

Appendix G. Project Meeting Minutes

MEETING REPORT
Kick Off Meeting
I-69 Strategic Planning Study – Fulton to Eddyville
MAY 26, 2010

A Project “Kick-Off” Meeting was conducted on May 26, 2010 for this project at the District 1 Office in Paducah, Kentucky.

Attendees were:

Tim Choate	KYTC District 1	Tim.choate@ky.gov
Bill Gulick	KYTC – Central Office	Bill.gulick@ky.gov
Ted Merryman	KYTC – Central Office	Edward.merryman@ky.gov
David Martin	KYTC – Central Office	Charles.martin@ky.gov
Steve Ross	KYTC – Central Office	Steve.ross@ky.gov
Jill Asher	KYTC – Central Office	Jill.asher@ky.gov
Tom Hines	KYTC District 1	Thomas.hines@ky.gov
Chris Kuntz	KYTC District 1	Chris.kuntz@ky.gov
Randy Williams	KYTC District 1	Randy.williams@ky.gov
Blake Beyer	KYTC – Environmental	Blake.beyer@ky.gov
Christa Turner	KYTC – Environmental	Christa.turner@ky.gov
Mike McGregor	KYTC – TEBM	Mike.mcgregor@ky.gov
Bryan Black	KYTC District 1	Bryan.black@ky.gov
Michael Oliver	KYTC District 1	Michael.oliver@ky.gov
Susan Oatman	KYTC District 1	Susan.oatman@ky.gov
Kyle Poat	KYTC District 1	Kyle.poat@ky.gov
David Isley	BLA	Disley@blainc.com
Lee Klieman	BLA	Lklieman@blainc.com
Gary Sharpe	Palmer Engineering	Gsharpe@palmernet.com
Will Conkin	Palmer Engineering	Wconkin@palmernet.com

Following introductions, Tim Choate provided a brief overview of the project. Mr. Choate noted that this “Kick-Off” Meeting followed an earlier “Pre-Kick-Off” Meeting held April 29, 2010 with Tim Choate and Ted Merryman. The earlier meeting was held to facilitate the consultant getting started with initial evaluations of existing conditions.

Following opening remarks by Mr. Choate, Gary Sharpe summarized discussions from the “Pre-Kick-Off” Meeting held on April 29, 2010 at the District 1 Office. The meeting notes from this meeting are attached for reference (Attachment A) and resulted in the additional discussion points.

Key References for Applicable Geometric and Engineering Criteria:

- AASHTO Policy on Geometric Design of Highways and Streets, 2004 Edition
- AASHTO Policy on Design Standards Interstate Standards, 2005
- AASHTO Roadside Design Guide, 2006

Other reference sources will be the study reports for Section of Independent Utility No. 5 from Eddyville to Henderson, the various Corridor 18 Study Reports that may have application to this project, and the Division of Highway Design Manual, current edition.

The negotiated scope of services was used as a guide for discussions. In general, it was noted that work on the existing I 24 segment of the corridor would involve a more reduced scope of services. More specifically, for purposes of this study, the assessment of existing conditions on I 24 will be limited to the following:

- Existing vertical clearances
- Existing ramp taper lengths
- Crash history analyses
- Level of Service (LOS) calculations

In regard to Level of Service Calculations, it was noted that Level of Service is a matter of choice for the highway designer and is not a strict guideline for compliance in meeting requirements for designation of a route as an interstate highway. Agency policies for Level of Service may be a consideration for development of future improvement concepts. Thus Level of Service will be determined for roadway segments within the corridor and will be reported but will not be a consideration for developing recommendations for this study.

The extent that safety hardware and more specifically guardrail end treatments meet current criteria will be evaluated for this project. The consultant was directed to identify any second generation or older guardrail end treatments that do not meet current standards. Length of need will not be evaluated except for locations identified with sub-standard guardrail end treatments. Where substandard guardrail end treatments are identified, an estimate of length of need meeting current criteria will be developed and included in recommended improvement scenarios.

It was noted that guardrail end treatments on I 24 between MP 27 and 31 will be updated to current standards as a part of a pavement rehabilitation project during the summer 2010.

Earthen mounds used for pier protection in the median were discussed. It was noted that depending upon the width of median and side slopes, these may not be consistent with criteria in the AASHTO Roadside Design Guide, 2006 edition. District 1 staff noted that where the pier footings were below the elevation of the median, these could be removed and had been removed at some locations during earlier rehabilitation projects. The consultant was directed to review as-built structure plans and to validate locations in the field where modifications to existing pier protection may be needed.

Traffic forecasting assumptions were discussed. After discussion, it was ultimately decided that the annual growth rates for traffic analyses used for this segment of I 69 should be similar to those used with the previously completed section from Eddyville to Henderson. For the study from Eddyville to Henderson, the following parameters were used:

- Average Annual Growth Rates Without I 69: 1.7% to 2.1%
- Average Annual Growth Rates With I 69 & I 66 (Ford Parkway): 3.2% to 3.7%
- Average Annual Growth Rates with I 69 (Breathitt Parkway) 2.2% to 2.3%

Based on this information, the consultant was directed to use a 2% annual growth rate for the corridor without I 69. It can be seen from the above information that the relative increase in annual growth rate from the Eddyville to Henderson Study is 0.5% to 0.6% for the segments of the study that did not also include I 66. Thus, the *consultant recommends (on the basis of the adjacent section) that an annual growth rate of 2.5% for the corridor with an I 69 designation be used for this study.*

Treatment of roadside signs was discussed. The consultant was advised during the assessment of existing conditions that roadside signs that (1) were not shielded by guardrail, and (2) did not include *break-away posts* should be identified and addressed in the report. Signs that are obviously outside the clear zone should be noted as such.

The importance of identifying substandard vertical clearances was discussed as a critical aspect for the report and an ultimate designation of the corridor as a segment of I 69. The consultant advised that initial screening for substandard vertical clearances will be done using vertical clearance maps provided by the district, as-built plans, plans from more recent pavement rehabilitation projects, and data from pavement management records. The consultant concurred that vertical clearances will be verified in the field. Ted Merryman provided the consultant with a listing of structures that appeared to be less than the minimum 16.0 feet required for interstate designation.

Mr. Merryman also briefed the group on the status of recent meetings with the FHWA concerning concepts for upgrading segments of the Wendell H. Ford Western Kentucky Parkway and Edward T. Breathitt Pennyryle Parkway (SIU 5 between Eddyville and Henderson) to meet interstate standards. Mr. Merryman advised that many of the concepts and agreements evolving from these discussions for SIU 5 were likely to have application for this segment (SIU 6 Fulton to Eddyville).

Crashworthy bridge railing was discussed. The consultant was advised that substandard bridge railing not meeting NCHRP standards for crashworthy bridge railing should be replaced or upgraded to meet current standards. In situations where shoulder widths do not meet interstate criteria, shoulders should be widened to meet current criteria and bridge railing installed that meets interstate criteria. In situations where the existing shoulder width satisfies current standards for interstate routes but the bridge railing is substandard, bridge railings should be reconstructed or modified to meet current interstate standards. Discussions for modifying bridge railing included (1) removal of the existing railing and reconstruction with a bridge railing meeting current criteria, (2) adding either a constant slope wall or other approved shape wall on top of the existing curbs (if curb widths are sufficient), or (3) securely fastening three-beam guardrail to the existing bridge railing. The consultant was advised that the assessment of existing conditions would include identifying all locations with substandard bridge railing and substandard shoulder widths. It was further agreed that the consultant would work with Division of Highway Design staff to determine a "reasonable cost" for modifying bridge railing to meet current

interstate criteria and would use this as a basis for inclusion in cost estimates for needed improvements to meet interstate criteria.

Paved ditched in the median was discussed. It was noted that paved ditch in the median should not have an effect on potential designation as an interstate route unless median and ditch slopes were outside allowable criteria per the AASHTO Roadside Design Manual. The extent of pavement ditches in the median will be discussed in the report but will only be addressed recommendations if re-grading of the median is needed to meet interstate criteria.

Pier protection and crash attenuators for existing bridges were discussed. Crash attenuators that do not meet current criteria will be identified and addressed in recommendations for improvement scenarios. Of particular significance are those locations where bridge piers in the median are protected by earthen mounds. As-built bridge plans will be reviewed to determine the location of pier footings. Median slopes and distances from the driving lanes to the piers will be evaluated for compliance with the AASHTO Roadside Design Guide. Improvement scenarios for locations not meeting Roadside Design Guide criteria will be addressed in the report and recommendations.

Crash history analyses were discussed. Crash history data will be collected for the 2005-2009 period. Crash analysis will be conducted utilizing the Kentucky Transportation Center's Analysis of Traffic Accident Data in Kentucky methodology. Fatal crashes will be distinguished in the crash analysis. The consultant was requested to evaluate crash history data in combination with non-compliant design features to determine if there is a direct relationship between crash history and non-compliant design features.

During contract negotiations, it was requested that the format for reporting follow a similar format to the earlier study completed for SIU 5 between Eddyville and Henderson. The consultant requested and received the "Project Development Analysis Tool and Users Guide" used with SIU 5 Study and will use during preparation of the report for SIU 6 from Fulton to Eddyville.

Tim Choate led a discussion with the group concerning the section of the project involving the Mayfield Bypass. Mr. Choate distributed Attachment C and discussed the noted items in the context of a review of conditions observed during a recent visit to the site. The following summarizes the results of these discussions:

It was agreed that the items identified in the handout were valid concerns and should be addressed in some context. It was agreed that the Mayfield Bypass should be evaluated on the basis of urban interstate standards. It was specifically noted that since this project did not involve adding capacity, that noise walls would not be required. Finally, it was agreed that roll curbs should be eliminated for all ramps and mainline situations but could be left in place for cross-roads.

The meeting concluded with a brief discussion of the proposed public Meeting for this project. It was agreed that the location of the public meeting would be in the vicinity of Mayfield, Kentucky. It is anticipated that the public meeting will be held in mid October. District 1 will make arrangements for the location, date, and time for the meeting. It also

was discussed that a meeting of elected officials whose districts included the project corridor also could be scheduled the same day of the meeting.

Prepared By: Will Conkin, PE
Gary W. Sharpe, PE, PLS

MEETING NOTES

Project: I-69 (Purchase Parkway/I-24) Strategic Planning Study

Attendees: Tim Choate, KYTC Project Manager
Ted Merryman, KYTC I 69 Coordinator
Lee Klieman, Bernardin, Lochmueller & Associates
Will Conkin, Palmer Engineering
Gary W. Sharpe, Palmer Engineering

Purpose: Pre-kickoff meeting—getting started

Location: District 1 Office, Paducah

Meeting Date: April 29, 2010

The following items were discussed:

- A formalized Kickoff Meeting will be scheduled – Tim Choate will coordinate
- Key References:
 - o 2005 Policy on Design Standards Interstate System
 - o The 2004 AASHTO Policy on Geometric Design of Highways and Streets
 - o 2006 AASHTO Roadside Design Guide
- Because of scope reductions, only the following work will be done on I 24:
 - o Crash Analyses
 - o Level of Service (LOS) Analyses
 - o ADT
 - o Ramp Taper Lengths
 - o Mainline Vertical Clearances
- The following were noted as information to be included in the Assessment of Existing Conditions for comparison with current AASHTO Standards.
 - o Vertical Clearances
 - o Ramp Taper lengths
 - o Bridge Widths including shoulder and brush block widths
- Information from the Corridor 18 studies will be reviewed for relevant information such as traffic forecast assumptions, truck percentages and annual growth rates, etc that were used
- Crash histories will be obtained from the beginning of the project to the I-24 Interchange with Western Kentucky Parkway
- The weaving section for the intersection of the Purchase Parkway and I-24 was noted as a potential concern
- Paved ditches with headwalls within the clear zone were discussed in the context of potential repairs needed for future rehabilitation projects
- The sign inventory was requested by Palmer Engineering and was provided by District 1

- End Treatments not meeting current standards should be identified
- Cost estimates will be included as part of the study
- Identify potential problems for interchanges within the corridor
- HIS may be another source of data in addition to As-built plans
- The Kentucky State Police website will be the source of crash data
- Potential access for the Graves Industrial Park should be mentioned in the final report
- For comparison with AASHTO standards, the Mayfield Bypass segment will be treated as an Urban interstate
- Questions and requests for information should be made through Tim Choate and copied to appropriate persons
- The Project Team will wear safety vests while collecting data in the field.
- KYTC will provide information on Pavement Rehabilitation contracts
- KYTC provided the maps of Bridge Vertical Clearances within the project area – Vertical clearances that are near 16 feet +/- will be validated
- Cross slopes for the Mayfield Bypass will be reviewed

Prepared by: Will Conkin

SIU 6

Vertical Clearance- Check

Approx.
MP 2.5

MP 4.1

MP 8.3

MP15.2(low)

MP16.5

MP17.7

MP22.2(low)

MP37.9

MP46.95

Check Mainline Ramp Tapers for AASHTO standards



Determine whether any correlation exists between noncompliant features and crash history.

Bridge Curbs

Guardrail End Treatments

Handout Provided by Tim Choate

1. The need for auxiliary lanes Northbound and Southbound between exit 24 and exit 25.
2. Treatment of median. Barrier wall or cable barrier. High wall preferred due to curvature.
3. The need for auxiliary lanes between KY 80 exit and Trumpet Conflict between weaves and southbound departures. Also future extension of Pky. to southside of town 1-181.50 and 181.40
4. Can existing Trumpet function as system interchange without modifications
5. The need for 2-lane on-ramps and departure ramps in Trumpet
6. Elimination of roll curbs
7. Is noise walls required
8. Clearance at KY 80 overpass. Can middle span be modified with box beams to get 16 feet. Also widen bridge for sight distance with new barriers similar to what was done at Exit 27 (KY 131)
9. Can Additional overhead signage help with this system?

MEETING REPORT
I-69 Strategic Planning Study – Fulton to Eddyville
June 8, 2010

A Pre-Interdisciplinary Team Meeting for this project was held on June 8, 2011 at the Transportation Cabinet Central Office in Frankfort, Kentucky. The purpose of this meeting was to identify preliminary issues and concerns regarding the draft project study report prior to holding an Interdisciplinary Team Meeting for formal review of the draft report for this study. Initial draft copies of the study report were distributed to a small group (including attendees) for initial comments regarding the format and presentation of information included in the report.

Attendees were:

Ted Merryman	KYTC – Central Office	Edward.merryman@ky.gov
David Martin	KYTC – Central Office	Charles.martin@ky.gov
Keith Damron	KYTC – Central Office	Keith.damron@ky.gov
Steve Ross	KYTC – Central Office	Steve.ross@ky.gov
Jill Asher	KYTC – Central Office	Jill.asher@ky.gov
David Lindeman	Palmer Engineering	Dlindeman@palmernet.com
Gary Sharpe	Palmer Engineering	Gsharp@palmernet.com
Will Conkin	Palmer Engineering	Wconkin@palmernet.com

Attendees via *Video Teleconference* from the District 1 Office in Paducah were:

Jim LeFevre	KYTC – Central Office	James.lefevre@ky.gov
Mike McGregor	KYTC – District 1	Mike.mcgregor@ky.gov
Jessica Herring	KYTC – District 1	Jessica.herring@ky.gov

Gary Sharpe opened the meeting with a brief discussion of the status of the project and more specifically summarized information included in the draft report.

Ted Merryman, State Highway Engineer's Office and I-69 Coordinator, discussed the current status of a draft agreement between KYTC and FHWA for design variances and design exceptions associated with designating Section of Independent Utility (SIU) 5 as I-69. SIU 5 includes a segment of the Western Kentucky Parkway from I-24 near Eddyville and portions of the Pennyrlie Parkway from the Western Kentucky Parkway to Henderson. Mr. Merryman further noted that initial emphasis for designation of I-69 in SIU 5 would be the 38 mile segment of the Western Kentucky Parkway from I-24 to the Pennyrlie Parkway.

It was further discussed that it was anticipated that a similar agreement would ultimately be developed for the section of I-69 covered by this study – SIU 6 from Fulton at the Tennessee State Line along the Purchase Parkway to I 24 near Calvert City and then with I 24 to the Western Kentucky Parkway (beginning of SIU 5). It was further noted that since there are many similar issues and considerations for design variances and design exceptions among SIU 5 and SIU 6, some aspects of the draft agreement with the FHWA also may have application for SIU 6. An updated copy of the *Draft Interstate 69*

Agreement Between Commonwealth of Kentucky Transportation Cabinet and Federal Highway Administration was provided to the consultant for their information in finalizing the draft study report for SIU 6.

It was further noted in the meeting that it was the KYTC's intent to request design exceptions and design variances for design elements not meeting current interstate standards where there were no indications of crash histories with a critical rate factor exceeding 1.0. Mr. Merryman emphasized in his comments that if there were crash history data associated with any substandard roadway or structure element, these should be identified and an improvement strategy should be recommended for addressing the roadway or structure element in question. It was further emphasized that design exceptions and design variances could be treated as either permanent or temporary, depending on the specific conditions.

In the draft study report, a crash history analysis has been provided for roadway and structures deficiencies that do not meet current interstate standards. For example, a crash history analysis will be presented to describe crash history data associated with the narrow mainline bridges on the Purchase Parkway where mainline bridge width is not consistent with roadway and shoulder approach width.

Discussions continued regarding acceleration and deceleration taper lengths commonly used by the KYTC and presented in the Division of Highway Design Manual as opposed to minimum acceleration and deceleration taper lengths per AASHTO standards. It was agreed that determination of whether or not a ramp met criteria would be in accordance with AASHTO standards.

There also was discussion concerning parameters for developing cost estimates. It was agreed that cost estimates for spot improvements at interchanges would be developed on the basis of spot improvements (with design variances and design exceptions) at specific locations but would be summarized for the entire interchange so as to allow for a direct comparison of spot improvements as compared to a fully reconstructed interchange. Cost estimates will be developed for (1) spot improvement concepts with design exceptions and variances as appropriate and (2) more extensive improvement strategies without design exceptions and variances.

Bridge pier protection that does not meet interstate standards will be recommended for improvement. Currently some overpass bridge piers have earthen mound protection. An estimate will be provided in the report for improving these locations.

Jill Asher will coordinate with FHWA, but tentatively, an IDT meeting is scheduled for the last week of July 2011 at the Central Office in Frankfort. This meeting may be scheduled in conjunction with a Lake Bridges status meeting. *The IDT Meeting has since been scheduled for July 26, 2011 from 1:00 pm to 3:00 pm in Conference Room C122, Transportation Building, Frankfort, Kentucky*

Prepared By: Will Conkin, PE, PTOE
Gary W. Sharpe, PE, PLS

MEETING REPORT

I-69 Strategic Planning Study – Fulton to Eddyville

July 26, 2011

An Interdisciplinary Team Meeting for this project was held on July 26, 2011 at the Transportation Cabinet Central Office in Frankfort, Kentucky. The purpose of this meeting was to review the draft report for this study. Draft copies of the study report were distributed to the project team.

Attendees were:

Mike McGregor	KYTC – District 1	Mike.mcgregor@ky.gov
Kevin Damron	KYTC – Central Office	Kevin.Damron@ky.gov
Ted Merryman	KYTC – Central Office	Edward.merryman@ky.gov
David Martin	KYTC – Central Office	Charles.martin@ky.gov
Keith Damron	KYTC – Central Office	Keith.damron@ky.gov
Bill Gulick	KYTC – Central Office	Bgulick@ky.gov
Steve Ross	KYTC – Central Office	Steve.ross@ky.gov
Jill Asher	KYTC – Central Office	Jill.asher@ky.gov
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John Ballantyne	FHWA	John.ballantyne@dot.gov
Steve Mills	FHWA	Steve.mills@dot.gov
David Lindeman	Palmer Engineering	Dlindeman@palmernet.com
Gary Sharpe	Palmer Engineering	Gsharp@palmernet.com
Will Conkin	Palmer Engineering	Wconkin@palmernet.com
Lee Klieman	BLA	Lklieman@blainc.com
Ben Quinn	AEI	Benq@aei.com

Attendees via *Video Teleconference* from the District 1 Office in Paducah were:

Susan Oatman	KYTC – District 1
Randy Williams	KYTC – District 1
Jessica Herring	KYTC – District 1
Chris Kuntz	KYTC – District 1
Mike Oliver	KYTC – District 1
Craig Morris	Pennyrile ADD
Stacey Courtney	Purchase ADD

Gary Sharpe opened the meeting with a brief discussion of the status of the project and more specifically summarized information included in the draft report. A power point presentation was presented covering the findings of the report. During the presentation, the following discussions occurred referring to the content of the report.

Design Exception / Design Variance: In the report, design exceptions will specifically refer to the FHWA referenced controlling 13 design criteria which are the following:

- | | |
|-------------------------|-----------------------------------|
| 1. Design Speed | 8. Grade |
| 2. Lane Width | 9. Stopping Sight Distance |
| 3. Shoulder Widths | 10. Cross Slope |
| 4. Bridge Width | 11. Vertical Clearance |
| 5. Horizontal Alignment | 12. Lateral offset to obstruction |
| 6. Superelevation | 13. Structural Capacity |
| 7. Vertical Alignment | |

In the report deficient design elements not listed in the controlling 13 design criteria but that are deviations from typical practices for design of interstate highways will be referenced as design variances.

Vertical Curve / K value: Bill Gulick asked a question about the K value used to calculate the stopping sight distance. Mr. Gulick referenced the maximum K value (167 ft) provided on pages 270 and 274 of the AASHTO *A Policy Geometric Design of Highways and Streets* (Green Book) for crest and sag vertical curves and the relationship to pavement drainage. The passage from the Green Book is "It is not intended that K of 167 ft per percent grade be considered a design maximum, but merely a value beyond which drainage should be more carefully designed." The minimum length of curve and stopping sight distance was calculated in the report using the following K values (Exhibits 3-72 and 3-75 of the Green Book).

Sag Vertical Curves

Rural 70 mph – K= 181
Urban 50 mph – K = 96

Crest Vertical Curves

Rural 70 mph – K = 247
Urban 50 mph – K = 84

Mr. Gulick further described conditions on other interstate routes where K values had exceeded K = 167 and where there were significant crash histories. It was noted that vertical curves with insufficient length or with less than the required calculated stopping sight distance would be recommended for improvement if there was a significant crash history at that location (Critical Rate Factor > 1.0).

Interchange Control of Access: Measurement of the interchange control access was discussed. For the draft report, the interchange control of access was measured in the field from the ramp radius to the radius of the closest entrance. According to the KYTC Highway Design Manual, access control should have been measured from the end of the interchange ramp radius to the center line of the closest access point. It was agreed that control of access measurements presented in the report would be updated according to this standard.

Mainline Bridge Width: According to *A Policy on Design Standards Interstate System* the offset to the face of parapet or bridge rail on both the left and right side is 3.5 feet for bridges longer than 200 feet. Therefore, the minimum lateral clearance for mainline bridges is 31 feet (offsets plus 2-12 foot lanes). For bridges less than 200 feet, the lateral clearance shall, at a minimum, equal the paved approach roadway width. Therefore at a minimum, mainline bridges less than 200 feet long shall have a lateral clearance of 38 feet

(4 foot inside shoulder, 10 foot outside shoulder, and 2 -12 foot travel lanes). All bridges on the Purchase Parkway with a lateral clearance less than 38 feet longer than 200 feet.

Mainline Bridge Side Railing/Barriers: All mainline bridges have side railings/barriers with a 10" brush block that are inconsistent with current standards. It will be clarified in the report that the brush block is the deficient element of the side railing/barrier and not the railing. It was noted in the discussion that side railings/barriers with brush blocks can be retrofitted with thrie beam or improved with a sloped face barrier.

Mayfield Bypass Design Speed: The Mayfield Bypass meets the minimum horizontal alignment criteria for a 50 mph design speed, but not a 70 mph design speed. During discussions of the Mayfield Bypass segment of the project, the consultant was requested to back-calculate the design speed of the Mayfield Bypass based on the horizontal alignment and include this information in the report. The smallest radius for a curve on the Mayfield Bypass is 1146 feet (located at MP 21.585 and MP 21.793). Based on the 8% maximum superelevation tables, the 1146 radius results in a 59 mph design speed. This is based on a 8% superelevation. According to the as-built plans, both of these curves have a superelevation of 8%.

Superelevation: A superelevation rate of 8% is the maximum superelevation rate recommended in the current edition for the AASHTO Policy on the Geometric Design of Highways and Streets (Green Book) for areas with snow and ice. Thus, for interstate highways in Kentucky, the maximum rate for superelevation currently recommended is 8%. However, it was noted that when the Purchase Parkway was constructed, it was common to use superelevation rates up to 10% on high speed facilities. As a result of this practice, there were four (4) curves identified that exceed 8% superelevation (8.3%). With further discussion it was noted that although these curves do not meet the current standard, the greater superelevation does not necessarily result in an unsafe situation unless there was a significant crash history identified at that specific location. Thus it was agreed that recommendations for addressing areas with superelevation rates greater than 8% will be to measure actual superelevation rates in the field whenever the next pavement rehabilitation projects were scheduled and to make appropriate modifications in pavement cross-slope to meet current design criteria for superelevation during the next pavement rehabilitation project.

Earthen Mound / Pier Protection: Currently there are 8 overpass bridges that have an earthen mound pier protection that does not meet current standards. It was discussed that there are earthen mound pier protection at these overpass bridges because the pier footers may protrude above the ground line. As-built plans for bridges will be reviewed and the locations at which the footers are higher than the existing ground will be identified and included in the report.

SIU 5 / SIU 6 Connection: It was noted in the discussions that there had been some difficulties in coordinating with Tennessee Department of Transportation (TDOT) and FHWA-Tennessee concerning the connection of SIU 5 and SIU6 at the Tennessee and Kentucky state line. Mr. John Ballentyne and Mr. Steve Mills advised that they would facilitate a meeting with KYTC, TDOT, and FHWA concerning the connection of I-69 at the border.

I-69 / I-24 Interchange: The Project Team requested a fully directional interchange be evaluated and presented in the report as a potential alternative at the I-24 and Purchase Parkway Interchange. The interchange should include 70 mph design speed for the I-69 ramp through movements. As presented, the draft report included a fully directional interchange but with 50 mph design speed ramps for the I-69 through movements. The report also will include a lower cost partially reconstructed interchange at this location to address operational concerns (weaving lengths, etc) with construction of improvements staged based on traffic demand. It was initially envisioned that this concept would involve providing an I 24 westbound to I 69 southbound flyover ramp and an I 24 eastbound to I 69 southbound ramp improvement as the initial construction for this concept.

Cost: The construction costs of the alternatives should be based on geographical unit cost to achieve utmost accuracy. The unit costs for the estimate will be evaluated by the District 1 staff to verify local construction costs versus statewide average. Consultant will send District 1 unit cost from draft report.

Potential Alternatives: During the meeting the project team decided to present four potential alternatives for recommendations. The following alternatives provide brief description of desired alternatives:

1. No Build – This alternative would leave a gap in the nationally proposed I-69 route. However, the Purchase Parkway would provide the connectivity for the I-69 traffic to travel from Tennessee to I-24.
2. Necessary Upgrade and Spot Safety Improvements – Key safety and operational concerns would be addressed. In addition, design exceptions and variances would be obtained for the existing conditions that do not meet current AASHTO guidelines and are deemed appropriate by the KYTC and the FHWA.
3. Partially Compliant with Design Exceptions – This alternative would involve improvements within existing right of way or with minimum right of way acquisition necessary for making the existing parkway meet minimum AASHTO criteria for interstate routes with minimal design exceptions and variances.
4. Fully Compliant without Design Exceptions – This alternative would involve improvements within existing right of way or with minimum right of way acquisition necessary for making the existing parkway meet minimum AASHTO criteria for interstate routes without any design exceptions and variances.

Prepared By: Will Conkin, PE, PTOE
Gary W. Sharpe, PE, PLS

AGENDA
IDT Meeting
I-69 Strategic Corridor Planning Study
Overview of Existing Conditions of Julian M. Carroll (Purchase) Parkway and I-24
Fulton to Eddyville
Fulton/Hickman/Graves/Marshall/Livingston/Lyon Counties
Central Office, Frankfort
July 26, 2011

- A. Introductions**
- B. Opening Comments – Ted Merryman / Mike McGregor**
 - I. Purpose of Meeting**
 - II. Previous Studies (Corridor 18 studies, SIU 5)**
 - III. SIU 6 Study Philosophy**
- C. Report Review – Power Point**
 - I. Early Coordination and Public Involvement**
 - II. Operational Considerations**
 - III. Mainline Geometry / Typical Sections**
 - IV. Bridges and Overpasses**
 - V. Interchanges and Ramps**
 - VI. Potential Improvement Alternatives and Development Costs**
 - VII. Recommendations**
 - VIII. Appendices**
- D. Questions / Discussions**
- E. Final Steps / Completion**
 - I. I-69 Project Development Analysis Tool**
 - II. Public Meeting Summary**
 - III. Final Submittal**
- F. Coordination with ongoing projects**
- G. Adjourn**

IDT MEETING

I-69 STRATEGIC CORRIDOR PLANNING STUDY

Overview of Existing Conditions of Julian M. Carroll (Purchase) Parkway and I-24
 July 26, 2011

Name	Organization	Telephone	E-mail Address
1. David Lindeman	Palmer Engineering	859-744-1218	dlindeman@palmernet.com
2. Gary W. Sharpe	Palmer Engineering	859-744-1218	gsharpe@palmernet.com
3. Will Conkin	Palmer Engineering	859-744-1218	wconkin@palmernet.com
4. <u>Lee Klieman</u>	<u>BLA</u>	<u>424-479-6200</u>	<u>lklieman@blainc.com</u>
5. <u>Jill Asher</u>	<u>KYTC C.O. Planning</u>	<u>502 564 7183</u>	<u>jill.asher@ky.gov</u>
6. <u>David Martin</u>	<u>KYTC - CO DESIGN</u>	<u>502-564-3280</u>	<u>charles.martin@ky.gov</u>
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8. <u>Kevin Dameron</u>	<u>KYTC BSHE</u>	<u>502.564.3730</u>	<u>Kevin.Dameron@ky.gov</u>
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IDT MEETING

I-69 STRATEGIC CORRIDOR PLANNING STUDY

Overview of Existing Conditions of Julian M. Carroll (Purchase) Parkway and I-24

July 26, 2011

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16. <u>Ryan Tenges</u>	<u>FHWAA</u>	<u>502-223-6750</u>	<u>ryan.tenges@dot.gov</u>
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IDT MEETING

I-69 STRATEGIC CORRIDOR PLANNING STUDY

Overview of Existing Conditions of Julian M. Carroll (Purchase) Parkway and I-24

July 26, 2011

Name	Organization	Telephone	E-mail Address
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32. <u>Bill Gunkel</u>	<u>KY/TC</u>	<u>564-3280</u>	<u>bgunkel@ky.gov</u>
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FOLLOW UP TO IDT MEETING REPORT
I-69 Strategic Planning Study – Fulton to Eddyville
AUGUST 24, 2011

A follow up meeting to the Interdisciplinary Team Meeting for this project was held on August 24, 2011 at the Transportation Cabinet Central Office in Frankfort, Kentucky. The purpose of this meeting was to review edits made to the draft report, previously reviewed at the IDT meeting on July 26, 2011. The edits were distributed to the project team.

Attendees were:

Kevin Damron	KYTC – Central Office	Kevin.Damron@ky.gov
Ted Merryman	KYTC – Central Office	Edward.merryman@ky.gov
David Martin	KYTC – Central Office	Charles.martin@ky.gov
Bill Gulick	KYTC – Central Office	Bgulick@ky.gov
Steve Ross	KYTC – Central Office	Steve.ross@ky.gov
Jill Asher	KYTC – Central Office	Jill.asher@ky.gov
David Lindeman	Palmer Engineering	Dlindeman@palmernet.com
Gary Sharpe	Palmer Engineering	Gsharpe@palmernet.com
Will Conkin	Palmer Engineering	Wconkin@palmernet.com

Attendees via *Video Teleconference* from the District 1 Office in Paducah were:

Jim LeFevre	KYTC – District 1	James.LeFevre@ky.gov
Mike McGregor	KYTC – District 1	Mike.mcgregor@ky.gov
Jessica Herring	KYTC – District 1	
Stacey Courtney	Purchase ADD	

Gary Sharpe opened the meeting with a brief discussion of the status of the project and draft report. The purpose of the meeting was to review edits made to the draft report based on comments during and following the IDT meeting held on July 26, 2011. During the review of these edits, the following discussions occurred referring to the content and recommendations of the report. Other minor editorial changes (not mentioned in this summary) were made during the meeting.

Design Exception / Design Variance: In the report, design variances were more clearly defined. There are two categories for design variances discussed in the report--a design feature that (1) varies from the current AASHTO criteria but not part of the *13 controlling criteria* or (2) a design feature that varies from common practice but not part of the *13 controlling criteria*.

Superelevation Crash Analysis: A crash analysis was done on the Purchase Parkway horizontal curves with a superelevation greater than 8%. There was one horizontal curve (MP 47.417) with a critical crash rate factor greater than one. The crashes were reviewed by the project team. The project team agreed that the crash history did not appear to be directly related to superelevation. Therefore improvements to the superelevation at this location will not be recommended in the report.

Superelevation: The report was edited to according to the KYTC policy and AASHTO recommendations for superelevation on freeways and expressways. According to the AASHTO Policy on Geometric Design of Highways and Streets, current edition (commonly referred to as the Green Book), the maximum superelevation rate is controlled by climate conditions, terrain conditions, type of area, and frequency of slow-moving vehicles that may be affected by high superelevation rates. A specific maximum superelevation is not recommended for an Interstate facility by AASHTO. It is left to the user agencies to make specific policy decisions concerning allowable rates of superelevation. The KYTC policy references the Green Book for freeway geometric design. The Green Book provides superelevation rate tables for 4%, 6%, 8%, 10%, and 12% maximum superelevations.

Referencing the Federal Highway Administration *Mitigation Strategies for Design Exceptions*, “A formal design exception is required if the State’s superelevation policy cannot be met in design of any curve on the NHS.” This document advises, “A design exception is also required if a superelevation rate is proposed that is different from the published rate per the State’s policy for that curve, regardless of whether the curve is a controlling one (minimum radius for a design speed) or not.” From review of as-built plans and field inspections, it appears that the Purchase Parkway was constructed on the basis of 10% maximum superelevation. Since the Purchase Parkway appears to have been constructed with a maximum superelevation of 10% which is compliant with AASHTO and KYTC policies and there no apparent crash histories related to superelevation, a design exception for superelevation does not appear warranted.

Crash Analysis: In the draft report, segments of the Purchase Parkway and I-24 that have a critical crash rate factor between 0.9 and 0.99 were defined as Potential High Crash Segments. The term “Potential” was considered misleading and was removed from the report. The report will identify these segments as crash segments having a critical crash rate factor between 0.9 and 0.99.

Mayfield Bypass: The project team discussed evaluating the Mayfield Bypass as an urban interstate. The project team reviewed the existing roadway geometry/cross section and determined it was designed with the intention to serve the City of Mayfield as an urban expressway. The interchanges are spaced at one mile or farther. The traffic volumes are significantly higher along the Mayfield Bypass than the rural sections of the Purchase Parkway to the north and south of Mayfield. The crash analysis shows the Mayfield Bypass operates safer than most of the Purchase Parkway. According to KYTC, the Mayfield Bypass is functionally classified as an Urban Freeway & Expressway. Based on this information, the Mayfield Bypass is currently performing as an urban expressway and should be evaluated as an urban interstate. It was also mentioned that currently the legal speed limit along the Mayfield Bypass is signed 70 mph. Once the Mayfield Bypass is designated I-69, KYTC would take the appropriate steps to insure the legal speed limit is changed from 70 mph to 50 mph. The report will be edited to only compare the Mayfield Bypass to urban interstate criteria (50 mph design speed).

Potential Alternatives: During the IDT meeting (July 24, 2011) the project team decided to present four potential alternatives with a range of improvements. With additional discussion, the project team decided to present just three alternatives in the report. The following alternatives are presented in the report.

1. **No Build** – This alternate would leave a gap in the nationally proposed I-69 route. However, the Purchase Parkway would provide the connectivity for the I-69 traffic to travel from Tennessee to I-24.
2. **Necessary Upgrades and Spot Safety Improvements** – Key safety and operational concerns would be addressed. Design exceptions or variances would be obtained for the existing conditions that do not meet current AASHTO or KYTC guidelines that are deemed appropriate by the KYTC and the FHWA.
3. **Fully Compliant Reconstruction** – This alternate would involve improvements within existing right of way or with minimum right of acquisitions necessary for making the existing Purchase Parkway meet minimum AASHTO criteria for interstate routes.

Necessary Upgrades and Spot Safety Improvements: Discussion of the alternative resulted in the following recommendations and edits:

- **Mainline Structures (Widen Deficient Bridges):** The project team chose to seek a design exception for the deficient bridges. All of the deficient bridges are longer than 200 feet and have a horizontal lateral clearance 30 feet. The minimum horizontal lateral clearance for a mainline bridge on an interstate over 200 feet in length is 31 feet. Based on the crash analyses, it is not apparent that the crash history is directly related to narrow bridge width. Therefore, it is not recommended to widen the deficient bridges by one foot, but seek a design exception for lateral horizontal clearance for the deficient mainline bridges.
- **Mainline Structures (Upgrade Guardrail/Approaches/Railings):** The project team decided that the bridge railing/barriers will be retrofitted rather than replaced. The cost of attaching three-beam guardrail to the existing barrier will be used in the estimate for retrofitting the existing barrier. This retrofit meets current crash worthy standards.
- **I-24 and Purchase Parkway Interchange:** The project team reviewed the previous interchange options presented in the draft report. Additional interchange options were presented based on comments during the IDT meeting. Also presented to the team were projected 2040 ramp design hourly volumes with I-69 and without I-69 traffic for the existing interchange configuration. These volumes were calculated from a 2007 ramp traffic count. Based on the ramp traffic volumes and capacity of the interchange, the project team recommends to improve the eastbound I-24 to southbound I-69 ramp and construct a new southbound I-69 flyover ramp from westbound I-24. The following existing ramps will be eliminated with this recommendation:
 - o Westbound I-24 to northbound Purchase Parkway ramp
 - o Westbound I-24 to southbound Purchase Parkway loop ramp
 - o Eastbound I-24 to northbound Purchase Parkway loop ramp.

The existing northbound Purchase Parkway to eastbound I-24 ramp will serve as the I-69 northbound movement. This ramp will accommodate the projected I-69

traffic in the near future. It is recommended to improve the ramp to meet interstate criteria once traffic volumes exceed capacity. It also is recommended to construct a new northbound I-69 to westbound I-24 flyover ramp once the traffic volumes exceed the existing loop ramp capacity.

Previous Toll Plazas: The interchanges located at Exit 14 and Exit 43 will be referenced as previous toll plazas versus flopped diamond.

Regional and Local Opportunities: It was decided to eliminate narrative referencing impacts to employment opportunities or specific locations as a result of designating the Purchase Parkway as I-69.

Cost Estimate: It should be noted in the report that the cost estimate for the presented alternatives does not include connecting Segment of Independent Utility (SIU) 6 to SIU 7 (Exits 0, 1, 2 at the Tennessee/Kentucky border) or to SIU 5 (I-24 at the Western Kentucky Parkway).

Prepared By: Will Conkin, PE, PTOE
Gary W. Sharpe, PE, PLS

AGENDA
Follow Up to IDT Meeting
I-69 Strategic Corridor Planning Study
Overview of Existing Conditions of Julian M. Carroll (Purchase) Parkway and I-24
Fulton to Eddyville
Fulton/Hickman/Graves/Marshall/Livingston/Lyon Counties
Central Office, Frankfort
August 24, 2011

A. Introductions

B. Opening Comments

I. Purpose of Meeting

C. Report Review - Updates

I. Chapter I – Project Introduction

- **13 Controlling Criteria (1-5)**

II. Chapter IV – Mainline Geometry/Typical Section

- **Superelevation Rate (4-7); Mayfield Bypass Design Speed (4-8)**

III. Chapter V – Bridges and Overpasses

- **Minimum Bridge Width (5-1); Bridge Side Railing/Barrier (5-2)**

IV. Chapter VI – Interchanges and Ramps

- **Superelevation Rate (6-8); Interchange Control of Access (6-11)**

V. Chapter VII – Key Findings of Existing Conditions Overview

- **AASHTO Minimum Guidelines (7-1); Superelevation (7-10, 7-11); Lateral Clearance (7-10); Narrow Bridge Crash Analysis (7-13); Interchange Control of Access (7-14)**

VI. Chapter VIII – Potential Improvement Alternatives and Development Costs

- **Interchange Alternatives**

VII. Chapter IX – Recommendations

VIII. Appendix G – Project Meeting Minutes

IX. Crash Analysis

D. Questions / Discussions

E. Adjourn

FOLLOW UP TO IDT MEETING
I-69 STRATEGIC CORRIDOR PLANNING STUDY
Overview of Existing Conditions of Julian M. Carroll (Purchase) Parkway and I-24
AUGUST 24, 2011

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