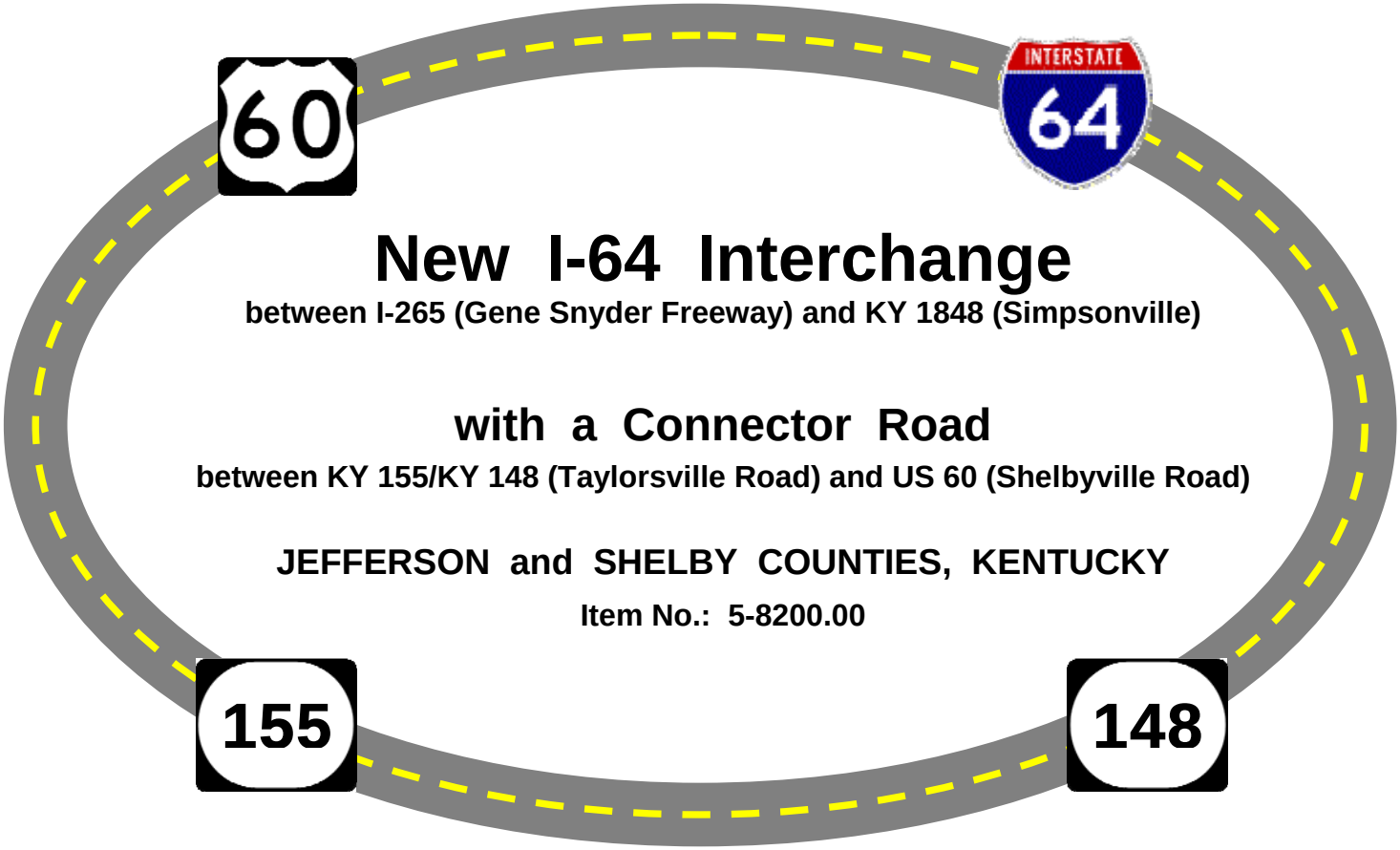
I-64 Interchange and New Connector Alternatives Planning Study

FINAL REPORT



New I-64 Interchange

between I-265 (Gene Snyder Freeway) and KY 1848 (Simpsonville)

with a Connector Road

between KY 155/KY 148 (Taylorsville Road) and US 60 (Shelbyville Road)

JEFFERSON and SHELBY COUNTIES, KENTUCKY

Item No.: 5-8200.00

Prepared for:

KENTUCKY TRANSPORTATION CABINET
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EXECUTIVE SUMMARY

This Alternatives Planning Study investigates a new I-64 interchange in the vicinity of Gilliland Road in eastern Jefferson County, along with a new or improved north-south connector road between KY 155/KY 148 (Taylorsville Road) and US 60 (Shelbyville Road). The study analyzes the project's feasibility and defines the extent of improvements best suited to meet the current and future needs of this area between I-265 (Gene Snyder Freeway) in Jefferson County to the west and KY 1848 (Simpsonville) in Shelby County to the east. (See Figure S-1.)

The area has experienced significant growth in recent years, rapidly transitioning from rural residential to residential suburban neighbor-hoods. Continued rapid growth and development are expected in and surrounding the study area.

In light of existing and anticipated growth, local and regional access via the interstate system and local roadway network is gaining importance. At present, I-64 bisects the study area and I-265 is to the west; however, there is no access to I-64 between I-265 and KY 1848, a distance of about 9 miles. This distance creates one of the longer gaps between interchanges on Kentucky's rural interstate system.

The development of the area now accentuates this lack of access. Road users crowd existing highways. Limited access to I-64 has contributed to ever increasing traffic volumes on US 60 and KY 155/KY 148. The existing highways, interchanges, and intersections service a region much larger than the study area, and have met or exceeded their original design capacity.

The Alternatives Planning Study was developed using a project study team approach consisting of representatives from the Transportation Cabinet Central Office and District 5; Kentuckiana Regional Planning and Development Agency (KIPDA); and Qk4 (consultant). Public involvement activities included project team meetings, resource agency coordination, key person interviews, public information meetings, and website information.

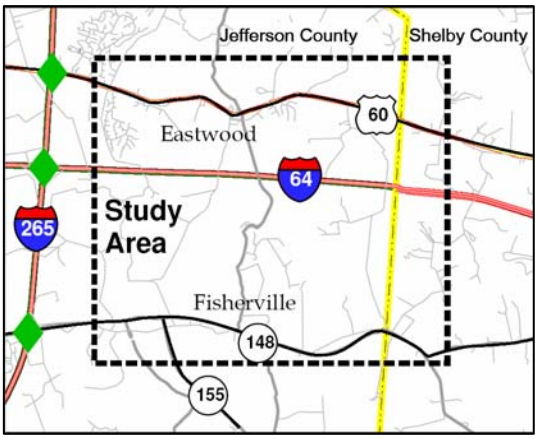

Figure S-1: Study Area

Project Goals and Issues

The Project Team developed the following project goals:

1) Congestion Mitigation
2) Connectivity of the Road and Interstate Network
3) Future Planning
4) Safety Improvements
5) Environmental Preservation
6) Proactive and Joint Planning

Traffic congestion overshadowed all other issues identified by local officials and citizens, and was regarded as an already serious problem likely to worsen in the future. Closely associated with traffic congestion was the lack of interstate connectivity that results in bottle-necks on the existing road network, especially on US 60 between Eastwood and I-265, the US 60/I-265 interchange, and I-265 between I-64 and US 60.

Within the center of the study area, the road network consists mainly of very narrow two-lane rural roads with no shoulders, winding through rolling terrain, providing few travel options and very limited connectivity. While local citizens expressed a strong desire to preserve the area's rural character and minimize impacts to existing property, they considered the lack of connectivity and interstate access a hindrance to fully accessing destinations, opportunities, and services available in Jefferson and Shelby Counties. Improving connectivity would play an important role in terms of serving the region's future growth and development; projected traffic demands; and access to emergency services, jobs, health care, education, retail, and other travel destinations in the region.

Local officials and the public generally viewed a new I-64 interchange and connector road as needed to add capacity, alleviate congestion, and improve safety for the traveling public. Statistically, both an

interstate and a divided facility (such as the proposed connector) are safer than the rural roads. Therefore, safety would be improved by constructing the connector to shift traffic from the existing rural, substandard roads to the interstate.

Alternative Analysis

In addition to the Do-Nothing Alternative, several Build Alternatives were considered. Transportation System Management (TSM), Operational Improvements, Spot Improvements, and Transit Options were not examined in detail since none would address the goal of improved connectivity with the interstate network. The Build Alternatives include a full interchange with I-64 and a connector road to the north and south.

Many connector road alternative locations were considered and three corridors emerged that contained one or more alternatives: (1) Eastern Corridor containing several alignments near the Shelby County line, (2) Western Corridor containing several alignments linking Eastwood and Fisherville, and (3) Southwest to the Northeast Corridor containing a single alignment crossing diagonally through the study area. Regardless of location, the traffic analysis shows that an ultimate four-lane connector road would be needed to serve existing and future traffic.

Operational Analysis

An operational analysis was conducted to address the eight policy points of an FHWA Interchange Justification Study (IJS). This analysis verifies that a new interchange in eastern Jefferson County would generally satisfy the policy points, provide a benefit to the traveling public, and mitigate conditions at the existing interstate interchanges.

Recommendations

The state's Six-Year Highway Plan FY 2007-2012 includes funding for preliminary engineering and environmental documentation for this project.

This Alternatives Planning Study concludes that a new interchange and connector road would reduce congestion and improve safety on the area highway network, especially on US 60 between Eastwood and I-265 and on I-265 between US 60 and I-64.

Based on the results of this study, it is recommended that a new interchange with I-64 in eastern Jefferson County and a north-south connector road be advanced into the preliminary engineering and environmental analysis stage, during which feasible Build Alternatives and the No-Build Alternative would be explored in greater detail.

The location of the connector road should be within the Western Corridor, which links the community of Fisherville in the south and Eastwood in the north. This corridor is recommended because it would serve existing and future travel needs more effectively than a corridor farther east. The exact alignment of the road would be determined after detailed environmental and alternatives analyses.

Regarding the design of the connector road, an urban typical section should be considered north of I-64 and a rural typical section should be considered south of I-64. Bicycle and pedestrian facilities would be an asset to the new road, the local communities, and the visitors to the existing and planned park facilities in the area. Likewise, creative design elements should be considered to allow the road to serve as a gateway to the Floyds Fork Park area and associated community and land use changes north and south of I-64.

Public involvement in this project increased significantly as the project developed. Therefore, it is recommended that an extensive public involvement plan be implemented in future project stages. During the planning process, the following entities have demonstrated a keen interest in being involved: community groups in Eastwood; state and local elected officials; Floyds Fork preservation interest groups; 21st Century Parks (the non-profit group implementing the Floyds Fork Greenway Plan); local government agencies including Metro Parks, Metro Public Works, Metro Planning and Design Services, and KIPDA; and the citizens who live in the area.

1.0 INTRODUCTION

1.1 Where Is the I-64 Interchange Study Area?

The interchange study area is located in eastern Jefferson County and in the western edge of Shelby County. Jefferson is the most populated county in Kentucky, with an estimated population of 701,500 in 2006. Eastern Louisville Metro is the fastest growing area in the county, and the study area is under intense pressure for land use changes. Shelby County had a 2006 population estimate of 39,717. I-64 bisects the study area, US 60 (Shelbyville Road) forms the northern boundary, and KY 155/KY 148 (Taylorsville Road) forms the southern boundary. Eastwood is an unincorporated community along US 60 and Fisherville is an unincorporated community along KY 148. Figures 1 and 2 show the location of the project study area.

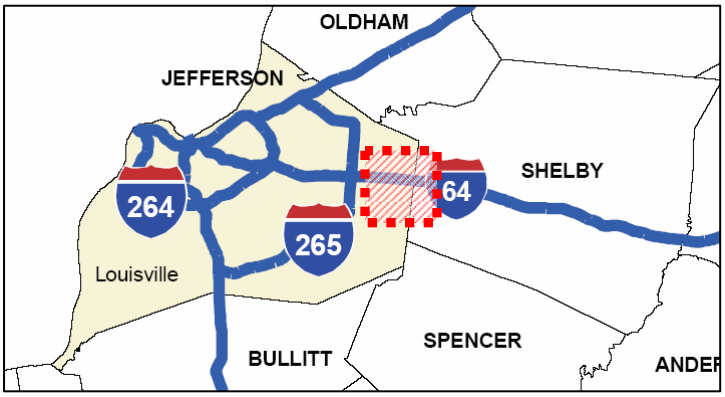

Figure 1: Location Map

The proposed new I-64 interchange between I-265 (Exit 19) and KY 1848 (Exit 28, Simpsonville) would be in the vicinity of Gilliland Road overpass (Mile Post [MP] 21.4). No other access to I-64 exists between I-265 and KY 1848, a distance of about 9 miles. This is one of the longer gaps in access to an interstate highway anywhere in the state. The proposed north-south connector road would extend from US 60 south through the new I-64 interchange to KY 155/KY 148. US 60 and KY 155/KY 148 are separated by about 3.2 miles in the study area vicinity. Several large-scale, residential developments are either already present, under active development, or planned along US 60.

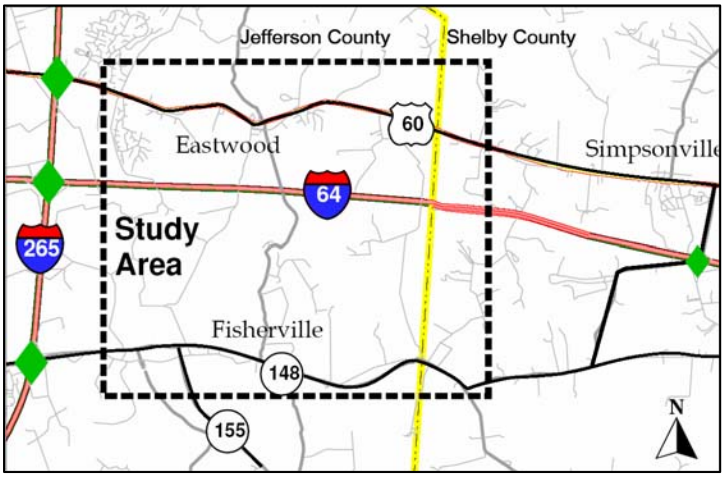

Figure 2: Study Area

1.2 What Is the Purpose of the Study?

The alternatives study purpose is to investigate the feasibility of, and evaluate general alternative locations for, constructing a new I-64 interchange in eastern Jefferson County or western Shelby County.

The study's intent is to identify, collect, and study critical information concerning the project study area, a proposed interchange, and feasible alternative corridors. This will enable KYTC to make decisions regarding the future of this proposed project, and allow future project development stages to be based on this information and public involvement efforts.

1.3 What Is the Planning Process?

The first step of the study process was to identify, collect, and analyze critical study information concerning the project study area, including land use, environmental resources, roads, travel patterns and volumes, and issues. Next was the identification of project goals and objectives (illustrated on Figure 3) based on discussions with elected officials, stakeholders, and the public. These goals and issues then framed the development of alternatives, which then were screened based on a variety of variables and information.

Figure 3: Study Process

A crucial role in the planning process was coordination with various stakeholder entities (illustrated on Figure 4). This activity included several meetings with the KYTC/FHWA project team, coordination with Louisville Metro, Shelby County, and KIPDA. Also critical were interviews with various elected officials and local governmental leaders, as well as two public informational meetings, and coordination with federal and state environmental resource agencies. The objectives of the two public meetings were first to identify the problems and issues of the corridor, and then to provide input on alternative locations for an interchange and connector road. The information from the first set of meetings and the resource agency coordination was used to identify options presented in the second set of meetings, and the information from the second set of meetings greatly influenced the recommendations herein.

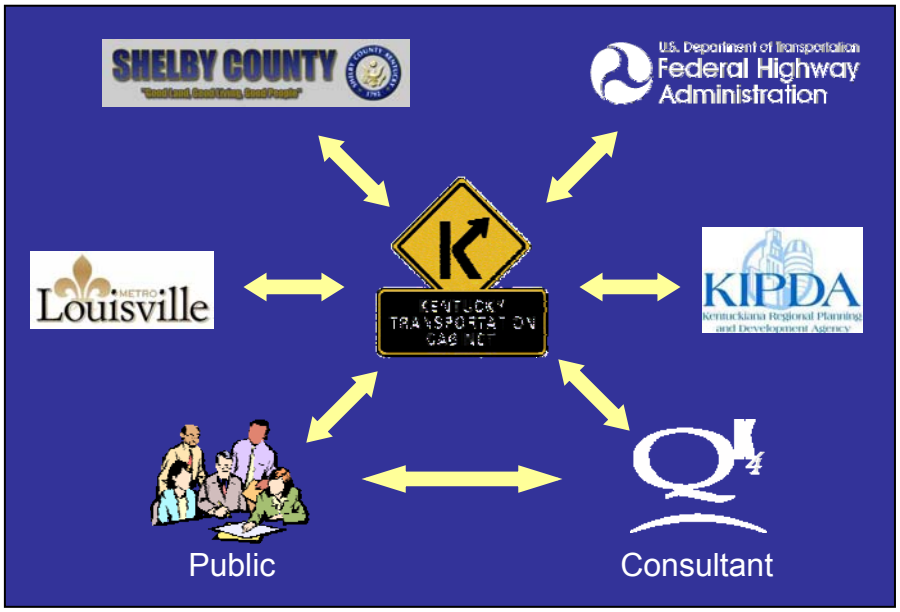

Figure 4: Coordination

1.4 What Is the History of the Project?

The proposal for a new I-64 interchange east of I-265 in Jefferson County was first identified in 1969 as part of the first long-range transportation plan prepared for the Louisville area. Following is a list of the various local plans and their inclusion of the proposed project:

- January 1969 – *Metropolitan Louisville Transportation Report* — Vogt, Ivers and Associates (a scan of the plan map is shown in Figure 5): "The two recommended new interchanges west and east of Jefferson Freeway (now the Gene Snyder Freeway) reflect the expectation of rapid growth in this area. The recommended interchange at Blankenbaker Road will serve anticipated industrial growth between Jeffersontown and I-64. The proposed Echo Trail interchange will be a very needed addition to the system because it provides local service access for anticipated growth resulting from the Ford Motor Company development north of I-64 near the county line. Of equal value is the service provided to the large potential residential area east of Floyd's Fork and south of Kentucky Route 155. This area has exceptional potential for planned residential development on a major scale. When this occurs, the justification for the Echo Trail Interchange will be evident." (Page 5-5).

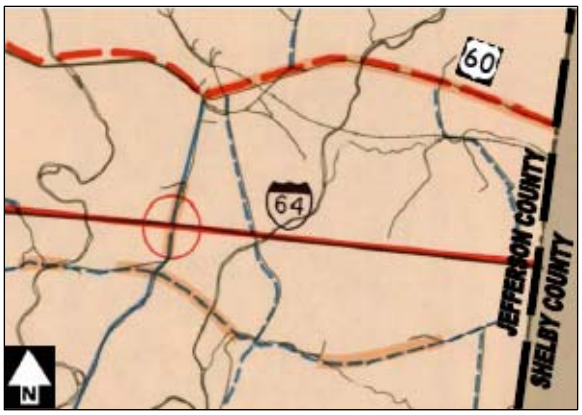

Figure 5: Image From 1969 Vogt, Ivers Plan

- December 1978 (Revised September 1981) *Louisville Metropolitan Transportation Study Update* — KIPDA: Interchange deferred until after 2000.

- September 1999 *Horizon 2020 Transportation Plan Update Number II* — KIPDA: Project is added to the Plan's "Illustrative List" as an amendment by the Kentucky Transportation Cabinet.

- 1999 Jefferson County Thoroughfare Plan. Project is identified as a long-term project. (See Appendix E.)

- October 2002 *Horizon 2025 Regional Mobility Plan* — KIPDA: Project is included in Plan as "New interchange and connector road from KY 148 to US 60 (Shelbyville Rd.) with interchange on I-64. Corridor would be in vicinity of Gilliland Rd."

- November 2005 *Horizon 2030 - The Long-Range Transportation Plan for the Louisville (KY-IN) Metropolitan Planning Area* — KIPDA: Project is included in the Plan as described above. (See Appendix E.)

In 2005 study funds were included in the addendum, dated May 6, 2005, to the Fiscal Year 2005-2010 Six-Year Highway Plan (SYP), approved 2005; and again in the FY 2007-2012 SYP, approved May 2006. No specific alternative locations or operational analysis have been initiated until this Alternatives Planning Study.

2.0 WHAT ARE THE PROJECT GOALS AND ISSUES?

The six project goals were developed through discussions with KYTC officials, key persons/local officials interviews, public comments, resource agency comments, on-site visits, traffic records and other studies, and project team meetings. Traffic congestion from a lack of the roadway connectivity was consistently the top identified issue and concern.

Following are the project goals:

1) Mitigate Congestion: Reduce congestion of US 60, KY 155/KY 148, and the I-265 interchanges with US 60, I-64, and KY 155.
2) Connectivity of the Road and Interstate Network: Improve the local road network and its connectivity to the interstate network to provide travel options for local people seeking access to the employment, educational, health care, retail, and other travel destinations.
3) Plan for the Future: Provide a facility that is capable of serving recent growth and sustaining current and projected (year 2030) traffic demands.
4) Improve Safety: Provide a facility that meets current design standards, and diverts traffic from the substandard roads to the interstate network. Statistically, both a divided facility (such as the proposed connector) and an interstate have lower crash rates than rural surface streets.
5) Environmental Preservation: Identify alternative locations that avoid or minimize impacts to community resources, natural resources, and historic properties and districts.
6) Proactive and Joint Planning: Provide a roadway network consistent with local and regional land use, community, and transportation plans, and identify a preferred alternative corridor local officials can preserve from development or other land use changes in the study area.

These goals are described in further detail in Appendix B.

3.0 WHAT ARE THE EXISTING CONDITIONS?

3.1 What Are the Roadway Characteristics?

The road network in the study area includes significantly more capacity for east-west travel than for north-south travel. I-64 is a four-lane facility with full access control. US 60, KY 155, and KY 148 are major arterials that provide east-west travel. North-south travel, however, is by way of the following substandard two-lane rural roads: Eastwood-Fisherville Road (KY 1531), Clark Station Road, and Echo Trail. Each of these follows the hilly topography and has poor horizontal and vertical sight distances, narrow pavement ranging from 18 to 22 feet wide, no shoulders, no passing opportunities, utilities often located adjacent to the travel lanes, and residences offset at various distances.

The existing roadway network is limited, served mainly by the east-west roadways consisting of one interstate (with no access from the study area) and the two state highways located along the study area's north and south boundaries. Other roads present are minor local/rural 2-lane roads, winding through the hilly terrain. Roadways and interchanges surrounding the study area are routinely congested with traffic, especially to the west at the Gene Snyder Freeway.

East-west travel is virtually non-existent, except for KY 155/KY 148 and US 60. In the western part of the study area, two waterways—Floyds Fork and Long Run—run generally north-south, acting as natural barriers and further limiting local travel options. For a detailed discussion of

study area roadways and their characteristics, refer to Appendix C, which includes Tables C.1 and C.2 (*Existing Highway Systems*, and *Geometric and Traffic Characteristics of Existing Highways*). The shaded boxes in Table C.2 indicate those roadway sections having narrower widths than those set by current design standards, which call for 12-foot-wide driving lanes and 8-foot-wide shoulders. Also, refer to the color photographs in Appendix D illustrating typical examples of existing roadway sections.

3.2 What Other Highway Projects Are Proposed in the Area?

There are several other KYTC highway projects and KIPDA planned highway projects within or surrounding the study area. In addition, the community of Eastwood has a neighborhood plan and a transportation plan. Selections from the Eastwood plans are included in Appendix E.

Other KYTC highway projects listed in the Six-Year Highway Plan FY 2007-2012 are identified below and illustrated on Exhibit 1 in Appendix A. Each of these is also included in both KIPDA's Long-Range Plan and Transportation Improvement Plan (TIP).

- 05-21.00, Gene Snyder Freeway. Reconstruct the I-265/I-64 interchange. The first phase would be a flyover ramp from northbound I-265 to westbound I-64. Other stages would include a total of four flyover ramps.
- 05-41.00, Gene Snyder Freeway. Reconstruct the I-265/US 60 interchange to enhance capacity and safety. This would include a double or triple-left turn from I-265 northbound to US 60 westbound.
- 05-65.00 and 65.01, I-64, Jefferson and Shelby Counties. Widen I-64 to 6-lanes from near the Gene Snyder Freeway to the KY 53 interchange at Shelbyville. This project was scheduled to be under construction in 2007, but has yet to be authorized.
- 05-208.00, US 60. Extend left-turn lane on US 60 at I-265 to improve safety.
- 05-266.00, Gene Snyder Freeway. Reconstruct the I-265/KY 155 interchange to include dual-left turns from I-265 southbound to KY 155 eastbound, as recommended by KIPDA's interchange study to improve safety.
- 05-348.00, KY 1848, Shelby County. Widen KY 1848 to five lanes from the I-64 interchange to US 60 at Simpsonville.

In KIPDA's *Horizon 2030, The Long-Range Transportation Plan for the Louisville (KY-IN) Metropolitan Planning Area*, adopted November 29, 2005, by the Transportation Policy Committee, the KIPDA Transportation Planning Division identified the following roadway projects in the study area as regional priorities:

- KIPDA ID # 958, I-265 (Gene Snyder Freeway). Widen I-265 from four to six lanes from I-64 to I-71, approximately 9.25 miles.
- KIPDA ID # 959, I-265 (Gene Snyder Freeway). Widen I-265 from four to six lanes from US 31E to I-64, approximately 8 miles.
- KIPDA ID # 411, KY 1531 (Johnson Road north of US 60). Relocate and reconstruct KY 1531 as a two-lane road (no additional lanes) with improved geometry from US 60 to Aiken Road.
- KIPDA ID # 953, US 60 (Shelbyville Road). Widen US 60 from two to three lanes (third lane will be a center left turn lane) from Spring Drive to Clark Station Road, approximately 2 miles, to enhance safety and reduce congestion.
- KIPDA ID # 956, KY 155 (Taylorsville Road). Widen KY 155 from two to three lanes (third lane will be a center left turn lane) from I-265 to KY 148, approximately 2 miles, to reduce congestion.

- KIPDA ID # 277, English Station Road. Reconstruct as a two-lane road (no additional lanes) from Poplar Lane to Christian Academy.
- KIPDA ID # 1323, Flat Rock Road. Reconstruct Flat Rock Road as a two-lane (no additional lanes) from US 60 to Aiken Road.

3.3 What Are the Traffic Volumes and Levels of Service?

Existing and forecasted traffic volumes (year 2006 and 2030) were provided by KYTC, Division of Planning. Below is a summary table of the existing and future No-Build traffic volumes for the study area roads. These volumes and the 2006 level of service (LOS) are illustrated on Exhibit 5 in Appendix A. As can be seen, traffic volumes are already high on I-64, I-265, US 60, and KY 155 and are expected to increase substantially in the future. Appendix C, Tables C.1 and C.2 provide roadway information, including traffic data on the major roads within the study area.

LOS is commonly used to evaluate and describe roadway functions. It is defined as a qualitative measure of operational conditions, and the motorists' perception of those conditions. The conditions are usually defined in terms such as speed, travel time, maneuverability, delay, and comfort and convenience. The letters "A" through "F" designate the six levels of service. LOS A represents the best operating conditions (*i.e.*, free flow conditions), while LOS F defines the worst (*i.e.*, severe congestion).

Assumptions made for the future traffic and LOS analyses include the proposed roadway projects listed in Section 3.2, above, including widening to six lanes I-64 and I-265 by the year 2030.

Table 1: Existing and Future Traffic and LOS Characteristics of Existing Highways

Begin MP	Begin Route	End MP	End Route	Existing / No-Build			
				ADT		LOS	
				2006	2030	2006	2030
I-64							
18.9	I-265 (Gene Snyder)	27.6	KY 1848 Interchange	50,000	92,000	D	E
I-265							
23.1	KY 155	25.5	I-64	34,000	58,000	C	C
25.5	I-64	26.8	US 60	49,000	84,000	C	E
US 60							
12.0	I-265 Ramp	13.0	Wickfield Dr	28,000	58,000	C	F
13.0	Wickfield Dr	14.6	Spring Dr	15,000	29,400	A	C
14.6	Spring Dr	14.7	KY 2841 (Eastwood Cutoff Rd)	15,000	29,400	E	F
14.7	KY 2841	17.4	Jefferson-Shelby C/L	9,000	20,500	D	E
0.0	Jefferson-Shelby C/L	3.0	KY 1848	5,200	10,600	C	D
KY 1531							
5.6	KY 148	8.1	vicinity I-64 underpass	500	2,300	A	B
8.1	vicinity I-64 underpass	9.1	US 60	500	1,100	A	A
KY 155							
0.0	Jefferson-Spencer C/L	4.3	KY 148	15,100	48,700	E	D*
4.3	KY 148	6.1	I-265 Underpass	16,000	57,800	E	F
KY 148							
0.0	KY155	3.3	Jefferson-Shelby C/L	2,000	6,500	C	D

Source: KYTC, Division of Planning, LOS provided by Qk4.

* - This LOS is based on an assumption that KY 155 will be widened to four lanes even though this project is not identified in the KIPDA Long-Range Plan or the KYTC Six-Year Highway Plan.

3.4 What Does the Crash Data Show?

Crash data is always an important factor in the analysis conducted for a transportation planning project. The data can identify not only where crashes are occurring, but also why. The crash data analyzed for this study was from January 2001 through December 2005. The detailed crash data for the study area is included in Appendix F, along with a description of the methodology for analyzing the data. Exhibit 2 in Appendix A provides a graphic presentation of the crashes.

The data identified the following high crash areas: US 60 through Eastwood, US 60 at the I-265 interchange, and I-64 at the I-265 interchange. Several fatalities and high crash spots have been recorded along I-64. The two I-265 high crash interchanges and the mainline of I-64 are programmed reconstruction projects by KYTC, as described above, and the reconstruction of US 60 through Eastwood is identified as a project in KIPDA's Long-Range Plan. These reconstructions would address any substandard geometrics that could possibly contribute to the crash causes. The data also shows that "potential high crash areas" exist along KY148 through Fisherville and KY 1531 (Eastwood-Fisherville Road).

3.5 What Bicycle and Pedestrian Facilities Are in the Area?

At present, no pedestrian or designated bicycle facilities are located within the study area limits. However, an off-road bicycle and pedestrian project is being implemented in the study area along Floyds Fork. This will be a 27-mile-long, multi-use trail linking parks along Floyds Fork. The linear park corridor is located between US 31E (Bardstown Road) in the south and US 60 in the north. Floyds Fork meanders generally north-south through eastern Jefferson County. Floyds Fork crosses through the southwest corner of the study area and then parallels the western side of the study area. Floyds Fork and the associated trail will be a major consideration in the selection of a location for a connector road.

It should be noted that Louisville Metro Council recently adopted a "Complete Streets Policy" that states pedestrian, bicycle, and vehicle traffic should be planned for with any new roadway or roadway reconstruction within Jefferson County.

Public as well as agency comments requested that bicycle and pedestrian facilities be considered for incorporation into the proposed design of a new connector roadway. These facilities are viewed as important features of the locally identified vision for the area—a vision that includes the Floyds Fork Park and Trail System as well as continued residential growth.

3.6 What Railroads Are in the Area?

There are two railroad corridors that cross the study area east-west. The Norfolk-Southern (NS) railroad is located in the south, north of and parallel to KY 155/KY 148 throughout the study area. The CSX railroad is located in the north, south of and parallel to US 60 between Eastwood and Shelby County. At Eastwood the CSX railroad tunnels under the community and roadways, as shown in the aerial photograph and picture, Figure 6, below.

Figure 6: Railroad Cut and Tunnel (above) and Aerial Photograph of Tunnel Location (right)

3.7 What Are the Key Environmental Issues to be Considered?

The environmental setting of the study area is complex and important to any future decisions when considering a new road and interchange with I-64. Key issues related to the location analysis for the proposed project are listed herein. Exhibit 1, illustrates the key elements of the environmental overview and Appendix G includes a more complete description of each of the elements of the environmental overview that were investigated as part of this study.

This section identifies environmental issues likely to affect the location of alignment options. It summarizes the results of several environmental investigations, which are based primarily upon literature, archival, database, and map research. Limited fieldwork was conducted, consisting mainly of windshield surveys to confirm known sites and identify previously unknown sites.

Land Use, Existing and Future: Land use in the study area over the last few years has been transitioning from rural residential/agricultural/undeveloped to suburban residential. For example, during the course of this highway planning process several single-family neighborhoods have been proposed, approved, and developed. They are located both within the interior of the study area and along US 60 and KY 155. More intense land use, including multi-family developments and a commercial area, have been proposed and approved within the larger Eastwood area along US 60.

Within the interior of the study area (i.e., excluding the US 60 and KY 155/KY 148 corridors), existing land uses are primarily single-family residential subdivision; rural residential on scattered sites; and a combination of open, undeveloped agricultural land and forest. Some crop and pastureland is present and there is one small industrial area off English Station Road in Fisherville, just north of KY 148 and the NS railroad. The Floyds Fork and Long Run floodplains and the land use in the east, within and near Shelby County, account for the majority of the less intensive, rural land uses. The planned Floyds Fork Park and Trail System has included deed restrictions that acquired land will remain in parkland use in perpetuity.

It is anticipated by Louisville Metro that the land use in the Jefferson County portion of the study area will continue the trend of rapid suburban development based on the existing zoning, which is mostly R4 (approximately four houses per acre), the recent expansion of the sewer service in the area, especially, the expansion of the Floyds Fork Wastewater Treatment Plant

located just south of I-64, and the amenities from the planned Floyd's Fork Park area. The proposed connector road and the interchange, which has been in local plans for many years, are also contributing elements in the forecasted growth, as well as necessary elements to manage the growth. According to local officials, future land use in Shelby County is anticipated to remain rural within and adjacent to the study area. Shelby County's plan is for future growth to be concentrated around existing urbanized areas, such as Shelbyville and Simpsonville.

Parkland: Existing and future parks are important features of the local vision for this study area. Three publicly owned park sites in or near the study area were identified:

- Eastwood Park (about 5 acres) is located south of Eastwood Cutoff Road on the east side of Eastwood.
- William F. Miles Park (about 130 acres) borders outside the study area's northwestern boundary, and is located south of US 60, between Floyds Fork and the study area.
- Floyds Fork Park (about 102 acres) is located outside the study area boundaries, west of the southwest corner, and south of Old Taylorsville Road.

In May 2006, Louisville Metro and non-profit organizations (21st Century Parks and Future Fund) began acquiring hundreds of acres for future parkland development along Floyds Fork between US 60 and US 31E. Most, but not all, of this corridor is outside but adjacent to the study area boundaries. Some parts of the land acquired and planned to be acquired are within the study area and could cause Section 4(f) involvement for the proposed project.

Cultural Historic Resources: Historic resources are always an important consideration in the planning of highway corridors. Section 4(f) of the 1966 Department of Transportation Act includes historic properties (i.e., properties listed or eligible for listing on the National Register of Historic Places [NRHP]) among the resources that must be avoided if a prudent and feasible alternative exists. The National Historic Preservation Act of 1966 requires federal agencies to take into account the effect of an undertaking upon historic properties. This involves making a "reasonable and good faith effort" to identify and evaluate historic properties, to document the effects upon these properties, and to determine measures to mitigate any adverse effects.

An overview of historic resources in the study area was conducted by a KYTC-qualified consultant. The overview consisted of a literature search and windshield survey of the study area. Six NRHP-listed resources were identified in the study area, five of which are located in Jefferson County and one in Shelby County. Also identified were two potential historic districts: 12 contributing properties and 1 NRHP-listed site in Fisherville, and 23 contributing properties in Eastwood. The survey also identified 12 potentially eligible individual resources located outside the potential historic district boundaries.

The potential Fisherville district is located in the southwest portion of the study area, along Old Taylorsville Road, and consists of residential dwellings and commercial sites. The potential Eastwood district is located in the northwest portion of the study area, south of Shelbyville Road (US 60), along Eastwood Cutoff Road. It consists of residential dwellings, churches, and commercial sites. Additional individual sites are located to the east along Shelbyville Road and the railroad tracks. Several other individual sites are clustered around the vicinity of the I-64 crossings of Gilliland Road and Fisherville-Eastwood Road. The remaining individual sites are south of I-64, scattered throughout the study area. Preliminary NRHP boundaries for individual sites and districts follow the property lines on record at the respective PVA offices.

Streams: Perennial streams include Floyds Fork and Long Run, and their tributaries South Long Run, Shakes Run, and Brush Run. Floyds Fork and Long Run flow from north to south in

the study area's western portion, whereas the tributaries flow from east to west in the eastern portion. Approximately 57 intermittent streams were identified, the majority of which are in the study area's eastern portion and tributary to the perennial streams.

Approximately 13 ephemeral streams were identified, with most channels serving as drainage ways that flow into intermittent or perennial streams. A more detailed field survey would likely identify additional intermittent and ephemeral channels within the study area.

Floodplains: Flood Insurance Rate Maps (FIRM) developed by the Federal Emergency Management Agency (FEMA) were consulted. Jefferson County FIRM maps encompassing the project area are map numbers 21111C0115D, 21111C0185D (include Floyds Fork), 21111C0120D, and 21111C0205D (include Long Run), all with an effective date of February 2, 1994. The Shelby County FIRM map encompassing the project area is map number 2102090004B. The flood hazard boundary map was revised in July 15, 1977, and converted by letter to FIRM effective September 1, 2001.

Approximately 1,080 acres of the study area are located within the 100-year floodplains of Floyds Fork, Long Run, Shakes Run, Brush Run and other streams.

Wetlands: National Wetland Inventory (NWI) map reconnaissance revealed numerous wetlands and open water (ponds/lakes) within the study area, totaling about 90 acres. Most are small ponds used for livestock or aesthetic purposes. About 25 acres are permanently flooded wetlands within the Floyds Fork floodplain located in the study area's southwestern portion. Windshield surveys located several small areas of emergent and forested wetlands.

No field investigations were conducted, nor were size and jurisdictional status determined. More intensive field surveys would be required to confirm and delineate NWI map wetlands, as well as identify any wetlands not appearing on the maps, and to determine jurisdictional status.

Threatened and Endangered Species (TES): The following databases for TES were reviewed: The U.S. Fish and Wildlife Service (USFWS), the Kentucky Department of Fish and Wildlife Resources (KDFWR), and the Kentucky State Nature Preserves Commission (KSNPC). Table G.1, in Appendix G, Environmental Overview, provides a list of protected species identified by the federal and state agencies as potentially occurring in the study area. In all, 16 species were identified as potentially occurring or known to occur in Jefferson or Shelby Counties.

Per Section 7 of the Endangered Species Act (ESA), additional coordination with the USFWS will be required, as will field surveys to confirm the presence or absence of species and suitable habitat and to ascertain potential impacts and mitigation requirements.

Hazardous Materials: Data was collected from numerous sources, including federal and state databases, and a windshield survey was conducted within the study area. The database search and survey identified seven possible contamination sites (see Table G.2 in Appendix G). Most of these sites involve current or former fuel distribution facilities, and/or vehicle/equipment storage and maintenance facilities, and have similar potential contamination concerns (*e.g.*, underground storage tanks [USTs], fuel spills/leaks, soil contamination, waste petroleum products, heavy metals, miscellaneous debris piles, etc.).

Air Quality: Jefferson County is located within the Louisville Interstate Air Quality Control Region. The study area is designated as a Non-Attainment Area for $PM_{2.5}$, per the 1990 Clean Air Act Amendments. Transportation control measures are not likely to be required for the project. The project is listed on page 114 of KIPDA's *FY 2006-FY 2008 Transportation Improvement Program*, adopted in November 2005, and on page 10-135 of KIPDA's *Horizon 2030 Long-Range Transportation Plan*, adopted in November 2005. Further advancement of

this project would require more detailed analysis and interagency review. If implemented, the project is not expected to adversely impact air quality in the region.

Traffic Noise: Highway traffic noise, or unwanted sound, is one of the most common citizen complaints regarding highways. Inducing a new road in a rural and transitioning area will generate concern over highway noise. Although several options exist for addressing noise impacts, none are more effective than noise barriers, and even they have limited effectiveness. Barriers can only be effective if no openings exist, as noise will bend and infiltrate openings. Therefore, noise barriers can only be installed along roadways that either have full access control or have a significant stretch of roadway that has no driveway openings or intersecting roads. Other noise mitigation measures that should be considered include quiet pavements, horizontal and vertical alignment shifts, and the acquisition of property along the roadway to create a buffer zone. Louisville Metro has a noise policy that restricts the placement of residential developments within a buffer of interstate facilities. Although the new road would not be an interstate facility, similar restrictions could be considered by local jurisdictions.

Environmental Justice: KIPDA prepared the Environmental Justice Community Impact Assessment for the proposed interchange project. The report concluded: "… the community impact assessment did not uncover any significant concentrations of Environmental Justice populations, i.e., race, ethnicity, minorities, and low-income persons, elderly, or persons with disabilities within the study area." The report is provided in Appendix H.

Geotechnical Overview: The KYTC Division of Structural Design, Geotechnical Branch, and the University of Kentucky, Kentucky Geological Survey, provided comments about the geotechnical nature of the study area as it relates to the project (see Appendix M). Neither agency anticipated any geotechnical problems associated with the project.

4.0 WHAT ARE THE CABINET, AGENCY, AND PUBLIC COMMENTS?

4.1 The KYTC Project Team

The I-64 Alternatives Planning Study Project Team met five times during the course of the study. The Project Team consists of FHWA-KY Division, KYTC Central Office and District-5 staff, KIPDA, and the consultant team. Each meeting was held at KYTC District 5 offices in Louisville and was documented with meeting minutes (see Appendix I). A brief summary of the major topics discussed at each meeting follows:

1. February 6, 2006. At this initial meeting, the scope of work was defined and the anticipated tasks that would be accomplished during the planning study were identified.
2. July 18, 2006. The project activity to date was reviewed in terms of the scope of work and status of study. Team members reviewed the environmental footprint/overview results, the traffic and crash information, and the key person interview results/comments. The team identified a preliminary set of project goals. Preparation for the first public informational meeting was discussed.
3. March 26, 2007. The project was reviewed in terms of the latest traffic information and forecasts, and select screening criteria for the numerous alternatives. Team members reviewed the public meeting comments/responses, and the resource agency's comments/responses. Preparations for the next Project Team meeting and public informational meeting were discussed.
4. May 21, 2007. The project was reviewed in terms of the project status and corridor recommendations. The project team discussed the alternative corridors to carry forward for further consideration and those to eliminate from further consideration. Also reviewed were the typical section and operational analysis approaches. Preparations for the next public informational meeting and project team meeting were discussed.

5. October 1, 2007. The comments from the second public informational meeting were reviewed, as well as the recommendations to be included in this planning document. The traffic forecasts, interchange operational analysis, and cost estimates were also reviewed.

4.2 Key–Person Interviews

Seventeen Jefferson and Shelby County officials were interviewed in May – July 2006 by six Project Team members. Each interview included discussion of the overall project, as well as specific issues related to traffic, the environment, land use, and other topics of note/concern within the study area. The team documented each response and summarized the key the information received. That summary can be found in Appendix J.

4.3 Public Informational Meetings

Public information meetings were held August 29, 2006, at the Highview Baptist Church, East Campus, and June 26, 2007, at the same location. Appendix K provides the public information meeting comments summaries, and Appendix L includes newspaper articles about the public meetings. A Public Involvement Summary Notebook for each public meeting is on file with KYTC.

Public Information Meeting #1: The August 29, 2006 meeting was conducted to inform the public of the proposed alternatives planning study for a new I-64 interchange with a connector road, and to receive input concerning issues to consider and problems to correct. Citizens were provided a handout consisting of a project fact sheet, draft project goals, and an aerial photograph of the project study area.

Sixty-nine (69) people attended the meeting and 20 comment forms were submitted or returned. On the survey/comment form, most attendees answered “yes” to the question, “Do you think new access to I-64 is needed in eastern Jefferson County?” Traffic congestion was identified as the greatest problem in the area, and relief of traffic congestion was cited as the primary objective of the project. The Floyds Fork watershed/corridor was identified as the most important area to protect.

While attendees were generally supportive of a new I-64 interchange with a connector road, comments were received both favoring and opposing the project. Those favoring a new I-64 interchange with a connector road (the majority opinion) primarily envisioned it as a means to reduce “bottlenecks” at the existing interchanges, enhance the community’s ability to attract people and employers with more convenient access to main roads, and improve emergency response times and safety. Those opposed to a new I-64 interchange with a connector road were mostly concerned about creating more sprawled development/growth and disturbing the rural character of the community.

Public Information Meeting #2: The June 26, 2007 meeting was conducted to inform the public to provide the citizens with the broad range of alternative locations for the interchange and the connector road. Corridors were identified as either “recommended to be carried forward” or “not recommended to be carried forward.” Comments received included concern over the alignments and recommendations, support for the project regardless of its location, and opposition to the project in total.

In summary, there were 89 attendees and 44 filled out comment forms. 34 of the comments were in support of the overall project but differed in preference to the location options. The public generally commented on the alignments that are recommended to be carried forward. Of those comments, more favored alternatives in the eastern part of the study area (alternative

Segments 27, 28, 10, etc.) than in the western part (alternative Segments 1, 2, 4, etc.).[1] Few comments addressed the alignment options that were not recommended to be carried forward. Several comments noted other roadway improvements that need to be made regardless of the alternative selected, including improvement to Eastwood-Fisherville Road, US 60 and KY 155.

4.4 Resource Agency Coordination

In August 2006, eighty local, state, and federal agencies were contacted to obtain their input regarding the study area and any possible I-64 interchange improvements. The mailing identified the study corridor but not the alternative alignments. Twenty (20) responses were received, many of which noted "no comments or concerns," or recommended use of Best Management Practices (BMPs). Only project-specific or substantive comments are summarized below. Appendix M contains the full text of all responses received.

Louisville Metro Planning and Design Services: PDS stated its general support for a connector road between Shelbyville and Taylorsville Roads. The letter referenced the Eastwood Neighborhood Plan and the Quest Transportation Study recommendations, stated the importance of existing and new traffic to the economic stability of the Eastwood Village Center, and noted a desire to retain the Center's "pedestrian oriented character." Concerned that development around the Taylorsville Road connection could result in the need for additional transportation improvements, the agency recommended the project's potential consequences in this regard be studied. The agency also noted that PDS will initiate a study of the rural character of southwest Jefferson County.

Transit Authority of River City (TARC): The agency stated that increased roadway connectivity and additional pedestrian and bike infrastructure could lead to growth in TARC ridership. Therefore, the interchange project and connector road would be best served by park-and-ride lots that could be tied into express bus service and carpools in the area.

Simpsonville Rural Fire Protection District: This project will provide the Eastwood Fire Department a quicker response route to I-64 and another exit to divert traffic onto when an accident occurs on I-64. The District noted it will shorten the bottleneck area from Simpsonville and Middletown when accidents occur on I-64. It also stated that the concrete median barriers proposed on the widened I-64 will make it difficult to reach the opposite side of the road. The District indicated the proposed interchange will help solve that problem but the connector road could increase the potential for more accidents in that location.

Kentucky Department of Fish and Wildlife Services: The gray bat, Indiana bat, sharp-shinned hawk, Bachman's sparrow, Henslow's sparrow, great blue heron, little blue heron, dark-eyed junco, clubshell, pied-billed grebe, Bewick's wren, and barn owl are listed species that could occur in the project area. Specific BMPs were identified for project area construction, wetlands and stream mitigation, and the need for future coordination with USACE was noted.

Kentucky State Police, Post 4: The proposed interchange will be beneficial to the community and for the motoring public that travels I-64.

University of Kentucky, Kentucky Geological Survey (KGS): KGS noted the project area has karst features such as sinkholes, unconsolidated sediments and rock units, and recommended testing to identify potential impacts and areas best avoided. KGS also stated there is no potential for landslides, no prior mining activities, no fault potential, and only minimal potential for earthquake ground motion.

[1] Section 5.0 of this study describes the corridors and alternative segment alignments within each. In addition, the section discusses the alternatives recommended to be carried forward and those not recommended for further consideration.

Commerce Cabinet, Department of Parks: The agency stated that the proposed interchange and connector road will improve access to Taylorsville Lake State Park.

5.0 WHAT ARE THE ALTERNATIVE OPTIONS AND RECOMMENDATIONS?

The following alternatives concept options were developed and evaluated against the goals and objectives formulated as part of this study process. Three general concepts were identified:

- Do Nothing
- Transportation System Management (TSM), Spot Improvements, and Transit Alternatives
- New Interchange and Connector Road

5.1 Do-Nothing Alternative

This alternative involves no action to construct a new interchange or a connector road. The Do-Nothing Alternative would include routine roadway maintenance (*e.g.*, resurfacing, restriping, patching, etc.) and other committed projects with the KYTC Six-Year Highway Plan and local planning efforts. In the short-term, the Do-Nothing Alternative is the least expensive improvement option, since no funds would be expended for right-of-way acquisition, displacement of residences or businesses, utility relocations, or improvement construction. There would also be no construction period traffic disruptions, or construction-induced environmental impacts.

However, the Do-Nothing Alternative should not be construed as a continuation of the status quo. Traffic volumes and characteristics, and development inside and outside the project area will change. Normal growth in the area would contribute to increases in traffic volumes and a worsening of existing conditions. Traffic from existing and future development, as well as through traffic, would continue to use the existing roadways, with forecasts predicating substantial growth. The Do-Nothing Alternative would leave the area with a deficient transportation network that progressively deteriorates as traffic demands increase. Additional traffic congestion and an increased potential for crashes could be expected. This alternative was presented and discussed by the Project Team members, who concluded it was not in the public's best interests. The long-term benefits from implementing a proposed build alternative are expected to be substantially greater than any negative factors associated with the construction and operation. The Do-Nothing Alternative was not recommended because it did not address the project goals, namely that of mitigating congestion and improving connectivity to the existing interstate network.

5.2 TSM, Spot Improvements, and Transit Alternatives

Transportation System Management (TSM) and Spot Improvements alternatives involve relatively low-cost options. TSM options generally refer to such activities/features as signing, striping, traffic lights, and simple roadway improvements such as removing vegetation to improve visibility or improving the radius of a street corner. Spot Improvements include concepts such as reconstructing relatively short substandard curves, hills, intersections, etc. to address a safety concern, and then reconnecting with the existing roadway. Transit options could include higher cost activities/features ranging from the addition of High Occupancy Vehicle (HOV) lanes and park-and-ride lots to the construction of light rail/commuter train facilities.

Although such alternative concepts could be implemented in the area, none would address the top goals of mitigating congestion, connectivity of the road and interstate network, and safety by shifting traffic to facilities that are statistically safer than the existing rural road network. A thorough analysis of the statistical crash rates for different types of roadways is included in

Appendix B, Project Goals. Therefore, the low-costs TSM and Spot Improvements were not studied in detail as part of this planning effort.

Improvement of transit services would also not meet the goal of improving the connectivity to the interstate network. However, comments from TARC noted that increased roadway connectivity and additional pedestrian and bike infrastructure would be expected to increase TARC ridership, and that a new interchange and connector road would be best served by park-and-ride lots that could be tied into express bus service and carpools in the area.

5.3 New Interchange and Connector Road Build Alternatives

A new interchange with I-64 and a new connector linking KY 155/KY 148, I-64, and US 60 would meet the key objectives of improving congestion on the existing roads by…

- Providing a new network connection.
- Improving the connectivity of the road network to the interstate network.
- Improving safety by providing a facility built to current design standards that would shift traffic to the statistically safer interstate network.

Therefore, a majority effort of this study was focused on alternative locations for this alternative concept.

Based on the future traffic volumes, safety goals, and design considerations for the proposed road, the Project Team recommends that a four-lane divided facility be constructed within the roadway corridor. A four-lane divided facility can handle more traffic than other types of facilities, is statistically safer, and can be designed to manage access points. North of I-64, because of the land use and community setting, an urban typical section with curb and gutters is recommended. South of the I-64, because of the existing rural setting and future Floyds Fork park plan, a rural typical section is recommended. Both the urban and rural typical sections are illustrated on Figures 7a and 7b, below, and both were used as the basis for the cost estimations.

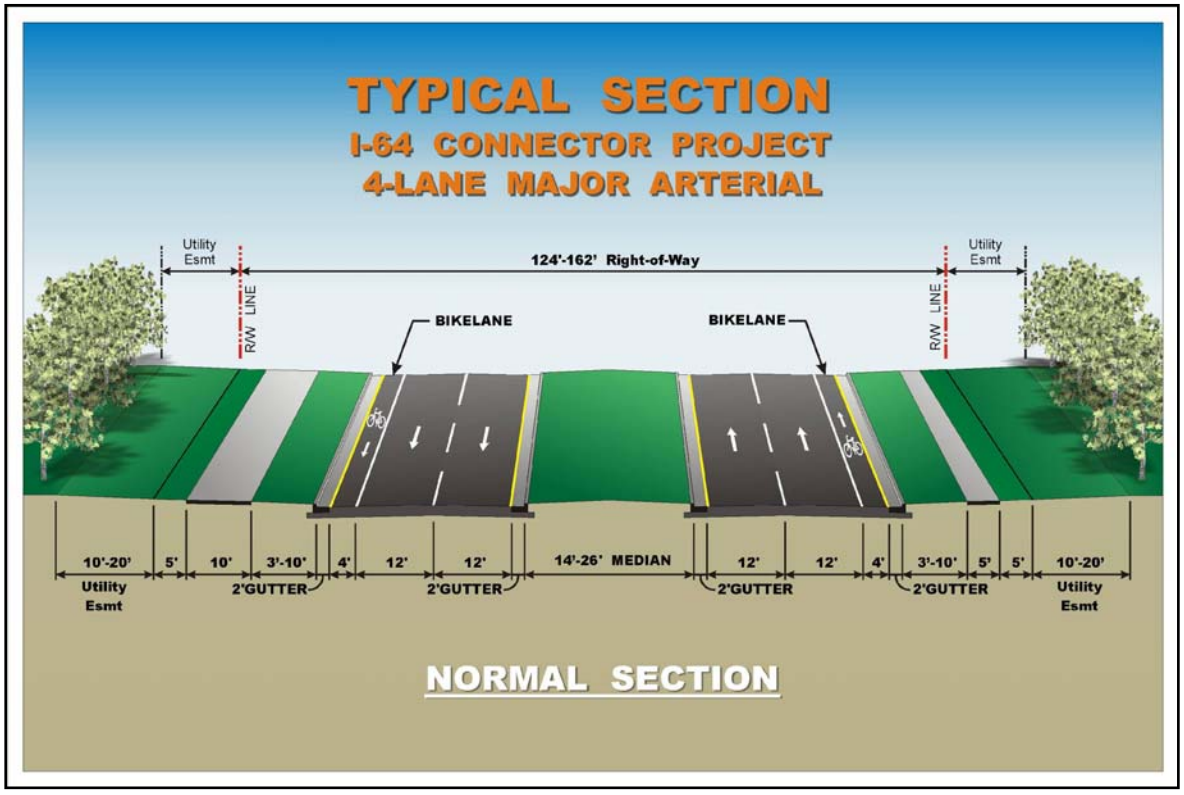

Figure 7a: Proposed Urban Typical Section North of I-64

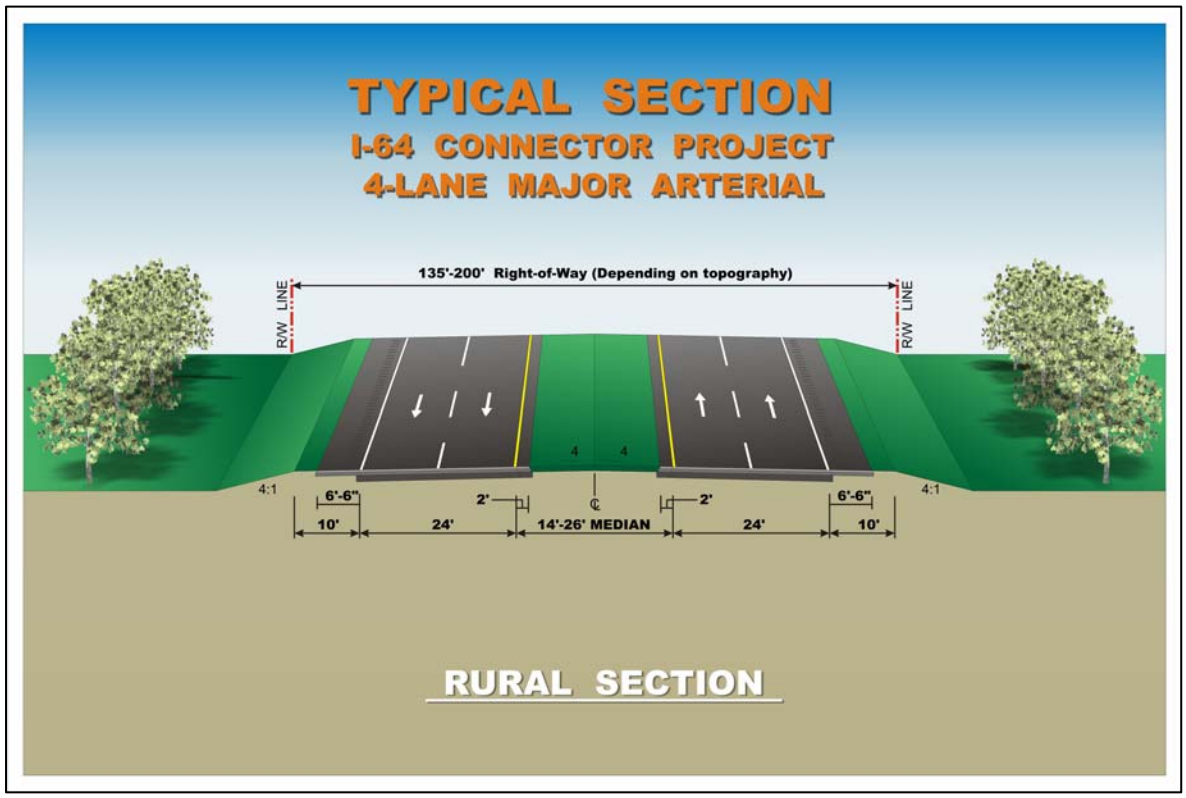

Figure 7b: Proposed Rural Typical Section South of I-64

5.3.1 Broad Range of Alternative Locations

The alternative location process began at the first public meeting on August 29, 2006. At this meeting, maps of the area were provided on the tables in a workshop format. On these maps were the existing conditions, including streams, floodplains, wetlands, subdivisions, other land use, historic sites and districts, parks, topography, etc., that should be taken into account when trying to identify a new road corridor. After a short presentation about the project, the people in attendance were invited to draw possible alternative locations on the maps. After the meeting, the engineering team modified those alignments to meet design criteria, and then the Project Team identified other potential alignments. In this manner, the alternative location process began with a comprehensive, broad-range set of options, as shown on the map, Figure 8, below.

As the map shows, many of the proposed alignments intersect, thereby creating numerous combinations of options. To address the complex alternative naming process, each individual segment was given a number. This process produced 28 individual segments that could be combined to form a broad range of end-to-end alternatives extending from KY 155/KY 148 north to US 60. This approach provides the flexibility to eliminate an undesirable segment(s) and then connect to an intersecting segment(s) to maintain an alignment that has a locational advantage.

The broad range of alternative locations was screened in this planning study based on their ability to meet the project goals, their environmental and community impacts, and their cost.

5.3.2 Alternative Screening Process

Alternative screening for highway projects is typically a three step process. This Alternatives Planning Study includes two of those three steps. The first step was to identify the alternative concept that should be advanced—TSM/Spot Improvement/Transit or Build Alternative in a New Corridor. After the selection of a New Corridor, the second step was to reduce a comprehensive set of location options to a short list of options. The subsections that follow describe the key issues examined that allowed the Project Team to complete the second phase of the screening process. The key issues include traffic, environmental and community impacts, and costs.

The final step of the alternatives screening process will be during the preliminary engineering and environmental documentation stage, when the short list of alternatives will be studied in greater detail, in accordance with the National Environmental Policy Act (NEPA). This third stage will conclude with either the selection of a specific alignment location as the Build Alternative, or conclude that the Do-Nothing Alternative is the best option.

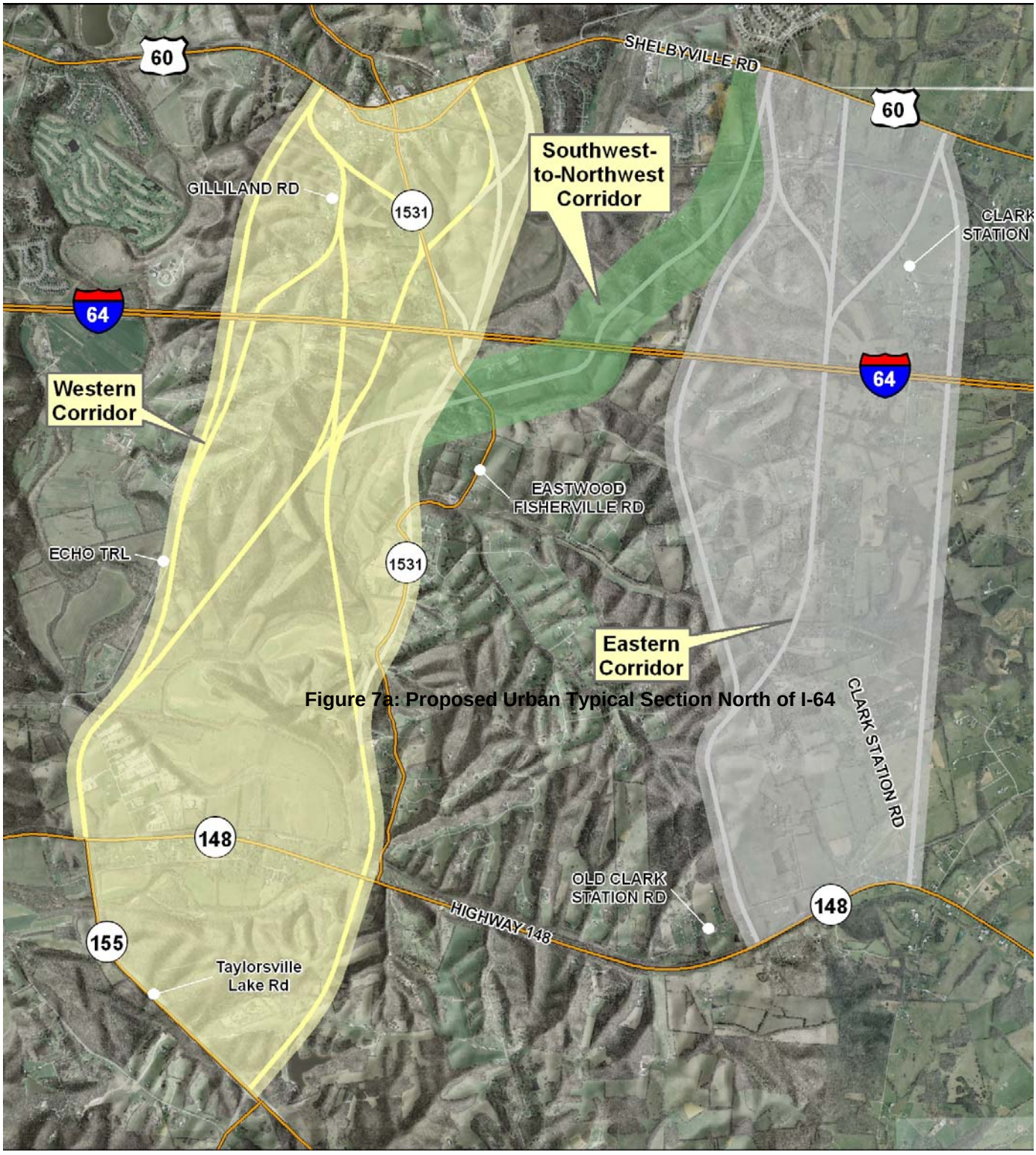

Figure 7a: Proposed Urban Typical Section North of I-64

Figure 8: Alignments Within the Three Corridors

5.3.2.1 Traffic Analysis for Broad Range of Alternatives

Because alleviation of traffic congestion is one of the primary project goals, the broad range of alternative locations was first analyzed to determine their effects on travel patterns on the area roadway. The KYTC, Division of Planning prepared a traffic model for the study area road network, including the I-64/KY 1848 interchange in Simpsonville, and the following three interchanges with I-265: US 60, I-64, and KY 155. The report can be found in Appendix N. The larger area was studied to address the effect of a new interchange on the existing interchanges. The study has been used in the Interchange operational analysis conducted for this study (see Section 6.0, herein).

For purposes of the traffic analysis, the alignment segments were grouped by proximity according to their locations in the study area. Three distinct corridors emerged: Western Corridor segments linked the Eastwood and Fisherville communities, Eastern Corridor segments were near the Jefferson-Shelby County line, and a diagonal corridor crossed from the southwest (near Fisherville) to the northeastern (US 60 east of Long Run). The KYTC traffic model was calibrated for the known existing conditions and updated with build-out socioeconomic conditions. A representative “end-to-end” (i.e., US 60 Shelbyville Road to KY 155/148 Taylorsville Road) alignment was selected within each corridor. Year 2030 forecasts were then generated for the Do-Nothing Alternative and the end-to-end alignment alternatives.

The traffic analysis shows that Western Corridor alternative would attract more traffic from the existing roads to I-64 via the new interchange than the alternative in the Eastern or the Southwest-to-Northeast Corridor. North of I-64, for the year 2030, the Western Corridor alternative would attract 28,200 vehicles per day (vpd) between US 60 and I-64, compared to 11,400 vpd for Southwest-to-Northeast Corridor alternative and 13,000 vpd for Eastern Corridor alternative. South of I-64, for the year 2030, the Western Corridor alternative would attract between 5,400 and 13,600 vpd, compared to 5,400 to 9,100 for the Southwest-to-Northeast Corridor alternative, and 3,700 for the Eastern Corridor alternative.

These trips would be attracted from the existing surface streets to the new road and I-64, most notably from US 60 between Eastwood and I-265 and I-265 between US 60 and I-64 — the two sections of the existing road network that would experience the most benefit (i.e., reduction in congestion) from the proposed new connector road and interstate connection. The converse of this benefit is the addition of traffic to I-64 between the new corridor and I-265.

It is important to note that the traffic forecasts for Southwest-to-Northeast Corridor show an increase of traffic volumes on KY 1531 (Eastwood-Fisherville Road) over the current volume of 500 vpd and No-Build volume of 1,100 to 8,000 vpd. The increase would occur because traffic would take KY 1531 from Eastwood, cross over I-64, and then turn onto the new alignment to access I-64. This undesirable traffic pattern is one reason this corridor option is not recommended to be advanced.

Table 2: Year 2030 Traffic Forecast Summary With Build Alternative

	Western Corridor (the range is attributed to different southern termini options)	Southwest-to-Northeast Corridor	Eastern Corridor
New Corridor			
From US 60 to I-64	28,200	11,400	13,000
From KY 155/KY 148 to I-64	5,400 to 13,600	5,400 to 9,100	3,700
From KY 155 to KY 148	N/A	5900	N/A
Change in forecasted (2030) volumes from the No-Build to Build volumes (*i.e.*, volume of traffic to be shifted to/from the existing roads)			
US 60			
From I-265 to Beckley Station Road	(19,000)	(5,000 to 7,000)	(2,000)
From Beckley Station Road to Eastwood	(16,000 to 17,000)	(4,000 to 6,000)	(3,000)
From Eastwood to Flat Rock Road	0 to 1,000	(2,000 to 5,000)	(4,000)
From Flat Rock Road to KY 1848 (Veechdale Road)	(3,900)	(600 to 1,400)	(1,600)
KY 155			
From Spencer County to KY 148 (Taylorsville Lake Road)	(3,600 to 7,200)	(1,800 to 4,300)	(1,800)
From KY 148 to I-265	2,900 to (2,600)	1,300 to (1,300)	300
KY 148			
From KY 155 to New Corridor	2,600 to (3,900)	1,300 to (2,300)	(300)
From New Corridor to Shelby County	200	200	(400)
KY 1848			
From I-64 to US 60	(2,300 to 2,600)	(5,500)	(5,500)
KY 1531 (Eastwood-Fisherville Road)			
From US 60 to New Corridor	0 to (200)	6,800	(200)
From US 60 to KY 148	0 to (500)	(900 to 1,800)	(500)
I-265 (Gene Snyder Freeway)			
From KY 155 to I-64	(14,000 to 15,000)	(5,000 to 7,000)	(3,000)
From I-64 to US 60	0 to (3,400)	0 to (1,700)	0 to (1,700)
I-64			
From I-265 to New Interchange	18,000 to 20,000	11,000 to 13,000	6,000
From KY 1848 to New Interchange	1,800	0	0 to (1,800)

Note: Red text in parentheses (#,###) indicates a negative change in future traffic volumes; i.e., the number of vehicles projected to be diverted from the existing road as a result of the project.

5.3.2.2 Environmental and Community Impacts

In addition to the changes in traffic patterns, the alternative evaluation process has also included consideration of impacts to the natural environment, communities, and cost to implement the roadway.

Environmental: The key environmental considerations include Long Run, Floyds Fork, Brush Run, Shakes Run, and the associated floodplains; historic sites, including isolated sites and the potential historic districts of Eastwood and Fisherville; wildlife habitat, including Threatened and Endangered Species habitat; and view sheds.

The Western Corridor alignment Segments 26 and 29 would result in an interchange located at or near the I-64 bridge over Long Run. This would potentially require the relocation of that stream and could have direct and indirect impacts resulting from the interchange ramps. Nearly the entire interchange would be located within the floodplain of Long Run. This is one reason these segments are not recommended to be carried forward.

The Floyds Fork corridor, including the floodplain, has been avoided as much as possible, but a crossing would be required by Segment 1, which would connect with KY 155 at the existing KY 155/KY 148 intersection. The Segment 1 crossing would also encounter a notable topographical change between the cliffs south of Floyds Fork and the floodplain to the north.

Each NRHP-eligible/potentially eligible historic site and district would need to be avoided if prudent and feasible alternatives exist. This is the primary reason no alternatives recommended to be carried forward bisect the potential historic districts of Eastwood and Fisherville.

Section 4(f) properties are protected from federally-funded highway projects if they can be avoided by prudent and feasible alternatives. Publicly owned parklands are among the resources that are considered to be Section 4(f) properties. Floyds Fork Park, south of KY 155 and east of the study area, would be considered a Section 4(f) property as would Miles Park, north of I-64 and also east of the project area. Because these Jefferson County-owned parks are outside the study area, they would not be directly impacted by any alternatives currently under consideration. The city-owned Eastwood Park is within the Western Corridor and, because it is publicly owned, it would be a Section 4(f) resource. As such, it has been avoided by alignments developed for this study.

The alignments of Segments 4 and 5 in the Western Corridor encounter land that has been acquired by 21st Century Parks—the non-profit organization managing the acquisition of land for a linear park and trail along Floyds Fork. The organization submitted a letter noting general lack of opposition to the project overall, but also expressing concern about several of the alternative alignments being considered. The letter (see Appendix M) included a resolution stating that the corporation "unanimously opposes…Routes Numbers 1, 2, 3, 4, and 5," which are in the Western Corridor (see Exhibits 6 and 7, Appendix A). Segments 1, 2, and 3, also in the Western Corridor, would not use any parkland; however, the segments are adjacent to the lands being acquired for the park and trail system. Because it is expected that 21st Century Parks will retain ownership and management of the parkland as it is acquired, rather than put it in public ownership, the land would not be a Section 4(f) resource.

These segments are recommended to be carried forward because of the traffic benefit they would provide. It is recommended that close coordination with 21st Century Parks occur during future stages of project development.

Community: Community resources include the town centers of Eastwood and Fisherville, the number existing and planned residential subdivisions in the corridor, fire and EMS service, churches and parkland, the Floyds Fork Greenway Corridor, and farming (including equine) operations.

Existing subdivisions occupy more than 60 percent of the land in the study area. Avoiding bisecting existing platted subdivisions was a priority when identifying the original set of alternative corridors and screening the broad range of options. As Exhibits 6 and 7 show, alignments that bisected existing subdivisions (e.g., Segment 17, which bisected Ashmore Woods) are not recommended to be carried forward. Other segments that have been eliminated because of community/residential subdivision impacts are Segments 26, 29, 16, and 13. Derbyshire Estates and the recently approved but not yet constructed Shakes Run are in the middle of the study area. Avoidance of these subdivisions is the reason no alignment segments were located in the area.

5.3.3 Alternative Screening Recommendations

After consideration of the traffic forecasts and travel patterns, environmental and community considerations, and costs, the following are the recommendations from the alternatives screening process:

Build Alternative Segments Not Recommended to Be Carried Forward

- Eastern Corridor, Segments 19-25: Segments in this corridor would not best meet the primary goal of reducing congestion on the existing roadways, especially the I-265/US 60 interchange. The lack of a notable benefit to traffic is especially true in the south, between KY 148 and I-64. This corridor is also not recommended because it would require bridging the CSX railroad track south of US 60.

- The Southwest-to-Northeast Corridor, Segment 12: This corridor, which has only one segment, is not recommended to be carried forward because it too would not best meet the primary goal of the project. In addition, this corridor would result in a significant amount of traffic being added to KY 1531 as a cut-through from Eastwood. This corridor would also require bridging the CSX railroad track.

Build Alternative Segments Recommended to Be Carried Forward

- The Western Corridor, Segments 1-10, 14, 2 and 28: Segments in this corridor would best meet the primary goal of reducing congestion on the existing roadways. The alignments that could be formed using various segment combinations would link the community centers of Eastwood and Fisherville and best serve the traveling public. In addition, no alignment in this corridor would require a costly bridge over the CSX railroad. While bridging the railroad could be required on the east side of Eastwood, east of the railroad tunnel, the bridge could be located where the railroad is at a significant cut in the topography, thereby reducing the cost by eliminating the need for a 30-foot-high structure.

  Preliminary cost estimates (2007 dollars) have been prepared for alternatives recommended for further study (see Appendix O). To provide a meaningful comparison of costs that would be associated with the total project rather than just the individual segments, eight end-to-end alternatives were developed using all feasible combinations of segments within the corridor. The estimates include the costs associated with construction of the roadway (including bridges, drainage structures, the I-64 interchange, etc.); right-of-way acquisition; utilities relocations; and design and environmental tasks. The total preliminary costs ranged from approximately $48.8 million to $61.9 million. In general, the amount of excavation/embankment work and the number of major structures (most notably bridges) were the primary causes of the range of costs.

  There are special considerations that must be taken into account with placing an alignment in this corridor, including:

  - Continued coordination with:

    - The residents and leaders of Eastwood and Fisherville and other residents in the corridor.
    - State and Louisville Metro elected officials.
    - State and local agencies, including Louisville Metro Public Works, Metro Parks, and Planning and Design Services. This is especially important when

considering future land use changes and proposed subdivisions that could develop in the path of a possible alignment location.

- Developers proposing land use changes in the area.
- Stakeholders involved in the Floyds Fork linear park and trail project, including Louisville Metro Parks and 21st Century Parks.
- CSX and NS railroad companies.

- Consideration of the impacts to and use of the 21st Century Floyds Fork linear park and trail system. This includes direct impacts and indirect impacts, as well as visual impacts, i.e., employing contest sensitive design to create a "parkway" that visually and operationally is a linear extension of the park system.

- Topographical constraints and designs of the roadway near Fisherville: specifically, the bridging of the railroad; and the topographic constraints of the river valley including the tributaries and the grade variances between the floodplain, cliffs, and hilly terrain.

In summary, it is the recommendation of this Alternatives Planning Study that the Western Corridor segment alignments be carried forward into the next stage of the project development, which would include preliminary engineering, environmental documentation, and a full Interchange Justification Study (IJS). The objective of this stage will be to conduct a complete alternatives analysis to identify the location and design of a selected alternative. The Do-Nothing Alternative will also be carried forward to provide a basis for comparing build alternatives, even though the Do-Nothing Alternative would not meet the project goals.

The alternatives "recommended to be carried forward" and "not recommended to be carried forward" are illustrated on Figure 9, below, and on Exhibits 6 and 7. A map illustrating the traffic volumes and levels of service for the recommended corridor is included as Exhibit 5. This exhibit includes traffic data for the "worst case" scenario for increasing traffic volumes on I-64. This data was used in the operational analysis described in Section 6.0, below.

The traffic analysis that was completed for this project was prepared by KYTC because the study area extended into Shelby County, which is outside the KIPDA traffic model area. For the next stage, because the recommended corridor of alternatives is within Jefferson County, it is recommended the traffic modeling be conducted by KIPDA and that the model include updated programmed transportation projects and updated socioeconomic variables.

The current Six-Year Highway Plan includes funding for preliminary engineering and environmental analysis, only. There is as yet no committed funding for future stages such as right-of-way acquisition, utility relocation, and construction. Additional funds would need to be identified in the Six-Year Highway Plan for these stages.

Should the Project Team agree to implement the project in construction phases, it is recommended that the interchange and the northern segment be constructed first, as it is shorter and would attract more traffic and provide more traffic benefit than the southern section.

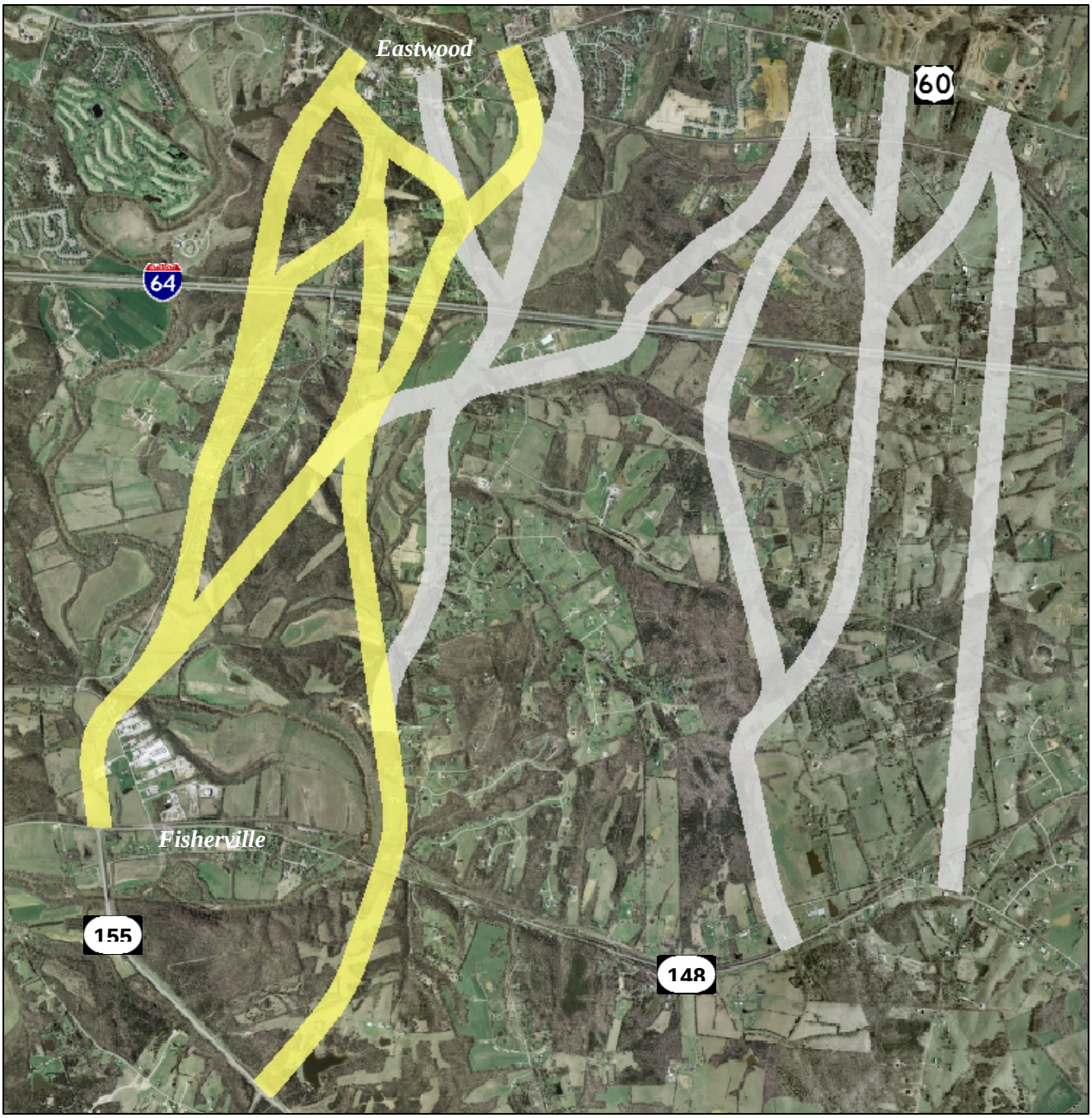

Figure 9: Short-List / Screened Broad Range of Alternative Alignments (Yellow Advanced, Gray Eliminated)

6.0 WHAT DOES THE PRELIMINARY INTERCHANGE JUSTIFICATION STUDY INDICATE?

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) contains requirements for planning a proposed interchange to the existing Interstate Highway system. These requirements are implemented in FHWA policy and through Federal regulation located in 23 CFR part 450. The policy for *Additional Interchanges to the Interstate System* contains eight points that must be taken into consideration. This section discusses each policy point that would be addressed in greater detail in a full Interchange Justification Study (IJS) that would be required by FHWA prior to approval of funding for the new interchange.

Policy Statement No. 1: Existing Facilities Capability

"It is demonstrated that the existing interchanges and/or local roads and streets in the corridor can neither provide the necessary access, nor be improved to satisfactorily accommodate the design-year traffic demands while at the same time providing the access intended by the proposal. "

The existing interstate interchanges with surface streets in the area are: I-265/US 60 (Exit 27, Middletown) in the northwest, I-265/KY 155 (Exit 23, Taylorsville Road) in the southwest, and I-64/KY 1848 (Exit 28, Simpsonville) in the east in Shelby County. The spacing of these interchanges prohibits them from being able to provide interstate access to/from the study area. Further, they are either at or projected to be at capacity, and limited improvements to them are proposed. The improvements were included in the traffic model, and they still fail to provide for the access and interstate connection needs for eastern Jefferson County.

The existing north-south local roads in the study area include Eastwood-Fisherville Road (KY 1531) and Gilliland Road/Echo Trail and Clark Station Road. These three local north-south roads are substandard and could not be improved to handle the local north-south travel in the area. The width of these roads ranges from 18 to 22 feet, and they follow the topography, with very poor sight distance and geometrics. Further, a new interchange would not be able to connect to these substandard roads; therefore, a new connector north to US 60 and south to KY 155 or KY 148 would be necessary.

Policy Statement No. 2: Transportation System Management

"All reasonable alternatives for design options, location and transportation system management type improvements (such as ramp metering, mass transit, and HOV facilities) have been assessed and provided for, if currently justified, or provisions are included for accommodating such facilities if a future need is identified."

In Section 4.0, above, the various design options, including TSM and Spot Improvements, are described. None of these types of low-cost options would provide the relief to the current network and interchanges that would be provided by a new interstate interchange on I-64 in far eastern Jefferson County. No mass transit (TARC) service is currently provided for in the study area. In this area, all service is west of I-265. Coordination with TARC indicated that improved access to I-64 with additional pedestrian and bicycle infrastructure would anticipate a growth in TARC ridership. HOV lanes are not provided in any Louisville area interstates. I-64 is currently proposed to be widened from four to six general purpose lanes, but provisions for HOV lanes are not included.

Policy Statement No. 3: Operational Analysis

"The proposed access point does not have a significant adverse impact on the safety and operation of the Interstate facility based on an analysis of current and future traffic. The operational analysis for existing conditions shall, particularly in urbanized areas, include an analysis of sections of Interstate to and including at least the first interchange on either side. Crossroads and other roads and streets shall be included in the analysis to the extent necessary to assure their ability to collect and distribute traffic to and from the interchange with new or revised access point."

The traffic operational analysis has been performed for the proposed interchange, and it included the mainlines of I-64, I-265, US 60, KY 155, KY 148, and the surface streets in the area. It also included the following interchanges: I-64 Exit 28, KY 1848 at Simpsonville; I-64 Exit 19, at I-265; and I-265/US 60 at Middletown. It should be noted that the traffic forecasts provided different traffic volumes for different locations of the interchange and connector road; therefore, the operational analysis was based on the option that would attract the most traffic to I-64 (*i.e.*, the "worst case" scenario for I-64 and the proposed interchange, and the "best case scenario" for the surface streets). The traffic data for the analysis is illustrated on Exhibit 5.

In general, the analysis for this alternative indicates the proposed interchange would provide improved operations to the I-265/US 60, I-265/KY 155, and I-64/I-265 interchanges. Regarding the mainlines, the proposed interchange would provide improved operations to US 60, I-265, and KY 155. On I-64, the 2030 volumes would increase between the connector and I-265 by approximately 20,000 vpd as compared to the No-Build option. These additional vehicles would be attracted from US 60, KY 155 and I-265. This shift in traffic from these roads to I-64 via the new connector would cause a reduction in LOS from E to F on this section of I-64. This is based on the existing planned widening on I-64 to a six-lane facility. The addition of auxiliary lanes along I-64 is one option that could address this concern. East of the new connector there would be a negligible increase of approximately 2,000 vpd with the LOS remaining at E for both the No-Build and the Build options.

The merge, diverge, and weave analysis are illustrated in Appendix P. This analysis is conducted for the peak-hour conditions, based on and reflective of the traffic volumes discussed above. In general, because of the long spacing of the interchange, the merge, diverge, and weave analysis illustrates that the movements would operate in a safe and efficient manner.

Regarding crossroads and surface streets, the analysis indicates that a new four-lane facility would be needed to collect and distribute traffic north and south from I-64 to US 60 and KY 155/KY 148, respectively. The existing surface streets are not designed to handle the proposed volumes of traffic. The connector road has been included as part of this project.

Policy Statement No. 4: Access Connections and Design

"The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" for special purposes access for transit vehicles, for HOVs or into park and ride lots may be considered on a case-by-case basis. The proposed access will be designed to meet or exceed standards for Federal-aid projects on the Interstate system."

The proposed interchange would connect to a new public road, which would terminate at US 60 and KY 155 or KY 148. The interchange would be a full interchange, and would be designed to meet or exceed current design standards for Federal-aid projects on the Interstate System.

Policy Statement No. 5: Transportation and Land Use Plans

> *"The proposal considers and is consistent with local and regional land use and transportation plans."*

The proposed interchange was identified in the first metropolitan transportation plan published in 1969. In various forms it has been included in local and regional plans since, including the current KIPDA Transportation Improvement Plan (TIP) and Long-Rang Plan, local thoroughfare plans, and the State Six-Year Highway Plan. Select pages from these plans are included in Appendix E.

Policy Statement No. 6: Comprehensive Interstate Network Study

> *"In areas where the potential exists for future multiple interchange additions, all request for new or revised access are supported by a comprehensive Interstate network study with recommendations that address all proposed and desired access within the context of a long-term plan."*

The proposed interchange is the only new interchange proposed for I-64 in either Jefferson or Shelby County. However, on I-265 there is currently a proposal for a new interchange at Rehl Road, which is located approximately at milepost (MP) 24, between the interchanges with KY 155 to the south and I-64 to the north. The planning for the interchange at MP 24 is relatively new (as compared to the I-64 interchange proposed herein). The traffic model will be prepared by KIPDA and coordinated with the proposed I-64 interchange to ensure a coordinated study of the interstate network.

Future traffic analysis for both of these planned new interchanges will undergo a full IJS and NEPA analysis, which will involve coordination with Louisville Metro, KIPDA, KYTC, and FHWA. Coordination among these agencies also will be required for the development of the traffic model and traffic assumptions in future stages of this project.

Policy Statement No. 7: Coordination with Transportation System Improvements

> *"The request for a new or revised access generated by new or expanded development demonstrates appropriate coordination between the development and related or otherwise required transportation system improvements."*

The proposed interchange and connector road project is not generated by any specific new or expanded development; rather, the need for these facilities is the result of past, current, for foreseeable residential and neighborhood-related commercial development throughout the study area. There are currently several proposed residential subdivision developments in the study area. Coordination with the developers has occurred as part of this planning study and, in certain cases, the developers have agreed to consider preserving rights-of-way in case the connector road should traverse their properties. These developments are not dependent on the proposed interchange or connector road. Further, any preserved corridors would not preclude or influence a comprehensive alternatives analysis during NEPA documentation and decision-making process.

Under a separate planning effort, Louisville Metro is currently preparing a transportation thoroughfare plan as part of the Floyds Fork Linear Park Plan. The large study area for that project encompasses the proposed interstate and connector road study area. This thoroughfare plan considers the proposed interchange and connector road as a "committed project," and identifies other long-term east-west and north-south corridors need to generate a comprehensive roadway network in eastern Jefferson County. It should be noted that the interchange and connector road, as well as the corridors identified in the thoroughfare plan, have separate and independent utility.

Policy Statement No. 8: Status of Planning and NEPA

"The request for new or revised access contains information relative to the planning requirements and the status of the environmental processing of the proposal."

One goal of the planning process and planning objectives, herein, was to obtain, analyze and document information that would expedite the NEPA process and IJS requirements of the FHWA, should this project be advanced. The planning level analysis herein concludes the interchange would be beneficial to area traffic and not harmful to the interstate network. Regarding the NEPA process, no significant impacts are anticipated with the recommended interchange; therefore, either a Categorical Exclusion or an Environmental Assessment/Finding of No Significant Impact (rather than an Environmental Impact Statement) should be appropriate.