

I-65 RAMP MODIFICATIONS SCOPING STUDY

December 2008

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Section 1.0

EXECUTIVE SUMMARY

Executive Summary

Scoping Study I-65 Ramp Modifications Item No. 5-8102.00

Background / Existing Conditions

In June, 1999, the Downtown Development Corporation adopted the *South Central Louisville Development Coordination Study*. The focus of that study was directed toward the major venues located within the limits of the project area and their relationships to one another and to downtown Louisville. One of the study's recommendation categories was Specific Physical Improvements which recommended a series of modifications to access points along I-65 including ramp closures and revisions in the vicinity of the University of Louisville. The current scoping study evaluated these recommendations as well as other alternatives to improve traffic operations associated with ramps on I-65 and the adjoining street systems.

Ramps in this area were constructed in the late 1950's and early 1960's using design criteria that are now considered outdated. This section of I-65 has an average daily traffic (ADT) as high as 158,000 vehicles per day. Congestion and crashes are daily occurrences. Between January 1, 2002 and April 30, 2004 there were 1,137 crashes along the scoping study section of I-65.

Major venues in this vicinity include the University of Louisville, the Kentucky Fair and Exposition Center, Six Flags/Kentucky Kingdom Amusement Park, Papa John's Cardinal Stadium and Churchill Downs. Also, just south of the study area are the Louisville International Airport and the United Parcel Service Worldport and Global Operations Center.

Project Purpose

The purpose of the scoping study was to establish ways to:

Improve traffic flow, safety and access associated with ramps along I-65 from Crittenden Drive to St. Catherine Street.

A map of the study area is shown in Figure ES 1. The need for the project is demonstrated by:

- Poor traffic flow
- Too many ramps, too close together
- Insufficient acceleration, deceleration, merging and weaving distances
- Safety problems, high incidence of crashes
- Inefficient and confusing access to and from I-65 and to and from major venues



FIGURE ES1 - STUDY AREA

Control of access on the interstate and other freeway systems is considered critical to providing the highest quality of service in terms of safety and mobility. New or revised access point requests require the preparation and processing of an Access Point Request Document. Generally, a new access requires an Interchange Justification Study (IJS), and a revised access requires an Interchange Modification Study (IMS). These studies are needed on Interstate and other freeway systems in accordance with Federal Code 23 U.S.C. 111 and FHWA Policy - Additional Interchanges to the Interstate System (Federal Register: February 11, 1998, Volume 63, Number 28).

Scoping Study Methodology

The scoping study included considerable public involvement. As a part of the initial phase of public involvement, Key Person Interviews were conducted with representatives of various organizations who are familiar with traffic operations within the study area. Information obtained from the interviews was used to help refine purpose and need and project goals; it was also used in conjunction with crash data to identify and confirm problematic locations and project issues and concerns. A Project Advisory Committee was also formed and included many of the people involved with the Key Person Interviews, along with other interested parties from the community.

Project goals were determined to be:

- Organize and simplify traffic flow associated with ramps, improving operational efficiency.
- Improve access to and from I-65 in this area.
- Improve access to and from major venues.
- Respect current and planned local street traffic flow patterns and neighborhood character.
- Coordinate with area master plans.
- Improve geometrics.
- Improve signing.
- Reduce crashes.
- Develop phasing and scheduling compatible with funding.

From the interviews, the ten most frequently mentioned problem locations were determined and are shown below.

- Warnock area at northbound I-65 ramps & Sav-A Step
- Second southbound exit to Arthur Street
- Eastern Parkway northbound exit, then quick left to northbound Crittenden Drive
- Ramp to northbound I-65 from Preston, and weave on I-65 at Jackson Street
- First southbound exit to Arthur Street, at Gaulbert Avenue
- Short weave southbound between Eastern Parkway and Crittenden Drive
- On-ramp to I-65 southbound from Arthur Street near Lee Street
- Lack of access to Crittenden Drive from northbound I-65
- Weave between Magnolia/Preston on-ramp to southbound and exit to Arthur Street
- Brandeis Avenue at Arthur Street

Using the most frequently mentioned problems, combined with mapping, crash data, site observations and geometric review, alternatives development began. Subsequent alternatives were developed using comments and suggestions from the Project Advisory Committee (PAC). Five alternatives, including the No-Build Alternative, were ultimately evaluated. The four build alternatives considered varying extents of ramp closures, relocations and improvements, as well as some associated local street improvements. Alternatives were studied and evaluated based on geometric design, environmental considerations, traffic operations, constructability, costs, Federal Highway Administration policy requirements and public input. Public Meetings were held with the Old Louisville Neighborhood Council, St. Joseph's Area Association and the Preston Area Business Association. A DVD was developed showing computer-simulated renderings of possible improvements, and shared with the PAC and at neighborhood meetings. Individual meetings were conducted with owners or managers of businesses along Arthur Street.

Crash Information

Crash information was collected from Kentucky State Police Crash Data. Crash locations were plotted on project mapping. There was correlation between crash locations and previously identified problem locations. The critical crash rate in Kentucky for roadways having a similar functional classification as the study section was 104 crashes per 100 million vehicle-miles. The actual crash rate for the study area was 545.4 crashes per 100 million vehicle-miles, over five times higher than the critical crash-rate. The Critical Rate Factor (CRF) is 5.2. Rear-end collisions were the most frequently occurring type of crash. Crash data for a 2-year, 4-month period is shown in Table ES 1.

CRASH DATA			
January 1, 2002 to April 30, 2004			
ITEM	INTERSTATE & RAMPS	FEEDER STREETS	TOTAL
REAR END	363	241	604
SIDESWIPES	134	96	230
OTHERS	166	137	303
CRASH TOTAL			1,137
CRASH RELATED DATA			
FATALITIES	3	1	4
INJURIES	166	145	311
VEHICLES INVOLVED	1,362	982	2,344

TABLE ES1

Alternatives Considered

No-Build Alternative – The No-Build Alternative does not meet the basic purpose and need for the project. It does not address traffic flow, safety and inefficient access to and from I-65 and to and from major venues; nor does it correct or improve geometric deficiencies or do anything to improve merging and weaving conditions made difficult by close spacing of entrance and exit ramps. Traffic on I-65 will continue to increase and problems associated with the No-Build Alternative will get worse.

Alternative 1 – The main components of this alternative include new ramps from northbound I-65 and to southbound I-65 that connect to the Central Avenue Extension. Acceleration/merge distance would be increased for the Crittenden Drive ramp to northbound I-65. Some entrance and exit ramps would be removed at Eastern Parkway and replaced with new ramps; the short weave between the Eastern Parkway on-ramp to southbound I-65 and the off-ramp to Crittenden Drive would be corrected by closing the on-ramp and replacing it with a ramp from Eastern Parkway to southbound I-65 that ties in south of Crittenden Drive. Improvements are included at Warnock Street and on Arthur Street. The short ramp from Preston Highway to northbound I-65 is replaced with a new ramp eliminating the short weave at the Jackson Street exit. Ramp closings include the ramp from northbound I-65 to Woodbine and the ramp from southbound I-65 to Arthur Street at Gaulbert Avenue, as well as the on-ramp to I-65 southbound near Lee Street. Alternative 1 is shown in Figure ES 2.

Note: In figures showing the four build alternatives, ramp closures are shown in blue and proposed improvements are shown in red.

Alternative 2 – This alternative is similar to Alternative 1 with the following key exceptions: There is no new access provided from or to the Central Avenue Extension. There is no new ramp from Eastern Parkway to southbound I-65. Hahn Street is relocated to intersect Eastern Parkway opposite Arthur Street. Alternative 2 is shown in Figure ES 3.

Alternative 3 – This alternative is the same as Alternative 2 except the new ramp from Eastern Parkway to southbound I-65 is included, and the relocation of the Hahn Street intersection is not included. Alternative 3 is shown in Figure ES 4.

Alternative 4 – This alternative is similar to Alternative 1 with the following key exceptions: An additional ramp is included from the Central Avenue Extension to northbound I-65, allowing for the removal of the existing on-ramp from Crittenden Drive to northbound I-65. At the north end of the project, the ramp from southbound I-65 to Arthur Street at Gaulbert Avenue remains open while the ramps to southbound I-65 from Preston Street and Magnolia Avenue (at Floyd Street) are closed. Local access is provided to Jackson Street from the Preston Street on-ramp

to I-65 northbound. Alternative 4 is shown in Figure ES 5. Pictures of existing locations are shown in Figures ES6 - ES9. Computer simulated renderings of possible improvements are shown in Figures ES 6A – ES 9A.

Limited Environmental Overview

The Kentucky Transportation Cabinet (KYTC) provided an Environmental Overview Resources map for the study area. This map includes various potential environmental concerns such as parks, hazmat sites, Superfund sites, Olmsted Parkways, Preservation Districts, churches, cemeteries, etc. Additional potential environmental issues will need to be addressed in detail during Phase I design and preparation of the environmental document for this project. These include potential impacts to residential, commercial and industrial properties as well as businesses.

Traffic Analysis

The Kentucky Transportation Cabinet contracted with its state-wide traffic forecasting consultant, *Jordan, Jones and Goulding*, to do traffic analyses for the project. Traffic analyses were made for existing conditions and each of the proposed alternatives. CORSIM models of the study area were used for the analyses.

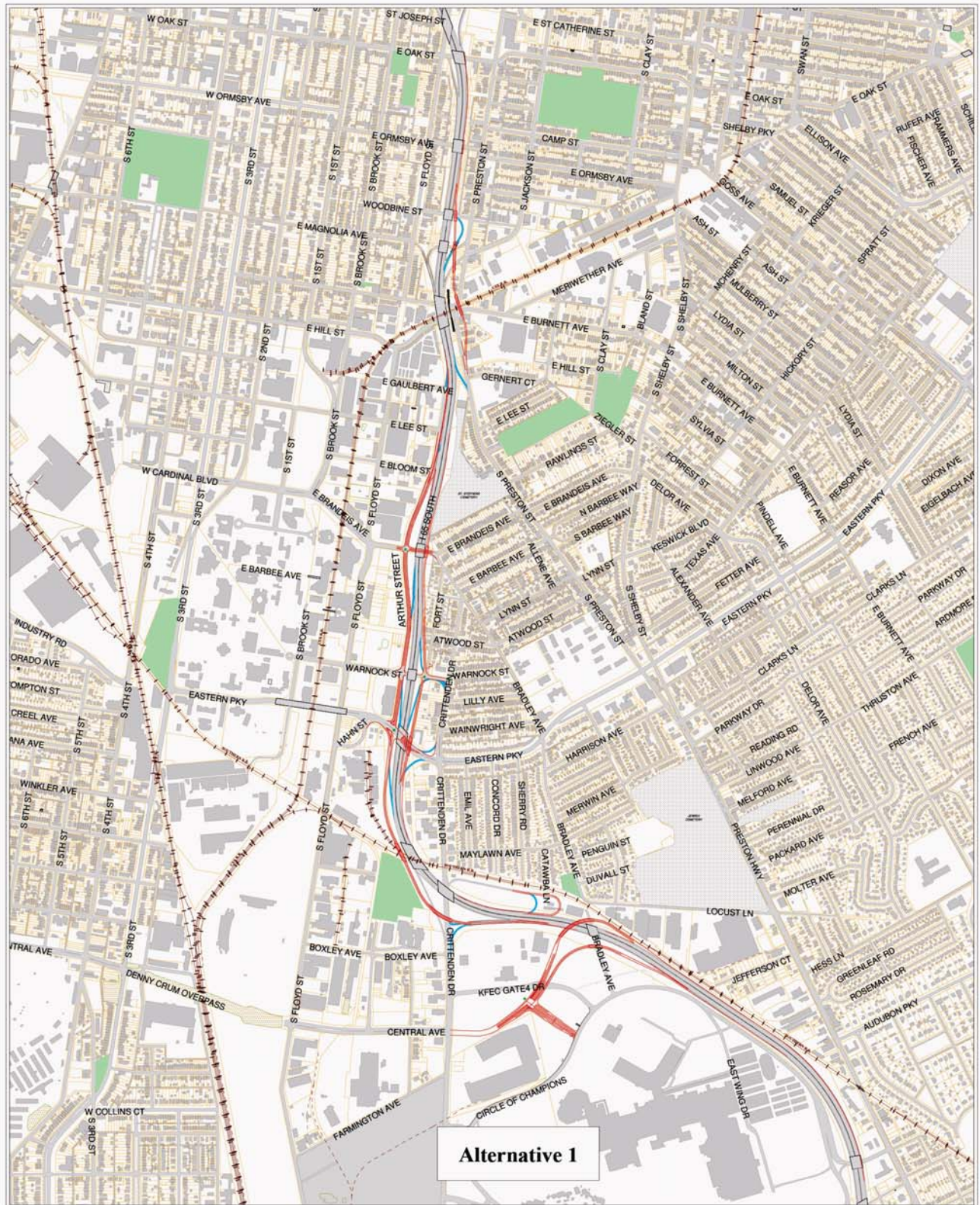
The 2015 alternative simulation models combined traffic projected for the year 2015 with each respective alternative. Written summaries of observations along with tables showing level of service and delay for key intersections within the project limits were provided.

According to *Jordan, Jones and Goulding*, improvements to traffic conditions could be expected with all the alternatives and all the proposed improvements would work. Alternates 1 and 4 provided the best results of all the alternatives with Alternate 4 working better at the intersection of Crittenden Drive and Central Avenue.

Recommendations

Ultimately, alternatives were refined and updated and brought back to the Project Advisory Committee for a final meeting. At this meeting, the decision was made to eliminate Alternatives 2 and 3. Alternatives 1 and 4 provide for better overall traffic improvements and better access to and from I-65 and major venues. The final recommendations were:

- Alternatives 1 and 4, or components of each with some variations, should be carried forward to Phase I Design for additional consideration.
- The project should ultimately be split into specific phases that would facilitate maintenance of traffic and enhance and stage funding possibilities. These phases and their associated estimates of possible costs are shown in Table ES2.



Alternative 1

<p style="font-size: 8px;">LOIC LOCAL OFFICIALS INTERAGENCY COORDINATION INITIATIVE</p>	<ul style="list-style-type: none"> ■ Ramps to be Closed and Reconstructed Intersections ≡ Proposed Improvements ⊗ Proposed Signalized Intersections 	<p>I-65 JEFFERSON COUNTY</p> <div style="display: flex; justify-content: center; gap: 10px;"> </div>	<p>NOT TO SCALE</p> <p style="font-size: 6px;">p:\25522\g\alt_smlt.apr June 2016</p>
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FIGURE ES2 - ALTERNATIVE 1

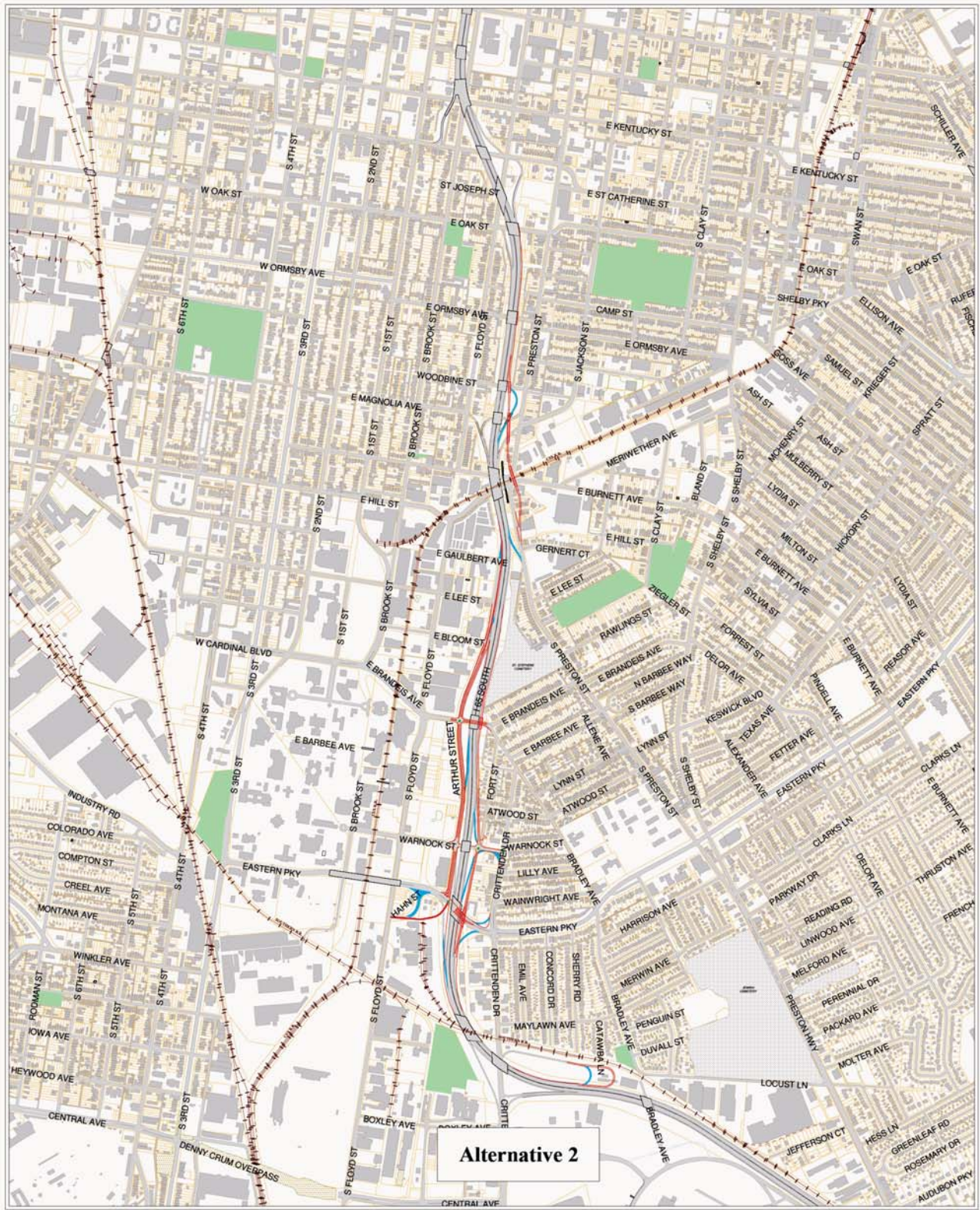
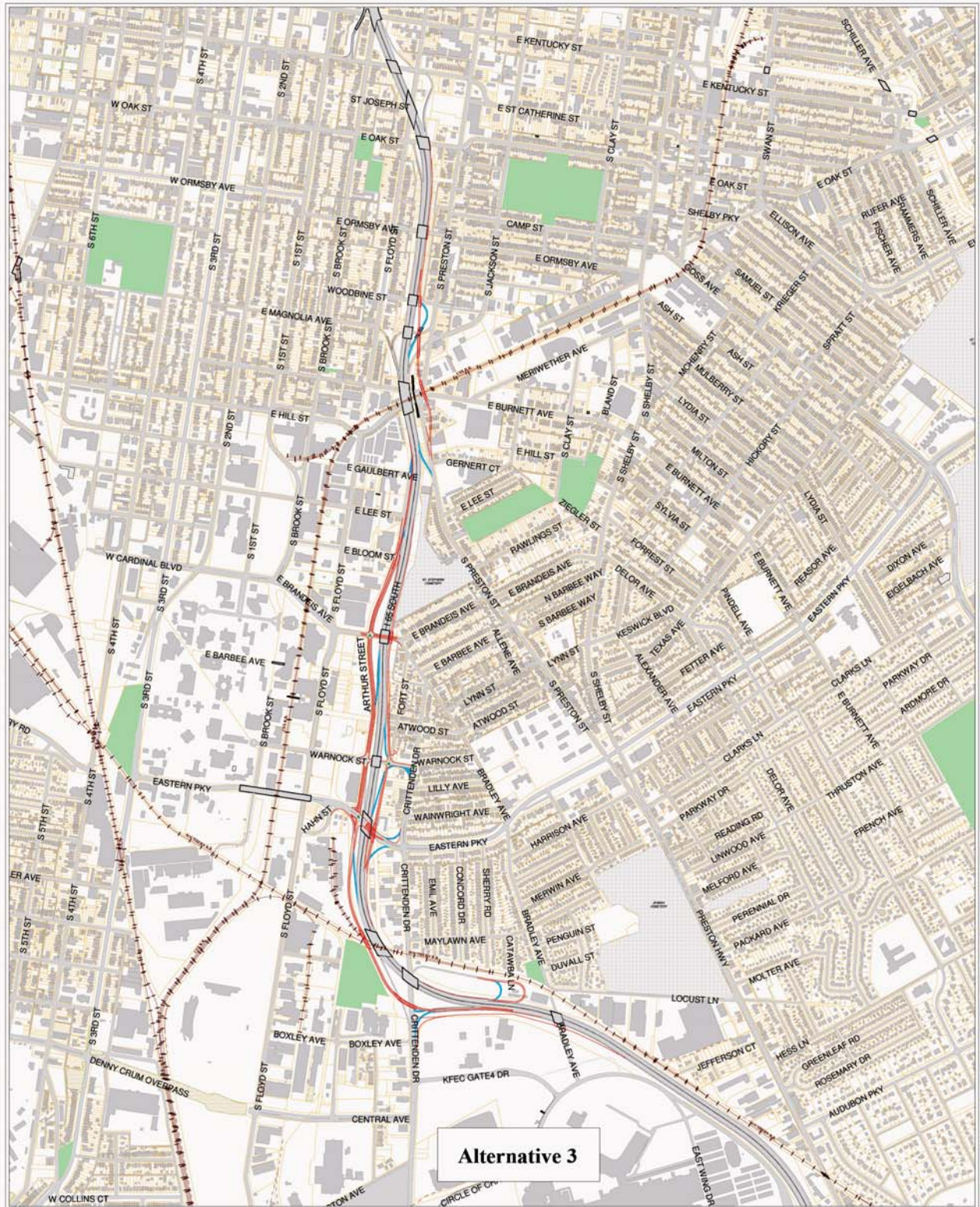


FIGURE ES3 - ALTERNATIVE 2



	<ul style="list-style-type: none"> Ramps to be Closed and Reconstructed Intersections Proposed Improvements Proposed Signalized Intersections 	I-65 JEFFERSON COUNTY				NOT TO SCALE
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FIGURE ES4 - ALTERNATIVE 3



 <p>LOIC Louisiana Office of Infrastructure Construction</p>	<ul style="list-style-type: none">  Ramps to be Closed and Reconstructed Intersections  Proposed Improvements  Proposed Signalized Intersections 	<p>I-65 JEFFERSON COUNTY</p>  	 <p>NOT TO SCALE</p> <p style="font-size: small;">p:\2522\gsk_sml\4r June 2006</p>
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FIGURE ES5 - ALTERNATIVE 4



FIGURE ES6 – EXISTING I-65 AT KENTUCKY FAIR AND EXPOSITION CENTER AND CENTRAL AVENUE EXTENSION



FIGURE ES6A – SIMULATION SHOWING POSSIBLE NEW ACCESS FROM/TO I-65 AT CENTRAL AVENUE EXTENSION



FIGURE ES7 – EXISTING I-65 AT CRITTENDEN DRIVE



FIGURE ES7A – SIMULATION SHOWING POSSIBLE NEW RAMP FROM EASTERN PARKWAY TO SOUTHBOUND I-65



FIGURE ES8 – EXISTING I-65 AT PRESTON, JACKSON AND WOODBINE STREETS



FIGURE ES8A – SIMULATION SHOWING POSSIBLE NEW RAMP FROM PRESTON STREET TO NORTHBOUND I-65 AT JACKSON STREET



FIGURE ES9 – EXISTING I-65 AT WARNOCK STREET



FIGURE ES9A – SIMULATION SHOWING POSSIBLE NEW EXIT RAMP FROM NORTHBOUND I-65 TO WARNOCK STREET

PRELIMINARY ESTIMATES OF PROBABLE COSTS

PRIORITY	ALTERNATE NO. 1	ITEM 1 RDWAY	ITEM 2 R/W	ITEM 3 UTILITIES	ITEM 4 ENGR.	TOTAL
1	I-65 Connector to Crittenden Dr./Central Ave.	13,900,000	686,000	115,000	1,470,100	16,171,100
2	Arthur Street Southbound I-65	13,555,000	203,000	245,000	1,400,300	15,403,300
3	Crittenden Drive Ramp to Northbound I-65	1,270,000	155,000	65,000	149,000	1,639,000
4	I-65 Northbound Ramp to Warnock Street	4,800,000	1,740,000	165,000	670,500	7,375,500
5	Preston Street Ramp to Northbound I-65	9,850,000	3,000,000	980,000	1,383,000	15,213,000
6	Warnock Street Ramp to Northbound I-65	3,190,000	1,800,000	175,000	516,500	5,681,500
	TOTALS	46,565,000	7,584,000	1,745,000	5,589,400	61,483,400
	ALTERNATE NO. 4					
1	I-65 Connector to Crittenden Dr./Central Ave.	17,250,000	1,082,000	162,000	1,849,400	20,343,400
2	Arthur Street to Southbound I-65	13,555,000	204,000	215,000	1,397,400	15,371,400
3	I-65 Northbound Ramp to Warnock Street	4,800,000	1,740,000	165,000	670,500	7,375,500
4	Preston Street Ramp to Northbound I-65	13,225,000	3,650,000	1,200,000	1,807,500	19,882,500
5	Warnock Street Ramp to Northbound I-65	3,190,000	1,800,000	175,000	516,500	5,681,500
	TOTALS	52,020,000	8,476,000	1,917,000	6,241,300	68,654,300

Notes: (A) Priority 1 does not include cost for reconstruction of KFEC entrance or toll booths.

(B) Signing and lighting are included in Item 1.

(C) Item 4 (Engineering) is estimated as 10% of Item 1 through 3.

(D) Date of estimates is August 2005

TABLE ES2