plan evolves, incorporation of this plan into future improvements along KY 55 also will be considered in final design.



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WATER RELATED IMPACTS SUMMARY

County	Adair & Taylor	Route No.	KY 55	Item No.	4-142.00
Date	02-12-2014	Program #	79703 01D, 02D, 03D		
Federal Project No.	HPP 0127(001), HPP 0130(005)				
State Project No.	FD52 109 0055, FD52 001 0055				
Location Engineer	Brent Sweger				

Section 1: Impact Checklist

Complete this section for each alternative considered at the conclusion of Phase 1 design.

FLOODPLAIN IMPACTS		
FEMA Study Type	Yes	Community No.
Detailed FEMA Study with delineated floodway*	X	210212 & 210213
Detailed FEMA Study without delineated floodway*	X	210333 & 210434
Approximate FEMA Study		
No FEMA Study		
* May require initiation of the map revision process if impacts to water surface elevations cannot be avoided. Potential impacts to floodplains and/or floodways shall be assessed early in the project. Refer to Sections DR 203 and DR 204 of the Drainage Manual.		

SIGNIFICANT RESOURCE IMPACTS				
Are open sinkholes impacted? If so, how many sinkholes are impacted?	Yes		No	X
Are wetlands impacted? If so, how many total acres are estimated? 0.347 - 0.715 acres	Yes	X	No	
Are any of the streams in the project area designated "Special Use Waters" (e.g. Wild Rivers, Exceptional Waters, Outstanding State Resource Water, etc.)?	Yes	X	No	

Where possible, alignments should be developed that avoid significant resources. When it becomes impossible to avoid a significant resource, the project should be designed to minimize these impacts. Significant resource impacts are discussed in DR 202 of the drainage manual. Wetland impacts and their costs are also discussed in DR 500 of the Drainage Manual.

Projects that impact special use waters may require an individual KPDES Erosion Control Permit. Contact the Division of Environment analysis for more information.



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STREAM CHANNEL IMPACTS				
Will stream relocations (channel changes) be needed? If so, how many total linear feet are estimated? _____ LF	Yes		No	X
Will new culverts or culvert extensions be constructed? If so, how many total linear feet are estimated? 10,770 to 11,740 LF	Yes	X	No	
Will temporary stream crossings be needed?	Yes	X	No	
Will excess material sites that require permitting be needed?	Yes	X	No	
Will bridges be constructed?	Yes	X	No	
On highway projects that involve stream crossings such as bridge and culverts, it is often not feasible to totally avoid stream channel impacts. In these cases, design the project to minimize the impacts. Stream relocations should be avoided if possible. If stream relocations are unavoidable design to project to minimize their impacts. Stream channel impacts are discussed in DR 506, 601-3, 608-2, and 802-3 of the drainage manual.				

Section 2: Impact Discussion

AVOIDANCE ALTERNATIVES TO WATER RELATED IMPACTS

The Green River crosses the project corridor and would be crossed with a bridge by all alternatives. In the reach that would be crossed the Green River is designated an Outstanding State Resource Water by the Kentucky Division of Water. Bridges will be used to span the river with no piers in the river and construction activities will be coordinated with the US Army Corps of Engineers and other agencies to minimize water related impacts.

During the development and evaluation of alternatives for this project, careful consideration was given to stream crossings to avoid or minimize their associated impacts. Locations chosen for all stream crossings were evaluated for design feasibility as well as environmental impact. Because the project is on new alignment at several locations in Sections 1 and 2 and for the entire length of the proposed bypass in Section 3, many of the proposed stream crossings are new crossings. Where the project would encounter county roads at their stream crossings, some existing stream crossing structures may be modified or relocated to accommodate the new construction.

All water leaving the construction site via ditch or sheet flow will be controlled by sediment traps or silt fence to limit any suspended sediments. Erosion control plans will be developed and included with the plan set. These plans will be updated by the contractor as construction proceeds, with all erosion and sediment devices sized to properly prevent or retain sediment from leaving the project site.