



**Louisville-Southern Indiana
Ohio River Bridges Project**

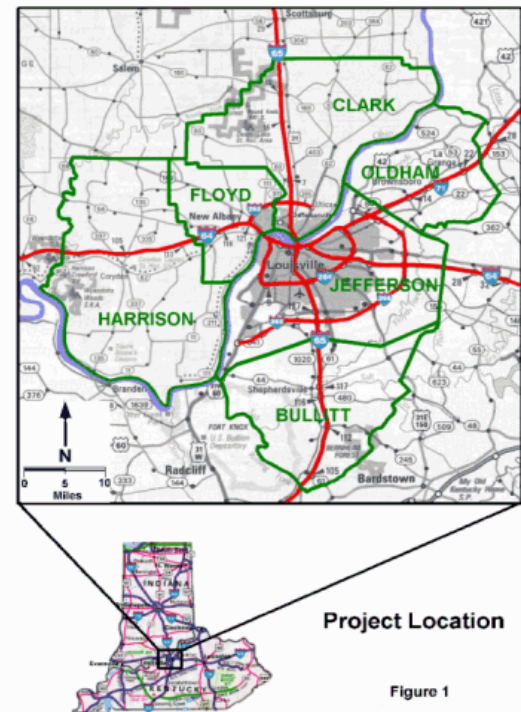
**Supplemental Environmental Impact Statement
Alternatives Evaluation Document
October 17, 2011**



1. Introduction

The Federal Highway Administration (FHWA), in cooperation with the Indiana Department of Transportation (INDOT) and the Kentucky Transportation Cabinet (KYTC), is preparing a Supplemental Environmental Impact Statement (SEIS) for the Louisville-Southern Indiana Ohio River Bridges Project (the Project) (See Figure 1). A Notice of Intent for the SEIS was published in the Federal Register on February 15, 2011.

A Final Environmental Impact Statement (FEIS) and Section 4(f) Evaluation was issued for the Project on April 8, 2003. The FEIS/Section 4(f) Evaluation examined four major project alternatives and a number of sub-alternatives in detail. On September 6, 2003, FHWA issued a Record of Decision (ROD) identifying the Selected Alternative and the reasons for its selection. The Selected Alternative consists of a new northbound I-65 bridge just east of the existing Kennedy Bridge (I-65) near downtown Louisville; an East End bridge approximately eight miles from downtown Louisville connecting the Gene Snyder Freeway (KY 841) to the Lee Hamilton Highway (SR 265); and a rebuild of the Kennedy Interchange, immediately to the south of its present location. The Kennedy Interchange is located where I-64, I-65 and I-71 converge in downtown Louisville.



Since the issuance of the ROD, the States have taken several major steps to advance the Project towards construction: a general engineering consultant was retained; a bridge type selection process was conducted; engineering design and right-of-way acquisition activities began; the Louisville and Southern Indiana Bridges Authority was created for the development, design, financing, construction, operation and oversight of the Project; an update to the major project finance plan was prepared; and many of the mitigation measures from the Section 106 Memorandum of Agreement (MOA) have been implemented.

The FHWA and the state sponsors now propose to modify the Selected Alternative in two ways: (1) the inclusion of tolls to supplement the reasonably expected traditional state and federal program funds as identified in the Kentuckiana Regional Planning and Development Agency's (KIPDA) Metropolitan Transportation Plan, and (2) incorporating design changes, which are primarily intended to reduce costs. Although the modifications are expected to reduce the environmental impacts of the Project, a SEIS is being prepared because the changes to the Selected Alternative have the potential to result in environmental impacts that were not evaluated in the FEIS.

The SEIS will include updates to the environmental data, so that the SEIS takes into account changes in the affected environment since the 2003 ROD. The SEIS also will include updated travel forecasts. The updated travel forecasts will be based on the current regional model, with current land use assumptions, and will use a horizon year of 2030, which is consistent with the horizon year in the Metropolitan Transportation Plan.

Because the SEIS will involve updated environmental data and travel forecasts, FHWA and the state sponsors decided to re-assess the validity of the purpose and need statement and alternatives screening decisions from the original EIS. The purpose of this re-assessment is to ensure that the SEIS is based on a valid purpose and need statement and to ensure that an appropriate range of alternatives is considered, as required by National Environmental Policy Act (NEPA).

Review of Purpose and Need

The original Purpose and Need statement, documented in the FEIS, has been revalidated through an update of the supporting data (See SDEIS Appendix A.1, *Purpose and Need White Paper*). The preliminary analysis leads us to recommend that the purpose of the proposed project should remain unchanged from the original EIS, which was to improve cross-river mobility between Jefferson County, Kentucky and Clark County, Indiana. Specific factors demonstrating the continuing purpose and need for this project include:

- Inefficient mobility for existing and planned growth in population and employment in the Downtown area and in eastern Jefferson and southeastern Clark Counties;
- Traffic congestion on the Kennedy Bridge and within the Kennedy Interchange;
- Traffic safety problems within the Kennedy Interchange and on the Kennedy Bridge and its approaches;
- Inadequate cross-river transportation system linkage and freeway rerouting opportunities in the eastern portion of the Louisville Metropolitan Area;
- Locally approved transportation plans that call for two new bridges across the Ohio River and the reconstruction of the Kennedy Interchange.

Review of Alternatives Screening Decisions

This Alternatives Evaluation Document reviews the alternatives screening decisions in the 2003 FEIS to determine whether there is still a valid basis for eliminating the alternatives that were found to be unreasonable in that document, whether the alternatives carried forward in that document are still reasonable alternatives, and whether changes since 2003 dictate the consideration of new alternatives.

Review of Preferred Alternative Selection

This document also reviews the selection of a preferred alternative in the FEIS to confirm that the rationale for selecting preferred alignments in the East End and Downtown areas remains valid.

Summary of Findings

The following is a summary of findings from the re-assessment of the 2003 FEIS alternatives:

- The decisions reached in the 2001 DEIS and 2003 FEIS regarding the dismissal of conceptual alternatives and alignment alternatives remain valid in this SDEIS.
- The FEIS Selected Alternative cannot be constructed with currently available or reasonably anticipated funds, but should continue to be considered as a baseline for comparison with the Modified Selected Alternative.
- The FEIS Selected Alternative with the addition of tolls is not financially feasible because projected toll revenues would not be sufficient to cover the funding gap for this alternative.
- The FEIS Selected Alternative with design modifications (i.e., the Modified Selected Alternative), but without tolls, is not financially feasible because, even with cost-saving design changes, the cost of the Modified Selected Alternative would still far exceed the available and anticipated traditional revenue sources.
- The Modified Selected Alternative with tolls is a financially feasible alternative and is therefore carried forward for detailed evaluation in this SDEIS.
- The basis for selecting alignments A-15 and C-1 as the preferred alignments in the East End and Downtown corridors, respectively, remains valid, and these alignments continue to be considered for both the FEIS Selected Alternative and the Modified Selected Alternative.

Based on these findings, three alternatives will be evaluated in detail in the SDEIS: (1) No-Action Alternative, (2) the FEIS Selected Alternative, and (3) the Modified Selected Alternative (with tolls).

2. Alternatives Screening and Preferred Alternative Selection in 2003 FEIS

The 2003 FEIS included a comprehensive alternatives screening process, which considered a wide range of conceptual alternatives as well as a wide range of potential alignments for the alternatives that included bridge and highway construction. See Chapter 3 of the 2003 FEIS, Sections 3.1 through 3.5

The screening process in the 2003 FEIS consisted of two steps. In Step 1, broad concepts were evaluated based on their potential to meet purpose and need as well as environmental impacts and cost. In Step 2, potential alignments were evaluated for the alternatives that included bridge and highway construction elements. These steps are briefly summarized below, as context for the analysis in this updated alternatives screening report.

Based on the results of the screening process, the 2003 FEIS considered a range of alternatives, and then selected a preferred concept alternative (the Two Bridges/Highway Alternative) and then selected preferred alignments for that alternative (Alternative A-15 and C-1).

2003 FEIS, Step 1 – Screening of Concepts

Step 1 included a qualitative assessment of conceptual alternatives to determine "its potential to meet the Purpose and Need for this project and if it had a fatal flaw." (2003 FEIS, p. 3-21). The concepts considered at this step included the No Action Alternative as well as numerous other concepts, which were grouped into four categories:

- Transportation System Management (TSM) Alternatives
- Transportation Demand Management (TDM) Alternatives
- Mass Transit Alternatives
- Bridge/Highway Alternatives
 - o Existing System Improvements/Kennedy Interchange Reconstruction
 - o Bridge/Highways Alternatives on New Alignment (in five corridors)
 - o River Tunnel/Highway Alternative

Step 1 in the 2003 FEIS resulted in the advancement of the following concepts for consideration in Step 2:

- No Action
- Transportation Management (included TSM, TDM, Transit)
- Bridge/Highway (three corridors: Far East, Near East, Downtown)

It is important to note that a decision to advance an alternative in Step 1 did not reflect a definitive judgment that an alternative would meet the purpose and need of the project; rather, it reflected an initial assessment that an alternative had the *potential* to meet the purpose and need.

2003 FEIS, Step 2 – Screening of Alignments

Step 2 included an assessment of potential alignments for construction of highway and bridge improvements in the three corridors that were advanced in Step 1 (Far East, Near East, and Downtown). Each alignment was designated with a letter and a number. The letter referred to the corridor – A for Far East, B for Near East, and C for

Downtown. Within each corridor, alignments were numbered sequentially (e.g., A-1). Each bridge/highway alternative included reconstruction of the Kennedy Interchange.

The alignments considered in Step 2 were analyzed through an iterative process that included extensive public input, consideration of environmental impacts, and refinement of the alignments to reduce impacts. As the alignments were refined, the new alignments were assigned different numbers to distinguish them from the originals.

At this stage of the screening process, potential impacts were classified for eight different resource categories: water resources (wetlands, streams and floodplains); biological resources (vegetation, woodlands and important or critical habitat); historic/cultural resources (historic structures, districts and archaeological sites); federally protected recreational resources (parklands, recreational areas, nature preserves and wildlife refuges); land use (residential and business displacements); social/community resources (neighborhood impacts, community cohesion, changes in access and environmental justice issues); economic resources (impacts to commercial development and access to recent and planned growth) and hazardous/contaminated materials sites (leaking underground storage tanks). The results of this screening process were used to determine which alternatives should be eliminated from further consideration. See 2003 FEIS, p. 3-45. This stage of the screening process was intended to narrow each corridor to a specific alternative, but in cases where several distinct choices appeared, more than one was retained for full evaluation in the EIS.

Step 2 resulted in a decision to carry forward the following alignments for detailed analysis as part of the bridge/highway alternatives in the FEIS: five alignments in the Far East corridor (A-2, A-9, A-13, A-15, A-16); one alignment in the Near East Corridor (B-1), and three alignments in the Downtown Corridor (C-1, C-2, C-3).¹ Each alignment included two options for the Kennedy interchange: rebuild in place, and rebuild to south.

Step 2 also resulted in a decision to carry forward two distinct bridge/highway concepts for detailed study: a "Single Bridge/Highway Alternative" and a "Two Bridges/Highway Alternative" for detailed study. The same alignments were considered for both the single-bridge and two-bridge alternatives. See 2003 FEIS, pp. 3-63 to 3-64.

Additional Findings in FEIS

Based on the results of the screening process, the 2003 FEIS included a detailed study of four main alternatives: the No Action Alternative, the Transportation Management Alternative, and several Single Bridge/Highway and Two Bridge/Highway alternatives. See 2003 FEIS, Section 3.5.

¹ Because of the large number of potential alignments, the screening of alignments focused on selecting a reasonable range for detailed analysis. See FEIS, Responses to Comments, p. 7-65 ("Alternative alignments within each of the bridge/highway corridors carried forward out of Step 1 were evaluated further in Step 2 to identify a reasonable range of river crossing alignment options to evaluate in the Draft EIS."). This approach is consistent with the CEQ's guidance for alternatives analysis. See CEQ, "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations," Answer to Question 1.b, 46 Fed. Reg. 18206 (Mar. 23, 1981).

After studying these alternatives in detail, the FEIS concluded that only the Two Bridges/Highway Alternatives met the purpose and need of the project:

The Two Bridges/Highway Alternative provides the greatest improvement to cross-river mobility and best satisfies the needs identified in Chapter 2. None of the other alternatives (Single Bridge/Highway, Transportation Management or No-Action) sufficiently meet all of the needs identified in Chapter 2 so as to constitute a feasible and prudent long-term solution to the region's cross-river mobility needs. The Two Bridges/Highway Alternative provides the greatest improvements in the efficiency of the transportation system, as measured by total vehicle hours of travel, miles of travel, and hours of delay. The Two Bridges/Highway Alternative is the only option that provides sufficient cross-river capacity to meet the region's long-term needs (2003 FEIS, p. 3-84²).

The determination that the Single-Bridge/Highway Alternative did not meet the purpose and need of the project was based on several factors, including the finding that with a single-bridge alternative, the cross-river demand-to-capacity ratio would be at or close to 100% by 2025 – meaning that additional improvements would be needed just 5 to 10 years after the project was completed. (2003 FEIS, p. 3-84).

Preferred Alternative Selection

As discussed above the Two Bridges/Highway Alternative was the selected alternative. While the TDM, TSM, and Mass Transit Alternatives on their own were not deemed to provide a sufficient solution to the Project's Purpose and Need, together they were determined to have some potential to improve the transportation system. The Two Bridges/Highway Alternative was thus determined to include the following elements of the Transportation Management Alternative.

² See also, FEIS, Response to Comment B.104, p. 7-93 ("Options that included no new bridges were evaluated in the initial screening process, and two alternatives, the No Action Alternative and the Transportation Management Alternative, were carried forward for detailed evaluation in the DEIS. None of those alternatives ultimately was determined to sufficiently meet the purpose and need outlined in Chapter 2."); FEIS, Response to Comment F.8, p. 7-190 ("Although the One Bridge/Highway alternatives were carried forward as reasonable alternatives meriting evaluation in the Draft EIS, the detailed analyses presented in that document and in this FEIS demonstrate that none of those single-bridge alternatives sufficiently meets purpose and need, and thus none of the single bridge alternatives is a prudent and feasible alternative."); FEIS, Response to Comment F.24, p. 7-195 ("The Final EIS does conclude, however, that the one-bridge alternatives downtown would not sufficiently improve cross-river mobility, would not adequately reduce congestion or solve safety problems on the existing Kennedy Bridge and approach roads, or provide efficient cross-river transportation system linkage in the eastern portion of the metropolitan area. Therefore, the one-bridge downtown alternatives do not meet the purpose and need for the project as outlined in Chapter 2 of the FEIS. The Section 4(f) Evaluation in the FEIS concludes that, since the one-bridge downtown alternatives do not meet the purpose and need for the project, they are 'not feasible and prudent' alternatives.")

- TDM – non-motorized facility enhancements and employer-based trip reductions
- TSM – expanded Intelligent Transportation System applications and incident management
- Mass Transit – enhanced bus service

A careful balancing of environmental, community, and transportation factors led to the identification of Alternative C-1 (See 2003 FEIS, p. 3-95 through 3-98), Alternative A-15 (See 2003 FEIS, p. 3-90 through 3-93), and relocating the Kennedy Interchange to the South (See 2003 FEIS, p. 3-98 through 3-100) as the preferred alignments for the Two Bridge/Highway Alternative.

3. Process and Methodology for Revalidating Alternatives Decisions

As stated in the Notice of Intent for the SEIS, the SEIS is being prepared to evaluate the impacts associated with several proposed modifications of the Selected Alternative. As part of this process, FHWA and the State Sponsors are also reviewing the screening analysis and preferred alternative selection from the FEIS to assess the validity of those decisions. While this validation effort does not necessarily involve conducting an entirely new analysis, it is intended to determine whether the decisions made in the FEIS remain valid, when considering the changes in the Louisville Metropolitan area since 2003, and project design modifications, and tolling.

This re-assessment focuses on two fundamental decisions that were made in the FEIS:

- the determination that the Two Bridges/Highway Alternative is the only conceptual alternative that meets the purpose and need; and
- the determination that Alignments A-15 and C-1 are the preferred alignments for the East End and Downtown, respectively.

This analysis also considers the issue of cost/financial feasibility, which was considered to a limited extent in the FEIS, and is being given greater weight now because more detailed information is available about the extent of funding available for the project.

This section describes the basic approach that FHWA and the state sponsors will use to review the FEIS alternatives and determine the validity of the original decision making. The analysis is provided in the following section of this report (Section 4).

Review of Conceptual Alternatives

This step involves a re-assessment of the conceptual alternatives' ability to meet the Purpose and Need. This assessment is based on the current Purpose and Need statement, which (as noted above) is consistent with the original Purpose and Need. This assessment takes into account the updated travel demand forecasts and is based on a horizon year of 2030 rather than 2025. As explained in the *Purpose and Need*

White Paper (See SDEIS Appendix A.1), the updated travel demand forecasts continue to show a substantial increase in travel demand by the horizon year. While the growth is less steep than projected in the original EIS, the updated forecasts continue to demonstrate a need for additional capacity to serve cross-river demand.

The original EIS evaluated the conceptual alternatives in terms of their ability to meet the following five elements of the Purpose and Need:

- Inefficient cross river mobility for existing and planned growth in population and employment in the Downtown area and eastern Jefferson and southeastern Clark Counties
- Traffic congestion on the Kennedy Bridge and within the Kennedy Interchange
- Traffic safety problems within the Kennedy Interchange and on the Kennedy Bridge and its approach roadways
- Inadequate cross-river system linkage and freeway rerouting opportunities in the Eastern portion of the Louisville Metropolitan Area
- Locally approved transportation plans that call for two new bridges across the Ohio River and the reconstruction of the Kennedy Interchange

While these elements of the Purpose and Need have remained consistent, the criteria used to evaluate alternatives' ability to achieve the purpose and need have been refined as part of the preparation of the SEIS. The refined set of alternatives evaluation criteria are described and explained in Table 1. In general, an alternative meets the Purpose and Need if it meets all four of the Project purposes, as measured by the evaluation criteria.

The Purpose and Need also identifies a fifth need – “Locally approved transportation plans that call for two new bridges across the Ohio River and the reconstruction of the Kennedy Interchange.” The plan itself is based on the other needs. Therefore, an alternative is assumed to be compatible with the goals of the plan if it meets all four of the other elements of the Purpose and Need.

Review of Alignment Selection

This step involved re-assessing the alignment screening and selection decisions that were made in the 2003 FEIS based on a preliminary assessment of environmental impacts. This re-assessment considers the reasons alternatives which were not carried into the EIS evaluation and whether those reasons are still valid, reviews changes to the project area and whether those changes would have led to different alignment preferences.

Table 1 – Alternatives Evaluation Criteria

Project Purpose	Evaluation Criteria
Improving Cross-River Mobility	• Reduce Vehicle Hours of Delay (VHD) in the LMA region³
Reduce Congestion on Kennedy Interchange and Kennedy Bridge ⁴	• Improve the Level of Service (LOS) to a D or better on the Kennedy Bridge. • Improves the bridge demand as percent of capacity.⁵ • Improves the Kennedy Interchange operating speed during the peak hour. • Improves the Kennedy Interchange Peak Hour throughput to be closer to 100%⁶ • Improves the Kennedy Interchange average link density such that each individual roadway “link” within the interchange also has reduced congestion and improves the level of service on each link to a LOS of D or better.
Improve Safety on Kennedy Bridge and Kennedy Interchange.	• Improves the geometrics of the Kennedy Bridge and Kennedy Interchange to meet the American Association of State Highway and Transportation Officials (AASHTO) recommended minimum design guidance.
Improve System Linkage and Freeway Re-Routing Opportunities	• Completes the eastern cross-river transportation system (i.e., by providing an additional highway connection across the Ohio River on the east end of the LMA).

³ The 2003 FEIS also considered an alternative’s effect on vehicle hours of travel (VHT) and vehicle miles of travel (VMT), in addition to vehicle hours of delay (VHD), when evaluating the alternatives’ ability to improve cross-river mobility. Both of these factors continue to be considered in this SEIS as part of the comparison of build and no-build alternatives. However, for purposes of determining whether an alternative meets the goal of improving cross-river mobility, the reassessment of alternatives for SEIS focuses on VHD. FHWA, KYTC, and INDOT determined that VHD is the measure that most closely correlates with the goal of improving cross-river mobility because it measures the total amount of delay. As such, a reduction in VHD means that drivers are spending less time sitting in congested traffic and are experiencing more efficient cross-river travel. Reductions in VMT and VHT also may be correlated with an improvement in mobility, but an improvement in mobility could also be correlated with an increase in VMT or even VHT. The availability of a shorter and/or less congested route may increase VMT or even VHT, because its allow for faster travel, which in turn may result in an increase in the number and length of trips as those trips become more attractive.

⁴ With regard to the criteria used for evaluating congestion on the Kennedy Interchange and Kennedy Bridge, it is possible for strong performance on some evaluation criteria to outweigh weak or negative performance on others.

⁵ Bridge demand as percent of capacity is a measure of the ratio of the weekday volume of traffic that desires to cross a given bridge relative to the design capacity of that bridge. The capacity is a function of the maximum Level of Service D traffic flow rates, the proportion of daily traffic that occurs in the peak hour of travel, and the number of lanes on the bridge.

⁶ Throughput is the percentage of peak hour traffic entering the Kennedy Interchange that can pass through the interchange without experiencing undue delay or congestion. If throughput is less than 100 percent of demand, traffic congestion and diversions result.

Review of Cost/Financial Feasibility

The 2003 FEIS considered cost in the "fatal flaw analysis" of the concepts considered in Step 1 of that process. Because there was limited information available at that time about how the project would be funded, it was not possible to reach firm conclusions about what level of cost would make an alternative unreasonable. Therefore, cost played a relatively minor role in the screening process in the FEIS.⁷

The issue of financial feasibility can now be evaluated more specifically, based on what is now known about available revenues and the ability to consider tolling as a revenue source. The KIPDA Metropolitan Transportation Plan (MTP), Horizon 2030 (Approved November 2010), shows \$1.9 billion in traditional federal formula funds and anticipated discretionary funds the States have indicated could be made available. If an alternative's cost estimate is substantially in excess of the \$1.9 billion that is available from traditional sources, the alternative is not financially feasible. Alternatives will be considered reasonable in the SEIS only if they include a revenue source that could be reasonably expected to cover the share of estimated project costs that exceeds \$1.9 billion.⁸

4. Alternatives Considered

The following are descriptions of all the alternatives that were originally evaluated and screened in Chapter 3 of the FEIS. More detailed information for each can be found by reviewing that original document. The alternatives are grouped under two headings: (1) alternative concepts, which were considered in Step 1 of the screening process in the FEIS, and (2) alignments, which were considered in Step 2 of that screening process.

4.1 Alternative Concepts from 2003 FEIS

No-Action Alternative

The No-Action Alternative assumes that all of the projects in the current KIPDA Metropolitan Transportation Plan "Horizon 2030" will be implemented. This does not take into account improvements associated with this project.

⁷ The FEIS reported that the total cost of the Preferred Alternative was \$1.936 billion in 2003 dollars, which equated to \$2.494 billion in year-of-expenditure dollars over a 2004-2020 design and construction period, assuming a 4% inflation rate. (FEIS, p. S-11). The FEIS noted that a finance plan would be developed, but did not identify specific funding sources for the project. The FEIS assumed that the cost of the Preferred Alternative could be funded without tolls.

⁸ Tolling causes changes in travel patterns, which in turn can reduce the congestion-relief benefits of a project. To address this issue, the SEIS will include further analysis to confirm that the tolled build alternatives provide sufficient improvements in mobility to satisfy the project's purpose and need.

Travel Demand Management (TDM)

The following TDM Alternatives were evaluated as separate alternatives:

- **Vanpooling/Carpooling** - The goal of vanpooling and/or carpooling programs is to increase vehicle occupancy and reduce the total number of auto trips. Vanpooling and carpooling primarily target work trips. Under this alternative, the existing KIPDA Ticket to Ride car and vanpool program would be enhanced to further encourage individuals to share trips.
- **Non-motorized Facility Enhancements** - Walking and bicycling are the two primary non-motorized modes with the potential to reduce automobile trips by offering a travel alternative for a variety of trip purposes throughout the day. However, these modes are effectively limited to short trips (approximately one mile for pedestrian trips, six miles for bicycle trips). Under this alternative, additional non-motorized facilities would connect to existing bridges crossing the Ohio River or new bridge facilities that would be constructed across the river. Also, under this alternative, general infrastructure improvements and supportive facilities, such as pedestrian walkways, bike lanes, and bicycle racks, would be implemented.
- **Congestion Pricing** - Congestion pricing is a user fee program where users of the roadway system pay tolls. The toll rates vary throughout the day based on traffic congestion levels. As congestion increases, the toll rates increase. This increase encourages users of the roadway to shift travel behavior to a different time period, route, or mode. It also provides a revenue source for improvements in the respective travel corridor. Tolls are set at levels that reduce or alleviate congestion by reducing traffic demand.
- **Employer-Based Trip Reduction Program** - An employer-based trip reduction strategy would combine various programs with the potential to reduce travel demand, particularly among work trips. Specifically, this proposed alternative would combine several elements common in employer-based trip reduction programs.
 - **Parking Management** - Parking management programs are considered among the more effective programs for reducing commuting by single occupant automobiles. Strategies may include providing limited parking relative to total employees, charging employees for parking, or designating the most desirable spaces for carpools or vanpools. Parking management programs benefit from being combined with other transportation management programs, such as an employer supported carpool program or transit service.
 - **Financial Incentives** - Employers may provide tax-free subsidies to encourage employees to take transit or other modes to work. A key element to the success of this program is the availability of transit or other modes that provide a competitive travel option to employees.
 - **Flexible Work Schedules** - Employers may provide flexibility to employees in their work schedules to reduce auto trips during peak periods. Alternative

work schedules may include allowing employees to begin or end the workday outside of traditional working hours (resulting in a decrease in total work trips occurring during peak travel time) or compressed workweeks to reduce the total number of work trips during the week.

- **Telecommuting** - Telecommuting is an employer-based program that allows employees to work at home one or more days during the week. The results are a reduction in the total number of work trips. The effectiveness of such programs depends largely on the participation rate among area employers.

Transportation System Management (TSM)

The following TSM Alternatives were evaluated as separate alternatives:

- **ITS Applications** - Intelligent Transportation System (ITS) applications include a variety of technology-based programs intended to actively manage the transportation system. Many systems are designed to improve the accessibility of travel information. Individuals can access this information and adjust their travel routes in response to changing traffic and transit travel conditions. Specifically, many implemented systems provide travelers with travel times, crash locations, and transit service interruptions. The means of providing congestion information to travelers may include: signage on affected facilities; Web sites with congestion maps and/or real time pictures; and broadcasts on dedicated radio stations.
- **Signal Coordination and Timing** - Signal timing programs can improve traffic flow and increase the efficiency of a corridor. Some of the more sophisticated signal timing programs allow signals to respond to changes in traffic conditions. Such systems may adjust green times throughout the day depending on the demand on each of the intersection's approaches.
- **Reversible Lanes** - Reversible traffic lanes provide the flexibility for the transportation system to respond to variations in traffic demand. If traffic flow is higher in one direction during certain hours of the day, reversing lanes provides the opportunity for capacity to more closely match demand. For example, lanes may operate inbound toward the central business district in the morning peak and outbound during the evening peak, as is the case on Bardstown Road.
- **HOV Lanes** - High Occupancy Vehicle (HOV) lanes are implemented with the goal of increasing vehicle occupancy rates. One or two lanes on a roadway are restricted to vehicles with a minimum number of occupants, usually two or more. Those able to use the HOV lanes normally receive a travel time advantage over the adjacent general-purpose lanes, thus providing an incentive to carpool. HOV lanes are often used by buses, providing a travel time advantage for transit.
- **Incident Management Program** - Incident management is designed to reduce the effect of incidents, such as accidents or vehicle breakdowns, on travel delays by rapidly responding to correct a specific incident affecting traffic flow. This type of

program is particularly successful in locations where traffic congestion is primarily incident driven and does not occur on a regular basis.

Mass Transit Alternatives

The following Mass Transit Alternatives were evaluated as separate alternatives:

- **Rail Transit** - Rail transit would generally travel from north of I-265 in Indiana, to downtown Jeffersonville, then across the river to downtown Louisville and destinations south of downtown Louisville. Rail connections between Indiana and downtown Louisville were previously considered during the ORMIS study and have also been studied by TARC.
- **Enhanced Bus Service** - Potential options for enhanced bus service include the addition of new service, increasing the frequency of existing service, or providing travel time advantages for transit. New service would provide an alternative for trips where transit is currently not an option. Increasing the frequency of service and providing travel time advantages would improve the competitiveness of transit by reducing waiting time and travel time. Travel time advantages may be provided by signal preemption, priority for transit vehicles, or dedicated travel lanes for transit vehicles.

Transportation Management (TM) Alternative

The Transportation Management (TM) Alternative was a stand alone alternative that included a combination of two TSM alternatives (Incident Management Program and Expanded ITS Applications), two TDM alternatives (Non-motorized Facility Enhancement and Employer-Based Trip Reduction Programs), and the Enhanced Bus Service Alternative (See Chapter 3 Pages 3-1 and 3-58 of the FEIS).

Bridge/Highway Alternatives

- **Existing System Improvements/Kennedy Interchange Reconstruction** - This alternative includes improvements/reconstruction of the Kennedy Interchange, including new roadway lanes, intersection/interchange improvements, pavement rehabilitation, or roadway re-alignments.
- **Bridge/Highway Alternatives** – This category of alternatives includes the construction of one or two new bridges across the Ohio River, with associated highway approaches including reconstruction of the Kennedy Interchange. Five potential corridors were identified.

Far East Corridor – This corridor was derived from the ORMIS East Bridge route. It would connect Kentucky Route 841/I-265 (Gene Snyder Freeway) on the Kentucky side of the Ohio River, with State Road 265 at its interchange with State Road 62 in Indiana. The Far East Corridor was divided into four sub-

corridors that share similar characteristics: North, Harrods Creek, Middle and South sub corridors. This corridor is generally referred to as the “A” Corridor, and the possible route locations or alignments developed within the corridor are designated as “A” Alignments

Near East Corridor – This corridor is similar to the ORMIS Near East Bridge route, except that this corridor was shifted south to avoid the Six Mile Island Nature Preserve. It connects to I-71 at its interchange with I-264 in Kentucky, and ties into the same State Road 265/State Road 62 interchange in Indiana as the Far East Corridor. Although the ORMIS report eliminated this route, the Ohio River Bridges Project re-considered it because of public comments and to ensure that all potentially reasonable river crossings were included. This corridor is referred to as the “B” Corridor and route alignments are designated as “B” Alignments

Downtown Corridor - As in ORMIS this corridor would provide a crossing of the Ohio River in the general downtown Louisville area. The Downtown Corridor is designated as the “C” Corridor and the possible route locations or alignments within the corridor are designated as “C” alignments.

Oldham County Corridor - In Kentucky, this corridor connects to I-265 in Jefferson County between the Old Henry Road Interchange and the LaGrange Road Interchange and travels north/northwest through Oldham County. After crossing Twelve Mile Island, it enters Indiana and proceeds through the River Ridge Commerce Center before tying into the existing Interchange of State Road-265 and State Road-62 in Indiana.

West Corridor – This corridor connects the present western terminus of KY-841 (Gene Snyder Freeway) near Bethany, Kentucky with I-64 near Lanesville, Indiana. It generally travels north through Harrison County/north Floyd County, Indiana.

River Tunnel/Highway Alternative – This alternative would include a new cross-river tunnel in the Louisville Metropolitan Area. It would also include associated highway approaches. Potential locations were evaluated east of downtown Louisville, connecting KY841 in Kentucky with S.R. 265 in Indiana. The tunnel would be constructed in lieu of constructing a new bridge across the Ohio River east of downtown.

4.2 Alignments from 2003 FEIS

The following alignments were considered as part of the screening analysis in the 2003 FEIS. As noted above, they were grouped into three corridors: Far East, Near East, and Downtown (See Figures 2 and 3).

Far East Corridor

Alignment A-1: This alignment follows the original ORMIS East Bridge-North corridor. From the Kentucky side, the alignment begins just west of the KY-841/I-71 interchange, veers north of KY-841 near Spring Farm Road and proceeds northwest through Fincastle, off Wolf Pen Branch Road. It then heads west, crosses Harrods Creek, runs between the Fox Harbor and The Landings subdivisions, crosses US-42 and goes through the Kroger site and the southern edge of the water treatment plant. After crossing the Ohio River, the alignment enters Indiana at the small quarry north of Utica, turns to the southwest as it approaches the River Ridge Commerce Center and connects with the SR-265/SR-62 interchange.

Alignment A-2: This alignment follows the same route as Alignment A-1 except at the Fincastle and Kroger properties, where A-2 is shifted slightly to the south to minimize the impacts to these properties. The remainder of Alignment A-2 is common with Alignment A-1.

Alignment A-3: This alignment begins the same as A-1 but, at the southwest corner of the Fincastle property, it veers toward the northwest to follow along the general corridor of Harrods Creek between The Landings and Bridgepointe subdivisions. After crossing over US-42, it passes through the southern edge of the Ken Carla subdivision and runs just to the north of the historic Rosewell property and Transylvania Avenue. The alignment then crosses the southern third of the southernmost settling pond of the water treatment plant and on through Transylvania Beach. After crossing the Ohio River, the alignment enters Indiana just north of Utica. At this point, it turns toward the west and passes the edge of a group of houses north of Utica and connects with the SR-265/SR-62 interchange.

Alignment A-4: This alignment is a variation of A-3 developed to lessen the direct impacts to Harrods Creek and residential areas between US-42 and the river. It begins as A-3 but veers more to the west and runs parallel to Harrods Creek. The alignment runs through the northern edge of Bridgepointe, crosses US-42, travels through the northern part of the historic Drumanard Estate, runs south of the Harbors Condominiums and travels through the northwest corner of the Shadow Wood subdivision. It crosses Harrods Creek Marina, runs through the northeast corner of the Bellevue Estate on River Road, and runs across the southern end of Transylvania Beach. After crossing the Ohio River, the alignment enters Indiana just north of Utica, turns toward the west and runs through residential neighborhoods north of Utica and connects with the SR-265/SR-62 interchange.

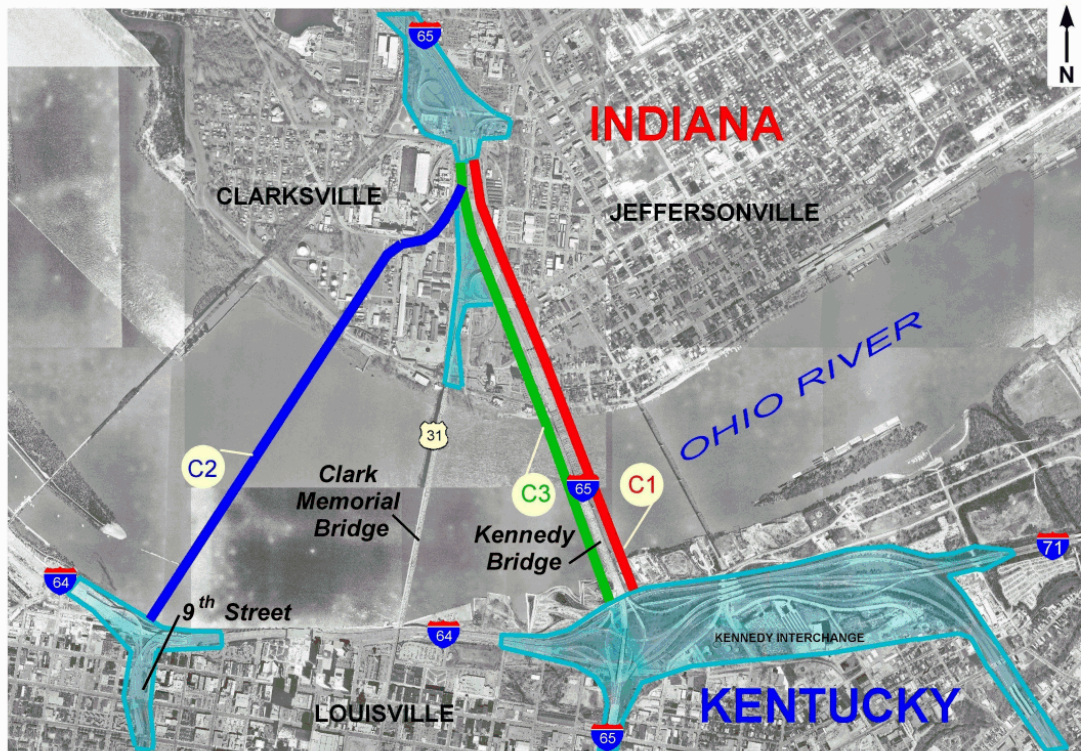


Figure 3

Downtown Alternatives Considered
And Recommended For The Draft EIS

Alignment A-5: This alignment follows the original ORMIS East Bridge-Middle corridor, which was the ORMIS preferred alignment. It begins at the KY-841/US-42 junction, runs through the Drumanard Estate and across the northern half of Shadow Wood subdivision, crosses the marina at Harrods Creek and runs through the northeast corner of Belleview, off River Road before running across the southern end of Transylvania Beach. After crossing the Ohio River, the alignment enters Indiana just north of Utica, turns toward the west and travels through residential neighborhoods north of Utica and connects with the SR-265/SR-62 interchange.

Alignment A-6: This alignment is a variation of A-5 that uses a tunnel to avoid the historic Drumanard Estate. The alignment is shifted slightly to the south at US-42, avoiding the Bridgepointe subdivision but takes a larger portion of Shadow Wood subdivision and the Belleview property.

Alignment A-7: This alignment is within the original ORMIS East Bridge-South corridor. It begins at the junction of SR-841 and Wolf Pen Branch Road, turns to the southwest to avoid the First Christian Church property and crosses US-42. The route then turns to the west northwest, goes through the Country Estates area, crosses Goose Creek several times and bisects Juniper Beach. After crossing the Ohio River, the alignment enters Indiana in the middle of the large quarry at the

Clark Maritime Center, runs to the northwest across the Maritime Center property, and turns west at the Maritime Center's northern boundary to connect with the SR-265/SR-62 interchange.

Alignment A-8: This alignment is also within the original ORMIS East Bridge-South corridor. On the Kentucky side, the alignment begins at the intersection of KY-841 and Wolf Pen Branch Road, turns to the southwest to avoid the corner of the First Christian Church property and crosses US-42. The alignment then turns toward the northwest, goes through the Country Estates area, crosses Goose Creek and travels through Juniper Beach. The alignment crosses the Ohio River and begins on the Indiana side just northeast of the Clark Maritime Center. It heads northwest through a residential area along Lentzier Creek and then turns west to connect with the SR-265/SR-62 interchange.

Alignment A-9: This alignment is similar to A-8 in Kentucky, but varies in Indiana to minimize impacts to environmental resources. After crossing the Ohio River, the alignment enters Indiana across the southern quarter of the quarry lake, runs across the quarry processing and storage areas and continues northwesterly along the edge of the Clark Maritime Center. It then turns to the west to connect with the State Road -265/State Road-62 interchange.

Alignment A-10: In Kentucky, this alignment is slightly north of A-8 and A-9. After crossing the Ohio River, the alignment enters Indiana at the quarry area north of Utica Pike and runs across open land at the Clark Maritime Center. The route runs along the Maritime Center's northern boundary and turns to the west to connect with the SR-265/SR-62 interchange.

Alignment A-11: This alignment is a variation on the A-4 alignment to avoid Fincastle and Belleview. The alignment begins just west of the KY-841/I-71 interchange and veers north of KY-841 near Spring Farm Road. At the southwest corner of Fincastle, it veers toward the northwest to follow along the general corridor of Harrods Creek between The Landings and Bridgepointe subdivisions. After crossing over US-42, it passes through the northern half edge of the Harbors condominium complex. This alignment then runs along the northern edge of Belleview just south of the historic Rosewell property. It then approaches the Ohio River through the southern edge of Transylvania Beach. After crossing the Ohio River, the alignment enters Indiana just north of Utica, turns toward the west and runs through the edge of a group of houses north of Utica and connects with the SR-265/SR-62 interchange.

Alignment A-12: This alignment is a variation on the A-3 alignment to avoid Fincastle, create a less curvilinear alignment along Harrods Creek and lessen impacts to Ken Carla subdivision. This alignment begins just west of the KY-841/I-71 interchange, veers north of KY-841 near Spring Farm Road, and at the southwest corner of Fincastle, veers toward the northwest to follow along the general corridor of Harrods Creek between The Landings and Bridgepointe subdivisions. After

crossing over US-42, it passes through the southern edge of the Ken Carla subdivision and runs just to the north of the historic Rosewell property and Transylvania Avenue. The alignment then crosses the southern third of the southernmost settling pond of the water treatment plant and passes through Transylvania Beach. After crossing the Ohio River, the alignment enters Indiana just north of Utica, turns toward the west and runs through the edge of a group of houses north of Utica and connects with the SR-265/SR-62 interchange.

Alignment A-13: This alignment is very similar to A-6 except that the alignment is shifted at Belleview to avoid this historic property. In Kentucky, the alignment begins east of the intersection of KY-841 and US-42 and tunnels under US-42 and the Drumanard Estate to avoid direct physical impact to this historic property. The alignment then crosses through the northern half of the Shadow Wood subdivision, the marina at Harrods Creek, parallels the northern edge of Belleview, and the southern end of Transylvania Beach. The alignment crosses the Ohio River, enters Indiana just north of Utica and turns toward the west. It touches the edge of a residential neighborhood north of Utica and then connects with the SR-265/SR-62 interchange.

Alignment A-14: This alignment begins the same as A-7, at the junction of KY-841 and Wolf Pen Branch Road. However, it runs more to the southwest through the Country Estates to limit crossings of Goose Creek. Like A-7, it would bisect Juniper Beach. After crossing the Ohio River, the alignment enters Indiana at the southeast edge of the Maritime Center's quarry, runs through the middle of the Center's property and turns west at the Maritime Center's northern boundary to connect with the SR-265/SR-62 interchange.

Alignment A-15: This route was developed as an alternative to A-13 as a result of the Utica Area Work Group's request to push the proposed alignment farther to the north, and some further evaluation of area topography. This alignment begins as the A-13 alignment but veers off this route as it crosses River Road. At that point it remains straight while A-13 curves to the left. A-15 proceeds along this straight line across the southernmost tip of the southern settling pond, through the southern third of Transylvania Beach, and across the river to the southern edge of the small quarry area north of Utica. Here, it curves to the west-southwest, spans Lentzier Creek, and then turns to the west to meet with SR-265 at the SR-62 interchange.

Alignment A-16: The A-16 alignment was developed as a combination of the A-11, A-12, and A-15 routes. It generally follows the A-12 alignment in Kentucky except it curves slightly south in order to avoid the Ken Carla subdivision and minimize the impacts to the Harbors Condominiums complex. The route then proceeds to the north of the Rosewell property, across the settling pond, through Transylvania Beach, and coincides with A-15 as it reaches the Indiana side of the river.

Near East Corridor

Alignment B-1: The B-1 route was developed as a connection from the Watterson Expressway (I-264) to SR-265 in Indiana. It begins at the intersection of the Watterson with SR-60 (Shelbyville Road) in Kentucky, follows I-264 northwest to I-71, follows I-71 to the west and southwest through a large radius curve between the historic areas of Glenview and Indian Hills, then turns northwest through the River's Edge subdivision. It crosses the Ohio River about 450 feet downstream of Six Mile Island, enters Indiana in the vicinity of a marina, proceeds northwest through an unnamed development, then crosses Lancassange Creek before continuing through farmland adjacent to the Clark Maritime Center. At the northern edge of the Maritime Center, the alignment crosses over the Port Railroad track, through the northwest corner of the Maritime Center property, and then turns west toward its terminus at the SR-265/SR-62 interchange.

Alignment B-2: This alignment is a modification of the B-1 route, and was developed to minimize effects on the Maritime Center development. The only change from the B-1 line is at the north end where B-2 remains on a more northwest heading before crossing the Port Railroad track and traveling through the northwest corner of the Maritime Center property on its way to SR-265.

Downtown Corridor

Alignment C-1: This alignment is the upstream option for the downtown bridge. This alignment would place the new bridge to the east of the existing I-65 Kennedy Bridge across the Ohio River. On the Kentucky side, the route would cross over the existing Waterfront Park. On the Indiana side, the alignment passes through the Jeffersonville Portion of the Ohio River Greenway and through the edge of the Jeffersonville Historic District. It then continues north and ties into I-65, requiring the acquisition of most of the commercial property that immediately abuts the east side of I-65.

Alignment C-2: This route is referred to as the Ninth Street alignment because of its Kentucky connection to the existing Ninth Street interchange. The Ninth Street interchange would need to be reconstructed and other improvements would potentially be necessary to Roy Wilkins Boulevard (Ninth Street). This alignment crosses the Ohio River just east of the Falls of the Ohio River; enters Indiana within the boundary of Ashland Park; continues northeast adjacent to the Ashland Oil Company storage tanks and passes through two historic homes on Woerner Avenue. It then turns slightly more easterly passing between two historic districts, the Colgate and the Ohio River Falls Car and Locomotive Company, and then merges into I-65 in the vicinity of Tenth Street.

Alignment C-3: The C-3 alignment would place the new downtown bridge downstream (west) of the existing Kennedy Bridge. On the Kentucky side of the river, this location would cross over Waterfront Park. In Indiana, after entering

across the Greenways park area, the route would go through the Harbors condominium apartment complex and through the edge of the Jeffersonville commercial center that is located at the site of the old railroad piggy-back yard.

5 Re-Assessment of FEIS Alternative Screening Decisions

This section presents the results of the re-assessment of the alternatives screening process from the 2003 FEIS.

5.1 Review of Conceptual Alternatives

This step involves a re-assessment of the conceptual alternatives' ability to meet the Purpose and Need, based on the criteria described in Section 3 of this report. For the reasons given below, none of the conceptual alternatives considered in the 2003 FEIS meet the Purpose and Need, except for the Two Bridges/Highway Alternative.

- **No-Action Alternative**

The No-Action Alternative does not meet the purpose and need of the project but will be carried forward as a baseline as required by NEPA.

- **Transportation Demand Management (TDM), Transportation System Management (TSM), Transportation Management (TM), and Mass Transit Alternatives**

These alternatives would not meet the purpose and need of the project and therefore would not be reasonable alternatives. These alternatives would not meet the purpose and need because they would not improve the geometrics of the Kennedy Interchange and Kennedy Bridge to meet American Association of State Highway and Transportation Officials (AASHTO) recommended minimum design guidelines as to meet the project's identified safety needs, and they would not provide a cross-river connection in the east end to provide the needed system linkage. In addition, while these alternatives may yield some operational benefits, they are highly unlikely to have any significant impact on reducing vehicle hours of delay (VHD) in the Louisville Metropolitan Area (LMA). Consequently, these alternatives do not meet the need to improve inefficient mobility in the LMA. They would not improve the level of service (LOS) on the Kennedy Bridge to LOS D or better; would not allow cross-river bridge demand to be met on the Kennedy Bridge during peak periods; and would not improve the Kennedy Interchange operating speed during the peak hour to address the need to improve traffic congestion. For all of these reasons, these alternatives do not meet the purpose and need of the project and are not reasonable alternatives. Therefore, they have been dismissed from further analysis as stand-alone options.

- **Bridge/Highway Alternatives**

Kennedy Interchange Reconstruction Alternative

The Kennedy Interchange Reconstruction Alternative would not meet the purpose and need because it would not provide a cross-river connection in the east end to meet the need for improved system linkage and would not correct the geometric deficiencies of the existing Kennedy Bridge, which is part of the project's identified safety need. In addition, while this alternative may yield some operational benefits by reconstructing the Kennedy Interchange, it is highly unlikely to have a significant impact on reducing VHD in the LMA. Therefore, this alternative would not meet the need to improve inefficient mobility. While this alternative may improve the Kennedy Interchange operating speed during the peak period, it is highly unlikely to improve the level of service on the Kennedy Bridge to LOS D or better, nor meet cross-river bridge demand on the Kennedy Bridge; therefore, it would not satisfy the need to reduce traffic congestion. For all these reasons the Kennedy Interchange Alternative does not meet the purpose and need of the project and is not a reasonable alternative. Therefore, it is dismissed from further analysis as a stand-alone alternative.

One Bridge/Highway Alternatives (Includes Kennedy Interchange Reconstruction)

The One Bridge/Highway Alternatives include either a new Downtown Bridge or a new East End Bridge. Both of these One Bridge/Highway alternatives also include the reconstruction of the Kennedy Interchange. The conclusions regarding further consideration of these alternatives are presented in the following paragraphs and in Appendix A.5 of the SDEIS.

Downtown Bridge Only

The Downtown Bridge Only Alternative would not provide a cross-river connection in the east end to meet the need for improved system linkage and would not reduce VHD in the LMA to meet the need to improve inefficient mobility. Therefore the Downtown Bridge Only Alternative would not meet the purpose and need and is dismissed from further analysis.

East End Bridge Only

While the East End Bridge Only Alternative includes reconstruction of the Kennedy Interchange and therefore would reasonably be expected to improve the Kennedy Interchange operating speed during the peak hour, it does not improve the LOS to a D or better on the Kennedy Bridge nor does it meet cross river demand on the Kennedy Bridge during the peak periods thereby not meet the traffic congestion needs. The alternative would improve the geometrics of the Kennedy Interchange but would not address the geometric deficiencies of the Kennedy Bridge thereby not

meeting the identified safety needs. As a result, the East End Bridge Only Alternative does not meet the purpose and need for the project and is dismissed from further analysis.

Two Bridge/Highway Alternatives (Includes Kennedy Interchange Reconstruction)

The Two Bridges/Highway Alternatives include construction of a new bridge outside downtown, construction of a new Downtown Bridge (beside the existing Kennedy Bridge), and reconstruction of the Kennedy Interchange. In the FEIS, several versions of the Two Bridges/Highway alternative were considered; these versions differed based on the location of the new bridge outside downtown: Oldham County, Far East, Near East, and West. In addition, one concept was considered that included a tunnel under the Ohio River in the Far East Corridor rather than a bridge.

Oldham County and West Corridors

The Oldham County and West corridors were eliminated without detailed study in the November 2, 2001 DEIS, based on a range of considerations. As stated in the DEIS (p 3-30), these alternatives are approximately 10 miles longer than the Far East corridor, which was the longest of the three corridors recommended to be carried forward. As a result, provision of a new freeway in either of these corridors would be substantially more expensive and would involve more environmental impacts. In addition, the West/Downtown Corridor Two Bridge/Highway Alternative would not provide a cross-river connection in the east end to meet the system linkage need. There is no new information available that calls into question the basis for eliminating these alternatives.

River Tunnel/Highway Alternative

The concept of constructing a new tunnel under the Ohio River, east of downtown Louisville and Jeffersonville, was suggested by the public as a potential alternative to a new bridge in the Far East Corridor. This alternative was investigated as part of the 2003 FEIS as a result of these comments. Preliminary estimates indicated that a tunnel alone would cost up to three times more than the estimated cost of other bridge/highway alternatives (see 2001 DEIS, p. 3-30). Based on the higher estimated cost of this alternative, it was eliminated without further detailed study in the 2001 DEIS. There is no new information available that calls into question the basis for dismissing this alternative, and no further consideration of this alternative is warranted.

Far East and Near East Corridors

The Far East and Near East Corridors were carried forward for detailed study in the FEIS, based on a determination that alignments in either corridor had the potential to meet the purpose and need as part of a Two

Bridges/Highway Alternative. The Far East Corridor connects I-265/KY 841 in Kentucky with S.R. 265 at its interchange with S.R. 62 in Indiana. The Near East corridor connects to I-71 near I-264 in Kentucky and ties into the same S.R. 265/S.R. 62 interchange in Indiana. Alignments were considered in each of those corridors, and the choice among those alignments was based primarily on environmental factors.

Alternatives in the Far East and Near East corridors continue to have the potential to meet the purpose and need as part of a Two Bridges/Highway Alternative. Two Bridges/Highway Alternatives with alternatives in the Far East and Near East corridors are reasonably expected to reduce VHD within the LMA to address the need to improve mobility; they are reasonably expected to improve the level of service to LOS D or better on the I-65 crossing (both the Kennedy Bridge and the proposed new downtown bridge), to meet cross-river demand on the I-65 crossing during the peak periods, and to improve the Kennedy Interchange operating speed during the peak hour, thereby meeting the need to relieve traffic congestion. These alternatives also would improve the geometrics within the Kennedy Interchange and on the I-65 river crossing to AASHTO recommended minimum design guidelines, thereby meeting the need to improve safety. The alternatives all provide an East End Bridge, thereby meeting the need for improved system linkage.

In summary, this updated analysis confirms that a Two Bridges/Highway Alternative with a new bridge in the Near East or Far East Corridor has the potential to meet the Purpose and Need. The choice between these corridors was made in the FEIS based on a comparison of environmental impacts, as part of the alignment selection process, as discussed below.

A summary of these results is provided in Table 2.

5.2 Review of Alignment Selection

This step involves a re-assessment of the selection of alignments A-15 and C-1 as the preferred alignments in the East End and Downtown areas, respectively. As noted earlier, the screening process for the FEIS identified a range of reasonable alignments for consideration in the East End and Downtown. Those alignments were studied in detail in the 2003 FEIS, and then a preferred alignment was identified for the East End (A-15) and Downtown (C-1). At each stage, the dismissal or advancement of alignments was based primarily on environmental factors, as documented in the 2003 FEIS.

This re-assessment focuses on determining whether there have been any changes in the affected environment that have the potential to affect the underlying basis for the decision to select alignments A-15 and C-1.

Table 2 – Evaluation of Conceptual Alternatives

Alternatives	Summary	Conclusion
No-Action	Does not meet the purpose and need	Carried forward as a baseline comparison to other alternatives in the SDEIS per NEPA guidelines.
TDM, TSM, TM, and Mass Transit	Does not meet the purpose and need.	Dismissed as standalone options
Kennedy Interchange Reconstruction	Does not meet the purpose and need.	Dismissed as a standalone option
One Bridge/Highway w/ Kennedy Interchange Reconstruction		
Downtown Bridge Only	Does not meet the purpose and need.	Dismissed.
East End Bridge Only	Does not meet the purpose and need.	Dismissed.
Two Bridges/Highway w/ Kennedy Interchange Reconstruction		
Oldham County/Downtown Corridor	Meets purpose and need, but its greater length results in much higher impacts and cost, and would result in reduced traffic usage.	Dismissed.
West/Downtown Corridor	Does not meet purpose and need; also, greater length results in much higher impacts and cost.	Dismissed.
East Corridor River Tunnel Highway System/Downtown Corridor	Meets purpose and need, but tunneling results in much higher cost, which far exceeds the cost of other alternatives.	Dismissed.
Near East/Downtown Corridor	Meets purpose and need criteria.	Carried forward for further evaluation.
Far East/Downtown Corridor	Meets purpose and need criteria.	Carried forward for further evaluation.

Updated Information about the Project Area

Current conditions were compared to those identified during the EIS. A discussion of the identified changes and processes utilized for the comparison follows.

Land Use. Considerable residential growth and some industrial development have occurred in the vicinity of the two build alternatives, particularly in the Indiana East End Corridor of the project area. In Indiana the areas to the north of the proposed project limits have experienced recent growth in subdivision developments. To the south of the alternatives, some additional residential growth has also occurred, as well as some new industries on the Port of Indiana-Jeffersonville property. This growth has contributed to a reduction of agricultural land that was originally identified in the 2003 FEIS. While the growth in Kentucky is not as great, some increases in the number of residences are evident on the north side of the East End Corridor, particularly along Wolf Pen Branch Road. Impacts to additional residences or industries would increase the social/community impacts.

Cultural Resources. Updates to information about historic resource in Jefferson County, Kentucky, and Clark County, Indiana, were completed in 2010 and 2011, respectively. Although additional historic properties have been identified within the study area [See SDEIS Section 4.3, *Historic and Archaeological Resources*, for an updated and detailed discussion of the Area of Potential Effect (APE) and historic resources.],

Wetlands: Updated field delineation of wetlands within the proposed right-of-way for the FEIS Selected Alternative and the Modified Selected Alternative has been performed to identify current boundaries of such areas. Some wetland boundaries have changed since publication of the FEIS and some additional wetlands have been identified (see SDEIS Section 4.10, *Wetlands*).

Wildlife Resources. An amended Biological Assessment has been prepared for review by the U.S. Fish and Wildlife Service (see SDEIS Section 4.7, *Natural Resources*). No additional biological resources have been identified since the FEIS.

Water Resources. The Louisville Water Company (LWC) has designated a wellhead protection area (WHPA) and implemented the second phase of its Riverbank Filtration (RBF) program since the 2003 FEIS, wherein the designation of the WHPA was noted to be “proposed” and RBF Phase 2 “planned” (see FEIS Section 5.8.2, *Groundwater*). The WHPA and the RBF facilities are in the Kentucky East End Corridor, within the rights-of-way of both build alternatives.

Parks. No new parks or recreational areas have been identified within the project corridors. However, there are a number of recently proposed bicycle and pedestrian facilities that would be crossed by the project (see SDEIS Section 4.1.4, *Pedestrian and Bicycle Facilities*), although it is anticipated that these could be constructed without impact to their usage with proper planning and design integration.

The remainder of this section reviews the alignment decisions that were made in the FEIS at both the screening stage and when selecting the preferred alternative, and concludes that those decisions remain valid.

Alternatives Eliminated During Initial Screening

The North Sub-Corridor Alternative A-1 was dismissed because of greater impacts to the community of Prospect and to the Harrods Creek community and area. Alternative A-1 particularly was identified to have a major impact to the historic Fincastle property.

The Harrods Creek Sub-corridors – A-3, A-4, A-11, and A-12 - were dismissed because of greater impacts to the communities of Prospect, the Harbors Condominium complex, and Transylvania Beach. The northernmost of these alternatives would also have a potential impact to Ken Carla, a predominantly African-American community.

The middle Sub-Corridor Alternatives A-5 and A-6 would have crossed the historic Drumanard Estate at ground level, which would have created Federal Section 4-f issues.

All of the South Sub-corridor Alternatives – A-7, A-8, A-10, and A-14 – would impact the Country Estates Historic District and would have crossed the buffer areas for the Six Mile Island Nature Preserve. Alternatives to miss or minimize impacts to these features alternately would have a greater impact to the Clark Maritime Center, a major area employer, or the North Port Industrial facilities.

B2 would have required a major reconstruction of I-264 between I-71 and Shelbyville Road to accommodate the projected traffic. 276 residences were estimated to be relocated in this area alone to accommodate the required construction. These alternatives would have further had major takings from the River's Edge subdivision and would have impacted the Clark Maritime Center. Wetlands and floodplains issues would be greater both in the Ohio River and a crossing of Lancassage Creek in Indiana. The alternatives would have also divided a community in Indiana that was shown to be predominantly low-income and elderly, which raised issues of economic justice. Several historic properties in the I-71 area were identified as impacted and Alternative B-2 impacted an additional Indiana historic property.

The Oldham County Corridor is approximately 15 miles in length, which is 10 miles greater than any of the other Eastern corridors. Because of its greater length, environmental impacts are expected to be greater than the other shorter Eastern corridors. Residential and commercial displacements and relocation impacts would be greater than the other Eastern corridors. The alignment also would pass through an area of the original INAAP facility that has now been converted to the Charlestown State Park. Therefore based on these

environmental issues, the Oldham County Corridor was dismissed from further consideration.

Alternative C-2 would result in significantly less improvement to traffic and safety concerns on the Kennedy Bridge and within the Kennedy Interchange. It also would have resulted in a large increase in traffic on Ninth Street resulting in greater community impacts and Environmental Justice concerns. This alternative is also located close to the Falls of The Ohio River and would pass in close proximity to the Colgate and Ohio Falls Car and Locomotive Historic Districts and would have divided those two districts. Two additional historic homes in Indiana at Woerner Avenue would also have been taken.

Alternative C-3 would result in greater residential and commercial impacts along with greater impacts to the Waterfront Park in Kentucky and the Ohio River Greenway in Indiana. Alternative C-3 also would have had a significant impact on Louisville's Slugger Field.

No additional environmental effects have been identified that would alter the decision to eliminate these alternatives from detailed analysis in the EIS. In fact, additional residential and industrial growth in the area would likely add to the impacts of many of the alternatives that were originally dismissed and would increase their social/community effects.

Alternatives Considered During the EIS

During the 2003 EIS process, Alternatives A2, A9, A13, A15, and A16 were carried forward for detailed evaluation for the East End. In the FEIS, Alternative A-15 was identified as the preferred alternative.

- A-2 was dismissed because of greater impacts to the community of Prospect and to the Harrods Creek community and area. A-2 was carried into the FEIS as a variation from Alternate A1 that avoided the Fincastle property. As A-2 was the northernmost alternative, it would impact the Quarry Bluffs Subdivision that has been constructed along the Ohio River in Indiana, which would increase the Social/Community Impacts for that corridor. A-2 also bisects the Louisville Water Company lagoons.
- A-13, would have a greater effect on Utica as it more directly impacts that community. A-13 would have a substantial increase in residential properties as it will now cross through subdivisions that have developed along that alignment.
- While many features of Alternative A-16 were considered preferable, it would have a major impact on Harrods Creek as it crossed that waterway in three different locations. Because of the impacts to Harrods Creek and a greater impact to the Louisville Water Company site, A16 has a greater impact to

water and biological resources. As A-16 is located closer to the main part of Prospect, it would have greater social and community impacts. Alignment A-15 and A-16 join back together on the Indiana side and therefore have few differences in Indiana. This alternative also received an Environmental Objections (EO) rating from EPA in the DEIS due, in part, to the stream and wetland impacts.

- Alternative A-9 would have impacted the Country Estates Historic District, would have crossed the buffer areas for the Six Mile Lane Nature Preserve, and would have caused acquisition from the Clark Maritime Center. A-9 passes directly along the Utica-Sellersburg Road in Indiana back to the SR 265 – US 62 – Port Road Interchange. To the north of Utica-Sellersburg, new residences have been built, while the Port Authority property, which is adjacent to the road on the south side, has also seen the development of additional industries.

Alternative B-1 had similar project impacts to those discussed for Alternative B-2 above. No updated revisions to the effects for this alternative were identified.

In the Downtown area, only Alternative C-1 was carried forward in the SEIS. C-1 did provide options for the reconstruction of the Kennedy Interchange as in-place construction option or the reconstruction to the south of the existing interchange. The EIS Selected Alternative was for the reconstruction to the south.

Conclusion

This Alternatives Evaluation Document has reviewed each alternative's ability to meet the project's Purpose and Need and re-assessed the Alignment Screening and Selection Decisions, which included the environmental resources. No identified changes have occurred within the project area that affects the decisions reached in the FEIS. Therefore, this re-assessment has reconfirmed the selection of the Two Bridge/Highway Alternative utilizing A-15 and C-1 as the Selected Alternative.

Cost/Financial Feasibility

The FEIS Selected Alternative currently has a year-of-expenditure cost estimate of \$4.1 billion, an increase of \$1.6 billion over the \$2.5 billion year-of-expenditure cost estimate in the 2003 FEIS (FEIS p. S-11). The Louisville Metropolitan Planning Organization's (MPO) Metropolitan Transportation Plan (MTP) *Horizon 2030* currently states that KYTC, INDOT, and FHWA can reasonably be expected to provide up to \$1.9 billion from traditional federal and state programs for the Project.⁹ This leaves a shortfall of approximately \$2.2 billion. In response to this shortfall two strategies have been

⁹ The Louisville MPO is currently in the process of updating the MTP. Both the existing approved MTP and the proposed updates include the \$1.9 billion estimate of available funds from traditional sources for the LSIORB Project.

identified: evaluate additional revenue options, including tolling, and modify design features to reduce costs, as follows:

- Tolling has been identified in the current MTP as an additional revenue source for the LSIORB Project. This and other possible additional revenue sources would provide the ability for the Louisville MPO to meet the requirement that the MTP be fiscally constrained.
- The following modifications to the FEIS Selected Alternative are being considered to reduce costs:
 - Reconstructing the Kennedy Interchange within its existing location instead of relocating it to the south.
 - Reducing the East End Bridge, roadway, and tunnel from six to four lanes.
 - Eliminating the pedestrian/bike path from the Downtown Bridge because a similar facility will be provided on the nearby Big Four Bridge as a separate project.

During the public involvement process, some public comments recommended FHWA consider re-evaluating the tunnel in the East End Corridor in Kentucky (Alternative A-15) as a cost saving measure. For reasons described in the *Construction Options at U.S. 42 and the Drumanard Estate Historic District* (See SDEIS Appendix D.5), removal of the tunnel or additional modification to the tunnel design are not reasonable and will not be evaluated further in the SDEIS.

The Project design modifications are projected to result in a \$1.2 billion savings from the estimated \$4.1 billion cost of FEIS Selected Alternative. Therefore, the estimated year-of-expenditure cost of the Modified Selected Alternative is \$2.9 billion. Based on preliminary estimates in the memo *Revenue Estimates and Indicative Financial Capacity SEIS Modified Selected Alternative Tolloed Scenario* (See SDEIS Appendix G.5), tolling revenues are expected to generate from \$800 million to \$1.2 billion¹⁰ in funding capacity. The projected toll funding, in combination with the \$1.9 billion from traditional funding sources that are reasonably expected to be available according to the MTP, would provide total funding in the range of \$3 billion, which would be sufficient to meet the \$2.9 billion cost of the Modified Selected Alternative. It has therefore been concluded that a Modified Selected Alternative (with tolling) is financially feasible and warrants detailed study in the SDEIS. These cost and -funding estimates are preliminary, and are being presented at this time solely as a basis for evaluating the reasonableness of alternatives.

The FEIS Selected Alternative has an estimated year-of-expenditure cost of \$4.1 billion, because it does not include the cost-saving design changes that are incorporated into the Modified Selected Alternative. As noted above, the total funds available for construction (from traditional and toll-based funding) would be in the range of \$3 billion,

¹⁰This amount represents the net toll funding available for construction costs after subtracting the costs associated with operation and maintenance, along with debt service.

if tolls are set at the same rates as assumed for the Modified Selected Alternative. While the cost and funding estimates are preliminary, a shortfall of this magnitude (approximately \$1 billion) would make the FEIS Selected Alternative financially infeasible. Therefore, as part of this SEIS process, a separate analysis was conducted to assess the level at which toll rates would need to be set in order to provide sufficient - funding (along with the \$1.9 billion from traditional sources) to cover the \$4.1 billion cost of the FEIS Selected Alternative (See SDEIS Appendix G.4, *Financial Feasibility Revenue Estimates for the FEIS Selected Alternative*). This new analysis documents that toll funding could generate approximately \$1.4 billion to \$2.1 billion in funding capacity. At the upper end of this range, it is conceivable that toll funding plus traditional funding could nearly cover the \$4.1 billion cost of the FEIS Selected Alternative. However, toll rates would need to be much higher than assumed for the Modified Selected Alternative – for example, the analysis assumes passenger cars would pay a toll of \$9.00 southbound in the morning and \$10.00 northbound in the evening on both bridges in the year 2030 (expressed in year 2010 dollars). Toll rates at this level are unlikely to be accepted by the public and in any event are unnecessary given that an acceptable, lower-cost alternative (the Modified Selected Alternative) is available and can be implemented with much lower toll rates.

Therefore, while the current MTP state that the FEIS Selected Alternative is financially feasible with alternative funding sources, such as tolling, this new traffic forecasting and updated revenue analysis indicates that (1) tolling funding would be insufficient to cover the \$4.1 billion year-of-expenditure cost estimate for the FEIS Selected Alternative if that alternative is tolled at the same rates as the Modified Selected Alternative, and (2) if the FEIS Selected Alternative were tolled at extremely high rates, toll revenues would still fall somewhat short of the funding needed, and the toll rates themselves would likely be considered unacceptable. Based on these findings, the FEIS Selected Alternative is not financially feasible. However, this alternative is being carried forward for detailed study in the SDEIS as a baseline for analysis as the currently approved alternative.

6 Recommended Alternatives to be Carried Forward in the SDEIS

Based on the results of this Alternatives Evaluation, the following alternatives are recommended for further evaluation in the SDEIS.

- **No-Action**

This alternative assumes that all of the projects in the current *Horizon 2030* MTP will be implemented. This does not take into account improvements associated with the LSIORB Project.

- **FEIS Selected Alternative (without Tolls)**

This alternative is the same as the Selected Alternative approved in the 2003 ROD, which does not include tolls. Given the current economic conditions that exist within the region and the nation as a whole and the amount of funding that is reasonably available from federal and state sources (as determined by the Louisville Metropolitan Planning Organization), this alternative is not considered to be a

reasonable alternative because it is not financially feasible. It is being considered in the SDEIS as a baseline for comparison with the modifications to this alternative proposed with the Modified Selected Alternative.

- **Modified Selected Alternative (with Tolls)**

This alternative would include many of the elements of the Selected Alternative, but would be modified in two ways to improve its financial feasibility: 1) it would include cost-saving design changes and 2) it would include the use of tolls. The cost-saving design changes include: a reduction in the width of the proposed East End Bridge, tunnel, and roadway; reconstruction of the Kennedy Interchange in downtown Louisville in-place; and elimination of a proposed pedestrian/bikeway facility from the new Downtown Bridge.