# I-265 Programming Study

## JEFFERSON COUNTY, KENTUCKY

JANUARY 2015

Prepared for:

KENTUCKY TRANSPORTATION CABINET

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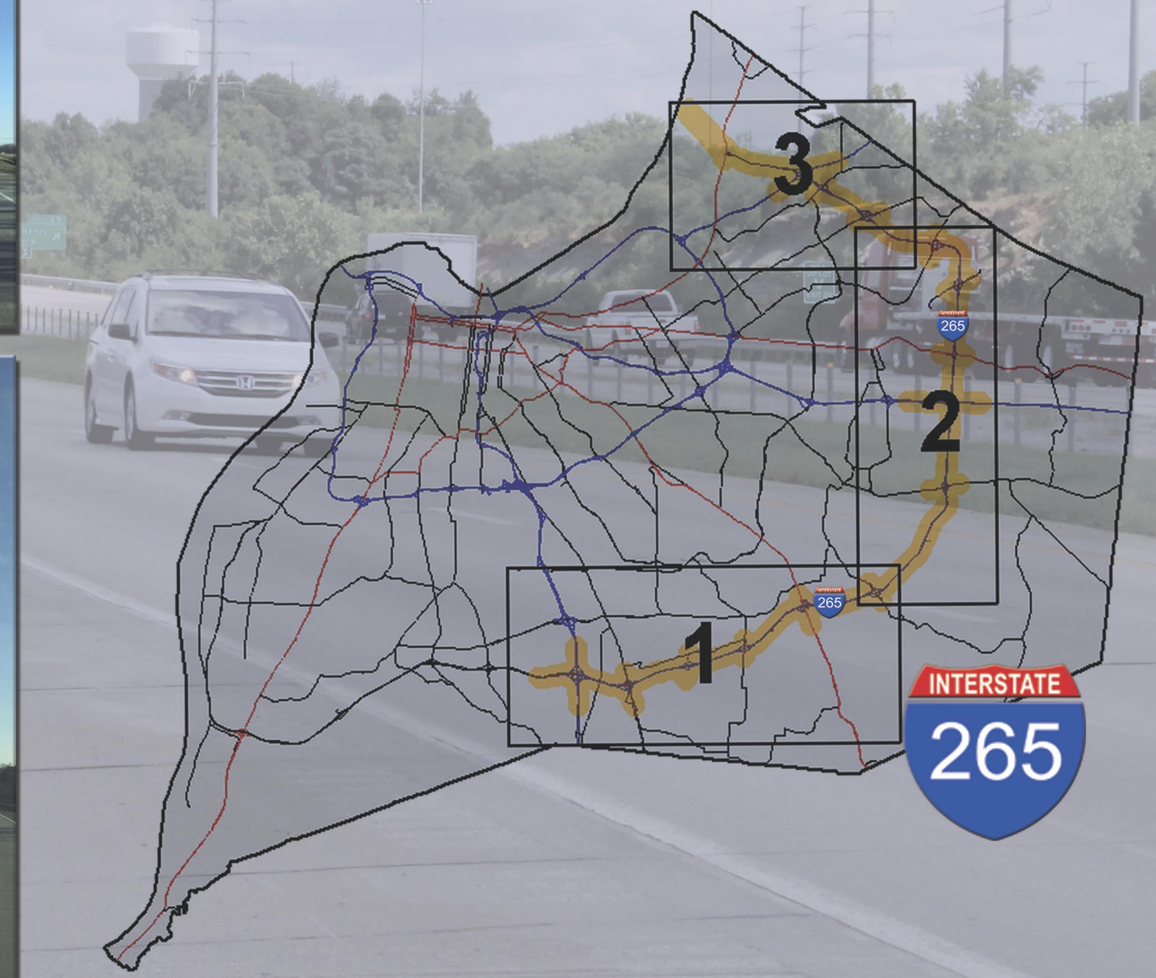
# FINAL REPORT

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## ACRONYMS

| | |
|---|---|
| AASHTO | American Association of State Highway Transportation Officials |
| ADT | Average Daily Traffic |
| APE | Area of Potential Effect |
| CCRF | Critical Crash Rate Factor |
| CCTV | Closed-Caption Television |
| C-D | Collector-Distributor |
| DHV | Design Hourly Volume |
| DMS | Dynamic Message Sign |
| EMM | Enhanced Mile Markers |
| FREEVAL | Freeway Evaluation |
| HAR XMTR | Highway Advisory Radio |
| HCM | Highway Capacity Manual |
| HCS | Highway Capacity Software |
| HIS | Highway Information System |
| KIPDA | Kentuckiana Regional Planning and Development Agency |
| KTC | Kentucky Transportation Center |
| KYTC | Kentucky Transportation Cabinet |
| LOS | Level of Service |
| LO/S | Local Officials / Stakeholders |
| LRTP | Long Range Transportation Plan |
| MPO | Metropolitan Planning Organization |
| MSAT | Mobile Source Air Toxics |
| MTP | Metropolitan Transportation Plan |
| NAC | Noise Abatement Criteria |
| NRHP | National Register of Historic Places |
| PDT | Project Development Team |
| PIF | Project Identification Form |
| STIP | Statewide Transportation Improvement Program |
| TIP | Transportation Improvement Program |
| UNL | Unscheduled Needs List |
| UST | Underground Storage Tank |
| WBR | Wide Beam Radar |

# 1.0 INTRODUCTION

The Kentucky Transportation Cabinet (KYTC) initiated the I-265 Programming Study in August 2013 to identify and evaluate improvements for I-265 (Gene Snyder Freeway) from I-65 to the new East End Bridge in Louisville, Kentucky. The study focuses on identifying short term improvements that can be quickly and effectively implemented as well as long term solutions by examining the future transportation needs and determining potential options for future improvements.

KYTC contracted with the consulting firm of Parsons Brinckerhoff to perform the study through the Statewide Planning contract. Other members of the Project Development Team (PDT) included: KYTC District 5, KYTC Central Office Division of Planning, and the Kentuckiana Regional Planning and Development Agency (KIPDA), the Louisville region's Metropolitan Planning Organization (MPO).

The KYTC has the ultimate responsibility for constructing and maintaining safe and efficient highways and desires to incorporate public and agency input into the evaluation and decision-making process. Therefore, all five of the study objectives below were incorporated into the study in coordination along with public and agency involvement.

## 1.1 Study Objectives

Based on the initial direction provided by the KYTC, primary study objectives were developed as summarized below:

1. Examine existing traffic, highway, environmental, and safety conditions along the existing roadway;
2. Determine where there are problems or deficiencies;
3. Define project purpose and need;
4. Develop a list of improvements to satisfy the project purpose and need and address the identified problems; and
5. Evaluate and prioritize the list of improvements, considering public input as well as transportation, community, environmental, and economic benefits and impacts.

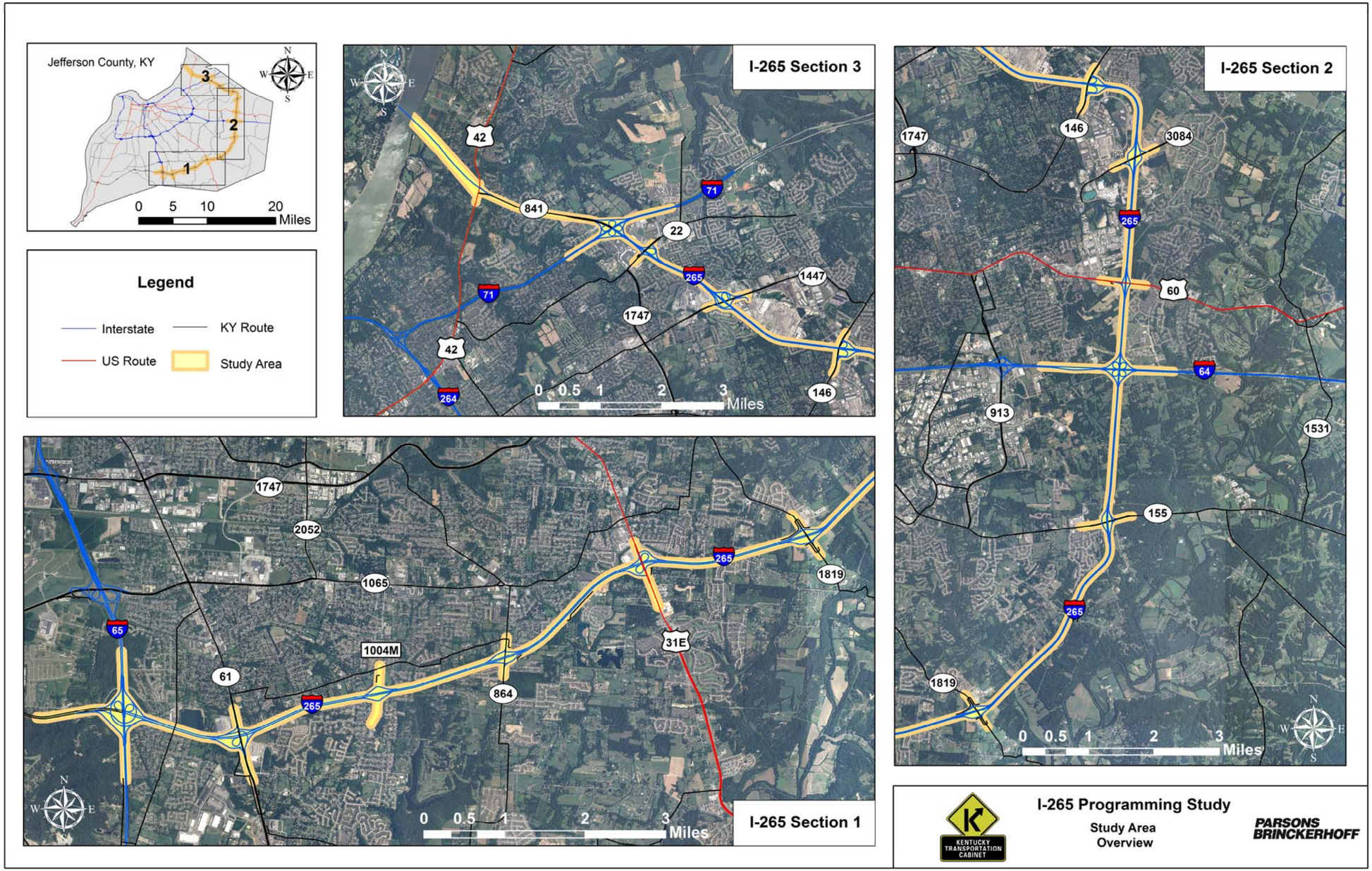
## 1.2 Project Location and Study Area

The study area comprises I-265 from I-65 to the new East End Bridge (currently under construction) in Louisville, Kentucky. All interchanges located along the corridor are included in the evaluation. This includes the following:

- I-65
- KY 61 (Preston Highway)
- CR 1004M (Smyrna Road)
- KY 864 (Beulah Church Road)
- US 31E (Bardstown Road)
- KY 1819 (Billtown Road)
- KY 155 (Taylorsville Road)
- I-64
- US 60 (Shelbyville Road)
- KY 3084 (Old Henry Road)
- KY 146 (LaGrange Road)
- KY 1447 (Westport Road)
- KY 22 (Brownsboro Road)
- I-71
- US 42

The limits along I-265 and the interchanges included existing right-of-way along the mainline of I-265, expanding out to a 250-foot buffer on each side of the mainline centerline. At the interchange locations, the ramp termini intersections are included along with the next adjacent upstream and downstream intersections. Refer to **Figure 1** for more details.

**Figure 1**: **Study Area**



## 2.0 PURPOSE AND NEED

The purpose of the I-265 Programming Study is to evaluate the safety and capacity of the corridor and to identify needed improvements and priorities as a result of the expected increased traffic due to major transportation and development changes in the Louisville Metro area.

As already noted, the study area encompasses both the mainline of I-265 as well as the arterial interchanges along the system. As such, part of the need for this study is driven by not only issues with the operations of the mainline of I-265, but also by traffic operations from intersecting arterials that impact the mainline and vice versa. Study needs include the following:

Safety – Along the mainline of I-265, only one segment was found to have a critical crash rate factor (CCRF) greater than 1.0 – the segment between KY 22 and the I-71 interchange (1.40). However, many arterial segments evaluated on either side of the interchange were found to have a CCRF greater than 1.0. This includes the following:

- KY 61 (Preston Highway) – North and south of I-265 (CCRF = 3.08 and 1.63, respectively)
- KY 864 (Beulah Church Road) – South of I-265 (CCRF = 1.06)
- US 31E (Bardstown Road) – North and south of I-265 (CCRF = 4.16 and 2.24, respectively)
- KY 155 (Taylorsville Road) – East of I-265 (CCRF = 1.15)
- US 60 (Shelbyville Road) – West of I-265 (CCRF = 2.72)
- KY 146 (LaGrange Road) – East and west of I-265 (CCRF = 2.77 and 1.05, respectively)
- KY 1447 (Westport Road) – East and west of I-265 (CCRF = 1.72 and 1.78, respectively)
- KY 22 (Brownsboro Road) – East and west of I-265 (CCRF = 1.74 and 3.34, respectively)

Capacity – An evaluation of volume to capacity (v/c ratio) on the mainline of I-265 shows that of the 31 segments evaluated, 77% in the AM Peak Period and 90% in the PM Peak Period operate over capacity in the future year of 2040.

Congestion – Level of service (LOS) D is typically considered acceptable for traffic operations in an urban area. The level of service analysis shows that 87% of the 31 segments in the AM Peak Period and 100% in the PM Peak Period operate at a LOS E or F in the year 2040.

Access – The public was given the opportunity to rate potential improvement projects for the mainline of I-265 as well as the intersecting arterials and other adjacent interstate facilities. Improvements to the interchanges with I-71 and I-64 were top rated projects. Widening I-265 was also highly rated. Improved access was an overall theme from respondents regardless of which projects they considered to be the most necessary.

Economic Development – Within the vicinity of I-265 (or along the mainline) there are over 40 projects identified through various transportation plans and project identification forms (PIFs) through KYTC and KIPDA. These projects are in various stages of commitment with some having funding (10) in the KYTC 2012 Six-Year Highway Plan. This study provides a means to prioritize these projects along with other identified projects to formulate a plan for investing in transportation projects along I-265.

# 3.0 REVIEW OF PLANNED PROJECTS / EXISTING STUDIES

## 3.1 Planned Projects

The Louisville Metro area is a highly-developed area with numerous on-going transportation initiatives, some in the planning and development phase, and others identified in future planning documents. The identification of all relevant projects and studies provided necessary information related to previous, planned, and on-going work within the area to evaluate the impact of these projects on the future transportation system and identify where additional projects may provide safety and traffic operations improvements along the corridor.

Sources used to identify projects currently in the planning process include the following:

- KYTC 2012 Six-Year Highway Plan
- KYTC Statewide Transportation Improvement Program (STIP) FY 2013 - 2016
- KYTC District 5 Unscheduled Projects List
- Project Identification Forms (PIFs) from KYTC and KIPDA
- KIPDA Metropolitan Transportation Plan (MTP)
- KIPDA Transportation Improvement Plan (TIP)
- KYTC Statewide Long Range Transportation Plan (LRTP)

Some notable projects listed in the KYTC 2012 Six-Year Highway Plan include:

  - Sound Barrier Construction Projects
  - I-64 / I-265 Interchange Reconstruction
  - I-71 / I-265 Interchange Reconstruction
  - I-265 / KY 61 Interchange Improvements
  - US 31E (South of I-265) Improvements
  - Old Henry Road Interchange Improvements
  - TRIMARC Improvements
  - New Roadway (Old Henry Road to KY 22)

The specific details of these projects along with a full listing of projects from other planning documents can be found in **Appendix A**.

Projects already identified in the study area were used as a beginning point for developing a complete list of improvements for this study, including those:

- In the study area and in the KYTC 2012 Six-Year Highway Plan;
- In the study area and included in the above sources beyond those in the KYTC 2012 Six-Year Highway Plan; and,
- From the above sources that were not in the study area, but in the vicinity of I-265 that will affect I-265 traffic, and have a direct impact on the traffic forecasting component of this project performed by KIPDA.

## 3.2 Existing Studies

There are additional planning studies that have been completed that impact this programming study.

One recently completed is the *Alternatives Study for I-71 / I-265* (Final Report August 2010 by URS). The study area includes the I-71 interchange with I-265 as well as the KY 22 interchange with I-265 to the south. The study makes several recommendations that include the following:

- Add an auxiliary lane to I-71 northbound, and then make the ramp to I-265 southbound two lanes, carrying the second lane straight to KY 22 and ending as the second lane of the KY 22 off-ramp.
- Widen I-71 to six lanes and add a 2-lane flyover ramp from I-265 northbound to I-71 southbound.
- Widen both I-71 and I-265 to six lanes, and construct a second flyover ramp from I-265 southbound to I-71 northbound to complement the other flyover ramp.
- Provide a collector-distributor system along I-71 through the I-265 interchange, keeping the cloverleaf and widening I-71 to six lanes.

A second study is the *I-71 Corridor Study*, conducted for KYTC (Final Report March 2014 by QK4). A project update meeting was held in October 2013 with KYTC, Qk4, and Parsons Brinckerhoff, to identify any overlap between the projects. Because other studies have been conducted for the I-71 / I-265 interchange, neither consultant was including this interchange as a primary focal point for improvement in the study area corridor.

Additionally, KIPDA contracted with Parsons Brinckerhoff to conduct the *KIPDA Interchanges Study* that encompassed a portion of the metropolitan region. The study was completed in June 2005, and several interchanges were evaluated that overlap the current study area. They included:

- I-265 / KY 61 (Preston Highway)
- I-265 / US 31E (Bardstown Road)
- I-265 / KY 155 (Taylorsville Road)
- I-265 / KY 3084 (Old Henry Road)
- I-265 / KY 146 (LaGrange Road)

Subsequently, the recommendations for these interchanges (with the exception of Taylorsville Road) were included in the KYTC 2012 Six-Year Highway Plan (FY 2007 – 2012). The improvements recommended for US 31E (Bardstown Road) have been completed. I-265 / KY 61 (Preston Highway) progressed to the construction phase in early 2014, I-265 / KY 3084 (Old Henry Road) is in preliminary design, and I-265 / KY 146 (LaGrange Road) has been constructed.

# 4.0 EXISTING CONDITIONS INVENTORY

Information was compiled for the existing conditions inventory of the study area to provide a baseline of known information. Areas of focus included:

- Identification of Roadway Characteristics
- Existing Traffic Volumes / Level of Service / Capacity
- Crash Analysis
- Bicycle and Pedestrian Facilities

The following sections provide more detail on each of these areas.

## 4.1 Roadway Characteristics

KYTC's Highway Information System (HIS) online database was used to query the various geometric characteristics of I-265. This information forms the basis for understanding the existing infrastructure and identifying roadway deficiencies or areas not up to current geometric standards. The list of information compiled includes the following:

- Number of lanes, shoulder and median widths
- Cable barrier
- Ramp signalization, acceleration, deceleration
- Curb / guardrail protection
- Horizontal and vertical deficiencies
- Structural deficiencies
- Clear zones
- Grades
- Speed limits
- Truck routes
- Major driveways / access points
- Functional classification

Some of these characteristics were not readily identifiable through database research. A field review was conducted to collect the remaining data as well as to verify the information from HIS. **Appendix B** contains the full spreadsheet compilation of the geometric data. Also included are plan and profile sheets developed for the mainline of I-265 documenting many of the additional roadway geometrics and supplementing the geometric spreadsheet. This includes cable barriers, curb, guardrail, horizontal and vertical alignment, clear zones, and driveways or other access points. Also, the entire corridor of I-265 within the study area is designated as a truck route.

## 4.2 Existing Traffic Operations

The traffic analysis for this study was as detailed as possible given the large study area and that this is a planning-level analysis. More discussion on traffic volumes and forecasting are provided in later sections of the report. For this existing conditions analysis, an initial review was performed to evaluate current traffic operations based on available traffic counts.

The average daily traffic (ADT) volumes used for this baseline analysis included traffic counts from the KYTC's CTS database as well as updated hourly count data requested from KYTC Central Office. The years for the data ranged from 2010 – 2013.

Using these traffic volumes as well as the gathered geometric and highway information, the Highway Capacity Software 2010 (HCS 2010) was used to determine levels of service (LOS) and volume to capacity (v/c) ratio. LOS is used to provide a rating scale from A to F for congestion and operations of a roadway. LOS A represents a free flowing facility with little time spent following another vehicle and ample opportunity to make desired maneuvers. The opportunity to pass and travel speeds decrease with subsequent levels of service down to LOS F, which represents a congested roadway that is over capacity and where opportunities for vehicle movement are few and very difficult.

The following tables (**Tables 1** and **2**) list the traffic volumes, level of service, and v/c ratio for I-265 in the AM and PM Peak periods utilizing the daily traffic volumes available. At this time the intersecting freeways and arterials were not evaluated. More detailed analysis relying on traffic volumes and other available information is completed for the future traffic year and improvement evaluation.

It should be noted that the traffic analysis is based on daily volumes and may not fully reflect congestion peaks noted during field reviews and stakeholder input. Also, the HCS 2010 module used for the evaluation provided operational analysis on a segment by segment basis and does not fully consider the impact of ramp acceleration and deceleration areas and weaving conditions on the mainline of I-265. Other evaluation tools will be used to model the system operations for future traffic analysis.

As shown, the existing operations of I-265 operate at an acceptable LOS with some locations starting to experience congestion. Only one section in the PM Peak period operates at a poor level of service (LOS E) which is the 2-lane section north of I-64 to south of US 60 where it becomes 3 lanes. The capacity analysis shows adequate capacity on all segments with a few getting close to the threshold of 1.00 which indicates a facility is operating at capacity.

For a graphical representation of traffic operations, refer to **Figures 2** and **3** on the following pages.

**Table 1: I-265 Existing AM Peak Period Traffic Operations**

| Route | Section | Begin | End | ADT | DHV | Flow Rate (pc/h/ln) | LOS | Density (pc/mi/ln) | v/c |
|---|---|---|---|---|---|---|---|---|---|
| I-265 | 1 | I-65 | KY 61 | 83,000 | 4,710 | 1786 | D | 27.1 | 0.74 |
| | 2 | KY 61 | Smyrna Rd | 68,300 | 3,330 | 1897 | D | 29.5 | 0.79 |
| | 3 | Smyrna Rd | KY 864 | 68,200 | 3,060 | 1739 | D | 26.1 | 0.72 |
| | 4 | KY 864 | US 31E | 64,600 | 3,080 | 1754 | D | 26.4 | 0.73 |
| | 5 | US 31E | KY 1819 | 57,500 | 3,050 | 1738 | D | 26.1 | 0.72 |
| | 6 | KY 1819 | KY 155 | 56,200 | 3,240 | 1842 | D | 28.2 | 0.77 |
| | 7 | KY 155 | I-64 | 59,100 | 2,980 | 1695 | C | 25.2 | 0.71 |
| | 8 | I-64 | South of US 60 | 73,400 | 3,230 | 1838 | D | 28.2 | 0.77 |
| | 9 | South of US 60 | US 60 | 73,400 | 3,230 | 1226 | B | 17.5 | 0.51 |
| | 10 | US 60 | KY 3084 | 62,000 | 2,630 | 1496 | C | 21.7 | 0.62 |
| | 11 | KY 3084 | KY 146 | 56,300 | 2,170 | 1234 | B | 17.6 | 0.51 |
| | 12 | KY 146 | KY 1447 | 50,600 | 1,910 | 1089 | B | 15.6 | 0.45 |
| | 13 | KY 1447 | KY 22 | 55,100 | 1,970 | 746 | A | 10.7 | 0.31 |
| | 14 | KY 22 | I-71 | 69,200 | 3,100 | 1746 | D | 26.6 | 0.73 |
| KY 841 | 1 | KY 1020 | I-65 | 57,500 | 2,670 | 1518 | C | 22.1 | 0.63 |
| | 2 | I-71 | US 42 | 18,700 | 730 | 417 | A | 6.0 | 0.17 |

**Table 2: I-265 Existing PM Peak Period Traffic Operations**

| Route | Section | Begin | End | ADT | DHV | Flow Rate (pc/h/ln) | LOS | Density (pc/mi/ln) | v/c |
|---|---|---|---|---|---|---|---|---|---|
| I-265 | 1 | I-65 | KY 61 | 83,000 | 4,260 | 1616 | C | 23.8 | 0.67 |
| | 2 | KY 61 | Smyrna Rd | 68,300 | 2,790 | 1586 | C | 23.2 | 0.66 |
| | 3 | Smyrna Rd | KY 864 | 68,200 | 3,070 | 1747 | D | 26.3 | 0.73 |
| | 4 | KY 864 | US 31E | 64,600 | 2,970 | 1688 | C | 25.1 | 0.70 |
| | 5 | US 31E | KY 1819 | 57,500 | 2,950 | 1679 | C | 24.9 | 0.70 |
| | 6 | KY 1819 | KY 155 | 56,200 | 2,930 | 1670 | C | 24.8 | 0.70 |
| | 7 | KY 155 | I-64 | 59,100 | 3,350 | 1907 | D | 29.7 | 0.79 |
| | 8 | I-64 | South of US 60 | 73,400 | 3,770 | 2143 | E | 35.9 | 0.89 |
| | 9 | South of US 60 | US 60 | 73,400 | 3,770 | 1429 | C | 20.6 | 0.60 |
| | 10 | US 60 | KY 3084 | 62,000 | 2,900 | 1652 | C | 24.4 | 0.69 |
| | 11 | KY 3084 | KY 146 | 56,300 | 2,630 | 1500 | C | 21.8 | 0.63 |
| | 12 | KY 146 | KY 1447 | 50,600 | 2,410 | 1374 | C | 19.7 | 0.57 |
| | 13 | KY 1447 | KY 22 | 55,100 | 2,680 | 1016 | B | 14.5 | 0.42 |
| | 14 | KY 22 | I-71 | 69,200 | 3,180 | 1808 | D | 27.5 | 0.75 |
| KY 841 | 1 | KY 1020 | I-65 | 57,500 | 2,740 | 1561 | C | 22.8 | 0.65 |
| | 2 | I-71 | US 42 | 18,700 | 950 | 543 | A | 7.8 | 0.23 |

**Figure 2**: **I-265 Existing AM Peak Period Traffic Operations**

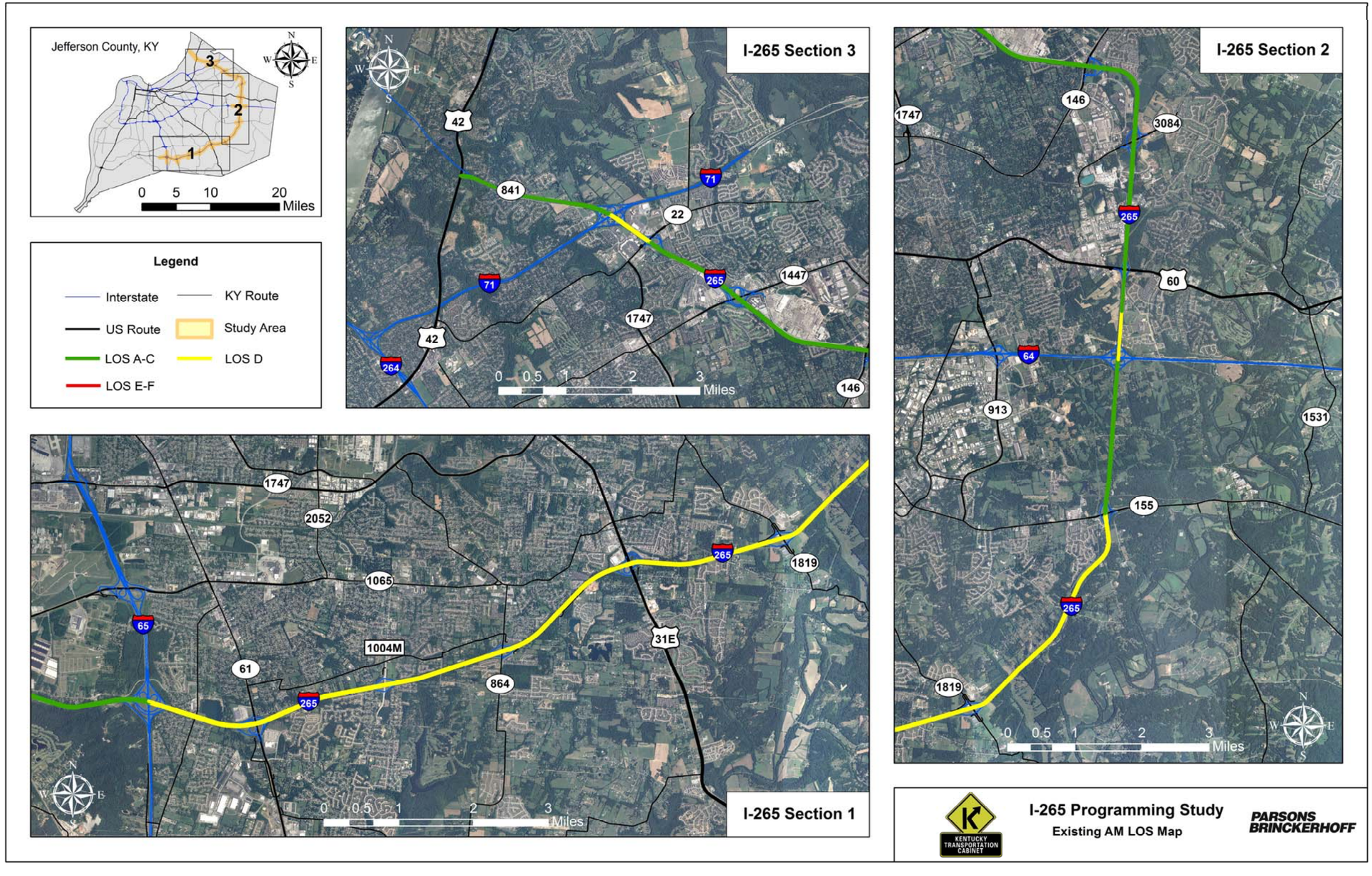
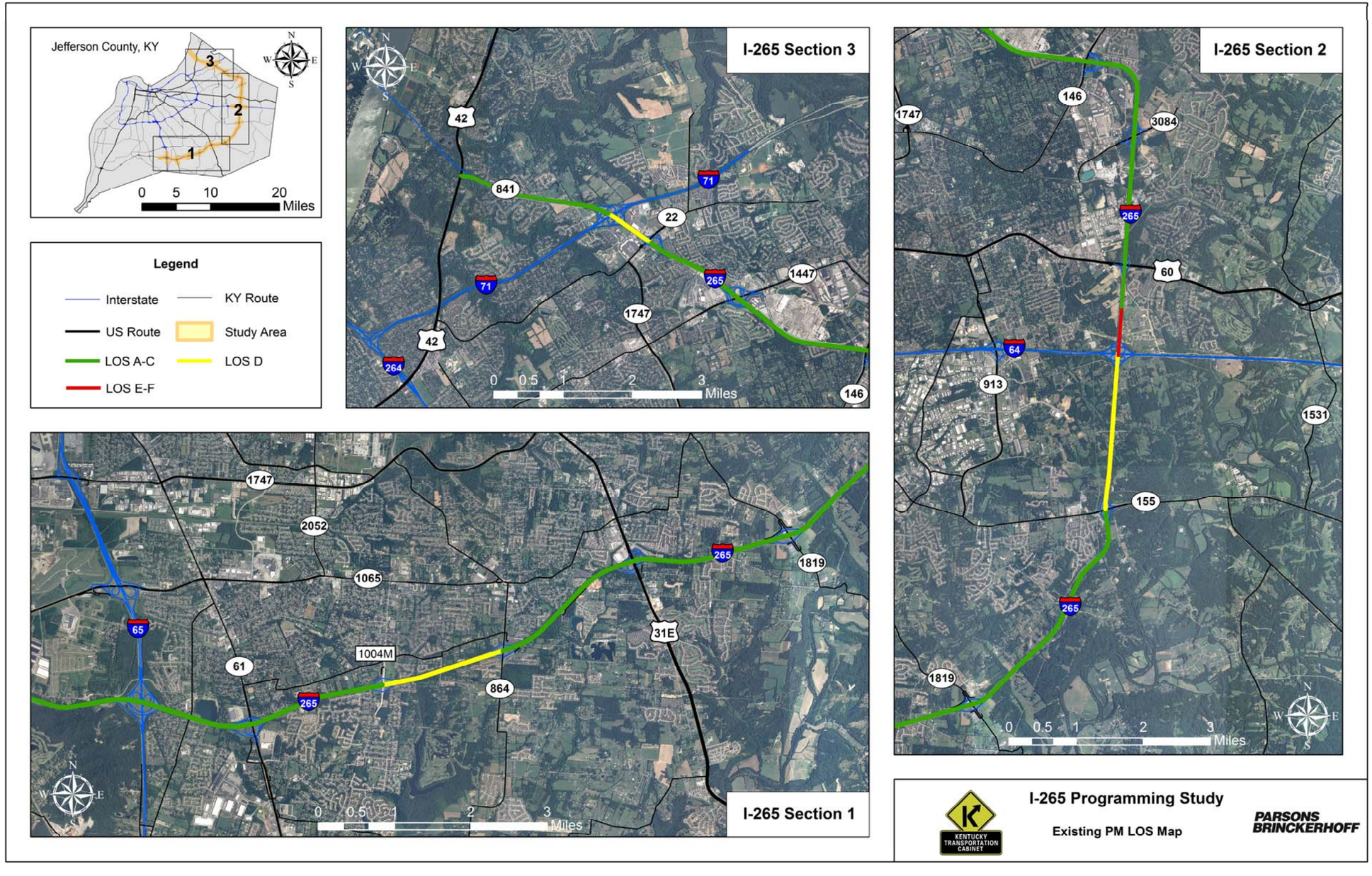


**Figure 3**: **I-265 Existing PM Peak Period Traffic Operations**



### 4.3 Crash Analysis

Crash data was obtained from the Kentucky Collision Analysis database maintained by the Kentucky State Police for the past three years (January 1, 2010 through December 31, 2012). The locations of these crashes by crash type (fatality, injury or property damage only) are shown for each roadway in **Figure 4**.

Crash rates were computed for specific segments of I-265 as well as each major intersecting arterial using the methodology provided in the most recent version of the crash analysis report periodically published by the Kentucky Transportation Center (KTC)[1]. The section crash rates are based on the number of crashes on a specified section, the average daily traffic (ADT) on the roadway, the time frame of analysis, and the length of the section. They are expressed in terms of crashes per 100 million vehicle-miles. A section's crash rate was then compared to a statewide critical crash rate[2] derived from critical crash rate tables for highway sections in the KTC crash report (Appendix D of KTC crash report). This comparison is expressed as a ratio of the section crash rate to the critical crash rate and is referred to as the critical crash rate factor. If the factor is greater than one it indicates crashes do not appear to be occurring at random.

The section crash rate is also compared directly to the statewide average crash rate presented in the KTC crash report. The statewide averages consider all crashes for a specified period that are listed in the Collision Report Analysis for Safer Highways (CRASH) database maintained by the Kentucky State Police and stratified by functional classification (Table B-2 in KTC crash report). Section rates that exceed the statewide average rate but not the critical crash rate may be problem areas, but are not statistically proven to be higher crash areas. Therefore, this second comparison is used to identify a second tier of highway sections that may have crash problems and could be considered for safety improvements if warranted based on further analysis.

**Appendix C** contains the crash rate summary sheets that detail the specific crash rate per section for the interstate segments and intersecting arterial segments, as well as the crash records.

Only one segment on I-265 was identified as having a critical crash rate factor greater than 1.0 – the segment between KY 22 and the I-71 interchange (1.40). Many of the intersecting arterials were calculated to have a critical crash rate factor greater than 1.0 on either side of the interchange ramps.

For I-265, there were a total of 1,179 crashes on I-265 during the three year period. Of these crashes, 202 resulted in an injury (17%) and 5 (less than 1 percent) resulted in a fatality. The majority were rear-end collisions (47%) with a significant portion of crash types also being single vehicle collisions (33%). Most of these collisions also occurred during clear weather (62%) and during the daylight (66%).

Plan and profile sheets detail the locations and distribution of crashes along I-265 and the intersecting arterials in **Appendix B**.

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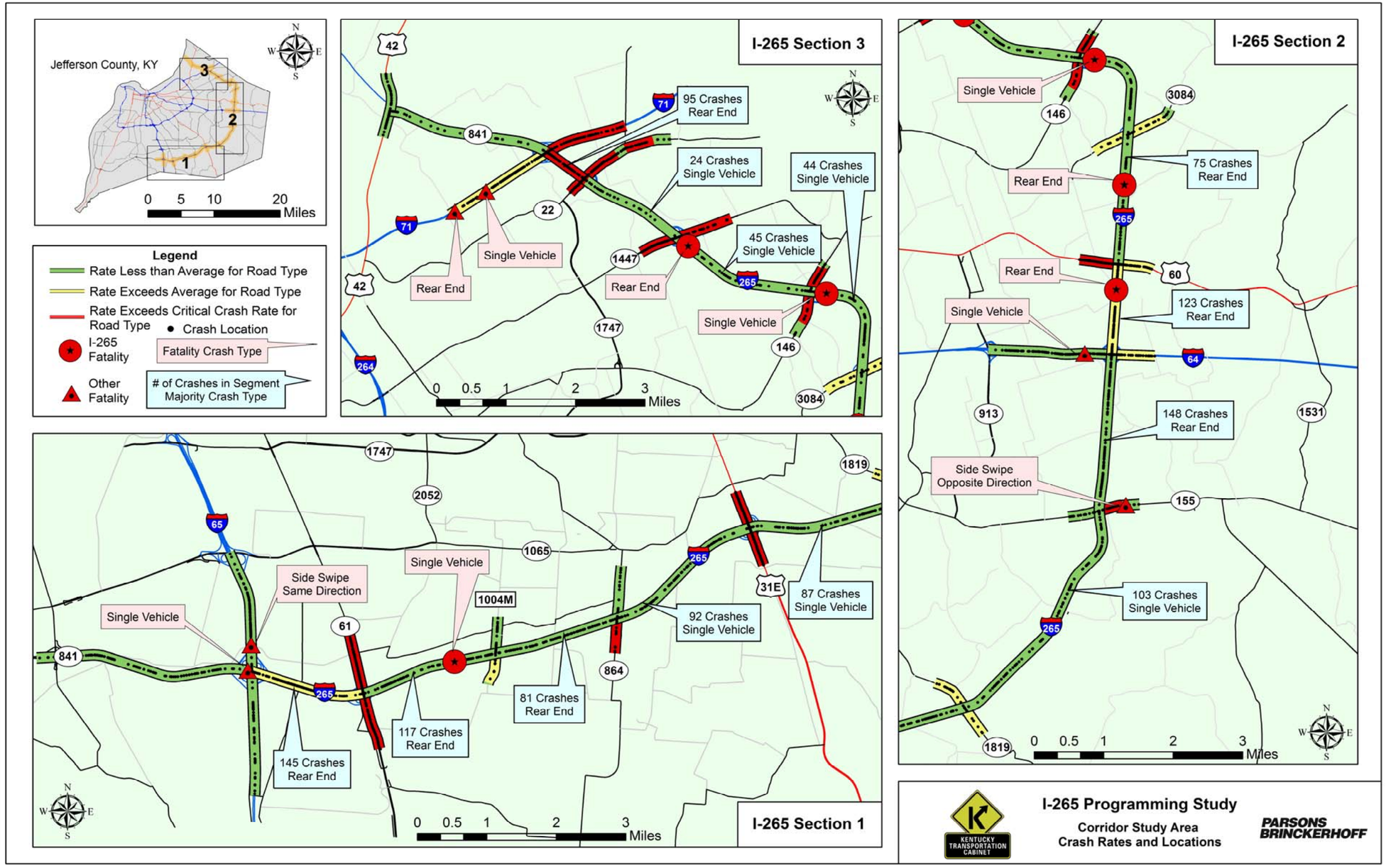
[1] Analysis of Traffic Crash Data in Kentucky (2007 – 2011), Kentucky Transportation Center Research Report KTC-12-13/KSP2-11-1F.

[2] The critical crash rate is the threshold above which an analyst can be statistically certain (at a 99.5% confidence level) that the section crash rate exceeds the average crash rate for a similar roadway and is not mistakenly shown as higher than the average due to randomly occurring crashes.

**Figure 4: Segment Crash Rate Analysis**



### 4.4 Bicycle and Pedestrian Facilities

Within Louisville and Jefferson County is the "City of Parks" initiative, led by the City of Louisville which seeks to build new linear and stand-alone parks and open spaces. Linking existing Olmstead Parks and existing communities with these new initiatives requires that bicycle and pedestrian facilities be considered and incorporated into nearly all current transportation projects. The "Louisville Loop", part of the "City of Parks", is a planned 100-mile trail system that will encircle the city. The loop will link existing parks, new parks, and neighborhoods to civic attractions, transportation alternatives, and recreation opportunities. The KYTC anticipates the possibility of several spoke-type connections between the Louisville Loop and the city's urban core. The Parklands of Floyds Fork, currently under construction and scheduled to be completed in 2015, is one of the nation's largest new metropolitan parks projects. As part of this project, 21st Century Parks is building approximately 19 miles of the Louisville Loop through The Parklands of Floyds Fork. **Figure 5** highlights the future planned facilities for bicyclists within Louisville Metro as a whole.

Additional I-265 corridor bicycle and pedestrian conditions are noted below:

- There is an existing bicycle / pedestrian path running along US 60 through the I-265 interchange.
- Future planned facilities are included in the 2014 Louisville Metro Bike Master Plan.
- Adding 5-foot paved shoulders is noted along LaGrange Road (KY 146) through the interchange.
- There is one bicycle club within the Louisville area, the Louisville Bicycle Club.
- Sidewalks can be found adjacent to some of the ramp terminal intersections.
- For further information regarding guidance on accommodating bicyclists and pedestrians through interchanges, Parsons Brinckerhoff prepared a study for KIPDA, the KIPDA Interchange Bicycle and Pedestrian Safety Study[3].

**Figure 5: Future Planned Bicycle Facilities**


[3] http://www.kipda.org/Transportation/MPO/Documents_and_Studies.aspx

### 4.5 Geotechnical Overview

A Geotechnical Overview of the study area was performed by KYTC, and can be found in **Appendix D.** As this is a large study area, a high-level review was performed. Evaluation of geotechnical concerns was prepared by section as shown in **Figure 1** in the appendix. Section 1 has bedrock primarily of the Louisville Limestone formation, which has been identified as very suitable for use in road construction and generally makes very durable rock cuts. There is the potential for some karst related issues. Also present in this section is New Albany Shale which may require special treatment if the bedrock is exposed.

Section 2 also contains the Louisville Limestone formation, with an active quarry that mines this material near the interchange of KY 3084. Other formations in the section include non-durable shales. Some of these shales have had the following noted issues:

- Erode badly when exposed to surface runoff
- Warrant a cut slope design on a 2H : 1V slope for new cut slopes
- Waldron shale is notable for past construction related issues

Section 3 is primarily the Louisville Limestone formation and Laurel dolomite. A concern in this area would be that mapping and experience indicates karst problems are more significant in this section and can require remediation.

# 5.0 ENVIRONMENTAL OVERVIEW / SOCIOECONOMIC STUDY

An environmental overview was performed with respect to the following:

- Cultural Historic Overview (**Appendix E**)
- Archaeological Resources
- Environmental Constraints (**Appendix F**)
- Socioeconomic Study (**Appendix G**)

The northern section of the study area was extensively researched for environmental concerns during the development of the Louisville-Southern Indiana Ohio River Bridges (LSIORB) project and those concerns as well as KYTC commitments were documented in the project's Record of Decision (ROD). A review of the LSIORB ROD would be necessary for any improvements that overlap the LSIORB project's right-of-way.

## 5.1 Cultural Historic Overview

The Cultural Historic Overview, located in **Appendix E,** found in a search of records maintained by the National Register of Historic Places (NRHP) and the Kentucky Heritage Council (KHC) the following:

- Three NRHP-listed historic districts, with 16 contributing elements of those districts;
- Nine individually listed NRHP properties;
- Eight properties that have been recommended or determined eligible for listing in the NRHP; and,
- 19 previously surveyed properties that have an undetermined status in the KHC database that are located within or immediately adjacent to the study area.

The three historic districts are located in the northernmost section of the study area and overlap one another. Drumanard is both a historic district and an individual property located northwest of the I-265 and US 42 intersection and is composed of a historic landscape, an English garden, and a collection of Tudor Revival-style residential buildings. The Harrods Creek Historic District is approximately 319 acres, divided among five properties: The Theodore Mueller House / Shady Brook Farm, the Bingham-Hillard Estate, the Cochran House, The Ashbourne, and Avish. The properties contain a designed historic landscape, formal gardens, managed agricultural land, and a collection of residential buildings. The third historic district, The Country Estates of River Road Historic District, is a three-mile long corridor along the Ohio River and upper River Road. It consists of country estates, many of which were previously listed either individually or as a part of other historic districts. There are 61 contributing resources and 45 non-contributing resources in the district.

The nine individually listed properties are located throughout the study area and include the Barber House / Rosewell, the Merriwether House, the Omer / Pound House, Belleview, the Fitzhugh House / Drumanard, the Allison-Barrickman House, Cedarbrook Farm, Cooper Memorial Church, and the Fishpool Plantation.

In addition to the NRHP and KHC information, a review of other studies in the project area and a field review were performed. There are eight other properties that are either recommended eligible or potentially significant properties that are within or adjacent to the study area based on previous studies and field observations. Additionally there are 15 previously surveyed properties that are ineligible and 17 previously surveyed properties that no longer exist.

Refer to the maps included in the overview in **Appendix E** for more information about the location of the cultural historic resources.

## 5.2 Archaeological Resources

The Archaeological Resources review included a search of records maintained by the NRHP and the Office of State Archaeology (OSA) as well as a field overview. Portions of the study area have been previously surveyed and 24 archaeological sites have been identified within or adjacent to the area of potential effect (APE). These include a historic cemetery, fourteen prehistoric open habitations without mounds, three historic farm or residences, one historic farm or residence with an associated cemetery and five multi-component prehistoric and historic occupations. Of these, one site is included in the NRHP (discussed below), two sites are listed as eligible and one site is listed as potentially eligible for inclusion in the NRHP. A field survey was conducted, and found that many of these sites are located in areas that have been heavily disturbed by construction activities associated with I-265, its interchanges, associated utilities, and a variety of residential and commercial developments. These developments are not always destructive, though, and sometimes the earthmoving caps archaeological deposits, and sites may exist along the edges of the project area beneath modern construction elements such as parking lots and driveways and in associated green spaces.

NRHP records indicate that there is one archaeological site listed in the NRHP that is located within the APE, the Levin Bates / Jacob Johnson farmstead. The house has been moved from its original location within the Bardstown Road interchange, to the east along Wingfield Road. The original location of the house has been disturbed by road construction activities. The three NRHP listed historic districts, nine NRHP listed properties, eight recommended eligible properties, and 17 historic properties that are no longer extant (described in the previous section) all have the potential to produce archaeological materials.

Two sections of the study area are considered to be red flag areas. These include the area around Harrods Creek and the area around the I-71 interchange. Any construction activities in these areas should be preceded by archaeological investigations.

A historic map review was performed and a large number of identified map structures were located within or close to the existing right-of-way for I-265. Several of these correspond with previously recorded cultural historic sites. Above ground portions of most of the structures have

likely been destroyed, however, earthmoving often caps archaeological deposits, which may have preserved subsurface remains associated with the structures.

There are still large portions of the study area that have never been surveyed that have the potential for producing additional archaeological sites. It is recommended that construction activities in any portion of the project area that is not occupied by a large modern structure be preceded by an archaeological survey.

## 5.3 Environmental Constraints

An environmental overview was performed to identify resources related to underground storage tanks, hazardous materials, air quality, traffic noise, and aquatic and terrestrial ecosystems.

### 5.3.1 Underground Storage Tanks / Hazardous Materials

A database search resulted in the identification of 37 mapped facilities of potential environmental significance, and 169 orphaned, or abandoned, sites located within the study area. Additionally, there are numerous convenience stores and gas stations within the study area that have UST potential.

The Kentucky Geological Survey indicated that at least 18 water wells are potentially located in the study area. There are no permitted waste disposal facilities in the study area.

### 5.3.2 Air Quality

Jefferson County is an attainment area for 8-hour ozone, a non-attainment area for small particulate matter identified as $PM_{2.5}$, and is in attainment for larger particulate matter identified as $PM_{10}$. A portion of Jefferson County is in non-attainment for sulfur dioxide, but the study area is not within the non-attainment area for that pollutant. $PM_{2.5}$ will be a project-level concern, and any future work required for this project will include completion of the $PM_{2.5}$ checklist and interagency consultations to determine whether a $PM_{2.5}$ hot-spot analysis is required. At this point it is not feasible to determine if this project will generate meaningful mobile source air toxics (MSATs), however specific projects recommended by this study will require MSAT analysis.

### 5.3.3 Traffic Noise

Traffic noises caused by vehicle tires, engines and exhaust are measured by decibels in the A-scale, which approximates the way noise is heard by the human ear. Traffic noise impacts occur when the anticipated traffic noise levels exceed the noise abatement criteria (NAC), or significantly exceed the existing noise level. Noise abatement criteria address traffic noise levels that interfere with speech communication, and are broken into seven activity categories (A to G) based on land use and evaluation location (interior or exterior). Activity Category B, C, E, F, and G receptors are located within the study area, with potential for Activity Category D (interior use) receptors.

Category F and G receptors include manufacturing, retail, industry, and other similar facilities, and do not have established noise abatement criteria. Category E receptors include exterior areas of developed land such as hotel pools and restaurant patios, and have higher NAC thresholds. Category B and C receptors are the most abundant and most sensitive receptors in the study area. Category B receptors include exterior areas of frequent human use at single or multifamily homes and mobile home parks where traffic noise would interfere with normal conversation on balconies, patios, or in back yards. Category C receptors include exterior areas of non-residential lands such as schools, parks, hospitals, churches, recreations areas, cemeteries, day cares, and other similar land uses.

Maps of the study area that show clusters of noise receptors in close proximity to the study area are included in the Environmental Overview in **Appendix F**. It is recommended that during any future Phase 1 design, all noise sensitive receptors within 500 feet of the project be assessed to determine whether impacts are predicted and if so whether noise abatement is feasible and reasonable.

### 5.3.4 Aquatic and Terrestrial Ecosystems

An aquatic and terrestrial field survey, a review of topographic and aerial maps, and a literature review of habitats for federal and state listed species were performed to determine the aquatic and terrestrial resources in the study area.

A total of 333 wetlands, comprising approximately 30.2 acres were found within the study area. Ten stream crossings are present, nine of which occur south of the I-265 and I-64 interchange. There are 34 streams located within the study area; however there are no wild and scenic rivers or special designation lands.

Jefferson County is host to 18 endangered, threatened, proposed and candidate species. These include:

- Gray bat
- Indiana bat
- Clubshell
- Fanshell
- Fat pocketbook
- Orangefoot pimpleback
- Ring pink
- Pink mucket
- Sheepnose
- Rough pigtoe
- Rabbitsfoot
- Spectaclecase
- Running buffalo clover
- Kentucky glade cress
- Interior least tern
- Bald eagle
- American burying beetle
- Louisville cave beetle

The literature review revealed that habitat for the federally endangered gray bat, Indiana bat, running buffalo clover, the proposed threatened northern long-eared bat and Kentucky glade cress, and the candidate species Louisville cave beetle, could potentially exist in the study area. The U.S. Fish and Wildlife Service's mapping of summer habitat polygons found portions of the study area within the five mile radius of "sensitive & maternity" summer habitat polygons. The field survey identified summer roosting habitats for the Indiana bat and northern long-eared bat, with the highest concentrations in the southeastern portion between Billtown Road and I-64. There are also gray bat foraging and travel stream corridors at several stream crossings in the area. Any future Phase 1 design will require assessment for impacts to potential bat hibernacula. In addition to the federally listed species, there are also 27 state threatened and endangered species that may be present within the study area. Coordination with agencies in any future project development phases will be required to determine the presence of these species' habitats.

### 5.3.5 Socioeconomic Study

KIPDA prepared a socioeconomic study for the study area. The study identified potential environmental justice populations, including low income, minority, older persons, persons with disabilities, zero vehicle households, and limited English proficiency (LEP), in the study area. These populations were identified on a census tract level. An excerpt of the findings is below:

- The highest percentages of minority persons were found at the southern end of the I-265 corridor – near the I-65 and KY 61 (Preston Highway) interchanges. The average minority concentration of one tract in this area was greater than those expected within the general population for the United States, Kentucky, or Jefferson County.
- Similar to the minority population findings, higher concentrations of persons with low-income resided in census tracts near the I-65 and KY 61 (Preston Highway) interchanges. Three tracts in this area had distributions of persons with low-income greater than those found at the national, state, and county levels.
- The tract distribution of older persons was highest at the northern end of the I-265 corridor – near the US 42 interchange / East End Crossing of the Louisville-Southern Indiana Ohio River Bridges Projects and from KY 22 (Brownsboro Road) to KY 146 (LaGrange Road). Almost half of the corridor's tracts have densities of older persons above national, state, and county levels.
- Higher percentages of persons with disabilities were found to exist in the census tracts closest to the I-65 and KY 61 (Preston Highway) interchange areas. Two tracts in these sections had distributions higher than those of the Nation, State, and County.
- Zero vehicle households appear in the highest density in one tract near the I-65 interchange. The percentage of zero vehicle households in this tract exceeds that of the United States, Kentucky, and Jefferson County.
- The highest concentration of persons with limited English proficiency is located in one tract near the I-65 interchange. The area demonstrates a higher average LEP population than is found at national, state, and county levels.[4]

The KIPDA Socioeconomic Study can be found in **Appendix G.**

[4] *I-265 Programming Study Ohio River to I-65 Socioeconomic Study*, KIPDA, 2014.

# 6.0 PUBLIC INVOLVEMENT AND PROJECT DEVELOPMENT TEAM MEETINGS

Several meetings and coordination activities occurred throughout the course of the study to inform and obtain input from local officials and stakeholders, public agency representatives, and the general public. Coordination activities included four Project Development Team (PDT) meetings, two meetings with local elected officials and stakeholders, two public meetings, and one resource agency mailing.

## 6.1 Local Official and Stakeholder Coordination

Meetings were held with locally elected officials and stakeholders in Jefferson County. The stakeholders represented a variety of interests in the community including fire, EMS, local and state government, and businesses. The first meeting was held on January 6, 2014. An overview of existing conditions was presented, and those in attendance were able to provide their feedback as well as raise issues that should be addressed by the study.

The second stakeholder meeting was held on September 25, 2014, on the same day as the public meeting. Information shown at the public meeting was given to stakeholders that attended. They were given an opportunity to ask questions and complete comment forms.

Meeting minutes from these meetings are provided in **Appendix H.**

## 6.2 Public Meetings

Two public meetings were held in September 2014. One was held at the southern end of the study area at the Teamsters Local 783 Hall on Beulah Church Road. The other public meeting was held at Chancey Elementary School on Murphy Lane, near Westport Road. The purpose of these meetings was to provide the public with information on the study, gather public feedback on the projects being considered, and to use the feedback to develop a public prioritization for the projects.

The prioritization results are discussed in Chapters 7 and 8. The public was also given the opportunity to provide information about any missing projects they thought should have been included in the study. Some responses included projects that are located in the study area. Those were discussed with the project team to determine if they were feasible and appropriate to include in this study. If so, they were included in Chapter 7. There were also responses for projects located outside of the study area, thus outside of the scope, which were not prioritized. However, they may need to be included in future planning and operation efforts and have been listed below for information purposes:

- Additional sound walls
- Complete Cooper Chapel Road from Preston Highway to Bardstown Road
- Widen I-71 from I-264 to Exit 22 (both eastbound and westbound travel lanes)
- Add a traffic signal at Nelson Miller Parkway and Old Henry Road
- Improve the KY 155 and Taylorsville Lake Road intersection / signal

A summary of the feedback received at the public meetings can be found in **Appendix I**.

## 6.3 Resource Agency Mailings

Highway construction, and the resulting changes in travel patterns, may impact an area in a number of ways. Early information detailing possible impacts allows the project development process to take them into consideration and avoid or minimize them. Resource agencies typically have detailed information and can provide input about possible highway construction impacts by identifying existing conditions and providing input on how to minimize disruptions.

Regulatory agencies, stakeholders, and interested agencies received project information with a request to review the project scope and provide comments. The packet of information mailed to resource agencies included a letter describing the study with a draft statement of the purpose and need, a project study area map and existing roadway information, average daily traffic and level of service, crash analysis, and an environmental overview. The list of agency respondents included:

- Christian Academy School System
- City of Jeffersonville
- Federal Aviation Administration, Memphis Airports District
- Kentucky Cabinet for Economic Development
- Kentucky Education and Workforce Development Cabinet, Department of Education
- Kentucky Energy and Environment Cabinet
- Department for Natural Resources
- Department for Environmental Protection
    - Combined Division of Water, Division for Air Quality, Kentucky Heritage Council
    - Division for Air Quality
    - Division of Water
    - Division of Mine Reclamation and Enforcement
- Kentucky State Police
- Kentucky Tourism, Arts and Heritage Cabinet, Kentucky Department of Fish & Wildlife Resources
- Louisville Metro Emergency Management Agency, MetroSafe
- United States Department of Agriculture, National Resources Conservation Service

Overall, the comments received did not indicate any major issues with any of the proposed projects. The comments received are summarized below:

- The northbound I-65 to eastbound I-265 ramp has experienced repeated episodes of semi trucks losing their loads at the top curve of the ramp. This area is especially prone to heavy congestion.
- A recommendation to contact the superintendent of the Jefferson County School District. Information was provided electronically, with no response.

- Specific to the I-265 major widening to 3 lanes project's adjacent right-of-way: avoid any potential impact to the access road or athletic fields east of I-265 near US 60.
- Minimize impacts to commuting time in the I-265 / US 60 interchange area.
- Notice of several air quality regulations that must be met.
- Farmland classification and brief descriptions of soil map units on potential farmland in the study area.
- Avoid impacting wetlands, streams, endangered species, wells, and water lines in the study area.
- A recommendation that erosion control measures be implemented.
- A notice that if impacts to streams and wetlands exceed General Certification conditions, then an Individual Water Quality Certification may be required.
- Ensure the protection of tributaries in and near the study area.
- Consideration of water and sewer lines with a recommendation to contact local water and wastewater utilities.
- Support for the project to expand the number of lanes from two to three to help assist with traffic congestion.
- Consider making the inside shoulder as wide as the outer shoulder.
- Over 600 crashes have occurred throughout project limits, with more than half reported as "rear-end" collisions, likely caused by traffic backup.
- A review of traffic signal operations and timing may be helpful to address major backups on LaGrange Road and Chamberlain Lane, including the possibility of providing an alternate access point for the Ford Motor Plant.
- The operation of cloverleaf interchanges is impacted by traffic congestion, and those interchanges should be minimized.
- The project should increase the ease and safety of industrial traffic by providing existing and future industries with better connection to shipping routes and the UPS World Port.
- The Rehl Road Interchange project on I-265 will help reduce the congestion and traffic circulation around Bluegrass Commerce Park.
- There may be opportunities to provide a bicycle and pedestrian movement east-west along Taylorsville Road and through the interchange, as the project moves forward.
- Bridge abutments over Harrods Creek where I-265 meets the new East End Bridge should not be located within the stream channel.
- Ensure compliance with relevant regulations regarding cultural resources.

**Appendix J** includes a copy of the materials distributed, the recipient list, and complete responses from agencies.

### 6.4 Project Development Team (PDT) Meetings

Four meetings were held with the PDT to discuss project issues including study progress, local officials and stakeholders meetings, public meetings, issues and goals, development of improvements, improvements evaluation and prioritization, and the conclusions of the study. The meeting minutes are included in **Appendix K**.

### 6.5 TRIMARC Meeting

A meeting with KYTC and TRIMARC was held on July 16, 2014 to discuss the use of intelligent transportation systems (ITS) on this project. Existing ITS infrastructure in the study area was discussed as well as anticipated future needs. After this meeting, TRIMARC provided the project team with a list of all of the desired ITS devices throughout the study area, along with costs. Meeting minutes and the subsequent information obtained from TRIMARC are included in **Appendix L**.

# 7.0 IMPROVEMENT OPTIONS DEVELOPMENT

The purpose and need of this project required consideration of both short and long term project types. Short term improvement considerations included operational improvements such as new or replacement signs, pavement markings, lighting, expansion of the TRIMARC ITS system, high priority capacity enhancements, interchange improvements, safety improvements to ramp lengths, and other similar projects that could be implemented by the interim year of 2020. Long term improvements included larger-scale or lower priority capacity improvements, collector-distributor roadways, new interchanges, and other similar projects. It should be noted that short and long term projects were not categorized exclusively by cost. Short term projects may include higher cost, high priority improvements, in addition to lower cost, easy to implement solutions. Lower cost, easy to implement improvements may be categorized as long term projects, if they were determined to be low priority. The goal of the improvements development phase of the study was to provide a list of projects that could be ranked by priority by the public. The process used to develop this list of projects that was taken to the public is described in the following sections.

## 7.1 Previously Identified Projects

The first step in developing the list of projects to be ranked was to compile a list of previously identified projects in the study area from reviews of the following:

- KYTC 2012 Six-Year Highway Plan
- KYTC Statewide Transportation Improvement Program (STIP) FY 2013 - 2016
- KYTC District 5 Unscheduled Projects List
- Project Identification Forms (PIFs) from KYTC and KIPDA
- KIPDA Metropolitan Transportation Plan (MTP)
- KIPDA Transportation Improvement Plan (TIP)
- KYTC Statewide Long Range Transportation Plan (LRTP)

After this list of projects had been compiled, the project team removed projects that had already been constructed or were currently under construction in the study area. The list of previously identified projects is included in **Appendix A**.

## 7.2 Initial Improvements Development

After the compilation of the previously identified projects list, an initial attempt was made to develop alternatives for the widening of the I-265 mainline. Six alternatives were developed and discussed in a memorandum to KYTC in February 2014. These encompassed various widening options, for both interim and the ultimate analysis years of 2020 and 2040. The six alternatives included:

Alternative 1: Existing Baseline Condition: I-265 as it operates today (complete).

Alternative 2: 2020 No Build: This includes identified KYTC 2012 Six-Year Highway Plan and TIP projects to aid operations and safety and / or increase capacity that would be in place by 2020.

Alternative 3: 2020 Build: This includes all projects that are identified to be in place by 2020 (all projects from Alternative 2 and other small projects to address any identified 'hot spots').

Alternative 4: 2040 No Build: This includes all projects in place by 2040. This will include projects assumed in the modeling effort, most notably an extra lane in each direction from I-65 to I-71.

Alternative 5: 2040 + Collector-Distributor (C-D) Road: This includes all projects from Alternative 4, plus a C-D Road beginning just north of Old Henry Road and running through US 60 and I-64, and terminating between I-64 and the KY 155 interchange.

Alternative 6: 2040 + 2 Capacity Lanes: This includes everything from Alternative 4, plus an additional capacity lane from I-65 to I-71 for a total of two additional lanes per direction.

All six alternatives were not shown to the public. Instead, a simple "Widening of I-265" was placed on the list of projects. This allowed the public to rank the importance of adding capacity to I-265, while allowing for a more thorough traffic analysis to determine the best alternative to carry forward. The memorandum describing these alternatives is included in **Appendix M.**

## 7.3 New Project Identification

In addition to previously identified projects and the widening of I-265, additional projects that would improve system performance were also identified. Several methods were undertaken to identify additional potential future projects, including meetings with KYTC, field reviews, and a variety of analyses such as safety / crash, and traffic.

The crash analysis presented in Section 3.3 discussed the existing safety concerns in the corridor. High crash segments and areas where fatalities have occurred were explored in further detail to determine if any roadway improvements could improve safety. The only segment of I-265 with a critical crash rate issue is the segment between KY 22 and I-71, which is already part of the I-71 interchange improvement recommendations. There were five fatalities along I-265 during the analysis period; however, further analysis found there are no geometric deficiencies at any of the reported locations of those fatalities.

Existing traffic operations, discussed in Section 3.2, and future traffic operations need to be considered when determining potential projects. The determination of future traffic operations began with KIPDA providing average daily traffic (ADT) volumes within the study area for the years 2020 and 2040. The ADTs were converted to peak hour volumes. The hourly volumes were then balanced over the entire system to establish final 2020 and 2040 traffic volumes. The HCS 2010 software was then used to determine future levels of service (LOS) along I-265, at the ramp merge, diverge and weave sections, and at the interchange intersections. The estimated traffic volumes and the HCS 2010 LOS results are shown in **Figures 6** through **11.** Recommended improvements to deficient study area intersections were developed based on the HCS analysis. These improvements were analyzed for system feasibility. System feasible improvements were projects that improved system performance without requiring additional adjacent infrastructure, utility relocation, or right-of-way acquisition. Feasible improvements were included in the list of projects to rank for the public.

**Figure 6: 2020 Traffic Volumes and LOS (I-65 to KY 1819)**

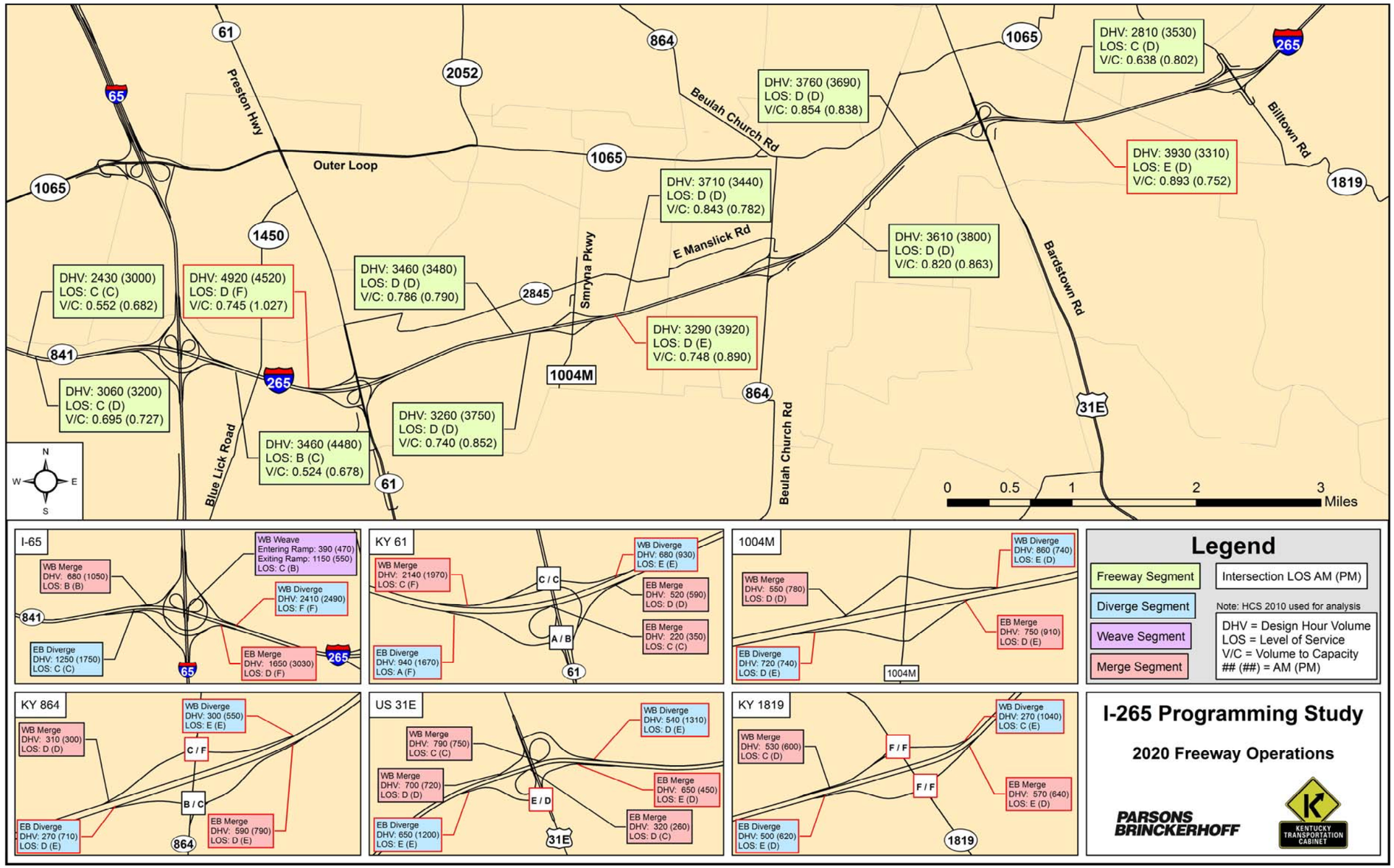


**Figure 7: 2040 Traffic Volumes and LOS (I-65 to KY 1819)**

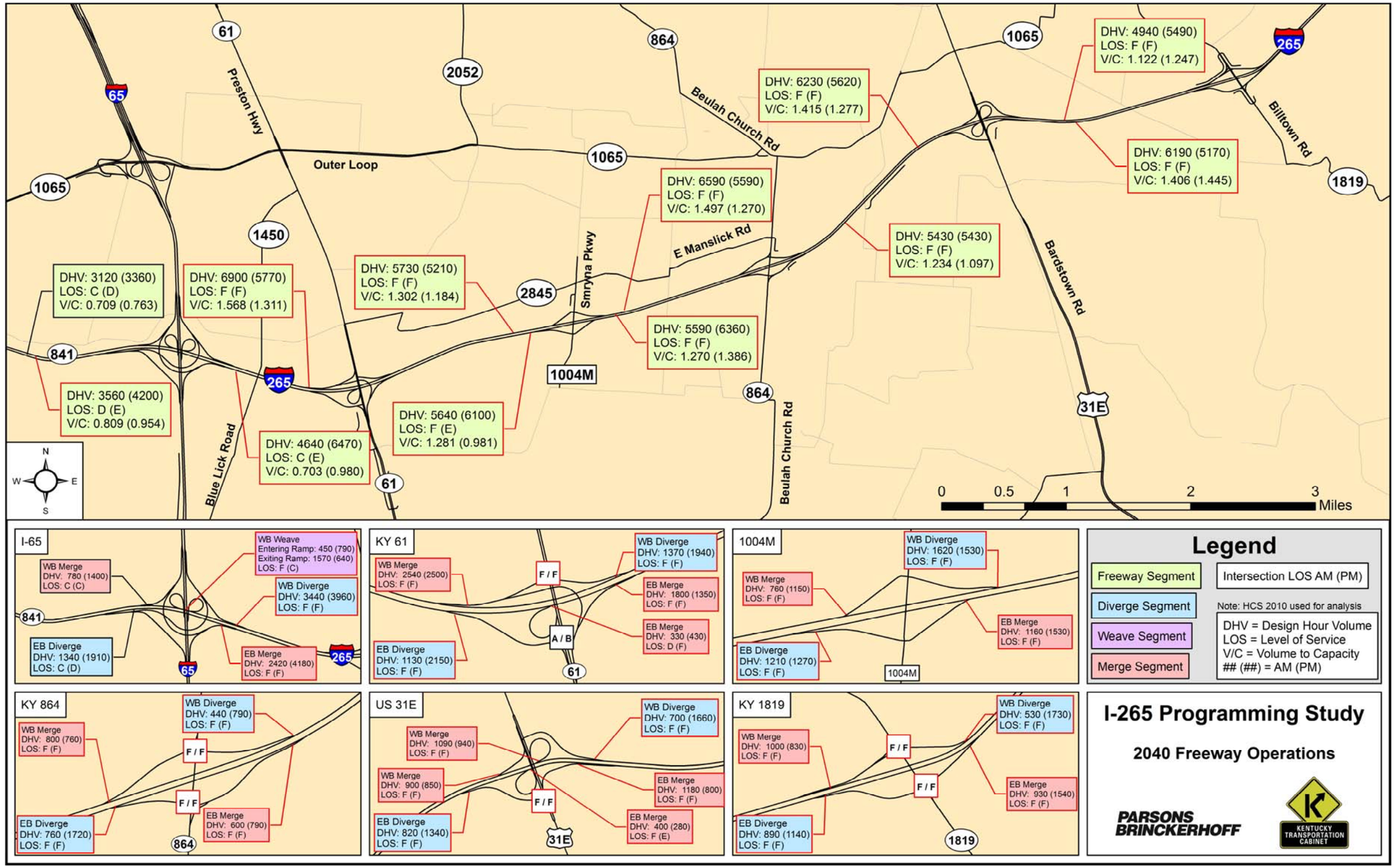


**Figure 8: 2020 Traffic Volumes and LOS (KY 1819 to KY 3084)**

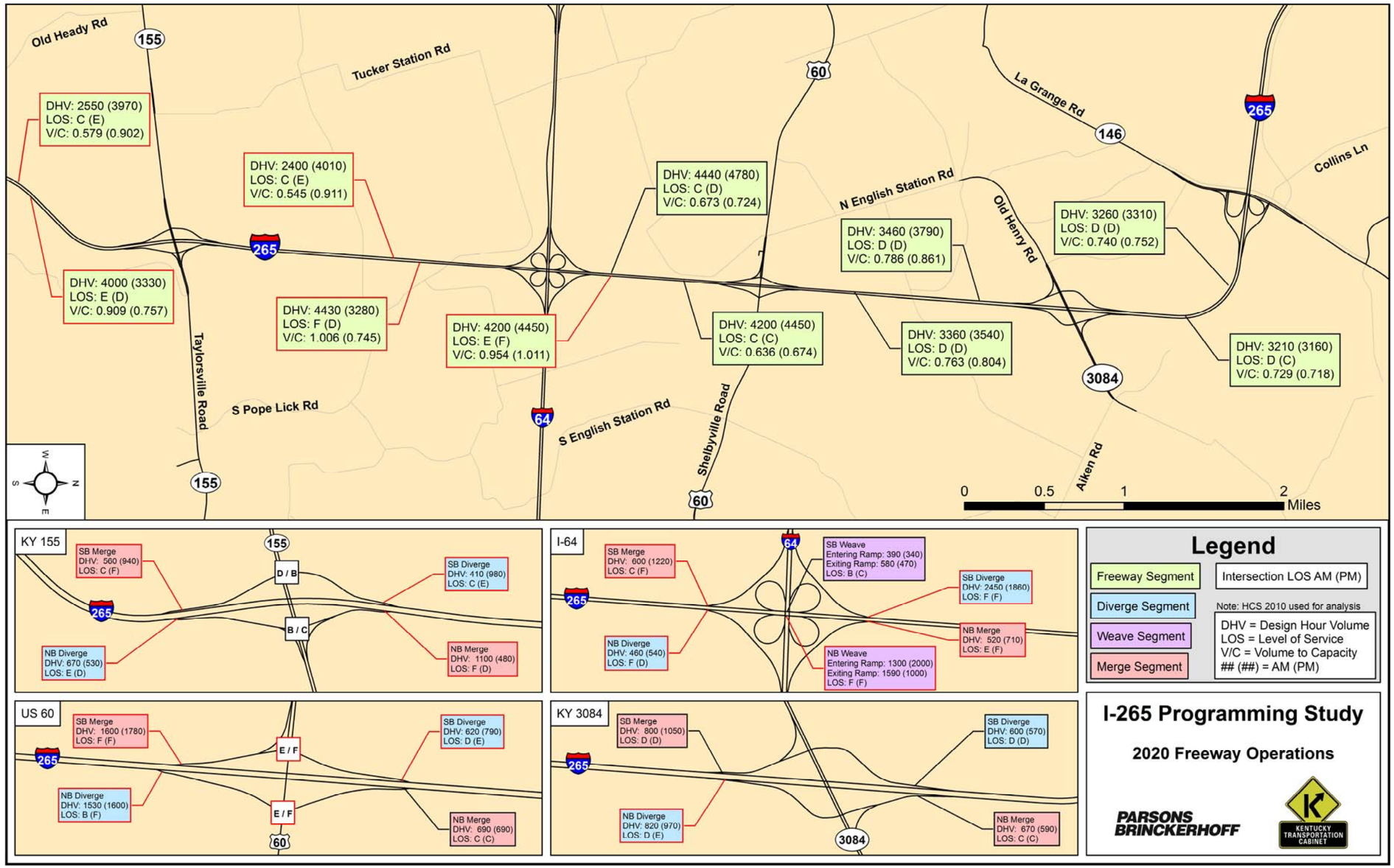


**Figure 9: 2040 Traffic Volumes and LOS (KY 1819 to KY 3084)**

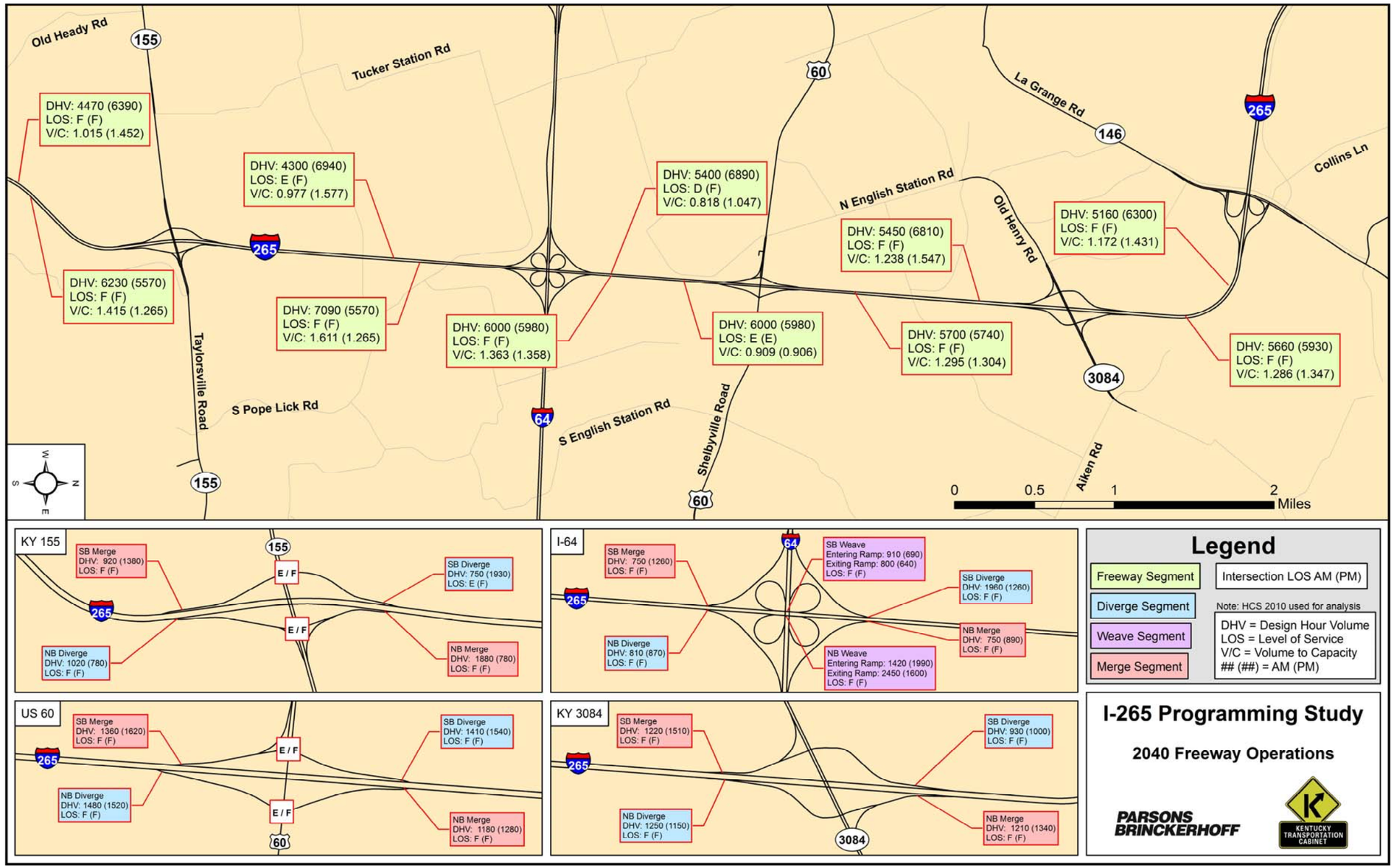


**Figure 10: 2020 Traffic Volumes and LOS (KY 3084 to I-71)**

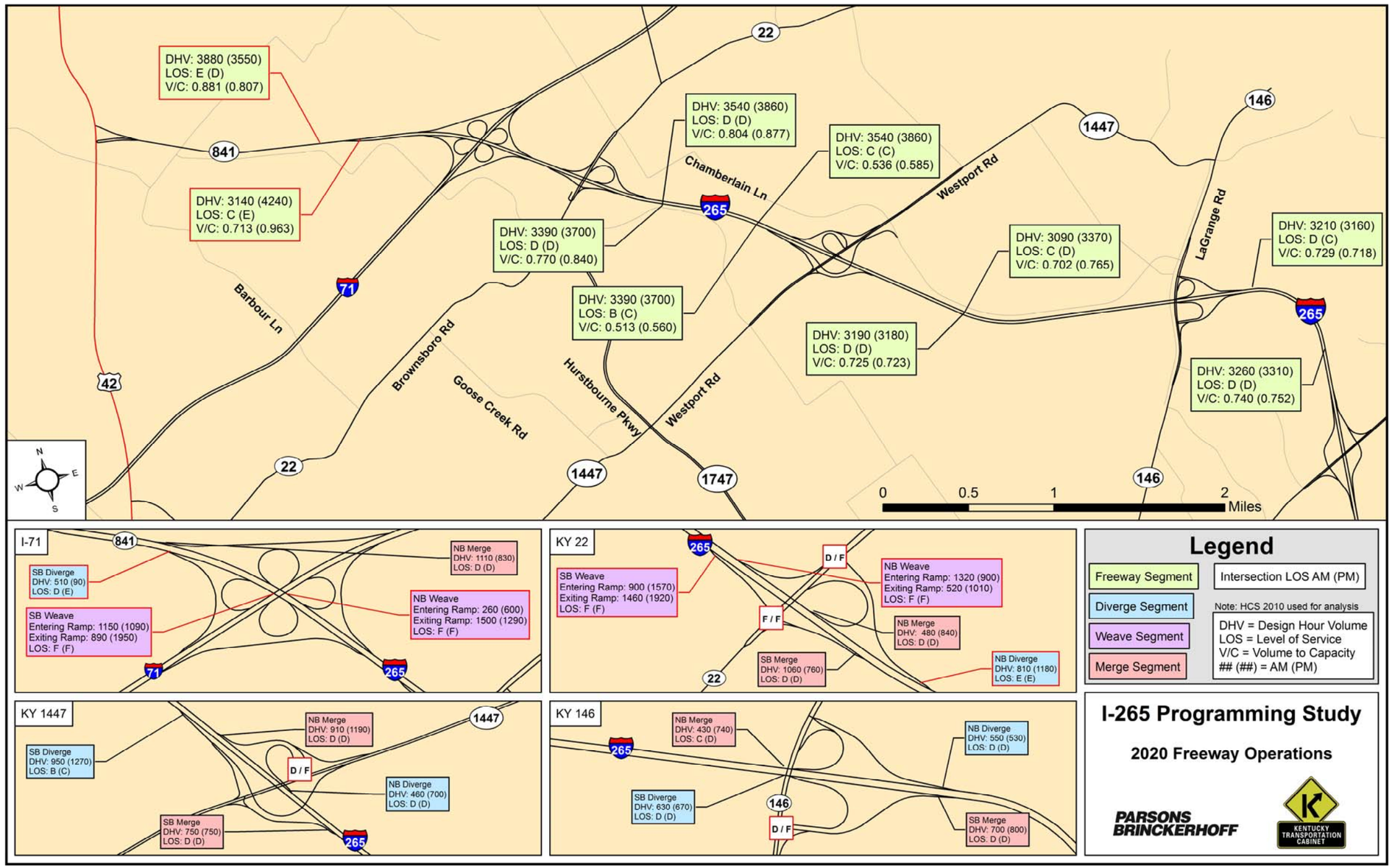
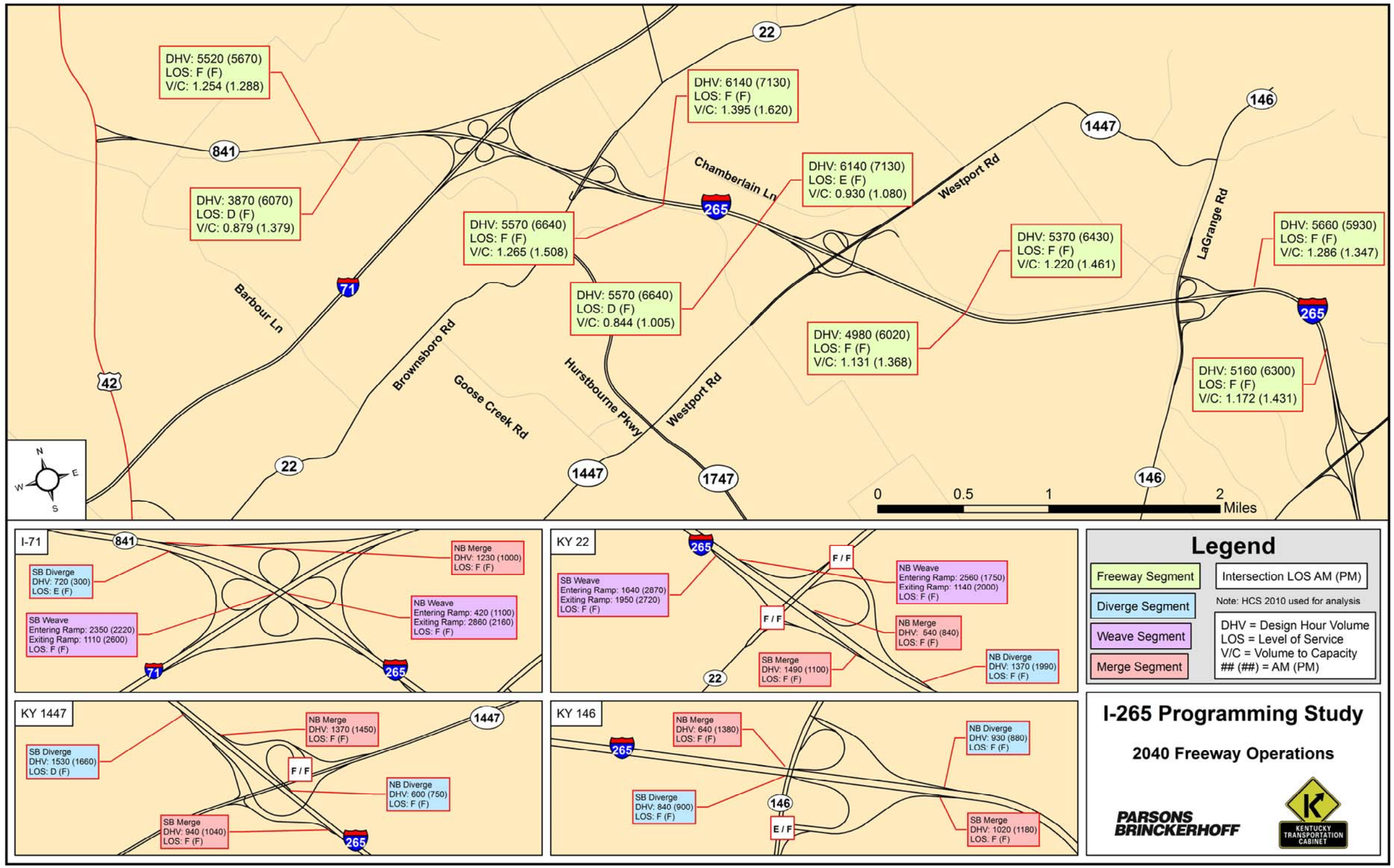


**Figure 11: 2040 Traffic Volumes and LOS (KY 3084 to I-71)**



### 7.4 Public Ranking of Projects

Based on the analyses described in Sections 6.1 through 6.3, the list of potential projects was compiled. Each project was displayed on a map at the public meetings to collect feedback on prioritization. Construction cost estimates (in 2014 dollars) were developed for each project and included on the ranking sheet. The ranking sheets are included in **Appendix I**.

**Table 3** includes a listing of all of the projects on the ranking sheets. The projects were divided into three sections, which corresponded with the three maps. The maps divided the study area into sections as depicted in **Figure 1**, the study area map. This was done to make it easier for the public to focus on a smaller number of projects in each section, rather than all projects throughout the entire study area. The study area sections were given colors to help match the projects with the study area sections. Section 1 was orange and included projects from I-65 to KY 1819. Section 2 was blue and included projects from KY 155 to KY 3084. Section 3 was green and included projects from KY 146 to I-71.

**Figures 12, 13** and **14** show the locations of the projects on study area maps. Results from the public ranking effort were used as part of the evaluation criteria in the overall study prioritization. Chapters 8 and 9 summarize the results of the public input and other evaluation criteria used for the I-265 widening alternatives and system improvements.

**Table 3: Projects Ranked at Public Meeting**

| Section | Project Description | Cost |
|---|---|---|
| 1 - Orange | Capacity Added: At the Beulah Church Road and I-265 EB Ramp intersection, add SB left turn onto I-265 EB entrance ramp and additional EB left turn lane on I-265 EB exit ramp; add NB thru lane through the I-265 interseciton. | $1,200,000 |
| 1 - Orange | Signalize the Beulah Church Road and I-265 WB Ramp intersection. | $100,000 |
| 1 - Orange | Roadway Widening I-265 | $91,800,000 |
| 1 - Orange | Signalize Billtown Road and I-265 WB Ramp intersection | $100,000 |
| 1 - Orange | Signalize and add SB and EB left turn capacity, and a NB thru lane at the Billtown Road and I-265 EB Ramp intersection | $1,500,000 |
| 2 - Blue | Capacity Added: Add EB thru and NB left turn at KY 155 and I-265 NB Ramp intersection | $2,100,000 |
| 2 - Blue | Interchange Reconstruction: 5-21.00 - Reconstruct I-265 interchange at I-64, including: NB to WB 2 lane flyover, SB to WB 2 lane ramp and auxiliary lane; also includes WB auxiliary lane on I-64 from I-265 to Blankenbaker Parkway | $60,300,000 |
| 2 - Blue | New Interchange: Rehl Road | $31,600,000 |
| 2 - Blue | Roadway Widening I-265 | $115,000,000 |
| 2 - Blue | Interchange Improvement: 5-474.00 - Reduce congestion and improve safety at the Old Henry Road interchange | $3,250,000 |
| 2 - Blue | Roadway Improvements: 5-367.00 - Construct a new 4-lane route from Old Henry Road interchange at I-265 to KY 22 in the vicinity of KY 329B | $45,600,000 |
| 3 - Green | ITS Projects: 5-48.9 - TRIMARC improvements on I-71 from near the Kennedy Interchange to I-265 | $6,730,000 |
| 3 - Green | Interchange Reconstruction: 5-48.3 - Reconstruction of the I-71 / I-265 interchange including a possible flyover ramp from I-265 NB to I-71 SB | $19,300,000 |
| 3 - Green | Capacity Added: Add EB left turn at Westport Road and I-265 NB Ramp intersection | $200,000 |
| 3 - Green | Roadway Widening I-265 | $66,700,000 |
| 3 - Green | Capacity Added: At the I-265 SB Ramp and LaGrange Road intersection, add a second SB left turn lane onto I-265 entrance ramp, a second WB right turn lane on the I-265 exit ramp, and a third NB thru lane from Nelson Miller Pkwy through the intersection | $1,200,000 |

**Figure 12: Projects Located in Section 1 (Orange)**

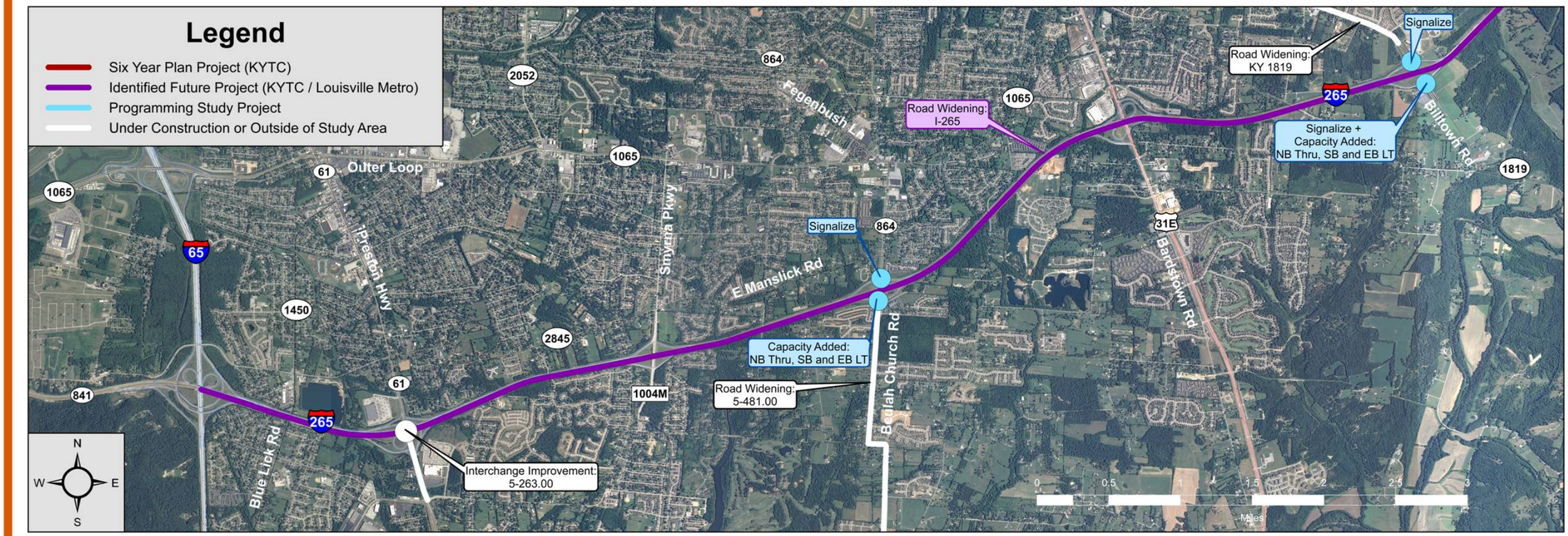


**Figure 13: Projects Located in Section 2 (Blue)**

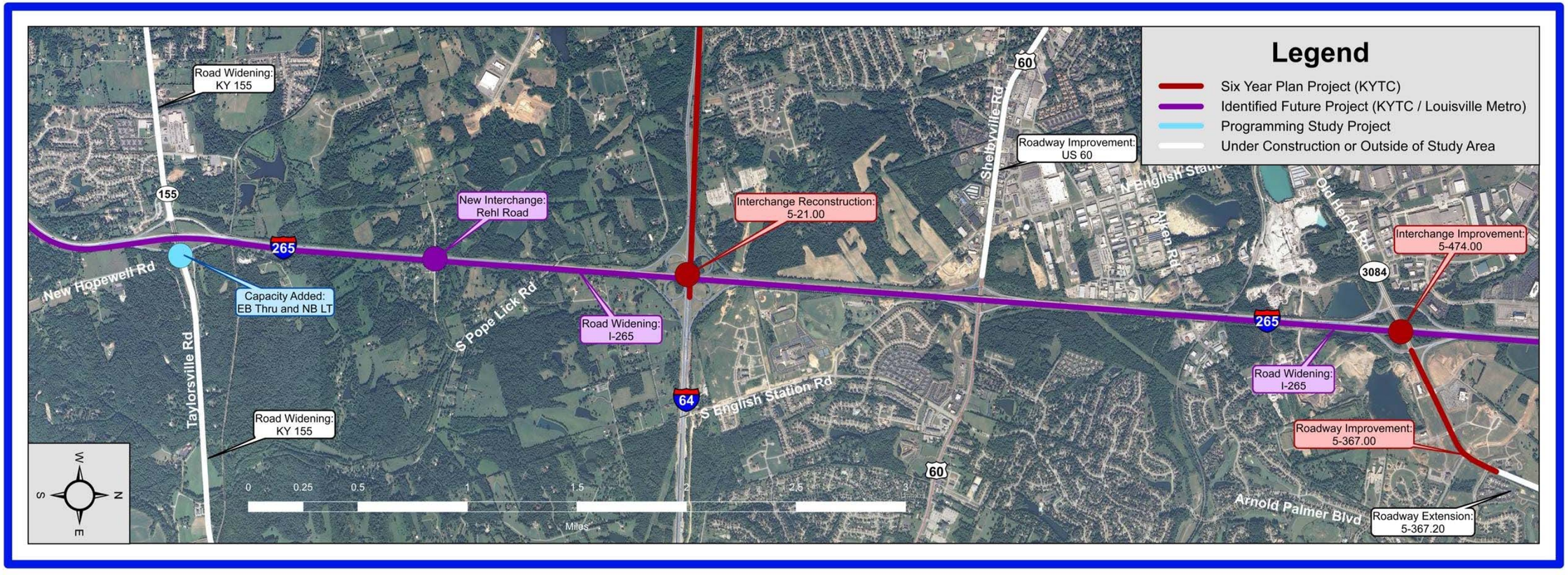
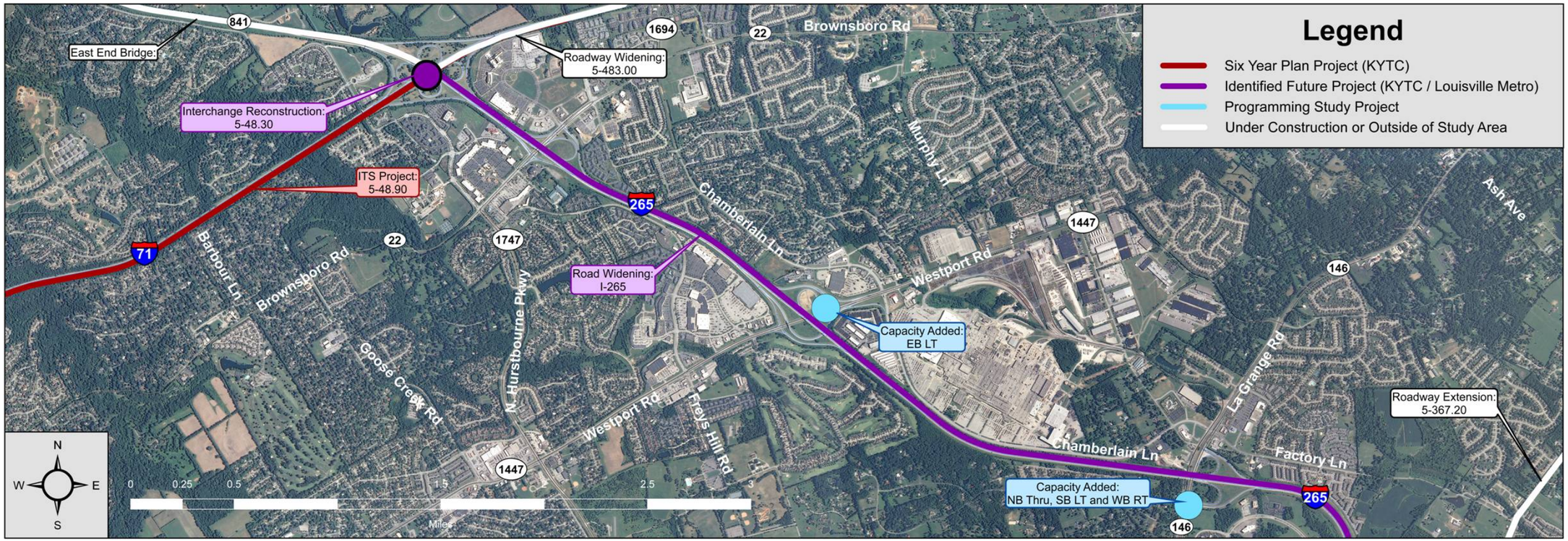


**Figure 14: Projects Located in Section 3 (Green)**



### 7.5 Additional Project Considerations

Several additional improvements were not included on the ranking sheet brought to the public meeting. These improvements are described in the following sections.

#### 7.5.1 Intelligent Transportation Systems (ITS)

The purpose of TRIMARC is to improve the performance of the existing freeway system in the metropolitan Louisville and Southern Indiana area. This is accomplished by implementing services and systems that facilitate the efficient flow of traffic. A key to this concept is the dissemination of information to the public as well as the officials who are responsible for managing and maintaining the transportation infrastructure.

Through the use of the USDOT ITS (United States Department of Transportation Intelligent Transportation Systems) Deployment Analysis System (IDAS), the Assessment Team has found the benefit-to-cost ratio for current TRIMARC operations to be 14.24:1, which indicates that for every dollar that has been invested in TRIMARC, $14.24 is the estimated returned benefit to TRIMARC's customers.

The installation of ITS assets prior to any corridor projects will assist with the maintenance of traffic throughout the project period.

Following the ITS meeting with TRIMARC and KYTC, TRIMARC provided a list of proposed improvements for the ITS system along I-265, including specific devices and estimated costs. A brief description of recommended devices is given below:

- Closed-Circuit Television (CCTV) Cameras – These devices used for surveillance provide maintenance, operations, and emergency management personnel the ability to monitor traffic and weather conditions, confirm / identify incidents, verify incident location before emergency personnel deployment for improved response and verification of messages or warnings displayed by other ITS devices.
- Dynamic Message Signs (DMS) – These boards used for information dissemination allow the operating agency the ability to display messages based on current conditions ahead. These messages could include estimated or actual travel time to an upcoming location, alternative route options, warning of incidents or construction activities ahead, safety / advisory / public service messages, and route information during an emergency which requires an evacuation.
- Communication Hut – Part of the communications infrastructure, a communication hut allows for future expansion of the system and a secure remote location for maintenance and for technicians to troubleshoot problems within the system. These huts simplify the operations and maintenance of the ITS architecture by establishing a point to point network which significantly improves the network reliability and recovery when the system goes down.
- Highway Advisory Radio (HAR XMTR) – These devices provide audible public service messages to those in range. Messages range from weather warnings to emergency evacuation information.
- Wide Beam Radar Detector – These devices are used for data collection are mounted along the roadside to collect flow rate, speed and lane occupancy data. This information can be used to update expected travel times in the area or as a measure to monitor the congestion throughout the day and during the peaks. This data can be used as a performance measure to determine system operations and how future roadway improvements impact congestion.
- Fiber Optic Cable – Fiber is the preferred medium for transmitting large amounts of data from field devices to a central server. This is the interstate equivalent of the road network and is essential to any advanced traffic management system.
- Enhanced Mile Markers – Enhanced mile markers are mile post signs placed every 1/10 of a mile used to assist drivers when identifying their location along a corridor.

The list of the locations and costs of the desired devices is included in **Appendix L**. These ITS projects were not presented to the public for prioritization, because they are of a different scope than traditional construction projects. Instead, all of the desired ITS improvements were included in the system improvement section to be evaluated, as discussed in Chapter 8.

#### 7.5.2 Freeway Ramp Acceleration and Deceleration Length Improvements

At the beginning of the study, a field review was performed to visually check for areas that may require improvement. One concern noted was the length of the acceleration and deceleration lanes at the interchanges. These lengths were compared to the current requirements of the American Associations of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets (2011), also known as the "Green Book", a design reference with recommended standards for the design of highways. **Table 4** shows a comparison of actual length and recommended length for all deficient ramps in the study area.

**Table 4: Comparison of Acceleration and Deceleration Lengths**

| Segment | Merge / Diverge | Actual Length | Required Length |
|---|---|---|---|
| Smyrna Parkway to I-265 WB | Merge | 270 | 600 |
| Smyrna Parkway to I-265 EB | Merge | 350 | 770 |
| Taylorsville Road to I-265 EB | Merge | 200 | 800 |
| I-265 EB to I-64 EB | Diverge | 220 | 340 |
| I-64 WB to I-265 EB | Merge | 400 | 800 |
| LaGrange Road to I-265 WB | Merge | 400 | 600 |

These improvements were also not included with the public ranking sheets because I-265 will be widened in sections (to be discussed in Chapter 8), and some of these improvements will occur when that takes place. However a large portion of the study area may not receive freeway capacity improvements for many years. Lengthening the deficient acceleration and deceleration lanes is a lower cost, short term solution that will provide safety and capacity benefits at the merge and diverge areas of the sections that are not the highest priority for widening. Based on prioritization of the I-265 mainline widening, acceleration and deceleration length improvements on sections that will not be widened in the near future will be recommended.

There are four acceleration and deceleration lanes that currently do not meet standards, but could be restriped to meet current standards. These include Bardstown Road to I-265 eastbound, Billtown Road to I-265 eastbound, Billtown Road to I-265 westbound, and Taylorsville Road to I-265 westbound. These low cost improvements will be included with the other system improvements in Chapter 8.

# 8.0 IMPROVEMENTS EVALUATION

## 8.1 Mainline Improvements

The project to widen I-265 received a medium – high priority ranking from the public, with an average score of 2.58 out of 3. Projects that were considered low priority received a score of 1 and projects that were considered high priority received a score of 3.

The specific details pertaining to widening I-265 (Collector-Distributor (C-D) Road, 3 lane, 4 lane, etc.) were not ranked by the public. Instead, several tools were used to evaluate the six alternatives discussed in Section 7.2. Further details about the evaluation of the six alternatives are found in **Appendix M**. Freeway Evaluation (FREEVAL), a highway capacity software tool that can be used to evaluate an entire freeway, was used to analyze the operations along the mainline, while Highway Capacity Software (HCS 2010) was used to analyze the acceleration and deceleration areas along the freeway. FREEVAL can be used to evaluate the effects of segments that are operating over capacity, and how they impact the segments before and after. HCS and FREEVAL were useful in determining areas where future capacity would be required, thus identifying additional potential projects to be considered. Maps showing the 2020 and 2040 No Build AM and PM peak analyses in FREEVAL and HCS are included in **Appendix M.**

While FREEVAL and HCS were useful in identifying areas where capacity failures may have spillback impacts to the system, a basic capacity analysis was also performed to determine the future year in which the traffic volumes on each segment would result in unacceptable levels of congestion. **Table 5** shows the minimum year in which a three or four lane section would be required to accommodate expected traffic volumes. This planning-level analysis assumed a 2,400 passenger car per hour per lane (pcphpl) capacity, a typical freeway capacity value. This analysis helped divide I-265 into phases for widening based on estimated dates that the existing capacity would no longer support the expected traffic. It also assisted in identifying segments where additional widening beyond three lanes or the addition of a C-D Road would be useful.

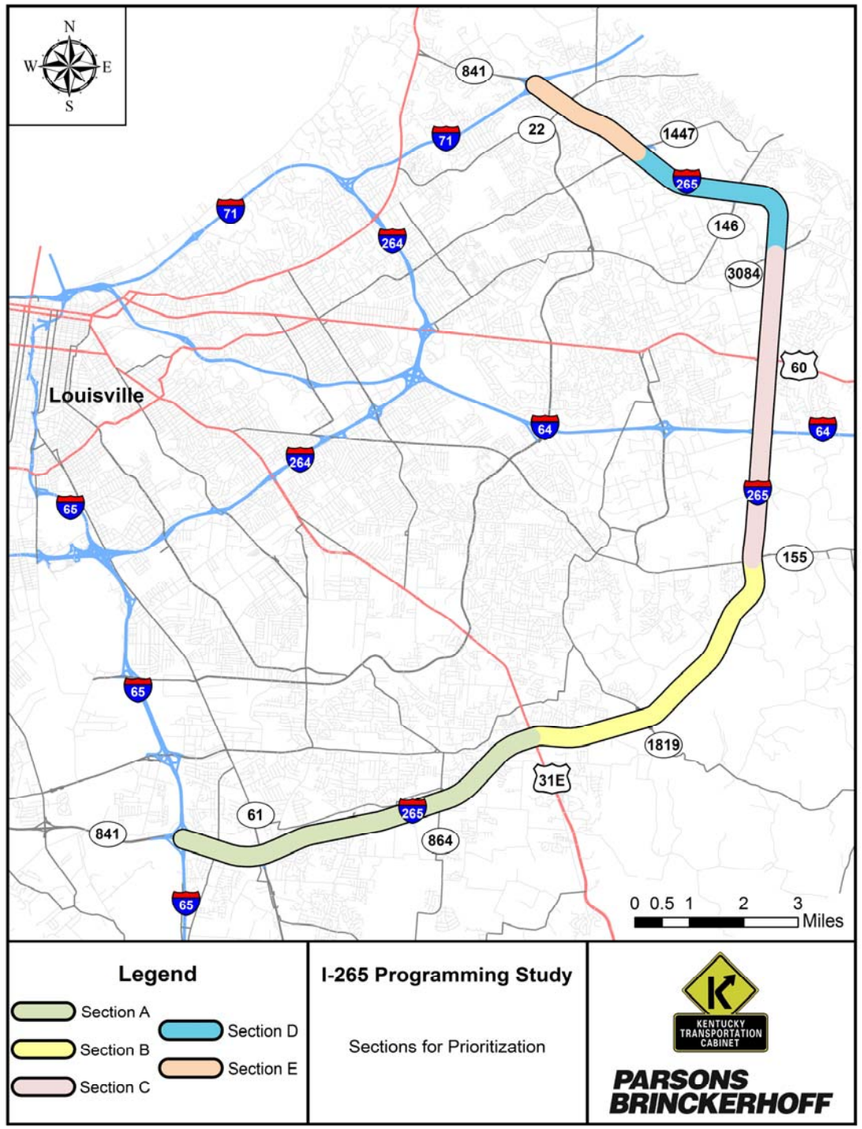
The initial decision to identify and apply only one of the widening alternatives to the entire study area was revised based on the information in **Table 5.** The study area was divided into different phases for construction based on year of traffic congestion failure. Then, the appropriate alternative between three lanes, four lanes, and/or additional C-D Roads would be required by 2040. **Figure 15** shows I-265 divided into five sections for widening. The study area was divided into segments based on logical break points and grouping of similar failure years together. Recommendations for each of the I-265 divisions are identified in the following sections.

**Table 5: Mainline Capacity Analysis by Year**

| Segment | Minimum Year | |
|---|---|---|
| | 3 Lane | 4 Lane |
| I-265 between I-65 and KY 61 EB | 2022 | 2040 |
| I-265 between KY 61 and Smyrna Pkwy. EB | 2027 | -- |
| I-265 between Smyrna Pkwy. and KY 864 EB | 2025 | -- |
| I-265 between KY 864 and US 31E EB | 2027 | -- |
| I-265 between US 31E and KY 1819 EB | 2026 | -- |
| I-265 between KY 1819 and KY 155 NB | 2025 | -- |
| I-265 between KY 155 and I-64 NB | 2021 | 2037 |
| I-265 between I-64 and US 60 NB | 2021 | 2037 |
| I-265 between US 60 and KY 3084 NB | 2025 | 2039 |
| I-265 between KY 3084 and KY 146 NB | 2028 | -- |
| I-265 between KY 146 and KY 1447 NB | 2027 | -- |
| I-265 between KY 1447 and KY 22 NB | 2025 | 2038 |
| I-265 between KY 22 and I-71 NB | 2021 | 2032 |
| KY 841 between I-71 and US 42 NB | 2024 | -- |

| |
|---|
| 2021-2025 |
| 2026-2030 |
| 2031-2035 |
| 2036-2040 |

**Figure 15: I-265 Widening Phasing**




### 8.1.1 Section A

Section A widening encompasses the section of I-265 from I-65 to US 31E. The section between KY 61 and US 31E would be widened to three lanes. The section between I-65 and KY 61 is already a three lane section; however, the capacity analysis shows that this segment will need four lanes to accommodate traffic by the year 2040. According to public feedback, the section between I-65 and KY 61 is already experiencing significant delays and heavy congestion. A scoping study of the I-65 and I-265 interchange is recommended, and is discussed further in Section 8.2. It is advised that the widening of the I-65 to KY 61 section be performed with the recommended improvements that result from that scoping study.

### 8.1.2 Section B

Section B widening encompasses the section of I-265 from US 31E to KY 155. Based on the capacity analysis, this section should be widened to three lanes.

### 8.1.3 Section C

Section C widening begins at KY 155 and extends to KY 3084. Capacity analysis showed that all three segments being widened in this phase would require a minimum of four lanes before 2040.

The interchange with I-64 is located in this segment. Design funding has been authorized for the I-64 interchange reconstruction (Item No. 5-21.00) in the KYTC 2012 Six-Year Highway Plan. The ultimate build includes a C-D Road through I-64. Due to the failure of three lanes to address expected traffic volumes by 2040 between KY 155 and KY 3084, it is recommended that the C-D Road be extended in both directions to KY 3084 in the north and KY 155 in the south. Plan and profile sheets for the recommended C-D Roads are included in **Appendix M**. It should be noted that these sheets show the existing I-64 ramp configuration, but the C-D Road should tie in with the ultimate build of the I-64 interchange improvements.

### 8.1.4 Section D

Section D widening includes the section of I-265 between KY 3084 and KY 1447. The capacity analysis indicates that a three lane section will be sufficient for this phase of widening.

### 8.1.5 Section E

Section E widening begins at the KY 1447 interchange and extends through the end of the study area at the I-71 interchange.

Similar to the I-64 interchange, the I-71 interchange has also been studied, and the first phases of improvements are included in the KYTC 2012 Six-Year Highway Plan for Item No. 5-48.30. The ultimate build of the I-71 interchange includes flyover ramps from I-265 northbound to I-71 southbound and from I-265 southbound to I-71 northbound, as well as additional auxiliary lanes between KY 22 and I-265, which would bring the total number of lanes on that segment of I-265 to four. The recommendation for Phase 2 is to widen the section between KY 22 and KY 1447 to four lanes (it is already three lanes just north of KY 1447), and tie into the ultimate build of the I-71 interchange improvements.

## 8.2 System Improvements

Several new projects were added to the list of projects that had been distributed to the public. These new projects included the ITS improvements recommended by TRIMARC (as discussed in Chapter 7), acceleration and deceleration lane improvements (also discussed in Chapter 7), reconstruction of the US 31E and KY 155 interchanges, and a scoping study to analyze the I-65 and I-265 interchange,

Based on feedback from the public meeting, the I-65 and I-265 interchange is an area that experiences significant congestion on a daily basis. To properly evaluate this interchange and recommend a solution would be a major undertaking; therefore, it is recommended that KYTC complete a scoping study on the interchange as a short term solution, with recommendations from the study implemented with widening of that section of I-265, which was recommended in Section 8.1.1. Reconstruction of the US 31E and KY 155 interchanges were also added based on public feedback. There were additional public comments regarding the US 31E (Bardstown Road) and KY 155 (Taylorsville Road) interchanges, which resulted in these projects being added to the evaluation matrix.

Potential I-265 improvements, including the widening of the mainline were divided into five mainline sections as discussed in the previous section. The projects located at the interchanges between the sections were listed with the section that had fewer projects, to balance the number of projects in each section. A technical analysis was completed for every project to evaluate impacts to right-of-way, traffic operations, the environment, project cost, purpose and need, and the structural sufficiency of the study area bridges.

Safety, capacity, congestion, access, and economic development were identified as needs by the purpose and need statement for the study. Every project was evaluated as to whether or not it met those needs.

Each project was also evaluated with respect to the potential impact that it would have on right-of-way, traffic operations, and the environment. Project right-of-way impacts were ranked by the severity of impact with no impacts expected listed as “none”, minimal impacts expected listed as “low”, moderate impacts expected listed as “medium”, and major impacts expected listed as “high”. Traffic operations impacts were similarly ranked “low” if the project is expected to make minor improvements to traffic operations, moderate improvements were ranked “medium”, and “high” ranks were given to those projects expected to significantly improve traffic operations. The environmental impacts were also ranked on the same scale of “low” to “high”. Many of the projects had been previously analyzed for traffic and safety impacts. Projects that did not have a previous analysis completed were evaluated based on qualitative effects estimated from similar types of projects, as it was outside the scope of this study to complete the separate analysis for each project.

Bridges that would be affected by any proposed improvements were evaluated for structural sufficiency, as structurally deficient or functionally obsolete bridges may impact the prioritization of a particular project.

Cost estimates were developed using several methods. The I-265 mainline widening cost was estimated using the average cost per mile from the KYTC Statewide Long Range Transportation Plan. System improvement projects that are listed in the KYTC 2012 Six-Year Highway Plan used the costs listed in the Highway Plan. Similarly, projects identified in the KYTC or KIPDA PIFs used the cost listed in the PIF. An example would be the cost estimate for the Rehl Road interchange with I-265 (as listed in the KIPDA PIF). It should be noted that given the scale of a new interchange construction, the cost estimate is not detailed enough at this point to provide a breakdown of construction costs or the determination of any other project costs associated with the interchange. This includes any additional costs such as the cost of a collector-distributor system to facilitate traffic flow if this interchange is constructed.

Interchange improvements were given an estimate based on the cost for similar-sized urban interchanges. Acceleration and deceleration lane lengths were assumed to cost $500,000 each, based on similar projects. Spot improvement projects were given a general estimate based on similar projects, and ITS project cost estimates came from TRIMARC. All costs are shown are in 2014 constant dollars.

Design, right-of-way, and utilities costs were included if they had been developed by a previous study or plan. Spot improvements and acceleration and deceleration lane improvements all occur within existing right-of-way. Design, right-of-way and utilities costs were not estimated for the I-265 widening segments, or for the interchange reconstruction projects that have not yet been studied as the scope of these projects is not yet known.

**Tables 6, 7** and **8** show the complete evaluation matrices. **Table 6** shows the matrix for the mainline widening sections, **Table 7** shows the matrix for the system improvements, and **Table 8** shows the matrix for ITS improvements. The complete evaluation matrices were sent to KYTC to prioritize the projects. KYTC sent the ITS matrix to TRIMARC to prioritize. KYTC took into account the complete technical analysis as well as the public input to determine its final ranking of projects, which is shown in Chapter 9.

## Table 6: Mainline Widening Evaluation Matrix

| Group | Project | Description | Milepoint(s) | KYTC Item Number | Cost | | | | Meets Purpose and Need | | | | | Technical Analysis | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Design | Right-of-Way | Utilities | Construction | Safety | Capacity | Congestion | Access | Economic Development | Right-of-Way Impacts[1] | Traffic Operations Impacts[2] | Environmental Impacts[3] | Structural Status[4] |
| Section A: I-65 to US 31E | I-265 Widening | I-265 Widening: I-65 to US 31E (Bardstown Road) | MP 10.25 - MP 17.30 | -- | * | * | * | $65,000,000 | -- | X | X | -- | -- | Low | High | Medium | 2 Bridges Identified as Functionally Obsolete |
| Section B: US 31E to KY | I-265 Widening | I-265 Widening: US 31E (Bardstown Road) to KY 155 (Taylorsville Road) | MP 17.30 - MP 23.10 | -- | * | * | * | $75,000,000 | -- | X | X | -- | -- | Low | High | Medium | -- |
| Section C: KY 155 to KY | I-265 Widening | I-265 Widening: KY 155 (Taylorsville Road to KY 3084 (Old Henry Road)[5] | MP 23.10 - MP 28.78 | -- | * | * | * | $70,000,000 | -- | X | X | -- | -- | Low | High | Medium | 1 Bridge Identified as Functionally Obsolete |
| Section D: KY 3084 to KY | I-265 Widening | I-265 Widening: KY 3084 (Old Henry Road) to KY 1447 (Westport Road) | MP 28.78 - MP 32.50 | -- | * | * | * | $45,000,000 | -- | X | X | -- | -- | Medium | High | Medium | -- |
| Section E: KY 1447 to I- | I-265 Widening | I-265 Widening: KY 1447 (Westport Road) to I-71[6] | MP 32.50 - MP 34.73 | -- | * | * | * | $25,000,000 | -- | X | X | -- | -- | Medium | High | Medium | 1 Bridge Identified as Functionally Obsolete |

Notes:
1) "None" indicates no right-of-way impacts; "Low" indicates minimal right-of-way impacts; “Medium” indicates moderate right-of-way impacts; "High" indicates major right-of-way impacts
2) "Low indicates minor improvement to traffic operations; "High" indicates high improvement to traffic operations.
3) “Medium" indicates moderate environmental impact.
4) The number of functionally obsolete or structurally deficient bridges that would be impacted by each project is listed in this column
5) Cost based on traditional widening and does not include extension of C/D Road which has been recommended
6) Cost based on ultimate 6-lane facility but consideration should be given to 8-lane facility
* Denotes a long range project, and design, right-of-way and utilities costs have not been estimated.

## Table 7: System Improvements Evaluation Matrix

| Project | Description | Milepoint(s) | KYTC Item Number | Cost | | | | Meets Purpose and Need | | | | | Technical Analysis | | | | Public Meeting Rankings[5] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Design | Right-of-Way | Utilities | Construction | Safety | Capacity | Congestion | Access | Economic Development | Right-of-Way Impacts[1] | Traffic Operations Impacts[2] | Environmental Impacts[3] | Structural Status[4] | # of Responses | Rank |
| Improve Traffic Control @ KY 864 | If warrants are met, signalize the KY 864 (Beulah Church Road) and I-265 WB Ramp interchange. | MP 3.37 | -- | n/a | n/a | n/a | $100,000 | -- | X | X | -- | -- | None | Medium | None | -- | 62 | 8 |
| Scoping Study for Interchange Improvement @ I-65 | Interchange Reconstruction: Scoping study to analyze improvements to the I-265 / I-65 interchange. | MP 9.60 - MP 10.75 | -- | n/a | n/a | n/a | $500,000 | X | X | X | -- | -- | N/A | High | High | 1 Bridge Identified as Functionally Obsolete | -- | -- |
| Ramp Improvement @ Smyrna Parkway | Increase Acceleration Lane Length from Smyrna Parkway to I-265 WB[6] | MP 13.54 | -- | n/a | n/a | n/a | $500,000 | -- | -- | X | -- | -- | Low | High | Low | -- | -- | -- |
| Ramp Improvement @ Smyrna Parkway | Increase Acceleration Lane Length from Smyrna Parkway to I-265 EB[6] | MP 13.54 | -- | n/a | n/a | n/a | $500,000 | -- | -- | X | -- | -- | Low | High | Low | -- | -- | -- |
| Add Capacity @ KY 864 | Add SB left turn onto I-265 EB entrance ramp and additional EB left turn lane on I-265 EB exit ramp at the KY 864 (Beulah Church Road) and I-265 EB Ramp intersection, add NB through lane through the I-265 intersection | MP 3.37 | -- | $120,000 | n/a | n/a | $1,200,000 | -- | X | X | -- | -- | Medium | Medium | Low | -- | 62 | 7 |
| Interchange Improvement @ I-65 | Improvements to I-265 / I-65 interchange (pending results of Interchange Scoping Study) | MP 9.60 - MP 10.75 | -- | * | * | * | $90,000,000 | X | X | X | -- | -- | N/A | High | High | -- | -- | -- |
| Improve Traffic Control @ KY 1819 | If warrants are met, signalize KY 1819 (Billtown Road) at I-265 WB and EB Ramp intersections. | MP 5.18 | -- | n/a | n/a | n/a | $200,000 | -- | X | X | -- | -- | None | Medium | None | -- | 62 | 10 |
| Interchange Improvement @ KY 155 | Add lighting at the I-265 and KY 155 (Taylorsville Road) Interchange | MP 23.10 | -- | n/a | n/a | n/a | $200,000 | X | -- | -- | -- | -- | None | Low | Low | -- | -- | -- |
| Scoping Study for Improvements | Scoping Study to analyze spot improvements to I-265 from US 31E (Bardstown Road) to KY 1819 (Billtown Road) | MP 16.90 - MP 19.90 | -- | n/a | n/a | n/a | $250,000 | X | X | X | -- | -- | N/A | Medium | Medium | -- | | |
| Add Capacity @ KY 1819 | Add SB and EB left turn capacity, and a NB thru lane at the KY 1819 (Billtown Road) and I-265 EB Ramp intersection | MP 5.18 | -- | $150,000 | n/a | n/a | $1,500,000 | -- | X | X | -- | -- | Low | Medium | Low | -- | 63 | 9 |
| Add Capacity @ KY 155 | Add EB thru and NB left turn at KY 155 (Taylorsville Road) and I-265 NB Ramp intersection | MP 6.06 | -- | $210,000 | $100,000 | n/a | $2,100,000 | -- | X | X | -- | -- | Medium | Medium | Low | -- | 58 | 6 |
| Interchange Improvement @ KY 155 | Reconstruction of the I-265 and KY 155 (Taylorsville Road) Interchange | MP 22.72 - MP 23.45 | -- | * | * | * | $25,000,000 | -- | X | X | -- | -- | Medium | High | Medium | -- | -- | -- |
| Interchange Improvement @ US 31E | Reconstruction of the I-265 / US 31E (Bardstown Road) Interchange | MP 16.30 - MP 17.65 | -- | * | * | * | $40,000,000 | -- | X | X | -- | -- | Medium | High | Medium | -- | -- | -- |
| Ramp Improvement @ I-64 | Increase Deceleration Lane Length from I-265 EB to I-64 EB[6] | MP 25.45 | -- | n/a | n/a | n/a | $500,000 | -- | -- | X | -- | -- | Low | High | Low | -- | -- | -- |
| Ramp Improvement @ I-64 | Increase Acceleration Lane Length from I-64 WB to I-265 EB[6] | MP 25.45 | -- | n/a | n/a | n/a | $500,000 | -- | -- | X | -- | -- | Low | High | Low | -- | -- | -- |
| New Interchange @ Rehl Road | New Interchange: Rehl Road | MP 24.30 | -- | * | * | * | $31,600,000 | -- | X | X | X | X | High | Medium | High | -- | 57 | 11 |
| Interchange Improvement @ I-64 (Phase 1) | Interchange Reconstruction: Reconstruct I-265 interchange at I-64, including: NB to WB 2 lane flyover, SB to WB 2 lane ramp and auxiliary lane; also includes WB auxiliary lane on I-65 from I-265 to Blankenbaker Parkway | MP 25.30 - MP 25.60 | Item 5-21.00 | n/a | $6,510,000 | $2,080,000 | $51,750,000 | X | X | X | -- | -- | Medium | High | High | -- | 60 | 1 |
| Interchange Improvement @ I-64 (Phase 2) | Phased completion of I-265 / I-64 Interchange Improvements | MP 25.30 - MP 25.60 | Item 5-21.10 | $1,450,000 | $6,290,000 | $9,870,000 | $48,040,000 | X | X | X | -- | -- | Medium | High | High | -- | -- | -- |
| Interchange Improvement @ I-64 (Phase 3) | Complete construction of the I-265 / I-64 Interchange with fully directional ramps. | MP 25.30 - MP 25.60 | Item 5-21.20 | $1,830,000 | $9,390,000 | $3,950,000 | $92,520,000 | X | X | X | -- | -- | Medium | High | High | -- | | |
| Ramp Improvement @ KY 146 | Increase Acceleration Lane Length from KY 146 (LaGrange Road) to I-265 WB[6] | MP 30.42 | -- | n/a | n/a | n/a | $500,000 | -- | -- | X | -- | -- | Low | High | Low | -- | -- | -- |
| Add Capacity @ KY 146 | At the I-265 SB Ramp and KY 146 (LaGrange Road) intersection, add a second SB left turn lane onto I-265 entrance ramp, a second WB right turn lane on the I-265 exit ramp, and a third NB thru lane from Nelson Miller Pkwy through the intersection | MP 7.28 | -- | $120,000 | $100,000 | n/a | $1,200,000 | -- | X | X | -- | -- | Medium | High | Low | -- | 58 | 4 |
| Interchange Improvement @ KY 3084 | Reduce congestion and improve safety at the KY 3084 (Old Henry Road) interchange | MP 28.28 - MP 29.10 | Item 5-474.00 | n/a | $300,000 | $700,000 | $5,090,000 | X | X | X | -- | -- | Medium | High | Medium | -- | 60 | 5 |
| Add Capacity @ KY 1447 | Add EB left turn at KY 1447 (Westport Road) and I-265 NB Ramp intersection | MP 6.93 | -- | $20,000 | n/a | n/a | $200,000 | -- | X | X | -- | -- | Low | Medium | Low | -- | 58 | 3 |
| Interchange Improvement @ I-71 (Phase 1) | Reconstruction of the I-265 / I-71 interchange including a possible flyover ramp from I-265 NB to I-71 SB | I-265: MP 34.30 - MP 35.20 I-71: MP 7.50 - MP 9.80 | Item 5-48.3 | n/a | $4,440,000 | $1,370,000 | $13,500,000 | X | X | X | -- | -- | High | High | Medium | -- | 59 | 2 |
| Interchange Improvements @ I-71 (Additional Phases) | Phased completion of I-265 / I-71 Interchange Improvements - Revisit recommendations from the 5-68.00 Study. | I-265: MP 34.30 - MP 35.20 I-71: MP 7.50 - MP 9.80 | Item 5-68.00 | * | * | * | Alt. 5A - $70,000,000 Alt. 8A - $100,000,000 Alt. 10A - $65,000,000 | X | X | X | -- | -- | High | High | Medium | -- | -- | -- |

Notes:
1) "None" indicates no right-of-way impacts; "Low" indicates minimal right-of-way impacts; “Medium” indicates moderate right-of-way impacts; "High" indicates major right-of-way impacts
2) "Low indicates minor improvement to traffic operations; “Medium” indicates moderate improvement to traffic operations; "High" indicates high improvement to traffic operations.
3) "None" indicates no environmental impact; "Low" indicates minimal environmental impact; “Medium” indicates moderate environmental impact; "High" indicates major environmental impact.
4) The number of functionally obsolete or structurally deficient bridges that would be impacted by each project is listed in this column
5) Public ranking based on summary of all projects presented at public meeting. A null value indicates project was not shown at the public meeting.
6) Ramp improvements may be dropped from the list if the prioritization and schedule of the I-265 mainline widening is higher than the ramp improvements.
* Denotes a long range project, and design, right-of-way and utilities costs have not been estimated.

## Table 8: ITS Improvements Evaluation Matrix

| Type | TRIMARC Project ID | Project Description | Roadway | Milepoint(s) | Location Description | Total Cost |
|---|---|---|---|---|---|---|
| CCTV | C1 | Proposed CCTV | KY 841 | 8.0 | KY 841 at KY 1020 (National Turnpike) | $75,000 |
| | C2 | Proposed CCTV | KY 841 | 10.0 | KY 841 at I-65 | $75,000 |
| | C3 | Proposed CCTV | I-265 | 15.0 | I-265 at KY 864 (Beulah Church Road) | $75,000 |
| | C4 | Proposed CCTV | I-265 | 19.0 | I-265 at KY 1819 (Billtown Road) | $75,000 |
| | C5 | Proposed CCTV | I-265 | 21.6 | I-265 at Old Heady Road | $75,000 |
| | C6 | Proposed CCTV | I-265 | 22.8 | I-265 South of KY 155 (Taylorsville Rd) | $75,000 |
| | C7 | Proposed CCTV | I-265 | 24.5 | I-265 at S Pope Lick Road East of I-64 | $75,000 |
| | C8 | Proposed CCTV | I-265 | 34.4 | I-265 at KY 22 (Brownsboro Road) | $75,000 |
| DMS | DMS022[3] | Proposed DMS | I-265 | 6.8 | KY 841 (EB) East of KY 1020 (National Turnpike) | $250,000 |
| | D1 | Proposed DMS | I-65 | 12.5 | I-65 (SB) North of Fern Valley Road | $250,000 |
| | DMS021[3] | Proposed DMS | I-265 | 12.8 | I-265 (WB) West of Smyrna Parkway | $250,000 |
| | D3 | Proposed DMS | I-64 | 16.0 | I-64 (EB) East of KY 1747 (S Hurstbourne Parkway) | $250,000 |
| | DMS020[3] | Proposed DMS | I-265 | 24.3 | I-265 (EB) East of I-64 | $250,000 |
| | DMS019[3] | Proposed DMS | I-265 | 27.9 | I-265 (SB) South of KY 3084 (Old Henry Road) | $250,000 |
| | D2 | Proposed DMS | I-65 | 120.7 | I-65 (NB) South of KY 1526 (John Harper Highway / Exit 121) | $250,000 |
| Communication Hut | H1 | Proposed Communication Hut | KY 841 | 10.0 | I-265 at I-65 | $250,000 |
| | H2 | Proposed Communication Hut | I-265 | 25.0 | I-265 at I-64 | $250,000 |
| EMM | -- | Proposed Enhanced Mile Markers | I-265 | 10.2 - 34.7 | I-265 from I-71 to I-65 (25 miles ) | $40,000 |
| HAR | HX1 | Proposed HAR XMTR | US 31E | -- | Fern Creek Fire Dept. #4 off Billtown Road | $60,000 |
| WBR[1] | -- | Wide Beam Radar detectors placed approximately every 1/2 mile | I-265 | 10.2 - 25.5 | Every 1/2 mile along the 15 mile corridor from I-64 to I-65 | $525,000 |
| | -- | Wide Beam Radar detectors placed approximately every 1/2 mile | I-265 | 25.5 - 34.7 | Every 1/2 mile along the 10 mile corridor from I-71 to I-64 | $350,000 |
| Fiber | -- | Fiber optic cable, conduit and infrastructure (96 strand, minimum) | I-265 | 10.2 - 25.5 | Approximately 15 road miles of fiber optic cable along the 15 mile corridor from I-64 to I-65 | $1,500,000 |
| | -- | Fiber optic cable, conduit and infrastructure (96 strand, minimum) | I-265 | 25.5 - 34.7 | Approximately 10 road miles between I-71 and I-64 | $1,000,000 |
| Misc | -- | TRIMARC improvements on I-71 (Item 5-48.9) | I-71 | -- | I-71 from near Kennedy Interchange to I-265 | $6,730,000 |
| Arterial DMS[2] | -- | Arterial DMS | KY 1447 | -- | KY 1447 (Westport) Road Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 1447 | -- | KY 1747 (Westport Road) Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | US 60 | -- | US 60 (Shelbyville Road) Westbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | US 60 | -- | US 60 (Shelbyville Road) Eastbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | US 31E | -- | US 31E (Bardstown Road) Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | US 31E | -- | US 31E (Bardstown Road) Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 146 | -- | KY 146 (LaGrange Road) Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 146 | -- | KY 146 (LaGrange Road) Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 3084 | -- | KY 3084 (Old Henry Road) Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 3084 | -- | KY 3084 (Old Henry Road) Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 61 | -- | KY 61 (Preston Highway) Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 61 | -- | KY 61 (Preston Highway) Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 155 | -- | KY 155 (Taylorsville Road) Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 155 | -- | KY 155 (Taylorsville Road) Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 1819 | -- | KY 1819 (Billtown Road) Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 1819 | -- | KY 1819 (Billtown Road) Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 2030 | -- | KY 1020 (National Turnpike) Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 2030 | -- | KY 1020 (National Turnpike) Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 864 | -- | KY 864 (Beulah Church Road) Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 864 | -- | KY 864 (Beulah Church Road) Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | -- | -- | Smyrna Parkway Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | -- | -- | Smyrna Parkway Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 1865 | -- | KY 1865 (New Cut Road) Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | KY 1865 | -- | KY 1865 (New Cut Road) Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | -- | -- | Stonestreet Road Southbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | -- | -- | Stonestreet Road Northbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | US 60 | -- | US 60 (Dixie Highway) Westbound approaching I-265 | $110,000 |
| | -- | Arterial DMS | US 60 | -- | US 60 (Dixie Highway) Eastbound approaching I-265 | $110,000 |

Notes:
1) Placement of detectors will affect the cost. The detectors can be co-located on camera poles or other devices for $5,000. Stand alone detectors with a pole $30,000. A detector can span 250 feet and provide information for both directions when properly located. Cost is based on half pole mounted and half stand alone.
2) The costs for the Arterial Digital Message Sign (ADMS) include a verification camera.
3) Replacing existing roadside DMS with an Overhead DMS due to lane expansions.

## 9.0 I-265 PROJECT PRIORITIZATION

The evaluation matrices were provided to KYTC for use in determining the final I-265 project prioritization. KYTC held a meeting including KIPDA representatives to review and discuss the evaluation matrices and reach a consensus on the final prioritization of projects. The mainline widening prioritization was based on the evaluation matrix (cost, meets purpose and need, and technical analysis), the mainline capacity analysis table from Chapter 8 (**Table 5**), and KYTC staff knowledge of the mainline sections. The system improvements prioritization was based on the evaluation matrix (cost, meets purpose and need, technical analysis, and public rankings) and KYTC staff knowledge of the project locations. The ITS ranking sheet was sent to TRIMARC to prioritize.

- **Table 9** shows the final prioritization of the mainline widening segments, including the milepoints for each section, cost, and KYTC ranking.
- **Table 10** shows the final prioritization of the system improvements, including project milepoints, cost, and KYTC ranking.
- **Table 11** shows the final prioritization of the ITS improvements, including milepoints, cost, and TRIMARC ranking.

Detailed maps of each of the five sections are shown in **Figures 16** through **20**. Each map identifies the locations of the system improvements, the mainline widening improvements, and includes details such as the project milepoints, costs, and KYTC ranking.

**Table 9: Prioritization of I-265 Mainline Widening**

| Group | Project | Description | Milepoint(s) | KYTC Item Number | Construction Cost | KYTC Ranking |
|---|---|---|---|---|---|---|
| Section A: I-65 to US 31E | I-265 Widening | I-265 Widening: I-65 to US 31E (Bardstown Road) | MP 10.25 - MP 17.30 | -- | $65,000,000 | 3 |
| Section B: US 31E to KY 155 | I-265 Widening | I-265 Widening: US 31E (Bardstown) to KY 155 (Taylorsville Road) | MP 17.30 - MP 23.10 | -- | $75,000,000 | 5 |
| Section C: KY 155 to KY 3084 | I-265 Widening | I-265 Widening: KY 155 (Taylorsville) to KY 3084 (Old Henry Road) | MP 23.10 - MP 28.78 | -- | $70,000,000 | 1 |
| Section D: KY 3084 to KY 1447 | I-265 Widening | I-265 Widening: KY 3084 (Old Henry Road) to KY 1447 (Westport Road) | MP 28.78 - MP 32.50 | -- | $45,000,000 | 4 |
| Section E: KY 1447 to I-71 | I-265 Widening | I-265 Widening: KY 1447 (Westport Road) to I-71 | MP 32.50 - MP 34.73 | -- | $25,000,000 | 2 |

## Table 10: Prioritization of System Improvements

| Group | Project | Description | Milepoint(s) | KYTC Item Number | Construction Cost | KYTC Ranking (per section) |
|---|---|---|---|---|---|---|
| Section A: I-65 to US 31E | Scoping Study for Interchange Improvement @ I-65 | Interchange Reconstruction: Scoping study to analyze improvements to the I-265 / I-65 interchange. | MP 9.60 - MP 10.75 | -- | $500,000 | 1 |
| | Interchange Improvement @ I-65 | Improvements to I-265 / I-65 interchange (pending results of Interchange Scoping Study) | MP 9.60 - MP 10.75 | -- | $90,000,000 | 2 |
| | Add Capacity @ KY 864 | Add SB left turn onto I-265 EB entrance ramp and additional EB left turn lane on I-265 EB exit ramp at the KY 864 (Beulah Church Road) and I-265 EB Ramp intersection, add NB through lane through the I-265 intersection | MP 3.37 | -- | $1,200,000 | 3 |
| | Ramp Improvement @ Smyrna Parkway | Increase Acceleration Lane Length from Smyrna Parkway to I-265 WB | MP 13.54 | -- | $500,000 | 4 |
| | Ramp Improvement @ Smyrna Parkway | Increase Acceleration Lane Length from Smyrna Parkway to I-265 EB | MP 13.54 | -- | $500,000 | 5 |
| | Improve Traffic Control @ KY 864 | If warrants are met, signalize the KY 864 (Beulah Church Road) and I-265 WB Ramp interchange. | MP 3.37 | -- | $100,000 | 6 |
| Section B: US 31E to KY 155 | Scoping Study for Spot Improvements | Scoping Study to analyze spot improvements to I-265 from US 31E (Bardstown Road) | MP 16.90 - MP 19.90 | -- | $250,000 | 1 |
| | Interchange Improvement @ US 31E | Reconstruction of the I-265 / US 31E (Bardstown Road) Interchange | MP 16.30 - MP 17.65 | -- | $40,000,000 | 2 |
| | Add Capacity @ KY 1819 | Add SB and EB left turn capacity, and a NB thru lane at the KY 1819 (Billtown Road) and I-265 EB Ramp intersection | MP 5.18 | -- | $1,500,000 | 3 |
| | Add Capacity @ KY 155 | Add EB thru and NB left turn at KY 155 (Taylorsville Road) and I-265 NB Ramp intersection | MP 6.06 | -- | $2,410,000 | 4 |
| | Interchange Improvement @ KY 155 | Reconstruction of the I-265 and KY 155 (Taylorsville Road) Interchange | MP 22.72 - MP 23.45 | -- | $25,000,000 | 5 |
| | Improve Traffic Control @ KY 1819 | If warrants are met, signalize KY 1819 (Billtown Road) at I-265 WB and EB Ramp intersections. | MP 5.18 | -- | $200,000 | 6 |
| | Interchange Improvement @ KY 155 | Add lighting at the I-265 and KY 155 (Taylorsville Road) Interchange | MP 23.10 | -- | $200,000 | 7 |
| Section C: KY 155 to KY 3084 | Interchange Improvement @ I-64 (Phase 1) | Interchange Reconstruction: Reconstruct I-265 interchange at I-64, including: NB to WB 2 lane flyover, SB to WB 2 lane ramp and auxiliary lane; also includes WB auxiliary lane on I-65 from I-265 to Blankenbaker Parkway | MP 25.30 - MP 25.60 | Item 5-21.00 | $51,750,000 | 1 |
| | Interchange Improvement @ I-64 (Phase 2) | Phased completion of I-265 / I-64 Interchange Improvements | MP 25.30 - MP 25.60 | Item 5-21.10 | $48,040,000 | 2 |
| | Interchange Improvement @ I-64 (Phase 3) | Complete construction of the I-265 / I-64 Interchange with fully directional ramps. | MP 25.30 - MP 25.60 | Item 5-21.20 | $92,520,000 | 3 |
| | Ramp Improvement @ I-64 | Increase Deceleration Lane Length from I-265 EB to I-64 EB | MP 25.45 | -- | $500,000 | 4 |
| | Ramp Improvement @ I-64 | Increase Acceleration Lane Length from I-64 WB to I-265 EB | MP 25.45 | -- | $500,000 | 5 |
| | New Interchange @ Rehl Road | New Interchange: Rehl Road | MP 24.30 | -- | $31,600,000 | 6 |
| Section D: KY 3084 to KY 1447 | Interchange Improvement @ KY 3084 | Reduce congestion and improve safety at the KY 3084 (Old Henry Road) interchange | MP 28.28 - MP 29.10 | Item 5-474.00 | $5,090,000 | 1 |
| | Add Capacity @ KY 146 | At the I-265 SB Ramp and KY 146 (LaGrange Road) intersection, add a second SB left turn lane onto I-265 entrance ramp, a second WB right turn lane on the I-265 exit ramp, and a third NB thru lane from Nelson Miller Pkwy through the intersection | MP 7.28 | -- | $1,200,000 | 2 |
| | Ramp Improvement @ KY 146 | Increase Acceleration Lane Length from KY 146 (LaGrange Road) to I-265 WB | MP 30.42 | -- | $500,000 | 3 |
| Section E: KY 1447 to I-71 | Interchange Improvement @ I-71 (Phase 1) | Reconstruction of the I-265 / I-71 interchange including a possible flyover ramp from I-265 NB to I-71 SB | I-265: MP 34.30 - MP 35.20<br>I-71: MP 7.50 - MP 9.80 | Item 5-48.3 | $13,500,000 | 1 |
| | Interchange Improvements @ I-71 (Additional Phases) | Phased completion of I-265 / I-71 Interchange Improvements - Revisit recommendations from the 5-68.00 Study. | I-265: MP 34.30 - MP 35.20<br>I-71: MP 7.50 - MP 9.80 | Item 5-68.00 | Alt. 5A - $70,000,000<br>Alt. 8A - $100,000,000<br>Alt. 10A - $65,000,000 | 2 |
| | Add Capacity @ KY 1447 | Add EB left turn at KY 1447 (Westport Road) and I-265 NB Ramp intersection | MP 6.93 | -- | $200,000 | 3 |

## Table 11: Prioritization of ITS Improvements

| Type | TRIMARC Project ID | Project Description | Roadway | Milepoint(s) | Location Description | Total Cost | Ranking |
|---|---|---|---|---|---|---|---|
| CCTV | C4 | Proposed CCTV | I-265 | 19.0 | I-265 at KY 1819 (Billtown Road) | $75,000 | 1 |
| | C8 | Proposed CCTV | I-265 | 34.4 | I-265 at KY 22 (Brownsboro Road) | $75,000 | 1 |
| | C3 | Proposed CCTV | I-265 | 15.0 | I-265 at KY 864 (Beulah Church Road) | $75,000 | 2 |
| | C5 | Proposed CCTV | I-265 | 21.6 | I-265 at Old Heady Road | $75,000 | 2 |
| | C6 | Proposed CCTV | I-265 | 22.8 | I-265 South of KY 155 (Taylorsville Rd) | $75,000 | 2 |
| | C7 | Proposed CCTV | I-265 | 24.5 | I-265 at S Pope Lick Road East of I-64 | $75,000 | 2 |
| | C1 | Proposed CCTV | KY 841 | 8.0 | KY 841 at KY 1020 (National Turnpike) | $75,000 | 3 |
| | C2 | Proposed CCTV | KY 841 | 10.0 | KY 841 at I-65 | $75,000 | 3 |
| DMS | D1 | Proposed DMS | I-65 | 12.5 | I-65 (SB) North of Fern Valley Road | $250,000 | 1 |
| | D2 | Proposed DMS | I-65 | 120.7 | I-65 (NB) South of KY 1526 (John Harper Highway / Exit 121) | $250,000 | 1 |
| | D3 | Proposed DMS | I-64 | 16.0 | I-64 (EB) East of KY 1747 (S Hurstbourne Parkway) | $250,000 | 1 |
| | DMS019[3] | Proposed DMS | I-265 | 27.9 | I-265 (SB) South of KY 3084 (Old Henry Road) | $250,000 | N/A[4] |
| | DMS020[3] | Proposed DMS | I-265 | 24.3 | I-265 (EB) East of I-64 | $250,000 | N/A[4] |
| | DMS021[3] | Proposed DMS | I-265 | 12.8 | I-265 (WB) West of Smyrna Parkway | $250,000 | N/A[4] |
| | DMS022[3] | Proposed DMS | I-265 | 6.8 | KY 841 (EB) East of KY 1020 (National Turnpike) | $250,000 | N/A[4] |
| Communication Hut | H2 | Proposed Communication Hut | I-265 | 25.0 | I-265 at I-64 | $250,000 | 2 |
| | H1 | Proposed Communication Hut | KY 841 | 10.0 | I-265 at I-65 | $250,000 | 3 |
| EMM | -- | Proposed Enhanced Mile Markers | I-265 | 10.2 - 34.7 | I-265 from I-71 to I-65 (25 miles ) | $40,000 | 1 |
| HAR | HX1 | Proposed HAR XMTR | US 31E | -- | Fern Creek Fire Dept. #4 off Billtown Road | $60,000 | 1 |
| WBR[1] | -- | Wide Beam Radar detectors placed approximately every 1/2 mile | I-265 | 25.5 - 34.7 | Every 1/2 mile along the 10 mile corridor from I-71 to I-64 | $350,000 | 2 |
| | -- | Wide Beam Radar detectors placed approximately every 1/2 mile | I-265 | 10.2 - 25.5 | Every 1/2 mile along the 15 mile corridor from I-64 to I-65 | $525,000 | 3 |
| Fiber | -- | Fiber optic cable, conduit and infrastructure (96 strand, minimum) | I-265 | 25.5 - 34.7 | Approximately 10 road miles between I-71 and I-64 | $1,000,000 | 2 |
| | -- | Fiber optic cable, conduit and infrastructure (96 strand, minimum) | I-265 | 10.2 - 25.5 | Approximately 15 road miles of fiber optic cable along the 15 mile corridor from I-64 to I-65 | $1,500,000 | 3 |
| Misc | -- | TRIMARC improvements on I-71 (Item 5-48.9) | I-71 | -- | I-71 from near Kennedy Interchange to I-265 | $6,730,000 | 1 |
| Arterial DMS[2] | -- | Arterial DMS | KY 1447 | -- | KY 1447 (Westport) Road Southbound approaching I-265 | $110,000 | 1 |
| | -- | Arterial DMS | KY 1447 | -- | KY 1747 (Westport Road) Northbound approaching I-265 | $110,000 | 1 |
| | -- | Arterial DMS | US 60 | -- | US 60 (Shelbyville Road) Westbound approaching I-265 | $110,000 | 1 |
| | -- | Arterial DMS | US 60 | -- | US 60 (Shelbyville Road) Eastbound approaching I-265 | $110,000 | 1 |
| | -- | Arterial DMS | US 31E | -- | US 31E (Bardstown Road) Southbound approaching I-265 | $110,000 | 1 |
| | -- | Arterial DMS | US 31E | -- | US 31E (Bardstown Road) Northbound approaching I-265 | $110,000 | 1 |
| | -- | Arterial DMS | KY 146 | -- | KY 146 (LaGrange Road) Southbound approaching I-265 | $110,000 | 2 |
| | -- | Arterial DMS | KY 146 | -- | KY 146 (LaGrange Road) Northbound approaching I-265 | $110,000 | 2 |
| | -- | Arterial DMS | KY 3084 | -- | KY 3084 (Old Henry Road) Southbound approaching I-265 | $110,000 | 2 |
| | -- | Arterial DMS | KY 3084 | -- | KY 3084 (Old Henry Road) Northbound approaching I-265 | $110,000 | 2 |
| | -- | Arterial DMS | KY 61 | -- | KY 61 (Preston Highway) Southbound approaching I-265 | $110,000 | 2 |
| | -- | Arterial DMS | KY 61 | -- | KY 61 (Preston Highway) Northbound approaching I-265 | $110,000 | 2 |
| | -- | Arterial DMS | KY 155 | -- | KY 155 (Taylorsville Road) Southbound approaching I-265 | $110,000 | 3 |
| | -- | Arterial DMS | KY 155 | -- | KY 155 (Taylorsville Road) Northbound approaching I-265 | $110,000 | 3 |
| | -- | Arterial DMS | KY 1819 | -- | KY 1819 (Billtown Road) Southbound approaching I-265 | $110,000 | 3 |
| | -- | Arterial DMS | KY 1819 | -- | KY 1819 (Billtown Road) Northbound approaching I-265 | $110,000 | 3 |
| | -- | Arterial DMS | KY 2030 | -- | KY 1020 (National Turnpike) Southbound approaching I-265 | $110,000 | 3 |
| | -- | Arterial DMS | KY 2030 | -- | KY 1020 (National Turnpike) Northbound approaching I-265 | $110,000 | 3 |
| | -- | Arterial DMS | KY 864 | -- | KY 864 (Beulah Church Road) Southbound approaching I-265 | $110,000 | 3 |
| | -- | Arterial DMS | KY 864 | -- | KY 864 (Beulah Church Road) Northbound approaching I-265 | $110,000 | 3 |
| | -- | Arterial DMS | -- | -- | Smyrna Parkway Southbound approaching I-265 | $110,000 | 3 |
| | -- | Arterial DMS | -- | -- | Smyrna Parkway Northbound approaching I-265 | $110,000 | 3 |
| | -- | Arterial DMS | KY 1865 | -- | KY 1865 (New Cut Road) Southbound approaching I-265 | $110,000 | 4 |
| | -- | Arterial DMS | KY 1865 | -- | KY 1865 (New Cut Road) Northbound approaching I-265 | $110,000 | 4 |
| | -- | Arterial DMS | -- | -- | Stonestreet Road Southbound approaching I-265 | $110,000 | 4 |
| | -- | Arterial DMS | -- | -- | Stonestreet Road Northbound approaching I-265 | $110,000 | 4 |
| | -- | Arterial DMS | US 60 | -- | US 60 (Dixie Highway) Westbound approaching I-265 | $110,000 | 4 |
| | -- | Arterial DMS | US 60 | -- | US 60 (Dixie Highway) Eastbound approaching I-265 | $110,000 | 4 |

Notes:
1) Placement of detectors will affect the cost. The detectors can be co-located on camera poles or other devices for $5,000. Stand alone detectors with a pole $30,000. A detector can span 250 feet and provide information for both directions when properly located. Cost is based on half pole mounted and half stand alone.
2) The costs for the Arterial Digital Message Sign (ADMS) include a verification camera.
3) Replacing existing roadside DMS with an Overhead DMS due to lane expansions.
4) Ranking not provided as timeline of widening is not known.

**Figure 16: Section A, I-65 to US 31E, Projects**

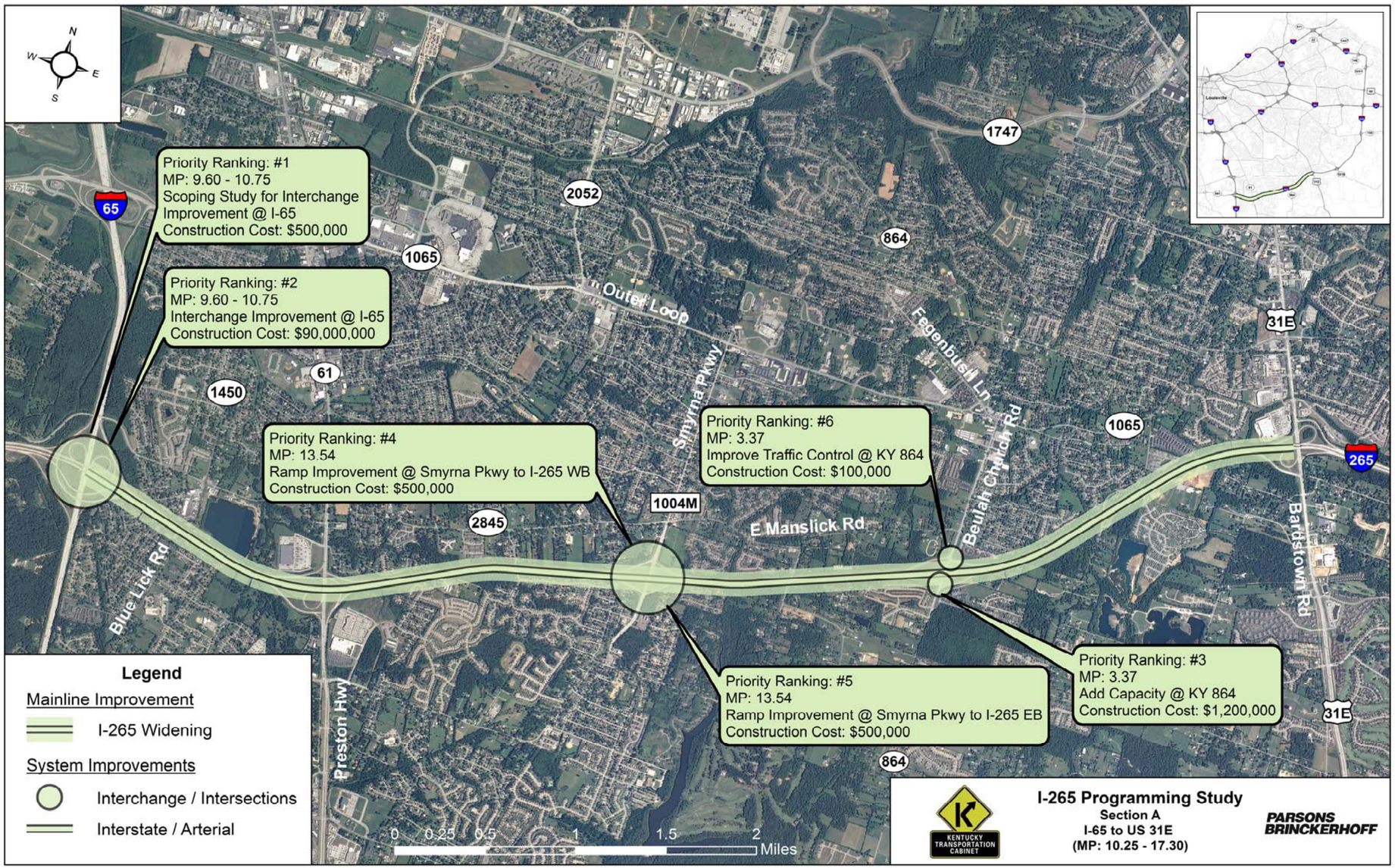


**Figure 17: Section B, US 31E to KY 155, Projects**

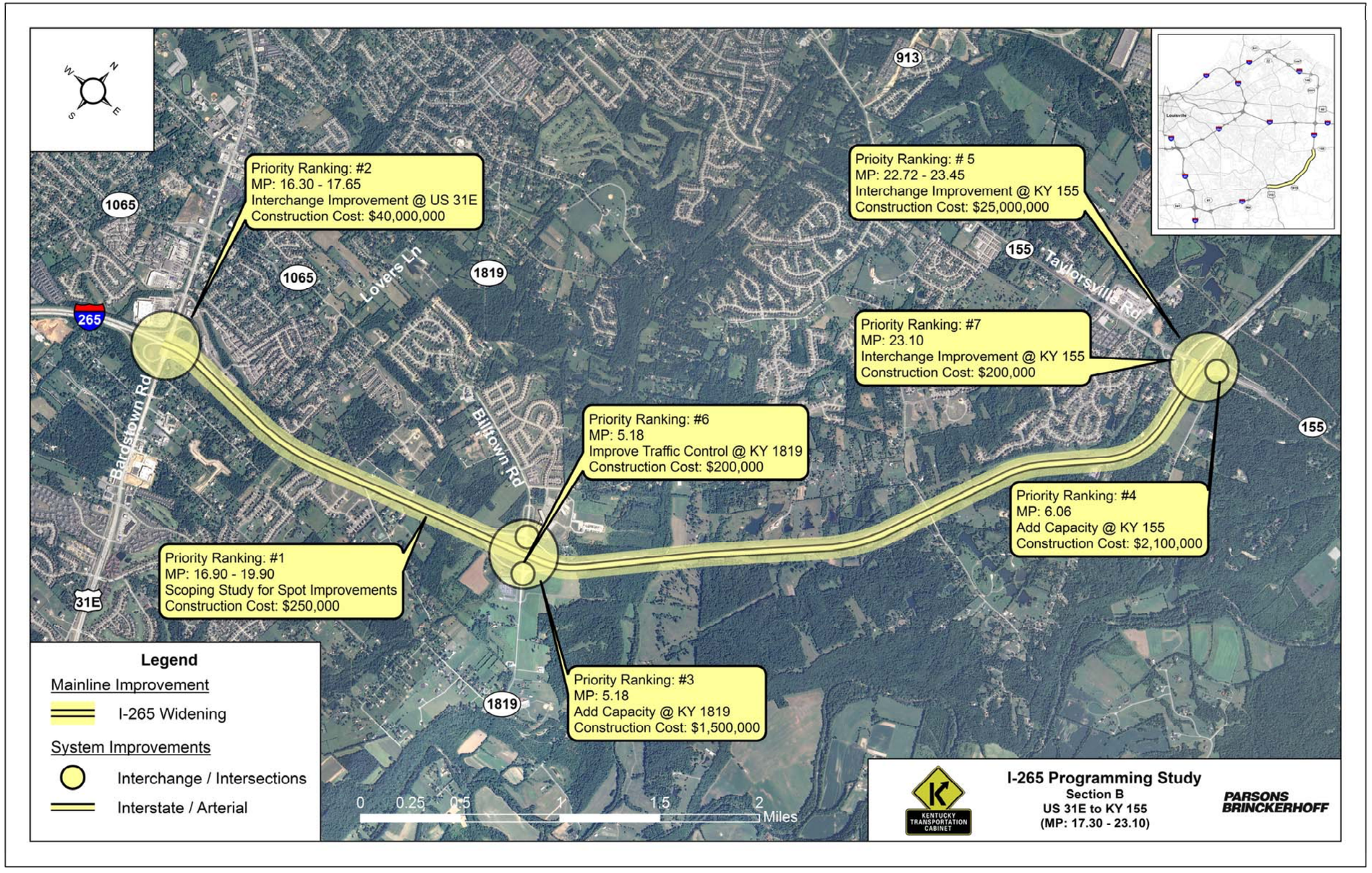


**Figure 18: Section C, KY 155 to KY 3084, Projects**

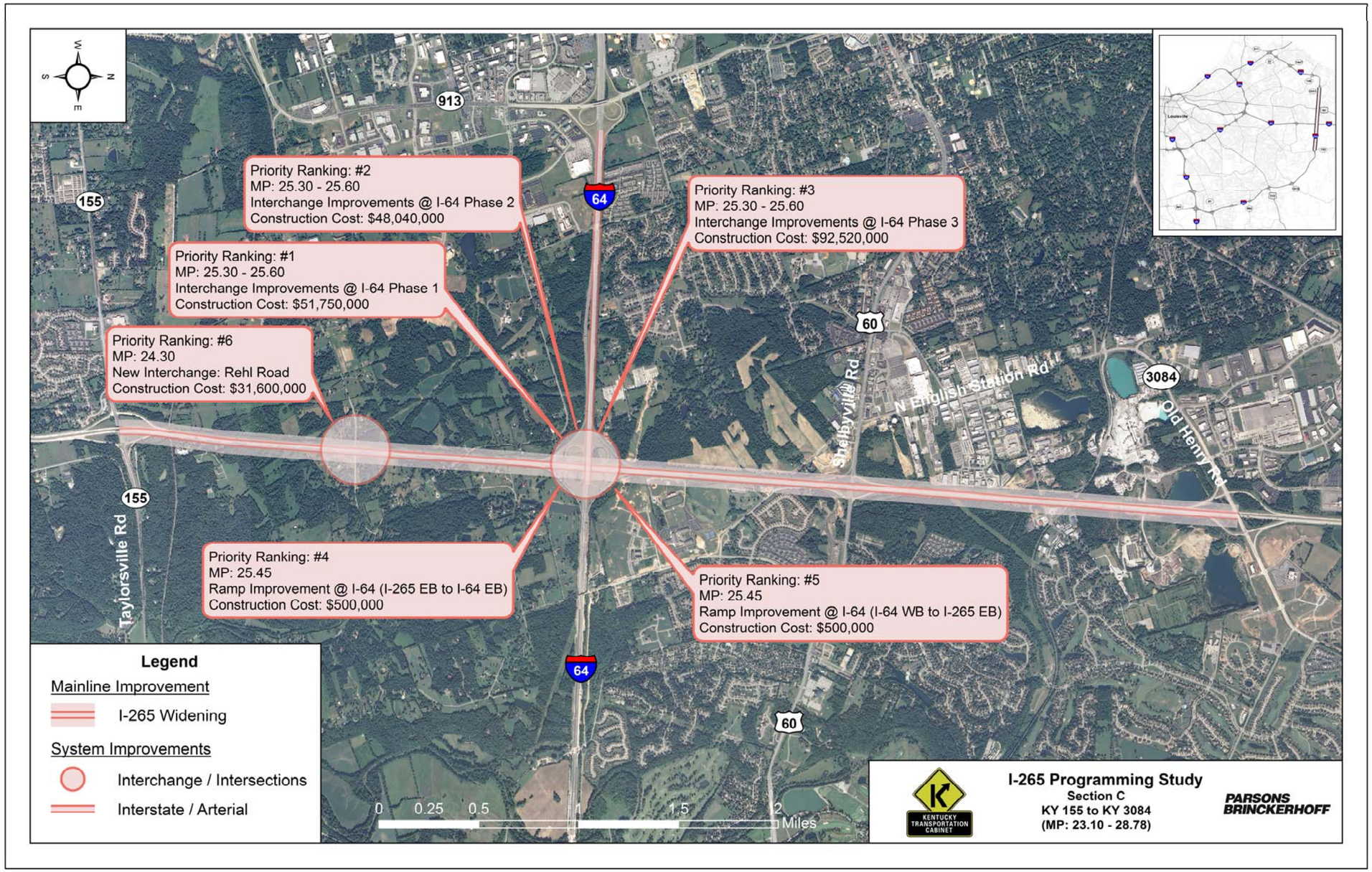


**Figure 19: Section D, KY 3084 to KY 1447, Projects**

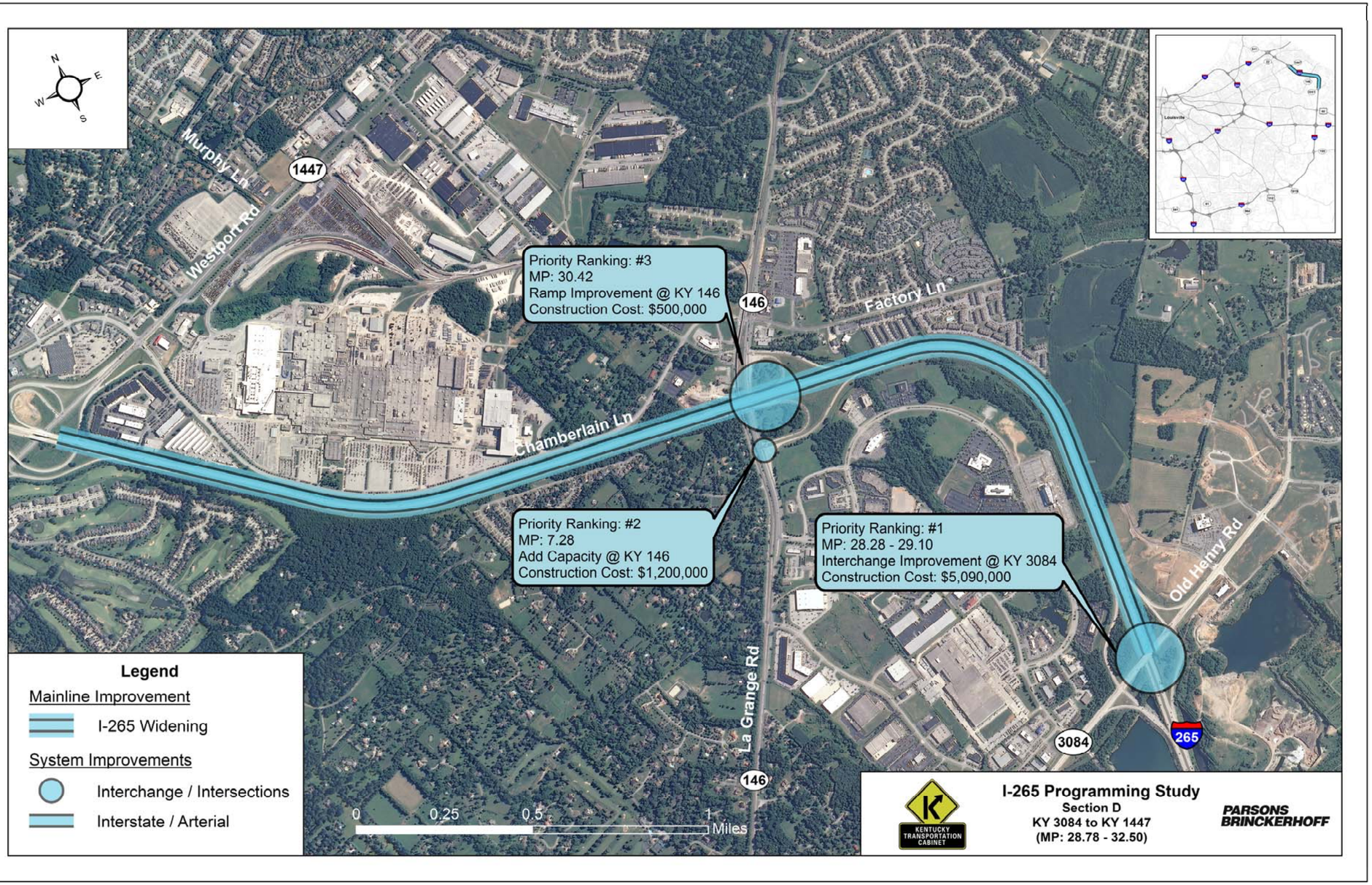
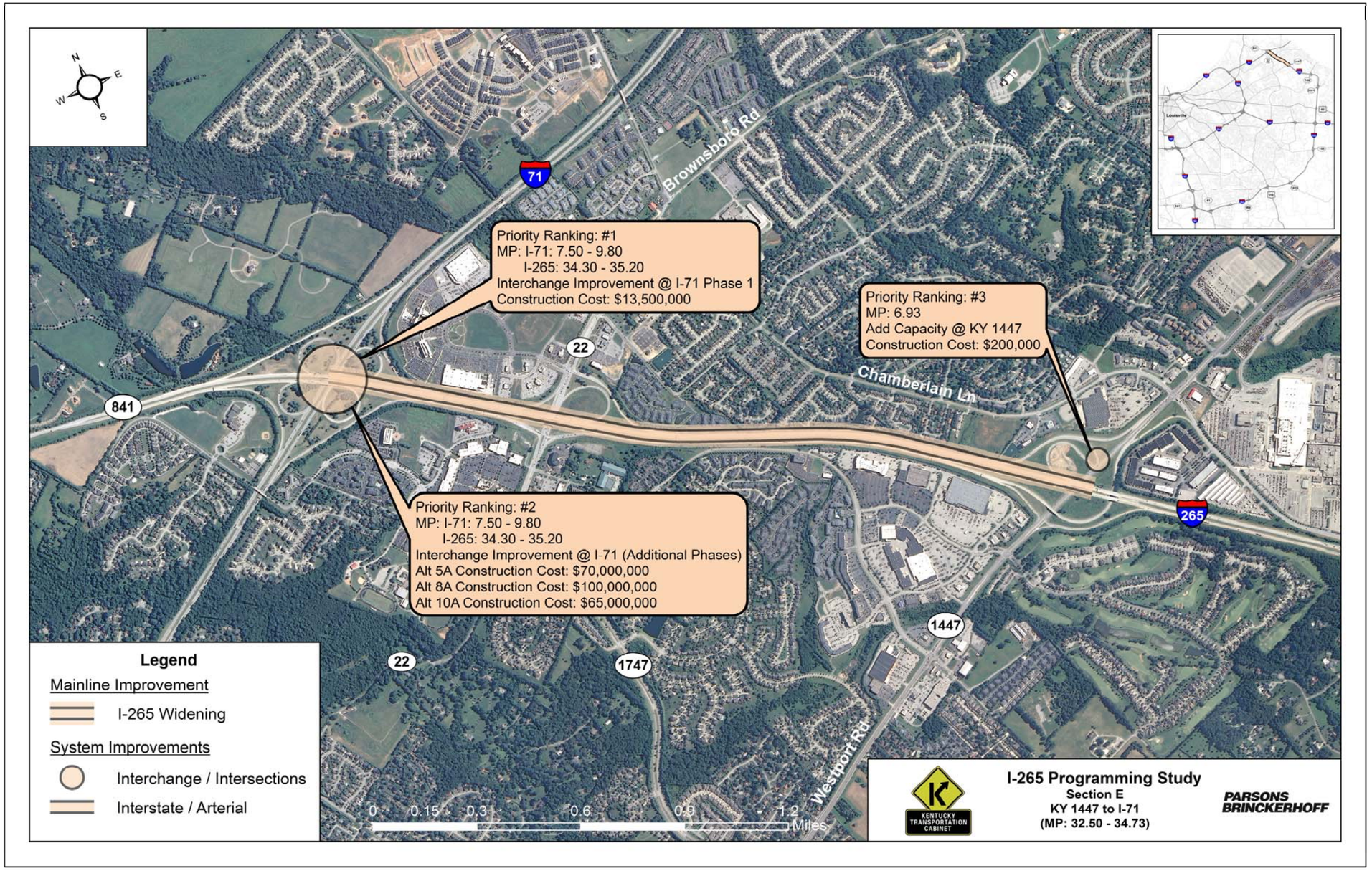


**Figure 20: Section E, KY 1447 to I-71, Projects**



# 10.0 CONTACTS / ADDITIONAL INFORMATION

Written requests for additional information should be sent to:

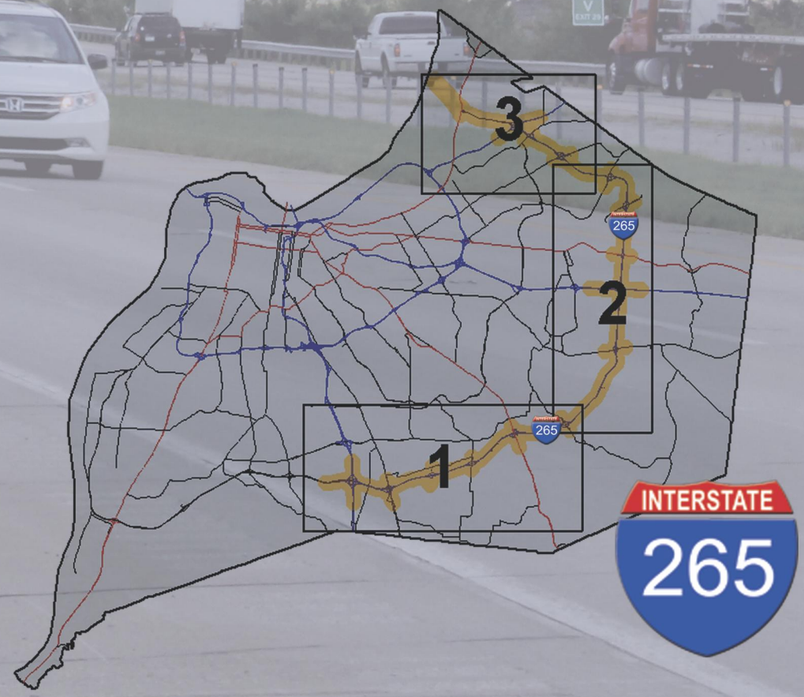
John Moore, Director
KYTC Division of Planning
200 Mero Street
Frankfort, Kentucky  40622

Additional information regarding this study can be obtained from the KYTC District 5 Project Managers, Tom Hall, at (502) 210-5400 (email at tom.hall@ky.gov) or Judi Hickerson, at (502) 210-5429 (email at judi.hickerson@ky.gov).

# FINAL REPORT

# I-265 Programming Study

## JEFFERSON COUNTY, KENTUCKY




PARSONS BRINCKERHOFF