CHAPTER 1: PROJECT HISTORY

Substantive changes to Chapter 1 since the publication of the SDEIS

- Section 1.4—Corrects a footnote that identified KIPDA as the area’s MPO; and corrects Interim Financial Plan to read Initial Financial Plan.
- Section 1.5—
  Refers readers to mitigation commitments in SFEIS Chapter 8 as well as in the amended Biological Assessment and executed Section 106 First Amended Memorandum of Agreement (MOA).
  Adds a discussion of the states’ December 29, 2011 consensus on a basic plan for financing the project, including March 5, 2012, Memorandum of Understanding (MOU) and KRS 175B Financial Plan regarding project funding and construction.
  Explains that an accelerated project schedule aimed at reducing project costs is anticipated to result in open-to-traffic dates of 2017 (east end) and 2018 (downtown), rather than the 2022 date identified in the SDEIS.
  Adds the Publication of SDEIS and Public Hearings subsection.
  Updates the subsection titled Format of This DSEIS to read Format of This SFEIS, and revises text accordingly.

This Supplemental Final Environmental Impact Statement (SFEIS) has been prepared by the Federal Highway Administration (FHWA), the Indiana Department of Transportation (INDOT), and the Kentucky Transportation Cabinet (KYTC) for the Louisville – Southern Indiana Ohio River Bridges (LSIORB) Project. This SFEIS has been prepared in accordance with the National Environmental Policy Act (NEPA) regulations issued by the Council on Environmental Quality (CEQ) requiring preparation of a supplemental environmental impact statement when there are “substantial changes in the proposed action that are relevant to environmental concerns.” [40 CFR 1502.9(c)(1)(i)]

This SFEIS presents the impacts of proposed modifications to the “Two Bridges/Highway Alternative” identified as the Preferred Alternative in the Final Environmental Impact Statement (FEIS)/Section 4(f) Evaluation completed on April 8, 2003; and as the Selected Alternative in the Record of Decision (ROD) approved on September 6, 2003. This SFEIS includes the evaluation of the impacts of tolling to assist in funding the project, which was determined necessary through the Metropolitan Transportation Planning process; cost-saving changes in the design of the Selected Alternative to minimize the amount of toll based revenue needed; and to the updated information and data necessary to address changes to the project and the affected environment since the approval of the 2003 FEIS/ROD. Substantive changes since the SDEIS are identified in a text box at the beginning of each chapter.
Chapter 1 of the 2003 FEIS summarized the regional transportation planning processes that identified the need for improvements in cross-river mobility in the Louisville Metropolitan Area (LMA)\(^1\), and introduced the recommendation that improvement alternatives be evaluated in an EIS. Chapter 1 of this SFEIS contains the following substantive updates and additions to the information presented in the 2003 FEIS:

- Section 1.4—Discusses the development of updated transportation plans and financial plans since the 2003 FEIS/ROD, including updates to the metropolitan long-range plan for the LMPA.
- Section 1.5—Summarizes the following major steps taken to advance the project since the 2003 FEIS/ROD: the division of the project into six design sections; the design, right-of-way acquisition, and mitigation/enhancement activities conducted to date; the creation of the Louisville and Southern Indiana Bridges Authority (Bridges Authority); the development of financial plans in accordance with Federal and State requirements; and the cost-saving efforts that resulted in the development of the Modified Selected Alternative being evaluated in this SFEIS. Section 1.5 also summarizes the status of pending litigation involving a challenge to the 2003 FEIS/ROD.

1.1 Transportation Planning History

This section of the 2003 FEIS discussed the history of transportation planning with regard to cross-river mobility within the LMPA from 1963 to 1993. The information presented therein remains valid for this SFEIS. For more detailed information, see page 1-1 of the 2003 FEIS.

1.2 Metropolitan Louisville Ohio River Bridge Study

This section of the 2003 FEIS discussed the results of the Metropolitan Louisville Ohio River Bridge Study conducted from 1991 to 1994. The information presented therein remains valid for this SFEIS. For more detailed information, see page 1-3 of the 2003 FEIS.

1.3 Ohio River Major Investment Study (ORMIS)

This section of the 2003 FEIS discussed the results of the Ohio River Major Investment Study (ORMIS) conducted from 1995 to 1996. The information presented therein remains valid for this SFEIS. For more detailed information, see page 1-3 of the 2003 FEIS.

1.4 Metropolitan Transportation Plan Updates and Development of Finance Plans

This section of the 2003 FEIS described the development and periodic updates to the metropolitan transportation plan (MTP) for the Louisville metropolitan area. It explained that, at the time the 2003 FEIS was issued, the current version of the MTP was *Horizon 2025*, which

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\(^1\) Now identified as the Louisville Metropolitan Planning Area (LMPA), and referred to hereafter in this SFEIS as such.
was adopted in 1998 by the Louisville MPO. Horizon 2025 reflected recommendations of ORMIS, which identified a “two-bridge solution” to cross-river mobility needs. As noted in the 2003 FEIS, Horizon 2025 included recommendations for a new six-lane bridge parallel to the existing Kennedy Bridge (I-65), reconstruction of the Kennedy Interchange, and a new four-lane freeway over the Ohio River between KY 841 (Gene Snyder Freeway) in eastern Jefferson County, Kentucky, and S.R. 265 (Lee Hamilton Highway) at S.R. 62 in Clark County, Indiana.

Since 2003, the Louisville Metropolitan Planning Organization (MPO) has continued to update its MTP in accordance with federal transportation planning requirements. The remainder of this section describes actions the MPO has taken since 2003 to update its MTP, and explains how the “fiscal constraint” requirement in the planning process led to the decision to incorporate tolling into the LSIORB Project.

**2005: Adoption of Horizon 2025.** In November 2005, the Louisville MPO adopted the Horizon 2030 MTP, which was the update of Horizon 2025. The Horizon 2030 MTP identified proposed transportation improvements for a 20-year horizon. This version of the MTP continued to include the LSIORB Project as approved in the September 2003 ROD. At the time this plan was adopted, it was assumed that the cost of the project could be funded entirely by traditional revenue sources, without the need for tolls.

**2007: Initial Financial Plan.** In October 2007, in response to a federal law requiring a financial plan for all “Major Projects”, KYTC and INDOT submitted to FHWA the Louisville – Southern Indiana Ohio River Bridges Project Initial Financial Plan (IFP). The plan included updated project costs, estimates of future costs, and revenue scenarios, including tolling scenarios, and was intended to “provide an accurate basis upon which to schedule and fund the Ohio River Bridges Project” (IFP, p. i). The plan proposed funding the project using traditional Federal and state transportation funding sources, without the need for tolls. FHWA approved the IFP in January 2008.

**2009: Expiration of Horizon 2025.** Work began on an update to the MTP in 2008, with the goal of completing the update in 2009, four years after approval of the Horizon 2025 plan in

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2 The Kentuckiana Regional Planning and Development Agency (KIPDA) provides regional planning, review, and technical services for the Louisville Metropolitan Planning Organization (MPO), and is often referred to as being the Louisville MPO. The Louisville MPO serves the following counties: Oldham, Bullitt, and Jefferson in Kentucky; Clark, Floyd, and 1/10th of a square mile of Harrison in Indiana.

3 The preferred alternative identified in the 2003 FEIS provides a six-lane freeway over the Ohio River in the East End Corridor. The Louisville MPO transportation plan was amended between publication of the 2003 FEIS and approval of the 2003 ROD to include a six-lane, rather than four-lane, facility.

4 The federal transportation planning regulations require that metropolitan transportation plans must be “fiscally constrained.” Fiscal constraint means, in general terms, that the MPO can only approve a plan if it determines (and FHWA and FTA concur) that sufficient funding is reasonably anticipated to be available to carry out the projects included in the plan.

5 Federal law requires recipients of federal financial assistance for a “Major Project” to develop an initial financial plan prior to construction and to prepare annual updates until the “Major Project” is complete. A “Major Project” is a project costing $500 million or more. See 23 U.S.C. § 106(h). The estimated cost of the LSIORB Project substantially exceeds $500 million, so the project is clearly subject to Major Projects requirements. Additional information is available at: http://www.fhwa.dot.gov/ipd/project_delivery/defined/major_project.htm
2005. However, the adoption of an updated MTP was delayed because of funding uncertainties—including concerns that relying entirely on traditional (non-toll) funding could require up to 60% of Kentucky’s annual highway funding to be directed to the LSIORB Project. Due to the uncertainty about the adequacy of traditional funding sources, the Louisville MPO did not update its MTP in 2009. Instead, the MTP expired in December 2009.

2009: Creation of Bridges Authority. The Kentucky General Assembly considered legislation that would allow “Project Authorities” to be established to pursue innovative financing strategies for “Major Projects.” That year, the Kentucky General Assembly enacted Sections 75 through 98 of House Bill 3 during an Extraordinary Session, which is now codified at Kentucky Revised Statutes (KRS) Chapter 175B. The enacted law led to the creation of the Bridges Authority. In October 2009, Kentucky’s Governor and Louisville’s Mayor appointed seven members to the Authority. In December 2009, Indiana’s Governor issued Executive Order 09-11 authorizing Indiana’s participation and appointing seven members to the Authority. The Bridges Authority was tasked by the governors and the mayor to finance, construct, and oversee the LSIORB Project. The Bridges Authority is described in greater detail in Section 1.5, below.

2009–2010: Grace Period. When the MTP expired in December 2009, the Louisville MPO entered into a one-year grace period, which is provided by federal transportation planning regulations. The grace period provided an opportunity to resolve the financial issues that had prevented approval of an update to the MTP. During this grace period, the Louisville MPO was allowed to continue working on an update to the MTP, and projects that were already included in the Transportation Improvement Program (TIP) were allowed to proceed.

2010: Financial Demonstration. In July 2010, the Bridges Authority, KYTC, and INDOT submitted to the Louisville MPO a document titled Financial Demonstration for the Ohio River Bridges Project, in Support of the Louisville (KY-IN) Metropolitan Transportation Plan (Financial Demonstration). The Financial Demonstration presented potential funding sources and financing options, including a tolling scenario and other revenue-generating alternatives. The Financial Demonstration showed there to be reasonable expectations that the LSIORB Project could be funded, with a combination of traditional funding sources and toll revenues. The Financial Demonstration was based on then-current assumptions about project costs and toll rates; it did not reflect cost-saving changes that were later incorporated into the project. (For a copy of this financial analysis, see Appendix G.1.)

2010: Adoption of Horizon 2030. Because the Financial Demonstration identified a source of funding for the LSIORB project, the Louisville MPO was able to satisfy the fiscal constraint requirement for the MTP. With that requirement satisfied, the MPO adopted an updated Horizon 2030 MTP on October 7, 2010. This version of the MTP included the LSIORB Project based on the assumption that the new bridges (Downtown and East End) would be tolled. The adoption of this plan in October 2010 reflected a decision by local governments, acting through the MPO, to include tolling as a key element of the financial plan for the LSIORB Project.

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6 Under Federal transportation planning regulations, the Louisville MPO is required to update (i.e., comprehensively review and revise) its MTP at least once every four years.

7 The TIP is a staged, multiyear, intermodal program of transportation projects that require Federal funding, and is consistent with the MTP prepared by the Louisville MPO.
2010: Update to Initial Financial Plan. In December 2010, the Bridges Authority updated the 2007 Initial Financial Plan (IFP) (see Appendix G.3 for the Updated Financial Plan, December 2010). This update reflected the incorporation of toll revenues into the funding plan for the project. This Updated Financial Plan was submitted just before the initiation of the SDEIS, so it did not reflect the cost-saving design changes and tolling assumptions that were used in the SDEIS and this SFEIS.

2011: Updated Financial Demonstration. In February 2011, FHWA initiated the SDEIS. As the alternatives analysis for the SDEIS moved forward, it became clear that the Financial Demonstration would need to be updated to reflect the cost-saving design changes and tolling assumptions that are shown in the SDEIS and SFEIS. In September 2011, the Bridges Authority, KYTC, and INDOT submitted an updated version of the Financial Demonstration to the Louisville MPO. The updated Financial Demonstration is consistent with the cost and tolling assumptions that are used in this SFEIS; specifically, it is consistent with the cost estimates and toll rate assumptions for the Modified Selected Alternative in this SFEIS. (For a copy of this financial analysis, see Appendix G.2.)

2011–2012: Adoption of Amendment 3 to Horizon 2030. On November 29, 2011, the Louisville MPO adopted Amendment 3 to the Horizon 2030 MTP and the TIP, which included the September 2011 Financial Demonstration. In January 17, 2012 Amendment 3 received the Federal Conformity Determination (see Appendix G). Amendment 3 included the Modified Selected Alternative, with the cost savings and tolling assumptions that were reflected in the SDEIS published on November 11, 2011.

2012: KRS 175B Financial Plan. In March 2012, the Bridges Authority, pursuant to Kentucky state law, adopted the KRS 175B Financial Plan. On March 5, 2012, the governors of Indiana and Kentucky signed a Memorandum of Understanding Between the Commonwealth of Kentucky and the State of Indiana, which “adopt(s) the...non-binding Term Sheet as the basis for moving toward a definitive bi-state development agreement among the relevant agencies and instrumentalities of both states following the approval of the financial plan for the Project pursuant to the Kentucky Revised Statutes 175B.030(6).” The MOU and the non-binding term sheet are included as Appendix G.6; and the KRS 175B Financial Plan, which is also dated March 5, 2012, is included as Appendix G.7.

1.5 Louisville-Southern Indiana Ohio River Bridges Project

This section summarizes major steps that have been taken to advance the project since the issuance of the ROD in 2003, including: the division of the FEIS Selected Alternative into six design sections; design, right-of-way acquisition, and mitigation/enhancement activities; project-related financial planning activities, including the creation of the Bridges Authority; and proposed modifications to the FEIS Selected Alternative.

The FEIS Selected Alternative includes these major components:

A new interstate bridge parallel to the Kennedy Bridge (Alternative C-1) as well as the reconstruction of the Kennedy Interchange to the south of the existing interchange.

Non-motorized facility enhancements (17-foot-wide pedestrian and bicycle paths on both bridges), expanded employer-based trip reduction programs, expanded Intelligent Transportation System (ITS) applications, expanded incident management programs, and enhanced cross-river bus service, as well as numerous mitigation commitments.

Six Design Sections

After the issuance of the 2003 ROD, INDOT, and KYTC divided the FEIS Selected Alternative into the following six Design Sections (Figure 1.5-1):

Section 1—Reconstruction of the Kennedy Interchange to the south of the existing interchange. (Also referred to as the “Kennedy Interchange Section.”)

Section 2—New I-65 Northbound Bridge over the Ohio River. (Includes the reconfiguration of the existing seven-lane Kennedy Bridge to a six-lane bridge to accommodate I-65 southbound traffic.) (Also referred to as the “Downtown Bridge Section.”)

Section 3—I-65 in Indiana north of the Kennedy Bridge. (Also referred to as the “Downtown Indiana Approach Section.”)

Section 4—Extension of KY 841 in Kentucky from I-71 to the new Ohio River East End Bridge. (Also referred to as the “East End Kentucky Approach Section.”)

Section 5—New Ohio River Bridge on the KY 841 extension. (Also referred to as the “East End Bridge Section.”)

Section 6—Extension of S.R. 265 in Indiana from the S.R. 62 interchange to the new Ohio River East End Bridge. (Also referred to as the “East End Indiana Approach Section.”)
Status of Project-Related Activities since the 2003 FEIS/ROD

From 2003 to 2004, INDOT and KYTC selected six Section Design Consultants (SDC) to begin work on the design phase on the sections. Since 2004, the Section Design Consultants have pursued the following courses of action in their project sections:

- Continued community involvement efforts to guide the integration of the specific sections into their urban/rural settings
- Surveyed the project area
- Performed geotechnical investigations
- Completed bridge type selection processes
- Prepared right-of-way plans for acquisition

Right-of-way acquisition began in 2010 but, when the SEIS was initiated, some acquisition was put on hold as a result of the proposed design modifications. Pursuant to a letter of March 24,
2011, from FHWA (see SFEIS Appendix E), other right-of-way acquisition was allowed to proceed on a limited basis in Sections 5 and 6, while additional right-of-way acquisition in was precluded in Section 1 and 3 during the preparation of the SEIS, except for hardship and protective acquisitions. Only a few properties have been acquired in the Louisville and Jeffersonville downtown areas. The majority of properties have been acquired in the East End Corridor of the project in both Kentucky and Indiana.

Several mitigation and enhancement measures identified in the 2003 FEIS Chapter 8, Commitments and Mitigation, have been implemented. A sample of such commitments includes the following:

- Preparation of Historic Preservation Plans for the Old Jeffersonville Historic District, Phoenix Hill Historic District, and Country Estates Historic District (2003 FEIS pp. 8-12, 8-19, and 8-20, respectively).
- Sponsorship of a Smart Growth Conference for Louisville – Southern Indiana Region (a cooperative effort among KYTC, FHWA, INDOT, historic preservation agencies, and local government organizations) (2003 FEIS p. 8-10).
- Funding of the East Louisville Downtown Area related to the Kennedy Interchange, Downtown/West Louisville Access Planning Study, and the Clark County Planning study (2003 FEIS pp. 8-28 through 8-30).
- Establishment of the Indiana and Kentucky Historic Preservation Advisory Teams (HPATs), completion of the historic survey forms, and completion of Phase II archaeology investigations, each of which is identified in the Original Section 106 Memorandum of Agreement (MOA).
- Establishment of Ombudsmen within each state (Original MOA, p. 5).

Mitigation commitments that remain valid from the 2003 FEIS and those that have been identified during this SEIS process are presented in SFEIS Chapter 8, as well as in the amended Biological Assessment (Appendix B.3) and the executed Section 106 First Amended MOA (Appendix D.9).

**Financial Plans: Compliance with Federal and State Requirements**

Three distinct mandates—two under Federal law and one under a state statute—governed the need to develop a financial plan for the LSIORB Project. First, as noted in Section 1.4, Federal law (23 U.S.C. §134) requires a metropolitan transportation plan to be “fiscally constrained.” Second, Federal law (23 U.S.C. § 106(h)) requires that recipients of Federal financial assistance for a Major Project submit a project-specific financial plan to FHWA. Third, Kentucky state law requires the Bridges Authority to develop a financial plan for the LSIORB Project.

Initial Financial Plan (IFP). The Initial Financial Plan addressed the two Federal requirements. The IFP was submitted to FHWA under the Major Project requirement, and became one of the elements used to implement the requirement that the Louisville MPO’s MTP include a financial
plan. According to FHWA’s *Financial Plan Guidance* (January 2007), a Major Project financial plan must reflect the project’s cost estimate and revenue structure and provide a reasonable assurance that sufficient financial resources will be available to implement and complete the project as planned. The plan must be submitted to FHWA prior to construction and annually updated with detailed estimates of the cost to complete the project.

Responding to the Federal mandates, KYTC and INDOT submitted to FHWA the *Louisville – Southern Indiana Ohio River Bridges Project Initial Financial Plan* (IFP) in October 2007. In January 2008, KYTC and INDOT received FHWA’s approval of the IFP for the project. The plan included detailed project cost estimates to complete the project; estimates of future costs; and revenue scenarios—including tolling scenarios—to “provide an accurate basis upon which to schedule and fund the Ohio River Bridges Project” (IFP, p. i).

The plan estimated a cost increase, due to inflation, that would raise the estimated year-of-expenditure cost to approximately $4.1 billion ($1.61 billion more than the 2003 FEIS/ROD projection); and proposed funding the project entirely through traditional Federal and state transportation program funding sources, which included Federal funding designated specifically for the project, and Kentucky and Indiana’s federal-aid apportionments. The states’ funding was to be comprised of state matching funds for the federal-aid program, state construction program funds and, in Indiana’s case, proceeds from the Indiana Toll Road concession made available through Indiana’s “Major Moves” transportation program.

The IFP noted that planned annual updates would include “the potential to employ alternative funding approaches...both states recognize that circumstances can change and alternative structures may present themselves” (see IFP p. 4-12). Tolling options were listed among the potential alternative funding approaches that could be included in the annual updates. An updated *Initial Financial Plan* was submitted to FHWA in December 2010.

Bridges Authority. A key step taken by the Commonwealth of Kentucky and State of Indiana to ensure the availability of funding sources was the establishment of the Bridges Authority—a bi-state authority charged with overseeing the financing of the project—as described in Section 1.4.

The Bridges Authority held its inaugural meeting in February 2010, and immediately began working toward its primary objective of developing a financial plan that provided updated project cost estimates; and identified potential funding sources and finance mechanisms that would be reasonably expected to be available to complete the project. During the course of that work, the Bridges Authority followed the directive of its appointing authorities—the Governors of Kentucky and Indiana and the Mayor of Louisville—to consider and explore any and all possible funding options for the project.

In July 2010, the Bridges Authority, KYTC, and INDOT submitted to Louisville MPO the *Financial Demonstration* (see Section 1.4, herein) that, while not intended to be an update of the IFP, provided a “synopsis of the potential sources of funding” to meet anticipated project

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8 In late 2005, Indiana launched a 10-year, $10 billion transportation plan, known as “Major Moves,” to improve and expand Indiana’s highway infrastructure. A total of $2.6 billion was committed to Major Moves from the long-term lease of the Indiana Toll Road and the plan called for 104 new roadways by 2015. (Source: www.in.gov/indot/2407.htm)
funding needs. The *Financial Demonstration* analyzed the cost estimates associated with the project and concluded that the project could not be funded solely through traditional revenue sources because of the unpredictability of such funding as a result of the economic downturn and other factors. The document identified an estimated year-of-expenditure project cost of approximately $4.1 billion, and noted (p. 5) that the Bridges Authority was “exploring the full range of alternative funding sources potentially available for the Project,” including toll revenues. Soon after, in December 2010, the Bridges Authority produced the *Updated Financial Plan* (see Appendix G.3).

As noted in Section 1.4, in September 2011 the Bridges Authority submitted to the Louisville MPO an updated *Financial Demonstration*. The document included a revised project development and construction cost of approximately $2.9 billion (projected year-of-expenditure dollars) based on project scope changes and revenue projections that “reflect the baseline tolling scenario that is being used in this SEIS update.” (p. 6)

On December 29, 2011, the Bridges Authority announced that Kentucky and Indiana had reached consensus on a basic plan to finance and build the LSIORB Project. The following agreement was reached, in principle, by Kentucky Governor Steve Beshear, Indiana Governor Mitch Daniels, and the Bridges Authority:

- Kentucky would be responsible for financing and constructing the downtown portion of the project—a new I-65 Bridge, a re-decked Kennedy Bridge, modernization of the Kennedy Interchange, and expansion of the I-65 approach in Indiana.
- Indiana would be responsible for financing and constructing the East End portion of the project—a new bridge near Utica, Indiana, and Prospect, Kentucky; a new highway linking the Lee Hamilton Expressway and Gene Snyder Freeway; and a tunnel in Eastern Jefferson County.

**Memorandum of Understanding (MOU).** On March 5, 2012, the Governors of Kentucky and Indiana signed a *Memorandum of Understanding Between the Commonwealth of Kentucky and the State of Indiana*, which defines “the roles and responsibilities for procurement, revenue sharing, financing, construction, tolling, operation and maintenance of the Louisville – Southern Indiana Ohio River Bridges Project...under a single comprehensive development plan.” As agreed to in December 2011, Kentucky will oversee the downtown portion of the project, and Indiana will oversee the east end portion. The MOU is provided in SFEIS Appendix G.6.

**KRS 175B Financial Plan.** The March 5, 2012, Financial Plan is included as Appendix G.7. This financial plan was developed to address the financial and construction parameters of the project, as required in KRS 175B.030(6) including the financing; (a) a timeline for construction of the project, including financing requirements throughout the construction of the project; (b) the amount and duration of per-vehicle tolls; (c) state funding commitments; (d) other sources of funds and expected amounts; and (e) other provisions relating to the construction and financing of the project. This plan includes anticipated cost-savings that are projected to result from the recently announced accelerated construction schedule but that are not reflected in the cost figures identified in this SFEIS. The cost estimates and analysis within this SFEIS remain consistent with those within the SDEIS and those used for the economic analyses conducted for this project.
This Financial Plan identifies the various tolling scenarios, one of which includes tolling of the Sherman Minton Bridge twenty or more years in the future. While the Financial Plan does not rely on that scenario for funding the LSIORB Project, it does recognize the possibility that the Sherman Minton Bridge could be tolled at some point in the future as part of a separate project to reconstruct that bridge when it reaches the end of its useful life. Currently, such a project is not included in the metropolitan region’s long-range plan, nor are there any studies underway to examine such a project. If the states were to propose a project to reconstruct or replace Sherman Minton Bridge, that proposal would be subject to a separate environmental review process and FHWA would have to approve the tolling.

**Modified Selected Alternative (with Tolls)**

The current estimated $4.1 billion cost for the 2003 FEIS Selected Alternative reflects an increase of $1.6 billion over the $2.5 billion year-of-expenditure cost estimate in the 2003 FEIS (FEIS p. S-11). Of the estimated $4.1 billion amount, the current MTP assumes that $1.9 billion will be available from traditional Federal and state funds, based on past history in both states. This leaves a shortfall of approximately $2.2 billion, which would need to be obtained from other sources, if the 2003 FEIS Selected Alternative were to be constructed.

In response to the amount of $2.2 billion shortfall in revenue needed to complete the 2003 FEIS Selected Alternative, the Indiana and Kentucky Governors and the Louisville Mayor asked INDOT, KYTC, and FHWA in January 2011 to pursue cost-saving adjustments to the 2003 plan for building two new bridges and rebuilding the Kennedy Interchange. Consequently, design modifications to the 2003 FEIS Selected Alternative were evaluated to reduce the overall cost of the project and, thereby, minimize the amount of toll based revenue required. The evaluation showed that costs could be substantially reduced with the following proposed modifications:

- Reconstructing the Kennedy Interchange within its existing footprint instead of relocating it to the south of the existing interchange.
- 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.

As of January 2011, these changes were projected to result in a $1.2 billion savings. While this cost reduction would narrow the funding gap, it would not close it; tolls are still needed to supplement funding. The proposed addition of tolls and design modifications to reduce costs resulted in the reevaluation of the project and its environmental impacts, as required by NEPA. On February 15, 2011, to comply with NEPA, FHWA, KYTC, and INDOT published in the Federal Register a Notice of Intent to prepare an SEIS to document the changes since the 2003 FEIS that would be associated with the proposed tolling options, design modifications, and changes in the project area.

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9 In the SDEIS in anticipated open-to-traffic date was the year 2022. Since publication of the SDEIS, the states have announced their intention to compress the schedule by use of design-build methods for delivery rather than traditional design-bid-build. This accelerated project schedule is anticipated to result in completion of the east end portion by 2017 and the downtown portion by 2018 and reduce overall project costs by an additional $300 million. The states will continue to pursue methods to save costs and advance the project schedule.
The design modifications and tolling option comprise a new build alternative—the “Modified Selected Alternative”—that is evaluated in this SFEIS. This SFEIS considers how a Modified Selected Alternative would affect the environment compared with the originally selected “Two Bridges/Highway Alternative” without tolls (i.e., the 2003 FEIS Selected Alternative), and the No-Action Alternative; and addresses the requirements of environmental laws, regulations and Executive Orders that are applicable to the project.

**Publication of SDEIS and Public Hearings**

On November 10, 2011, the SDEIS for the LSIORB Project was approved by FHWA, KYTC, and INDOT. On November 25, 2011, the Notice of Availability of the SDEIS was published in the *Federal Register*, and Public Hearings on the SDEIS were held on December 19, 2011, in Louisville, Kentucky, and December 20, 2011, in Jeffersonville, Indiana. The period of public comment closed on January 9, 2012. SFEIS Chapter 7, *Public Involvement and Agency Coordination*, provides a summary of substantive comments received, and responses to the comments.

**Litigation Status**

A lawsuit was filed in September 2009 against FHWA, challenging the 2003 ROD for this project. The lawsuit was filed by two groups, River Fields, Inc., and the National Trust for Historic Preservation. The lawsuit remains pending in the United States District Court for the Western District of Kentucky, Case No. 3:10-cv-00007. Both INDOT and KYTC have been granted permission to participate as defendants in the litigation. The court also has allowed two organizations to participate in the case: the Coalition for the Advancement of Regional Transportation (CART) and the Kentuckians for Progress. All litigation deadlines have been stayed while the SEIS process is underway.

**Format of this SFEIS**

The format of this SFEIS continues the SDEIS approach of generally following the section-heading outline used in the 2003 FEIS. Changes to the project and/or conditions in the project area that have occurred since the 2003 FEIS are described in their respective sections; and where the information presented in the 2003 FEIS remains valid, such is noted. As explained in this chapter’s introductory text, this SFEIS also identifies substantive additions and revisions to the information contained in the SDEIS.

While this SFEIS builds upon and incorporates work already completed as part of the project development process, it does not reproduce in full the voluminous 2003 FEIS and ROD documentation. Instead, it incorporates information from those documents by reference, where applicable. The 2003 FEIS and ROD are available for review at the Community Transportation Solutions’ (CTS) office located at the Forum Office Park III, 305 North Hurstbourne Parkway, Suite 100, Louisville, Kentucky. These documents can also be reviewed on the project website: [www.kyinbridges.com](http://www.kyinbridges.com).
CHAPTER 2: PURPOSE AND NEED

Substantive changes to Chapter 2 since the publication of the SDEIS

- Introduction—Adds text to the Travel Demand Modeling section to explain daily vs. time-of-day models.
- Section 2.1—Updates information regarding funding for the Big Four Bridge.
- Section 2.2.1—

Updates Table 2.2-1 and Figure 2.2-1 to reflect revised VMT, VHT, and VHD calculations. (Subsequent review and analysis of the method to calculate the VMT, VHT, and VHD indicated that these values did not align with methods used to generate the traffic forecasts. The new methods now align with the traffic assignments used in generating the traffic forecast.) Changes were not significant and do not affect the conclusions.

Replaces Table 2.2-3 with Table 2.2-3a and Table 2.2-3b, and revises the accompanying text. Table 2.2-3a presents daily Ohio River crossing capacities based on the FEIS Daily Model, while Table 2.2-3b presents updated period (and aggregated daily) capacities from the time-of-day (TOD) travel demand model. Some of the period percentages have been updated to reflect revised period capacities.

- Section 2.2.2—Updates Census data in Figure 2.2-4 and associated text to show population changes from 2000 to 2010.
- Section 2.2.3—Updates Table 2.2-5 traffic data due to refinements of the CORSIM models during the development of the Interchange Justification Study. Changes were not significant and do not affect the conclusions.

Updates Figure 2.2-7 and revises corresponding text to reflect changes in LOS based on the use of an updated version of the Highway Capacity Manual (HCM2010) and updated 2010 truck percentages. The analyses in the SDEIS used the previous version (HCM2000).
- Section 2.2.5—Updates that the Sherman Minton Bridge was reopened to traffic on February 18, 2012, after being closed on September 9, 2011.

The purpose and need for the project as identified in the 2003 FEIS/ROD was reevaluated as part of the SEIS process and documented in a Purpose and Need White Paper (see Appendix A.1). A draft version of this document was distributed to resource agencies for comments and feedback on June 3, 2011, and to the public during the public information meetings held June 27 and 28, 2011. The draft document was also provided on the project website. Based upon feedback as well as the analysis from the document, it was determined that the purpose and need, as defined in the 2003 FEIS/ROD, remains valid. Since the publication of the SDEIS, the draft version of
the *Purpose and Need White Paper* has been revised based on updates to the traffic model, which resulted in minor changes in data. The final version is included as Appendix A-1.

The following text identifies the purpose and need as presented in Chapter 2 of the 2003 FEIS/ROD.

*The purpose of this proposed action is to improve cross-river mobility between Jefferson County, Kentucky, and Clark County, Indiana. Several specific factors demonstrate the need for action, including:*

- 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 approach roadways;
- Inadequate cross-river transportation system linkage and freeway rerouting opportunities in the eastern portion of the Louisville Metropolitan Area (LMA); and
- Locally adopted transportation plans that call for two new bridges across the Ohio River and the reconstruction of the Kennedy Interchange.* (2003 FEIS, p 2-1)*

Chapter 2 of the 2003 FEIS described the project setting, including the transportation limitations associated with the existing cross-river roadway system; identified the project’s purpose and the needs for improved cross-river mobility; and described the regional, socioeconomic, traffic, and other factors that helped define and quantify the needs. Chapter 2 of this SFEIS contains substantive changes since the publication of the SDEIS, as identified in the text box above; and the following substantive updates and revisions to information presented in the 2003 FEIS:

- Section 2.1—Updates status of weight restriction for Milton-Madison Bridge (U.S. 421), adds a discussion of the Big Four Bridge bicycle/pedestrian project, and updates Transit Authority of River City (TARC) passenger and route information.
- Section 2.2—Changes the planning horizon year from 2025 to 2030. Revises subsections as follows:
  - 2.2.1—Revises text and tables to update regional socioeconomic forecasts and travel demand data and methodology, including 2030 cross-river travel demand forecasts; and adds Table 2.2-3, *Ohio River Crossing Demand as Percent of Capacity (2010 and 2030)*.
  - 2.2.2—Updates population and employment data and forecasts, including figures 2.2-2, *No-Action Alternative Population Forecasts 2007–2030 Change*, and 2.2-3, *No-Action Alternative Employment Forecasts 2007–2030 Change*; and revises the “Land
Use Plans and Infrastructure Improvements’ subsection to discuss the 2007 comprehensive plans of Clark County and Jeffersonville, both of which include features of the LSIORB Project.

- **2.2.3**—Revises the peak-hour periods based on updated traffic data; revises the projected increase in congestion on the Sherman Minton Bridge; updates the discussion of truck traffic through the Louisville Metropolitan Planning Area (LMPA) on I-64 and I-65 and on the Kennedy Bridge; and identifies existing (2010) and projected (2030) levels of service on roadway segments in the Kennedy Interchange including the Kennedy Bridge and its approaches. Also, eliminates, revises, and/or adds figures and tables, as identified in the introduction to the section.

- **2.2.4**—Substantially revises the section to reflect crash data, and provide crash rate comparisons, for the years 2005 through 2009.

### Travel Demand Modeling

To update the project’s purpose and need, since the 2003 FEIS, the SEIS time-of-day travel demand model (SEIS TOD Model) was developed for the project and used to forecast future travel conditions in the region. The project model has many enhancements over the existing model prepared by the Louisville Metropolitan Planning Organization (MPO)\(^1\), which included the following extensive data collection efforts to improve model inputs and results:

- External station surveys on all of the interstates.
- Vehicle classification counts collected at over 50 ramps.
- Turning movement counts made at 50 different intersections.
- I-65 origin-destination survey between points north of Kennedy Bridge and the I-64 split.
- Collection of traffic signal data (signal location, green cycle, phasing) at more than 1,100 locations.
- New traffic counts at nearly 1,400 count locations in both Kentucky and Indiana, up from around 260 in the previous model.
- The latest socioeconomic data provided by the Louisville MPO.
- Transit information including 48 routes and over 1,300 stops integrated into the various highway networks.

This data helped develop these new travel demand modeling features:

- Time of day (TOD) modeling where flows for four periods (AM, Midday, PM, and Overnight) were developed to give better information than just the average daily traffic (ADT) level.

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\(^1\) The Kentuckiana Regional Planning and Development Agency (KIPDA) provides staffing services to the Louisville MPO and, therefore, the traffic model and certain planning documents are often referred to as the KIPDA model or KIPDA plans, as appropriate.
• Mode choice that included forecasting of all transit travel and transit alternatives.
• A truck model developed for forecasting heavy vehicle flows on all facilities.
• Enhanced trip generation equations to include income categories.
• Trip distribution model that included a generalized cost based on adjusted travel time plus operating cost divided by the value of time.
• Improved calibration performed for the trip generation, trip distribution, mode choice, time of day, and traffic assignment steps.
• Enhanced validation performed at the system level, facility type level, area type level, county level, and link level—especially the bridges.
• Extensive sensitivity testing completed using travel times and other attributes to understand model performance and deviations between the model and ground counts.

The new SEIS TOD Model exceeded the daily validation results from the Louisville MPO model and provided many new features that could be used to answer key traffic-related questions. (See Appendix H.3 for additional information regarding validation of the new model.)

One of the key benefits of the new SEIS TOD Model is that it provides traffic forecasts for different periods throughout the day as opposed to just a daily traffic forecast as was the case with the travel demand model used when the 2003 FEIS was completed (i.e., FEIS Daily Model). The SEIS TOD Model produces traffic forecasts for eight periods during the day: AM (6AM–7AM, 7AM–8AM, 8AM–9AM); Midday (9AM–3PM); PM (3PM–4PM, 4PM–5PM, 5PM–6PM); and Overnight (6PM–6AM). The total of all eight periods equals 24 hours. (See Appendix H.2, Time of Day Travel Demand Model, Phase 1, and Appendix H.3, Time of Day Travel Demand Model, Phase 2, for additional information regarding the development of the new SEIS TOD Model.)

Using the new SEIS TOD Model, traffic for a No-Action Alternative was forecasted to provide a baseline for comparing with the build alternatives and evaluating the purpose and need for the project. (See Appendix H.1, Traffic Forecast, for additional information about the traffic forecasts developed for this project.) The transportation network used in the model was based on the assumption that all of the projects included within the current Louisville MPO’s Horizon 2030 Metropolitan Transportation Plan (MTP) will be implemented, with the exception of the two new Ohio River bridges and the reconstruction of the Kennedy Interchange recommended in the 2003 FEIS. The initial socioeconomic input for the travel demand model was based on Louisville MPO’s latest socioeconomic forecast for the region in year 2030, which assumes two new bridges across the Ohio River in the LMPA. However, for the SEIS No-Action Alternative, an alternate distribution of the MPO socioeconomic forecast was developed for the project model that did not include the two new Ohio River bridges or the reconstruction of the Kennedy Interchange. (See Appendix B.8.4, Socioeconomic Data Adjustment Steps to Reflect 2030 No-Action Development Patterns) for additional information about the No-Action socioeconomic forecast.)
Traffic Operations Analysis

For the Kennedy Interchange and its interstate approaches (including the Kennedy Bridge), a detailed analysis was performed using corridor simulation software (CORSIM), which determines several measures that demonstrate traffic congestion such as average peak-hour speed, total vehicle hours of delay, and throughput as a percent of demand. Another measure of traffic congestion is known as the “level of service” or LOS. LOS identifies the degree of congestion on a particular roadway segment for the peak hour. LOS ranges from A to F, with LOS A indicating the least congestion and best traffic flow, and LOS F indicating the most congestion and worst traffic flow. LOS was determined by Highway Capacity Manual\(^2\) analyses. (See Appendix H.6, *Highway Capacity Software Level of Service Analysis Technical Memorandum*, for more details of these analyses.) The traffic operations analyses were conducted using traffic forecasts derived from the SEIS TOD Model. The forecasts were used as inputs for CORSIM and the Highway Capacity analyses.

2.1 Project Setting

This section of the 2003 FEIS discussed the transportation limitations associated with the existing cross-river roadway system within and outside of the LMPA along with the partial “inner beltway” (i.e., I-264) and “outer beltway” (i.e., KY 841). This SFEIS updates the information presented in this section of the 2003 FEIS to include information about the Milton-Madison Bridge (U.S. 421), the pedestrian and bicycle routes across the Ohio River, and cross-river transit routes.

The Milton-Madison Bridge crosses the Ohio River 40 miles northeast of the Kennedy Bridge. Reconstruction of the bridge, which began in January 2011, will eliminate weight restrictions on the bridge and is expected to be completed in Summer 2012.

The 2003 FEIS noted that a bicycle and pedestrian river-crossing is provided only on the Clark Memorial Bridge. Since that time, local, state, and Federal governments have initiated a project to convert the Big Four Railroad Bridge into a bicycle/pedestrian crossing of the Ohio River. The Big Four Bridge is located about 1,200 feet upstream from the Kennedy Bridge and connects the cities of Louisville, Kentucky, and Jeffersonville, Indiana (see 2003 FEIS Figure 2.1-1, page 2-2). It is no longer in use as a railroad bridge and access was removed in 1969.

The Big Four Bridge project will provide a 22-foot-wide pedestrian/bicycle pathway over the Ohio River between Louisville and Jeffersonville. On the Kentucky side of the Big Four Bridge project, the ramps have been completed, rehabilitation of the bridge deck began in 2011, and construction is currently underway. On the Indiana side, INDOT and Jeffersonville have programmed sufficient funding for the approach to the bridge. Construction contracts have been awarded and construction is expected to be completed in 2013. A Finding of No Significant Impact (FONSI) was approved for the bridge on the Kentucky side of the project by the U. S. Army Corps of Engineers (USACE) on July 16, 2007. A FONSI was approved for the Indiana

\(^2\) Transportation Research Board of the National Academies, *HCM2010 Highway Capacity Manual*, Washington, D.C., 2010. This is a manual that provides industry standard methodologies for analyzing the level of service of transportation facilities.
The Transit Authority of River City (TARC) provides public transportation within the LMPA. Through coordination with TARC, the following passenger and route information from the 2003 FEIS has been updated for the SEIS. Currently, TARC operates six bus routes across the Ohio River. Two routes use the Sherman Minton Bridge (I-64) and carry a total of approximately 350 passengers per weekday on 31 one-way trips. Four routes use the Clark Memorial Bridge (U.S. 31), serving approximately 1,422 weekday passengers in aggregate on 117 one-way trips. Two of these routes use the Kennedy Bridge for peak-hour express trips.

There are no other changes to information that was presented in this section of the 2003 FEIS. See Section 2.1, page 2-1 of the 2003 FEIS, for a more detailed description of the project setting.

### 2.2 Purpose and Need for Action

This section of the 2003 FEIS defined the purpose of the proposed action as improving cross-river mobility between Jefferson County, Kentucky, and Clark County, Indiana; and detailed the factors that contribute to, and demonstrate the need for, an improvement in cross-river mobility for LMPA residents and interstate travelers. The information in this section remains unchanged since the 2003 FEIS with the following substantive exception: This SFEIS is based on the most recent MTP, Horizon 2030. For more detailed information, see page 2-6 of the 2003 FEIS.

#### 2.2.1 Regional Context

This section of the 2003 FEIS described the socioeconomic (population and employment) forecasts for the LMPA that were prepared by the Louisville MPO and used in the travel demand computer model to estimate current and future travel demand within the LMPA. For more detailed information, see pages 2-9 through 2-12 of the 2003 FEIS. The information in this section remains unchanged since the 2003 FEIS with the following substantive exceptions: This SFEIS updates the regional population and employment forecasts, and travel demand data, including 2030 cross-river travel demand forecasts.

The identification of specific transportation needs within the LMPA and the assessment of potential solutions to those needs require an understanding of the overall population and employment growth patterns in the area. This “regional context” helps to better define and quantify the specific needs for improvements in cross-river mobility that have been identified between Clark County, Indiana, and Jefferson County, Kentucky. It also provides the framework for evaluating alternative solutions to address those needs.

KIPDA, which provides staff support for the Louisville MPO, prepares socioeconomic (population and employment) forecasts for the LMPA, which are incorporated into Louisville MPO’s travel demand computer model to estimate current and future travel demand within the area. Those regional travel demand conditions help to predict future travel conditions and the needs of the transportation systems; and, ultimately, to evaluate potential solutions to the identified transportation needs.
Since the 2003 FEIS was issued, a new travel demand model was developed for use in forecasting future travel conditions in the region to aid in determining the project’s purpose and need. The model was based on extensive data collection efforts, including traffic counts at nearly 1,400 locations, turning movement counts at 50 intersections, current transit data, an origin-destination survey, and the latest socioeconomic data provided by the Louisville MPO.

Traffic for a No-Action Alternative was forecasted to provide a baseline for comparing with the build alternatives and assessing the need for action. The transportation network used in the model was based on the assumption that all of the projects included within the current MTP (Horizon 2030) will be implemented, with the exception of the two new Ohio River bridges and the reconstruction of the Kennedy Interchange recommended in the 2003 FEIS. The initial socioeconomic input for the travel demand model was based on Louisville MPO’s latest socioeconomic forecast for the region in year 2030, which assumes two new bridges across the Ohio River in the LMPA. However, for the SEIS No-Action Alternative, an alternate distribution of the socioeconomic forecast was developed for the project model that did not include the two new Ohio River bridges or the reconstruction of the Kennedy Interchange (see Appendix B.8.5).

The 2030 regional forecasts from the travel demand model for the No-Action Alternative indicate the changes that are expected to take place on an LMPA-wide basis. Population is now predicted to increase by 15% between 2007 and 2030, while employment is predicted to increase by 42% in the same period. The total number of daily trips in the LMPA is expected to increase by 20% (see Table 2.2-1). In addition, the number of vehicle miles of travel (VMT), vehicle hours of travel (VHT), and vehicle hours of delay (VHD) is expected to increase by 28%, 59%, and 189%, respectively. These summary figures demonstrate that travel demand in the LMPA will increase nearly as fast as or faster than population and employment in the same period.

**TABLE 2.2-1**

<table>
<thead>
<tr>
<th>WEEKDAY TRAVEL SUMMARIES FOR THE LMPA (2007 and 2030)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Trips</td>
</tr>
<tr>
<td>Vehicle Miles of Travel</td>
</tr>
<tr>
<td>Vehicle Hours of Travel</td>
</tr>
<tr>
<td>Vehicle Hours of Delay**</td>
</tr>
</tbody>
</table>

* The year 2007 is used as the base year for this forecast because it is the base year in the Louisville MPO travel demand model.
** Additional hours of travel time caused by traffic congestion.
Source: SEIS TOD Model (except for the 2025 No-Action Alternative forecasts that are from the FEIS Daily Model).

For comparison, Table 2.2-1 also shows 2025 traffic data from the 2003 FEIS, which indicate that the projected 2030 daily trips, VMT, VHT, and VHD are all higher than the 2025
projections. A comparison of percent change cannot be made with the 2003 FEIS because the lengths of the time periods are different (i.e., 2003 FEIS 1990–2025: SFEIS 2007–2030).

Cross-river travel demand is expected to increase 29% by 2030 (see Table 2.2-2). By 2030, a total of 292,000 vehicles per day are expected to cross the Ohio River on the three existing bridges, an increase of approximately 1.3% per year. For comparison, Table 2.2-2 also shows 2025 weekday traffic volumes from the 2003 FEIS, which indicates that all of the projected 2030 weekday traffic volumes for the bridges are lower than the 2025 projections. However, as noted previously, the 2030 total cross-river traffic volumes still represent a significant increase (i.e., 29%) from the existing traffic volumes.

**TABLE 2.2-2**

**DAILY OHIO RIVER CROSSINGS WEEKDAY TRAFFIC VOLUMES (2010 and 2030)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sherman Minton Bridge (I-64)</td>
<td>82,000</td>
<td>129,700</td>
<td>112,000</td>
<td>37%</td>
</tr>
<tr>
<td>Clark Memorial Bridge (U.S. 31)</td>
<td>21,900</td>
<td>33,700</td>
<td>25,000</td>
<td>14%</td>
</tr>
<tr>
<td>Kennedy Bridge (I-65)</td>
<td>122,300</td>
<td>178,600</td>
<td>155,000</td>
<td>27%</td>
</tr>
<tr>
<td>Total Daily Ohio River Crossings</td>
<td>226,200</td>
<td>342,000</td>
<td>292,000</td>
<td>29%</td>
</tr>
</tbody>
</table>

Source: SEIS TOD Model (except for the 2025 No-Action Alternative forecasts that are from the FEIS Daily Model)

As part of the 2003 FEIS, Ohio River daily bridge crossing demand as percent of bridge capacity was computed. The demand as percent of capacity was computed by dividing the daily traffic forecast by the daily capacity used within the FEIS Daily Model. In standard traffic engineering practice, roadway capacity is estimated on an hourly basis. Typically, in order to generate a theoretical daily capacity within a daily travel demand model, the hourly capacity is divided by the percent of daily traffic in the peak hour (e.g., 10% or 0.1). This was the approach used with the FEIS Daily Model. As a result, the daily capacities from the FEIS Daily Model do not equal (and are less than) the hourly roadway capacity (vehicles per hour) times 24 (hours per day). Table 2.2-3a presents Ohio River crossing demand as percent of capacity for the year 2010, the FEIS 2025 No-Action Alternative from the 2003 FEIS, and the SFEIS 2030 No-Action Alternative. To provide a comparison between the 2003 FEIS traffic forecasts and the 2030 SFEIS traffic forecasts, all of the percents in Table 2.2-3a were calculated using the theoretical daily capacities from the FEIS Daily Model. Percents greater than 100 were highlighted as problematic in the 2003 FEIS.
TABLE 2.2-3a
OHIO RIVER CROSSING DEMAND AS PERCENT OF CAPACITY* (2010 and 2030) (FEIS DAILY MODEL)

<table>
<thead>
<tr>
<th>Bridge</th>
<th>Daily 2010</th>
<th>2025* No-Action (2003 FEIS)</th>
<th>2030 No-Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kennedy Bridge (I-65)</td>
<td>97%</td>
<td>142%</td>
<td>123%</td>
</tr>
<tr>
<td>Sherman Minton Bridge (I-64)</td>
<td>76%</td>
<td>120%</td>
<td>104%</td>
</tr>
<tr>
<td>Clark Memorial Bridge (U.S. 31)</td>
<td>73%</td>
<td>112%</td>
<td>83%</td>
</tr>
<tr>
<td>Total Daily Ohio River Crossings</td>
<td>86%</td>
<td>130%</td>
<td>111%</td>
</tr>
</tbody>
</table>

* 2025 demand as percent of capacity data from the 2003 FEIS.

Note: These percentages are computed using the daily capacities from the FEIS Daily model for comparison purposes.

Source: SEIS TOD Model volumes (except for the 2025 No-Action Alternative volumes that are from the FEIS Daily Model)

With the development of the SEIS TOD Model, a different approach was used to develop the roadway capacities used within the model. The hourly roadway capacities were used for each of the hourly periods (i.e., 6AM–7AM, 7AM–8AM, 8AM–9AM, 3PM–4PM, 4PM–5PM, and 5PM–6PM). Off-peak period capacities were developed for the Midday period (9AM–3PM) and the Overnight period (6PM–6AM). The off-peak period capacities were developed by multiplying the hourly capacity by the ratio of the percentage of traffic occurring during the off-peak period to the percentage of traffic occurring during the peak hour within the off-peak period. For the SEIS TOD Model, the theoretical daily capacity is calculated by aggregating the capacities from each of the periods. Similar to the FEIS Daily Model, the daily capacities from the SEIS TOD Model do not equal (and are less than) the hourly roadway capacity (vehicles per hour) times 24 (hours per day). The theoretical daily capacities derived from the SEIS TOD Model are greater than the theoretical daily capacities from the SEIS TOD Model. Table 2.2-3b presents Ohio River crossing daily demand as percent of capacity for the year 2010 and the SEIS 2030 No-Action Alternative. This table also presents Ohio River crossing period demand as percent of capacity for the SEIS 2030 No-Action Alternative.

While the daily demands as percent of capacity indicate that there is some excess capacity on the bridges during the 24-hour period, this does not mean that there is available capacity during the peak travel periods. Evaluation of the daily demand as percent of capacity was useful in the 2003 FEIS because no more detailed data was available. However, the development of the SEIS TOD Model now allows for an analysis by period where focus can be placed on the times of the day where traffic congestion is an issue. Ultimately, the period demand as percent of capacity forecasts provide for a more meaningful analysis of the efficiency of cross-river mobility. Therefore, the remainder of this discussion will focus on the period demand as percent of capacity.

As shown in Table 2.2-3b, by 2030, the AM southbound, Midday southbound, PM southbound, and PM northbound traffic volumes on the Kennedy Bridge are projected to be 139%, 108%, 113%, and 120% of capacity, respectively. Traffic during the AM southbound and PM
northbound periods on the Sherman Minton Bridge in 2030 are projected to be at 119% and 126% of capacity, respectively. These period analyses clearly show that the demand exceeds capacity (i.e., is well over 100%) in the peak directions of the peak periods. Thus, the existing Ohio River bridges alone cannot effectively address the cross-river mobility needs for the area during key travel periods (especially the AM southbound and PM northbound periods/directions).

**TABLE 2.2-3b**

**OHIO RIVER CROSSING DEMAND AS PERCENT OF CAPACITY**

<table>
<thead>
<tr>
<th>Bridge</th>
<th>Daily</th>
<th>2030 No-Action Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AM (6AM – 9AM)</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>NB</td>
</tr>
<tr>
<td>Kennedy Bridge (I-65)</td>
<td>74%</td>
<td>63%</td>
</tr>
<tr>
<td>Sherman Minton Bridge (I-64)</td>
<td>58%</td>
<td>60%</td>
</tr>
<tr>
<td>Clark Memorial Bridge (U.S. 31)</td>
<td>58%</td>
<td>25%</td>
</tr>
<tr>
<td>Total Daily Ohio River Crossings</td>
<td>66%</td>
<td>58%</td>
</tr>
</tbody>
</table>

Note: These percentages are computed using the capacities from the SEIS TOD model.

Source: SEIS TOD Model.

The 2030 cross-river travel demand forecast also shows a large increase in cross-river trips with origins and destinations in the eastern portion of the study area. In 2007 approximately 31,000 daily cross-river trips were estimated to have occurred between eastern portions of the LMPA upstream of the Kennedy Bridge—including eastern Clark County, eastern Jefferson County, and Oldham County (see Figure 2.2-1). Daily cross-river trips with those origins and destinations are forecast to increase to 41,000 by 2030, a 24% increase. This latter increase compares with an estimated 29% increase in the overall number of cross-river trips between 2010 and 2030 (see Table 2.2-2). In addition, under the No-Action Alternative, the total VMT associated with those eastern-oriented, cross-river trips is forecast to increase by 32% between 2007 and 2030, and the total VHT is forecast to increase by 59% in the same period. It is important to note that the eastern-oriented cross-river trips and VMTs are projected to have greater percent increases than those for the entire LMPA. (The percent increase in VHTs is equal). Under the No-Action Alternative, all of these cross-river trips with origins and destinations in the eastern portion of the study area must use the Kennedy Bridge or one of the other existing downstream bridges.

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4 As part of the FEIS Daily Model development process, the bridge capacities were reevaluated and more appropriate values for a time-of-day model were used in the updated model.
FIGURE 2.2-1
CROSS-RIVER VEHICLE TRAVEL BETWEEN EASTERN CLARK COUNTY AND EASTERN JEFFERSON COUNTY

<table>
<thead>
<tr>
<th>Daily Vehicle Travel Summary Between Eastern Clark County and Eastern Jefferson/Oldham County</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YEAR</strong></td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Vehicle Trips</td>
</tr>
<tr>
<td>Vehicle Miles of Travel</td>
</tr>
<tr>
<td>Vehicle Hours of Travel</td>
</tr>
</tbody>
</table>

Source: SEIS TOD model

Legend:
- Eastern Clark County
- Eastern Jefferson / Oldham County

NOT TO SCALE
2.2.2 Population and Employment Growth and Land Use Plans

This section of the 2003 FEIS focused on the discussion of 1995-2025 socioeconomic forecasts and land use plans in the LSIORB Project areas of downtown Louisville, Jeffersonville, eastern Jefferson County, and southeastern Clark County. Clark County’s 1991 Comprehensive Plan and Louisville and Jefferson County’s Cornerstone 2020 Comprehensive Plan were referenced in connection with plans for infrastructure improvements and mobility strategies. For more detailed information, see pages 2-13 though 2-22 of the 2003 FEIS. The information presented in this section remains unchanged since the 2003 FEIS, with the following substantive exceptions: This SFEIS updates population and employment forecasts to the 2007–2030 timeframe; and revises the “Land Use Plans and Infrastructure Improvements” subsection to discuss the 2007 comprehensive plans of Clark County and Jeffersonville, both of which include features of the LSIORB Project.

As described in the previous section, population in the LMPA is predicted to grow by 15% between 2007 and 2030 and employment is predicted to increase by 42% in the same period. The forecast rates of population and employment growth vary throughout the LMPA, with some areas showing large increases, other areas showing more moderate growth, and some areas showing decreases (see figures 2.2-2 and 2.2-3). Employment growth is anticipated in the downtown Louisville and Jeffersonville areas, although the predictions suggest some loss of population in those areas. Much of eastern Jefferson County, Kentucky, and southeastern Clark County, Indiana, is predicted to see moderate to high population and employment growth rates between 2007 and 2030. Those growth predictions are generally consistent with locally approved land use plans and proposed infrastructure improvements in those areas, except that land use planners in both Jefferson and Clark counties have indicated a desire to slow or reverse the rate of population decline in the downtown areas.

The areas of eastern Jefferson, western Oldham, and southern Clark counties that are predicted to see moderate to high population growth through 2030 generally showed moderate to high population growth between 2000 and 2010 (see Figure 2.2-4). Similarly, those areas that are predicted to see less rapid growth or declines through 2030 generally showed those same trends between 2000 and 2010.5

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5 Comparable employment data is not available from the 2010 Census for use in confirming the Louisville MPO employment forecasts. Employment data from the census is gathered based on the household residence of employees, rather than their place of employment. The employment data contained in this SFEIS is based on place of employment. Consequently, the employment information available from the census is not useful in confirming the employment information contained herein.
FIGURE 2.2-2
NO-ACTION ALTERNATIVE POPULATION FORECASTS
2007 - 2030 CHANGE
FIGURE 2.2-3
NO-ACTION ALTERNATIVE EMPLOYMENT FORECASTS
2007 - 2030 CHANGE
FIGURE 2.2-4
POPULATION CHANGE 2000 – 2010
BY CENSUS BLOCK
The Kennedy and Clark Memorial bridges currently provide cross-river transportation access in the downtown area, which serves as the economic and employment center of the LMPA. However, as described in Section 2.2.3, below, the existing roadway bridges in the downtown area are already congested and are predicted to become more heavily congested by 2030. Meanwhile, the high growth areas of eastern Jefferson, western Oldham, and southern Clark counties are juxtaposed across the Ohio River, but lack convenient cross-river transportation access, which hinders cross-river mobility. The closest cross-river transportation access for these eastern areas is the Kennedy Bridge, located in the downtown area. Consequently, many cross-river trips within the LMPA with origins and destinations in the eastern portion of the study area incur additional VMT and VHT, and contribute to congestion on the downtown crossings.

Moreover, if travel on the Kennedy Bridge is impaired or foreclosed by an incident on the bridge or its approaches, or by necessary maintenance activities, the only other river crossing options are the Clark Memorial and the Sherman Minton bridges, both of which are located farther downstream and are already heavily utilized. Local transportation planners have identified a need to improve cross-river mobility for these high growth areas (downtown and east end), and thereby improve the efficiency of the transportation system by reducing trip lengths and duration.

Projected Growth

In general, the updated population and employment growth trends (i.e., 2007–2030) within the LMPA have not significantly changed from the trends described in the 2003 FEIS (i.e., 1990–2025). The No-Action Alternative population and employment forecasts for the 2007–2030 period indicate that employment growth will continue to occur in the downtown Louisville area, with some employment growth also occurring in downtown Jeffersonville/Clarksville. Particularly high growth in employment is predicted in the area surrounding the medical complex in downtown Louisville. These high growth areas are shaded in pink and red on Figure 2.2-3. However, with some exceptions, Figure 2.2-2 indicates that population is predicted to continue to decline in much of the downtown area (as shown by blue-shaded areas) through the year 2030. This trend is consistent with the 2000–2010 population census data (see Figure 2.2-4).

The socioeconomic forecasts for 2007–2030 also show that rapid population and employment growth is occurring, and will continue to occur, in the eastern portion of the LMPA. In Indiana, such growth is apparent in the area of southeastern Clark County between I-65 and the Ohio River (extending north to about Charlestown, Indiana). As indicated by the dark red shaded areas on Figure 2.2-3, large employment gains are predicted in the vicinity of the Port of Indiana-Jeffersonville (formally Clark Maritime Center) and the River Ridge Commerce Center (formerly the Indiana Army Ammunition Plant [INAAP]). Major growth in population is also anticipated in this area of southeastern Clark County, including the areas near S.R. 265 (Lee Hamilton Highway), as well as the area just to the west of S.R. 62 across from the River Ridge Commerce Center. Areas of dark red shading on Figure 2.2-2 indicate high rates of population growth in southeastern Clark County, between I-65 and the Ohio River. Similarly, Figure 2.2-4 shows that many of those areas already have shown substantial growth between 2000 and 2010, especially as compared to other areas of the region.
The 2007–2030 population and employment forecasts indicate high growth in eastern Jefferson County (as well as much of adjacent Oldham County), across the Ohio River from the high growth areas of southeastern Clark County. Much of the predicted population growth in eastern Jefferson County over that period is expected to occur in a corridor along the existing KY 841, with several areas of high growth between I-64 and the Ohio River, as shown by the dark red areas on Figure 2.2-2. These general population trends have been borne out in fact between 1990 and 2000, as shown on Figure 2.2-4. Employment in this area also is expected to increase between 2007 and 2030, with several areas of high growth again concentrated along KY 841 (Gene Snyder Freeway) from the I-64 interchange to the Ohio River, as shown in dark red on Figure 2.2-3. While areas of moderate to high population and employment growth are distributed throughout much of the LMPA, a large portion of that growth is predicted to occur in the areas of eastern Jefferson, Oldham, and southeastern Clark counties located opposite each other across the Ohio River. Those areas of growth also tend to be concentrated along or near the existing S.R. 265 in Indiana and KY 841 in Kentucky. However, as noted previously, cross-river mobility between these two high growth areas is hindered by the lack of any cross-river transportation access closer than the downtown Kennedy Bridge.

Land Use Plans and Infrastructure Improvements

Clark County, Indiana

Since the 2003 FEIS, Clark County adopted a new Comprehensive Plan in 2007. The most notable development in the plan is the River Ridge Commerce Center (formerly INAAP) located northeast of the existing S.R. 265/S.R. 62 interchange. It is a business and industrial park with approximately 6,000 acres of land available for development. The Comprehensive Plan includes the River Ridge Commerce Center in the following goals, objectives, and guidelines.

Goal 1 (Economic Development)
Objective 1.1—Promote the development of the River Ridge Commerce Center by encouraging existing businesses to expand and new businesses to locate within the business park.

Goal 6 (Transportation)
Objective 6.1—Improve existing roadway connections to the River Ridge Commerce Center and consider additional connections.

Guidelines (Government)
G-6: Work with One Southern Indiana, the River Ridge Development Authority, other economic development organizations, and the private sector to promote growth of the River Ridge Commerce Center, develop additional industrial and business parks for basic industries, and preserve existing prime industrial sites for business retention and attraction. (Comprehensive Plan, p. 66)

Clark County’s Comprehensive Plan notes that the Port of Indiana-Jeffersonville, which is located southeast of the existing S.R. 265/S.R. 62 interchange, is one of the fastest growing ports on the Inland Waterway System.
With regard to residential development recommendations, the plan identifies vacant land along I-65, U.S. 31, and S.R. 60 surrounding Sellersburg, along S.R. 62 northwest of Jeffersonville, and along S.R. 403 between Charlestown and Sellersburg as prime locations for future residential development because they provide easy access and commutes to the River Ridge Commerce Center and downtown Louisville.

With regard to transportation, the Ohio River Bridges Project is included in the Comprehensive Plan’s list of “Major Moves” projects and in the Thoroughfare Plan. In addition, the plan identifies Overlay Districts for the future path of S.R. 265 as a major issue because this corridor will be a prime area for development. The overlay district will create land use goals and guidelines for this corridor to help ensure appropriate future development.

**Jeffersonville, Indiana**

Since the 2003 FEIS, Jeffersonville has adopted a new Comprehensive Plan in 2007. The plan indicates that most of the vacant and developable land is located northeast of Jeffersonville in unincorporated Clark County and that these are areas of major future growth due to their convenient access to the S.R. 265 and I-65 interchanges. Areas of proposed industrial expansion include:

- Land in the vicinity of the Port of Indiana-Jeffersonville
- Land near Clark County Airport (located north of S.R. 265 and east of I-65)
- Land north of S.R. 265 between S.R. 62 and Charlestown Pike
- Land lying between Hamburg Pike and U.S. 31

The plan identifies Business Park Industry land use areas such as the River Ridge Commerce Center, North Port Industrial Park, and America’s Place industrial area as sites that could develop as light industrial, flex-space (office and warehouse), or as a campus with different businesses within the same industry or several buildings serving one business.

With regard to public parks, the Comprehensive Plan includes a recommendation to “locate, acquire and develop at least 700+ acres of land for a multi-purpose park in the north to northeast section of the community.”

Planning Districts along the proposed S.R. 265 corridor include primarily two types: Suburban Neighborhood and Regional Marketplace Center (located around the proposed interchange with Salem Road). Suburban Workplace Districts are located immediately north (River Ridge Commerce Center) and south (Port of Indiana-Jeffersonville) of the proposed S.R. 265 corridor.

Jeffersonville recognizes that one of the major features of its Land Use Plan is the proposed designated approaches for the downtown and eastern bridges, as part of the Ohio River Bridges Project. As a result, the LSIORB Project is included as one of their Planned Transportation

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6 In late 2005, Indiana launched a 10-year, $10 billion transportation plan, known as “Major Moves,” to improve and expand Indiana’s highway infrastructure. A total of $2.6 billion was committed to Major Moves from the long-term lease of the Indiana Toll Road and the plan called for 104 new roadways by 2015. (Source: www.in.gov/indot/2407.htm)
Projects. They also recognize that the construction of the S.R. 265 portion of the Ohio River Bridges Project will enhance the potential for development of regional shopping complexes in the vicinity of the S.R. 265/ S.R. 62 interchange.

Jefferson County, Kentucky

Since the 2003 FEIS, there have been no updates/changes to the Louisville and Jefferson County Cornerstone 2020 Comprehensive Plan. As a result, there are no changes to the information presented in the 2003 FEIS on page 2-20.

2.2.3 Traffic Congestion

This section of the 2003 FEIS described existing peak period congestion in the Kennedy Bridge-Interchange area, and predicted future problems in the area due to the lack of viable alternative river crossing options for much of the Kennedy Bridge traffic—particularly truck traffic. For more detailed information, see pages 2-22 through 2-27 of the 2003 FEIS. The section remains unchanged from the 2003 FEIS with the following substantive exceptions: This SFEIS, based on the most recent data, revises the peak-hour periods; revises the projected increase in congestion on the Sherman Minton Bridge; updates the discussion of truck traffic through the LMPA on I-64 and I-65 and using the Kennedy Bridge; and identifies existing (2010) and projected (2030) levels of service on roadway segments within the Kennedy Interchange including the Kennedy Bridge and its approaches. In the process of updating the data since the 2003 FEIS, this SFEIS replaces Figure 2.2-5, Truck/Bus Traffic on I-65 Southbound, with Table 2.2-4, Truck Percentage (2010) on the Kennedy Bridge by Time Period; updates data in Figure 2.2-6 (SFEIS Figure 2.2-5), External Truck Travel with Potential Eastern Ohio River Bridge Diversion Potential; updates data in Table 2.2-3 (SFEIS Table 2.2-5), Kennedy Interchange Area Weekday Operations; and updates Figure 2.2-9 (SFEIS Figure 2.2-7), 2010 and 2030 A.M./P.M. Levels of Service, Kennedy Interchange.

As cross-river travel demand has continued to increase along with population and employment growth, traffic congestion problems have become particularly acute in the Kennedy Bridge and Kennedy Interchange area and on its interstate freeway approaches in downtown Louisville, Kentucky and Jeffersonville and Clarksville, Indiana. Peak period (i.e. “rush hour”) congestion occurs nearly every weekday, with traffic congestion on the Kennedy Bridge spilling over to the Kennedy Interchange and vice versa. The peak hours within the peak periods are defined as 7:00 AM to 8:00 AM and 4:00 PM to 5:00 PM. These hours were used for all peak-hour level of service and microsimulation analyses. (In the 2003 FEIS peak periods were defined as 7:30 to 8:30 AM and 4:45 to 5:45 PM.) The change is due to the results of recent (2010) traffic data collection on the interstate network in the project area. Traffic congestion on those freeway facilities also extends to their adjacent interstate approaches on I-64 and I-71 in Kentucky and on I-65 in both Kentucky and Indiana. In addition to the transportation inefficiencies it causes, congestion also can lead to additional problems, such as increased crash frequencies and increased emissions of air pollutants from vehicles.

The lack of viable alternative river crossing options for much of the Kennedy Bridge traffic aggravates traffic congestion problems, which in turn hinders cross-river mobility for travelers.
throughout much of the LMPA who must use these congested facilities. By 2030, traffic congestion is projected to increase on the Sherman Minton Bridge, with AM peak period demand at 119% of southbound capacity and PM peak period demand at 126% of northbound capacity. Thus, that crossing will provide little, if any, relief to the congestion in the vicinity of the Kennedy Bridge. Moreover, no cross-river connections are provided in the LMPA upstream of the Kennedy Bridge. As noted previously, the demand for cross-river trips between those areas upstream of the Kennedy Bridge is projected to grow at a greater rate than the overall demand for cross-river trips in the LMPA. Thus, all travel between Jefferson County, Kentucky, and Clark County, Indiana, must utilize one of the congested downtown crossings, which will continue to become more congested.

Freight traffic constitutes a substantial portion of the traffic using the existing cross-river transportation system and plays an important role in the interstate shipment of goods in an economy that increasingly relies on “just-in-time” inventory deliveries and the free flow of goods and services throughout the country. I-65, in particular, is a major north-south commercial route, with a substantial amount of freight traffic. Congestion and delays at the current river crossing bottleneck interfere with the free flow of commerce through the area. Freight traffic suffers from the traffic congestion that occurs in the downtown area, resulting in delays and additional costs for commerce passing throughout the LMPA. In addition, freight movement across the Ohio River contributes to existing and projected traffic congestion on the Ohio River crossings in the LMPA.

The importance of freight in cross-river travel is shown in the proportion of trucks among vehicles crossing the Ohio River. Daily vehicle counts conducted in 2010 indicate that trucks comprise 21% of the total vehicles crossing the Ohio River on the Kennedy Bridge (I-65). During an average 24-hour period, over 25,000 trucks crossed the Kennedy Bridge. During the PM peak period, southbound trucks comprise more than 25% of total vehicles (see Table 2.2-4).

| TABLE 2.2-4 |
| TRUCK PERCENTAGE (2010) ON THE KENNEDY BRIDGE BY TIME PERIOD |

<table>
<thead>
<tr>
<th></th>
<th>AM (6AM – 9AM)</th>
<th>Midday (9AM – 3PM)</th>
<th>PM (3PM – 6PM)</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northbound</td>
<td>13.3%</td>
<td>20.8%</td>
<td>16.1%</td>
<td>18.3%</td>
</tr>
<tr>
<td>Southbound</td>
<td>18.1%</td>
<td>24.2%</td>
<td>26.3%</td>
<td>24.1%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16.0%</td>
<td>22.5%</td>
<td>20.0%</td>
<td>21.1%</td>
</tr>
</tbody>
</table>

Source: LSIORB Time-of-Day Travel Demand Model Phase 1 Report (Appendix H.2).

Freight traffic passing through the LMPA (i.e., with no local origin or destination) represents a large portion of total cross-river truck trips and thus both contributes to congestion and suffers from congestion that occurs on the existing bridges, particularly during the peak period. Data from a 2010 external origin-destination survey show that approximately 12% of the truck traffic exiting the LMPA on I-65 northbound originates from the east on I-64 westbound, which is the same as in the 2003 FEIS, and approximately 15% of truck traffic exiting the LMPA on I-64 eastbound originates from the north on I-65 southbound, which is less than what was determined in the 2003 FEIS (i.e., 21%) (see Figure 2.2-5).
FIGURE 2.2-5
EXTERNAL TRUCK TRAVEL
WITH POTENTIAL EASTERN OHIO RIVER BRIDGE DIVERSION POTENTIAL
Based on the distribution of data from that origin-destination study, at least 2,000 trucks per day are traveling through the LMPA from I-64 westbound to I-65 northbound and from I-65 southbound to I-64 eastbound, which are 500 more trucks than what was determined in the 2003 FEIS (i.e., 1,500 trucks). All of those trips currently must use the heavily congested Kennedy Bridge to cross the Ohio River because of the lack of any alternate eastern river crossing route.

In addition to traffic congestion caused simply by high traffic volumes, the complex nature of the Kennedy Interchange causes additional problems (see Figure 2.2-6). For example, traffic backups on a single ramp can spill over and cause congestion throughout the interchange and on its interstate approaches.

Consequently, a detailed analysis of the Kennedy Interchange and its interstate approaches was performed using corridor simulation software (CORSIM). As shown in Table 2.2-5, the CORSIM analysis provided several measures that demonstrate that traffic congestion in the Kennedy Interchange and on its interstate approaches, including the Kennedy Bridge (I-65), will increase between 2010 and 2030. These projections are based on the No-Action Alternative described in Section 2.2.1. Comparatively, the CORSIM analysis in the 2003 FEIS showed larger decreases in speeds and larger increases in delay between the existing (1999) conditions and the 2025 No-Action scenario. One of the reasons for the difference is that the 1999 volumes are slightly lower than the 2010 volumes and the 2025 forecast volumes are higher than the 2030 forecast volumes. This causes there to be less of a difference between the 2010 and 2030 measures of effectiveness. However, the 2030 data also shows a lower throughput as percent of
demand compared to the 2003 FEIS, which indicates an increase in the projected level of congestion. For more information, see Appendix H.5, Technical Memorandum: Microsimulation.

TABLE 2.2-5
KENNEDY INTERCHANGE AREA WEEKDAY OPERATIONS (CORSIM)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Measure</th>
<th>2010</th>
<th>2030 No-Action</th>
<th>2025 No-Action (2003 FEIS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Peak-Hour Speed:</td>
<td>AM Peak Hour</td>
<td>40 mph</td>
<td>38 mph</td>
<td>17 mph</td>
</tr>
<tr>
<td></td>
<td>PM Peak Hour</td>
<td>30 mph</td>
<td>23 mph</td>
<td>16 mph</td>
</tr>
<tr>
<td>Total Vehicle Hours of Delay:</td>
<td>AM Peak Hour</td>
<td>313</td>
<td>406</td>
<td>1,581</td>
</tr>
<tr>
<td></td>
<td>PM Peak Hour</td>
<td>664</td>
<td>1,115</td>
<td>1,841</td>
</tr>
<tr>
<td>Throughput as Percent of Demand*:</td>
<td>AM Peak Hour</td>
<td>93%</td>
<td>84%</td>
<td>84%</td>
</tr>
<tr>
<td></td>
<td>PM Peak Hour</td>
<td>91%</td>
<td>80%</td>
<td>91%</td>
</tr>
</tbody>
</table>

*Throughput is the amount of traffic passing through a roadway system. If throughput is less than 100% of demand, traffic backups and diversions result. The lower the throughput, as a percent of demand, the worse the congestion and diversion.

Source: CORSIM output

Another measure of traffic congestion is known as the “level of service,” or LOS. LOS identifies the degree of congestion on a particular roadway segment for the peak hour. LOS ranges from A to F, with LOS A indicating the least congestion and best traffic flow, and LOS F indicating the most congestion and worst traffic flow. The design book, *A Policy on Geometric Design of Highways and Streets*, published by the American Association of State Highway and Transportation Officials (AASHTO), states:

>*For acceptable degrees of congestion, freeways and their auxiliary facilities, i.e., ramps, main line weaving sections and [collector-distributor] roads in urban and developing areas, should generally be designed for LOS C. In heavily developed sections of metropolitan areas, conditions may necessitate the use of LOS D.*

INDOT’s Design Manual generally calls for providing at least LOS C on all newly-constructed or reconstructed roads, with LOS B desirable. As an exception to this general rule, a minimum LOS D may be used for urban freeway reconstruction projects. Highway Capacity Manual analyses were used to determine the LOS. See Appendix H.6 for more details of these analyses. In 2010, seven of the roadway segments of the Kennedy Interchange, which includes the interstate approaches and the Kennedy Bridge, were functioning at LOS E or F (see Figure 2.2-7).

Peak-hour throughput is a measure used by traffic engineers to indicate the productivity of the roadway system. It is based on a microsimulation traffic model, and determines the number of vehicles (or people) able to enter or exit the system during the analysis period. Overall, it is represented as the percentage of demand that goes through the system. Throughput as a percent of demand is calculated by summing the total number of vehicles blocked behind entry nodes during the peak hour (as reported by CORSIM) and subtracting it from the total demand of vehicles coded to enter the system. This yields the total number of vehicles that were able to enter the system. This number was then divided by the sum of all entry demands (vehicles) during the peak hour to yield throughput as a percent of demand.

7) Level of service is especially poor on roadway segments where traffic flows cross each other (known as “weaving movements”). One example is the weaving section where traffic from southbound I-71 and westbound I-64 must merge together. This area currently operates at a LOS F in the AM peak hour. By the year 2030, the number of interchange segments functioning at LOS E or F is projected to more than double—from 7 to 18. For comparison, the 2003 FEIS had very similar results with 18 of these same segments projected to operate at LOS E or F by 2025 (see 2003 FEIS page 2-30, Figure 2.2-9).

![Diagram of Kennedy Interchange](image)

Source: Level of Service results from Highway Capacity Analyses

### 2.2.4 Traffic Safety

The crash analysis for this section of the 2003 FEIS was updated to reflect the most recent crash data, which is for the years 2005 through 2009. The crash analysis was focused on the Kennedy Interchange Corridors, and included the following interstate sections:

- I-65 from Broadway north to the Indiana terminus of the Kennedy Bridge
- I-64 from Cochran Hill Tunnel west to 9th Street
- I-71 from Zorn Avenue south to I-64

For comparison, a crash analysis was also conducted for the following similar adjacent interstate sections, referred to as Adjacent Corridors:

- I-65 from the Indiana terminus of the Kennedy Bridge north to the I-265 interchange
- I-64 from 9th Street in Louisville west to I-265 in Indiana
- I-265 in Indiana from I-64 east to I-65
Crash rates were calculated for these corridors based on the number of crashes per 100 million vehicle-miles (100 MVM). The crash analysis for the Kennedy Interchange corridors found that the total crash rate (230.8 per 100 MVM) was 138% higher than the statewide average rate of 97 crashes per 100 MVM for similar roadway classifications (see Table 2.2-6). When comparing the fatal and injury crash rates, the Kennedy Interchange Corridor crash rates were 23% and 113% higher than the statewide averages (0.49 vs. 0.40; and 40.4 vs. 19.0 crashes per 100 MVM, respectively).

**TABLE 2.2-6**
**CRASH RATES (2005 – 2009)**

<table>
<thead>
<tr>
<th></th>
<th>Kennedy Interchange Corridors (Per 100 MVM)</th>
<th>Percent Increase from Average Statewide Rates</th>
<th>Adjacent Corridors (Per 100 MVM)</th>
<th>Percent Increase from Adjacent Corridors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury</td>
<td>40.4</td>
<td>113%</td>
<td>21.9</td>
<td>85%</td>
</tr>
<tr>
<td>Fatal</td>
<td>0.49</td>
<td>23%</td>
<td>0.16</td>
<td>206%</td>
</tr>
<tr>
<td>Total</td>
<td>230.8</td>
<td>138%</td>
<td>116.4</td>
<td>98%</td>
</tr>
</tbody>
</table>

*Source: Kennedy Interchange Crash Study (November 2010)*

When compared to the total crash rate (116.4 per 100 MVM), fatal crash rate (0.16 per 100 MVM), and injury crash rate (21.9 per 100 MVM) for the Adjacent Corridors, the Kennedy Interchange Corridors rates were 98%, 206%, and 85% higher, respectively. For more detailed information regarding the crash analysis, the technical report titled *Kennedy Interchange Crash Study* (November 2010) is available for review upon request and on the project website at [www.kyinbridges.com](http://www.kyinbridges.com).

The design deficiencies of the Kennedy Bridge and Interchange that were described in the 2003 FEIS remain unchanged. For more information, see pages 2-27 through 2-28 of the 2003 FEIS.

### 2.2.5 Inadequate Cross-River System Linkage

This section of the 2003 FEIS discussed the transportation limitations associated with the existing cross-river roadway system within the LMPA and the lack of cross-river access in the eastern portion of the LMPA. There are no revisions to the information presented in this section since the 2003 FEIS. For more detailed information, see pages 2-30 through 2-32 of the 2003 FEIS. During the preparation of the SDEIS, on September 9, 2010, the Sherman Minton Bridge (I-64) was closed due to cracks in the bridge structure. Reconstruction of the bridge has been completed and the bridge was open to traffic on February 18, 2012.

### 2.2.6 Consistency with Locally Adopted Transportation Plans

Louisville MPO Transportation Policy Committee adopted an amendment to *Horizon 2030 Metropolitan Transportation Plan* on October 7, 2010, which was amended to reflect the Modified Selected Alternative. The plan also includes the Selected Two Bridges/Highway Alternative identified in the 2003 FEIS and ROD and the need for tolls as an alternative funding source. There are no other changes to this section from the 2003 FEIS. For more detailed information, see pages 2-32 and 2-33 of the 2003 FEIS.
2.3 Performance Measures

This section of the 2003 FEIS presented the performance measures that were used to determine if the project alternatives met the project’s identified needs. These performance measures have not changed from the 2003 FEIS except for the addition of peak-period percent capacity as a measure of traffic congestion and the removal of VMT and VHT as measures for cross-river mobility. Period volumes are now available because a time-of-day model has been developed for this phase of the project. With regard to VMT and VHT, 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. 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 it allows for faster travel, which in turn may result in an increase in the number and length of trips. Although VMT and VHT are not being used as performance measures to determine if the alternatives meet the project’s purpose and need, they are being used in this SFEIS to compare the alternatives’ traffic impacts. For more detailed information, see page 2-33 through 2-36 of the 2003 FEIS.

2.4 Conclusion

Based on the updated information herein, this review of the purpose and need completed in this SFEIS resulted in the same conclusion presented in the 2003 FEIS, which states:

Careful evaluation of the community’s transportation needs has demonstrated a need for improvement in cross-river mobility between Jefferson County, Kentucky and Clark County, Indiana. Growth in the Downtown and Eastern areas of both Jefferson and Clark Counties has increased pressure on the existing cross-river transportation system, resulting in increased travel times and distances for cross-river travelers. Projections of growth through the year [2030]\(^9\) indicate that without any improvement in cross-river mobility, the resulting economic and system inefficiencies will continue to worsen. Congestion in the Kennedy Bridge/Interchange complex is already serious and is forecast to worsen without any improvements. Safety problems associated with the tight roadway geometry and narrow shoulders in the Kennedy Bridge/Interchange complex also hinder cross-river mobility and contribute further to the serious congestion problem in the Downtown area. Moreover, the lack of any river crossing upstream of the Kennedy Bridge in the LMA will continue to force cross-river trips with eastern orientations to incur the additional travel distance and times necessary to utilize the Kennedy Bridge. This lack of cross-river system linkage impairs the efficiency of the transportation system. Those additional cross-river trips downtown will also contribute to the worsening congestion on the existing crossings. Likewise, congestion, construction and incidents on the existing crossings, especially the Kennedy Bridge, will continue to adversely affect the entire transportation system and important governmental functions because of the lack of alternate river crossings. (2003 FEIS p. 2-36)

\(^9\) The projected year has changed from 2025 for the 2003 FEIS to 2030 for this SFEIS.