# CHAPTER I
# Purpose and Need for Action

The Missouri Department of Transportation (MoDOT) and the Federal Highway Administration (FHWA) are proposing to reconstruct the existing Interstate 64/U.S. 40 facility with new interchange configurations, bridges and roadways in St. Louis County and the city of St. Louis. The proposed project begins on I-64 west of Spoede Road in St. Louis County and continues east to west of Sarah Street in the city of St. Louis and on I-170 from south of Brentwood Boulevard to Eager Road. The project length on I-64 is 10.9 miles (17.5 kilometers) and on I-170 is 0.8 miles (1.3 kilometers). The proposed action includes adding through lane capacity on I-64 between I-170 and Spoede Road. It is intended that the reconstructed facility will meet current interstate standards. This proposed action is referred to as "The New I-64."

This chapter of the Environmental Impact Statement (EIS) provides a description of the proposed action, the transportation-related problems that are to be addressed by the proposed improvements and the purpose and need for the project.

## A. Project Description

### 1. PROJECT TERMINI / SECTIONS OF INDEPENDENT UTILITY

Interstate 64 is an east-west highway centrally located in the St. Louis metropolitan area. Interstate 64 extends 945 miles (1,520 kilometers) from the Daniel Boone Bridge over the Missouri River between St. Charles County and St. Louis County to Portsmouth, Virginia, at I-264, passing through the cities of St Louis, MO; Louisville, KY; Lexington, KY; Huntington, WV; Charleston, WV; Richmond, VA; and Norfolk, VA. Interstate connections in the St. Louis region are provided at I-270, I-170, I-70, I-55, I-44 and I-255.

The location of I-64 within the St. Louis region is shown in Figure I-1, Project Location Map. Interstate 64 is an important east-west connection through St. Louis providing a primary means for roadway travel from downtown St. Louis, Missouri, to the western limits of St. Louis County, Missouri. Interstates 44, 64 and 70 are the continuous east-west routes in the central part of the St. Louis metropolitan region.

The project termini are located in St. Louis County and the city of St. Louis, Missouri (see Exhibit I-1). The project begins approximately 4,900 feet (1,490 meters) west of Spoede Road in St. Louis County and continues east for approximately 10.9 miles (17.5 kilometers) to west of Sarah Street in the city of St. Louis. The study corridor also includes improvements on a 0.8 mile (1.3 kilometers) section of I-170 between Brentwood Boulevard and Eager Road.

The proposed action has logical termini and independent utility. The proposed action would extend from the section of I-64 located west of Spoede Road that was reconstructed and widened as part of the reconstruction of the I-270/I-64 interchange. West of Spoede Road, I-64 is eight lanes. The proposed action would provide consistency in through-lanes between I-170 and I-270. The eastern terminal, west of Sarah Street, of the proposed action is located immediately east of an elevated section of I-64 where westbound traffic lanes are located on structures directly above the eastbound traffic lanes. At this location, I-64 transitions from eight to six lanes, as a lane is added westbound and dropped eastbound to make a direct ramp connection with Chouteau Avenue. The number of lanes between I-170 and downtown St. Louis would not change from what currently exists, and improvements within the project limits would not require or restrict improvements to other portions of I-64. The section of I-170 under study as part of this EIS includes only the portion of I-170 that is part of the I-64/I-170 system interchange.


**Figure I-1**
**Project Location Map**

## 2. DESCRIPTION OF EXISTING I-64

Roadway characteristics of the existing I-64 are listed in Table I-1. The existing facility within the study corridor is generally a six-lane facility, with three lanes of travel in each direction from Spoede Road to McCausland Avenue and an eight-lane facility, with four lanes of travel in each direction from McCausland Avenue to Sarah Street. The western section of the study corridor was built in the late 1930s and early 1940s. The eastern section of I-64 was rebuilt in the late 1950s and early 1960s.

**Table I-1**
**Description of Existing Facility**

| Beginning Description | Log Mile[1] | Section Length (mi.) | Number of Lanes* | Inside/Outside Shoulder Width (ft) | Surface Type[2] | Date Built[3] | Surface Date |
|---|---|---|---|---|---|---|---|
| **I-64 Eastbound** | | | | | | | |
| SPOEDE | 14.55 | 0.53 | 3 | 2/8 | AC | 1938 | 4/1/1999 |
| LINDBERGH | 15.08 | 0.57 | 3 | 2/8 | AC | 1942 | 4/1/1999 |
| CLAYTON/WARSON | 15.65 | 1.90 | 3 | 4/10 | OA | 1942 | 4/1/1999 |
| McKNIGHT | 17.55 | 0.90 | 3 | 4/10 | AC | 1946 | 4/1/1999 |
| BRENTWOOD | 18.45 | 0.62 | 3 | 1.5/8 | AC | 1946 | 4/1/1999 |
| HANLEY | 19.07 | 0.82 | 3 | 1.5/8 | AC | 1959 | 4/1/1999 |
| BIG BEND | 19.89 | 0.59 | 3 | 1.5/8 | AC | 1959 | 4/1/1999 |
| ST. LOUIS CITY LIMIT | 20.48 | 0.15 | 3 | 1.5/8 | AC | 1959 | 4/1/1999 |
| McCAUSLAND | 20.63 | 1.14 | 3 | 1.5/8 | AC | 1959 | 4/1/1999 |
| HAMPTON | 21.77 | 1.17 | 4 | 6/10 | PCN | 1964 | 4/1/1999 |
| KINGSHIGHWAY | 22.94 | 0.89 | 4 | 6/10 | PCN | 1964 | 4/1/1999 |
| **I-64 Westbound** | | | | | | | |
| KINGSHIGHWAY | 22.94 | 0.89 | 4 | 6/10 | AC | 1964 | 4/1/1999 |
| HAMPTON | 21.77 | 1.17 | 4 | 6/10 | AC | 1964 | 4/1/1999 |
| McCAUSLAND | 20.63 | 1.14 | 4 | 1.5/8 | AC | 1959 | 4/1/1999 |
| ST. LOUIS CITY LIMIT | 20.48 | 0.15 | 3 | 1.5/8 | AC | 1959 | 4/1/1999 |
| BIG BEND | 19.89 | 0.59 | 3 | 1.5/8 | AC | 1959 | 4/1/1999 |
| HANLEY | 19.07 | 0.82 | 3 | 1.5/8 | AC | 1959 | 4/1/1999 |
| BRENTWOOD | 18.45 | 0.62 | 3 | 1.5/8 | AC | 1946 | 4/1/1999 |
| McKNIGHT | 17.55 | 0.90 | 3 | 4/10 | AC | 1946 | 4/1/1999 |
| CLAYTON | 15.65 | 1.90 | 3 | 4/10 | AC | 1942 | 4/1/1999 |
| LINDBERGH | 15.08 | 0.57 | 3 | 2/8 | AC | 1942 | 4/1/1999 |
| SPOEDE | 14.55 | 0.53 | 3 | 2/8 | AC | 1938 | 4/1/1999 |
| **I-170 N** | | | | | | | |
| BRENTWOOD | 10.36 | 0.80 | 3 | 2/10 | AC | 1964 | 6/1/1996 |
| **I-170 S** | | | | | | | |
| BRENTWOOD | 10.36 | 0.80 | 3 | 2/10 | AC | 1964 | 6/1/1996 |

*All lanes are 12' wide.
1. Log Mile: I-64 EB and I-64 WB log miles represent the distance as determined from St. Charles County Line (CL of Missouri River). I-170 NB and I-170 SB log miles represent the distance as determined from the I-170/I-270 interchange north of the study corridor.
2. AC = Asphalt Concrete; OA = Oil Aggregate; PCN = Portland Cement Concrete
3. Approximate year that vertical alignment was originally constructed.

Source: Missouri Department of Transportation, 2001.

A typical section includes three lanes of traffic in either direction with 8- to 10-foot (2.4- to 3.0-meter) outside shoulders and 1 ½ to 6 foot (0.5 to 1.8 meter) inside shoulders. In some areas, there are 12-foot (3.7-meter) wide acceleration and deceleration lanes. There is also a 6-inch (15-centimeter) mountable curb on the outside of the shoulders. The pavement consists of 9-inch (23-centimeter) reinforced concrete, with a 4-inch (10-centimeter) compacted granular base. The median width varies from 5 feet (1.5 meters) to 14 feet (4.3 meters). The condition of the pavement surface is primarily good due to a surface overlay in 1999. Various stages of

pavement deterioration were observed in the previous surface overlays, including raveling, stripping, shoving, rutting, patch deterioration and wide surface cracks both longitudinal and transverse extending into the underlying asphaltic concrete lifts. The concrete pavement and base have also been found to be in very poor condition. When the top surface was removed for the resurfacing in 1999, many joint problems were discovered. The joints were saw cut for replacement and the underlying concrete was so deteriorated in some areas it had to be shoveled out. These problems were particularly critical at Kingshighway Boulevard and Lindbergh Boulevard. Due to the poor concrete and base conditions, the overlay performed on I-64 in 1999 is expected to extend the life of the pavement five to ten years before rutting, stripping and cracking begins to appear again on the surface.

The existing right-of-way (R/W) along this corridor is fully access controlled with a minimum width of 140 feet (42.7 meters). There is a railroad crossing just east of I-170 that crosses under I-64 and will become active when MetroLink, St. Louis's regional light rail transit system, opens and uses the tracks.

There are 39 bridges and four box culverts in the study corridor. Table I-2 illustrates the bridge number, location, type, length, width, year built, field rating and a MoDOT priority rating. A few of the bridges on the western end were built in the late 1930s and early 1940s. The rest of the bridges were rebuilt in the 1950s and 1960s. Bridges are typically designed to last 50 years. Most bridges in the study corridor are either greater than or nearing 50 years old. The bridges do not meet today's standards for shoulder widths. The bridges over I-64 have less than the current standard of 16'-6" (5.0 meters) clearance. The majority of I-64 bridges over cross streets have less than the current standard of 15'-6" (4.7 meters) clearance for a major cross street or 15'-2" (4.6 meters) clearance for a minor cross street. Despite the 1999 resurfacing project, potholes are already appearing on the I-64 bridges over local streets.

Bridge decks typically are the first part of a bridge to show signs of deterioration. More than half the bridge decks and superstructures in the study corridor need to be replaced. Many of the structure types are slabs or box beams, which mean the deck and superstructure are joined together. The cost of replacing the deck and superstructure, repairing the substructure and retrofitting for earthquake standards is estimated to be equivalent to, or exceed the cost of, replacing the entire structure.

The pavement and bridge inventory survey data indicates variations in pavement and bridge condition and failures in meeting today's design standards. While it may be possible to replace smaller sections of pavement and individual bridges, the proposed action involves reconstructing the entire corridor. Replacing smaller sections of pavement and individual bridges would result in higher maintenance costs and inconsistency in design standards. Reconstruction of the entire corridor provides the benefit of improved bridge and pavement condition and design standards for the entire project length.

## 3. I-64 SUBCORRIDOR DEFINITION

The corridor is divided to include three subcorridors (Figure I-2) based on the characteristics of the properties directly adjacent to the existing I-64 R/W. The Greenway, or western subcorridor, begins west of Spoede Road overpass and continues east to just west of the McCutcheon Road overpass located between the McKnight Road and Brentwood Boulevard interchanges. The Greenway Subcorridor is located entirely within St. Louis County limits. The Greenway Subcorridor is about 4.8 miles (7.7 kilometers) long and contains four interchanges: Spoede Road, Lindbergh Boulevard, Clayton Road/Warson Road and McKnight Road. The name "Greenway" was given to this subcorridor because of the many trees and green vegetation encountered while traveling this section of I-64.

The Thruway Subcorridor is located within St. Louis County with its western edge beginning at McCutcheon Road and its eastern edge terminating just east of the Bellevue Avenue interchange. The subcorridor is about 2.5 miles (4.0 kilometers) long and contains six interchanges along I-64: Brentwood Boulevard, I-170, Hanley Road, Laclede Station Road, Big Bend Boulevard, and Bellevue Avenue interchanges. A seventh interchange is at Galleria Parkway on I-170 just north of I-64. The Thruway Subcorridor was given its name because of the dense residential and commercial areas directly adjacent to the existing R/W.

**Table I-2**
**Description of Existing Bridges**

| Bridge No. | Location | Type | Length | Width | Year Built | Field Rating[1] | Priority[2] |
|---|---|---|---|---|---|---|---|
| **I-64** | | | | | | | |
| K0601R | CST SPOEDE RD | STRG | 119 | 42 | 1937 | 3-4-5 | 1 |
| K0600R2 | LINDBERGH BLVD | FRAM | 97 | 104.8 | 1940 | 6-5-6 | 4 |
| K0795R | CLAYTON RD/WARSON RD | STRG | 586 | 41.8 | 1940 | 7-7-6 | 2 |
| K0854R | CST McKNIGHT RD | FRAM | 123 | 44 | 1940 | 3-3-6 | 1 |
| K0861R | CST McCUTCHEON RD | FRAM | 124 | 44 | 1938 | 3-3-6 | 1 |
| K0912R1 | BRENTWOOD BLVD | BB | 214 | 102 | 1956 | 4-4-6 | 2 |
| A-4301R | WB CD OVER BRENTWOOD BLVD | STRG | 234 | 38 | 1981 | 7-7-8 | 4 |
| A1480R | I-170 | STRG | 221 | 48 | 1964 | 3-5-4 | 1 |
| K0911R1 | ST LOUIS TERMINAL RR | T-BM | 164 | 102 | 1956 | 3-3-5 | 1 |
| L0735R2 | CST HANLEY RD | BB | 219 | 82 | 1956 | 4-4-6 | 2 |
| L0793R1 | LACLEDE STATION RD | SLAB | 137 | 92 | 1957 | 3-3-6 | 1 |
| L0794R | CST BOLAND PLACE | FRAM | 125 | 30 | 1957 | 4-4-7 | 2 |
| L0795R1 | CLAYTONIA TERRACE | SLAB | 137 | 82 | 1957 | 3-3-7 | 1 |
| A0032 | PEDESTRIAN BRIDGE | STRG | 182 | 0 | 1957 | N/A | N/A |
| L0821R | CST BIG BEND BLVD | BB | 235 | 64 | 1957 | 5-5-5 | 4 |
| L0822R | CST HIGHLAND TERRACE | BB | 242 | 28 | 1957 | 4-4-6 | 2 |
| L0823R | CST BELLEVUE AVE | BB | 207 | 40 | 1957 | 3-3-5 | 1 |
| L0835R2 | McCAUSLAND AVE | BB | 278 | 92 | 1957 | 3-3-5 | 1 |
| L0836R | CST CLAYTON AVE | BB | 181 | 42 | 1957 | 5-5-5 | 4 |
| L0837 | CST OAKLAND AVE | BB | 238 | 52 | 1957 | 4-4-5 | 2 |
| L0838 | RP CLAYTON RD TO EB I-64 | BB | 216 | 28 | 1957 | 4-4-5 | 2 |
| K0432R | CST TAMM AVE | SLAB | 230 | 36 | 1963 | 6-6-6 | 4 |
| K0434R1 | CST HAMPTON AVE | BB | 254 | 38 | 1963 | 4-4-7 | 2 |
| K-436R | PEDESTRIAN BRIDGE | SLAB | 136 | 8 | 1963 | N/A | N/A |
| A0891R | CST KINGSHIGHWAY BLVD | BB | 231 | 48 | 1962 | 3-3-7 | 1 |
| A0892 | KINGSHIGHWAY BLVD OVER CLAYTON AVE | SLAB | 118 | 84 | 1962 | 5-5-6 | 4 |
| A0893 | KINGSHIGHWAY BLVD RP OVER CLAYTON AVE | SLAB | 118 | 48 | 1962 | 5-5-7 | 4 |
| K0592R | PEDESTRIAN BRIDGE | SLAB | 201 | 8 | 1962 | N/A | N/A |
| K0453R5 | CST TAYLOR AVE | SLAB | 146 | 36 | 1962 | 6-5-6 | 4 |
| K0465R1 | CST NEWSTEAD AVE | SLAB | 223 | 36 | 1962 | 6-6-7 | 4 |
| K0466R2 | CST TOWER GROVE AVE | BB | 150 | 36 | 1962 | 6-6-6 | 4 |
| L0668R1 | CST BOYLE AVE | SLAB | 233 | 36 | 1962 | 6-6-6 | 4 |
| L0669R | CHOUTEAU AVE RP TO WB I-64 | T-BM | 79 | 48 | 1956 | 8-8-6 | 4 |
| A3735 | EB I-64 RP OVER CHOUTEAU AVE RP | STRG | 261 | 25 | 1977 | 6-7-6 | 4 |
| **I-170** | | | | | | | |
| A2780R | CLAYTON RD | STRG | 95 | 40.8 | 1968 | 7-7-7 | 2 |
| A2779R | GALLERIA PARKWAY | STRG | 129 | 47 | 1968 | 7-8-7 | 2 |
| A2777 | PEDESTRIAN BRIDGE | GIRD | 248 | 0 | 1968 | N/A | N/A |

1 The Field Rating consists of three values—a deck condition, a superstructure condition and a substructure condition. The values range from nine, being new condition, to zero being critical condition, with a four considered to warrant immediate attention.

2 Priority: An overall priority ranking as determined by the bridge priority model. The priority model evaluates a bridge for its condition, width and load carrying capacity. The model assigns a priority with the overall priority being the lowest of the three individual rankings. An overall priority of 1 to 4 is assigned to each span type bridge where 1 is the highest priority for improvement and 4 the lowest.

3 ACRONYMS: Bridge codes: SLAB = Continuous Slab; STRG = Stringer/multi Beam or Girder; GIRD = Girder and Floorbeam; T-BM = Tee Beam; BB = Box Beam or Multi-Girder or Single Girder; FRAM = Frame; CST = City or County Cross Street; RP = Ramp.

Source: Missouri Department of Transportation, 2001.

The eastern, or Parkway Subcorridor, is about 4.4 miles (7.1 kilometers) long and contains six interchanges: McCausland Avenue, Oakland Avenue, Clayton Road/Skinker Boulevard, Hampton Avenue, Kingshighway Boulevard, and Boyle Avenue. The Parkway Subcorridor begins just east of the Bellevue Avenue interchange in St. Louis County and travels east into the city of St. Louis to the eastern end of the study corridor west of Sarah Street. The name "Parkway" was given to this subcorridor because I-64 travels through Forest Park. Nearly all of Forest Park is located north of I-64, with only a small portion, including Turtle Playground, located south of I-64.

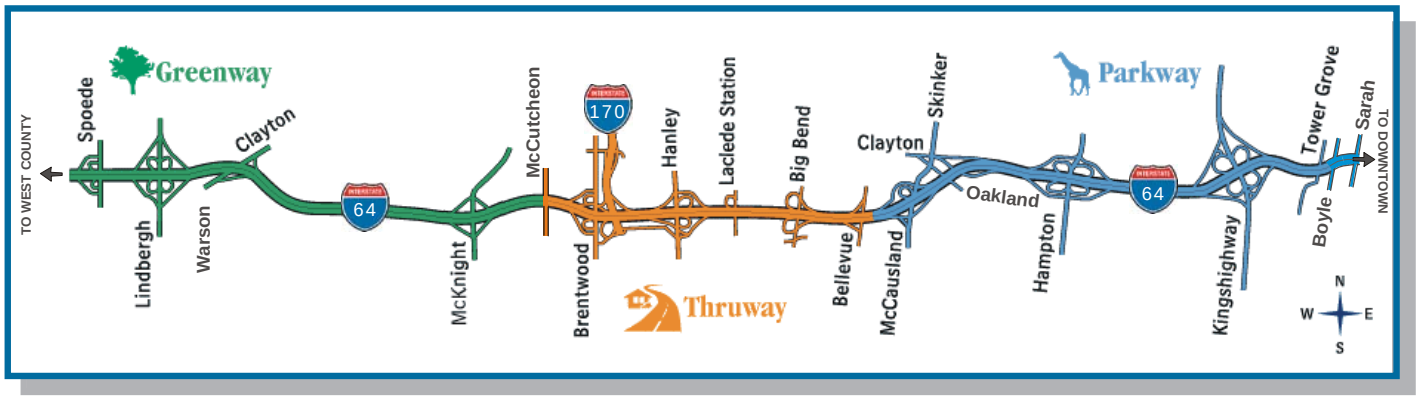



**Figure I-2 Subcorridor Definition**

## 4. MAJOR ATTRACTIONS/DESTINATIONS LOCATED WITHIN CORRIDOR

Many major attractions and destinations are located near I-64. The majority of these sites use I-64 as their main east-west transportation corridor. The major attractions and destinations located along I-64 are described in terms of their location within the three subcorridors: Greenway, Thruway and Parkway. In the Greenway Subcorridor attractions and destinations include: Shriner's Hospital, Plaza Frontenac (indoor retail shopping mall), a St. Louis County Library, Frontenac City Hall, A.G. Edwards (employment center), the Hilton Hotel and adjacent retail area, the Clayton Road / Warson Road mixed-use commercial and retail area, and the Racquet Club of Ladue (recreation facility). Local schools in the area include the Wright School, Horton Watkins High School, Conway Elementary School, and Ladue Junior High School. Other major attractions and destinations of importance not directly adjacent but near the corridor are St. John's Mercy Hospital, Missouri Baptist Medical Center, Villa Duchesne High School, and Tilles County Park.

Along the Thruway Subcorridor, the major destinations and attractions are St. Mary's Health Center, the St. Louis Galleria (regional indoor shopping mall), the Brentwood Promenade (big box retail center), the Brentwood Square retail area, The Meridian (future mixed-use office and commercial development), Richmond Heights Community Center, Richmond Heights City Hall, Highland Terrace Park, Little Flower Church, the A. B. Green Athletic Complex, and St. Luke's Church and playing fields. The Chaney Elementary School and the Christian Brothers College (CBC) are the two local schools that were located in the Thruway Subcorridor. The Chaney Elementary School was closed during the Summer of 2004. The CBC occupied its campus until June 2004 when the high school moved to a new campus in western St. Louis County. At that time the CBC site was purchased and is being used by the Concordia Seminary. Other nearby destination areas to note include the city of Clayton Central Business District, St. Louis County Government District located in Clayton, the Hanley Industrial Court Complex and Oak Knoll Park.

Major destinations in the Parkway Subcorridor include: St. Mary's Health Center; Forest Park Hospital (formerly Deaconess Central Hospital); Barnes Jewish Christian Hospital (BJC) and St. Louis Children's Hospital complex (and future expansion); Washington University Medical Center; Highlands Office Park; St. Louis Community College at Forest Park; the Central Institute for the Deaf (CID); St. Louis College of Health Careers and Forest Park. Forest Park is a 1,360-acre regional park housing the St. Louis Art Museum, The Muny (outdoor theater), the St. Louis Science Center, the Missouri History Museum, and the St. Louis Zoo. Local schools in the Parkway Subcorridor include Dewey School, the Drew Center for Learning, St. Louis University High School, and Styx Early Childhood Center. Other nearby destinations of note include Washington University, the St. Louis Basilica of St. Louis, and the Missouri Botanical Garden near Tower Grove Park.

## B. Project Status

### 1. PREVIOUS EFFORTS TO RECONSTRUCT I-64 (U.S. 40)

Most of the original construction on the I-64 corridor (then U.S. 40) dates back to the 1930s. It was built in various pieces and eventually connected into a continuous corridor. The city of St. Louis opened the Express Highway from Skinker Boulevard at Clayton Road east to Kingshighway Boulevard in 1936. The connection east to Vandeventer Avenue opened the following year. This project was built on existing Forest Park land. At that time, it is reported from the St. Louis Post-Dispatch that city leaders wanted the Express Highway located north of Oakland Avenue, which was the park's southern boundary since 1874. Locating the highway north of Oakland Avenue meant businesses and homes would be spared and not removed for the project. The Post reported there were very few protests when the Express Highway was built. The Greenway Subcorridor also started in the mid-1930s. The Spoede Road and Lindbergh Boulevard area was completed in 1938, and the stretch from Lindbergh Boulevard to Brentwood Boulevard was completed in 1946.

In the late 1950s and early 1960s, the city of St. Louis and the Missouri State Highway Department worked together to rebuild the Express Highway as a six-lane highway and then rebuild Kingshighway Boulevard as a larger, cloverleaf interchange. In total, this work and the original Express Highway took 67 acres from the southern portion of Forest Park.

The section in the Thruway Subcorridor was primarily built in 1957-1959. The project bisected the city of Richmond Heights. Many residents in this community are still bitter over the way U.S. 40 was built through their community. In 1963, the Daniel Boone Expressway to the west of Skinker Boulevard was connected to the new six-lane Express Highway. An additional two lanes of U.S. 40 were added through the Parkway Subcorridor in 1984.

The inner belt, which eventually became I-170, was built by St. Louis County in 1962-64. The Missouri Department of Transportation rebuilt the I-170/U.S. 40 interchange in 1981. At the time, MoDOT was studying the possibility of extending I-170 south of U.S. 40 to connect to I-44 and to I-55 in south St. Louis County. The idea did not receive public support, and MoDOT dropped this proposal.

In 1992, MoDOT attempted to widen I-64 from three lanes to four lanes in each direction from the western end of Forest Park to Hanley Road. Future plans at that time called for eventually widening west to Spoede Road. A public meeting in October 1992 presented the widening options in the Thruway Subcorridor. The meeting spurred two months of controversy and debate over the project and resulted in MoDOT dropping the proposal. At this time, MoDOT also began looking at the idea of extending I-170 south again and the idea of widening I-64 from I-170 to Spoede Road. Due to the public concern against the widening of the Richmond Heights portion of the roadway, analysis of I-170 and I-64 were tabled.

## 2. TRANSPORTATION REDEFINED

The need for improvements to I-64 was identified in the St. Louis region's long-range transportation plan developed by the East-West Gateway Coordinating Council (EWGCC). In 1994, the EWGCC's Board of Directors adopted *Transportation Redefined*, the 2015 long-range transportation plan for the St. Louis region. The I-64 corridor was identified in *Transportation Redefined* as a corridor in which major transportation improvements should be considered.

An update of this initial plan, *Transportation Redefined II* was presented to the EWGCC's Board of Directors for approval on March 24, 1999, and extended the plan's horizon year to 2020. *Transportation Redefined II* outlined a twenty-year plan for transportation improvements that represent the strategic investments needed to help attain the region's economic, community, and environmental goals. Interstate 64 from west of Spoede Road to west of Sarah Street is listed in the long-range plan's priority investment portfolio and is listed as a regionally significant project. This project is included as part of the financially constrained future transportation network.

## 3. CROSS COUNTY MTIA

Following the completion of *Transportation Redefined*, a Major Transportation Investment Analysis (MTIA) was initiated for a study area that consisted of two corridors that extend across St. Louis County. The MTIA was conducted by a study management group (SMG) comprised of local, state and federal agencies, including MoDOT, EWGCC and Bi-State Development Agency (Metro), St. Louis' transit agency. The two corridors studied included a north-south corridor in the vicinity of the I-270/I-170 interchange south to the general vicinity of the I-270/I-55 interchange, and an east-west corridor extending from the general vicinity of the I-64/Grand Boulevard interchange west to the vicinity of the I-64/I-270 interchange (see Exhibit I-2). Four distinct subcorridors (north, south, east and west) were identified within the two larger corridors. The east corridor included the section of I-64 between I-170 to Tower Grove Avenue. The west corridor included the section of I-64 between I-170 and Spoede Road.

Through the metropolitan transportation planning process for the St. Louis area, the completed Cross County MTIA defined the general concept and scope of the necessary multi-modal transportation investments to meet the needs of the study corridors, including the I-64 corridor. This process included a comprehensive and coordinated review of the potential environmental and community-related impacts of the improvements. With the inclusion of the preferred strategy in the area's long-range transportation plan, the sponsoring agencies were then able to move forward with the next steps of the project development process for the study's recommendations. This EIS represents the next step in the project development process for the preferred strategy's elements along the I-64 corridor.

Though the completed MTIA has established the general concept of the overall improvements and the spatial relationships of the various modal elements of the preferred strategy, the issues affecting the MTIA's preferred strategy recommendation will continue to be evaluated and reaffirmed during the subsequent project development activities for the individual elements of the preferred strategy. Subsequent to the completion of the MTIA, should new and substantive information become available or be developed that could affect the findings of the MTIA, the MTIA decision may need to be re-evaluated. Assurance for this process of continual verification of the MTIA's findings is provided through the coordination of the area's metropolitan planning organization (i.e., EWGCC), which is effectively involved in the subsequent project development activities, and through the continued coordination of the sponsoring agencies. Furthermore, the MTIA provides the general concept and scope of the improvements to be considered and evaluated to a greater detail by this EIS. The limits and scope of this EIS are based on the findings of the MTIA and the coordination with the EWGCC and Bi-State will continue.

The Cross County MTIA was a planning process developed to examine all modes of transportation within a regional and corridor context, and included problem identification, public involvement, solution strategies, evaluation processes, and recommendations to EWGCC's Board of Directors. Upon completion of the MTIA, MoDOT was determined to be the most appropriate agency to move forward with the highway improvement recommendations and Bi-State Development Agency (Metro) the most appropriate agency to move forward with the transit recommendations contained in the MTIA.

The SMG recommended, and EWGCC's Board of Directors approved the following as the MTIA preferred strategy for the I-64 Corridor:

- Add one additional lane in each direction from Spoede Road to I-170
- Improve interchanges:
  Spoede Road,
  Lindbergh Boulevard,
  Clayton Road/Warson Road,
  Brentwood Boulevard/I-170/Hanley Road,
  Big Bend Boulevard,
  McCausland Avenue/Clayton Road/Oakland Avenue,
  Hampton Avenue,
  Kingshighway Boulevard, and
  Tower Grove Avenue.
- Add Auxiliary lanes.
- Reconstruct pavement and bridges.

Other recommendations and approved strategies from the Cross-County MTIA included:

- Provide TSM technologies to improve traffic flow, including arterial street and signalization improvements, incident management and traveler information systems, freeway ramp metering, bus service improvements. These strategies are being carried forward by MoDOT, Bi-State, and St. Louis County.
- Expansion of MetroLink (light rail transit) north of Forest Park to the city of Clayton and then south paralleling I-170 crossing under I-64 and ending at I-44. Bi-State Development Agency (Metro) is currently designing this extension.
- No extension of I-170 south of existing termini at I-64. Existing St. Louis County maintained north-south roads should be improved to handle the demand instead.

### 4. DANIEL BOONE MTIA

The Daniel Boone MTIA, completed in 2000, examined the location of MetroLink west of I-170 including I-64 and the Rock Island/Page Avenue alignments as possible locations. This MTIA was conducted by a study management group comprised of local, state and federal agencies, including MoDOT, EWGCC and Bi-State. The final report and EWGCC recommendation included locating future MetroLink expansions along the Rock Island/Page Avenue alignment. This alternative had lower capital and operating costs, produced a higher number of rail and total transit trips, provided more households with a faster transit trip to downtown St. Louis, and served more low-income households. The future western expansion of MetroLink west of I-170 would be located over seven miles (11.3 kilometers) to the north of I-64 on existing rail lines. Any future design of this extension would be done by Bi-State, as they are the most appropriate agency to move forward with the transit recommendations contained in the MTIA.

### 5. CONCEPTUAL DESIGN STUDIES

Following the completion of the Cross County MTIA in 1998, conceptual design studies were initiated for the I-64 corridor between Spoede Road and Sarah Street. These efforts included four primary components: conceptual highway engineering, urban design, traffic simulation and public stakeholder involvement. The corridor studies completed by MoDOT began with the examination of the options identified in the MTIA. The conceptual engineering study was completed to identify physical constraints and challenges to reconstructing I-64. Extensive work was also completed to develop a corridor aesthetic design theme. In addition, issues related to neighborhood aspects of the project such as the urban design treatment of potential sound walls, bridges, pedestrian trails, and retaining walls have been considered. During this process, MoDOT has worked with several community-based committees (subcorridor advisory and aesthetic committees) that provided guidance on both technical and aesthetic issues.

### 6. RECENT ENVIRONMENTAL STUDY

In 1998 and 1999, environmental documentation was prepared for projects that were part of the proposed I-64 reconstruction. Five separate categorical exclusion (CE) determination reports were prepared. The location of the CE documents were: 1) west of Spoede Road to east of Clayton Road; 2) west of I-170 to east of Hanley Road; 3) east of Hanley Road to McCausland Avenue; 4) west of Kingshighway Boulevard to Sarah Street; and 5) east of Taylor Avenue to Boyle Avenue. During this time an environmental assessment (EA) was initiated for the section of I-64 adjacent to Forest Park, from west of McCausland Avenue to east of Kingshighway Boulevard. In October 2001, representatives of MoDOT and FHWA determined that a single EIS should be completed as part of a reconstruction of I-64 from west of Spoede Road to west of Sarah Street. This action was made due to the interconnectedness of what were formerly separate interchange improvements and due to the environmental impacts of such a major urban project and its interchanges.

## C. Planned System Improvements

Both MoDOT and EWGCC have stated their commitments to improve I-64 to current interstate standards. In the St. Louis metropolitan region, other projects are under construction or being planned that connect to the section of I-64 under study in this EIS. These projects are as follows:

***Interstate 70*** improvements are currently underway and will replace 26 bridges along the I-70 corridor in St. Louis County and the city of St. Louis, Missouri. The project includes replacing bridges, applying a new surface, adding a gate system to the express lanes and installing new highway lighting and signing.

***Gateway Guide*** is a regional program that MoDOT is leading to improve roadway efficiency and safety in and around the St. Louis region through implementation of intelligent transportation systems (ITS) technologies. This St. Louis regional ITS program includes planned closed-circuit television camera locations within the I-70/I-270/I-64 “ring,” providing real-time video feeds to the Transportation Information Center. Technology and systems also include: motorist assist roadway patrols, real-time traffic information, toll-free traffic-information hotline, expanded direct media tie-in program, ramp metering, traffic sensors, and dynamic message boards.

***Improvements to I-64 east of Tower Grove Avenue*** are also included under MoDOT’s Statewide Transportation Improvement Plan (STIP 2002-2006). Scheduled improvements include the seismic retrofit of the double deck section of I-64 from 21$^{st}$ Street to the Poplar Street Bridge. This project has independent utility related to the long-term maintenance of this double deck section of I-64.

***Interstate 64 / 22nd Street Interchange*** is also planned in this schedule. The existing interchange will be reconstructed to connect the proposed 22nd Street Parkway connection. This project located in downtown St. Louis, two miles (3.2 kilometers) to the east, has independent utility.

***Improvements to I-64 west of I-270*** – The Missouri Department of Transportation's STIP currently includes projects to upgrade U.S. 40 to interstate standards in order to continue the designation of I-64 from the Chesterfield bottoms to I-70 in St. Charles County, Missouri. Work is underway now at the St. Louis/St. Charles county line. Only one small segment between Route K and Route N in St. Charles County is not funded in the STIP. This project is located several miles west of the proposed action and has independent utility.

***Sarah Street Bridge Replacement Over Chouteau Avenue Ramps*** – Construction on this project began in 2003. The bridge is structurally deficient and functionally obsolete. The project is located on the eastern edge of the proposed action and has independent utility.

## D. Overview of Purpose and Need

The purpose of the proposed project is to reconstruct this 10.9-mile (17.5-kilometer) long section of I-64 mainline and the 0.8-mile (1.3-kilometer) section of I-170, and reconstruct interchanges to be consistent with current design standards at the time of the facilities' design and construction. The proposed action would address several goals: 1) replace the deteriorating facility and substandard interchanges; 2) increase roadway capacity between Spoede Road and I-170; 3) improve safety; 4) improve traffic operation and decrease congestion; and 5) promote community redevelopment.

The specific needs being addressed by the proposed action are summarized as follows:

- *Freeway Condition/Interchange Design Features* – Improve the pavement surface and upgrade current roadway features along I-64, including roadway alignments, cross sections, vertical clearances and interchanges to MoDOT's current best practice design standards.

- *Capacity* – Increase roadway capacity between I-170 and Spoede Road to improve the general operating conditions of this section of I-64. Improve the operating characteristics of travel between I-170 and Tower Grove Avenue without increasing the number of mainline lanes. Consistent with the MTIA, additional lanes are not being considered east of I-170 because the potential impact to the adjacent communities and destinations is considered too great. Improved traffic flow in this section of I-64 would be realized through improvements in the roadway standards and TSM operations.

- *Traffic Safety* – Reduce the number of driver related crashes occurring along this section of I-64, through the use of ITS and improved roadway design.

- *Operation and Congestion* – Improve the movement of people and goods on I-64 by providing operational improvements such as acceleration/deceleration lanes, collector–distributor roads, wider roadway shoulders, improved ramps and improved signing.

- *Community Redevelopment* – Include special design elements on I-64 that would improve aesthetics, enhance neighborhood connectivity and serve as a stimulus for growth.

Each of these specific needs is discussed in the following sections.

## 1. FREEWAY CONDITION / INTERCHANGE DESIGN FEATURES

Roadway design features currently existing along I-64 are based on the prevailing design standards at the time of the original I-64 (U.S. 40) construction. Sections of I-64 (U.S. 40) were originally completed between 1938 and 1963. The route was constructed as a U.S. highway and not to interstate standards. Today geometric design standards are more stringent than they were in the past.

State law generally requires that each time a road or highway is reconstructed, that it be done so in compliance with the highway and road design guidelines generally accepted at that time. The failure to follow current design guidelines might subject the Missouri Highways and Transportation Commission to liability unless the deviation from those guidelines is done with the exercise of good engineering judgment and the basis for that decision is documented. Existing I-64 in the study area does not meet currently accepted urban interstate design and construction guidelines. Therefore, a simple reconstruction of I-64, retaining the existing roadway and shoulder configuration and geometrics, will not satisfy the requirements of state law. Section 573.600.1(2), RSMo 2000.

The following design standards have been developed for the reconstruction of I-64. These standards are consistent with MoDOT's current best practices and are consistent with American Association of State Highway and Transportation Officials (AASHTO) standards for a freeway with a 60 mile per hour (mph) (95 kilometer per hour) design speed. The MoDOT and AASHTO design standards incorporate standards applicable to the Americans with Disabilities Act (ADA). New facilities are typically designed to handle traffic driving 10 mph over the speed limit. This facility's design speed would be the same as the anticipated posted speed limit in an effort to reduce property impacts.

The Missouri Department of Transportation's design criteria include the following elements:

- Sixty mile per hour (mph) (95 kilometer per hour) design speed,
- Lane width of 12 feet (3.7 meters) on mainline, ramps, overpasses, and underpasses,
- Vertical clearance of 16 feet 6 inches (5.0 meters) under all bridges over I-64 (Pedestrian bridges over I-64 require 17 feet 6 inches [5.3 meters] clearance),
- Inside and outside shoulders of 12 feet (3.7 meters) on I-64 ,
- Vertical grades should not exceed 4%, and
- Horizontal curves should not exceed 3°.

These standards are used by MoDOT in the design of new facilities and the reconstruction of existing freeway facilities. The existing I-64 interchanges were reviewed with respect to meeting these design criteria.

Interstate 64's main geometric deficiencies are the existing inside and outside shoulder widths, which do not meet current design standards of 12 feet (3.7 meters) as shown in Exhibit I-3. Insufficient shoulder widths make driving conditions uncomfortable and provide little room during crashes or breakdowns. Geometric deficiencies in the close proximity of ramp terminals cause short weaving movements throughout the study corridor.

Vertical deficiencies also exist within the study corridor. Areas where existing grades do not meet design standards are shown in Exhibit I-4. These areas of steep grade limit stopping-sight distance and are more substandard when they occur in areas of short weaving movements, most notably the Brentwood Boulevard/I-170/Hanley Road interchange.

Interstate 64's pavement surface appears in good condition because resurfacing was recently done in 1999 for most of the corridor length. However, the existing pavement is deteriorating,

so the overlay pavement will effectively accommodate current traffic loads for only a five to ten year period. As such, I-64 will need to be reconstructed in order to provide an acceptable long-term improvement in pavement condition.

The majority of the bridges in the study corridor were built in the late 1950s. More than 65 percent of the bridges have deficient bridge vertical clearances. Bridge clearances are shown in Exhibit I-5.

***Specific Interchange Needs***

***Spoede Road*** – The existing Spoede Road interchange is a folded diamond configuration with extremely tight horizontal geometrics for the ramp loops. There is substandard ramp pavement and a deteriorated bridge. Heavy usage can be attributed to traffic congestion at Lindbergh Boulevard. The geometric layout is confusing to motorists exiting and entering I-64 from the east. The existing geometric layout also does not meet current design standards with ramp loops being too compact and tight.

*Spoede Road looking west*

***Lindbergh Boulevard*** – The existing Lindbergh Boulevard interchange is a full cloverleaf configuration with extremely tight horizontal geometrics for the ramp loops. The tight, substandard ramp layouts result in insufficient weave lengths along I-64. There is substandard ramp pavement.

*Lindbergh Blvd. looking west*

***Clayton Road*** – The existing Clayton Road interchange is a half-diamond with the eastbound on ramp connected with an outer road. This outer road on the south side of I-64 leads to an entrance ramp with a short merge distance; therefore, all interstate traffic accessing eastbound I-64 must travel on the outer road to the entrance ramp. This interchange has substandard pavement.

*S. Outer 40 and I-64 toward Clayton Road looking west*

***McKnight Road*** – The existing McKnight Road interchange is a full diamond interchange with extremely short acceleration lanes. The bridge at this location is deteriorated and the ramp pavement is substandard. The entrance ramps and bridge clearance do not meet current design standards. Intersections with adjacent roads are too close to the interchange, causing traffic conflicts.

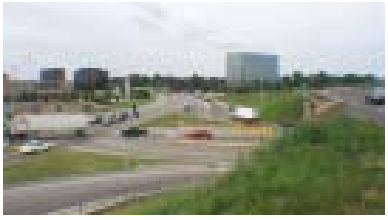
*McKnight Road looking west*

***Brentwood Boulevard / I-170*** – The existing Brentwood Boulevard/I-170 interchange has a complex system of access to I-64 from Brentwood Boulevard, I-170, Hanley Road, and Eager Road. Eager Road is the southern terminus of I-170 and also a collector road connection between Brentwood Boulevard and Hanley Road.

*Brentwood Blvd. looking west*

The existing Brentwood Boulevard interchange is a folded diamond interchange with low speed entrance and exit ramps. The existing ramp terminals are too close to each other resulting in traffic weaving problems for entering and exiting traffic. The current configuration cannot handle current or projected traffic demands.

The existing I-170 interchange is a directional interchange without an eastbound I-64 to northbound I-170 connection. The current configuration cannot handle current or projected traffic demands. The existing interstate-to-interstate directional ramps provide for low speed (20-30 mph) traffic movements compounded by short weaving distances between both Hanley Road and I-170 on the east and Brentwood Boulevard and I-170 on the west.



*I-170/Eager Road Intersection looking west*

***Hanley Road / Laclede Station*** – The existing Hanley Road interchange is a partial cloverleaf interchange with low speed loop ramps. The bridge and pavement at Hanley Road interchange are deteriorated. The close proximity of the interchange to Eager Road also adds to congestion. There are short weaving distances on I-64 between the tight loop ramps and between Hanley Road and I-170 interchanges. There is also significant vertical deficiency on I-64 west of Hanley Road with the steep grade causing insufficient sight distance within the substandard weaving movements between interchanges. The Laclede Station Road interchange is also substandard and is located too close to Hanley Road causing short merging areas.

*Hanley Rd. plan view (north on top)*

***Big Bend Boulevard / Bellevue Avenue*** – The existing Big Bend Boulevard interchange is a hybrid diamond cloverleaf interchange with tight loop ramps. The ramp pavement and the Bellevue Avenue bridge are deteriorated at this location. The interchange does not provide westbound on-ramps or eastbound off-ramps. The existing interchange at Bellevue Avenue is a half diamond with ramps only providing access to and from the west. The existing Big Bend Boulevard and Bellevue Avenue ramps are short and have a substandard layout.

*Big Bend Blvd. looking west*

***McCausland Avenue / Oakland Avenue / Clayton Road / Skinker Boulevard*** – The existing McCausland Avenue / Oakland Avenue / Clayton Road / Skinker Boulevard interchange consists of a series of local access interchanges, extending a distance of about one mile (1.6 kilometers), with varying degrees of local access. Because of the close spacing of these interchanges, not all movements are provided at each interchange. Further complicating the interchange operations in this area, the I-64 alignment includes closely spaced reverse curves.

*McCausland Avenue looking northeast*

***Hampton Avenue*** – The existing Hampton Avenue interchange is a full cloverleaf configuration with extremely tight horizontal geometrics for the ramp loops. The tight, substandard ramp layouts result in insufficient weave lengths along I-64. Operational problems at this interchange, therefore, affect the overall traffic flow of the system. The Hampton Avenue interchange exhibits low operating speeds primarily due to substandard ramp curvature, mainline weaving within interchanges, and short acceleration/deceleration ramp length. The ramp termini are closely spaced along Hampton Avenue, with little separation from local service signalized intersections located to the north and south – adding to increased congestion.

*Hampton Ave. looking west*

***Kingshighway Boulevard / Boyle Avenue*** – The Kingshighway Boulevard interchange is a full cloverleaf configuration with relatively tight loop geometrics resulting in short weave distances along I-64. Studies of freeway operations at this location have determined that the weave operations at Kingshighway Boulevard cause backup on the I-64 mainline during peak periods. Some of the ramps have deficient acceleration/deceleration lane lengths. The ramps have substandard outside shoulder widths. Close signalized intersections on Kingshighway Boulevard near the cloverleaf termini allow for short merge area contributing to congestion. At Boyle Avenue, the existing half interchange limits traffic movements only leaving those to-and-from the east.

*Kingshighway Boulevard looking northeast*

## 2. CAPACITY

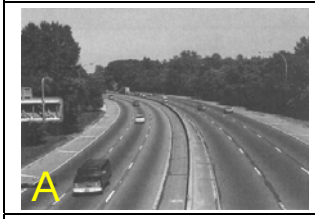
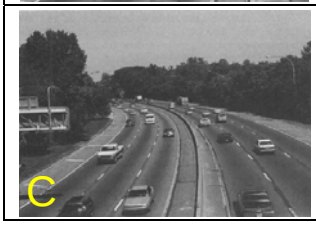
A purpose of the project is to provide additional highway capacity to serve the growing travel demands at an acceptable level of service (LOS). Future travel demand forecasts were used to evaluate future travel conditions on I-64, with no change in highway capacity and assuming the extension of MetroLink. LOS is a qualitative measure used by transportation planners and engineers to characterize the operational conditions within a traffic stream and its perception by motorists. It is a means of evaluating traffic conditions that would be encountered by a driver traveling through an intersection, interchange or open section of roadway under peak-hour traffic volumes. The greater the traffic density on a highway, the lower the LOS. Letters A through F are used to denote LOS, with LOS A being the most favorable driving condition. These definitions of LOS (Table I-3) are consistent with the *Highway Capacity Manual 2000,* written by the Transportation Research Board.

A value for highway capacity is calculated for specific roadway segments based on such characteristics as number of lanes, lane width, divided or undivided traffic flow, availability of roadway shoulders, travel speed, traffic composition and other factors. Once a roadway segment's capacity is calculated, a comparison between the volume of traffic anticipated to travel on a roadway segment and its specific capacity results in a determination of LOS. For the purposes of this study, LOS D or better is the goal for future (year 2020) peak hour traffic conditions. When high traffic volumes result in a LOS E or F, the options of increasing highway capacity or making operational improvements are often considered.

A, B, C and D levels of service are generally considered acceptable in urban areas. When the LOS for a section of roadway decreases from level D to levels E or F, traffic flow can be impeded (see Table I-3). Level of service A describes nearly free flow operation of vehicles,

virtually unaffected by the presence of other traffic. In contrast, LOS E describes operation at capacity. Traffic flow at this level is very unstable. Any flow interruption or disruption produces extensive queuing. There is little freedom to maneuver within the traffic stream. Average daily traffic (ADT) volumes for 2002 and peak hour directional distribution for the I-64 corridor are given in Table I-4. Interstate 64 truck percentages are shown in Table I-5.

**Table I-3**
**Level of Service Characteristics for Freeways**

| Level of Service | Characteristics | Level of Service | Characteristics |
|---|---|---|---|
|   | Free flow; low volumes and high speeds; most drivers can select own speed |   | Approaching unstable flow; lower speeds |
|   | Stable flow; speeds somewhat restricted by traffic; service volume used for design of rural highways |   | Unstable flow; low, varied speeds; volumes at or near capacity |
|   | Stable flow; speed controlled by traffic; service volume used for design of urban highways |   | Forced flow; low speeds to stoppages; volume exceeds capacity |

Source: *Highway Capacity Manual 2000*, Transportation Research Board.

**Table I-4**
**Year 2003 Average Daily Traffic and Directional Distribution**

| Mainline Section (Subcorridor) | Year 2003 Volume | EB/WB Directional Distribution |
|---|---|---|
| Spoede to Lindbergh (Greenway) | 145,000 | 48% / 52% |
| Lindbergh to Clayton/Warson (Greenway) | 161,000 | 48% / 52% |
| Clayton/Warson to McKnight (Greenway) | 173,000 | 48% / 52% |
| McKnight to I-170 (Thruway) | 157,000 | 50% / 50% |
| I-170 to Hanley (Thruway) | 135,000 | 51% / 49% |
| Hanley to Big Bend (Thruway) | 141,000 | 51% / 49% |
| Big Bend to McCausland (Thruway) | 138,000 | 51% / 49% |
| McCausland to Clayton/Skinker (Parkway) | 138,000 | 51% / 49% |
| Clayton/Skinker to Hampton (Parkway) | 138,000 | 50% / 50% |
| Hampton to Kingshighway (Parkway) | 130,000 | 50% / 50% |
| Kingshighway to Sarah (Parkway) | 121,000 | 50% / 50% |
| I-170 (Brentwood to I-64, Thruway) | 80,000 | 55% SB / 45% NB |

Source: Traffic count information supplied by MoDOT Traffic Division, District 6.

**Table I-5**
**I-64 Truck Traffic Percentages**

| Subcorridor | Percent of Truck Traffic |
|---|---|
| Greenway (Spoede to McKnight) | 10.9% both directions |
| Thruway (McKnight to Bellevue) | 10.9% both directions |
| Parkway (Bellevue to Sarah) | 10.9% both directions |

Source: Traffic count information supplied by MoDOT Traffic Division, District 6, 2003.

The average daily traffic volumes for the forecasted year 2020 for the no-build condition are given below in Table I-6. The future year traffic forecast is provided by this region's Metropolitan Planning Organization, the EWGCC. The travel demand forecast for I-64 was performed for MoDOT by Parsons Transportation Group (PTG) using the Cross County MTIA future no-build network for the corridor.

**Table I-6**
**Year 2020 Forecasted Daily Traffic**

| Subcorridor | 2020 ADT (from PTG model) | No-Build Network No. of Lanes |
|---|---|---|
| Greenway (Spoede to McKnight) | 150,000-185,000 | 6 |
| Thruway ( McKnight to I-170) | 160,000 | 6 |
| Thruway (I-170 to Bellevue) | 145,000 | 6 |
| Parkway (Bellevue to Clayton) | 125,000 – 150,000 | 6 |
| Parkway (Clayton to Sarah) | 125,000 – 150,000 | 8 |
| I-170 (Brentwood Blvd. to I-64) | 95,000 | 6 |

Source: PTG a consultant to MoDOT Planning and Traffic Division, District 6.

The year 2020 is the forecast year provided by EWGCC's travel model. The year 2020 forecasts were used because: 1) they are the official MPO forecasts; 2) traffic and land use growth in much of the corridor is not forecast to be large over the forecast period; and 3) because of this, the traffic forecasts for a horizon year beyond 2020 would not be expected to change significantly from the 2020 forecasts. The resulting forecast level of service for the I-64 mainline for the three subcorridors is presented in Table I-7.

**Table I-7**
**Future (No-Build) Mainline LOS**

| Subcorridor | AM LOS 2020 | PM LOS 2020 |
|---|---|---|
| Greenway (Spoede to McKnight) | F | F |
| Thruway (McKnight to I-170) | F | F |
| Thruway ( I-170 to Bellevue) | F | F |
| Parkway (Bellevue to Sarah) | E | E |
| I-170 (Brentwood to I-64) | E | F |

Source: HNTB, 2001.

The existing mainline capacity does not accommodate existing or projected future demand. The capacity of I-64 limits the volume of traffic that can move through the project corridor. Even without a change in corridor capacity, a small increase in the volume of traffic is projected to occur during the peak hours of travel. Because of a limited freeway capacity and high traffic demands, the peak congested travel periods would be expected to become longer.

As shown in Table I-6, traffic forecasts for the portion of I-64 located east of I-170 are less than for the portions located west of I-170. These traffic forecasts for the portion of the I-64 located east of the I-170 interchange supports the decision made in the Cross County MTIA to not add through lane capacity to this section of I-64. The traffic model results indicate that traffic movements to and from the central area of St. Louis served by I-64 are forecast to be stable and have less growth. In contrast, higher traffic growth and forecasts on I-64 to the west of I-170 support the decision to add through lane capacity in this section. The traffic patterns indicated by travel demand modeling show heavier traffic movements from the Clayton area located adjacent to I-170 connecting with locations along I-270 or further west on I-64.

## 3. TRAFFIC SAFETY[1]

Crash statistics were reviewed over a 5-year period from January 1996, to December 31, 2000. Based on this data, crash rates are calculated of I-64 corridor roadway segments, as shown, in Table I-8. The statewide average for crash rates on similar urban interstate facilities for the same time period is 146.39.

There was an annual average of 330 crashes along I-64 between Spoede Road to McKnight Road, also known as the Greenway Subcorridor. Approximately 35 percent of the crashes within the Greenway Subcorridor occurred in the vicinity of Lindbergh Boulevard. Twenty-seven percent of the crashes occurred in the vicinity of McKnight Road. Twenty-two percent of the Greenway Subcorridor crashes occurred in the vicinity of Clayton Road/Warson Road and 16 percent of the total number of crashes in the Greenway Subcorridor occurred in the vicinity of Spoede Road. There were five fatalities in the Greenway Subcorridor during this time period. One fatal crash occurred in the vicinity of Lindbergh Boulevard, three occurred in the vicinity of Clayton Road/Warson Road, and one occurred in the vicinity of McKnight Road.

**Table I-8**
**Crash Rates for I-64**
**(1996 – 2000)**

| Mainline Section | Eastbound | Westbound | Eastbound and Westbound |
|---|---|---|---|
| West of Spoede to west of Lindbergh | 186.29 | 70.42 | **125.57** |
| West of Lindbergh to west of Clayton/Warson | 481.24 | 317.97 | **395.06** |
| West of Clayton/Warson to west of McKnight | 80.51 | 81.99 | **81.29** |
| West of McKnight to west of Brentwood | 200.07 | 153.58 | **175.84** |
| West of Brentwood to west of Hanley | 465.66 | 372.80 | **418.91** |
| West of Hanley to west of Laclede Station | 407.15 | 958.04 | **671.45** |
| West of Laclede Station to west of Big Bend | 139.11 | 464.30 | **295.13** |
| West of Big Bend to west of Bellevue | 103.10 | 396.21 | **243.72** |
| West of Bellevue to west of McCausland | 93.80 | 327.33 | **205.50** |
| West of McCausland to west of Hampton | 147.24 | 214.38 | **179.64** |
| West of Hampton to west of Kingshighway | 137.84 | 140.39 | **139.08** |
| West of Kingshighway to west of Tower Grove | 194.25 | 244.71 | **219.18** |
| West of Tower Grove to east of Boyle | 158.01 | 218.34 | **188.25** |
| I-170 (Brentwood Blvd. to I-64) | 197.24 | 470.58 | **333.36** |

Statewide Average equals 146.39 for urban interstates (1996-2000). Number of crashes per hundred million vehicle miles traveled (HMVMT).
Source: HNTB, 2001.

In the same period there were 480 average annual crashes along I-64 between Brentwood Boulevard and Bellevue Avenue, also known as the Thruway Subcorridor (see Table I-9). Approximately 36 percent of the total number of crashes in the Thruway Subcorridor occurred in

[1] Accident statistics and safety data summarized or presented in this Section are protected under federal law. See Appendix AA.

the vicinity of Brentwood Boulevard/I-170. Thirty-three percent of the crashes occurred in the vicinity of Hanley Road. Eleven percent of the crashes occurred in the vicinity of Laclede Station Road. Thirteen percent of the crashes occurred in the vicinity of Big Bend Boulevard. Eight percent of the crashes occurred in the vicinity of Bellevue Avenue. There were two fatalities during this period, both occurring in the vicinity of Laclede Station Road.

**Table I-9**
**Average Annual Number of Crashes**
**(1996 – 2000)**

| Mainline Section | Property Damage | Injury | Fatal | Total |
|---|---|---|---|---|
| West of Spoede to west of Lindbergh | 34.8 | 17.6 | 0.0 | 52.4 |
| West of Lindbergh to west of Clayton/Warson | 82.6 | 33.0 | 0.2 | 115.8 |
| West of Clayton/Warson to west of McKnight | 48.8 | 22.8 | 0.6 | 72.2 |
| West of McKnight to west of Brentwood | 63.6 | 25.8 | 0.2 | 89.6 |
| West of Brentwood to west of Hanley | 127.8 | 43.6 | 0.0 | 171.4 |
| West of Hanley to west of Laclede Station | 109.4 | 47.2 | 0.0 | 156.6 |
| West of Laclede Station to west of Big Bend | 36.6 | 15.2 | 0.4 | 52.2 |
| West of Big Bend to west of Bellevue | 42.4 | 19.4 | 0.0 | 61.8 |
| West of Bellevue to west of McCausland | 28.2 | 9.6 | 0.0 | 37.8 |
| West of McCausland to west of Hampton | 66 | 24.8 | 0.2 | 91.0 |
| West of Hampton to west of Kingshighway | 48.2 | 21.4 | 0.2 | 69.8 |
| West of Kingshighway to west of Tower Grove | 60.2 | 26.6 | 0.2 | 87.0 |
| West of Tower Grove to east of Boyle | 33.0 | 16.0 | 0.2 | 49.2 |
| I-170 (Brentwood to I-64) | 65.6 | 28.0 | 0.0 | 93.6 |

Source: HNTB, 2001.

Also in the same period, there were 297 crashes along I-64 between McCausland Avenue and Tower Grove Avenue, also known as the Parkway Subcorridor. Approximately 31 percent of the total number of Parkway Subcorridor crashes occurred in the vicinity of McCausland Avenue/Clayton Road/Oakland Avenue. Twenty-four percent of the crashes occurred in the vicinity of Hampton Avenue. Twenty-nine percent of the crashes occurred in the vicinity of Kingshighway Boulevard. Seventeen percent of the crashes occurred in the vicinity of Tower Grove Avenue. There were four fatalities during this period. One fatal crash occurred in the vicinity of McCausland Avenue/Clayton Road/Oakland Avenue, one occurred in the vicinity of Hampton Avenue, one occurred in the vicinity of Kingshighway Boulevard, and one occurred in the vicinity of Tower Grove Avenue.

In 2001 and 2002, the statewide average crash rate on urban interstates declined to 121.73 and 109.76, respectively. Despite this trend, the number of crashes in the I-64 study area rose compared to the statewide annual averages from 1996 to 2000 described above. In 2001, 1,157 crashes were reported: 354 occurred in the Greenway Subcorridor, 527 in the Thruway Subcorridor and 276 in the Parkway Subcorridor. In 2002, 1,108 crashes were reported: 334 occurred in the Greenway Subcorridor, 489 in Thruway Subcorridor and 285 in the Parkway Subcorridor. No fatalities were reported in 2002. Along I-170, the number of crashes also has been rising compared to the annual averages from 1996 to 2000. In 2001 and 2002, 142 and 145 crashes occurred, respectively. No fatalities were reported on I-170 during that time. This more recent information further supports the need to improve safety on I-64.

## 4. TRAFFIC OPERATION AND CONGESTION

The ability to provide a more efficient transportation facility is an integral component of I-64 improvements. Currently, there are 16 interchanges on I-64 over a 10.9-mile (17.5-kilometer) distance, and the distance between the Galleria Parkway and I-64 interchanges on I-170 is 0.4 miles (0.6 kilometers). Closely spaced interchanges that lack sufficient merging and diverging distances can impede traffic. Lack of capacity on ramps often results in traffic congestion spilling back onto the I-64 mainline. In addition, a complete system-to-system interchange between I-64 and I-170 is not provided. Vehicles moving between the two facilities must mix with local traffic for many of the traffic movements.

An analysis of the LOS of freeway mainline segments located between interchange areas for the a.m. and p.m. peak hours of travel was completed. The *Highway Capacity Manual 2000* methodology was used to complete the analysis. Table I-10 illustrates the existing (year 2000) peak hour LOS for the I-64 study corridor. The results indicate that many of the mainline freeway segments located between interchange areas are operating at an unsatisfactory LOS (LOS E or F).

**Table I-10**
**Year 2000 Freeway Segment Level of Service**
**(AM and PM Peak Hour)**

| Location | EB No. of Lanes | WB No. of Lanes | AM Peak Hr. EB/WB LOS | PM Peak Hr. EB/WB LOS |
|---|---|---|---|---|
| Ballas to Spoede | 3+auxiliary | 3+auxiliary | D / D | D / D |
| Spoede to Lindbergh | 3 | 3 | D / D | D / F |
| Lindbergh to Clayton /Warson | 3 | 3 | D / D | D / F |
| Clayton /Warson to McKnight | 3 | 3 | D / F | D / F |
| McKnight to Brentwood /I-170 | 3+auxiliary | 3+auxiliary | D / D | D / D |
| Brentwood /I-170 to Hanley | 3+auxiliary | 3+auxiliary | E / E | E / E |
| Hanley to Laclede Station | 3 | 3 | D / D | D / F |
| Laclede Station to Big Bend | 3 | 3 | D / D | D / F |
| Big Bend to Bellevue | 3+auxiliary | 3+auxiliary | E / D | D / E |
| Bellevue to McCausland | 3 | 3 | F / D | D / F |
| McCausland to Oakland /Clayton | 3+auxiliary | 3+auxiliary | E / D | D / E |
| Oakland /Clayton to Hampton | 4 | 3+auxiliary | E / D | D / D |
| Hampton to Kingshighway | 4 | 4 | D / D | C / D |
| Kingshighway to Sarah | 3+auxiliary | 4 | D / C | C / D |
| I-170 (I-64 to Galleria) | 3+auxiliary NB | 3+auxiliary SB | C / C | D / D |
| I-170 (Galleria to Brentwood) | 3 NB | 3 SB | D / D | D / D |

Above level of service information based on *Highway Capacity Manual 2000*, Transportation Research Board, Chapters 23-25.
The analysis was performed by the HNTB Corporation as part of Job No. J6I0978 (R/W, aesthetic design and traffic modeling for the I-64 corridor from Spoede to Tower Grove).
Source: HNTB, 2001.

Traffic operational characteristics and operational problems were identified by completing an analysis of roadway capacity for weaving sections, merging/diverging area and interchange intersections within the I-64 Corridor. Future level-of-service for the mainline segments of I-64 is given in Table I-7 which shows those mainline segments that will have traffic operations that exceed LOS F by the year 2020. Appendix B summarizes the traffic operation results for the weaving, merging/diverging and interchange intersections. It shows that outside of the mainline segments the other portions of I-64 will be at a failing level-of-service by year 2020 if no improvements are made.

The existing corridor has traffic operation problems due to many interchange access points spaced close together, tight weaving and short merging and diverging areas. Very poor weaving areas exist on the I-64 mainline near the following interchange areas located primarily at interchanges located east of Brentwood Boulevard: the Lindbergh Boulevard interchange, between the Brentwood Boulevard and Hanley Road interchanges, between the Big Bend Boulevard and Bellevue Avenue interchanges, between the McCausland Avenue and Oakland Avenue interchanges, the Hampton Avenue interchange and the Kingshighway interchange. The operational problems are due to high volumes of motorists traveling at interstate speeds while using the low-speed interchange design. In general, the tight, low-speed ramps do not provide enough ramp weave and merge distance or deceleration distance, causing congestion.

Within the interchanges at the arterial intersections, traffic operational problems also exist causing congestion and delay. Poor LOS occurs at the following ramp terminal intersections: Brentwood Boulevard, Hanley Road, Eager Road, Bellevue Avenue Hampton Avenue and Kingshighway Boulevard. Often the intersections do not perform well during peak hours due to high volumes of motorists exceeding the capacity of the interchange intersections and the close proximity of other arterial intersections adding traffic delays and congestion to the system. For these reasons, traffic operational improvements are part of the proposed action.

## 5. COMMUNITY REDEVELOPMENT

### a. Support Continued Economic Development

The I-64 corridor is the location of a number of major economic and institutional centers. It is also the site of numerous planned and potential economic redevelopment sites. Continued access to these locations via an uncongested and safer I-64 facility would strengthen the development potential of these sites and reinforce and preserve the strength and character of neighborhoods located adjacent to I-64. Many of these developments have been proposed since the future year population and employment forecasts were completed by the EWGCC in the mid-1990s. The traffic impacts of potential developments have been considered in the analysis of project need. Improved access and mobility is needed to continue to support these and other future economic development proposals within the I-64 corridor.

Several sites along the corridor are targeted for economic redevelopment. The redevelopment sites replace existing land uses with more dense land uses. This future growth will result in greater volumes of traffic using the I-64 corridor. The following paragraphs call out some of the more major planned economic development projects within the I-64 study corridor.

Several large redevelopment sites are under progress or planned near the Brentwood Boulevard, I-170, and Hanley Road interchange area. Redevelopments include more dense land uses including institutional space, office space, commercial space, and mixed-use residential with retail. The sites are located along both sides of I-64 near this major interchange system. Bi-State Development Agency (Metro) is also planning to construct two MetroLink light rail stations in this area. This segment of the MetroLink light rail expansion is expected to become operational in 2006.

Economic and community redevelopment proposals and plans have been made in the McCutcheon Road, Hampton Avenue, Oakland Avenue and Kingshighway areas. Redevelopment sites include the construction of more dense land uses including office space, educational expansion, public land uses and more commercial properties.

There are three major hospital complexes along the I-64 corridor: St. Mary's Hospital near Bellevue Avenue, Forest Park Hospital on Hampton Avenue and the BJC complex across Kingshighway Boulevard from Forest Park. The three hospitals are undergoing or planning to undergo major expansion to their respective facilities.

Growth to the existing commercial and industrial areas located between the Kingshighway Boulevard and Boyle Avenue interchanges would also continue contributing to future traffic growth within this section of I-64. Other growth and redevelopment near this area includes new commercial and denser residential uses.

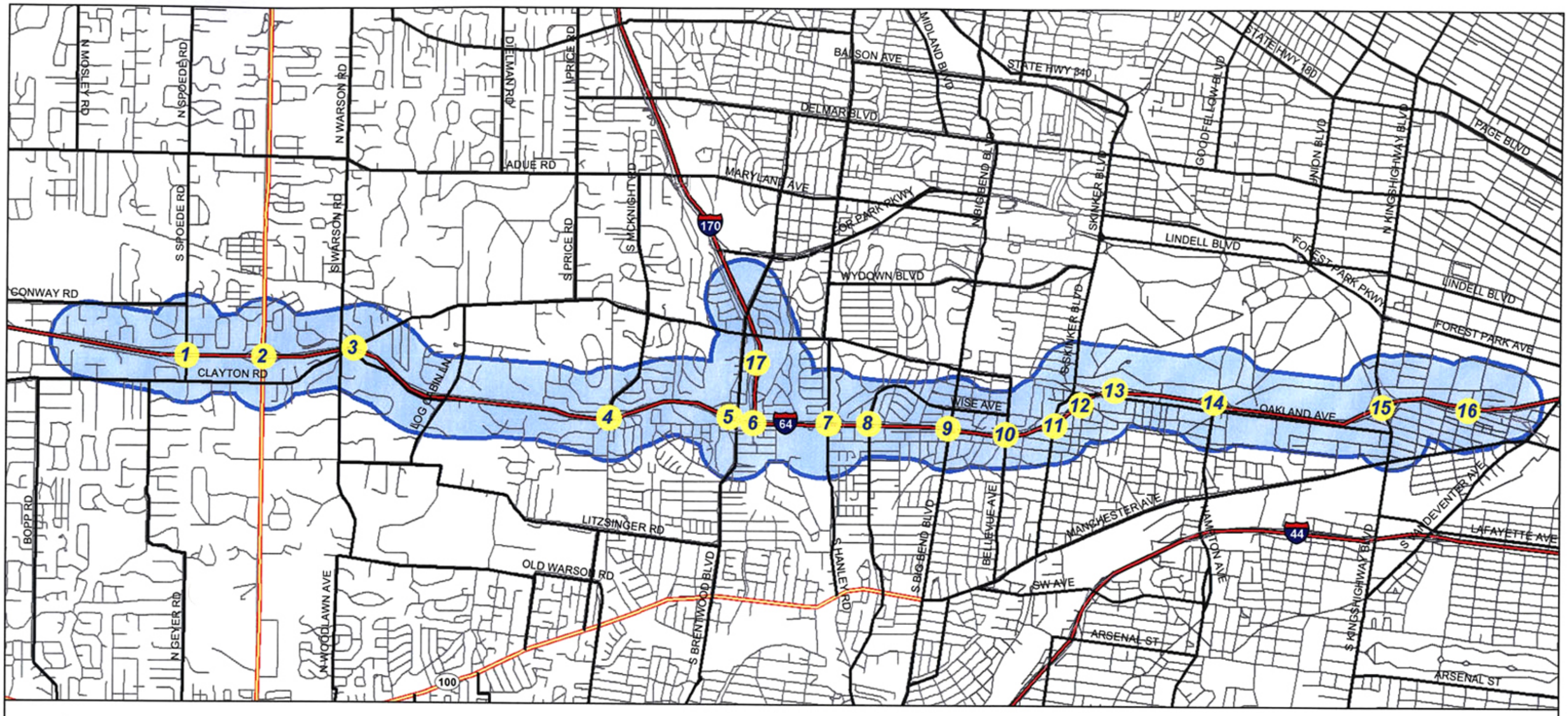
### b. Support Pedestrian and Bicycle Movement

I-64 since its inception has been a barrier that has in some cases, split communities and neighborhoods. One method to reconnect these communities and neighborhoods is by improving pedestrian and bicycle connections across I-64.

Pedestrian crossings as they exist now, are limited in number and are not always designed to current standards. As there are no separate pedestrian bridges in the Greenway Subcorridor, pedestrian movements along existing streets that cross I-64 should be maintained or enhanced. Separate pedestrian connections across I-64 are currently provided at two locations within the Thruway Subcorridor. There currently is a pedestrian bridge crossing I-170 south of Galleria Parkway and second bridge west of Big Bend Boulevard interchange.

The character of the Parkway Subcorridor given the location of Forest Park and other attractions has pedestrian and bicycle crossings that serve attractions on both sides of I-64. An existing pedestrian bridge is located at the Forest Park Community College campus, approximately 2,200 feet (670 meters) east of the Hampton Avenue interchange. The bridge provides access to Forest Park for the students of the college. This pedestrian bridge also serves the Highlands Office Park development immediately west of the college on Oakland Avenue and a Forest Park shuttle bus drop off on the park side. However, the existing bridge is not ADA compliant with access to the bridge deck via stairs on both sides.

A pedestrian bridge provides access to Forest Park from the adjacent neighborhoods, the CID, the BJC campus, and the Central West End neighborhood. An existing pedestrian tunnel, located approximately 1000 feet (305 meters) west of the Science Center overpass, provides access to Forest Park for the institutions along Oakland Avenue, directly adjacent to the south of I-64. A middle school, high school and community college located along Oakland Avenue, use the tunnel to access Forest Park on the north side of I-64. However, the existing tunnel has steep ramps, which are parallel to the highway alignment. The tunnel entrance is hidden by retaining walls on both sides. The hidden entrance has presented security concerns for pedestrians. Another pedestrian bridge currently exists approximately 900 feet (275 meters) east of Kingshighway Boulevard interchange. These connections need more secure and accessible routes for pedestrians.




**Legend**

| | | | | | |
|---|---|---|---|---|---|
| 1 SPOEDE | 4 McKNIGHT | 7 HANLEY | 10 BELLEVUE | 13 OAKLAND | 16 BOYLE |
| 2 LINDBERGH | 5 BRENTWOOD | 8 LACLEDE STATION | 11 McCAUSLAND | 14 HAMPTON | 17 GALLERIA PKWY |
| 3 CLAYTON | 6 I-170 | 9 BIG BEND | 12 SKINKER | 15 KINGSHIGHWAY | |

Study Area

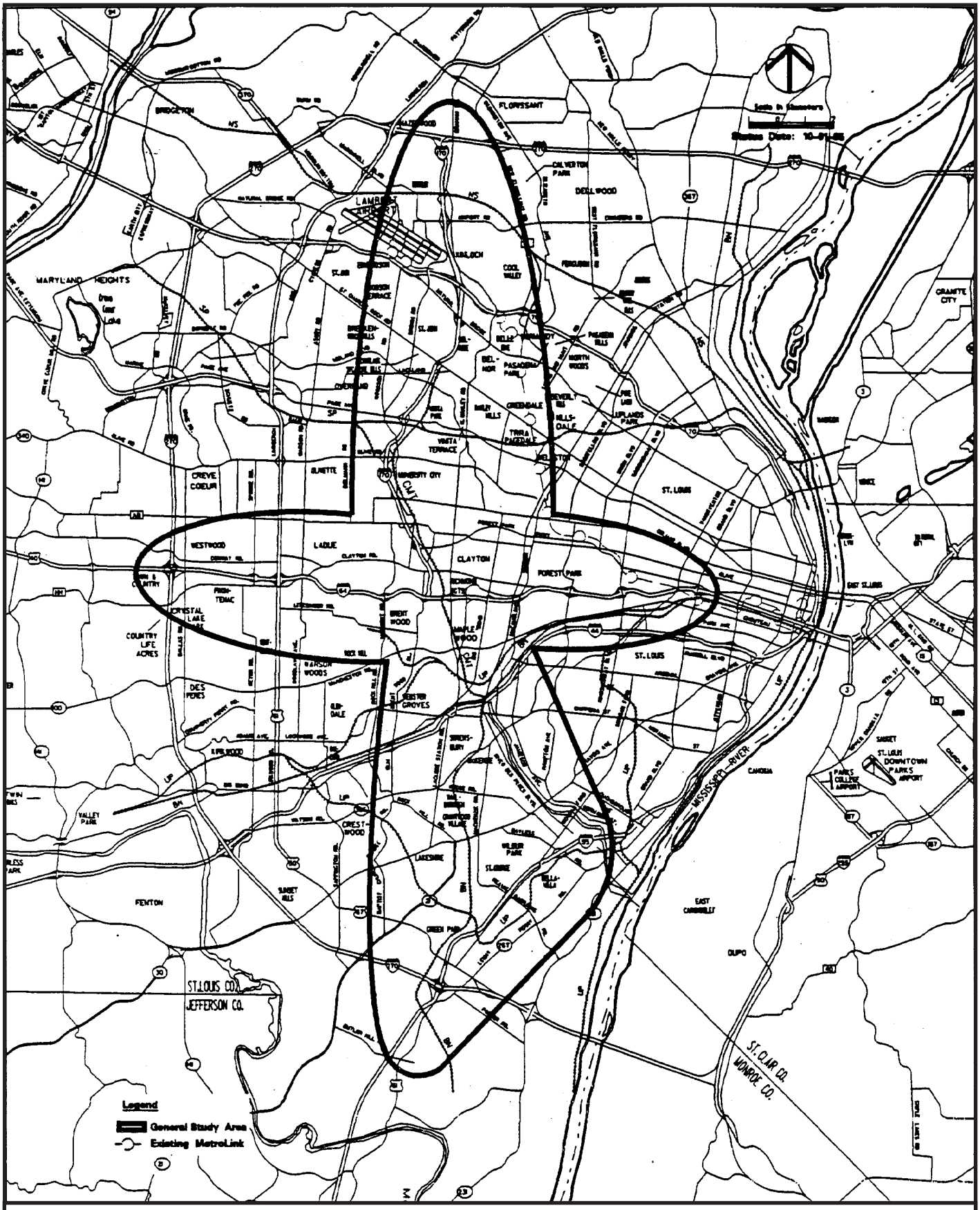
0 0.5 1 2 3 4
Miles

N

**I-64 CORRIDOR STUDY**

**INTERCHANGE LOCATIONS**

**Exhibit I-1**

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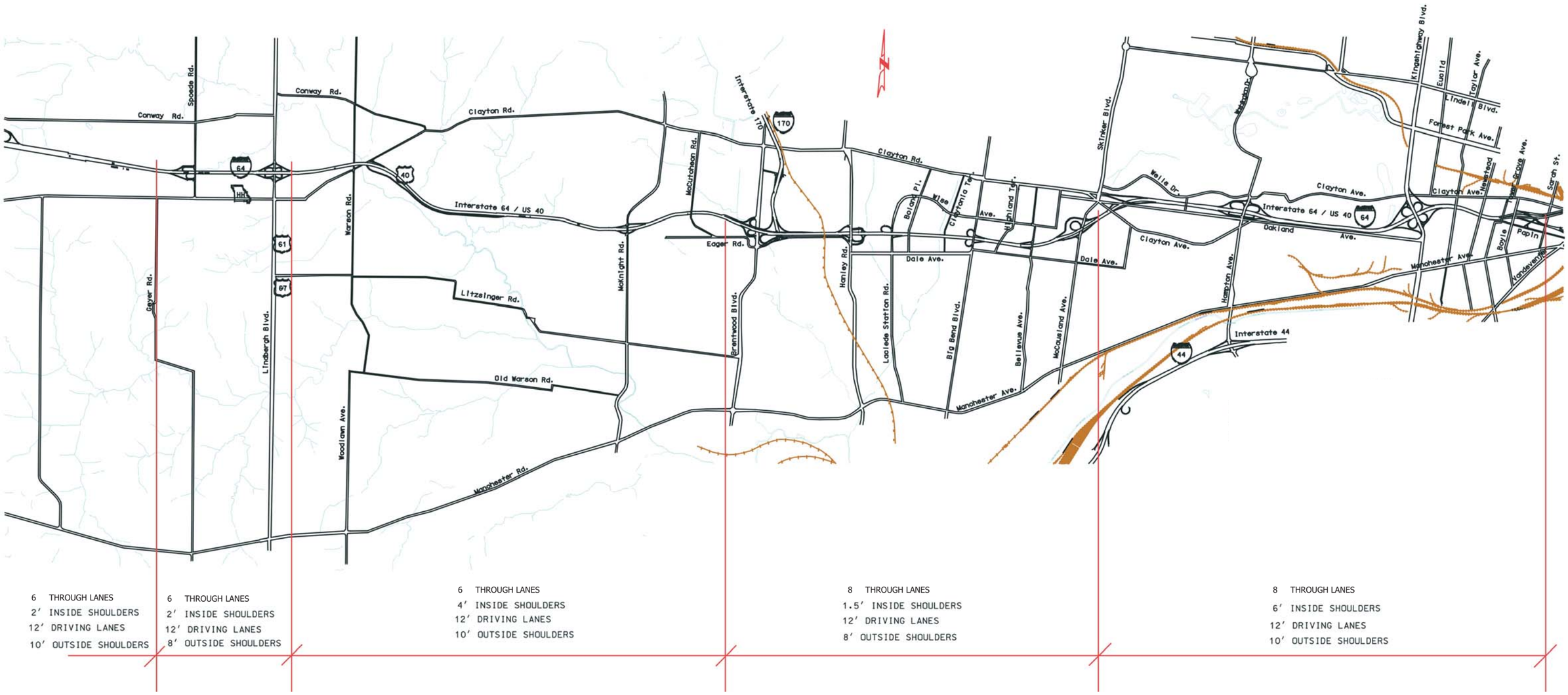
**CROSS-COUNTY CORRIDOR MTIA STUDY AREA**
**Exhibit I-2**




LEGEND

Water Features

Rail Lines

SCALE

0 2000 4000 6000 8000 10000 FT

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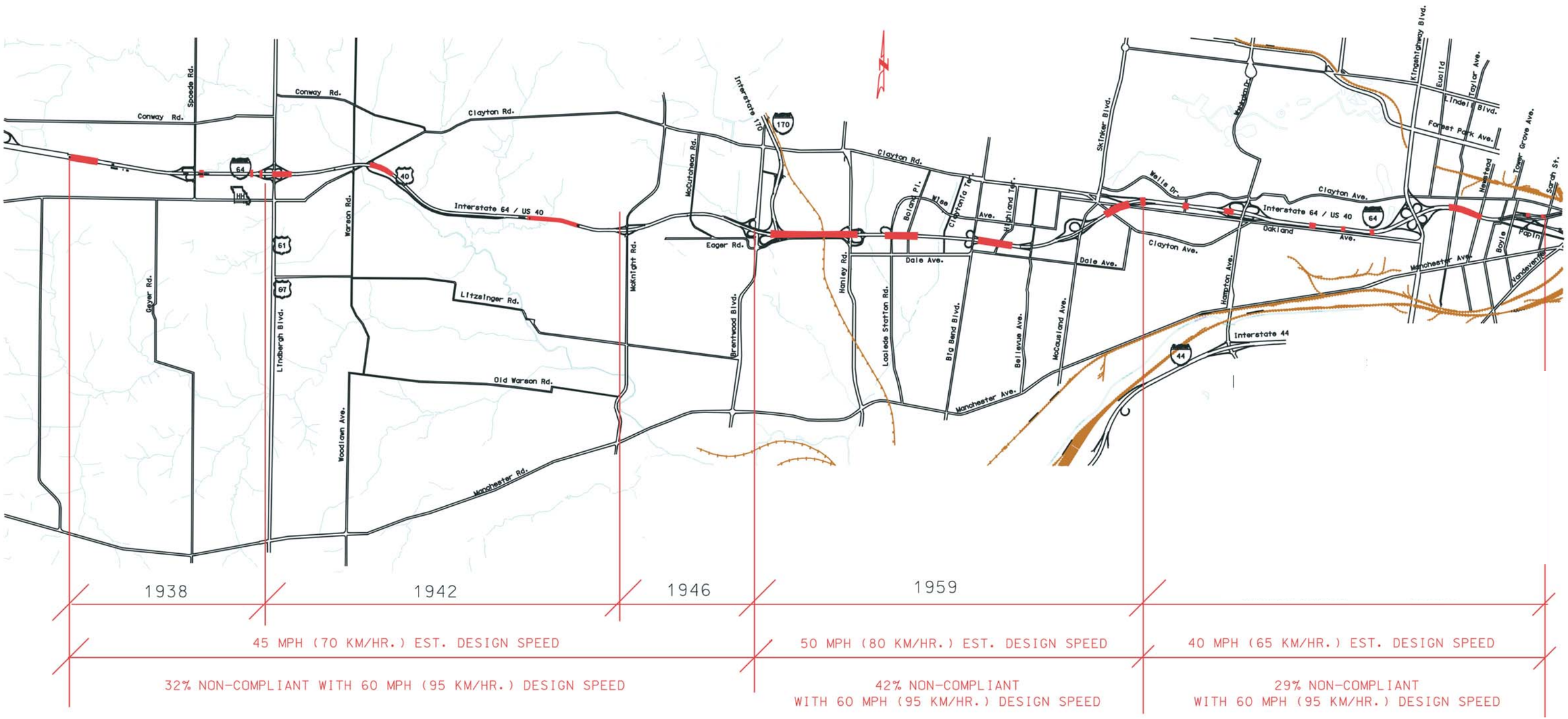
**I-64 CORRIDOR STUDY**

**LANE AND SHOULDER WIDTHS**
**Exhibit I-3**




LEGEND

General areas of deficient vertical alignment

Water Features

Rail Lines

SCALE

0 2000 4000 6000 8000 10000 FT

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**I-64 CORRIDOR STUDY**

**EXISTING VERTICAL ALIGNMENT**
**Exhibit I-4**


## LEGEND

- CROSS ROAD BRIDGES OVER I-64
- BRIDGES ON I-64 AND I-170
- ADDITIONAL BRIDGES
- ###' ##" DEFICIENT BRIDGE VERTICAL CLEARANCE
- WATER FEATURES
- RAIL LINES

SCALE

0 2000 4000 6000 8000 10000 FT

## EXISTING BRIDGE LOCATIONS AND CLEARANCES

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spoede | (K-601R) | 14'06" | 16 | Hanley Rd. | (L0735R) | 15'01" | 31 | Hampton Ave. | (K0434R1) | 14'09" |
| 2 | U.S. 61 / 67 | (K-600R2) | 14'00" | 17 | Hampton Creek | (A-29) | Box Culvert | 32 | Pedestrian Overpass | (K-436R) | 15'08" |
| 3 | Clayton / Warson | (K-795R) | 13'11" | 18 | Laclede Station Rd. | (L0793R1) | 14'04" | 33 | Equestrian Underpass | (K-446R) | Box Culvert |
| 4 | McKnight | (K-854R) | 13'05" | 19 | Boland | (L0794R) | 14'09" | 34 | Kingshighway | (A0891R) | 14'11" |
| 5 | McCutcheon | (K-861R) | 14'02" | 20 | East fork of Hampton Ck. | (A-31) | Box Culvert | 35 | Pedestrian Overpass | (K0592R) | 14'06" |
| 6 | Brentwood Blvd. | (K-912R1) | 15'09" | 21 | Claytonia Ter. | (L0795R1) | 17'02" | 36 | Kingshighway over Clayton | (A0892) | 15'03" |
| 7 | CD over Brentwoo | (A-4301R) | 15'11" | 22 | Pedestrian Overpass | (A0032) | 14'09" | 37 | I-64 / US 40 ramp over Clayton | (A0893) | 15'03" |
| 8 | Black Creek | (K-917R) | Box Culvert | 23 | Big Bend Blvd. | (L0821R) | 14'11" | 38 | Taylor Ave. | (K0453R5) | 14'09" |
| 9 | Clayton Rd. (NB) | (A-2780R) | 14'00" | 24 | Highland Ave. | (L0822R) | 14'11" | 39 | Newstead | (K0465R1) | 15'00" |
| 10 | Clayton Rd. (SB) | (A-2780R) | 14'00" | 25 | Bellevue | (L0823R) | 15'04" | 40 | Tower Grove Ave. | (K0466R2) | 15'02" |
| 11 | Galleria Pkwy (NB) | (A-2779R) | 14'05" | 26 | McCausland Ave. | (L0835R2) | 15'02" | 41 | Boyle Ave. | (L0668R1) | 15'03" |
| 12 | Galleria Pkwy (SB) | (A-2779R) | 14'05" | 27 | Clayton Rd. | (L0836R) | 15'10" | 42 | I-64 / US 40 ramp | (L0669R) | 15'08" |
| 13 | Pedestrian Overpass | (A-2777) | 15'00" | 28 | Ramp I-64 / US 40 | (L0838) | 16'03" | 43 | I-64 / US 40 ramp | (A3735) | 16'04" |
| 14 | I-64 Over I-170 | (A-1480R) | 14'05" | 29 | Oakland Ave. | (L0837) | 14'06" | | | | |
| 15 | St. Louis Terminal RR | (K0911R1) | 24'01" | 30 | Tamm Ave. | (K0432R) | 15'00" | | | | |

CURRENT REQUIRED VERTICAL CLEARANCES:
BRIDGES OVER I-64 = 16'06" PEDESTRIAN BRIDGES OVER I-64 = 17'06"
BRIDGES UNDER I-64 = 15'06" FOR MAJOR CROSS STREETS AND 15'02" FOR MINOR CROSS STREETS

THE NEW I-64

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**I-64 CORRIDOR STUDY**

**BRIDGE CLEARANCES**
**Exhibit I-5**