Crystal City Port Access

Preliminary Environmental Assessment and Preliminary Access Justification Report

May 2012

TranSystems

EXPERIENCE Transportation

The Crystal City port site presents a combination of environmental challenges and costly capital and maintenance expenditures as described in detail in the *Jefferson County Ports Phase II Master Plan* (March 2011). These challenges and the lack of existing roadway access preclude Crystal City from being the focus of the first tier of priorities for port development as described in the *Master Plan*. This site requires extra scrutiny for the return on investment to justify the expense to prepare the site for the proposed operations. However, its site configuration, specifically the proximity to the existing railroad and the low elevation, presents the greatest potential for a loop track and a slackwater harbor, respectively. Flexibility lies in the opportunity for a motivated investor to catalyze the implementation of either of these two unique port elements at Crystal City at any stage of the 30-year planning horizon. Proactively anticipating such an opportunity, the Jefferson County Port Authority continues to forward implementation of Crystal City, along with all the Jefferson County port sites, with strategies for the advancement of their comprehensive regional *Master Plan*. As reported in the *Master Plan*, environmental considerations for a proposed roadway corridor to serve the Crystal City site would be presented in greater detail as a Location Study and Environmental Assessment (EA) to work toward the next step in the project planning process which is to obtain environmental clearance for a new roadway.

The following includes the pairing of two documents resulting from the initiative to develop a Location Study and EA for the Crystal City Port Access: Draft Preliminary EA (Draft pEA) and corresponding Draft Preliminary Access Justification Report (Draft pAJR).

The first document is the Crystal City Port Access Draft pEA. A preliminary EA refers to an environmental document [per the National Environmental Policy Act (NEPA)] document that is prepared for circulation within the Missouri Department of Transportation (MoDOT). See MoDOTs Engineering Policy Guide Section 127.14 National Environmental Policy Act (NEPA) Classification and Documents for more information about the process for document review and approval. However, this document is further qualified as a Draft. This Draft pEA has not been made available for MoDOT review because MoDOTs participation cannot be formally be initiated until a funding source has been identified to trigger the applicability of NEPA. NEPA requires consideration of the physical environment for any project that uses federal funding or requires federal permits. As noted, federal funds have yet to be identified and it is too early in the conceptual design phase to confirm the federal permit requirements. Therefore, representatives from MoDOT and FHWA have voluntarily participated in discussions about the roadway access for the Crystal City port site in an advisory capacity ONLY. Assumptions were made that an EA may be the appropriate classification of environmental document. If federal highway funds are identified, MoDOT, in coordination with the Federal Highway Administration (FHWA), would determine the appropriate environmental classification/level of NEPA documentation for the project. An EA is prepared when there is uncertainty about the significance of the impacts from a project; therefore, this Draft pEA follows the format and evaluation methodologies of a pEA in anticipation of its future submittal to MoDOT to begin the review process when funding becomes available. As such, this document is not to be distributed to anyone outside of MoDOT except formal cooperating agencies identified as such on a pEA cover sheet. To help ensure that the pEA remains an internal document, each page is imprinted with the words "Preliminary Draft" and the first page of the document contains the following statement:

> "This is a preliminary draft document that is undergoing internal review within the Missouri Department of Transportation (MoDOT). It is not intended for distribution outside of MoDOT. The Federal Highway Administration has determined that this preliminary document is an intergovernmental exchange that may be withheld under the Freedom of Information Act.

Premature release of this material to any segment of the public could give some sectors an unfair advantage and would have a chilling effect on intergovernmental coordination and the success of the cooperating agency concept. For these reasons, we respectfully request that the public not be given access to this document."

The second document is the Crystal City Port Access Draft pAJR was developed in accordance with the requirements defined in the Federal Register that is dated August 27, 2009 for new or modified access to the Interstate System. Access justification reports, as the name implies, are typically prepared after preliminary investigations have indicated that a new or modified interchange with an interstate facility is needed. Similar to the Draft pEA, this document is qualified as Draft because it has yet to be reviewed by MoDOT and FHWA as their participation thusfar has been advisory ONLY in the absence of the identification of a funding source.

Next Steps

- Begin the process of securing funding.
- Once the funding source has been identified, a federal project sponsor will come forward and agency participation and coordination may be defined so the appropriate agencies requirements can be determined to finalize the planning process.
- The process can then be resumed by updating the preliminary documents to prepare them for submittal to initiate the review process with the agencies. Ultimately a final alignment recommendation may be developed and public involvement will assist in the selection of a preferred.
- Obtain environmental clearance by submitting a formal environmental assessment in accordance with 23 CFR Part 771for the proposed project.

Preliminary Environmental Assessment

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Section 1: Introduction

1.1 Project Background

Conceptual development initiated by the Jefferson County Ports Phase I Feasibility Study identified the only existing roadway access to the Crystal City port site as 1st Street to Mississippi Avenue to Bailey Road and then connecting with U.S. 61/67. The port site property is undeveloped today and thus lacks true highway infrastructure suitable for a port or any commercial development. The current roadway network available to provide this access would force traffic supporting port operations through the heart of the City's center via narrow, often brick, two lane roadways with skewed intersections. The subsequent Phase II Master Plan suggests the local community does not consider this current and future "No Build" access a viable option for commercial port operations. Therefore, a location study was recommended to investigate a new connection to the interstate to serve the Crystal City community if any significant amount of cargo is to be moving into and out of the port via trucks. As a result of this planned regional port development and significant economic growth potential at the Crystal City Port, the Crystal City Port Access Location Study and Environmental Assessment (EA) was initiated to proactively analyze the need for transportation improvements to enhance traffic flow between the proposed port and Interstate 55 via a Crystal City connector to serve the community at large. For these planning purposes, this assessment assumes the tandem implementation of the proposed Crystal City Port at which time the purpose and projected need for a connector roadway exists. The purpose of this EA is to analyze the impacts of the access alternatives plus No Build alternative and does not consider the Port's impacts.

1.2 Project Purpose

The purpose of the Port access road project is to:

- provide an enhanced connection from Crystal City Port to I-55,
- improve the movement of goods and traffic flow to and from Crystal City Port, and
- provide the necessary transportation infrastructure to support community and economic development as identified in the Jefferson County Ports Master Plan thus sustaining and vitalizing the regional economy.

The proposed improvements may include upgrades to existing roadways as well as new roadway alignments. The study area for the proposed project is illustrated on the project location map (Exhibit 1.1). Essentially the study area for the Project is bounded by the BNSF rail line on the north, the Mississippi River to the east, U. S. 61 to the south, and Interstate 55 to the west. With the planned development of Crystal City Port, in conjunction with the anticipated industrial growth in the vicinity of the port, the Project will play a critical role in accommodating travel demands and improving the movement of goods and people.

1.3 Project Need

An enhanced roadway connection from I-55 to the Crystal City Port would serve as a crucial freight route, improve the overall efficiency of the existing highway network and relieve congestion on local signalized arterial streets associated with slow moving and high volumes of truck traffic. The need is supported by local, statewide and nationwide land use, economic and growth objectives based on various factors including modal interrelationships, system linkage between multimodal port and the interstate, travel demand, social and economic growth, the capacity of the existing roadways and safety.

Exhibit 1.1: Project Location

1.3.1 System Linkage

The existing access between the Crystal City Port and I-55 utilizes roadway linkages not designed to facilitate truck traffic to and from a multimodal facility. Bailey Road, Mississippi Avenue and 1st Street do allow vehicle access to the property boundary of the proposed Crystal City port site. From a community perspective on local and regional commerce, there are limited existing access connections to the former PPG site and other potential areas of industrial development as well as the Festus Memorial Airport. The Project would not only provide the necessary access for port operations but all address the capacity concerns of the current interstate connections that serve and travel through Crystal City. Existing infrastructure suffers from a growing, high volume of through traffic, a significant percentage of trucks and the mixing of local and regional traffic through Crystal City's business district. The convergence of U.S. 61 and US 67 in proximity of Interstate 55 within Crystal City equates to truck traffic resulting from regional commerce heading north-south along the Mississippi River corridor. The implementation of the port requires the infrastructure to provide system linkage for multimodal freight movement introduced into the transportation network within Crystal City.

1.3.2 Economic Development

Commitment to the implementation of the Crystal City Port is commitment to regional vitality and growth in the economy. During construction the port development could generate $477 million in added economic activity (Gross Domestic Product - GDP) in Jefferson County accrued over the lifespan of the total build, plus 5,365 jobs. After construction is completed the port could support $33 million in added annual economic activity (GDP) in Jefferson County, plus 628 jobs. This magnitude of economic activity requires adequate multimodal assets to operate successfully in the present and continue to grow into the future. The river and railroad components exist today with the capacity to serve future demand. However, the existing roadway infrastructure would hinder the movement of goods due to inadequate capacity as well as negatively impact existing commercial businesses by introducing a higher percentage of truck traffic. These aspects present a challenge for future economic growth.

1.3.3 Transportation Demand

The U.S. 61/67 corridor is the primary arterial roadway within Crystal City, carrying approximately 15,000 to 20,000 vehicles per day within the study area (MoDOT, 2009). The corridor serves two primary functions, connecting area residents to the regional transportation system as well as connecting them to the various local and regional retailers that line the corridor. The existing conditions analysis performed for the study show that the signalized intersections along the corridor generally operate within acceptable conditions under current traffic demands. However, traffic projections for the port operations notably increase the traffic demands. Traffic congestion and safety along the U.S. 61/67 corridor are concerns cited in the Crystal City Comprehensive Plan. Some of these concerns are related to unsignalized access points where delays to drivers entering U.S. 61/67 are long during peak travel periods. Another concern cited is the need to divert existing truck traffic to alternative routes rather than through city streets and U.S. 61/67.

1.3.4 Social Demands and Community Development

The surrounding land uses include a mix of residential, retail and commercial. The use of Bailey Road for port access would include high volumes of truck traffic travelling through the heart of Crystal City. The historic business district along Bailey Road and Mississippi Avenue is very quaint and beautiful with period

buildings and excellent green space, however, one does not see this district until you have passed through the commercial district along Truman Boulevard. The architectural style of the area is from the turn of the century era. Most buildings are well maintained although many have been renovated or remodeled over the past thirty years and not all have conformed to the original architecture of the building and the area. The area gives a very warm and solid appearance to the community with special character. The historic business district is no longer the central business district for the City, but still has active businesses within it as well as the location for City Hall.

The homes along Bailey Road sit right only the sidewalk with little setback from the roadway which adds to the 'warm and solid appearance' described above from an excerpt from Crystal City's Comprehensive Plan. The businesses along Bailey Road between U.S. 61/67 and the port entrance include but are not limited to a range of services from a daycare provider to antique shops and the workings of the previously mentioned City Hall. Just down Mississippi Avenue is the Library to be found after passing the prominent church that beautifully marks the corner of these two local roads (Bailey Road and Mississippi Avenue). All of these establishments and the other neighboring businesses not mentioned are easily accessed via the sidewalks serving the on-street parking for vehicles as well as the residents living in the area. This area is built out. Plans for future community development are targeted at the available land surrounding areas with existing industrial uses that also happen to be more compatible with port operations like the area near the airport, for example. Public involvement activities provided through the development of the Jefferson County Port Master Plan offered an open house forum for people to discuss the needed port access, among other regional port related topics. Crystal City residents do not consider Bailey Road as an appropriate transportation facility to support port operations. The impacts to the community, both residential and commercial, to adequately accommodate projected truck traffic would destroy the current function and aesthetic of the Historic Business District as the uses are not compatible as they exist today.

1.3.4 Safety

Crash data provided by MoDOT indicates that crash rates on I-55 between Route A and U.S. 61 over the last few years have been at or below statewide average for similar facilities indicating no apparent concerns for this facility. However, crash rates on U.S. 61/67 between I-55 and Route A are higher than statewide average rates for similar facilities and trending upward. The majority of the crashes in the analysis area occurred within the weaving sections of the I-55 and U.S. 67 interchange and at the U.S. 61 and U.S. 67 intersection. Adding truck traffic from the Port to U.S. 61/67 via Bailey Road could increase the risk for additional vehicular and/or pedestrian conflicts along this busy corridor.

Section 2: Project Alternatives

The development of port access alternatives considers a variety of elements ranging from minimizing costs and impacts while maximizing connectivity, directness and even creating the potential for improved access to existing and potential development. The assessment seeks to balance where truck traffic travels by minimizing connections to local residential and commercial routes. This assessment considers a range of alternatives to address the purpose and need of the project. The alternatives were narrowed down to four options: a no build alternative and three build alternatives. This section provides an overview of the various alternatives considered and the constraints that ultimately led to the selection of the three build alternatives. Features of the no build and build alternatives are identified as well.

2.1 Alternatives Considered

Several of the alternatives can be thought of a series of alignment segments that are combined to form a connection to the regional highway network. The details of these alignments are discussed later. The description of access for all of the alternatives discussed flows from the site to the regional highway network. Exhibit 2.1 shows an overview of the alternatives considered. Initial consideration was given to several short crossings that allowed segments to be combined in various manners.

Within these alternatives, there are several common segments. The segments can be treated in a macroscopic manner as connecting two points – a link. The segments can also be treated in a microscopic manner related to the specific location of an alignment and any associated impacts from that alignment. This section describes the segment's location (alignment) and why some alignments make more sense than others. The first common segment is referred to as the former PPG parcel because it involves traversing this potential industrial development site while attempting to keep the site as intact as is possible to allow flexibility in development. Bisecting the former Pittsburgh Plate Glass (PPG) parcel would significantly reduce the potential for large-scale industrial development. The second common segment is referred to as crossing Plattin Creek/connecting to U.S. 61/67. The third segment is referred to as connecting to I-55.

Former PPG parcel Segment

The challenge of this segment is the crossing of several railroad tracks (under different ownership including Union Pacific and BNSF) immediately adjacent to the Port site. Existing access to the port property via 1st Street has an at-grade crossing of the Union Pacific tracks. The BNSF tracks are on the south side of E 1st Street and are therefore not crossed. By the time the BNSF railroad track crosses Plattin Creek on a wood timber structure, the Union Pacific track and the BNSF track have joined to one rail line which is owned by BNSF with trackage rights afforded to UPRR. There is a grade-separated vehicular turn around beneath the timber bridge structure that serves a yard operated by the BNSF. This vehicular grade separation though is severely limited in terms of both vertical clearances (approximately 12 feet) and lateral clearances (widths range from 12 feet to approximately 14 feet), as is evident in Exhibit 2.2. While considerations were given to the possibility of modifications to utilize this vehicular grade separation beneath the railroad (either by replacing the bridge structure over Plattin Creek in its existing location or by creating a new rail alignment that builds a new bridge structure over Plattin Creek) any concept with railroad improvements quickly became very costly.

Exhibit 2.1: Alternatives Considered

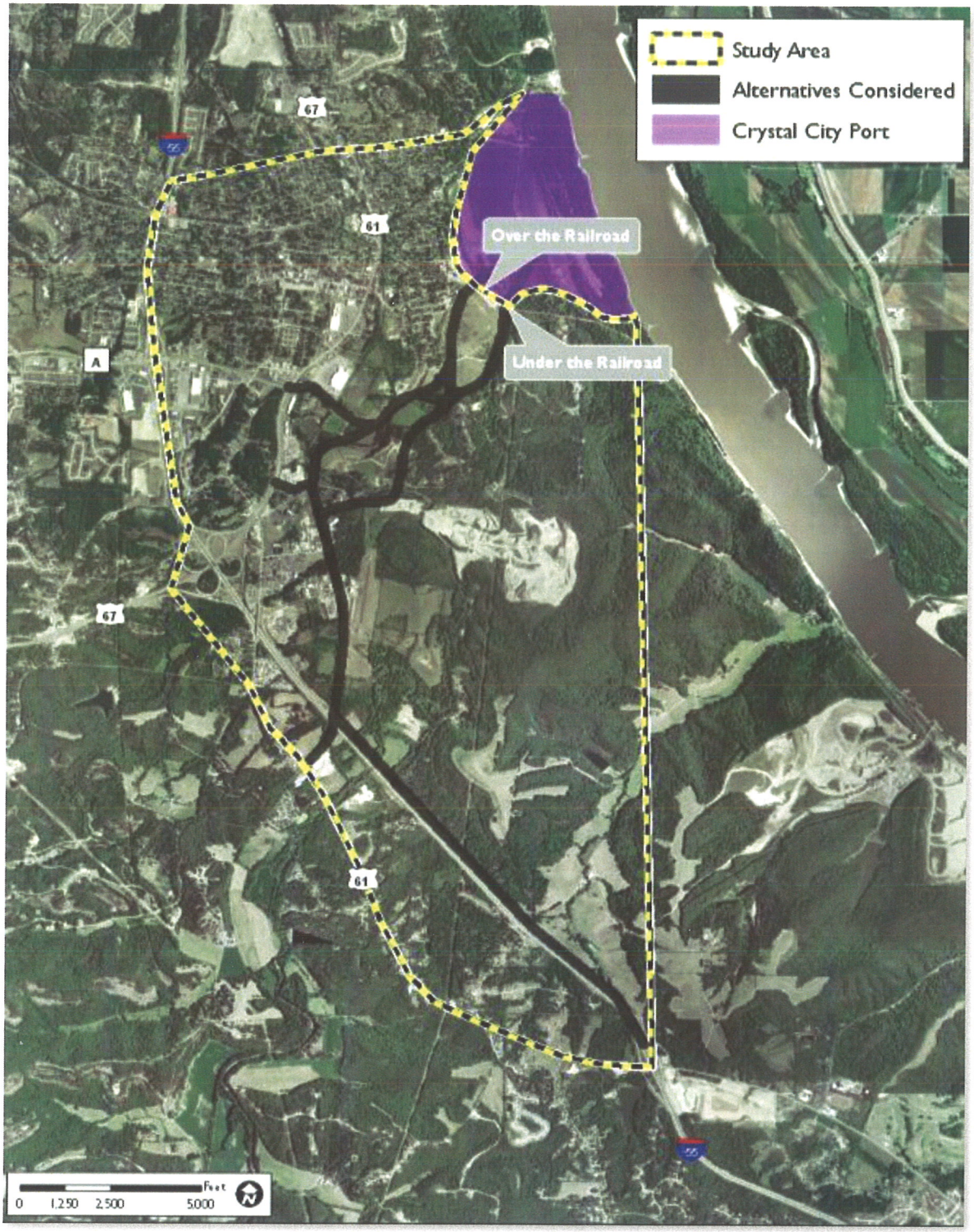

Exhibit 2.2: Existing vehicular grade separation beneath BNSF wooden timber bridge at East 1st Avenue Yard. Plattin Creek is visible to the right.

Determining a cost effective grade separation with the railroad is critical. While the former PPG site had a preliminary development plan prior discussions noted that the site development could be changed in order to accommodate an access road to the Port as the access road would also serve the former PPG parcel. In order to maintain maximum development opportunity on the site, the Port access would be best along a property perimeter, such as the west or east side of the parcel. Consequently alignments investigated these general locations and sought to balance an appropriate bridge crossing location considering overall span length over the existing railroad tracks, the skew angle for bridges, the number of railroad tracks crossed and the probable location of bridge supports (accommodating railroad lateral clearances) as well as topographical adjacencies to the Plattin Creek based upon the access road being over the railroad tracks. It was determined that an alignment that followed the western property line would be less costly and have fewer impacts than an alignment that followed the eastern property line near Plattin Creek. Care has been taken to avoid the Crystal Avenue Park (a hazardous materials site) which is located along the western periphery of the former PPG parcel. Removal of the eastern alignment across the former PPG parcel also screens out any crossover to/from this segment.

Crossing Plattin Creek/connecting to U.S. 61/67 Segment

The challenge of this segment lies in determining an alignment location that minimizes potential impacts, creates a reasonable connection to U.S. 61/67 and is cost effective. It is worth noting that Plattin Creek has several ox-bows in this area and turns across itself several times which could create the need for several crossings of Plattin Creek. There is also a mitigation site located in this segment. Topographic data and the floodplain datum are not easily reconciled. The data would suggest that the existing County Road is well below the 100-year elevation which in turn would require extensive fill to bring the roadway up to the 100-year elevation for roadway design criteria. County Road, while at one point a continuous roadway (as shown in the USGS map below) is now discontinuous having been divided by the levee.

Consequently, alignment options consider a corridor adjacent to Plattin Creek on the west side as well as crossing Platting Creek on the east side and tying into an existing bridge on VFW Drive over Plattin Creek. County Road intersects VFW Drive which in turn has an at-grade crossing of the Union Pacific spur line and connects via St. Pius Drive to U.S. 61/67 at a three-legged signalized intersection. Because of the skewed road crossing of the railroad spur line, it is proposed to improve the roadway approaches to this existing at-

grade crossing of the Union Pacific spur along VFW Drive. St. Pius and VFW Drives are the existing street network utilized by the heavy industrial Fred Weber Company which trucks aggregate and cement.

Another connection is also considered that connects to U. S. 61/67 at a four-legged junction with Route A. The current east leg at U. S. 61/67 and Route A is a dead-end roadway (Elks Club) and leads to an Elks Lodge while also serving as a primary access (and truck access) to Wal-Mart. Connecting to U.S. 61/67 at the Route A intersection requires creating another at-grade crossing of the Union Pacific spur line, potential impacts to the Festus levee as well as direct impacts to structures within the Elks Lodge complex and several surrounding commercial properties. The access road to Wal-Mart would also need to be reconfigured and/or replaced by an additional traffic signal a fifth of a mile north on U.S. 61/67 at another driveway accessing Wal-Mart. Associated parking lot and access impacts to the commercial property on the south might also suggest an additional traffic signal as previously identified in the Crystal City Comprehensive Plan.

Connecting to I-55 at Railroad Spur Crossing

The challenge with this segment is in locating the roadway alignment, minimizing impacts to existing industrial developments while creating opportunities to serve existing and proposed development including coordination with the Festus Memorial Airport's Master Plan. The Red alignment suggests continuing the alignment adjacent to the railroad right-of-way. It is proposed that the railroad's eastern right-of-way line coincide as the roadway's western right-of-way line. The section where the relationship of the railroad and roadway changes is at the existing I-55 bridges over the railroad. Here the roadway desires to share in the railroad's existing right-of-way. The Yellow alignment considered continuing the alignment along the eastern side of the airport runway. Review of the Airport's Master Plan indicates expansion of the existing runway, relocation of the airport tower and terminal (from the west side to the east side of the runway), as well as relocation of the Airport's access. This alignment east of the runway was screened from consideration because of the need to cross I-55 at the existing grade separation, though other through airport property alignments may become viable dependent upon the location of future changes to the airport.

The interchange configuration is contemplated as a partial cloverleaf design because of the location of the railroad. A diamond interchange configuration would create two new railroad crossings (at the on- and off-ramps to the north of I-55) as well as limiting the weaving distance between the potential interchange and the system interchange with U.S. 67. The partial cloverleaf design appears to integrate well with existing topography, though the I-55 bridge crossing over Plattin Creek creates a limited distance to accommodate deceleration and acceleration lanes. Further horizontal geometric design as well as structural evaluations may be necessary to determine the type of bridge widening (if any).

The UPRR mainline track crosses beneath Interstate 55 immediately south of the Route Z interchange in Pevely five miles north of the Route A interchange. An industrial spur track with service from UPRR splits at Pevely and follows the Mississippi River along the proposed Crystal City Port site. Here the industrial spur track diverges to continue south beneath I-55 to U.S. 61 as well as providing service to customers to the north by crossing U.S. 61/67 beneath the BNSF grade separation (over UPRR and U.S. 61/67).

The BSNF line while running on the east side of I-55 out of St. Louis crosses over to the west side of I-55 immediately north of Route Z. The BNSF track parallels the UPRR mainline track for more than three miles (separated by as little as 600 feet) until the BNSF grade separates over UPRR with Hillsboro/N. 5th Street following its alignment. The railroad remains elevated over U.S. 61/67 and then grade separates beneath Mississippi Ave. before intersecting the 1st Street yard and crossing over Plattin Creek.

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Currently six public roadways cross the Union Pacific spur line from Bailey Road to U.S. 61. They include Bailey Road, VFW Drive, Industrial Drive, Airport Road, Calvary Church Road and U.S. 61. It is contemplated, and encouraged from discussion with Union Pacific, that several of the at-grade crossings (potentially Industrial Drive, Airport Road, and Calvary Church Road) could be removed and access to properties east of the railroad spur be provided by the new port access. Other at-grade crossings of the UPRR spur line occur at Bailey Road.

2.2 No Build and Build Alternatives

A summary of the no build and build alternatives follows. Exhibit 2.3 shows an illustration of the no build and three build alternatives considered in this assessment.

No Build – The transportation alternative for the no build scenario assumes the Port development utilizes the existing roadway network to access the site. The Port access would first cross at-grade the Union Pacific spur tracks before using the retained roadway of 1st Street up to the bridge on Mississippi Avenue that crosses the BNSF railroad tracks. From Mississippi Avenue, the route turns westerly onto Bailey Road, crosses at-grade a Union Pacific spur line and intersects with U.S. 61/67 at a traffic signal. From this point, the majority of traffic would travel south until intersecting the signalized junction of Route A and then turns west towards Route A's interchange with I-55. The total length of this path (from Port to the closest I-55 interchange) is approximately 2.2 miles.

The No Build utilizes the existing roadway network which connects to U.S. 61/67 via Bailey Road. By default any connection to U.S. 61/67 yields the potential to access I-55 via interchanges at Route A, U.S. 67 and even U.S. 61. However the potential distribution of traffic to an I-55 interchange is dependent upon where the physical connection to U.S. 61/67 occurs. For example, a connection south of Route A would likely bring more traffic through the U.S. 67 system interchange with I-55 to head north than travelling along Route A. While initial consideration was given to a connection to the U.S. 61 interchange with I-55 (Exit 170) some four miles south of the U.S. 67 interchange with I-55 (Exit 174), this alternative has been screened out as being impractical because of the circuitous nature of the route, minimal distribution of site generated traffic to the south on I-55 and the ability to connect to U.S. 61/67 through the existing local street network which the new Port access would intersect at VFW Drive.

Route A Alternative (Orange) – This alternative proposes a grade separation across both the Union Pacific and BNSF mainline tracks. This means a new roadway alignment and requires coordination with both railroads and adjacent property owners, including the former PPG property. After traversing the former PPG property the route would continue south along a portion of County Road which is coincident with the Festus levee protecting the waste water treatment plant. The route then turns westward to make a new connection to Route A. This new connection crosses at-grade the Union Pacific spur line, and impacts a ball field and the Elks Club Lodge as well as reconfiguring Wal-Mart's primary access through a traffic signal. The total length of this route is approximately 2.3 miles.

Red Alternative - This alternative has a similar beginning to that described above. This alignment continues further south along County Road and intersects VFW Drive. Again, this alternative proposes a grade separation across both the Union Pacific and BNSF mainline tracks, traversing the former PPG property and connects to a portion of County Road before intersection VFW Drive. At this point the new roadway alignment has connected to the existing transportation system and access is now afforded via VFW Drive and St. Pius to U.S. 61/67. At that signalized intersection, port generated traffic can access U.S. 67 and I-55 by turning to the south. This route has an existing at-grade crossing with the Union Pacific spur line. This location of this alignment assumes a shift in traffic patterns away from the Route A interchange and towards

the U.S. 67 interchange with I-55. The total length of this route (from port to the I-55 interchange) is approximately 2.3 miles.

Yellow Alternative - This alternative has a similar beginning to that described above for the Route A and Red alignments. This alignment is shifted to the east and connects to the existing VFW Drive Bridge over Plattin Creek. Again, this alternative proposes a grade separation across both the Union Pacific and BNSF mainline tracks, traversing the former PPG property and connects to the existing VFW Drive Bridge over Plattin Creek. At this point the new roadway alignment has connected to the existing transportation system and access is now afforded via VFW Drive and St. Pius to U.S. 61/67. At that signalized intersection, port generated traffic can access U.S. 67 and I-55 by turning to the south. This route has an existing at-grade crossing with the Union Pacific spur line. This location of this alignment assumes a shift in traffic patterns away from the MO Rte A interchange and towards the U.S. 67 interchange with I-55. The total length of this route (from port to the I-55 interchange) is approximately 2.7 miles.

Red/Yellow Alternative Shared Alignment - This alignment continues from the connection with VFW Drive and follows along the eastern edge of the Union Pacific spur line, crossing Industrial Drive, Airport Road and Calvary Church Road before passing beneath I-55 and terminating at U.S. 61. An interchange is proposed that would utilize the existing bridges of I-55 above the railroad. The purpose of extending this new alignment to create a new interchange with I-55 is to remove truck traffic and its associated congestion from U.S. 61/67. The total length of this route (from port to the I-55 interchange) is approximately 2.8 miles for the Red Alternative and 2.9 mile for the Yellow Alternative.

Exhibit 2.4 shows a summary of the probable costs for the build alternatives. This estimate was developed based upon measurements of length for the various alignments and aggregated unit costs in 2011 dollars. The probable costs include right-of-way acquisition, construction and programming costs for design and construction inspection services. The summary table below presents total costs for the alternatives ranging from a low of approximately $36 million to a high of $46 million. The length of the alternatives varies and because of spot improvements associated with intersections, an effective comparison by length is not made. Major cost elements are associated with:

- **Crossing the BNSF railroad** – The vertical clearance needed over the railroad combined with the number of tracks that need to be crossed create a lengthy bridge at significant expense.
- **Elevating the Port access above the floodplain** – The Port access uses a 100-year elevation as part of its design criteria. While the concepts require additional detailed topographic information for design, assumptions have been made that indicate the need for extensive earthen fill to construct the Port access.
- **Potential right-of-way acquisition** – Many of the alternatives require the acquisition of either industrial properties or commercial/institutional properties. The estimate of right-of-way costs is based upon market value defined by the Jefferson County Assessor. Coordination is also necessary with other agencies and entities whose properties do not include a market value. Additional costs may be needed to provide relocation assistance or costs could be reduced depending upon negotiations.

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Exhibit 2.3: No Build and Build Alternatives

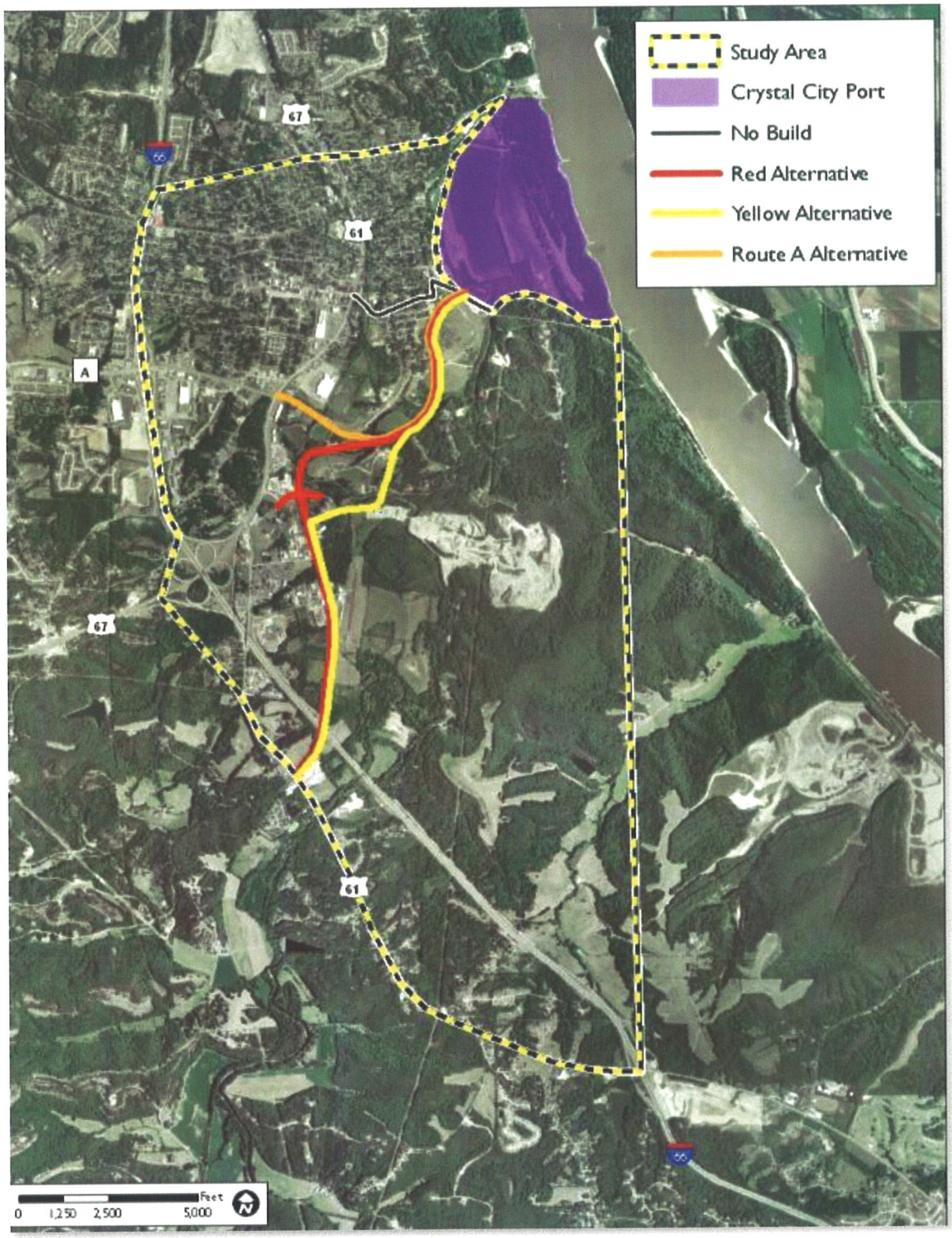

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Exhibit 2.4: Probable Cost for Alternative Port Access			
	No Build Existing Interchanges	Build (New Interchange)	
	Route A	Red	Yellow
Probable Costs (millions $ - 2011)	Total	Total	Total
Right-of-Way Acquisition	$1.5	$3.8	$3.7
Construction Costs – New Roadway	$16.6	$23.3	$22.9
Construction Costs – New Structure	$5.5	$5.5	$4.0
Construction Costs – Existing Roadway	$2.0	-	-
Construction Costs – Misc and Contingency	$4.7	$6.5	$6.3
Programming Costs	$5.4	$6.9	$6.6
TOTAL COSTS (2011 $)	$35.7	$46.0	$43.5

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Section 3: Existing Conditions

This Existing Conditions section presents descriptions of the baseline environmental conditions of people and the environment within the study area of the Crystal City Port access project. Scientists, planners, and engineers from the project team conducted a variety of research to summarize conditions in technical reports. This information will be used as the baseline later on to examine changes that could occur as a result of the No Build Alternative or from constructing either of the Build Alternatives (Route A, Red or Yellow). A map of the study area along with traffic analysis locations is illustrated on Exhibit 3.1.

- Land Use and Economic Activity
- Social and Economic Activity
- Transportation Features
- Cultural Resources and Parkland
- Natural Resources
- Air Quality
- Noise and Vibration
- Wildlife
- Water Resources
- Wetlands
- Mitigation Sites
- Hydrology/Geology

3.1 Land Use and Economic Activity

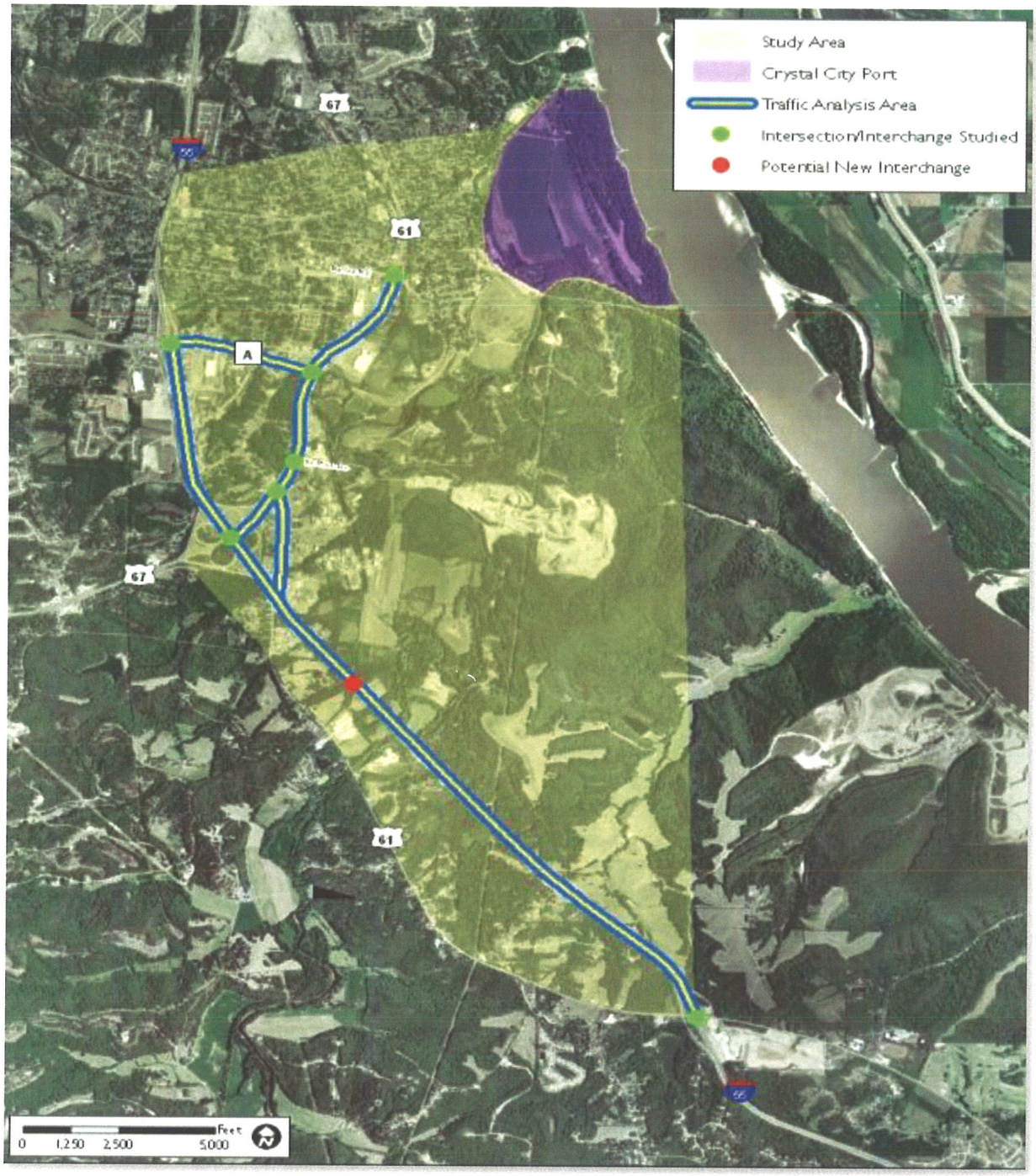
3.1.1 Regional Context

The study area is located within portions of the communities of Crystal City, Festus, and unincorporated portions of eastern Jefferson County. The study area is bounded by the BNSF rail line on the north, the Mississippi River to the east, U.S. 61 to the south, and Interstate 55 to the west. Jefferson County is located in East Central Missouri adjacent to the Mississippi River and just south of St. Louis County. Jefferson County has a population of 219,046 (2009 US Census Estimate) and covers 664 square miles. It is included within the St. Louis-St. Charles, MO-IL Combined Statistical Area (CSA) as defined by the U.S. Census Bureau. The study area is approximately 25 miles south of the St. Louis Metro area and is strategically located adjoining Interstate 55 which is the major North-South interstate corridor along the western side of the Mississippi River that connects St. Louis to Memphis, Tennessee.

Crystal City, which has a population of 4,523 (2009 US Census Estimate) and covers 3.7 square miles, stretches from the Mississippi River on the East, the City of Herculaneum on the North, the City of Festus on the West, and unincorporated portions of the county to the south. Crystal City was originally a company town that served the local glass industry; however, it is predominantly a bedroom community for St. Louis commuters.

Festus, which has a population of 11,367 (2009 US Census Estimate) and covers 4.8 square miles, shares its eastern boundary with Crystal City, northern boundary with Herculaneum, and unincorporated portions of Jefferson County on the west and south. Festus is one of the fastest growing cities in Jefferson County over the past two decades and primarily is a bedroom community for St. Louis commuters.

Exhibit 3.1: Study Area



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3.1.2 Activity Corridors

U.S. 61/67 (Truman Boulevard), which is the northwestern boundary of the study area, is the major commercial corridor for both Crystal City and Festus along with the City of Herculaneum further to the north. This corridor includes all essential services including food stores, restaurants, home goods, banks, and other general retailers including several major grocery stores, Wal-Mart, K-Mart, and Sears. The nearby communities of Pevely, Horine, and Olympian Village also utilize this corridor for their shopping essentials and needs.

Within Festus and located along Route A (Veterans Boulevard), just west of U.S. 61/67, a newer retail area centered around a Home Depot and Lowe's has developed over the past decade. This activity center is located mostly within a half mile of the I-55 interchange with MO Rte A and includes several hotels as well. Additional commercial activity centers are located along Bailey Road and Mississippi Avenue in the downtown area of Crystal City, which is within the northernmost portion of the study area.

The Jefferson Regional Medical Center, formerly known as Jefferson Memorial Hospital, is located just east of the I-55 interchange with U.S. 67 within the Crystal City and the project study area. The medical center employs approximately 1,500 employees in multiple buildings spread out along an area locally called the "medical mile." The medical center has newly constructed or refurbished several buildings over the past decade. Since this is the only major medical facility within Jefferson County it serves several major communities within the county. Its primary service area also includes portions of St. Francois, Ste. Genevieve, and Washington counties. Due to the size of the medical center, along with its regional service area, it is one of the primary economic generators for both Crystal City and Festus.

Additionally, the Fred Weber Company operates a quarry just south of VFW Drive partially within the study area. While this facility is not a large economic generator for the local communities it does have a substantial footprint. Mining has been a part of Crystal City since its founding in the late 1800's and this mine has been in operation for the better part of the last 25 years. The facility generates approximately 150 trucks per day. The materials handing operations for the facility is located along Mississippi Avenue just north of the study area. Former quarries that have been filled in with earth or water are located between the residential neighborhoods of Crystal City and the medical center.

It should be noted that the emerging clean energy market has an increased demand for frac sand produced in Jefferson County. This product is currently trucked to northern Ports in the St. Louis area or to the SEMO Port in southeastern Missouri. The Crystal City Port could provide an alternative for shipping operations in close proximity to production sources of this material providing substantial cost-competitive benefits and efficiencies.

3.1.3 Community Facilities and Services

Community facilities and services include, but are not limited to schools, religious facilities, cemeteries, emergency facilities (fire, police stations, hospitals, etc), and airports.

Schools

The project study area includes portions of the Crystal City School District, Festus Public School District, and the Jefferson School District. The only school facility located within study area is the St. Pius X High School, which is a private, catholic facility that serves grades 9-12. The school is located just northeast of the I-55 interchange with U.S. 61/67 along St. Pius Drive in the middle of the study area.

The Crystal City School District includes two schools that serve 781 students in grades K-12. The elementary school is located at 600 Mississippi Avenue and the high school is located at 1100 Mississippi Avenue. Both of the schools are north of the study area. The Festus Public School District includes four schools that serve approximately 3,200 students in grades K-12. The district covers over 30 square miles and serves the cities of Festus, Hematite, and Mapaville, as well as portions of unincorporated Jefferson County. All of the Festus schools are located to the northwest of the study area. The Jefferson School District includes four schools that serve approximately 825 students in grades K-12. The district covers over 55 square miles in mostly rural southern Jefferson County right along Interstate 55. All of the Jefferson County schools are located south of the study area.

Religious Facilities

There are six religious facilities located within or immediately adjacent to the study area. They are located in two specific areas: within Crystal City in the northernmost portion of the study area and adjacent to the I-55 interchange with U.S. 67. The Grace Presbyterian Church located at 105 Bailey Road, Transformation Family Church located at 450 Bailey Road, Mount Olive Missionary Baptist located at 136 Lincoln Avenue, and the First Baptist Church of Festus located at 107 N. Truman Boulevard are all located within the northernmost portion of the study area. The Calvary Assembly Church of God located at 1650 Cavalry Church Road and the Bethel Free Will Baptist Church located at 1233 American Legion Drive are adjacent to the I-55 interchange with U.S. 67.

Cemeteries

PPG City Cemetery (also known as "Old Town Cemetery") is located between County Road and Maple Street in the northern portion of the study area. Crystal City owns and is the caretaker of the cemetery. Madison Cemetery is located just outside of the study area along U.S. 61 just south of Plattin Road to the west of I-55. Cook Cemetery is located at the southern end of the study area on the west side of I-55 interchange with U.S. 61 (exit 170).

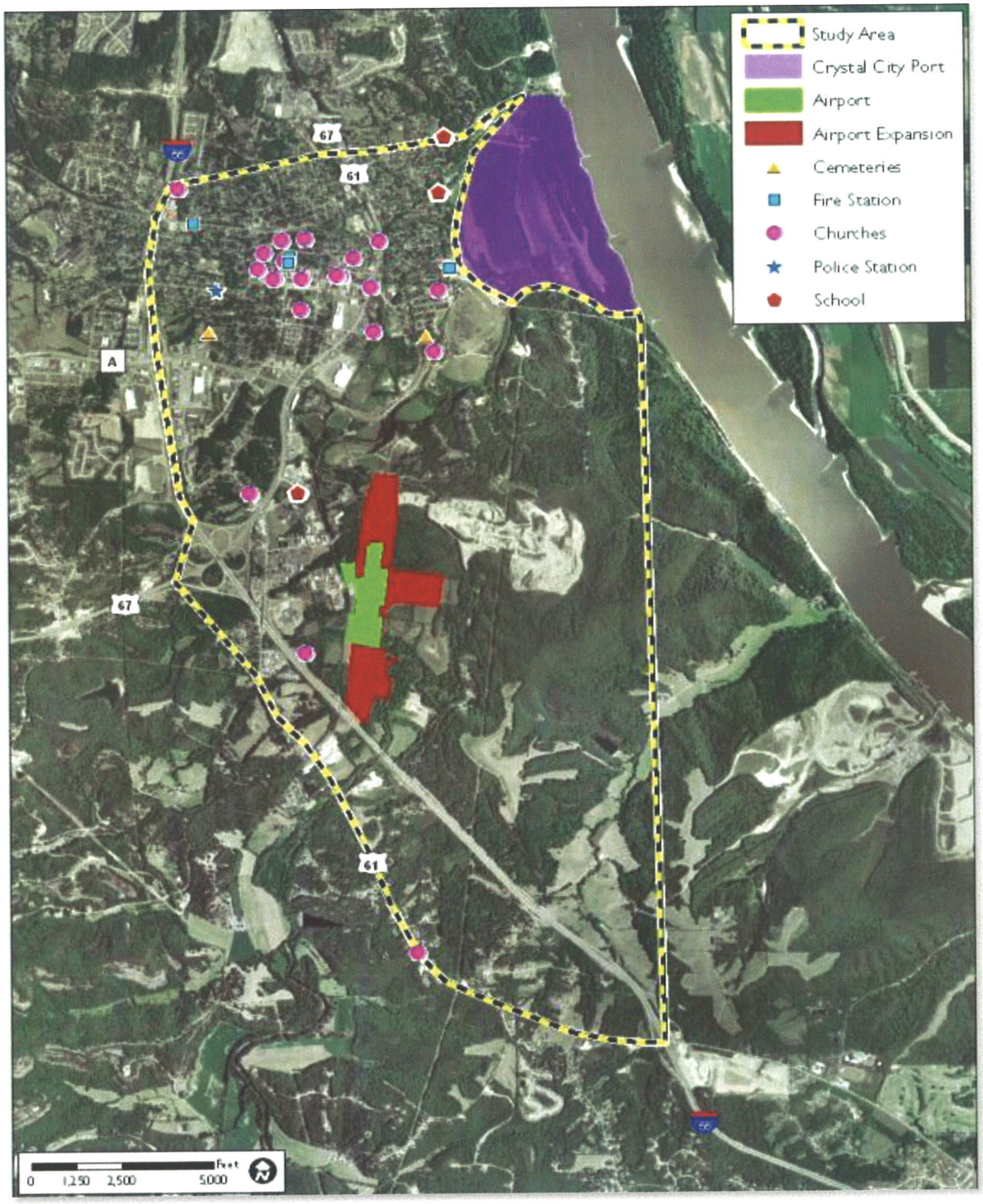
Emergency Facilities

The Jefferson Regional Medical Center is located at 1400 Highway 61 South just east of the I-55 interchange with U.S. 67. The 24-hour 226-bed acute care hospital serves Jefferson, St. Francois, Ste. Genevieve, and Washington counties. The Festus and Crystal City Fire and Police Departments are located outside of the project study area.

Airports

The Festus Regional Airport is located in the southern portion of the study area within Crystal City. The airport which is privately owned and operated and has one paved runway that cannot handle commercial traffic, so it is mostly used by smaller single engine planes. Per the City of Festus website (www.cityoffestus.org) there are 30 airplanes based at the field and charter service is available, but there are no regularly scheduled flights. Regularly scheduled air passenger and freight service is available at the St. Louis International Airport located approximately 50 miles north of the City.

Exhibit 3.2: Community Facilities



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3.1.4 Existing Land Use

The existing land use within the study area includes residential with small segments of commercial in the northernmost portion of the study area which includes the downtown for Crystal City. Just to the south the land uses include parkland, floodplain and floodway for the Plattin Creek, commercial uses along U.S. 61/67 (Truman Boulevard), and various industrial uses. South of VFW Drive is the medical center complex and the airport along with commercial uses along U.S. 61/67 and a handful of small residences. The former PPG and the Weber Quarry are zoned industrial, and there are industrial land uses along Airport Road. The remainder of the study area immediately adjacent to Interstate 55 is mostly rural residential or undeveloped forested land. A mobile home park with approximately 100 trailers is located immediately adjacent to the study area just west of Interstate 55 along U.S. 61. Crystal City, Festus, and unincorporated portions of Jefferson County within the study area have zoning and are subject to some form of land use controls.

3.1.5 Proposed Land Use

There are no substantial land use changes anticipated within the study area other than expansion opportunities for the medical center and the possible development of additional parkland just south of the downtown of Crystal City. Immediately adjacent to the study area and northeast of the downtown of Crystal City, the Jefferson County Port Authority in cooperation with the Doe Run Company is exploring the development of a port facility. The proposed facility could include land adjacent to Crystal City and Festus, along with the communities of Pevely and Herculaneum to the north. There are currently no port facilities within Jefferson County.

3.1.6 Hazardous Materials

The study team utilized available data from the United States Environmental Protection Agency (EPA) Envirodata website and Exhibit 3-3 is a map illustrating the location of the hazardous sites within the study area. Among the searched databases included: Brownfields (ACRES), Superfund Sites (CERCLIS), Water Discharge (PCS), Hazardous Waste (RCRAInfo), and Toxic Releases (TRI). Additionally, available data regarding underground storage tanks was obtained from the Hazardous Waste Program of the Missouri Department of Natural Resources. All sites within a mile of the study area were included in the list that follows.

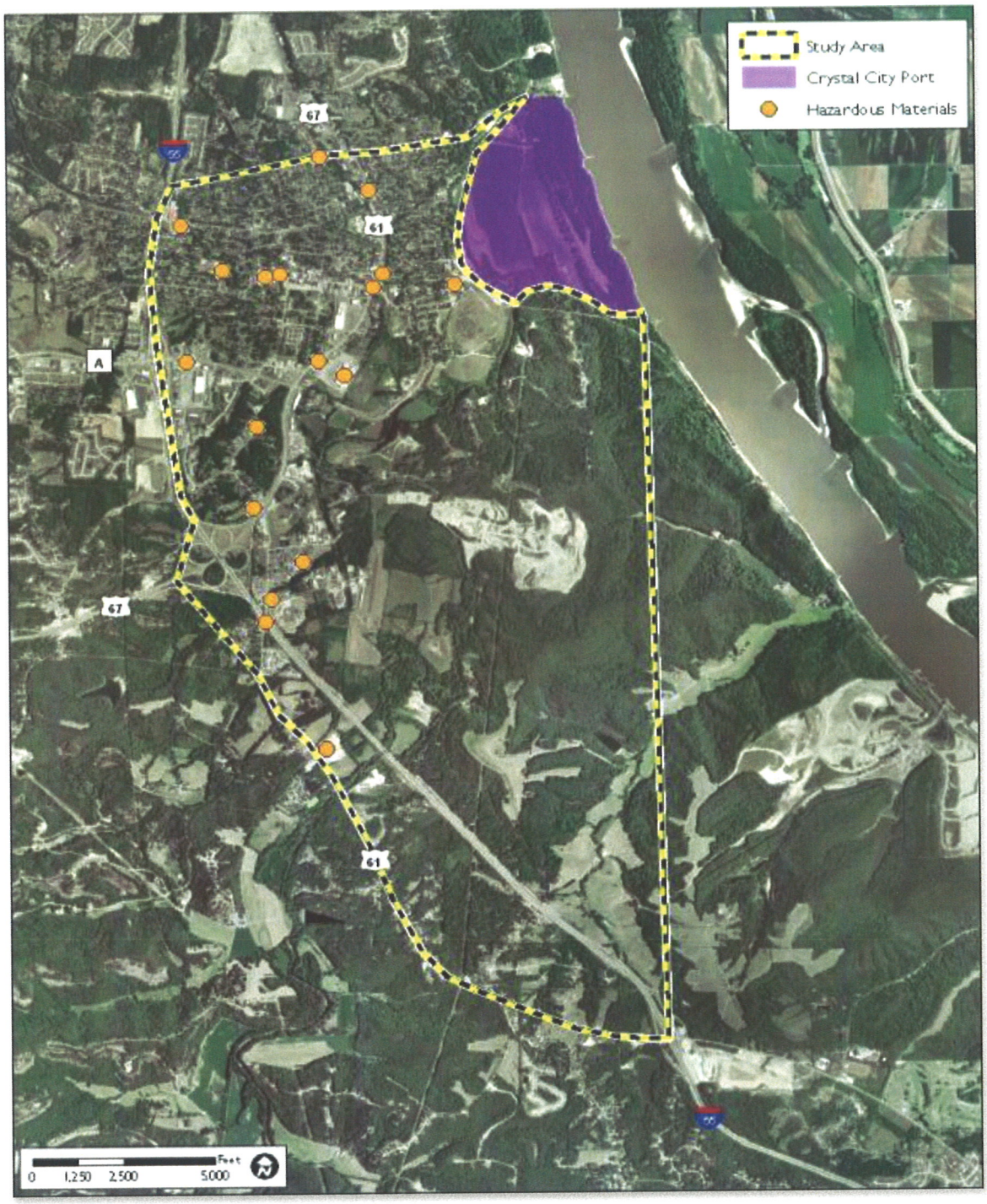
Within the study area there are three Brownfields/Voluntary Cleanup Program (B/VCP) sites as defined by the Missouri Department of Natural Resources: the Crystal City Dump, PPG Industries, and PPG Landfill sites. The Missouri Department of Natural Resources Hazardous Waste Program has issued a Certificate of Completion to the Pittsburgh Plate Glass (PPG) Landfill site, the Crystal City Dump is in active investigation, and the PPG Industries site is an inactive B/VCP site. Both PPG sites have had a Phase I completed as part of the Brownfields Assessment Program.

Additionally, there is one underground storage tank site in active remediation within the study area. This is the Festus Fuel & Food Mart site at 2591 Highway 61. According to the DNR records, in 2003 a contamination was found both in soil borings and monitoring wells at the site. DNR staff requested a work plan for characterization of the contamination, but to date no further work has been completed. There was an ownership change in 2004 which may be part of the reason no additional work has been completed.

The Crystal Avenue Park Site (a Superfund site) is located in the northern part of the study area. The Crystal Avenue Site is a city park which, in 1999, contained levels of arsenic around 11 parts per million (ppm), resulting in the recommendation of a deed restriction to prevent the disturbance of surface soils on

the site. The Crystal Avenue Site is located immediately adjacent to the Crystal City Dump site and the PPG Industries site, both of which are under BVCP jurisdiction.

Exhibit 3.3: Hazardous Sites



3.2 Social and Economic Conditions

Social and economic data were collected for the two cities, Crystal City and Festus, along with the six Census Block Groups that are partially within the Study Area. Additionally, Jefferson County and State of Missouri data were collected for comparison. All data was collected from the 1990 and 2000 United States Decennial Census to establish current conditions and the 2009 population estimates (where available) were obtained from the yearly Census datasets to determine population trends.

Generally speaking, the Study Area is located mostly within Crystal City with the extreme western portion in the City of Festus and the east central portion in unincorporated Jefferson County. Census Tract 7007.00 Block Group 5 makes up nearly the entire study area. Very small percentages of the remaining block groups are located within the study area. Census Tract 7007.00 Block Group 1 and Census Tract 7009.00 Block Group 3 are located within portions of the cities of Crystal City and Festus. Census Tract 7014.02 Block Group 2 is located between U.S. 61 and 67 extending from the I-55 interchange with U.S. 67 to Plattin Road/Harness Road. Census Tract 7014.02 Block Group 3 is located between I-55 and the Mississippi River between the southern boundaries of Crystal City to the county line. Census Tract 7014.02 Block Group 4 is located between I-55 and U.S. 61/State Route TT between the southern boundaries of Crystal City to just north of the county line.

3.2.1 Demographics

Population Characteristics

According to the 1990 Census, 2000 Census, and 2009 estimates from the Census Bureau, the population of the two cities adjacent to the Study Area, Crystal City and Festus, has grown at approximately 11% and 40% respectively (Exhibit 3.4) During the same period, Jefferson County has grown by 28% and the population of Missouri has increased by 17%. These growths are not surprising as greater St. Louis has been expanding outward and Jefferson County has received a large percentage of that outward growth. With Festus's location (immediately adjacent to I-55) and ability to expand to the west it has become a desirable community for commuters into St. Louis. Crystal City's growth, while still positive, is considerably less because it is mostly surrounded by Festus, Herculaneum, and the Mississippi River and the only substantial growth potential is to the south of the city.

Census Tract 7007.00 Block Group 5, which includes the majority of the study area, has grown roughly 11% between 1990 and 2000, relatively similar to Crystal City's growth between 1990 and 2009. Approximately half of the block group is located in Crystal City along the US Route 61/67 corridor with the remainder located further to the east. Census Tract 7007.00 Block Group 1 showed a slight decline in population during the same time period. This area includes mostly the older residential neighborhoods adjacent to the Mississippi River Floodplain along with a small commercial district. Census Tract 7099.00 Block Group 3 has the largest population growth at approximately 42%, which is similar to Festus's growth between 1990 and 2009. The eastern third of this area is located within the City of Festus to the north and west of U.S. 61/67 and then stretches west to Meyer Road in unincorporated Jefferson County. The Census Tract 7014.02 Block Groups 2, 3, and 4 were created following the 1990 Census so no population comparison can be made.

The percentages of the populations under the age of 18 are relatively similar at roughly 24-28 percent; however, Census Tract 7007.00 Block Group 5 has only 17.5% of the population within this age group. The percentages are also similar when comparing the populations over the age of 65. Still, Census Tract 7007.00 Block Group 5 shows a considerably higher number at 33.7%. Since this block group covers the older

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residential neighborhood in the southern portion of Crystal City these percentages can likely be attributed to a much older population who used to work at the PPG facilities and decided to retire within this area.

Exhibit 3.4: Population Characteristics

Location/Census Tracts	Block Groups	1990	2000	2009 Estimate	% Change (1990-2009)	% Under 18	% 65 +	% Male	% Female
Missouri		5,117,073	5,595,211	5,987,580	17.0%	25.5%	13.5%	48.6%	51.4%
Jefferson County		171,380	198,099	219,046	27.8%	27.9%	9.2%	49.7%	50.3%
Crystal City		4,088	4,247	4,523	10.6%	24.0%	20.3%	46.7%	53.3%
Festus		8,105	9,660	11,367	40.2%	25.8%	15.9%	47.1%	52.9%
					% Change (1990-2000)				
7007.00	1	717	688	n/a	-4.0%	27.5%	13.7%	46.2%	53.8%
7007.00	5	980	1,086	n/a	10.8%	17.5%	33.7%	43.9%	56.1%
7009.00	3	1,678	2,380	n/a	41.8%	28.7%	9.9%	46.9%	53.1%
7014.02	2	*	2,584	n/a	**	27.6%	12.0%	50.2%	49.8%
7014.02	3	*	1,318	n/a	**	27.6%	9.5%	50.7%	49.3%
7014.02	4	*	1,365	n/a	**	28.3%	8.4%	49.2%	50.8%
Study Area Block Groups Total/Average		n/a	9,421	n/a	n/a	26.8%	13.2%	48.3%	51.7%

Source: United States Census Bureau
*Not a Census Block in 1990
**The Census Bureau does not conduct estimates for geographic areas this small.

Housing Characteristics

The housing characteristics for the study predominantly mirror those of Jefferson County and Missouri as shown on Exhibit 3.5. The average household size is roughly between 2.5 to 2.75 persons. Census Tract 7007.00 Block Group 5 has an average household size of 2.20 which can be attributed to approximately a third of the population over the age of 65. Additionally, Census Tract 7014.02 Block Groups 2, 3, and 4 which are mostly in rural, unincorporated Jefferson County have average household sizes approaching three persons.

All of the geographic areas are relatively similar in percentages of occupied units that range from 90 to 97 percent, which correspond to the vacant units that range between 3 and 10 percent.

Jefferson County and Census Tract 7014.02 Block Groups 2, 3, and 4 have higher percentages of owner occupied versus renter occupied units when compared to the remainder of the geographic areas. On the other hand, the City of Festus has roughly 33% renter occupied units. This is the highest number in the study area and is likely due to the large number of rental homes and apartment units within the community.

The median home value is roughly $90,000 within the study area Block Groups and Jefferson County, Crystal City, and Festus. That value is cut in half within Census Tract 7007.00 Block Group 5 mostly due to older housing stock which is considerably smaller than homes built over the past three decades in the immediately surrounding area.

Exhibit 3.5: Housing Characteristics

Location/Census Tracts	Block Groups	Total Households	Avg HH Size	Total Families	Total Units	Occupied Units	% Units Occupied	% Units Vacant	% Owner Occupied	% Renter Occupied	Median Home Value
Missouri		2,194,594	2.48	1,476,516	2,442,017	2,194,594	90%	10%	63%	27%	$86,900
Jefferson County		71,499	2.74	54,528	75,586	71,499	95%	5%	79%	16%	$93,300
Crystal City		1,622	2.44	1,111	1,769	1,622	92%	8%	67%	25%	$85,500
Festus		3,861	2.45	2,607	4,040	3,861	96%	4%	62%	33%	$85,700
7007.00	1	279	2.47	188	302	279	92%	8%	67%	26%	$78,900
7007.00	5	398	2.20	232	439	398	91%	9%	65%	26%	$46,300
7009.00	3	855	2.78	680	881	855	97%	3%	72%	25%	$116,900
7014.02	2	940	2.70	725	987	940	95%	5%	84%	11%	$69,600
7014.02	3	443	2.91	377	462	443	96%	4%	86%	10%	$98,500
7014.02	4	474	2.88	401	492	474	96%	4%	85%	11%	$114,200
Study Area Block Groups Total/Average		3,389	2.70	2,603	3,563	3,389	95%	5%	78%	17%	$87,400

Source: United States Census Bureau

Demographics

The racial characteristics for the study area when compared to the larger geographic areas are relatively similar, with Census Tract 7007.00 Block Group 5 continuing to show its distinctiveness (Exhibit 3.6). The majority of the study area has a slightly higher percentage of white (Caucasian) residents, but a lower percentage of minority residents. Census Tract 7007.00 Block Group 5's percentages are similar to the State of Missouri with a white population making up 81% and black population at nearly 17%. The minority percentages again show that Census Tract 7007.00 Block Group 5 has an 18.3% with the next highest rate in Block Group 7001 at 5.4%.

Exhbit 3.6: Demographics

Location/Census Tracts	Census Blocks Groups	2000 Population	% White	% Black	American Indian	Asian/Pacific	Other	2 or More Races	% Minority	% Hispanic*
Missouri		5,595,211	83.8%	11.2%	0.4%	1.1%	0.1%	1.3%	14.4%	2.1%
Jefferson County		198,099	96.8%	0.7%	0.3%	0.4%	0.0%	0.8%	2.2%	1.0%
Crystal City		4,247	91.7%	5.3%	0.3%	0.5%	0.0%	1.7%	7.8%	0.5%
Festus		9,660	93.1%	3.9%	0.3%	0.8%	0.1%	0.8%	5.9%	1.0%
7007.00	1	688	94.3%	1.5%	0.6%	0.1%	0.1%	3.1%	5.4%	0.3%
7007.00	5	1,086	81.2%	16.7%	0.2%	0.2%	0.0%	1.2%	18.3%	0.6%
7009.00	3	2,380	95.5%	1.5%	0.3%	0.7%	0.1%	0.6%	3.2%	1.3%
7014.02	2	2,584	97.2%	0.3%	0.2%	0.9%	0.0%	1.0%	2.3%	0.5%
7014.02	3	1,318	98.6%	0.4%	0.0%	0.1%	0.0%	0.5%	0.9%	0.5%
7014.02	4	1,365	98.2%	0.4%	0.1%	0.4%	0.0%	0.8%	1.7%	0.1%
Study Area Block Groups Total/Average		9,421	95.1%	2.6%	0.2%	0.5%	0.0%	1.0%	4.3%	0.6%

Source: United States Census Bureau
*Percent Hispanic is not included in Minority percentage

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Economic and Labor Force Characteristics

The economic and labor force characteristics (Exhibit 3.7) for the study area when compared to the larger geographic areas are relatively similar with some outliers. Nearly 70% of the employment falls within five categories: construction, manufacturing, retail trade, educational/health / social services, and arts / entertainment / recreation / accommodation / food service. The remaining eight categories employ the remaining 30% of the population with no category exceeding nine percent of the labor in their geographic area. Percentages of note that exceed the statewide, countywide, or adjacent cities numbers within the study area include the construction category in Census Tract 7009.00 Block Group 3 and Census Tract 7014.02 Block Groups 2, 3, and 4 along with the arts, entertainment, food service category in Census Tract 7007.00 Block Groups 1 and 5.

The overall unemployment percentage for the study area hovers around four to five percent which mirrors the state, county, and cities percentage except in Census Tract 7007.00 Block Group 5, which is considerably higher at almost 11 percent, and Census Tract 7014.02 Block Groups 2, 3, and 4, which are slightly lower at two and three percent.

Exhibit 3.7: Economic and Labor Force Characteristics

Labor Categories	Location/Census Block Groups										
	Missouri	Jefferson County	Crystal City	Festus	Census Tract 7007.00 Block Group 1	Census Tract 7007.00 Block Group 5	Census Tract 7009.00 Block Group 3	Census Tract 7014.02 Block Group 2	Census Tract 7014.02 Block Group 3	Census Tract 7014.02 Block Group 4	Study Area Block Groups Total/Average
Total Employed	2,657,924	99,837	1,724	4,433	304	327	1,127	1,194	663	706	4,321
% Unemployed	5.3%	4.6%	5.8%	5.4%	5.6%	10.9%	4.9%	3.4%	2.4%	3.4%	4.4%
Agriculture, Forestry, Fishing & Hunting; Mining	2.2%	0.6%	0.3%	0.0%	0.0%	0.0%	0.4%	1.3%	1.7%	0.0%	0.7%
Construction	6.9%	10.4%	9.5%	9.2%	2.3%	7.0%	11.5%	12.1%	13.1%	10.1%	10.7%
Manufacturing	14.8%	16.6%	15.5%	17.0%	20.1%	16.5%	15.3%	18.9%	13.1%	16.7%	16.6%
Wholesale Trade	3.7%	4.1%	2.3%	3.4%	0.0%	1.5%	1.2%	2.0%	2.7%	1.0%	1.6%
Retail Trade	11.9%	12.7%	10.3%	13.6%	6.6%	12.8%	15.4%	12.1%	7.7%	10.6%	11.7%
Transportation and Warehousing; Utilities	5.7%	5.9%	5.8%	6.5%	5.3%	7.3%	7.6%	6.8%	6.3%	5.8%	6.7%
Information	3.0%	2.7%	2.4%	3.2%	2.0%	0.0%	3.2%	2.3%	2.7%	4.2%	2.7%
Finance; Insurance; Real Estate and Rental and Leasing	6.7%	6.7%	8.4%	6.0%	5.6%	8.6%	8.3%	1.8%	4.7%	6.5%	5.5%
Professional; Scientific; Management; Administrative; Waste Management Services	7.5%	8.0%	5.8%	4.4%	0.0%	5.5%	6.6%	6.2%	8.4%	5.1%	6.0%
Educational; Health and Social Services	20.4%	16.5%	21.7%	18.2%	33.2%	15.9%	15.8%	20.7%	21.0%	20.4%	19.9%
Arts; Entertainment; Recreation; Accommodation and Food Services	7.8%	7.2%	8.5%	7.7%	13.8%	18.7%	5.3%	7.4%	6.9%	9.6%	8.4%
Other Services (Except Public Administration)	5.0%	5.9%	4.9%	6.8%	4.6%	3.7%	5.0%	5.5%	6.9%	6.1%	5.5%
Public Administration	4.6%	2.8%	4.6%	3.9%	6.6%	2.4%	4.3%	2.8%	4.7%	3.8%	3.9%

Source: United States Census Bureau

3.2.2 Environmental Justice

Environmental Justice laws, regulations, and policies are found in Title VI of the Civil Rights Act of 1964, the National Environmental Policy Act of 1969, Title 23 of the United States Code, Section 109(h), the Uniform Relocation and Real Properties Acquisitions Policy Act of 1970, and most recently in Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations. The laws listed above protect the following populations: minorities (racial and national origin), low-income, elderly, disabled, and households without a personal vehicle. The first two groups, minorities and low-income, are specifically protected by Environmental Justice regulations. Environmental Justice is defined by the U.S. Environmental Protection Agency as:

"The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socio-economic group should bear a disproportionate share of the negative environmental consequences resulting from the industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies."

The main goals of environmental justice as it relates to transportation projects are to prevent adverse impacts from disproportionally falling to minority and low-income populations, to assure those populations receive their equal share of benefits from a project and the ability to provide input into the decision-making process. For the analysis of environmental justice, minority persons are defined as any person who is African American, Hispanic, Asian American, American Indian, or Alaskan Native. Low-income populations are those households with incomes at or below the Department of Health and Human Services poverty guidelines of $21,750 for a family of four (median household income) and elderly populations are those age 65 and over. The following environmental justice table (Exhibit 3.8) and subsequent analysis includes all of the census block groups that are located within the study corridor.

Exhibit 3.8: Environmental Justice Characteristics

Location/Census Tracts	Census Block Groups	% Minority	Median HH Income	Per Capita Income	% Persons Poverty	% 65 +	% Disabled	No Vehicles Total (%)
Missouri		14.4%	$37,934	$19,936	11.7%	13.5%	31.8%	8%
Jefferson County		2.2%	$46,338	$19,435	6.8%	9.2%	29.4%	4%
Crystal City		7.8%	$36,117	$17,816	15.2%	20.3%	38.0%	12%
Festus		5.9%	$36,687	$19,035	10.2%	15.9%	35.1%	9%
7007.00	1	5.4%	$39,750	$19,233	11.6%	13.7%	50.0%	18%
7007.00	5	18.3%	$23,796	$14,509	21.9%	33.7%	31.7%	13%
7009.00	3	3.2%	$45,905	$22,705	11.8%	9.9%	34.7%	5%
7014.02	2	2.3%	$38,480	$18,271	4.1%	12.0%	33.4%	2%
7014.02	3	0.9%	$49,914	$18,939	2.3%	9.5%	23.8%	3%
7014.02	4	1.7%	$48,810	$19,318	6.1%	8.4%	26.7%	3%
Study Area Blocks Total/Average		4.3%	$41,109	$18,829	8.4%	13.2%	32.4%	6%

Source: United States Census Bureau

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As mentioned previously, there is only one substantial residential concentration within the study area. The area within the northernmost portion of the study area (included in Census Tract 7007.00 Block Group 5) is the southern portion of Crystal City and includes the original residential neighborhood just south of the downtown. The only residences within the remainder of the study area are approximately a dozen or so located along VFW Drive, Mound Road, and River Hills Road in the east central portion of the study area. The remainder of the study area is mostly commercial, industrial, or institutional uses. Therefore, the census data for other block groups are mostly for populations that live outside of the study area, so the following analysis will mostly focus on Census Tract 7007.00 Block Group 5.

Based upon the information obtained from the 2000 United States Census no block groups or other geographic areas have median household incomes below the Department of Health and Human Services poverty guidelines. However, Census Tract 7007.00 Block Group 5 has a median household income of $23,796 which is very close to the poverty guidelines threshold. This block group does have nearly 22 percent of the population living in poverty and in combination with the minority percentage (18.3%) and elderly population (33.7%), there are environmental justice populations that need to be considered in project development. Those considerations are threefold: ensure that they receive their equal share of the benefits from the project, ensure full and fair participation in the transportation decision-making process, and avoidance/minimization/mitigation of disproportionately high and adverse effects.

3.3 Transportation Features

3.3.1 Existing and Proposed Roadways

Interstate 55

Interstate 55 is the only Interstate Highway facility located within Jefferson County. It is a controlled access facility that runs in a north-south direction and is one of the primary arteries to the St. Louis area. I-55 is a heavily traveled interstate that roughly parallels the Mississippi River while accommodating traffic from La Place, Louisiana (just west of New Orleans) to Chicago, Illinois. Within Missouri, it stretches along the western side of the Mississippi River from the Arkansas state line to St. Louis where it crosses the river into Illinois. I-55 is a four to ten lane facility with a posted speed limit ranging between 65 and 70 mph in Jefferson County. Within the study area it is a four-lane facility with a posted speed limit of 70 mph that includes a standard diamond interchange with U.S. 61 (exit 170), a cloverleaf interchange with U.S. 67 (exit 174A & B), and a single point urban interchange with Route A (exit 175). Traffic volumes from MoDOT's 2010 Count Map vary from 27,000 vehicles per day (vpd) south of U.S. 67 to 51,000 vpd north of Route A.

U.S. 61

U.S. 61 is a U.S. highway that stretches from New Orleans, Louisiana to Wyoming, Minnesota (just north of Minneapolis/St. Paul) and parallels nearly the entire length of the Mississippi River. Within Jefferson County U.S. 61 is predominantly a two-lane facility with a posted speed limit between 45 and 55 mph that not only parallels the Mississippi River, but also Interstate 55 from the Arkansas border to St. Louis. Within the study area it is a two-lane facility with a posted speed limit between 35 and 55 mph. Two segments of U.S. 61 are located in the study area, adjacent to exit 170 and within Crystal City just east of I-55 to U.S. 67 (Truman Boulevard).

The segment adjacent to exit 170 is classified as a Rural Major Collector includes a western signalized intersection with I-55 southbound ramps, an eastern unsignalized intersection with I-55 northbound ramps (which includes a westbound U.S. 61 right turn lane to northbound I-55, and an unsignalized intersection with Outer Road just 300 feet east of I-55.

The segment within Crystal City (traveling south to north) is classified as an Urban Major Collector. This change in classification essentially occurs at the at-grade railroad crossing with the Union Pacific spur line. U.S. 61 is two lanes and includes an overpass of I-55 and an unsignalized intersection with Airport Road. North of Airport Road the roadway becomes a three-lane facility with a continuous two-way left turn lane. As U.S. 61 continues north it includes an unsignalized intersection with Industrial Drive and a signalized intersection with U.S. 67 (Truman Boulevard). Traffic volumes from MoDOT's 2010 Count Map vary from 5,250 vpd over I-55 while east of Exist 170 with I-55, traffic volumes increase to 6,900 vpd.

U.S. 67

U.S. 67 is a U.S. highway that stretches from the Mexico border in Presidio, Texas to Sabula, Iowa. It generally travels southwest to northeast in Missouri and is a four-lane facility for most of its length. Within Jefferson County it stretches from the St. Francois County line to I-55 in Festus. It is a four-lane divide roadway classified as an Expressway from the County line to Route A and a Principal Arterial. Within the study area U.S. 67 is a four-lane facility that has a cloverleaf interchange with I-55 and then a signalized intersection with U.S. 61. Traffic volumes from MoDOT's 2010 Count Map show approximately 33,900 vpd west of I-55.

U.S. 61/67 (Truman Boulevard)

From the U.S. 61 and U.S. 67 intersection in Festus to the St. Louis County line, the roadway carries a dual designation. Within the study area U.S. 61/67 is a four or five-lane facility that is classified as a Principal Arterial and has a posted speed limit of 45 mph. This stretch of roadway includes the majority of the commercial businesses within both Crystal City and Festus. Traveling south to north within the study area U.S. 61/67 is a four-lane roadway that includes a signalized intersection with St. Pius Drive and a signalized intersection with Route A (Veterans Boulevard). North of the intersection with Route A the road becomes a five-lane section with a continuous left-turn lane.

Additional roadways of note within or adjacent to the study include Route A (Veterans Boulevard) which is a five-lane facility classified as a Principal Arterial, Bailey Road (becomes Main Street in Festus which was previously designated as Route A) which is a two-lane facility classified as a Minor Arterial, Mississippi Avenue which is a two-lane facility classified as a Minor Arterial, Country Road which is a two-lane facility classified as an Urban Collector (although the roadway is physically discontinuous), VFW Drive, Bailey Road, and Virginia Avenue are two-lane facilities classified as Urban Collectors.

As detailed in the Crystal City *Comprehensive Plan Update & Growth Management Plan for the Future* (2010), several roadway improvements were identified within the study area. Those include making improvements to Beffa Street and Bailey Road along with their intersections with U.S. 61/67, the addition of a new signalized intersection along U.S. 61/67 between Route A and St. Pius Drive, constructing and allowing a right-in only to St. Pius Drive from U.S. 61, and potential roadway improvement or new roadways in the vicinity of VFW Drive and Airport Drive for better connections to the Fred Weber quarry.

3.3.2 Public Transportation

The Jefferson County Community Partnership, a non-profit organization, currently operates JeffCo Express which is a flex route bus service that connects DeSoto, Hillsboro, Festus, and Arnold. The Monday through Friday service has operated for just over a year and has a dedicated route and schedule; however, they will deviate up to a mile from fixed stops upon request. Within the project study area, JeffCo Express operates fixed bus stops at the Wal-Mart along U.S. 61/67 (Truman Boulevard) and the Jefferson Regional Medical Center along U.S. 61.

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The Older Adults Transportation Service (OATS), a non-profit organization, has operated mostly rural bus and van service in Missouri since the early 1970's. OATS originally started as a service to the elderly, but it is currently available to anyone regardless of age, income, or disability. The East OATS Region operates in the counties of Franklin, Jefferson, St. Charles, and St. Louis. Within the study area OATS offers scheduled service on a Festus local route for medical and shopping needs on the second and fourth Fridays each month and on a Festus to St. Louis route for medical and shopping needs on the third Tuesday each month. Passengers must call ahead to schedule rides on either of these routes.

There is currently no public transportation available to residents within Crystal City. There is also no passenger rail service within Crystal City or Festus although the Amtrak Texas Eagle route passes a few miles west of Festus. The Amtrak Texas Eagle connects Chicago with San Antonio and the closest stops to the study are in St. Louis (approximately 30 miles north) and Popular Bluff (approximately 120 miles south).

3.3.3 Freight Rail

Two rail lines are adjacent to the study area and pass through Crystal City and Festus, Burlington Northern Santa Fe (BNSF) and Union Pacific (UPRR). The BNSF line runs north and south through Missouri immediately adjacent to the Mississippi River; however, it travels east and west through Crystal City and Festus and is the northern boundary of the study area. The main UPRR line also runs north and south through Missouri connecting St. Louis with Popular Bluff and travels through the western edge of Festus. The UPRR owns two spur lines which pass through Festus and Crystal City which connect with their mainline. One of the spurs, known locally as the "Jones Spur," enters the study area near the BNSF overpass at U.S. 61/67 (Truman Boulevard) and continues to the south behind the Wal-Mart Plaza, crossing at-grade County Road/St. Pius Drive/VFW Drive, Industrial Drive, Airport Road, Calvary Church Road and then under Interstate 55 where it terminates just south of its at-grade crossing with U.S. 61 at the chlorine plant.

3.4 Cultural Resources and Parkland

3.4.1 Historical/Archeological Resources

The National Register Information System (NRIS) was searched for Jefferson County resources listed on the National Register of Historic Places (NRHP). No sites were found within or immediately adjacent to the study area. The study area boundary was submitted to the Missouri Department of Natural Resources, State Historic Preservation Office (SHPO) for confirmation.

3.4.2 Parklands

Four parks, recreation areas, or playgrounds are located within or adjacent to the study area for the project, discussed below by location. While these properties are subject to protection under Section 4(f), none of these properties are subject to Section 6(f). Exhibit 3.9 illustrates parklands within the study area.

Parks
Darrell "Hickey" White Memorial Park is located at 790 Crystal Avenue in the northern portion of the study area. This park is approximately two acres and includes a park pavilion, rest rooms, multi-purpose field, two basketball courts, playground facilities, and green space. The park is owned and maintained by Crystal City and serves the residential neighborhood south of Bailey Road. The city has given past consideration to moving the park due to its tendency to flood. *

Charles A. Brown Memorial Park is located at the intersection of Lincoln Avenue and High Street, just a block north of Darrel "Hickey" White Memorial Park, and is adjacent to the Mt. Olive Missionary Baptist Church. The park is less than a half an acre which includes picnic facilities, playground facilities and green space. The city owns several properties adjacent to the park and has future plans to expand the land and facilities.

Recreation and Open Space
The Crystal City Levee Commission, a private organization, also owns approximately five acres, known locally as the Buyout Property, just to the west of Little League Drive/County Road in the northern portion of the Study Area. The property is almost entirely located within the floodplain and therefore no structures can be constructed on the site. The City has plans to potentially relocate the Darrell "Hickey" White Memorial Park here or developing a recreation area with only picnic tables and a trail network.

The Twin City Little League Complex includes four baseball fields on approximately five acres located at 155 Little League Drive in the northern portion of the study area. The complex, which includes restrooms, is owned by a not-for-profit agency and utilized for little league baseball activities.

Additional Private Recreational Area
The Veterans of Foreign Wars (VFW) #3777 at 900 VFW Drive has approximately 14 acres of recreational fields that members only may utilize. The property also includes a clubhouse, lake, and picnic area which is restricted to members. Because this is a private facility it is not subject to Section 4(f) regulations.

3.5 Natural Resources

3.5.1 Air Quality

The study area is located entirely within Jefferson County, Missouri. Jefferson County is currently a non-attainment area for lead.

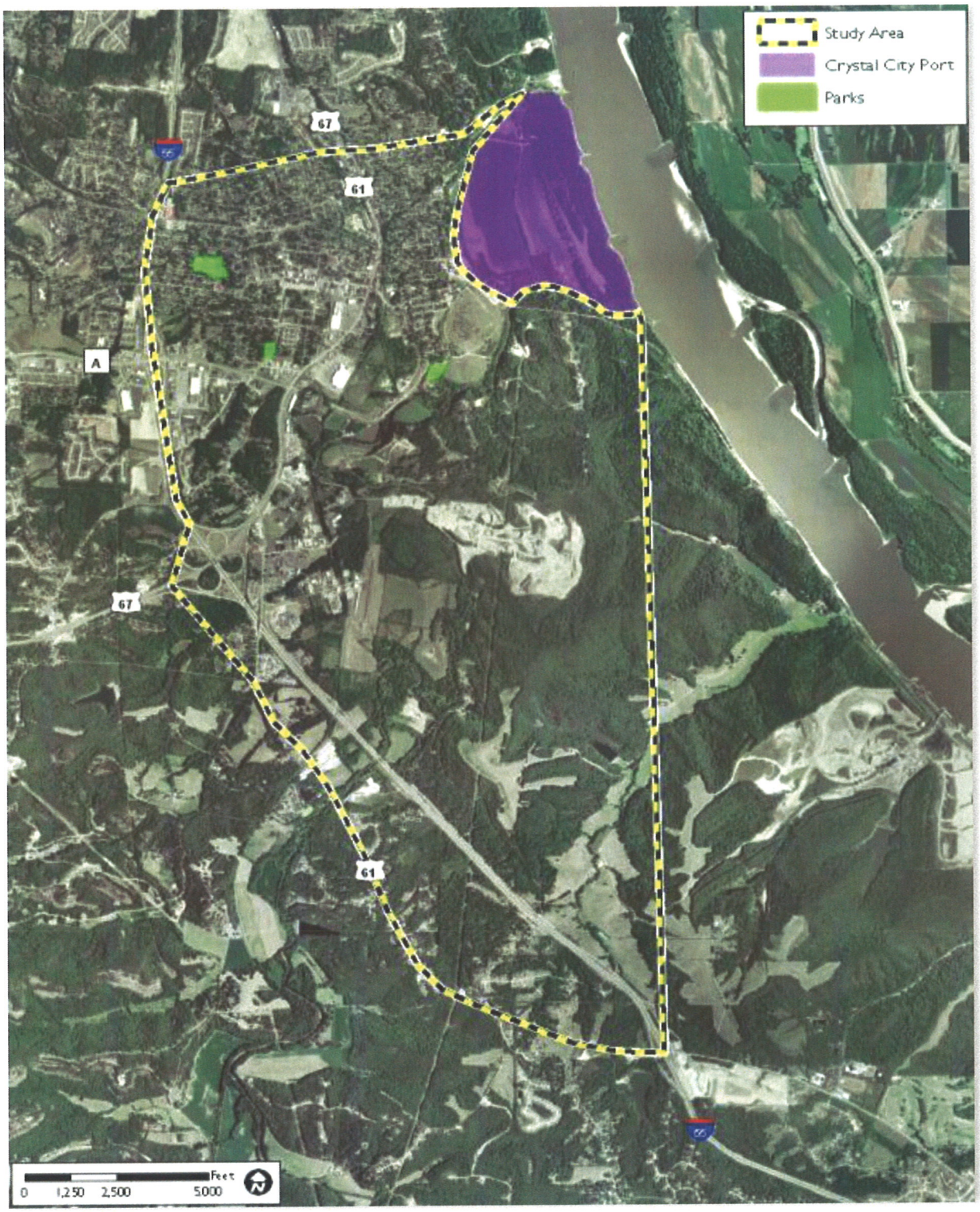
3.5.2 Noise and Vibration

The term "noise" is defined as unwanted sound. Sound is measured in a logarithmic unit called a decibel (dB). The human ear is more sensitive to middle and high frequency sounds than it is to low frequency sounds, so sound levels are weighted to more closely reflect human perceptions. These "A-weighted" sounds are measured using the decibel unit dBA.

A common descriptor of the equivalent noise level is Leq, which represents the equivalent of a steady, unvarying level over a defined period of time. In locations where people are likely to be sleeping, the most commonly used measure of noise is the day-night average sound level, called Ldn.

A noise and vibration impact assessment was not conducted as part of the documenting of existing conditions.

Exhibit 3.9: Public Parkland



3.5.3 Wildlife Resources

Wildlife resources include all species of animals that may exist in the study area, along with vegetation and other habitat characteristics. Of particular concern are any threatened, endangered, or sensitive species. Section 6 of the Endangered Species Act of 1973, as amended (16 USC 1531 *et seq.*) provides for the conservation of endangered and threatened species of fish, wildlife, plants, and the critical habitat in which they live.

According to the US Fish and Wildlife Service (USFWS) Endangered Species list for Jefferson County, Missouri the following known species exist:

- Endangered
- Gray bat (Myotis grisescens)
- Indiana bat (Myotis sodalist)
- Pallid sturgeon (Scaphirhynchus albus)
- Pink Mucket (Lampsilis abrupt)
- Scaleshell mussel (Leptodea leptodon)

- Proposed as Endangered
- Snuffbox (Epioblasma triquetra)

- Candidates for Inclusion
- Sheepnose mussel (Plethobasus cyphyus)
- Spectaclecase mussel (Cumberlandia mondonta)

The Missouri Department of Conservation Heritage Database that covers public lands and sensitive resources also provides a numeric rank (S1 through S5) of relative endangerment based primarily on the number of occurrences within the state. Additional factors such as abundance, population trends, distribution, number of protected sites, degree of threat, suitable habitat trends, level of survey effort, and life history are considered when assigning a rank. Therefore, the numbers of occurrences suggested for each numeric rank are only guidelines and the rankings are not absolute. The only numeric ranks for Jefferson County and the study area are as follows:

- Critically Imperiled (S1): Critically imperiled in the nation or state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically 5 or fewer occurrences or very few remaining individuals (<1,000).
- Imperiled (S2): Imperiled in the nation or state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the nation or state (1,000 to 3,000).
- Vulnerable (S3): Vulnerable in the nation or state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.
- Unrankable (SU): Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

3.5.4 Water Resources

Floodplains

The Federal Emergency Management Agency (FEMA) and Federal Highway Administration (FHWA) guidelines 23 CFR 650 have identified the base (100-year) flood as the flood having a one-percent probability of being equaled or exceeded in any given year. The base floodplain is the area of 100-year flood hazard within a county or community. The regulatory floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood discharge can be conveyed without increasing the base flood elevation more than a specified amount. FEMA has mandated that projects can cause no rise in the regulatory floodway and a one-foot cumulative rise for all projects in the base (100-year) floodplain. In the case of projects proposed within regulatory floodways, a "no-rise" certificate, if applicable, should be obtained prior to issuance of a Floodplain Development Permit.

FEMA's Flood Insurance Rate Maps (FIRMs)

The proposed study area lies within the Ozark/Apple/Joachim Ecological Drainage Unit and the Plattin Creek Sub-Watershed (HUC 07140101 08 06) sub-watershed. No watershed management plans have been developed or in the process of being developed by local organizations within the immediate area of the proposed study area. No Source Water Protection Plans are known to exist. A Source Water Protection Plan helps safeguard a community water supply through inventorying known and potential sources of contamination, determining susceptibility of water source to contaminants, implementing Best Management Practices to reduce or eliminate threats and risks to the water source, and develop contingency planning strategies to deal with contamination or service interruption emergencies. A plan may provide additional watershed information.

Sensitive Waters

According to the Missouri Department of Natural Resources current water quality standards, there are no sensitive waters in the study area. Sensitive waters include outstanding state and national resource waters, cold water fisheries, metropolitan no-discharge streams and biocriteria reference locations.

Impaired Waters

No impaired waters are listed on the 2010 Clean Water Act Section 303(d) list approved by Missouri Clean Water Commission within the study area. However, the Mississippi River, which is just east of the study area, was listed as impaired on the 2008 list due to lead and zinc from the Herculaneum Smelter. This listing resulted from the U.S. Environmental Protection Agency disapproving the Department's recommendation for delisting and added the segment back on the list. No Total Maximum Daily Load study has been established for lead and zinc to date.

Lakes, Rivers, and Streams

Plattin Creek, water body identification number 1728, is classified for 19.9 miles with the designated beneficial uses of protection of warm water aquatic life and human health-fish consumption, livestock and wildlife watering, industry, secondary contact recreation and whole body contact recreation-Category A. The creek flows from the south-southwest to the north-northeast through the study area. Plattin Creek, through its designated beneficial uses, shall be protected by numeric water quality criteria contained in 10 CSR 20-7.031(4).

The study area contains several unclassified tributaries to Plattin Creek. Unclassified streams are protected by the general water quality criteria outlined in 10 CSR 20-7.031(3). There are no classified lakes within the

study area; however, Willers Lake is named on the USGS Festus Quad located just southeast of the intersection of State Route A (Veterans Boulevard) and U.S. 61/67 (Truman Boulevard).

3.5.5 Wetlands

National Wetland Inventory
According to the National Wetland Inventory Data, approximately 115.38 acres of palustrine forested wetlands, 31.66 acres of palustrine scrub-shrub wetlands, 14.65 acres of palustrine emergent wetlands, 28.63 acres of palustrine unconsolidated bottom wet areas (potentially ponds and/or stormwater basins), and 28.95 acres of riverine unconsolidated bottom habitat for a total of 219.27 acres of potential wetlands exist within the study area. The majority of the wetlands exist near Plattin Creek and its tributaries which bisect the study area from south to northeast.

Ponds
Wetlands classified in the Palustrine classification system as unconsolidated bottom are commonly referred to as ponds or stormwater basins. The unconsolidated bottom class includes all wetland and deepwater habitats with at least 25 percent cover of particles smaller than stones and a vegetative cover less than 30 percent. Approximately 28.63 acres of palustrine unconsolidated bottom wet areas are located within the study area. They are mostly within the center of the study area to the north of VFW Drive and paralleling County Road. For the most part they are immediately adjacent to the Plattin Creek.

Exhibit 3.10 illustrates the various water resources throughout the study area.

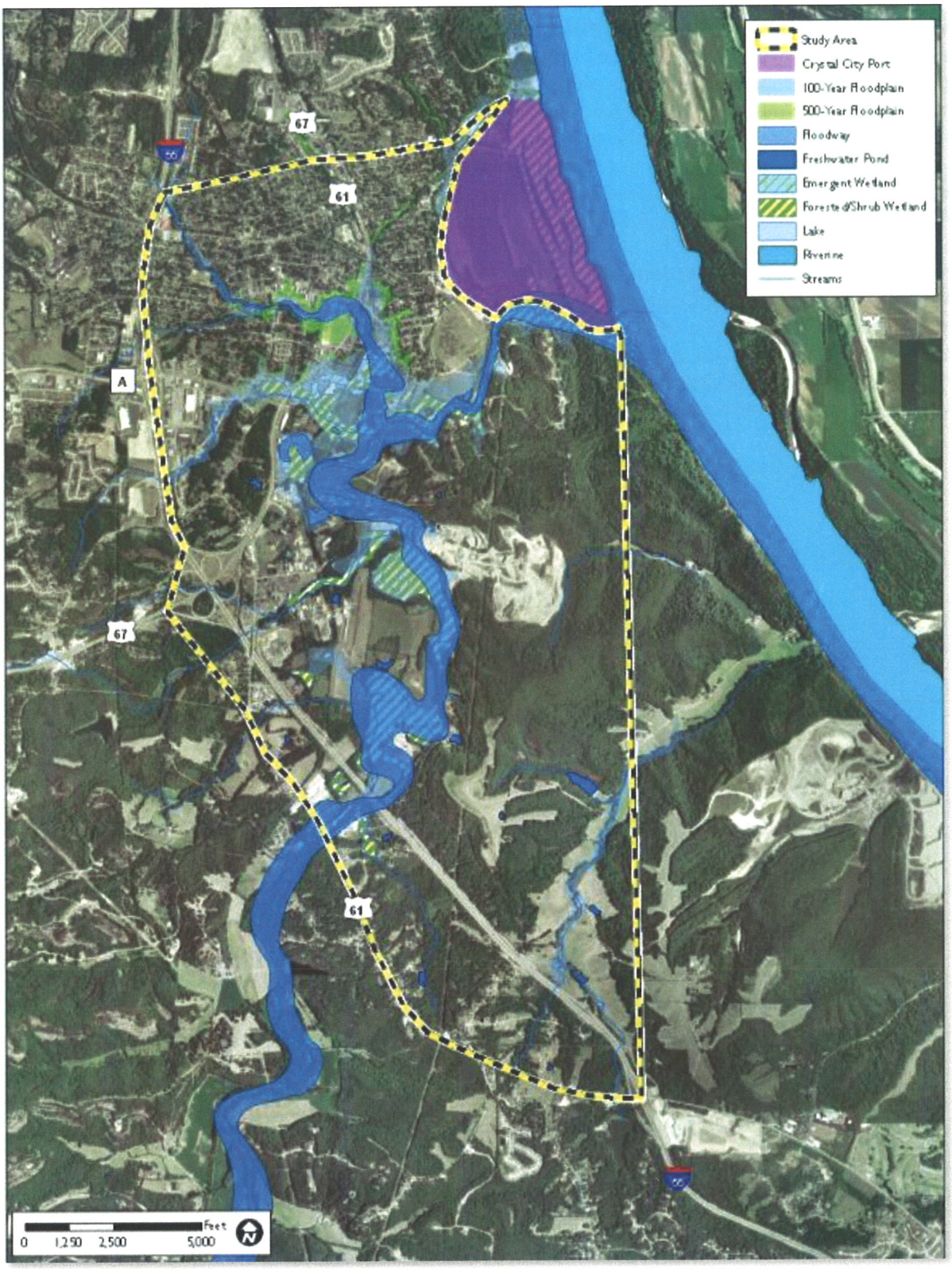
3.5.6 Mitigation Sites

There is at least one known mitigation site being constructed or in the process of being under construction in an area adjacent to Plattin Creek in the north central part of the proposed roadway study area. The global positioning system location for this site is approximately at an easting of 728671.213 meters and northing of 4231845.77 meters using Zone 15, UTM 1983. This site is associated with the Department of the Army Permit #MVS-2006-2/P-2526 (CES001368) for Valley View Lake and Dam. Any impacts to mitigation land should be avoided. If this is not possible, mitigation credits needed for land already protected for the purposes of mitigation can be large, depending on the resource.

3.5.7 Hydrogeology/Geology

Karst Topography – Springs, Sinkholes and Caves
There are no known springs or sinkholes in the proposed study area according to the Missouri Department of Natural Resources. One cave exists in the Festus Quad (which includes most of the western portion of the study area) and ten in the Selma Quad (which includes most of the northern, eastern, southern portions of the study area), but the exact locations were not given in the Department's database. Project planners should be vigilant that activities near these resources do not adversely impact water quality, as Karst features can provide a more direct access to sensitive species and groundwater. Should the construction of a new road or railway impact these areas, extra precautions may be necessary to protect these sensitive resources.

Exhibit 3.10: Water Resources



Karst Topography – Losing Streams

According to existing data from the Missouri Department of Natural Resources, there are no known losing streams present near the study area. However, there does not appear to be many surveys completed throughout the proposed study area since many of the streams have not yet been defined as gaining either. Project planners may want to check with the Department's Division of Geology and Land Survey to determine if a survey is necessary or if they have more recent data. Should losing streams be found, additional precautions should be put in place to protect the area's sensitive water quality and ecology at all times. Losing streams are protected by stringent effluent regulations [10 CSR 20-7.015(1)(A)3 and (4)] and Water Quality Standards [10 CSR 20-7.031(1)(N), (4)(C) and (11)].

Public Drinking Water Protection Areas

According to the Missouri Department of Natural Resources, several public drinking water wells and many additional certified wells are within or near the study area. Several 20-year travel time zones for the public drinking water wells cross or are within the study area. Just to the east of the study area, along the Mississippi River, one of Crystal City's largest producing drinking water wells is in that vicinity and is shallow with laterals that are also relatively shallow. Crystal City does not have a wellhead protection plan in place.

Section 4: Affected Environment and Environmental Consequences

This Environmental Consequences section presents an analysis of the potential effects of the Project on people and the environment. Scientists, planners, and engineers from the project team conducted a variety of different studies and summarized their analysis in technical reports. This information was used to evaluate potential benefits and impacts that could occur as a result of the No Build Alternative or from constructing either of the Build Alternatives (Route A, Red or Yellow). Typically, at this stage of the Project, a recommendation for a technically preferred alternative may be made, although it is recognized that the formal selection of a locally preferred alternative can only be made after additional public involvement. Because a funding source has yet to be identified this DRAFT has not been developed to the point of providing a definitive recommendation. This would be premature without having participating agency guidance through a formal review process to ensure environmental consequences have been adequately evaluated. However, many resource impacts have been quantified and do provide a comparison of what is known to date about the alternative considered.

The description of potential impacts follows the order of characteristics discussed in the Existing Conditions section. Often where quantities can be summarized, a data table is presented for each of the alternatives being evaluated. The build alternatives are consistently discussed in order of Route A, Red, and Yellow.

4.1 Land Use and Economic Impacts

4.1.1 Community Facilities

Exhibit 4.1 illustrates the community facilities and their proximity to the No Build and the three build alternatives.

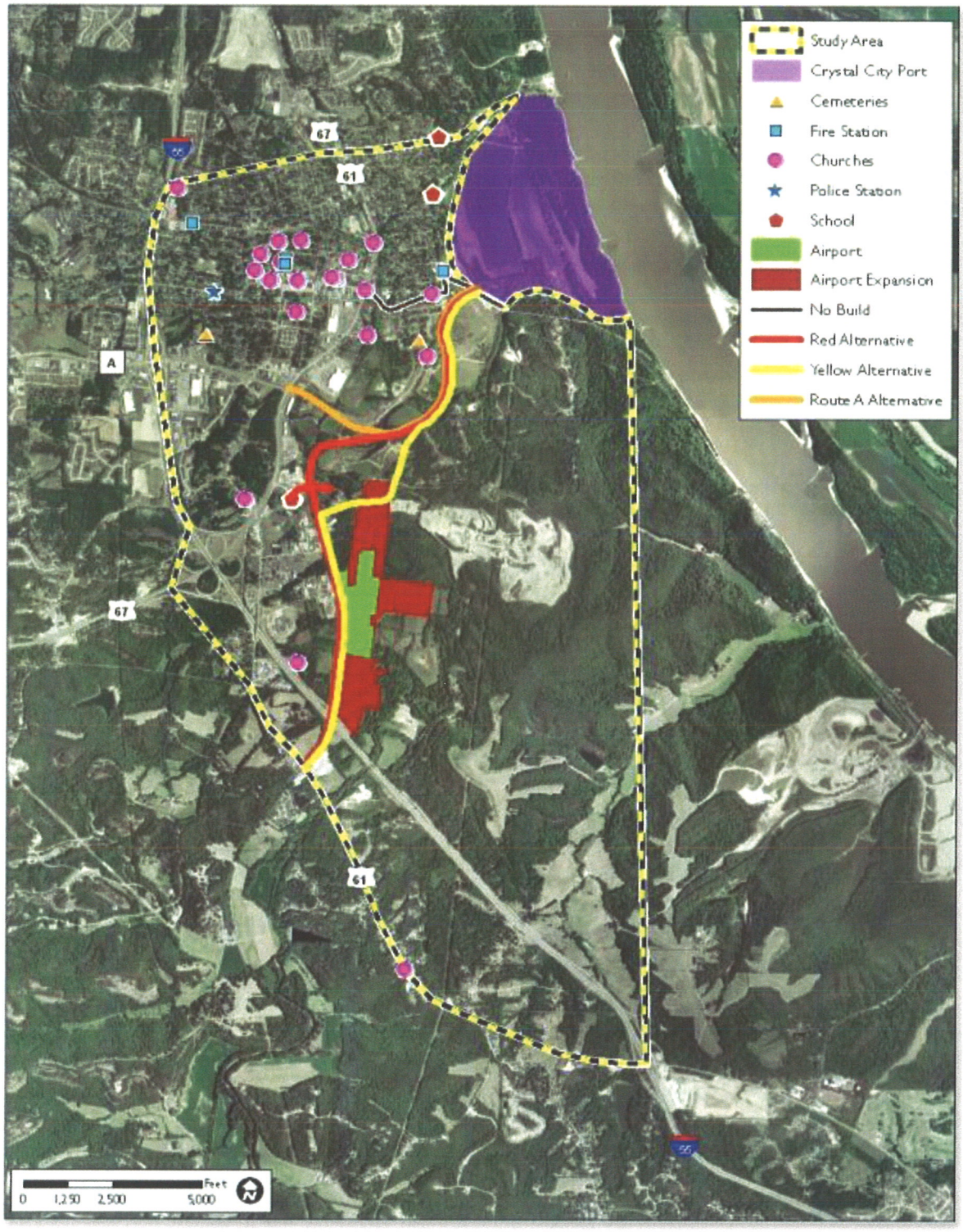
- Jefferson Regional Medical Center – This complex has its access and frontage along U.S. 61, though the primary direction of traffic accessing the facility may come from the intersection of U.S. 61 with U.S. 67.

None of the alternatives would directly impact or have an adverse effect on the access to the Medical Center. To a certain degree, the Red and Yellow alternatives provide a potential benefit of a new interchange on I-55 that would improve access to the medical center by utilizing Calvary Church Road to Airport Road to U.S. 61. This new access to I-55 would redirect emergency response vehicles from their current routes that travel into the city activity centers to access to a more direct connection with the interstate which reduces exposure to potential conflicts and delays due to mainstream traffic in a network at capacity.

- St. Pius X High School

The Red alternative will not directly affect the high school; however, it does provide more direct access to St. Pius Drive that is likely to encourage increased traffic volumes associated with port generated traffic whose ultimate destination is northbound I-55 thus affecting access. These trucks are more likely to utilize the improved geometric connection to St. Pius Drive and proceed on U.S. 61/67 to the I-55/U.S. 67 interchange to access northbound I-55. Truck traffic already travels on St. Pius due to quarry operations and without any sidewalks currently existing, pedestrian activity is very limited in the area. Therefore, pedestrian safety impacts would be minimal even with an increase in truck traffic.

Exhibit 4.1: Community Facilities in relation to Alternatives



- Religious facilities – No religious facilities will be directly affected nor will their access be adversely affected by the project.
- Cemetery – No cemeteries will be directly affected nor will their access be adversely affected by the project.
- Airport – This facility as defined under its Master Plan is proposing to undergo significant change to its property limits, facilities and access. While the UPRR spur line provides service to the chlorine plant south of U.S. 61 typically only once or twice a week, at-grade railroad crossings are not the desired means of access to a regional airport, though no commercial air service is provided.

The No Build and Route A, Red and Yellow alternatives would not have any adverse effects.
The Red and Yellow alternatives provide a benefit via a new interchange and alignment that runs the length of the airport property by affording the opportunity to change the means of access to the airport. There is even the potential to remove at least two at-grade railroad crossings (Airport Road and Industrial Drive). The need to maintain the at-grade railroad crossing at Calvary Church Road may be a collective decision with the local communities. The property served by Calvary Church Road east of the railroad is proposed to be purchased as part of the Airport's Master Plan at which time this additional access point may not be necessary.

4.1.2 Land Use

Exhibit 4.2 summarizes the impacts of the No Build and three build alternatives on various land use types.

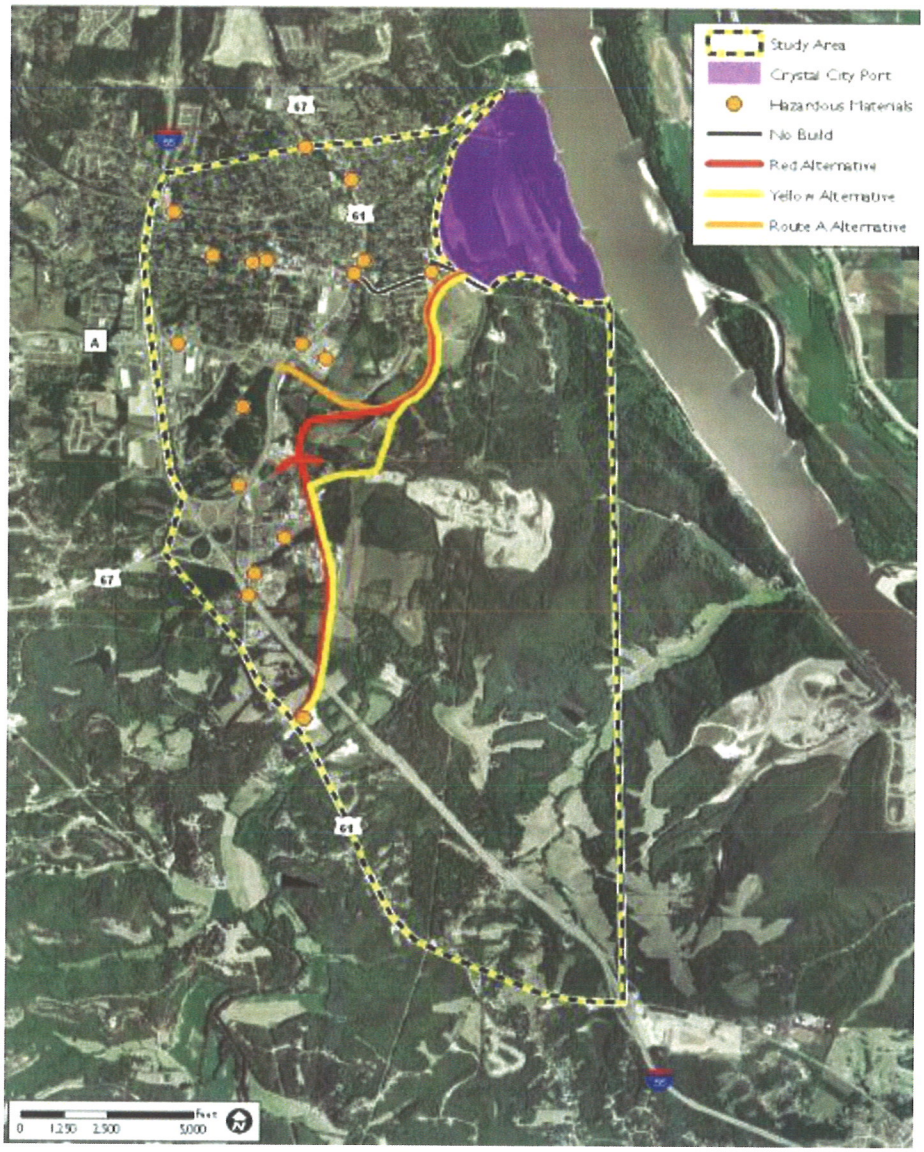
Exhibit 4.2: Potentially Affected Properties

	No Build	Red	Yellow
		Total	Total
Number of Properties			
Residential	1	7	3
Agricultural	1	3	3
Commercial	4	5	6
Total	6	15	12
Acreage of Properties			
Residential	4.4	10.2	3.2
Agricultural	0.2	4.2	6.1
Commercial	1.7	7	8.5
PPG (former)	10.7	9.2	9.2
Levee Commission	5.5	7.2	2.4
Airport	0.0	3.8	3.8
Total	22.5	41.6	33.2

4.1.2 Hazardous Materials

Exhibit 4.3 illustrates the location of hazardous materials sites in relation to the alternative alignments within the study area. These sites were identified by a regulatory agency database review noting sites that have reported releases of hazardous substances, hazardous waste or petroleum products within the study area. These sites have not been field verified. Once a preferred alternative is selected, a Phase I Environmental Site Assessment (ESA) will need to be conducted for the areas of concern. If the Phase I ESA identifies the potential to encounter contaminated soil or groundwater during construction then a Phase II ESA will need to be performed. The Phase II ESA will be conducted in a manner to address the contaminants of concern (COCs) identified in the Phase I ESA. Soil borings and ground water will be sampled to determine the types and amounts of COCs present.

Exhibit 4.3: Hazardous Materials Sites in relation to Alternatives



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4.2 Social and Economic Impacts

4.2.1 Population and Housing Characteristics/Environmental Justice

Executive Order 12898 was enacted in 1993 and requires that each federal agency make achieving environmental justice part of its mission, by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low income populations. This Executive Order builds on the Civil Rights Act of 1964.

Database research and site reconnaissance was performed to determine the existing socioeconomic factors in the study area. Factors include land use, displacements, demographics, economics, community, environmental justice, safety and visual aesthetics. Impacts for the No Build and all alternatives were determined during data analysis.

As indicated in Chapter 2, the racial characteristics for the study area when compared to the larger geographic areas are relatively similar. Census Tract 7007.00 Block Group 5 has a larger percentage of minority populations. The majority of the study area has a slightly higher percentage of white (Caucasian) residents, but a lower percentage of minority residents. Census Tract 7007.00 Block Group 5's percentages are similar to the State of Missouri with a white population making up 81% and black population at nearly 17%. The minority percentages again show that Census Tract 7007.00 Block Group 5 has an 18.3% with the next highest rate in Block 1Group 7001 at 5.4%.

Based upon the information obtained from the 2000 United States Census no block groups or other geographic areas have median household incomes below the Department of Health and Human Services poverty guidelines. However, Census Tract 7007.00 Block Group 5 has a median household income of $23,796 which is very close to the poverty guidelines threshold. This block group does have nearly 22 percent of the population living in poverty and in combination with the minority percentage (18.3%) and elderly population (33.7%), there are environmental justice populations that need to be considered in project development. Those considerations are threefold: ensure that they receive their equal share of the benefits from the project, ensure full and fair participation in the transportation decision-making process, and avoidance/minimization/mitigation of disproportionately high and adverse effects.

4.3 Transportation Impacts

The potential for transportation impacts are viewed in a hierarchical order of the transportation network starting at the highest level, the interstate system of I-55 and access via its associated interchanges. Exhibits 4.4 through 4.6B illustrate existing and projected traffic volumes on the facilities impacted as well as projected operating conditions.

Exhibit 4.4: Traffic Volumes						
Facility	2010			2030		
Location	Total	Trucks	%	Total	Trucks	%
Interstate 55						
North of Route A	50,950	7,000	13.7%	75,712	10,600	14.0%
Between Route A and U.S. 67	43,825	6,500	14.8%	65,124	9,117	14.0%
Between U.S. 67 and U.S. 61	29,435	5,924	20.1%	43,740	6,998	16.0%
U.S. 67						
West of I-55	33,910			50,390		
West of U.S. 61	8,055			11,970		
West of Route A	14,692			21,832		
East of Route A	20,482			30,436		
U.S. 61						
Over I-55	5,248			7,799		
Route A						
East of I-55	27,057			40,207		
West of I-55	11,124			16,530		

Exhibit 4.5A Intersection Capacity Analysis Results Future 2030 No Build Alternatives (A.M. Peak Hour)						
Intersection	Bailey		Route A		St. Pius	
Approach/Movement	LOS	Delay	LOS	Delay	LOS	Delay
Route A and I-55 Signalized (All Movements)	C	25.7	C	25.7	C	25.3
U.S. 61/67 and Bailey Avenue Signalized (All Movements)	C	23.0	B	16.4	C	21.5
U.S. 61/67 and Route A Signalized (All Movements)	C	24.7	C	30.4	C	26.7
U.S. 61/67 and St. Pius Drive Signalized (All Movements)	B	12.5	B	13.4	B	17.5
U.S. 67 and U.S. 61 Signalized (All Movements)	C	34.6	D	36.4	C	34.7

Exhibit 4.5B
Intersection Capacity Analysis Results
Future 2030 No Build Alternatives (P.M. Peak Hour)

Intersection	Bailey		Route A		St. Pius	
Approach/Movement	LOS	Delay	LOS	Delay	LOS	Delay
Route A and I-55						
Signalized (All Movements)	D	37.3	D	37.3	C	34.3
U.S. 61/67 and Bailey Avenue						
Signalized (All Movements)	D	48.4	C	32.9	C	34.5
U.S. 61/67 and Route A						
Signalized (All Movements)	D	45.3	D	50.8	D	54.6
U.S. 61/67 and St. Pius Drive						
Signalized (All Movements)	A	4.8	A	5.4	A	9.7
U.S. 67 and U.S. 61						
Signalized (All Movements)	D	46.5	D	47.1	D	51.2

Exhibit 4.5C
Intersection Capacity Analysis Results
Future 2030 Build Alternative (New I-55 Interchange)

Intersection	A.M. Peak Hour		P.M. Peak Hour	
Approach/Movement	LOS	Delay	LOS	Delay
Route A and I-55				
Signalized (All Movements)	C	25.3	C	34.3
U.S. 61/67 and Bailey Avenue				
Signalized (All Movements)	B	18.0	C	34.7
U.S. 61/67 and Route A				
Signalized (All Movements)	C	33.4	E	55.0
U.S. 61/67 and St. Pius Drive				
Signalized (All Movements)	B	13.7	A	6.8
U.S. 67 and U.S. 61				
Signalized (All Movements)	D	38.8	D	45.8
Port Access Road and Southbound I-55 Ramps				
Westbound Left-turn	A	1.0	A	2.9
Northbound	B	14.5	B	12.2
Port Access Road and Northbound I-55 Ramps				
Westbound Left-turn	A	4.4	A	6.6
Northbound	B	15.0	B	12.3

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Exhibit 4.6A
Freeway Segment Capacity Analysis Results
Future 2030 No Build Alternatives

Segment Location	A.M. Peak Hour				P.M. Peak Hour			
	Bailey / Route A		St. Pius		Bailey / Route A		St. Pius	
	Density	LOS	Density	LOS	Density	LOS	Density	LOS
Northbound I-55								
U.S. 61 Merge	16.0	B	16.0	A	16.0	B	7.3	A
b/w U.S. 61 and U.S. 67	13.1	B	13.1	B	4.9	A	4.9	A
U.S. 67 Diverge	12.1	B	3.0	A	12.1	B	3.0	A
U.S. 67 Weave	39.3	E	40.1	E	16.3	B	16.3	B
U.S. 67 Merge	30.0	D	30.7	D	15.9	B	16.5	B
b/w U.S. 67 and Route A	17.2	B	29.1	D	14.3	B	14.9	B
Route A Diverge	25.7	C	26.6	C	14.6	B	15.3	B
Southbound I-55								
U.S. 61 Diverge	0.9	A	0.9	A	0.9	A	5.8	A
b/w U.S. 61 and U.S. 67	3.8	A	3.8	A	10.1	A	10.1	A
U.S. 67 Merge	6.2	A	13.7	B	6.2	A	13.7	B
U.S. 67 Weave	5.4	A	6.5	A	10.2	B	11.1	B
U.S. 67 Diverge	6.7	A	7.4	A	8.8	F	9.5	F
b/w U.S. 67 and Route A	10.9	A	11.5	B	26.9	D	27.7	D
Route A Merge	13.4	B	14.1	B	29.5	D	30.1	D

Exhibit 4.6B
Freeway Segment Capacity Analysis Results
Future 2030 Build Alternative

Segment Location	A.M. Peak Hour		P.M. Peak Hour	
	Density	LOS	Density	LOS
Northbound I-55				
U.S. 61 Merge	17.2	B	9.4	A
b/w U.S. 61 and New Interchange	15.4	B	6.7	A
New Interchange Diverge	19.0	B	9.3	A
b/w New Interchange Ramps	14.6	B	6.4	A
New Interchange Merge	19.0	B	10.0	B
b/w New Interchange and U.S. 67	14.1	B	6.6	A
U.S. 67 Diverge	13.7	B	5.4	A
U.S. 67 Weave	42.2	E	19.1	B
U.S. 67 Merge	31.0	D	17.4	B
b/w U.S. 67 and Route A	29.5	D	15.7	B
Route A Diverge	26.9	C	16.3	B
Southbound I-55				
U.S. 61 Merge	3.6	A	7.0	A
b/w New Interchange and U.S. 61	4.1	A	11.0	A
New Interchange Merge	7.0	A	14.9	B
b/w New Interchange Ramps	3.8	A	10.3	A
New Interchange Diverge	6.4	A	14.7	B
b/w U.S. 67 and New Interchange	3.8	A	11.7	B
U.S. 67 Merge	8.5	A	14.7	B
U.S. 67 Weave	5.4	A	10.7	B
U.S. 67 Diverge	8.7	A	9.7	F
b/w Route A and U.S. 67	12.5	B	12.5	B
Route A Merge	15.3	B	30.3	D

Interstate 55

In general terms the overall traffic generated by the port is minor when compared to the overall traffic volumes and truck traffic volumes on I-55. The distribution of truck traffic is greatest on I-55 north of U.S. 67. Peak hour operations in the design year are not expected to change level of service in either the northbound or southbound direction.

Interstate 55 Interchanges

Access to I-55 is dependent upon the alignment being considered. While in general terms several interchanges (both Route A and U.S. 67) may be affected by the various distribution patterns of truck traffic, it is assumed that a connection with Route A would direct more truck traffic along Route A, although traffic destined to/from U.S. 67 was assumed to travel along U.S. 67. Consequently the I-55 and U.S. 67 system

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interchange could be affected by Port distributed traffic. No build conditions and potential improvements to this interchange are illustrated in Exhibit 4.7.

An alignment option that creates a new interchange with I-55 has also been evaluated. Average daily traffic volumes associated with the new interchange are relatively minor, on the order of 5,000 vehicles per day or less and therefore do not present congestion problems, now or in the foreseeable future. Further descriptions of this potential interchange are provided later.

Exhibit 4.7: I-55 and U.S. 67

U.S. 61/67

There are a series of four traffic signals along U.S. 61/67 that were assessed. They include the junctions with Bailey Road, Route A, St. Pius Drive, and U.S.61. All signals operate at acceptable levels of service currently and are expected to be able to continue to operate generally within acceptable operations into the future with some improvements.

I-55 and Route A – This interchange is expected to not need any improvements to accommodate Port traffic and future growth traffic.

Exhibit 4.8: I-55 and Route A

Bailey Road - This location is affected under the No Build scenario. Under other alternatives (Route A, red and Yellow), the Port traffic becomes through traffic on U.S. 61/67 and is not projected to experience any significant delays.

The eastern leg of the Bailey Road approach has an exclusive left turn lane, a through lane and an exclusive right turn lane. However the storage length for the exclusive turn lanes is short, on the order of 80 feet long as shown in Exhibit 4.9. Current operations for this approach are acceptable although some degree of congestion in the AM/PM peak periods associated with limited storage capacity is expected. The opportunity for roadway improvements is limited by existing development and near continuous curb cut openings to adjacent commercial development.

Exhibit 4.9: U.S. 61/67 and Bailey Road

Route A Connection –- If the Port access were to connect to U. S. 61/67 at the Route A intersection significant modifications are anticipated. While the current intersection is a four-legged intersection, the eastern leg as a public road is a dead-end to the Elks Club. However the roadway's alignment provides a direct connection to and from Wal-Mart. Access is also afforded to other commercial properties including a drive thru restaurant.

The western leg of Route A has an exclusive left with a shared through and left turn movements as well as an exclusive right turn lane. This lane configuration requires a split-phase signal operation for east-west traffic. The most significant effect upon this intersection is the realignment necessitated by the Port access and the change from a through movement connection to Wal-Mart to a lesser capacity left-turn movement. The left turn movement is physically constrained by the short storage length. Consequently the close proximity of two intersections and the projected traffic volumes with the Port traffic suggest the need for additional lanes to create a dual left turn lane, an exclusive through lane and an exclusive right turn lane on the west leg. The east leg would require dual left-turn lanes, a through lane, and a right-turn lane. A separate northbound right-turn lane will also be required. The Bailey Road alignment would require similar improvements at this location, except the additional left-turn lane on the east leg would not be needed. The St. Pius and New Interchange alternatives would only require additional northbound and westbound right-turn lanes.

The roadway alignment also affects other commercial business by removing parking spaces, reducing access to the drive-thru and directly removing several of the Elks Club buildings and a baseball field. A sketch of these impacts is shown in Exhibit 4.10. Note that north is to the left of the page.

Exhibit 4.10: Schematic U.S. 61/67 and Route

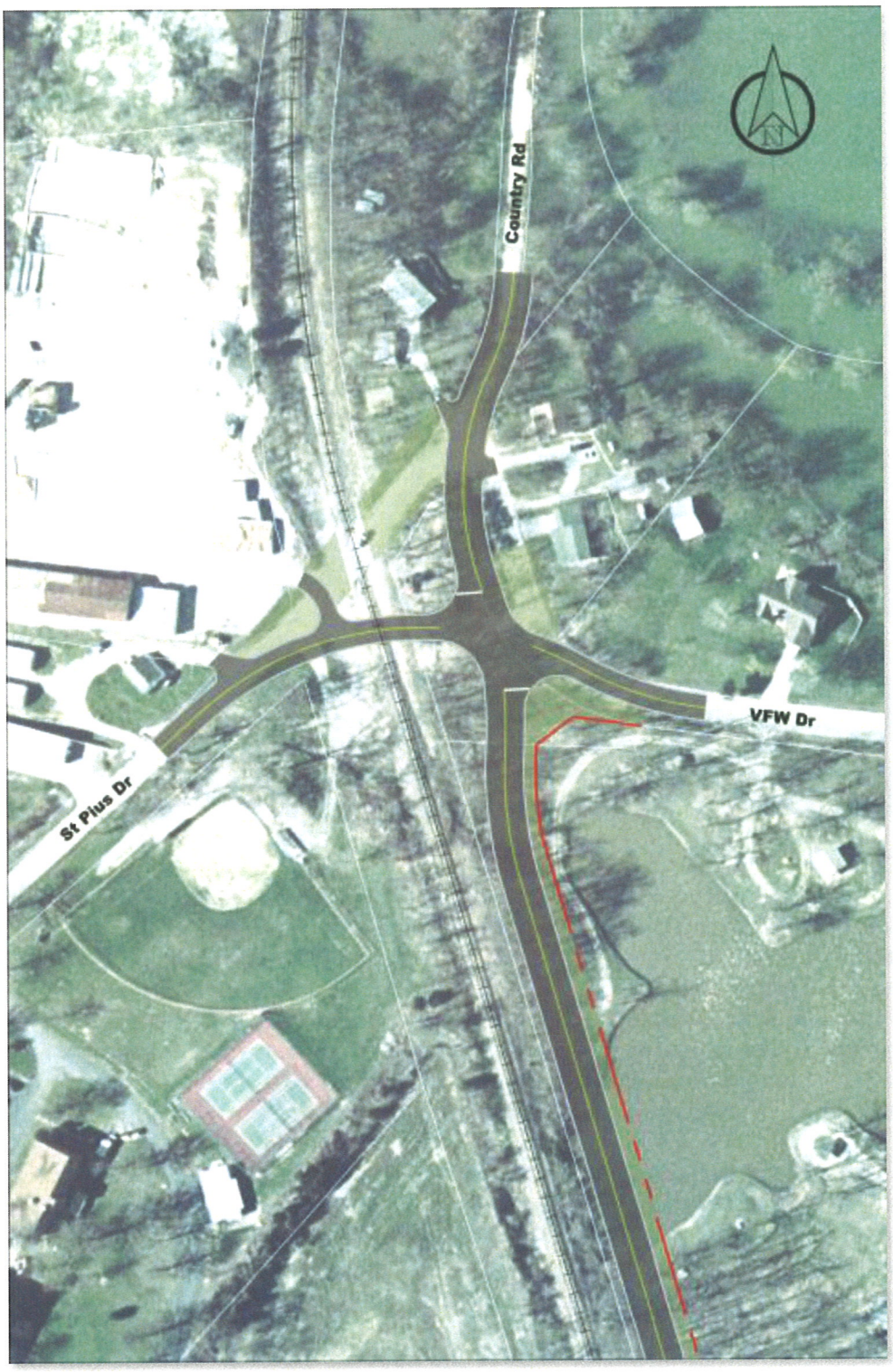
Under the Red and Yellow alternatives, 10% of the Port traffic would pass through this intersection. The Port traffic becomes through traffic on U. S. 61/67 and is not projected to experience any significant delays.

St. Pius Drive connection (with railroad approach) – Red and Yellow - If the Port access were to connect to U.S. 61/67 at the St. Pius Drive intersection, few modifications (if any) are anticipated. The current intersection is a three-legged intersection, with the eastern leg having an exclusive dual left turn lane and an exclusive right turn lane as shown in Exhibit 4.11. U.S. 61/67 also has an exclusive northbound right turn lane into St. Pius Drive. The three legged intersection also affords simple signal phasing.

Exhibit 4.11: U.S. 61/67 and St. Pius Drive

However, modifications are suggested at the skewed angle at-grade crossing of the UPRR railroad spur. This crossing could be said to involve three roadways; St. Pius Drive, County Road and VFW Drive. It is suggested that the road crossing the railroad be realigned to a more perpendicular crossing and connect to VFW Drive to reflect the existing vehicular travel pattern. The connection to County Road is suggested to be separated as much as is possible from the railroad as well as align with the roadway extension of the Red alternative, as shown in Exhibit 4.12. The at-grade crossing modification is also applicable to the Yellow alternative.

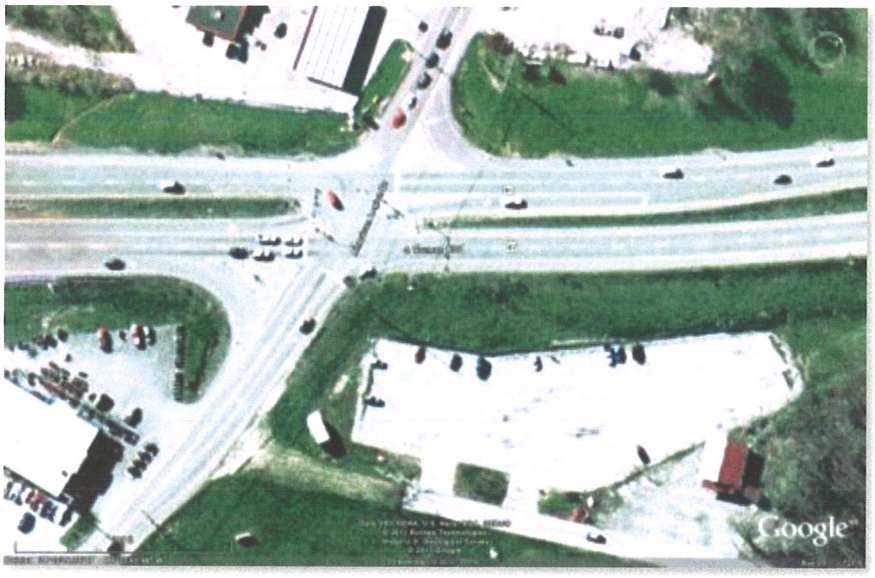
Exhibit 4.12: Country Road / VFW Drive / St. Pius Drive



Under the No Build and Route A alternatives, 30% of the Port traffic would pass through this intersection. The Port traffic becomes through traffic on U.S. 61/67 and is not projected to experience any significant delays.

U.S. 61 and U.S. 67 intersection – All Alternatives - This intersection is expected to experience an increase in delays for the side street traffic under the future No Build scenario. Consequently improvements are proposed that provide additional lanes on the both approaches of the side street. Dual northbound left-turn lanes and a northbound right-turn lane would be required on the south leg, while separate southbound left- and right-turn lanes will be required on the north leg to accommodate future traffic growth. The new I-55 interchange alternative would not require a separate northbound right-turn lane.

Exhibit 4.13: U.S. 67 and U.S. 61 Existing Lane Configurations



Route A Corridor

There are a series of traffic signals along Route A that could be assessed. For purposes of this analysis the junctions with U.S. 61/67 and the single point urban interchange junction at I-55 are deemed to represent the operations along this three-quarter of a mile long corridor. The signal at I-55 has already been discussed as an access point to the Interstate facility. In general terms, the Route A corridor is expected to operate acceptably until the Route A roadway alignment is introduced. At that time, new lane configurations that involve highway widening are needed along Route A at the intersection with U.S. 61/67 as well as reconfiguration of the primary signalized access road to Wal-Mart. Because of significant modifications to accessing Wal-Mart, an additional signalized intersection is contemplated to Wal-Mart on U.S. 61/67.

When the Port access is located along the railroad, it is proposed to have a coincident right-of-way line. In other words the eastern railroad right-of-way will also be the western roadway right-of-way. This proximity while close does afford the appropriate separation of railroad and vehicular traffic. The existing railroad track is essentially centered along the railroad right-of-way which varies though can be said to be approximately 90 to 100 feet wide.

The Red/Yellow alternatives have both impacts and potential benefits. At least two industrial businesses would be directly affected; the Cutex Corporation and Crown Elkamet. Both businesses are currently

accessed by other Collector roadways that have at-grade crossings of the UPRR spur, Industrial Drive and Airport Road respectively.

By creating the Port access, the opportunity is afforded to remove the above mentioned at-grade crossings and provide access to the above mentioned and other parcels via the Port access. The nature of probable impacts to the Cutex parcel is unclear. Certainly access and parking would be affected, though the building would likely remain untouched. However, the Crown Elkamet building would be directly affected. Nonetheless the airport Master Plan may have a similar effect upon this property. And with the industrial land uses proposed at the Port, a relocation opportunity could be negotiated.

Beneath the I-55 bridges, the Port access is proposed to share the railroad's right-of-way. Here, concrete jersey barriers are proposed to provide positive separation as well as protect the existing pier supports of the highway bridges. The south embankment along I-55 would require construction of a vertical retaining wall, as shown in Exhibit 16 section. The interchange configuration is proposed as a partial cloverleaf. The opportunity exists to realign and connect to Calvary Church Road opposite the proposed northbound on- and off-ramps although this determination could be made later if the community desires it. The property served by Calvary Church Road east of the railroad is proposed to be purchased as part of the Airport's Master Plan.

Exhibit 4.14 - Cross Section Concept

Exhibit 4.15 Potential Configuration of New I-55 Interchange

I-55 and Port Access Interchange – New Interchange Alternative - The proposed I-55 interchange configuration is a partial cloverleaf with the ramps on the southeast side of the railroad tracks. This configuration would not require a crossing of the railroad tracks. The southbound off- and on-ramps require property acquisition from the Goodwin Construction Company parcel along U.S. 61. Portions of its outdoor storage would be affected and potentially a building as well.

4.4 Cultural Resources and Parkland Impacts

4.4.1 Historical/Archeological Resources

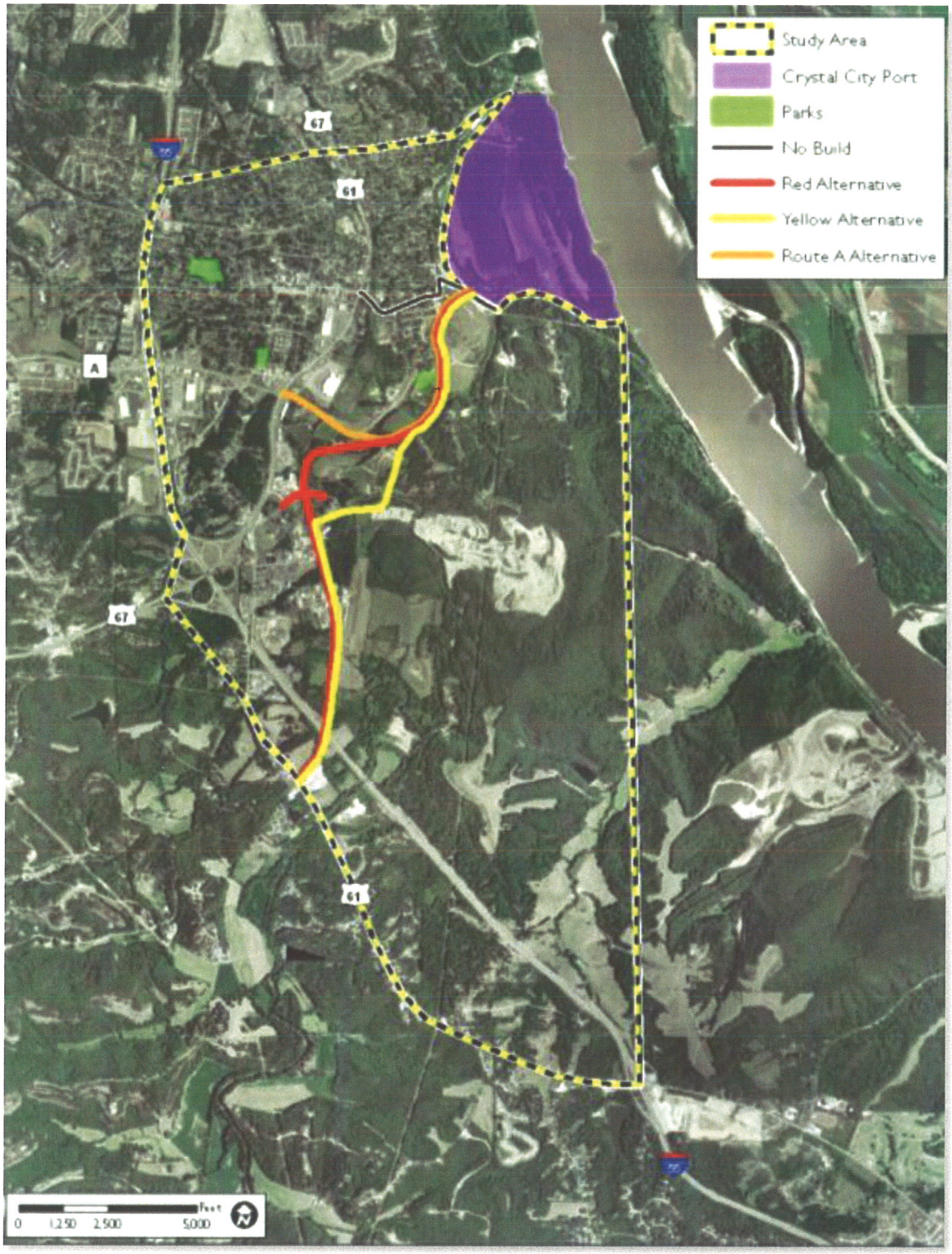
The National Register Information System (NRIS) was searched for Jefferson County resources listed on the National Register of Historic Places (NRHP). No sites were found within or immediately adjacent to the study area. The study area boundary was submitted to the Missouri Department of Natural Resources, State Historic Preservation Office (SHPO) for confirmation. Once an alternative is selected, a formal process requesting SHPO concurrence should be initiated.

The locations of cultural/archaeological resources are not available to the general public through database or mapping inquiries. Prior to construction, coordination with the MDNR-SHPO will be required to solicit a determination as to the impact the selected alternative may have on cultural resources.

4.4.2 Parklands

Exhibit 4.16 illustrates the four parks, recreation areas, or playgrounds that are located within or adjacent to the study area for the project. While these properties are subject to protection under Section 4(f), none of these properties are subject to Section 6(f). None of the three alternatives nor the No Build would directly impact any existing parkland. Therefore, no mitigation measures are recommended.

Exhibit 4.16: Public Parkland in relation Alternatives



SEE 3-17 FOR CRYSTAL AVENUE PARK LOCATION

4.5 Natural Resources Impacts

4.5.1 Air Quality

The 1970 Clean Air Act and 1990 Clean Air Act amendments require that the U.S. EPA set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. As indicated in Table 4-5, the current standards for the six "criteria pollutants" include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), particulate matter smaller than ten microns (PM_{10}), and sulfur dioxide (SO_2).

Exhibit 4.17
National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
Carbon Monoxide	Averaging Times	Level	Level	Averaging Time
	8-hour(1)	9 ppm (10 mg/m³)	None	
	1-hour(1)	35 ppm (40 mg/m³)	None	
Lead	Quarterly Average	1.5 µg/m³	Same as Primary	
Nitrogen Dioxide	Annual (Arithmetic Mean)	0.053 ppm (100 µg/m³)	Same as Primary	
Particulate Matter (PM_{10})	24-hour(2)	150 µg/m³	Same as Primary	
Particulate Matter ($PM_{2.5}$)	Annual(3) (Arithmetic Mean)	15 µg/m³	Same as Primary	
	24-hour(4)	35 µg/m³	Same as Primary	
Ozone	8-hour(5)	0.075 ppm (2008 standard)	Same as Primary	
	8-hour(6)	0.08 ppm (1997 standard)	Same as Primary	
	1-hour(7) (Applies only in limited areas)	0.12 ppm	Same as Primary	
Sulfur Dioxide	Annual (Arithmetic Mean)	0.03 ppm	0.5 ppm (1300 µg/m³)	3-hour(1)
	24-hour(1)	0.14 ppm		

Source: U.S. EPA National Ambient Air Quality Standards

The study area is located entirely within Jefferson County, Missouri. Jefferson County is currently a non-attainment area for lead. No direct, secondary or cumulative adverse impacts to air quality are anticipated from the No Build nor any of the three build alternatives. A potential beneficial impact from the build alternatives could include a net decrease in carbon emissions by decreasing idling at congested intersections.

4.5.2 Noise and Vibration

Once a preferred alternative is selected for the Project, a detailed noise and vibration analysis should be conducted in order to determine the impact to noise and vibration levels within the study area.

4.5.3 Wildlife Resources

According to the US Fish and Wildlife Service (USFWS) Endangered Species list for Jefferson County, Missouri the following known species exist:

- Endangered
- Gray bat (Myotis grisescens)
- Indiana bat (Myotis sodalist)
- Pallid sturgeon (Scaphirhynchus albus)
- Pink Mucket (Lampsilis abrupt)
- Scaleshell mussel (Leptodea leptodon)

- Proposed as Endangered
- Snuffbox (Epioblasma triquetra)

- Candidates for Inclusion
- Sheepnose mussel (Plethobasus cyphyus)
- Spectaclecase mussel (Cumberlandia mondonta)

The Missouri Department of Conservation Heritage Database that covers public lands and sensitive resources also provides a numeric rank (S1 through S5) of relative endangerment based primarily on the number of occurrences within the state. Additional factors such as abundance, population trends, distribution, number of protected sites, degree of threat, suitable habitat trends, level of survey effort, and life history are considered when assigning a rank. Therefore, the numbers of occurrences suggested for each numeric rank are only guidelines and the rankings are not absolute. The only numeric ranks for Jefferson County and the study area are as follows:

- Critically Imperiled (S1): Critically imperiled in the nation or state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically 5 or fewer occurrences or very few remaining individuals (<1,000).
- Imperiled (S2): Imperiled in the nation or state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the nation or state (1,000 to 3,000).
- Vulnerable (S3): Vulnerable in the nation or state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.
- Unrankable (SU): Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

Once an alternative is selected, Agency coordination will be conducted with the USFWS and the MDNR Heritage database in an attempt to determine the presence or location of listed species within the preferred alignment. Based upon the listed species in the county, an assessment will need to be conducted on the preferred alignment to determine the potential to impact critical habitat.

4.5.4 Water Resources

Floodplains

The Federal Emergency Management Agency (FEMA) and Federal Highway Administration (FHWA) guidelines 23 CFR 650 have identified the base (100-year) flood as the flood having a one-percent probability of being equaled or exceeded in any given year. The base floodplain is the area of 100-year flood hazard within a county or community. The regulatory floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood discharge can be conveyed without increasing the base flood elevation more than a specified amount. FEMA has mandated that projects can cause no rise in the regulatory floodway and a one-foot cumulative rise for all projects in the base (100-year) floodplain. In the case of projects proposed within regulatory floodways, a "no-rise" certificate, if applicable, should be obtained prior to issuance of a Floodplain Development Permit.

According to FEMA's Flood Insurance Rate Maps (FIRMs)

The proposed study area lies within the Ozark/Apple/Joachim Ecological Drainage Unit and the Plattin Creek Sub-Watershed (HUC 07140101 08 06) sub-watershed. No watershed management plans have been developed or in the process of being developed by local organizations within the immediate area of the proposed study area. No Source Water Protection Plans are known to exist. A Source Water Protection Plan helps safeguard a community water supply through inventorying known and potential sources of contamination, determining susceptibility of water source to contaminants, implementing Best Management Practices to reduce or eliminate threats and risks to the water source, and develop contingency planning strategies to deal with contamination or service interruption emergencies. A plan may provide additional watershed information.

Exhibit 4.19 illustrates the water resources throughout the study area and their proximity to the alternatives considered.

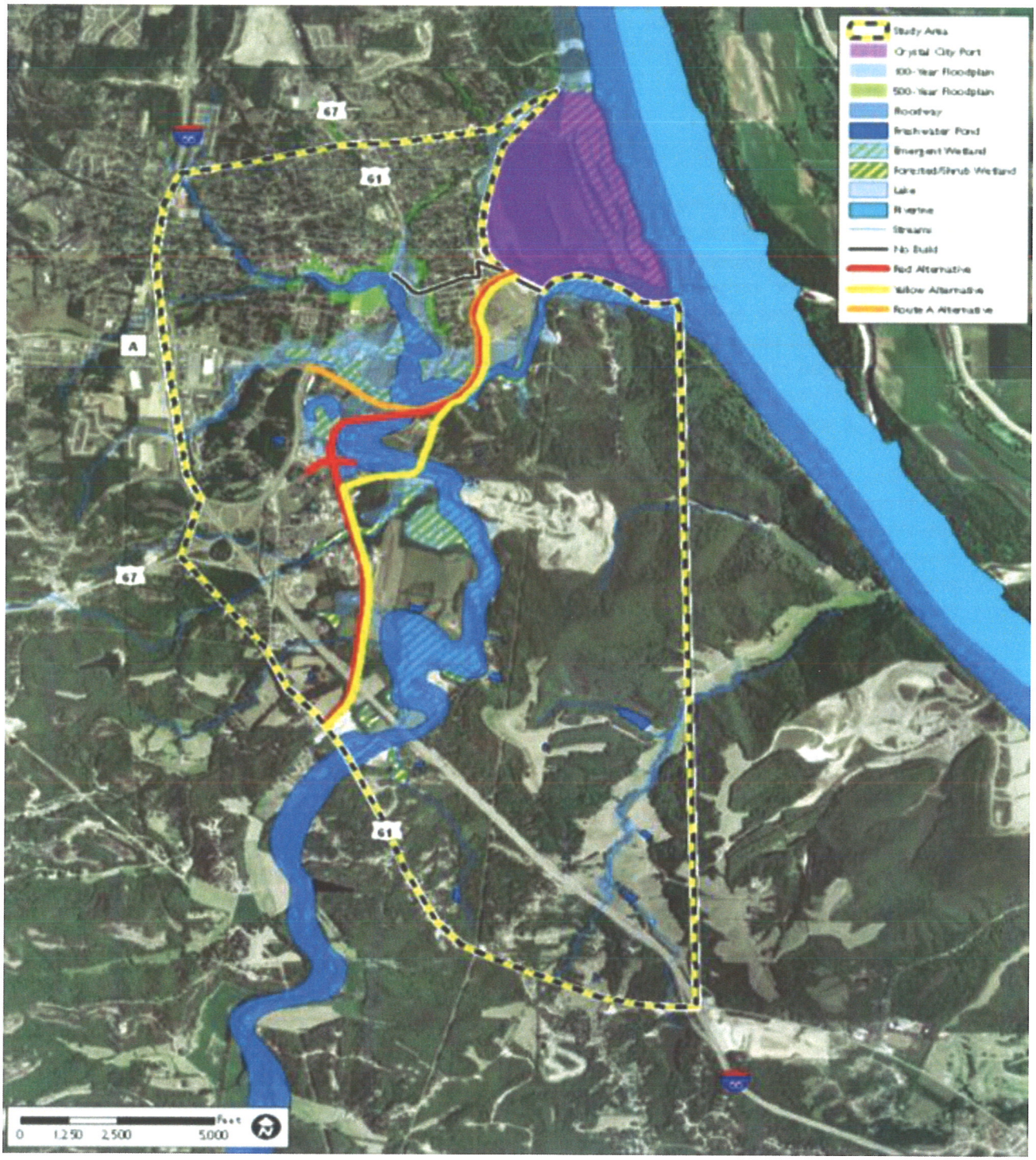
The No Build would have no direct impacts to wetlands or floodplains. For a preliminary analysis without field verification, the National Wetland Inventory data and FEMA floodplain data were used to calculate the impacts of the Route A, Yellow and Red alternatives. An area of disturbance was estimated for each alternative's alignment based on the preliminary slope limits of the conceptual design and is shown in exhibit 4.18.

Exhibit 4.18: Areas of Disturbance

	Flood Impacts (Acres)	NWI Impacts (Acres)
Route A	20.5	6.7
Red	28	9.8
Yellow	16	8.3

Once an alternative is selected, wetland delineations/determinations will need to be conducted within the proposed construction limits of the preferred alternative

Exhibit 4.19: Water Resources and Proximity Alternatives



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4.5.6 Mitigation Site

There is at least one known mitigation site being constructed or in the process of being under construction in an area adjacent to Plattin Creek in the north central part of the proposed roadway study area. The global positioning system location for this site is approximately at an east of 728671.213 meters and northing of 4231845.77 meters using Zone 15, UTM 1983. This site is associated with the Department of the Army Permit #MVS-2006-2/P-2526 (CES001368) for Valley View Lake and Dam. Any impacts to mitigation land should be avoided. If this is not possible, mitigation credits needed for land already protected for the purposes of mitigation can be quite large, depending on the resource.

4.6 Summary

4.6.1 Land Use and Economic Impacts

The existing study area has a mixture of land uses including industrial, manufacturing, commercial, institutional and some residential. The port site is zoned for industrial use and the various port access locations reflect the existing land use mixture. While there are several community facilities in the general study area and some facilities are immediately adjacent to the Project, none would directly impact the Medical Center, religious or school facilities or cemeteries. The airport is an important civic asset to the community. A recent Master Plan acknowledged the need for several significant improvements to the existing airport. The Yellow and Red alternatives will necessitate continued coordination with the Airport and potential partnership to swap land for roadway transportation purposes in exchange for improved access to the airport. Existing access to the airport is constrained by the at-grade crossing of the Union Pacific railroad.

4.6.2 Social Impacts

The existing study area with its mixture of land uses has an equal variety in terms of employment including some agricultural employment. Residential areas are limited and are essentially either confined to the original center of town or spread out along the ridges of the Mississippi River. The Project would have some direct effects upon commercial, institutional or industrial properties. The Route A alternative has significant impacts to the Elks Lodge complex as well as the access to Wal-Mart and several other commercial businesses. The Yellow and Red alternatives would have direct impact upon several industrial and manufacturing properties alongside the airport. Since the port site is proposed to include such type of development, it is anticipated that impacts can be mitigated through relocation assistance to the new Port.

4.6.3 Transportation Impacts

Highway
The region is well served by the interstate and arterial network, though they are often parallel to each other because of the physical influence of the Mississippi River. The region has also been shaped by the location of the railroads serving both natural geologic features such as mining and provides a multimodal transfer to both water and roads. Access to the port site is limited and prior industrial development (PPG) caused community concerns with truck traffic through long-standing residential neighborhoods. With new and/or redevelopment of the river area, the community seeks to separate truck traffic from residential areas as well as commercial strips. Consequently the Project explores new routes to access the interstate system which is where the majority of port traffic is destined for distribution.

In general terms, a key arterial corridor U.S. 61/67 (a four-lane divided arterial) provides acceptable operations for through traffic movements. However, turning movements accessing the arterial can experience delays and the system interchange of I-55 and U.S. 67 is projected to experience congestion on its heaviest traffic movement (eastbound to northbound through a loop ramp) in the AM peak period.

Rail

Several railroads operate in the region including the BNSF and UPRR. Access to the port requires crossing the BNSF line with over 20 trains per day as well as the UPRR spur line (NAME) with 1 train per day. Some locations for the Project could create additional at-grade crossings which are discouraged by the railroads. The Red and Yellow alternatives have the opportunity to close several existing at-grade crossings, though some would remain. The spur line provides service to a chemical plant west of U.S. 61 which is critical for St. Louis' water supply. The chemical is also classified as hazardous material.

4.6.4 Cultural Resources and Parkland

The existing study area has a few parks within the immediate area of the Port. While initial port access road locations may have physically come close to some park facilities, these alternatives were screened from further consideration. The VFW property is considered by Crystal City to be a private park. The interchange access road would require right-of-way from the VFW property and would be monetarily adequately compensated for its loss of property.

4.6.4 Natural Resources

It is not anticipated that any of the Project alternatives would impact air, noise, geology or threatened and endangered species. While the majority of traffic generated by the port site is anticipated to be trucks, the existing industrialized context of the area, diminishes the potential effect of the additional truck traffic. The interchange access road location would also have the potential benefit of removing truck traffic (particularly to/from the Weber Quarry) from U.S. 61/67. The issue of truck traffic on U.S. 61/67 has been a concern of the community for several decades.

The study area is located immediately adjacent to the Mississippi River. Plattin Creek is a major tributary flowing to the Mississippi River. Subsequently there are numerous and extensive floodplain areas within the study area. The port site will require extensive fill to bring the site to an elevation suitable for development. The port access is also designed to be above the 100-yr floodplain elevation. Consequently all of the port access road alignments will affect floodplain to some degree.

Exhibit 4.20 provides a summary of the impacts discussed throughout Section 4.

Exhibit 4.20: Comparison of Adverse and Beneficial Impacts

	No Build	Route A	Red	Yellow
Community Facilities	No Adverse Impacts	No Adverse Impacts	No Adverse Impacts & Potential Benefits	No Adverse Impacts & Potential Benefits
Land Use	6 Properties Impacted	8-10 Properties Impacted	15 Properties Impacted	12 Properties Impacted
Hazardous Materials Sites	Impacts PPG Site	Impacts PPG Site	Impacts PPG Site	Impacts PPG Site
Environmental Justice	No Adverse Impacts	No Adverse Impacts	No Adverse Impacts	No Adverse Impacts
Transportation Impacts	See DRAFT pAJR	See DRAFT pAJR	See DRAFT pAJR	See DRAFT pAJR
Cultural Impact	No Adverse Impacts	No Adverse Impacts	No Adverse Impacts	No Adverse Impacts
Natural Resources	0 acres of Wetland Impacted/ 0 acres of Floodplain Impacted	6.7 acres of Wetland Impacted/ 20.5 acres of Floodplain Impacted	9.8 acres of Wetland Impacted/ 28 acres of Floodplain Impacted	8.3 acres of Wetland Impacted/ 16 acres of Floodplain Impacted`
Total Cost (2011 M$)	$0	$35.7	$46.0	$43.5

Route A Alternative

This alternative was conceived to extend Route A, a five-lane signalized arterial to the east to the port site. Route A currently terminates at is junction with U.S. 61/67. The eastern roadway (Elks Drive) provides access to both the 26-acre Elks Lodge property as well as Wal-Mart. The Elks Lodges and Wal-Mart as well as several other commercial establishments would be significantly impacted by extending Route A. It is likely that the entire Elks Lodge complex would require relocation. Access to Wal-Mart may need to be reconfigured necessitating an additional traffic signal on U.S. 61/67. The extension would also create an additional at-grade crossing of the UPRR spur line as well as affect the levee operated by the Festus Levee Commission.

Red and Yellow Alternatives

These alternatives were conceived to keep port associated truck traffic off the communities' local and arterial street network. The alignments essentially follow the former County Road alignment and connect near the UPRR spur line at VFW Drive. These alignments propose to utilize the existing crossing over the railroad on Interstate 55 to create a new interchange. The rail line also crosses U.S. 61. Here the port access road proposes to stop. The alignments have several areas of potential impacts including the former PPG site and the Festus Memorial Airport as well as several industrial properties adjacent to the railroad corridor. Nonetheless initial coordination with owners of key affected properties indicates a willingness to negotiate the location of the Project.

The Red and Yellow alternative parallel adjacent to the railroad would also afford the opportunity to potentially close several at-grade crossings of the UPRR spur line as the port access road could provide access being on the east side of the railroad tracks. A connection to U.S. 61/67 could be afforded through the St. Pius Drive signalized intersection. It is proposed to improve the skew angle of this existing at-grade crossing with the UPRR spur line. The locations of the alignments attempt to allow flexibility in coordination with reviewing and permitting agencies to determine the appropriate location, design or mitigation as necessary with the segment north of VFW Drive to the port.

Preliminary Access Justification Report

EXHIBIT OF CONTENTS

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LIST OF STUDY EXHIBITS

Section 1: Introduction

1.1 Project Background

Jefferson County, Missouri is located along the southern extent of the St. Louis Metropolitan Region in the east central part of the State of Missouri. The eastern border of the county fronts the Mississippi River, the length of which is approximately 21.5 miles. The Jefferson County Port Authority has control over this stretch of navigable water on the Mississippi River. Crystal City is located in central eastern Jefferson County along the I-55 corridor. The 2009 Jefferson County Ports Master Plan identified Crystal City as a potential location for a viable port operation. The purpose of this project is to identify potential options for providing adequate access between the proposed port and the interstate freeway system. Several alternatives were considered, including various connections to nearby U.S. 61/67 corridor as well as a new potential interchange located between the existing U.S. 67 and U.S. 61 interchanges. ***Exhibit 1-1*** illustrates the location of the Port site, the general study area, and the traffic analysis area considered in the study.

The Crystal City Port site consists of approximately 6,500 feet of total river frontage. Behind this river frontage there is approximately 410 acres of flat lowland that is bounded on the north and west by the Union Pacific (UP) rail line and Burlington Northern and Santa Fe (BNSF) rail line. To the immediate south, the land is bounded by Plattin Creek where it flows into the Mississippi River. This lowland area is totally within the Mississippi River flood plain and was created by filling a small ox-bow as part of the channelization of the River. The UP Railroad has a line that runs from St. Louis, though Pevely and Herculaneum to the Crystal City port site where the UP line intersects the BNSF rail line. The UP line continues to Poplar Bluff and on into Arkansas. A UP industrial spur passes through Crystal City, but ends at a chlorine gas plant a few miles south of the city. The BNSF rail line heads south out of St. Louis via a track that is essentially parallel to Interstate Highway 55 and enters Crystal City from the west. This rail line intercepts the UP line, south of the port site and continues south across Plattin Creek and along the river front to Ste. Genevieve, Sikeston and points further south into Arkasas. The Crystal City Port Development's site configuration, specifically the proximity to the existing railroad and the low elevation, presents the unique potential for a loop track and a slackwater harbor, respectively. Coordination with the railroads has resulted in the opportunity for service to the Port from both Class I carriers.

Conceptual development initiated by the Jefferson County Ports Phase I Feasibility Study identified highway access to the Crystal City port site is presently limited and vehicle traffic must pass through the city center. The subsequent Phase II Master Plan suggests the local community does not consider this current and future "No Build" access a viable option for commercial port operations. Therefore, a new truck route and highway connection was recommended if any significant amount of cargo is to be trucked into and out of the port. As a result of this planned regional port development and significant economic growth potential at the Crystal City Port, the Crystal City Port Access Road Location Study and Environmental Assessment was initiated to proactively analyze the need for transportation improvements to enhance traffic flow between the proposed port and regional access to Interstate 55 as well as U.S. 67. For these planning purposes, this assessment assumes the tandem implementation of the proposed Crystal City Port at which time the purpose and projected need for a connector roadway exists.

This draft Preliminary Access Justification Report (pAJR) was developed in accordance with the requirements defined in the Federal Register that is dated August 27, 2009 for new or modified access to the Interstate System and as explained in the FHWA publication *Interstate System Access Informational Guide*, dated August 2010.

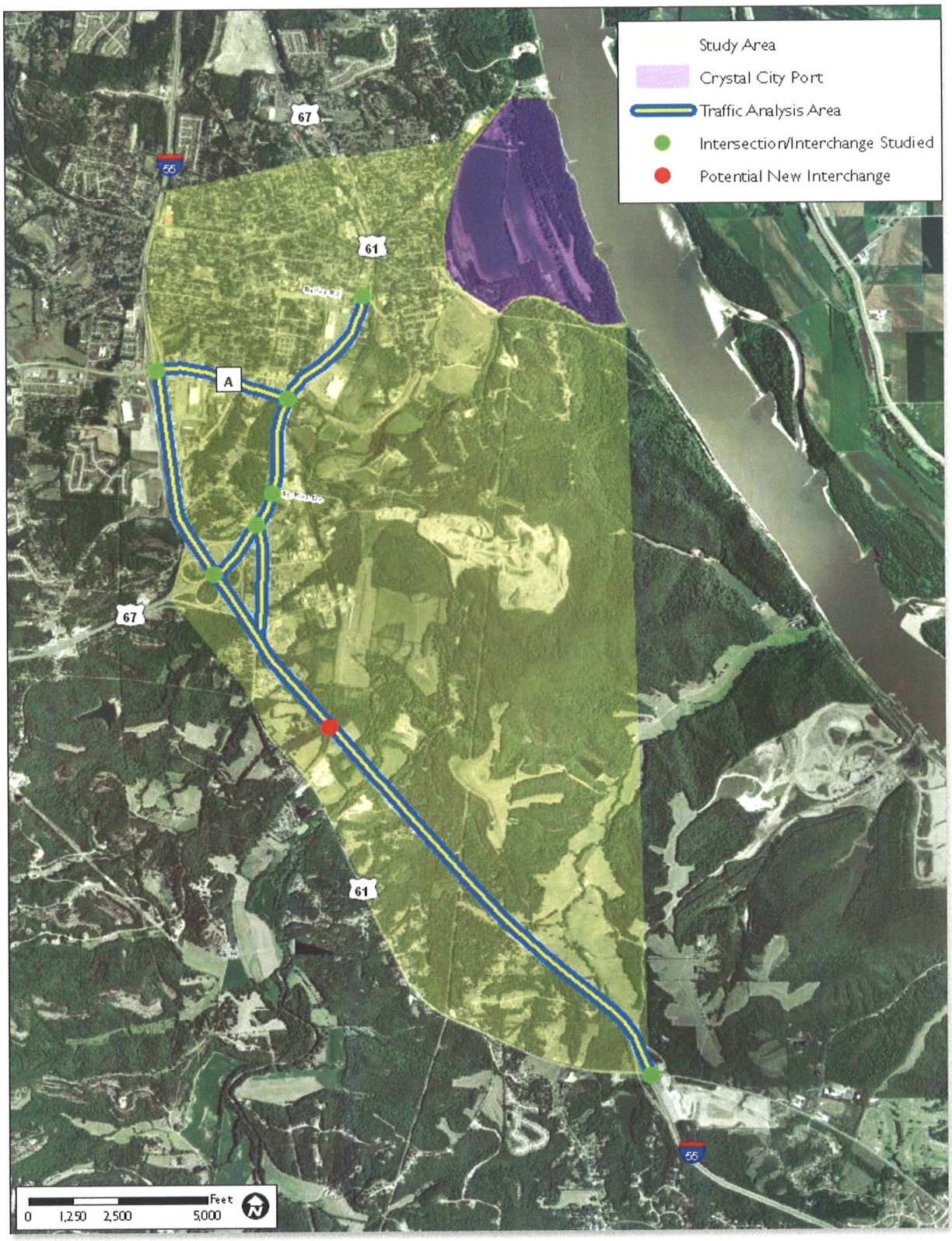

Exhibit 1-1 Project Location

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Section 2: Methodology

Traffic operations and safety analyses were performed to evaluate existing conditions as well as projected future conditions for various alternatives. The following section describes what methodologies were used in the evaluation process.

2.1 Traffic Operations Analysis Procedures

Traffic analyses were prepared for this project using the Synchro software package for intersection operations and the HCS+ software package for freeway operations. These analyses are based on standards criteria presented in the Highway Capacity Manual (HCM), 2000 Edition, which is published by the Transportation Research Board. Level of service (LOS) describes the quality of traffic operating conditions and is rated from "A" to "F". Conditions for signalized intersections are graded based on an average delay (seconds per vehicle) associated with all vehicles traversing the intersection over the analysis period, while conditions for freeway segments are graded based on densities (vehicles per mile per lane) and speeds (mph). LOS A represents the most desirable condition with free-flow movement of traffic and minimal delays/densities. LOS F generally indicates severely congested conditions with excessive delays/densities for motorists. Intermediate grades of B, C, D, and E reflect incremental increases in the delays/densities. The LOS thresholds presented in the HCM for the various freeway segment types as well as signalized intersections are summarized in ***Exhibit 2-1***.

Exhibit 2-1
HCM Level of Service Thresholds
Freeway Segments and Signalized Intersections

Level of Service	Freeway Segment Density (pc/mi/ln)			Signalized Intersection Delay (sec/veh)
	Basic	Merge or Diverge	Weave	
A	< 11	< 10	< 10	< 10
B	11 - 18	10 - 20	10 - 20	10 - 20
C	18 - 26	20 - 28	20 - 28	20 - 35
D	26 - 35	28 - 35	28 - 35	35 - 55
E	35 - 45	>35	35 - 43	55 - 80
F	> 45	demand > capacity	> 43	> 80

The LOS rating deemed acceptable varies by community, facility type, and traffic control device. Urbanized communities typically consider LOS D to be the minimum desirable standard for peak hour traffic operating conditions of a typical weekday.

2.2 Safety Analysis Procedures

A safety analysis was performed on I-55 between the Route A and U.S. 61 interchanges and on U.S. 61/67 from I-55 to Route A. Historical crash record data for three recent years (2007 through 2009) was provided by MoDOT and utilized in the evaluation of safety conditions.

Section 3: Existing Conditions

FHWA AJR Policy Point 1: Existing Facilities

"The need being addressed by the request cannot be adequately satisfied by existing interchanges to the Interstate, and/or local roads and streets in the corridor can neither provide the desired access, nor can they be reasonably improved (such as access control along surface streets, improving traffic control, modifying ramp terminals and intersections, adding turn bays or lengthening storage) to satisfactorily accommodate the design-year traffic demands (23 CFR 625.2(a))."

The analyses of this project have revealed that the existing roadway network could be improved to sufficiently accommodate traffic anticipated from the Port site. However, the majority of this new traffic would be trucks, which would violate the City's current desire to find a way to remove existing trucks from the U.S. 61/67 corridor. This corridor is the primary arterial route through the city and it serves as the link between residents and the interstate system and is also a commercial corridor.

3.1 Population Demographics

According to the 1990 Census, 2000 Census, and 2009 estimates from the Census Bureau, the population of the two cities adjacent to the Study Area, Crystal City and Festus, has grown at approximately 11% and 40% respectively (Exhibit 3.4) During the same period, Jefferson County has grown by 28% and the population of Missouri has increased by 17%. These growths are not surprising as greater St. Louis has been expanding outward and Jefferson County has received a large percentage of that outward growth. With Festus's location (immediately adjacent to I-55) and ability to expand to the west it has become a desirable community for commuters into St. Louis. Crystal City's growth, while still positive, is considerably less because it is mostly surrounded by Festus, Herculaneum, and the Mississippi River and the only substantial growth potential is to the north of the city.

Census Tract 7007.00 Block Group 5, which includes the majority of the study area, has grown roughly 11% between 1990 and 2000, relatively similar to Crystal City's growth between 1990 and 2009. Approximately half of the block group is located in Crystal City along the US Route 61/67 corridor with the remainder located further to the east. Census Tract 7007.00 Block Group 1 showed a slight decline in population during the same time period. This area includes mostly the older residential neighborhoods adjacent to the Mississippi River Floodplain along with a small commercial district. Census Tract 7099.00 Block Group 3 has the largest population growth at approximately 42%, which is similar to Festus's growth between 1990 and 2009. The eastern third of this area is located within the City of Festus to the north and west of U.S. 61/67 and then stretches west to Meyer Road in unincorporated Jefferson County. The Census Tract 7014.02 Block Groups 2, 3, and 4 were created following the 1990 Census so no population comparison can be made.

The percentages of the populations under the age of 18 are relatively similar at roughly 24-28 percent; however, Census Tract 7007.00 Block Group 5 has only 17.5% of the population within this age group. The percentages are also similar when comparing the populations over the age of 65. Still, Census Tract 7007.00 Block Group 5 shows a considerably higher number at 33.7%. Since this block group covers the older residential neighborhood in the southern portion of Crystal City these percentages can likely be attributed to a much older population who used to work at the PPG facilities and decided to retire within this area.

Exhibit 3-1
Population Demographics

Location / Census Tracts	Block Groups	1990	2000	2009 Estimate	% Change (1990-2009)	% <18	% ≥65	% Male	% Female
Missouri		5,117,073	5,595,211	5,987,580	17.0%	25.5%	13.5%	48.6%	51.4%
Jefferson County		171,380	198,099	219,046	27.8%	27.9%	9.2%	49.7%	50.3%
Crystal City		4,088	4,247	4,523	10.6%	24.0%	20.3%	46.7%	53.3%
Festus		8,105	9,660	11,367	40.2%	25.8%	15.9%	47.1%	52.9%
7007.00	1	717	688	N/A	-4.0%	27.5%	13.7%	46.2%	53.8%
7007.00	5	980	1,086	N/A	10.8%	17.5%	33.7%	43.9%	56.1%
7009.00	3	1,678	2,380	N/A	41.8%	28.7%	9.9%	46.9%	53.1%
7014.02	2	*	2,584	N/A	**	27.6%	12.0%	50.2%	49.8%
7014.02	3	*	1,318	N/A	**	27.6%	9.5%	50.7%	49.3%
7014.02	4	*	1,365	N/A	**	28.3%	8.4%	49.2%	50.8%
Study Area Block Groups Total/Average		N/A	9,421	N/A	N/A	26.8%	13.2%	48.3%	51.7%

Source: United States Census Bureau
**Not a Census Block in 1990*
***The Census Bureau does not conduct estimates for geographic areas this small.*

3.2 Land Use

The existing land use within the study area includes residential with small segments of commercial in the northernmost portion of the study area which includes the downtown for Crystal City. Just to the south the land uses include parkland, floodplain and floodway for the Plattin Creek, commercial uses along U.S. 61/67 (Truman Boulevard), and various industrial uses. South of VFW Drive is the medical center complex and the airport along with commercial uses along U.S. 61/67 and a handful of small residences. The remainder of the study area immediately adjacent to I-55 is mostly rural residential or undeveloped forested land. A mobile home park with approximately 100 trailers is located immediately adjacent to the study area just west of I-55 along U.S. 61. Crystal City, Festus, and unincorporated portions of Jefferson County within the study area have zoning and are subject to some form of land use controls.

There are no substantial land use changes anticipated in the future within the study area other than expansion opportunities for the medical center and the possible development of additional parkland just south of the downtown of Crystal City. Immediately adjacent to the study area and northeast of the downtown of Crystal City, the Jefferson County Port Authority in cooperation with the Doe Run Company is exploring the development of a port facility. The proposed facility could include land adjacent to Crystal City and Festus, along with the communities of Pevely and Herculaneum to the north. There are currently no port facilities within Jefferson County.

3.3 Existing Roadway Network

I-55: Interstate 55 (I-55) is the only Interstate Highway facility located within Jefferson County. It is a controlled access facility that runs in a north-south direction and is one of the primary arteries to the St. Louis area. I-55 is a heavily traveled interstate that roughly parallels the Mississippi River while accommodating traffic from La Place, Louisiana (just west of New Orleans) to Chicago, Illinois. Within Missouri, it stretches along the western side of the Mississippi River from the Arkansas state line to St. Louis where it crosses the river into Illinois. I-55 is a four to ten lane facility with a posted speed limit ranging between 65 and 70 mph in Jefferson County. Within the study area it is a four-lane facility with a posted speed limit of 70 mph that includes a standard diamond interchange with U.S. 61 (exit 170), a cloverleaf interchange with U.S. 67 (exit 174A & B), and a single point urban interchange with Route A (exit 175). Traffic volumes from MoDOT's 2010 Count Map vary from 27,000 vehicles per day (vpd) south of U.S. 67 to 51,000 vpd north of Route A.

U.S. 61: U.S. 61 is a US highway that stretches from New Orleans, Louisiana to Wyoming, Minnesota (just north of Minneapolis/St. Paul) and parallels nearly the entire length of the Mississippi River. Within Jefferson County U.S. 61 is predominantly a two-lane facility with a posted speed limit between 45 and 55 mph that not only parallels the Mississippi River, but also I-55 from the Arkansas border to St. Louis. Within the study area it is a two-lane facility with a posted speed limit between 35 and 55 mph. Two segments of U.S. 61 are located in the study area, adjacent to exit 170 and within Crystal City just east of I-55 to U.S. 67 (Truman Boulevard).

The segment adjacent to exit 170 is classified as a Rural Major Collector includes a western signalized intersection with I-55 southbound ramps, an eastern unsignalized intersection with I-55 northbound ramps (which includes a westbound U.S. 61 right turn lane to northbound I-55, and an unsignalized intersection with Outer Road just 300 feet east of I-55.

The segment within Crystal City (traveling south to north) is classified as an Urban Major Collector. This change in classification essentially occurs at the at-grade railroad crossing with the Union Pacific spur line. U.S. 61 is two lanes and includes an overpass of I-55 and an unsignalized intersection with Airport Road. North of Airport Road the roadway becomes a three-lane facility with a continuous two-way left turn lane. As U.S. 61 continues north it includes an unsignalized intersection with Industrial Drive and a signalized intersection with U.S. 67 (Truman Boulevard). Traffic volumes from MoDOT's 2010 Count Map vary from 5,250 vpd over I-55 while east of Exist 170 with I-55, traffic volumes increase to 6,900 vpd.

U.S. 67: U.S. 67 is a U.S. highway that stretches from the Mexico border in Presidio, Texas to Sabula, Iowa. It generally travels southwest to northeast in Missouri and is a four-lane facility for most of its length. Within Jefferson County it stretches from the St. Francois County line to I-55 in Festus. It is a four-lane divide roadway classified as an Expressway from the County line to Route A and a Principal Arterial. Within the study area U.S. 67 is a four-lane facility that has a cloverleaf interchange with I-55 and then a signalized intersection with U.S. 61. Traffic volumes from MoDOT's 2010 Count Map show approximately 33,900 vpd west of I-55.

U.S. 61/67 (Truman Boulevard): From the U.S. 61 and U.S. 67 intersection in Festus to the St. Louis County line, the roadway carries a dual designation. Within the study area U.S. 61/67 is a four or five-lane facility that is classified as a Principal Arterial and has a posted speed limit of 45 mph. This stretch of roadway includes the majority of the commercial businesses within both Crystal City and Festus. Traveling south to

north within the study area U.S. 61/67 is a four-lane roadway that includes a signalized intersection with St. Pius Drive and a signalized intersection with Route A (Veterans Boulevard). North of the intersection with Route A the road becomes a five-lane section with a continuous left-turn lane.

Additional roadways of note within or adjacent to the study include Route A (Veterans Boulevard) which is a five-lane facility classified as a Principal Arterial, Bailey Road (becomes Main Street in Festus which was previously designated as Route A) which is a two-lane facility classified as a Minor Arterial, Mississippi Avenue which is a two-lane facility classified as a Minor Arterial, Country Road which is a two-lane facility classified as an Urban Collector (although the roadway is physically discontinuous), VFW Drive, Bailey Road, and Virginia Avenue are two-lane facilities classified as Urban Collectors.

As detailed in the Crystal City *Comprehensive Plan Update & Growth Management Plan for the Future* (2010), several roadway improvements were identified within the study area. Those include making improvements to Beffa Street and Bailey Road along with their intersections with U.S. 61/67, the addition of a new signalized intersection along U.S. 61/67 between Route A and St. Pius Drive, constructing and allowing a right-in only to St. Pius Drive from U.S. 61, and potential roadway improvement or new roadways in the vicinity of VFW Drive and Airport Drive for better connections to the Fred Weber quarry.

3.4 Alternative Travel Modes

The Jefferson County Community Partnership, a non-profit organization, currently operates JeffCo Express which is a flex route bus service that connects DeSoto, Hillsboro, Festus, and Arnold. The Monday through Friday service has operated for just over a year and has a dedicated route and schedule; however, they will deviate up to a mile from fixed stops upon request. Within the project study area, JeffCo Express operates fixed bus stops at the Wal-Mart along U.S. 61/67 (Truman Boulevard) and the Jefferson Regional Medical Center along U.S. 61.

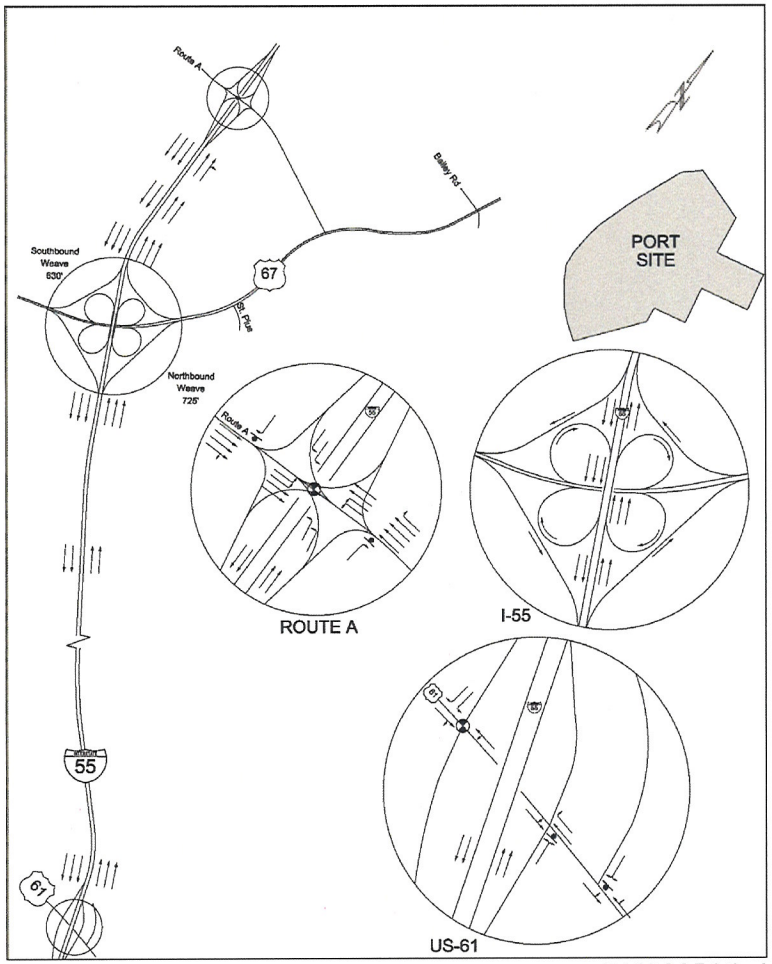
The Older Adults Transportation Service (OATS), a non-profit organization, has operated mostly rural bus and van service in Missouri since the early 1970's. OATS originally started as a service to the elderly, but it is currently available to anyone regardless of age, income, or disability. The East OATS Region operates in the counties of Franklin, Jefferson, St. Charles, and St. Louis. Within the study area OATS offers scheduled service on a Festus local route for medical and shopping needs on the second and fourth Fridays each month and on a Festus to St. Louis route for medical and shopping needs on the third Tuesday each month. Passengers must call ahead to schedule rides on either of these routes.

There is currently no public transportation available to residents within Crystal City. There is also no passenger rail service within Crystal City or Festus although the Amtrak Texas Eagle route passes a few miles west of Festus. The Amtrak Texas Eagle connects Chicago with San Antonio and the closest stops to the study are in St. Louis (approximately 30 miles north) and Popular Bluff (approximately 120 miles south).

3.5 Existing Data

Intersection turning-movement traffic counts were collected during the periods of 7:00 to 9:00 A.M. and 4:00 to 6:00 P.M. on typical weekdays between the dates September 14, 2010 through September 16, 2010. Turning movement counts for the intersection of U.S. 67 and Bailey Road were collected separately on December 9, 2010 from 7:30 to 8:30 A.M. and from 4:30 to 5:30 P.M. Machine traffic counts were collected on all eight ramps of the I-55 and U.S. 67 cloverleaf interchange Saturday through Friday, September 25, 2010 through October 1, 2010. The data showed that the A.M. peak hour was generally from 7:30 to 8:30 A.M. and the P.M. peak hour was generally from 4:30 to 5:30 P.M.

I-55 Corridor



U.S. 61/67 Corridor

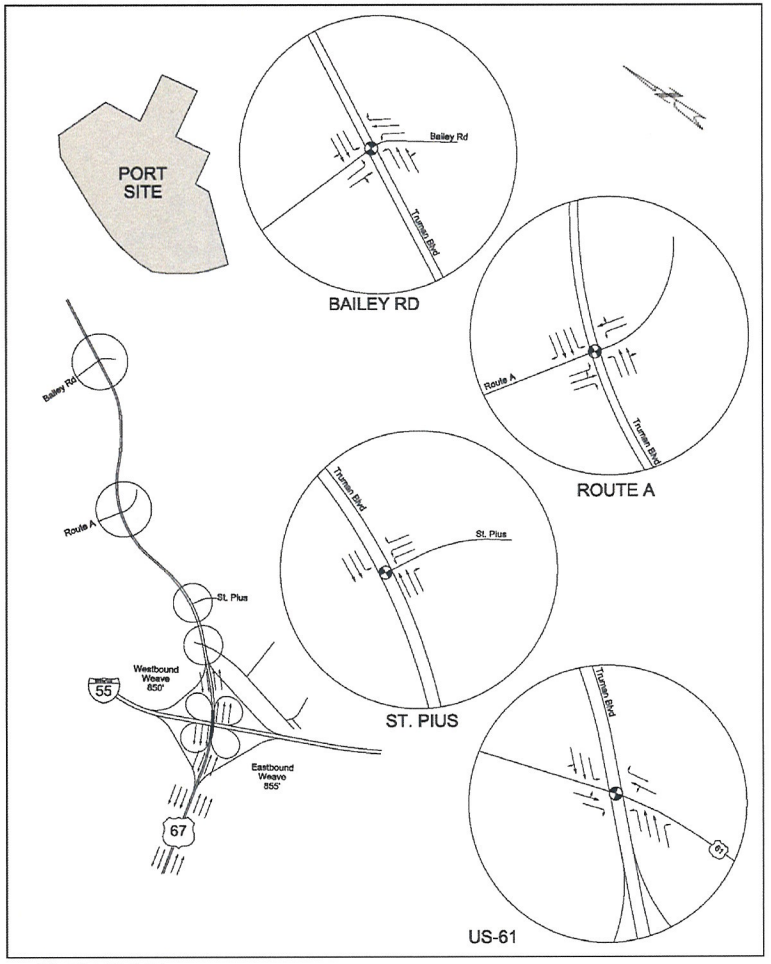


Exhibit 3-2 Existing Lane Configurations and Traffic Control

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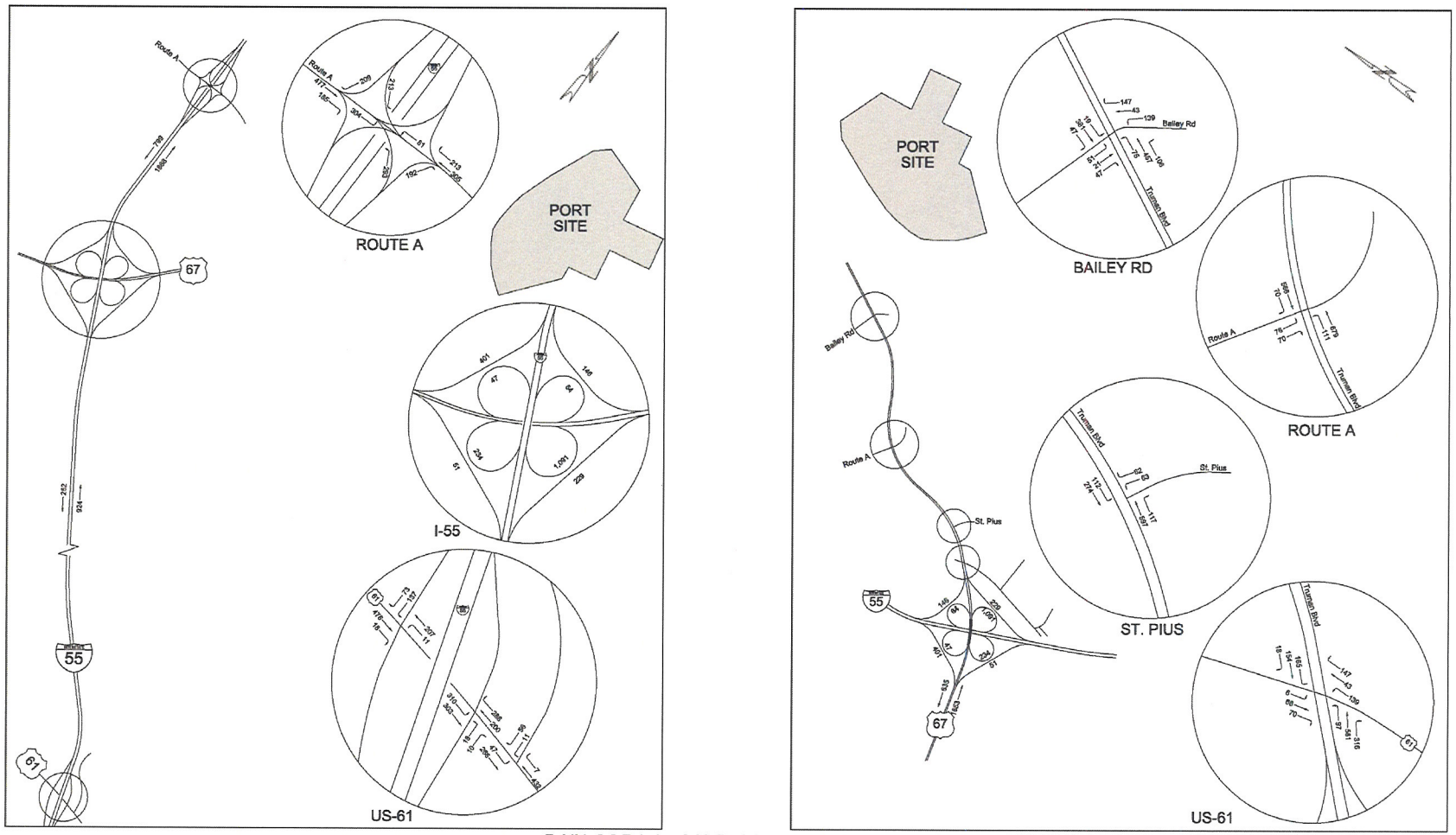

Exhibit 3-3 Existing A.M. Peak Hour Traffic Volumes

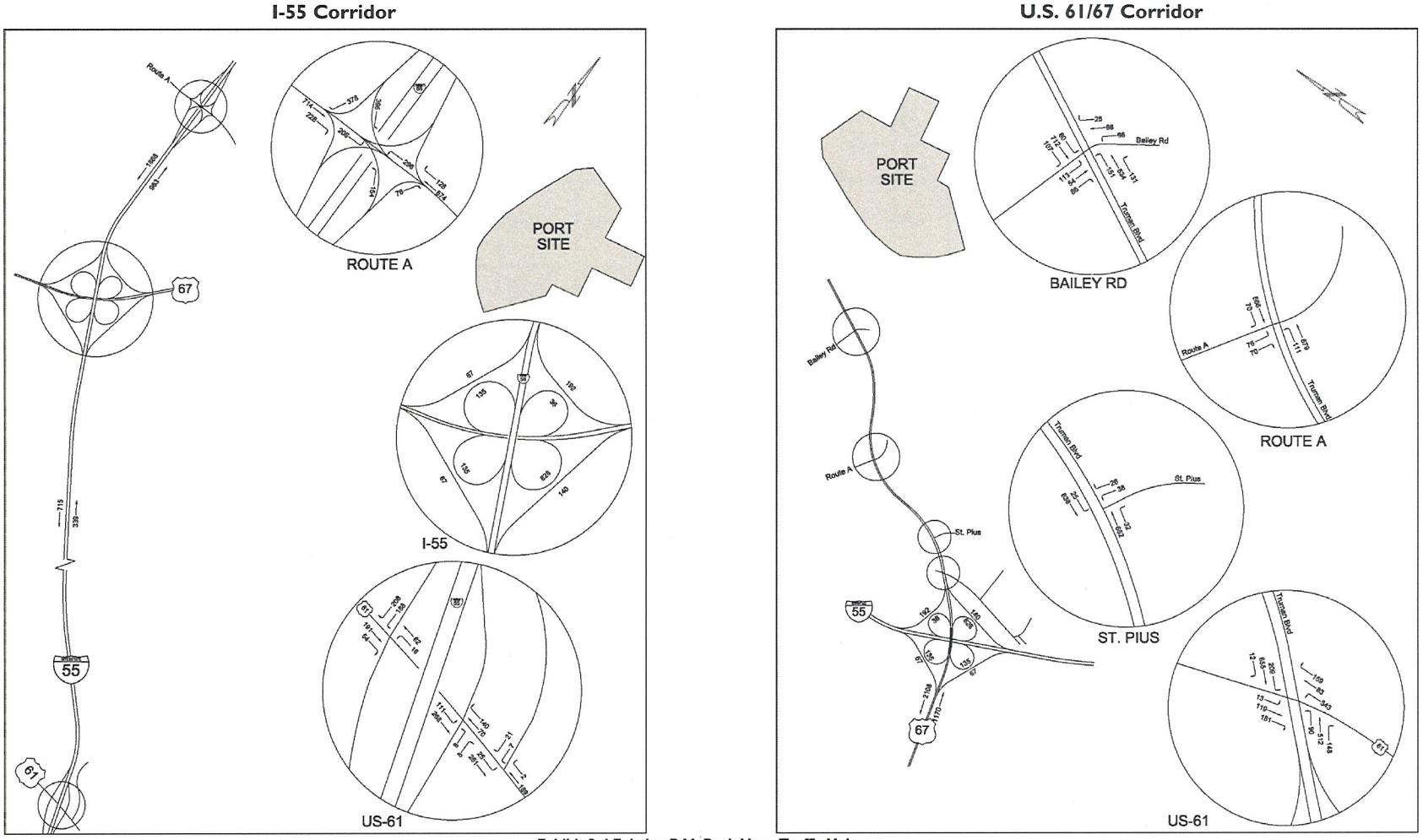

Exhibit 3-4 Existing P.M. Peak Hour Traffic Volumes

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3.6 Existing Operational Performance

Analyses were performed to assess traffic operations within the study area during the existing A.M. and P.M. peak hour periods. The assessment included both arterial intersections and freeway segments. Traffic volumes, lane configurations, traffic control devices, and freeway segments used in the analyses are defined on ***Exhibits 3-2*** through ***3-4***. Results have been summarized in ***Exhibits 3-5***and ***3-6***.

Exhibit 3-5
Synchro Intersection Capacity Analysis Results
Existing Conditions

Intersection / Approach/Movement	A.M. Peak Hour LOS	A.M. Peak Hour Delay	P.M. Peak Hour LOS	P.M. Peak Hour Delay
Route A and I-55				
Signalized (All Movements)	C	20.3	C	25.6
U.S. 61/67 and Bailey Avenue				
Signalized (All Movements)	B	16.5	C	20.0
U.S. 61/67 and Route A				
Signalized (All Movements)	C	24.6	D	43.4
U.S. 61/67 and St. Pius Drive				
Signalized (All Movements)	A	8.8	A	3.5
U.S. 67 and U.S. 61				
Signalized (All Movements)	C	32.3	E	60.2
U.S. 61 and Industrial Drive				
Westbound	B	12.2	C	18.0
Southbound Left-turn	A	8.6	A	8.5
U.S. 61 and Airport Road				
Westbound	B	11.1	A	9.9
Southbound Left-turn	A	7.9	A	7.7
Airport Road and Calvary Church Road				
Westbound Left-turn	A	1.4	A	0.8
Northbound	A	9.4	A	9.3
U.S. 61 and I-55 SB Ramps				
Signalized (All Movements)	B	12.0	B	11.4
U.S. 61 and I-55 NB Ramps				
Northbound	E	38.1	B	12.4
Eastbound Left-turn	A	7.4	A	2.9
U.S. 61 and Castle Acres				
Eastbound Left-turn	A	1.8	A	0.9
Southbound	B	13.9	B	10.4
Castle Acres and River Cement Road				
Eastbound	A	8.9	A	8.7
Northbound Left-turn	A	1.0	A	4.0

The results indicate that drivers on the northbound movement of the unsignalized Northbound I-55 Ramp at U.S. 61 currently experience undesirable delays during the A.M. peak hour. In addition, the signalized intersection of U.S. 67 and U.S. 61 appears to be operating at near capacity LOS E under current traffic demands during both the P.M. peak hour. All other intersections and movements appear to be operating within desirable goals of LOS D or better.

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Exhibit 3-6
HCS+ Freeway Segment Capacity Analysis Results
Existing Conditions

Segment Location	A.M. Peak Hour		P.M. Peak Hour	
	Density	LOS	Density	LOS
Northbound I-55				
U.S. 61 Merge	11.0	B	4.9	A
b/w U.S. 61 and U.S. 67	8.7	A	3.2	A
U.S. 67 Diverge	10.6	B	3.1	A
b/w U.S. 67 Diverge and Weave	7.3	A	2.2	A
U.S. 67 Weave	22.7	C	9.2	A
b/w U.S. 67 Weave and Merge	4.2	A	8.4	A
U.S. 67 Merge	20.4	C	10.9	B
b/w U.S. 67 and Route A	17.2	B	9.0	A
Route A Diverge	22.8	C	12.4	B
Southbound I-55				
U.S. 61 Diverge	2.6	A	8.2	A
b/w U.S. 61 and U.S. 67	2.5	A	6.7	A
U.S. 67 Merge	4.7	A	9.4	A
b/w U.S. 67 Weave and Merge	2.2	A	7.3	A
U.S. 67 Weave	3.2	A	5.8	A
b/w U.S. 67 Diverge and Weave	3.9	A	5.1	A
U.S. 67 Diverge	7.7	A	20.2	C
b/w U.S. 67 and Route A	7.3	A	17.2	B
Route A Merge	10.1	B	20.9	C

All freeway segments within the study area appear to be operating acceptably under existing conditions.

3.7 Existing Safety Conditions

A safety analysis was performed for the study area using historical crash data provided by MoDOT for the years 2006 through 2009. In order to assess whether the number of crashes along the I-35 and Route 291 corridors within the study area exceed what would typically be expected for similar facility types, the I-35 and Route 291 crash rates were compared to the statewide average rates for urban interstates and state routes, respectively. ***Exhibit 3-7*** illustrates the crash rate comparisons for these routes.

Another component of the review considered the crash history along I-55 and U.S. 67. Crash data from MoDOT showed that the highest frequency of crashes within the study area occurred on the weaving segments within the I-55 and U.67 interchange and at the U.S. 67 and U.S. 61 / American Legion Drive intersection. ***Exhibits 3-8*** through ***3-11*** illustrate historical crash data in terms of location and type within the study area.

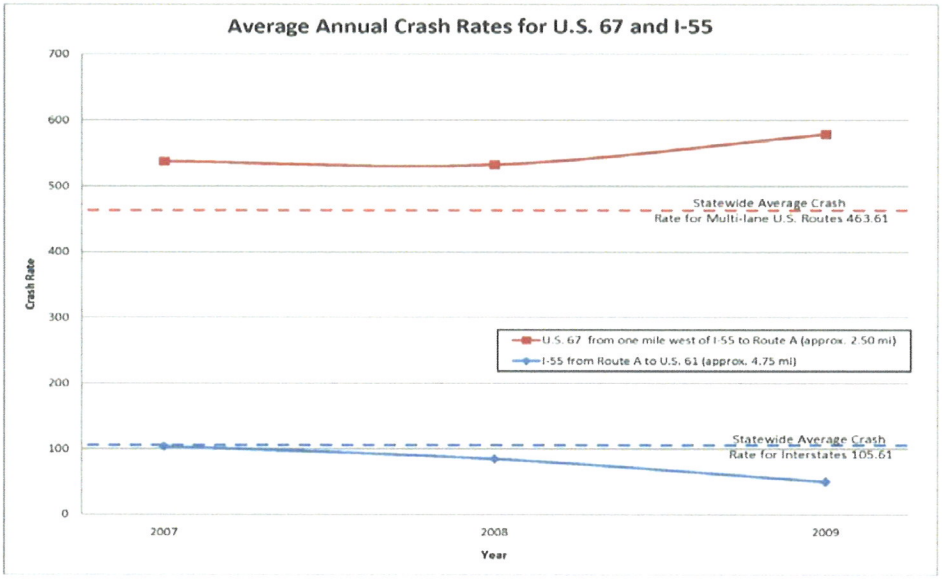

Exhibit 3-7 Crash Rates for U.S. 67 and I-55 (2007-2009)

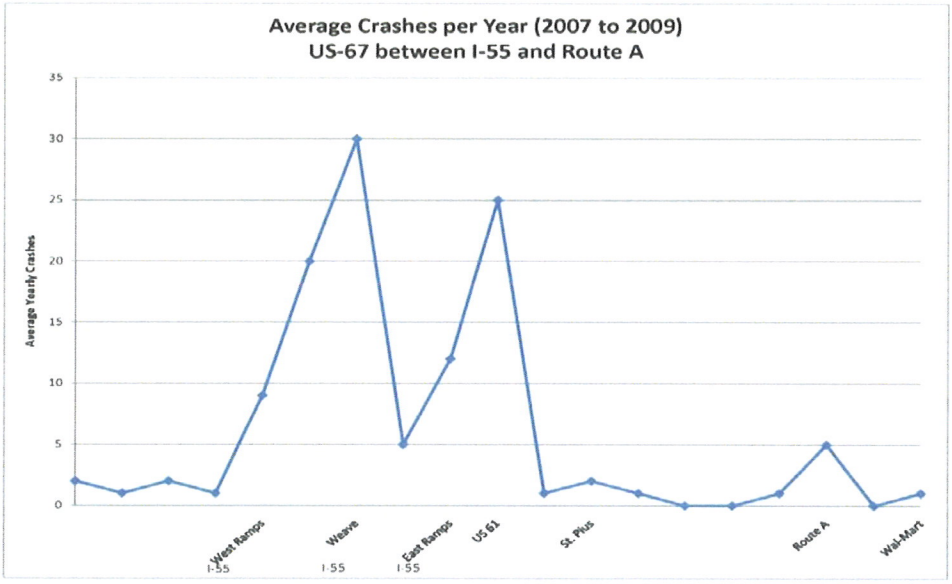

Exhibit 3-8 U.S. 67 Average Yearly Crashes by Location (2007-2009)

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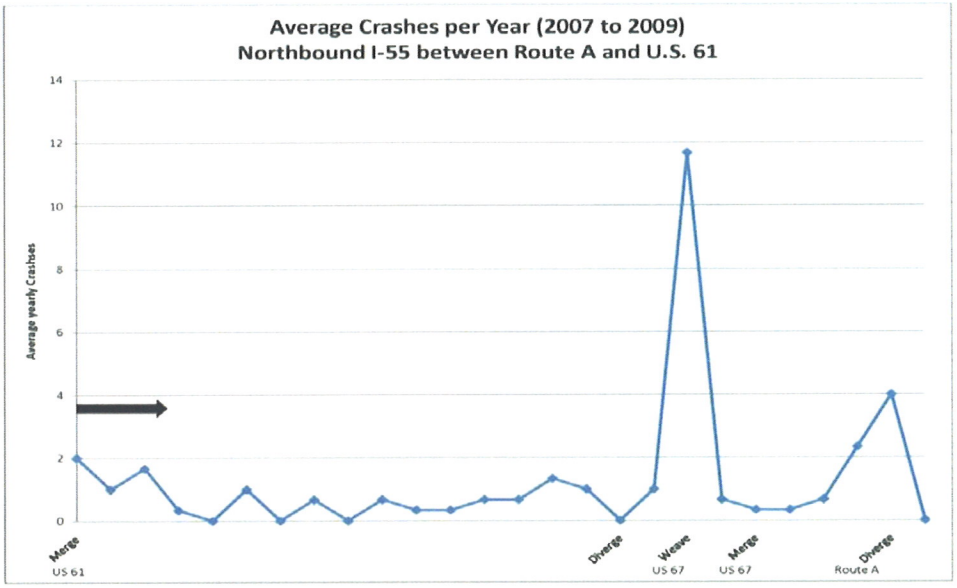


Exhibit 3-9 Northbound I-55 Average Yearly Crashes by Location (2007-2009)

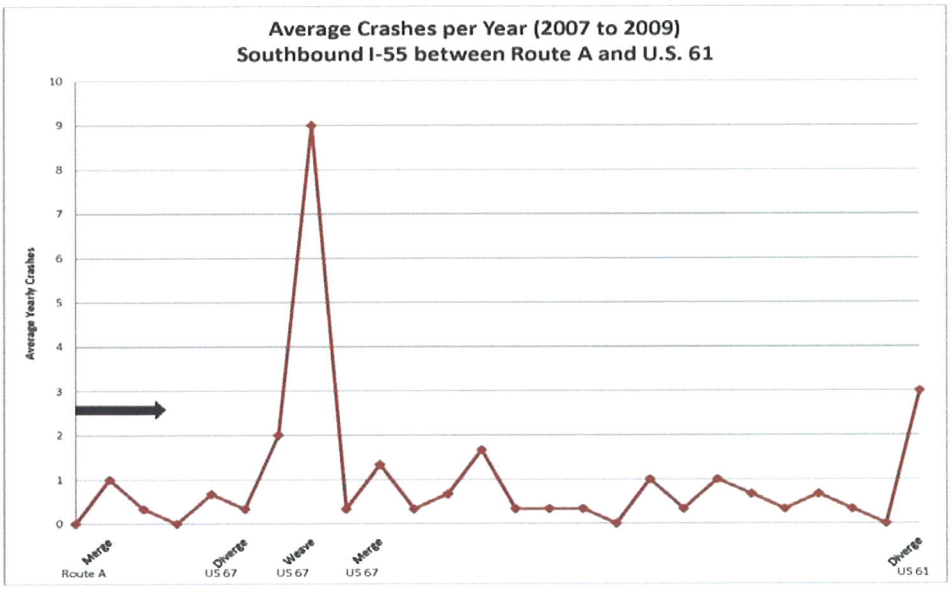


Exhibit 3-10 Southbound I-55 Average Yearly Crashes by Location (2007-2009)

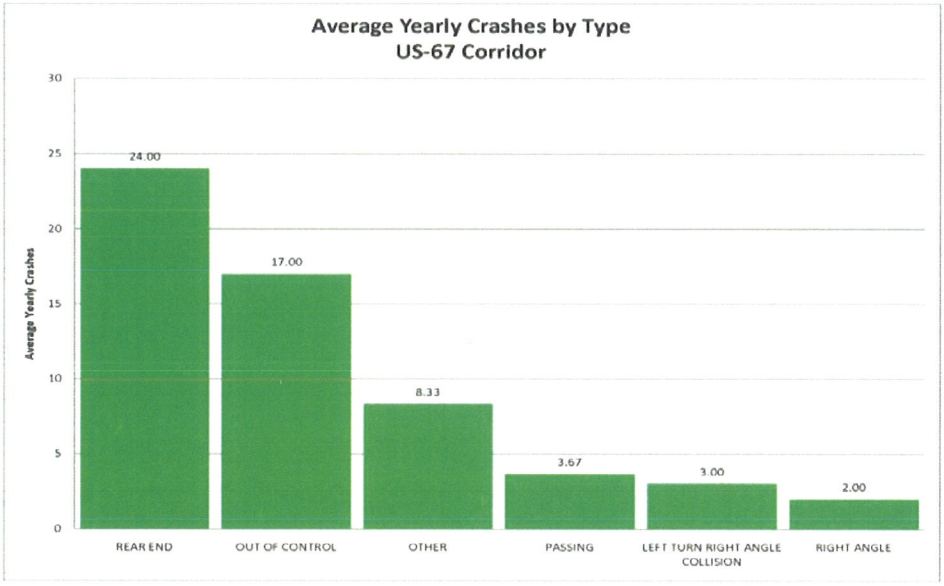


Exhibit 3-11 U.S. 67 Average Yearly Crashes by Type (2007-2009)

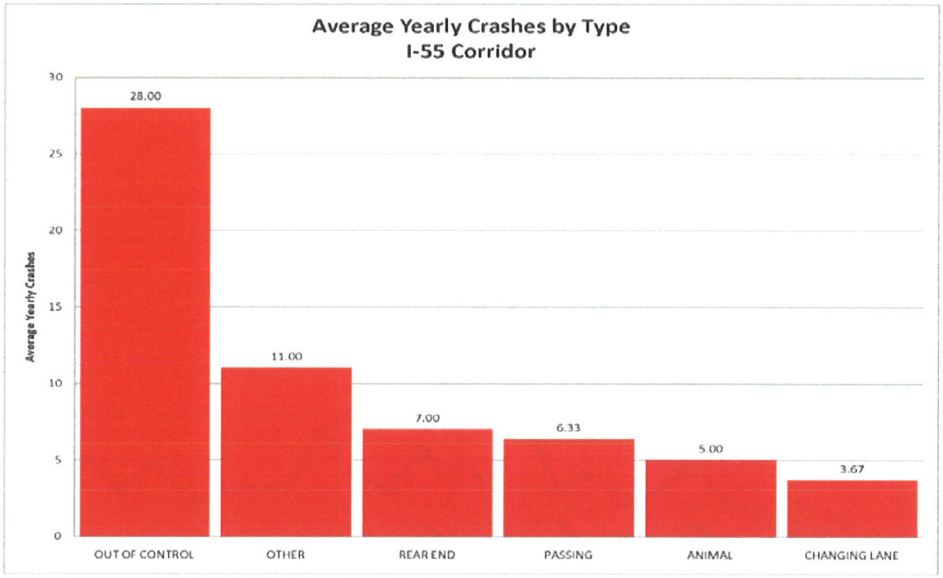


Exhibit 3-12 I-55 Average Yearly Crashes by Type (2007-2009)

84

Section 4: Purpose and Need

The purpose of the project is to:

- Provide an enhanced connection from Crystal City Port to I-55.
- Improve the movement of goods and traffic flow to and from Crystal City Port.
- Provide the necessary transportation infrastructure to support community and economic development as identified in the Jefferson County Ports Master Plan thus sustaining and vitalizing the regional economy.

The proposed improvements may include upgrades to existing roadways as well as new roadway alignments. With the planned development of Crystal City Port, in conjunction with the anticipated industrial growth in the vicinity of the port, the project will play a critical role in accommodating travel demands and improving the movement of goods and people.

The need of the project is as follows:
An enhanced roadway connection from I-55 to the Crystal City Port would serve as a crucial freight route, improve the overall efficiency of the existing highway network and relieve congestion on local signalized arterial streets associated with slow moving and high volumes of truck traffic. The need is supported by local, statewide and nationwide land use, economic and growth objectives based on various factors including modal interrelationships, system linkage between multimodal port and the interstate, travel demand, social and economic growth, the capacity of the existing roadways and safety.

Section 5: Alternatives

FHWA AJR Policy Point 2: Alternatives Analysis

"The need being addressed by the request cannot be adequately satisfied by reasonable transportation system management (such as ramp metering, mass transit, and HOV facilities), geometric design, and alternative improvements to the Interstate without the proposed change(s) in access (23 CFR 625.2(a))."

Illustrated below in ***Exhibit 5.1*** are the various alternatives considered for study.

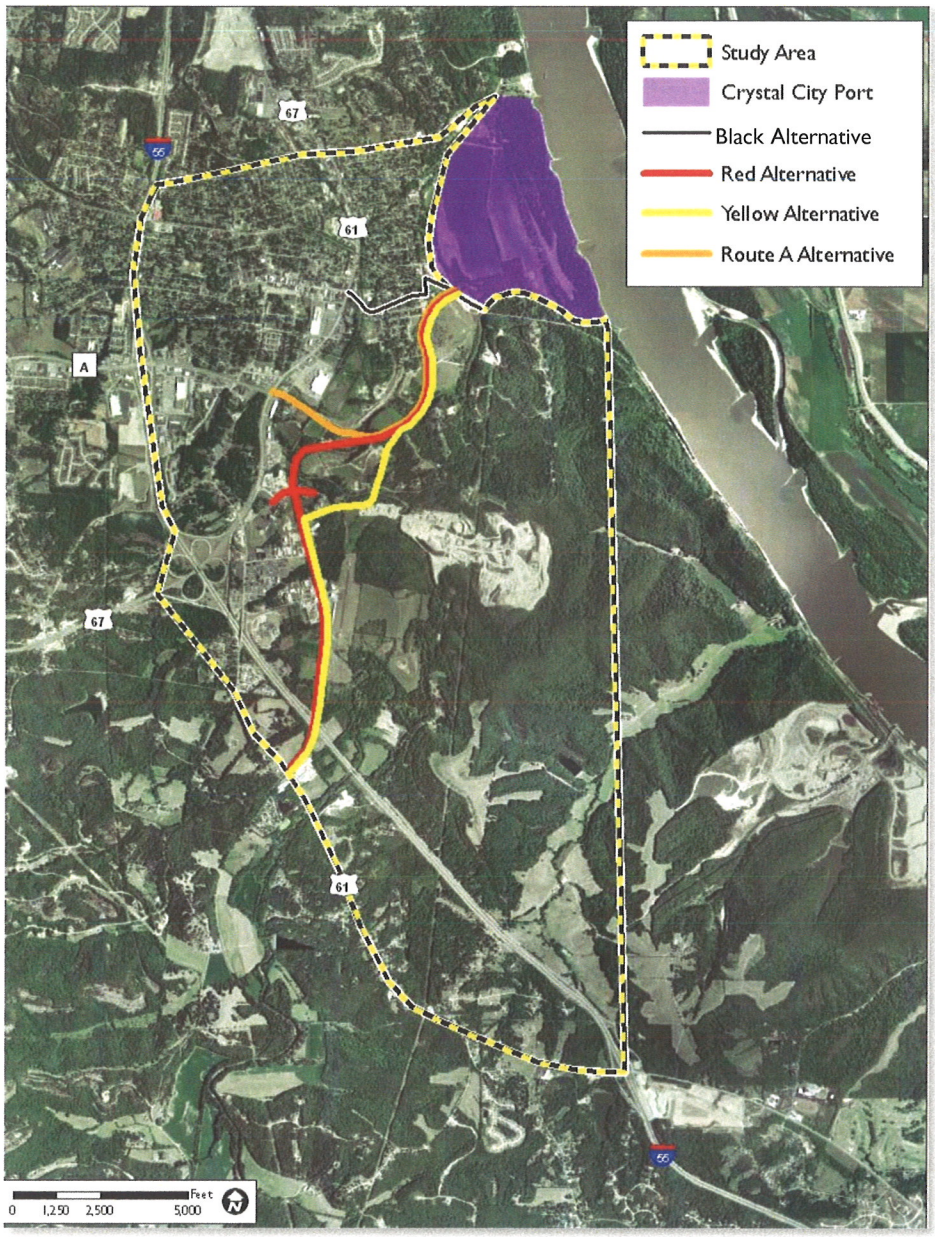


Exhibit 5-1 Port Access Alternatives Considered

96

5.1 Transportation System Management (TSM) and Alternative Transportation Modes

TSM strategies and alternative transportation modes would have limited impacts in this relatively small community on the fringe of the greater St. Louis metropolitan area and would not adequately address the purpose and need of the project.

5.2 No Build Alternatives

A review of the area surrounding the Port site indicated that there are several existing access points along the nearby arterial U.S. 61/67 corridor that could serve as potential connections to a new Port access roadway. These connections include Bailey Road, Route A, and St. Pius Drive, and a connection to the existing U.S. 61 interchange with I-55 (Exit 170).

The U.S. 61 access alternative was screened out of further consideration due to it being impractical because of the circuitous nature of the route, minimal distribution of site generated traffic to the south on I-55 and the ability to connect to U.S. 61/67 through the existing local street network which the new Port access road would intersect at VFW Drive. All three of the other No Build alternatives were considered for further study as potential linkages between the Port and the interstate system (I-55) via U.S. 61/67. Brief descriptions of these options are provided below.

Bailey Road (Black): The transportation alternative for this scenario assumes the Port development utilizes the existing roadway network to access the site. The Port access would first cross at-grade the Union Pacific spur tracks before using the retained roadway of 1st Street up to the bridge on Mississippi Avenue that crosses the BNSF railroad tracks. From Mississippi Avenue, the route turns westerly onto Bailey Road, crosses at-grade a Union Pacific spur line and intersects with U.S. 61/67 at a traffic signal. From this point, the majority of traffic would travel south until intersecting the signalized junction of Route A and then turns west towards Route A's interchange with I-55. The total length of this path (from Port to the closest I-55 interchange) is approximately 2.2 miles.

Route A (Orange): This alternative proposes a grade separation across both the Union Pacific and BNSF mainline tracks. This means a new roadway alignment and requires coordination with both railroads and adjacent property owners, including the former PPG property. After traversing the former PPG property the route would continue south along a portion of County Road which is coincident with the Festus levee protecting the waste water treatment plant. The route then turns westward to make a new connection to Route A. This new connection crosses at-grade the Union Pacific spur line, and impacts a ball field and the Elks Club Lodge as well as reconfiguring WalMart's primary access through a traffic signal. The total length of this route is approximately 2.3 miles.

St. Pius (Red up to VFW Drive connection): This alternative has a similar beginning to that described above. It continues further south along County Road and intersects VFW Drive. This alternative proposes a grade separation across both the Union Pacific and BNSF mainline tracks, traversing the former PPG property and connects to a portion of County Road before intersection VFW Drive. At this point the new roadway alignment has connected to the existing transportation system and access is now afforded via VFW Drive and St. Pius to U.S. 61/67. At that signalized intersection, port generated traffic can access U.S. 67 and I-55 by turning to the south. This route has an existing at-grade crossing with the Union Pacific spur line. This location of this alignment assumes a shift in traffic patterns away from the Route A interchange and towards the U.S. 67 interchange with I-55.

By default any connection to U.S. 61/67 yields the potential to access I-55 via interchanges at Route A, U.S. 67 and even U.S. 61. However the potential distribution of traffic to an I-55 interchange is dependent upon where the physical connection to U.S. 61/67 occurs. For example, a connection south of Route A would likely bring more traffic through the U.S. 67 system interchange with I-55 to head north than travelling along Route A.

5.3 Build Alternative

An interchange is proposed that would utilize the existing bridges of I-55 above the railroad. The purpose of extending this new alignment to create a new interchange with I-55 is to remove truck traffic and its associated congestion from U.S. 61/67. Evaluation of the study area revealed there was an opportunity to construct a new interchange to service the Port site and the surrounding area, which could include the Festus Memorial Airport and Jefferson Regional Medical Center as well as significant portions of undeveloped land. There are two general roadway alignments being considered for the Port access roadway in the preliminary environmental assessment for the project. This preliminary AJR focuses more on the junction with I-55, which would be the same under both alignments considered; however, brief descriptions of the two alignments are provided below.

New I-55 Interchange (Red beyond the VFW connection): This alternative has a similar beginning to that described for the No Build St. Pius alternative above. It continues further south of VFW Drive. This alternative proposes a grade separation across both the Union Pacific and BNSF mainline tracks, traversing the former PPG property and connects to a portion of County Road before intersection VFW Drive. At the junction with VFW Drive the new Port roadway alignment has connected to the existing transportation system and access is now afforded via St. Pius to U.S. 61/67. At that signalized intersection, port generated traffic can access U.S. 67 and I-55 by turning to the south. This route has an existing at-grade crossing with the Union Pacific spur line. This location of this alignment assumes a shift in traffic patterns away from the Route A interchange and towards the U.S. 67 interchange with I-55. The total length of this route (from port to the I-55 interchange) is approximately 2.8 miles.

New I-55 Interchange (Yellow): This is an alternative alignment to the Red for a new interchange with I-55. The beginning and end point are the same; however, the alignment through the middle section differs. The total length of this route (from port to the I-55 interchange) is approximately 2.9 miles.

The interchange configuration is contemplated as a partial cloverleaf design because of the location of the railroad crossing I-55. A diamond interchange configuration was also considered; however, it would create two new railroad crossings (at the on- and off-ramps to the north of I-55 as well as limiting the distance available between the potential interchange and the system interchange with U.S. 67. The partial cloverleaf design appears to integrate well with existing topography, though the I-55 bridge crossing over Plattin Creek creates a limited distance to accommodate deceleration and acceleration lanes. Further horizontal geometric design as well as structural evaluations may be necessary to determine the type of bridge widening needed (if any).

Exhibit 5-2 shows a summary of the probable costs for the build alternatives. This estimate was developed based upon measurements of length for the various alignments and aggregated unit costs in 2011 dollars. The probable costs include right-of-way acquisition, construction and programming costs for design and construction inspection services. The summary below presents total costs for the alternatives ranging from a low of approximately $36 million to a high of $46 million.

The length of the alternatives varies and because of spot improvements associated with intersections, an effective comparison by length is not made. Major cost elements are associated with:

- *Crossing the BNSF railroad:* The vertical clearance needed over the railroad combined with the number of tracks that need to be crossed create a lengthy bridge at significant expense.
- *Elevating the Port access road above the floodplain:* The Port access road uses a 100-year elevation as part of its design criteria. While the concepts require additional detailed topographic information for design, assumptions have been made that indicate the need for extensive earthen fill to construct
- *Potential right-of-way acquisition:* Many of the alternatives require the acquisition of either industrial properties or commercial/institutional properties. The estimate of right-of-way costs is based upon market value defined by the Jefferson County Assessor. Coordination is also necessary with other agencies and entities whose properties do not include a market value. Additional costs may be needed to provide relocation assistance or costs could be reduced depending upon negotiations.

Exhibit 5-2 Probable Cost for Alternative Port Access Roads

Component	No Build	Build New I-55 Interchange					
	Route A	Red Alignment			Yellow Alignment		
Probable Costs (millions $ - 2011)	Total	Phase I	Phase 2	Total	Phase I	Phase 2	Total
Right-of-Way Acquisition	$1.5	$0.1	$3.7	$3.8	-	$3.7	$3.7
Construction Costs – New Roadway	$16.6	$19.3	$4.0	$23.3	$18.9	$4.0	$22.9
Construction Costs – New Structure	$5.5	$5.5	-	$5.5	$4.0	-	$4.0
Construction Costs – Existing Roadway	$2.0	-	-	-	-	-	-
Construction Costs – Misc and Contingency	$4.7	$5.1	$1.4	$6.5	$4.9	$1.4	$6.3
Programming Costs	$5.4	$5.8	$1.1	$6.9	$5.5	$1.1	$6.6
TOTAL COSTS (2011 $)	**$35.7**	**$35.8**	**$10.2**	**$46.0**	**$33.3**	**$10.2**	**$43.5**

Section 6: Future Year Traffic

6.1 Historical Traffic Trends and Background Traffic Growth

It is anticipated that it will take several years for the proposed Port site to mature to full development. Historical traffic trends on I-55 south of U.S. 67 and on U.S. 67 east and west of I-55 are generally flat over the past decade with shorter periods of both growth and decline. Historical trends on I-55 to the north of U.S. 67; however, shows a positive growth over the same nine-year period, with an overall growth rate of approximately 2.9% per year. These trends are illustrated below in ***Exhibit 6-1***.

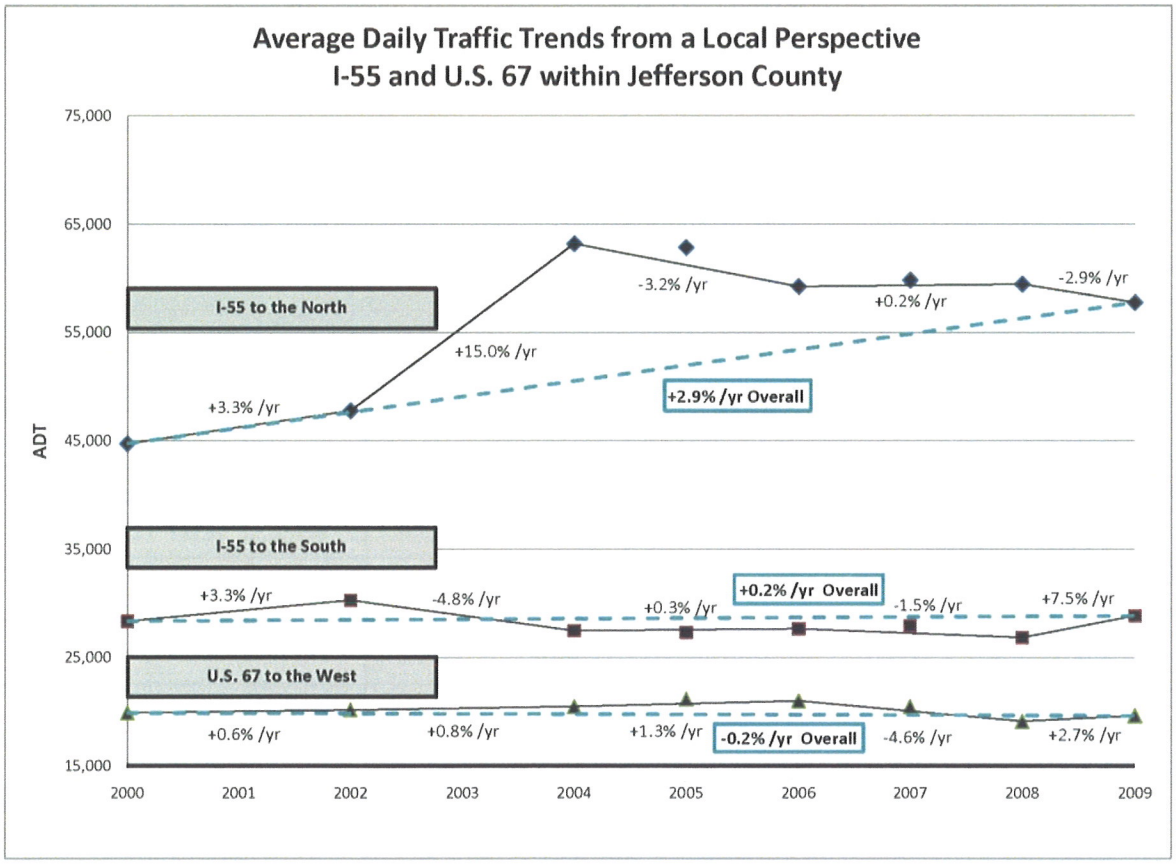


Exhibit 6-1 Historical Traffic Trends

The actual change in traffic over the next 20 years will likely be somewhere in the between this range and perhaps on the higher side as Port development could help spur other projects throughout the area. For the purposes of this study a yearly growth rate of 2% per year was used.

6.2 Port Traffic

The Port will have access to the Mississippi River as well as the regional highway and railroad systems. The site is expected to take several years to fully develop. At full development, the Port is anticipated to add approximately 1,700 vehicles to the local street system on a typical weekday with a significant Portion

(approximately two-thirds) of that traffic expected to be trucks. These estimates were provided by the firm Moffatt & Nichol Engineers in November 2010.

Exhibit 6-2 shows recent existing traffic volume counts on Route AB in Scott City, Missouri that serves as the entrance to the existing South East Missouri (SEMO) Port in Cape Girardeau County. This data was used to develop peak hour trip generation estimates from the daily volume projections for the proposed Port.

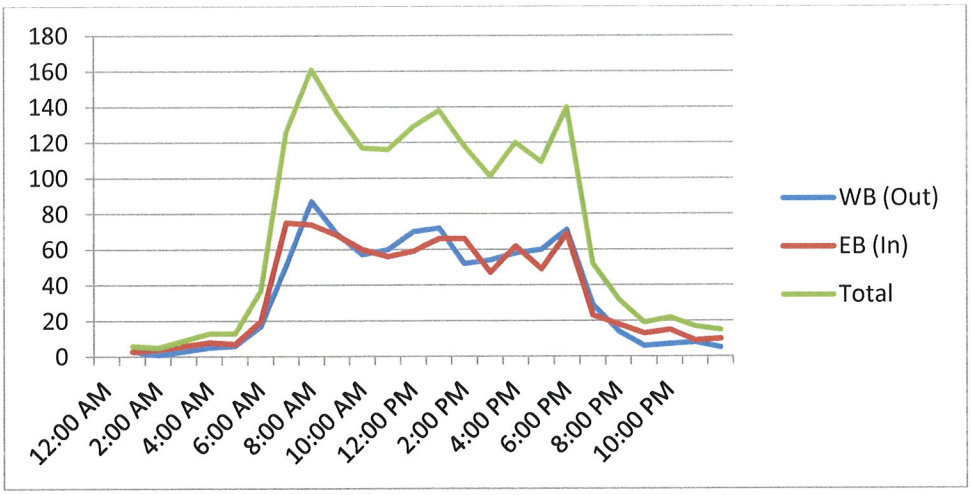


Exhibit 6-2 Existing (2009) SEMO Port Traffic

According to these estimates, most of the daily traffic (nearly 90%) would be expected to travel in and out of the site during daytime hours between 7:00 A.M. and 7:00 P.M. with a relatively steady hourly flow rate. The peak flows are expected to generally coincide with the peak hours of the adjacent street traffic, indicating that the peak Port traffic will likely be competing with peak commuter traffic in the area.

Distributions for the projected Port traffic were developed based on a combination of factors including potential user information collected as part of the preliminary market study as well as population data within the region. The following general distributions were considered in the traffic assessments:

- 60% to/from the north on I-55
- 15% to/from the south on I-55
- 15% to/from the southwest on U.S. 67
- 10% to/from local areas north and east of the U.S. 67 and Bailey Road intersection

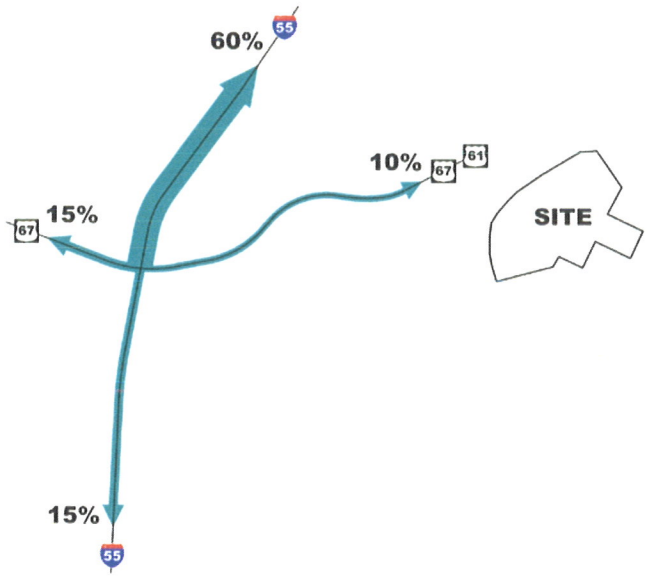


Exhibit 6-3 General Port Traffic Distribution Percentages

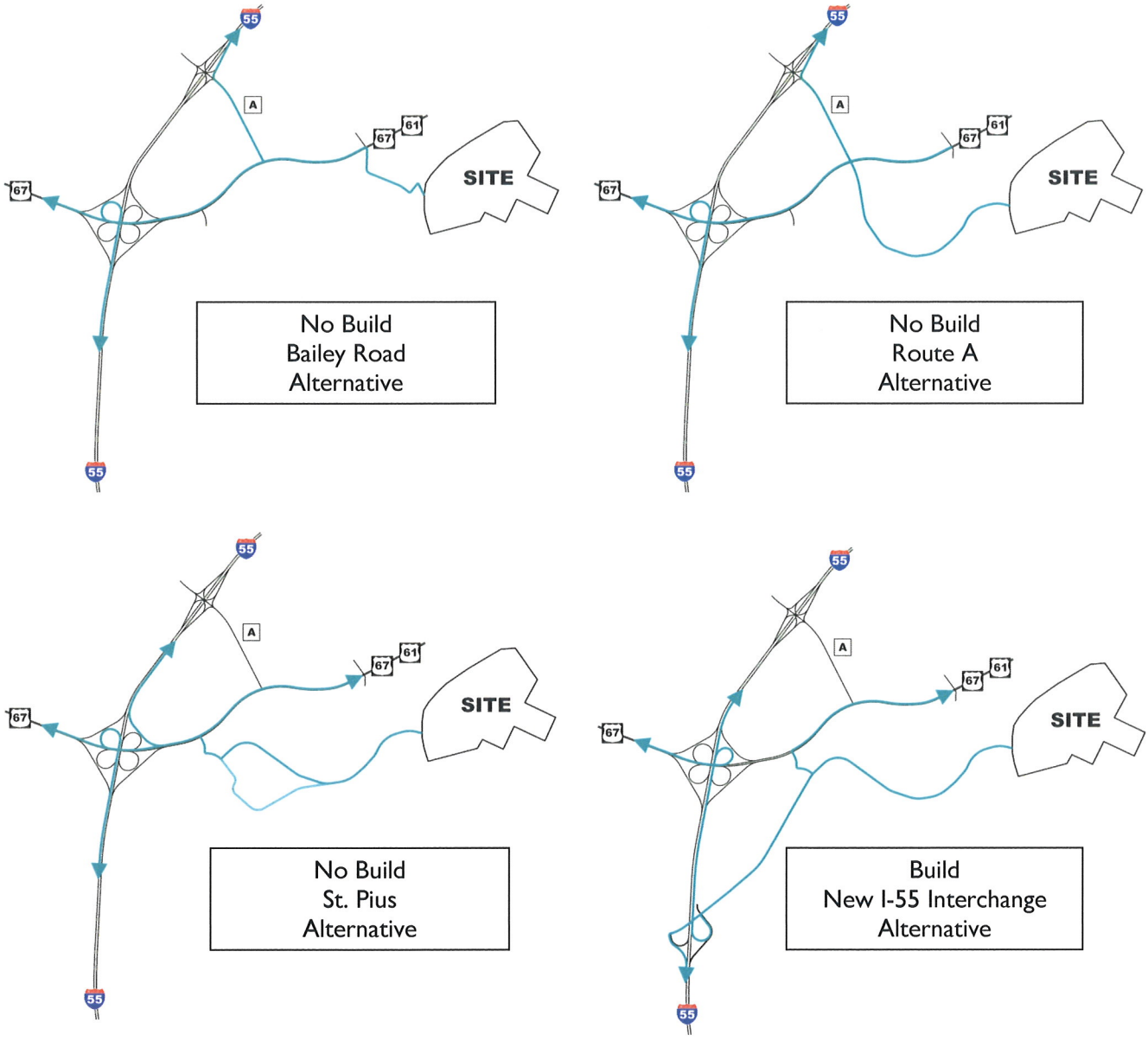


Exhibit 6-4 Port Traffic Distributions for the Various Alternatives

Section 7: Alternatives Analysis

7.1 Operational and Safety Performance

FHWA AJR Policy Point 3: Operational and Safety Analysis

"An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis shall, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (23 CFR 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access must include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request must also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d))."

The potential access alternatives are illustrated on ***Exhibit 7-1***.

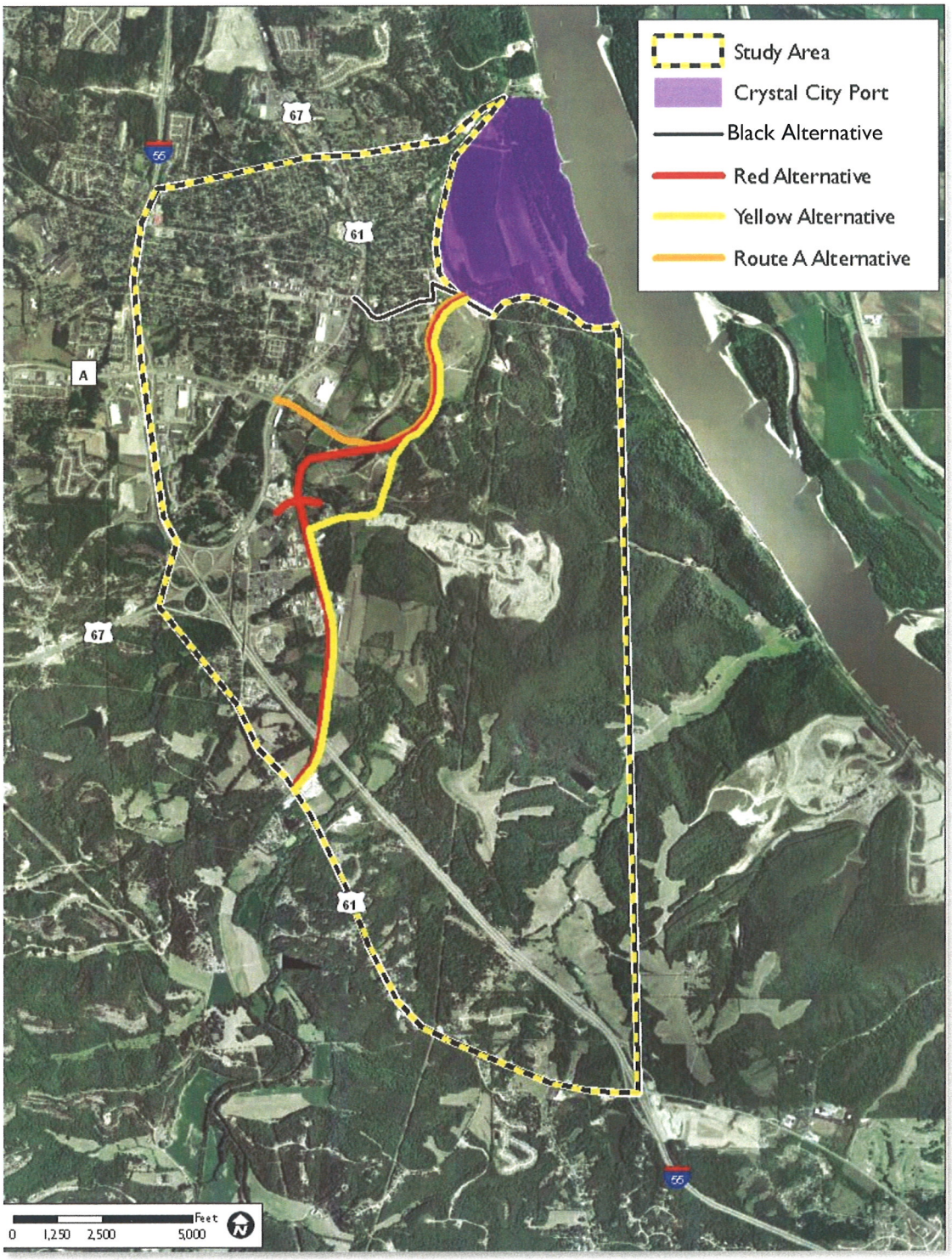


Exhibit 7-1 Port Access Alternatives Assessed

Traffic Operations for the No Build Alternatives

Capacity analyses were performed for the various No Build alternatives that have been previously described, considering future projected traffic volumes. The projections include both background traffic growth and traffic estimates for the ultimate development of the Port. The distribution of traffic through the study area

The intersection capacity analysis results for the No Build scenarios are summarized in ***Exhibits 7-2*** and ***7-3***. Note that some study intersections were dropped from the future analyses because Port traffic is not expected to travel through them. Traffic analysis is an iterative process that takes into consideration various improvements to meet desirable operational goals. Turn lane improvements were needed for each of the alternatives at the Route A and U.S. 61 intersections with U.S. 67. Traffic volumes, lane configurations, and traffic control devices considered for these scenarios, including identified improvements, are defined on the following exhibits:

- Bailey Road Alternative ***Exhibits 7-4*** through ***7-6***
- Route A Alternative ***Exhibits 7-7*** through ***7-9***
- St. Pius Alternative ***Exhibits 7-10*** through ***7-12***

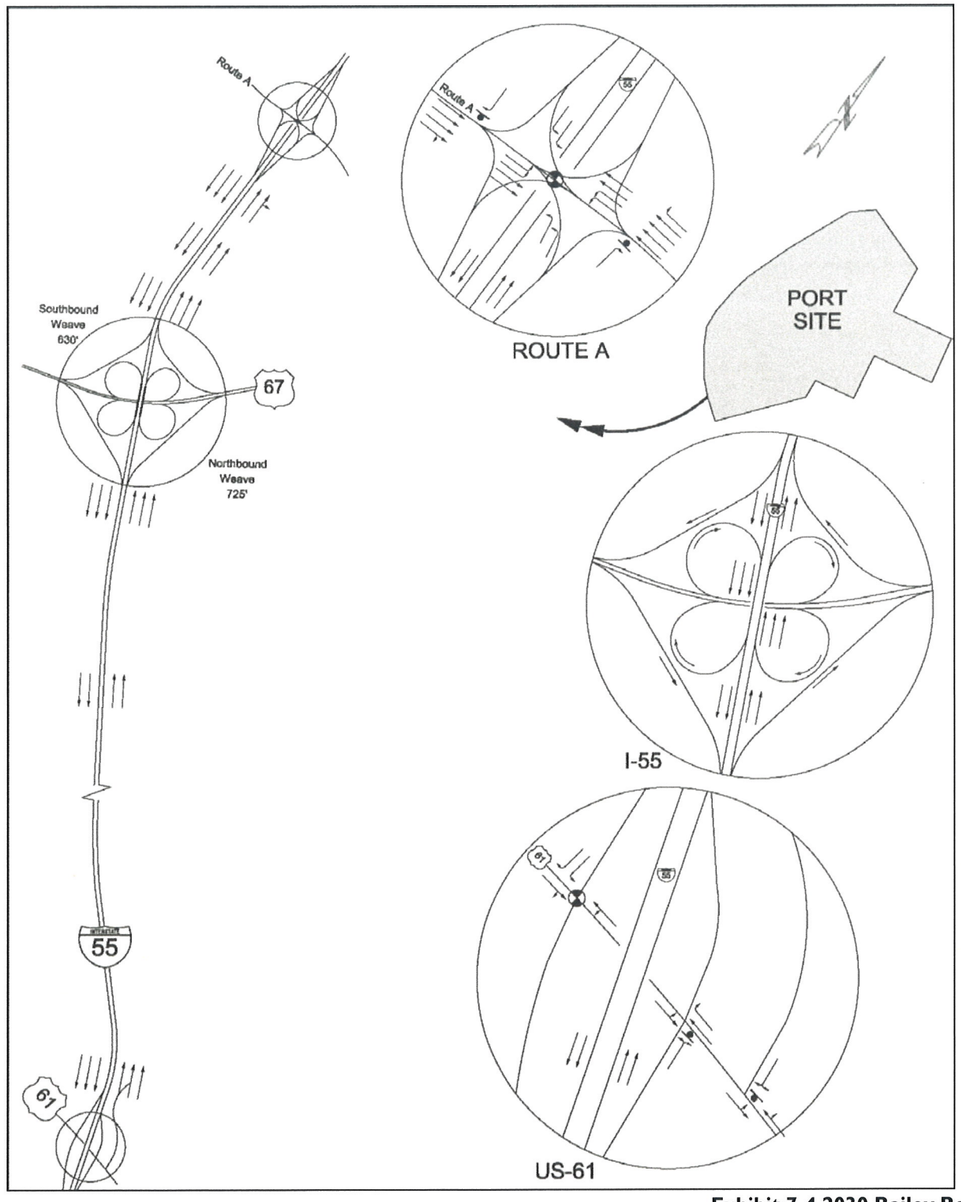
Exhibit 7-2
Synchro Intersection Capacity Analysis Results
Future 2030 No Build Alternatives (A.M. Peak Hour)

Intersection	Bailey		Route A		St. Pius	
Approach/Movement	LOS	Delay	LOS	Delay	LOS	Delay
Route A and I-55 Signalized (All Movements)	C	25.7	C	25.7	C	25.3
U.S. 61/67 and Bailey Avenue Signalized (All Movements)	C	23.0	B	16.4	C	21.5
U.S. 61/67 and Route A Signalized (All Movements)	C	24.7	C	30.4	C	26.7
U.S. 61/67 and St. Pius Drive Signalized (All Movements)	B	12.5	B	13.4	B	17.5
U.S. 67 and U.S. 61 Signalized (All Movements)	C	34.6	D	36.4	C	34.7

Exhibit 7-3
Synchro Intersection Capacity Analysis Results
Future 2030 No Build Alternatives (P.M. Peak Hour)

Intersection	Bailey		Route A		St. Pius	
Approach/Movement	LOS	Delay	LOS	Delay	LOS	Delay
Route A and I-55 Signalized (All Movements)	D	37.3	D	37.3	C	34.3
U.S. 61/67 and Bailey Avenue Signalized (All Movements)	D	48.4	C	32.9	C	34.5
U.S. 61/67 and Route A Signalized (All Movements)	D	45.3	D	50.8	D	54.6
U.S. 61/67 and St. Pius Drive Signalized (All Movements)	A	4.8	A	5.4	A	9.7
U.S. 67 and U.S. 61 Signalized (All Movements)	D	46.5	D	47.1	D	51.2

I-55 Corridor



U.S. 61/67 Corridor

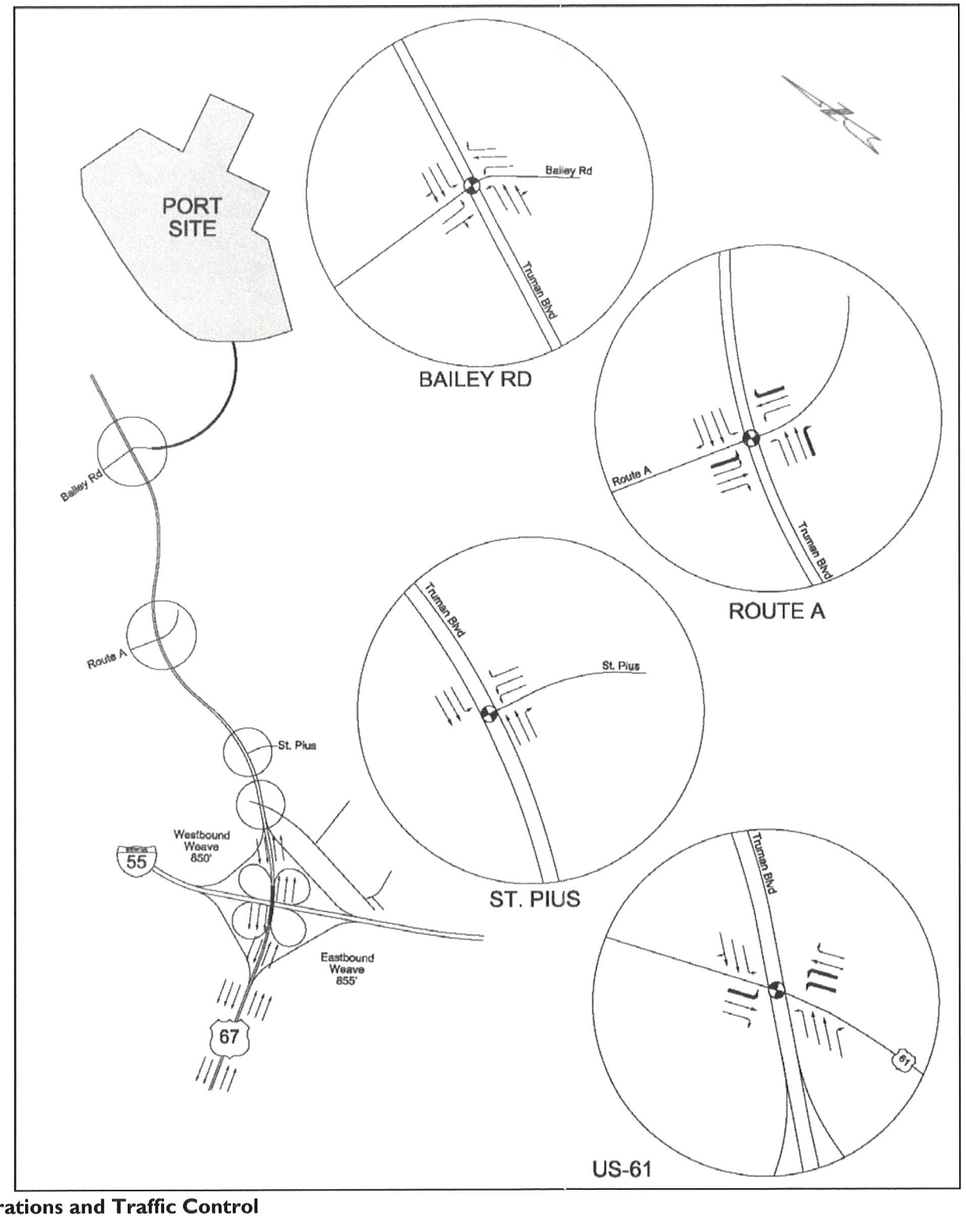
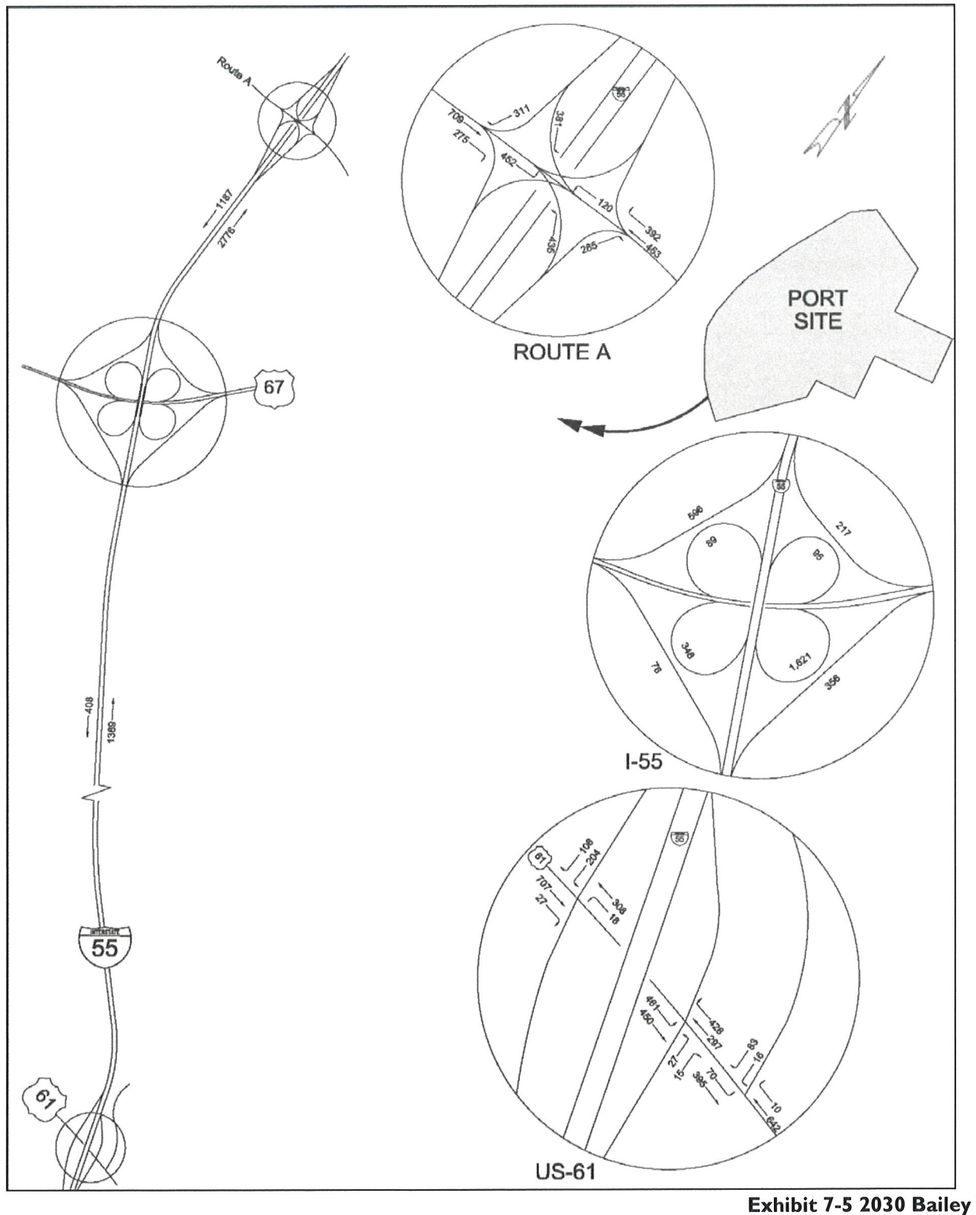


Exhibit 7-4 2030 Bailey Road Lane Configurations and Traffic Control

LEDGER SIZE 97a

97B

I-55 Corridor



U.S. 61/67 Corridor

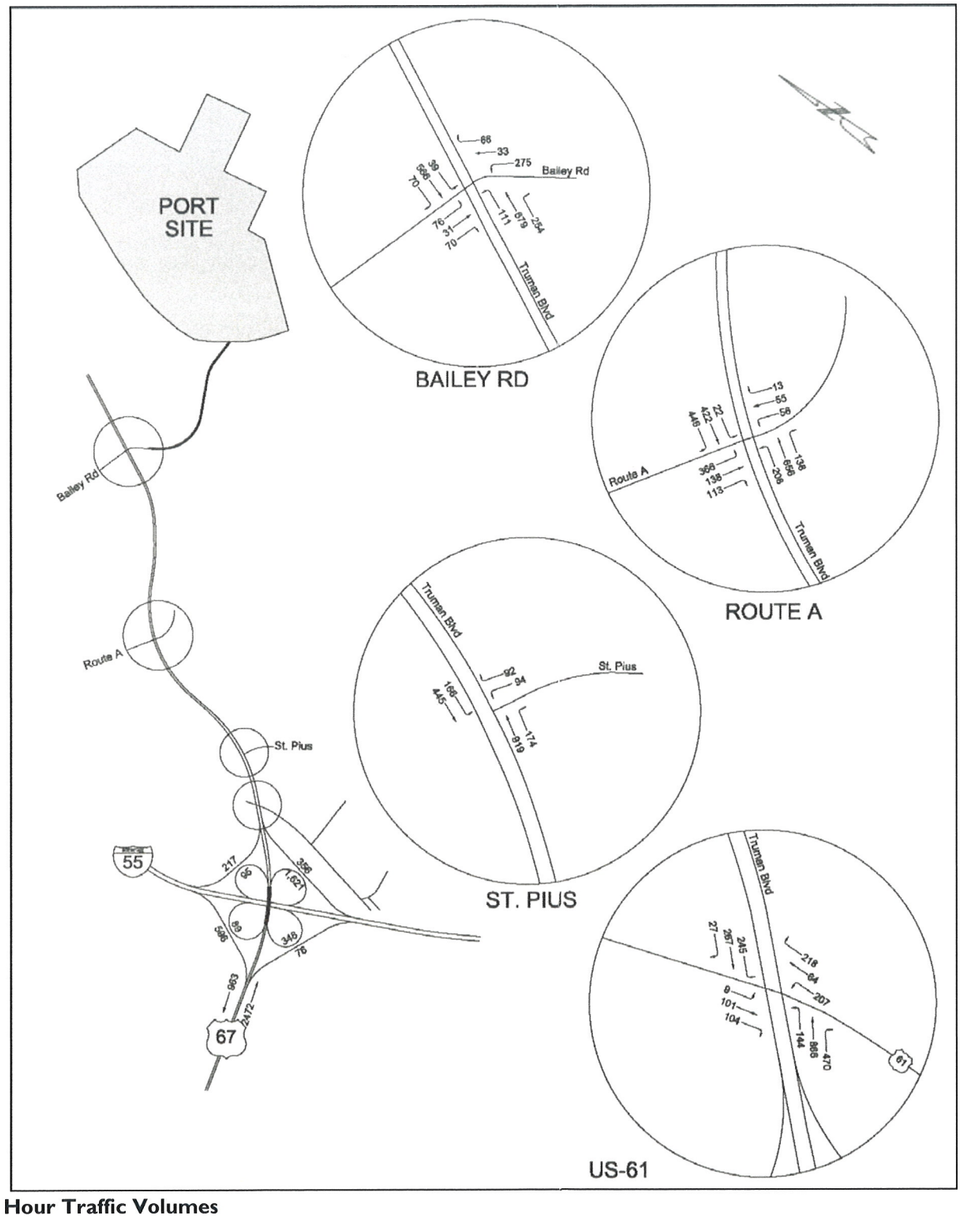
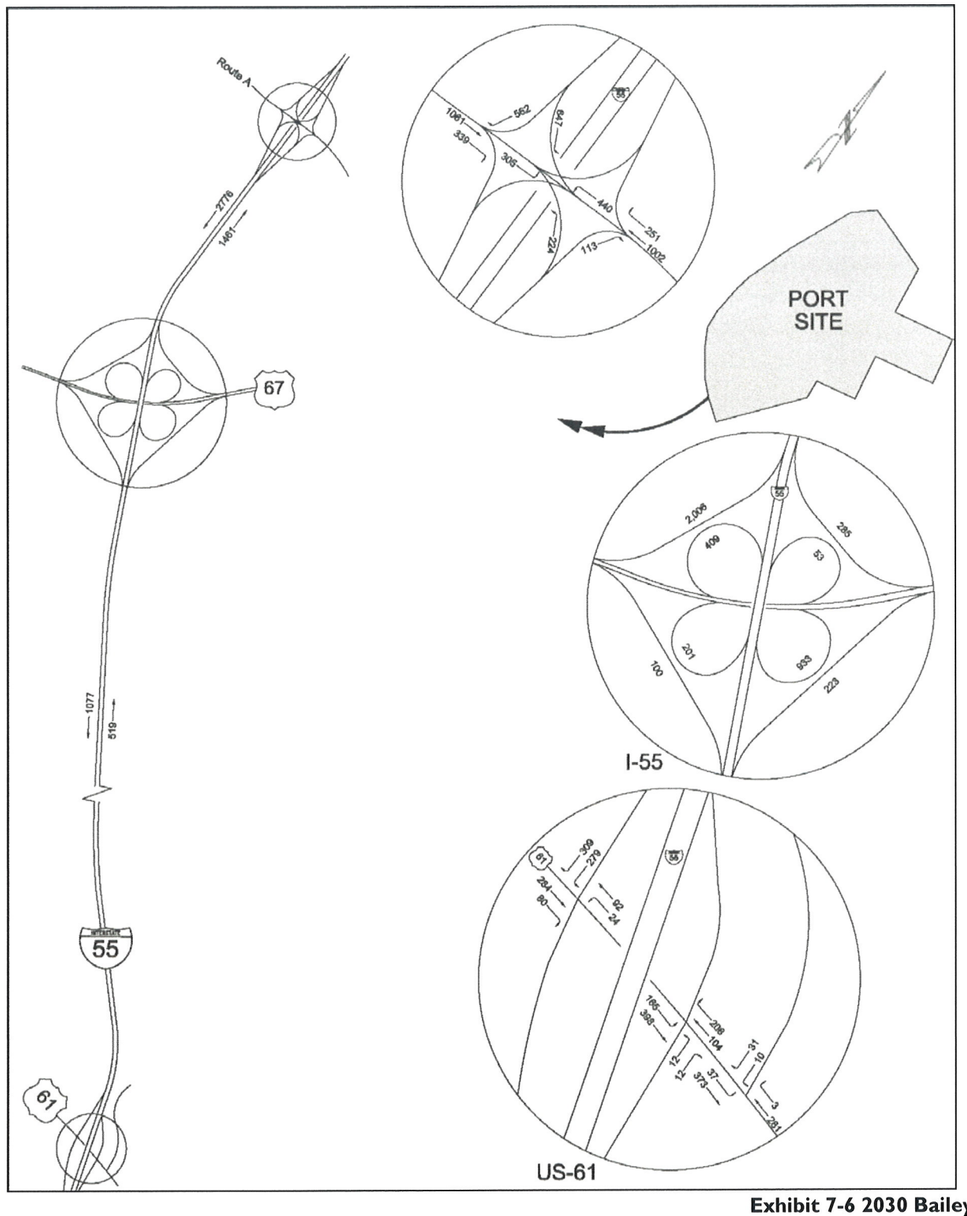


Exhibit 7-5 2030 Bailey Road A.M. Peak Hour Traffic Volumes

I-55 Corridor



U.S. 61/67 Corridor

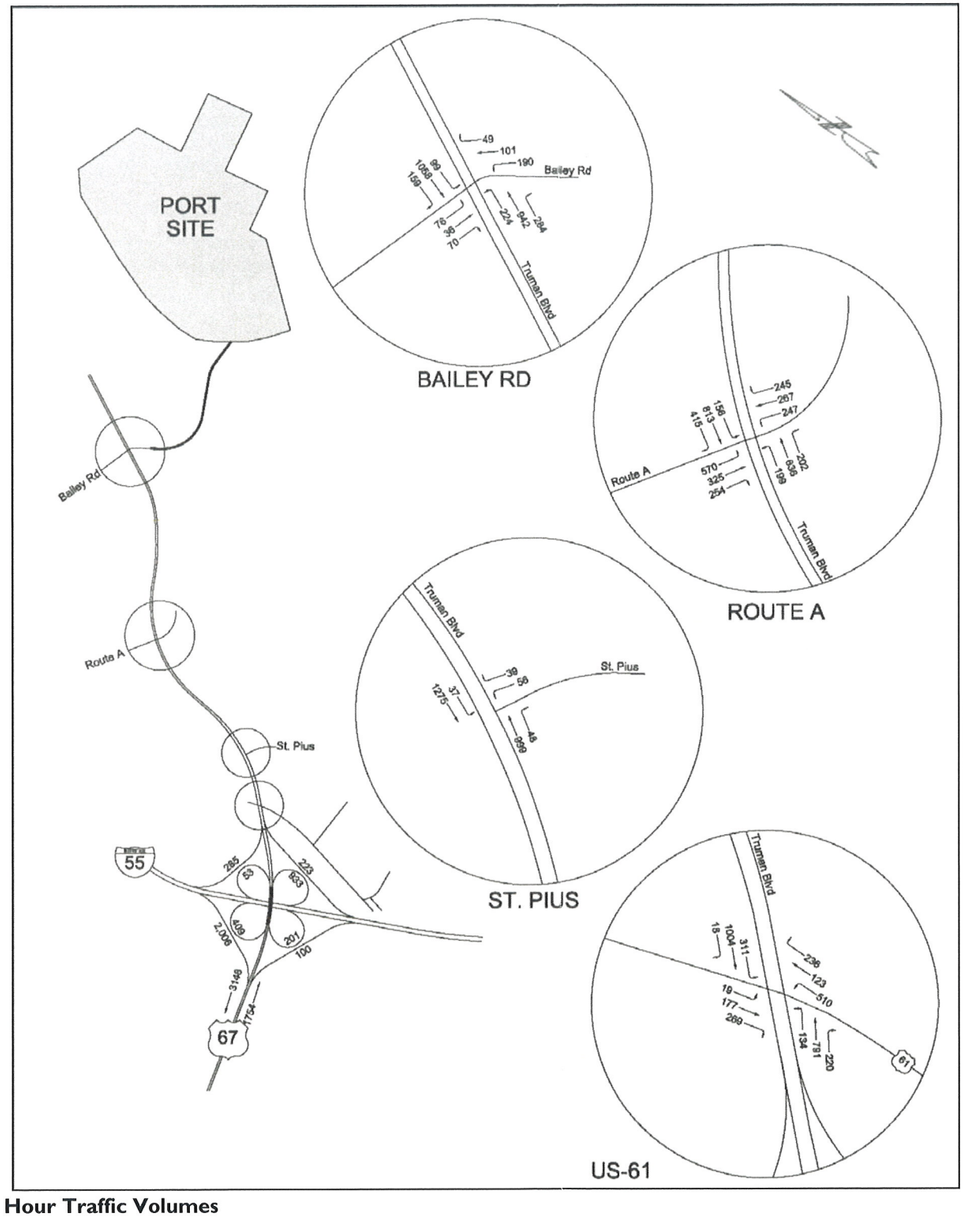
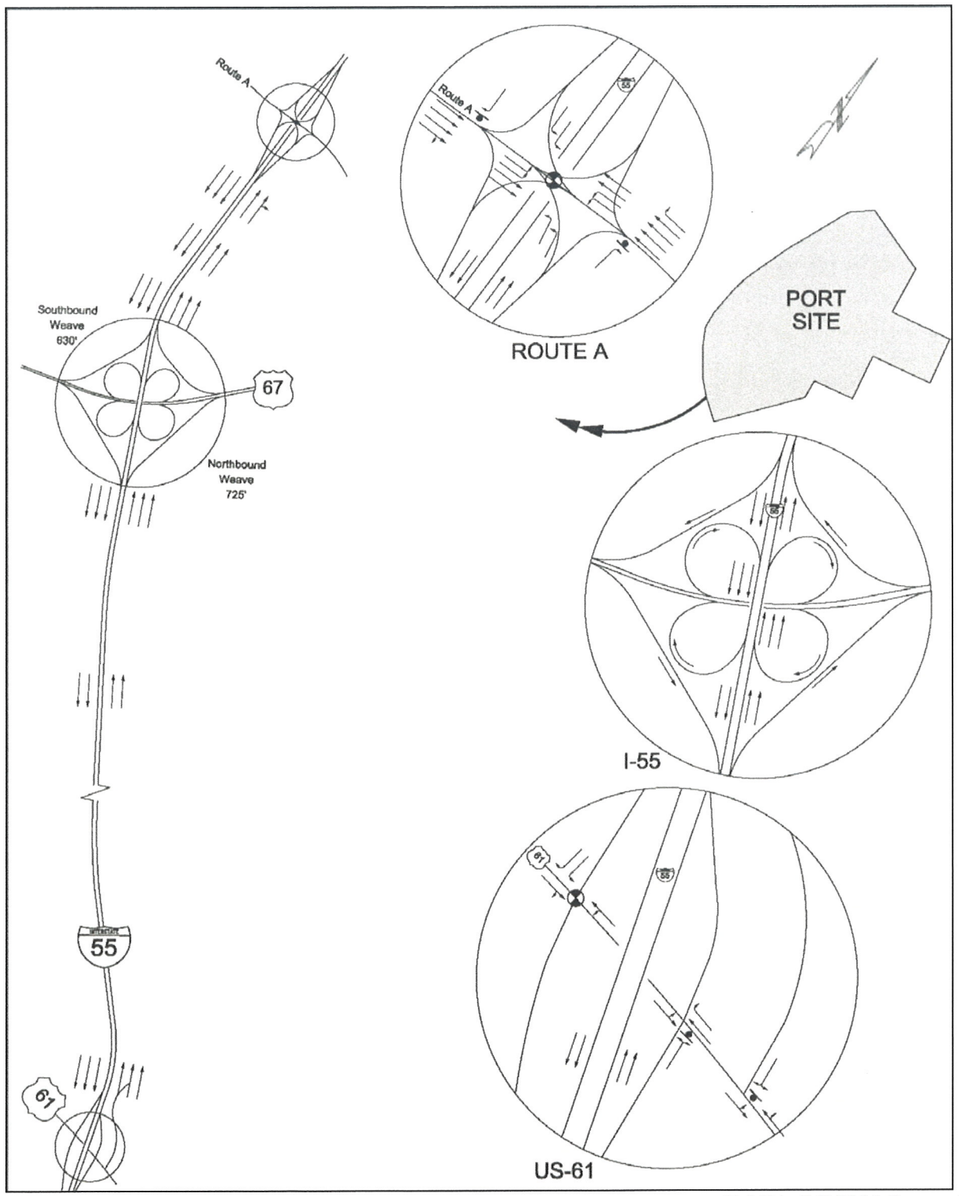


Exhibit 7-6 2030 Bailey Road P.M. Peak Hour Traffic Volumes

I-55 Corridor



U.S. 61/67 Corridor

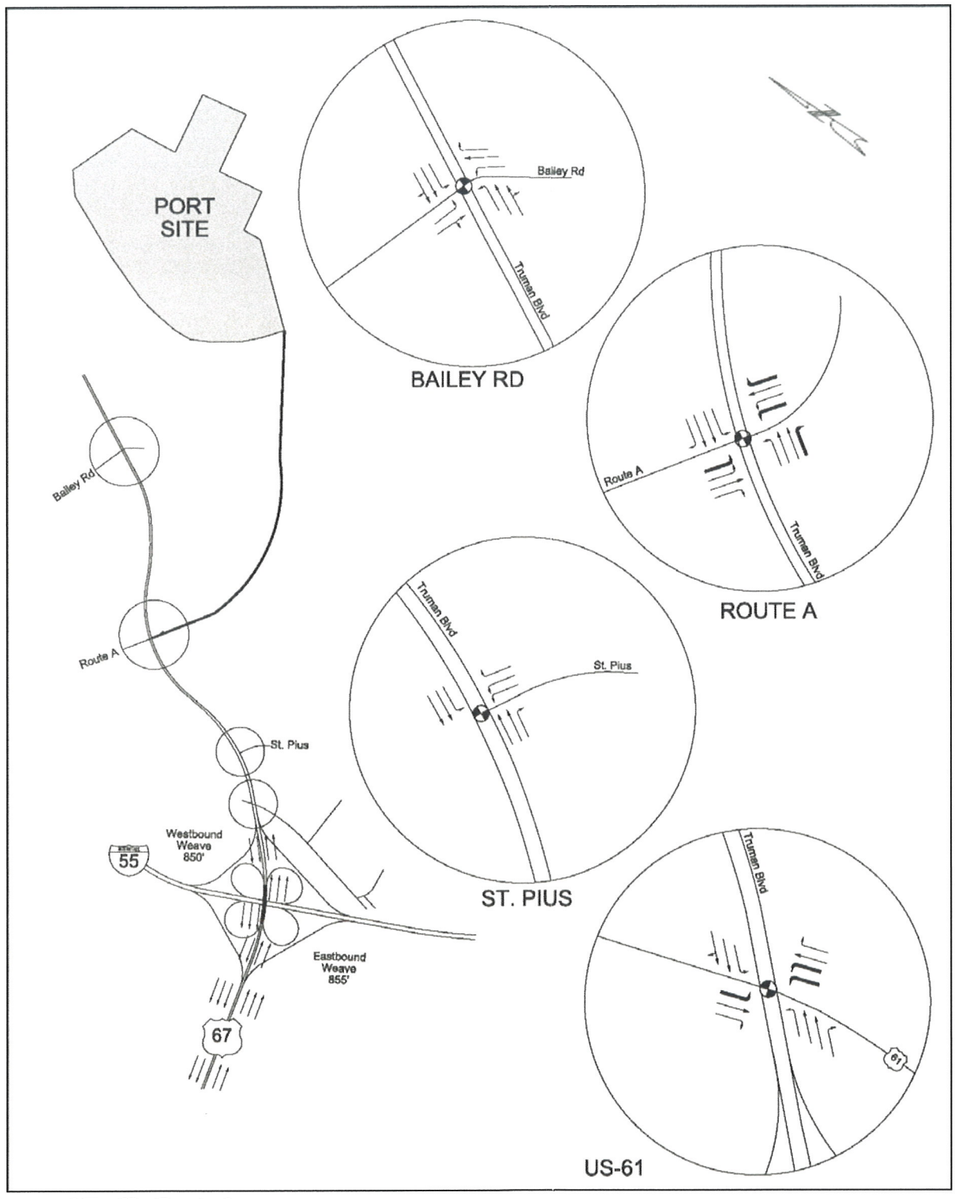
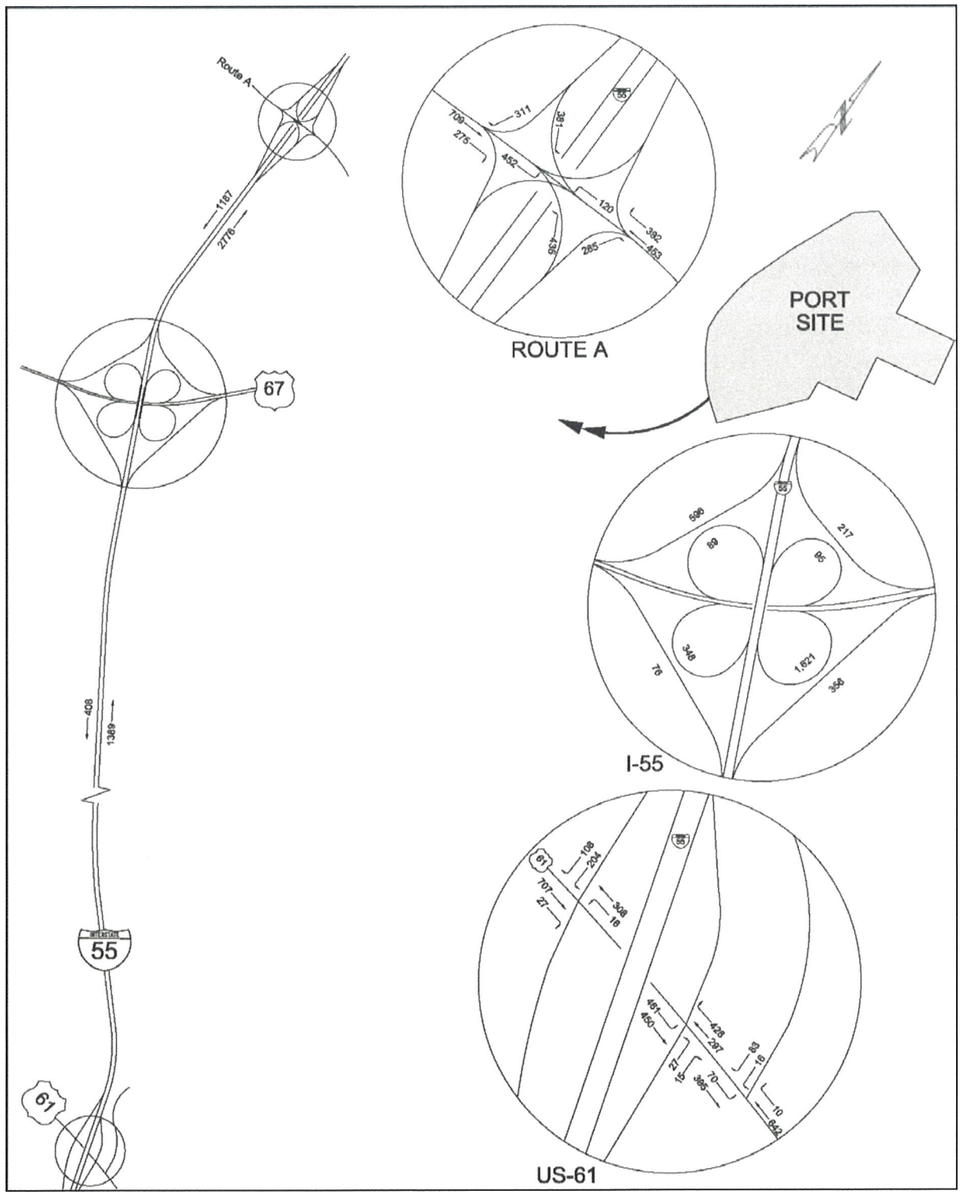


Exhibit 7-7 2030 Route A Lane Configurations and Traffic Control

I-55 Corridor



U.S. 61/67 Corridor

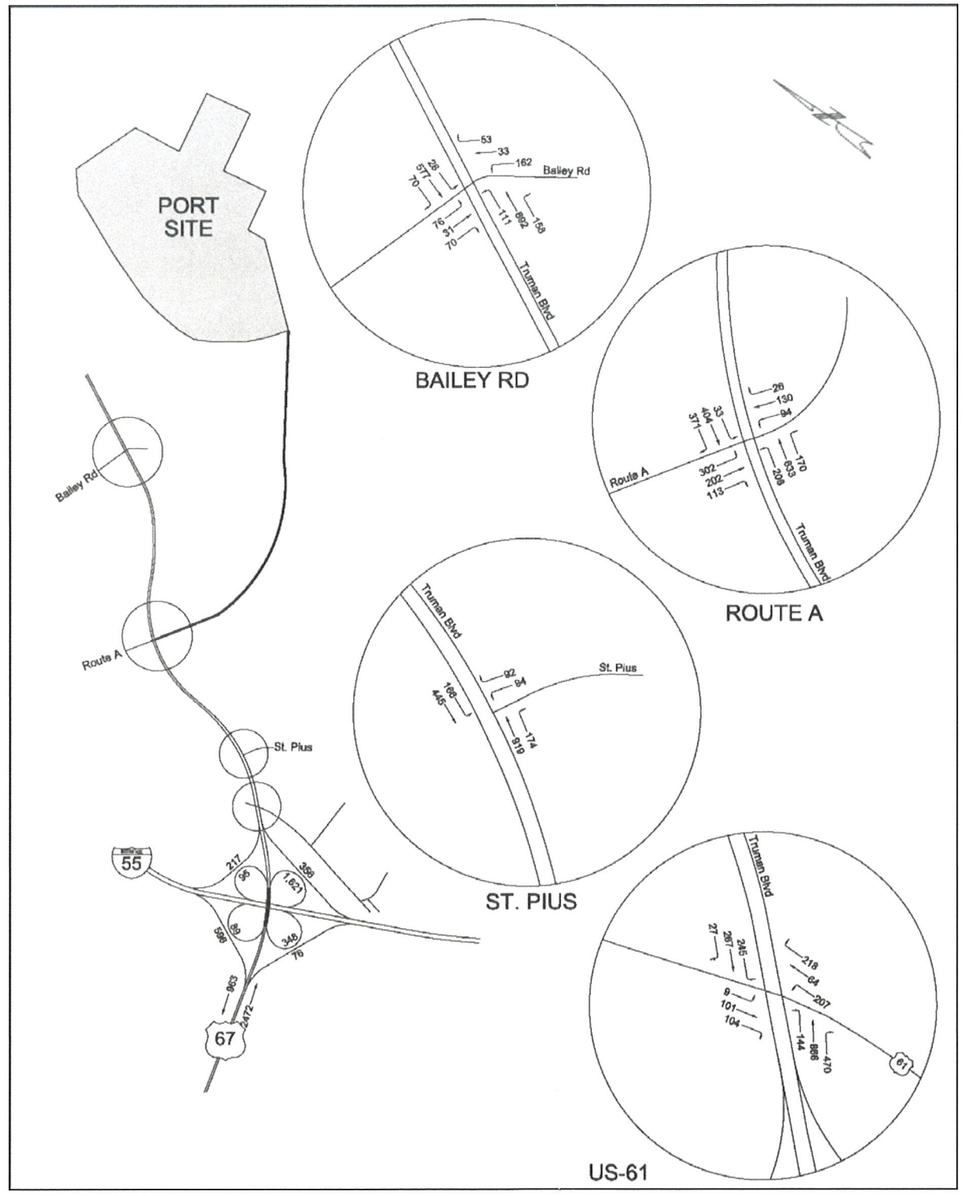
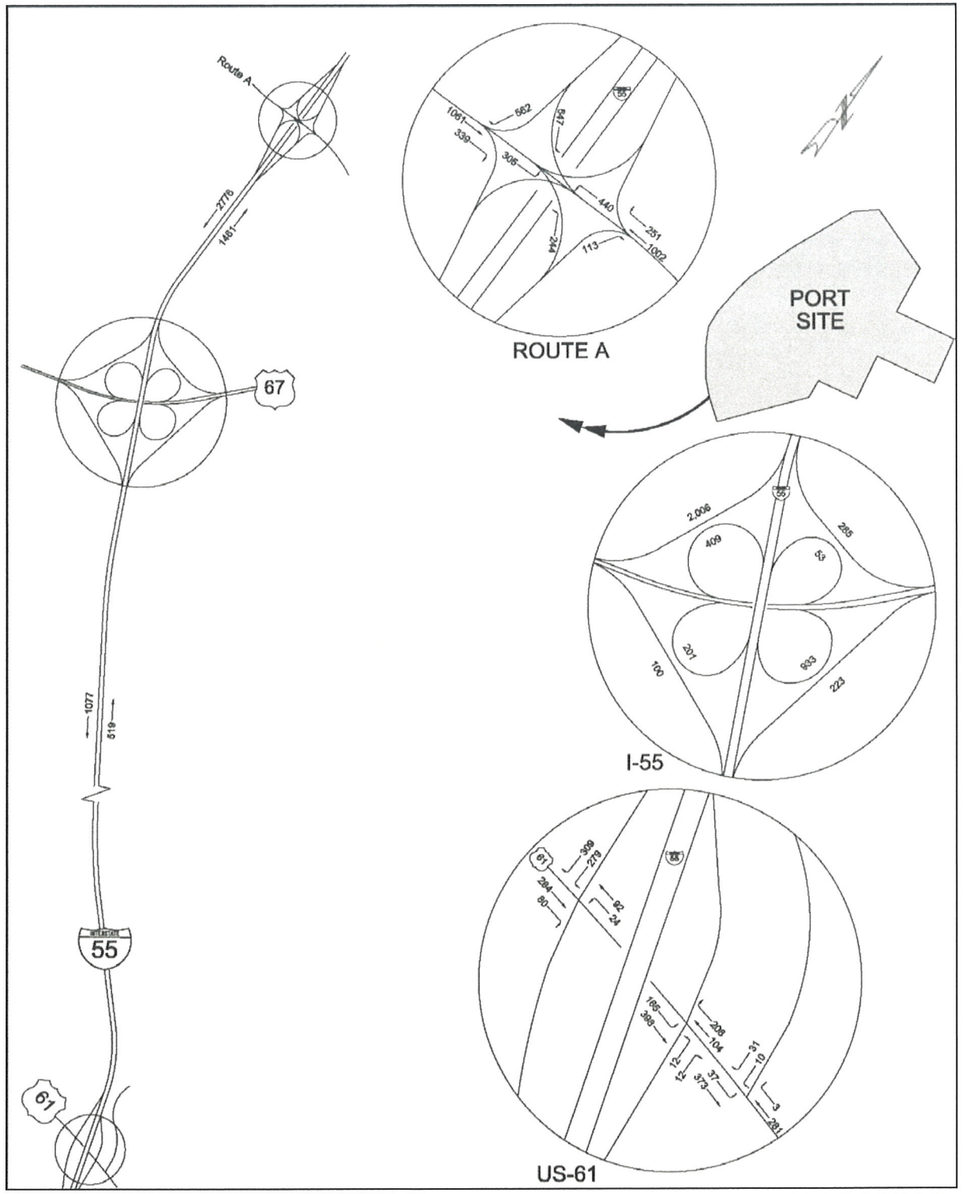


Exhibit 7-8 2030 Route A A.M. Peak Hour Traffic Volumes

I-55 Corridor



U.S. 61/67 Corridor

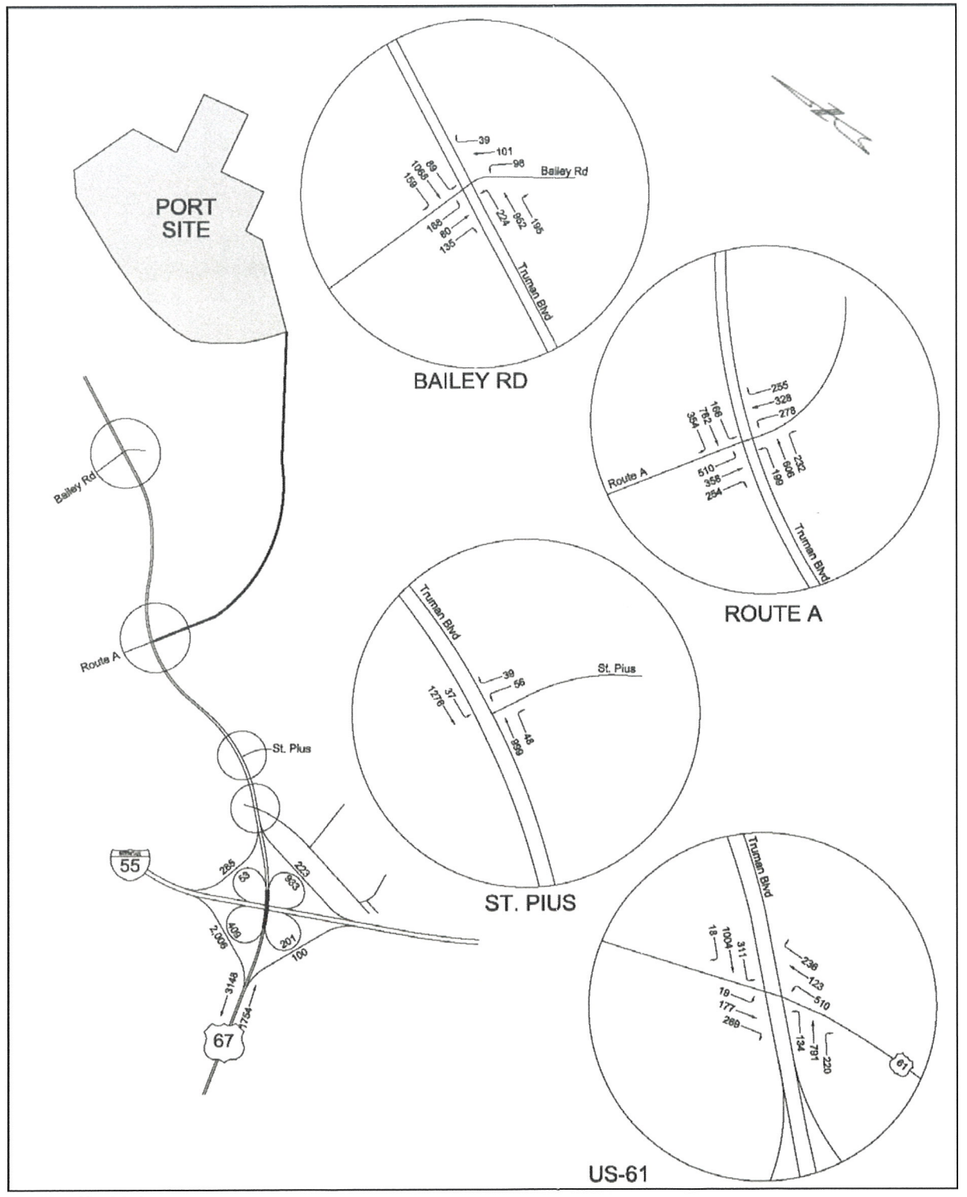
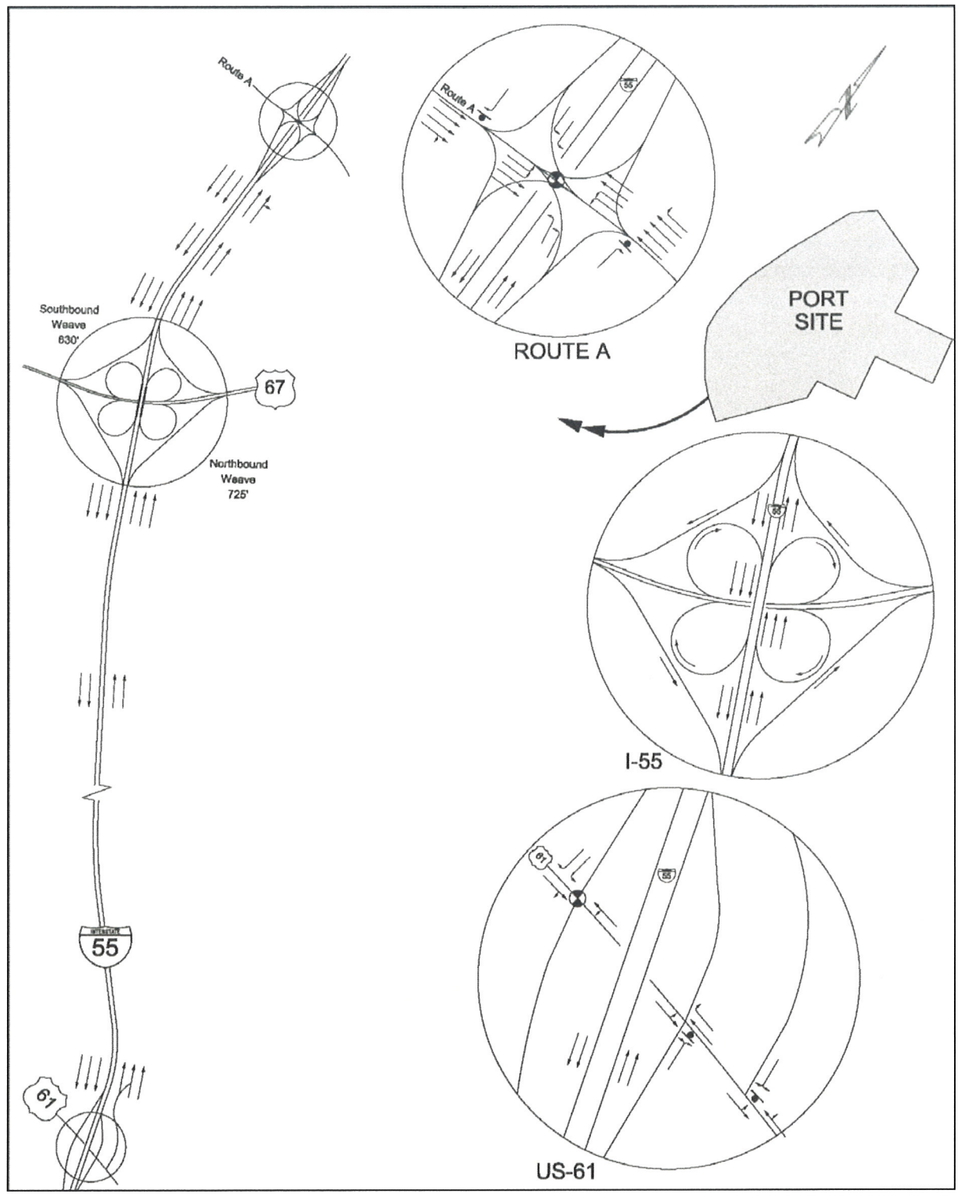


Exhibit 7-9 2030 Route A P.M. Peak Hour Traffic Volumes

I-55 Corridor



U.S. 61/67 Corridor

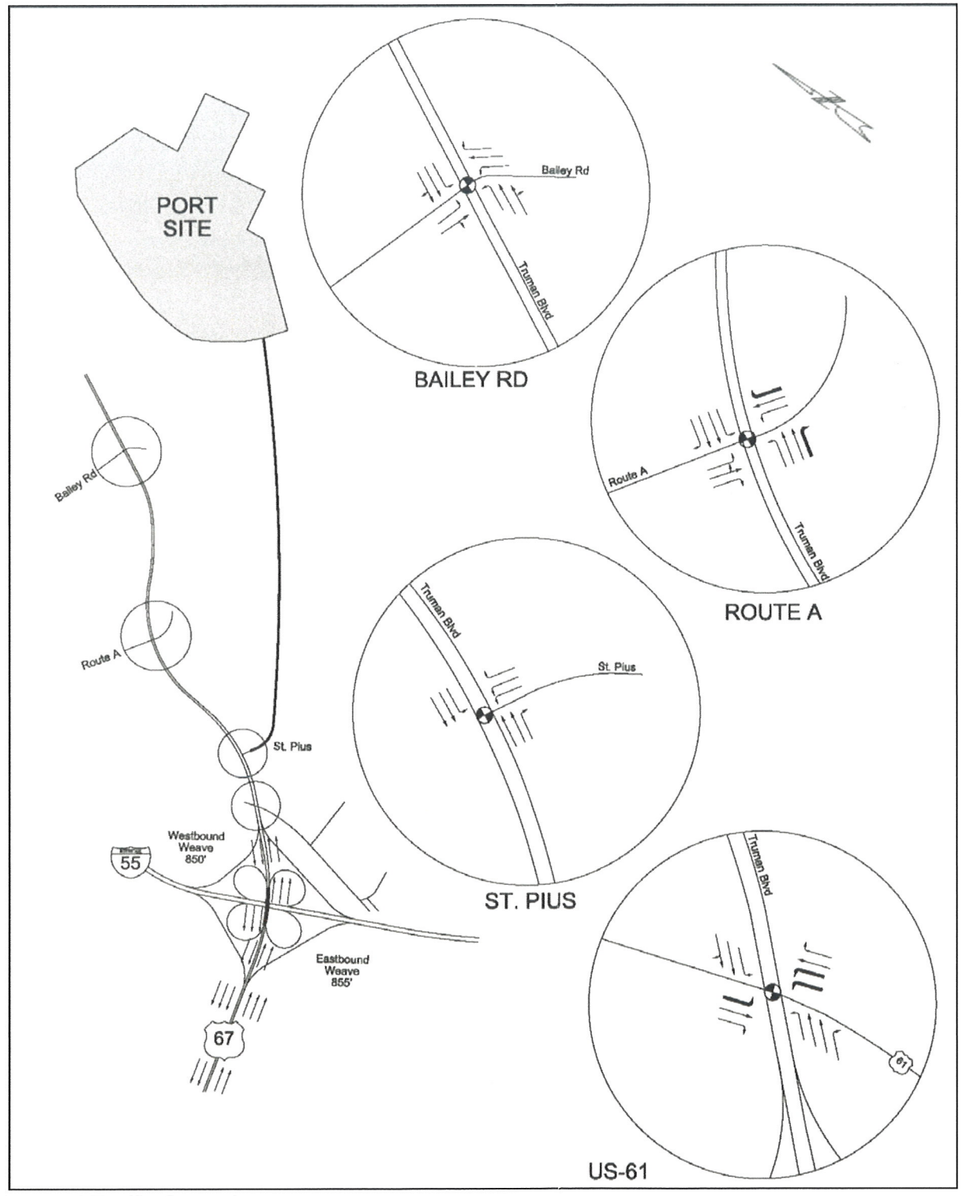
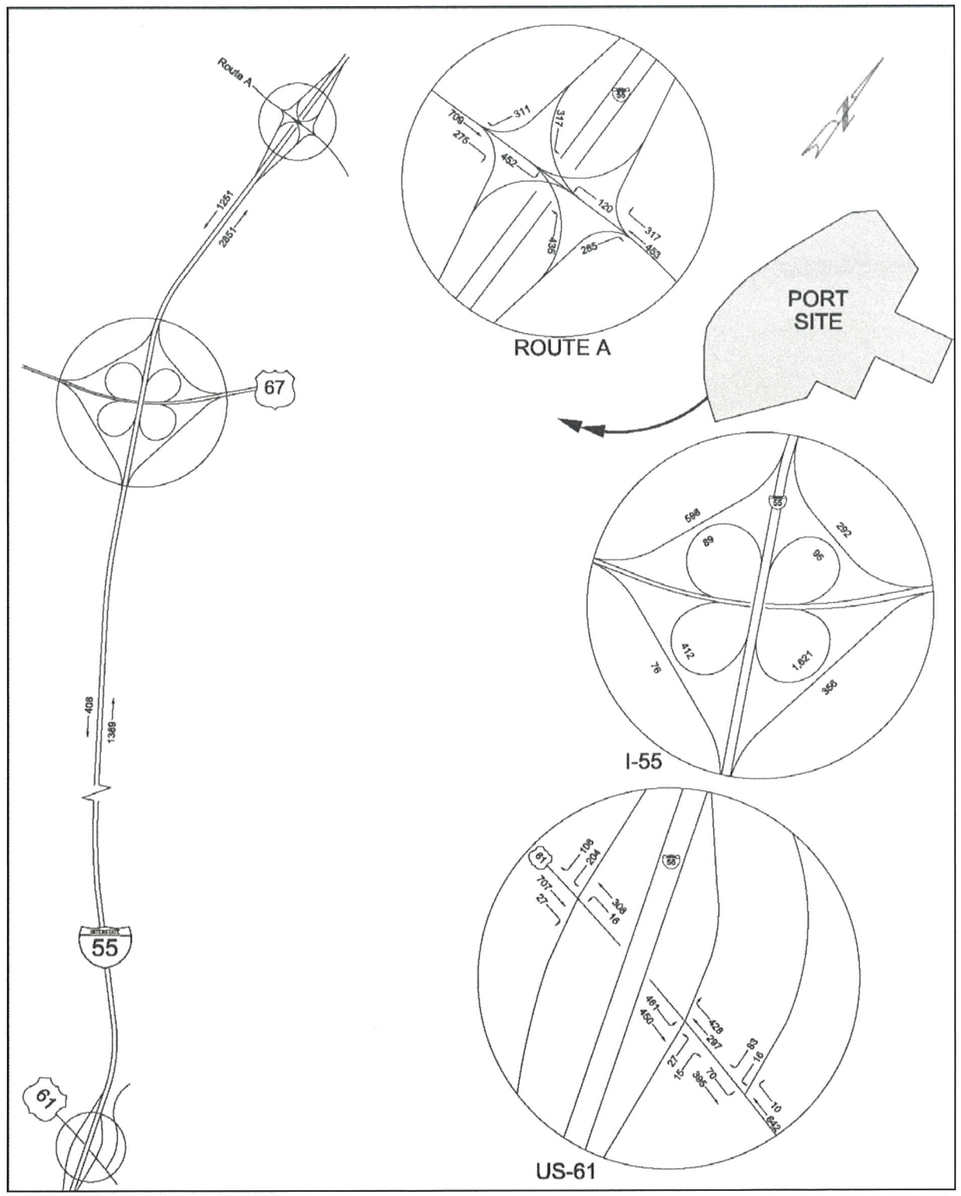


Exhibit 7-10 2030 St. Pius Lane Configurations and Traffic Control

I-55 Corridor



U.S. 61/67 Corridor

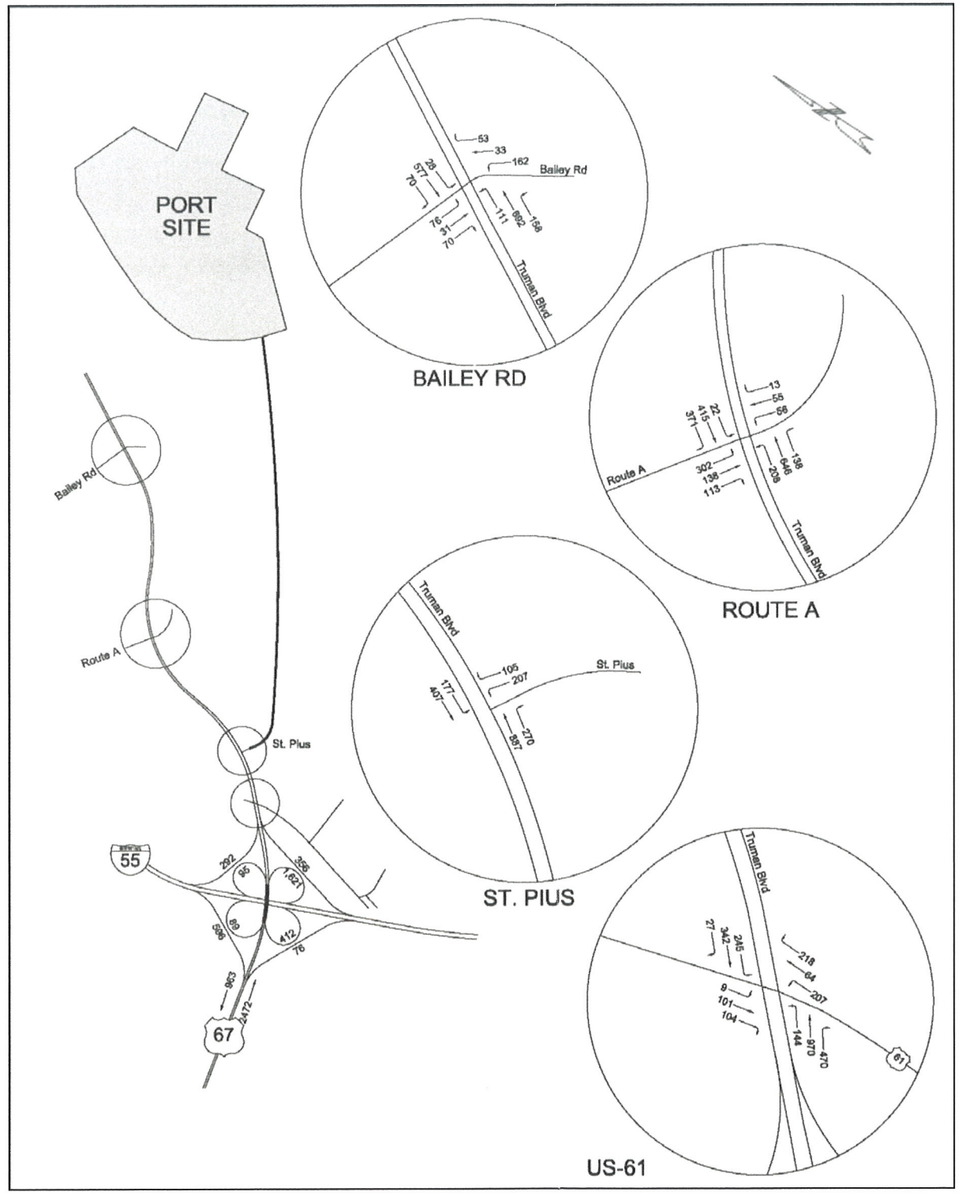


Exhibit 7-11 2030 St. Pius A.M. Peak Hour Traffic Volumes

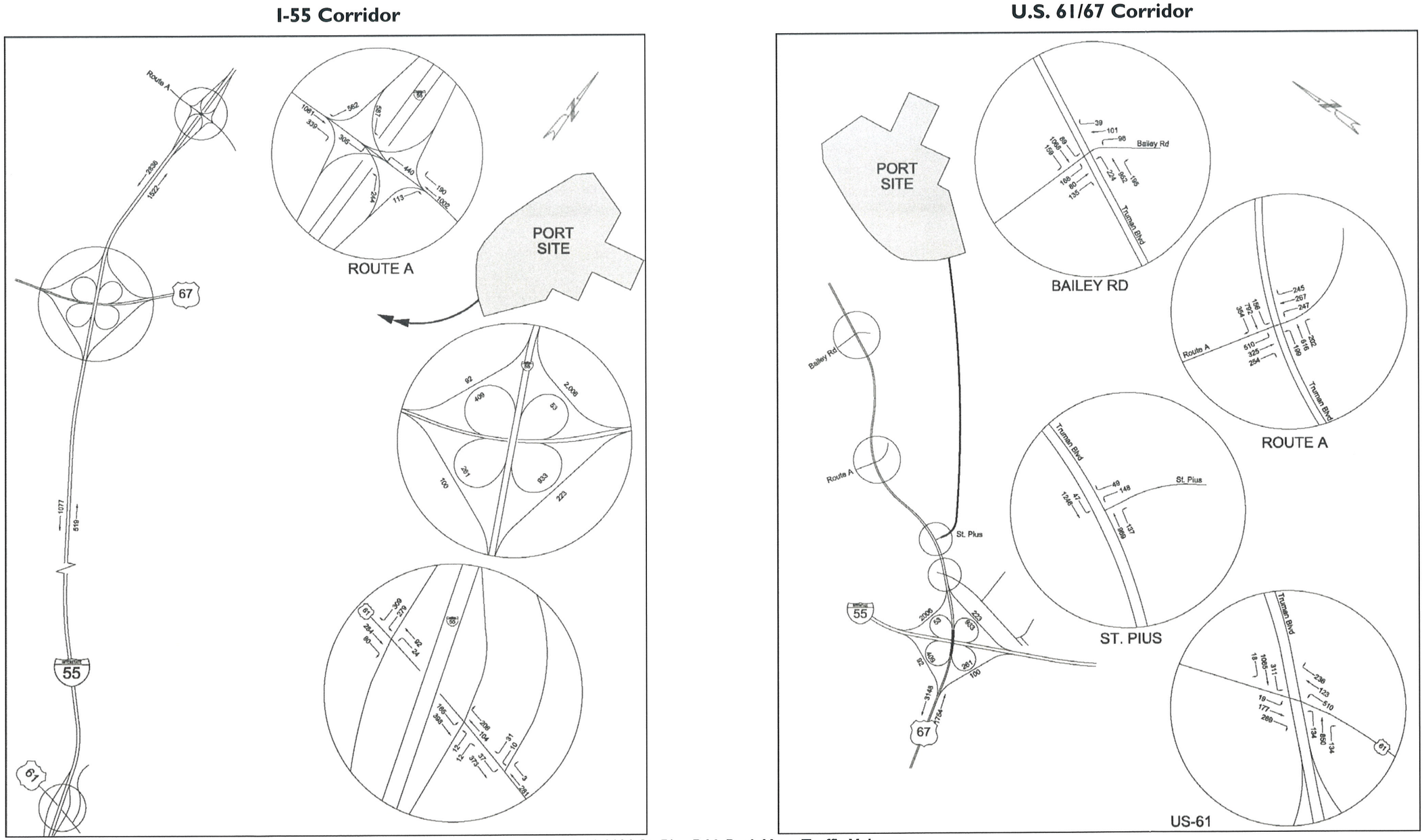


Exhibit 7-12 2030 St. Pius P.M. Peak Hour Traffic Volumes

The intersection analysis results of the No Build alternatives revealed that although some intersection improvements would be necessary at the Route A and U.S. 61 intersections with U.S. 67, the Port traffic and background traffic growth could be accommodated.

The freeway segment capacity analysis results for the No Build scenarios are summarized in ***Exhibit 7-13***. Note that the Bailey Road and Route A alignments would result in the same traffic distributions onto I-55 and therefore both scenarios have the same results. All of these scenarios considered the existing freeway network without additional improvements.

Exhibit 7-13
HCS+ Freeway Segment Capacity Analysis Results
Future 2030 No Build Alternatives

Segment Location	A.M. Peak Hour				P.M. Peak Hour			
	Bailey / Route A		St. Pius		Bailey / Route A		St. Pius	
	Density	LOS	Density	LOS	Density	LOS	Density	LOS
Northbound I-55								
U.S. 61 Merge	16.0	B	16.0	A	16.0	B	7.3	A
b/w U.S. 61 and U.S. 67	13.1	B	13.1	B	4.9	A	4.9	A
U.S. 67 Diverge	12.1	B	3.0	A	12.1	B	3.0	A
U.S. 67 Weave	39.3	E	40.1	E	16.3	B	16.3	B
U.S. 67 Merge	30.0	D	30.7	D	15.9	B	16.5	B
b/w U.S. 67 and Route A	17.2	B	29.1	D	14.3	B	14.9	B
Route A Diverge	25.7	C	26.6	C	14.6	B	15.3	B
Southbound I-55								
U.S. 61 Diverge	0.9	A	0.9	A	0.9	A	5.8	A
b/w U.S. 61 and U.S. 67	3.8	A	3.8	A	10.1	A	10.1	A
U.S. 67 Merge	6.2	A	13.7	B	6.2	A	13.7	B
U.S. 67 Weave	5.4	A	6.5	A	10.2	B	11.1	B
U.S. 67 Diverge	6.7	A	7.4	A	8.8	F	9.5	F
b/w U.S. 67 and Route A	10.9	A	11.5	B	26.9	D	27.7	D
Route A Merge	13.4	B	14.1	B	29.5	D	30.1	D

The analysis results reveal that the Northbound I-55 weaving segment at the U.S. 67 interchange is expected to operate near capacity at an LOS E under all three alternatives. Similarly, the Southbound I-55 diverge segment to Westbound U.S. 67 is expected to operate with a LOS F during the P.M. peak hour. Though the addition of Port traffic would contribute to these conditions, they are expected with or without the Port as traffic increases through the design year. Some type of interchange improvements are likely going to be needed at the I-55 and U.S. 67 interchange regardless of what alternative is selected or even if the Port is not built.

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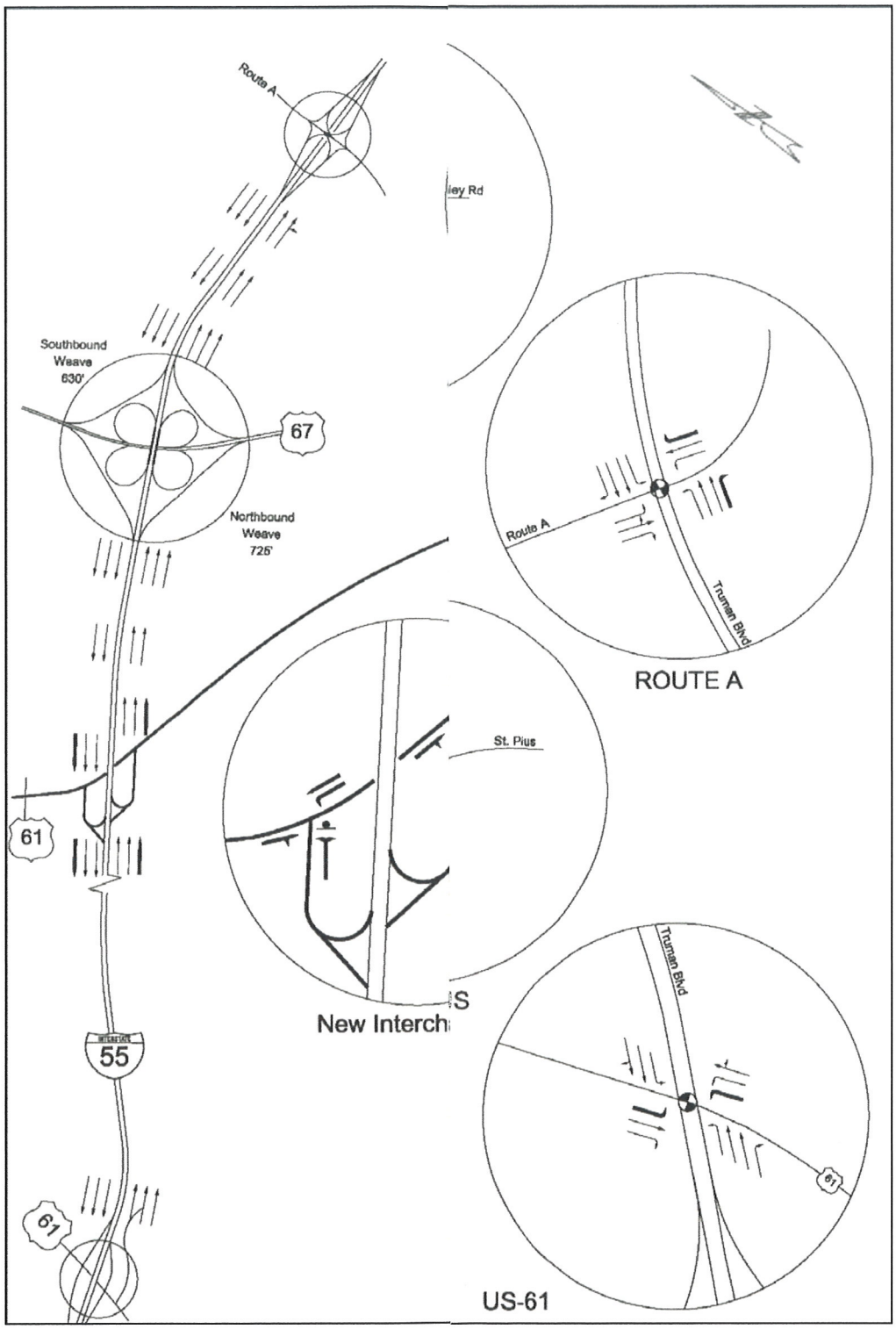
Route A
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Weave
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Northbound
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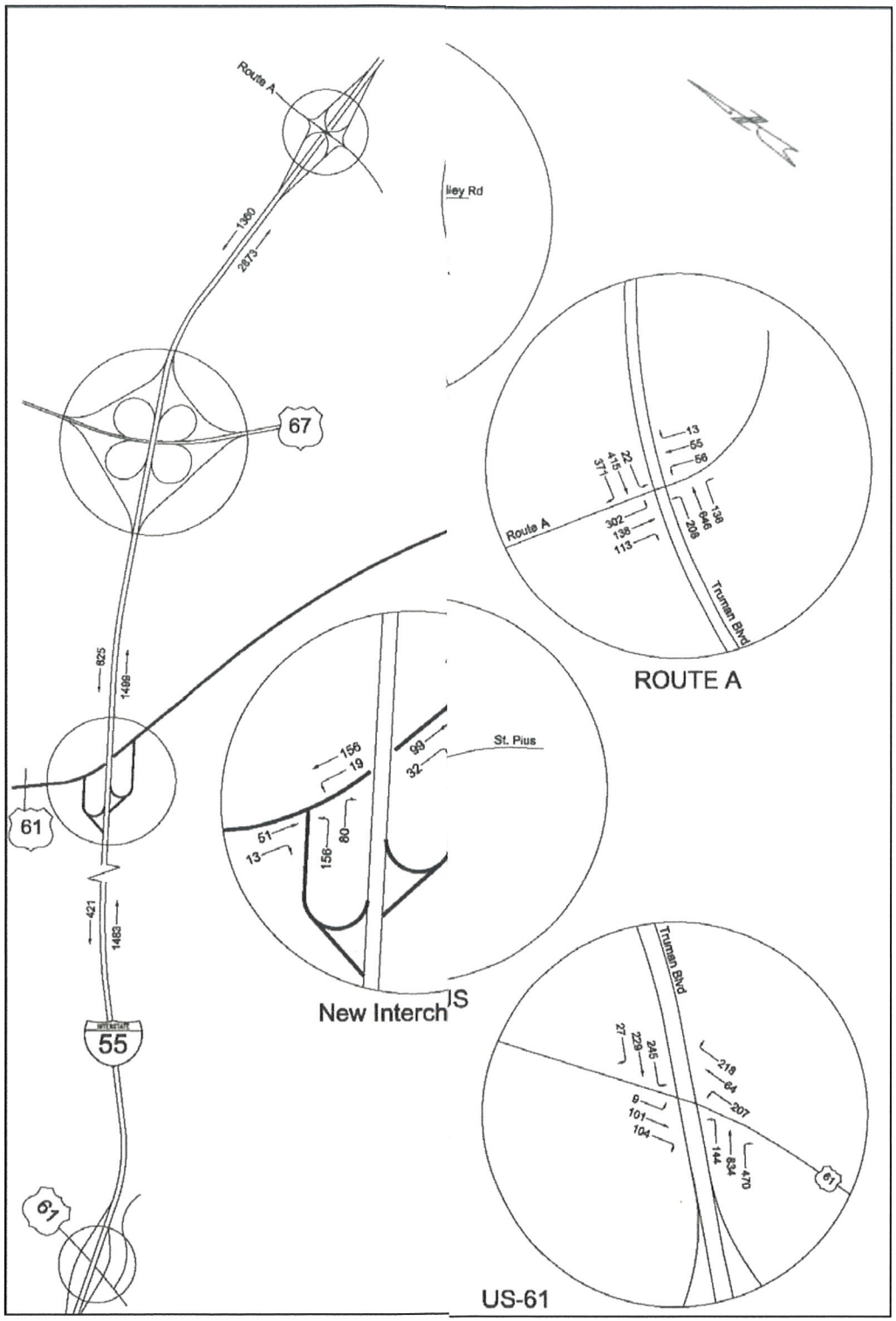
Route A
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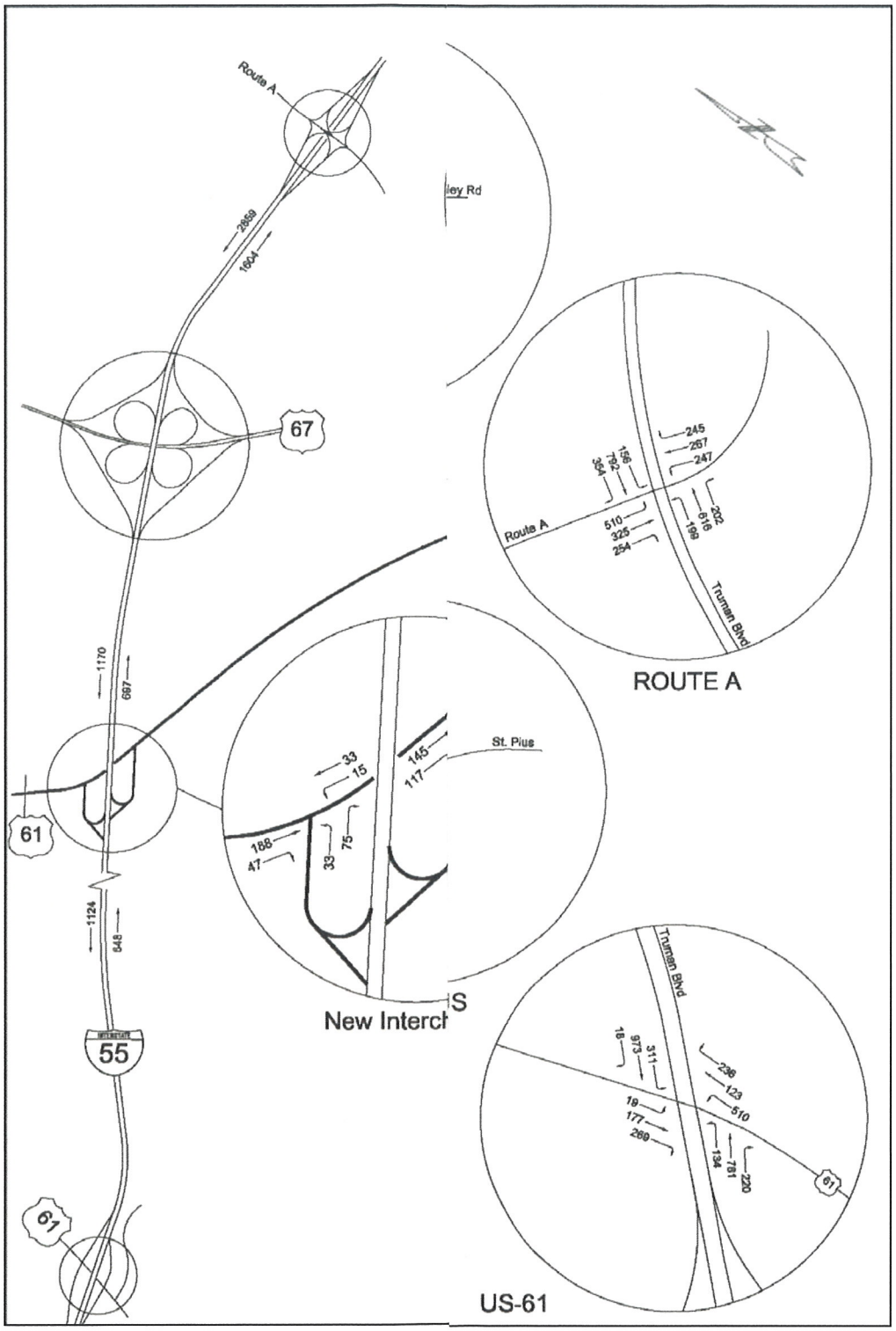
Route A
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Route A
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202
616
199
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ROUTE A
33
15
145
117
St. Pius
188
47
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973
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228
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510
19
177
269
134
781
220
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US-61

In anticipation of additional development that may occur in the vicinity of the new interchange if built, the Build alternative analyses considered some additional traffic growth. Traffic generation estimates were prepared assuming approximately 50 acres of industrial development would be developed west of I-55 near U.S. 61 where the new Port roadway would be connected. The projected development resulted in approximately 376 additional trips in the A.M. peak hour and 301 trips in the P.M. peak hour. The traffic was assigned considering 50% to and from the north on I-55, 20% to and from the south on I-55, and 30% to and from the Port.

Exhibit 7-17
Synchro Intersection Capacity Analysis Results
Future 2030 Build Alternative (New I-55 Interchange)

Intersection / Approach/Movement	A.M. Peak Hour LOS	A.M. Peak Hour Delay	P.M. Peak Hour LOS	P.M. Peak Hour Delay
Route A and I-55				
Signalized (All Movements)	C	25.3	C	34.3
U.S. 61/67 and Bailey Avenue				
Signalized (All Movements)	B	18.0	C	34.7
U.S. 61/67 and Route A				
Signalized (All Movements)	C	33.4	E	55.0
U.S. 61/67 and St. Pius Drive				
Signalized (All Movements)	B	13.7	A	6.8
U.S. 67 and U.S. 61				
Signalized (All Movements)	D	38.8	D	45.8
Port Access Road and Southbound I-55 Ramps				
Westbound Left-turn	A	1.0	A	2.9
Northbound	B	14.5	B	12.2
Port Access Road and Northbound I-55 Ramps				
Westbound Left-turn	A	4.4	A	6.6
Northbound	B	15.0	B	12.3

The Build alternative results are similar to the No Build analyses even with the additional development traffic considered. The intersection of Route A and U.S. 61/67 is expected to operate right at the LOS D/E threshold with the lane improvements considered. Adding a westbound right-turn lane like most of the No Build alternatives, would improve operations to within LOS D criteria.

The freeway segment capacity analysis results for the Build scenario are summarized in ***Exhibit 7-18***. This scenario considered a partial cloverleaf interchange concept for the new I-55 interchange between U.S. 67 and U.S. 61. Both diverging ramps were considered to have a 300 foot taped lane. Both merges were considered to have 500 foot acceleration lanes.

Exhibit 7-18
HCS+ Freeway Segment Capacity Analysis Results
Future 2030 Build Alternative

Segment Location	A.M. Peak Hour		P.M. Peak Hour	
	Density	LOS	Density	LOS
Northbound I-55				
U.S. 61 Merge	17.2	B	9.4	A
b/w U.S. 61 and New Interchange	15.4	B	6.7	A
New Interchange Diverge	19.0	B	9.3	A
b/w New Interchange Ramps	14.6	B	6.4	A
New Interchange Merge	19.0	B	10.0	B
b/w New Interchange and U.S. 67	14.1	B	6.6	A
U.S. 67 Diverge	13.7	B	5.4	A
U.S. 67 Weave	42.2	E	19.1	B
U.S. 67 Merge	31.0	D	17.4	B
b/w U.S. 67 and Route A	29.5	D	15.7	B
Route A Diverge	26.9	C	16.3	B
Southbound I-55				
U.S. 61 Merge	3.6	A	7.0	A
b/w New Interchange and U.S. 61	4.1	A	11.0	A
New Interchange Merge	7.0	A	14.9	B
b/w New Interchange Ramps	3.8	A	10.3	A
New Interchange Diverge	6.4	A	14.7	B
b/w U.S. 67 and New Interchange	3.8	A	11.7	B
U.S. 67 Merge	8.5	A	14.7	B
U.S. 67 Weave	5.4	A	10.7	B
U.S. 67 Diverge	8.7	A	9.7	F
b/w Route A and U.S. 67	12.5	B	12.5	B
Route A Merge	15.3	B	30.3	D

The analysis shows that the freeway operations under the Build scenario are expected to be similar to the No Build alternatives. The Southbound I-55 weaving segment with U.S. 67 is expected to operate at LOS E during the A.M. peak hour and the Southbound I-55 Diverge to U.S. 67 is expected to operate at LOS F.

Safety Considerations of Alternatives
Based upon recent crash data provided by MoDOT and as described under the Existing Conditions Section, the segment of U.S. 61/67 in the vicinity of the project has experienced a higher average crash rate than similar facilities throughout the State of Missouri over the last several years. Adding trucks from the Port site would likely have additional negative impacts. The build alternative would likely provide a safety benefit to U.S. 61/67 by keeping additional trucks off of the busy commercial corridor.

Conceptual Signing Plan
A conceptual signing plan for the build alternative has been prepared and is illustrated on ***Exhibits 7-19A*** through ***7-19D***. The plan considered the conceptual configuration of a partial cloverleaf.

7.2 Compliance with Policies and Engineering Standards

FHWA AJR Policy Point 4: Access Connections and Design

"The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access for managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d))."

The proposed interchange is anticipated to connect to the public road system and provide all traffic movements. The modifications will be designed in accordance with the MoDOT Engineering Policy Guide and the guidelines presented in the most current edition of *A Policy on Geometric Design of Highways and Streets*, published by the American Association of State Highway and Transportation Officials (AASHTO).

7.3 Conformance with Transportation Plans

FHWA AJR Policy Point 5: Transportation and Land Use Plan Compliance

"The proposal considers and is consistent with local and regional land use and transportation plans. Prior to receiving final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Improvement Program (STIP or TIP), and the Congestion Management Process within transportation management areas, as appropriate, and as specified in 23 CFR part 450, and the transportation conformity requirements of 40 CFR parts 51 and 93."

The Build alternative is consistent with the Crystal City Comprehensive Plan in that it provides a route separate form U.S. 61/67 for trucks to access I-55 from not only the Port, but also the surrounding industrial areas. However, the project is not included in the STIP or TIP at this time.

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SCALE FEET
1" = 200'

LEGEND

EXIT — PROPOSED SIGN

EXIT — EXISTING SIGN

EXIT — REMOVE EXISTING SIGN

113

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

TranSystems
STREET ADDRESS LINE 1
STREET ADDRESS LINE 2
CITY-STATE-ZIP
PHONE:
FAX:

CONSULTANTS:

I-55 SIGNING
JEFFERSON COUNTY
MISSOURI

REVISIONS:

MARK	DATE	DESCRIPTION

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DATE: 11/1/2010
DESIGNED BY: TTG
DRAWN BY: TTG
CHECKED BY: DLE

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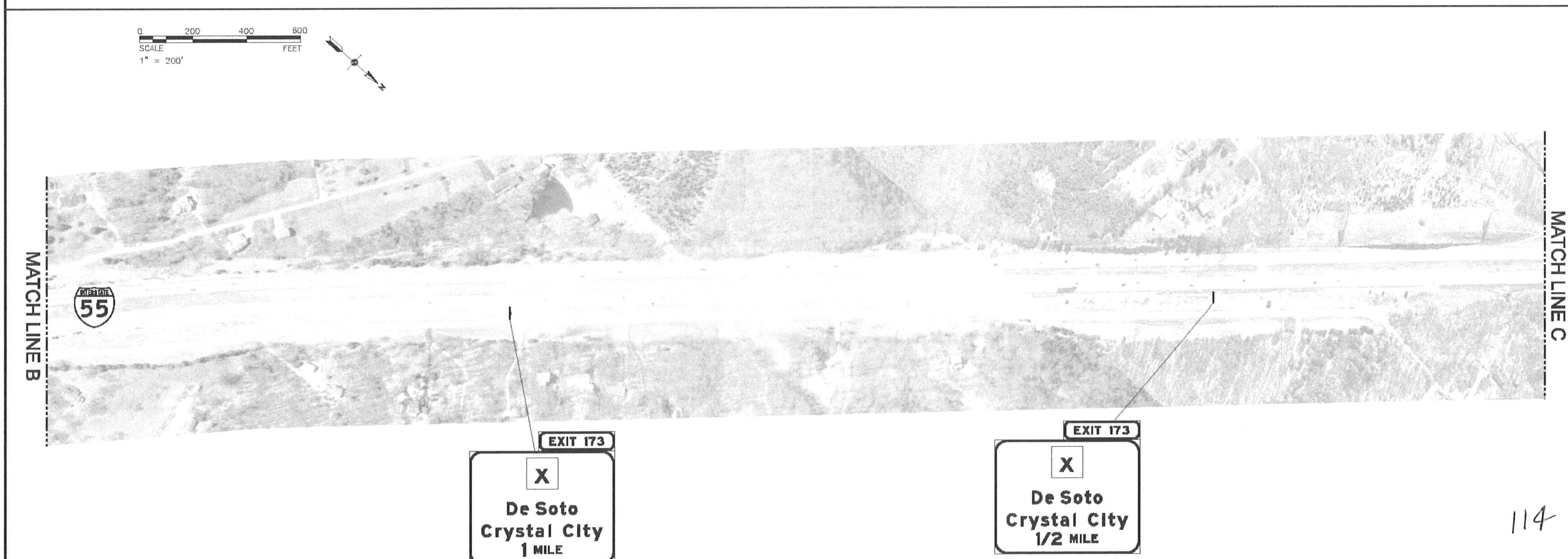
CONCEPT SIGNING PLAN

SHEET NO.
Exhibit 7-19A



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STREET ADDRESS LINE 1
STREET ADDRESS LINE 2
CITY-STATE-ZIP
PHONE:
FAX:

CONSULTANTS:

I-55 SIGNING

JEFFERSON COUNTY
MISSOURI

REVISIONS:

MARK	DATE	DESCRIPTION

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DATE: 11/1/2010
DESIGNED BY: TTG
DRAWN BY: TTG
CHECKED BY: DLE

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CONCEPT SIGNING PLAN

SHEET NO.

Exhibit 7-19B

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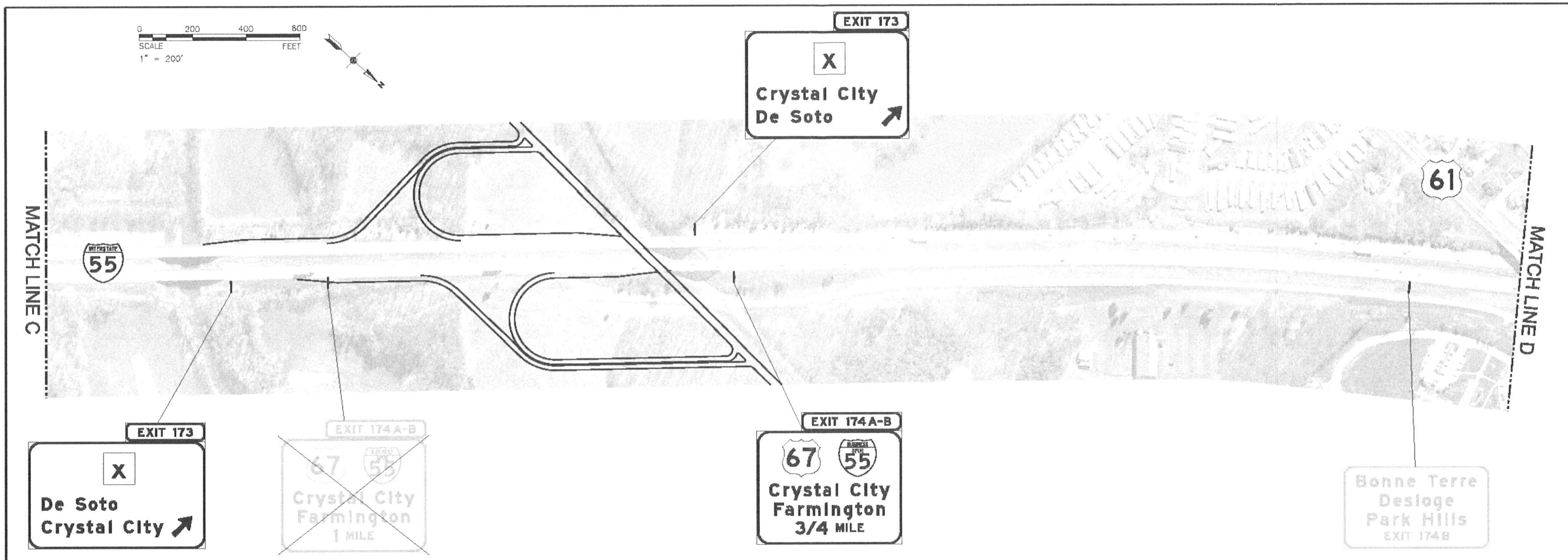

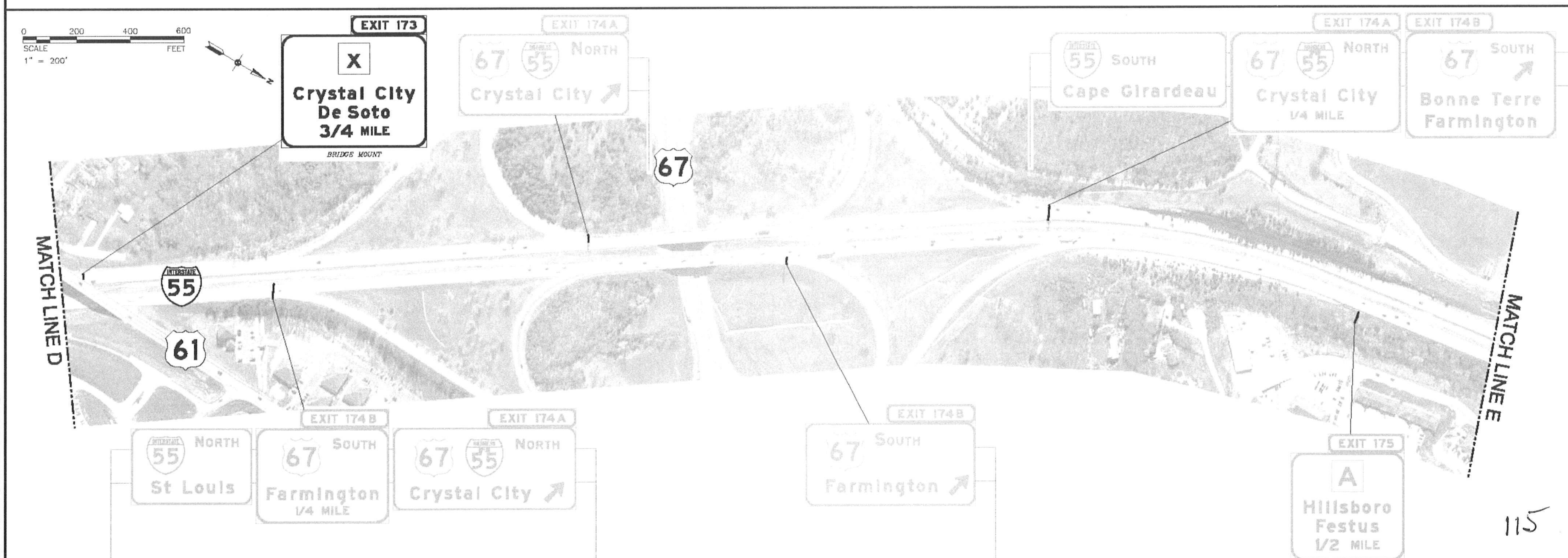

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TranSystems

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PHONE:
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CONSULTANTS:

I-55 SIGNING

JEFFERSON COUNTY
MISSOURI

REVISIONS:

MARK	DATE	DESCRIPTION

PROJ NO: P104100002
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DATE: 11/1/2010
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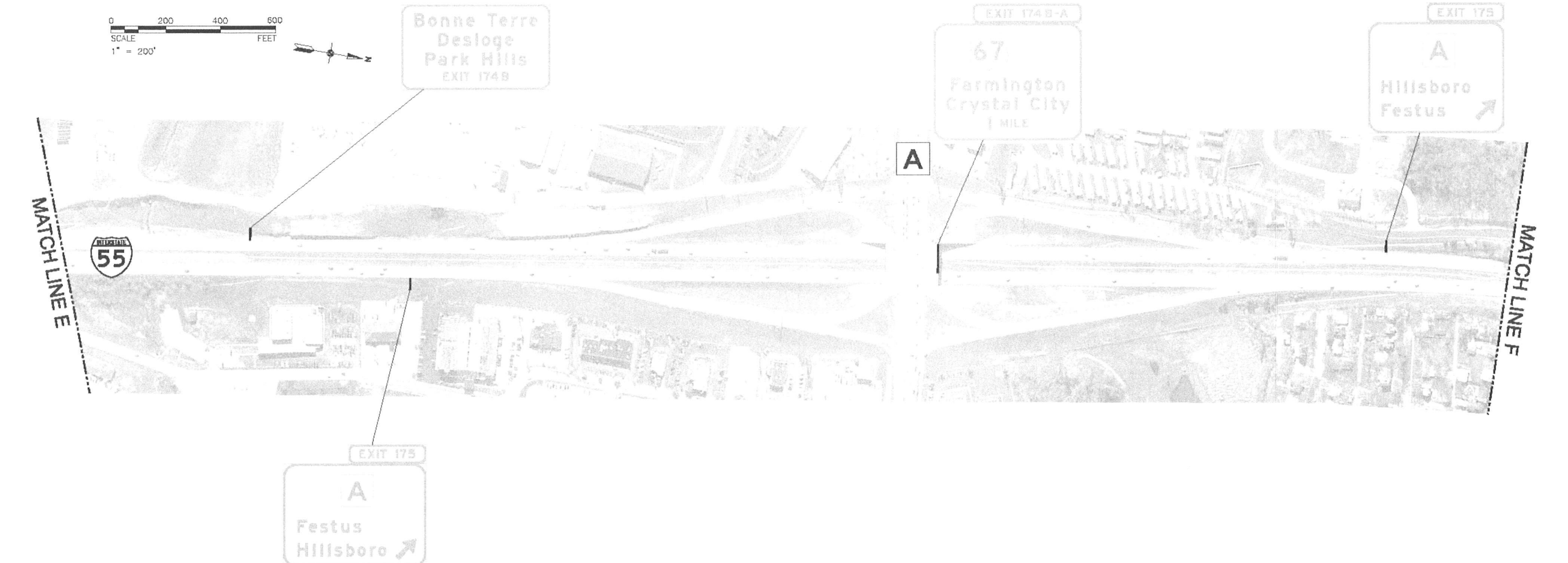
DRAWN BY: TTG
CHECKED BY: DLE

SHEET TITLE:

CONCEPT SIGNING PLAN

SHEET NO.

Exhibit 7-19C



116

Tran Systems

STREET ADDRESS LINE 1
STREET ADDRESS LINE 2
CITY-STATE-ZIP
PHONE:
FAX:

CONSULTANTS:

I-55 SIGNING
JEFFERSON COUNTY
MISSOURI

REVISIONS: MARK	DATE	DESCRIPTION

PROJ NO: P104100002
SCALE: 1" = 200'
DATE: 11/1/2010
DESIGNED BY: TTG
DRAWN BY: TTG
CHECKED BY: DLE

SHEET TITLE:

CONCEPT SIGNING PLAN

SHEET NO.

Exhibit 7-19D

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

7.4 Coordination

FHWA AJR Policy Point 6: Comprehensive Interstate Network Study

"In corridors where the potential exists for future multiple interchange additions, a comprehensive corridor or network study must accompany all requests for new or revised access with recommendations that address all of the proposed and desired access changes within the context of a longer-range system or network plan (23 U.S.C. 109(d), 23 CFR 625.2(a), 655.603(d), and 771.111)."

There are no other interchanges being planned for in the vicinity of the proposed interchange at this time.

FHWA AJR Policy Point 7: Coordination with Transportation System Improvements

"When a new or revised access point is due to a new, expanded, or substantial change in current or planned future development or land use, requests must demonstrate appropriate coordination has occurred between the development and any proposed transportation system improvements (23 CFR 625.2(a) and 655.603(d)). The request must describe the commitments agreed upon to assure adequate collection and dispersion of the traffic resulting from the development with the adjoining local street network and Interstate access point (23 CFR 625.2(a) and 655.603(d))."

The project is tied to the Port development project that is still in the planning stages. Port traffic would be collected and dispersed on a single roadway. Coordination is anticipated in future stages of the project after funding is identified.

7.5 Environmental Impacts

FHWA AJR Policy Point 8: Planning and NEPA Process

"The proposal can be expected to be included as an alternative in the required environmental evaluation, review and processing. The proposal should include supporting information and current status of the environmental processing (23 CFR 771.111)."

A preliminary environmental assessment (pEA) performed alongside this preliminary AJR (pAJR) is included in this document. Both the draft pEA and this draft pAJR were prepared as precursors to the formal Environmental Assessment and AJR that will need to be conducted after the project moves through the next stages.

7.6 Summary Evaluation

The capacity analyses showed that all of the alternatives would have potential impacts to traffic operations. Some of that need comes from the projected background traffic as well as the Port traffic.

The Bailey Road alternative would likely require the extension of turn lanes at the intersection of Bailey Road and U.S. 61/67, particularly on the westbound approach. This may be impractical with the existing character of this historic street and adjacent buildings.

The Route A alternative would require a second westbound left-turn lane, which would be in addition to the improvements required for all of the other alternatives at this location. Improvements needed for this scenario would also require acquisition of developed community properties adjacent to U.S. 61/67 and would also have impacts to established businesses like WalMart.

The St. Pius alternative would reduce impacts to the Route A and U.S. 61/67 intersection compared to the other No Build alternatives, but would have the same impacts to the U.S. 61 and U.S. 67 intersection. In addition to adding truck traffic onto the U.S. 61/67 corridor, this alternative would add truck traffic to St. Pius Drive which goes past St. Pius X High School.

The New Interchange alternative would reduce the need for some turn lane improvements at the U.S. 61/67 study intersections with U.S. 61 and Route A. The new interchange is expected to adequately serve the Port traffic and additional potential development traffic in the area without significant adverse effects to I-55. In addition, this alternative would provide Crystal City with a means to separate truck traffic from U.S. 61/67 from the Port and potentially other area industrial sites.

Based on all of the considerations, access could be provided via the existing local street system; however, improvements would be required and there would also be potential negative operational and safety impacts to established historic neighborhoods along Bailey Road, established commercial and community developments near the Route A and U.S. 61/67 intersection, and the St. Pius X High School on St. Pius Drive. A new interchange however, would provide a means for Port traffic and traffic from other industrial developments in the area to get to and from I-55 safely and efficiently. A conceptual sketch of the interchange is included below in ***Exhibit 7-21***.

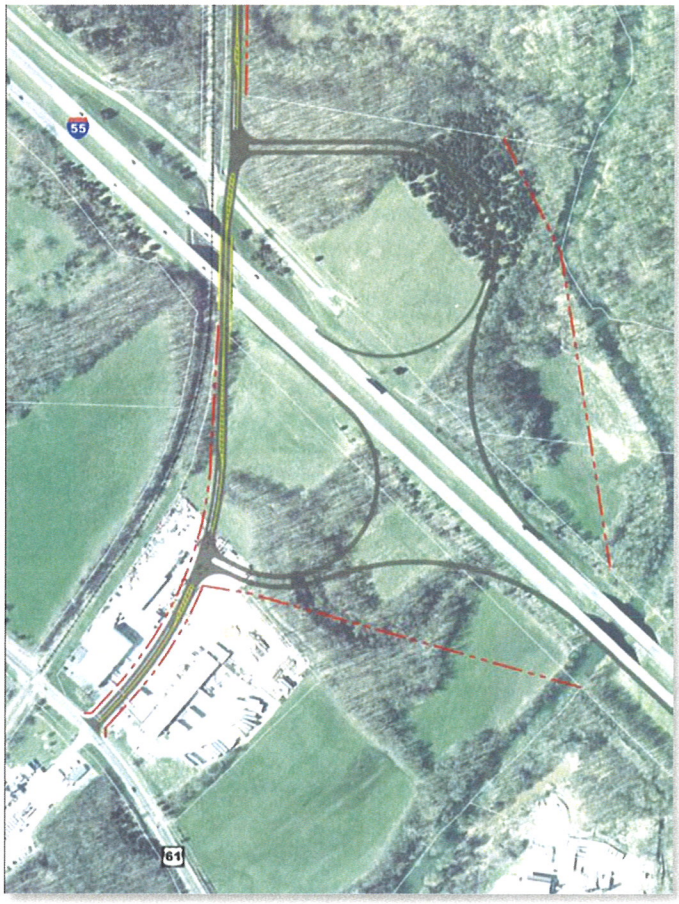


Exhibit 7-21 New I-55 Interchange Concept Sketch

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Section 8: Funding Plan

At this time there are no funds identified to build this project. Sources for funding will be sought in the next stages of the project.

Section 9: Summary and Recommendations

The region is well served by the interstate and arterial network, though they are often parallel to each other because of the physical influence of the Mississippi River. The region has also been shaped by the location of the railroads serving both natural geologic features such as mining and provides a multimodal transfer to both water and roads. Access to the Port site is limited and prior industrial development (PPG) caused community concerns with truck traffic through long-standing residential neighborhoods. With new and/or redevelopment of the river area, the community seeks to separate truck traffic from residential areas as well as commercial strips. Consequently the Port access road locations explore new routes to access the interstate system which is where the majority of port traffic is destined for distribution.

The capacity analyses of this study showed that all of the No Build and Build alternatives would have potential impacts to traffic operations. Some of the impact would be due to projected background traffic as well as the projected Port traffic.

The Bailey Road alternative would likely require the extension of turn lanes at the intersection of Bailey Road and U.S. 61/67, particularly on the westbound approach. This may be impractical with the existing character of this historic street and adjacent buildings.

The Route A alternative would require a second westbound left-turn lane, which would be in addition to the improvements required for all of the other alternatives at this location. Improvements needed for this scenario would also require acquisition of developed community properties adjacent to U.S. 61/67 and would also have impacts to established businesses like WalMart.

The St. Pius alternative would reduce impacts to the Route A and U.S. 61/67 intersection compared to the other No Build alternatives, but would have the same impacts to the U.S. 61 and U.S. 67 intersection. In addition to adding truck traffic onto the U.S. 61/67 corridor, this alternative would add truck traffic to St. Pius Drive which goes past St. Pius X High School.

The New Interchange alternative would reduce the need for some turn lane improvements at the U.S. 61/67 study intersections with U.S. 61 and Route A. The new interchange is expected to adequately serve the Port traffic and additional potential development traffic in the area without significant adverse effects to I-55. In addition, this alternative would provide Crystal City with a means to separate truck traffic from U.S. 61/67 from the Port and potentially other area industrial sites.

Based on all of the considerations, access could be provided via the existing local street system; however, improvements would be required and there would also be potential negative operational and safety impacts to established historic neighborhoods along Bailey Road, established commercial and community developments near the Route A and U.S. 61/67 intersection, and the St. Pius X High School on St. Pius Drive. A new interchange however, would provide a means for Port traffic and traffic from other industrial developments in the area to get to and from I-55 safely and efficiently.