

## Appendix A

### I-70 Planning and Environmental Linkages (PEL) Study Conditions Assessment Report, May 2017

# I-70 Planning and Environmental Linkages (PEL) Study Conditions Assessment Report FINAL

MAY 2017



# Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>1.0 INTRODUCTION.....</b>	<b>1-1</b>
1.1 STUDY AREA.....	1-1
1.2 PARTICIPANTS.....	1-1
1.3 METHODOLOGY .....	1-2
1.4 RELATED STUDIES AND PROJECTS.....	1-2
1.4.1 Moving Transit Forward, St. Louis Regional Long-Range Transit Plan, April 2010 (Metro).....	1-3
1.4.2 Mid Rivers Mall Drive/I-70 & Route 79/I-70 Interchange Study, February 2011 (City of St. Peters, MO).....	1-3
1.4.3 Fifth Street Gateway Project, October 2011 (City of St Charles, MO).....	1-3
1.4.4 Gateway Bike Plan: Regional Routes to Sustainability, 2011 – Great Rivers Greenway ....	1-3
1.4.5 Interstate I-70 Cave Springs Interchange Revision and One-Way Outer Roads between Cave Springs and Mid Rivers Mall Drive CMAQ Application, March 2012 (St. Charles County, MO).....	1-4
1.4.6 Congestion Reduction Study: I-70 Zumbahl and Cave Springs Interchanges, May 2012 (City of St. Charles, MO).....	1-4
1.4.7 North Riverfront Commerce Corridor Land Use Plan, October 2012 (City of St. Louis, MO).....	1-4
1.4.8 St. Louis Regional Freight Study, June 2013 (East-West Gateway Council of Governments).....	1-4
1.4.9 St. Louis Rapid Transit Connector Study, December 2013 (Metro).....	1-4
1.4.10 I-70 Traffic Flow Improvements Project, January 2014 (O’Fallon, MO).....	1-5
1.4.11 A Vision for Missouri’s Transportation Future, February 2014 (MoDOT) .....	1-5
1.4.12 Missouri River Crossing Study, December 2014 (Great Rivers Greenway, Maryland Heights, St. Charles City, Bridgeton, and MoDOT).....	1-5
1.4.13 Cypress Corridor Study, 2015 (St. Ann, MO).....	1-5
1.4.14 I-270 North Environmental Assessment, December 2016 (MoDOT).....	1-5
1.4.15 NorthPark Study, Ongoing (NorthPark LLC).....	1-6
1.4.16 St. Louis Regional Freightway, Ongoing (Bi-State Development) .....	1-6
1.4.17 Municipal Bicycle & Pedestrian Master Plans – East-West Gateway, Trailnet, and Municipalities .....	1-6
1.4.18 Northside-Southside MetroLink Conceptual Design Study, Ongoing (St. Louis City) .....	1-6
1.4.19 Proposed Preliminary Conceptual Planning Study and Comparative Evaluation of Potential MetroLink Corridors in St. Louis County, Mo, Ongoing (St. Louis County, MO) .....	1-7
1.4.20 O’Fallon Connected Corridor Study, Ongoing (O’Fallon, MO).....	1-7
1.4.21 Interstate I-70 Route U (Lucas-Hunt Road) Interchange Revision, 2018 (St. Louis County).....	1-8
<b>2.0 EXISTING TRANSPORTATION SYSTEM.....</b>	<b>2-1</b>
2.1 ROADWAY NETWORK.....	2-1
2.1.1 Mainline I-70.....	2-1

2.1.2	Right-of-Way .....	2-2
2.1.3	Major Interchanges .....	2-2
2.1.4	Major Parallel Routes .....	2-4
2.2	TRANSPORTATION SYSTEM .....	2-5
2.2.1	Pavement Conditions .....	2-5
2.2.2	Bridge Ratings .....	2-5
2.2.3	Freight Travel Restrictions .....	2-6
2.2.4	Utilities .....	2-8
2.3	TRAFFIC OPERATIONS AND SAFETY .....	2-8
2.3.1	Traffic Volumes and Commercial Traffic .....	2-8
2.3.2	Level of Service .....	2-9
2.3.3	Travel Speeds .....	2-10
2.3.4	Crash History .....	2-10
2.4	CURRENT TRAVEL MARKET (TRAVEL DEMAND MODEL) .....	2-13
2.5	TRANSIT .....	2-13
2.5.1	Metro .....	2-14
2.5.1.1	<i>MetroBus Routes Parallel to I-70 within the Study Area</i> .....	2-15
2.5.1.2	<i>MetroBus Routes Crossing I-70 in the Study Area</i> .....	2-19
2.5.1.3	<i>MetroBus Routes Within the Study Area But Not Parallel or Crossing I-70</i> .....	2-22
2.5.1.4	<i>MetroLink</i> .....	2-22
2.5.1.5	<i>Park-Ride Lots</i> .....	2-23
2.5.2	St. Charles Area Transit System (SCAT) .....	2-24
2.5.2.1	<i>Local Transit Service</i> .....	2-24
2.5.2.2	<i>I-70 Commuter Service</i> .....	2-25
2.5.2.3	<i>Commuter Lots</i> .....	2-26
2.6	BICYCLE AND PEDESTRIAN .....	2-26
2.6.1	Existing Facilities .....	2-27
2.6.2	Bicycle and Pedestrian Crashes .....	2-29
2.6.2.1	<i>Bicycle Crashes</i> .....	2-30
2.6.2.2	<i>Pedestrian Crashes</i> .....	2-30
2.6.2.3	<i>Crashes by Year</i> .....	2-30
2.6.3	Bicycle Level of Service (BLOS) .....	2-31
2.6.4	Pedestrian Level of Service (PLOS) .....	2-31
2.6.5	Planned Facilities .....	2-33
2.6.6	Existing Walking and Bicycling Demand .....	2-33
2.6.6.1	<i>Methods</i> .....	2-34
2.6.6.2	<i>Corridor Demand Assessment</i> .....	2-35
2.6.6.3	<i>Impact of Existing Environment and Infrastructure</i> .....	2-37
2.7	FREIGHT TRANSPORTATION .....	2-38
2.7.1	St. Louis Regional Freight Study .....	2-38
2.7.2	St. Louis Regional Freightway .....	2-39
2.7.3	Missouri Freight Plan .....	2-40
<b>3.0</b>	<b>EXISTING ENVIRONMENTAL CONDITIONS .....</b>	<b>3-1</b>
3.1	AIR QUALITY .....	3-2
3.1.1	Methodology .....	3-2
3.1.2	Key Points .....	3-3
3.2	SENSITIVE NOISE RECEPTORS .....	3-5

3.2.1	Methodology.....	3-5
3.2.2	Key Points .....	3-7
3.3	CULTURAL RESOURCES.....	3-7
3.3.1	Methodology.....	3-8
3.3.2	Key Points .....	3-8
3.3.2.1	<i>Previously Identified Historic Sites.....</i>	<i>3-9</i>
3.3.2.2	<i>Previous Architectural Surveys.....</i>	<i>3-10</i>
3.3.2.3	<i>Previously Recorded Archeological Sites.....</i>	<i>3-11</i>
3.3.2.4	<i>Previous Archeological Surveys .....</i>	<i>3-16</i>
3.3.2.5	<i>Historic Bridges.....</i>	<i>3-16</i>
3.4	PARKS, REFUGES, AND RECREATION FACILITIES .....	3-16
3.4.1	Methodology.....	3-17
3.4.2	Key Points .....	3-18
3.4.2.1	<i>Existing Park, Refuge, Trail, Cemetery, and Open Space Resources .....</i>	<i>3-18</i>
3.4.2.2	<i>Planned and Other Potential Future Resources .....</i>	<i>3-21</i>
3.5	PUBLIC AND LARGE COMMERCIAL FACILITIES .....	3-22
3.5.1	Methodology.....	3-22
3.5.2	Key Points .....	3-23
3.6	SITES WITH HAZARDOUS SUBSTANCES .....	3-26
3.6.1	Methodology.....	3-26
3.6.2	Key Points .....	3-27
3.7	WETLANDS AND OTHER WATERS OF THE U.S.....	3-32
3.7.1	Methodology.....	3-32
3.7.2	Key Points .....	3-32
3.7.2.1	<i>Wetlands.....</i>	<i>3-32</i>
3.7.2.2	<i>Other Waters.....</i>	<i>3-33</i>
3.8	WATER RESOURCES .....	3-33
3.8.1	Methodology.....	3-33
3.8.2	Key Points .....	3-34
3.8.2.1	<i>Surface Water Features.....</i>	<i>3-34</i>
3.8.2.2	<i>Groundwater and Karst Features .....</i>	<i>3-34</i>
3.8.2.3	<i>Water Quality.....</i>	<i>3-35</i>
3.8.2.4	<i>Floodplains and Floodways.....</i>	<i>3-36</i>
3.9	OTHER BIOLOGICAL RESOURCES .....	3-37
3.9.1	Methodology.....	3-38
3.9.2	Key Points .....	3-38
3.9.2.1	<i>Threatened and Endangered Species and Habitats .....</i>	<i>3-39</i>
3.9.2.2	<i>Migratory Birds .....</i>	<i>3-41</i>
3.9.2.3	<i>Wildlife Corridors.....</i>	<i>3-42</i>
3.10	LAND COVER AND LAND USE.....	3-42
3.10.1	Methodology.....	3-42
3.10.2	Key Points .....	3-42
3.10.2.1	<i>Fine Resolution Land Cover.....</i>	<i>3-43</i>
3.10.2.2	<i>Prime Farmland.....</i>	<i>3-43</i>
3.10.2.3	<i>Land Use Planning.....</i>	<i>3-44</i>
3.10.2.4	<i>Existing Land Use.....</i>	<i>3-45</i>
3.10.2.5	<i>Planned Development and Future Land Use.....</i>	<i>3-47</i>
3.11	SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE.....	3-70

3.11.1 Methodology.....	3-70
3.11.2 Key Points .....	3-70
3.11.2.1 Minority Populations.....	3-70
3.11.2.2 Low-Income Populations.....	3-71
3.12 EMPLOYMENT.....	3-72
<b>4.0 FUTURE TRANSPORTATION CONDITIONS.....</b>	<b>4-1</b>
4.1 NO-ACTION ALTERNATIVE .....	4-1
4.2 2045 NO-ACTION CONDITIONS.....	4-1
4.2.1 Corridor Traffic Forecasts and Level of Service .....	4-2
4.2.2 Transit .....	4-2

**LIST OF TABLES**

TABLE 1-1: STAGES IN PEL REPORT DEVELOPMENT .....	1-2
TABLE 2-1: I-70 INTERCHANGES IN ST. CHARLES COUNTY .....	2-2
TABLE 2-2: I-70 INTERCHANGES IN ST. LOUIS COUNTY .....	2-3
TABLE 2-3: I-70 INTERCHANGES IN THE CITY OF ST. LOUIS .....	2-3
TABLE 2-4: SUMMARY OF CONDITION OF BRIDGES CARRYING AND/OR EXITING I-70 .....	2-6
TABLE 2-5: SUMMARY OF CONDITION OF BRIDGES CROSSING AND/OR ADJACENT TO I-70.....	2-6
TABLE 2-6: BRIDGES OVER I-70 WITH A VERTICAL CLEARANCE LESS THAN 16'-6" .....	2-7
TABLE 2-7– FREEWAY LOS THRESHOLDS .....	2-9
TABLE 2-8: EXISTING CRASH SEVERITY DATA ON I-70 (2011-2015).....	2-11
TABLE 2-9: EXISTING CRASH TYPE DISTRIBUTION ON I-70 (2011-2015).....	2-13
TABLE 2-10: METROBUS FY 2016 RIDERSHIP ON ROUTES PARALLEL TO I-70 WITHIN THE STUDY AREA .....	2-14
TABLE 2-11: METROBUS FY 2016 RIDERSHIP ON ROUTES CROSSING I-70 IN THE STUDY AREA ..	2-15
TABLE 2-12: METROBUS FY 2016 RIDERSHIP ON ROUTES WITHIN THE STUDY AREA BUT NOT PARALLEL OR CROSSING I-70 .....	2-15
TABLE 2-13: METROLINK FY 2016 RIDERSHIP BY STATION .....	2-23
TABLE 2-14: PARK-RIDE LOT CAPACITY AND UTILIZATION IN 2016 FOR LOTS WITHIN THE STUDY AREA AND CURRENT SYSTEM TOTALS .....	2-23
TABLE 2-15: SCAT 2016 LOCAL TRANSIT SERVICE ANNUAL AND AVERAGE DAILY RIDERSHIP ..	2-25
TABLE 2-16: 2016 TOTAL AND AVERAGE NUMBER OF COMMUTERS BOARDING THE SCAT I-70 COMMUTER SERVICE AT EACH STOP.....	2-25
TABLE 2-17: LOCATION AND CAPACITY OF MODOT COMMUTER LOTS IN THE I-70 STUDY AREA	2-26
TABLE 2-18: PLOS SCORE DEFINITION.....	2-32
TABLE 2-19: ASSESSMENT OF COUNTY-WIDE POPULATION AND JOURNEY TO WORK TRENDS, 2000 - 2015.....	2-34
TABLE 2-20: BICYCLE AND PEDESTRIAN DEMAND ASSESSMENT I-70 CORRIDOR .....	2-35
TABLE 2-21: FREIGHT ORIGINS AND DESTINATIONS IN THE STUDY AREA .....	2-38
TABLE 3-1: NATIONAL AMBIENT AIR QUALITY STANDARDS .....	3-2

TABLE 3-2: CURRENT CITY OF ST. LOUIS AIR QUALITY DESIGN VALUES (CALCULATED USING DATA FROM 2014-2016) .....	3-4
TABLE 3-3: MODOT NOISE ABATEMENT CRITERIA .....	3-6
TABLE 3-4: SUMMARY OF PREVIOUSLY IDENTIFIED HISTORIC SITES (CONTINUED) .....	3-9
TABLE 3-5: SUMMARY OF NRHP DISTRICTS .....	3-10
TABLE 3-6: SUMMARY OF PREVIOUS ARCHITECTURAL SURVEYS .....	3-11
TABLE 3-7: SUMMARY OF PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES .....	3-12
TABLE 3-8: EXISTING PARK, REFUGE, TRAIL, CEMETERY, AND OPEN SPACE RESOURCES.....	3-18
TABLE 3-9: PLANNED PARK, REFUGE, TRAIL, AND OPEN SPACE RESOURCES .....	3-21
TABLE 3-10: SUMMARY OF PUBLIC OR LARGE COMMERCIAL FACILITIES .....	3-23
TABLE 3-11: SUMMARY OF SITES WITH POTENTIAL OR RECOGNIZED ENVIRONMENTAL CONDITIONS.....	3-27
TABLE 3-12: SUMMARY OF IDENTIFIED WETLANDS.....	3-33
TABLE 3-13: SUMMARY OF WATERBODIES ON 303(D) LIST .....	3-36
TABLE 3-14: SUMMARY OF DRAINAGEWAYS.....	3-37
TABLE 3-15: SUMMARY OF THREATENED OR ENDANGERED SPECIES .....	3-39
TABLE 3-16: SUMMARY OF STATE-LISTED SPECIES .....	3-40
TABLE 3-17: LAND COVER .....	3-43
TABLE 3-18: SUMMARY OF PRIME FARMLAND .....	3-43
TABLE 3-19: LAND USE – ST. CHARLES COUNTY .....	3-45
TABLE 3-20: LAND USE – ST. LOUIS COUNTY .....	3-45
TABLE 3-21: LAND USE – CITY OF ST. LOUIS .....	3-46
TABLE 3-22: MINORITY POPULATION BY COUNTY.....	3-70
TABLE 3-23: MINORITY POPULATION IN THE STUDY AREA.....	3-71
TABLE 3-24: LOW-INCOME BY COUNTY.....	3-71
TABLE 3-25: LOW-INCOME IN THE STUDY AREA .....	3-72
TABLE 4-1: LIST OF PROJECTS IN <i>CONNECTED 2045 LONG-RANGE TRANSPORTATION PLAN</i> RELATED TO I-70.....	4-1
TABLE 4-2: ILLUSTRATIVE TRANSIT PROJECTS .....	4-2

**LIST OF FIGURES (UNDER SEPARATE COVER)**

- Figure 2-1: Study Area Boundary
- Figure 2-2: Existing Through Travel Lanes
- Figure 2-3: Ownership and Outer Roads
- Figure 2-4: Bridge Conditions
- Figure 2-5: Peak Period and Peak Hour Traffic Volumes
- Figure 2-6: AADT and Percentage Commercial
- Figure 2-7A: 2015 Level of Service (LOS) - AM
- Figure 2-7B: 2045 Level of Service (LOS) - AM
- Figure 2-8A: 2015 Level of Service (LOS) - PM
- Figure 2-8B: 2045 Level of Service (LOS) - PM
- Figure 2-9: Existing Posted Speeds and Weekday Peak Period Travel Time Index
- Figure 2-10: Crash Patterns and Locations
- Figure 2-11: Existing, Crash Type Distribution for Mainline I-70 (2009-2013) (IN TEXT)

- Figure 2-12: Home Locations for Persons Who Work in St. Charles West
- Figure 2-13: Home Locations for Persons Who Work in St. Charles East
- Figure 2-14: Home Locations for Persons Who Work in St. Louis County West
- Figure 2-15: Home Locations for Persons Who Work in St. Louis County East
- Figure 2-16: Home Locations for Persons Who Work in St. Louis City
- Figure 2-17: Transit
- Figure 2-18: Bicycle Level of Service (BLOS) and Crashes
- Figure 2-19: Pedestrian Level of Service (PLOS) and Crashes
- Figure 2-20: Bike Paths and Greenways

Figure 3-1: Wind Speeds and Directions, Granite City (IN TEXT)

Figure 3-2: Existing Land Use

Figure 3-3: Parks and Open Space

Figure 3-4: Public/Large Commercial Facilities

Figure 3-5: Sites with Hazardous Substance

Figure 3-6: Wetlands and Waters of the U.S.

Figure 3-7: Water Quality and Sinkholes

Figure 3-8: Floodplains, Levees, and Dams

Figure 3-9: Land Cover

Figure 3-10: Prime Farmland

Figure 3-11: Municipal Boundary

Figure 3-12: St. Charles County West – Vacant Buildings

Figure 3-13: St. Charles County West – Development Areas

Figure 3-14: St. Charles County West – Vacant Land

Figure 3-15: St. Charles County East – Vacant Buildings

Figure 3-16: St. Charles County East – Development Areas

Figure 3-17: St. Charles County East – Vacant Land

Figure 3-18: St. Louis County West – Vacant Buildings

Figure 3-19: St. Louis County West – Development Areas

Figure 3-20: St. Louis County West – Vacant Land

Figure 3-21: St. Louis County East – Vacant Buildings

Figure 3-22: St. Louis County East – Development Areas

Figure 3-23: St. Louis County East – Vacant Land

Figure 3-24: City of St. Louis – Vacant Buildings

Figure 3-25: City of St. Louis – Development Areas

Figure 3-26: City of St. Louis – Vacant Land

Figure 3-27: Minority Population

Figure 3-28: Household Incomes

Figure 3-29: Population in Poverty

Figure 3-30: St. Charles County West – Business Locations

Figure 3-31: St. Charles County East – Business Locations

Figure 3-32: St. Louis County West – Business Locations

Figure 3-33: St. Louis County East – Business Locations

Figure 3-34: City of St. Louis – Business Locations





**LIST OF APPENDICES**

- Appendix A Subsurface Utilities Present in the I-70 Study Area
- Appendix B Bike and Pedestrian Level of Service Analysis Methodology
- Appendix C Air Quality Design Value Calculations
- Appendix D Metro Route Maps

**LIST OF ACRONYMS AND ABBREVIATIONS USED IN REPORT**

AADT	Average Annual Daily Traffic
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials, now known as ASTM International
AVC	Animal-Vehicle Collision
AVE	Avenue
BGPA	Bald and Golden Eagle Protection Act
BLOS	Bicycle Levels of Service
BLVD	Boulevard
BPS	Board of Public Service
BRT	Bus Rapid Transit
BSDA	Bi-State Development Agency, also known as Metro
CAA	Clean Air Act
CDBG	HUD Community Development Block Grant
CFR	Code of Federal Regulations
CLOMR	Conditional Letter of Map Revision
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CO	Carbon Monoxide
CTR	Center
CWA	Clean Water Act
DB	Decibel
dBA	A-Weighted Sound Level in Decibels
DOD	Department of Defense
DOT Act	Department of Transportation Act of 1966
E	East
EB	Eastbound
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
et seq.	and the following
EWGCOG	East-West Gateway Council of Governments
FEMA	Federal Emergency Management Agency
FHBM	Flood Hazard Boundary Maps
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FWS	U.S. Fish and Wildlife Service
FY	Fiscal Year

GIS	Graphical Information System
GM	General MotorsGRG Great Rivers Greenway
HHS	U.S. Department of Health and Human Services
HUD	U.S. Department of Housing and Urban Development
HWY	Highway
I-15	Interstate 15
I-270	Interstate 270
I-44	Interstate 44
I-64	Interstate 64
I-70	Interstate 70
I-170	Interstate 170
INTL	International
$L_{eq(h)}$	Equivalent Sound Level over a one-hour time period
LMP	Limited Maintenance
LN	Lane
LOMR	Letter of Map Revision
LOS	Level of Service
LWCF	Land and Water Conservation Fund
L1UB	Lacustrine Limnetic Unconsolidated Bottom (Lake)
MBTA	Migratory Bird Treaty Act
MDC	Missouri Department of Conservation
MDNR	Missouri Department of Natural Resources
MHB	Missouri Historic Bridge list
MNA	Missouri Network Alliance
MNHD	Missouri Natural Heritage Database
MoDOT	Missouri Department of Transportation
MoRAP	Missouri Resource Assessment Partnership
MPH	Miles per Hour
MSA	Metropolitan Statistical Area
$\mu\text{g}/\text{m}^3$	Micrograms per Cubic Meter
N	North
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1969
NRHP	National Register of Historic Places
$\text{NO}_2$	Nitrogen Dioxide
$\text{NO}_x$	Nitrogen Oxide

NPS	National Parks Service Land
NWI	National Wetlands Inventory
O <sub>3</sub>	Ozone
PAB	Palustrine Aquatic Bed (Freshwater Pond)
Pb	Lead
PEL	Planning and Environmental Linkages
PEM	Palustrine Emergent (Freshwater Emergent Wetland)
PFO	Palustrine Forested (Freshwater Forested/Shrub Wetland)
PKWY	Parkway
PLOS	Pedestrian Levels of Service
PLZ	Plaza
PM <sub>10</sub>	Inhalable Particulates (Particulate Matter)
PM <sub>2.5</sub>	Fine Particulates (Particulate Matter)
PO	Post Office
PPB	Parts per Billion
PPM	Parts per Million
PSS	Palustrine Scrub/Shrub (Freshwater Forested/Shrub Wetland)
PUB	Palustrine Unconsolidated Bottom (Freshwater Pond)
PWSD	St. Charles County Public Water Supply District
RD	Road
ROW	Right-of-Way
RTP	Regional Transportation Plan
R2UB	Riverine Lower Perennial Unconsolidated Bottom
R2US	Riverine Lower Perennial Unconsolidated Shore
S	South
SCAT	St. Charles Area Transit
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO <sub>2</sub>	Sulfur Dioxide
SPUI	Single Point Urban Interchanges
SQ	Square
ST	Street
STIP	Statewide Transportation Improvement Plan
STLCC	St. Louis Community College
STURAA	Surface Transportation and Uniform Relocation Assistance Act of 1987
T & E	Threatened & Endangered Species
TBD	To Be Determined
TCIG	Transportation Corridor Improvement Group

TDM	Travel Demand Model
UMSL	University of Missouri St. Louis
US	United States (when referring to the US numbered highway system)
U.S.	Unites States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
UST	Underground Storage Tank
W	West
WB	Westbound

**LIST OF ACRONYMS AND ABBREVIATIONS USED IN FIGURES**

2020 CORRECTIVE ACTION	2020 Corrective Action Program List
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
FUDS	Formerly Used Defense Sites
HWS	Registry of Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites
INST CONTROL	Sites with Institutional Controls
LAST	Leaking Aboveground Storage Tanks
LUST	Leaking Underground Storage Tanks
UIC	Underground Injection Wells Database
PADS	PCB Activity Database System
RAATS	RCRA Administrative Action Tracking System
RCRA-LQG	RCRA - Large Quantity Generators
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing

## **EXECUTIVE SUMMARY**

### **Introduction**

The Missouri Department of Transportation (MoDOT) is conducting a Planning and Environmental Linkages (PEL) Study for Interstate 70 (I-70) (I-70 PEL Study) between Interstate 64 (I-64) in St Charles County, Missouri to the end of the express lanes in the City of St. Louis (Study Area). The I-70 PEL Study is being conducted to identify existing conditions and anticipated problem areas; develop and evaluate multimodal improvements to reduce congestion; improve operations and economic vitality; and enhance the safety of the roadway for all modes of travel within the Study Area.

A PEL takes a broad look at transportation, economic, social, and environmental issues to determine the needs along a corridor. It is a collaborative and integrated approach to transportation decision-making that considers environmental, community, and economic goals early in the transportation planning process. It uses the information, analysis, and products developed to provide the necessary data for an environmental review. Additionally, it promotes greater communication between transportation and resource agencies. This leads to improved decision-making and project development. An important goal of the study is to identify strategies for Sections of Independent Utility (SIU), which are sections of the corridor that will be broken into more logically phased segments of work, that are consistent with the long-term corridor vision.

I-70 is one of the primary east-west routes across the United States (U.S.). The part of I-70 within the Study Area is approximately 40 miles long and includes portions in St. Charles County, St. Louis County, the City of St. Louis, and numerous municipalities. This diverse corridor links employment centers including downtown St. Louis; residential communities (urban, suburban, and rural); St. Louis Lambert International Airport (Lambert Airport); and regional destinations, as shown in **Figure 2-1**. The corridor plays a key role in the economic health of the region.

This Conditions Assessment Report documents current transportation infrastructure, land use, and environmental conditions along the corridor, and also incorporates existing and planned development. This information will identify the need for improvements and develop strategies for addressing them in the Study Area.

The accuracy of the study is dependent on the accuracy of the input data and other assumptions. Effort was made to collect the local best data when possible for input, but in cases, national data was used to supplement local demand estimates.

### **Existing Transportation System**

Within the I-70 PEL Study Area, the geometric characteristics change. The interstate varies from two to six lanes in each direction, and has two express lanes in the City of St. Louis. Additionally, there is an extensive network of auxiliary lanes near interchanges. There are a number of utilities located across, along, or under I-70 that may influence future improvements.

There are several locations in the Study Area that have been identified by stakeholders as areas of concern. These include access to downtown, Lambert Airport from I-70, and interchange geometric considerations at locations with a large amount of current or anticipated truck traffic.

### *Pavement Conditions*

Portions of I-70 within the Study Area were among the first to be constructed beginning in 1956. MoDOT's maintenance has extended the original design life but sections are currently in need of repair or replacement.

### *Bridges and Freight*

St. Louis is a major freight transit center, especially for the transfer of cargo between road, railroad, and river modes of transportation. After Interstate 44 (I-44), I-70 is the busiest truck freight route through the St. Louis Region, and while I-44 dominates freight traffic to the west of the City of St. Louis, I-70 dominates to the east. Just over half of the bridges that carry I-70 are rated either Good or Very Good, while the rest are rated Fair or lower. Most MoDOT bridges were designed to last 50 years at the time of their construction. Of the bridges in the study area, 17 are over 50 years old, including two of the three bridges rated Poor. The third is 46 years old.

Equally important to the transfer of freight through the region is the height of bridges over I-70. The lowest bridge has a clearance of 14'-8" which will allow a standard trailer (13'6") but may impede the movement of larger loads.

Military and Oversize Overweight vehicles are allowed on a permit basis only, except in emergency situations. All bridges in the study area allow permit movement. Commodities, farm implements, or construction equipment may be no wider than 12'4" in width and 150' in length and must have a legal height and weight. Farm products (hay) may be up to 14' in width. Farm products are not required to comply with the reducible load requirement for width. Implements not designed for towing at highway speeds must be hauled. A height detection vehicle is required to precede overheight loads exceeding 15'6". Travel over bridge structures on which a load limit is posted for lesser weights is not allowed. Additional limitations can be found in the Oversize/Overweight Permit Regulations published by MoDOT. Monday through Friday, no movements are allowed in St. Louis City and County (except on Route 370) between 6:30 am and 9:00 am and from 3:30 pm to 6:30 pm. In St. Charles County on I-70 eastbound between Rt. 61 and the Missouri River Bridge, movement is restricted from 6:30 am and 9:00 am, while westbound is restricted from 3:30 pm to 6:30 pm.

### *Traffic Operations*

The 2015 East-West Gateway Council of Governments' (EWGCOG) Travel Demand Model (TDM) was used to evaluate the Level of Service (LOS) for the Study Area. Most of the I-70 eastbound traffic in the AM peak hour operates at a LOS A/B or free flow. However, there are a few areas that are at or near capacity. In St. Charles County, these include between Bryan Road and Mid Rivers Mall Drive, between 370 and Zumbahl Road and on the Blanchette Bridge.

Westbound I-70 in St. Charles County during the AM peak is generally free flow traffic with no capacity issues. In St. Louis County, traffic in both directions is largely free flow except eastbound between the Blanchette Bridge and Maryland Heights Expressway and Natural Bridge Road and Lucas Hunt where it nears capacity in both directions. Traffic in and out of the City of St. Louis is generally free flow except between Adelaide Avenue and the Stan Musial Veterans Memorial Bridge in both directions. Several I-70 interchanges or portions of the interchange operate at capacity or near capacity during the AM peak hour including I-270, I-170 in St. Louis County, portions of 5<sup>th</sup> Street, and Mid Rivers Mall Drive in St. Charles County.

In the PM peak hour, LOS ranges from A/B to F in both directions of I-70. In St. Charles County, westbound I-70 operates at or near capacity between Cave Springs and Bryan Road. In the eastbound direction, traffic is generally free flow or not near capacity. In St. Louis County, conditions on I-70 between I-270 and MO-94 in the westbound direction is near capacity. Between Lucas Hunt Road and Florissant Road also operates at capacity in both directions. In the City of St. Louis, traffic is at or near capacity in multiple segments in both directions. A number of interchanges also do not perform at an acceptable LOS including the I-70 and I-170, I-70 and I-270, Mid Rivers Mall Drive and I-70, I-70 and Rt. 61, and several other smaller interchanges.

#### *Crash Data Analysis*

Crash history from January 1, 2011 through December 31, 2015, was examined to locate crash clusters and identify crash types. The I-70 segment in the City of St Louis had the highest crash rate of approximately 122 crashes per one hundred million vehicle-miles traveled for the five-year period. The segments in St. Louis County and St. Charles County had crash rates of approximately 113 and 104 crashes, respectively, per one hundred million vehicle-miles traveled for the five-year period. All sections have an annual crash rate higher than the average state rate. Data shows that crash rates had dropped significantly within the Study Area, but started to increase in 2014 and 2015. The recent increase in crash rates in the Study Area is a concerning trend that is following a similar trend statewide. Crashes of all types are distributed throughout the Study Area and there are no areas of heavy concentration. The breakdown of crash types varies for the Study Area in St. Charles, St. Louis County, and the City of St. Louis. Overall, rear end crashes account for 41% of the crash types in the Study Area. Out-of-control and passing crash types are the next largest percentages of crashes for the Study Area.

#### *Transit Service*

There is no transit service that serves the entire Study Area. St. Louis County and the City of St. Louis are served by Metro Transit–St. Louis (Metro [MetroBus, Call-A-Ride, and MetroLink]), which has significant service through and across the corridor resulting in good ridership. St. Charles Area Transit (SCAT) provides service only within the City of St. Charles and limited commuter service into St. Louis County to connect to the Metro system during rush hour. OATS, Inc. also serves St. Charles and St. Louis counties, providing on-call transportation for the rural general public, senior citizens, and people with disabilities.



### *Bicycle and Pedestrian Facilities*

The existing network of facilities for bicycles and pedestrians varies over the 40-mile corridor from suburban patterns with low connectivity to more dense urban patterns with significant interconnectivity of the roadway network used for biking and walking. Bicycle and Pedestrian Levels of Service (BLOS, PLOS) measurements indicate I-70 is a major impediment to north-south bicycle and pedestrian movement outside of the City of St. Louis. This argues that attention should be paid to building infrastructure across or under I-70 that can carry motorized and non-motorized traffic. Developing these routes will be beneficial to the building of communities that cross the highway.

### **Environmental Overview**

The environmental resources studied were selected based on the characteristics of the Study Area and from stakeholder input. The resources that were considered are generally consistent with the National Environmental Policy Act (NEPA), its implementing regulations, and with Federal Highway Administration (FHWA) and MoDOT guidelines. This report describes resources that are considered red flag environmental resources with separate regulatory drivers, such as the Endangered Species Act (ESA) or Clean Water Act (CWA), or are typically resources of concern for the general public, such as traffic noise.

### *Air Quality*

The U.S. Environmental Protection Agency (EPA) has designated St. Charles County, St. Louis County, and the City of St. Louis as nonattainment areas for ozone. The City of St. Louis and the portion of St. Louis County in the Study Area are designated as being a maintenance area for carbon monoxide (CO). Since the project is in an area designated as nonattainment, transportation conformity will need to be demonstrated. This can be done by including the project within the fiscally constrained Statewide Transportation Improvement Plan (STIP).

### *Sensitive Noise Receptors*

A general concern with transportation facilities is the potential for noise impacts from vehicles on receptors (i.e., properties) near the facilities. Thresholds for determining noise impacts have been established by state and federal transportation agencies (e.g., MoDOT and FHWA) to guide these conclusions. Existing transportation noise conditions for the Study Area were developed by identifying the areas of possible improvements along the I-70 mainline and potentially impacted interchanges. The I-70 mainline within the Study Area is approximately 40 miles long with numerous land uses existing within 500 feet of its footprint. Until specific roadway improvements are proposed for the study corridor, it is not practical to analyze for impacted receivers and potential noise barrier locations. Future projects identified in this PEL or in future documents and studies will require a noise analysis. Based on a general overview of the existing corridor and the potential for necessary improvements, it is likely that noise mitigation will be part of future studies and design plans.

### *Cultural Resources*

Information on previously identified historic and archeological properties was evaluated within the Study Area. There are 23 National Register of Historic Places (NRHP)-listed properties, three NRHP-listed structures, and 11 NRHP-listed districts located within the Study Area. There were 104 previously recorded archaeological sites in the Study Area that were identified in the Missouri State Historic Preservation Office (SHPO) geodatabase and its associated tables. Based on the number of known cultural resources in the Study Area, continued consultation with the Missouri SHPO and other affected parties will be required as part of future studies and design plans.

### *Parks, Refuges and Recreation Facilities*

There are 68 existing parks and recreational resources that were identified in the resource-specific Study Area through reviews of Graphical Information System (GIS) data; current land use, parks, and recreation master plans; and 2017 aerial imagery from Google Earth. Many of these facilities are publicly owned and were determined to be Section 4(f) (Department of Transportation Act of 1966 (DOT Act)) properties. Nineteen of the facilities (plus one cemetery) were identified as Section 6(f) properties having received Land and Water Conservation Fund (LWCF) funds. Future projects identified in this I-70 PEL Study that have impacts on these resources will require additional evaluation.

### *Public and Large Commercial Facilities*

Many of the commercial facilities described in this report are significant drivers of commuter traffic. These include the GM Assembly Plant in Wentzville and several large healthcare facilities and retail centers/corridors. Downtown St. Louis is also a major draw for commuters during the weekday, as well as patrons of cultural and entertainment venues.

### *Sites with Hazardous Substances*

A review of federal, state, and local databases was conducted to identify properties with potential or known hazardous materials within the Study Area. A total of 138 sites with recognized and potential environmental conditions were identified. The types of sites identified appear to be those that are normally encountered by MoDOT on similar highway construction projects. The simplest management method for hazardous materials is the avoidance of contaminated sites when feasible. Wherever possible, known hazardous material issues at properties targeted for right-of-way acquisition should be investigated further prior to acquisition/construction. Knowing what hazardous materials issues exist prior to construction is critical because proper management during construction requires special materials management, handling, disposal, and worker health and safety practices.

### *Wetlands and Other Waters of the United States*

Wetlands and Other Waters of the United States were identified based on a desktop review of current wetland and water boundaries identified in other projects located within the Study Area;

National Wetland Inventory (NWI) maps; aerial photography; Google Earth imagery; and topographic maps. New potential wetland areas identified during the desktop review were digitized using GIS and acreages were determined for each wetland. The majority of wetlands identified within the Resource-specific Study Area are palustrine emergent and palustrine scrub/shrub wetlands that generally occur along streams, roadside ditches, irrigation ditches and canals, and at pond margins. Future projects identified in this PEL will require additional field survey and analysis to verify and gather more detailed information regarding the extent and additional characteristics of wetland areas and the impacts from proposed projects.

#### *Water Resources*

Water resources within the Study Area include surface water features, groundwater and karst features, water quality issues, and major drainageways and associated floodplains. Surface water features in the Study Area include a mix of rivers, streams, perennial intermittent waterways, ditches, ponds, and lakes. Karst features are abundant in this region and several sinkholes, losing streams, springs, and caves have been identified within the Study Area. Section 303(d) of the federal CWA requires states to identify waters not meeting water quality standards and those for which adequate water pollution controls have not been developed. There are four water bodies located in the Study Area that do not meet water quality standards and are considered impaired. There are 11 drainageways located within the Study Area that have been designated as Zone A or Zone AE floodplains. Nine of those drainageways have floodways delineated in addition to the Zone AE floodplains. Improvements in the Study Area could impact several Federal Emergency Management Agency (FEMA) regulated floodplains/floodways. Coordination with the local floodplain administrator as well as base-level modeling to determine these impacts will be required.

#### *Other Biological Resources*

Details and characteristics of wildlife resources in the Study Area were identified using existing GIS data. The U.S. Fish and Wildlife Service (FWS) and the Missouri Natural Heritage Database (MNHD) were consulted to determine if state and/or federal threatened and endangered species as well as protected species or critical habitats were known to occur in the Study Area. There are a total of nine threatened or endangered species identified by the FWS and three FWS ecological service areas that could be affected in the Study Area. The Natural Heritage Review report from the Missouri Department of Conservation (MDC) indicated there were no wildlife preserves, no designated wilderness areas or critical habitats, and no known federal-listed terrestrial species records within the Study Area. The Natural Heritage Review report also included records of nine state-listed endangered and stated-ranked species, as well as natural communities of conservation concern.

#### *Land Cover and Land Use*

Within the City of St. Louis and St. Louis County, most of the Study Area is developed and consists of impervious surfaces and of grass - mostly park and individual lawns. In St. Charles

County, there are tracts of land that are either deciduous forest or used for agriculture. Some of these areas are parks or golf courses and some are undeveloped land.

The use of commercial and industrial space in the Study Area was also examined. In St. Charles County and West St. Louis County, distribution and flex space, manufacturing, and retail spaces dominate facility use. In east St. Louis County and the City of St. Louis, office space becomes a significant use of non-residential facilities. There are a number of development and redevelopment initiatives ongoing to build new facilities, and to rehabilitate and repurpose existing facilities.

#### *Socioeconomics and Environmental Justice*

Within the Study Area, the average percentage of minority residents is 41.8%. Several areas of high minority population are located directly adjacent to I-70 and the percentages generally increase moving east along the corridor.

The average percentage of people in poverty along the corridor is 17%. Several areas of low-income households are located directly adjacent to I-70, and the percentages generally increase moving east along the corridor.

#### *Employment*

In 2014, there were 265,500 jobs in the Study Area representing 22% of total employment in the St. Louis Metropolitan Statistical Area (MSA). The most employment by sector is composed of office jobs (65,000), manufacturing jobs (25,000), and food service jobs (24,000).

The City of St. Louis, including parts of downtown and the North Riverfront, had the largest concentration of employment of the five Study Area segments with over 94,000 jobs. The St. Louis County West Segment, which includes Lambert Airport and is home to The Boeing Company, had the second largest concentration of employment with 77,000 jobs; however, this was the only segment in the Study Area with a net decrease in employment losing almost 7,000 jobs since 2005. The greatest employment growth was in the St. Charles County West Segment with over 6,500 jobs added from 2005 to 2014 (an increase of 23%).

## 1.0 INTRODUCTION

The region has embarked on several recent transportation studies within the I-70 corridor to review specific modes (freight, Bus Rapid Transit (BRT), Light Rail Transit (LRT) and highway), but none has been undertaken to form a comprehensive multi-modal vision for this critical component of our region's overall transportation system.

This Planning and Environmental Linkages (PEL) Study (I-70 PEL Study) will focus on broad issues such as general location, mode choice, known environmental and cultural resource constraints, area-wide air quality, and land use implications of the major strategies proposed to meet the existing and future development needs along this corridor.

The I-70 PEL Study will:

- Develop general concepts or strategies for improving I-70, including a prioritization plan for the corridor
- Identify Sections of Independent Utility, including an action plan for the completion of the environmental process
- Provide documentation that can be referenced into the National Environmental Policy Act (NEPA) process for future improvements along the corridor to eliminate repetitiveness
- Develop agency and public consensus for the overall plan

The Study is being managed by the Transportation Corridor Improvement Group (TCIG), a multi-agency group composed of members from the East-West Gateway Council of Governments (EWGCOG), the Missouri Department of Transportation (MoDOT), and Metro.

### 1.1 STUDY AREA

The I-70 PEL Study Area includes two counties (St. Charles County and St. Louis County) and 19 municipalities including the City of St. Louis. The Study Area is depicted in **Figure 2-1** (all figures referenced in this report are shown in the Corridor Assessment Report Figures supplement) and begins just west of the I-70/I-64 interchange in Wentzville, Missouri, and continues to the end of the express lanes in the City of St. Louis. The Study Area is developed with a mix of residential, commercial, and industrial land uses. The location of the Study Area, relative to existing employment centers and major transportation facilities, provides both benefits and challenges to each community.

### 1.2 PARTICIPANTS

There are several stakeholder groups that will be consulted in the course of this study. The first is the Senior Advisory Group, which is composed of senior members of local governments, economic development authorities, and major community institutions. The members of this group will provide input regarding the strategic direction of the study, as well as resolving key

issues of the study. There are also separate Technical Advisory Groups for St. Charles County, St. Louis County, and the City of St. Louis. Each team is composed of senior technical staff of the departments of transportation, public works, and development for that area. These groups will provide their unique perspective and expertise to guide solutions to technical challenges in the Study Area. Additionally, there will be public meetings and an interactive website used to engage the general public, detailed in The Agency Coordination and Public Involvement Plan.

### **1.3 METHODOLOGY**

The I-70 PEL Study is divided into several stages. The first is gathering information about existing conditions from the appropriate governmental and non-governmental entities and documenting the current state of the Study Area. This will form the basis for this Conditions Assessment Report (CAR). The second stage is to develop the Purpose and Need Statement, which may be incorporated into future environmental documents. This statement articulates the problems to be solved, outlines the measures to address the problems, and provides supporting data and background information. The third and fourth stages identify possible strategies for solving the problems and screen and evaluate the strategies. The fifth stage is the development of the PEL Report. The sixth stage is to develop and distribute a PEL Questionnaire. The seventh stage is the FHWA Review of the PEL Questionnaire. The eighth and final stage is to recommend strategies for solving the problems identified by the I-70 PEL Study. These stages, along with an anticipated schedule, are shown in **Table 1-1**.

**Table 1-1: Stages in PEL Report Development**

Stage Number	Description	Anticipated Date
1	Corridor Condition Assessment	3/2017
2	Purpose and Need	4/2017
3	Broad Range of Alternatives Identification	5/2017
4	Screening and Evaluation of Alternatives	8/2017
5	PEL Report	10/2017
6	PEL Questionnaire	11/2017
7	FHWA Review of Questionnaire	12/2017
8	EWGCOG Board Meeting Recommendation	10/2017

### **1.4 RELATED STUDIES AND PROJECTS**

Over the last several years, a number of transportation related studies have been conducted along the Corridor. The following is a summary of previous and current studies. The Study Team will utilize the information from these studies when developing the strategies for the Corridor.

#### **1.4.1 Moving Transit Forward, St. Louis Regional Long-Range Transit Plan, April 2010 (Metro)**

This plan established a blueprint for transit in the St. Louis region over the next 30 years. The study included a strategy for using different types of transit to strengthen the region's core, expand high-quality, high-speed transit service to more parts of the region, and better connect people to jobs. One significant outcome of this plan is the *St. Louis Rapid Transit Connector Study* (see **Paragraph 1.4.9**).

<http://www.metrostlouis.org/moving-transit-forward/>

#### **1.4.2 Mid Rivers Mall Drive/I-70 & Route 79/I-70 Interchange Study, February 2011 (City of St. Peters, MO)**

To reduce the congestion along I-70 and improve traffic flow at the interchanges, this study proposes improvements at three locations: the Mid Rivers Mall Drive/I-70 interchange, the Route 79/I-70 interchange, and I-70 between Mid Rivers Mall Drive and Route 79. The study recommended the proposed North Outer Road with a future I-70 fifth lane; a Diverging Diamond Interchange with bonus ramps at the Mid Rivers Mall Drive/I-70 interchange; and Route 79/I-70 interchange improvements to provide the greatest improvement in traffic operations. The study notes that an additional option was selected for economic reasons that included the fifth lane on I-70, but removed the provision for a future outer road.

#### **1.4.3 Fifth Street Gateway Project, October 2011 (City of St Charles, MO)**

This study looked at roadway and streetscape improvements for Fifth Street from I-70 to First Capitol Drive in St. Charles, Missouri. The Fifth Street Gateway Project goals were to enhance aesthetics of Fifth Street, improve traffic flow and safety, and promote pedestrian activity. The study recommended the widening of Fifth Street and intersection improvements as well as many streetscaping improvements. Construction on this project is nearing completion.

<https://www.stcharlescitemo.gov/219/Fifth-Street-Gateway-Project>

#### **1.4.4 Gateway Bike Plan: Regional Routes to Sustainability, 2011 – Great Rivers Greenway**

The Gateway Bike Plan, completed by Great Rivers Greenway, creates a long-term strategy and specific recommendations to increase regional connectivity, as well as bicycling activity and safety in St. Louis City, St. Louis County, and St. Charles County and better connect area residents and visitors to the growing network of greenways and trails. The planning process brought together over 100 local agencies to create a shared vision for on-street bicycling and develop measurable targets for implementation. Many communities have passed resolutions supporting the plan such as O'Fallon, St. Peters, St. Charles, Woodson Terrace, and the City of St. Louis. Annual report cards tracking implementation progress indicate that more than 160 miles of bikeways have been installed since the plan's adoption in 2011.

<http://greatriversgreenway.org/about-us/projects-in-partnership/gateway-bike-plan/>

#### **1.4.5 Interstate I-70 Cave Springs Interchange Revision and One-Way Outer Roads between Cave Springs and Mid Rivers Mall Drive CMAQ Application, March 2012 (St. Charles County, MO)**

This project proposed improvements consisting of two primary components: a reconfiguration of the I-70 interchange at Cave Springs, and the conversion of the I-70 outer roads to one-way operation with slip ramps between the Cave Springs interchange and the Mid Rivers Mall Drive interchange. The proposed improvements would relieve congestion at or near the Cave Springs interchange and also improve access along I-70 to and from the local roadway network between Cave Springs and Mid Rivers Mall Drive.

#### **1.4.6 Congestion Reduction Study: I-70 Zumbahl and Cave Springs Interchanges, May 2012 (City of St. Charles, MO)**

This study looked at feasible, low-cost solutions to alleviate congestion and accommodate future traffic at the Zumbahl Road and Cave Springs interchanges with I-70. The study recommended short-term improvements that included adjustments in lane configurations and minor roadway widening. It also recommended two viable long-term alternatives for improvements. The first long-term concept is to use Single Point Urban Interchanges (SPUI) at both interchanges. The second concept would convert the I-70 outer roads to one-way operations within the Study Area.

#### **1.4.7 North Riverfront Commerce Corridor Land Use Plan, October 2012 (City of St. Louis, MO)**

The North Riverfront Land Use Study is a comprehensive study of the 3,000-acre North Riverfront area, which begins north of Downtown St. Louis City and expands up to Maline Creek. The plan includes recommended improvements along I-70 to enhance connections to the corridor and attract industrial development.

<https://www.stlouis-mo.gov/government/departments/slhc/NRCC.cfm>

#### **1.4.8 St. Louis Regional Freight Study, June 2013 (East-West Gateway Council of Governments)**

The intent of this study was to clarify the current status of freight movement through the St. Louis Region as well as the future ability of local freight infrastructure to sustain growth in jobs and economic opportunity. The study provided recommendations to address constraints to improve freight movement that are both physical and organizational in nature.

<http://www.ewgateway.org/Freight/freight.htm>

#### **1.4.9 St. Louis Rapid Transit Connector Study, December 2013 (Metro)**

This study and the two projects it recommends are outgrowths of Metro's Moving Transit Forward, St. Louis Regional Long-Range Transit Plan. This study narrowed the initial set of Bus Rapid Transit (BRT) highway corridors down to two Locally Preferred Alternatives: the I-64 BRT line and the West Florissant-Natural Bridge BRT line.

<http://www.movingtransitforward.org/stlrapidtransit/>



#### **1.4.10 I-70 Traffic Flow Improvements Project, January 2014 (O'Fallon, MO)**

The I-70 Traffic Flow Improvements Project encompassed a six-mile corridor through O'Fallon, Missouri including interchanges at Bryan Road, Route K, TR Hughes Boulevard, and Route 79. This study evaluated alternatives to improve traffic flow, one of which included converting and expanding the outer roads to one-way operations along I-70. The plan also looked at corridor enhancements including bicycle lanes, pedestrian facilities, and wayfinding signage.

<http://www.ofallon.mo.us/I-70-traffic-flow-improvements-project>

#### **1.4.11 A Vision for Missouri's Transportation Future, February 2014 (MoDOT)**

The Long-Range Transportation Plan is the product of one of the most comprehensive statewide planning efforts undertaken by MoDOT. The plan examined transportation needs and set the direction for making transportation investments for all modes of transportation, not just highways. The Long-Range Transportation Plan is the over-arching document under which MoDOT's plans take shape. It sets the tone for developing and implementing MoDOT's strategic and business plans, and the five-year Statewide Transportation Improvement Program.

<http://missourionthefuture.org/>

#### **1.4.12 Missouri River Crossing Study, December 2014 (Great Rivers Greenway, Maryland Heights, St. Charles City, Bridgeton, and MoDOT)**

This study investigated the feasibility of potential bicycle and pedestrian river crossing alternatives which determined the most suitable alignment to increase connectivity across the Missouri River near downtown St. Charles. The alternatives looked at potential alignments along the existing eastbound I-70 bridge and the MO 370 bridge, as well as a new bridge at the old Route 115 location. The feasibility study, following extensive review and investigation, determined that the I-70 Eastbound Blanchette Crossing was the highest ranking alternative based on the evaluation criteria. The study also found merit in pursuing a barrier-separated facility on MO 370 to improve connectivity in conjunction with the I-70 Eastbound Blanchette Crossing. The completion of these two connections will provide safe and improved access across the Missouri River that will increase access to jobs, recreation, and shopping.

#### **1.4.13 Cypress Corridor Study, 2015 (St. Ann, MO)**

This study was being conducted by the City of St. Ann, Missouri to assess the effects of a roadway connection between Natural Bridge Road/Pear Tree Lane and Cypress Road. The study explored improved access to the area and St. Louis Lambert International Airport (Lambert Airport), existing lane use, and future development potential along the proposed roadway.

#### **1.4.14 I-270 North Environmental Assessment, December 2016 (MoDOT)**

This study addressed safety, mobility, congestion, accessibility, and aging infrastructure along Interstate 270 (I-270) in north St. Louis County (from I-70 to the Chain of Rocks Bridge). The study builds on the I-270 North Corridor Study which only focused on a portion of the interstate

limits. The I-270 North Environmental Assessment (EA) took the information and preliminary concepts developed during the I-270 North Corridor Study and conducted a more detailed and expanded analysis. MoDOT and the Federal Highway Administration (FHWA) approved the EA in December 2016 and detailed the preferred alternative for improving the corridor.

<http://modot.mo.gov/stlouis/I-270North.htm>

#### **1.4.15 NorthPark Study, Ongoing (NorthPark LLC)**

NorthPark is located immediately East of St. Louis Lambert International Airport near the intersection of I-70 and I-170 with North Hanley Road running through the center of the development. NorthPark is a 550 acre premier business park which will host over five million square feet of dramatic buildings designed to complement the surrounding environment. Over one million square feet of development with seven separate buildings has been constructed to date. NorthPark has studied improvements to the I-70 and Hanley interchanges, as well as an additional MetroLink stop at Springdale and I-70 to be built as demand dictates. The original idea has been modified over time and became very expensive. The No Build alternative is anticipated to be selected this summer.

#### **1.4.16 St. Louis Regional Freightway, Ongoing (Bi-State Development)**

The mission of the St. Louis Regional Freightway is to develop and grow the manufacturing and logistic industries through partnerships with public and private sector leaders. The members have prepared a priority list of multimodal transportation projects that align economic development with the region's supply chain. The project list includes improvement to I-70 from Natural Bridge Avenue to Hanley Road in St. Louis County. This project would include safety and pavement improvements. Work also includes interchange improvements at I-170 that will address current congestion and bottleneck issues. <http://www.thefreightway.com/>  
[http://www.thefreightway.com/wp-content/uploads/2016/04/Freightway\\_DevelopmentPlan.pdf](http://www.thefreightway.com/wp-content/uploads/2016/04/Freightway_DevelopmentPlan.pdf)

#### **1.4.17 Municipal Bicycle & Pedestrian Master Plans – East-West Gateway, Trailnet, and Municipalities**

A number of cities along I-70 have developed local plans to guide infrastructure and programming investments to better accommodate bicycle and pedestrian mobility to supplement the Gateway Bike Plan for local connectivity. These plans, which were developed in partnership with Trailnet through the non-profit organization's Bikeable Walkable Communities Program, define local networks for bicycling and walking and include recommendations for facilities along key corridors in the study area. Cities with local bicycle and pedestrian master plans include O'Fallon, Wentzville, Lake St. Louis, St. Charles, Bridgeton, Edmundson, Woodson Terrace, St. John, and Overland. <http://trailnet.org/work/transportation-planning/communities/>

#### **1.4.18 Northside-Southside MetroLink Conceptual Design Study, Ongoing (St. Louis City)**

The intent of the Northside-Southside Conceptual Design Study is threefold. First, to establish the continued validity of the Northside-Southside alignment and to review, affirm, and revise the

technical findings associated with the adopted locally preferred alternative (LPA). Second, would be to identify and analyze an alternative to the Northside LPA alignment that would serve the proposed National Geospatial-Intelligence Agency (NGA) site, situated in the northwest quadrant of the intersection at North Jefferson and Cass avenues. This alternative would connect with the downtown segment and extend to a Goodfellow Boulevard terminus. Third, would be to conduct a comparative evaluation of the two Northside alignments that will result in a decision on the most promising Northside alternative and to select an LPA for the entire corridor. The study will be used to advance, if warranted, a light rail project into the Federal Transit Administration's (FTA's) Capital Investment Grant Program (New Starts) Project Development process. The Northside alignment is proposed to utilize 14<sup>th</sup> Street, North Florissant, Natural Bridge, and Goodfellow. Access to any proposed station locations will be considered when developing alternatives for the I-70 PEL Project.

#### **1.4.19 Proposed Preliminary Conceptual Planning Study and Comparative Evaluation of Potential MetroLink Corridors in St. Louis County, Mo, Ongoing (St. Louis County, MO)**

The intent of the proposed planning study is to establish the feasibility of extending the MetroLink light rail system in three corridors within St. Louis County by defining alignments and analyzing costs, benefits, impacts, operational characteristics, and constructability issues associated with each corridor, followed by a comparative evaluation of the three corridors. The first corridor is MetroNorth, which emerged from the 1997 Major Transportation Investment Analysis (MTIA) for the Cross-County Corridor that extended light rail from Clayton to north of I-270, focusing only on that segment north of the existing MetroLink Red Line in St. Louis County, which would need to cross I-70. The second corridor is the Daniel Boone, extending light rail from the MetroLink Blue Line north of Clayton to Westport. The third corridor is MetroSouth, extending from the terminus of the MetroLink Blue Line in Shrewsbury along River Des Peres and south along I-55 to terminate at Butler Hill Road. Access to any proposed station locations will be considered when developing alternatives for the I-70 PEL project.

#### **1.4.20 O'Fallon Connected Corridor Study, Ongoing (O'Fallon, MO)**

The O'Fallon Connected Corridor Study is a three-phased plan looking at the north-south corridor that extends from the intersection of Highway M and Route 79 to the I-64 and Highway K interchange. The study corridor includes the interchange of I-70 and Highway K. The portions of Highway K and Highway M of this study will focus on developing a Pedestrian and Bicycle Improvement Plan that aims to better integrate pedestrian, bicycle, and automobile facilities along the corridor. One area that will be studied includes a new connection across I-70. <http://www.ofallon.mo.us/o-fallon-connected>



**1.4.21 Interstate I-70 Route U (Lucas-Hunt Road) Interchange Revision, 2018 (St. Louis County)**

This project will realign the ramps from I-70 to Route U (Lucas-Hunt Road). This work will involve the removal of the existing partial cloverleaf ramps and replacing with a standard diamond interchange. Work is expected to start in FY18 by MoDOT.

## 2.0 EXISTING TRANSPORTATION SYSTEM

### 2.1 ROADWAY NETWORK

The Study Area roadway network consists of I-70 from the Route Z interchange with I-70 in Wentzville, Missouri continuing through the Stan Musial Veterans Memorial Bridge complex to the end of the express lanes in the City of St. Louis. The length of the corridor is approximately 40 miles.

Today's interstate system was created by the Federal-Aid Highway Act of 1956, signed by President Dwight D. Eisenhower. Interstate-70 was the first interstate in the country, and begins at a Park and Ride lot in Baltimore, Maryland ending where it meets Interstate 15 (I-15) near Cove Fort, Utah, a distance of over 2,100 miles. The construction of the interstate began in 1956 and was finished in 1992 with the completion of the section through Glenwood Canyon, Colorado. The first section of the interstate constructed is located in our Study Area in St. Charles County.

The following subsections describe the characteristics of this roadway network within the Study Area.

#### 2.1.1 Mainline I-70

The number of lanes of an interstate highway is an important indicator of the capacity. This section describes the mainline of I-70 in the Study Area, and **Figure 2-2** shows the mainline lane configurations.

Beginning at the Route Z interchange with I-70 in St. Charles County, I-70 provides two lanes of traffic in both the eastbound (EB) and westbound (WB) directions. As I-70 approaches the I-64 Interchange, auxiliary lanes are provided in the EB direction for the off ramps at I-64. Three mainline lanes are provided from I-64 to the Routes K and M interchanges. From that area to the Route 370 interchange, the mainline lanes vary between three and six lanes in each direction in addition to auxiliary lanes. From Route 370 through the Route 94/First Capitol Drive interchange, three to four mainline lanes are provided in each direction along with auxiliary lanes. East of the Route 94/First Capitol Drive interchange, I-70 widens to five lanes in both directions across the Blanchette Bridge over the Missouri River.

Entering into St. Louis County, I-70 is composed of five lanes in each direction, plus auxiliary lanes, to Maryland Heights Expressway, then six lanes eastbound to the Interstate 270 (I-270) interchange. East of I-270, three or four lanes of traffic are provided in each direction, along with auxiliary lanes, with the exception of five lanes near Maline Creek. This section continues into the City of St. Louis to near Goodfellow Boulevard.

Within the City of St. Louis, the three or four lanes in each direction continue until just west of the Union Boulevard interchange where the express lanes begin. The express lanes are two additional lanes originally constructed in the early 1960s located between the EB and WB

mainline. The lanes are separated by a barrier and are accessible only at the west end near Union Boulevard. The express lanes were constructed as reversible lanes to accommodate peak hour directional flow, but due to the construction of various projects (the latest being the Stan Musial Veterans Memorial Bridge), it is open only to eastbound traffic.

Prior to the end of the express lanes, I-70 continues across the Stan Musial Veterans Memorial Bridge over the Mississippi River into Illinois with two lanes in each direction. The express lanes continue along the newly renamed section of I-44 to just south of Broadway.

**2.1.2 Right-of-Way**

The Missouri Department of Transportation (MoDOT) owns the right-of-way along the mainline of I-70 and the intersecting state routes. Additionally, MoDOT owns the right-of-way and maintains most of the interchanges with state and local roads along I-70. The limits of MoDOT right-of-way are shown on **Figure 2-3** as the MoDOT owned Segment. Generally the right-of-way width for the I-70 corridor is 280 feet.

**2.1.3 Major Interchanges**

The highways and roads which intersect I-70 provide the Study Area with essential connectivity to the wider regional and national transportation network. **Table 2-1, Table 2-2,** and

**Table 2-3** list the routes which connect to I-70 and the location and type of interchange.

**Table 2-1: I-70 Interchanges in St. Charles County**

Route	Mile Marker	Type	Access
Route Z/Church Street	209	Diamond	Full
I-64/US 61	210	Directional/Cloverleaf	Full System Interchange
Route A/Freymuth Road	212	Diamond	Full
Lake St. Louis Boulevard	214	Diamond	Full
Bryan Road	216	Diamond	Full
Highway K/Main Street	217	Diamond	Full
TR Hughes Boulevard	219	Single Point Urban	Full
Highway 79/Salt Lick Road	220	Diamond/Part Cloverleaf	Full
Mid Rivers Mall Drive	222	Diverging Diamond	Full
Route 370	224	Directional	Full System Interchange
Cave Springs Road/Truman Boulevard/Muegge Road	225	Diamond	Full
Zumbehl Road	227	Diamond	Full
Highway 94/First Capitol Drive	228	Single Point Urban	Full
Fifth Street	229	Cloverleaf/Diamond	Full

**Table 2-2: I-70 Interchanges in St. Louis County**

Route	Mile Marker	Type	Access
Route 141	231	Cloverleaf	Full
I-270	232	Directional	Full System Interchange
Highway 180/St. Charles Rock Road	234	Part Cloverleaf	Full
US 67/Lindbergh Boulevard	235	Cloverleaf	Full
Cypress Road	235	Part Cloverleaf	Full
Air Flight Drive	236	Part Cloverleaf / Diamond	Full
Route 115/Natural Bridge Road	237	Directional	Partial
I-170	238	Directional	Full System Interchange
North Hanley Road	240	Diamond	Partial
Route N/Florissant Road	241	Single Point Urban	Full
Bermuda Drive	241	Slip Ramp	Full
Lucas and Hunt Road	241	Part Trumpet / Part Diamond	Full
Jennings Station Road	242	Part Folded Diamond / Part Diamond	Full

**Table 2-3: I-70 Interchanges in the City of St. Louis**

Route	Mile Marker	Type	Access
Goodfellow Boulevard	243	Slip Ramp / Diamond	Full
Bircher Boulevard / Riverview Boulevard	243	½ Diamond to West / Slip Ramps Exit Only to East	Partial
Union Boulevard	244	Slip Ramps	Full
Kingshighway Boulevard/Union Boulevard	244	Split Diamond	Partial
Shreve Avenue	245	Split Diamond	Full / EB ramps separated
West Florissant Avenue	245	Part Folded Diamond / Part Diamond	Full
East Carrie Avenue	246	Diamond/Slip Ramps	Full
Adelaide Avenue	246	Diamond/Slip Ramps	Full
East Grand	247	Diamond	Full
Salisbury Street / McKinley St.	248	Slip Ramps	Full
Branch Street	248	Slip Ramp	Partial
St. Louis Avenue	248	Slip Ramp	Partial
I-44 (Stan Musial Veterans Memorial Bridge)	249	Directional	Partial to West System Interchange
Cass / Broadway	250	Slip Ramps	Partial

### **2.1.4 Major Parallel Routes**

There are a number of streets and state highways which run parallel to I-70 in the Study Area. The farthest west is Veterans Memorial Parkway in St. Charles County, which runs south of I-70 from just east of the I-70/I-64 interchange to west of Highway K/South Main Street, where it merges with Old US Highway 40 and ends at the intersection with Sonderen Street and South Service Road. From its origin at Veterans Memorial Parkway and South Callahan Road to its terminus, it is one lane each way except where it widens at intersections. There is an additional left turn lane for WB traffic from Harbor View Drive to Wharf Street. There is a right turn lane at Rue Petite and a left turn lanes at Bent Oak Cutoff, O'Fallon Lakes Drive, Thornbury Crossing Drive, and White Magnolia Drive. There is a center turn lane from west of Parkview Drive to Sonderen Street.

Veterans Memorial Parkway takes a jog south and resumes east of Sonderen Street and runs to Highway 79/Salt Lick Road as a two lane street. It resumes again west of Dardenne Drive, becomes Suemandy Drive west of Mid Rivers Mall Drive, jogs north, and resumes service as Veterans Memorial Parkway/South Service Drive east of Mid Rivers Mall Drive traveling one way east to Suemandy Drive, where it resumes two way traffic with a west bound left turn lane to N. Cloverleaf Drive and from Regency Parkway to Eastview Drive. The east end of Veterans Memorial Parkway is South Fifth Street.

Mexico Road also provides service parallel to I-70 although it is outside of the Study Area for most of its length some 9.8 miles. Mexico Road's western end is at Bryan Road, and it enters the Study Area near the Cave Springs Road overpass. Mexico Road terminates at Veterans Memorial Parkway east of the Cave Springs Road interchange. There are two lanes in each direction plus a center turning lane for most of the length of Mexico Road.

On the north side of I-70, there is an outer road from US 61 to east of Route 79/Salt Lick Road, which primarily serves local residential communities and businesses. It is known in different stretches as East Pitman Street, East Pitman Avenue, Old US Highway 40, West Terra Lane, East Terra Lane, and North Service Road. From US 61 to North Central Drive, it is a paved, one-lane road in each direction with turn lanes at significant intersections. East of Mid Rivers Mall Drive, I-70 North Outer Road runs parallel to I-70 as a two-lane road with additional turn lanes near businesses and intersections. I-70 North Outer Road becomes West Clay Street at the intersection with Harry S Truman Boulevard, and diverges from the I-70 corridor east of Zumbahl Road.

In St. Louis County, St. Charles Rock Road (Route 180) is a major east-west road near I-70 and is within the Study Area between McKelvey Road and Lindbergh Boulevard, a distance of approximately 1.7 miles. It crosses I-70 in the middle of this section. This length of St. Charles Rock Road has two lanes in each direction with an additional center turning lane for access to local retail establishments.



Natural Bridge Road runs parallel to I-70 from Air Flight Drive to the Natural Bridge Road/I-70 interchange, a distance of approximately 1.1 miles. Natural Bridge Road has one lane in each direction plus turn lanes in this corridor.

Lambert International Boulevard runs parallel to I-70 on the north side beginning at Cypress Road with two lanes in each direction. Additional turning lanes are provided at intersections. It merges with I-70 near James McDonnell Boulevard, having a length of approximately 2.5 miles.

In the City of St. Louis, Bircher Boulevard runs parallel to I-70 for about 1.3 miles from Riverview Boulevard to Kingshighway Boulevard. Westbound Bircher Boulevard is north of I-70, and EB Bircher Boulevard/Riverview Boulevard is south of the highway. Both directions are typically two lanes with turning lanes.

North Broadway is a major route that runs parallel to I-70 on the north and east sides from the East Carrie Avenue overpass to the end of the Study Area, approximately 3.9 miles. North Broadway has two through travel lanes in each direction in the study area.

## 2.2 TRANSPORTATION SYSTEM

### 2.2.1 Pavement Conditions

The construction of I-70 began in 1956 and portions of the I-70 PEL Study Area were among the earliest built. The section in St. Charles County is considered the first section of interstate highway in the country. MoDOT has extended the original design life of the I-70 pavement with proper maintenance but many sections of I-70 are aging and in need of repair.

### 2.2.2 Bridge Ratings

As both a major interstate highway and a primary commuting route in the St. Louis area, the condition of the bridges carrying and crossing the I-70 corridor is of primary importance. To prevent failure of this critical infrastructure, the bridges are periodically inspected and rated. This allows engineers and planners with MoDOT, EWGCOG, and city and county officials to anticipate future needs for bridge rehabilitation and replacement.

An important part of this planning is the inspections and ratings that MoDOT is required to do for all highway bridges on public roads at least every 24 months.

The ratings Very Good, Good, Fair, Poor and Very Poor are used by MoDOT for the I-70 bridges and bridges crossing I-70 and are shown on Figure 2-4. With the exception of one bridge, an abandoned railroad bridge, the I-70 bridges where the rating is not available are actually culverts and not shown on **Figure 2-4**.

A summary of the bridges carrying I-70 in the Study Area is shown in **Table 2-4**. The bridges were built between 1951 (carrying I-70 EB over Peruque Creek) and 2013 (the Stan Musial Veterans Memorial Bridge carrying both directions of I-70 over the Mississippi River). Of the 46 bridges in the Study Area, two were rated Poor in the data received from MoDOT. These I-70

bridges cross MO 141 and Belleau Creek. The bridges were built in 1955 (reconstructed in 1987) and 1971(reconstructed in 2012) with four and three spans, respectively. The remaining bridges carrying I-70 in the Study Area are rated as being in at least Fair condition.

**Table 2-4: Summary of Condition of Bridges Carrying and/or Exiting I-70**

Rating	Number of Bridges	Length of Bridge (feet)
Very Good	2	4,415
Good	23	11,222
Fair	19	8,055
Poor	2	277
<b>Total</b>	<b>46</b>	<b>23,968</b>

*\*Number of Bridges were counted per structure number as provided by MoDOT. A bridge number may refer to single or multiple structures. Length of Bridge only considers one length per structure number.*

The condition of the bridges crossing I-70 is summarized in **Table 2-5**. Of the 46 bridges which cross I-70 in the Study Area, one is rated Poor. The bridge rated Poor is a pedestrian bridge that allows individuals to walk directly from North Market Street on the north side of I-70 to North Market Place on the south. This slab bridge was built in 1958. One abandoned railroad bridge was listed as not applicable for a rating.

**Table 2-5: Summary of Condition of Bridges Crossing and/or Adjacent to I-70**

Rating	Number of Bridges	Length of Bridge (feet)
Very Good	4	2,181
Good	18	5,683
Fair	23	9,742
Poor	1	187
NA	1	266
<b>Total</b>	<b>46</b>	<b>18,059</b>

*\*Number of Bridges were counted per structure number as provided by MoDOT. A bridge number may refer to single or multiple structures. Length of Bridge only considers one length per structure number.*

### 2.2.3 Freight Travel Restrictions

One primary use of the interstate highway system is the transportation of freight. Two of the major limiting factors in the movement of large payloads are vertical clearances under bridges and bridge load postings. The maximum legal truck height on interstate highways in Missouri within the Study Area is 15'. A permit may be issued for heights up to 16'. The current standard is to design bridges over interstates in Missouri with a vertical clearance of at least 16'-6", which

includes an allowance of 6" for future roadway resurfacing. Pedestrian bridges should have a standard clearance of 17'-6". The 31 bridges over I-70 in the Study Area which have a vertical clearance of 16'-6" or less for vehicle traffic or 17'-6" or less for pedestrian traffic are listed in **Table 2-6**.

**Table 2-6: Bridges over I-70 with a Vertical Clearance Less Than 16'-6"**

Structure Number	Route/Road Carried	I-70 Direction of Travel	Minimum Vertical Clearance	Year Built or Reconstructed
L0624	US 61 S	W	16'-2"	1971
		E	15'-9"	1971
L0428	I-64 W	E	15'-11"	1971
		W	16'-5"	1971
A7043	Lake St. Louis Boulevard E	W	16'-5"	2003
A7043	Lake St. Louis Boulevard E	E	16'-3"	2003
A6053	S Woodlawn Avenue	E	16'-4"	1999
A4294	Route 79 S	E	16'-6"	1985
A5952	Executive Center Parkway E	E (Outer Road)	16'-1"	2000
		W (Outer Road)	16'-1"	2000
A4040	Cave Springs Drive S	E	16'-3"	1982
		W	16'-3"	1982
L0887	St. Charles Rock Road E	E	16'-2"	1957
L0887	St. Charles Rock Road W	E	16'-2"	1957
L0888	Fee Fee Road S	E	15'-1"	1957
		W	15'-3"	1957
L0889	Lindbergh Boulevard S	W	15'-6"	1957
L0889	Lindbergh Boulevard N	W	15'-7"	1957
L0810	Natural Bridge Road N	E	15'-7"	1958
A4226	James S. McDonnell Boulevard S	W	16'-3"	1984
A3007	Ramp I-70 W to I-170 E	E	16'-3"	1981
A6233	Lucas and Hunt Road S	E	15'-11"	2001
		W	16'-5"	2001
A6234	Goodfellow Boulevard S	W	15'-11"	2001
A5976	Union Boulevard	E	15'-6"	1999
		*Express Lanes	15'-10"	1999
		W	16'-4"	1999
A6204	Kingshighway Boulevard S	E	16'-6"	2001
		W	15'-8"	2001
A6206	Shreve Avenue S	W	15'-2"	2001
A5984	West Florissant Avenue S	W	15'-5"	2000
A5986	Taylor Avenue E	W	14'-11"	2000
A6205	Carrie Avenue E	W	15'-9"	2001

**Table 2-6: Bridges over I-70 with a Vertical Clearance Less Than 16'-6" (Continued)**

A5960	Adelaide Avenue E	W	14'-11"	2000
A6238	McKinley Bridge W	W	15'-5"	2001
A6239	Route 115 / Salisbury Street S	W	15'-10"	2001
A0141	St. Louis Avenue E	E	16'-0"	1958
		*Express Lanes, EB	15'-10"	1958
		W	15'-1"	1958
A0140	North Market Place (pedestrian) overpass	*Express Lanes, EB	16'-6"	1958
		W	15'-2"	1958
		E	14'-11"	1958
A0139	Madison Street W	*Express Lanes, EB	16'-6"	1958
		W	15'-1"	1958
A0138	Abandoned railroad	E	14'-8"	1958
		*Express Lanes, EB	16'-6"	1958
A6417	70 W to Tucker Blvd. S.	W	15'-8"	2013

*\*Express Lanes are reversible, but currently only travel in the eastbound direction.*

The legal load on Missouri highways is 40 tons. Loads up to 80 tons will routinely be permitted, assuming all facilities on the planned route are sufficient for the loading. MoDOT does not list any segments of I-70 in the Study Area as closed or restricted to oversized loads, or any bridges posted for less than 80,000 pounds.

## 2.2.4 Utilities

**Tables A-1 through A-7 in Appendix A** show the subsurface utilities present in the Study Area. These tables do not list overhead utilities or indicate which utility placements might present a fatal flaw to future development. Additionally, this list is not considered to be comprehensive, and any future engineering or construction work will have to be coordinated with the utility providers.

## 2.3 TRAFFIC OPERATIONS AND SAFETY

### 2.3.1 Traffic Volumes and Commercial Traffic

Within the Study Area, the existing annual average daily traffic (AADT) volumes along I-70 range from approximately 35,000 vehicles on I-70 west of I-64 to approximately 90,000 vehicles near the Blanchette Bridge. Traffic volumes from the EWGCOG's Regional Travel Demand model for the 2015 AM and PM peak periods along I-70 are shown in **Figure 2-5**. Traffic volumes from MoDOT for the 2014 AM and PM peak hour along I-70 are shown in **Figure 2-5**. Based on the peak hour volumes, westbound traffic is typically higher in the PM peak hour than

the AM, ranging from approximately 1,800 to 6,700 vehicles. Eastbound traffic is generally higher in the AM peak hour than the PM from Wentzville to the City of St. Louis. Within the City of St. Louis, EB traffic is slightly higher in some locations in the PM peak hour. Truck traffic, as a percentage of the AADT, ranges from about 18% to 20% within the I-70 study corridor, as shown on **Figure 2-6**. The highest percentage of truck traffic on I-70 is about 20% near St. Louis Lambert International Airport.

### 2.3.2 Level of Service

Density and Level of Service (LOS) are key Measures of Effectiveness (MOEs) in an analysis of a highway. In accordance with Highway Capacity Manual (HCM) methodology, density is used to determine level of service (LOS) thresholds for freeways. Two different thresholds to define LOS for different segment types are defined by the HCM 2016: 1) basic freeway segments and 2) merge/diverge and weaving segments. **Table 2-7** shows the density for each LOS.

**Table 2-7– Freeway LOS Thresholds**

Level of Service (LOS)	Density (pc/mi/ln)		
	Basic Freeway Segments	Merge/Diverge Segments	Freeway Weaving Segments
A	≤11	≤10	≤10
B	>11-18	>10-20	>10-20
C	>18-26	>20-28	>20-28
D	>26-35	>28-35	>28-35
E	>35-45	>35	>35
F	>45	Demand Exceeds Capacity	

The corridor includes both multilane and two-lane highway segments as classified by HCM 2016. As with freeway segments, density is used to determine LOS thresholds for multilane highways; however, the threshold varies at different free flow speeds (FFS).

The 2015 EWGCOG’s Travel Demand Model was used to evaluate the existing LOS for the I-70 corridor. **Figures 2-7A** and **2-8A** show the 2015 AM and PM peak LOS. **Figures 2-7B** and **2-8B** show the 2045 AM and PM peak LOS. LOS is rated with a scale from A through F, with A representing free flow traffic, and F representing unacceptable LOS and long delays. In the AM peak, most of WB I-70 within the study corridor operates at LOS D or better, the exception being within the segments between Stan Musial Veteran Memorial Bridge and Adelaide Avenue, and Jennings Station Road and St. Charles Rock Road along with a number of ramp segments. EB I-70 ranges from LOS A/B to F for the AM peak period. The EB I-70 mainline locations with an LOS E or F in the AM peak are between Bryan Road and Mid Rivers Mall Drive in St. Charles County, between Route 370 in St. Charles County and Maryland Heights Expressway in St. Louis County, near the I-170 interchange in St. Louis County, and between Adelaide Ave and Stan Musial Veterans Memorial Bridge in the City of St. Louis.

In the PM peak, LOS ranges from A/B to F in both directions of I-70 in the Study Area. The I-70 mainline locations operating at LOS E or F in the PM peak include WB between Cave Springs Road and Bryan Road, WB between I-270 and Missouri 94, as well as multiple segments both WB and EB between I-270 and Stan Musial Veterans Memorial Bridge.

Poor LOS also exists at a number of the interchanges including the I-170 and I-270 interchanges as shown on the figures. The travel demand model LOS is based on volume compared to calculated capacity. Further operational analysis may be needed to evaluate the impacts of traffic signals and merging/weaving traffic, especially at interchange locations.

### 2.3.3 Travel Speeds

The posted speed limits along I-70 within the Study Area vary from 55 to 65 miles per hour (mph) as shown in **Figure 2-9**. The speed limits decrease from west to east (rural/suburban to urban). Within the majority of the Study Area, the speed limit is 55 to 60 mph. Beginning around three miles east of I-64 to just west of I-170, the posted speed limit is 60 mph, and from just west of I-170 to I-44 it is 55 mph.

The travel time index was recorded by the MoDOT Travel Management Center at various locations along the corridor. The resulting congestion in each direction in the AM and PM is shown in Figure 2-9. Along the corridor, most of the travel times indicate little or no congestion in the AM eastbound except between Zumbuhl Road and I-170. Most of the eastbound in the PM has little congestion except between I-270 and Lucas and Hunt, and downtown from just before St. Louis Avenue to the end of the study area, where there is light congestion. Westbound in the AM, there is light congestion from the eastern end of the study area to the Stan Musial Veterans Memorial Bridge, where there is little congestion until Union Boulevard. There is light to moderate congestion from Union to Lucas and Hunt, where traffic speeds up and there is little congestion until the western end of the study area. Westbound in the PM, there is little congestion from the eastern end of the study area to North Kingshighway Boulevard. Congestion is largely light to moderate from North Kingshighway Boulevard to Florissant Road. There is little congestion just after Florissant to I-170, then light congestion after I-170 to I-270. After I-270, congestion varies to South First Capital Drive, with heavy congestion at 5<sup>th</sup> Street. There is little congestion from after South First Capital Drive to Route A, where it becomes light. Congestion increases to moderate from I-64 to the western end of the study area.

### 2.3.4 Crash History

Crash history for a five-year period, January 1, 2011 through December 31, 2015, was examined to locate crash clusters and identify crash causes.

**Table 2-8** summarizes the existing crash severity and number of crashes on mainline I-70 over the five-year study period. The Study Area is broken into three sections: St. Charles County, St. Louis County, and the City of St. Louis. Crash data is presented for each section as well as for the study corridor as a whole.

**Table 2-8: Existing Crash Severity Data on I-70 (2011-2015) (Continued)**

Severity Rating	St. Charles County # of crashes (% of total crashes)	St. Louis County # of crashes (% of total crashes)	City of St. Louis # of crashes (% of total crashes)	Total # of crashes (% of total crashes)
<b>Fatal</b>	18 (0.4%)	6 (0.2%)	10 (0.6%)	34 (0.3%)
<b>Disabling Injury</b>	88 (1.8%)	89 (2.5%)	58 (3.2%)	235 (2.3%)
<b>Minor Injury</b>	754 (15.2%)	845 (23.3%)	542 (30.3%)	2,141 (20.6%)
<b>Property Damage Only</b>	4,100 (82.7%)	2,688 (74.1%)	1,792 (66.0%)	7,970 (76.8%)
<b>Total</b>	4,960	3,628	1,792	10,380
<b>AADT</b>	97,638	137,090	113,869	116,199

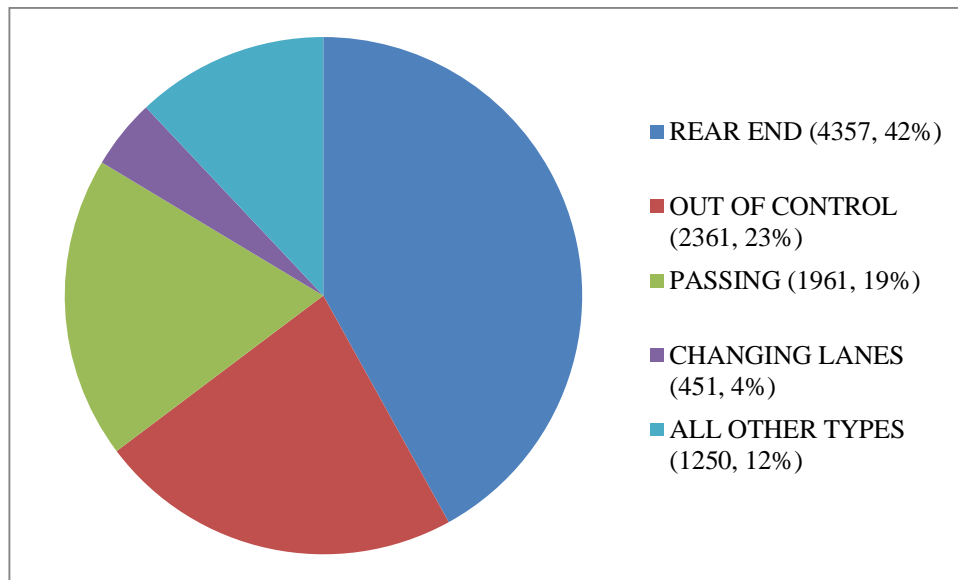
While overall crashes are highest for St. Charles County, this section, at almost 27 miles in length, is over twice the length of the St. Louis County section and almost four times as long as the City of St. Louis section. In terms of crash rate (which also takes into account AADT), this results in the lowest overall crash rate of the Study Area at approximately 104 crashes per one hundred million vehicle-miles traveled. The St. Louis County section is almost 13 miles in length, resulting in an overall five-year crash rate of approximately 113 crashes per one hundred million vehicle-miles traveled. At only seven miles in length, the crash rate for the City of St. Louis is approximately 122 crashes per 100 million vehicle-miles traveled over the five-year analysis period. For all sections, the annual crash rates are higher than the average state rate which was under 100 in 2011, and dropped down to near 80 for 2012, but increased to around 88 for 2013 and 2014. It should be noted that crash rates had been dropping significantly over the entire corridor but started to increase in 2014 and 2015. In St. Louis County, the crash rate dropped to a low of around 100 in 2012, but increased to around 145 in 2015. Also in St. Louis City, the crash rate dropped to a low of around 100 in 2013, but increased to around 147 in 2015. The recent increase in crash rates in the corridor is a concerning trend, but it is following a trend of increased crash rates statewide.

**Figure 2-10** provides an overview of the existing crash patterns and locations along the I-70 mainline corridor within the Study Area. It is apparent from this figure that crashes are distributed throughout the Study Area and there are no areas of heavy concentration. It is also apparent that crashes become more frequent moving from west to east through the study corridor, indicating that the more urban environments lead to a higher crash rate, as discussed above.

This figure also indicates areas with a higher severity rate index. Based on these ratings, a number of I-70 mainline segments have a high rate of severe crashes. Eastbound I-70 from one mile west of Lake St. Louis Blvd to one mile east of Lake St. Louis Blvd in St. Charles County is the only segment of I-70 in the Study Area with a rate greater than 0.50.

**Figure 2-11** illustrates the existing crash type distribution on mainline I-70 through the entire Study Area over the five-year study period. A total of 10,380 crashes were divided into 28 crash types based on data provided by MoDOT. “Rear end” crashes were the predominant crash types followed by “out of control” crashes. It should be noted that “all other types” includes a classification of “other” in the provided data. This classification includes 675 crashes. An additional 575 crashes included within “all other types” are categorized into additional classification categories including fixed object and parked car collisions, avoiding, and deer-vehicle collisions.

**Figure 2-11:** Existing Crash Type Distribution for Mainline I-70 (2011-2015)



*\*# of crashes (% of total)*

Additionally, **Table 2-9** provides a breakdown of this same data for St. Charles and St. Louis Counties and the City of St. Louis.

It is evident that in St. Charles County, rear end type crashes are the most dominant type, outweighing out of control crashes by over two times. The remaining crash types follow closely to the distributions for the entire corridor. Within St. Louis County, all crash types follow closely to the distributions for the entire corridor. Within the City of St. Louis, out of control type crashes are a more the predominant crash type, contributing to 29% of the total crashes as compared to 19% in St. Charles County, 23% in St. Louis County, and 22% for the entire corridor. This is a significant issue and should be addressed as such. Rear end crashes are proportionally lower within the city limits, making up 31% of the total crashes as compared to 45% in St. Charles County, 42% in St. Louis County, and 41% for the entire corridor. The remaining crash types closely follow the distributions for the entire corridor.



**Table 2-9: Existing Crash Type Distribution on I-70 (2011-2015)**

Accident Class	St. Charles County # of crashes (% of total crashes)	St. Louis County # of crashes (% of total crashes)	City of St. Louis # of crashes (% of total crashes)	All # of crashes (% of total crashes)
<b>Rear End</b>	2,248 (45.3%)	1,546 (42.5%)	566 (31.6%)	4,357 (41.9%)
<b>Out of Control</b>	976 (19.7%)	861 (23.7%)	524 (29.2%)	2,361 (22.8%)
<b>Passing</b>	825 (16.6%)	748 (20.6%)	388 (21.7%)	1,961 (18.9%)
<b>Changing Lanes</b>	235 (4.7%)	110 (3.0%)	106 (5.9%)	451 (4.3%)
<b>All Other Types</b>	676 (13.6%)	366 (10.1%)	208 (11.6%)	1,250 (12.0%)
<b>Total</b>	4,960	3,628	1,792	10,380

## 2.4 CURRENT TRAVEL MARKET (TRAVEL DEMAND MODEL)

Data for **Figures 2-12** through **2-16** were provided by EWGCOG to show the approximate home locations of people working within the segments of the Study Area. **Figures 2-12** and **2-13** show the home locations of people working within western and eastern St. Charles County, respectively. Both figures indicate the majority of those working in St. Charles County also live in St. Charles County, and that a large percentage of people living in St. Charles County live relatively close to the I-70 corridor.

**Figures 2-14** and **2-15** show the home locations of people working in west and east St. Louis County, respectively. These figures indicate that those working in St. Louis County tend to live throughout the region and that the western portion of the corridor is a more significant employment center than the eastern portion.

**Figure 2-16** shows the home locations of people working within the City of St. Louis. It indicates that the City of St. Louis is a significant employment center for the region and that people who work there tend to live throughout the region, although the City of St. Louis does have a denser population of workers.

## 2.5 TRANSIT

Transit service in the Study Area is provided by Metro (in the City of St. Louis and St. Louis County), St. Charles Area Transit (SCAT) (primarily in St. Charles County), and OATS, Inc. (a non-profit transportation service). Services within the corridor include local and commuter buses, light rail, and Call-A-Ride, the region’s paratransit service. The routes which run along or through the Study Area are shown in **Figure 2-17**.

### 2.5.1 Metro

Metro operates both MetroBus and MetroLink (the light rail system) in the City of St. Louis and St. Louis County. Metro is also the operator for Call-a-Ride in the same area. The route segments studied in this report represent the primary east-west commuting routes in the corridor, and will be the ones most influenced by any future strategies developed. Routes are typically described going from west to east. The ridership numbers listed are from Fiscal Year (FY) 2016 and were provided by Metro. The routes which travel through and parallel to the Study Area are described in **Section 2.5.1.1** and summarized in Error! Reference source not found.. Routes that cross the Study Area are described in **Section 2.5.1.2** and summarized in **Table 2-11**. Routes that are within the study area, but do not cross or run parallel to I-70 are described in **Section 2.5.1.3** and summarized in **Table 2-12**. See **Appendix D** for individual Metro Route Maps.

**Table 2-10: MetroBus FY 2016 Ridership on Routes Parallel to I-70 within the Study Area**

Route Name	Service Frequency (Minutes Between Start of Runs)	Annual Weekday Boardings	Average Weekday Boarding
#4 Natural Bridge	30 peak / 60 off-peak	484,421	1,900
#30 Souldard	30 peak / 40 off-peak	625,251	2,452
#33 Dorsett Lackland	40 peak / 60-90 off-peak	179,304	703
#34 Earth City	20-30 peak / 40-60 off-peak	216,048	847
#35 Rock Road	30-40 peak / 40-70 off-peak	574,651	2,254
#37 Hanley Graham	40 peak / 60 off-peak	*153,652	*718
#38 Hazelwood	60	*107,458	*502
#39 Berkeley-Florissant	60	*142,165	*664
#40 Broadway	40 peak / 60 off-peak	485,100	1,902
#41 Lee	30 peak / 60 off-peak	339,810	1,333
#49 North Lindbergh	40 peak / 60 off-peak	224,417	880
#66 Clayton-Airport	30-60, limited service	38,585	151
#74 Florissant	24-30 peak / 40 off-peak	754,998	2,961
#77 McDonnell Lindbergh	40 peak / 60 off-peak	*234,238	*1,095
#78 Larimore	20-40 peak / 60 off-peak	*179,244	*838
#94 Page	20-40 peak / 60 off-peak	707,227	2,773
#98 Ballas North Hanley	40 peak / 60 off-peak	172,672	677
#174X North Express	60, 30 in the evening	127,224	499

*Data for January thru February not available. Calculated based on remainder of year.*

**Table 2-11: MetroBus FY 2016 Ridership on Routes Crossing I-70 in the Study Area**

Route Name	Service Frequency (Minutes Between Start of Runs)	Annual Weekday Boardings	Average Weekday Boarding
#13 Union	40	153,455	602
#16 City Limits	30 peak / 40 off-peak	557,773	2,187
#18 Taylor	40 peak / 60 off-peak	183,254	719
#42 Sarah	40 peak / 60 off-peak	240,990	945
#47 Clayton NCTC	40 peak / 60 off-peak	356,889	1,400
#61 Chambers	20-30	604,253	2,370
#64 Lucas Hunt	40 peak / 60 off-peak	255,309	1,001
#70 Grand	12 peak / 20 off-peak	1,996,078	7,828
#79 Ferguson	40 peak / 60 off-peak	*135,803	*635
#90 Hampton	20-30 peak / 40 off-peak	749,799	2,940
#95 Kingshighway	15-20 peak / 30 off-peak	946,352	3,711

*\*Data for January thru February not available. Calculated based on remainder of year.*

**Table 2-12: MetroBus FY 2016 Ridership on Routes Within the Study Area But Not Parallel or Crossing I-70**

Route Name	Service Frequency (Minutes Between Start of Runs)	Annual Weekday Boardings	Average Weekday Boarding
#02 Red Line	30 peak / 40 off-peak	258,912	1,015

### 2.5.1.1 MetroBus Routes Parallel to I-70 within the Study Area

#### Route #4 Natural Bridge

This route begins at the North Hanley MetroLink Station goes south on North Hanley Road, proceeds east along Natural Bridge Road, turns south on Jefferson/Parnell Street, then east on Market Street. It serves UMSL South MetroLink Station, downtown St. Louis, and Union Station Metro Link Station. The majority of its route is within the formal boundaries of the Study Area, running roughly parallel to I-70 for its entire length. Route #4 runs at approximately 30 minute intervals during peak times and 60 minutes during off-peak hours. The average daily ridership is 1,900.

#### Route #30 Soulard

This route begins at the Shrewsbury MetroLink Station and heads east down Arsenal, north on Broadway, west on Chouteau, north on 18<sup>th</sup> Street, east on Market St., and north on Tucker into the study area. It then goes east on Washington Avenue. It goes north on 9<sup>th</sup> St. and 13<sup>th</sup> Street and then goes west on St. Louis Avenue out of the study area, but parallel to I-70. It ends at the Rock Road MetroLink Station. It serves several parks, St. Louis Psychiatric Rehabilitation Center, Anheuser Busch Brewery, National Imagery & Mapping Agency, Grace Hill Neighborhood Services, as well as several St. Louis area neighborhoods and downtown St.

Louis. Route #30 runs at approximately 30 minute intervals during peak times and 40 minutes during off-peak hours. The average daily ridership is 2,452.

### **Route #33 Dorsett-Lackland**

This route begins at Fee Fee Road and Westport Plaza, heading east down Dorsett Road, Lackland, Midland, and St. Charles Rock Road to the Rock Road MetroLink Station. This route operates approximately every 40 minutes during peak times and every 60-90 minutes during off-peak hours. Approximately 703 commuters use this route on an average weekday.

### **Route #34 Earth City**

This line serves Hollywood Casino & Hotel St. Louis, Hollywood Casino Amphitheater (Previously Verizon Wireless Amphitheater), and Earth City and then travels along I-70 to serve St. Louis Lambert International Airport (early morning trips only) and the North Hanley MetroLink Station. This route operates approximately every 20-30 minutes during peak times and every 40-60 minutes during off-peak hours. Approximately 847 commuters use this route on an average weekday.

### **Route #35 Rock Road**

The #35 Rock Road route starts at the North Hanley MetroLink Station, proceeds northwest along North Hanley Road, then west on McDonnell Blvd. to the St. Louis Mills Outlet Mall, Then South on Taussig Road and east on St. Charles Rock Road serving DePaul Hospital, Earth City, and Bridgeton. Its terminus is the Rock Road MetroLink Station. This route runs along I-70 both to the north and south, and provides local commuter service to several important facilities. Service is every 30-40 minutes during peak times and every 40-70 minutes during off-peak hours, with an average daily ridership of 2,254.

### **Route #37 Hanley Graham**

This route begins at the North Hanley MetroLink Station goes North on Hanley and Graham, proceeds west along W. Washington St., then east on Lindbergh and south on St. Ferdinand, ending at Ferdinand and Washington. It serves the North Hanley MetroLink Station, the St. Louis County Health Department, LHB Industries, NW Health Care, and Florissant Meadows. The southern portion its route is within the formal boundaries of the Study Area, running roughly parallel to I 70 until it turns north and out of the study area. Route #37 runs at approximately 40 minute intervals during peak times and 60 minutes during off-peak hours. The average daily ridership is 718 based upon available data.

### **Route #38 Hazelwood**

This route begins at the North Hanley MetroLink Station goes east on University Place Drive, then north on Bermuda Road, Florissant Road, west on Frost Avenue, west on Dunn, then north on Hazelwood Avenue, and west on Pershall Avenue, ending at Phantom and McDonnell Boulevard. It serves the North Hanley MetroLink Station, Light House for the Blind, Center for

Life Solutions, and the City of Hazelwood. The southern portion of its route is within the formal boundaries of the Study Area, running roughly parallel to I-70 until it turns north, crossing I-70 and out of the study area. Route #38 runs at 60 minute intervals. The average daily ridership is 502 based upon available data.

### **Route #39 Berkeley-Florissant**

Route #39 begins within the Study Area at the North Hanley MetroLink Station, traveling north on Hanley and out of the study area, then east on Frost Avenue, and north through Florissant, northwest on Charbonier, northeast on Shackelford, then east on Mullanphy, Patterson, and New Halls Ferry Road, ending at Flower Valley at the intersection of Old Halls Ferry Road and Lindbergh Boulevard. This line transports visitors to the St. Louis County Health Department, Light House for the Blind, Florissant Valley Library, Old Towne, and several shopping centers. Route #39 runs every 60 minutes. It serves an average daily ridership of 664 users.

### **Route #40 Broadway**

Route #40 begins at the Catalan Loop and travels north along Broadway, just west to Grand and back east on Meramec, then north again on Broadway until it goes east at Riverview, ending at the Riverview Transfer Center. It serves downtown St. Louis, the Convention Center MetroLink Station, Busch Stadium, Anheuser-Busch InBev Brewery, multiple neighborhoods, and Alexian Brothers Hospital. The route travels along I-70 from O'Fallon Park to the Stan Musial Veterans Memorial Bridge. Buses run every 40 minutes during peak times, and every 60 minutes during off-peak times. The average number of weekday boardings is 1,902.

### **Route #41 Lee**

Route #41 starts in Bellefontaine Neighbors and travels south on Riverview Drive (Route 367) then turns east traveling along the edge of the Study Area. It terminates in downtown St. Louis at the Union Station MetroLink Station. This is primarily a commuter line from north St. Louis County into the downtown St. Louis area and several neighborhood service centers. This line runs every 30 minutes until early evening, at which point it runs every 60 minutes. The average daily ridership is 1,333 individuals.

### **Route #49 North Lindbergh**

The North Lindbergh line begins at the North Hanley MetroLink Station and ends at the Ballas MetroBus Center, traveling within the Study Area between the Hanley Station and US highway 67 (Lindbergh Boulevard). The North Lindbergh line serves one of St. Louis County's longest corridors, providing users with a connection to numerous large employers, business parks, and multiple retail centers. It runs at 40 minute intervals during peak times and 60 minute intervals during off-peak times. This bus route sees an average daily ridership of 880 users.

**Route #66 Clayton-Airport**

This MetroBus line runs primarily north and south connecting the Clayton MetroBus Center at the southern end with the Village Square Shopping Center at the northern end, while also providing service to Lambert Airport Terminal 1 (the Main Terminal). This line operates in the Study Area between Lindbergh and Woodson Road. It runs with a limited service frequency during rush hour of 30 to 60 minute intervals and has an average daily ridership of 151 passengers.

**Route #74 Florissant**

Route #74 begins at the North County Metrobus Center, then travels south on West Florissant Road, which turns to run parallel to I-70. Near the end of Florissant Road, the bus route turns south onto North 14<sup>th</sup> Street, west on Olive, and south on 18<sup>th</sup> Street until its terminus at the Union Station MetroLink Station. This bus route connects residents from north St. Louis County and City (some via connections from other buses) to downtown St. Louis. This route runs every 24-30 minutes until evening hours, when it runs approximately every 40 minutes. The average daily boarding is 2,961 commuters. Some popular destinations served by this line are St. Louis City Hall, Scottrade Center, and the Gateway Multimodal Transportation Center (St. Louis Station), which is the station for MetroLink, Amtrak, and Greyhound.

**Route #77 McDonnell Lindbergh**

Route #77 begins at the North County MetroBus Center, heads northwest on New Halls Ferry Road, southwest on Lindbergh, east on McDonnell Boulevard, enters the Study Area along Hanley, and ends at the North Hanley MetroLink Station. This route stops at several shopping centers, Valley Industries, and Boeing. It runs with intervals of 40 minutes during peak hours and 60 minutes during off-peak hours. This route has an average daily ridership of 1,095 users based on available data.

**Route #78 Larimore**

Route #78 starts at the North County MetroBus Center and proceeds east along Pershall, Netherton, and Redman, then south on Larimore Road and Bellefontaine. A limited route starts after stopping at the Riverview Metrobus Center, heading down Broadway and crossing into the study area. It follows I-70 to downtown St. Louis onto Broadway, ending at Union Station. This route serves facilities in North St. Louis County including North City Recreation Complex, Christian Hospital Northeast, Sierra Vista Plaza, and the National Record Center. It also connects residents to the MetroLink system. This line runs every 20-40 minutes during peak hours, and every 60 minutes during off-peak hours. The average number of boardings on a weekday is 838 based on available data.

**Route #94 Page**

This route begins at Lackland and Altom Court, goes east on Fee Fee, south on Ball, then east on Page. It jogs out to Plymouth at the Wellston MetroLink Station, then continues east on Page and M.L. King. It goes south on 18<sup>th</sup> Street and ends at Union Station. It serves Westport Plaza, JCC, Lighthouse for the Blind, Overland plaza, and Macler Sheppard. This route runs at 20-40 minute intervals during peak traffic and at 60 minute intervals at other times. It serves an average of 2,773 individuals per day.

**Route #98 Ballas North Hanley**

Route #98 starts at Hanley MetroLink Station and heads west on I-70. It then proceeds south on I-270 and west on Dorsett. It goes south on McKelvey Rd, Craig Road, and Ballas Road, where it ends at Ballas MetroBus Center. It leaves the Study Area at the I-70/I-270 interchange and serves North Hanley MetroLink Station as it travels through the corridor. It serves several shopping centers and Mercy Hospital once it leaves the corridor. This route runs at 40 minute intervals during peak traffic and at 60 minute intervals at other times. It serves an average of 674 individuals per day.

**Route #174X North Express**

Route #174X runs from North County MetroBus Center to New Halls Ferry Road, which it follows until it turns onto Riverview Drive (Route 367). From there it travels on I-70 past the I-70 turnoff for the Stan Musial Veterans Memorial Bridge and continues to downtown St. Louis and Union Station MetroLink Center. This route provides service from north St. Louis County to downtown St. Louis and local transit service in north St. Louis County. The route runs hourly until early afternoon, after which it runs in 30 minute intervals. It serves an average daily ridership of 499 individuals.

**2.5.1.2 MetroBus Routes Crossing I-70 in the Study Area****Route #13 Union**

This route runs at approximately 40 minute intervals starting at Union Boulevard and West Florissant Ave., travels south down Union Boulevard across the Study Area to Lindell Boulevard. It then proceeds east on Lindell Boulevard for one mile then south on N. Taylor Avenue where it terminates at the Central West End Transit Center. It serves the Central West End, Chase Park Plaza, Forest Park, Washington University/BJC Medical Center, Union Seventy Business Park, and St. Louis Children's Hospital. This route serves a weekday average of 602 passengers.

**Route #16 City Limits**

This line begins at the Riverview MetroBus Center then runs south along the city limits, primarily traveling on Jennings Station Road, Kienlen Avenue, Dr. Martin Luther King Drive, Hamilton, Delmar, N. Skinker Boulevard, Bellevue Avenue, Jamieson Avenue, and Lansdowne.

It terminates at the Shrewsbury MetroLink Station. Route #16 runs at approximately 30 minute intervals during peak hours, and 40 minutes during off-peak hours, stopping at many destinations including St. Mary's Hospital, Forest Park, Washington University's Danforth Campus and North Campus, the Delmar Loop, and Wellston Loop area. It serves a weekday average daily ridership of 2,187 commuters.

### **Route #18 Taylor**

This MetroBus route provides a primary source of transportation for many north St. Louis residents. Beginning at Taylor and Broadway, it travels south, crossing through the Study Area along East Taylor Avenue. It connects to MetroLink and other MetroBus routes at its terminus, the Central West End MetroBus Center, while serving destinations such as BJC Medical Complex and St. Louis Children's Hospital, O'Fallon Park, and Forest Park. It runs at 40 minute intervals at peak times and 60 minute intervals at off-peak times. It serves an average daily ridership of 719 riders.

### **Route #42 Sarah**

Route #42 runs between the Central West End Transit Center and the North Broadway MetroBus Center. It satisfies demand for local transit primarily along Sarah Street, Fair Avenue, and North Broadway, offering connections to the MetroLink and other MetroBus lines. This line runs at approximately 40 minute intervals during peak times and 60 minutes during off-peak hours. The Sarah bus route sees an average daily ridership of 945 users.

### **Route #47 Clayton-NCTC**

Route #47 serves local residents from north St. Louis County communities by traveling along several major north St. Louis County corridors. It begins at the Clayton MetroLink Station, travels north on Hanley Street to the North Hanley MetroLink Station, north on I-170, and east on I-270 to the North County Transit Center. It crosses the Study Area on North Hanley Road. This line runs with a frequency of every 40 minutes during peak hours and every 60 minutes during off-peak hours. It has an average daily ridership of 1,400 users.

### **Route #61 Chambers**

Route #61 serves local residents from north St. Louis County communities. It travels from North Hanley Station north on Hanley Road across the study area and east on Airport Road and Chambers to the corner of Glasgow Village and Bellefontaine Neighbors. It then runs North-South from the corner of Spring Garden and Lookaway, ending at Riverview MetroBus Center. This line runs approximately every 20-30 minutes. It has an average daily ridership of 2,370 users.

### **Route #64 Lucas Hunt**

Route #64 runs between the corner of Jennings Station and Halls Ferry and the Rock Road MetroLink Station, and passes through the Study Area along Lucas and Hunt Road. It connects



to local employers, services, and shopping centers. Buses for this line run at a service frequency of 40 minute intervals during peak hours and 60 minute intervals during off-peak hours. It serves an average daily ridership of 1,001 commuters.

### **Route #70 Grand**

This route is in one of the region's primary corridors, which is the site of many popular attractions including Grand Water Tower, Fairground Park, John Cochran VA Medical Center, Powell Symphony Hall, St. Louis Black Repertory Theater, Fox Theater, St. Louis University, St. Louis University Medical School, St. Louis University Medical Center, Cardinal Glennon Children's Hospital, Reservoir Park, Missouri School for the Blind, Tower Grove Park, and Carondelet Park. Route #70 begins in North St. Louis City at Broadway and Taylor, crosses through the Study Area along South Grand Boulevard, and ends in South St. Louis City at the Loughborough Commons. This MetroBus line runs frequently with intervals of about 12 minutes during peak hours and about 20 minutes during off-peak hours. This route is the most heavily used, with an average daily ridership of 7,828 users.

### **Route #79 Ferguson**

This route stops at several shopping centers, and high schools. It begins at the North County MetroBus Center, heads west on Pershall and Dunn Road, then south on North Florissant and into the study area, west on Airport Drive, south on Dade, east on Suburban, south on South Florissant, and ending at the North Hanley MetroLink Station. This line runs in intervals of 40 minutes during peak hours and 60 minutes during off-peak hours. Route #79 has an average daily ridership of 635 users based on available data.

### **Route #90 Hampton**

Route #90 is one of the most popular routes in the St. Louis area. This line allows residents from both North and South St. Louis City neighborhoods to connect to four different MetroLink and MetroBus Transit Centers and other lines, as well as to travel to many employers, shopping areas, and attractions. These attractions include the Federal Center, Saint Louis Zoo, Saint Louis Art Museum, as well as the History Museum. This line crosses through the Study Area along Goodfellow Boulevard and runs at a frequency of 20-30 minutes during peak hours and 40 minutes during off-peak hours. This MetroBus line has an average daily ridership of 2,940 users.

### **Route #95 Kingshighway**

The Route #95 begins in north St. Louis City at Broadway and Taylor at the North Broadway MetroBus Center, travels south on Kingshighway, diverging to the Central West End MetroLink Station along Taylor, and ends in South St. Louis City at the Gravois-Hampton MetroBus Center. Local residents use this route to connect to multiple employers and destinations including Chase Park Plaza, BJC-Washington University Medical Center, Forest Park, Tower Grove Park, and other MetroBus lines and the MetroLink at the Central West End MetroLink Station. It runs

at 15-20 minute intervals during peak hours and 30 minute intervals during off-peak hours. This line has a weekday average of 3,711 commuters.

### 2.5.1.3 MetroBus Routes Within the Study Area But Not Parallel or Crossing I-70

#### Route #02 Red Line

Route #02 begins at the Maplewood Manchester MetroLink Station. It then goes north on Hanley, west on Musick Memorial Drive to the Brentwood I-64 MetroLink Station, west on Eager Road, and north on Brentwood, stopping at the Richmond Heights MetroLink Station. It goes east on Clayton, north on Skinker, and through the Washington University campus. It winds its way north through Clayton, the City of St. Louis, University City, and Pagedale, stopping at Skinker MetroLink Station, Delmar MetroLink Station, and ending at the Rock Road MetroLink Station. This line runs every 30 minutes during peak hours, and 40 minutes during off-peak times. The average weekday ridership was 1,015 individuals.

### 2.5.1.4 MetroLink

MetroLink is Greater St. Louis' light rail system. The red line began operation in 1993, and connects St. Louis Lambert International Airport with downtown St. Louis and continues to Shiloh, Illinois and the adjacent Scott Air Force Base. The MetroLink lines are shown in **Figure 2-17**. The blue line, known as the "Cross-County Extension," travels from Fairview Heights, Illinois along the same alignment as the red line, and then south from the Forest Park DeBaliviere station to Clayton and Shrewsbury. The MetroLink system had a total ridership of 16 million in fiscal year (FY) 2016. Many MetroLink stations have Park-Ride lots, which will be discussed below. MetroLink uses a proof-of-payment system for enforcing fare collection.

The only MetroLink stations within the Study Area are the two red line stations at Lambert Airport (at Terminals #1 and #2) and the North Hanley Station. The Lambert Airport Terminal #1 and #2 stations have an average weekday ridership of 1,177 and 440, respectively, while the North Hanley Station, one of the busiest in the system, has an average weekday ridership of 3,404. This reflects the use of the North Hanley Station as a major transfer point between MetroBus lines, and between the MetroBus and MetroLink systems.

Although it is outside of the Study Area, it is also important to mention MetroLink and its presence in downtown St. Louis is served by both the red and the blue lines. After I-70 turns east across the Mississippi River into Illinois, I-44 continues south through the City of St. Louis. This is significant because MetroLink provides an alternative commuting option for those who live in north St. Louis County who would otherwise take I-70 and I-44 into the City of St. Louis for work or entertainment, including Busch Stadium, Scottrade Center, and the Dome at America's Center. **Table 2-13** tabulates MetroLink's ridership by station for FY 2016.

**Table 2-13: MetroLink FY 2016 Ridership by Station**

Station	Annual Total	Monthly Average	Weekday Average	Saturday Average	Sunday Average
<b>System</b>	<b>15,777,592</b>	<b>1,314,799</b>	<b>48,744</b>	<b>34,617</b>	<b>25,690</b>
<b>Missouri</b>	<b>12,878,558</b>	<b>1,073,213</b>	<b>39,722</b>	<b>28,371</b>	<b>21,157</b>
<b>Illinois</b>	<b>2,899,034</b>	<b>241,586</b>	<b>9,022</b>	<b>6,245</b>	<b>4,534</b>
Lambert Main/Airport Terminal 1	404,631	33,719	1,177	936	941
Lambert East/Airport Terminal 2	151,910	12,659	440	333	381
North Hanley	1,085,230	90,436	3,404	2,178	1,725

**2.5.1.5 Park-Ride Lots**

When building the MetroLink stations, Metro built parking lots to allow commuters to drive to and park at the station to take the train to their destination. There are 12 Park-Ride lots in Missouri and 11 in Illinois. The 12 Missouri lots include nine at MetroLink stations and three other lots at MetroBus Transit Centers. In 2016, the Missouri MetroLink stations had a total of 4,519 parking spaces available, and 6,071 in Illinois, for a total of 10,590 parking spaces (including military-only spaces at Scott Air force Base). The only station in the Study Area with a Park-Ride lot is the North Hanley Station, which has 1,705 parking spaces available. When Metro counted the number of cars parked at the North Hanley Station on June 2, 2011, they found 884 spaces filled (a utilization of approximately 52%).

There are also Park-Ride lots at several bus centers, none of which are located in the Study Area, but they serve bus routes which travel along or cross the I-70 corridor. As of 2016, there are a total of 4,770 parking spaces in Missouri lots and 5,650 in Illinois lots (excluding military-only spaces at Scott Air Force Base), for a system total of 10,420 parking spaces.

The use statistics for lots in the Study Area and system totals are shown in **Table 2-14**.

**Table 2-14: Park-Ride Lot Capacity and Utilization in 2016 for Lots within the Study Area and Current System Totals**

Parking Lot Location	Total # of Parking Spaces	Spaces used		Total Used	% Used	Date and time counted
		Short term	Long term			
North Hanley	1,705	884	0	884	51.8%	June 2, 2011 10-11 AM
<b>Parking Space Totals</b>						
Missouri	4,770					
Illinois	6,071					
System Total	10,841					

## 2.5.2 St. Charles Area Transit System (SCAT)

SCAT is a public transit system located in St. Charles County, operated by the City of St. Charles Department of Public Works Street Division. There are four bus routes which are primarily for local transit, and the I-70 Commuter Service which operates during rush hour between St. Charles and the North Hanley MetroLink Station. SCAT lines only operate Monday-Friday. The ridership data used in this report was provided by SCAT from 2016.

### 2.5.2.1 Local Transit Service

There are four local transit routes which primarily serve the St. Charles City area, Red, Orange, Green, and Blue routes. Some portion of all four routes is within the Study Area. The primary point of transfer among the lines is the Foundry Art Center at the north end of North Main Street. The local routes, in addition to providing local transit service, also have the ability to funnel commuters to the I-70 Commuter Service.

#### Red Route

The Red Route operates north of I-70 and south of Route 370, and serves downtown St. Charles, Lindenwood University, and several residential neighborhoods. The total Red Route ridership in 2016 was 5,060, with an average daily ridership of 21 passengers.

#### Orange Route

The Orange Route runs from I-70 north along Second Street and proceeds north of Route 370 to New Town, a St. Charles residential development and a light industrial area on New Town Boulevard. This route then returns east along Route 370 and south on North and South Fifth Street to the Study Area. The total Orange Route ridership was 5,979 in 2016, which is an average daily ridership of 25 passengers.

#### Blue Route

The Blue Route serves residential neighborhoods on both sides of I-70, the City of St. Charles, and several retail areas. This route primarily travels along S. Main Street, Bass Pro Drive, Fairground Road, Friedens Road, Zumbahl Road, South Old Highway 94, Graystone Drive, First Capitol Drive, and South Riverside Drive. This is the busiest local SCAT bus route, with a 2016 total ridership of 9,847 and an average daily ridership of 41 passengers.

#### Green Route

This route travels through the City of St. Charles, several residential neighborhoods, and along the I-70 Study Area to the Cave Spring Road overpass. This provides access to the retail development near Mexico Road along Muegge Road and is close to Barnes-Jewish St. Peters

Hospital. This is the second busiest local SCAT route, carrying 6,173 passengers in 2016 with an average daily ridership of 26 passengers.

**Table 2-15** summarizes the SCAT annual and daily average ridership of each route.

**Table 2-15: SCAT 2016 Local Transit Service Annual and Average Daily Ridership**

Route	Annual Passenger Count	Daily Average
Red	5,060	21
Orange	5,979	25
Blue	9,847	41
Green	6,173	26

### 2.5.2.2 I-70 Commuter Service

In addition to local transit service, SCAT operates a daily commuter service between St. Charles and the North Hanley MetroLink Station (EB in the morning and WB in the afternoon). This line runs every 78 to 81 minutes during its service period. The sites served include several commuter parking lots (which will be discussed in more depth in the next section), St. Joseph Health Center in the City of St. Charles, Ameristar Casino, and Streets of St. Charles development. This commuter service has stops near those of the local SCAT lines. The total ridership for the EB morning service in 2016 was 14,230 passengers, and WB in the afternoon was 14,519. The average daily ridership was approximately 55 passengers in each direction. **Table 2-16** presents the total and average number of commuters boarding the SCAT I-70 Commuter Service at each stop location.

**Table 2-16: 2016 Total and Average Number of Commuters Boarding the SCAT I-70 Commuter Service at Each Stop**

Stop Location	AM Commuters		PM Commuters	
	Total	Average	Total	Average
St. Joseph Health Center	295	1	1,955	8
Ameristar Casino	596	3	3,678	15
Cave Springs	894	4	523	2
Zumbehl Lot	1,226	5	699	3
Veterans Memorial Parkway	130	1	194	1
Streets of St. Charles	1,001	4	2,037	9
North Hanley Metro	10,088	42	5,433	23
<b>Total</b>	<b>14,230</b>	<b>60</b>	<b>14,519</b>	<b>61</b>

*\*December 2016 data was unavailable. Ridership was taken from January to November 2016.*

**2.5.2.3 Commuter Lots**

An essential component of the I-70 Commuter Service are the MoDOT commuter lots. **Table 2-17** lists the commuter lots in the I-70 Study Area, together with the number of spaces available. Those with SCAT I-70 Commuter Service stops are marked.

**Table 2-17: Location and Capacity of MoDOT Commuter Lots in the I-70 Study Area**

Location	Number of Spaces	Lighting	SCAT I-70 Commuter Service stop
I-70 and Cave Springs Boulevard/Truman	86	Yes	Yes
I-70 and Route C/Mid Rivers Mall Drive	148	Yes	No
I-70 and Fairgrounds Road East	108	Yes	Yes
I-70 and Zumbahl Road	79	Yes	Yes
I-70 and Lake St. Louis Boulevard	32	Yes	No
US Route 40 and Callahan Road	32	No	No
US Route 61 and Pitman Road	35	Yes	No

Source: modot.gov

**2.6 BICYCLE AND PEDESTRIAN**

This section summarizes current conditions for bicycle and pedestrian transportation, focusing on existing non-motorized facilities, recent bicycle and pedestrian crash data, and Bicycle Level of Service (BLOS) and Pedestrian Level of Service (PLOS) analyses for the Study Area. Each analysis incorporates recent research on factors that impact bicycle and pedestrian comfort and safety, and uses the data available. The level of service models analyzed the collector and arterial roadway network within the Study Area (and adjacent areas where they border the urban service area on both sides), focusing on arterial and collector roadways and associated pedestrian facilities. Limited access highways and local roadways were not included. This method provides a full picture of facility quality within the Study Area.

The Study Area is distinguished by a wide range of land use patterns and roadway network characteristics representative of the region’s growth and development. From downtown St. Louis to St. Charles County, there is a gradual transition from dense, mixed use developments, traditional grid street network, and fine-grained connectivity for bicyclists and pedestrians, to suburban-style development characterized by greater separation of land uses, lack of connectivity between adjacent developments, and a greater reliance on arterial and collector roadways. These varying land use and roadway traits impact bicycle and pedestrian levels of service significantly, as this analysis will show.

### 2.6.1 Existing Facilities

The Study Area extends roughly 40 miles along I-70, traversing St. Charles County, St. Louis County, and the City of St. Louis. The following describes the existing bicycle and pedestrian facilities in both Counties and the City of St. Louis.

#### St. Charles County

Rapid growth and development in St. Charles County from the 1970s through the 2000s has created an auto-dominated transportation network in which walking and bicycling as modes of transportation were reduced. A greater segregation of land uses widens the distance between large residential subdivisions and schools, parks, and other destinations. Residential subdivisions are characterized by winding roads, cul-de-sacs, and limited access points, increasing walking and bicycling distances to destinations outside of neighborhoods. The majority of functionally classified roadways are characterized by heavy volumes of vehicles and high vehicle speeds, as well as a general lack of bicycle and pedestrian facilities.

Existing sidewalks and trails for pedestrian use are minimal along most of the I-70 corridor in St. Charles County, and those that do exist are not interconnected with adjacent local networks, forcing pedestrians to use shoulders. However, there are several crossings of I-70 that have addressed pedestrian access very well, such as Woodlawn Avenue, Mid Rivers Mall Drive, Spencer Road, Executive Parkway, Hawks Nest Drive, Route 94, and Fairgrounds Road. The Gateway Bike Plan network is defined along and across the I-70 corridor.

While much of the bikeway along the corridor is composed of shoulder bike lanes, and shoulders exist in many places, little has been done to implement improvements at intersections that would greatly improve the bikeability of the network. One notable exception to this is on West Terra Lane, from Lake St. Louis Boulevard to Bryan Road, where the City of O'Fallon has implemented bike lanes and through intersection markings, creating one of the primary high quality bikeways in the County. The City of St Charles recently completed a study to determine the feasibility for an I-70 bicycle and pedestrian crossing and associated connectivity improvements. As a result of the study, bicycling and walking improvements are being designed for Highway 370 Discovery Bridge. It will be a SUP of a minimum of 8 feet on the westbound bridge. The 6 foot directional path is dead. A cantilevered bridge on the eastbound span of the I-70 Blanchette Memorial Bridge is also recommended in the feasibility study. These improvements will provide significant enhancements to network connectivity, support non-motorized transportation and recreation, and increase access to the Katy Trail.

#### St. Louis County

In St. Louis County, there is a gradual transition from suburban development patterns to inner ring and urban development characteristics. While lot sizes are relatively similar, land uses become more segregated, increasing walking and bicycling distances from residential neighborhoods to local destinations. Less emphasis is placed on the grid street pattern, which is gradually replaced by winding neighborhood streets and a greater reliance on collector and

arterial roadways for motorists, pedestrians, and bicyclists. There are greater distances between transit routes in St. Louis County (compared to St. Louis City), which functions as a limiting factor for pedestrian and bicyclist mobility. Most streets crossing I-70 in St. Louis County east of I-170 offer pedestrian accommodations but not to the extent of encouraging walking with a high level of comfort since they were improved as an add on to recent roadway projects. West of I-170 however, pedestrian infrastructure is limited. Locations such as Air Flight Drive, Cypress Road, and Earth City Expressway offer no sidewalks for pedestrians.

The Gateway Bike Plan network for St. Louis County continues from the City along corridors such as West Florissant Avenue, Natural Bridge Road, and St. Charles Rock Road. The Woodson Road bike lane is the only dedicated on-street bikeway within the St. Louis County section of the Study Area, while the Ted Jones Trail east of Florissant Road and the Earth City Levee Trail along the Missouri River (representing the beginning of the Missouri River Greenway) are among the only linear off-street trails. Additional bike lanes are present on roads surrounding the study area, including Banshee Road, St. Charles Rock Road, Natural Bridge Road, and Lucas and Hunt Road, but few of these facilities connect to one another, and therefore minimally impact bicycle transportation.

The recently completed Great Streets project on Natural Bridge Road from Hanley Road to Lucas and Hunt Road included enhanced bicycle and pedestrian facilities, a four to three travel lane conversion, pedestrian-scale lighting, and other amenities to improve pedestrian safety and comfort. The Gateway Bike Plan network does include routes perpendicular to I 70, but the bikeways near I 70 have only been constructed on Woodson Road from Natural Bridge to St. Charles Rock Road. Overall there is a network plan, but there are minimal high quality routes in place that provide an interconnected system of routes along I-70.

### **City of St. Louis**

In the City of St. Louis, short block lengths, smaller lot sizes, a greater mixture of land uses, and a typical urban grid street plan create an environment supportive of active transportation. Pedestrians and bicyclists can choose from a variety of route options to reach a given destination, often avoiding arterial roadways with higher vehicle volumes and speeds. Distances are shorter between residential neighborhoods and common destinations like commercial facilities, employment generators, parks, and schools. Public transportation is more prevalent as well, which increases access to destinations beyond walking and bicycling distances. There is a significant presence of sidewalks. All overpasses have pedestrian infrastructure on the bridge crossing, and all but one has good connectivity between the crossing and the adjacent sidewalk network.

Most streets have sidewalks on both sides of the street; however, sidewalks are present on one side of the roadways immediately adjacent to I-70, which is due to destinations only being on one side of the street, adjacent to existing developments. The bikeway network in the City of St. Louis is referred to as Bike St. Louis, which is part of the Gateway Bike Plan Network. Many bikeways included in the Gateway Bike Plan Networks are existing, and were implemented as part of Bike St. Louis Phase 2 and Phase 3 projects. Recent bikeway enhancements near I-70



include West Florissant, Broadway, and Lillian Avenue, as well as enhanced markings for crossings on I-70 at Goodfellow Boulevard and Grand Avenue.

Great Rivers Greenway has initiated and has been working for several years to convert a 1.5 mile abandon elevated rail line into a vibrant park and recreation district. Open houses were held in 2013, with limited activity since. The Trestle, which spans over I-70 just two blocks north of where the new Mississippi River Bridge now crosses, is envisioned to place St. Louis on a short list of cities with this type of elevated park. The Trestle will together a comprehensive network of on-street bikeways, trails and greenways. This Trestle will connect to the 14th street

Greenway project with the Riverfront Trail with a crossing of I-70 that is completely separated from vehicular traffic.

### Existing Facility Summary

While conditions vary throughout the corridor, local and regional governments, MoDOT, and agencies like Great Rivers Greenway (GRG) planned a number of bicycle and pedestrian projects throughout the Study Area to increase connectivity for and accessibility of active transportation. These improvements have had and will continue to have an impact on non-motorized network connectivity and levels of service, particularly for bicycle transportation.



### 2.6.2 Bicycle and Pedestrian Crashes

The bicycle and pedestrian crash analysis investigated crashes within three miles of I-70 using bicycle crash data from 2010 to 2015 and pedestrian crash data from 2011 to 2015. The analysis was conducted using a buffered cluster technique to show the frequency of bicycle and pedestrian crashes across all years of available data. Generally, high numbers of crashes clustered in a given area may illustrate higher numbers of bicycle and pedestrian trips within an area or along a given corridor. Lack of information related to yearly bicycle and pedestrian ridership means that the analysis is not able to determine the rate at which crashes occur in a given area. In the future, this exposure data can help planners understand how many crashes occur relative to the number of people bicycling and walking near the corridor.

### 2.6.2.1 Bicycle Crashes

Bicycle crashes in the Study Area are identified in **Figure 2-18**. From 2010 through 2015, 430 bicycle crashes occurred within a three-mile radius of the I-70 corridor. The highest number of bicycle crashes occurs within the City of St. Louis. These crashes are particularly clustered along major corridors like Martin Luther King Boulevard (State Route 180), Kingshighway Boulevard and 14th Street, and in more dense mixed-use areas like Downtown St. Louis and the Central West End.

Bicycle crashes in St. Louis County are clustered northeast of the I-70 corridor and south of the I-70 corridor. High crash corridors include St. Charles Rock Road (State Route 180), Woodson Road, and Midland Boulevard to the south. High crash corridors to the northeast include Hereford Avenue, and Route N. The intersection of these two roadways is a particularly high crash location. West Florissant Avenue was also identified as a high bicycle crash corridor.

High crash corridors in St. Charles County include Main Street, Mexico Road, and West Clay Street. The intersection of Mexico Road and Bryan Road was identified as a particular high crash location. No fatal bicycle crashes were observed in the study area.

### 2.6.2.2 Pedestrian Crashes

Pedestrian crashes in the Study Area are identified in **Figure 2-19**. From 2011 through 2015, there were a total of 1,174 pedestrian crashes within a three-mile radius of the I-70 corridor. The difference in overall number of bicycle and pedestrian crashes can be explained to some degree by the higher numbers of people walking in the study area, compared to bicycling. One hundred and sixty-one of those crashes, roughly 14 percent, occurred within a half mile from I-70. The highest number of pedestrian crashes occurs in the City of St. Louis. High numbers of pedestrian crashes in this area occur on Kingshighway Boulevard, Grand Boulevard, Riverview Blvd, Union Boulevard, Natural Bridge Road (State Route 115), and in Downtown St. Louis.

Pedestrian crashes in St. Louis County are clustered along St. Charles Rock Road (State Route 180), Chambers Road east of I-170, Lucas and Hunt Road, West Florissant Avenue, and Jennings Station Road. High crash intersections include St Charles Rock Road at Woodson Road, and Chambers Road at West Florissant Avenue.

Crashes within St. Charles County are primarily clustered in the city of St. Charles, particularly along State Route 94, Clark Street, and Elm Street. Multiple crashes also occurred along Highway K in O'Fallon.

### 2.6.2.3 Crashes by Year

Bicycle crashes within the study area have increased from 2010, however the yearly number of crashes fluctuates within available data. There were 94 total bicycle crashes in the study area in 2015. Likewise, pedestrian crashes have increased since 2011. However, like bicycle crashes, the yearly total fluctuates. There were 289 total pedestrian crashes in the study area in 2015. Longer

term crash data will illustrate overall trends with more certainty than data limited to the past five to six years.

### 2.6.3 Bicycle Level of Service (BLOS)

The methodology for computing the BLOS is detailed in **Appendix B. Figure 2-18** shows the BLOS for streets in the Study Area. Calculating BLOS for arterial and collector roadways in the corridor helps to identify roadways where bicycle travel is already relatively pleasant, and provides insight into how new routes may be developed to more effectively serve the area.

As **Figure 2-18** shows, conditions generally range from fair (Grade C) to deficient (Grade E) for bicyclists within the Study Area. Conditions are poorest along higher order roadways that provide connection between cities. While these roadways are designed primarily to serve vehicle traffic, they also represent important, and often the only, connection between destinations and cities. There are many lower order roadways that provide good or fair bicycling environments (Grades B and C), but these roadways are often shorter and disconnected, therefore limiting bicycle connectivity. Bicyclists would benefit from long-term plans to provide continuous bike lanes, buffered bike lanes, bikeable shoulders, or other separated cycling facilities.

In St. Charles County, BLOS corresponds highly with functional classification. However, the presence of an outer road system paralleling I-70, consisting of major and minor arterials and often characterized by wide shoulders and lower volumes of motor vehicle traffic, provides better bicycling environment for east-west travel. Interstate overcrossings like Woodlawn Avenue, Sonderen Street, and Hawks Nest Drive provide slightly better conditions for interstate crossing than nearby arterials, but are still unsuitable for less experienced bicyclists.

Conditions in St. Louis County vary considerably, but generally follow the pattern identified in St. Charles County in which BLOS corresponds with functional classification. Nearly all principal and minor arterials within the study corridor in St. Louis County is either a poor or deficient environment for bicycling (Grade D or E). Most major and minor collectors, on the other hand, are either categorized as either Grade B or Grade C. Although these lower order roadways are not connected enough to constitute a network of suitable roadways for bicycling, they do provide important interstate crossing alternatives to arterials.

In the City of St. Louis, high traffic volumes and vehicle speeds along larger arterials like Broadway Blvd and Union Blvd are suitable only for experienced cyclists. While the traditional grid street pattern and Bike St. Louis network of signed bicycle routes provide more suitable route alternatives both adjacent to and across the corridor, barriers to bicycle travel like I-70, large contiguous industrial land uses, and street closures still exist.

### 2.6.4 Pedestrian Level of Service (PLOS)

The methodology for computing PLOS is detailed in **Appendix B. Table 2-18** summarizes the PLOS grades and scores of roadways used in this study. Calculating PLOS for all roadways within the Study Area helps to identify roadways where pedestrian travel is already relatively

safe and to provide insight into how new routes may be developed to effectively serve the area. **Figure 2-19** shows the PLOS for arterial and collector roads within the Study Area.

**Table 2-18: PLOS Score Definition**

PLOS Evaluation				
PLOS Grade	PLOS Score	Description	Conditions: Vehicle Posted Speed	Conditions: Space
A	1	Best pedestrian environment	Less than 30 mph	Complete sidewalk with buffer, and/or low speed roadways
B	2	Good pedestrian environment	Less than 35 mph	Sidewalk and buffer sometimes present
C	3	Fair pedestrian environment	25 - 40 mph	Some sidewalk, roadways increasingly wide
D	4	Moderate environment	30 - 35 mph	Sidewalk on one side
			40 - 50 mph	Sidewalk on one side, multi-lane roadways
E/F	5	Deficient/unsafe environment	40 + mph	No dedicated space

The majority of roadways within the Study Area were assigned a PLOS grade of D or E, meaning deficient or unsafe. These roadways are characterized by higher posted speed limits, usually 40 mph or greater, and a lack of dedicated sidewalks or pedestrian facilities.

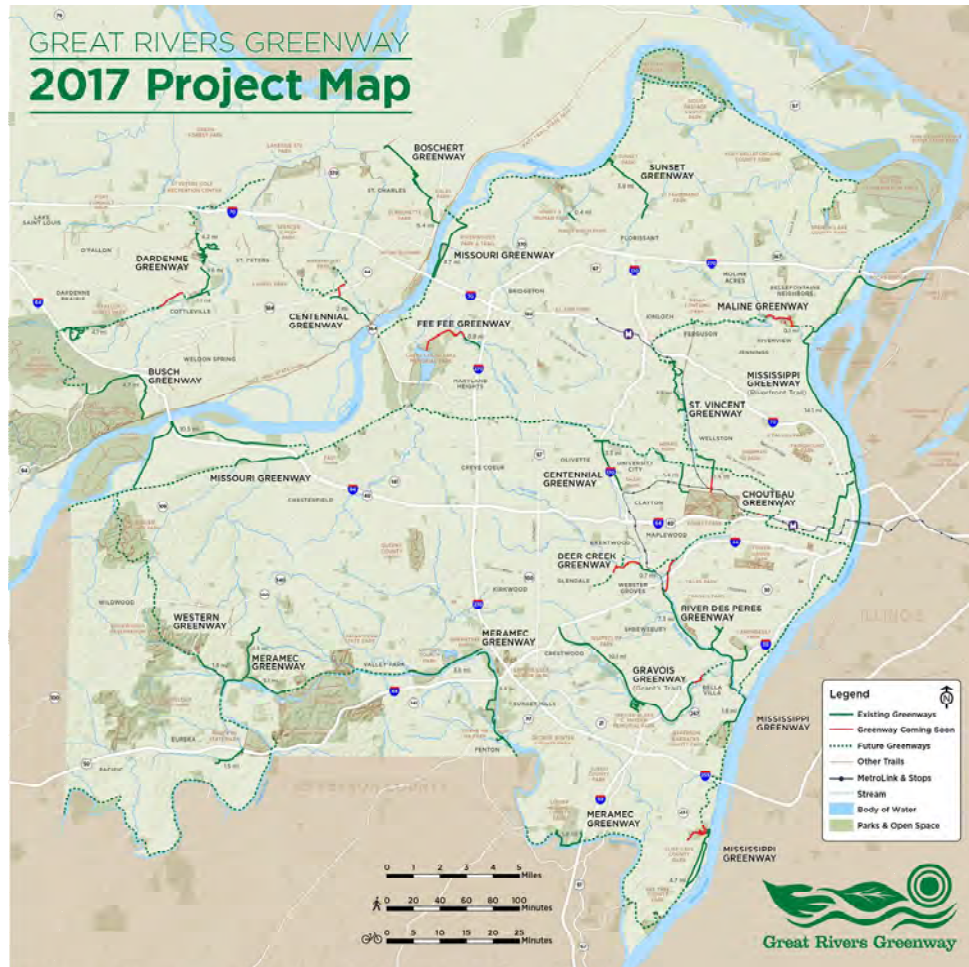
Conditions for walking in St. Charles County are the least suitable in the entire Study Area. However, Mexico Road, which parallels I-70 from Bryan Road to just east of Muegge Road, does provide a suitable pedestrian environment, especially with recent investments in a continuous sidepath for a considerable length of the corridor.

Current conditions for walking in St. Louis County are worse than in the City of St. Louis, particularly near St. Louis Lambert International Airport and Earth City Business Park, where nearly all roads lack dedicated pedestrian facilities. On roadways where sidewalks are present, higher motor vehicle speeds and a lack of on-street parking, to buffer pedestrians from motor vehicles, detract from the pedestrian environment and reduce PLOS scores. Interstate crossings are also more infrequent in St. Louis County than in the City of St. Louis, and pedestrians must cross the interstate on higher order roadways characterized by lower levels of service.

Pedestrian level of service is highest in the City of St. Louis where a noted presence of sidewalks, lower posted speed limits, and on-street parking create a safer environment for pedestrian travel.

### 2.6.5 Planned Facilities

The Great Rivers Greenway District is a voter-created district in the City of St. Louis, St. Louis County and St. Charles County whose mandate is to develop a connected network of bicycle and pedestrian paths. They have developed a master plan for the region, The River Ring, for a network of paths and trails to enable non-motorized travel (some of which are highlighted on **Figure 2-20**). Great Rivers Greenway also developed a master plan for on-street bicycle transportation, The Gateway Bike Plan: Regional Routes to Sustainability, which includes recommendations for on-street bikeways throughout the Study Area. The St. Louis Great Streets Initiative study for West Florissant Avenue, a project of the EWGCOG, was completed in 2014 and recommends a shared-use path bikeway option along the corridor. Additionally, individual jurisdictions within the Study Area maintain individual bike and walking trails development plans.



### 2.6.6 Existing Walking and Bicycling Demand

The demand model determines the number of walking or bicycling trips that occur in a day within three miles of the I-70 study corridor. The intent is to understand the existing activity that is occurring within the corridor to provide a baseline for assessment of future activity. This model uses Census and other national studies to extrapolate the number of bicycling or walking trips taken by populations that traditionally have a higher bicycle/walking mode split than work commuters (such as elementary school and college students). National transportation surveys

have also shown that commute trips are only a fraction of total trips an individual takes on a given day (National Household Travel Survey [NHTS], 2009). The model uses the NHTS findings to estimate the number of non-work, non-school trips taken by commuters and provide an estimate of additional utilitarian trips (e.g., trips that are not made for exercise or other types of recreation).

In order to provide an assessment that recognizes the distinctive land use and employment patterns within the 40-mile corridor, this analysis discusses results in terms of St. Louis County, St. Charles County, and the City of St. Louis. **Table 2-19** describes observed journey to work trends in the study corridor.

**Table 2-19: Assessment of County-Wide Population and Journey to Work Trends, 2000 - 2015<sup>1</sup>**

Total Population					Workers Age 16 and Over			
Geography	2000	2012	2015	Percent Change	2000	2012	2015	Percent Change
St. Charles County	283,880	360,700	374,805	32%	149,110	185,550	195,810	31%
St. Louis County	1,016,320	999,150	1,001,327	-1%	498,320	478,290	482,990	-3%
St. Louis City	348,150	318,530	317,850	-9%	140,750	142,880	144,590	3%

Geography	Walked to Work							Biked to Work						
	2000		2012		2015		Percent Change	2000		2012		2015		Percent Change
St. Charles County	1,180	0.79%	1,770	0.96%	2,007	1.02%	50%	80	0.05%	210	0.11%	232	0.12%	170%
St. Louis County	6,230	1.25%	7,590	1.59%	7,231	1.50%	22%	480	0.10%	1,100	0.23%	1,202	0.25%	128%
St. Louis City	5,690	4.04%	6,020	4.21%	6,407	4.43%	6%	490	0.35%	1,150	0.80%	1,140	0.79%	135%

### 2.6.6.1 Methods

Journey-to-work information collected by the U.S. Census Bureau’s *American Community Survey* (ACS) from the 2015 five-year estimate is the foundation of this analysis. Model variables from the ACS within St. Charles County, St. Louis County, and St. Louis City include:

<sup>1</sup> It is assumed that college commute trips are made at the same rate as journey to work trips.

- Total population (1,693,980 people)
- Employed population (823,390 people)
- School enrollment (133,861 college students)
- Travel-to-work mode split (see Table 1).

The 2009 NHTS provides a substantial national dataset of travel characteristics, particularly for bicycling and walking trips. Data used from this survey include:

- Ratio of walking and bicycling work trips to non-work, non-social/recreational trips
- Ratio of work trips to social and recreational trips

Several of these variables provide an indirect method of estimating the number of walking and bicycling trips made for non-work reasons, such as shopping and running errands. NHTS data indicate that for every bicycle work trip, there are slightly more than two utilitarian bicycle trips made. Although these trips cannot be directly attached to a certain group of people (not all utilitarian bicycling trips are made by people who bicycle to work), these multipliers allow a high percentage of the community’s walking and bicycling activity to be captured in an annual estimate.

**2.6.6.2 Corridor Demand Assessment**

The model estimates about 58,931 walking and bicycling trips occur in the I-70 corridor each day for transportation purposes. The majority are non-work utilitarian trips which include shopping/errands, medical/dental services, family or personal business, obligations, meals, and other trips. The greatest numbers of work commute trips were made in the City of St. Louis. While the city has a smaller population base than either St. Louis or St. Charles County, it still serves as the region’s most dense employment center. The urban form of the city, with its shorter blocks, complete sidewalk infrastructure, and density of jobs and employment make it friendlier to walking and bicycling trips, which tend to be shorter than most trips made by motor vehicle. The number of college and university students within the city also contributes to the higher observed number of walking and bicycling trips. While this analysis assumes the trips to campus are made at the same rates as trips to work, it is likely though that this rate is actually higher (consistent with results observed across the US).

**Table 2-20: Bicycle and Pedestrian Demand Assessment I-70 Corridor**

Demand by Geography (Daily Trips)	St. Charles County	St. Louis County	St. Louis City	Total
Bike Commute Trips	210	1,200	1,140	2,550
Utilitarian Bike Trips	330	1,940	1,840	4,100
K-12 Bike Trips	680	1,690	440	2,810
College/University Bike Trips	470	1,280	530	2,280

**Table 2-20: Bicycle and Pedestrian Demand Assessment I-70 Corridor (Continued)**

<b>Total Work and Utilitarian Bike Trips</b>	<b>1,690</b>	<b>6,100</b>	<b>3,940</b>	<b>11,740</b>
<i>Recreational/Social Bike Trips</i>	980	5,730	5,440	12,150
<b>All Bike Trips</b>	<b>2,670</b>	<b>11,840</b>	<b>9,380</b>	<b>23,890</b>
Walk Commute Trips	2,010	7,590	6,020	15,620
Utilitarian Walk Trips	8,670	32,800	26,020	67,480
K-12 Walk Trips	9,160	22,610	5,930	37,690
College/University Walk Trips	1,880	5,120	2,110	9,100
<b>Total Work and Utilitarian Walk Trips</b>	<b>21,720</b>	<b>68,110</b>	<b>40,070</b>	<b>129,900</b>
<i>Recreational/Social Walk Trips</i>	7,850	29,680	23,550	61,080
<b>All Walk Trips</b>	<b>29,560</b>	<b>97,800</b>	<b>63,620</b>	<b>190,980</b>
Non-Motorized Commute Trips	2,210	8,790	7,160	18,170
Non-Motorized Utilitarian Trips	9,000	34,730	27,850	71,580
Non-Motorized K-12 Trips	9,840	24,290	6,370	40,510
Non-Motorized College/University Trips	2,350	6,390	2,630	11,380
<b>Total Non-Motorized Work and Utilitarian Trips</b>	<b>23,400</b>	<b>74,220</b>	<b>44,020</b>	<b>141,640</b>
<i>Non-Motorized Recreational/Social Trips</i>	8,830	35,420	28,980	73,230
<b>Total All Non-Motorized Trips</b>	<b>32,230</b>	<b>109,630</b>	<b>73,000</b>	<b>214,860</b>
<b>Population</b>	<b>374,810</b>	<b>1,001,330</b>	<b>317,850</b>	<b>1,693,980</b>
<b>Employment</b>	<b>195,810</b>	<b>482,990</b>	<b>144,590</b>	<b>823,390</b>



Consistent with trends observed since the 1960's, the City of St. Louis continued to lose population between 2000 and 2015. The rate of population loss has declined, however, to about nine percent, and the decline is expected to continue to slow over time, according to projections completed by the EWGCOG. Despite the loss of population, walking and bicycling rates increased in the City of St. Louis, likely due in part to the increase in employment, particularly within the Central Corridor, where denser, mixed use neighborhoods are within close proximity to major employment centers. The increased rates of walking and cycling within the City of St. Louis may be attributed to either a younger and more affluent creative class that is less likely to own a motor vehicle or simply due to the increased number of people working and making daily trips.

St. Louis County and St. Charles County also showed positive increases in the number of people walking and bicycling to work. While St. Louis County showed a slight population decline (-1%), St. Charles experienced a growth of 32%. According to EWGCOG these trends are expected to continue for the foreseeable future and result in continued overall regional population growth. While land use in St. Charles County is presently dominated by single family residential, green field sites remain and many opportunities exist to create bicycle- and pedestrian-friendly environments both through new development and retrofit of existing infrastructure. Enhancing the environment can provide return on benefits including reduced household travel costs, vehicle miles traveled, air pollution, savings on healthcare, and safety spending.

Trips made for social or recreational purposes are not included in this model since its underlying goal is estimating the transportation benefits of bicycling and walking. However, it is worth noting that NHTS data shows that there are approximately 6.5 social and recreational bicycle trips made for every bicycle commute trip. NHTS data estimates that 5.9 social and recreational walking trips are made for every walking commute trip. In the I-70 corridor, an estimated 30,718 social and recreational trips are made on foot or by bicycle. These social and recreational trips are not included in the estimates of existing and future bicycling and walking activity, which only take into account non-discretionary trips (e.g., trips to work, the grocery store, or medical appointments). That means the total non-motorized activity estimate for the corridor is about 89,649 trips.

### **2.6.6.3 Impact of Existing Environment and Infrastructure**

As observed in the bicycle and pedestrian level of service, the quality of the bicycling and walking environment varies significantly along the 40-mile corridor. The best conditions are found within the City of St. Louis, a few roadways in the eastern portion of the corridor where bicycle facilities exist, and the Katy Trail, which runs through the study area near the border of St. Charles County and St. Louis County. The Gateway Bike Plan, developed by Great Rivers Greenway, is currently being implemented across the region. The planned network includes recommendations to improve bicyclists' comfort and safety across St. Louis City, St. Louis County, and St. Charles County. These significant infrastructure improvements would set the stage for dramatic increases in bicycling activity.

Since everyone in the region has the potential to be a pedestrian, providing safe, comfortable and convenient connections can benefit all regional users. The more dispersed land use pattern along the majority of the I-70 corridor suggests that pedestrian trips are likely to be shorter ‘last mile’ trips connecting to transit stops or nearby destinations like schools. Transit service is currently not available in much of the corridor and many roadways do not have sidewalks, suggesting that a number of trips that could be made on foot are probably not happening at the current time.

In areas with a higher median income people are more likely to be car-free by choice, while the inverse is true in areas with lower median income and may be an important consideration when equitably distributing transportation infrastructure across the region.

## **2.7 FREIGHT TRANSPORTATION**

### **2.7.1 St. Louis Regional Freight Study**

The EWGCOG commissioned a report, *St. Louis Regional Freight Study*, published in 2013, to evaluate the freight infrastructure capacity and usage in the St. Louis Metropolitan area. The report identified 23 manufacturing job clusters which are industrial site areas that serve either as a destination or an origin for freight. Of those, eight are in the Study Area and two more will contribute heavily. Those in the Study Area are shown in **Table 2-21**. The two sites which contribute to traffic on I-70 are both on Page Boulevard (the Page-270 Quadrant and the Page Corridor). These are primarily industrial and commercial areas.

**Table 2-21: Freight Origins and Destinations in the Study Area**

Site Name	Description
GM – Wentzville	Assembles GM vehicles
West 70-Arrowhead	Commercial and industrial complex
Fountain Lake/Elm Point	Commercial and industrial complex
Earth City	Industrial, office, agricultural, and entertainment
St. Louis Lambert International Airport	Passenger and freight airport and surrounding area
Kingshighway Building/I-70	Industrial properties with rail access
Broadway Hall	Area along the Mississippi River with river and rail access (Missouri side)
East Industrial Gateway - IL	Industrial and infrastructure gateway to the St. Louis area on the Illinois side; river rail, and highway access

I-70 is a major truck traffic corridor for freight moving east from Kansas City through the St. Louis area to the East Coast. However, west of St. Louis, most traffic takes I-44 and I-40 towards Los Angeles. This is mostly due to the significance of the Port of Los Angeles as the primary freight gateway for the Pacific Rim.

There are six Class I railroads serving the St. Louis area. Travel through the St. Louis area accounts for most of the traffic on these lines. When measured by tonnage, bituminous coal from the Powder River Basin (point-of-rail origin is Casper, Wyoming) is one of the most significant commodities shipped via rail through St. Louis. When measured by value of product shipped, cars, plastics, iron, steel products, and coal topped the list. These products primarily travel within the Midwest and/or to Texas. Petroleum and refined petroleum products were a significant portion of outbound freight from the St. Louis area in 2010.

Containers shipped via rail are also a significant source of rail traffic. Most of this mode's traffic through St. Louis travels between Chicago and Texas (San Antonio, Dallas, and Houston). For containers originating in St. Louis, the primary destinations are Los Angeles and New York.

St. Louis is also the northernmost point on the Mississippi River which provides winter access and is the last major port before the locks and dams on the Upper Mississippi River. Unlike highway and rail freight, where the primary use is through traffic, most barge traffic in the St. Louis area originates in St. Louis. The two largest destinations are New Orleans and Baton Rouge, LA, and the three largest commodities are coal, agricultural products (grain and oil kernels) and petroleum products. Significant demand for these products comes from the international market.

St. Louis Lambert International Airport and MidAmerica St. Louis Airport (St. Clair County, Illinois) are also significant air freight terminals. Air freight is generally reserved for high-value and/or time sensitive products, including electronics and perishables. There have been efforts to develop a legislative framework to encourage international trade by creating tax incentives and to create partnerships with foreign cargo carriers. While there is significant capacity at both of these facilities, the competition from other cities and a lack of robustness in the wider economy means there is room for growth and opportunities at both airports.

St. Louis is a major location for the exchange of freight between river and truck/rail. The truck and rail, in turn, mostly move through the Upper Midwest to manufacturing and industrial centers. I-70 west towards Kansas City and east towards the East Coast is a major artery for this freight and for transportation within the St. Louis region.

The *St. Louis Regional Freight Study* by EWGCOG provides more specific details about freight traffic in the St. Louis region and future projection. Additionally, MoDOT conducted a freight study, the *Missouri State Freight Plan*, that identifies strategic projects that can make significant improvements to the freight system. In the I-70 study area, a planning project was recommended between MO-141 and I-270. Planning studies were recommended for truck bottlenecks and the highest 25% of CMV crash rate at I-70/Grand, I-70/Kings Highway, U.S. 67/I-70, and I-270/I-70.

### **2.7.2 St. Louis Regional Freightway**

In 2014, the St. Louis Regional Freightway was founded through EWG Board Action after a series of stakeholder meetings to discuss how the District might look and feel, as well as to

create a regional freight development Action Plan. It coordinates regional freight development efforts, connects private and public sectors, and advocates the region’s greatest freight and site selection strengths. Primary criteria identified by the St. Louis Regional Freightway for projects in the St. Louis Region include economic impact, multimodal impact, and efficiency impact. Secondary criteria include strategic alignment, business development impact, and public safety impact. Projects listed in 2016 in the study area are Merchants Rail (TRAA) Bridge Replacement over the Mississippi (over Merchants Bridge) and North Riverfront Commerce Corridor Improvement.

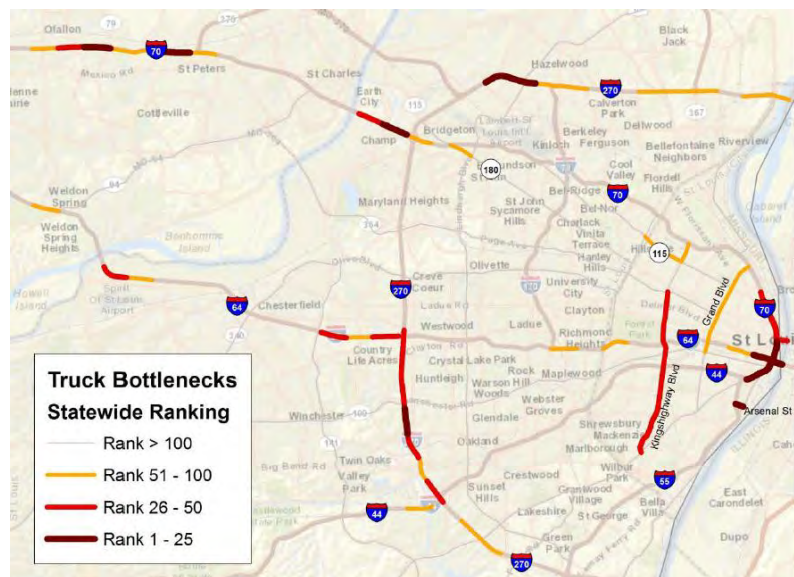
**2.7.3 Missouri Freight Plan**

Also in 2014, MoDOT built on Missouri’s Long Range Transportation Plan and worked with stakeholders to identify opportunities and actions to improve the freight transportation system statewide to meet current and future needs of Missouri businesses and increase economic development and jobs. The Plan is designed to take care of the existing freight system and make the best and most strategic investments possible when funds are available.

The goals of the plan included maintenance of the current system by keeping highways and bridges in good condition while supporting maintenance of railways, waterways, airports, and multimodal connections. It plans to improve safety by decreasing the number and severity of crashes involving commercial vehicles and improving safety at railroad crossings. The plan supports economic growth and competitiveness through improvements to the freight system. It will also improve the connections between freight modes and improve the mobility of the freight system by reducing congestion and increasing reliability of the roadways.

The plan identified three strategic considerations. One was to reduce and/or mitigate the negative environmental impacts of freight. The second was to institute practices and policies that support the freight system. The third was to improve coordination and collaboration with stakeholders.

I-70 was identified as a Tier 1 Route. Lambert Airport is identified as a Primary Freight Airport. There are 2 railroads within the Study Area. Norfolk Southern is just within the buffer zone near Grand Avenue, while Union Pacific runs along 70 from Grand Avenue to Union Avenue with both railroads operating at capacity. The Missouri River also serves as Marine Highway M-70 from St. Louis to Kansas City. Crude Oil and Petroleum Product pipelines also cross the study area.



Source: MoDOT Freight Transportation Plan

30 intermodal facilities are also within the St. Louis area.

Prioritized freight projects included capacity improvements to I-70 in St. Louis. The most severe bottlenecks were identified near the confluence of Interstates 70, 64, 55, and 44 near downtown, however the Stan Musial Veteran's Memorial bridge has since opened.

The largest rail commodities outbound from St. Louis by tonnage in 2011 were Waste or Scrap Materials, Chemicals or Allied Products, and Miscellaneous Mixed Shipments with destinations in Texas, California, and Illinois.

The largest commodities inbound to St. Louis were Coal, Farm Products, and Chemicals or Allied Products. Most originated in Wyoming and to a lesser extent California, North Dakota, Iowa, and Illinois.

Freight transportation was further evaluated with other modes of transportation. Projecting numbers to 2030, the amount of freight is expected to increase across all modes of transportation. There is capacity to expand waterborne traffic on the Missouri and Mississippi Rivers, however dredging frequency, lack of improvements to locks and dams, and inconsistent water levels hinders an increase in traffic. Cargo facilities at the airport need updated and expanded to allow for technological changes and efficiency. Aside from funding, reliability was the main concern of stakeholders. Reliability stems from congestion and capacity issues. Better connectivity is needed between freight modes, and deficient bridges in the area could cause costly delays and pose safety concerns for carriers. There is also a shortage of motor carriers and truck fleets as it is becoming increasingly difficult to recruit and insure drivers. Many fleets have left St. Louis, which is driving up costs to move freight on roadways.

St. Louis District projects listed within the study area include:

- Highway, Route 64 from I-70 to MO-K, Very High Priority
- Highway, Corridor improvements on I-70 from I-64 to the Missouri River (near MO-94), Very High Priority
- Highway, Reconstruct the I-64/I-70/US 61 Interchange and add capacity from Wentzville Parkway to I-64 in St. Charles, High Priority
- Highway, Corridor Improvements on US-61 from Lincoln Co. to I-70, High Priority
- Highway, Corridor Improvements from Page Ave. to I-70, High Priority
- Aviation, Connect Lambert International Airport cargo area with an industrial complex and connections to I-70, High Priority
- Highway, Interchange improvements at I-270 and I-70, High Priority
- Aviation, Air cargo capacity is available but the cargo facilities are dated, small, no refrigeration, Medium Priority
- Aviation, Improvements at Lambert Airport including expanding the cargo facility to the north side of the airport and redeveloping the former Boeing production facility for cargo development and expansion, Medium Priority

Statewide projects listed within the study area include:

- Highway, Improve I-70 between Kansas City and St. Louis (Ranges from adding a third lane to adding dedicated truck lanes), Very High Priority
- Highway, Improve I-70 between Lake St. Louis and I-55/64, Very High Priority

From 2006 to 2015 coal imports from Wyoming to Missouri have declined from 52.3 million tons in 2006 to 40.4 million tons in 2015. This decline, however, is at a slower rate (2.17% annually) than to other US States (5.96% annually). In 2015, 98% of coal in Missouri arrived by rail, up from 95% in 2006. Total tons of coal destined for Missouri by rail decrease from 49.5 million tons in 2006 to 41.3 million tons in 2015 at a decline of 1.98% annually. To reach states in the East and the Southeast by rail, coal must pass through St. Louis. The total amount of coal passing through St. Louis declined at 5.54% annually, from 384.5 million tons in 2006 to 230.2 million tons in 2015. In 2006, it accounted for 12% of the consumption of the East and Southeast states, decreasing to 11% in 2015. There has been a decline of 6.75% annually in the number of trains carrying coal from 2006 to 2015.

Port of St. Louis annual shipments increased from 30.2 million tons in 1996 to 44.6 million tons in 2014, a 1.42% increase annually. 2010 to 2014 saw an annual increase of 9.70%. According to USACE data, the St. Louis Region (including the Port of Kaskaskia since 2012) had an annual increase of 2.76% from 1996 to 2014. The Port of St. Louis moved from 22<sup>nd</sup> largest in 1996 to 17<sup>th</sup> in 2014.

### 3.0 EXISTING ENVIRONMENTAL CONDITIONS

This chapter summarizes the existing environmental conditions of the Study Area that consists of I-70 from just west of the I-70/I-64 interchange in Wentzville, Missouri, continuing through the Stan Musial Veterans Memorial Bridge complex to the end of the express lanes in the City of St. Louis. The environmental resource information presented in this section is similar to, but less detailed than the information typically presented in Existing Conditions sections of National Environmental Policy Act (NEPA) documents. A Planning and Environmental Linkages (PEL) study occurs before construction funding is available for a specific project. Therefore, detailed information about a project and impacts from that project are not available. Therefore, the level of detail for environmental resources in a PEL is typically less than what is presented in NEPA documentation. Additional detail regarding the environmental resources presented in this report will occur in subsequent NEPA documentation for those projects that are recommended in the PEL.

The resources analyzed in this report were selected based upon the characteristics of the Study Area and regulatory requirements that are generally consistent with NEPA, its implementing regulations, and with Federal Highway Administration (FHWA) and Missouri Department of Transportation (MoDOT) guidelines. The resources were analyzed to consider avoidance or minimization early in the project development process and to assess the importance of each resource to the Study Area, which could affect decision making. The following resources are considered potential “red flag” environmental resources with separate regulatory drivers, such as the Endangered Species Act (ESA) or Clean Water Act (CWA), or are typically resources of concern for the general public:

- Air Quality
- Sensitive Noise Receptors
- Cultural Resources
- Parks, Refuges, and Recreation Facilities
- Public and Large Commercial Facilities
- Sites with Hazardous Substances
- Wetlands and Other Waters of the U.S.
- Water Resources
- Other Biological Resources
- Land Cover and Land Use
- Socioeconomics and Environmental Justice

This section presents the results of the analysis for each of these resource topics. Within each resource subsection, the resource is introduced and followed by a description of methodology and existing conditions.

### 3.1 AIR QUALITY

The Clean Air Act (CAA) and its amendments are the primary basis for regulating national air pollutant emissions. As required by the CAA, the U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for certain pollutants called criteria pollutants. These standards are shown in **Table 3-1**.

**Table 3-1: National Ambient Air Quality Standards**

Pollutant	Averaging Period	Primary Standard <sup>(A)</sup>	Secondary Standard <sup>(B)</sup>
Carbon Monoxide (CO)	1-hour	35 ppm	None
	8-hour	9 ppm	None
Ozone (O <sub>3</sub> )	8-hour	0.070 ppm	Same as primary
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour	100 ppb	None
	Annually	53 ppb	Same as primary
Lead (Pb)	Rolling 3-month average	0.15 µg/m <sup>3</sup>	Same as primary
Sulfur Dioxide (SO <sub>2</sub> )	1-hour	75 ppb	None
	3-hour	None	0.5 ppm
Inhalable Particulates (PM <sub>10</sub> )	24-hour	150 µg/m <sup>3</sup>	Same as primary
Fine Particulates (PM <sub>2.5</sub> )	24-hour	35 µg/m <sup>3</sup>	Same as primary
	Annually	12.0 µg/m <sup>3</sup>	15.0 µg/m <sup>3</sup>

<sup>(A)</sup> Primary standards define air quality levels intended to protect the public health.

<sup>(B)</sup> Secondary standards define levels of air quality intended to protect the public welfare from known or anticipated adverse effect of a pollutant (e.g., visibility, vegetation damage, material corrosion).

Note: ppm = parts per million; ppb = parts per billion, µg/m<sup>3</sup> = micrograms per cubic meter.

Source: EPA: <https://www.epa.gov/criteria-air-pollutants/naaqs-table> accessed January 12, 2017.

Since motor vehicles produce carbon monoxide (CO), inhalable particulates (PM<sub>10</sub>), fine particulates (PM<sub>2.5</sub>) and precursors to ozone (volatile organic compounds (VOC)), and nitrogen oxides (NO<sub>x</sub>), the NAAQS for these criteria pollutants are of most the concern to this project.

#### 3.1.1 Methodology

The EPA designates areas across the country as being either in nonattainment, maintenance, or attainment/unclassifiable for each criteria pollutant. The designations are based upon historic air quality monitoring data. The EPA’s Green Book was used to identify areas within the Study Area designated as nonattainment for NAAQS.



Reports from the State of Missouri Department of Natural Resources (MDNR) were reviewed to evaluate the trends in monitored air quality data. The most current monitored air quality data was obtained from the EPA Air Quality System Data Mart, through AirData.

### 3.1.2 Key Points

The EPA has designated St. Charles County, St. Louis County, and the City of St. Louis as being nonattainment for ozone. The City of St. Louis and the portion of St. Louis County in the Study Area are designated as being in maintenance for CO. Due to the nonattainment status for ozone, the region previously had to develop and implement a State Implementation Plan (SIP) that would help reduce emissions of ozone, eventually bringing the region into attainment (plan adopted March 28, 2013). The region also developed a Limited Maintenance Plan (LMP) for the St. Louis area to ensure CO emissions did not increase to exceed the CO NAAQS (plan adopted March 27, 2014, EPA approval October 1, 2015).

The coldest months in the St. Louis area are typically December through February, with average lows of 24 to 28 degrees Fahrenheit, and average highs of 40 to 45 degrees Fahrenheit. The warmest months are typically June through September, with average monthly lows of 61 to 71 degrees Fahrenheit, and average monthly highs of 81 to 89 degrees Fahrenheit. Temperature extremes in 2016 ranged from 18 to 98 degrees Fahrenheit. Precipitation in the St. Louis area ranges between 20 and 58 inches annually.

In 2016, the area received more than 39 inches of precipitation, with August being the wettest month. December, January and February were the driest months. The average monthly wind speeds in 2016 ranged from 7 miles per hour (mph) to 10 mph, with August being the least windy month and April being the windiest month. The highest sustained wind speed in 2016 was 48 mph, while the highest gust wind was 60 mph.

Figure 3-1 shows the wind speeds and directions as collected in Granite City, Illinois. As shown, on days with high concentrations of PM<sub>2.5</sub>, the winds were generally from the southeast with speeds ranging from 1 to 7 mph. On days with low concentrations of PM<sub>2.5</sub>, the winds were generally from the northwest with speeds ranging from 1 to 12 mph.

Air quality monitoring data and predictions for the St. Louis area show that between 2008 and 2016, NO<sub>x</sub> and VOC, ozone precursors, as well as CO have decreased and are expected to continue decreasing. PM<sub>2.5</sub> and PM<sub>10</sub> emission levels have remained relatively flat and below the NAAQS. Table 3 2 shows the existing pollutant concentrations for the area. As shown in the table, ozone is the only pollutant currently above the NAAQS.

Transportation conformity is required under the CAA in areas designated as nonattainment to ensure that federally-funded or approved highway and transit activities are consistent with (or conform to) the purpose of the SIP. Projects must prove that they will not cause or contribute to new localized violations of CAA standards, nor increase the frequency or severity of existing violations within the Study Area. Transportation conformity is achieved by being included in the Statewide Transportation Improvement Plan (STIP).

Figure 3-1: Wind Speeds and Directions, Granite City<sup>2</sup>

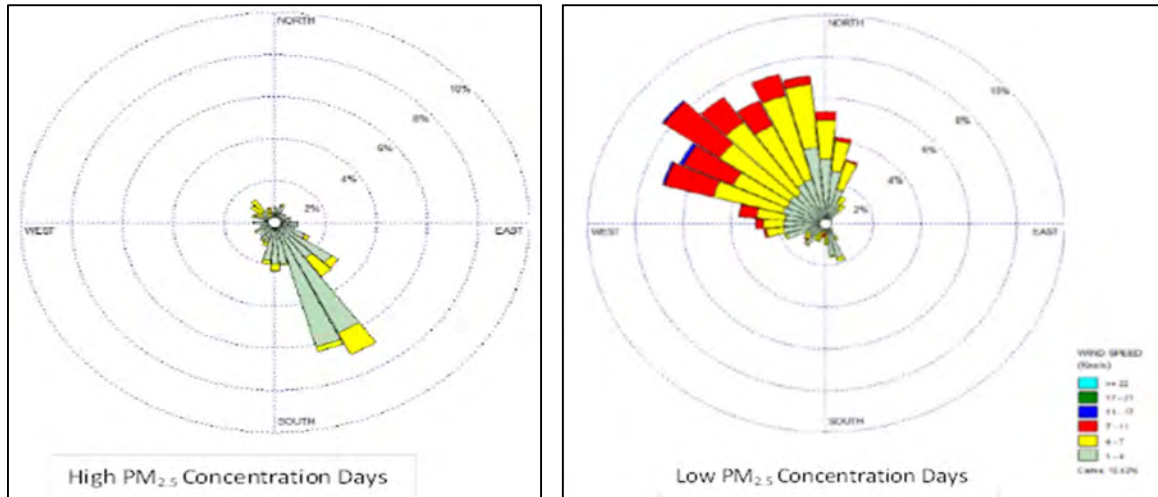


Table 3-2: Current City of St. Louis Air Quality Design Values (Calculated using data from 2014-2016)

Pollutant	Averaging Period	NAAQS	Existing Data <sup>(A)</sup>
Carbon Monoxide (CO)	1-hour	35 ppm	1.7 ppm
	8-hour	9 ppm	0.8 ppm
Ozone (O <sub>3</sub> )	8-hour	0.070 ppm	0.069 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour	100 ppb	48 ppb
	Annually	53 ppb	12 ppb
Lead (Pb)	Rolling 3-month average	0.15 µg/m <sup>3</sup>	0.039 µg/m <sup>3</sup>
Sulfur Dioxide (SO <sub>2</sub> )	1-hour	75 ppb	20 ppb
	3-hour	0.5 ppm	0.008 ppm
Inhalable Particulates (PM <sub>10</sub> )	24-hour	150 µg/m <sup>3</sup>	67 µg/m <sup>3</sup>
Fine Particulates (PM <sub>2.5</sub> )	24-hour	35 µg/m <sup>3</sup>	24 µg/m <sup>3</sup>
	Annually	12 µg/m <sup>3</sup> / 15 µg/m <sup>3</sup>	10 µg/m <sup>3</sup>

<sup>(A)</sup> The existing data, as shown, is the calculated Design Value using the NAAQS specified calculations and averages. Data and calculations are included in **Appendix C**.

Note: ppm = parts per million; ppb = parts per billion, µg/m<sup>3</sup> = micrograms per cubic meter.

Source: EPA: [http://www.epa.gov/airdata/ad\\_rep\\_mon.html](http://www.epa.gov/airdata/ad_rep_mon.html), <http://www.epa.gov/air/criteria.html>, and <http://www.epa.gov/airtrends/values.html>, accessed January 12, 2017.

<sup>2</sup> Source: Missouri’s Recommendation for Area Boundary Designations for the 2012 Annual Fine Particulate Matter National Ambient Air Quality Standard, Missouri Air Conservation Commission Adoption, December 5, 2013, Missouri Department of Natural Resources Division of Environmental Quality, Air Pollution Control Program.

This project is identified in the STIP for 2014-2018 as an environmental study; however, no portion of the project has been included within the fiscally constrained STIP. Transportation conformity will need to be demonstrated before the project/projects can be included in the EWGW Long Range Plan or TIP.

### 3.2 SENSITIVE NOISE RECEPTORS

A general concern with transportation facilities is the potential for noise impacts from vehicles on receptors (i.e., properties) near the facilities. Thresholds for determining noise impacts have been established by state and federal transportation agencies (e.g., MoDOT and FHWA) to guide these conclusions. When impacts are identified from an improvement, mitigation actions for the impacted receptors are typically considered for the project design. This is an important consideration for this project because properties along the I-70 mainline may be impacted by noise.

#### 3.2.1 Methodology

Existing transportation noise conditions for the PEL area were developed by identifying the areas of possible improvements along the I-70 mainline and potentially impacted interchanges. Receptors within 500 feet of these roadways were noted for potential noise impacts. The MoDOT Engineering Policy Guide (EPG) provides policy on highway traffic and construction noise. Additionally, it describes MoDOT's implementation of the requirements of the FHWA Noise Standard (23 Code of Federal Regulations (CFR) Part 772). EPG Article 127.13 Noise describes MoDOT's implementation approach of these standards and is effective as of July 13, 2011. It includes traffic noise prediction requirements, noise analyses, noise abatement criteria, and requirements for informing local officials.

The current MoDOT Noise Abatement Criteria (NAC) are presented in **Table 3-3**. If the noise level at a receptor is found to approach or exceed the relevant NAC, the receptor is considered impacted. The noise level is defined by MoDOT as "Approaching NAC" if it is 1 decibel (dBA<sup>3</sup>) less than the NAC for Activity Categories A through E. No action is required for Category F. Representative data from Category G is generated only as needed to provide information to governmental entities.

For proposed improvements, a calculated increase in the noise level at a receptor of 15 dBA or more at a future time is also considered a noise impact, and is classified as a substantial increase over the existing noise level. For example, for a receiver in Activity Category B, a noise impact will occur if the predicted noise level is 66 dBA or higher, or if the predicted noise level exceeds the existing noise level by 15 dBA or more.

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<sup>3</sup> A-weighted sound level in decibels

**Table 3-3: MoDOT Noise Abatement Criteria**

Activity Category	Activity Criteria <sup>A</sup>	Evaluation Location	Description of Land Use Category
	$L_{eq(h)}$		
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B <sup>B</sup>	67	Exterior	Residential
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E <sup>B</sup>	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	Not Applicable	Not Applicable	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, ship yards, utilities (water resources, water treatment, electrical), and warehousing.
G	Not Applicable	Not Applicable	Undeveloped lands that are not permitted for development.

<sup>(A)</sup> The  $L_{eq(h)}$  is the Equivalent Sound Level over a one-hour time period, or the hourly value of the sound exposure level.  $L_{eq(h)}$  values are for impact determination only, and are not design standards for noise abatement measures.

<sup>(B)</sup> Includes undeveloped lands permitted for development for this activity category.

The MoDOT policy also states:

- Proposed mitigation requires a noise reduction of at least 5 dBA for a minimum of 67% of impacted first-row receivers in order for that mitigation to be considered feasible.
- In order for proposed mitigation to be considered reasonable, each of the following three conditions must be met:
  - Viewpoints of owners and non-owner residents of the benefitted receptors will be obtained. The viewpoints of non-owner residents will be evaluated as a portion of

an aggregate of 25% of the total. The viewpoints of owners will be evaluated as a portion of an aggregate of 75% of the total. For noise abatement to be considered reasonable, over 50% of the aggregate response must be favorable.

- Noise abatement measures shall not exceed 1,300 square feet per benefitted receptor, in the case of noise walls. Where noise walls are not options, other noise abatement techniques may be considered, but cannot exceed \$36,000 per benefitted receptor.
- Noise abatement measures must provide a noise reduction of a minimum of 7 dBA for 67% of impacted first-row receptors.
- A noise wall must be 20 feet or less in height for safety reasons.
- Third party funding cannot be used to make up the difference in cost between the reasonable cost allowance and the actual cost. Third party funding can only be used to pay for additional features such as landscaping, aesthetic treatments, etc. for noise barriers that meet cost-effectiveness criteria.
- Cost averaging of multiple walls is not allowed.

### 3.2.2 Key Points

The I-70 mainline within the Study Area is approximately 40 miles long with numerous land uses existing within 500 feet of its footprint, as shown on **Figure 3-2**. Activity categories B, C, E, F, and G are all represented within the study boundaries for potential noise impacts. Until specific roadway improvements are proposed for the Study Area, it is not practical to analyze for impacted receivers and potential noise barrier locations; however, it is noted that if lanes are added, the improvements are likely to result in impacted receivers and may warrant noise barriers. Additionally, if roadway modifications are proposed at interchange locations, there is potential for additional noise barrier locations outside of the Study Area (one quarter mile north and south of the Study Area) along other major routes intersecting with I-70. This would be most likely to occur near the interchanges with I-64, Interstate 270 (I-270) and Interstate 170 (I-170) and Routes 370, 141, and 67, depending on specific land uses nearby.

Future projects identified in this PEL or in future documents and studies will require a thorough noise analysis that complies with the latest MoDOT noise guidance to determine the need for and reasonableness of noise mitigation. Based on a general overview of the Study Area and the potential for necessary improvements, it is highly likely that noise mitigation will be part of future studies and design plans.

### 3.3 CULTURAL RESOURCES

This section includes information on previously identified cultural resources along the project corridor. Historic resources encompass man-made features and physical remains of past human activity (generally at least 45 years old), and includes properties constructed in 1972 or earlier. Historic resources include buildings, bridges, railroads, roads, and other structures.

Archeological resources may include material remains of past human life or activities which are of archaeological interest. Significant resources are afforded consideration by Section 106 of the National Historic Preservation Act of 1969 (NHPA), as amended, as well as Section 4(f) of the Department of Transportation Act of 1966 (DOT Act). Significant resources are also those that are listed or may be eligible for inclusion on the National Register of Historic Places (NRHP). Sites qualifying for the NRHP must retain sufficient integrity (of location, design, setting, materials, workmanship, feeling, and association) and meet one or more of the eligibility criteria specified in 36 CFR 60.4.

### 3.3.1 Methodology

Information on previously identified historic properties and potential historic properties is included. This information was collected from a variety of sources including the following:

- Lists of properties on the NRHP
- Lists of local landmarks from communities and counties with local historic landmark programs
- A file search at the Missouri State Historic Preservation Office (SHPO) for all properties which had previously been surveyed and designated as eligible for inclusion on the NRHP
- A file search at the SHPO for all archaeological sites and survey files.

### 3.3.2 Key Points

The greatest areas of cultural concern along the I-70 corridor are areas where human burial sites are known to exist. These include formal historic cemeteries, mounds, cairns, mortuary sites, and other archaeological sites where human remains have been reported. Some of these appear to have been destroyed by the construction of the highway due to their very close proximity to the existing highway. It has been shown, however, that remnants of the burial grounds could remain and caution should be taken in these areas.

The Study Area has gone through several decades of development, with businesses, houses and public facilities taking advantage of the travel and commerce offered by the presence of the highway. Throughout the Study Area, construction of roadways has already greatly disrupted many areas of cultural resource potential. The ground under these paved locations cannot be examined for cultural resources and the grading for their construction has likely destroyed many sites. The I-70 right-of-way (ROW) outside the paved area, however, does retain a potential for cultural resources. Once believed to be too disrupted to retain intact cultural remains, this area has recently been proven to yield intact habitation features.

It also has been shown that even in urban environments, remnants of past activities still remain. In these areas, the landscape is gradually built up over the years and as a result, buried deposits associated with the earlier inhabitants are preserved. For example, early historic buildings were typically constructed with only shallow foundations. When these buildings were removed, it was too costly to haul away the construction debris so in most cases the debris was simply leveled

and a new building constructed upon the rubble (Harl 2003; Altizer et al. 2005; Kelly 1994, Machiran 2007). It has only been in recent years with the development of high rise buildings, whose foundations often built down to bedrock, and with the development of large vehicles that can haul construction rubble away, that these urban sites are threatened for the first time. Many times construction on the front of city lots does not disrupt features that may be located behind buildings.

**3.3.2.1 Previously Identified Historic Sites**

For purposes of this study, only properties listed on the NRHP, community or county local landmarks registers, and those identified as eligible for the NRHP are shown as previously identified historic sites. There are 23 NRHP listed properties, three NRPH listed structures, and 11 NRHP listed districts located within the Study Area. These sites and districts are summarized in **Table 3-4** and **Table 3-5**.

**Table 3-4: Summary of Previously Identified Historic Sites (C**

Site Number	Resource Name	Date Listed
<b>Buildings</b>		
07000172	American Brake Company Building	3/21/2007
11000012	Cass Bank and Trust Company	02/14/2011
04000344	Cotton Belt Freight Depot	04/21/2004
92001092	Eliot School	09/02/1992
09001226	Federal Cold Storage Company Building	01/12/2010
03000650	Grand--Leader (Stix, Baer & Fuller Dry Goods Co.) Building	07/17/2003
00000438	Kennard, J., and Sons Carpet Company Building	05/05/2000
02000467	Kulage, Otto, House	05/10/2002
07000464	Lowell School	05/24/2007
83001050	May Company Department Store Building	06/23/1983
07000325	Missouri Athletic Club Building	04/16/2007
86000143	Neighborhood Gardens Apartments	01/31/1986
09000890	Our Lady of Perpetual Help Parish Hall, School, Convent, and Rectory	11/05/2009
79003202	Payne-Gentry House	04/17/1979
09000411	Railway Exchange Building	06/11/2009
11000051	Schroeder—Klein Grocery Company Warehouse	2/28/2011
00000083	Security Building	02/10/2000
10000205	Sligo Iron Store Co. Buildings	04/21/2010
78003396	St. Joseph's Roman Catholic Church	05/19/1978

**Table 3-4: Summary of Previously Identified Historic Sites (Continued)**

Site Number	Resource Name	Date Listed
<b>Buildings</b>		
09000902	St. Louis Stamping Company Buildings	11/10/2009
11000445	Mark Twain Elementary School	07/14/2011
84002692	Union Market	01/16/1984
90001024	Wentzville Tobacco Company Factory	7/5/1990
<b>Structures</b>		
70000906	Bissel Street Water Tower	6/5/1970
70000908	Grand Avenue Water Tower	6/15/1970
70000907	Wainwright Tomb	6/15/1970

*Source: National Register Information System 2014 database. Accessed February 2017.*

**Table 3-5: Summary of NRHP Districts**

Site Number	Resource Name	Date Listed
04001281	Pasadena Hills Historic District	12/4/2004
05000084	Norwood Hills Country Club	2/25/2005
07000704	Holly Place Historic District	7/18/2007
11000444	Lange, William A., Subdivision	7/14/2011
11000617	St. Louis Place Historic District	8/31/2011
84002658	Murphy-Blair District	1/26/1984
86001929	Clemens House--Columbia Brewery District (Boundary Increase)	7/22/1986
03000320	North Riverfront Industrial Historic District	5/1/2003
76002262	Laclede's Landing	8/25/1976
12000928	North Broadway Glass and Plow Warehouse District	11/14/2012
87000458	Washington Avenue: East of Tucker District	3/24/1987

*Source: National Register Information System 2014 database accessed February 2017.*

### 3.3.2.2 Previous Architectural Surveys

The Missouri SHPO files include records of previous architectural surveys performed in the Study Area. These architectural surveys document resources within the survey area, identify properties currently listed on the NRHP, and provide recommendations regarding individual



eligibility or as contributing elements to an NRHP district. The eight previous architectural surveys within the Study Area are summarized in **Table 3-6**.

**Table 3-6: Summary of Previous Architectural Surveys**

SHPO Survey Number	Name	Description	Date of Survey
SLAA039	Pasadena Hills	Residential Subdivision	July 1, 2003
SLCAS010	Chouteau’s Landing	Urban Commercial	September 1988
SLCAS012	North Broadway Industrial Area: Phase I	Urban Commercial / Industrial	October 12, 1989
SLCAS013	North Broadway Industrial Area: Phase II	Urban Commercial / Industrial	November 16, 1990
SLCAS016	Old North St. Louis	Urban Commercial / Industrial / Residential	1991
SLCAS037	Central Business District	Urban Commercial / Industrial	Unknown
SLCAS041	College Hill Neighborhood	Residential / Commercial	August 2011
SLCAS049	City Landmarks	Municipal / Religious	Unknown
SLCAS053	Thematic Survey of Flounder Houses in St. Louis City	Residential / Commercial	July, 2015

*Source: Missouri State Historic Preservation Office and <https://dnr.mo.gov/shpo/survey-eg.htm> accessed March 2017.*

Several architectural resources are identified in these surveys as potentially eligible for the NRHP or as contributing elements to an NRHP District.

### **3.3.2.3 Previously Recorded Archeological Sites**

There were 104 previously recorded archaeological sites in the Study Area identified in the SHPO geodatabase and its associated tables. Information regarding these sites is summarized in **Table 3-7**, and includes the site’s cultural affiliation, type, who recorded it, and when it was recorded. Where the SHPO database was missing information, the St. Charles County (Harl et al. 1997) and St. Louis County and the City of St. Louis (Harl 1995) master plans were consulted to fill in the missing data.

Figures depicting the location of known burial areas, previously recorded archaeological sites, and the location of cultural resource surveys that have been conducted within the Study Area were created for use by the study team. These figures will be used by the study team but are not included in this report or made public as the public disclosure of archaeological site locations is prohibited per 36 CFR 2961.8.

**Table 3-7: Summary of Previously Recorded Archaeological Sites**

Site #	Cultural Affiliation	Site Type	NRHP Status in SHPO Record	Human Remains Present	Recorded By	Date Recorded
SC0012	Prehistoric	Mound/Cairn	Unevaluated	Not Reported	McElhiney, Charles	Not Reported
SC0013	Prehistoric	Mound/Cairn	Unevaluated	Not Reported	McElhiney, Charles	Not Reported
SC0014	Prehistoric	Mound/Cairn	Unevaluated	Reported not Confirmed	Feltz, George A.	Not Reported
SC0015	Historic Native American	Other	Unevaluated	Not Reported	Harl, Joe	1989
SC0040	Prehistoric	Lithic Scatter	Unevaluated	Not Reported	McElhiney, Charles	Not Reported
SC0055	Early Woodland	Mound/Cairn	Eligible	Not Reported	Martin, Terrell L.	2002
SC0066	Late Archaic	Mound/Cairn	Eligible	Not Reported	Martin, Terrell L.	2002
SC0077	Prehistoric	Lithic Scatter	Unevaluated	Not Reported	Feltz, George A.	1976
SC0293	Prehistoric	Lithic Scatter	Not Reported	Not Reported	Evans, David R.	1978
SC0294	Prehistoric	Lithic Scatter	Not Reported	Not Reported	Evans, David R.	1978
SC0424	Late Archaic	Lithic Scatter	Unevaluated	Not Reported	Ray, Jack H.	2013
SC0464	Dalton	Lithic Scatter	Not Eligible	Not Reported	Crampton, David	1979
SC0465	Prehistoric	Habitation	Unevaluated	Not Reported	Crampton, David	1979
SC0501	Archaic	Lithic Scatter	Unevaluated	Confirmed	Hoard, Robert	1979
SC0504	Prehistoric	Lithic Scatter	Unevaluated	Not Reported	Not Reported	1979
SC0505	Early Woodland	Habitation	Unevaluated	Not Reported	Crampton, David	1979
SC0506	Prehistoric	Lithic Scatter	Unevaluated	Not Reported	Not Reported	1979
SC0516	Historic	Habitation	Unevaluated	Not Reported	Not Reported	1979
SC0517	Historic	Habitation	Unevaluated	Not Reported	Not Reported	1979
SC0568	Historic	Military	Eligible	Not Reported	Weichman, Michael	1980
SC0575	Prehistoric	Lithic Scatter	Unevaluated	Not Reported	Crampton, David	1980
SC0589	Middle Woodland	Lithic Scatter	Unevaluated	Not Reported	Browman, David L.	1983
SC0609	Woodland	Habitation	Unevaluated	Not Reported	Crampton, David	1984
SC0610	Prehistoric	Lithic Scatter	Unevaluated	Not Reported	Crampton, David	1984
SC0656	Late Woodland	Habitation	Unevaluated	Not Reported	Austin, David & Crampton, David	1984

**Table 3-7: Summary of Previously Recorded Archaeological Sites**

Site #	Cultural Affiliation	Site Type	NRHP Status in SHPO Record	Human Remains Present	Recorded By	Date Recorded
SC0666	Middle Archaic	Habitation	Unevaluated	Not Reported	Harl, Joe	1987
SC0667	Prehistoric	Lithic Scatter	Unevaluated	Not Reported	Harl, Joe	1987
SC0713	Early Archaic	Lithic Scatter	Not Eligible	Not Reported	Harl, Joe	1989
SC0714	Late Archaic	Lithic Scatter	Not Eligible	Not Reported	Harl, Joe	1989
SC0715	Early Archaic	Habitation	Not Eligible	Not Reported	Harl, Joe	1989
SC0716	Late Archaic	Lithic Scatter	Not Eligible	Not Reported	Harl, Joe	1989
SC0717	Late Woodland	Habitation	Not Eligible	Not Reported	Harl, Joe	1989
SC0718	Late Archaic	Lithic Scatter	Not Eligible	Not Reported	Harl, Joe	1989
SC0719	Prehistoric	Lithic Scatter	Not Eligible	Not Reported	Harl, Joe	1989
SC0720	Prehistoric	Lithic Scatter	Not Eligible	Not Reported	Sturdevant, Craig	1989
SC0721	Historic	Lithic Scatter	Not Eligible	Not Reported	Sturdevant, Craig	1989
SC0722	Prehistoric	Lithic Scatter	Not Eligible	Not Reported	Walters, Gary Rex	1990
SC0723	Prehistoric	Lithic Scatter	Not Eligible	Not Reported	Walters, Gary Rex	1990
SC0724	Prehistoric	Lithic Scatter	Not Eligible	Not Reported	Walters, Gary Rex	1990
SC0725	Prehistoric	Lithic Scatter	Not Eligible	Not Reported	Walters, Gary Rex	1990
SC0757	Prehistoric	Lithic Scatter	Unevaluated	Not Reported	Harl, Joe	1991
SC0758	Late Archaic	Lithic Scatter	Unevaluated	Not Reported	Harl, Joe	1991
SC0900	Prehistoric	Habitation	Unevaluated	Not Reported	Browman, David L.	1989
SC0901	Prehistoric	Habitation	Unevaluated	Not Reported	Browman, David L.	1989
SC0902	Prehistoric	Habitation	Unevaluated	Not Reported	Browman, David L.	1989
SC0907	Historic	Habitation	Not Eligible	Not Reported	Reeder, Robert	1993
SC0923	Prehistoric	Lithic Scatter	Unevaluated	Not Reported	Mueller, Bradley M.	1994
SC0977	Late Archaic	Lithic Scatter	Unevaluated	Not Reported	Galloy, Joseph M.	1998
SC1040	Prehistoric	Lithic Scatter	Unevaluated	Not Reported	Warner, Kathryn A.	2003
SC2057	Prehistoric	Habitation	Not Eligible	Not Reported	Dasovich, Steve J	2003

**Table 3-7: Summary of Previously Recorded Archaeological Sites**

Site #	Cultural Affiliation	Site Type	NRHP Status in SHPO Record	Human Remains Present	Recorded By	Date Recorded
SC2060	Late Archaic	Habitation	Not Reported	Reported not Confirmed	Harl, Joe	2005
SC2088	Paleo-Indian	Lithic Scatter	Not Eligible	Not Reported	Mc Loughlin, Meredith	2004
SC2092	Prehistoric	Habitation	Eligible	Not Reported	Harl, Joe	2006
SC2171	Prehistoric	Lithic Scatter	Not Eligible	Not Reported	Harl, Joe	2011
SC2172	Prehistoric	Lithic Scatter	Not Eligible	Not Reported	Harl, Joe	2011
SC2192	Late Archaic	Lithic Scatter	Unevaluated	Not Reported	Ray, Jack H.	2013
SL0003	Mississippian	Mound/Cairn	Not Reported	Confirmed	Not Reported	Not Reported
SL0004	Mississippian	Mound/Cairn	Not Reported	Not Reported	Not Reported	Not Reported
SL0007	Mississippian	Mound/Cairn	Eligible	Confirmed	Harl, Joe and Naglich, Dennis	Not Reported
SL0069	Emergent Mississippian	Village	Not Reported	Confirmed	Blake, Leonard	Not Reported
SL0135	Paleo-Indian	Habitation	Not Reported	Not Reported	Herberger, O. Lee	1969
SL0353	Early Archaic	Habitation	Unevaluated	Not Reported	Diaz-Granados, Carol	1979
SL0355	Archaic	Lithic Scatter	Unevaluated	Not Reported	Diaz-Granados, Carol	1979
SL0358	Middle Woodland	Habitation	Not Eligible	Not Reported	Diaz-Granados, Carol	1979
SL0369	Late Woodland	Habitation	Unevaluated	Not Reported	Harl, Joe	1988
SL0370	Late Woodland	Habitation	Not Reported	Confirmed	Harl, Joe	Not Reported
SL0442	Late Woodland	Habitation	Unevaluated	Not Reported	Harl, Joe & Kling, Laura	1982
SL0471	Late Archaic	Habitation	Not Reported	Not Reported	Harl, Joe	1983
SL0595	Late Archaic	Habitation	Not Reported	Not Reported	Harl, Joe	1987
SL0596	Historic	Road	Not Reported	Not Reported	Harl, Joe	1986
SL0597	Late Woodland	Habitation	Not Reported	Not Reported	Harl, Joe	Not Reported
SL0802	Historic	Cemetery/Mortuary	Eligible	Reported not Confirmed	Walters, Gary Rex	1992
SL0822	Dalton	Habitation	Not Reported	Confirmed	Wright, Patti	Not Reported
SL0849	Historic	Habitation	Eligible	Not Reported	Walters, Gary Rex	1992
SL0850	Historic	Other	Eligible	Not Reported	Walters, Gary Rex	1992
SL0851	Historic	Commercial / Industrial	Eligible	Not Reported	Walters, Gary Rex	1992

**Table 3-7: Summary of Previously Recorded Archaeological Sites**

Site #	Cultural Affiliation	Site Type	NRHP Status in SHPO Record	Human Remains Present	Recorded By	Date Recorded
SL0852	Historic	Habitation	Eligible	Not Reported	Walters, Gary Rex	1992
SL0853	Historic	Commercial / Industrial	Eligible	Not Reported	Walters, Gary Rex	1992
SL0856	Historic	Public	Eligible	Not Reported	Walters, Gary Rex	1992
SL0856	Historic	Public	Eligible	Not Reported	Walters, Gary Rex	1992
SL0858	Historic	Cemetery/ Mortuary	Not Reported	Confirmed	Reeder, Robert	Not Reported
SL0883	Historic	Habitation	Not Eligible	Not Reported	Harl, Joe	1993
SL0884	Historic	Habitation	Not Eligible	Not Reported	Harl, Joe	1993
SL0891	Prehistoric	Lithic Scatter	Not Eligible	Not Reported	Harl, Joe and Dennis Naglich	Not Reported
SL0892	Prehistoric	Lithic Scatter	Not Reported	Not Reported	Harl, Joe and Dennis Naglich	Not Reported
SL0893	Emergent Mississippian	Lithic Scatter	Not Reported	Not Reported	Harl, Joe and Dennis Naglich	Not Reported
SL0894	Prehistoric	Lithic Scatter	Not Reported	Not Reported	Harl, Joe and Dennis Naglich	Not Reported
SL2229	Historic	Habitation	Eligible	Not Reported	Harl, Joe	2005
SL2247	Historic	Habitation	Eligible	Not Reported	Tesreau, Travis	2006
SL2248	Historic	Habitation	Eligible	Not Reported	Tesreau, Travis	2006
SL2251	Historic	Habitation	Eligible	Not Reported	Meyer, Michael J.	2006
SL2261	Historic	Habitation	Unevaluated	Not Reported	Galloy, Joseph M.	2003
SL2274	Historic	Habitation	Unevaluated	Not Reported	Olson, Brianne	2008
SL2295	Historic	Commercial / Industrial	Eligible	Not Reported	Meyer, Michael J.	2008
SL2309	Historic	Habitation	Not Eligible	Not Reported	Hawkins, Meredith and Meredith McLaughlin	2009
SL2310	Historic	Habitation	Eligible	Not Reported	Meyer, Michael J.	2009
SL2315	Historic	Habitation	Eligible	Not Reported	Meyer, Michael J.	2010
SL2316	Historic	Habitation	Eligible	Not Reported	Meyer, Michael J.	2010
SL2317	Historic	Commercial / Industrial	Unevaluated	Not Reported	Meyer, Michael J.	2008
SL2318	Historic	Habitation	Eligible	Not Reported	Meyer, Michael J.	2010
SL2319	Historic	Habitation	Unevaluated	Not Reported	Meyer, Michael J.	2010
SL2322	Historic	Habitation	Unevaluated	Not Reported	Meyer, Michael J.	2011
SL2330	Historic	Habitation	Eligible	Not Reported	Michael J. Meyer	2012

Source: Missouri State Historic Preservation Office

### 3.3.2.4 Previous Archeological Surveys

MDNR SHPO files were reviewed for previous cultural resource surveys in the Study Area. One hundred and fifty-seven previous archeological or cultural resources surveys have been conducted within the Study Area. The locations of these studies were reviewed by the project team to identify areas within the Study Area that may require additional archeological investigations. Figures depicting the locations of previous archeological and cultural resource surveys conducted within the Study Area were created for use by the study team. These figures will be used by the team but are not included in this report or made public because the public disclosure of archaeological site locations is prohibited per 36 Code of Federal Regulations (CFR) 296.1.8.

### 3.3.2.5 Historic Bridges

Unlike most other types of cultural resources in Missouri, historic bridges have been inventoried and evaluated statewide. The Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURAA) directed all states to inventory their historic bridges. There are about 24,000 bridges in Missouri (State, County, and City bridges). The 1996 Missouri Historic Bridge Inventory survey evaluated approximately 11,000 of them, those which were built before 1951. Of these, 399 were considered possibly eligible, eligible, or listed on the NRHP. This list, with some modifications, became the Missouri Historic Bridge (MHB) list. Two bridges located within the Study Area, the Eads and McKinley, are listed on the MHB list. These bridges cross the Mississippi River and are not likely to be impacted by proposed projects in this corridor.

Future projects identified in this PEL that impact the Eads or McKinley bridges will require additional analysis to assess potential adverse effects. Additionally, future projects identified in this PEL that impact bridges not previously surveyed will require evaluation for eligibility for listing on the NRHP, in consultation with the SHPO.

## 3.4 PARKS, REFUGES, AND RECREATION FACILITIES

Parks and recreational resources are important community facilities that warrant consideration during federally-funded projects. These resources include park, trail, cemetery and open space areas that offer opportunities for recreation, including both passive and active activities.

Section 4(f)<sup>4</sup> resources include any publicly owned park, recreation area, or wildlife refuge or any publicly or privately owned historic site. Before approving a project that “uses” a Section 4(f) resource, FHWA must find that there is no prudent and feasible avoidance alternative and that the selected alternative minimizes harm to the resource. If there is a prudent and feasible alternative that completely avoids 4(f) resources, it must be selected. The publicly owned resources presented in **Table 3-8** meet the criteria for protection under Section 4(f).

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<sup>4</sup> Department of Transportation Act of 1966

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act (36 CFR 59) protects recreational lands planned, acquired, or developed with LWCF. Once an area has been funded with LWCF assistance, it is continually maintained in public recreation use unless the NPS approves substitution property. Importantly, Section 6(f) applies to all transportation projects involving possible conversions of the property, whether or not federal funding is used for the project.

### 3.4.1 Methodology

The resource-specific Study Area for parks and recreational resources includes a one-half-mile wide corridor centered on the I-70 mainline plus additional areas at some intersections. For purposes of this project, park and recreational resources can be categorized as one:

- **Regional Park and Recreational Facility:** Regional parks typically involve jurisdiction partnerships that contribute to development and maintenance. These areas serve residents throughout the Study Area and are regionally recognized. Privately and publicly owned and managed golf courses in the Study Area qualify as regional resources.
- **Community Park:** These facilities are typically smaller in size than regional facilities and serve as an attraction for residents and communities within approximately three miles of the facility. Community parks are typically managed and maintained by one entity.
- **Neighborhood Park:** Neighborhood parks typically serve residents and community members within a one-half-mile radius of the park. These parks are typically accessed by non-motorized means and are managed by one jurisdiction.
- **Open Space:** Open space areas include land and water parcels that remain in a predominantly natural or undeveloped state. The intention of open space acquisition varies from growth management to habitat protection and/or passive recreation. However, it must be noted that not all open space allows public access or use. Many areas defined as open space are used as conservation easements on agricultural lands. Smaller open space parcels are often coordinated with neighboring open space acquisitions to create buffers or corridors. Jurisdictional authority belongs to either the county open space department or municipal parks and recreation departments. In some cases, management and ownership may span multiple jurisdictions.
- **Trails:** Municipalities typically manage numerous miles of both paved and unpaved trails. Trails often extend beyond one jurisdictional boundary into an adjacent boundary making them regional trails. It is typical for trails to follow existing linear features such as ditches, rivers, or railroads.
- **Refuge:** A refuge is a space that is set aside to conserve fish, wildlife, and plants. A refuge can provide habitat for endangered species, migratory birds, plants, and numerous other valuable animals.
- **Cemetery:** A cemetery is an area set apart for or containing graves, tombs, or funeral urns. Construction of roads is prohibited in cemeteries with the exception of temporary

access routes over burial lots may be used in the operation or maintenance of the cemetery or used in the construction of cemetery improvements or features.

Existing parks and recreational resources in the Resource-specific Study Area were identified through reviews of Graphical Information System (GIS) data; current land use, parks, and recreation master plans; and 2017 aerial imagery from Google Earth.

Section 6(f)<sup>5</sup> resources were identified through the National Parks Service (NPS) Land and Water Conservation Funds (LWCF) database. Property acquired or developed with LWCF assistance must be perpetually maintained in public outdoor recreation use.

### 3.4.2 Key Points

#### 3.4.2.1 Existing Park, Refuge, Trail, Cemetery, and Open Space Resources

Details and characteristics of the existing park, refuge, trail, cemetery and open space resources in the Study Area are presented in **Table 3-8** and depicted in **Figure 3-3**. Some the information presented has not been confirmed with the jurisdictions and may change as the project progresses through the planning phases. Resources are generally presented from west to east along the corridor.

Cultural resources are discussed in **Section 3.3** and show that there are historic and archeological sites listed on or eligible to be listed on the NRHP. These sites are also considered potential Section 4(f) resources. Future projects identified in this PEL that have adverse effects on these resources will require a Section 4(f) evaluation.

There are seven properties identified within the Study Area that were developed with LWCF grant assistance (designated 6(f) Property). These properties are listed in **Table 3-8** and depicted in **Figure 3-3**.

**Table 3-8: Existing Park, Refuge, Trail, Cemetery, and Open Space Resources**

Map ID	Resource Name	Size (Acres)	Location	4(f) <sup>6</sup> Property	6(f) Property	Owner Type
1	Quail Ridge Park	260.99	Wentzville	X		County
2	Memorial Park	4.26	Wentzville	X	X	City
3	Tri-County YMCA	1.5	Wentzville	X		City
4	Founders Park Sports Complex	48.94	Lake Saint Louis	X	X	City
5	Lake St Louis Community Association	41.57	Lake Saint Louis			Private

<sup>5</sup> Land and Water Conservation Fund Act of 1965

<sup>6</sup> Land and Water Conservation Fund Act of 1965



6	Windjammer Point Marina	2.32	Lake Saint Louis			Private
7	The Falls Golf Course	188.69	O'Fallon	X		City
8	Fort Zumwalt Park	49.11	O'Fallon	X	X	City
9	St. Peters Hockey Arena	6.8	St. Peters	X		City
10	St Peters Golf & Recreation Center	117.28	St. Peters	X		City
11	Sports Center Park	16.74	St. Peters	X	X	City
12	Brown Road Park	22.53	St. Peters	X	X	City
13	Lone Wolf Park	9.06	St. Peters	X	X	City
14	Old Town Park	7.4	St. Peters	X		City
15	City Center Park & Rec-Plex	61.52	St. Peters	X		City
16	Grand Slam Golf	61.29	St. Peters	X		City
17	Lakeside 370 Park	625.19	St. Peters	X		City
18	Shady Springs Park	12.36	St. Peters	X	X	City
19	St Charles YMCA	4.34	St. Peters	X		City
20	Cave Springs Golf Center	11.25	St. Charles	X		City
21	Bogey Hills Country Club	107.95	St. Charles			Private
22	Forest Hills Recreation Area	0.59	St. Charles			Private
23	Boone's Lick Park	15.65	St. Charles	X	X	City
24	Circle Drive Park	0.95	St. Charles	X		City
25	Louis H. Bangert Memorial Wildlife Area	205.8	St. Charles	X		MDC
26	Katy Trail	0.32	St. Charles	X		MDNR
27	Frontier Park	41.51	St. Charles	X		City
28	Katy Trail	10.55	St. Charles	X		MDNR
29	Riverwoods Park & Trail	105.79	Earth City	X		MDC
30	Riverport Drive Open Space	2.55	Maryland Heights			Private
31	Rams Facility	26.6	Earth City			Private
32	Spanish Village Park	4.89	Bridgeton	X	X	City
33	Autumn Lakes Condos Recreation Area	1.82	Maryland Heights			Private
34	Hellebush Park	8.27	Bridgeton	X	X	City
35	Hickory Woods Conservation Area	17.07	Bridgeton	X		MDC
36	Gentry Park	32.01	Bridgeton	X	X	City
37	Bridgeton Community Ctr/Aquatic Park	4.23	Bridgeton	X		City
38	Vatterott Fields	6.18	St. Ann	X		City
39	St Ann Park	27.28	St. Ann	X	X	City
40	St Ann Municipal Golf Course	55.79	St. Ann	X		City

41	John L Brown Park	15.23	Woodson Terrace	X		City
42	Old City Park	1.71	Woodson Terrace	X		City
43	AmVets Post #55	0.81	Berkeley			Private
44	Ramona Lake Park	12.06	Berkeley	X		City
45	Bird Sanctuary	22.35	Bellerive	X		City
46	Trailnet	9.36	Normandy	X		City
46	Normandy Park	6.06	Normandy	X		City
48	Robert Hoelzel Memorial Park	9.78	Normandy	X		City
49	Roland Park	4.9	Pasadena Hills	X		City
50	Norwood Hills Country Club	315.32	Jennings			Private
51	Northwoods Park	3.05	Northwoods	X		City
52	Pine Lawn Open Space	0.37	Pine Lawn	X		City
53	Pine Lawn Athletic Field	4.17	Pine Lawn	X		City
54	Dwight Davis Park	9.71	City of St. Louis	X	X	City
55	Walnut Park	2.28	City of St. Louis	X	X	City
56	Matthew Dickey Boys And Girls Club	11.22	City of St. Louis			Private
57	Penrose Park	46.05	City of St. Louis	X	X	City
58	O'Fallon Park	130.74	City of St. Louis	X	X	City
59	Windsor Park	3.18	City of St. Louis	X		City
60	Hyde Park	12.15	City of St. Louis	X		City
61	St Louis Place Park	13.78	City of St. Louis	X		City
62	Strodtman Park	1.75	City of St. Louis	X	X	City
63	Fourteenth Street Mall	0.75	City of St. Louis	X		City
64	Jackson Place Park	1.62	City of St. Louis	X	X	City
65	Columbus Square Park	0.3	City of St. Louis	X		City
66	Father Filipiak Park	1.67	City of St. Louis	X		City
67	Robert A Baer Plaza	3.31	City of St. Louis	X		City

68	Jefferson National Expansion Memorial	89.2	City of St Louis	X		City
	Linn Cemetery	11	Wentzville			Private
	St Charles Memorial Cemetery	30	St Charles			Private
	Oak Grove Cemetery	27	St Charles			Private
	First United Methodist (Wesleyan) Cemetery	2	St Charles			Private
	Saint Peters Cemetery	11	St Charles			Private
	Immanuel Lutheran Cemetery	10	St Charles			Private
	Saint John's Cemetery	5	St Charles			Private
	Mt Lebanon Cemetery	49	Bridgeton			Private
	Washington Park Cemetery	44	Berkeley	x	x	Public
	Memorial Park Cemetery	171	Jennings			Private
	Bellefontaine Cemetery	336	St Louis			Private
	Calvary Cemetery	476	St Louis			Private

**3.4.2.2 Planned and Other Potential Future Resources**

Given the developing nature of the corridor, it should be noted that many of the municipalities have master plans established for future parks, trails, and open space areas within or adjacent to the Study Area. Great Rivers Greenway, also known as the Metropolitan Parks and Recreation District (District), has established a system of interconnected trails and greenways, or open space corridors, throughout the St. Louis Metropolitan Area. These greenways follow creek and river floodplains, former railroad right-of-ways, high tension line corridors, etc. and connect a variety of municipal and county parks and recreation areas, as well as common ground and trails in residential subdivisions or business parks. The District utilizes pedestrian and biking trails to provide the connections through the greenways and, in some cases, has purchased larger tracts of land for open space purposes adjacent to the trail corridors. Great Rivers Greenway works with established parks departments throughout the region in implementing these plans

A list of those resources that have been identified for future implementation is presented in **Table 3-9** and shown on **Figure 3-3**. This list should not be considered exhaustive as master plans may be updated prior to specific projects being identified. However, efforts should be made to not preclude previous planning efforts made by local jurisdictions.

**Table 3-9: Planned Park, Refuge, Trail, and Open Space Resources**

Resource Name	Location/Description	Resource Type	Managed By
Boschert Greenway	Northern portion of the City of St. Charles, New Town area	Greenway	Metropolitan Parks and Recreation District
Centennial Greenway	Overland from the 94/364 interchange in the City of St. Peters	Greenway	Metropolitan Parks and Recreation District
Mississippi Greenway	City of St. Louis adjacent to the Mississippi River	Greenway	Metropolitan Parks and Recreation District

**Table 3-9: Planned Park, Refuge, Trail, and Open Space Resources (Continued)**

Resource Name	Location/Description	Resource Type	Managed By
Dardenne Greenway	City of St. Peters along the Dardenne Creek floodplain	Greenway	Metropolitan Parks and Recreation District
Maline Greenway	Cities of Berkley, Kinloch and Ferguson, NorthPark Business Park	Greenway	Metropolitan Parks and Recreation District
Missouri River Greenway	St. Louis County (east) side of Missouri River, cities of Maryland Heights, Bridgeton and Hazelwood, Earth City Business Park	Greenway	Metropolitan Parks and Recreation District
St. Vincent Greenway	NorthPark Business Park, UMSL, connection to Maline Greenway	Greenway	Metropolitan Parks and Recreation District

### 3.5 PUBLIC AND LARGE COMMERCIAL FACILITIES

Public and large commercial facilities can generate specific demands on the roadway infrastructure and may require additional consideration regarding access and improvements to the Study Area.

#### 3.5.1 Methodology

Existing public and large commercial facilities in the Study Area within one-half-mile of the I-70 centerline were identified through review of GIS data, current land use, EWGCOG data, ESRI 2008 Streetmap North America, and 2017 aerial imagery from Google Earth. This data were categorized as the following:

- Fire Stations
- Airports
- Government Buildings
- Hospitals
- Medical Buildings
- Churches
- Schools
- Day Care Facilities
- Libraries
- Activity Centers
- Shopping Centers
- Large Manufacturing Facilities
- Heliports

### 3.5.2 Key Points

There are numerous public and large commercial facilities located within portions of the Study Area. These facilities summarized on and are depicted in **Figure 3-4**.

**Table 3-10: Summary of Public or Large Commercial Facilities**

ID	Name	Street	City
1	U S POST OFFICE	E ALLEN ST	WENTZVILLE
2	GM WENTZVILLE ASSEMBLY PLANT	E ROUTE A	WENTZVILLE
3	TRINITY PRODUCTS INC	W TERRA LN	O FALLON
4	TRUE FITNESS TECHNOLOGY	HOFF RD	O FALLON
5	C BENNETT BUILDING SUPPLIES	W TERRA LN	O FALLON
6	AUSTIN MACHINE	TEXAS CT	O FALLON
7	WILLERDING INDUSTRIES	W TERRA LN	O FALLON
8	WB INDUSTRIES	W TERRA LN	O FALLON
9	FIN-CON ASSEMBLY INC	N CENTRAL DR	O FALLON
10	TIMET SERVICE CTR	N CENTRAL DR	O FALLON
11	KING INNOVATION	N CENTRAL DR	O FALLON
12	SCHWAN FOOD CO	ELAINE DR	O FALLON
13	ST CHARLES COUNTY CAB	PLACKEMEIER DR	O FALLON
14	U S POST OFFICE	CHURCH ST	O FALLON
15	DRUG PACKAGE INC	DRUG PACKAGE LN	O FALLON
16	VSM ABRASIVES CORP	E WABASH ST	O FALLON
17	PLANET TOOL & ENGINEERING	S COOL SPRINGS RD	O FALLON
18	TRANSFORMER MATERIAL/DENNISON	ARROW LN	O FALLON
19	NEECO-TRON INC	TRADE CENTER DR E	ST PETERS
20	O'FALLONN CASTING	CANNONBALL LN	O FALLON
21	PHOENIX TEXTILE CORP	COMMERCE DR	O FALLON
22	A C TRUCKING INC	COMMERCE DR	O FALLON
23	DATA 2 CORP	TURNER BLVD	ST PETERS
24	PFD SUPPLY CORP	TURNER BLVD	ST PETERS
25	SPECIALTY PLASTICS	BROWN RD	ST PETERS
26	COSTCO VISION CTR	COSTCO WAY	ST PETERS
27	SEYER INDUSTRIES INC	PATMOS CT	ST PETERS
28	GLOBAL PRODUCTS INC	CHEROKEE DR	ST PETERS
29	STC AUTOMOTIVE	SHADY SPRINGS LN	ST PETERS
30	EPC INC	HARRY TRUMAN BLVD S	ST CHARLES

**Table 3-10: Summary of Public or Large Commercial Facilities (Continued)**

ID	Name	Street	City
31	R X SYSTEMS INC	POINT WEST BLVD	ST CHARLES
32	NORTHROP DRUMMAN	POINT WEST BLVD	ST CHARLES
33	CCL LABEL INC	SPRING DR	ST CHARLES
34	DIERBERGS BAKERIES	ZUMBEHL RD	ST CHARLES
35	PUNDMANN MOTOR CO	W CLAY ST	ST CHARLES
36	MID-MISSOURI MOVING SYSTEMS	RIDER TRL N	EARTH CITY
37	NORTH AMERICAN VAN LINES	RIDER TRL N	EARTH CITY
38	BELTSERVICE CORP	RIDER TRL N	EARTH CITY
39	HP PRODUCTS	RIDER TRL S	EARTH CITY
40	SIMPLEX GRINNELL	RIDER TRL S	EARTH CITY
41	FIDELITONE LOGISTICS	RIDER TRL S	EARTH CITY
42	CORLEY PRINTING CO INC	RIDER TRL S	EARTH CITY
43	EMJ METALS	RIDER TRL S	EARTH CITY
44	FRY-WAGNER MOVING & STORAGE CO	RIDER TRL S	EARTH CITY
45	FEDERAL-MOGUL CORP	RIVERPORT TECH CENTER DR	MARYLAND HEIGHTS
46	ROCKWELL AUTOMATION	RIVERPORT TECH CENTER DR	MARYLAND HEIGHTS
47	EXPRESS TRANSPORTATION	LAKEFRONT DR	EARTH CITY
48	E J WELCH CO	LAKEFRONT DR	EARTH CITY
49	GENERAL CREDIT FORMS INC	RIDER TRL S	EARTH CITY
50	EDY'S GRAND ICE CREAM	ULTRA COMP DR	EARTH CITY
51	S P RICHARDS CO	CORPORATE TRAIL DR	EARTH CITY
52	LAIRD TECHNOLOGIES	RIDER TRL S	EARTH CITY
53	ID X CORP	RIDER TRL S	EARTH CITY
54	HILLSHIRE BRANDS	RIDER TRL S	EARTH CITY
55	CASE PARTS CO	RIDER TRL S	EARTH CITY
56	SONOCO PRODUCTS CO	INTERSTATE DR	MARYLAND HEIGHTS
57	SUMMIT DISTRIBUTING	RIDER TRL S	EARTH CITY
58	PBGS PITNEY BOWES GOVT	CORPORATE EXCHANGE DR	BRIDGETON
59	FRITO-LAY INC	CORPORATE EXCHANGE DR	BRIDGETON
60	CAPS INC	HOLLENBERG DR	BRIDGETON
61	K V LOGISTICS	CORPORATE EXCHANGE CT	BRIDGETON
62	UNIVERSE CORP	FOERSTER RD	BRIDGETON
63	DIERBERGS BAKERIES	HOLLENBERG DR	BRIDGETON
64	ZOLTEK CO INC	MCKELVEY RD	BRIDGETON

**Table 3-10: Summary of Public or Large Commercial Facilities (Continued)**

ID	Name	Street	City
65	ZOLTEK CORP	MCKELVEY RD	BRIDGETON
66	ZOLTEK INTERMEDIATES CORP	MCKELVEY RD	BRIDGETON
67	LAMBERT-ST LOUIS INTL-STL	LAMBERT INTERNATL BLVD	ST LOUIS
68	U S AIRWAYS	PO BOX	ST LOUIS
69	SERVISAIR	LAMBERT INTERNATIONAL BL	ST LOUIS
70	SOUTHWEST AIRLINES	LAMBERT INTERNATIONAL BL	ST LOUIS
71	AIR TRAN AIRWAYS	LAMBERT INTERNATL BLVD	ST LOUIS
72	AIRPORT TERMINAL SVC INC	LAMBERT INTERNATL BLVD	ST LOUIS
73	JANSSEN BIOTECH	LE BOURGET DR	ST LOUIS
74	SKINNER & KENNEDY CO INC	NATURAL BRIDGE RD	ST LOUIS
75	JOHN HENRY FOSTER CO	LE BOURGET DR	ST LOUIS
76	UNITED ACCESS	NATURAL BRIDGE RD	ST LOUIS
77	JANSSEN BIOTECH	LAGUARDIA DR	ST LOUIS
78	UPS SUPPLY CHAIN SOLUTIONS	LAGUARDIA DR	BERKELEY
79	C H ROBINSON CO	WORLD PARKWAY CIR	ST LOUIS
80	DRS SUSTAINMENT SYSTEMS INC	EVANS LN	ST LOUIS
81	INTERNATIONAL PAPER CO	OTTO	ST LOUIS
82	VITRAN EXPRESS	PLANNED INDUSTRIAL DR	ST LOUIS
83	FIRST STUDENT INC	UNION 70 CENTER DR	ST LOUIS
84	PEPSI BEVERAGES CO	UNION 70 CENTER DR	ST LOUIS
85	ABB INC	SEMPLA AVE	ST LOUIS
86	GATEWAY SHEETS	BIRCHER BLVD	ST LOUIS
87	PQ CORP	GERALDINE AVE	ST LOUIS
88	LAWSON SCREEN PRODUCTS	PENROSE ST	ST LOUIS
89	ADM MILLING CO	SHREVE AVE	ST LOUIS
90	BEN HUR STEEL WORKS	SHREVE AVE	ST LOUIS
91	DSI PROCESS SYSTEMS	W FLORISSANT AVE	ST LOUIS
92	TRUCK CENTERS INC	E TAYLOR AVE	ST LOUIS
93	DEVAN SEALANTS INC	PRESCOTT AVE	ST LOUIS
94	KICKHAM BOILER & ENGINEERING	E CARRIE AVE	ST LOUIS
95	NORTHERN SOUTHERN CORP	HALL ST	ST LOUIS
96	MISSOURI PIPE FITTINGS CO	WITHERS AVE	ST LOUIS
97	ELANTAS PDG INC	N 2ND ST	ST LOUIS
98	TRANS CHEMICAL INC	E DE SOTO AVE	ST LOUIS
99	FIRMENICH	GANO AVE	ST LOUIS
100	THIEL TOOL & ENGINEERING CO	BULWER AVE	ST LOUIS
101	PROCTER & GAMBLE CO	E GRAND AVE	ST LOUIS

**Table 3-10: Summary of Public or Large Commercial Facilities (Continued)**

ID	Name	Street	City
102	EBCO PRODUCTS CORP	N BROADWAY	ST LOUIS
103	GRANT IRON & MOTORS	N 21ST ST	ST LOUIS
104	BACHMAN MACHINE CO	N BROADWAY	ST LOUIS
105	WOOD BYRNE CABINETRY	MALLINCKRODT ST	ST LOUIS
106	PLASTICS MOLDING CO	N BROADWAY	ST LOUIS
107	LITTLE SISTERS OF THE POOR	N FLORISSANT AVE	ST LOUIS
108	SUPER VAN SVC CO INC	BREMEN AVE	ST LOUIS
109	PSC METALS	N BROADWAY	ST LOUIS
110	TRAILER PARTS INC	N BROADWAY	ST LOUIS
111	ANTIER TRUCKING CO	N BROADWAY	ST LOUIS
112	LIBERTY FOUNDRY CO	N 14TH ST	ST LOUIS
113	WILLIAMS PATENT CRUSHER CO	N BROADWAY	ST LOUIS
114	MATTHEWS MANUFACTURING INC	BRANCH ST	ST LOUIS
115	OLE TYME PRODUCE INC	PRODUCE ROW	ST LOUIS
116	UNITED FRUIT & PRODUCE CO	PRODUCE ROW	ST LOUIS
117	PRODUCE PRO'S	PRODUCE ROW	ST LOUIS
118	ESTELLE FOODS	N TUCKER BLVD	ST LOUIS
119	DUKE MANUFACTURING CO	N BROADWAY	ST LOUIS
120	GEORGE A HEIMOS PRODUCE CO	PRODUCE ROW	ST LOUIS
121	WUNDERLICH FIBRE BOX CO	CLINTON ST	ST LOUIS
122	THOMAS KITCHEN ART INC	N BROADWAY	ST LOUIS
123	EAGLE SALES CO	N BROADWAY	ST LOUIS
124	FORD HOTEL SUPPLY CO	N BROADWAY	ST LOUIS
125	HEWITT LUCAS BODY CO INC	CHAMBERS ST	ST LOUIS
126	GROSSMAN IRON & STEEL	N MARKET ST	ST LOUIS
127	MORGAN STREET BREWERY	N 2ND ST	ST LOUIS
128	SCF LIQUIDS	N 1ST ST	ST LOUIS

### 3.6 SITES WITH HAZARDOUS SUBSTANCES

This section provides a summary of properties with potential or known hazardous materials issues located within the Study Area.

#### 3.6.1 Methodology

The methodology used to identify sites with potential or known hazardous materials issues included the following steps:



- Review of Federal, State, and Local Databases for hazardous materials data
- Identification of sites with recognized or potential environmental conditions

For this hazardous materials assessment summary, sites within the Study Area (one quarter-mile from the I-70 centerline) were identified as having known (current and historic) soil or groundwater contamination and are distinguished in this report as sites with recognized environmental conditions. Recognized environmental conditions include sites with “*the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property*” (ASTM<sup>7</sup> 2005). Sites with the potential for soil and/or groundwater contamination that could not be confirmed without additional inspection or investigation are sites with potential environmental conditions. Properties with potential or known environmental conditions could have an impact to the Study Area and will require additional inspection or investigation to determine impacts to proposed improvements in the Study Area.

### 3.6.2 Key Points

A total of 138 sites with recognized and potential environmental conditions were identified within the Study Area. These sites are summarized in **Table 3-11** and depicted on **Figure 3-5**.

**Table 3-11: Summary of Sites with Potential or Recognized Environmental Conditions**

ID	Name	Address	City
1	Wentzville Maintenance District Shed	121 Freymuth Road	Wentzville
2	Mobile Crown	11400 Veterans Memorial Parkway	Lake St. Louis
3	St. Joseph Hospital West	100 Medical Plaza	Lake St. Louis
4	Jerry M. Schulte Family Limited Partnership	1760 W Terra lane	O’Fallon
5	K & R Wood Products	61 N. Central Drive	O’Fallon
6	CVS Pharmacy Store #10134	801 Highway K	O’Fallon
7	Kmart #7324	20 O’Fallon Square	O’Fallon
8	Kmart #7324	20 O’Fallon Square	O’Fallon
9	Dirt Cheap Cigarettes & Beer	708 Highway K	O’Fallon
10	Shell Oil Company	602 S. Main Street	O’Fallon
11	720-JQ8: Mobil Service	610 S. Main Street	O’Fallon
12	K-70 O’Fallon Bolch 90	719 Highway K	O’Fallon
13	Firestone	504 S. Main Street	O’Fallon
14	Clark Oil Store #1331	418 S. Main Street	O’Fallon

<sup>7</sup> ASTM International, formerly known as the American Society for Testing and Materials (ASTM).

**Table 3-11: Summary of Sites with Potential or Recognized Environmental Conditions (Continued)**

ID	Name	Address	City
15	MPI 21	503 S. Main Street	O'Fallon
16	Walt Smith Flooring	40 Daniel DRIVE	O'Fallon
17	Gateway International Truck Company	1400 E. Terra Lane (511 S. Cool Springs Road)	O'Fallon
18	Venture Stores Inc.	2001 E. Terra Lane	O'Fallon
19	True Manufacturing Company	301 Cannonball Lane	O'Fallon
20	601 Direct LLC	601 Cannonball Lane	O'Fallon
21	O'Fallon Casting	600 Cannonball Lane	O'Fallon
22	Dardenne Lake Shell	I-70 and Highway 79	O'Fallon
23	St. Peters Garage	108 Main Street	St. Peters
24	Jim Miles Garage Inc./J & J Miles	10 S. Church Street	St. Peters
25	Dierbergs Market Inc.	290 Mid Rivers Center	St. Peters
26	City of St. Peters Water Treatment	100 Treatment Lane	St. Peters
27	St. Peters CITGO	5901 S. Service Road	St. Peters
28	M-52 St. Peters	Weight Station C-4W (I-70)	St. Peters
29	Didion Land Project LLC	4894 N. Service Road	St. Peters
30	Cave Springs Conoco	3949 S. Service Road	St. Peters
31	Target Store T1280	3881 Mexico Road	St. Charles
32	Cave Springs Mobil	3895 Veterans Memorial Parkway	St. Peters
33	Shell Service Station	3850 W. Clay	St. Charles
34	Jiffy Lube	2139 Zumbahl Road	St. Charles
35	Fisca Oil Company Inc. #26	2801 W. Clay	St. Charles
36	South Service Road CITGO	2739 Bogey Road	St. Charles
37	St. Charles Police Department	2645 W. Clay	St. Charles
38	Amoco Oil SS #15586	2620 W. Clay	St. Charles
39	Francis Howell School District	7055 S. Highway 94	St. Charles
40	Energy Express #1226	2300 First Capitol Drive	St. Charles
41	Sangamon Investment	2311 First Capitol Drive	St. Charles
42	QuikTrip #673	2260 First Capitol Drive	St. Charles
43	Bernard McMenamy Contractor, Inc.	1600 Fair lane	St. Charles
44	Wendy's Restaurant	1821 Boonslick Road	St. Charles
45	Thomas Paving Co.	64 Becky	St. Charles
46	Phillips 66	1550 S. Fifth Street	St. Charles
47	Shell Service Station	1350 S. Fifth Street	St. Charles
48	Western Union Financial Services	13022 Hollenberg Drive	Bridgeton
49	DePaul Health Center	12303 DePaul Drive	Bridgeton
50	DePaul Health Center	12303 DePaul Drive	Bridgeton

**Table 3-11: Summary of Sites with Potential or Recognized Environmental Conditions (Continued)**

ID	Name	Address	City
51	Kmart	11978 St. Charles Rock Road	Bridgeton
52	Joe Hood Services, Inc.	11737 St. Charles Rock Road	Bridgeton
53	Public Works Department	4015 Fee Fee Road	Bridgeton
54	Shell Oil Company	4500 Lindbergh Boulevard/Hunter Drive	Bridgeton
55	Former Koepke Excavating Inc.	4465 Schuette Drive	Bridgeton
56	Hunter Engineering Company	11250 Hunter Drive	Bridgeton
57	THE KENDALL CO LP	11311 Hammack Avenue	Bridgeton
58	Allied Aviation of St. Louis, Inc./Maintenance Facility	10922 Natural Bridge Road	St. Louis
59	STL Localizer: FAA	10805 Lambert International Boulevard	Bridgeton
60	Fuels Management Moang	10800 Lambert International Boulevard, Building 201	Bridgeton
61	U.S. Marine Corps	10810 Natural Bridge Road	Bridgeton
62	Lambert- St. Louis Municipal Airport, Air National Guard	Natural Bridge Road & Woodson Road	City of St. Louis
63	The Parking Spot	10534 Natural Bridge Road	Edmundson
64	Wallis Petroleum BP #9065	10500 Natural Bridge Road	City of St. Louis
65	Avis Rent A Car System Inc.	Lambert-St. Louis International Airport	City of St. Louis
66	Former American International Rent-a-Car	10480 Natural Bridge Road	City of St. Louis
67	Enterprise Leasing Company	10400 Natural Bridge Road	Hazelwood
68	St. Louis Hilton	10330 Natural Bridge Road	City of St. Louis
69	The Hertz Corporation	10278 Natural Bridge Road	Woodson Terrace
70	Hertz Rent-A-Car	Lambert Field P.O. Box 10014	City of St. Louis
71	Red Arrow Corp	4530 Woodson Road	Woodson Terrace
72	National/Alamo Rent-a-Care	10124 Natural Bridge Road	Berkeley
73	FINA	I-70 & Natural Bridge Road	City of St. Louis
74	Texaco Service Station	9802 Natural Bridge Road	Berkeley
75	Petro Mart #64	9790 Natural Bridge Road	City of St. Louis
76	Shell Oil Company	1750 S. Florissant Avenue	Cool Valley
77	Clark Oil Store #259	1700 S. Florissant Avenue	City of St. Louis
78	MoDOT Normandy Storage	I-70 & Bermuda Road	Normandy
79	Sinclair Retail Station #24063	1018 Bermuda Road	Normandy
80	Norwood Hills Country Club	#1 Norwood Hills Country Club Drive	City of St. Louis
81	Memorial Park Cemetery	5200 Lucas and Hunt Road	Jennings
82	Lucas Hunt Village Apartments	5303 Lucas and Hunt Road	Normandy
83	4402 Jennings Station	4402 Jennings Station Road	Pine Lawn

**Table 3-11: Summary of Sites with Potential or Recognized Environmental Conditions (Continued)**

ID	Name	Address	City
84	Big G CITGO	5231 Jennings Station Road	Jennings
85	Shell Service Station	4600 Jennings Station Road	Pine Lawn
86	Diamond Gas	5201 Janet Avenue	City of St. Louis
87	MPC 73	5211 Janet Avenue	City of St. Louis
88	Plant Facilities & Engineering Inc.	4800 Goodfellow Boulevard	City of St. Louis
89	St. Louis (Ex) Army Ammunition Plant	4800 Goodfellow Boulevard	City of St. Louis
90	Circle K #1666	4903 Goodfellow Boulevard	City of St. Louis
91	Pulse Petroleum	5003 Goodfellow Boulevard	City of St. Louis
92	ABB Power T & D Company Inc.	4350 Semple Avenue	City of St. Louis
93	Centerline Industries Inc.	5380 Bircher Boulevard	City of St. Louis
94	Jacks-Evans Mfg Ted Faller	4427 Geraldine	City of St. Louis
95	I-70 Performance	4646 Bircher Boulevard	City of St. Louis
96	DSI Process Systems	4630 W. Florissant Avenue	City of St. Louis
97	Kings Estate	4510-4560 N. Newstead Avenue	City of St. Louis
98	North Broadway Garage	812 E. Taylor	City of St. Louis
99	Interstate Brands Corporation	6301 N. Broadway	City of St. Louis
100	Terminal Railroad	725 E. Taylor	City of St. Louis
101	Amoco Station #5458	6110 N. Broadway	City of St. Louis
102	Go West Mobil	6020 N. Broadway	City of St. Louis
103	Perfection Manufacturing Co.	5441 Bulwer Avenue	City of St. Louis
104	Elantas PDG, Inc.	5200 N. Second Street	City of St. Louis
105	Sinclair Retail	1401 E. Grand Avenue	City of St. Louis
106	Transchemical, Inc.	419 E. DeSoto Avenue	City of St. Louis
107	Central States	420 E. DeSoto Avenue	City of St. Louis
108	TCI Products, Inc.	420 E. DeSoto Avenue	City of St. Louis
109	Midwest Plating Co., Inc.	513 E. Grand Avenue	City of St. Louis
110	Procter & Gamble	169 E. Grand Avenue	City of St. Louis
111	Budig Trucking Company	4515 N. Second Street	City of St. Louis
112	Vacant Terminal Building	119 Douglas Street	City of St. Louis
113	East Texas Motor Freight	119 Douglas Street	City of St. Louis
114	Wintz Properties, Inc.	4138 N. Second Street	City of St. Louis
115	Dodson Trailer Repair, Inc.	1129 Bremen Avenue	City of St. Louis
116	Gas Mart 26	1110 Salisbury Avenue	City of St. Louis
117	Broadway Sonic	3707 N. Broadway	City of St. Louis
118	Terminal Railroad Association of St. Louis	137 E. Bremen Avenue	City of St. Louis
119	Super Van Service Co., Inc.	121 Bremen Avenue	City of St. Louis

**Table 3-11: Summary of Sites with Potential or Recognized Environmental Conditions (Continued)**

ID	Name	Address	City
120	Conservation Chemical Co.: St. Louis	100 Bremen Avenue	City of St. Louis
121	Thermice Corporation	Angelrodt Street (East of Second Street)	City of St. Louis
122	North Broadway Truck Stop	3000 N. Broadway	City of St. Louis
123	Robesco Pipe & Supply: Former	2923 N. Broadway	City of St. Louis
124	Rollins Leasing Corp.	2427 N. Ninth Street	City of St. Louis
125	Hadley Street Real Estate Co.	1531 Hadley Street	City of St. Louis
126	Former Amoco Oil SS #16626	2601 N. Broadway	City of St. Louis
127	Former Greyhound Lines Inc.	1515 N. 11th Street	City of St. Louis
128	Industrial Metal Cleaning Corporation	801 Cass Avenue	City of St. Louis
129	Naes Mobile Cleaning Inc.	1847 N. Broadway	City of St. Louis
130	Courtyards at Cityside I & II	724 Carr Street	City of St. Louis
131	Laidlaw Waste Systems, Inc.	1838 N. Broadway	City of St. Louis
132	Mound Street Yard	Tyler & Second Street, City Block 292	City of St. Louis
133	Zimmerman-McDonald Machinery, Inc.	1535 N. Broadway	City of St. Louis
134	ACME Electric Company	1520 N. Broadway	City of St. Louis
135	Missouri Steel & Wire Company	1400 N. Broadway	Ferguson
136	United Petroleum Service	1458 Collins Street	City of St. Louis
137	St. Louis (EX) Area Support Center-3	1230 N. Second Street	City of St. Louis
138	Union Pacific	210 Biddle Street	City of St. Louis

Highway corridors, such as I-70, generally consist of areas where light industrial and commercial businesses historically or currently operate. These types of businesses, such as gasoline service stations, automotive repair facilities, and larger truck stop establishments typically use underground storage tanks (USTs) or aboveground storage tanks (ASTs) to store petroleum products, waste oils, and/or other hazardous materials. Such facilities are also often regulated based on their current hazardous waste generation management activities. Consequently, areas with light industrial and commercial use present a risk of having the presence of soil and groundwater contamination from past spills or releases of hazardous substances, including petroleum products.

Hazardous materials are most likely to be encountered during ground-disturbing activities near sites with recognized environmental conditions. The simplest management method for hazardous materials is the avoidance of contaminated sites when feasible. Wherever possible, known hazardous materials issues at properties targeted for right-of-way acquisition should be investigated further prior to acquisition/construction. Knowing what hazardous materials issues exist prior to construction is critical because proper management during construction requires special materials management, handling, disposal, and worker health and safety practices. The

types of sites described in this section appear to be those that are normally encountered by MoDOT.

### 3.7 WETLANDS AND OTHER WATERS OF THE U.S.

In recognition of the importance of clean water and the ecological value of wetlands, in 1977 the U.S. Congress passed the CWA to protect the physical, biological, and chemical quality of waters of the U.S., including adjacent wetlands. Section 404 of the CWA defines waters of the United States as all traditional navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. The U.S. Army Corps of Engineers (USACE) Regulatory Program administers and the EPA enforces Section 404 of the CWA. This section discusses wetlands and other waters within the resource-specific Study Area.

#### 3.7.1 Methodology

The wetlands-specific Study Area was identified as one-quarter-mile from the centerline of the existing roadway with increased areas around interchanges. Wetland identification presented in this section was based primarily on a desktop review of currently known wetland and water boundaries. The review determined the extent of wetlands within the Study Area by evaluating previous wetland studies in the Study Area, National Wetland Inventory (NWI) maps, aerial photography, Google Earth imagery, and topographical maps. New potential wetland areas identified during the desktop review were digitized using GIS and acreages were determined for each wetland. Some additional wetlands within the Study Area were delineated in support of the EWGCOG project, which overlaps portions of this Study Area.

#### 3.7.2 Key Points

The majority of wetlands identified within the resource-specific Study Area are palustrine emergent and palustrine scrub/shrub wetlands that generally occur along streams, roadside ditches, irrigation ditches and canals, and at pond margins.

Future projects identified in this PEL will require additional field survey and analysis to verify and gather more detailed information regarding the extent and additional characteristics of wetland areas and the impacts from proposed projects.

Transportation authorities are also responsible for managing the stormwater runoff that discharges to our nation's waters via regulated municipal separate storm sewer systems (MS4s) along streets, roads, and highways. Future projects may require obtaining a stormwater discharge permit and engagement in pollution prevention activities.

##### 3.7.2.1 Wetlands

Wetlands identified within the Study Area were categorized as the following:

- **Freshwater Emergent Wetland:** Palustrine Emergent (PEM)

- **Freshwater Forested/Shrub Wetland:** Palustrine Forested (PFO) and Palustrine Scrub/Shrub (PSS)
- **Freshwater Pond:** Palustrine Unconsolidated Bottom (PUB) and Palustrine Aquatic Bed (PAB)
- **Lake:** Lacustrine Limnetic Unconsolidated Bottom (L1UB)
- **Riverine:** Riverine Lower Perennial Unconsolidated Bottom (R2UB) and Riverine Lower Perennial Unconsolidated Shore (R2US)

The locations of the wetlands identified in the resource-specific Study Area are presented in **Figure 3-6**, and a summary of the total number of acres of delineated wetlands within the resource-specific Study Area is presented in **Table 3-12**.

**Table 3-12: Summary of Identified Wetlands**

Wetland Type	Total Acreage within the Resource-Specific Study Area
Freshwater Emergent Wetland	6.10
Freshwater Forested/Shrub Wetland	385.87
Freshwater Pond	108.68
Lake	298.36
Riverine	290.80

### 3.7.2.2 Other Waters

A mix of perennial intermittent waterways, ditches and ponds exists throughout the resource specific Study Area and are discussed in further detail in **Section 3.8**.

## 3.8 WATER RESOURCES

This section provides a summary of surface water features, groundwater and karst features, water quality issues, and major drainageways and associated floodplains in the Study Area.

### 3.8.1 Methodology

The methodology used to identify surface water features included the following steps:

- Surface water features were collected from available GIS data, the MDNR, and the MDC.
- Information and location data of karst features were collected through the EWGCOG.
- Floodplain and floodway data were collected from current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) and/or Flood Hazard Boundary Maps (FHBM). Counties and/or municipalities administer FEMA policy and are responsible for regulating development in FEMA-designated floodplains.

### **3.8.2 Key Points**

The following subsections describe the results of the water resources in the Study Area including surface water features, groundwater and karst features, water quality issues, and major drainageways and associated floodplains and floodways.

#### **3.8.2.1 Surface Water Features**

Surface water features in the Study Area include a mix of rivers, streams, perennial intermittent waterways, ditches, ponds, and lakes. The major surface water features, from west to east, include:

- Lake St. Louis
- Peruque Creek
- Belleau Creek
- Dardenne Creek
- Spencer Creek
- Cole Creek
- Boonslick Creek
- Missouri River
- Creve Coeur Creek
- Cowmire Creek
- Maline Creek
- Mississippi River

Surface waters are depicted on **Figure 3-6**.

#### **3.8.2.2 Groundwater and Karst Features**

Groundwater is a natural resource that provides drinking water for residents, springs that feed waterways, and habitat for many underground species. The quality of the groundwater is dependent upon land use and the quality of groundwater recharge. Karst features are abundant in this region and about three quarters of the water that reaches the major rivers in Missouri's karstlands has passed through groundwater systems for at least some distance. Karst is a



landscape where underground water follows dissolved out channels in the rock. Karst is made up of four primary features:

- **Sinkholes:** A rounded depression in the landscape formed by water slowly dissolving the rock below or, in some cases, when an underground cavity collapses.
- **Losing streams:** A surface stream that loses a significant amount of its flow to the subsurface through bedrock openings.
- **Springs:** A natural flow of water discharged to the surface from the ground or from rocks, representing an outlet for the water that has accumulated in permeable rock strata or cave underground.
- **Caves:** A cavity formed beneath the earth’s surface, when water dissolves the limestone or dolomite by chemical action.

In Missouri, factors that contribute to cave formation are topography, fractures and cracks in the rock that water can pass through, and the movement of water from upland to lowland areas. Water moving through bedrock enters the underground cavity, losing carbon dioxide to the cave’s atmosphere. The chemistry of the water changes the minerals dissolved from the overlying limestone and dolomite. Cave deposits known as speleothems begin growing on the cave’s walls, ceilings and floor. Known karst features (sink holes) located in the Study Area are depicted on **Figure 3-7**.

### **3.8.2.3 Water Quality**

Water quality can be defined as the current status or condition of the water in a specific aquatic ecosystem. It is much easier to describe poor water quality than to describe the conditions that are considered indicative of good water quality. Many of the lines between good and poor are stream-specific. Each watershed has some natural buffering capacity. This allows the water to adapt and compensate for normal changes in the environment such as leaching from the soil or the occasional heavy rain.

There are three major watersheds in the Study Area: the Peruque-Piasa, the Lower Missouri, and the Cahokia-Joachim. The Peruque-Piasa and the Cahokia-Joachim are associated with the Mississippi River watershed; the Lower Missouri is associated with the Missouri River watershed. Watershed boundaries located in the Study Area are depicted on **Figure 3-7**. Water quality in the Missouri and Mississippi Rivers is generally dependent on land use conditions in several upstream states to the north and west. Suspended sediment concentrations are generally high due to agricultural practices and channelization.

Section 303(d) of the Federal CWA requires that states identify waters not meeting water quality standards and for which adequate water pollution controls have not been developed. Water quality standards protect beneficial uses of water such as whole body contact (swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The waterbodies located in the Study Area that do not meet water quality standards are

considered impaired. Such impaired waters are included on the 2016 EPA approved 303(d) list, which is summarized **Table 3-13** and depicted on **Figure 3-7**.

**Table 3-13: Summary of Waterbodies on 303(d) List**

Waterbody ID	Waterbody Name	Pollutant	Source
7054	Lake St. Louis	Mercury in Fish Tissue	Atmospheric Deposition
7055	Lake Ste. Louise	Mercury in Fish Tissue	Atmospheric Deposition
217	Peruque Creek	Fishes Bioassessments / Unknown	Nonpoint Source
1604	Missouri River	Escherichia coli	Municipal Point Source Discharges, Nonpoint Source

Source: MDNR 2016 EPA Approved 303(d) List

The MDNR regulates surface and groundwater quality within Missouri (10 CSR 20-7). MoDOT is responsible for implementing control measures to prevent the excessive release of sediment and pollutants into nearby waterways whenever one acre or more of land is disturbed for certain roadwork activities by obtaining a land disturbance permit and use of best management practices (BMPs). BMPs may include employee training in erosion control techniques, site preparation activities, surface stabilization, run-off and run-on control measures.

### 3.8.2.4 Floodplains and Floodways

There are 11 drainageways that have FEMA-designated floodplains in Zones AE and A, which define boundaries of floodplains with varying degrees of detail. These zones are defined as follows:

- **Zone AE:** A part of the FEMA 100-year flood hazard area where base flood elevations have been determined.
- **Zone A:** A part of the FEMA 100-year flood hazard area where base flood elevations have not been determined but a shaded, generalized floodplain is shown on the FEMA FIRMs. The 100-year flood is FEMA’s base flood.
- **Zone X:** A part of the FEMA 500-year flood area, 100-year flood area with average depths of less than 1 foot or with drainage areas less than one-square-mile.

A floodway is an area of the floodplain that has been defined to be “reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.” Usually this is accomplished by prohibiting the placement of fill in the floodway. If fill is proposed in a floodway, it must be shown that this will not adversely impact surrounding property.

All 11 drainageways are designated as Zone AE floodplains, while two have portions that are designated as Zone A floodplains. There are also nine drainageways that have floodways delineated in addition to the Zone AE floodplains. A summary of the drainageways within the Study Area and their corresponding FEMA designation is presented below in **Table 3-14** and **Figure 3-8**.

Improvements in the Study Area could impact several FEMA regulated floodplains/floodways. A base level modeling to determine these impacts will be required, and depending on the magnitude of the impact, the Conditional Letter of Map Revision/Letter of Map Revision (CLOMR/LOMR) process could be triggered. The 11 Zone AE floodplains with floodways are the most sensitive to changes in the floodplain and have the most potential to require a CLOMR/LOMR process. The two Zone A floodplains have some sensitivity to impacts but have slightly less potential to require a CLOMR/LOMR process. The Zone X floodplain is the least sensitive to impacts and has the least potential to require the CLOMR/LOMR process.

**Table 3-14: Summary of Drainageways**

Approximate Mile Point	Drainageway Name	FEMA Zone	Watershed
214	Peruque Creek	A / AE / Floodway	Peruque-Piasa
218	Belleau Creek	AE / Floodway	Peruque-Piasa
221	Dardenne Creek	AE / Floodway	Peruque-Piasa
223	Spencer Creek	AE / Floodway	Peruque-Piasa
227	Cole Creek	AE / Floodway	Peruque-Piasa
229	Boonslick Creek	A / AE	Lower Missouri
230	Missouri River	AE / Floodway	Lower Missouri
232	Creve Coeur Creek	AE	Lower Missouri
233	Cowmire Creek	AE / Floodway	Lower Missouri
239	Maline Creek	AE / Floodway	Cahokia-Joachim
247	Mississippi River	AE / Floodway	Cahokia-Joachim

### 3.9 OTHER BIOLOGICAL RESOURCES

Wildlife is an important public resource that warrants consideration during federally-funded projects and is documented during transportation project development. Various federal laws have been established to protect wildlife, including the ESA, the Migratory Bird Treaty Act (MBTA), and the Bald and Golden Eagle Protection Act (BGPA) (16 U.S.C. 668 et seq.).<sup>8</sup>

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<sup>8</sup> U.S.C – United States Code

### 3.9.1 Methodology

Details and characteristics of wildlife resources in the Study Area were identified using existing GIS data. The U.S. Fish and Wildlife Service (FWS) and the Missouri Natural Heritage Database (MNHD) were consulted to determine if state and/or federal threatened and endangered species were known to occur in the Study Area and throughout St. Charles County, St. Louis County, and the City of St. Louis.

The wildlife resources that were identified during the review can be categorized into the following categories:

- **Threatened and Endangered (T & E) Species:** Species that are listed or are candidates for listing under the ESA as threatened or endangered at either the state or federal level.
- **Protected Species:** Species or their habitat, which are not T & E species but are protected by other specific regulations including the MBTA and BGPA.

The Study Area was also evaluated for critical habitats within one-half-mile of the I-70 centerline. Critical habitat is the specific areas within the geographic area occupied by the species at the time it was listed that contain the physical or biological features that are essential to the conservation of endangered and threatened species, and that may need special management or protection.

Critical habitat may also include areas that were not occupied by the species at the time of listing but are essential to its conservation. Although no longer protected under the ESA, bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act (16 U.S.C. 703 et seq.).

### 3.9.2 Key Points

There are a total of 9 threatened or endangered species identified by the FWS in three FWS ecological service areas. These species could be affected in the Study Area

### 3.9.2.1 Threatened and Endangered Species and Habitats

A summary of the 9 threatened or endangered species is included in **Table 3-15**.

**Table 3-15: Summary of Threatened or Endangered Species**

Species	Status	Columbia	Rock Island	Marion <sup>9</sup>
<b>Birds</b>				
Least tern ( <i>Sterna antillarum</i> ) Population: interior pop.	Endangered	X	X	X
<b>Crustaceans</b>				
Illinois Cave amphipod ( <i>Gammarus acherondytes</i> ) Population: Entire	Endangered		X	X
<b>Fish</b>				
Pallid sturgeon ( <i>Scaphirhynchus albus</i> ) Population: Entire	Endangered	X	X	X
<b>Flowering Plants</b>				
Decurrent False aster ( <i>Boltonia decurrens</i> )	Threatened	X	X	X
Eastern Prairie Fringed orchid ( <i>Platanthera leucophaea</i> )	Threatened		X	X
Running Buffalo clover ( <i>Trifolium stoloniferum</i> )	Endangered	X		
<b>Mammals</b>				
Gray bat ( <i>Myotis grisescens</i> ) Population: Entire	Endangered	X		
Indiana bat ( <i>Myotis sodalis</i> ) Population: Entire	Endangered	X	X	X
Northern long-eared Bat ( <i>Myotis septentrionalis</i> )	Proposed Endangered	X	X	X

No critical habitats were identified by the FWS within the Study Area.

The Natural Heritage Review report from the MDC indicated there were no wildlife preserves, no designated wilderness areas or critical habitats, and no known federal-listed terrestrial species records within the Study Area. However, the Missouri River and its riparian corridor are home to a number of species of state and federal concern, including pallid sturgeon (*Scaphirhynchus albus*, federal/state endangered) and others. The river's banks and floodplain are places the following species may be encountered: gray bats (*Myotis grisescens*, federal/state endangered), Indiana bats (*Myotis sodalis*, federal/state endangered), and bald eagles (*Haliaeetus leucocephalus*, delisted). However, bald eagles are protected under the BGPA, the MBTA, the Lacey Act, and others.

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<sup>9</sup> Marion included because the Study Area ½-mile buffer extends across the state line into the Illinois “side” of the Mississippi River.

The Natural Heritage Review also included records of state-listed species of conservation concern. A summary of these species is included in **Table 3-16**.

**Table 3-16: Summary of State-Listed Species**

Common Name	Scientific Name	State Status	Federal Status
<b>St Charles County</b>			
American Bittern	<i>Botaurus lentiginosus</i>	Endangered	
Blanding's Turtle	<i>Emydoidea blandingii</i>	Endangered	
Central Mudminnow	<i>Umbra limi</i>	Endangered	
Decurrent False Aster	<i>Boltonia decurrens</i>	Endangered	Threatened
Ebonyspell	<i>Fusconaia ebena</i>	Endangered	
Flathead Chub	<i>Platygobio gracilis</i>	Endangered	
Indiana Myotis	<i>Myotis sodalis</i>	Endangered	Endangered
King Rail	<i>Rallus elegans</i>	Endangered	
Lake Sturgeon	<i>Acipenser fulvescens</i>	Endangered	
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Endangered
<b>St Louis County</b>			
American Bittern	<i>Botaurus lentiginosus</i>	Endangered	
Crystal Darter	<i>Crystallaria asprella</i>	Endangered	
Decurrent False Aster	<i>Boltonia decurrens</i>	Endangered	Threatened
Eastern Hellbender	<i>Cryptobranchus alleganiensis alleganiensis</i>	Endangered	
Ebonyspell	<i>Fusconaia ebena</i>	Endangered	
Elephantear	<i>Elliptio crassidens</i>	Endangered	
Flathead Chub	<i>Platygobio gracilis</i>	Endangered	
Gray Myotis	<i>Myotis grisescens</i>	Endangered	Endangered
Indiana Myotis	<i>Myotis sodalis</i>	Endangered	Endangered
Lake Sturgeon	<i>Acipenser fulvescens</i>	Endangered	
Northern Long-eared Myotis	<i>Myotis septentrionalis</i>		Threatened
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Endangered
Peregrine Falcon	<i>Falco peregrinus</i>	Endangered	
Pink Mucket	<i>Lampsilis abrupta</i>	Endangered	Endangered
Running Buffalo Clover	<i>Trifolium stoloniferum</i>	Endangered	Endangered
Scaleshell	<i>Leptodea leptodon</i>	Endangered	Endangered
Sheepnose	<i>Plethobasus cyphus</i>	Endangered	Endangered
Snuffbox	<i>Epioblasma triquetra</i>	Endangered	Endangered
Spectaclecase	<i>Cumberlandia monodonta</i>		Endangered
<b>St Louis City</b>			
Lake Sturgeon	<i>Acipenser fulvescens</i>	Endangered	
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Endangered
Peregrine Falcon	<i>Falco peregrinus</i>	Endangered	

Source: <https://mdc.mo.gov/property/responsible-construction/missouri-natural-heritage-program>

### 3.9.2.2 Migratory Birds

The Study Area runs through a highly urbanized area connecting the Cities of Wentzville and St. Louis. Along its route, the corridor crosses the Missouri River at the St. Charles/St. Louis County lines. Increasing development along the I-70 corridor has resulted in the decline, and in some cases, the complete removal of suitable habitat for many species of wildlife, including migratory birds. However, the Missouri River and its riparian corridor does offer migratory birds habitat conducive for breeding, nesting, feeding, and resting.

Federal regulations prohibit construction activities that would result in the take (i.e., to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb) of bird species, eggs, young, and/or active bird nests protected under MBTA and BGPA. In the U.S., the FWS is the lead agency for managing migratory birds and eagles.

Bald eagles are regular winter residents in Missouri. Although they may occur in any county, wintering eagles tend to concentrate around large impoundments, marshes, and rivers where fish, waterfowl, or other food supplies are abundant. Nearby stands of trees containing some tall mature trees having stout horizontal limbs and open branching patterns are important as roosts and resting perches.

The Least Tern (*Sterna antillarum*) is an endangered species protected by the Federal Endangered Species Act. Typically a summer resident in Missouri, the Least Tern prefers barren areas near water such as sand bars in river channels and the shores of large impoundments where a dependable food supply of small fish and crustaceans is available.

The highly urbanized areas associated with the Study Area do not appear to provide suitable habitat for either the bald eagle or least tern. Therefore, neither of these species should be affected by construction activities in the highly urbanized areas of the Study Area. However, construction activities in or around the Missouri River (i.e. I-70 Bridge) could have a negative impact to both the bald eagle and the least tern. Considering the bald eagle, the Missouri River corridor provides a source of mature stands of timber suitable for nesting/roosting and an abundant food supply of fish and waterfowl that concentrate in the river. For the least tern, the Missouri River provides a source of sand bars, mud flats, and a reliable source of small fish and crustaceans.

MBTA listed species that are commonly found within an urban landscape include: northern cardinal (*Cardinalis cardinalis*), brown thrasher (*Toxostoma rufum*), eastern towhee (*Pipilo erythrophthalmus*), mourning dove (*Columbina inca*), common grackle (*Quiscalus quiscula*), downy woodpecker (*Picoides pubescens*), hairy woodpecker (*Picoides villosus*), red-eyed vireo (*Vireo olivaceus*), red-winged blackbird (*Agelaius phoeniceus*), bluejay (*Cyanocitta cristata*), American robin (*Turdus migratorius*), and Carolina wren (*Thryothorus ludovicianus*).

The breeding season for migratory birds that would use bridge and culvert structures as habitat is between April 1 and July 31. Breeding season for other migratory birds is generally February 15 to July 15. Construction activities located within the Study Area (especially the Missouri River

corridor) during the breeding season for migratory birds can potentially affect nests, eggs, and/or young of birds protected under the MBTA.

### **3.9.2.3 Wildlife Corridors**

Existing land use in the Study Area is primarily highly urbanized zones of residential and commercial areas bordering the interstate corridor within the Greater St. Louis Metropolitan Area. Where wildlife once had free movement through fields and along drainages, development in recent years has led to more constricted movement and fragmented habitat. The Missouri River crosses the Study Area near its mid-point and serves as a major wildlife corridor that facilitates wildlife movement.

Wildlife is considered a road safety hazard, causing billions of dollars annually in repairs and medical costs due to animal-vehicle collisions (AVCs) nationwide. These AVCs also result in a loss to wildlife populations and wildlife diversity. Typically the total number of AVCs is under-reported and only focuses on large wildlife species such as deer. The construction of wildlife-friendly structures over drainages will provide avenues for wildlife to move through the Study Area while keeping the general public safe.

## **3.10 LAND COVER AND LAND USE**

This section outlines the framework for land use planning in the Study Area and provides a description of existing land use conditions as well as trends and anticipated future land use conditions. Land use planning in the Study Area is primarily undertaken by local municipalities and county governments. In addition, the EWGCOG is the metropolitan planning organization responsible for transportation planning in the Study Area.

### **3.10.1 Methodology**

Existing fine resolution land cover data was created through a partnership between EWGCOG and the Missouri Resource Assessment Partnership (MoRAP). Land uses across all jurisdictions in the Study Area have been generally categorized into agricultural, residential, commercial (including retail, industrial, office, etc.), and open space/parks. Some communities have slightly different land use categories. For purposes of this analysis, some categories have been combined to provide consistency across communities. For example, regional and neighborhood commercial have been combined into “commercial.” Most communities have single family and several multi-family residential categories; these have been included as “residential.”

### **3.10.2 Key Points**

Generally, the Study Area is in a flat to rolling plains region of Missouri which consists almost exclusively of an urban/built-up environment. Areas that used to be agricultural fields and individual farms have seen recent residential and commercial development.



**3.10.2.1 Fine Resolution Land Cover**

Existing fine resolution land cover data was obtained from MoRAP. MoRAP is a partnership established with state and federal agencies and non-government conservation organizations to develop, analyze, and deliver geospatial data for natural and cultural resource management. The land cover data utilized is from 2016, which is the most current data available for the Study Area.

Land cover data in the Study Area were defined using seven classifications: Water, Urban/Impervious, Barren/Sparsely Vegetated, Deciduous Forest, Evergreen Forest, Grass, and Crop. The acreage and percentage of each category located within the Study Area is presented in **Table 3-17** and shown on **Figure 3-9**.

**Table 3-17: Land Cover**

Land Cover Classification	Total Study Area	
	Acres	%
Water	738.56	2.8%
Urban/Impervious	11,547.94	44.1%
Barren/Sparsely Vegetated	722.43	2.8%
Deciduous Forest	5,610.87	21.4%
Evergreen Forest	87.78	0.3%
Grass	7,234.41	27.6%
Crop	251.02	1.0%

**3.10.2.2 Prime Farmland**

Prime farmland is an important resource and includes soils that have the best combination of physical and chemical characteristics for producing food and agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor and without intolerable erosion. A summary of prime farmland is listed in **Table 3-18** and shown on **Figure 3-10**.

**Table 3-18: Summary of Prime Farmland**

Farmland Type	Total Acres within the Resource-Specific Study Area
Prime Farmland	293.20
Farmland of Statewide Importance	1,681.30
Prime Farmland if Drained	1,014.78
<b>Total</b>	<b>2,989.28</b>

Although the soil types present within the Study Area include some prime farmland, the majority of the Study Area is almost exclusively of an urban/built-up environment with little to no land utilized for agriculture. Areas of urban or built-up land are not considered for prime farmland, regardless of soil characteristics.

Future projects identified in this I-70 PEL Study will require consultation with the Natural Resources Conservation Service and the completion of the *Farmland Conversion Impact Rating Form for Corridor Type Projects* to assess potential prime farmland impacts.

### 3.10.2.3 Land Use Planning

Land use planning for unincorporated lands in the Study Area is the responsibility of St. Charles County and St. Louis County. The City of St. Louis is an independent city and was separated from St. Louis County in 1877. Several municipalities, including cities and villages, are located in the Study Area. Municipalities along the I-70 corridor from west to east include Wentzville, Lake St. Louis, Josephville, O'Fallon, St. Paul, St. Peters, St. Charles, Bridgeton, Maryland Heights, Champ, Hazelwood, St. Ann, Breckenridge Hills, Edmundson, Woodson Terrace, St. John, Berkeley, Kinloch, Bel-ridge, Ferguson, Cool Valley, Bellerive, Bel-nor, Normandy, Jennings, Norwood Court, Pasadena Park, Pasadena Hills, Glen Echo Park, Velda City, Beverly Hills, Northwoods, Country Club Hills, Hillsdale, Velda Village Hills, Uplands Park, Pine Lawn, Flordell Hills, and the City of St. Louis. See **Figure 3-11**.

The Study Area falls within the EWGCOG transportation planning region. Land use projections from local governments are used by EWGCOG for regional planning purposes. Local land use projections, such as the location and timing of residential and commercial (employment) development, are incorporated into long-range regional and statewide transportation plans. EWGCOG's 2040 Regional Transportation Plan (RTP) indicates that the concentration of jobs and housing is shifting beyond the urban core. Land development characteristics have followed suit with the urbanized area of the region reaching far into counties surrounding the City of St. Louis and St. Louis County.

**3.10.2.4 Existing Land Use**

Existing land use data was tabulated using data provided by the three jurisdictions responsible for land use planning: St. Charles County, St. Louis County, and the City of St. Louis.

Though there are similarities across jurisdictions, each county uses different land use categories and definitions, so direct comparisons across jurisdictions are not possible. **Table 3-19** and **Table 3-20** show land use, acreage, and the % of acreage within each category for each county. **Table 3-21** shows the same for the City of Saint Louis. **Figure 3-2** shows the land use locations.

**Table 3-19: Land Use – St. Charles County**

Land Use Category	St. Charles County	
	Acres	Percentage
Residential	15,640	39%
Commercial Retail	5,854	15%
Commercial Service	1,270	3%
Institutional	2,358	6%
Industrial	2,327	6%
Open Space	2,375	6%
Vacant/Agricultural	10,206	25%

**Table 3-20: Land Use – St. Louis County**

Land Use Category	St. Louis County	
	Acres	Percentage
Residential	40,687	64%
Commercial	3,046	5%
Institution	1,712	3%
Open Space	1,206	2%
Industrial	9,870	16%
Vacant/Agriculture	6,171	10%

**Table 3-21: Land Use – City of St. Louis**

Land Use Category	City of St. Louis	
	Acres	Percentage
Residential	2,765	29%
Commercial Retail	2,586	27%
Commercial Service	555	6%
Entertainment	14	<1%
Institutional	652	7%
Open Space	1,009	11%
ROW/Transportation	1,019	11%
Industrial	730	8%
Vacant	615	6%
Manufacturing	257	3%

### 3.10.2.5 Planned Development and Future Land Use

#### Introduction to Development Profiles

For purposes of analysis, the Study Area was divided into five distinct segments (sub-markets). The boundaries for these segments were determined by a number of factors, including natural and man-made boundaries, as well as logical breaks in different types of economic activity and opportunity. The segments are:

- St. Charles County West Segment
- St. Charles County East Segment
- St. Louis County West/Lambert Airport Segment
- St. Louis County East Segment
- St. Louis City Segment

The boundaries generally consist of half-mile buffers on either side of I-70, except where the pull of key employers or employment districts extends inter-related economic activity beyond this parameter.

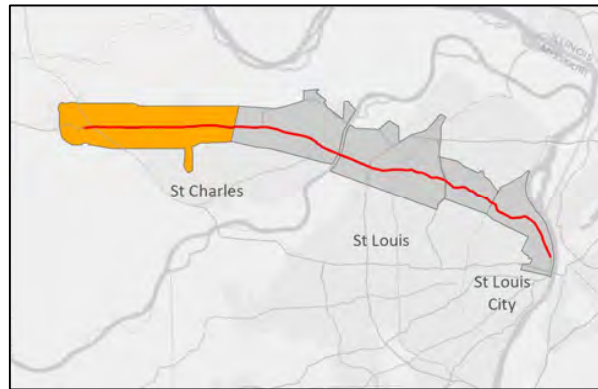
The following pages provide overviews of each segment, the proportional mix of non-residential development, key developments, snapshots of each industry, and the overall outlook (based on current trends and available land for development).

Each segment has its own distinct character. There is a diverse mix of economic generators, socio-economic conditions, strengths, weaknesses, and opportunities throughout the Study Area. The St. Charles County East Segment, for example, has very little manufacturing, whereas this sector has been a strength of the St. Charles County West Segment. Conversely, the St. Charles East Segment has a mix of institutions, government entities, and tourism destinations that are unmatched in the St. Charles West Segment.

The St. Louis County West Segment is defined by the presence of Lambert Airport and Boeing, and the economic activity and spin-off development they generate. As one of the largest employment centers in the St. Louis region, it has over four times the employment of the St. Louis County East Segment. Yet this latter segment has two Fortune 500 headquarters, a large university, and NorthPark—a promising development site whose capacity for growth exceeds sites elsewhere in the St. Louis County West Segment.

#### St. Charles County West Segment

Located at the leading edge of development in the St. Louis region (May Road to the O'Fallon eastern city limit), the St. Charles West Segment has experienced an influx of new development over the past several decades, and its economy has evolved around the pillars of manufacturing, distribution, and retail. The segment's largest employer—General Motors (GM), employs 3,500 people at its Wentzville plant.



The following diagram shows that there is a little over 25.8 million square feet to non-residential floor area in the St. Charles County West Segment and that 66% —two-thirds—is composed of manufacturing and distribution space. Another 27% is composed of retail uses. About 1.7 million square feet are devoted to medical office and other conventional office uses. Vacant building space in this segment is shown on **Figure 3-12**.

COMMERCIAL FLOOR AREA ST. CHARLES COUNTY WEST SEGMENT



### Key Developments

With 3,500 employees and over four million square feet of manufacturing space, the GM plant in Wentzville is not only the biggest direct employer in the segment, it also has an outsized impact in terms of “multiplier effect,” meaning that it attracts distribution facilities and suppliers to the area, supporting even more jobs. As a result, Manufacturing Parks One, Two, and Three are also among the most significant developments in the segment.

In early 2017, NorthPoint development will complete a 1.1 million-square-foot build-to-suit distribution center adjacent to the GM plant that will provide warehousing for the plant and GM suppliers. This will bring GM’s total footprint to over five million square feet.

The largest concentration of retail development is found along Highway K, with 2.8 million square feet of big box stores and strip developments lining a four-mile stretch of the highway. A second significant development is Wentzville Crossroads, which opened in 2002 and now has 780,000 square feet of development. The opening of Route 364 in December 2014 was a major development factor that better links the western edge of this segment to points further south.

The locations of key developments in this segment are shown on **Figure 3-13**.

St. Louis County West Segment Key Developments		
	Square Feet	Occupancy Rate
<b>Manufacturing 270 &amp; Lindbergh</b>		
Office	1.6M	90%
Distribution	2.6M	87%
<b>Earth City</b>		
Class A Office	2.0M	91%
Class B Office	900K	76%
Manufacturing	3.0M	90%
Distribution/Flex	20.2M	92%
<b>Rock Road Corridor</b>		
Retail	4.4M	94%

#### Office



With just over 92,000 square feet of Class A office space, the segment is not an established office employment center, although it does have 1.2 million square feet of Class B space. Some of this space is clustered in the Highway K area but it is generally dispersed, and an established cluster of office development has not yet emerged.

#### Medical Office



With 395,000 square feet of medical office space, a fair amount of this use is present in the segment. Medical offices are largely centered along Highway K and Wentzville Parkway as well as at SSM St. Joseph Hospital West near Lake St. Louis.

**Retail**

Retail is found throughout the Study Area, primarily in the form of strip development. Highway K has the largest cluster with 2.8 million square feet of commercial strip retail centers, including such conventional anchors as Walmart and Target in the larger developments. Wentzville Crossroads is a shopping area with 780,000 square feet of retail, including Walmart, Home Depot, and Sam's Club.

**Manufacturing**

Manufacturing plays a significant role in the St. Charles West Segment, largely due to the presence of General Motors and its 4.2 million square foot facility. An additional 2.5 million square feet of manufacturing space is located in the segment, some of which is associated with the GM plant.

**Distribution/Flex**

Along with manufacturing, distribution anchors the St. Charles West Segment's economy. With roughly 10.5 million square feet of distribution and flex space, a number of business parks contribute to this growing sector of the Study Area. With occupancy at 99%, it is likely that additional space will be added in the future.



**Planned Development**

Western St. Charles County continues to grow rapidly as residential development expands outward from the region’s core, bringing demand for retail, services, and jobs. In 2015, the city of Wentzville annexed a 132-acre tract to the west of the GM plant as the site of the Wentzville Logistics Center. This center will support operations for the GM Assembly Center and its suppliers. Construction of a 1.1 million square foot build-to-suit GM facility on 73 acres of this site is scheduled for completion in early 2017.

**Vacant Land**

According to data provided by St. Charles County, 27%, or approximately 6,700 acres, of the segment’s land area is agricultural or vacant. While some of this land lies in floodplain areas, the segment clearly has significant capacity to accommodate additional development. Vacant commercial land area in this segment is shown on **Figure 3-14**.

**Development Outlook**

With a great deal of available land for development, the future of the St. Charles West economy appears dependent on three factors: the future of the GM plant, continued outward expansion of regional development, and business diversification. With development migrating westward, the outlook is generally positive. Greater diversification in the office, healthcare, and institutional sectors would further stabilize its economy.

**Development Spotlight  
General Motors**

General Motors’ Wentzville plant is a major employment anchor in western St. Charles County. The plant has grown substantially in size and importance due to the popularity of the reintroduced GMC Canyon and Chevrolet Colorado mid-size pickup trucks, growing from about 1,200 workers in 2009 to about 3,500 workers in 2017. At present, GM Wentzville has grown to approximately 4.2 million square feet, with plans for continued expansion.



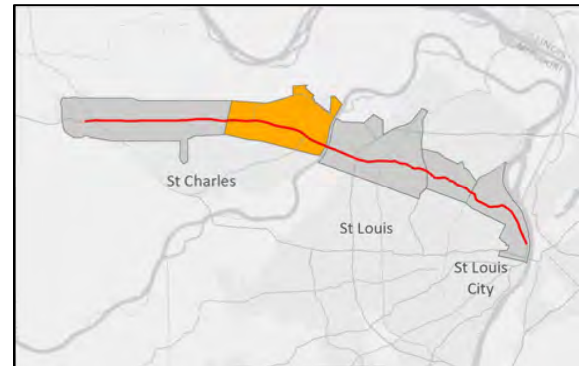
**Key Statistics**

St. Charles County West Segment

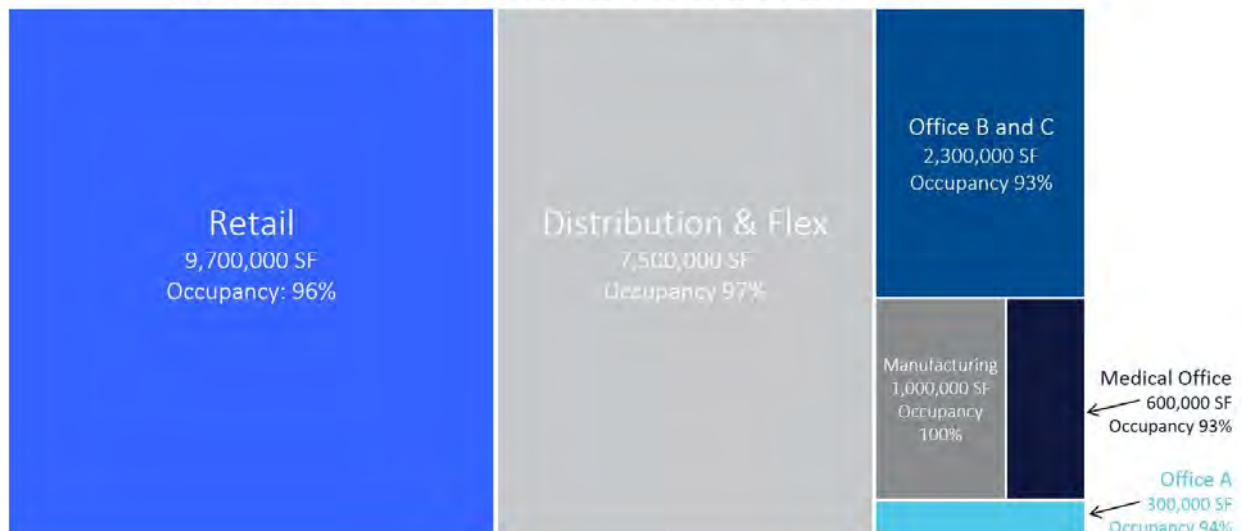
- 3,500** GM Workers
- 6,250** Jobs Added 2014-2005
- 6,700** Undeveloped Acres

**St. Charles County East Segment**

In St. Charles County East (O’Fallon eastern city limits to the Missouri River), economic development favors retail and distribution space. St. Charles County’s largest shopping center, Mid Rivers Mall, is located in this segment and has over two million retail square feet. Unlike St. Charles County West, there is limited undeveloped land available for future growth. Still, strategic redevelopment, such as the Streets of St. Charles, University Commons, and the Shoppes of Mid Rivers increases the competitiveness of this segment.



**COMMERCIAL FLOOR AREA ST. CHARLES COUNTY EAST SEGMENT**



As the diagram above shows, almost half of the non-residential space in this segment (45%) is devoted to retail—9.6 million square feet. This space can generally be categorized as “interchange retail” clustered at Mid Rivers Mall and the Zumbahl Road interchange with I-70. Space is generally well-occupied and is of modest development quality. A perhaps surprising amount of distribution/flex space is in the area as well—7.5 million square feet, or 35% of non-residential space. Class B and C office space is also common; Class A space in St. Charles County is more commonly found along I-64. Many residents of St. Charles who are in upper income tiers likely work nearby I-64 or commute to jobs in St. Louis County. Vacant building space in this segment is shown on **Figure 3-15**.

## Key Developments

Non-residential development in St. Charles County East is generally concentrated around I-70 interchanges. Executive Center, a growing concentration of office development, is located south of the intersection of I-70 and Route 370, to the east of Mid Rivers Mall. It has more professional and medical office space than any other development in the St. Charles Study Area. Occupancy of Class B and medical office space in St. Charles County East ranges from 92 to 93 percent, having increased in recent years.

Mid Rivers Mall is the county's largest concentration of retail, with over two million square feet of retail space in the mall and adjacent properties attracting shoppers. The space is well-occupied at 97%.

Near Lindenwood University, construction of University Commons was completed in 2014, adding 107,000 square feet of retail. The development was a cooperative venture undertaken with support from the university, the City of St. Charles, SSM St. Joseph's Health Center, the U.S. Post Office, and the DESCO group. The retail development is home to a 71,000 square foot Schnucks, CVS, and 13 additional retail tenants. Current occupancy is 93%, with 7,000 square feet available.

A major development in St. Peters, Premier 370 Business Park, has the potential to significantly increase the amount of industrial space in the St. Charles County East segment. Located about a half mile north of the I-70 and Route 370 interchange, the 850-acre site has the capacity to accommodate more than four million square feet of office, retail, light industrial, service center, warehouse and distribution facilities. The first tenant in the business park was Dayton Freight, which operates a 51,000 square foot distribution center. In 2016, Reckitt-Benckiser, a home product manufacturer, completed a 715,000 square foot facility. Two additional projects are in development and should be completed in 2017: Best Buy's 252,000 square foot warehouse and distribution center, and Saia LTL Freight's 51,000 square foot trucking and maintenance facility.

Five miles north of the I-70 corridor, The Millstone Company is in the process of developing the Fountain Lakes Commerce Center, a 500-acre master-planned business park including retail, light industrial facilities, warehouse/distribution space, office development, and hotels. Built at the floodplain's edge, it has seen considerable development, with about 110 acres of developable sites remaining. At present, USAA Real Estate Company and JDC are building two speculative buildings, Fountain Lakes Commerce Center East and West, that will add 375,000 square feet of space in mid-2017. It has over 3.3 million square feet of distribution space, and moderate amounts of manufacturing and Class B office space. Land uses in this development are well-occupied and compete with similar facilities that may be planned closer to the interstate corridor.

Several key developments exist at the far eastern edge of the segment, in the City of St. Charles, that cumulatively generate a great deal of traffic and economic activity. They are: Streets of St. Charles (a mixed-use redevelopment), St. Charles' historic main street, University Commons, the St. Charles convention center, the Ameristar Casino and hotel, and the Mark Twain Mall.

The locations of key developments in this segment are shown on **Figure 3-16**.

St. Charles County East Segment Key Developments		
	Square Feet	Occupancy Rate
<b>Executive Center</b>		
Class A Office	71K	95%
Class B Office	270K	83%
Medical Office	210K	95%
Retail	560K	96%
<b>Mid Rivers Mall</b>		
Retail	2.4M	97%
<b>Fountain Lakes</b>		
Distribution/Flex	3.4M	99%
Manufacturing	300K	100%
Class B Office	310K	100%



**Office**

With 2.3 million square feet of space, Class B office has a presence in the corridor, whereas Class A office is generally located elsewhere, such as the I-64 corridor in St. Charles and St. Louis Counties. Occupancy of Class B space has improved, but at 92%, there is space that can be absorbed before new construction is needed.



**Medical Office**

With 550,000 square feet, there is a moderate amount of medical office space in the segment, almost half of which is located at Executive Center. Like Class A office space, medical office has generally gravitated to the I-64 corridor.



**Retail**

A substantial amount of retail development is found in this segment—particularly at the Mid Rivers Mall Drive and Zumbuhl Road interchanges. Lease rates are generally higher at the mall, although both interchanges have large amounts of building stock that is likely to require replacement at the end of a 20- or 30-year life cycle. Presently, retail space is well-occupied and generates a significant amount of traffic.



**Manufacturing**

Unlike the St. Charles West Segment, the St. Charles East Segment has a very minimal amount of manufacturing space. This is probably a result of multiple factors, including zoning, market trends during the time at which this portion of the Study Area was developed, and the lack of a manufacturing anchor, such as GM or Boeing.



**Distribution/Flex**

While manufacturing land use is limited in this segment, it does contain a significant amount of distribution and flex space. In fact, with almost 7.5 million square feet of space, 97 percent of which is occupied, its share is second only to retail in the segment, and there is a significant amount of land area available for further growth in this segment.

**Planned Development**

New retail and industrial developments are driving growth in Eastern St. Charles County. To the north of I-70, across from Mid Rivers Mall, the Shoppes of Mid Rivers will add 300,000 additional square feet of retail on the former site of the ABC Supply Company. Described as the “largest retail development in the St. Louis MSA since 2008,” the shopping center will open in the summer or fall of 2017. Retail growth is also continuing at the Streets of St. Charles, which currently totals about 500,000 of the one million planned square feet (see sidebar). The Premier 370 Business Park and Fountain Lakes are both adding square footage, with about 300,000 square feet in Premier 370 and 375,000 square feet in Fountain Lake coming online in 2017.

**Vacant Land**

According to data provided by St. Charles County, 19.7% of the segment’s land area is agricultural or vacant, which amounts to roughly 3,500 acres. Much of this land falls within a floodplain area, however, so there is actually less land available for development unless more land becomes flood-protected. However, a significant amount of vacant land remains for potential development at Executive Center. Vacant land area in this segment is shown on **Figure 3-17**.

**Development Outlook**

St. Charles County East benefits from a diverse employment base that includes institutions, government, and tourism to augment the retail and distribution sectors. Developments such as the Streets of St. Charles, which itself seeks to capitalize on proximity to employment centers in St. Louis County and efforts toward densification, hold great promise for the economic performance of the area.

**Development Spotlight  
Streets of St. Charles**

With 250,000 square feet of retail, 300-plus residential units, 250,000 square feet of class-A office space, entertainment, hotel, and covered space planned at full build-out, the Streets of St. Charles mixed-use development is a major addition to the I-70 corridor. Anchor tenants include an eight-screen AMC movie theatre, the Art Institute of St. Louis, and a 180-room Drury Inn (2017) in well-appointed new construction within a town-square setting.



**Key Statistics**

St. Charles County East Segment

**1,470** Jobs Added 2014-2005

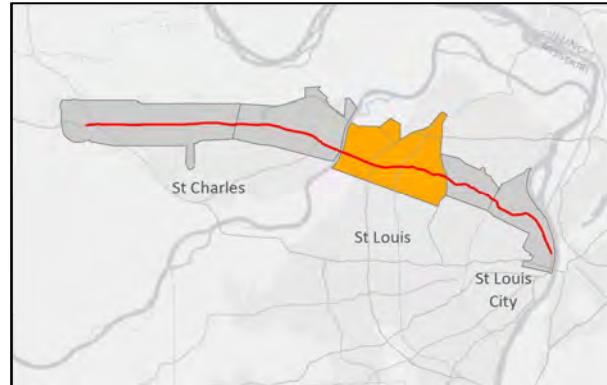
**1M SF** Planned Mixed-Use Development at Street of St. Charles

**1,800** Employees at SSM St. Joseph – St. Charles

**2M SF** Retail at Mid-Rivers

**St. Louis County West Segment**

With over 77,000 jobs and 65 million square feet of non-residential space, St. Louis County West (Missouri River to I-170) is the second largest employment concentration in the region, behind only downtown St. Louis. Lambert International Airport anchors the area, attracting distribution and other transportation-related industries, as does Boeing, which is the region’s third largest employer with over 15,000 workers.



**COMMERCIAL FLOOR AREA ST. LOUIS COUNTY WEST SEGMENT**



Not only is the St. Louis County West Segment large in terms of the amount of jobs and non-residential space it offers, but also is well-diversified, with a healthy division of space in the manufacturing, distribution, retail, and office sectors. With over 37 million square feet of distribution space, it is the largest hub for this sector in the metro region. Anchored by Boeing, it is also the largest manufacturing segment in the corridor, with roughly eight million square feet devoted to this use. Retail comprises nearly 9.3 million square feet, and office space comprises another 9.8 million square feet. Vacant building space in this segment is shown on **Figure 3-18**.

## Key Developments

The St. Louis County West Segment has an exceptional amount of commercial and industrial development. It is anchored by Lambert Airport and Boeing, and the associated distribution, manufacturing, and office development found in Earth City.

Of the over 37 million square feet of distribution and flex space in the segment, nearly 20 million is found in Earth City and Riverport, which straddle I-70 near the Missouri River. Occupancy of this space is 92%, meaning there is room to absorb additional space without adding new buildings. Earth City also has an impressive amount of manufacturing (3.1 million square feet) and Class A office space (2.1 million square feet).

Boeing occupies over 2.3 million square feet of office space. It also has over 1.1 million square feet of industrial space. In October 2016, the company formally opened a 424,000 square foot expansion to its tooling facility for the manufacture of parts for the 777X jetliner. The company projects additional hiring of about 700 employees by the early 2020s at this location because of increased manufacturing demand.

To the southwest of Boeing, Hazelwood Logistics Center is a 165-acre site under development dedicated to distribution and manufacturing, with the ability to accommodate buildings of up to one million square feet. Two recent speculative projects in the center have added to the industrial floor area of the St. Louis County West Segment: a 199,000 square foot warehouse facility, Hazelwood Logistics Center I, completed in March 2016, and a 420,000 square foot distribution center, Hazelwood Logistics Center II, completed in winter 2016. Two more warehouses, totaling over 500,000 square feet are currently in planning stages.

To the north along Lindbergh Boulevard, the Aviator Business Park is being developed on the 160-acre site of the Ford plant, which closed in 2006. The first company to move into the new business park was International Food Products, which consolidated its St. Louis-area operations in a 228,000 square foot build-to-suit facility, Aviator 4, in 2013. In 2015, Aviator 3, a 72,000 square foot office building and warehouse was completed. In 2016, Aviator 7, the 535,000 square foot speculative distribution center, was completed. The building currently houses Silgan Plastics (335,000 square feet) and a Weekends Only distribution center (133,000 square feet). Currently, construction is proceeding on Aviator X, a 548,000 square foot speculative distribution warehouse, with completion planned for summer 2017.

The St. Charles Rock Road corridor has a notable amount of health care development that is anchored by the 476-bed SSM Health DePaul Hospital, which employs 2,300 people. Retail uses are also prevalent along this corridor, with several big box developments, such as Target, Lowe's, Walmart, and the Home Depot. The demolition of Northwest Plaza in 2014 led to the development of The Crossings at Northwest on the 122-acre site of the former mall. A 200,000 square foot Menard's opened at the site in 2015, followed by a 12,000 square foot Ruler Foods later that year. In 2016, Charter Communications reoccupied the 135,000 square foot former Macy's space, opening a call center that currently employs about 1,000 people. Reoccupancy of the site has been slow, with current occupancy at 49%.



The St. Louis Outlet Mall, formerly known as St. Louis Mills, is an outlet-oriented shopping mall that opened in 2003 with 1.2 million square feet of retail. The future of this retail area is currently uncertain. The \$250 million development sold for \$4.4 million in early 2016 after persistent increases in vacancy. Compared to average mall occupancy of about 92%, the outlet mall had occupancy of 84% in 2014, which decreased to 77% at the time of sale. Occupancy is currently 90%. Given strong competition from two new outlet malls that opened in the Chesterfield Valley in 2013, it is likely that future development of the site may incorporate uses other than retail.

The locations of key developments in this segment are shown on **Figure 3-19**.

St. Louis County West Segment Key Developments		
	Square Feet	Occupancy Rate
<b>Manufacturing 270 &amp; Lindbergh</b>		
Office	1.6M	90%
Distribution	2.6M	87%
<b>Earth City</b>		
Class A Office	2.0M	91%
Class B Office	900K	76%
Manufacturing	3.0M	90%
Distribution/Flex	20.2M	92%
<b>Rock Road Corridor</b>		
Retail	4.4M	94%



### Office

With nearly nine million square feet, the St. Louis County West Segment is an under-appreciated hub for office space. Earth City-Riverport has more than 2 million square feet of Class A space. The current average occupancy rate for office space in this segment is 88%, which is consistent with regional trends. Given current employment trends and consumer preferences, it is likely that the future market for real estate will favor distribution uses.



### Medical Office

With over 870,000 square feet of medical office space, St. Louis County West has more of this use type than the other segments. This is largely due to the presence of SSM DePaul Health Center, in the Rock Road Corridor—the immediate environments around which have 290,000 square feet of medical office space. Given the growing nature of this industry, it is certainly possible that facilities could expand around this hospital anchor.



### Retail

With so little regional retail in other parts of north St. Louis County, this segment provides much of the existing retail for a large market area and has room to expand if certain greyfield developments continue as planned. Both the St. Charles Rock Road and North Lindbergh corridors offer a substantial amount of retail space, including several big box stores. Retail strip development is prominent outside of the big box areas, generally with modest lease rates.



### Manufacturing

Manufacturing is a very significant component of the St. Louis County West segment. Though manufacturing jobs have declined nationwide, Boeing remains a significant manufacturer using 3.2 million square feet of manufacturing space. Earth City has just over three million square feet of manufacturing space, making it a key location for manufacturing activity as well. The amount of building space dedicated to manufacturing use has decreased in recent years in this segment.



### Distribution/Flex

With over 37 million square feet, St. Louis County West boasts the largest distribution concentration in the region, owing much to its location near Lambert Airport. Earth City has 20 million square feet of distribution/flex space, and Boeing has over 5.5 million square feet. Opportunities for further expansion in this growing industry are mixed. On one hand, occupancy is typical for this use, at 91%, meaning there is available space to accommodate growth. On the other hand, land to accommodate new development is becoming scarce, perhaps making NorthPark in the St. Louis County East Segment more attractive in coming decades.

### Planned Development

The St. Louis County West’s prominence as a regional and national logistics center is increasing. The Boeing Tooling Center expansion and the Hazelwood Logistics Center II added 844,000 square feet of industrial space in late 2016. The Aviator X Distribution Center, a speculative space will be completed by Panattoni in mid-2017, adding an addition 548,000 square feet in the area. According to Cushman and Wakefield, demand for large industrial spaces are high in North County and available space is expected to lease quickly.

### Vacant Land

According to data provided by St. Louis County, roughly 9% of the land area of the segment area is vacant, which amounts to roughly 5,100 acres. The vast majority of this land falls within a floodplain area, so considerably less land is available for development unless a levee is built. Vacant land area in this segment is shown on **Figure 3-20**.

### Development Outlook

Strong demand for industrial space has positive impact in St. Louis County West, where the availability of cleared sites in the Hazelwood Logistics Center and Aviator Business Park. Also, the availability of development incentives has led to the ability of this area to capture this growth. Growth in other uses, namely retail and office, on the other hand, has been considerably more sluggish. The area continues to serve a wide market area for daily needs retail; however, destination retail has experienced notable challenges as evidenced by St. Louis Mills Mall.

### Development Spotlight Earth City

Earth City is one of the region’s major logistics hubs, with approximately 20 million square feet of distribution and warehouse space. It is home to many high-tech industrial uses as well. The 1,400-acre business park was developed on levee-protected land in the 1970s and 1980s, and today is nearly entirely built out. Though affected by the recession, occupancy in Earth City has increased from 85% in 2013 to 91% in 2016, with over a million square feet of space absorbed during this time period.



### Key Statistics

St. Louis County West Segment

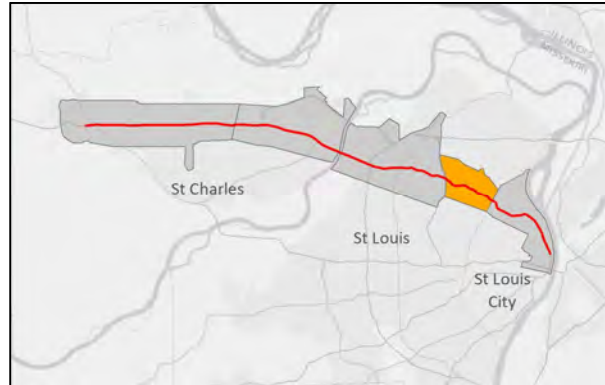
**77,000** Jobs

**15,000** Boeing Employees

**38M SF** Distribution Center

**St. Louis County East Segment**

The St. Louis County East Segment (I-170 to the western City limits) is the smallest of the five segments in terms of land area and commercial square feet. Yet, it has a major institution, University of Missouri St. Louis (UMSL), two of the region’s most highly ranked Fortune 500 companies (Express Scripts and Emerson), and one of the most promising job-creating developments in the region in NorthPark.



**COMMERCIAL FLOOR AREA ST. LOUIS COUNTY EAST SEGMENT**



The segment has roughly 11.8 million square feet of non-residential space. But this does not include UMSL, which has 16,800 students and 2,000 employees. With two large corporations and room for expansion at NorthPark, the segment is positioned to become a more significant player in the regional economy. Vacant building space in this segment is shown on **Figure 3-21**.

### Key Developments

Over the next 10 to 20 years, the NorthPark development has the potential to be one of the most significant developments in the Study Area. With approximately 550 acres of developable land, plans include a build-out of office and distribution space that will lead to as many as 12,000 jobs. The site has access to a MetroLink transit station, adjacent to UMSL, and is also near Lambert Airport. Currently, the business park includes nearly 2.3 million square feet of development, and over 5,000 people are employed at NorthPark’s eleven businesses. Express Scripts, which ranked 22nd on the Fortune 500 list for 2016, relocated its corporate headquarters to NorthPark in 2006, adding an additional four buildings to their campus in 2008, 2010, 2011, and 2014. In 2015, Express Scripts employed nearly 6,500 people in the region.

Other major additions to NorthPark include Vatterott College in 2007, the speculative NorthPark Business Center 1, a Hilton Garden Inn hotel in 2008, and SKF’s 310,000 square foot North American headquarters in summer 2016. A \$30 million, 538,000 square foot distribution center, NorthPark Distribution Center 1, was completed in December 2016. And finally, Schnucks is in the process of building a \$100 million, 1,000,000 square foot distribution center, which will open in 2017.

Other anchors in the area include UMSL and Emerson, another Fortune 500 employer. UMSL is a major generator of activity in the study area, with about 11,000 on-campus students and over 2,000 faculty and staff traveling to and from the 470-acre campus. Emerson’s headquarters is located about 1.5 miles north of I-70 and employs approximately 1,300 people.

The largest concentration of retail is found at the southern end of the West Florissant corridor near the Emerson campus. The Buzz Westfall Plaza on the Boulevard, a 50-acre, 372,000 square foot shopping center, was developed in 2005 on the former site of the Northland Shopping Center, with a 126,000 square foot Target and 63,000 square foot Schnucks opening in 2006. The shopping center was sold to new owners in 2015, and in 2016, it was announced that the Target would close in the summer of 2016. Overall, retail in this area trends towards small-scale development in strip centers along Natural Bridge and West Florissant, with many independent small businesses located among franchise and corporate retailers.

The locations of key developments in this segment are shown on **Figure 3-22**.

St. Louis County East Segment Key Developments		
	Square Feet	Occupancy Rate
<b>North Park/Express Scripts</b>		
Office	800K	100%
Manufacturing	310K	100%
Distribution	450K	93%
<b>Emerson</b>		
Office	500K	100%
Manufacturing	520K	100%
<b>West Florissant/Lucas &amp; Hunt</b>		
Retail	450K	94%



**Office**

While there is a small amount of non-residential development in the segment relative to the others evaluated in this study, there is over 1.9 million square feet of office space, largely due to the presence of Express Scripts. NorthPark’s location near a MetroLink station, interchange, and UMSL may appeal to additional firms in the future. Currently, NorthPark has 309,000 square feet of Class A space and 227,000 square feet of Class B/C space. The Emerson headquarters accounts for 500,000 square feet of Class B space.



**Medical Office**

Just 92,000 square feet of medical office space is present in the entire segment. It is possible that health care operators may be attracted to the accessibility that NorthPark offers but, at present, very few medical facilities have located to the area.



**Retail**

The Buzz Westfall center is the most significant retail development in recent years. Built on the site of the former Northlands Shopping Center in 2005 and 2006, it has brought several retailers, including a Target department store and a Schnucks supermarket. The Target, however, closed in 2016, leaving 124,000 square feet vacant.



**Manufacturing**

Manufacturing in the segment is minimal, with just one million square feet, about one third of which is attributed to Emerson. Prospects for future manufacturing seem slim, as vacant land in NorthPark is more likely to be used for distribution and office space, since those are growing industry sectors and the proximity to Lambert Airport has obvious synergies with freight traffic and business travel.



**Distribution/Flex**

Distribution and flex space comprises the greatest amount of floor area in the segment relative to other non-residential uses. However, with just over 3.2 million square feet of distribution/flex space, it has less than 10% of the distribution space found in the adjacent St. Louis County West Segment. Still, given NorthPark’s availability of land and proximity to the Lambert Airport, it seems likely that the amount of this type of space in this segment will increase over time.

**Planned Development**

St. Louis County East Segment is the smallest of the five Study Area segments, and it spans four miles between I-70’s interchange with I-170 and the City of St. Louis/St. Louis County line. The most significant growth in this segment will come from the expansion of NorthPark, which recently added a 538,000 square foot speculative distribution center. Later in 2017, the 1,000,000 square foot Schnucks distribution facility will open. With additional land available for development, NorthPark is expected to continue its growth.

**Vacant Land**

According to data provided by St. Louis County, 11% of the segment’s land area is vacant, which amounts to roughly 1,000 acres. One hundred acres remain ready for development within NorthPark Phase I. For this reason, NorthPark appears poised to capture a good deal of development over the next several decades. Vacant land area in this segment is shown on **Figure 3-23**.

**Development Outlook**

With two Fortune 500 headquarters, UMSL, and MetroLink transit accessibility, St. Louis County East is poised for future growth adaptable to 21st century economic opportunities. NorthPark’s space and ability to develop, coupled with its high design standards and the availability of incentives, indicates that the business park will continue its steady growth. Elsewhere in this segment, retail and office development is not expected to grow as dramatically.

**Development Spotlight  
NorthPark**

The NorthPark development has the potential to significantly increase the number of jobs and the amount of rentable building area in the I-70 corridor over the next decade. With a total of 550 acres, NorthPark could eventually host over five million square feet of office, distribution, and manufacturing. The site is currently home to Express Scripts, the metropolitan area’s largest Fortune 500 company (22<sup>nd</sup> nationwide) which employs approximately 6,500 workers locally.



**Key Statistics**

St. Louis County East Segment

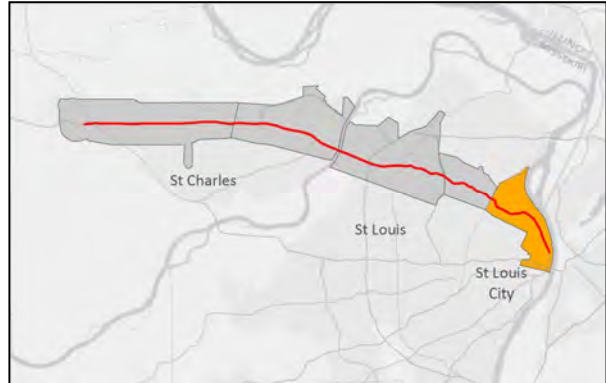
**11,000** On-campus UMSL Students

**22<sup>nd</sup>** Fortune 500 Rank of Express Scripts

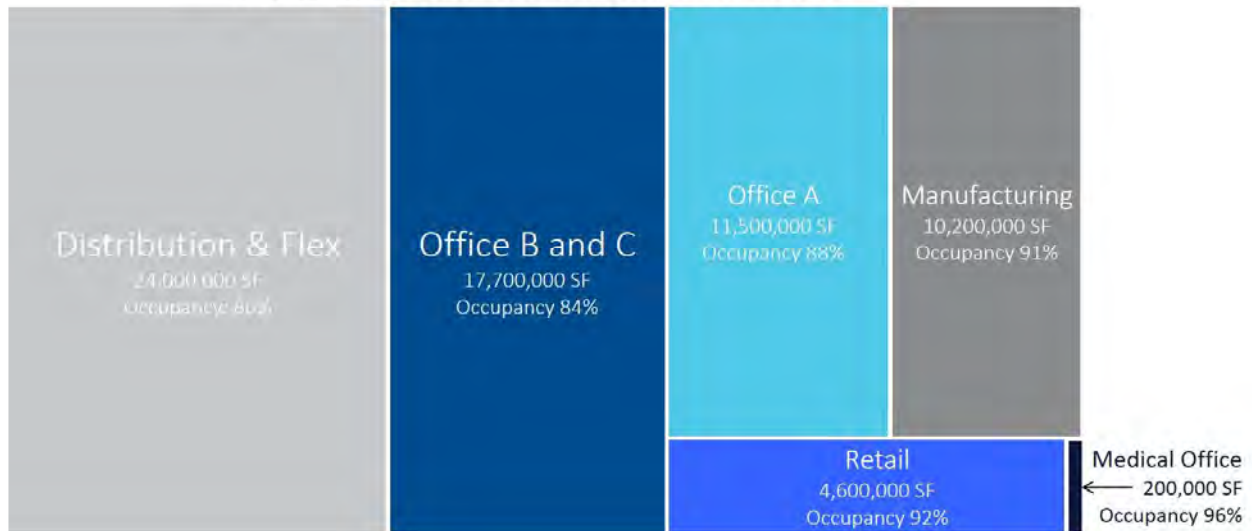
**550** Acres in NorthPark

### St. Louis City Segment

It is difficult to discuss the St. Louis City Segment (western city limits to northern downtown St. Louis) without first mentioning downtown, which is the largest employment center in the region and has the most office space as well. However, significant employment centers exist in other portions of the segment as well, including Union Seventy and the North Riverfront. The relocation of the National Geospatial-Intelligence Agency (NGA) to this area will add a new employment concentration



COMMERCIAL FLOOR AREA ST. LOUIS CITY SEGMENT



when it is completed in 2022 or 2023.

The St. Louis City Segment has diversified employment and land use base, with substantial amounts of building space occupied by office, retail, manufacturing, and distribution uses. There is 29.4 million square feet of office space, or 43% of commercial floor area in the segment, and is generally clustered downtown. Manufacturing and distribution facilities total some 34.2 million square feet, or almost 50% of the segment, with the greatest concentration found along the North Riverfront. The 4.6 million square feet of retail space—most of which is downtown—is also a significant share of the city segment but still is only the fourth largest amount of retail floor area among the five Study Area segments. Vacant building space in this segment is shown on **Figure 3-24**.



### Key Developments

Downtown St. Louis is the largest employment center in the metropolitan area, with about 86,500 employees working in the central business district in 2014. Of greatest significance is its 24.6 million square feet of office space—the most of anywhere in the region. Downtown St. Louis also has a moderate amount of distribution space (3.9 million square feet) and retail space (3.1 million square feet, although this figure includes the near-vacant 660,000 square foot retail portion of Union Station).

Relative to other employment centers in the corridor, downtown St. Louis is unique in that it is less dependent on vacant land for development. In areas of higher property values, there is always the possibility to “build up”—to construct buildings of greater density that replace buildings of lesser density. Therefore, while vacant land is limited, underutilized areas such as surface parking lots and low-density buildings, give downtown St. Louis the capacity to add more jobs and residents. Yet, occupancy of downtown St. Louis office space is low (85%) relative to regional averages, as are lease rates, indicating that it is currently possible to accommodate more jobs without adding new building square footage.

Downtown St. Louis grew significantly in housing, population, and tourism attractions over the past decade. From 2005 to 2014, number of housing units downtown grew from 1,500 in 2005 to 3,100 in 2014, with the population more than doubling during this time. The renovation of historic structures into housing continues to add new units and new residents generate demand for downtown retail and restaurants. Since 2013, Downtown St. Louis added more than 40 new retail establishments, with notable concentrations along Washington Avenue and within Ballpark Village Phase I.

The North Riverfront is also a very significant employer, with over 13 million square feet of manufacturing and distribution space. With an average building age of 77 years, these properties are neither new nor what would be considered high-value real estate,

The locations of key developments in this segment are shown on **Figure 3-25**.

St. Louis City Segment Key Developments		
	Square Feet	Occupancy Rate
<b>Downtown</b>		
Class A Office	10.6M	90%
Class B Office	14.0M	82%
Retail	3.1M	91%
Distribution/Flex	3.9M	90%
<b>North Riverfront</b>		
Manufacturing	3.7M	94%
Distribution	9.9M	80%
<b>NorthSide Regeneration</b>		
Office	2.1M	92%
Distribution	1.6M	90%



### Office

Of the 29.3 million square feet of office space in the segment, 24.6 million is in downtown St. Louis, including almost all of the Class A office space. Given the industrial nature of much of the segment (other than downtown St. Louis), it seems unlikely that a significant amount of office space will be added outside of this area within the segment. The average age of Class A office building downtown is 45 years, and Class B/C buildings average 89 years. These relatively older buildings help to account for the low (86%) occupancy rate of downtown office space.



### Medical Office

A minimal amount of medical office space is found in the corridor segment (183,000 square feet) and most of this is located downtown. The city's two major hospital centers, St. Louis University Medical Center and Washington University Medical Center, are found outside the corridor near the geographic center of the City of St. Louis.



### Retail

The majority of retail development in the segment is found in downtown St. Louis (roughly 3.1 million square feet of the total 4.6 million square feet). Anecdotal evidence indicates downtown St. Louis retail demand has increased as more residents have moved to the area. It has also had greater success attracting tourists and conventions. This trend should continue.



### Manufacturing

Overall, the segment has 10.2 million square feet of manufacturing space, which typically is associated with higher paying jobs as compared to retail space. Over half of this space is located in two areas—the North Riverfront and the Mark Twain/Union Seventy/Kingshighway industrial area around I-70 and Union Boulevard. Given current trends, it may be more likely to make gains in the distribution and wholesale sectors rather than manufacturing.



### Distribution/Flex

With over 23.9 million square feet of space, the St. Louis City Segment is a significant player in the distribution sector of the economy. The convergence of a number of significant multimodal amenities in this area, such as the railroad, highway, ports, and river, coupled with efforts to further strengthen the region's freight network, indicate that distribution will continue to anchor the economy of this segment.

### Planned Development

The relocation of the NGA to a site to the north and west of downtown St. Louis in 2022 or 2023, will be one of the most significant developments in this segment. The \$1.75 billion headquarters will be built on a 100-acre site within the Northside Regeneration footprint (see sidebar) and will employ about 3,100 workers.

### Vacant Land

According to data provided by the City of St. Louis, nearly 26% of the segment area is vacant, which amounts to roughly 2,400 acres. Much of this land falls within the Northside Regeneration project area, which has been assembled and is being marketed and prepared to accommodate a significant amount of new development. Vacant land in this segment is shown on **Figure 3-26**.

### Development Outlook

With recent strong job growth, increased port activity, and increased demand for living and working environments in downtown St. Louis, the area appears poised for continued growth. Northside Regeneration—an ambitious plan to stabilize existing development and redevelop significant portions of 1,500 acres of urban real estate—is being positioned to capitalize on renewed demand for urban locations and a scarcity of other large development sites in the corridor. The relocation of the NGA, bringing with it 3,100 jobs, will significantly change the area beginning in 2022.

### Development Spotlight Northside Regeneration

With a geographic scope of over 1,500 acres, Northside Regeneration has great potential to add housing and employment to North St. Louis. If developed as planned, this development would add a significant number of residents, workers, and vehicular traffic to the area, which has suffered from decades of disinvestment and vacancy. In 2016, a grocery store and gas station were approved for incentives and a 500-unit residential housing plan was announced for the area that will be adjacent to the NGA facility.



### Key Statistics

St. Louis City Segment

- 94,185 Jobs
- 25M SF Office Downtown
- 3<sup>rd</sup> Largest Inland Port in U.S.
- 1,500 Acres in Northside
- 3,968 Jobs Added 2005-2014

### 3.11 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Federal agencies are required by Executive Order 12898 (EO 12898), *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, to consider the effect of their projects on environmental justice. This EO, signed by President Clinton in 1994, builds on Title VI and VIII of the Civil Rights Act of 1964. Environmental justice is a public policy goal of promoting the fair treatment and meaningful involvement of people in the decision-making process for transportation projects. Satisfying this goal means ensuring that minority and low-income communities receive an equitable distribution of the benefits of transportation activities without suffering disproportionately high adverse effects. Achieving environmental justice requires both analytical techniques and the full and fair participation by those potentially affected communities in the transportation decision-making process.

#### 3.11.1 Methodology

To identify minority and/or low income populations in the Study Area, U.S. Census (Census) data was evaluated using a method consistent with governing regulations. 2010 Census data at the block level was used to identify minority populations. Low income populations were determined using U.S. Department of Housing and Urban Development (HUD) income thresholds and income parameters from the American Community Survey (2010 - 2015).

#### 3.11.2 Key Points

The results of the analysis to identify minority and low-income populations in the Study Area are presented in the following sections and on **Figures 3-27 and 3-28**.

##### 3.11.2.1 Minority Populations

Minority populations are composed of ethnic and/or racial minorities. As defined in FHWA Order 6640.23, a minority is a person who is Black, Hispanic, Asian American, American Indian, or Alaskan Native. **Table 3-22** provides the percentage of minority persons in St. Charles and St. Louis Counties and the City of St. Louis. These percentages serve as the thresholds by which Study Area Census blocks are compared. **Table 3-23** lists the minority populations within the Study Area segments (as defined in **Section 3.10.2.5**).

**Table 3-22: Minority Population by County**

Location	Total Population	Minority Population	Percent Minority
St. Charles County	360,485	39,407	10.9%
St. Louis County	998,954	310,970	31.1%
City of St. Louis	319,294	184,592	57.8%

**Table 3-23: Minority Population in the Study Area**

Location	Total Population	Minority Population	Percent Minority
St. Charles County West	71,594	7,919	11.1%
St. Charles County East	81,622	11,157	13.7%
St. Louis County West/ Airport	68,102	23,114	33.9%
St. Louis County East	42,168	36,364	86.2%
City of St. Louis	65,085	58,773	90.3%
Study Area Total	328,571	137,327	41.8%

Future projects identified in this PEL will require additional Environmental Justice analysis during the NEPA process to assess impacts from proposed projects. Census blocks with a higher percentage of minorities than the county as a whole would be evaluated for disproportionately high and adverse effects and selected for outreach. Within the Study Area, several areas of high minority population are located directly adjacent to I-70 (see **Figure 3-27**) and the percentages generally increase moving east along the corridor.

### 3.11.2.2 Low-Income Populations

FHWA Order 6640.23 defines low-income as "...a household income at or below the U.S. Department of Health and Human Services (HHS) poverty guidelines." Different income thresholds (e.g., U.S. Census Bureau poverty threshold or the HUD Community Development Block Grant (CDBG)) may be used as long as it is not selectively implemented and is inclusive of persons at or below the HHS poverty guidelines. The poverty data was obtained from the 2015 American Community Survey published by the U.S. Census Bureau. The poverty threshold used to determine the number of individuals in poverty and the percentages is \$24,339 for a family of four (two adults and two children). **Table 3-24** and **Figure 3-29** show the low income households in St. Charles and St. Louis Counties and the City of St. Louis. **Table 3-25** shows the low income households located within the Study Area. Within the Study Area, several areas of low-income households are located directly adjacent to I-70 and the percentages generally increase moving east along the corridor.

**Table 3-24: Low-Income by County**

Location	Total Population	Number of People Below Poverty	Percent in Poverty
St. Charles County	409,801	26,052	6%
St. Louis County	1,094,375	118,864	11%
City of St. Louis	361,190	92,822	26%

**Table 3-25: Low-Income in the Study Area**

Location	Total Population	Number of People in Poverty	Percent in Poverty
St. Charles County	214,723	16,145	8%
St. Louis County	121,433	25,880	21%
City of St. Louis	76,920	27,452	36%

As part of future NEPA studies, potentially affected Census block groups with an average household income below that of the respective area would be evaluated for disproportionately high and adverse effects and selected for outreach.

### 3.12 EMPLOYMENT

#### Overview

The Study Area is a major contributor to the St. Louis regional economy. It contains major office and industrial centers, including downtown St. Louis and the areas surrounding Lambert Airport, as well as some of the region’s (St. Louis metropolitan statistical area) fastest growing population centers in St. Charles County. Given the variation in employment, land use, real estate, and demographic characteristics across the five Study Area segments, it is important to understand the economic context of each segment within the Study Area as well as their relationship to the economic characteristics of the region.

From 2005 to 2014<sup>10</sup>, employment growth within the Study Area increased by 3.6%, outpacing the region’s 1.7% rate of increase, demonstrating the Study Area’s value to the future economic development and prosperity of the region. The Study Area accounts for 21.9% of the region’s total employment, but from 2005 to 2014, net employment gains in the Study Area were equivalent to almost half of the total net gains in the region. The region had a net gain of 20,480 jobs, while 9,200 of those jobs were added within the Study Area.

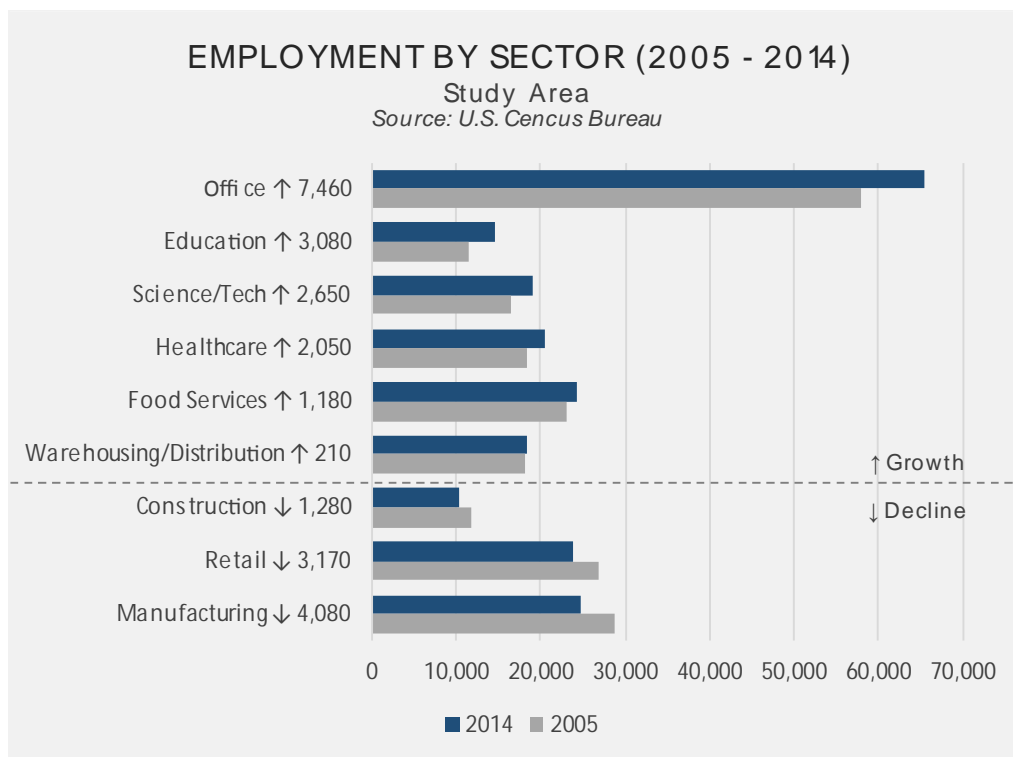
Despite strong employment growth in the Study Area, only four of the five segments added jobs. Notable job losses took place in the St. Louis County West Segment, representing the areas west of I-170 and east of the Missouri River surrounding Lambert Airport. This segment lost 7,000 jobs between 2005 and 2014, with most of that decline attributable to the closure of the Ford

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<sup>10</sup> The employment data presented in this analysis was obtained from the U.S. Census’ OnTheMap tool, which provides annual employment data by industry sector between 2005 and 2014 by user-defined boundary. Since the five corridor segments comprises of portions of Census designated boundaries such as counties and municipalities, the OnTheMap tool provides the most up-to-date employment data available for the five corridor segments that can be broken down by industry sector.

Motor Company assembly plant north of Lambert Airport and the consequential loss of several surrounding businesses. Meanwhile, the other four segments added a combined 16,199 jobs. This reinforces the crucial economic role of the Study Area in the region’s prosperity.

The St. Charles West Segment had the strongest employment growth of the five segments between 2005 and 2014, adding 6,250 jobs. This segment also has the highest income of the five segments, along with the highest housing values. The St. Louis County East and St. Louis City segments both had notable employment growth between 2005 and 2014. The St. Louis County East segment added 4,500 jobs, while the St. Louis City Segment added 4,000 jobs; however, both segments have weak demographic indicators (population loss, low median household income, high housing vacancy, and declining property values). This demonstrates that job centers like Downtown St. Louis, the North Riverfront, and Union Seventy Business Center still represent vital regional employment hubs. Increases in population and stronger demographic indicators should be encouraged with future planning and development.

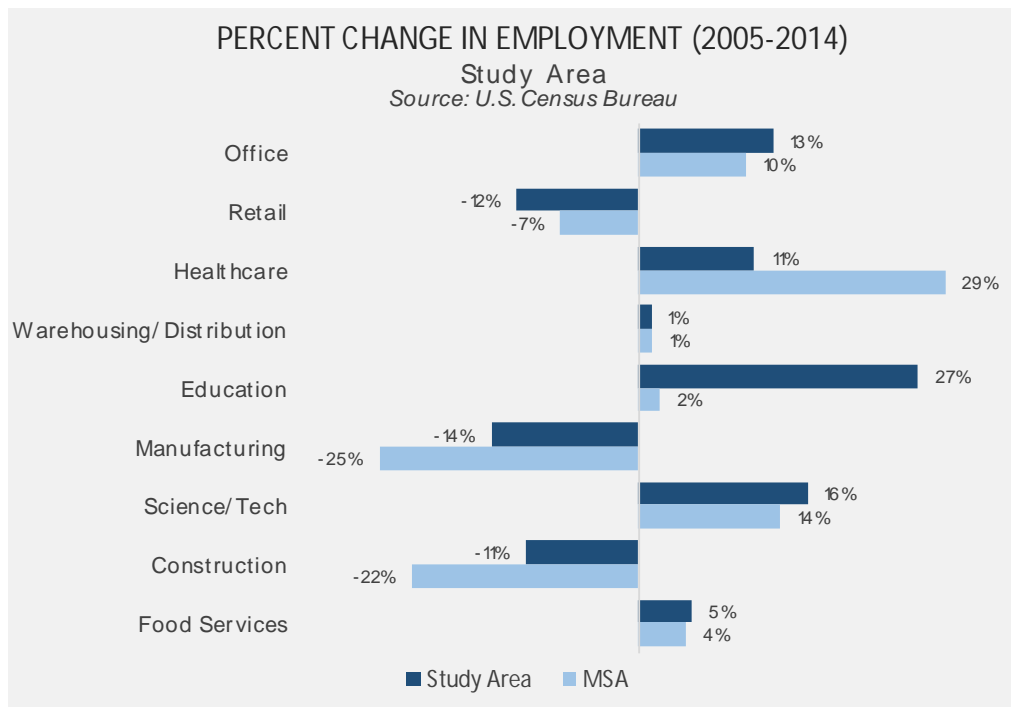


The relatively stagnant regional job growth of just 1.7% from 2005 to 2014 hides significant shifts in employment across geographic areas. This variability also applies to industry sectors. The gains of employment in the office<sup>11</sup> (7,460 jobs, 13%), education (3,080 jobs, 27%), and

<sup>11</sup> Office sector as defined by this analysis combine the following industry sectors according to NAICS code: Finance and Insurance, Real Estate and Rental and Leasing, Management of Companies and Enterprises, Administration and Support, and Public Administration.

science and technology (2,650 jobs, 16%) sectors, for instance, were offset by noteworthy losses in manufacturing (4,080 jobs, 14%) and retail (3,170 jobs, 12%) sectors.

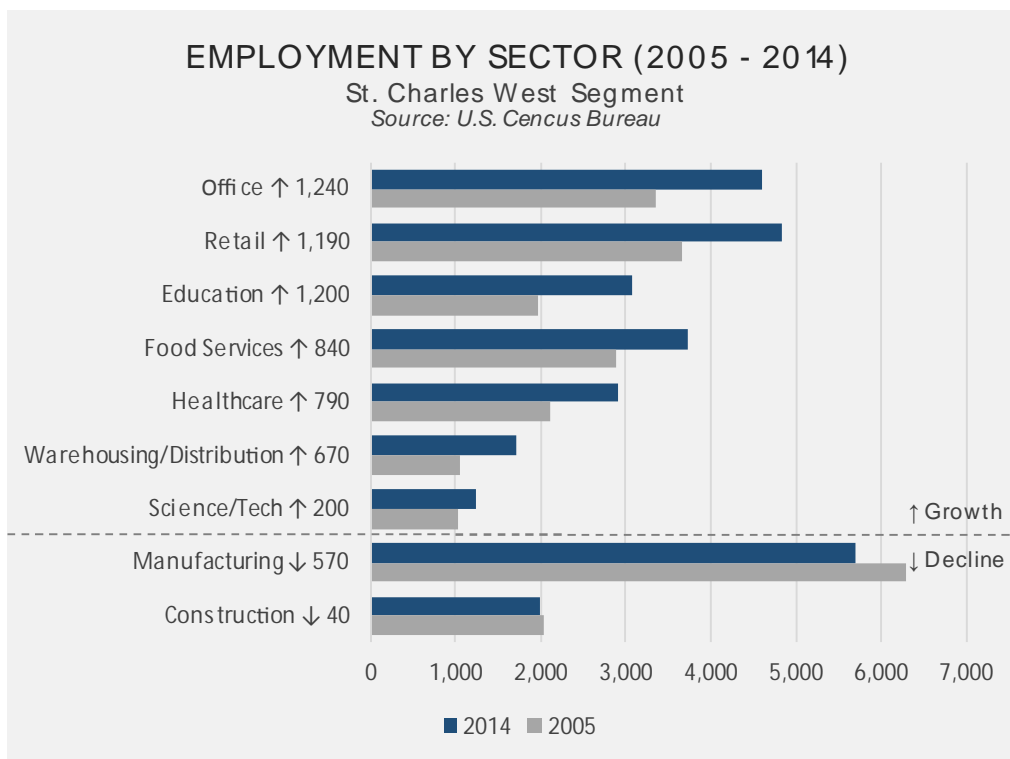
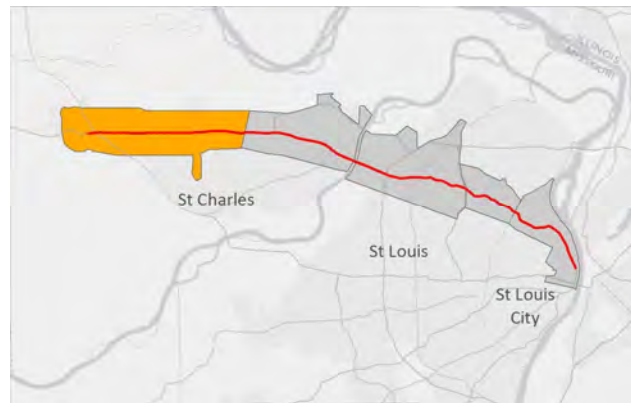
The most significant gains in employment in the Study Area were in the office sector with 7,460 jobs added, which accounted for 34 percent of the gains in this sector across the region. In fact, the five corridor segments reported gains in office sectors jobs during 2005-2014. The education and science and technology sectors also grew during this time period. The rate of job loss in the retail, manufacturing, and construction sectors in the Study Area was slightly less than that in the region trends. Overall, total employment increased by 9,200 jobs, or 3.6 percent, in the Study Area.





**St. Charles County West Segment**

Since 2000, the St. Charles County West Segment has been defined by rapid population growth. From 2010 to 2016 the segment has seen a 1.3 percent annual increase in population. Specifically, from 2000 to 2010, the segment grew by about 17,500 residents, representing a 32% population increase. Since 2010, the segment grew by an additional 6,000 residents, resulting in an 8% population increase. This growth triggered a substantial increase in employment across sectors, except manufacturing and construction, outpacing the region as a whole. Locations of major employers in this segment are shown in **Figure 3-30**.



The top employers in the segment include Citi and MasterCard, which are major contributors to the 4,600 total office sector jobs in the segment. However, the proportion of office sector jobs in the segment (14%) is below the proportion of office sector jobs within the Study Area (25%) and region (20%). The median annual household income of \$67,100 in the St. Charles County West Segment is the highest of the five segments and over twice as high as the St. Louis City and St. Louis County East Segments. This strong local buying power will help to maintain, if not expand, its retail and accommodation and food services sectors, together accounting for 25% of the total employment in the segment. As the segment continues to grow with a projected increase in population of 6.2% through 2021, these added households will contribute to further employment growth in retail, healthcare, and education, while sustaining existing construction jobs.

The segment also experienced strong employment growth in the office sector, adding 1,230 jobs between 2005 and 2014 for an increase of 37%, and warehousing and distribution businesses, adding 670 jobs for an increase of 64%. The growth of these industry sectors indicates job opportunities continue to move westward along the corridor, a consistent and decades-long pattern of suburban expansion in metro St. Louis.

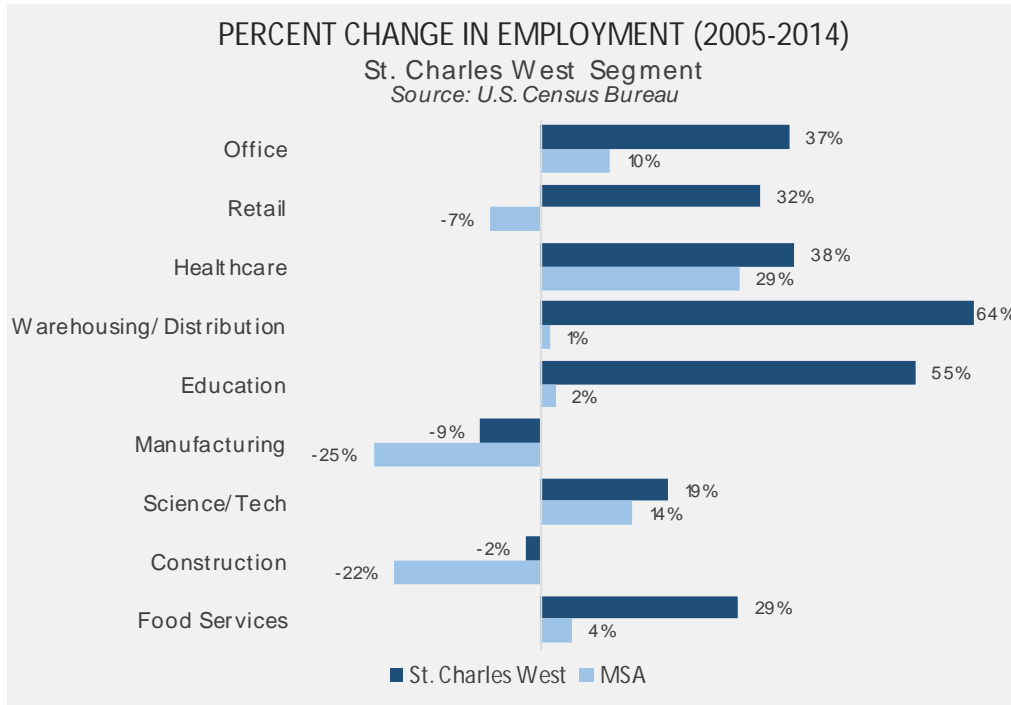
This segment is home to one of the region's largest manufacturing plants, GM, which employs about 3,500 workers. In 2017 NorthPoint Development will complete a 1.1 million-square-foot build-to-suit distribution center adjacent to the GM plant that will provide warehousing for the plant and GM suppliers. Even with GM, however, the segment lost more than 570 manufacturing jobs from 2002 to 2011. This is mostly due to

Proportion of Employment by Industry Sector (2014)

Source: U.S. Census Bureau

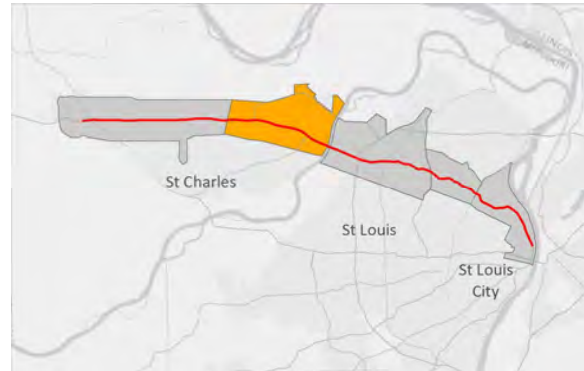


manufacturing's decline during the Great Recession. However, the segment maintains a strong manufacturing presence with 17% of its workforce in this industry capturing 23% of manufacturing employment across the Study Area.



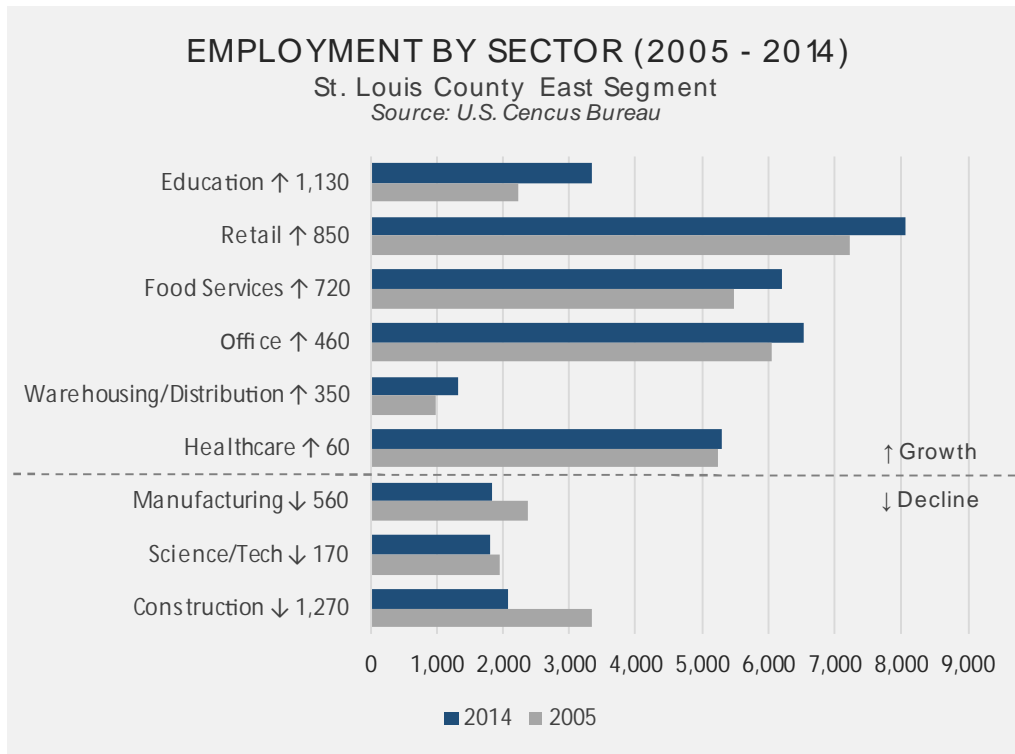
### St. Charles County East Segment

The population in the St. Charles East Segment increased by 2,510 residents from 2010 through 2016, representing a 3.1% increase. Although this segment has experienced slower growth than the St. Charles County West Segment, it has outpaced the growth rate of the study area overall, and the three remaining segments experienced population decline since 2010. The increased population in the St. Charles County East Segment has supported an overall increase in employment across sectors, except among the manufacturing, construction, and science and technology sectors.



Employment in the St. Charles County East Segment is primarily supported by the office and retail sectors, which account for 33% of jobs in this segment. St. Charles County’s largest shopping center, the two million square foot Mid Rivers Mall, is located in this segment. Additionally, Executive Center, a growing concentration of office development, is located south of the intersection of I-70 and Route 370. The healthcare and accommodation and food services sectors also contribute significantly to employment, accounting for 12% and 14% of total employment, respectively. Additionally, the education sector saw the largest employment increase from 2005 through 2014, adding 1,130 employees, representing a 51% increase. Locations of major employers in this segment are shown on **Figure 3-31**.

Despite relatively low employment in warehousing, distribution and manufacturing—only 3% of total employment in the segment— there is almost 8.5 million square feet of existing real estate serving these industries representing 8% of the existing commercial and industrial building stock in the segment. These uses are primarily in individual industrial/business parks along Route 370. While such buildings can be quite large and occupy a great deal of land, they are not necessarily major job creators, though they can generate a great deal of commercial and truck traffic.



Retail is the most dominant building type in the St. Charles County East Segment and is the sector that captures the most employment in the segment. There is nearly 9.7 million square feet of retail space in the segment, or 30% of total retail space in the Study Area, and 8,060 retail jobs, or almost 34% of retail jobs in the entire corridor. Most of the retail is located in close proximity to I-70 in big box retail centers and Mid Rivers Mall.

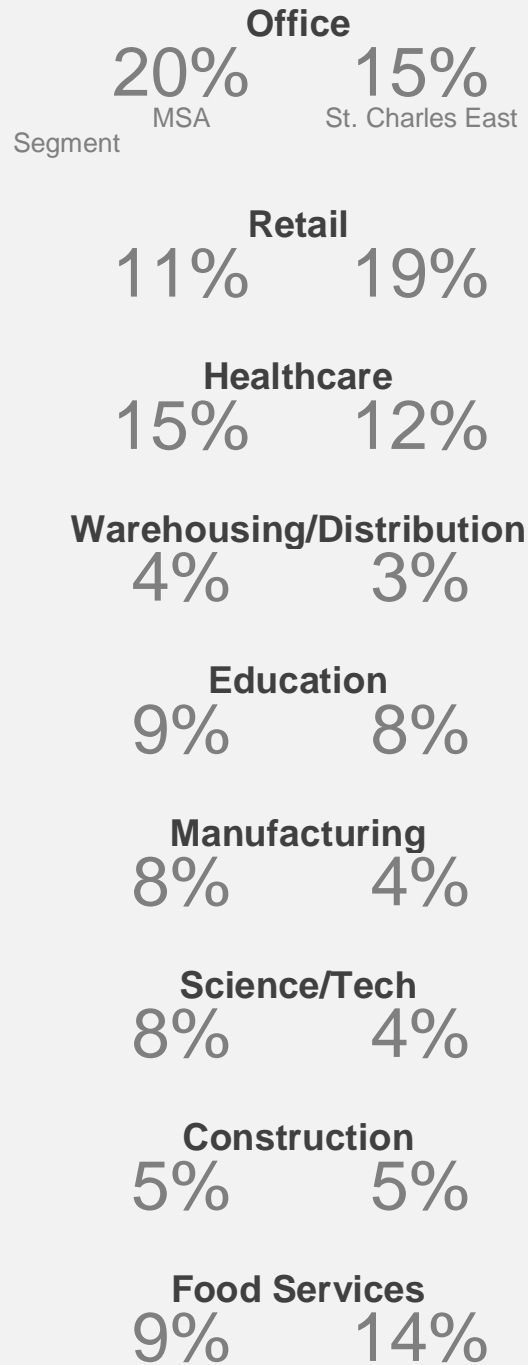
The education sector grew significantly between 2005 and 2014 in this segment, adding 1,130 jobs for an increase of 51%. Much of this growth can be attributed to the expansion of Lindenwood University, which now employs over 1,100 full and part time faculty and 500 staff employees across its campuses. Lindenwood University’s expansion is still ongoing, and construction of a new 100,000 square foot Library and Academic Resources Center is underway. Completed projects include a new Student-Athlete Center, the renovation and expansion of Herman Hall, which now houses the university’s business and entrepreneurship school, and Evans Commons, which includes a dining hall, multipurpose courts, workout facilities, and recreation rooms. Additionally, the university recently signed a lease for a 32,000 square feet of space at the Old Post Office in Downtown St. Louis for its accelerated degree program.

The university also completed construction of University Commons in 2014, adding 107,000 square feet of retail. The development is home to a grocery store, a pharmacy, and 13 additional retail tenants.

The proportion of employment in retail accommodation and food services far exceeds the regional averages, largely due to the

Proportion of Employment by Industry Sector (2014)

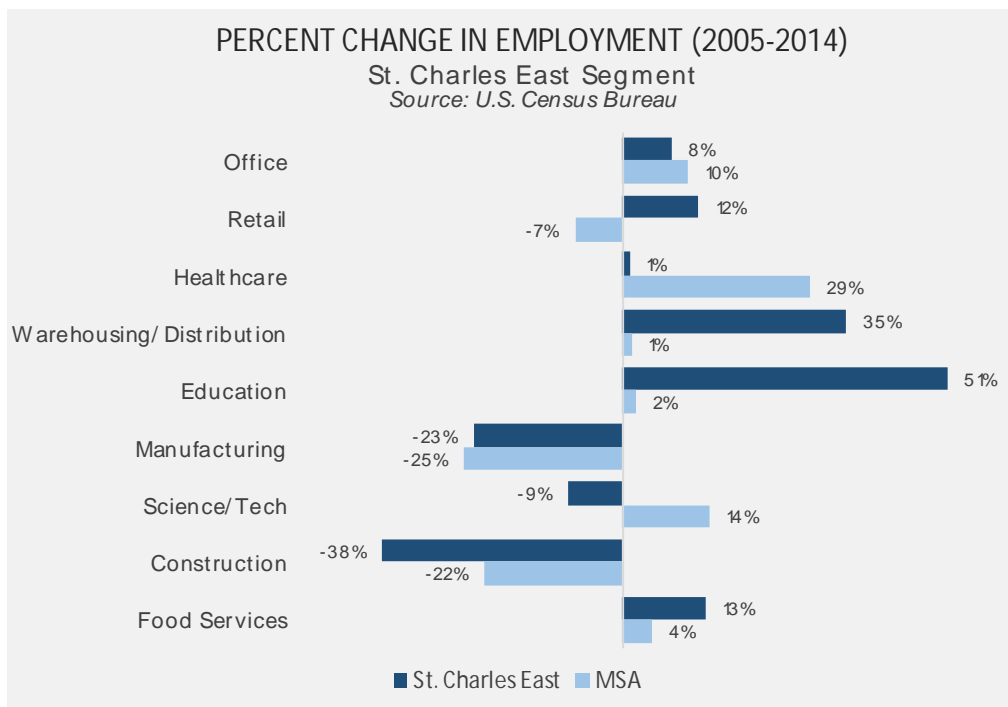
Source: U.S. Census Bureau



durable tourism market in downtown St. Charles. Otherwise, the proportion of employment in the remaining sectors is generally lower than the region as a whole.

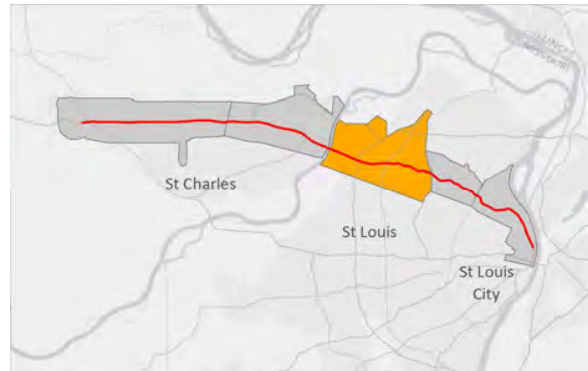
The segment lost a significant number of construction jobs between 2005 and 2014 with a decrease of 38%—significantly greater rate of decline than the regional decrease of 22%—most of this due to the effects of the Great Recession.

The median household income of \$55,100 is above the regional median (\$45,800) and over twice the median household income for the St. Louis City and County Segments, which gives the St. Charles County East Segment strong buying power to sustain its retail employment base. As the segment continues to grow with a projected increase in population of 3.4% through 2021, these added households will contribute to further employment growth in retail, healthcare, and education. However, communities that are heavily reliant on the retail sector to sustain their local economies and tax bases are more susceptible to changes in consumer preferences and economic downturn. Establishing a more diverse economic base in the future will contribute to the long-term sustainability of the segment and corridor.

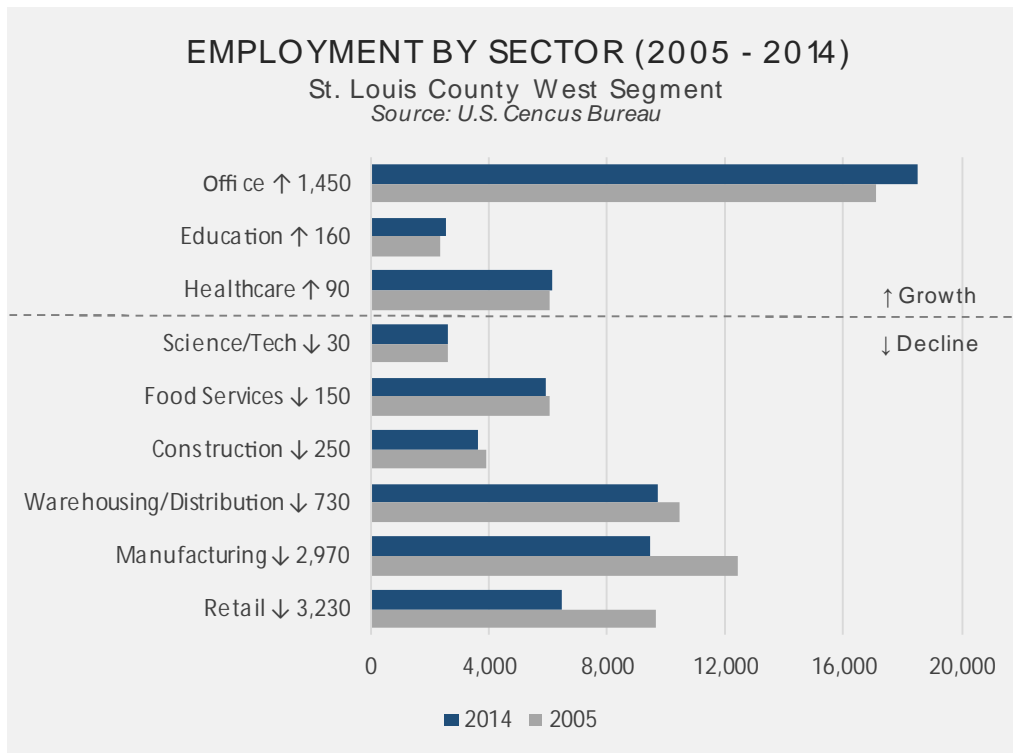


**St. Louis County West Segment**

Employment in the St. Louis County West Segment is anchored by Lambert Airport and Boeing Corporation. This segment had the second highest employment of the five Study Area segments with 77,000 jobs in 2014, or 29% of jobs in the entire corridor. Locations of major employers in this segment are shown on **Figure 3-32**.



On the other hand, the St. Louis County West Segment was the only segment with net losses in jobs, losing 7,010 jobs between 2005 and 2014, or 8.3% overall. The most notable job losses occurred in the retail and manufacturing sectors. Much of this loss can be attributed to the closing of the Ford Motor Assembly Plant in Hazelwood in 2006, the closing of Northwest Plaza Shopping Mall in 2010 in St. Ann, and the decline of American Airlines at Lambert Airport, resulting in the airport’s loss of hub status in 2009.





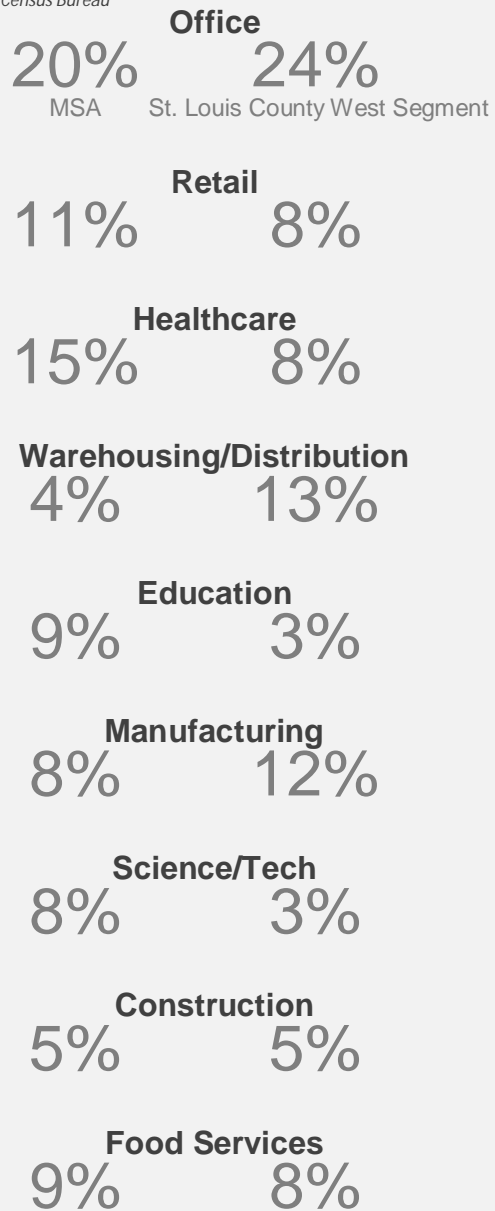
Given the presence of Lambert Airport, much of the existing real estate in the segment is devoted to the shipping, warehousing, and distribution sectors with over 37 million square feet of space serving these sectors, or 46% of the total commercial and industrial square footage in the segment. This segment also has a notable concentration of manufacturing space with over 8.2 million square feet (30% of manufacturing space in the corridor).

Boeing is the fifth largest employer in the region with 14,617 employees.<sup>12</sup> In October 2016, the company opened a 424,000 square foot expansion to its tooling facility for the manufacturing of parts for the 777X jetliner. The company projects hiring of about 700 additional employees through the 2020s. Much of the economic positioning and stability of the corridor and region is dependent on the success of Boeing. Because a large portion of the company’s operations in the St. Louis region is supported by Department of Defense (DOD) contracts, future employment growth and multiplier effects remain highly vulnerable to federal budget and policy priorities.

The St. Louis County West Segment also lost a significant number of retail jobs (3,230), primarily attributed to the closure of Northwest Plaza shopping mall. The site has since been redeveloped into the Crossings at Northwest, but the development does not offset the jobs lost

Proportion of Employment by Industry Sector (2014)

Source: U.S. Census Bureau



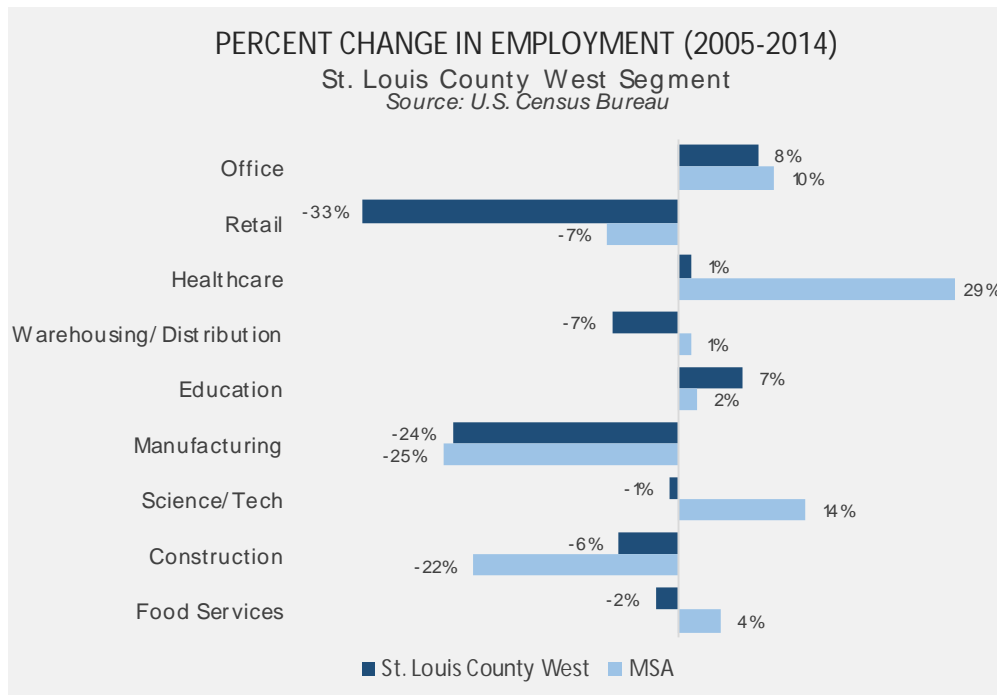
<sup>12</sup> According to the *St. Louis Business Journal's Book of Lists 2016*, the region’s top employer is BJC Healthcare (24,182 employees), followed by Wal-Mart Stores (22,006 employees), SSM Health Care (15,949 employees), and Washington University (14,692 employees).

from Northwest Plaza.

The median household income in the St. Louis County West Segment is \$41,800, the third lowest of the five segments. Additionally, the population of this segment has remained relatively stagnant from 2010 to 2016, after experiencing a loss of 7.6% from 2000 to 2010. Furthermore, only 7% of those employed within the segment also live within the segment, while most workers live outside the segment (93%). These population and demographic challenges are long-term issues for much of the northern portion of the St. Louis County West Segment.

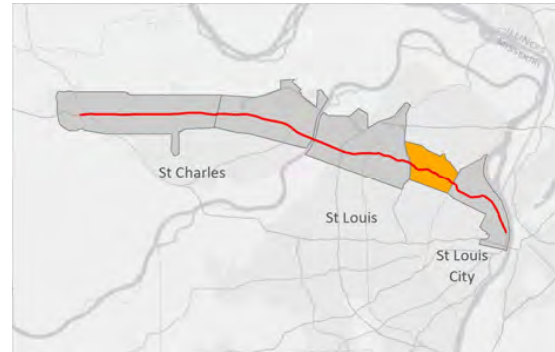
While there were net job losses in this segment, it experienced employment growth in the office sector, adding 1,450 jobs from 2005 to 2014 for an increase of 8%. Notable office development has occurred to the north along Lindbergh Boulevard, where the Aviator Business Park is being developed on the 160-acre site of the old Ford plant. The park already includes several companies, such as International Food Products, Silgan Plastics, and Weekends Only distribution center. Currently, construction is proceeding on a 548,000 square foot speculative distribution warehouse, with completion planned for summer 2017.

Even with major employment changes in this segment over the past decade or so, it retains a major concentration of jobs for metropolitan St. Louis. Its proportion of employment is higher than the region in office (24%), warehousing and distribution (13%), and manufacturing (12%). Given the large amount of available land in the segment, there will continue to be opportunities to attract more jobs and businesses.



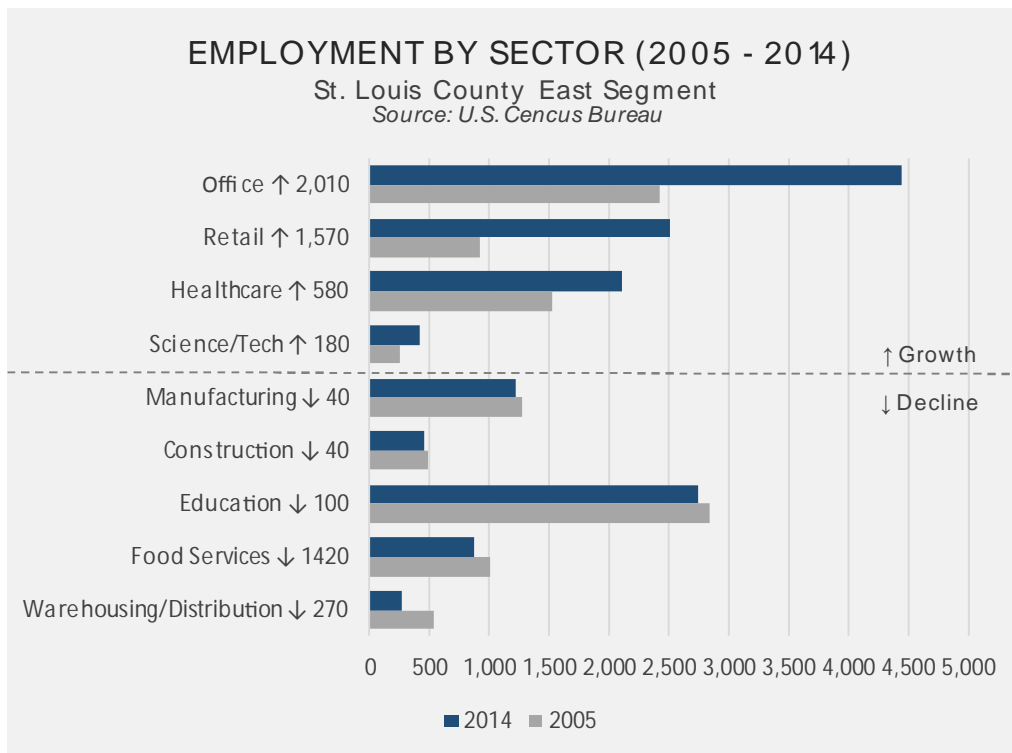
**St. Louis County East Segment**

The local economy in the St. Louis County East Segment is supported by three major employers: UMSL, Express Scripts, and Emerson Electric. Locations of major employers in this segment are shown on **Figure 3-33**.



The latter two are among the largest of nine *Fortune 500* companies in metro St. Louis (nationally ranked 22 and 124, respectively) and both are headquartered in the St. Louis County East Segment.

Despite these major employers, however, this segment had the lowest total employment of the five segments in 2014 with 16,820 jobs, or only 6.3% of the jobs in the corridor. With approximately 8 million square feet of existing commercial and industrial real estate, this segment also only accounts for 4% of the total existing commercial and industrial building stock in the Study Area.



The proportion of education jobs in this segment (16%) is nearly two times the region as a whole (9%) due primarily to the presence of UMSL with approximately 2,000 faculty and staff. Employment at UMSL has remained somewhat static, however, the segment experienced a slight decrease in education employment from 2005 to 2014.

Express Scripts, a Fortune 100 company and the 22<sup>nd</sup> largest company in the country in terms of revenue, has approximately 6,500 employees at its headquarters in NorthPark and a total of 27,000 employees nationwide. This company contributed to the majority of the 2,300 net additional office jobs in the segment from 2005 to 2015.

Over the past decade Express Scripts has expanded its corporate headquarters in NorthPark, adding an additional four buildings to their campus from 2008 to 2014. Over the next 10 to 20 years, the NorthPark development has the potential to be one of the most significant developments in the Study Area. With roughly 550 acres of total developable land, plans include a build-out of office and distribution space that will lead to as many as 12,000 jobs.

While Express Scripts is relatively new to St. Louis, Emerson was established in 1890 with a special emphasis in manufacturing electrical motors. Much diversified since then and headquartered in Ferguson, Emerson is the oldest Fortune 500 company in St. Louis.

The overall proportion of office jobs in the segment (26%) is the higher than the region as a whole (20%), an achievement attributable primarily to the business expansions at NorthPark. Created from former residential developments because of noise abatement buyouts by Lambert Airport, NorthPark is a

Proportion of Employment by Industry Sector (2014)

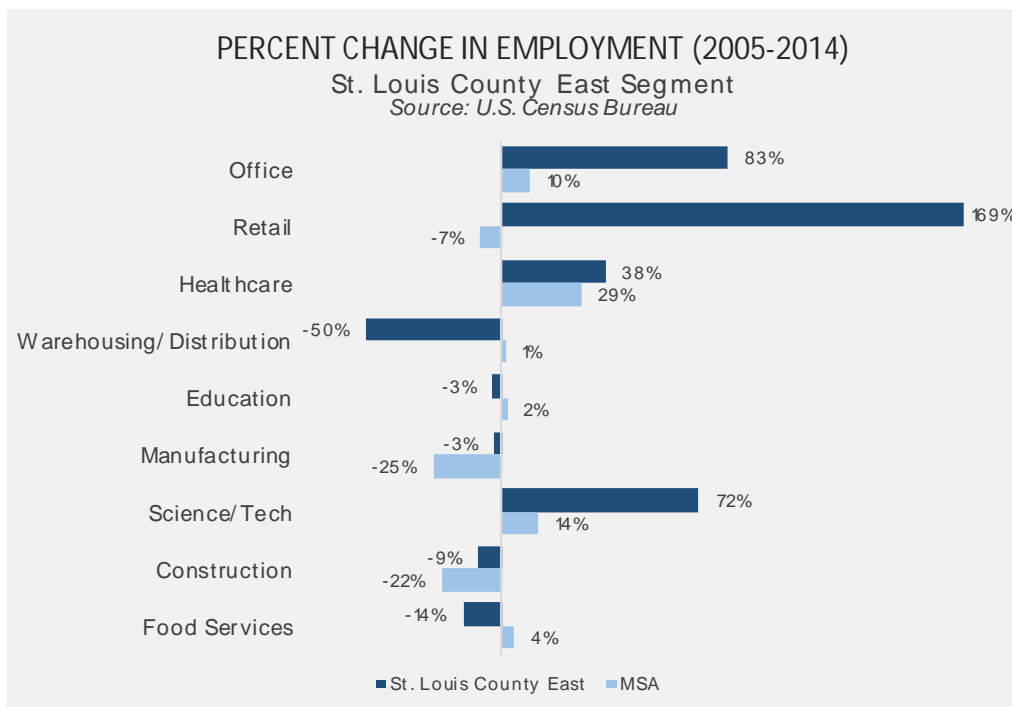
Source: U.S. Census Bureau



highly effective location for office buildings needing excellent I-70 access, Lambert Airport access, and even MetroLink access. The development potential of NorthPark is enhanced by a number of incentive programs to help attract new businesses but, more importantly, it represents one of very few larger tracts of highly visible, developable land within the Study Area for new commercial or light industrial construction.

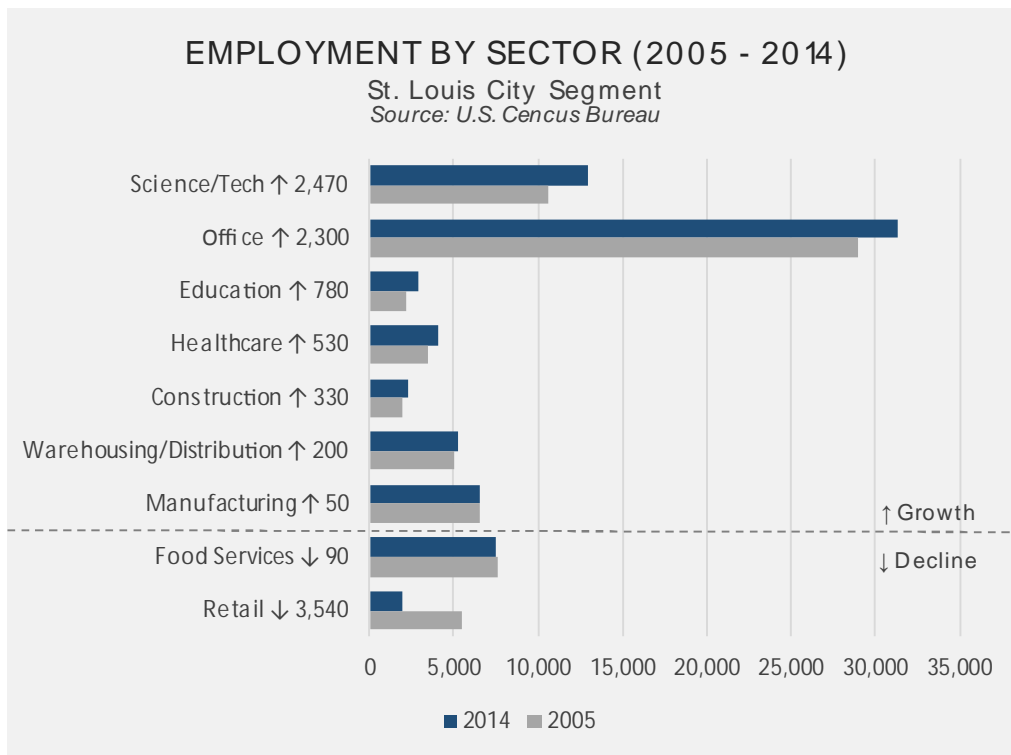
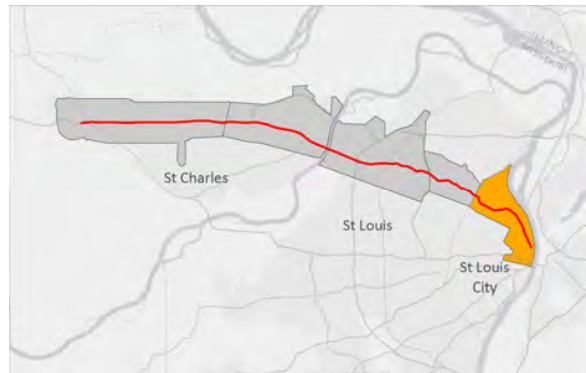
The St. Louis County East Segment has experienced tremendous gains in the office and retail sectors. About 2,010 jobs were added to the office sector, representing an 83% increase in employment from 2005 to 2014. About 1,570 retail jobs have been added from 2005 to 2014, representing a 169% percent increase.

The segment has weak demographic characteristics with a population decline of 2% from 2010 to 2016, the fastest rate of decline of all the segments. Additionally, the segment has the second lowest median household income of the five segments at \$30,000, and residential vacancy rates averaging fairly high at 17%. Furthermore, only 6% of employees in the segment live and work in the segment, whereas 94% live elsewhere and commute into the segment for work.



**St. Louis City Segment**

Employment in the St. Louis City Segment is concentrated in downtown St. Louis as well as in the industrial areas along the North Riverfront and at the Union Seventy Center Business Park at the intersection of I-70 and Union Boulevard. The relocation of the National Geospatial-Intelligence Agency (NGA) to this area will add new employment when it is completed in 2022 or 2023. Despite the amount of land devoted to industrial development in this corridor, employment is primarily supported by the office sector which represents 33% of total employment in the segment (mostly downtown St. Louis) and 48% of office jobs in the Study Area. Locations of major employers in this segment are shown on **Figure 3-34**.



The St. Louis City Segment experienced job gains in every sector, except retail and food services. In contrast to the region, the segment saw a 17% increase in construction employment, whereas the region saw a 22% decline. Additionally, the city experienced a slight increase in manufacturing jobs, about 1%, while the region saw a loss of 25%. However, the segment saw tremendous losses in the retail sector, losing about 3,540 jobs from 2005 to 2014, representing a decline of 64%. The region saw a loss of just 7% in retail employment.

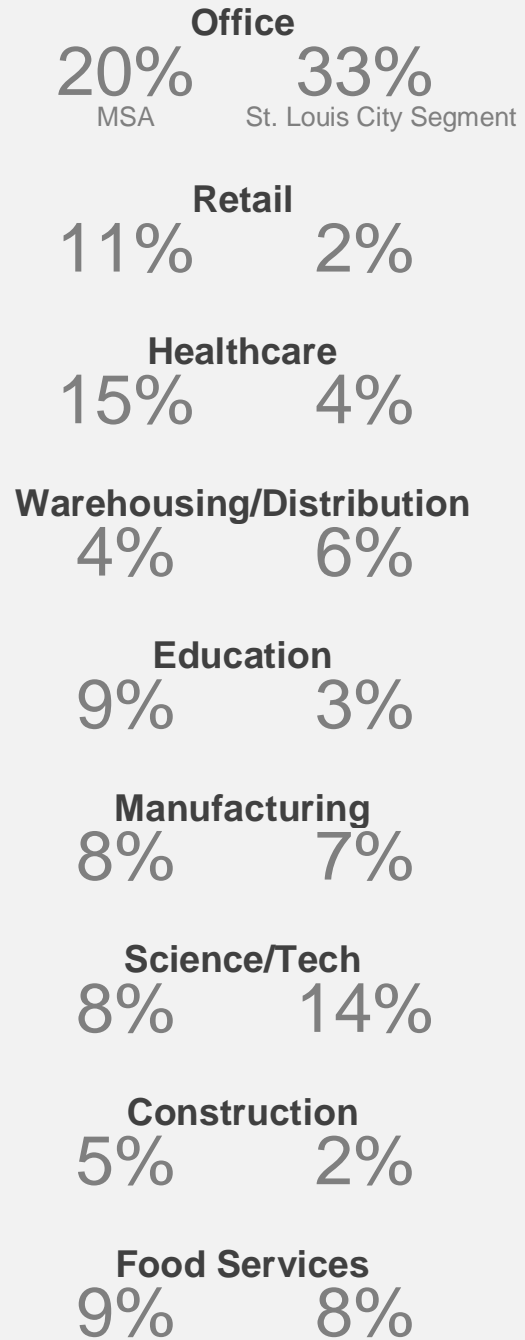
Despite relatively low commercial office real estate occupancy (88%) and lack of new Class A commercial office building construction since One Metropolitan Square was built in 1989, the office sector added 2,300 jobs in the segment between 2005 and 2014, representing an 8% increase in office jobs.

Jobs gains in manufacturing and warehousing can be attributed to the concentration and strategic location of warehousing, shipping, and distribution uses along the Mississippi Riverfront and success of the Union Seventy Center Business Park. As regional leaders continue to promote the multimodal transportation, shipping, and logistics sectors, the St. Louis City Segment should maintain, if not grow, its employment base in these sectors by leveraging its almost 24 million square feet of existing distribution and flex industrial space.

The St. Louis City Segment increases in science and technology jobs also outpaced the region as a whole. From 2005 to 2014 employment in the science and technology sector increased by 23%, adding about 2,470 jobs to the St. Louis City Segment. This growth outpaced the regional increase of 14% in science and technology jobs. Much of this growth can be attributed to regional efforts to promote start-ups. Start-ups are thriving across industries, but most notably in

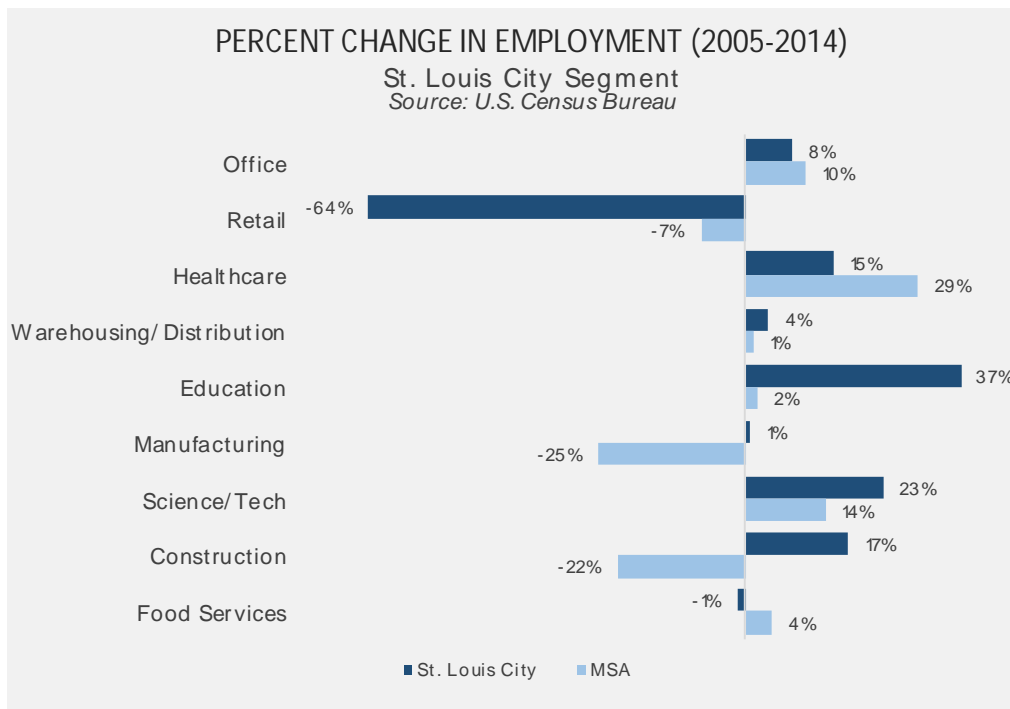
Proportion of Employment by Industry Sector (2014)

Source: U.S. Census Bureau



technology and bioscience. T-Rex, located within the St. Louis City Segment, has largely contributed to the start-up scene by providing 160,000 square feet of low cost and flexible work space to 110 start-ups. Additionally, St. Louis’ growing network of connectivity has contributed to a successful start-up region, with organizations such as ITEN, Skandalaris Center, and Arch Grants, connecting entrepreneurs to peers, mentors, and funding.

Despite overall employment gains within the segment, it has weak demographic characteristics with a population decline of 0.6% from 2010 to 2016, after a decrease of 7.1% from 2000 to 2010. The segment also has the lowest median household income of the five segments at \$28,500 and high residential vacancy rates at 26%. Furthermore, only 5% of employees in the segment live and work in the segment, whereas 95% live elsewhere and commute into the segment for work.





## 4.0 FUTURE TRANSPORTATION CONDITIONS

The East-West Gateway Council of Governments’ fiscally constrained regional travel demand model (including the 2045 lane use forecasts) was used to develop the 2045 traffic forecasts.

### 4.1 NO-ACTION ALTERNATIVE

The No-Action Alternative is the alternative that would be selected if MoDOT does not select a build alternative as the Proposed Action, and is used as a baseline comparison for alternative development and screening and environmental analysis purposes. The No-Action Alternative would leave I-70 as it currently is and would not provide any improvements beyond the improvements included in the East-West Gateway Council of Governments’ *Connected 2045 Long-Range Transportation Plan* for the St. Louis Region; however, the No-Action Alternative includes safety and maintenance activities that are required to sustain an operational transportation system.

For the purpose of travel demand forecasting and identifying resource impact that are directly related to traffic volume, such as noise, transportation projects (see Table 4-1) currently planned in the vicinity of the project are included along with the No-Action Alternative. These other transportation projects have committed or identified funds for construction and would be built regardless of any other improvements that are identified as part of the I-70 PEL Study. Travel demand forecasting predicts traffic conditions that are expected to occur on the transportation system in the design year (2045). Committed fiscally constrained regional improvements that are included in the travel demand forecasting within the project area for the No-Action Alternative are discussed in the following sections.

**Table 4-1: List of Projects in *Connected 2045 Long-Range Transportation Plan* Related to I-70**

Project/Corridor	Description	County	Location	Cost (YOE) in millions
I-70	Rehabilitate pavement, improve interchanges, add lanes	St. Charles	MO 94 to MO 370	\$130
I-70	Improve interchange	St. Louis	Route U	\$6

### 4.2 2045 NO-ACTION CONDITIONS

A series of graphics have been developed to depict the travel demand along the I-70 corridor in the future. The results described in the following sections are from the East-West Gateway Council of Governments’ 2045 model.

**4.2.1 Corridor Traffic Forecasts and Level of Service**

**Figure 2-7B** shows the forecasted 2045 AM LOS and **Figure 2-8B** shows the forecasted 2045 PM LOS along I-70 within the study area. Planning level roadway capacities were used to estimate when travel demand along I-70 would exceed the existing capacity. In the AM peak, WB I-70 from the Stan Musial Veteran Memorial Bridge to the Blanchette Bridge over the Missouri River operates at LOS D or worse. West of the Blanchette Bridge in St Charles County, WB I-70 operates at a LOC C or better with the exception of some ramp segments. Most of EB I-70 in the AM peak period operates at or below a LOS D with multiple segments in St. Louis County and St. Charles County with a LOS F.

In the PM peak, LOS ranges from C to F in both directions of I-70 in the Study Area. Multiple I-70 mainline locations would operate at a LOS F in the PM peak with many ramp segments also operating at a LOS D and F.

Poor LOS also exists at a number of the interchanges including the I-170 and I-270 interchanges as shown on the figures. The travel demand model LOS is based on volume compared to calculated capacity. Further operational analysis may be needed to evaluate the impacts of traffic signals and merging/weaving traffic, especially at interchange locations.

**4.2.2 Transit**

There are no transit expansion projects included in the East-West Gateway Council of Governments’ Connected Fiscally Constrained 2045 Plan in the I-70 PEL Study Area, but there are transit expansion projects listed under Illustrative Projects that would be in the study area. These project are listed in **Table 4-2** below.

**Table 4-2: Illustrative Transit Projects**

Project/Corridor	Description	County	Location	Cost (YOE) in millions
<b>Illustrative Tier I</b>				
Bus Rapid Transit	West Florissant	St. Louis/St. Louis City	Downtown to Natural Bridge	\$59
MetroLink Extension	Northside-Southside Phase I & II	St. Louis/St. Louis City	Northside/Southside	\$2,270
<b>Illustrative Tier II</b>				
MetroLink Extension	MetroNorth	St. Louis	N Hanley to Florissant	\$757



As identified in the Related Studies and Projects (see Chapter 1.4) there are currently two MetroLink extension studies. The two studies are the Northside-Southside MetroLink Conceptual Design Study and the Proposed Preliminary Conceptual Planning Study and Comparative Evaluation of Potential MetroLink Corridors in St. Louis County, Missouri. Both studies potentially have routes that will cross the I-70 PEL Study Area.

**Appendix A  
Subsurface Utilities  
Present in the I-70 Study Area**

**Table A-1: Utilities in the I-70 Study Area in West St. Charles County**

Utility	I-70 Cross Street/Region								
	Highway 64-61	Route A	East of Route A	Lake St. Louis Boulevard	West of Bryan Road	Bryan Road	East of Bryan Road	Route K	East of Route K
Ameren Electric	X	X	X	X	X	X	X	X	X
Ameren Gas	X								
ATT			X	X	X	X	X	X	X
CenturyLink and Subsidiaries	X	X	X	X	X	X	X	X	X
Charter	X		X	X	X	X	X	X	X
City of Lake St. Louis			X	X	X				
City of O'Fallon Water and Sewer				X	X	X	X	X	X
City of Wentzville Sewer/Water	X	X	X	X					
Cuivre River Electric			X	X	X				
Duckett Creek Sanitary District					X				
Laclede Gas		X	X	X	X	X	X	X	X
MNA-Bluebird <sup>13</sup>								X	

<sup>13</sup> Missouri Network Alliance

**Table A-1: Utilities in the I-70 Study Area in West St. Charles County**

Utility	I-70 Cross Street/Region								
	Highway 64-61	Route A	East of Route A	Lake St. Louis Boulevard	West of Bryan Road	Bryan Road	East of Bryan Road	Route K	East of Route K
MoDOT	X	X	X	X	X	X	X	X	X
St. Charles County (PWSD) <sup>14</sup>		X	X	X	X				

**Table A-2: Utilities in the I-70 Study Area in Central St. Charles County**

Utility	I-70 Cross Street/Region							
	TR Hughes Boulevard	West of Route 79	Route 79	Route 79 to Mid Rivers Mall Drive	Mid Rivers Mall Drive	Spencer Road	Route 370	East of Route 370
Ameren Electric	X	X	X	X	X	X	X	X
ATT	X	X	X	X	X	X	X	X
CenturyLink And Subsidiaries	X	X	X	X	X	X	X	X
Charter	X	X	X	X	X	X	X	X
City of O’Fallon Water and Sewer	X	X	X					
City of St. Peters	X	X	X	X	X	X	X	X

<sup>14</sup> Public Water Supply District

DISCLAIMER: BASED ON DATA PROVIDED BY OTHERS – SHOULD NOT BE USED FOR DESIGN PURPOSES

**Table A-2: Utilities in the I-70 Study Area in Central St. Charles County**

Utility	I-70 Cross Street/Region							
	TR Hughes Boulevard	West of Route 79	Route 79	Route 79 to Mid Rivers Mall Drive	Mid Rivers Mall Drive	Spencer Road	Route 370	East of Route 370
Explorer Pipeline Company							X	X
Laclede Gas	X	X	X	X	X	X	X	X
Magellan Midstream Partners							X	
Missouri American Water	X		X	X	X			X
MoDOT	X	X	X	X	X	X	X	X
Phillips 66 Pipeline							X	X

DISCLAIMER: BASED ON DATA PROVIDED BY OTHERS – SHOULD NOT BE USED FOR DESIGN PURPOSES

**Table A-3: Utilities in the I-70 Study Area in East St. Charles County**

Utility	I-70 Cross Street/Region					
	Harry S. Truman Boulevard	East of Harry S. Truman Boulevard	Zumbehl Road	East of Zumbehl Road	Route 94	Fifth Street
Ameren Electric	X	X	X	X	X	X
ATT	X	X	X	X	X	X
CenturyLink And Subsidiaries	X	X	X	X	X	X
Charter	X	X	X	X	X	X
City of St. Peters	X	X				
City of St. Charles	X	X	X	X	X	X
East Central Water And Sewer		X	X			
Enbridge Energy		X	X			
Laclede Gas	X	X	X	X	X	X
Missouri American Water	X	X	X			
MNA-Bluebird						
MoDOT	X	X	X	X	X	X

DISCLAIMER: BASED ON DATA PROVIDED BY OTHERS – SHOULD NOT BE USED FOR DESIGN PURPOSES



**Table A-4: Utilities in the I-70 Study Area in West St. Charles County**

Utility	I-70 Cross Street/Region								
	Missouri River to Route 141	Route 141	I-270	I-270 to Route 180	Route 180	Lindbergh Boulevard	Cypress Road	Cypress Road to Air Flight Drive	Air Flight Drive
Ameren Electric	X	X	X	X	X	X	X	X	X
ATT	X	X	X	X	X	X	X	X	X
Buckeye Pipeline LP								X	X
CenturyLink and Subsidiaries	X	X	X	X	X	X	X	X	X
Charter		X	X	X	X	X	X	X	X
City of St. Ann							X	X	X
Enbridge Energy									X
Laclede Gas	X	X	X	X	X	X	X	X	X
MCI		X	X	X	X	X			X
MetroLink									X
Missouri American Water	X	X	X	X	X	X	X	X	X
MoDOT	X	X	X	X	X	X	X	X	X
Phillips 66 Pipeline							X	X	
St. Louis Metropolitan Sewer	X	X	X	X	X	X	X	X	X
Windstream Companies		X	X						

**Table A-4: Utilities in the I-70 Study Area in West St. Charles County**

Utility	I-70 Cross Street/Region								
	Missouri River to Route 141	Route 141	I-270	I-270 to Route 180	Route 180	Lindbergh Boulevard	Cypress Road	Cypress Road to Air Flight Drive	Air Flight Drive
XO Communication	X	X	X	X	X	X			

DISCLAIMER: BASED ON DATA PROVIDED BY OTHERS – SHOULD NOT BE USED FOR DESIGN PURPOSES

**Table A-5: Utilities in the I-70 Study Area in East St. Louis County**

Utility	I-70 Cross Street/Region							
	Woodson Road	Brown Road	I-170	North Hanley Road	Route N	Bermuda Road	Lucas and Hunt Road	Lucas and Hunt Road to Jennings Station Road
Ameren Electric	X	X	X	X	X	X	X	X
ATT	X	X	X	X	X	X	X	X
Buckeye Pipeline LP	X							
CenturyLink and Subsidiaries	X	X	X	X	X	X	X	X
Charter	X	X		X	X	X	X	X
Enbridge Energy	X							
Express Scripts			X	X	X			
Laclede Gas	X	X	X	X	X	X	X	X
MCI	X	X	X	X	X			
MetroLink	X	X	X	X	X			
Missouri American Water	X	X	X	X	X	X	X	X
MoDOT	X	X	X	X	X	X	X	X
St. Louis Metropolitan Sewer	X	X	X	X	X	X	X	X
Windstream Companies				X				

DISCLAIMER: BASED ON DATA PROVIDED BY OTHERS – SHOULD NOT BE USED FOR DESIGN PURPOSES

**Table A-6: Utilities in the I-70 Study Area in West St. Louis City**

Utility	I-70 Cross Street/Region						
	Jennings Station Road	Goodfellow Boulevard	Riverview Boulevard to Union Boulevard	Union Boulevard	Kingshighway Boulevard	Shreve Avenue	West Florissant Avenue
Ameren Electric	X	X	X	X	X	X	X
ATT	X	X	X	X	X	X	X
CenturyLink and subsidiaries	X	X	X	X	X	X	X
Charter	X	X				X	X
City of St. Louis BPS <sup>15</sup>		X	X	X	X	X	X
Laclede Gas	X	X	X	X	X	X	X
Level 3 Communications	X	X	X				
MCI	X	X	X	X	X	X	X
Missouri American water	X						
MoDOT	X	X	X	X	X	X	X
Qwest Communications					X	X	X
St. Louis Metropolitan Sewer	X	X	X	X	X	X	X

DISCLAIMER: BASED ON DATA PROVIDED BY OTHERS – SHOULD NOT BE USED FOR DESIGN PURPOSES

<sup>15</sup> Board of Public Service

**Table A-7: Utilities in the I-70 Study Area in East St. Louis City**

Utility	I-70 Cross Street/Region						
	Adelaide Avenue	Grand Avenue	McKinley Bridge	Branch Street	Madison Street	Stan Musial Veterans Memorial Bridge Interchange	Cass to Cole
Ameren Electric	X	X	X	X	X	X	X
American Fiber			X	X		X	X
ATT	X	X	X	X	X	X	X
CenturyLink and Subsidiaries	X	X	X	X	X	X	X
Charter	X		X	X	X	X	X
City of St. Louis BPS	X	X	X	X	X	X	X
Duke Manufacturing					X		
Laclede Gas	X	X	X	X	X	X	X
Level 3 Communications	X	X	X	X		X	X
Mallinckrodt			X	X			
MCI	X	X	X	X		X	X
MoDOT	X	X	X	X	X	X	X
Qwest Communications		X	X	X	X	X	X
St. Louis Metropolitan Sewer	X	X	X	X	X	X	X
Trigen			X			X	X
Windstream Companies				X	X	X	

DISCLAIMER: BASED ON DATA PROVIDED BY OTHERS – SHOULD NOT BE USED FOR DESIGN PURPOSES

## **Appendix B**

# **Bike and Pedestrian Level of Service Analysis Methodology**

**Appendix B: Bike and Pedestrian Level of Service Analysis Methodology**

*B.1 Bicycle Level of Service Analysis Methodology*

Based on available data, the Bicycle Level of Service (BLOS) model described in National Cooperative Highway Research Program’s (NCHRP) Report 616 is the model selected for the roadway conditions assessment for bicycle use. The model, based on empirical research, has been applied in bicycle route system developments at city, county, and state levels. It was chosen over other systems of weighting and combining criteria because of its empirical basis. While several data gaps required assumptions to run this model, it still provides a useful comparison between roads in this case. The results of this analysis should not, however, be compared to BLOS results in other regions, because of the data gaps and applied assumptions. BLOS scores are calculated using the following equation:

$$BLOS = 0.507 \ln(Vol15/L) + 0.199 SPt(1+10.38HV)^2 + 7.066(1/PavementCondition)^2 - 0.005(We)^2 + 0.760$$

where

- Vol15 = Directional motorized vehicle count in the peak 15 minute time period
- L = Total number of directional through lanes
- SPt = Effective speed factor =  $1.1199 \ln(SPp - 20) + 0.8103$
- SPp = Posted speed limit (use for average running speed) (mph)
- HV = Percentage of heavy vehicles
- PR<sub>5</sub> = FHWA’s five point pavement surface condition rating (1-5)
- We = Average effective width of outside through lane (ft)

Because not all data were available, some assumptions were made to allow the calculation to effectively function. These are principally based on standardized assumptions developed in the NCHRP’s Report 599.<sup>1</sup> Where data gaps occurred and no other standardized assumptions were available, mean or median values were used, which are shown in **Table B-1**.

Based on this equation and subsequent output, each roadway segment is assigned a letter grade, which indicates the road segment’s suitability for bicycle use. Score ranges along with their corresponding letter grades are included in the chart below. Brief descriptions of each letter grades’ bicycle level of service are also included in **Table B-2**.

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<sup>1</sup> Transportation Research Board. 2008. National Cooperative Highway Research Program Report 599.

**Table B-1: BLOS Assumptions**

Table of Assumptions				
Sub-Formulas				
Sub	$Vol_{15} = (ADT \times D \times Kd) / (4 \times PHF)$			
Sub	$SPt = 1.1199 \ln(SPp - 20) + 0.8103$			
Variable	Description	Assumed Value where Missing		Sources
		Urban/Suburban	Rural	
D	Directional Factor	0.55	0.6	From MoDOT traffic report citing HCM:NCHRP report 599
K	Peak to Daily Factor	0.09	0.1	NCHRP report 599
PHF	Peak Hour Factor	0.92	0.88	NCHRP report 599
HV	% of Heavy Vehicles	Principal Arterial	3.50%	Federal Highway Administration's Bicycle Compatibility Index Level of Service Concept, Implementation Manual (1998)
		Minor Arterial	2%	
		Collector Street	1.50%	
		Local Street	0%	
		No Data	1%	
		Interstate/Freeways	5%	
ADT	Average Daily Traffic	Always provided		
Ln	# of Through Lanes	1 (Median)		
Sp <sub>p</sub>	Post Speed Limit	35 MPH City/40 MPH County		
PR <sub>5</sub>	FHWA's 5-point pavement surface condition rating	4 points (used on all roadway links)		
W <sub>A</sub>	Average Effective Width of outside through lane	Always provided		



**Table B-2: BLOS Evaluation**

BLOS Evaluation		
BLOS Grade	BLOS Score	Description
A	<1.5	Excellent bicycle environment
B	1.5 – 2.5	Good bicycle environment
C	2.5 – 3.5	Fair bicycle environment (acceptable to experienced and novice bicyclists)
D	3.5 – 4.5	Poor environment (acceptable to experienced bicyclists)
E	4.5 – 5.5	Deficient Bicycle Environment (unacceptable to experienced and novice bicyclists)
F	>5.5	Unsafe environment (unsuitable for bicycle travel)

*B-2: Pedestrian Level of Service Analysis Methodology*

The pedestrian environment is strongly influenced by two conditions: physical separation from motor vehicles and adjacent motor vehicle travel speeds. The model is based primarily on safety and does not consider factors of the built environment known to make walking an attractive and preferred form of transportation. While this is true, lower posted speeds and physically dedicated pedestrian space in the form of sidewalks, safe crossings, and other paths will typically correlate with places people want to walk based on the surrounding land uses and urban form.

**Method**

The standard methodology for assessing Pedestrian Level of Service (PLOS) relies on a qualitative analysis of certain observable characteristics of the pedestrian environment, such as the presence of landscaped buffers, adequate lighting, and shoulder width (where no sidewalk is provided).

The selected segment-based PLOS Analysis is rooted in the concept that a doubling of travel speed results in a four-fold increase in stopping time and resulting crash severity. According to one study,<sup>2</sup> speed has the following impact on pedestrian fatalities:

- At 20 mph the odds of pedestrian fatality are 5%
- At 30 mph the odds of pedestrian fatality are 45%
- At 40 mph the odds of pedestrian fatality are 85%

---

<sup>2</sup> *Killing Speed and Saving Lives*, UK Dept. of Transportation, London, England. See also Limpert, Rudolph. *Motor Vehicle Accident Reconstruction and Cause Analysis*. Fourth Edition. Charlottesville, VA. The Michie Company, 1994, p. 663.

While other studies have found some variation, these approximate numbers are reported consistently across the literature. Higher casualty rates can be expected among more vulnerable roadway users with frail health or advanced age.

Scores were assigned to collector and arterial roadway segments based on the characteristics shown in **Table B-3**.

**Table B-3: PLOS Roadway Characteristics**

Pedestrian Space	Speed Limit (mph)					
	<= 25 mph		30 - 35 mph		>= 40 mph	
	2 lanes	> 2 lanes	2 lanes	> 2 lanes	2 lanes	> 2 lanes
Complete sidewalk on both sides next to a buffer*	A	A	A	B	C	D
Complete sidewalk on both sides	A	A	B	C	C	D
Complete sidewalk on one side next to a buffer*	B	B	B	C	C	E/F
Complete sidewalk on one side	B	B	C	D	D	E/F
No dedicated space next to a buffer*	B	C	C	D	E/F	E/F
No dedicated space	B	C	D	E/F	E/F	E/F

\*Buffer is defined as parking lane or bicycle lane. Information on planting strips was not available.



## **Appendix C**

# **Air Quality Design Value Calculations**



Design Value Calculations  
Last updated 2/9/2017

8-Hr Ozone							
	County Name	City Name	CBSA Name	Address	Site Number	4th Max Value (ppm)	The air quality design value for the 8-hour ozone NAAQS is the 3-year average of the annual 4th highest daily maximum 8-hour average ozone concentration
2016	Jefferson	Arnold	St. Louis, MO-IL	1709 Lonedell Drive, Arnold, MO 63010	290990019	0.07	0.069 ppm
	Lincoln	Not in a city	St. Louis, MO-IL	FOLEY: #7 Wild Horse, Foley, MO 63347	291130003	0.065	
	Saint Charles	West Alton	St. Louis, MO-IL	WEST ALTON: General Electric Store, Highway 94, WestT Alton, MO 63386	291831002	0.075	
	Saint Charles	Not in a city	St. Louis, MO-IL	ORCHARD FARM: 2165 Highway V, St. Charles, MO 63301	291831004	0.076	
	Saint Louis	Not in a city	St. Louis, MO-IL	PACIFIC: 18701 Old Highway 66, Pacific, MO 63039	291890005	0.067	
	Saint Louis	Maryland Heights	St. Louis, MO-IL	MARYLAND HEIGHTS: 13044 Marine Avenue, Maryland Heights, MO 63146	291890014	0.073	
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	295100085	0.068	
2015							
	Jefferson	Arnold	St. Louis, MO-IL	ARNOLD WEST: 1709 Lonedell Drive, Arnold, MO 63010	290990019	0.069	
	Lincoln	Not in a city	St.	FOLEY: #7 Wild Horse, Foley, MO	291130003	0.065	



			Louis, MO-IL	63347				
	Saint Charles	West Alton	St. Louis, MO-IL	WEST ALTON: General Electric Store, Highway 94, WestT Alton, MO 63386	291831002	0.07		
	Saint Charles	Not in a city	St. Louis, MO-IL	ORCHARD FARM: 165 Highway V, St. Charles, MO 63301	291831004	0.066		
	Saint Louis	Not in a city	St. Louis, MO-IL	PACIFIC: 18701 Old Highway 66, Pacific, MO 63039	291890005	0.065		
	Saint Louis	Maryland Heights	St. Louis, MO-IL	MARYLAND HEIGHTS: 13044 Marine Avenue, Maryland Heights, MO 63146	291890014	0.069		
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	295100085	0.063		
<b>2014</b>								
	Jefferson	Arnold	St. Louis, MO-IL	ARNOLD WEST: 1709 Lonedell Drive, Arnold, MO 63010	290990019	0.072		
	Lincoln	Not in a city	St. Louis, MO-IL	FOLEY:#7 Wild Horse, Foley, MO 63347	291130003	0.067		
	Saint Charles	West Alton	St. Louis, MO-IL	WEST ALTON: General Electric Store, Highway 94, WestT Alton, MO 63386	291831002	0.072		
	Saint Charles	Not in a city	St. Louis, MO-IL	ORCHARD FARM: 2165 Highway V, St. Charles, MO 63301	291831004	0.072		
	Saint Louis	Not in a city	St. Louis, MO-IL	PACIFIC: 18701 Old Highway 66, Pacific, MO 63039	291890005	0.065		
	Saint Louis	Maryland Heights	St. Louis, MO-IL	MARYLAND HEIGHTS: 13044 Marine Avenue, Maryland Heights, MO 63146	291890014	0.072		
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	295100085	0.066		

PM2.5								
	County Name	City Name	CBSA Name	Address	Site Number	98th Percentile ( $\mu\text{m}^3$ )	3-Year Average ( $\mu\text{m}^3$ )	The design year value for the 24-hour PM 2.5 NAAQS is the 3-year average 98th percentile concentration.
<b>2016</b>	Jefferson	Arnold	St. Louis, MO-IL	ARNOLD WEST: 1709 Lonedell Drive, Arnold, MO 63010	299919	19.7	8.627	24.377 ( $\mu\text{m}^3$ )
	Saint Louis	Ladue	St. Louis, MO-IL	LADUE: 73 Hunter Avenue, Ladue, MO 63105	291893001	19	8.569	The design value for the annual PM2.5 NAAQS is the 3-year average annual mean concentrations.
	St. Louis City	St. Louis	St. Louis, MO-IL	SOUTH BROADWAY: 8227 South Broadway, St. Louis, MO 63111	295107	20.9	8.043	10.154 ( $\mu\text{m}^3$ )
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	20.5	9.170	
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	20.8	8.555	
	St. Louis City	St. Louis	St. Louis, MO-IL	BRANCH STREET: 100 Branch Street, St. Louis, MO 63102	2951093	22.8	9.560	
	St. Louis City	St. Louis	St. Louis, MO-IL	BRANCH STREET: 100 Branch Street, St. Louis, MO 63102	2951093	22.8	9.560	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK:McKinely Dr., St. Louis, MO 63110	29510434	20.1	8.507	
<b>2015</b>								
	Jefferson	Arnold	St. Louis, MO-IL	ARNOLD WEST: 1709 Lonedell Drive, Arnold, MO 63010	299919	24.3	11.397	
	Saint Louis	Ladue	St. Louis, MO-IL	LADUE: 73 Hunter Avenue, Ladue, MO 63105	291893001	23.5	10.371	



	St. Louis City	St. Louis	St. Louis, MO-IL	SOUTH BROADWAY: 8227 South Broadway, St. Louis, MO 63111	295107	25.7	11.078
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	23.3	10.530
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	35.8	10.481
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2915085	20.8	9.527
	St. Louis City	St. Louis	St. Louis, MO-IL	BRANCH STREET: 100 Branch Street, St. Louis, MO 63102	2951093	22.9	10.345
	St. Louis City	St. Louis	St. Louis, MO-IL	BRANCH STREET: 100 Branch Street, St. Louis, MO 63102	2951093	22.9	10.345
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2915094	20.7	9.158
<b>2014</b>							
	Jefferson	Arnold	St. Louis, MO-IL	ARNOLD WEST: 1709 Lonedell Drive, Arnold, MO 63010	299919	25.2	10.583
	Saint Louis	Ladue	St. Louis, MO-IL	LADUE: 73 Hunter Avenue, Ladue, MO 63105	291893001	24.5	10.744
	St. Louis City	St. Louis	St. Louis, MO-IL	SOUTH BROADWAY: 8227 South Broadway, St. Louis, MO 63111	295107	25.2	10.004
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	27.8	11.461
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2915085	37.7	11.975
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2915085	23.9	10.649



	St. Louis City	St. Louis	St. Louis, MO-IL	BRANCH STREET: 100 Branch Street, St. Louis, MO 63102	2915093	27	11.931	
	St. Louis City	St. Louis	St. Louis, MO-IL	BRANCH STREET: 100 Branch Street, St. Louis, MO 63102	5915063	27	11.931	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2915094	29	10.893	





PM 10								
	County Name	City Name	CBSA Name	Address	Site Number	First Max ( $\mu\text{u}/\text{m}^3$ )	Estimated Exceedances	The Design values for the PM10 NAAQS is the 3-year average expected number of exceedances (ENE).
2016	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	39	0	(from state: this standard is violated if the three-year average of the highest 24-hour concentration each year exceeds 150 microns/cubic meters)
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	38	0	67.143 ( $\mu\text{u}/\text{m}^3$ )
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margareta, St. Louis, MO 63115	2915086	63	0	
	St. Louis City	St. Louis	St. Louis, MO-IL	BRANCH STREET: 100 Branch Street, St. Louis, MO 63102	2915093	82	0	
2015								
	Saint Louis	Oakville	St. Louis, MO-IL	OAKVILLE: 6115 Frontenac Pointe Court, Oakville, MO 63129	2918915	46	0	
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	45	0	
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2915085	45	0	
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margareta, St. Louis, MO 63115	2915086	67	0	
	St. Louis	St. Louis	St. Louis, MO-IL	BRANCH STREET: 100 Branch Street, St. Louis, MO 63102	2915093	117	0	



	City							
<b>2014</b>								
	Saint Louis	Oakville	St. Louis, MO-IL	OAKVILLE: 6115 Frontenac Pointe Court, Oakville, MO 63129	2918915	58	0	
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	58	0	
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2915085	58	0	
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2915086	55	0	
	St. Louis City	St. Louis	St. Louis, MO-IL	BRANCH STREET: 100 Branch Street, St. Louis, MO 63102	2915093	169	2	
<b>S02</b>								
	<b>County Name</b>	<b>City Name</b>	<b>CBSA Name</b>	<b>Address</b>	<b>Site Number</b>	<b>99th Percentile (ppb)</b>		The design value for SO2 NAAQS is the 3 year average of the annual
<b>2016</b>	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	8.5		99th percentile of the daily 1-hour maximum
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2951086	8.4		20.083 ppb
<b>2015</b>								
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	24.2		
	St. Louis City	Not in a city	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2951086	16.6		
<b>2014</b>								



	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	40.7			
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margareta, St. Louis, MO 63115	2951086	22.1			
<b>Lead</b>									
	<b>County Name</b>	<b>City Name</b>	<b>CBSA Name</b>	<b>Address</b>	<b>Site Number</b>	<b>First Max (<math>\mu\text{m}^3</math>)</b>			The design value for the 2009 lead NAAQS is the maximum rolling 3-month lead-TSP average over a 3-year period. Air Data notes that the data for the 3 month rolling average is not available, so the first max was used.
<b>2016</b>	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	0.029			0.039 ( $\mu\text{m}^3$ )
<b>2015</b>									
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	0.035			
<b>2014</b>									
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951058	0.053			
<b>1-hr CO</b>									
	<b>County Name</b>	<b>City Name</b>	<b>CBSA Name</b>	<b>Address</b>	<b>Site Number</b>	<b>First Max (ppm)</b>	<b>Second Max (ppm)</b>		The level of the 1-hour NAAQS for carbon monoxide is 35 parts per million (ppm) not to be exceeded more than once per year.



<b>2016</b>	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	2.581	2.375	1.714 ppm
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	0.976	0.922	
<b>8-hr CO</b>								
	<b>County Name</b>	<b>City Name</b>	<b>CBSA Name</b>	<b>Address</b>	<b>Site Number</b>	<b>First Max (µu/m<sup>3</sup>)</b>	<b>Second Max (ppm)</b>	The level of the 8-hour NAAQS for carbon monoxide is 9 parts per million (ppm) not to be exceeded more than once per year.
<b>2016</b>	St. Louis	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	1	1	0.8 ppm
	St. Louis	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	0.6	0.6	
<b>1-HR NO2</b>								
	<b>County Name</b>	<b>City Name</b>	<b>CBSA Name</b>	<b>Address</b>	<b>Site Number</b>	<b>First Max (ppb)</b>	<b>98th Percentile (ppb)</b>	The level of the hourly NAAQS for NO2 is 100 parts per billion (ppb) based on the 98th percentile value from three consecutive years of data.
<b>2016</b>	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951058	48.4	44.4	47.675 ppb
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2951086	51.4	43.4	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	57.8	43.9	



2015								
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951058	58.2	45.5	
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2951086	50.6	46.3	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	55.5	46.1	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	88.6	53.8	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	53.1	49.9	
2014								
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	53.9	45.5	
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2951086	49	43.3	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	71.7	50.1	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	78.9	59.9	
								The level of the annual NAAQS for nitrogen dioxide is 53 parts per billion (ppb) not to be exceeded during the year. USEPA Calculated the hourly DV to be 14 ppb



3-HR SO2							
	County Name	City Name	CBSA Name	Address	Site Number	99th Percentile (ppb)	Average
2016	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	3.5	8 ppb (0.008 ppm)
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2951086	4	
2015							
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	9.2	
	St. Louis City	Not in a city	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2951086	6.4	
2014							
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	14.4	
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2951086	7.6	
3-HR SO2							
	County Name	City Name	CBSA Name	Address	Site Number	Arithmetic Mean	Average
2016	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951058	11.196441	12.0 ppb
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2951086	9.584305	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	10.852891	
2015							
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951058	13.252368	
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2951086	10.757543	



	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	12.747405	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	14.226662	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	11.619917	
<b>2014</b>							
	St. Louis City	St. Louis	St. Louis, MO-IL	BLAIR STREET: 3247 Blair Street, St. Louis, MO 63107	2951085	11.81653	
	St. Louis City	St. Louis	St. Louis, MO-IL	MARGARETTA: 4520 Margarett, St. Louis, MO 63115	2951086	10.785846	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	13.698227	
	St. Louis City	St. Louis	St. Louis, MO-IL	FOREST PARK: McKinely Dr., St. Louis, MO 63110	2951094	13.981051	



**Table 5a. NO<sub>2</sub> Monitoring Site Listing for Nitrogen Dioxide Annual NAAQS**  
AQS Data Query: 6/23/2014 Last Update: 7/2/2014

State	County	CBSA	CSA	Nonattainment Area Name	reg	Site	Addresses	Lat.	Long.	Completeness	2013 Annual Design Value <sup>2,3</sup>	
										Flag	Valid	Invalid
Alabama	Jefferson	Birmingham-Hoover, AL	Birmingham-Hoover-Cullman, AL		04	010730023	NO. B'HAM, SOUTH R.R., 3009 28TH ST. NO.	33.553056	-86.815	N		12
Arizona	Maricopa	Phoenix-Mesa-Scottsdale, AZ			09	040130019	3847 W EARLL DR-WEST PHOENIX STATION	33.48385	-112.14257	Y	18	
Arizona	Maricopa	Phoenix-Mesa-Scottsdale, AZ			09	040133002	1645 E ROOSEVELT ST-CENTRAL PHOENIX	33.45793	-112.04601	Y	20	





							STN					
Arizona	Maricopa	Phoenix-Mesa-Scottsdale, AZ			09	040133010	1128 N. 27TH AVE-GREENWOOD STATION	33.46093	-112.11748	Y	25	
Arizona	Maricopa	Phoenix-Mesa-Scottsdale, AZ			09	040134011	26453 W. MC85	33.37005	-112.6207	Y	8	
Arizona	Maricopa	Phoenix-Mesa-Scottsdale, AZ			09	040139997	4530 N 17TH AVENUE	33.503833	-112.095767	Y	17	
Arizona	Pima	Tucson, AZ			09	040191011	1237 S. BEVERLY, TUCSON	32.204411	-110.878067	Y	10	
Arizona	Pima	Tucson, AZ			09	040191028	400 W RIVER ROAD	32.29515	-110.9823	Y	11	
Arkansas	Crittenden	Memphis, TN-MS-AR			06	050350005	LH POLK AND COLONIAL DRIVE	35.197288	-90.193141	Y	8	
Arkansas	Pulaski	Little Rock-North Little Rock-Conway, AR	Little Rock-North Little Rock-		06	051190007	PIKE AVE AT RIVER ROAD	34.756189	-92.281296	Y	10	

			Pine Bluff, AR									
California	Alameda	San Francisco-Oakland-Fremont, CA	San Jose-San Francisco-Oakland, CA		09	060010007	793 Rincon Ave.	37.68 7526	- 4217	121.78	Y	12
California	Alameda	San Francisco-Oakland-Fremont, CA	San Jose-San Francisco-Oakland, CA		09	060010009	9925 International Blvd	37.74 3065	- 9935	122.16	Y	14
California	Alameda	San Francisco-Oakland-Fremont, CA	San Jose-San Francisco-Oakland, CA		09	060010011	1100 21st Street	37.81 4781	- 2347	122.28	Y	17
California	Alameda	San Francisco-Oakland-Fremont, CA	San Jose-San Francisco-Oakland, CA		09	060012005	13224 Patterson Pass Road	37.68 9615	- 1916	121.63	Y	4
California	Butte	Chico, CA			09	060070008	984 East Avenue	39.76 1538	- 162	121.84	Y	8



						CHICO						
California	Contra Costa	San Francisco-Oakland-Fremont, CA	San Jose-San Francisco-Oakland, CA		09	060130002	2956-A TREAT BOUL EVARD	37.93 6013	- 122.02 6154	Y	9	
California	Contra Costa	San Francisco-Oakland-Fremont, CA	San Jose-San Francisco-Oakland, CA		09	060131002	5551 BETHEL ISLAND RD	38.00 6311	- 121.64 1918	N		8
California	Contra Costa	San Francisco-Oakland-Fremont, CA	San Jose-San Francisco-Oakland, CA		09	060131004	1865 D RUMRI LL BLVD, San Pablo	37.96 04	- 122.35 6811	Y	10	
California	Contra Costa	San Francisco-Oakland-Fremont, CA	San Jose-San Francisco-Oakland, CA		09	60132007	9885 Alcosta BLVD	37.74 3649	- 121.93 4188	Y	8	
California	Fresno	Fresno, CA	Fresno - Madera, CA		09	060190007	4706 E. DRUMMOND ST., FRESNO	36.70 5506	- 119.74 1966	Y	14	



California	Fresno	Fresno, CA	Fresno - Madera, CA	09	060190011	3727 N FIRST ST, FRESN O	36.78 5322	- 119.77 4174	Y	13
California	Fresno	Fresno, CA	Fresno - Madera, CA	09	060190242	SIERRA SKYPARK#2- BLYTHE & CHNNLT, FRESN O	36.84 1389	- 119.87 4444	Y	9
California	Fresno	Fresno, CA	Fresno - Madera, CA	09	060194001	9240 S. RIVER BEND, PARLI ER 93648	36.59 75	- 119.50 3611	Y	11
California	Fresno	Fresno, CA	Fresno - Madera, CA	09	060195001	908 N VILLA AVE, CLOVIS	36.81 9111	- 119.71 7356	N	11
California	Humboldt	Eureka-Arcata- Fortuna, CA		09	060231004	717 SOUTH AVEN UE	40.77 6944	- 124.17 75	Y	3
California	Humboldt	Eureka-Arcata- Fortuna, CA		09	060231005	170 meters SE of Donna	40.71 528	- 124.20 139	Y	1



							Dr. & Humboldt Hill Rd., Eureka, CA					
California	Imperial	El Centro, CA			09	060250005	1029 ETHEL ST, CALEXICO HIGH SCHOOL	32.67 6186	- 115.48 4144	Y	13	
California	Imperial	El Centro, CA			09	060251003	150 9TH ST., EL CENTRO	32.79 222	- 115.56 306	Y	8	
California	Kern	Bakersfield, CA			09	060290007	JOHNSON FARM, EDISON, CA. 93320	35.34 6094	- 118.85 2037	Y	6	
California	Kern	Bakersfield, CA			09	060290014	5558 CALIFORNIA AVE, BAKERSFIELD	35.35 6092	- 119.04 1209	Y	13	
California	Kern	Bakersfield, CA			09	060292012	2000 South Union	35.33 1302	- 119.00 0974	Y	14	



							Ave. Bakersf ield CA 93307					
California	Kern	Bakersfield, CA			09	060296001	548 WALK ER ST., SHAFT ER, CA., 93263	35.50 3587	- 119.27 2606	Y	14	
California	Kings	Hanford- Corcoran, CA			09	060311004	807 SOUT H IRWIN ST., HANF ORD	36.31 4399	- 119.64 457	Y	10	
California	Los Angeles	Los Angeles- Long Beach- Santa Ana, CA	Los Angeles- Long Beach- Riversi de, CA	Los Angeles- South Coast Air Basin Area	09	060370002	803 N. LORE N AVE., AZUS A	34.13 65	- 117.92 391	Y	18	
California	Los Angeles	Los Angeles- Long Beach- Santa Ana, CA	Los Angeles- Long Beach- Riversi de, CA	Los Angeles- South Coast Air Basin Area	09	060370016	840 LAUR EL, GLEN DORA	34.14 435	- 117.85 036	Y	13	
California	Los Angeles	Los Angeles- Long Beach- Santa Ana, CA	Los Angeles- Long Beach- Riversi	Los Angeles- South Coast Air Basin Area	09	060370113	VA HOSPI TAL, WEST LOS	34.05 111	- 118.45 636	N		13



			de, CA				ANGELES					
California	Los Angeles	Los Angeles-Long Beach-Santa Ana, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060371002	228 W. PALM AVE., BURBANK	34.17605	-118.31712	Y	21	
California	Los Angeles	Los Angeles-Long Beach-Santa Ana, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060371103	1630 N MAIN ST, LOS ANGELES	34.06659	-118.22688	Y	22	
California	Los Angeles	Los Angeles-Long Beach-Santa Ana, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060371201	18330 GAULT ST., RESEDA	34.19925	-118.53276	N		14
California	Los Angeles	Los Angeles-Long Beach-Santa Ana, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060371302	700 North Bullis Road	33.901389	-118.205	Y	17	
California	Los Angeles	Los Angeles-Long Beach-Santa Ana, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060371602	4144 SAN GABRIEL RIVER PKWY, PICO RIVER A	34.01194	-118.06995	Y	20	



California	Los Angeles	Los Angeles-Long Beach-Santa Ana, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060371701	924 N. GAREY AVE., POMONA	34.06703	-117.7514	Y	23	
California	Los Angeles	Los Angeles-Long Beach-Santa Ana, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060372005	752 S. WILSON AVE., PASADENA	34.1326	-118.1272	N		21
California	Los Angeles	Los Angeles-Long Beach-Santa Ana, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060374002	3648 N. LONG BEACH BLVD., LONG BEACH	33.82376	-118.18921	N		12
California	Los Angeles	Los Angeles-Long Beach-Santa Ana, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060374006	2425 Webster St., Long Beach, CA	33.8025	-118.22	Y	21	
California	Los Angeles	Los Angeles-Long Beach-Santa Ana, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060375005	7201 W. WEST CHESTER PARKWAY	33.9508	-118.43043	Y	12	
California	Los Angeles	Los Angeles-Long Beach-	Los Angeles	Los Angeles-	09	060376012	22224 PLACE	34.38344	-118.52	Y	14	





		Santa Ana, CA	s-Long Beach-Riverside, CA	South Coast Air Basin Area			RITA CANYON RD, SANTA CLARITA		84			
California	Los Angeles	Los Angeles-Santa Ana, CA	Los Angeles-Long Beach-Riverside, CA		09	060379033	43301 DIVISION ST., LANCASTER, CA	34.67 1394	- 118.13 1456	Y	8	
California	Madera	Madera, CA	Fresno - Madera, CA		09	060390004	RD. 29 1/2 NO. OF AVE 8 MADEIRA COUNTY	36.86 6667	- 120.01	N	8	
California	Marin	San Francisco-Oakland-Fremont, CA	San Jose-San Francisco-Oakland, CA		09	060410001	534 4TH ST.	37.97 231	- 122.52 0004	Y	12	
California	Merced	Merced, CA			09	060470003	385 S. COFFEE AVENUE,	37.28 1598	- 120.43 4992	Y	8	



							MERC ED, CA 95340					
California	Monterey	Salinas, CA			09	060531003	867 E. LAUR EL Dr	36.69 676	- 121.63 7182	Y	5	
California	Napa	Napa, CA	San Jose- San Francis co- Oaklan d, CA		09	060550003	2552 JEFFE RSON AVE.	38.31 0942	- 122.29 6189	Y	9	
California	Orange	Los Angeles- Long Beach- Santa Ana, CA	Los Angele s-Long Beach- Riversi de, CA	Los Angeles- South Coast Air Basin Area	09	060590007	1630 W. PAMP AS LANE	33.83 062	- 117.93 845	Y	17	
California	Orange	Los Angeles- Long Beach- Santa Ana, CA	Los Angele s-Long Beach- Riversi de, CA	Los Angeles- South Coast Air Basin Area	09	060591003	2850 MESA VERD E DR EAST, COSTA MESA	33.67 464	- 117.92 568	Y	11	
California	Orange	Los Angeles- Long Beach- Santa Ana, CA	Los Angele s-Long Beach- Riversi de, CA	Los Angeles- South Coast Air Basin Area	09	060595001	621 W. LAMB ERT, LA HABR A	33.92 513	- 117.95 264	N		16
California	Placer	Sacramento-- Arden-Arcade- -Roseville, CA	Sacra mento- -		09	060610006	151 NO SUNRI SE	38.74 5726	- 121.26 6312	Y	10	



			Arden-Arcade --Yuba City, CA- NV				BLVD, ROSEV ILLE, CA					
California	Riverside	Riverside-San Bernardino- Ontario, CA	Los Angeles-Long Beach- Riverside, CA	Los Angeles- South Coast Air Basin Area	09	060650009	12705 Pechan ga Rd., Temecu la, CA 92592	33.44 7867	- 117.08 8649	Y	5	
California	Riverside	Riverside-San Bernardino- Ontario, CA	Los Angeles-Long Beach- Riverside, CA	Los Angeles- South Coast Air Basin Area	09	060650012	200 S. HATH AWAY ST., BANNI NG CA	33.92 086	- 116.85 841	Y	8	
California	Riverside	Riverside-San Bernardino- Ontario, CA	Los Angeles-Long Beach- Riverside, CA	Los Angeles- South Coast Air Basin Area	09	060651003	7002 MAGN OLIA AVE., RIVER SIDE	33.94 603	- 117.40 063	N		17
California	Riverside	Riverside-San Bernardino- Ontario, CA	Los Angeles-Long Beach- Riverside, CA		09	060655001	FS-590 RACQ UET CLUB AVE, PALM SPRIN GS	33.85 275	- 116.54 101	Y	7	
California	Riverside	Riverside-San Bernardino- Ontario, CA	Los Angeles-Long	Los Angeles- South	09	060658001	5888 MISSI ON	33.99 958	- 117.41 601	Y	16	



			Beach-Riverside, CA	Coast Air Basin Area			BLVD., RUBIDOUX					
California	Riverside	Riverside-San Bernardino-Ontario, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060658005	5130 POINSETTIA PLACE	33.995638	-117.493304	Y	14	
California	Riverside	Riverside-San Bernardino-Ontario, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060659001	506 W FLINT ST, LAKE ELSINORE	33.67649	-117.33098	Y	9	
California	Sacramento	Sacramento--Arden-Arcade--Roseville, CA	Sacramento--Arden-Arcade--Yuba City, CA-NV		09	060670002	7823 BLACKFOOT WAY, NORTH HIGHLANDS	38.71209	-121.38109	Y	10	
California	Sacramento	Sacramento--Arden-Arcade--Roseville, CA	Sacramento--Arden-Arcade--Yuba City, CA-NV		09	060670006	DEL PASO-2701 AVALON DR, SACRAMENTO	38.613779	-121.368014	Y	8	
California	Sacramento	Sacramento--Arden-Arcade--	Sacramento--		09	060670010	1309 T ST.,	38.558228	-121.49	N		12



		-Roseville, CA	- Arden-Arcade --Yuba City, CA-NV			SACR AMEN TO, CA. 95814		2981			
California	Sacramento	Sacramento-- Arden-Arcade--Roseville, CA	Sacramento-- Arden-Arcade --Yuba City, CA-NV		09	060670010	1309 T ST., SACR AMEN TO, CA. 95814	38.55 8228	- 121.49 2981	N	12
California	Sacramento	Sacramento-- Arden-Arcade--Roseville, CA	Sacramento-- Arden-Arcade --Yuba City, CA-NV		09	060670010	1309 T ST., SACR AMEN TO, CA. 95814	38.55 8228	- 121.49 2981	N	13
California	Sacramento	Sacramento-- Arden-Arcade--Roseville, CA	Sacramento-- Arden-Arcade --Yuba City, CA-NV		09	060670010	1309 T ST., SACR AMEN TO, CA. 95814	38.55 8228	- 121.49 2981	N	13
California	Sacramento	Sacramento--	Sacra		09	060670011	12490	38.30	-	Y	6



		Arden-Arcade- -Roseville, CA	mento- - Arden- Arcade --Yuba City, CA- NV				BRUC EVILL E RD, ELK GROV E, CA	2591	121.42 0838			
California	Sacramento	Sacramento-- Arden-Arcade- -Roseville, CA	Sacra mento- - Arden- Arcade --Yuba City, CA- NV		09	060670012	50 NATO MA STREE T, FOLSO M	38.68 3304	- 121.16 4457		N	4
California	Sacramento	Sacramento-- Arden-Arcade- -Roseville, CA	Sacra mento- - Arden- Arcade --Yuba City, CA- NV		09	060670014	68 GOLD ENLA ND COUR T, SACR AMEN TO, CA 95834	38.65 0783	- 121.50 6767		Y	10
California	San Bernardino	Riverside-San Bernardino- Ontario, CA	Los Angele s-Long Beach- Riversi de, CA		09	060710001	200 E. BUEN A VISTA, BARST OW	34.89 5007	- 117.02 4484		Y	16
California	San Bernardino	Riverside-San Bernardino-	Los Angele		09	060710306	14306 PARK	34.51 0014	- 117.33		Y	14



		Ontario, CA	s-Long Beach-Riverside, CA				AVE., VICTORVILLE, CA		1433			
California	San Bernardino	Riverside-San Bernardino-Ontario, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060711004	1350 SAN BERNARDINO RD., UPLAND	34.10 374	- 117.62 914	N		18
California	San Bernardino	Riverside-San Bernardino-Ontario, CA	Los Angeles-Long Beach-Riverside, CA		09	060711234	CORNER OF ATHOL AND TELES COPE	35.76 3873	- 117.39 7004	Y		6
California	San Bernardino	Riverside-San Bernardino-Ontario, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060712002	14360 ARROW BLVD., FONTANA	34.10 002	- 117.49 201	Y		21
California	San Bernardino	Riverside-San Bernardino-Ontario, CA	Los Angeles-Long Beach-Riverside, CA	Los Angeles-South Coast Air Basin Area	09	060719004	24302 4TH ST., SAN BERNARDINO, CA.	34.10 688	- 117.27 411	Y		18
California	San Diego	San Diego-Carlsbad-San Marcos, CA			09	060730001	80 E. 'J' ST., CHULA VISTA	32.63 1231	- 117.05 9075	Y		11



California	San Diego	San Diego-Carlsbad-San Marcos, CA			09	060730003	1155 REDW OOD AVE., EL CAJON	32.79 1194	- 116.94 2092	Y	12	
California	San Diego	San Diego-Carlsbad-San Marcos, CA			09	060731002	600 E. VALLE Y PKWY., ESCON DIDO	33.12 7711	- 117.07 5325	Y	12	
California	San Diego	San Diego-Carlsbad-San Marcos, CA			09	060731006	2300 VICTO RIA DR., ALPIN E	32.84 2242	- 116.76 8225	Y	6	
California	San Diego	San Diego-Carlsbad-San Marcos, CA			09	060731008	21441- W B STREE T	33.21 7025	- 117.39 6158	Y	7	
California	San Diego	San Diego-Carlsbad-San Marcos, CA			09	060731010	1110 BEAR DSLEY STREE T, SAN DIEGO , CA 92112	32.70 1492	- 117.14 9653	Y	14	
California	San Diego	San Diego-Carlsbad-San Marcos, CA			09	060731016	6125A KEAR NY VILLA	32.84 5467	- 117.12 3894	Y	11	





							RD., SAN DIEGO					
California	San Diego	San Diego- Carlsbad-San Marcos, CA			09	060732007	1100 PASEO INTER NATIO NAL, OTAY MESA, CA	32.55 2164	- 116.93 7772	Y	19	
California	San Francisco	San Francisco- Oakland- Fremont, CA	San Jose- San Francis co- Oaklan d, CA		09	060750005	10 ARKA NSAS ST.	37.76 5946	- 122.39 9044	Y	14	
California	San Joaquin	Stockton, CA			09	060771002	HAZEL TON- HD, STOCK TON	37.95 0741	- 121.26 8523	Y	16	
California	San Joaquin	Stockton, CA			09	060773005	5749 S. TRAC Y BLVD., TRAC Y	37.68 25	- 121.44 056	Y	6	
California	San Luis Obispo	San Luis Obispo-Paso Robles, CA			09	060793001	MORR O BAY BLVD & KERN AVE,	35.36 631	- 120.84 271	Y	3	



							MORRO BAY					
California	San Luis Obispo	San Luis Obispo-Paso Robles, CA			09	060794002	NIPOMO REGIONAL PARK, NIPOMO, CA.	35.03 146	- 120.50 103	Y	3	
California	San Luis Obispo	San Luis Obispo-Paso Robles, CA			09	060798001	6005 LEWIS AVENUE, ATASCADERO, CA 93422	35.49 158	- 120.66 804	Y	7	
California	San Mateo	San Francisco-Oakland-Fremont, CA	San Jose-San Francisco-Oakland, CA		09	060811001	897 BARRON AVE.	37.48 2934	- 122.20 337	Y	13	
California	Santa Barbara	Santa Barbara-Santa Maria-Goleta, CA			09	060830008	EL CAPITAN ST PRK, HWY 10	34.46 245	- 120.02 551	Y	3	
California	Santa Barbara	Santa Barbara-Santa Maria-Goleta, CA			09	060830011	700 E. CANNON PERDIDO	34.42 775	- 119.69 1218	Y	10	



California	Santa Barbara	Santa Barbara-Santa Maria-Goleta, CA			09	060831008	906 S BROADWAY - SANTA MARIA	34.94 9147	- 120.43 763	Y	7	
California	Santa Barbara	Santa Barbara-Santa Maria-Goleta, CA			09	060831013	HS & P FACILITY-500 M SW, LOMP OC	34.72 5556	- 120.42 7778	Y	1	
California	Santa Barbara	Santa Barbara-Santa Maria-Goleta, CA			09	060831014	PARADISE RD-LOS PADRES National Forest	34.54 166	- 119.79 146	Y	1	
California	Santa Barbara	Santa Barbara-Santa Maria-Goleta, CA			09	060831018	GTC B-HWY 101 NEAR NOJOQUI PASS, GAVIOTA	34.52 744	- 120.19 65	Y	3	
California	Santa Barbara	Santa Barbara-Santa Maria-Goleta, CA			09	060831021	GOBERNADOR RD, CARPI	34.40 2778	- 119.45 75	Y	2	



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California	Santa Barbara	Santa Barbara- Santa Maria- Goleta, CA			09	060831025	LFC #1-LAS FLORE S CANY ON	34.48 974	- 120.04 692	Y	2	
California	Santa Barbara	Santa Barbara- Santa Maria- Goleta, CA			09	060832004	128 S 'H' ST, LOMP OC	34.63 782	- 120.45 75	Y	4	
California	Santa Barbara	Santa Barbara- Santa Maria- Goleta, CA			09	060832011	380 N FAIRV IEW AVEN UE, GOLET A	34.44 551	- 119.82 84	Y	6	
California	Santa Barbara	Santa Barbara- Santa Maria- Goleta, CA			09	060834003	STS POWE R PLANT , VAND ENBER G AFB	34.59 6111	- 120.63 0278	Y	0	
California	Santa Clara	San Jose- Sunnyvale- Santa Clara, CA	San Jose- San Francis co- Oaklan d, CA		09	060850005	158B JACKS ON ST	37.34 8497	- 121.89 4898	Y	15	



California	Santa Clara	San Jose-Sunnyvale-Santa Clara, CA	San Jose-San Francisco-Oakland, CA	09	060852009	22601 Voss Ave	37.31 8435	- 122.06 9705	Y	9
California	Solano	Vallejo-Fairfield, CA	San Jose-San Francisco-Oakland, CA	09	060950004	304 TUOLUMNE ST.	38.10 2507	- 122.23 7976	Y	10
California	Sonoma	Santa Rosa-Petaluma, CA	San Jose-San Francisco-Oakland, CA	09	060970003	837 5TH ST.	38.44 3503	- 122.71 0169	Y	9
California	Stanislaus	Modesto, CA		09	060990006	900 S MINA RET STREET, TULLOCK, CA	37.48 7981	- 120.83 7005	Y	11
California	Sutter	Yuba City, CA	Sacramento-Arden-Arcade--Yuba	09	061010003	773 ALMOND ST, YUBA CITY	39.13 8773	- 121.61 8549	Y	10

			City, CA- NV									
California	Tulare	Visalia- Porterville, CA			09	061072002	310 N CHUR CH ST, VISALI A	36.33 2179	- 119.29 1228	Y	13	
California	Ventura	Oxnard- Thousand Oaks-Ventura, CA	Los Angeles-Long Beach- Riversi de, CA		09	061112002	5400 COCH RAN STREE T, SIMI VALLE Y, CA 93063	34.27 5736	- 118.68 4731	Y	9	
California	Ventura	Oxnard- Thousand Oaks-Ventura, CA	Los Angeles-Long Beach- Riversi de, CA		09	061113001	545 CENTR AL AVEN UE, OXNA RD, CA 93030	34.25 324	- 119.14 2504	Y	7	
California	Yolo	Sacramento-- Arden-Arcade- -Roseville, CA	Sacra mento- - Arden- Arcade --Yuba City, CA- NV		09	061130004	UC DAVIS - CAMP US, CAMP BELL ROAD WEST OF HIWA	38.53 445	- 121.77 34	Y	7	



							Y 113 & SOUT H OF HUTC HISON DRIVE .					
Colorado	Adams	Denver-Aurora, CO	Denver - Aurora - Boulde r, CO		08	080013001	3174 E. 78TH AVE.	39.83 8119	- 104.94 984	Y	17	
Colorado	Denver	Denver-Aurora, CO	Denver - Aurora - Boulde r, CO		08	080310002	2105 BROA DWAY	39.75 1184	- 104.98 7625	Y	24	
Colorado	Denver	Denver-Aurora, CO	Denver - Aurora - Boulde r, CO		08	080310027	971 W. Yuma Street	39.73 217	- 105.01 53	N		25
Colorado	Jackson				08	080570003	Walden , Colorad o - Chandl er Ranch	40.88 2222	- 106.30 6111	Y	1	
Colorado	La Plata	Durango, CO			08	080671004	Wemin uche	37.30 389	- 107.48	N		2



						Wilderness Area - Shamrock Station		4167			
Colorado	La Plata	Durango, CO		08	080677001	1 MI. NE OF IGNACIO ON COUNTY RD. 517	37.13678	-107.62863	Y	4	
Colorado	La Plata	Durango, CO		08	080677003	7571 HWY. 5505	37.10258	-107.870219	Y	6	
Colorado	Rio Blanco			08	081030005	Meeker, Colorado Plant Science Building	40.038889	-107.8475	Y	1	
Colorado	Rio Blanco			08	081030006	Rangel, Colorado, Golf Course	40.086944	-108.761389	Y	3	
Connecticut	Fairfield	Bridgeport-Stamford-Norwalk, CT	New York-Newark-Bridgeport, NY-	01	090019003	SHERWOOD ISLAND STATE PARK	41.118333	-73.336667	Y	9	





			NJ-CT-PA									
Connecticut	Hartford	Hartford-West Hartford-East Hartford, CT	Hartford-West Hartford-Willimantic, CT		01	090030025	10 Huntley Place	41.77 1444	- 72.679 923	N		16
Connecticut	Hartford	Hartford-West Hartford-East Hartford, CT	Hartford-West Hartford-Willimantic, CT		01	090031003	Remington Road (see coordinates)	41.78 4722	- 72.631 667	Y		8
Connecticut	Litchfield	Torrington, CT	New York-Newark- Bridgeport, NY-NJ-CT-PA		01	090050005	MOHAWK MOUNTAIN ROAD (see coordinates)	41.82 1342	- 73.297 257	Y		2
Connecticut	New Haven	New Haven- Milford, CT	New York-Newark- Bridgeport, NY-NJ-CT-PA		01	090090027	JAMES STREET	41.30 14	- 72.902 871	Y		14
Delaware	New Castle	Philadelphia-	Philad		03	100031010	BRAN	39.81	-	N		5



		Camden- Wilmington, PA-NJ-DE-MD	elphia- Camde n- Vinela nd, PA- NJ- DE- MD				DYWI NE CREEK STATE PARK	7222	75.563 889			
Delaware	New Castle	Philadelphia- Camden- Wilmington, PA-NJ-DE-MD	Philad elphia- Camde n- Vinela nd, PA- NJ- DE- MD		03	100032004	MLK BLVD AND JUSTIS ON ST.	39.73 9444	- 75.558 056	Y	12	
Delaware	Sussex	Seaford, DE			03	100051003	UNIV. OF DE COLLE GE OF MARI NE STUDI ES	38.77 9196	- 75.162 673	Y	2	
District Of Columbia	District of Columbia	Washington- Arlington- Alexandria, DC-VA-MD- WV	Washington- Baltimore-Northern Virginia, DC-MD- VA-WV		03	110010041	420 34th Street N.E.,W ashingt on, DC 20019	38.89 7222	- 76.952 778	Y	12	
District Of	District of	Washington-	Washington-		03	110010043	2500	38.92	-	Y	12	



**I-70 PEL Study  
Conditions Assessment Report**

Columbia	Columbia	Arlington-Alexandria, DC-VA-MD-WV	Baltimore-Northern Virginia, DC-MD-VA-WV			1ST STREET, N.W. WASHINGTON DC	1847	77.013178			
District Of Columbia	District of Columbia	Washington-Arlington-Alexandria, DC-VA-MD-WV	Washington-Baltimore-Northern Virginia, DC-MD-VA-WV	03	110010050	301 Van Buren Street, N.W. Washington DC 20012	38.970092	-77.016715	N		13
Florida	Broward	Miami-Fort Lauderdale-Pompano Beach, FL		04	120118002	7000 N. OCEAN DRIVE	26.087	-80.111	Y	4	
Florida	Duval	Jacksonville, FL		04	120310032	2900 BENNETT ST.	30.356339	-81.635396	Y	8	
Florida	Hillsborough	Tampa-St. Petersburg-Clearwater, FL		04	120571065	5121 GANDY BLVD	27.892222	-82.538611	Y	5	
Florida	Miami-Dade	Miami-Fort Lauderdale-Pompano Beach, FL		04	120860027	ROSENSTIELSCHOL	25.733378	-80.161806	Y	3	
Florida	Miami-Dade	Miami-Fort Lauderdale-Pompano Beach, FL		04	120864002	METRO ANNE X 864	25.798333	-80.210278	Y	8	



						NW 3RD STREE T					
Florida	Orange	Orlando- Kissimmee, FL	Orlando- Deltona- Daytona Beach, FL		04	120952002	MORRI S BLVD.	28.59 6389	- 81.362 5	Y	5
Florida	Palm Beach	Miami-Fort Lauderdale- Pompano Beach, FL			04	120990020	1199 LANT ANA ROAD,	26.59 123	- 80.060 867	Y	4
Florida	Pinellas	Tampa-St. Petersburg- Clearwater, FL			04	121030018	7200- 22 AVEN UE NORT H	27.78 5866	- 82.739 875	Y	5
Florida	Sarasota	Bradenton- Sarasota- Venice, FL	Sarasota- Bradenton- Punta Gorda, FL		04	121151006	4570 17TH STREE T	27.35 0278	-82.48	N	2
Georgia	DeKalb	Atlanta-Sandy Springs- Marietta, GA	Atlanta-Sandy Springs- Gainesville, GA-AL		04	130890002	2390-B Wildcat Road, Decatur GA 30034	33.68 797	- 84.290 48	Y	9



Georgia	Paulding	Atlanta-Sandy Springs-Marietta, GA	Atlanta-Sandy Springs-Gainesville, GA-AL		04	132230003	King Farm, 160 Ralph King Path, Rockmart, Georgia, 30153	33.9285	-85.04534	Y	3	
Georgia	Rockdale	Atlanta-Sandy Springs-Marietta, GA	Atlanta-Sandy Springs-Gainesville, GA-AL		04	132470001	Monastery of the Holy Spirit, 2625 Georgia 212, Conyers, Georgia, 30094	33.591077	-84.065294	Y	4	
Hawaii	Honolulu	Honolulu, HI			09	150030010	2052 LAUW ILIWI LIST	21.323745	-158.088613	Y	3	
Hawaii	Kauai	Kapaa, HI			09	150070007	2342 HULE MALU ROAD, KAUAI	21.949599	-159.36624	Y	2	
Idaho	Ada	Boise City-Nampa, ID			10	160010023	1311 East Central Drive	43.593929	-116.38125	N		17



Idaho	Ada	Boise City-Nampa, ID		10	160010023	1311 East Central Drive	43.59 3929	- 116.38 125	N		17
Idaho	Ada	Boise City-Nampa, ID		10	160010023	1311 East Central Drive	43.59 3929	- 116.38 125	Y	11	
Idaho	Ada	Boise City-Nampa, ID		10	160010023	1311 East Central Drive	43.59 3929	- 116.38 125	Y	11	
Illinois	Cook	Chicago-Naperville-Joliet, IL-IN-WI	Chicago-Naperville-Michigan City, IL-IN-WI	05	170310063	321 S. FRAN KLIN	41.87 7682	- 87.635 027	Y	21	
Illinois	Cook	Chicago-Naperville-Joliet, IL-IN-WI	Chicago-Naperville-Michigan City, IL-IN-WI	05	170310076	7801 LAWN DALE	41.75 14	- 87.713 488	Y	16	
Illinois	Cook	Chicago-Naperville-Joliet, IL-IN-WI	Chicago-Naperville-Michigan City, IL-IN-WI	05	170313103	4743 MANN HEIM RD.	41.96 5193	- 87.876 265	N		19
Illinois	Cook	Chicago-Naperville-Joliet, IL-IN-WI	Chicago-Naperville-Michigan City, IL-IN-WI	05	170314002	1820 S. 51ST AVE.	41.85 5243	- 87.752 47	Y	18	
Illinois	Cook	Chicago-Naperville-Joliet, IL-IN-WI	Chicago-Naperville-Michigan City, IL-IN-WI	05	170314201	750 DUND EE ROAD	42.13 9996	- 87.799 227	Y	12	
Illinois	Saint Clair	St. Louis, MO-IL	St. Louis-St. Charles-Farmington,	05	171630010	13TH & TUDO	38.61 2034	- 90.160 477	Y	11	



			MO-IL				R					
Illinois	Saint Clair	St. Louis, MO-IL	St. Louis-St. Charles-Farmington, MO-IL		05	171630900	Cool Sports Road	38.52 5945	- 90.039 1	Y	5	
Indiana	Bartholomew	Columbus, IN	Indianapolis-Anderson-Columbus, IN		05	180050007	Hope-Hauser Jr-Sr High School, 9404 N. 775 E.	39.29 4322	- 85.766 816	N		5
Indiana	Lake	Chicago-Naperville-Joliet, IL-IN-WI	Chicago-Naperville-Michigan City, IL-IN-WI		05	180890022	201 MISSISSIPPI ST., IITRI BUNKER	41.60 668	- 87.304 729	Y	12	
Indiana	Marion	Indianapolis-Carmel, IN	Indianapolis-Anderson-Columbus, IN		05	180970073	NAVAL AVIONICS CENTER, 6125 E. 16TH ST.	39.78 9486	- 86.060 85	Y	9	
Indiana	Marion	Indianapolis-Carmel, IN	Indianapolis-Anderson-Columbus, IN		05	180970078	3120 E. 30TH ST., WASHINGTON PARK	39.81 1097	- 86.114 469	Y	12	



Indiana	St. Joseph	South Bend-Mishawaka, IN-MI	South Bend-Elkhart-Mishawaka, IN-MI	05	181410015	2335 SHIELDS DR/ SOUTH BEND CAAP 2	41.69 6692	- 86.214 683	Y	8
Indiana	Vanderburgh	Evansville, IN-KY		05	181630021	Evansville-Buena Vista-1110 W. Buena Vista Rd.	38.01 3248	- 87.577 856	Y	8
Indiana	Whitley	Fort Wayne, IN	Fort Wayne-Huntington-Auburn, IN	05	181830003	Larwill-Whitko Middle Sch. 710 N. State Rd. 5	41.16 9646	- 85.629 292	N	3
Iowa	Polk	Des Moines-West Des Moines, IA	Des Moines-Newton-Pella, IA	07	191530030	1907 CARPENTER, DES MOINES IOWA	41.60 3159	- 93.643 118	Y	7





Iowa	Polk	Des Moines- West Des Moines, IA	Des Moines- Newton-Pella, IA	07	191536011	6011 ROLLI NS AVE, DES MOINE S IOWA	41.59 3156	- 93.701 341	Y	9
Iowa	Scott	Davenport- Moline-Rock Island, IA-IL		07	191630015	10TH ST. & VINE ST. DAVE NPORT	41.53 0011	- 90.587 611	Y	7
Iowa	Van Buren			07	191770006	24430 LACE Y TRAIL	40.69 5078	- 92.006 318	Y	2
Kansas	Linn	Kansas City, MO-KS	Kansas City- Overland Park- Kansas City, MO-KS	07	201070002	COUN TY RD 1103 .7 MI SOUT H OF K-52	38.13 5882	- 94.731 988	Y	2
Kansas	Sedgwick	Wichita, KS	Wichita- Winfield, KS	07	201730010	HEALT H DEPT., 1900 EAST 9TH ST.	37.70 2066	- 97.314 847	Y	9
Kansas	Sumner	Wichita, KS	Wichita- Winfield, KS	07	201910002	707 E 119TH ST	37.47 689	- 97.366 399	Y	4



						SOUTH, PECK COMMUNITY BLDG					
Kansas	Wyandotte	Kansas City, MO-KS	Kansas City-Overland Park-Kansas City, MO-KS	07	202090021	1210 N. 10TH ST., JEFFERSON RECREATION CENTER	39.117219	-94.635605	Y	12	
Kentucky	Boyd	Huntington-Ashland, WV-KY-OH		04	210190017	FIVCO HEALTH DEPARTMENT, 2924 HOLT STREET	38.45934	-82.64041	Y	6	
Kentucky	Campbell	Cincinnati-Middletown, OH-KY-IN	Cincinnati-Middletown-Wilmington, OH-KY-IN	04	210373002	524A JOHN'S HILL ROAD	39.021881	-84.47445	Y	5	
Kentucky	Daviess	Owensboro, KY		04	210590005	716 PLEASANT VALLEY ROAD	37.780776	-87.075307	Y	5	
Kentucky	Fayette	Lexington-Fayette, KY	Lexington-Fayette--	04	210670012	FAYETTE	38.06503	-84.497	Y	7	

			Frankfort-- Richmond, KY			COUN TY HEALT H DEPT, 650 NEWT OWN PIKE		61			
Kentucky	Jefferson	Louisville/Jeffe rson County, KY-IN	Louisville/Jefferson County- Elizabethtown- Scottsburg, KY-IN	04	211110067	2730 CANN ONS LANE, BOWM AN FIELD	38.22 876	- 85.654 52	Y	11	
Kentucky	McCracken	Paducah, KY- IL	Paducah- Mayfield, KY- IL	04	211451024	JACKS ON PURC HASE RECC, 2901 POWE LL STREE T	37.05 822	- 88.572 51	Y	6	
Louisiana	Ascension	Baton Rouge, LA	Baton Rouge- Pierre Part, LA	06	220050004	11153 Kling Road	30.23 3889	- 90.968 333	Y	9	
Louisiana	Calcasieu	Lake Charles, LA	Lake Charles- Jennings, LA	06	220190008	2646 John Stine Road	30.26 1667	- 93.284 167	Y	5	
Louisiana	East Baton Rouge	Baton Rouge, LA	Baton Rouge- Pierre Part, LA	06	220330003	EAST END	30.41 9763	- 91.181	Y	10	



						OF ASTER LANE		996			
Louisiana	East Baton Rouge	Baton Rouge, LA	Baton Rouge-Pierre Part, LA		06	220330009	1061-A Leesville Ave	30.46 198	- 91.179 22	Y	10
Louisiana	East Baton Rouge	Baton Rouge, LA	Baton Rouge-Pierre Part, LA		06	220330013	11245 Port Hudson -Pride Rd. Zachary, La	30.70 0921	- 91.056 135	Y	2
Louisiana	Iberville	Baton Rouge, LA	Baton Rouge-Pierre Part, LA		06	220470009	65180 Bellevue Road	30.22 0556	- 91.316 111	Y	4
Louisiana	Iberville	Baton Rouge, LA	Baton Rouge-Pierre Part, LA		06	220470012	HIGHWAY 171, CARVILLE	30.20 6985	- 91.129 948	Y	8
Louisiana	Jefferson	New Orleans-Metairie-Kenner, LA	New Orleans-Metairie-Bogalusa, LA		06	220511001	West Temple Pl	30.04 3573	- 90.275 091	Y	6
Louisiana	Livingston	Baton Rouge, LA	Baton Rouge-Pierre Part, LA		06	220630002	Highway 16, French Settlement	30.31 25	- 90.812 5	Y	3
Louisiana	West Baton Rouge	Baton Rouge, LA	Baton Rouge-Pierre Part, LA		06	221210001	1005 Northwest Drive, Port	30.50 0643	- 91.213 556	Y	9



						Allen					
Maine	Aroostook			01	230031100	8 NORT HERN ROAD, PRESQ UE ISLE, ME 04769	46.69 6431	- 68.033 006	Y	2	
Maine	Cumberland	Portland-South Portland- Biddeford, ME	Portland- Lewiston- South Portland, ME	01	230050029	356 State Street, Portlan d, Maine	43.66 0246	- 70.268 965	Y	8	
Maine	Kennebec	Augusta- Waterville, ME		01	230112005	14 Pray Street	44.23 0622	- 69.785	Y	4	
Maryland	Baltimore	Baltimore- Towson, MD	Washington- Baltimore-Northern Virginia, DC-MD- VA-WV	03	240053001	600 Dorsey Avenue	39.31 0833	- 76.474 444	Y	11	
Maryland	Prince George's	Washington- Arlington- Alexandria, DC-VA-MD- WV	Washington- Baltimore-Northern Virginia, DC-MD- VA-WV	03	240330030	Howard Univers ity's Beltsvil le Laborat ory, 12003 Old Baltimo re Pike	39.05 5277	- 76.878 333	Y	8	
Maryland	Baltimore (City)	Baltimore- Towson, MD	Washington- Baltimore-Northern	03	245100040	Oldtow n Fire	39.29 8056	- 76.604	Y	15	



			Virginia, DC-MD-VA-WV			Station, 1100 Hillen Street		722			
Massachusetts	Essex	Boston-Cambridge-Quincy, MA-NH	Boston-Worcester-Manchester, MA-RI-NH		01	250092006	390 PARKLAND	42.474642	-70.970816	Y	7
Massachusetts	Essex	Boston-Cambridge-Quincy, MA-NH	Boston-Worcester-Manchester, MA-RI-NH		01	250094005	HARBOR STREET	42.814412	-70.817783	Y	4
Massachusetts	Hampden	Springfield, MA			01	250130008	ANDERSON ROAD AFB	42.19438	-72.555112	Y	7
Massachusetts	Hampden	Springfield, MA			01	250130016	LIBERTY STREET	42.108992	-72.590803	Y	14
Massachusetts	Hampshire	Springfield, MA			01	250154002	QUABBIN SUMMIT	42.298493	-72.334079	Y	3
Massachusetts	Norfolk	Boston-Cambridge-Quincy, MA-NH	Boston-Worcester-Manchester, MA-RI-NH		01	250213003	695 HILLSIDE ST Blue Hill Observatory	42.211774	-71.11397	N	4
Massachusetts	Suffolk	Boston-Cambridge-Quincy, MA-NH	Boston-Worcester-Manchester, MA-RI-NH		01	250250002	KENMORE SQ	42.348873	-71.097163	Y	18



Massachusetts	Suffolk	Boston-Cambridge-Quincy, MA-NH	Boston-Worcester-Manchester, MA-RI-NH	01	250250040	531A EAST FIRST STREET	42.340251	-71.03835	Y	12	
Massachusetts	Suffolk	Boston-Cambridge-Quincy, MA-NH	Boston-Worcester-Manchester, MA-RI-NH	01	250250041	LONG ISLAND	42.317372	-70.968359	N		7
Massachusetts	Suffolk	Boston-Cambridge-Quincy, MA-NH	Boston-Worcester-Manchester, MA-RI-NH	01	250250042	HARRISON AVE	42.3295	-71.0826	Y	17	
Massachusetts	Suffolk	Boston-Cambridge-Quincy, MA-NH	Boston-Worcester-Manchester, MA-RI-NH	01	250250044	19 VON HILLEN ST	42.325186	-71.056061	N		17
Massachusetts	Worcester	Worcester, MA	Boston-Worcester-Manchester, MA-RI-NH	01	250270023	SUMMER ST	42.263955	-71.794322	Y	12	
Michigan	Ingham	Lansing-East Lansing, MI	Lansing-East Lansing-Owosso, MI	05	260650012	220 N PENNSYLVANIA	42.738618	-84.534633	Y	7	
Michigan	Missaukee	Cadillac, MI		05	261130001	1769 S JEFFS RD	44.310555	-84.891865	Y	1	
Michigan	Wayne	Detroit-Warren-Livonia, MI	Detroit-Warren-Flint, MI	05	261630019	11600 EAST SEVEN MILE ROAD	42.43084	-83.000138	Y	11	
Michigan	Wayne	Detroit-Warren-	Detroit-Warren-Flint,	05	261630093	23751 FENKE	42.385998	-83.266	Y	18	



**I-70 PEL Study  
Conditions Assessment Report**

		Livonia, MI	MI			LL ST (ROAD SIDE)		189			
Michigan	Wayne	Detroit- Warren- Livonia, MI	Detroit- Warren-Flint, MI	05	261630094	23751 FENKE LL ST (DOW NWIN D)	42.38 6811	- 83.270 506	Y	12	
Minnesota	Anoka	Minneapolis- St. Paul- Bloomington, MN-WI	Minneapolis- St. Paul-St. Cloud, MN-WI	05	270031002	9399 Lima St	45.13 768	- 93.207 615	Y	7	
Minnesota	Dakota	Minneapolis- St. Paul- Bloomington, MN-WI	Minneapolis- St. Paul-St. Cloud, MN-WI	05	270370020	12821 PINE BEND TRAIL	44.76 323	- 93.032 55	Y	9	
Minnesota	Dakota	Minneapolis- St. Paul- Bloomington, MN-WI	Minneapolis- St. Paul-St. Cloud, MN-WI	05	270370423	2142 120TH STREE T EAST	44.77 553	- 93.062 99	Y	5	
Minnesota	Hennepin	Minneapolis- St. Paul- Bloomington, MN-WI	Minneapolis- St. Paul-St. Cloud, MN-WI	05	270530962	1444 E 18th St	44.96 5242	- 93.254 759	N		13
Minnesota	Lake			05	270750005	Fernber g Road	47.94 8622	- 91.495 574	N		0
Mississippi	Jackson	Pascagoula, MS	Gulfport- Biloxi- Pascagoula, MS	04	280590006	Hospita l Road at Co. Health Dept.	30.37 8287	- 88.533 93	Y	4	
Missouri	Jackson	Kansas City,	Kansas City-	07	290950034	TROOS	39.10	-	Y	13	





		MO-KS	Overland Park-Kansas City, MO-KS				T: 724 Troost (Rear), Kansas City, MO 64106	4758	94.570796			
Missouri	Jackson	Kansas City, MO-KS	Kansas City-Overland Park-Kansas City, MO-KS		07	290950042	BLUE RIDGE, I-70: 4018 Harvard Lane, Kansas City, MO 64133	39.047911	-94.450513	N		14
Missouri	St. Louis City	St. Louis, MO-IL	St. Louis-St. Charles-Farmington, MO-IL		07	295100085	BLAIR STREET T: 3247 Blair Street, St. Louis, MO 63107	38.656498	-90.198646	N		12
Missouri	St. Louis City	St. Louis, MO-IL	St. Louis-St. Charles-Farmington, MO-IL		07	295100086	MARGARETTA: 4520 Margareta, St. Louis, MO 63115	38.673221	-90.239166	Y	11	
Missouri	St. Louis	St. Louis, MO-	St. Louis-St.		07	295100094	FORES	38.63	-	N		13



	City	IL	Charles-Farmington, MO-IL				T PARK: McKinley Dr., St. Louis, MO 63110	1057	90.281 144			
Missouri	St. Louis City	St. Louis, MO-IL	St. Louis-St. Charles-Farmington, MO-IL		07	295100094	FOREST PARK: McKinley Dr., St. Louis, MO 63110	38.63 1057	- 90.281 144	N		13
Missouri	St. Louis City	St. Louis, MO-IL	St. Louis-St. Charles-Farmington, MO-IL		07	295100094	FOREST PARK: McKinley Dr., St. Louis, MO 63110	38.63 1057	- 90.281 144	Y		14
Missouri	St. Louis City	St. Louis, MO-IL	St. Louis-St. Charles-Farmington, MO-IL		07	295100094	FOREST PARK: McKinley Dr., St. Louis, MO 63110	38.63 1057	- 90.281 144	Y		14



Montana	Fergus				08	300270006	303 East Aztec Drive Lewiston MT 59457	47.048537	-109.455315	Y	1	
Montana	Gallatin	Bozeman, MT			08	300310017	NE of West Park Entrance Gate	44.657014	-111.089618	Y	2	
Montana	Phillips				08	300710010	2309 Short Oil Road, Malta, MT 59538	48.317507	-107.862471	Y	0	
Montana	Powder River				08	300750001	Big Powder River Road East	45.440295	-105.370283	Y	1	
Montana	Richland				08	300830001	Corner Cnty Roads 335 and 131	47.803392	-104.485552	Y	1	
Montana	Rosebud				08	300870001	SR 566, 3 Miles N of Birney	45.366151	-106.48982	Y	1	
Nevada	Clark	Las Vegas-Paradise, NV	Las Vegas-Paradise-		09	320030075	6651 W.	36.270583	-115.23	Y	5	



**I-70 PEL Study  
Conditions Assessment Report**

			Pahrump, NV				AZUR E AVE		8256			
Nevada	Clark	Las Vegas- Paradise, NV	Las Vegas- Paradise- Pahrump, NV	09	320030561		2501 SUNRI SE AVEN UE	36.16 3959	- 115.11 3916	Y	14	
Nevada	Clark	Las Vegas- Paradise, NV	Las Vegas- Paradise- Pahrump, NV	09	320032002		1301B EAST TONO PAH	36.19 126	- 115.12 293	Y	14	
Nevada	Washoe	Reno-Sparks, NV	Reno-Sparks- Fernley, NV	09	320310016		301 A STATE STREE T, RENO, NV 89502	39.52 5083	- 119.80 7717	Y	16	
New Hampshire	Hillsborough	Manchester- Nashua, NH	Boston- Worcester- Manchester, MA-RI-NH	01	330111011		GILSO N ROAD	42.71 8664	- 71.522 427	N		2
New Jersey	Camden	Philadelphia- Camden- Wilmington, PA-NJ-DE-MD	Philadelphia- Camden- Vineland, PA- NJ-DE-MD	02	340070002		266 Spruce Street	39.93 4446	- 75.125 291	Y	12	
New Jersey	Essex	New York- Northern New Jersey-Long Island, NY-NJ- PA	New York- Newark- Bridgeport, NY-NJ-CT-PA	02	340130003		360 Clinton Avenue	40.72 0989	- 74.192 892	Y	18	
New Jersey	Essex	New York- Northern New Jersey-Long Island, NY-NJ-	New York- Newark- Bridgeport, NY-NJ-CT-PA	02	340131003		Engine No. 2, Main Street	40.75 7501	- 74.200 5	Y	18	

		PA				and Greenw ood Avenue					
New Jersey	Hudson	New York- Northern New Jersey-Long Island, NY-NJ- PA	New York- Newark- Bridgeport, NY-NJ-CT-PA		02	340170006	Veteran s Park on Newark Bay, 25th Street near Park Road	40.67 025	- 74.126 081	N	16
New Jersey	Middlesex	New York- Northern New Jersey-Long Island, NY-NJ- PA	New York- Newark- Bridgeport, NY-NJ-CT-PA		02	340230011	Horticu ltural Farm #3, off Ryder's Lane	40.46 2182	- 74.429 439	Y	9
New Jersey	Morris	New York- Northern New Jersey-Long Island, NY-NJ- PA	New York- Newark- Bridgeport, NY-NJ-CT-PA		02	340273001	Buildin g #1, Depart ment of Public Works (DPW) off Route 513	40.78 7628	- 74.676 301	Y	4
New Jersey	Union	New York- Northern New Jersey-Long Island, NY-NJ- PA	New York- Newark- Bridgeport, NY-NJ-CT-PA		02	340390004	Intercha nge 13, New Jersey Turnpik	40.64 144	- 74.208 365	Y	22



						e						
New Jersey	Warren	Allentown-Bethlehem-Easton, PA-NJ			02	340410007	Columbia Wildlife Management Area, Delaware Road	40.92458	-75.067815	Y	13	
New Mexico	Bernalillo	Albuquerque, NM			06	350010023	4700A SAN MATEO NE	35.1343	-106.5852	Y	12	
New Mexico	Dona Ana	Las Cruces, NM			06	350130021	5935A VALLE VISTA, SUNLAND PARK, NM	31.796111	-106.583889	Y	7	
New Mexico	Dona Ana	Las Cruces, NM			06	350130022	104-2 SANTA TERESA INTERNATIONAL BLVD, NM	31.787778	-106.682778	Y	4	
New Mexico	Eddy	Carlsbad-Artesia, NM			06	350151005	HOLLAND ST, SE OF	32.38	-104.262222	Y	2	



							WATER TANK, CARLSBAD, NM					
New Mexico	Lea	Hobbs, NM			06	350250008	2320 N. JEFFERSON ST, HOBBS, NEW MEXICO	32.72 6656	- 103.12 2917	Y	4	
New Mexico	Luna	Deming, NM			06	350290003	310 AIRPORT ROAD, DEMING, NM 88030	32.25 58	- 107.72 27	Y	4	
New Mexico	San Juan	Farmington, NM			06	350450009	162 HWAY 544, BLOOMFIELD NM 87413	36.74 2222	- 107.97 6944	Y	12	
New Mexico	San Juan	Farmington, NM			06	350450018	423 HWAY 539, NAVAJO DAM,	36.80 973	- 107.65 158	Y	8	



							NM 87419					
New Mexico	San Juan	Farmington, NM			06	350451005	USBR SHIPR OCK SUBST ATION (FARM INGTO N)	36.79 6667	- 108.47 25	Y	8	
New Mexico	San Juan	Farmington, NM			06	350451233	DINE COLLE GE, GIS LAB	36.80 71	- 108.69 523	N		7
New York	Bronx	New York- Northern New Jersey-Long Island, NY-NJ- PA	New York- Newark- Bridgeport, NY-NJ-CT-PA		02	360050110	IS 52 681 KELLY ST	40.81 618	- 73.902	Y	21	
New York	Bronx	New York- Northern New Jersey-Long Island, NY-NJ- PA	New York- Newark- Bridgeport, NY-NJ-CT-PA		02	360050133	200TH STREE T AND SOUT HERN BOUL DVAR D Pfizer Lab	40.86 79	- 73.878 09	Y	18	
New York	Erie	Buffalo- Niagara Falls, NY	Buffalo- Niagara- Cattaraugus, NY		02	360290005	TRAIL ER,185 DINGE NS STREE	42.87 6907	- 78.809 526	N		10





						T (near WEISS ST.)					
New York	Franklin	Malone, NY		02	360337003	55 Library Road, HOGA NSBU RG, NY 13655	44.980577	-74.695005	Y	4	
New York	Queens	New York-Northern New Jersey-Long Island, NY-NJ-PA	New York-Newark-Bridgeport, NY-NJ-CT-PA	02	360810124	Queens College 65-30 Kissena Blvd Parking Lot#6	40.73614	-73.82153	Y	18	
North Carolina	Forsyth	Winston-Salem, NC	Greensboro--Winston-Salem--High Point, NC	04	370670022	1300 BLK. HATTI E AVENUE	36.110556	-80.226667	Y	6	
North Carolina	Mecklenburg	Charlotte-Gastonia-Concord, NC-SC	Charlotte-Gastonia-Salisbury, NC-SC	04	371190041	1130 EAST WAY DRIVE	35.2401	-80.785683	Y	8	
North Dakota	Burke			08	380130004	8315 HIGH WAY 8, KENM ARE	48.64193	-102.4018	Y	2	
North Dakota	Burleigh	Bismarck, ND		08	380150003	1810 N	46.82	-	Y	5	



**I-70 PEL Study  
Conditions Assessment Report**

						16TH STREET	5425	100.76 821			
North Dakota	Cass	Fargo, ND-MN	Fargo-Wahpeton, ND-MN		08	380171004	4266 40TH AVE NORTH	46.93 3754	- 96.855 35	Y	4
North Dakota	Dunn				08	380250003	9610 SEVENTH STREET SW	47.31 32	- 102.52 73	Y	2
North Dakota	McKenzie				08	380530002	229 SERVICE RD., WATFORD CITY	47.58 12	- 103.29 95	Y	1
North Dakota	Mercer				08	380570004	6024 HIGHWAY 200	47.29 8611	- 101.76 6944	Y	2
North Dakota	Mercer				08	380570102	DGC #12	47.32 5	- 101.76 5833	Y	3
North Dakota	Mercer				08	380570124	DGC #17	47.40 0619	- 101.92 865	N	2
North Dakota	Oliver				08	380650002	1575 HIGHWAY 31	47.18 5833	- 101.42 8056	Y	2
Ohio	Cuyahoga	Cleveland-	Cleveland-		05	390350060	E.	41.49	-	Y	13



**I-70 PEL Study  
Conditions Assessment Report**

		Elyria-Mentor, OH	Akron-Elyria, OH			14TH & ORAN GE	2117	81.678 449			
Ohio	Franklin	Columbus, OH	Columbus- Marion- Chillicothe, OH		05	390490037	1777 E. BROA D	39.96 523	- 82.955 49	N	9
Ohio	Hamilton	Cincinnati- Middletown, OH-KY-IN	Cincinnati- Middletown- Wilmington, OH-KY-IN		05	390610040	250 WM. HOWA RD TAFT	39.12 886	- 84.504 04	Y	12
Oklahoma	Adair				06	400019009	South Highwa y 59, RR1, 1795 Dahlon egah Park Road, Stilwell , Oklaho ma	35.75 0735	- 94.669 697	N	4
Oklahoma	Canadian	Oklahoma City, OK	Oklahoma City-Shawnee, OK		06	400170101	12575 NW 10TH (WATE R TOWE R)	35.47 9215	- 97.751 503	N	6
Oklahoma	Oklahoma	Oklahoma City, OK	Oklahoma City-Shawnee,		06	401090033	NE 10TH	35.47 7036	- 97.494	Y	9



			OK				& STONE WALL		309			
Oklahoma	Oklahoma	Oklahoma City, OK	Oklahoma City-Shawnee, OK		06	401091037	2501 E. Memori al Rd. (OKLA HOMA CHRIS TIAN UNIVE RSITY)	35.61 4131	- 97.475 083	Y	6	
Oklahoma	Sequoyah	Fort Smith, AR-OK			06	401359021	207 Cherok ee Boulev ard, Roland, OK 74954	35.40 814	- 94.524 413	Y	6	
Oklahoma	Tulsa	Tulsa, OK	Tulsa- Bartlesville, OK		06	401431127	3520 1/2 N. PEORI A	36.20 4902	- 95.976 537	Y	8	
Oregon	Multnomah	Portland- Vancouver- Beaverton, OR- WA			10	410510080	SE LAFAYETTE /5824 SE LAFAYETTE	45.49 6641	- 122.60 2877	Y	10	
Pennsylvania	Adams	Gettysburg, PA	York-Hanover- Gettysburg, PA		03	420010001	NARST O SITE - AREN	39.92 002	- 77.309 68	Y	2	



						DTSVILLE					
Pennsylvania	Allegheny	Pittsburgh, PA	Pittsburgh-New Castle, PA		03	420030008	301 39TH ST, BLDG #7, LAWRENCEVILLE	40.46542	-79.960757	Y	10
Pennsylvania	Allegheny	Pittsburgh, PA	Pittsburgh-New Castle, PA		03	420030010	CARNEGIE SCIENCE CENTER - 1 ALLEGHENY RD	40.445577	-80.016155	Y	11
Pennsylvania	Allegheny	Pittsburgh, PA	Pittsburgh-New Castle, PA		03	420031005	CALIFORNIA & 11TH AVE, HARRISON	40.613949	-79.72941	Y	7
Pennsylvania	Beaver	Pittsburgh, PA	Pittsburgh-New Castle, PA		03	420070014	EIGHT STREET AND RIVER ALLEY	40.747796	-80.316442	Y	10
Pennsylvania	Berks	Reading, PA	Philadelphia-Camden-Vineland, PA-NJ-DE-MD		03	420110011	1059 Arnold Road	40.38335	-75.9686	Y	7



**I-70 PEL Study  
Conditions Assessment Report**

Pennsylvania	Bradford	Sayre, PA		03	420150011	RT 4148 Main St, Monroe , PA 18832	41.70 5226	- 76.512 726	Y	4
Pennsylvania	Bucks	Philadelphia- Camden- Wilmington, PA-NJ-DE-MD	Philadelphia- Camden- Vineland, PA- NJ-DE-MD	03	420170012	ROCK VIEW LANE	40.10 7222	- 74.882 222	Y	8
Pennsylvania	Cambria	Johnstown, PA		03	420210011	MILLE R AUTO SHOP 1 MESSE NGER ST	40.30 9722	- 78.915	Y	8
Pennsylvania	Centre	State College, PA		03	420270100	PENN STATE UNIVE RSITY - ARBO RETU M SITE	40.81 1389	- 77.877 028	Y	5
Pennsylvania	Delaware	Philadelphia- Camden- Wilmington, PA-NJ-DE-MD	Philadelphia- Camden- Vineland, PA- NJ-DE-MD	03	420450002	FRONT ST & NORRI S ST	39.83 5556	- 75.372 5	Y	9
Pennsylvania	Erie	Erie, PA		03	420490003	10TH AND MARN E	42.14 175	- 80.038 611	Y	6



							STREETS					
Pennsylvania	Lackawanna	Scranton-- Wilkes-Barre, PA			03	420692006	GEORGE ST TROOP AND CITY OF SCRA NTON	41.44 2778	- 75.623 056	Y	8	
Pennsylvania	Lancaster	Lancaster, PA			03	420710007	ABRA HAM LINCO LN JR HIGH GROFF TOWN RD	40.04 6667	- 76.283 333	Y	9	
Pennsylvania	Northampton	Allentown- Bethlehem- Easton, PA-NJ			03	420950025	WASHI NGTO N & CAMB RIA STS. FREE MANS BURG	40.62 8056	- 75.341 111	Y	9	
Pennsylvania	Perry	Harrisburg- Carlisle, PA	Harrisburg- Carlisle- Lebanon, PA		03	420990301	ROUT E 34 LITTL E BUFFA LO STATE PARK	40.45 6944	- 77.165 556	Y	3	



**I-70 PEL Study  
Conditions Assessment Report**

Pennsylvania	Philadelphia	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	Philadelphia-Camden-Vineland, PA-NJ-DE-MD	03	421010004	1501 E. LYCO MING AVE.	40.00 8889	- 75.097 78	Y	16	
Pennsylvania	Philadelphia	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	Philadelphia-Camden-Vineland, PA-NJ-DE-MD	03	421010047	500 SOUTH BROAD STREET-PARKING LOT (CHS)	39.94 4651	- 75.165 206	Y	17	
Pennsylvania	Tioga			03	421174000	TIOGA	41.64 4722	- 76.939 167	Y	1	
Pennsylvania	Washington	Pittsburgh, PA	Pittsburgh-New Castle, PA	03	421250005	CHARLER01 WASTE TREATMENT PLANT	40.14 6667	- 79.902 222	Y	8	
Pennsylvania	Washington	Pittsburgh, PA	Pittsburgh-New Castle, PA	03	421255200	220 Meddins Road	40.26 8963	- 80.243 995	Y	4	
Pennsylvania	York	York-Hanover, PA	York-Hanover-Gettysburg, PA	03	421330008	HILL ST.	39.96 5278	- 76.699 444	Y	10	
Rhode Island	Kent	Providence-New Bedford-Fall River, RI-MA	Boston-Worcester-Manchester, MA-RI-NH	01	440030002	W. ALTON JONES	41.61 5237	- -71.72	N		1





						CAMP US URI PARKE RFIEL D WE					
Rhode Island	Providence	Providence- New Bedford- Fall River, RI- MA	Boston- Worcester- Manchester, MA-RI-NH		01	440070012	ROCK EFELL ER LIBRA RY, PROSP ECT STREE T.	41.82 5556	- 71.405 278	Y	10
Rhode Island	Providence	Providence- New Bedford- Fall River, RI- MA	Boston- Worcester- Manchester, MA-RI-NH		01	440071010	FRAN CIS SCHO OL, 64 BOUR NE AVE	41.84 1573	- 71.360 77	Y	8
South Carolina	Charleston	Charleston- North Charleston, SC			04	450190003	4830 JENKI NS AVE. [Jenkin s Av.]	32.88 2289	- 79.977 538	Y	7
South Carolina	Charleston	Charleston- North Charleston, SC			04	450190046	390 BULLS ISLAN D ROAD (AWE NDAW ) [Cape	32.94 1023	- 79.657 187	Y	1



						Romain ]					
South Carolina	Greenville	Greenville-Mauldin-Easley, SC	Greenville-Spartanburg-Anderson, SC		04	450450015	133 Perry Avenue (behind 706 Pendlet on Street - address for power) [Greenville ESC]	34.84 3895	- 82.414 585	Y	8
South Carolina	Richland	Columbia, SC	Columbia-Newberry, SC		04	450791001	900 CLEMSON ROAD [Sandhill II]	34.13 1262	- 80.868 318	Y	4
South Dakota	Jackson				08	460710001	BADLANDS PO BOX 6 HEADQUARTERS	43.74 561	- 101.94 1218	Y	1
South Dakota	Minnehaha	Sioux Falls, SD			08	460990008	2001 E 8th St	43.54 792	- 96.700 769	Y	5
South Dakota	Pennington	Rapid City, SD			08	461030020	CREDIT UNION	44.08 7397	- 103.27 3777	Y	7



							SITE, 106 KINNE Y AVE.					
South Dakota	Union	Sioux City, IA- NE-SD	Sioux City- Vermillion, IA- NE-SD		08	461270001	31986 475th Ave	42.75 1518	- 96.707 208	Y	3	
South Dakota	Union	Sioux City, IA- NE-SD	Sioux City- Vermillion, IA- NE-SD		08	461270002	31307 473rd Ave	42.85 0975	- 96.747 325	Y	4	
Tennessee	Davidson	Nashville- Davidson- Murfreesboro- Franklin, TN	Nashville-Davidson-- Murfreesboro-- Columbia, TN		04	470370011	1015 TRINIT Y LANE	36.20 5	- 86.744 722	Y	10	
Tennessee	Montgomery	Clarksville, TN-KY			04	471251012	1000 Solar Way Clarksv ille TN 37040	36.63 8454	- 87.239 843	N		3
Tennessee	Sullivan	Kingsport- Bristol-Bristol, TN-VA	Johnson City- Kingsport-Bristol (Tri-Cities), TN-VA		04	471630007	EAST MAN ROSS N.ROB INSON	36.53 4804	- 82.517 078	Y	11	
Texas	Bexar	San Antonio, TX			06	480290032	6655 Bluebir d Lane	29.51 509	- 98.620 166	Y	5	
Texas	Bexar	San Antonio, TX			06	480290059	14620 Laguna Rd	29.27 5381	- 98.311 692	Y	3	
Texas	Brazoria	Houston-Sugar Land-Baytown, TX	Houston- Baytown- Huntsville, TX		06	480391004	4503 Croix Pkwy	29.52 0443	- 95.392 509	Y	4	



**I-70 PEL Study  
Conditions Assessment Report**

Texas	Brazoria	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX		06	480391016	109B Brazoria Hwy 332 West	29.04 3759	- 95.472 946	Y	2	
Texas	Dallas	Dallas-Fort Worth-Arlington, TX	Dallas-Fort Worth, TX		06	481130069	1415 HINTON STREET	32.81 9952	- 96.860 082	Y	12	
Texas	Dallas	Dallas-Fort Worth-Arlington, TX	Dallas-Fort Worth, TX		06	481130075	12532 1/2 Nuestra Drive	32.91 9206	- 96.808 498	Y	7	
Texas	Dallas	Dallas-Fort Worth-Arlington, TX	Dallas-Fort Worth, TX		06	481130087	3277 W Redbird Lane	32.67 6451	- 96.872 06	Y	7	
Texas	Denton	Dallas-Fort Worth-Arlington, TX	Dallas-Fort Worth, TX		06	481210034	Denton Airport South	33.21 9056	- 97.196 287	Y	7	
Texas	Ellis	Dallas-Fort Worth-Arlington, TX	Dallas-Fort Worth, TX		06	481390016	2725 Old Fort Worth Road	32.48 2082	- 97.026 922	Y	5	
Texas	Ellis	Dallas-Fort Worth-Arlington, TX	Dallas-Fort Worth, TX		06	481391044	900 FM 667 Ellis County	32.17 5428	- 96.870 18	Y	4	
Texas	El Paso	El Paso, TX			06	481410037	250 Rim Rd	31.76 8291	- 106.50 126	Y	11	
Texas	El Paso	El Paso, TX			06	481410044	800 S San Marcial	31.76 5698	- 106.45 522	Y	14	



						Street					
Texas	El Paso	El Paso, TX		06	481410055	650 R E Thomas on Loop	31.74 6743	- 106.40 2784	Y	14	
Texas	Galveston	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	481671034	9511 Avenue V 1/2	29.25 4474	- 94.861 289	Y	3	
Texas	Gregg	Longview, TX	Longview-Marshall, TX	06	481830001	Gregg Co Airport near Longview	32.37 8682	- 94.711 811	Y	5	
Texas	Harris	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	482010024	4510 1/2 Aldine Mail Rd	29.90 1037	- 95.326 125	Y	8	
Texas	Harris	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	482010026	1405 Sheldon Road	29.80 2707	- 95.125 495	Y	10	
Texas	Harris	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	482010029	16822 Kitzman	30.03 9534	- 95.673 9	Y	5	
Texas	Harris	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	482010047	4401 1/2 LANG RD.	29.83 4722	- 95.489 167	Y	12	
Texas	Harris	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	482010055	6400 Bissonnet Street	29.69 5744	- 95.499 262	Y	8	
Texas	Harris	Houston-Sugar	Houston-	06	482010075	2311	29.75	-	Y	13	



**I-70 PEL Study  
Conditions Assessment Report**

		Land-Baytown, TX	Baytown-Huntsville, TX			TEXAS AVE.	2778	95.350 278			
Texas	Harris	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	482010416	7421 Park Place Blvd	29.68 6389	- 95.294 722	Y	11	
Texas	Harris	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	482011015	4407 Independence Parkway South	29.76 1653	- 95.081 386	Y	10	
Texas	Harris	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	482011034	1262 1/2 Mae Drive	29.76 7971	- 95.220 587	Y	11	
Texas	Harris	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	482011035	9525 1/2 Clinton Dr	29.73 3726	- 95.257 593	Y	13	
Texas	Harris	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	482011039	4514 1/2 Durant St	29.67 0025	- 95.128 508	Y	7	
Texas	Harris	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	482011050	4522 Park Rd	29.58 3047	- 95.015 544	Y	5	
Texas	Harrison	Marshall, TX	Longview-Marshall, TX	06	482030002	Hwy 134 & Spur 449	32.66 8987	- 94.167 457	Y	3	
Texas	Hunt	Dallas-Fort Worth-Arlington, TX	Dallas-Fort Worth, TX	06	482311006	824 Sayle Street	33.15 3077	- 96.115 561	Y	4	
Texas	Jefferson	Beaumont-Port Arthur, TX		06	482450009	1086 Vermon	30.03 644	- 94.071	Y	6	



						t Avenue		091			
Texas	Jefferson	Beaumont-Port Arthur, TX		06	482450022	12552 Second St	29.863953	-94.3178	Y	3	
Texas	Jefferson	Beaumont-Port Arthur, TX		06	482451035	135 Hare Road	29.978924	-94.010872	Y	5	
Texas	Kaufman	Dallas-Fort Worth-Arlington, TX	Dallas-Fort Worth, TX	06	482570005	3790 S Houston St	32.564952	-96.317677	Y	3	
Texas	McLennan	Waco, TX		06	483091037	4472 Mazanec Rd	31.653068	-97.070684	Y	3	
Texas	Montgomery	Houston-Sugar Land-Baytown, TX	Houston-Baytown-Huntsville, TX	06	483390078	9472A Hwy 1484	30.350302	-95.425128	Y	3	
Texas	Navarro	Corsicana, TX		06	483491051	Corsicana Airport	32.03194	-96.399138	Y	4	
Texas	Orange	Beaumont-Port Arthur, TX		06	483611001	2700 Austin Ave	30.085263	-93.761341	Y	5	
Texas	Smith	Tyler, TX	Tyler-Jacksonville, TX	06	484230007	14790 County Road 1145	32.344008	-95.415752	Y	3	
Texas	Tarrant	Dallas-Fort Worth-Arlington, TX	Dallas-Fort Worth, TX	06	484391002	3317 Ross Ave	32.805818	-97.356568	Y	9	
Texas	Tarrant	Dallas-Fort Worth-Arlington, TX	Dallas-Fort Worth, TX	06	484393009	4100 Fairway Dr	32.98426	-97.063705	Y	7	
Texas	Tarrant	Dallas-Fort Worth-	Dallas-Fort Worth, TX	06	484393011	5504 South	32.656372	-97.088	Y	6	



		Arlington, TX				Collins Street		583			
Texas	Travis	Austin-Round Rock, TX			06	484530014	3724 North Hills Dr	30.35 4419	- 97.760 254	Y	5
Utah	Cache	Logan, UT-ID			08	490050004	125 W. CENTER STREET, LOGAN, UT	41.73 1111	- 111.83 75	Y	14
Utah	Carbon	Price, UT			08	490071003	On Property of Resident at 351 W 2500 E. Price, Utah	39.60 996	- 110.80 0749	Y	4
Utah	Davis	Ogden-Clearfield, UT	Salt Lake City-Ogden-Clearfield, UT		08	490110004	171 WEST 1370 NORTH, BOUNTIFUL, UTAH	40.90 2967	- 111.88 4467	Y	15
Utah	Duchesne				08	490130002	290 S. 1000 W.	40.29 4178	- 110.00 9732	N	9
Utah	Duchesne				08	490131001	1/4 mile South	40.20 8652	- 110.84 1056	Y	2





						of US 40 off 4500 Wesst Fruitlan d, Utah					
Utah	Duchesne			08	490137011	6000 SOUT H AND 10000 WEST (MYTO N)	40.21 6779	- 110.18 2742	Y	4	
Utah	Salt Lake	Salt Lake City, UT	Salt Lake City- Ogden- Clearfield, UT	08	490353006	1675 SOUT H 600 EAST, SALT LAKE CITY	40.73 6389	- 111.87 2222	Y	18	
Utah	Uintah	Vernal, UT		08	490471003	220 South 1000 East	40.45 2267	- 109.51 0393	Y	11	
Utah	Uintah	Vernal, UT		08	490472002	2 Miles west of Redwas h atop Deadm an's Bench	40.20 6291	- 109.35 3932	N		6
Utah	Uintah	Vernal, UT		08	490472003	2 miles south of Ouray and	40.05 671	- 109.68 8108	Y	6	



						south of the White and Green River confluence					
Utah	Uintah	Vernal, UT			08	490475632	Accessed from Dragon Road/145-S, Uintah Co, UT	39.86 8622	- 109.09 7302	N	2
Utah	Uintah	Vernal, UT			08	490477022	WHITE ROCK S & COUNTY ROAD	40.48 3598	- 109.90 6796	N	2
Utah	Utah	Provo-Orem, UT			08	490490002	1355 NORTH 200 WEST PROVO UT	40.25 3611	- 111.66 3056	Y	19
Utah	Washington	St. George, UT			08	490530007	147 N 870 W, Hurricane, Utah	37.12 9	- 113.18 3	N	3
Utah	Weber	Ogden-Clearfield, UT	Salt Lake City-Ogden-Clearfield, UT		08	490570002	228 32ND STREET	41.20 6321	- 111.97 5524	Y	17



						T, OGDE N, UTAH					
Vermont	Chittenden	Burlington- South Burlington, VT			01	500070014	150 SOUT H WINO OSKI AVEN UE, Burling ton, Vermon t	44.47 62	- 73.210 6	Y	7
Vermont	Rutland	Rutland, VT			01	500210002	96 STATE STREE T, Rutland , Vermon t	43.60 8056	- 72.982 778	Y	7
Virginia	Arlington	Washington- Arlington- Alexandria, DC-VA-MD- WV	Washington- Baltimore-Northern Virginia, DC-MD- VA-WV		03	510130020	S 18TH AND HAYE S ST	38.85 77	- 77.059 22	Y	11
Virginia	Charles	Richmond, VA			03	510360002	SHIRL EY PLANT ATION , ROUT E 5	37.34 438	- 77.259 25	Y	4



Virginia	Henrico	Richmond, VA		03	510870014	2401 HARTMAN STREET MATH & SCIENCE CTR	37.55 652	- 77.400 27	Y	8
Virginia	Loudoun	Washington-Arlington-Alexandria, DC-VA-MD-WV	Washington-Baltimore-Northern Virginia, DC-MD-VA-WV	03	511071005	38-I, BROAD RUN HIGH SCHOOL, ASHBURN	39.02 473	- 77.489 25	Y	7
Virginia	Prince William	Washington-Arlington-Alexandria, DC-VA-MD-WV	Washington-Baltimore-Northern Virginia, DC-MD-VA-WV	03	511530009	JAMES S. LONG PARK	38.85 287	- 77.634 62	Y	5
Virginia	Roanoke	Roanoke, VA		03	511611004	EAST VINTON ELEMENTARY SCHOOL	37.28 342	- 79.884 52	Y	6
Virginia	Rockingham	Harrisonburg, VA		03	511650003	VDOT RESIDENCY SHOP,	38.47 753	- 78.819 52	Y	8



						3536 NORT H VALLE Y PIKE, HARRI SONB URG, VA					
Virginia	Alexandria City	Washington- Arlington- Alexandria, DC-VA-MD- WV	Washington- Baltimore-Northern Virginia, DC-MD- VA-WV	03	515100021	3200 Colvin Street	38.80 65	- 77.086 4	Y	13	
Virginia	Hampton City	Virginia Beach-Norfolk- Newport News, VA-NC		03	516500008	Adja cent to Buildin g 1196, Wythe Landin g Loop, NASA- Langley Researc h Center	37.10 3733	- 76.387 017	Y	4	
Virginia	Norfolk City	Virginia Beach-Norfolk- Newport News, VA-NC		03	517100024	181- A1, NOAA LOT, 2ND ST & WOOD IS	36.85 555	- 76.301 35	Y	8	



							AVE.					
Virginia	Richmond City	Richmond, VA		03	517600025	Bryan Park, 4308 Hermitage Road, Richmond, VA	37.59088	-77.46925	N			15
Washington	King	Seattle-Tacoma-Bellevue, WA	Seattle-Tacoma-Olympia, WA	10	530330080	4103 BEACON HILL S	47.568236	-122.308628	N			13
Washington	Skagit	Mount Vernon-Anacortes, WA	Seattle-Tacoma-Olympia, WA	10	530570018	CASINO DRIVE /NORTH END SITE	48.460101	-122.51911	Y		6	
Wisconsin	Forest			05	550410007	FIRE TOWER RD, POTAWATOMI SITE	45.563	-88.8088	Y		1	
Wisconsin	Manitowoc	Manitowoc, WI		05	550710007	2315 GOODWIN RD	44.138619	-87.6161	N			2
Wisconsin	Milwaukee	Milwaukee-Waukesha-West Allis, WI	Milwaukee-Racine-Waukesha, WI	05	550790026	2300 N M. L. KING JR DR	43.060975	-87.913504	Y		10	



Wyoming	Campbell	Gillette, WY		08	560050011	Hiligh-Reno Junction Gas Plant	43.84033	-105.35955	Y	9
Wyoming	Campbell	Gillette, WY		08	560050123	THUNDER BASIN GRASSLAND SITE 35 MI N-NE GILLETTE WY	44.6522	-105.2903	Y	1
Wyoming	Campbell	Gillette, WY		08	560050456	SOUTH CAMPBELL COUNTY APPROX 15 MILES SSW OF GILLETTE WY (SEE APPLE BUTTE QUAD MAP)	44.146964	-105.529994	Y	3



Wyoming	Campbell	Gillette, WY		08	560050892	BELLE AYR BA- 4,5N,5S	44.09 7074	- 105.34 3164	Y	7	
Wyoming	Carbon			08	560070100	ATLA NTIC RIM SUND OG LOCA TION	41.38 6944	- 107.61 6667	Y	1	
Wyoming	Carbon			08	560071000	SINCL AIR- Intersec tion of CCR35 1 and N. 8th St. (SW corner of intersec tion)	41.78 3389	- 107.11 9184	N		4
Wyoming	Converse			08	560090008	HWY 59	42.79 6372	- 105.36 1822	N		4
Wyoming	Converse			08	560090801	369 E. Antelop e, Dougl as	42.76 6972	- 105.30 3528	Y	3	
Wyoming	Fremont	Riverton, WY		08	560130099	South Pass WyDot	42.52 9999	- 108.72 0003	Y	1	
Wyoming	Fremont	Riverton, WY		08	560130232	Spring	43.08	-	Y	1	





**I-70 PEL Study  
Conditions Assessment Report**

						Creek Encana	1667	107.54 9444			
Wyoming	Laramie	Cheyenne, WY		08	560210100	NCore - North Cheyenne Soccer Complex	41.18 2227	- 104.77 8334	Y	4	
Wyoming	Natrona	Casper, WY		08	560250100	2800 Pheasant Drive, Casper	42.82 231	- 106.36 501	Y	3	
Wyoming	Natrona	Casper, WY		08	560252601	Sinclair, Casper	42.86 08	- 106.23 586	Y	6	
Wyoming	Sublette			08	560350097	Wyoming Range/ West Fontenelle Dr.	42.98	- 110.35 3	N		1
Wyoming	Sublette			08	560350099	Boulder APPROX 3 MILES WEST OF BOULDER	42.71 9	- 109.75 3	Y	2	
Wyoming	Sublette			08	560350100	DANIEL SOUTH ~ 4 MILES	42.79 07	- 110.05 51	Y	1	



							SO OF DANIE L WYO OFF OF HWY 189						
--	--	--	--	--	--	--	--	--	--	--	--	--	--



Wyoming	Sublette				08	560350101	Pinedale Gaseous Monitor on west side of City Park and Pine Creek	42.86 9824	- 109.87 076	Y	1	
Wyoming	Sublette				08	560350700	Big Piney Site #3	42.48 6361	- 110.09 8861	N		1
Wyoming	Sublette				08	560351002	Juel Spring - 20 miles NW of Farson on the west side of US Highway 191	42.37 3499	- 109.56 0498	Y	1	
Wyoming	Sweetwater	Rock Springs, WY			08	560370100	Rock Sprgs - 1275 Adams Ave.	41.57 5	- 109.20 7	Y	4	
Wyoming	Sweetwater	Rock Springs, WY			08	560370200	WAMS UTTER SOUT	41.67 7453	- 108.02 4575	Y	4	



						HEAST PORTI ON OF SWEE TWAT ER COUN TY					
Wyoming	Sweetwater	Rock Springs, WY			08	560370300 Moxa	41.75 0556	- 109.78 8333	Y	2	
Wyoming	Uinta	Evanston, WY			08	560410101 Murphy Ridge LOCA TED NEAR WYOM ING UTAH BORD ER	41.37 3097	- 111.04 2376	Y	2	

2. The level of the annual NAAQS for nitrogen dioxide is 53 parts per billion (ppb) not to be exceeded during the year.

3. The design values shown here are computed for the latest design value period using Federal Reference Method or equivalent data reported by States, Tribes, and local agencies to EPA's Air Quality System (AQS) as of 6/23/2014. Concentrations flagged by States, Tribes, and local agencies as exception events (e.g., high winds, wildfires, volcanic eruptions, construction) and concurred by the associated EPA Regional Office are not included in the calculation of these design values.

Disclaimer: The information listed in this report and in these tables is intended for informational use only and does not constitute a regulatory determination by EPA as whether an area has attained a NAAQS. The information set forth in this report has no regulatory effect. To have regulatory effect, a final EPA determination as to whether an area has attained a NAAQS or attained a NAAQS as of its applicable attainment date can be accomplished only after rulemaking that provides an opportunity for notice and comment. No such determination for regulatory purposes exists in the absence of such rulemaking. This report does not constitute a proposed or final rulemaking.

## **Appendix D Metro Route Maps**

# I-70 Planning and Environmental Linkages (PEL) Study Conditions Assessment Report Figures

MAY 2017



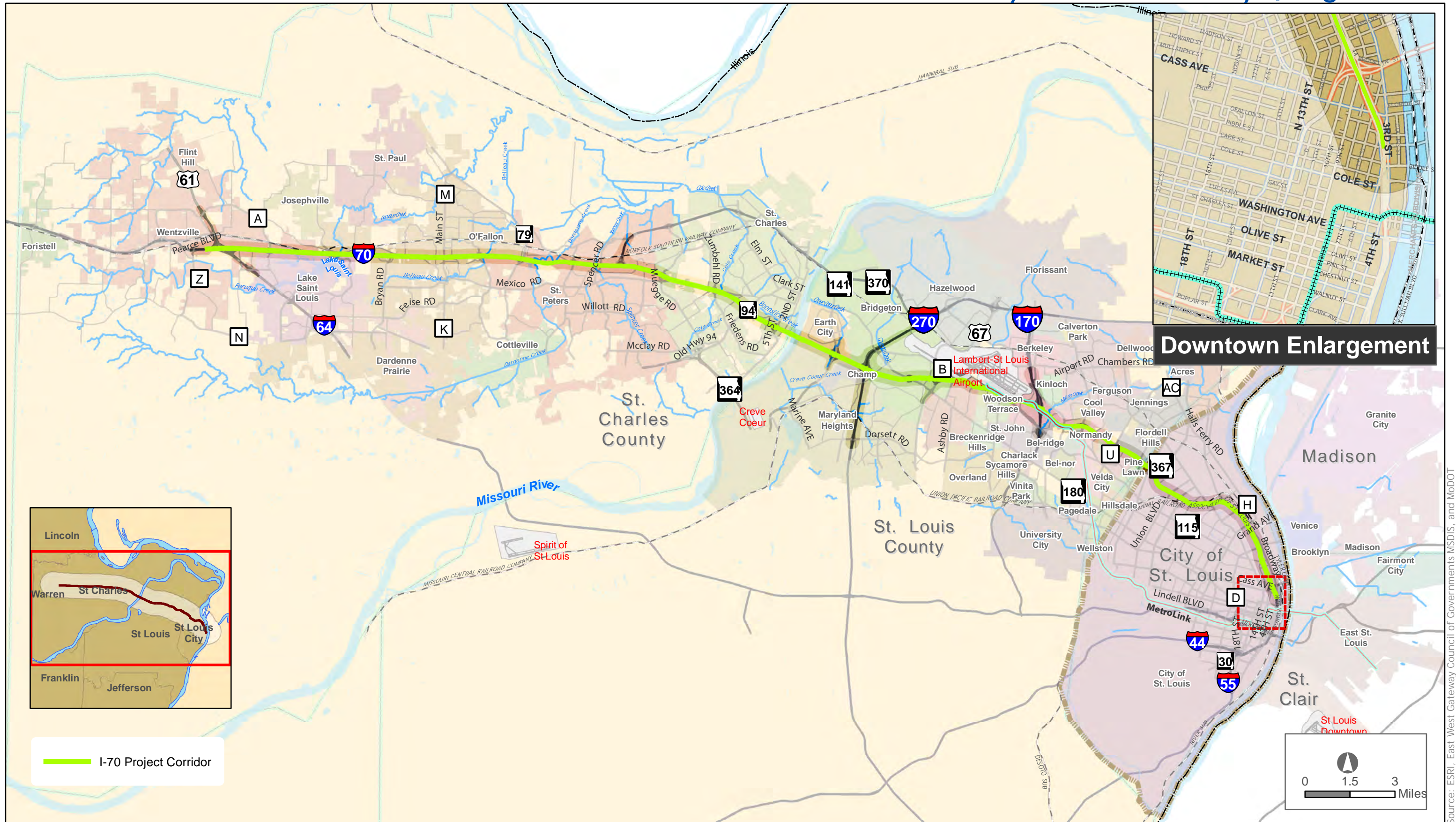
# Table of Contents

## LIST OF FIGURES

Figure 2-1: Study Area Boundary  
Figure 2-2: Existing Through Travel Lanes  
Figure 2-3: Ownership and Outer Roads  
Figure 2-4: Bridge Conditions  
Figure 2-5: Peak Period and Peak Hour Traffic Volumes  
Figure 2-6: AADT and Percentage Commercial  
Figure 2-7A: 2015 Level of Service (LOS) - AM  
Figure 2-7B: 2045 Level of Service (LOS) - AM  
Figure 2-8A: 2015 Level of Service (LOS) - PM  
Figure 2-8B: 2045 Level of Service (LOS) - PM  
Figure 2-9: Existing Posted Speeds and Weekday Peak Period Travel Time Index  
Figure 2-10: Crash Patterns and Locations  
Figure 2-11: Existing, Crash Type Distribution for Mainline I-70 (2009-2013) (IN TEXT)  
Figure 2-12: Home Locations for Persons Who Work in St. Charles West  
Figure 2-13: Home Locations for Persons Who Work in St. Charles East  
Figure 2-14: Home Locations for Persons Who Work in St. Louis County West  
Figure 2-15: Home Locations for Persons Who Work in St. Louis County East  
Figure 2-16: Home Locations for Persons Who Work in St. Louis City  
Figure 2-17: Transit  
Figure 2-18: Bicycle Level of Service (BLOS)  
Figure 2-19: Pedestrian Level of Service (PLOS)  
Figure 2-20: Bike Paths and Greenways

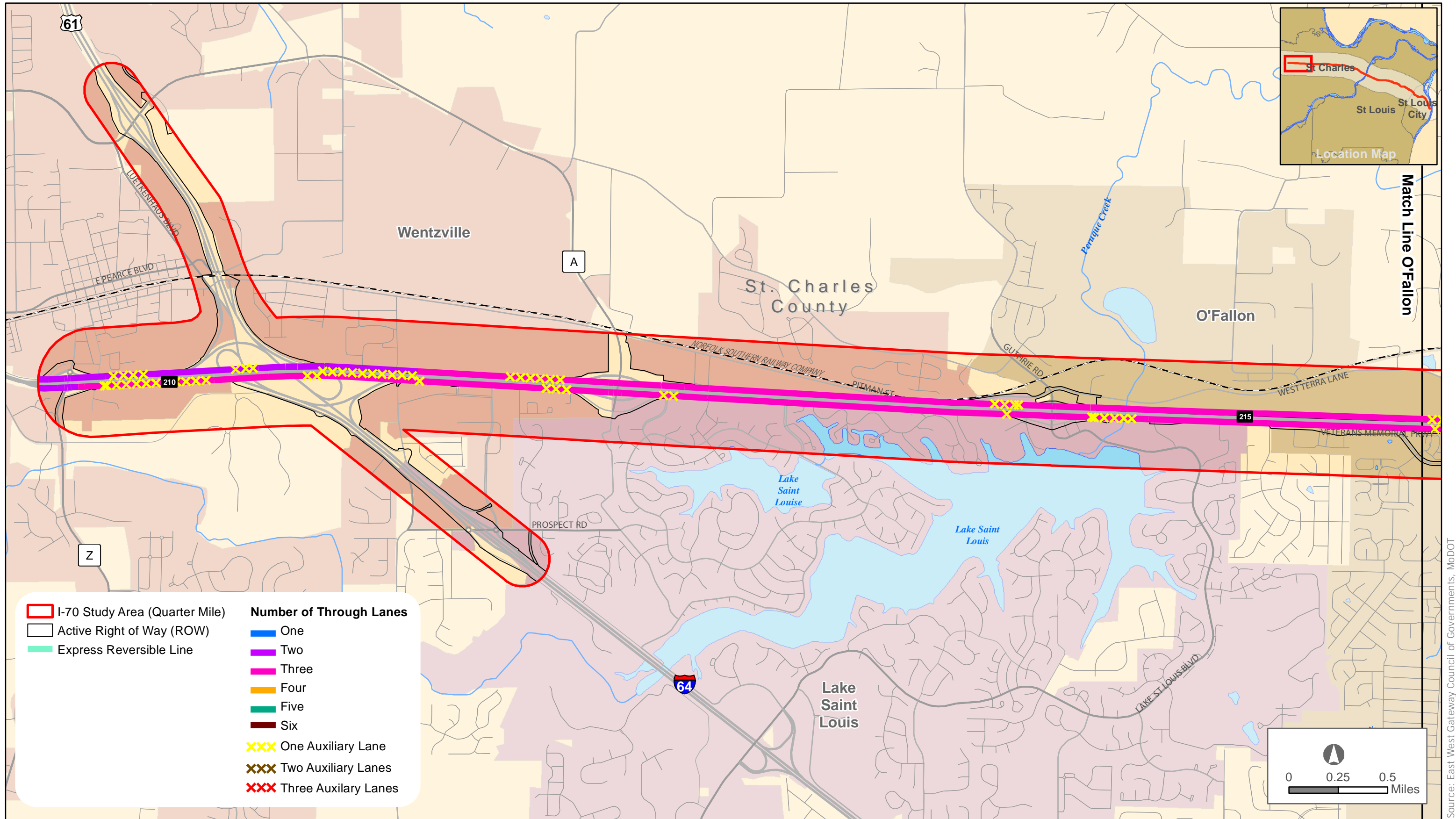
Figure 3-1: Wind Speeds and Directions, Granite City (IN TEXT)  
Figure 3-2: Existing Land Use  
Figure 3-3: Parks and Open Space  
Figure 3-4: Public/Large Commercial Facilities  
Figure 3-5: Sites with Hazardous Substance  
Figure 3-6: Wetlands and Waters of the U.S.  
Figure 3-7: Water Quality and Sinkholes  
Figure 3-8: Floodplains, Levees, and Dams  
Figure 3-9: Land Cover  
Figure 3-10: Prime Farmland  
Figure 3-11: Municipal Boundary  
Figure 3-12: St. Charles County West – Vacant Buildings  
Figure 3-13: St. Charles County West – Development Areas  
Figure 3-14: St. Charles County West – Vacant Land  
Figure 3-15: St. Charles County East – Vacant Buildings  
Figure 3-16: St. Charles County East – Development Areas  
Figure 3-17: St. Charles County East – Vacant Land  
Figure 3-18: St. Louis County West – Vacant Buildings  
Figure 3-19: St. Louis County West – Development Areas  
Figure 3-20: St. Louis County West – Vacant Land  
Figure 3-21: St. Louis County East – Vacant Buildings  
Figure 3-22: St. Louis County East – Development Areas  
Figure 3-23: St. Louis County East – Vacant Land  
Figure 3-24: City of St. Louis – Vacant Buildings  
Figure 3-25: City of St. Louis – Development Areas  
Figure 3-26: City of St. Louis – Vacant Land  
Figure 3-27: Minority Population  
Figure 3-28: Household Incomes  
Figure 3-29: Population in Poverty  
Figure 3-30: St. Charles County West – Business Locations  
Figure 3-31: St. Charles County East – Business Locations  
Figure 3-32: St. Louis County West – Business Locations  
Figure 3-33: St. Louis County East – Business Locations  
Figure 3-34: City of St. Louis – Business Locations

# Study Area Boundary | Figure 2-1





# Existing Through Travel Lanes | Figure 2-2

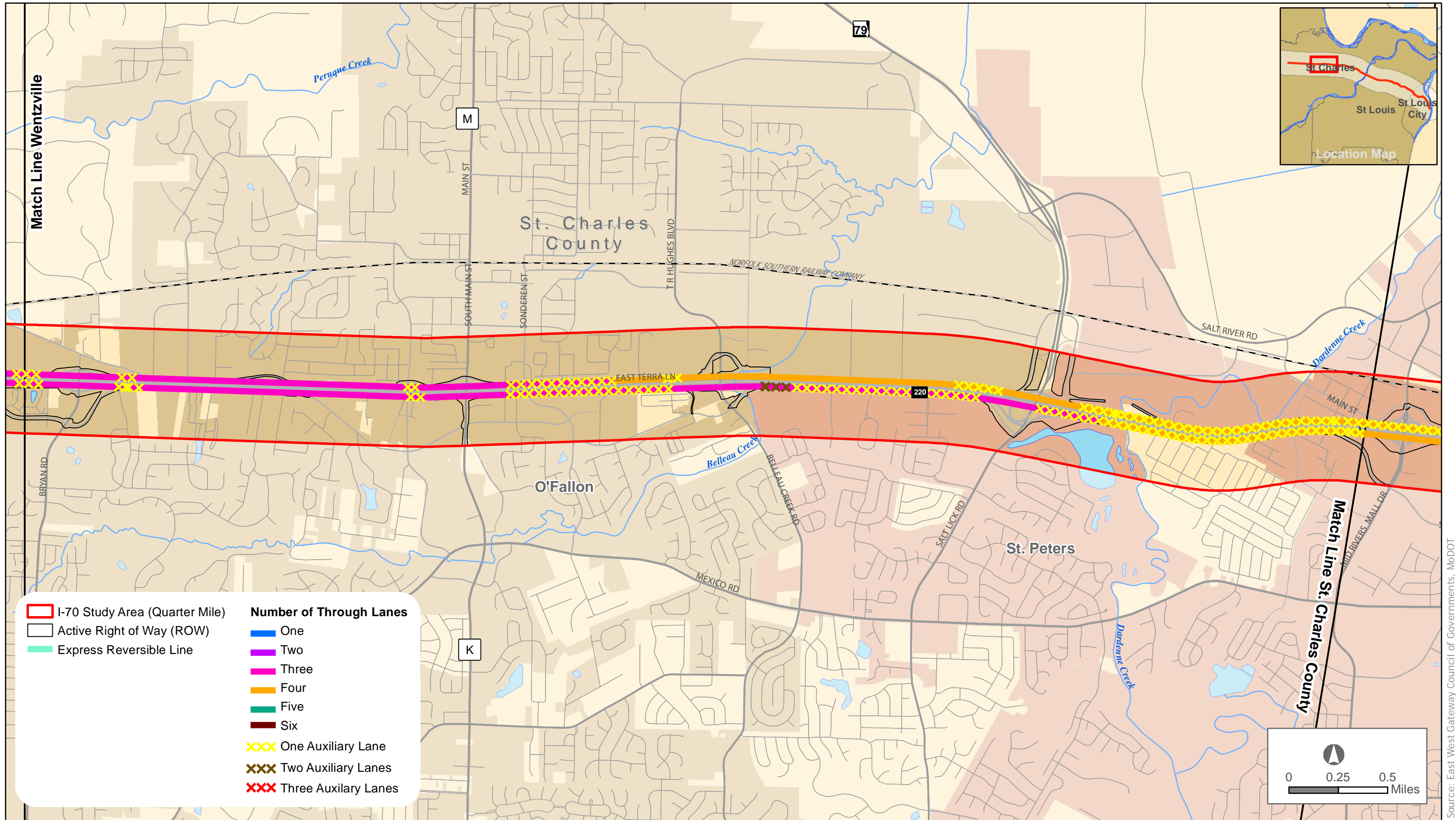


I-70 PEL STUDY- WENTZVILLE



Source: East West Gateway Council of Governments, MoDOT

# Existing Through Travel Lanes | Figure 2-2

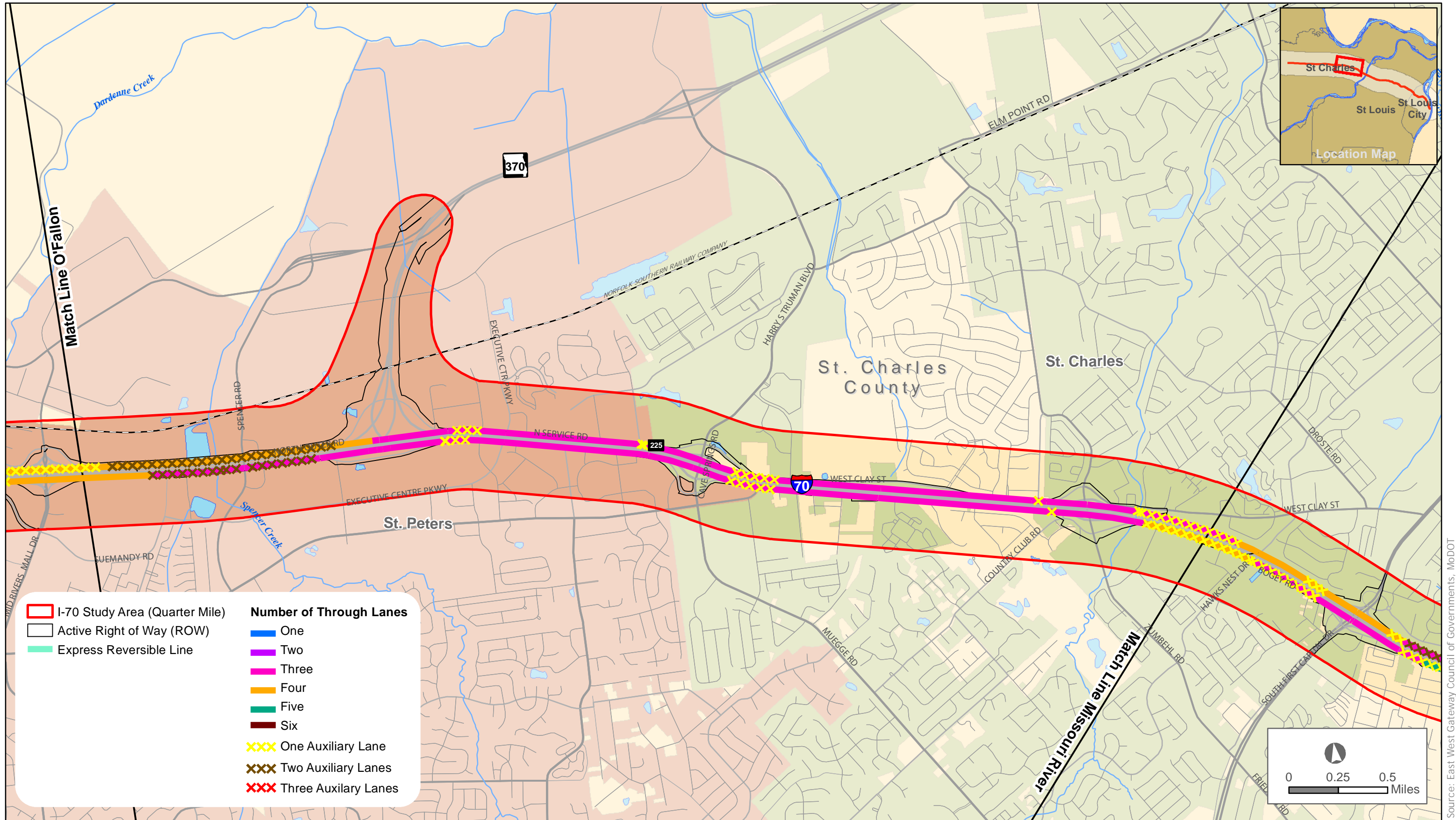


1-70 PEL STUDY- O'FALLON



Source: East West Gateway Council of Governments, MoDOT

# Existing Through Travel Lanes | Figure 2-2

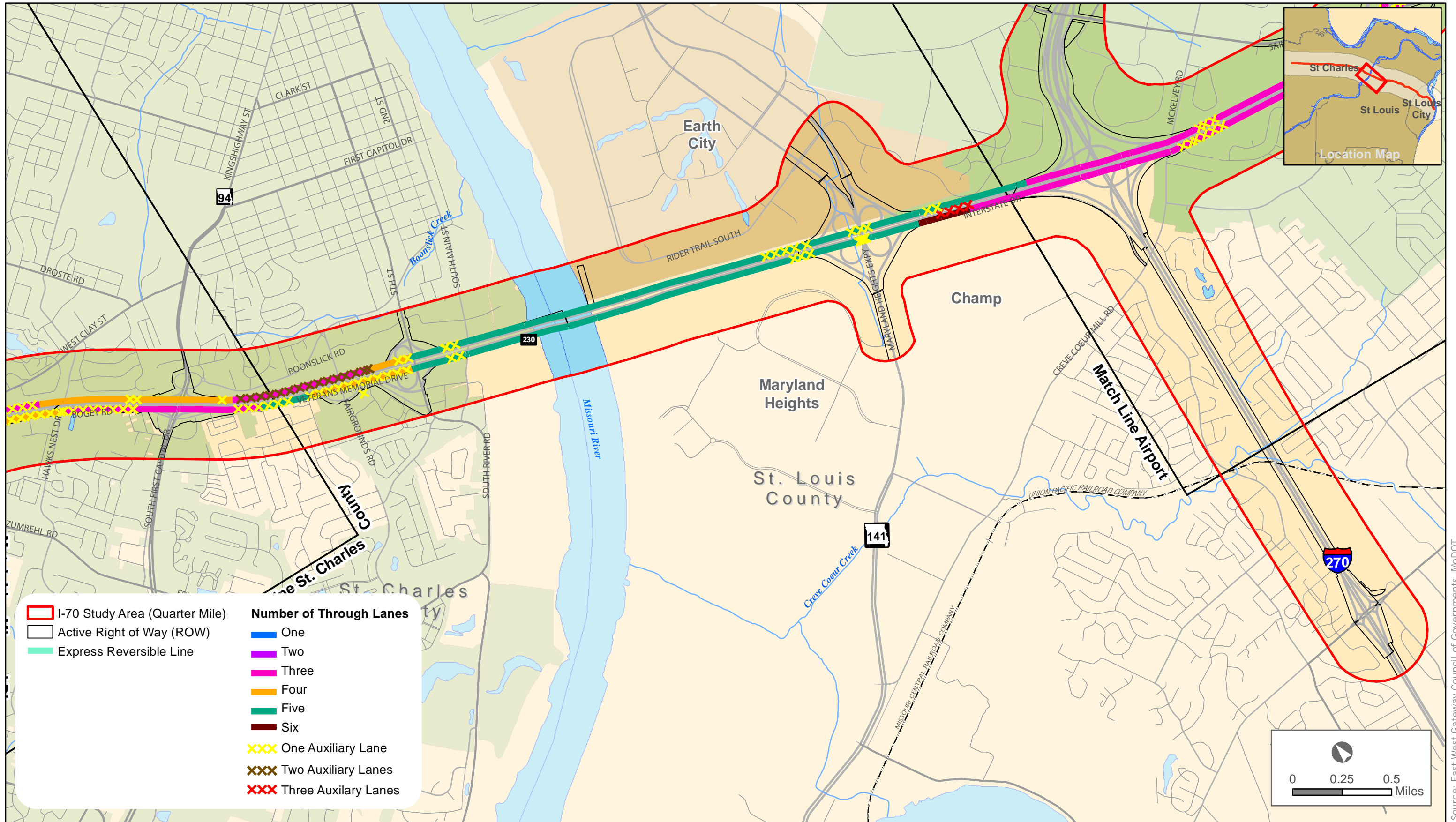


1-70 PEL STUDY- ST. CHARLES COUNTY

Source: East West Gateway Council of Governments, MoDOT



# Existing Through Travel Lanes | Figure 2-2

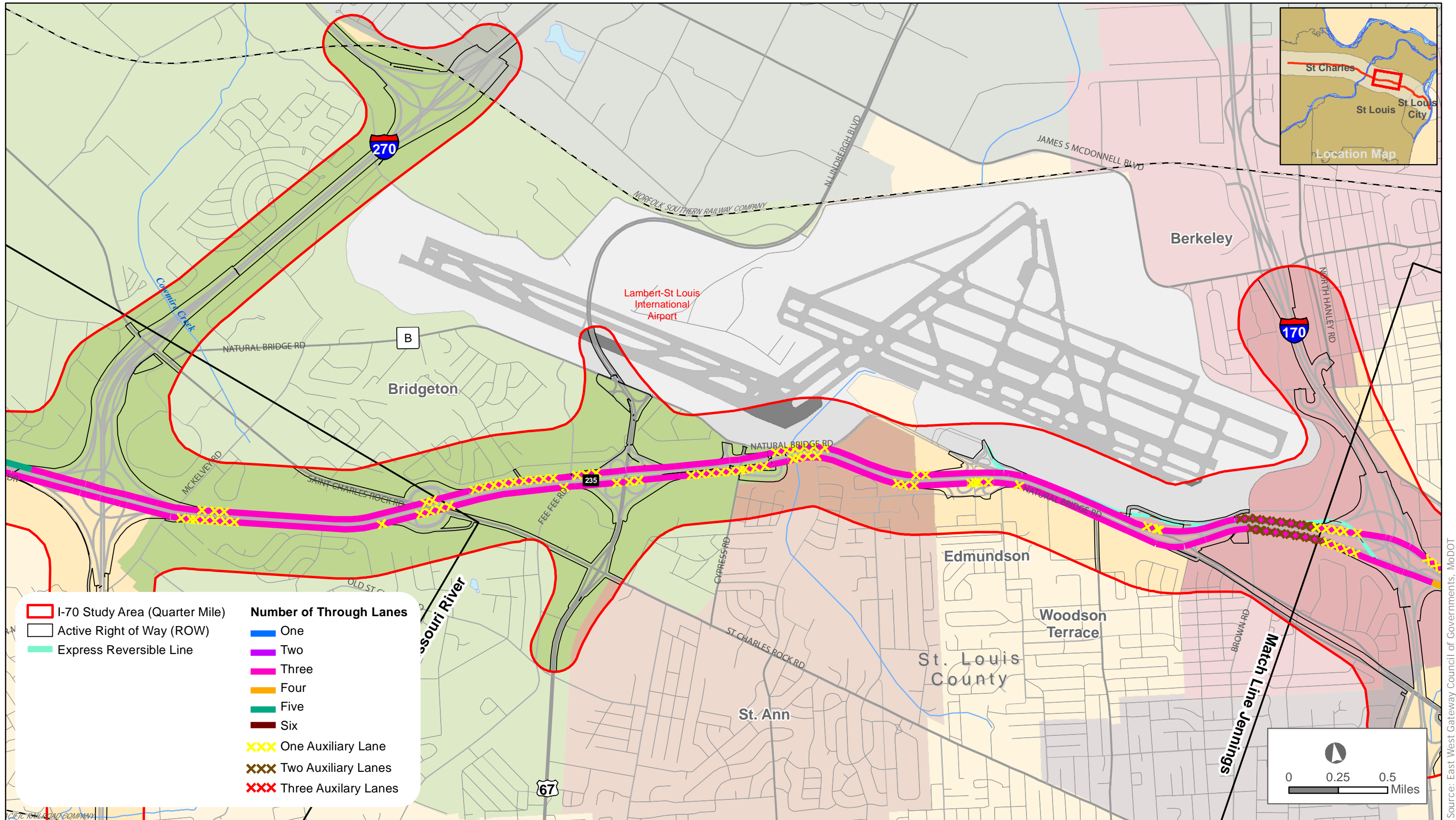


1-70 PEL STUDY- MISSOURI RIVER

Source: East West Gateway Council of Governments, MoDOT



# Existing Through Travel Lanes | Figure 2-2

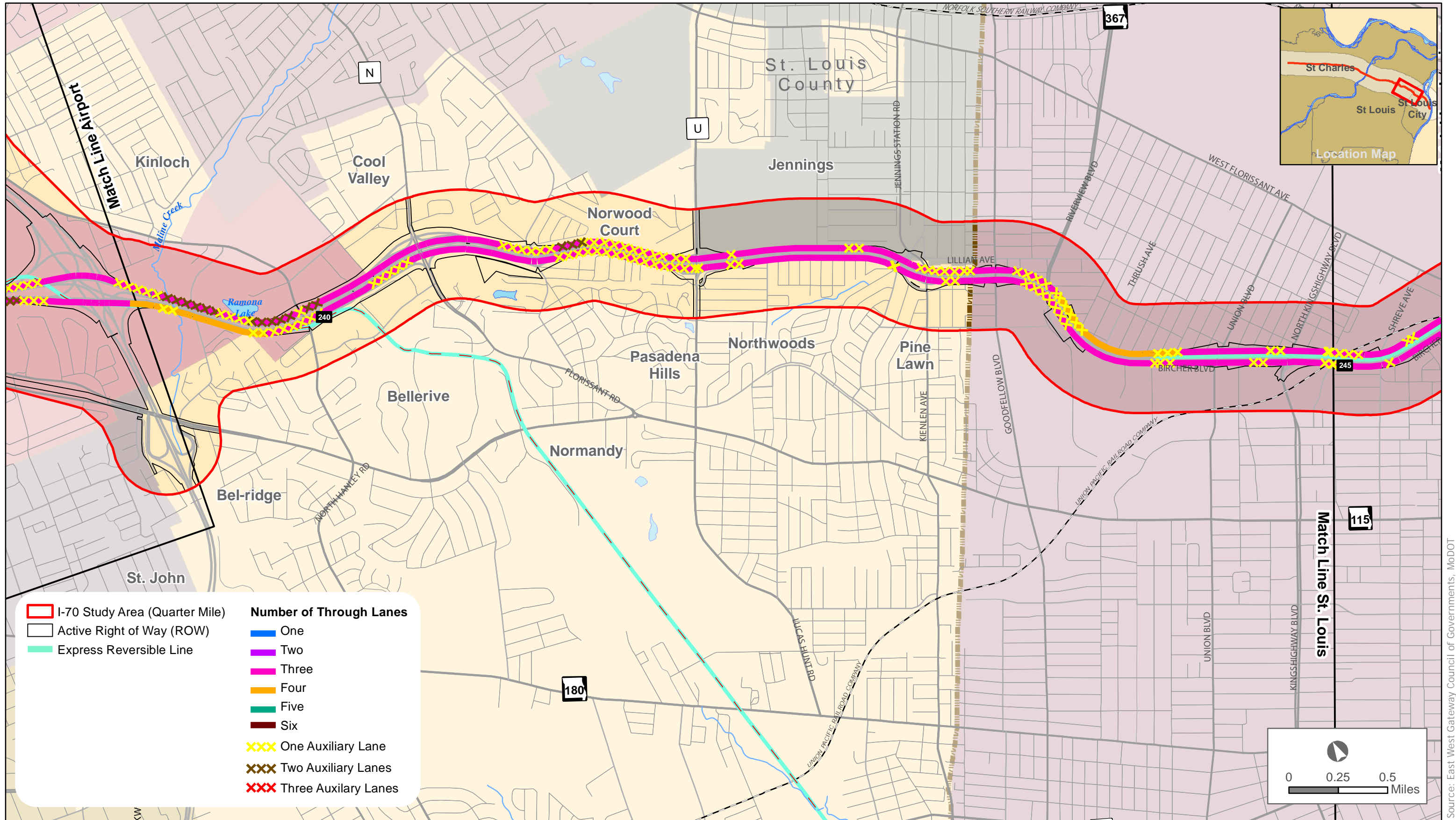


1-70 PEL STUDY- AIRPORT



Source: East West Gateway Council of Governments, MoDOT

# Existing Through Travel Lanes | Figure 2-2

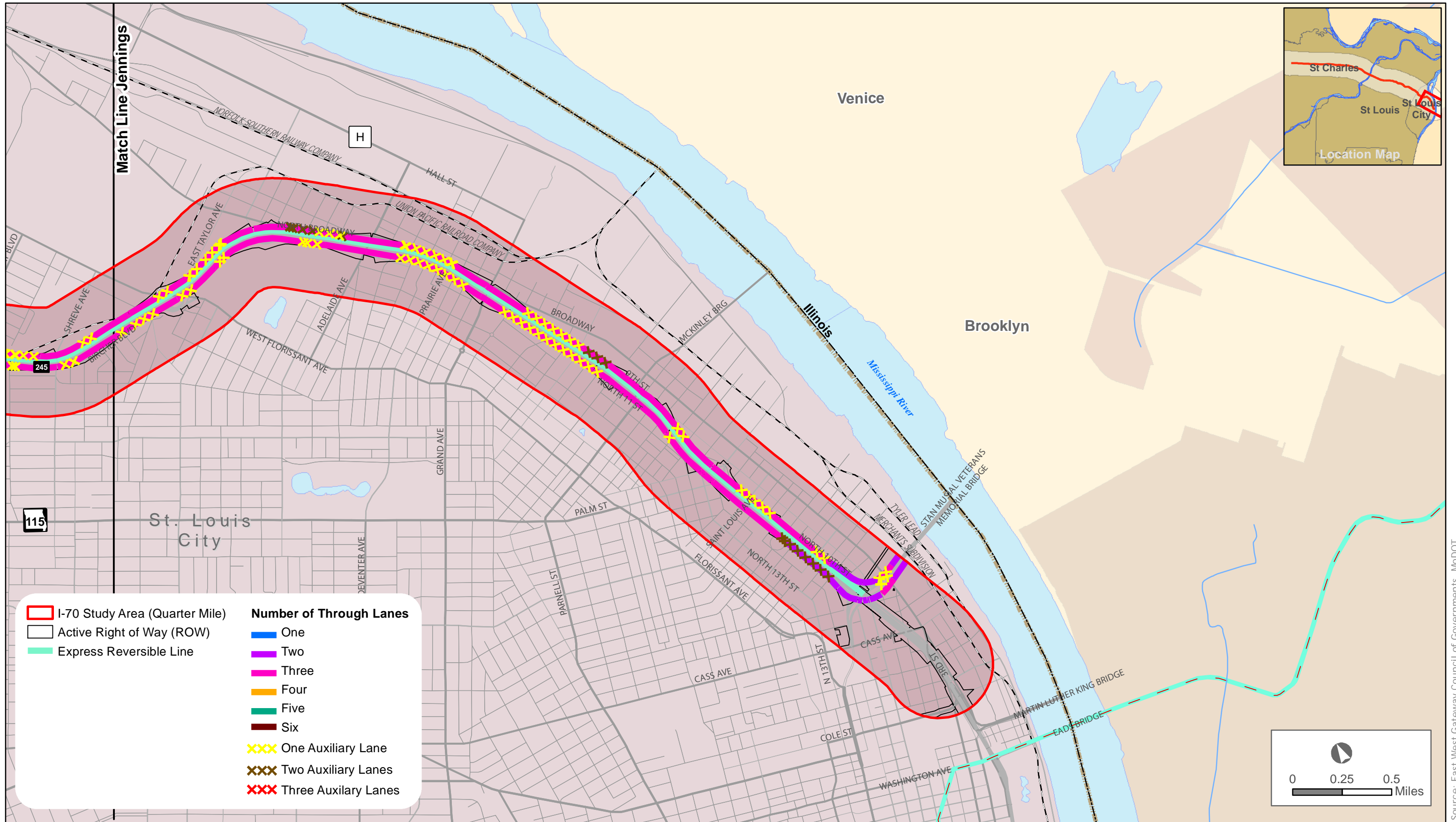


1-70 PEL STUDY-JENNINGS

Source: East West Gateway Council of Governments, MoDOT



# Existing Through Travel Lanes | Figure 2-2

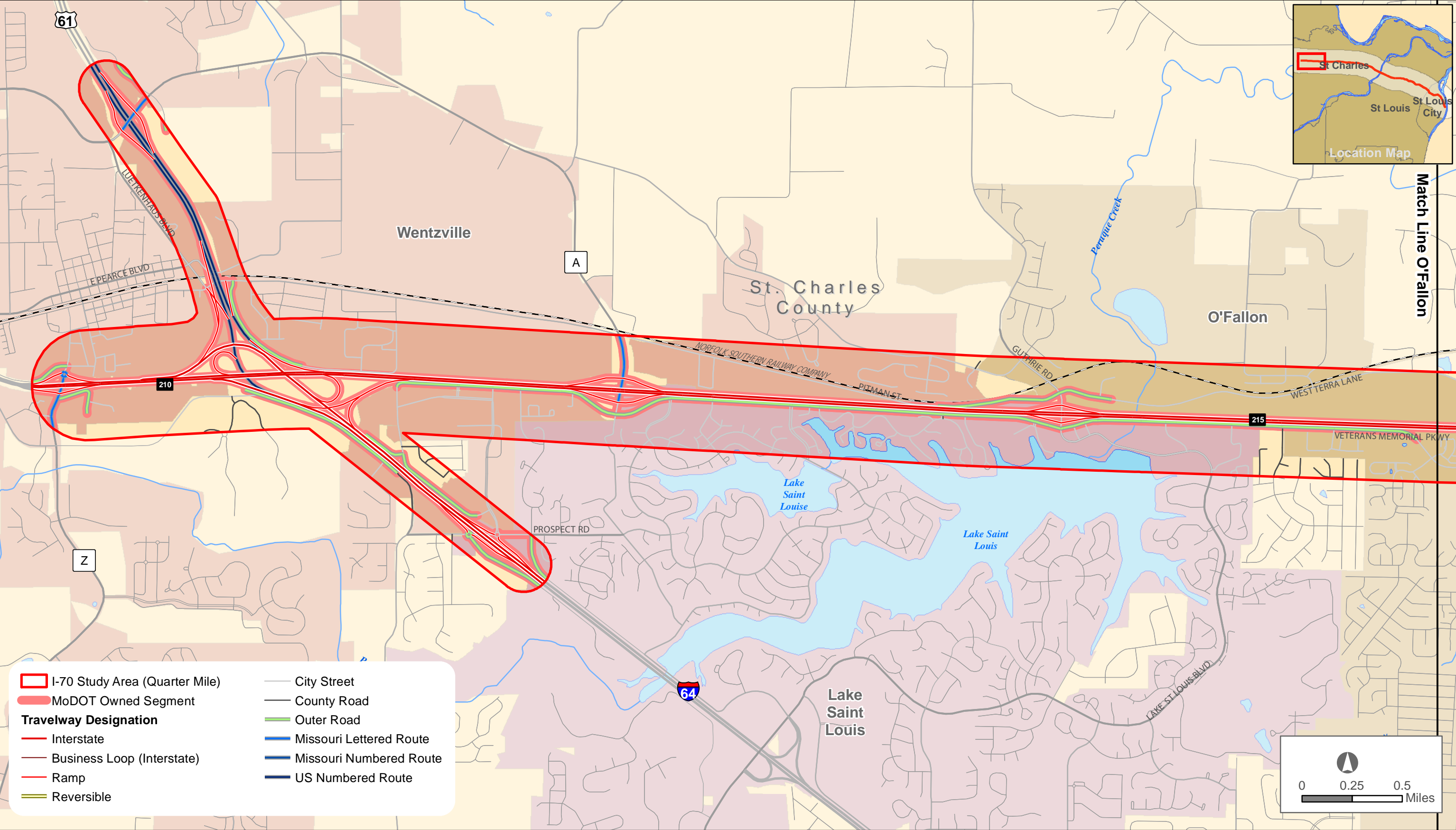


I-70 PEL STUDY- ST. LOUIS CITY

Source: East West Gateway Council of Governments, MoDOT



# Ownership and Outer Roads | Figure 2-3



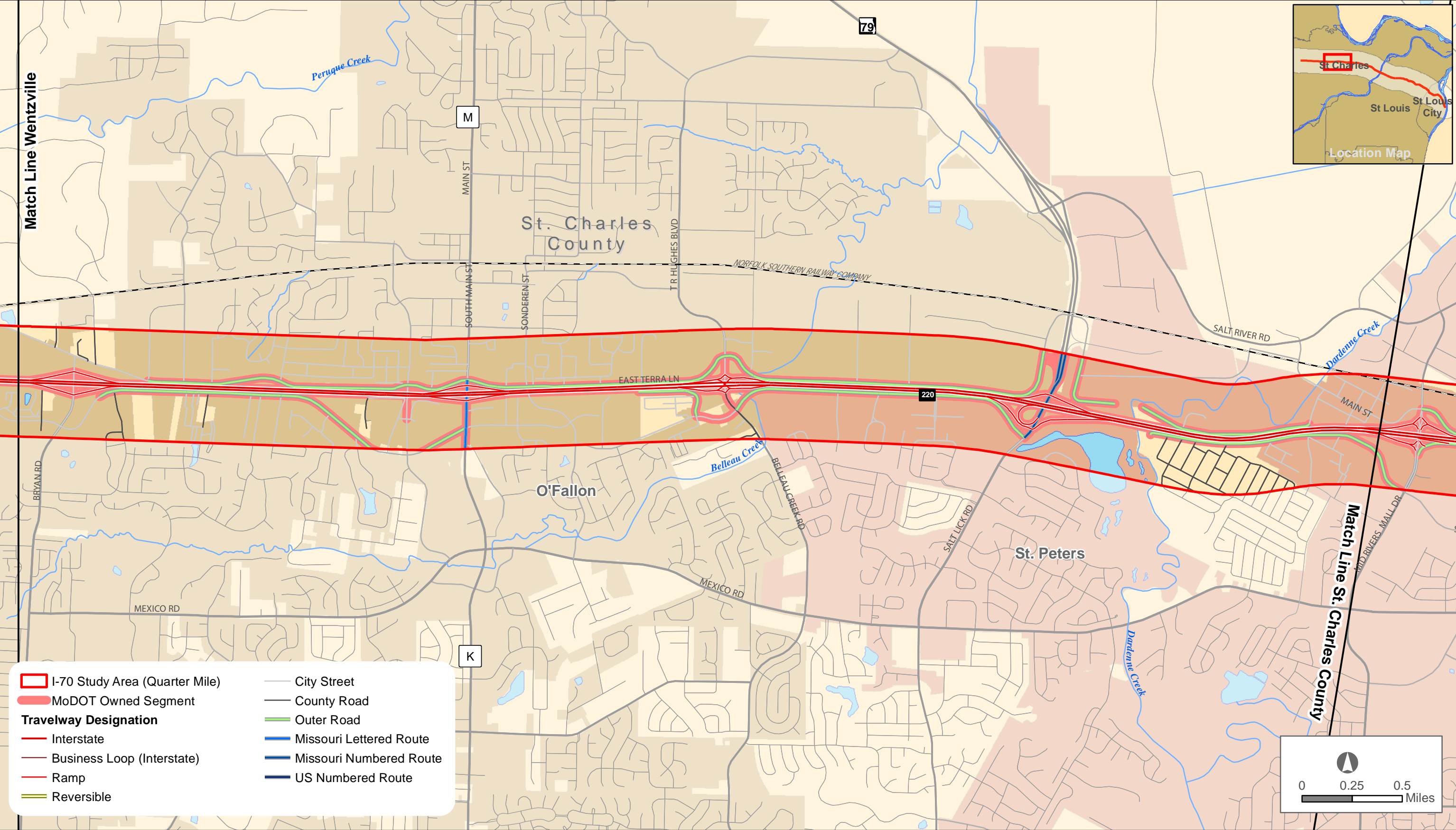
I-70 PEL STUDY- WENTZVILLE



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# Ownership and Outer Roads | Figure 2-3

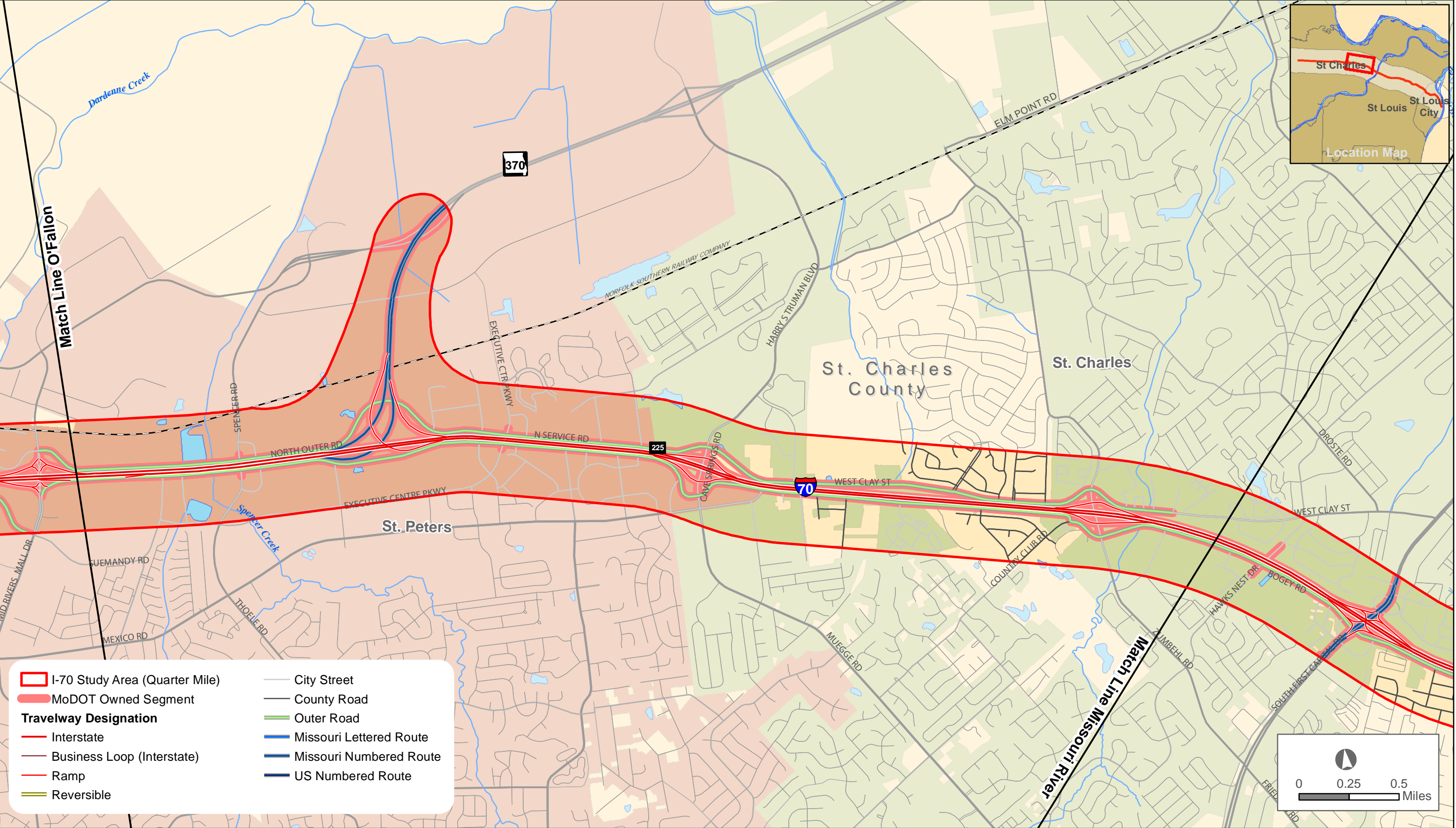


1-70 PEL STUDY- O'FALLON



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# Ownership and Outer Roads | Figure 2-3

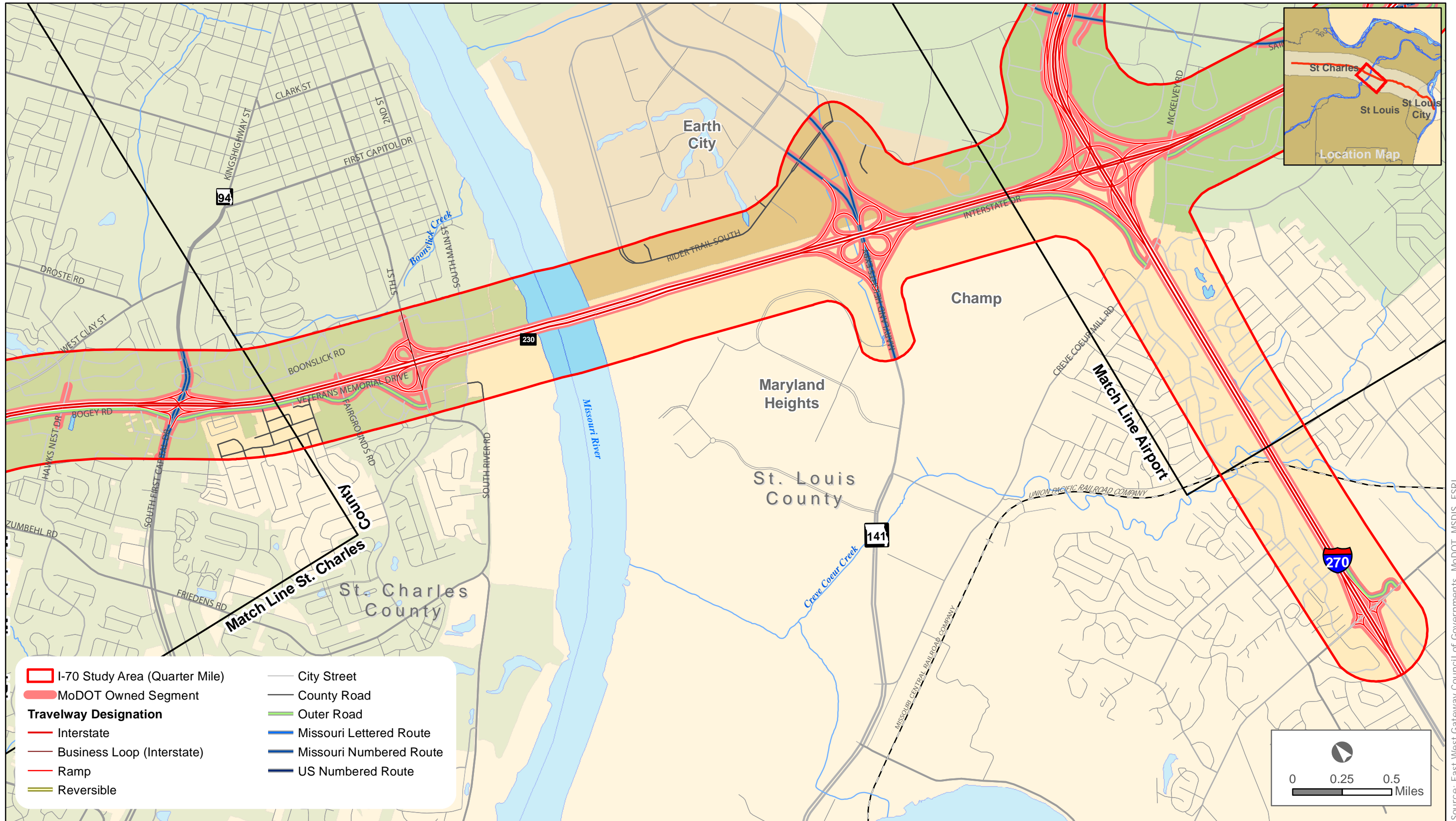


1-70 PEL STUDY- ST. CHARLES COUNTY



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# Ownership and Outer Roads | Figure 2-3

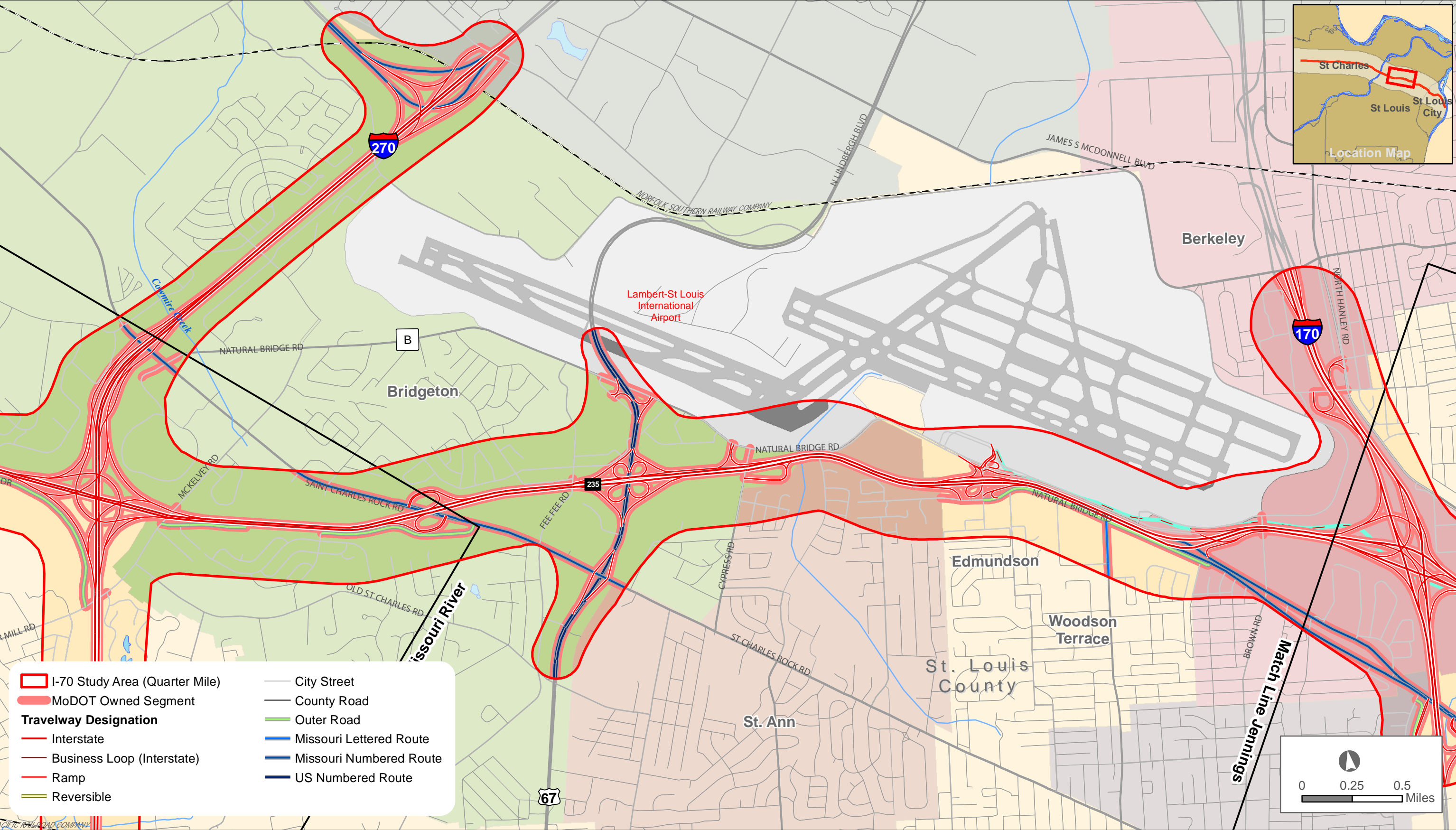


1-70 PEL STUDY- MISSOURI RIVER

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# Ownership and Outer Roads | Figure 2-3

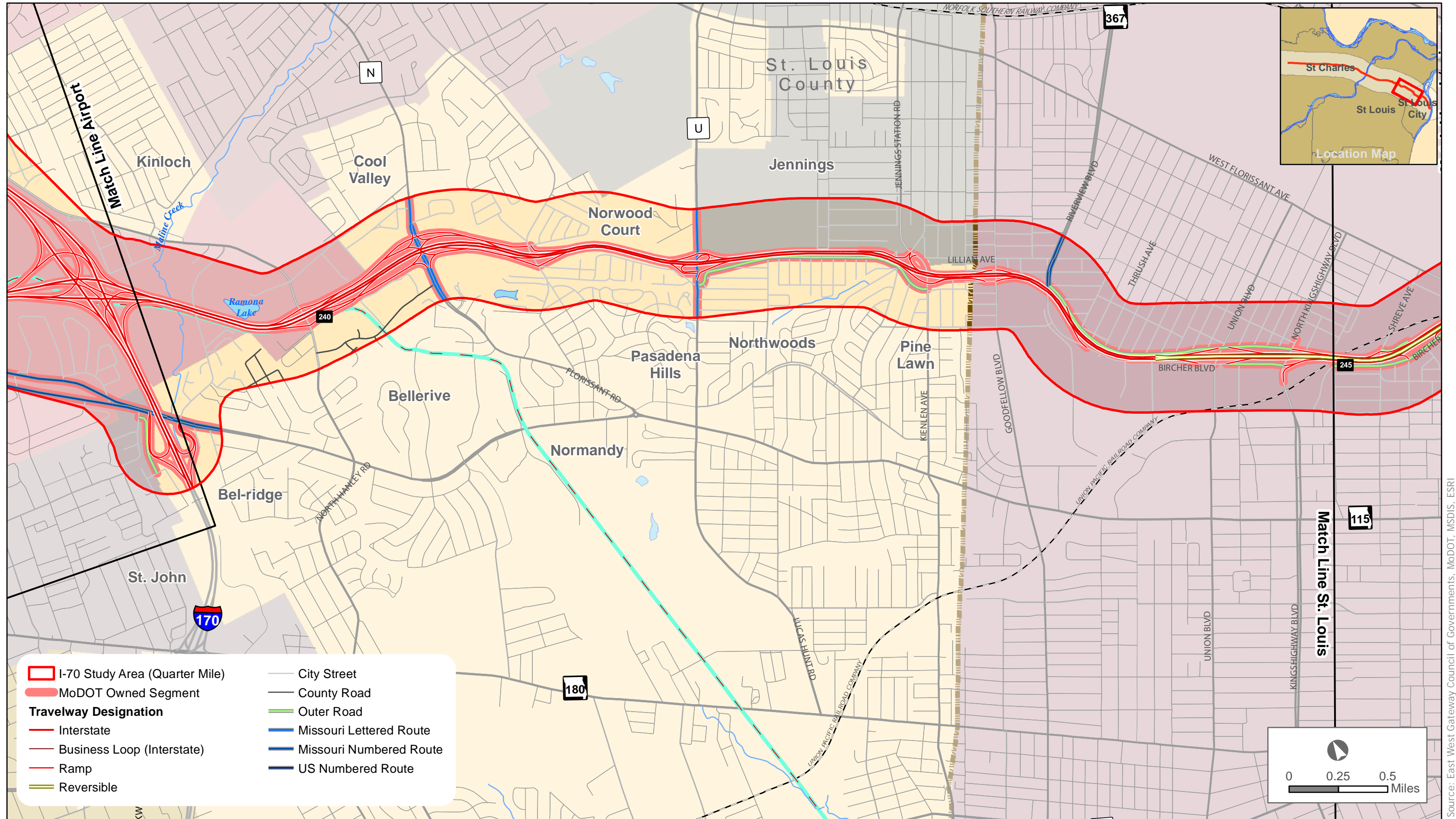


1-70 PEL STUDY-AIRPORT



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# Ownership and Outer Roads | Figure 2-3

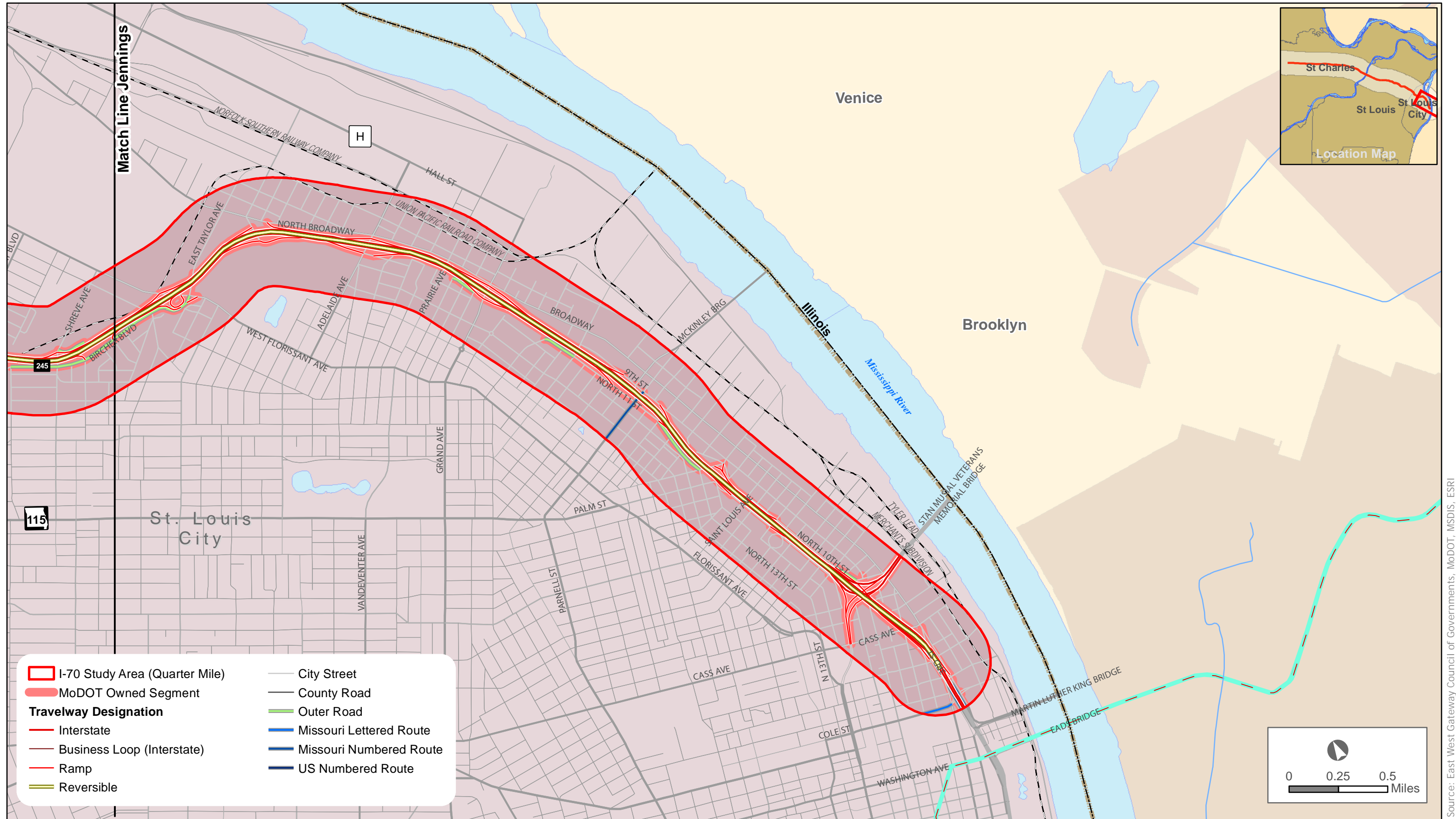


1-70 PEL STUDY-JENNINGS



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

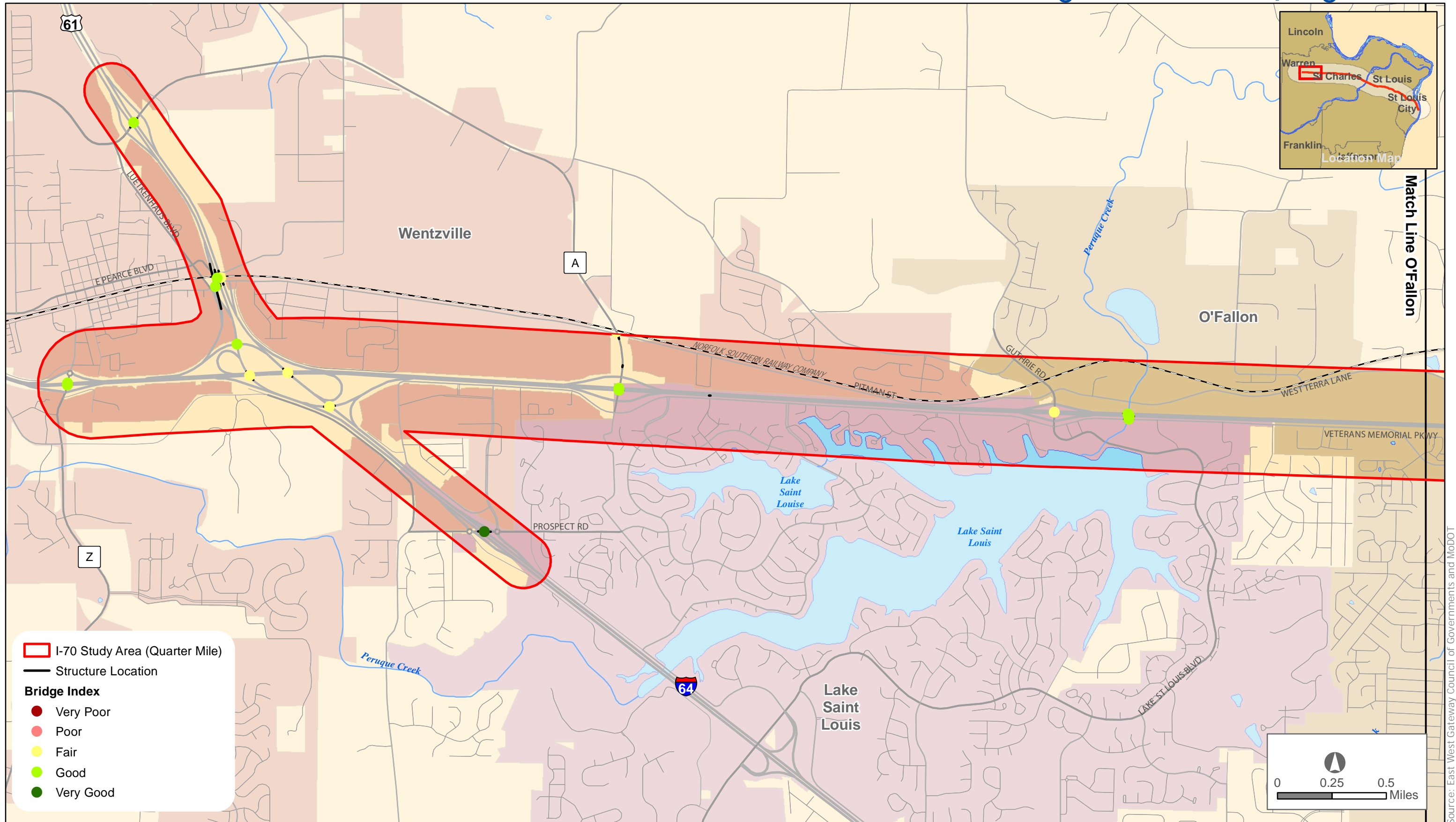
# Ownership and Outer Roads | Figure 2-3



1-70 PEL STUDY- ST. LOUIS CITY



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

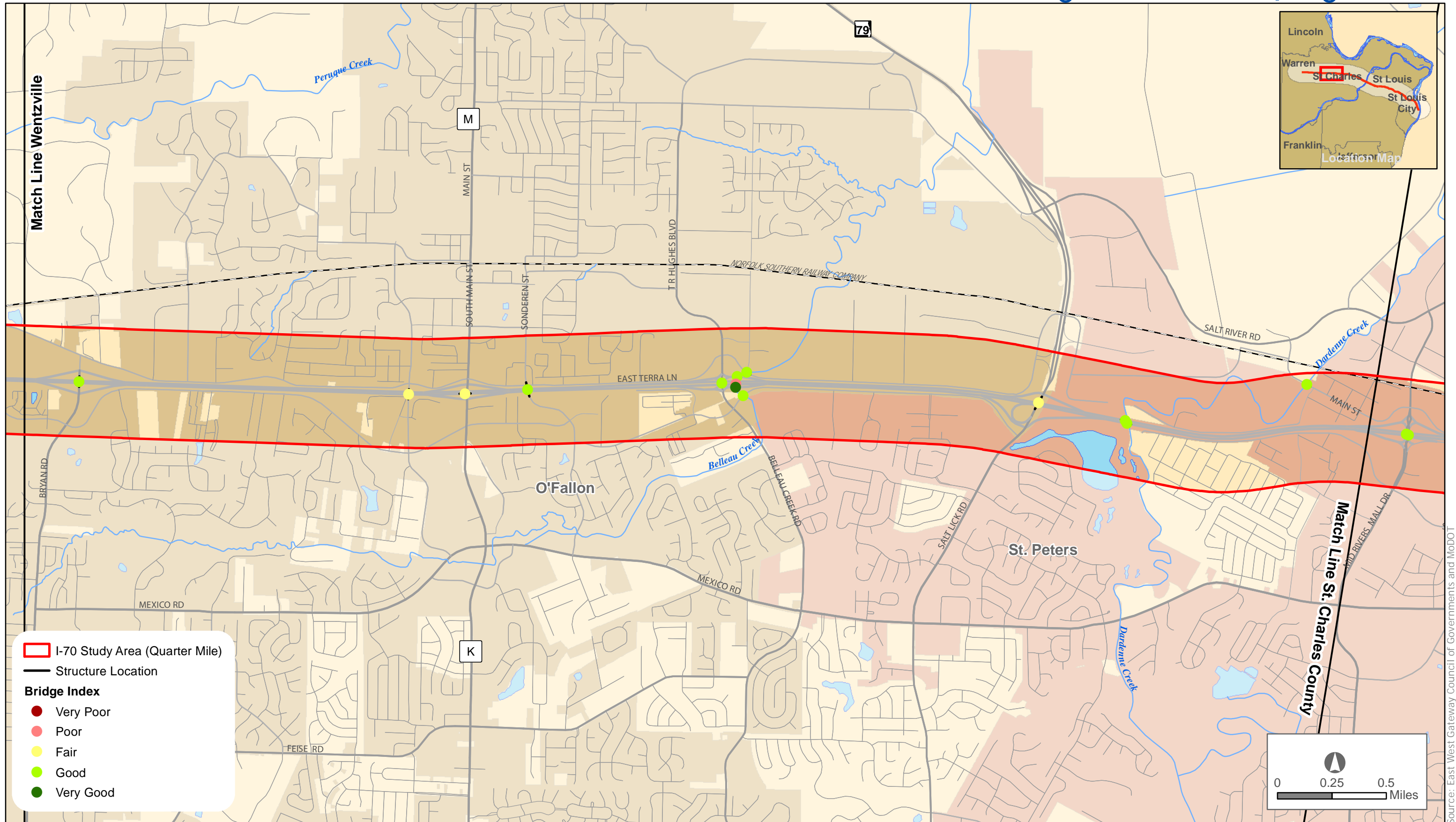


I-70 PEL STUDY- WENTZVILLE

Source: East West Gateway Council of Governments and MoDOT



# Bridge Conditions | Figure 2-4

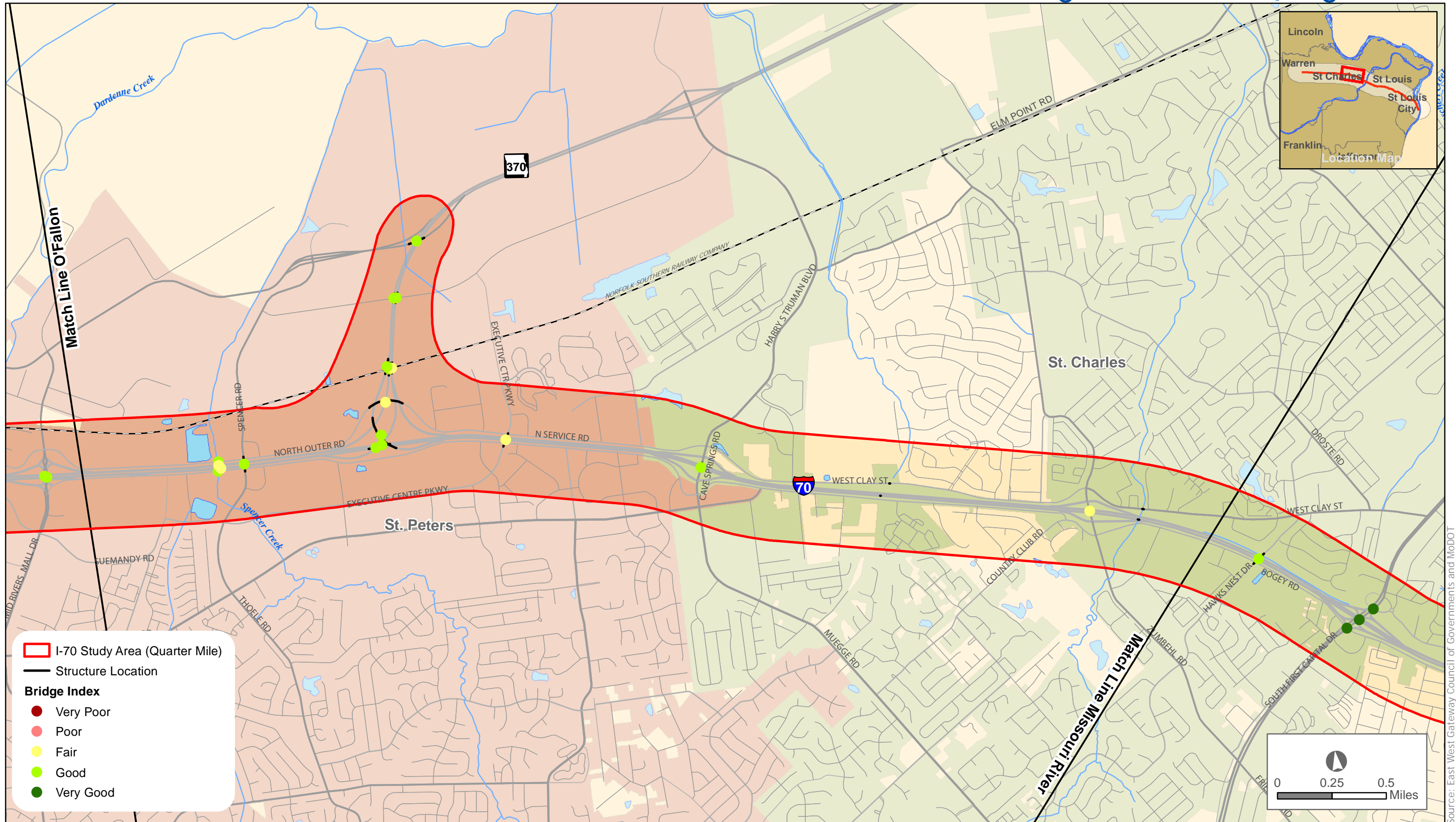


I-70 PEL STUDY- O'FALLON

Source: East West Gateway Council of Governments and MoDOT







I-70 PEL STUDY- ST. CHARLES COUNTY

Source: East West Gateway Council of Governments and MoDOT



# Bridge Conditions | Figure 2-4

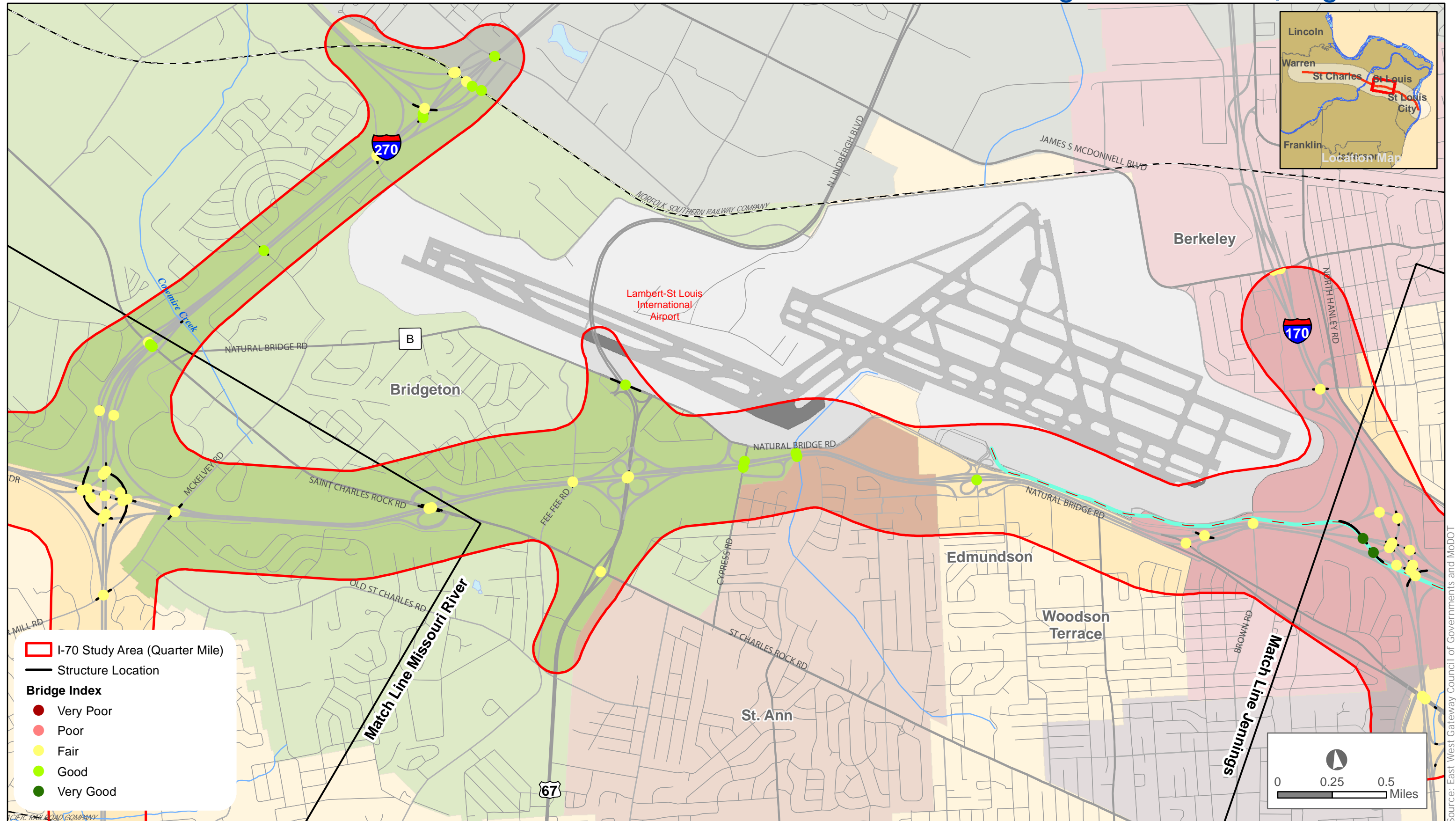


I-70 PEL STUDY- MISSOURI RIVER

Source: East West Gateway Council of Governments and MoDOT



# Bridge Conditions | Figure 2-4

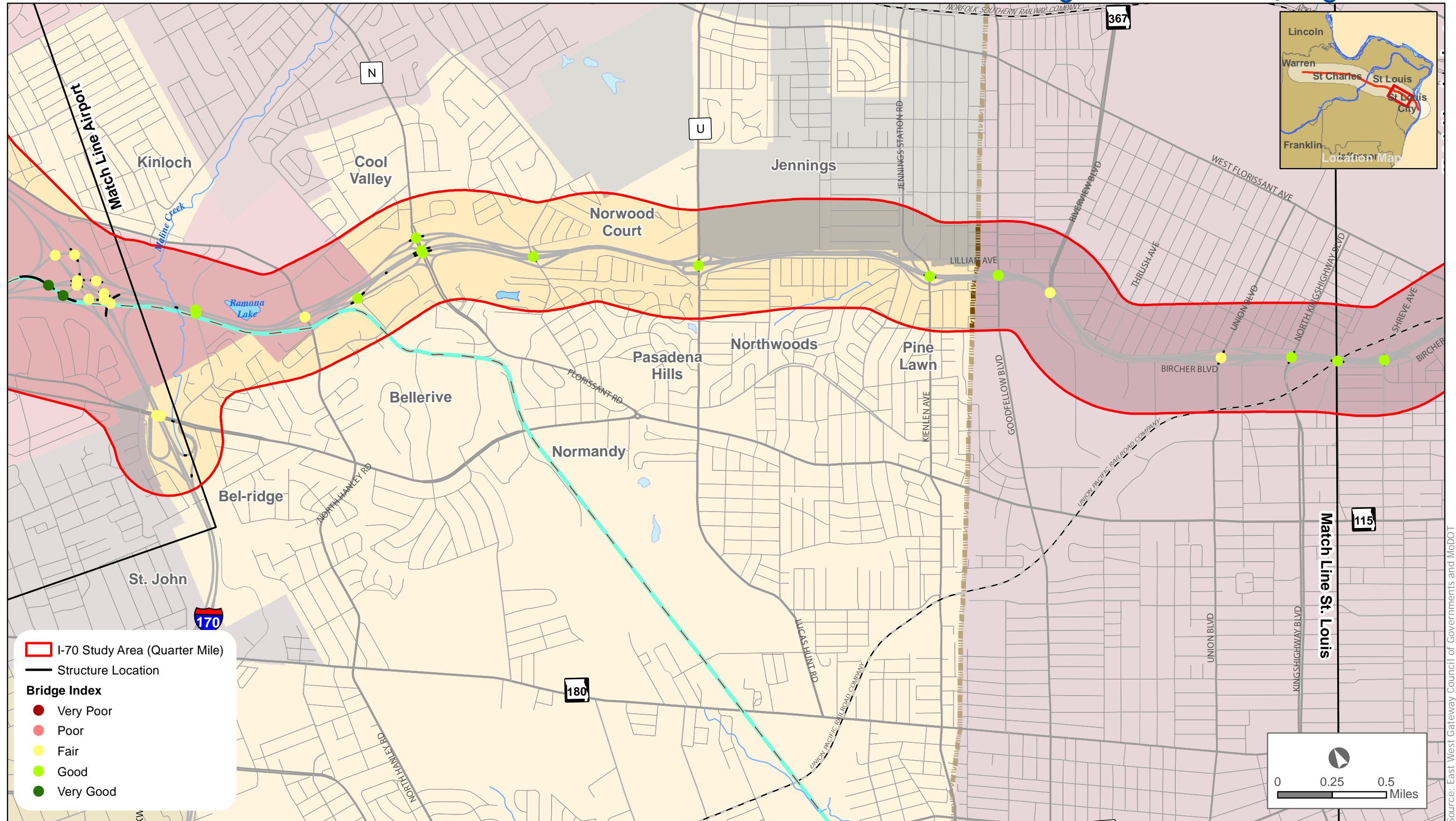


I-70 PEL STUDY- AIRPORT

Source: East West Gateway Council of Governments and MoDOT

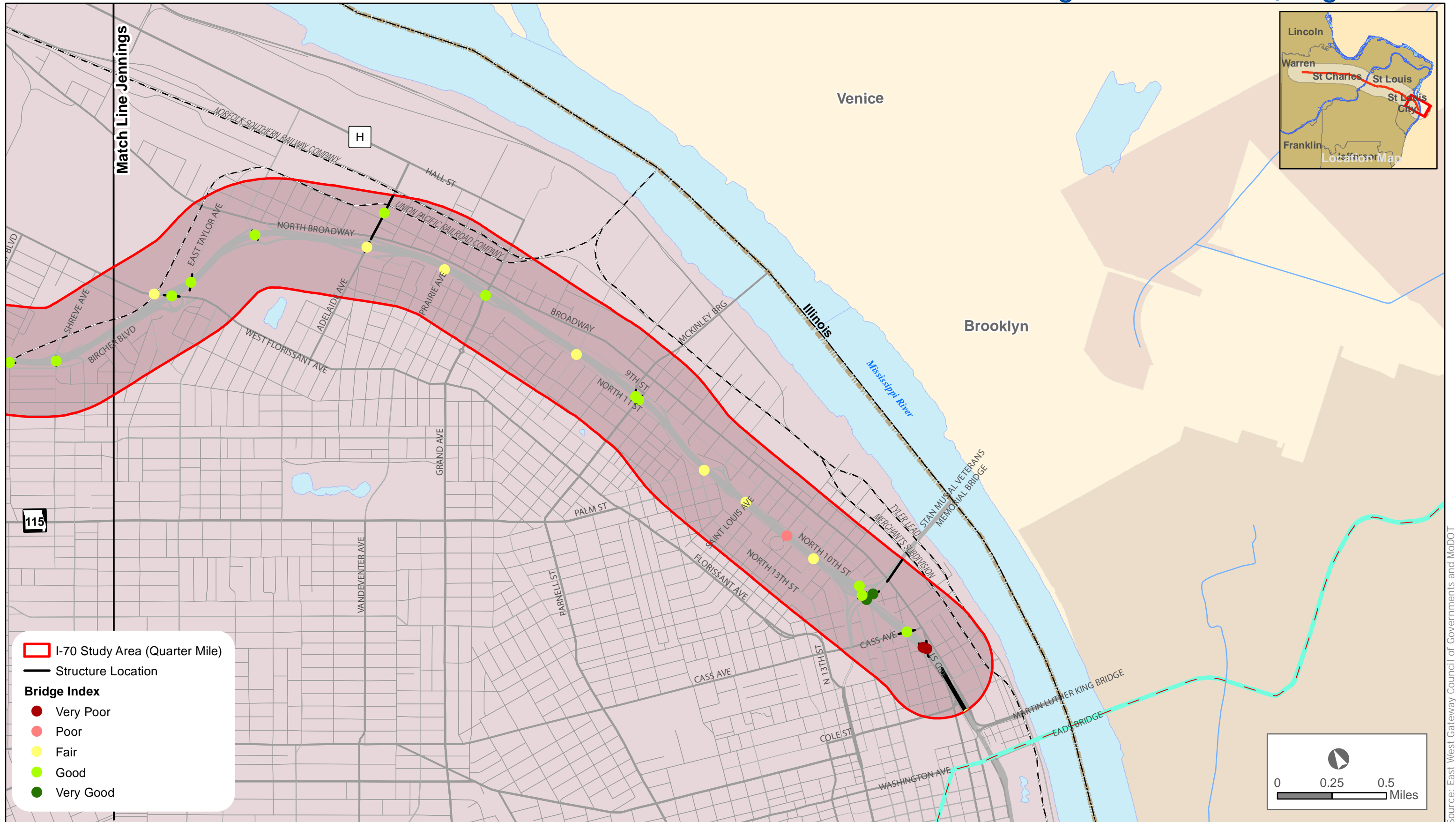


# Bridge Conditions | Figure 2-4



I-70 PEL STUDY-JENNINGS



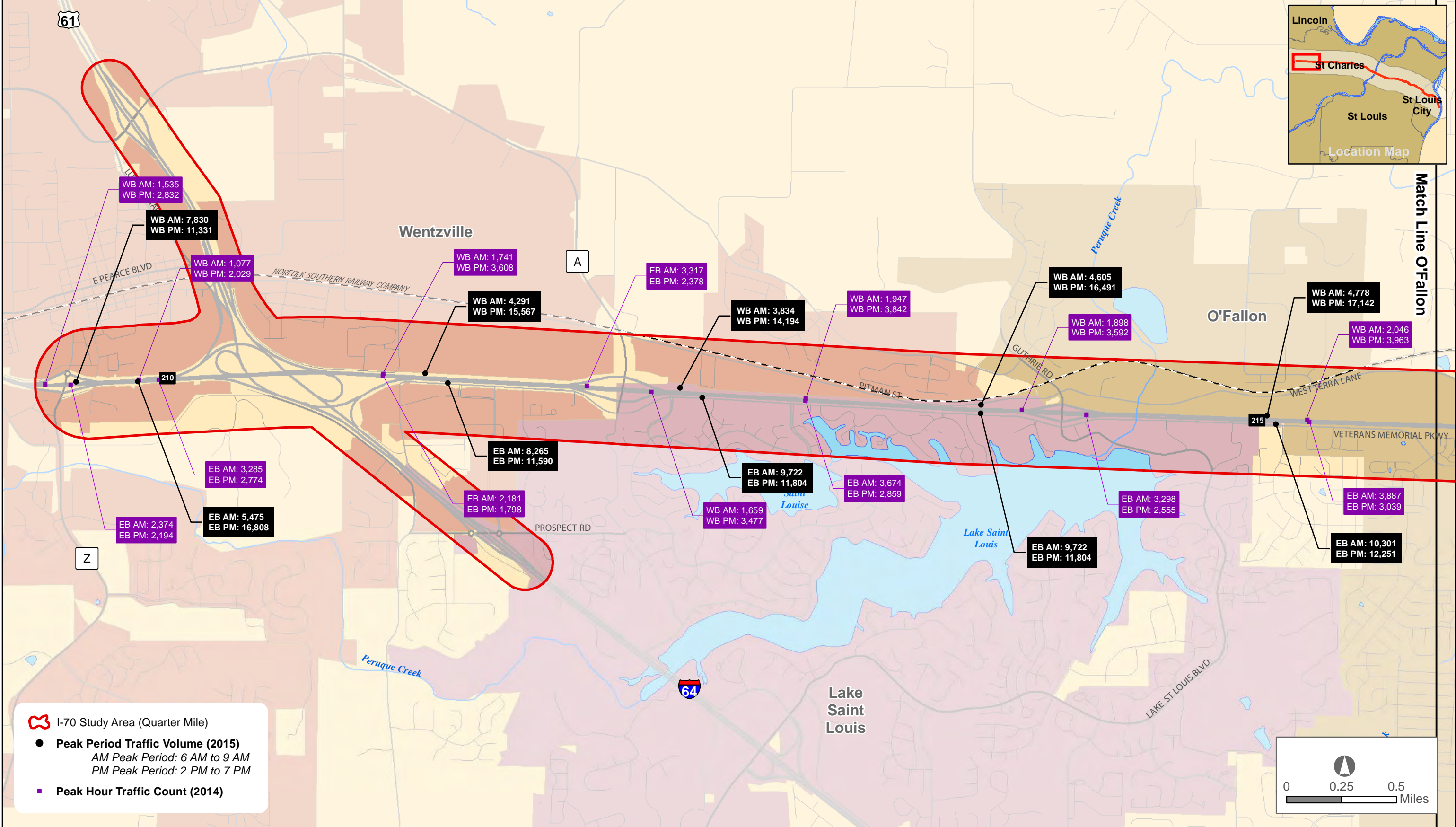


I-70 PEL STUDY- ST. LOUIS CITY

Source: East West Gateway Council of Governments and MoDOT



# Peak Period and Peak Hour Traffic Volumes | Figure 2-5

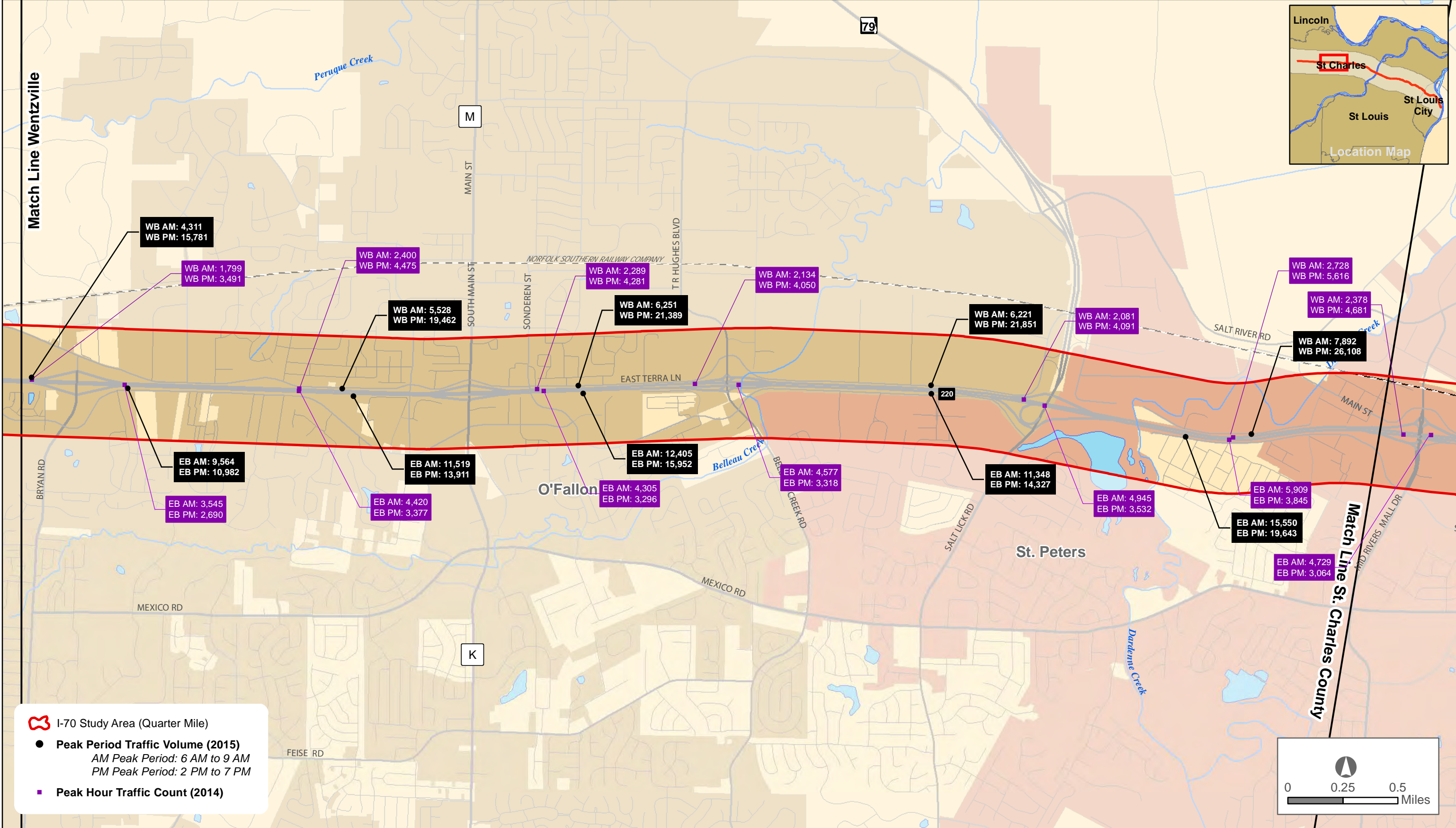


I-70 PEL STUDY - WENTZVILLE



Source: East West Gateway Council of Governments

# Peak Period and Peak Hour Traffic Volumes | Figure 2-5

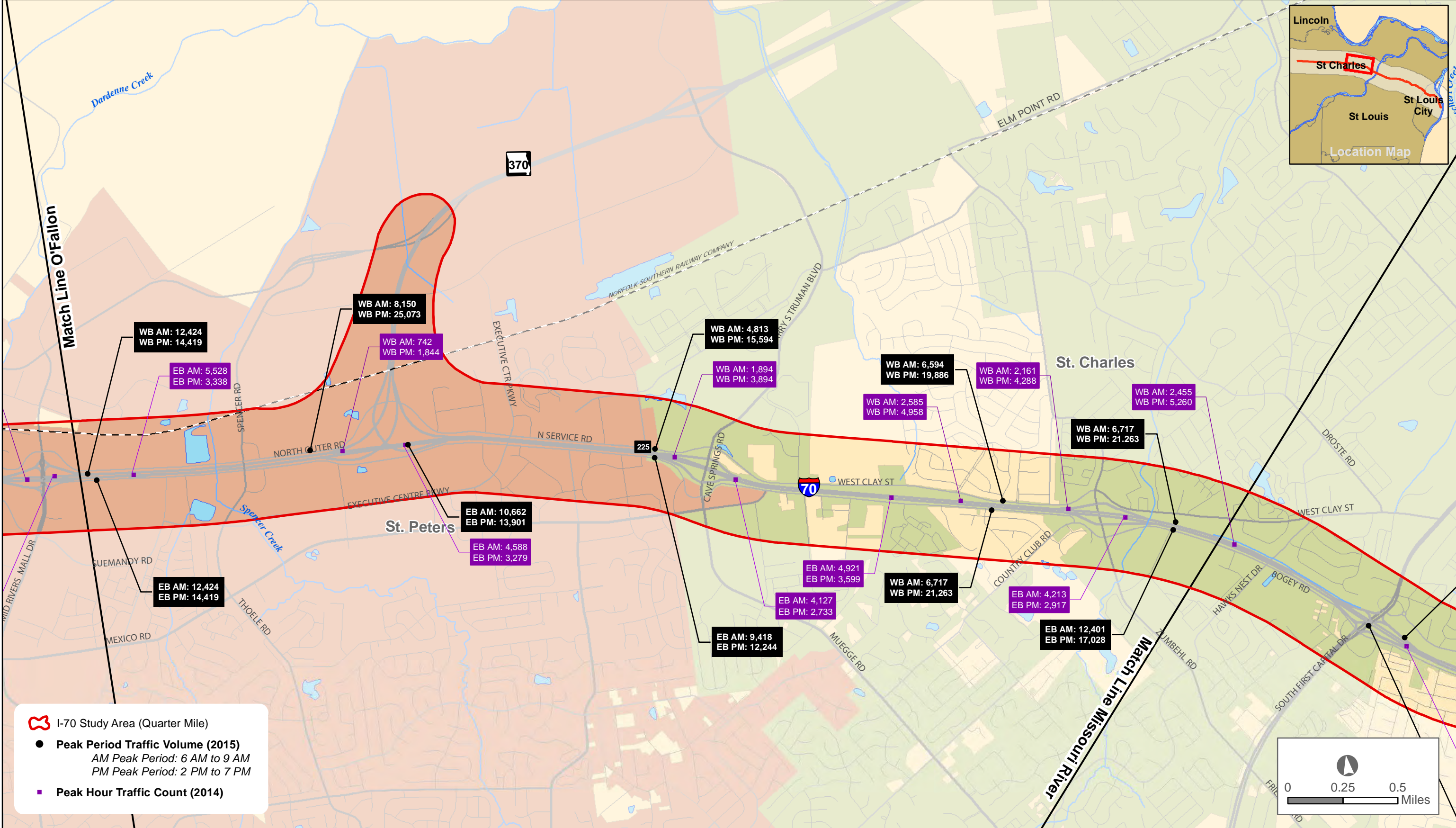


I-70 PEL STUDY - O'FALLON



Source: East West Gateway Council of Governments

# Peak Period and Peak Hour Traffic Volumes | Figure 2-5



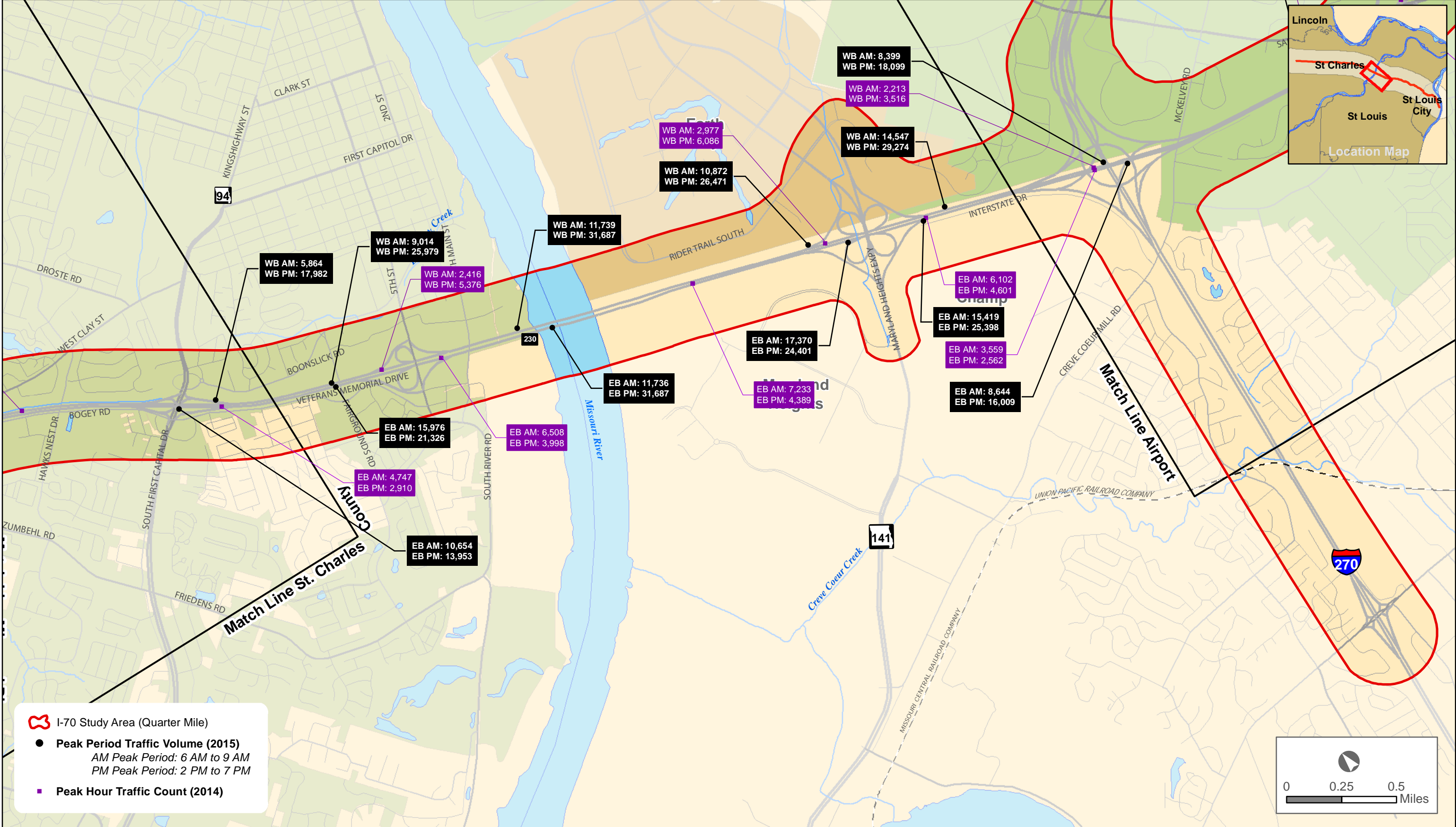
I-70 PEL STUDY - ST. CHARLES COUNTY



Source: East West Gateway Council of Governments



# Peak Period and Peak Hour Traffic Volumes | Figure 2-5

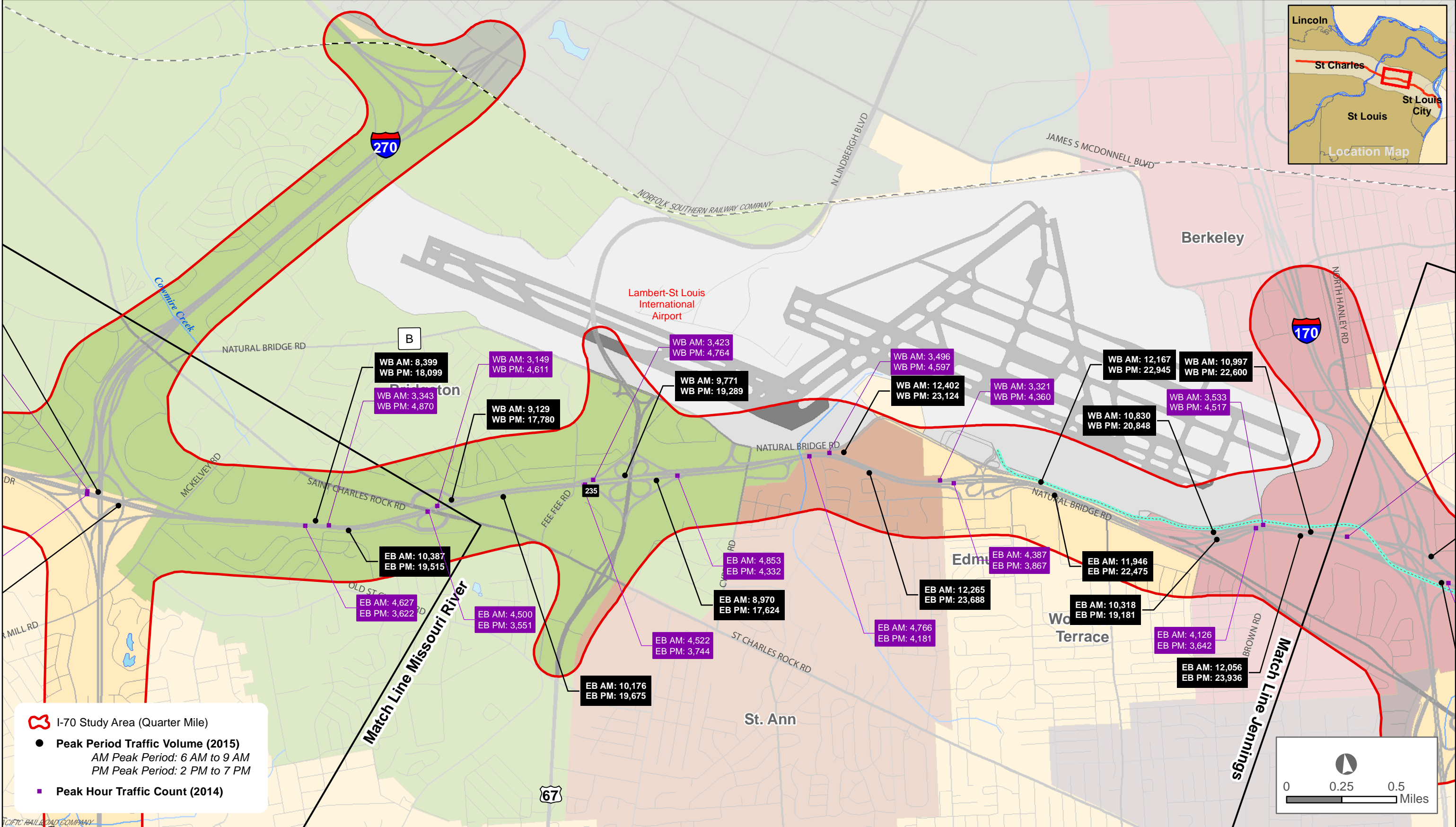


I-70 PEL STUDY - MISSOURI RIVER



Source: East West Gateway Council of Governments

# Peak Period and Peak Hour Traffic Volumes | Figure 2-5

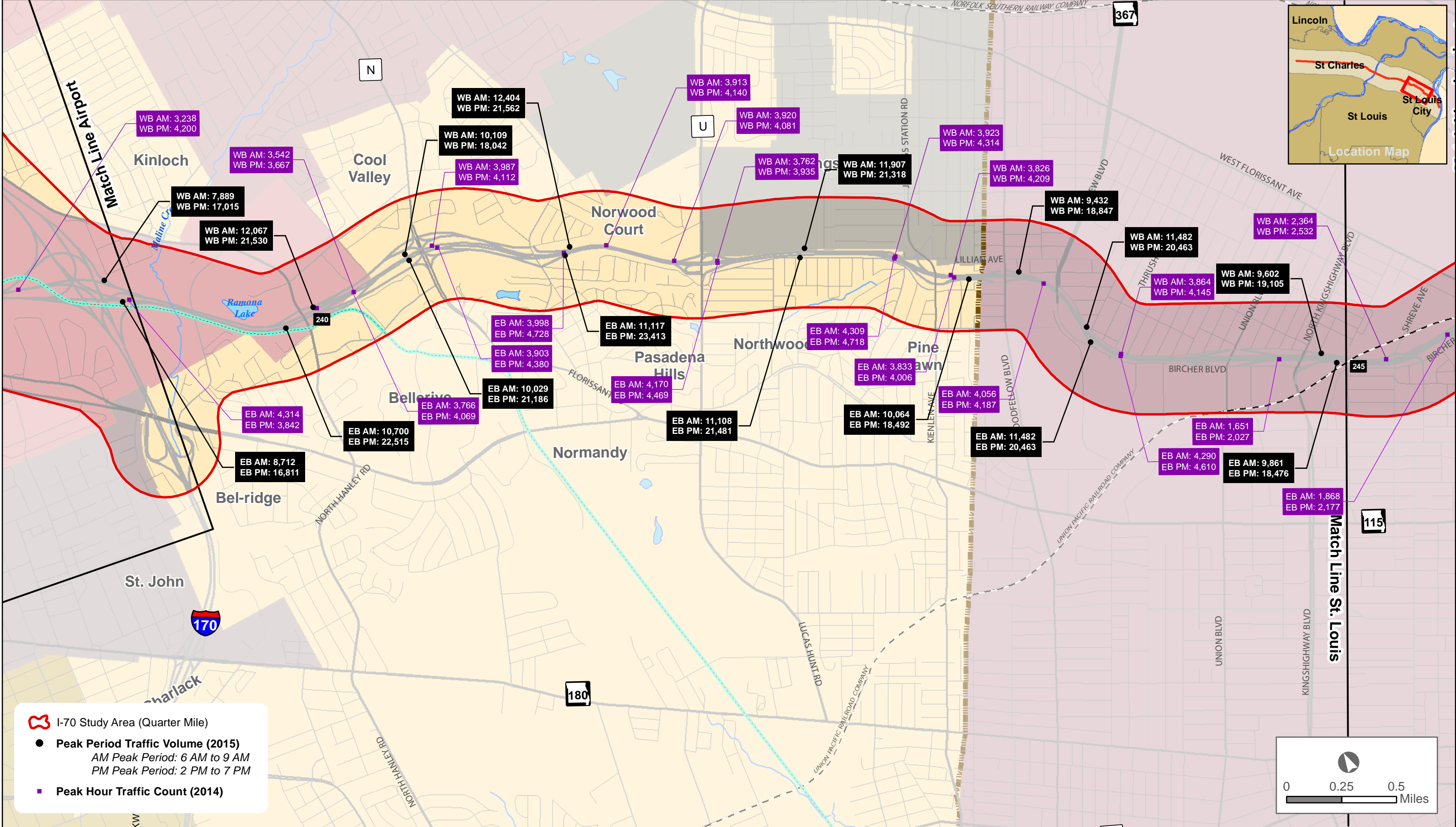


I-70 PEL STUDY - AIRPORT

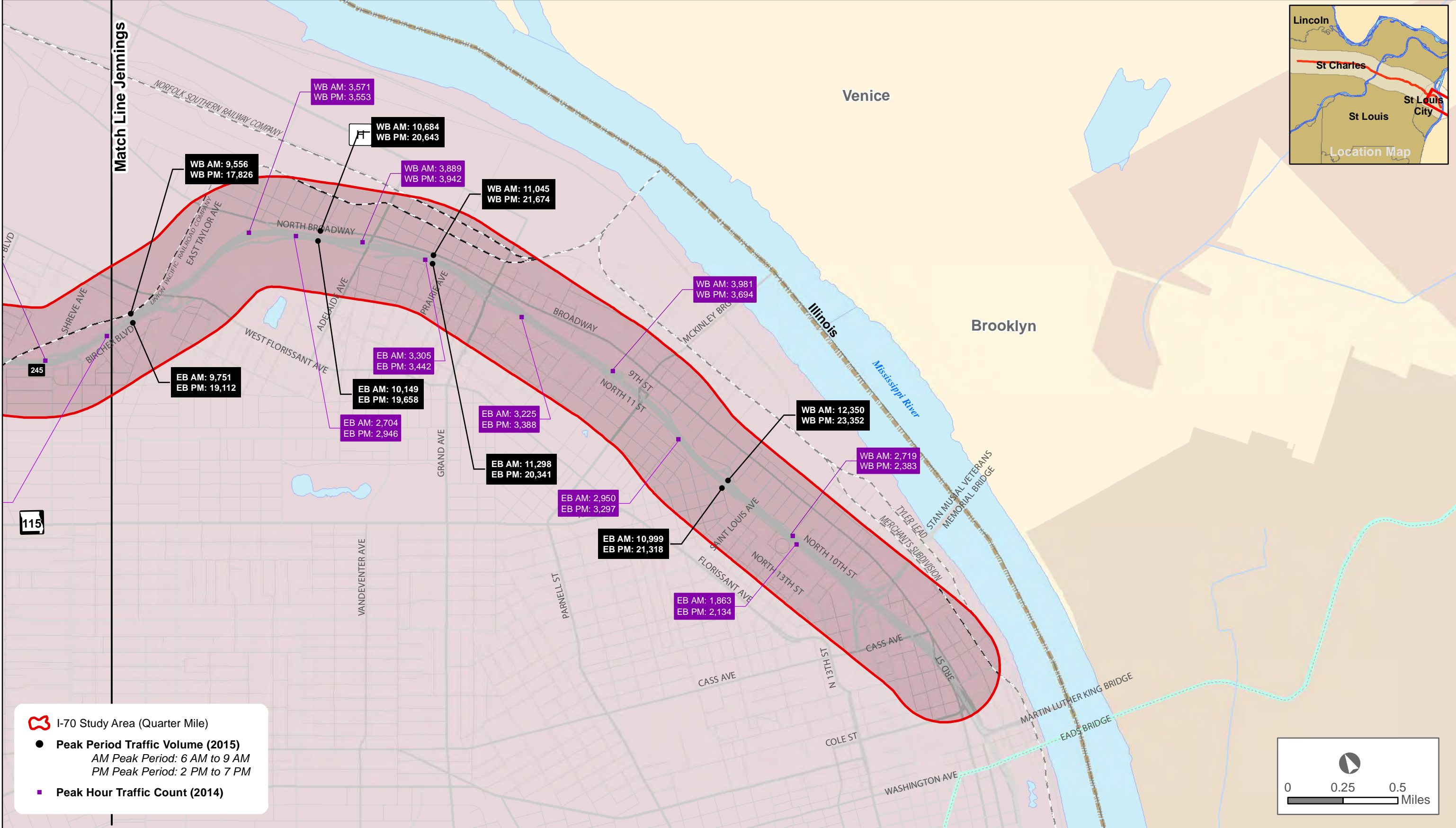


Source: East West Gateway Council of Governments

# Peak Period and Peak Hour Traffic Volumes | Figure 2-5



# Peak Period and Peak Hour Traffic Volumes | Figure 2-5

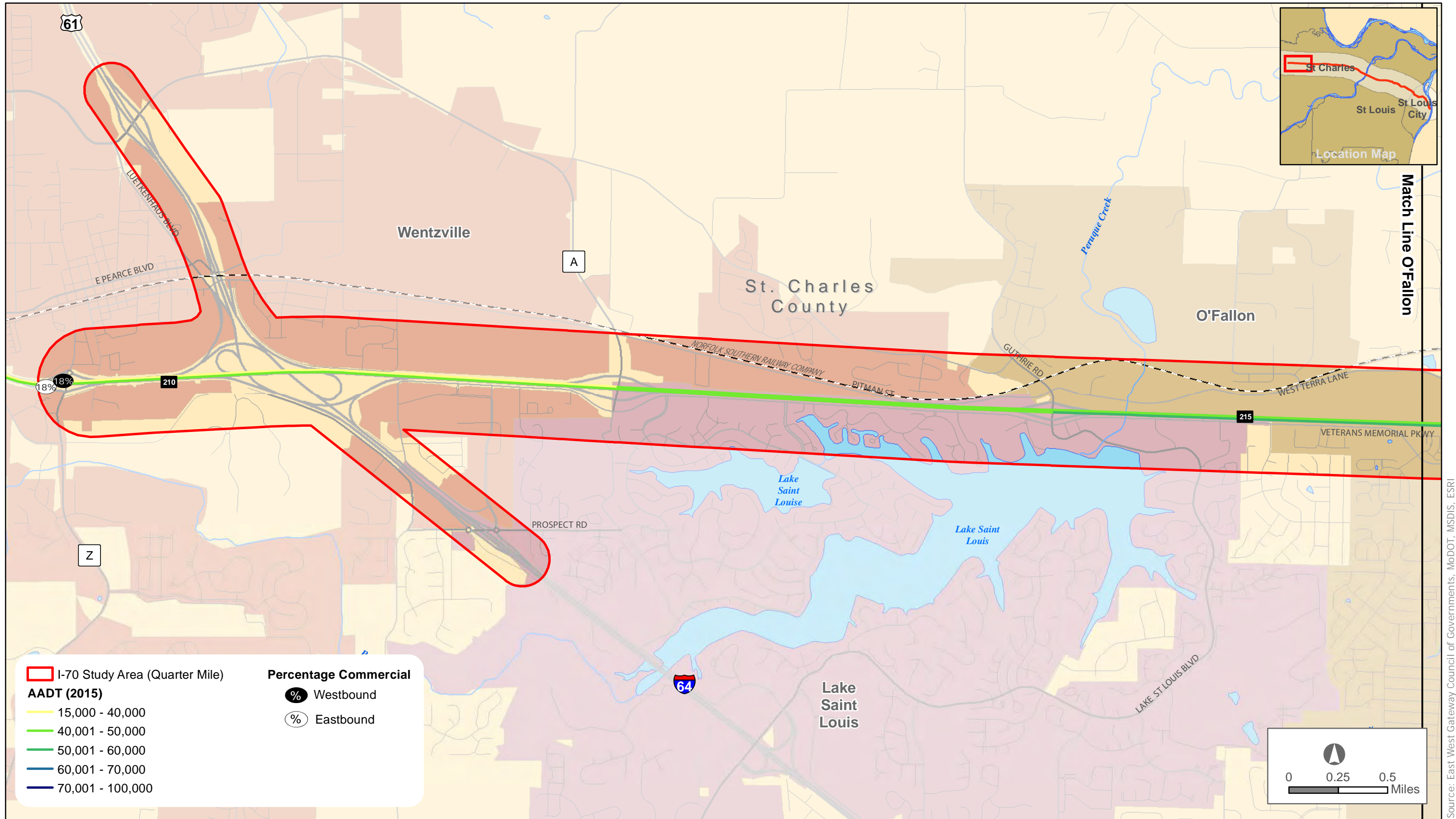


I-70 PEL STUDY - ST. LOUIS CITY



Source: East West Gateway Council of Governments

# AADT and Percentage Commercial | Figure 2-6

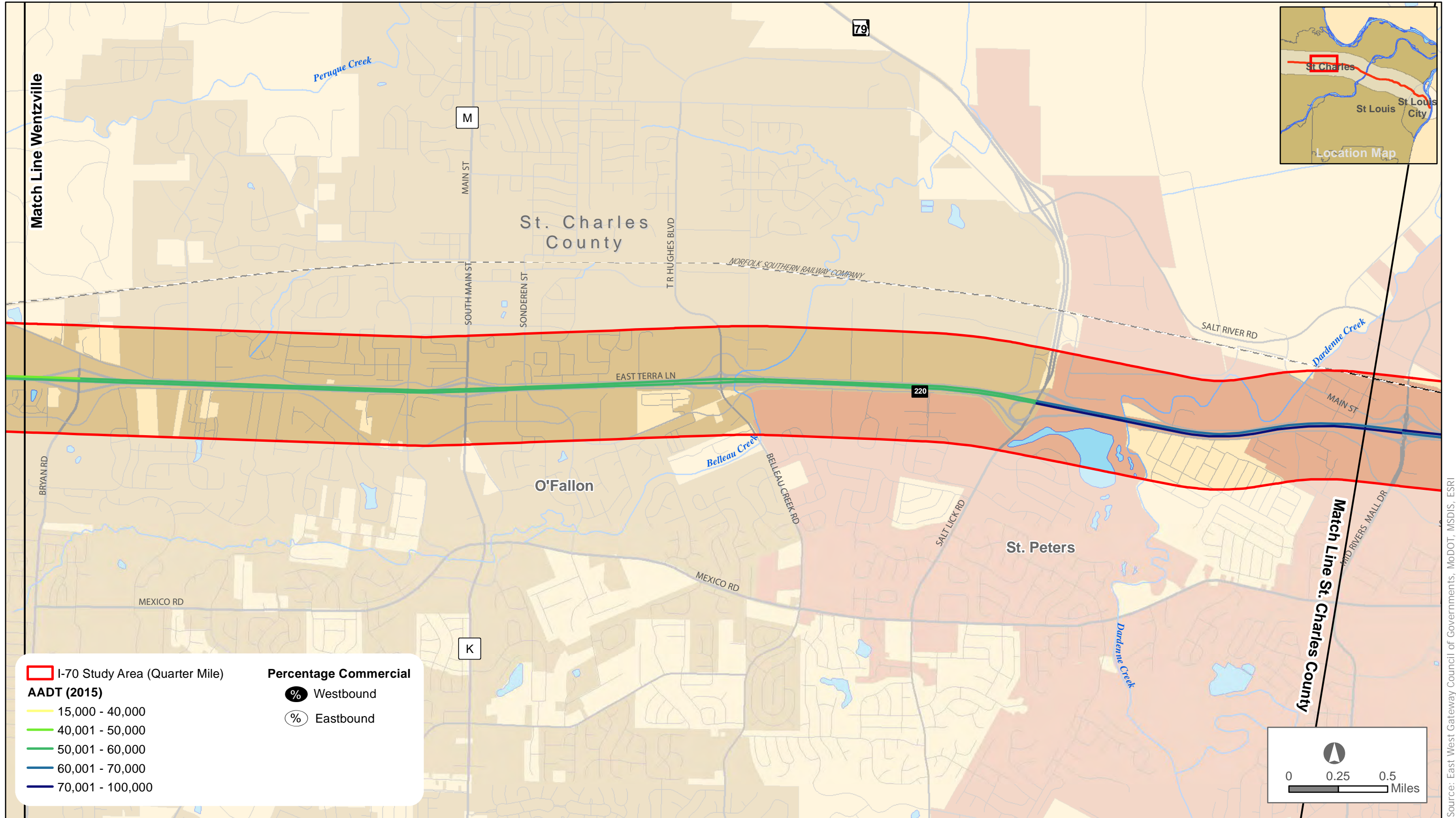


I-70 PEL STUDY - WENTZVILLE

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# AADT and Percentage Commercial | Figure 2-6

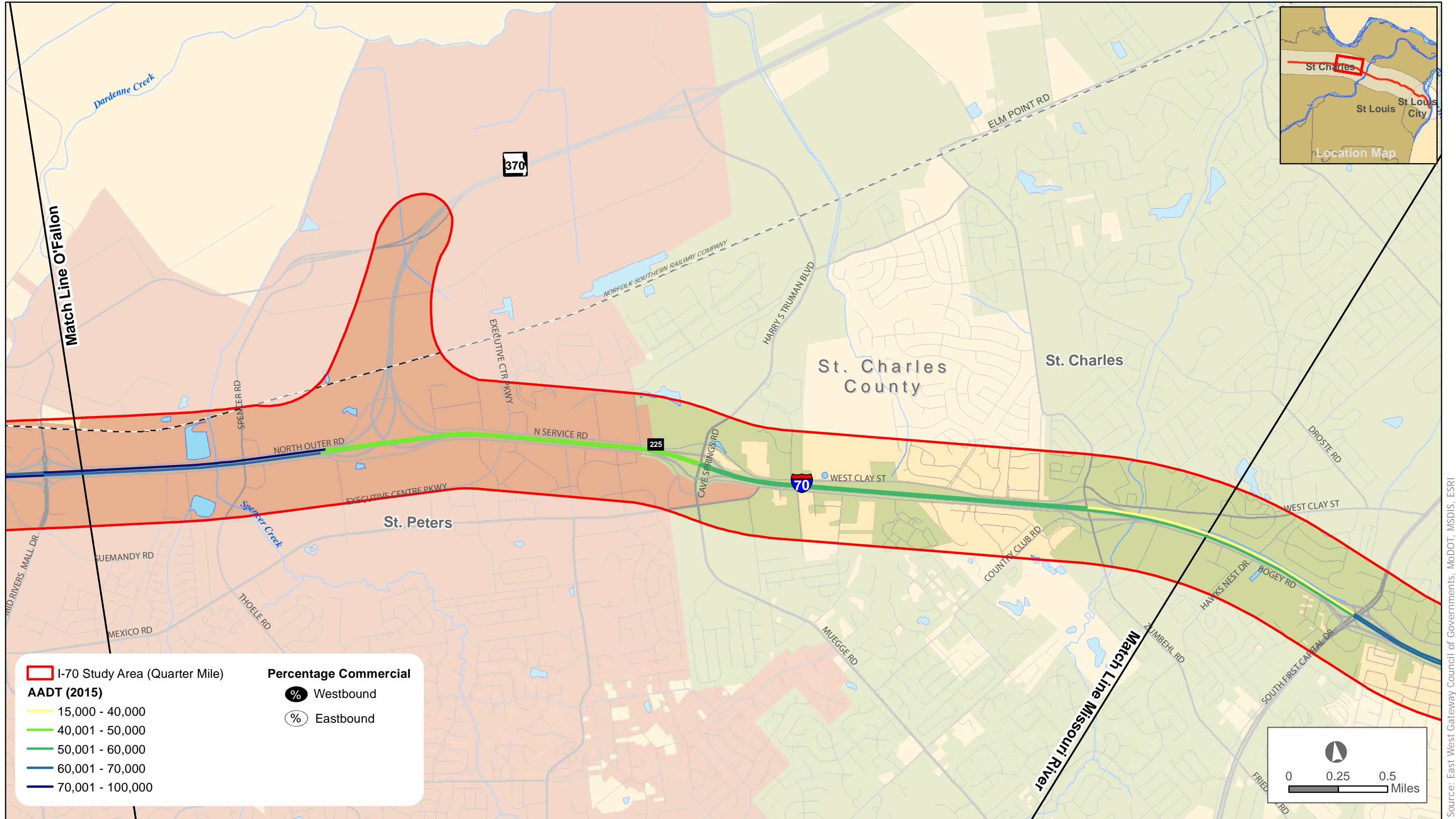


I-70 PEL STUDY - O'FALLON



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# AADT and Percentage Commercial | Figure 2-6

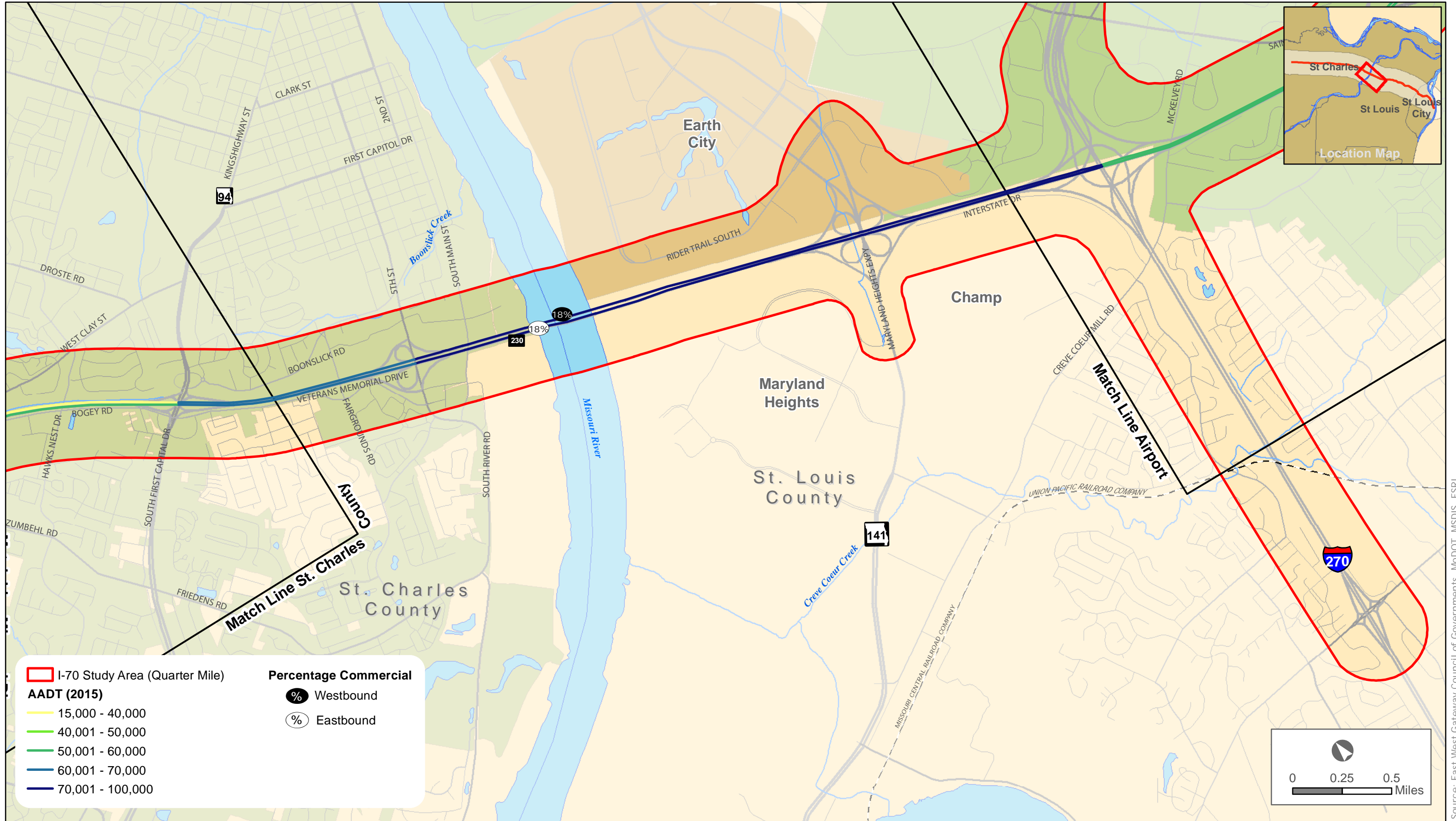


I-70 PEL STUDY - ST. CHARLES COUNTY



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

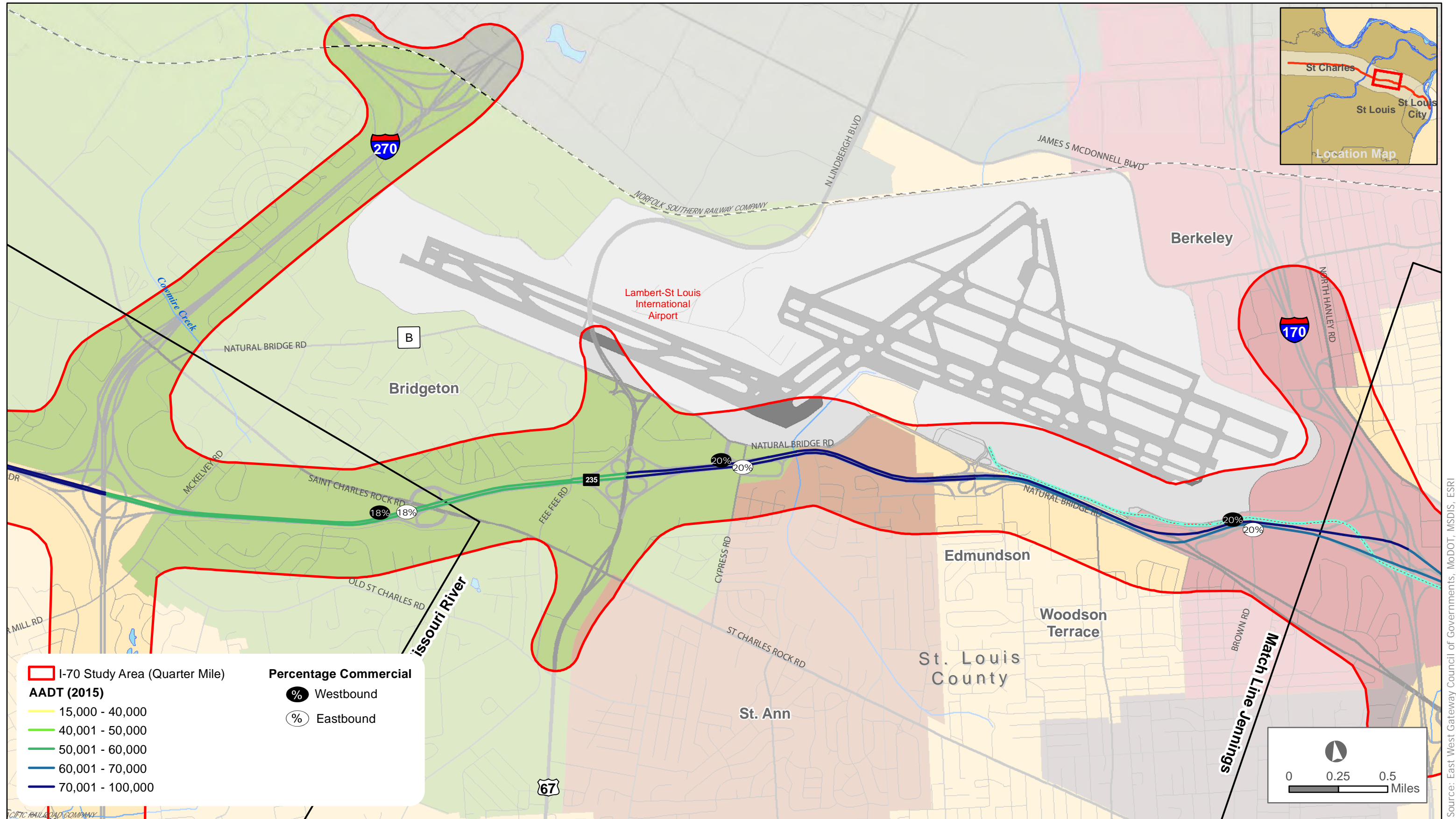
# AADT and Percentage Commercial | Figure 2-6



I-70 PEL STUDY - MISSOURI RIVER



# AADT and Percentage Commercial | Figure 2-6

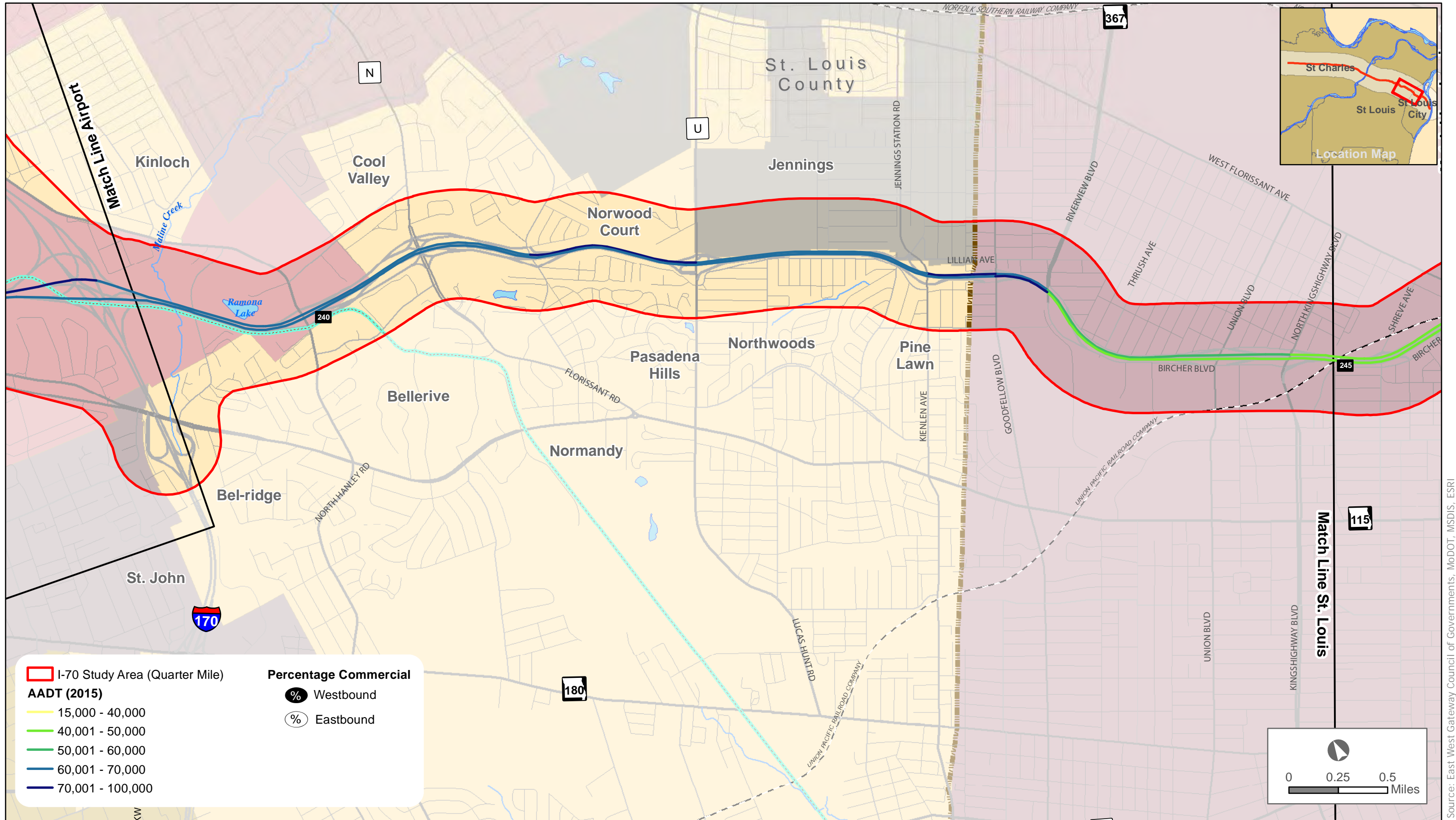


I-70 PEL STUDY - AIRPORT

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# AADT and Percentage Commercial | Figure 2-6

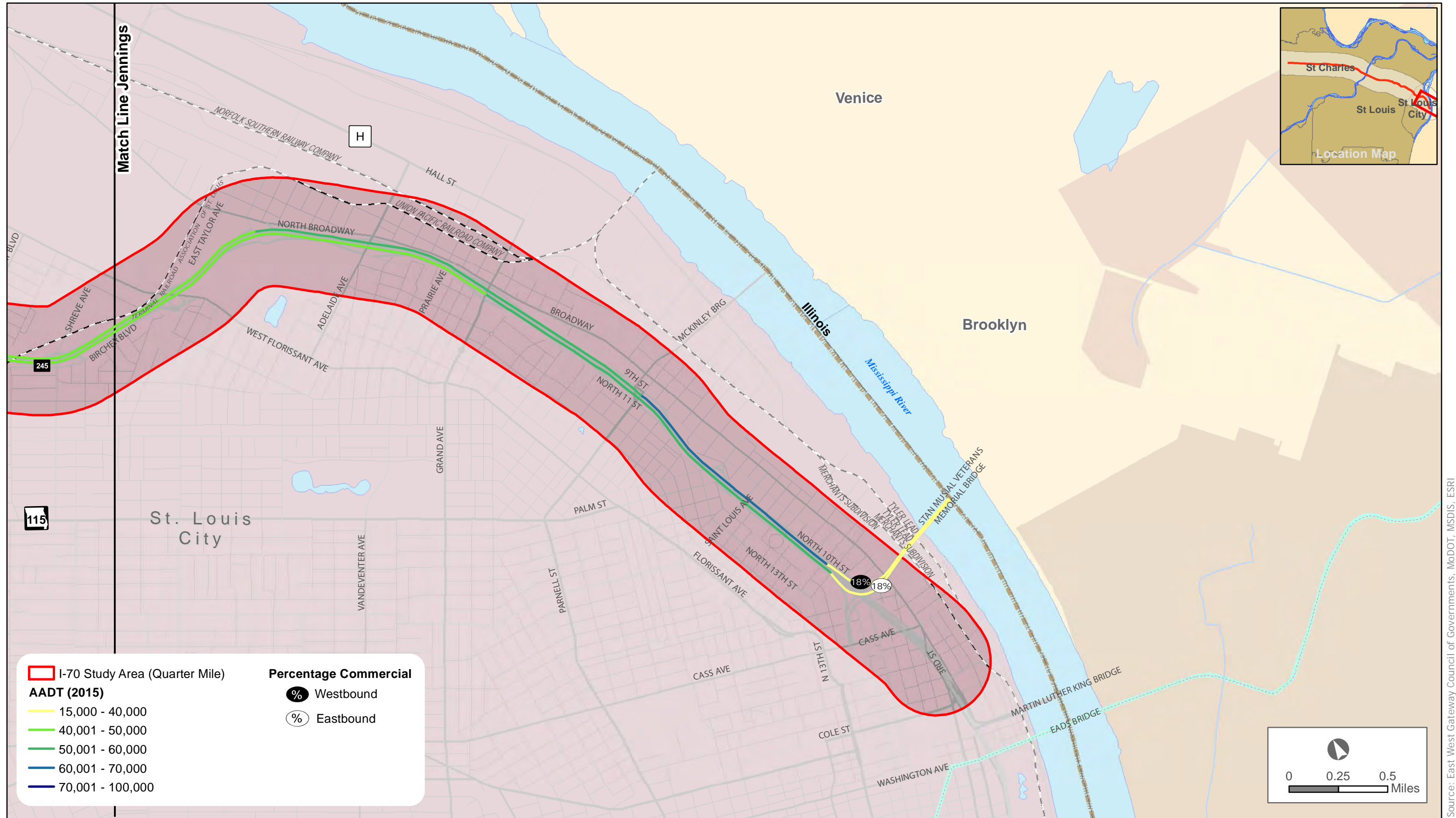


I-70 PEL STUDY - JENNINGS



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

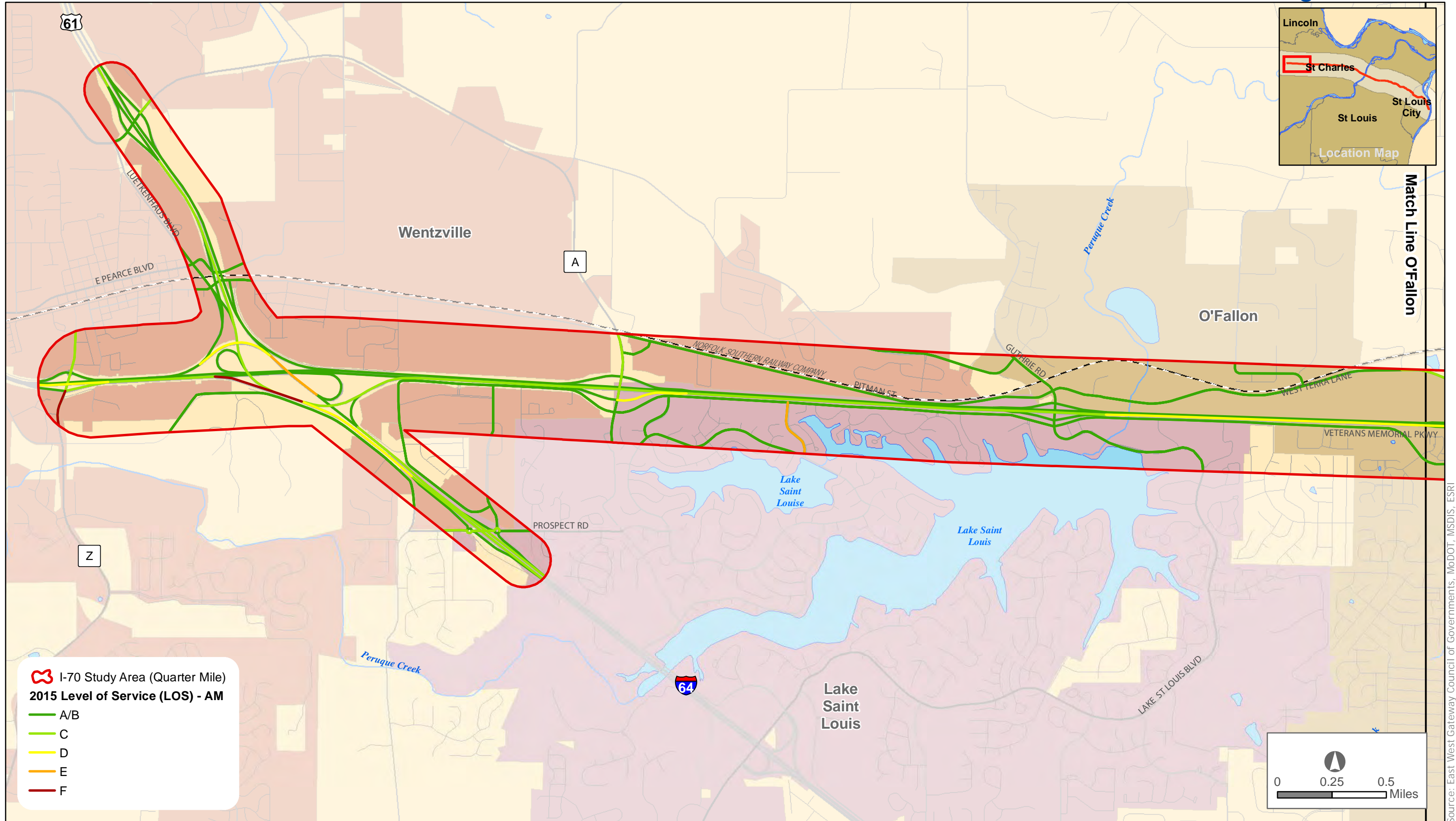
# AADT and Percentage Commercial | Figure 2-6



I-70 PEL STUDY - ST. LOUIS CITY



# 2015 Level of Service (LOS) - AM | Figure 2-7A

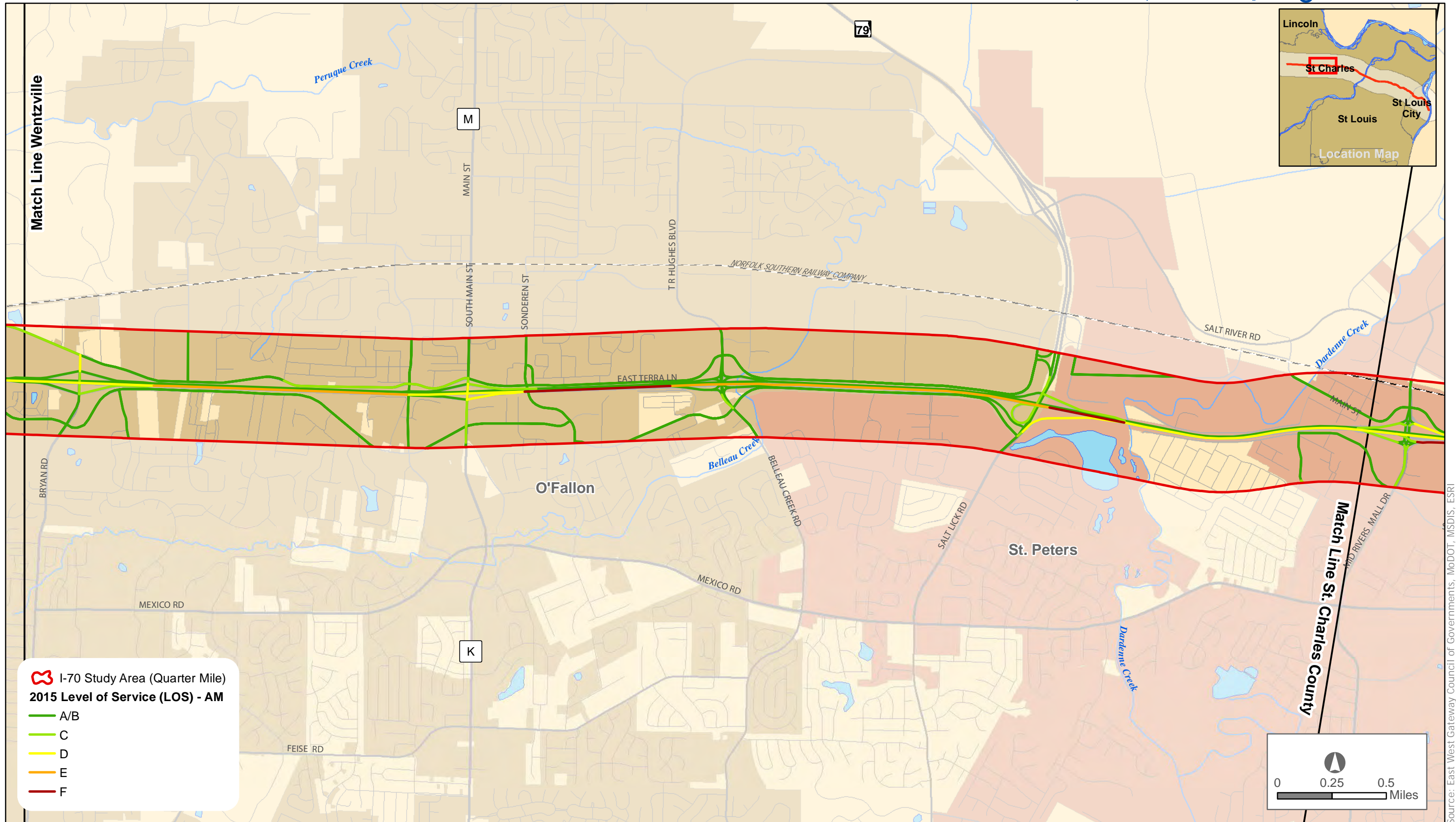


I-70 PEL STUDY - WENTZVILLE

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2015 Level of Service (LOS) - AM | Figure 2-7A

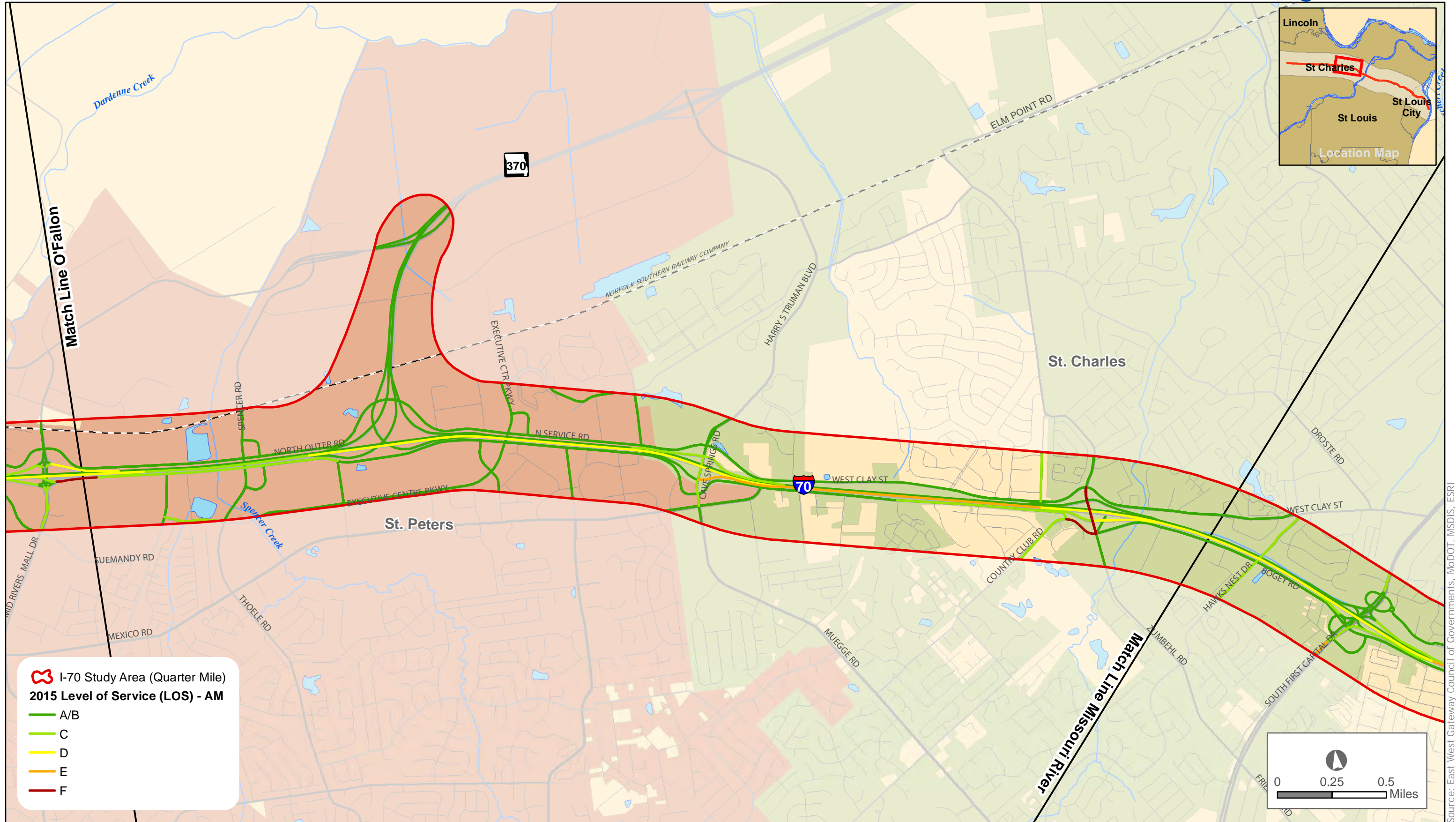


I-70 PEL STUDY - O'FALLON

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2015 Level of Service (LOS) - AM | Figure 2-7A

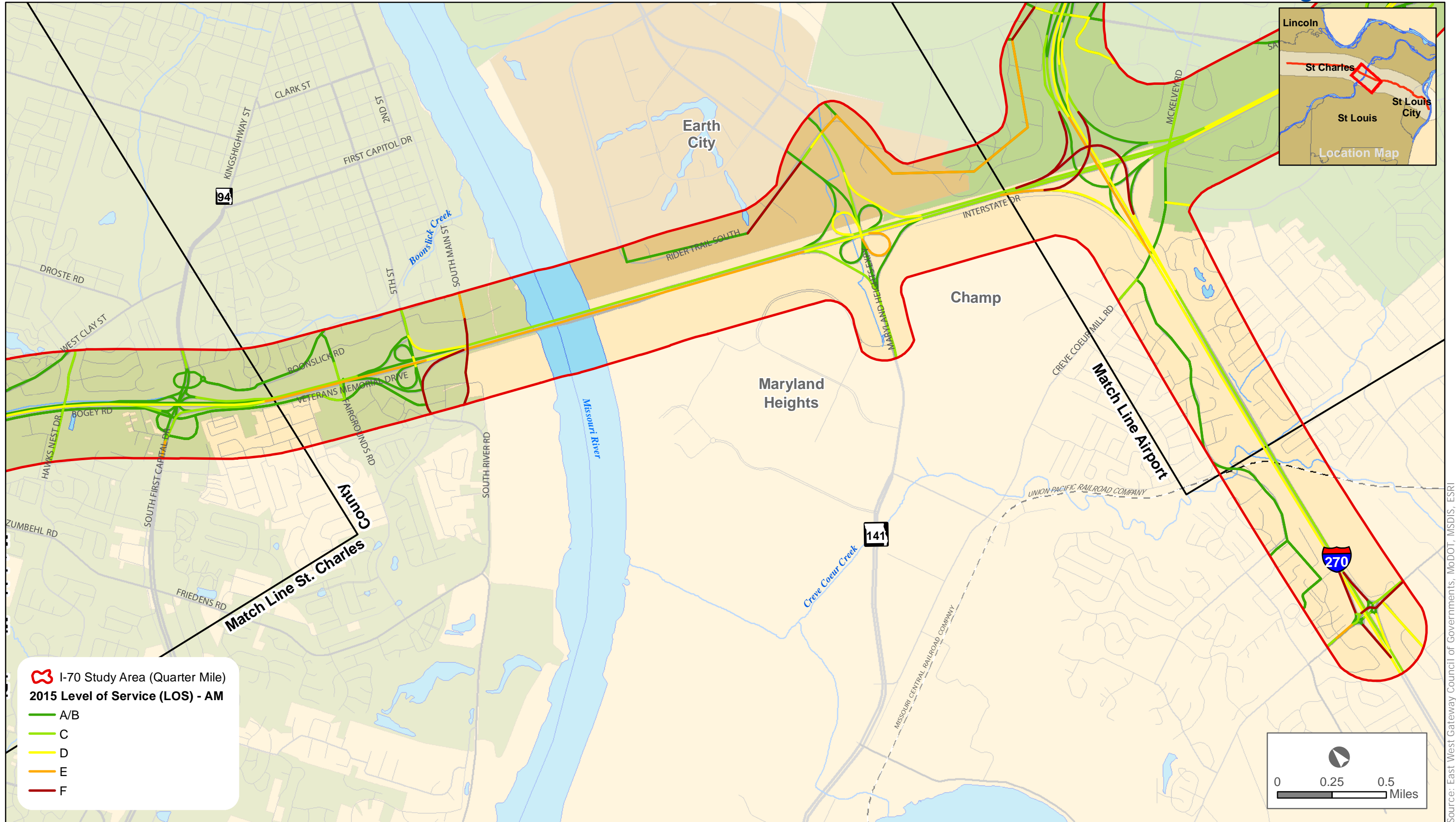


I-70 PEL STUDY - ST. CHARLES COUNTY

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2015 Level of Service (LOS) - AM | Figure 2-7A

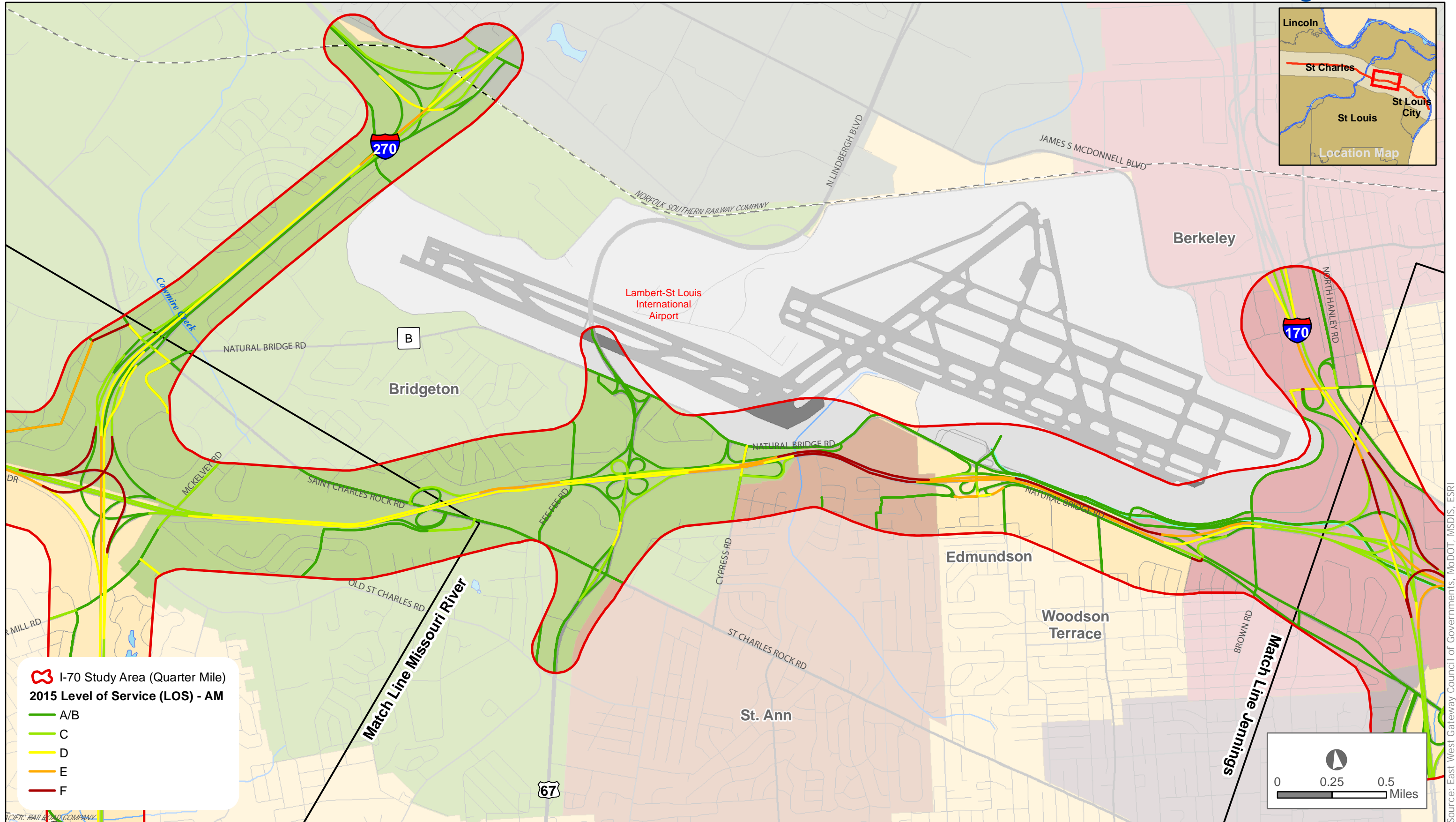


I-70 PEL STUDY - MISSOURI RIVER

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2015 Level of Service (LOS) - AM | Figure 2-7A



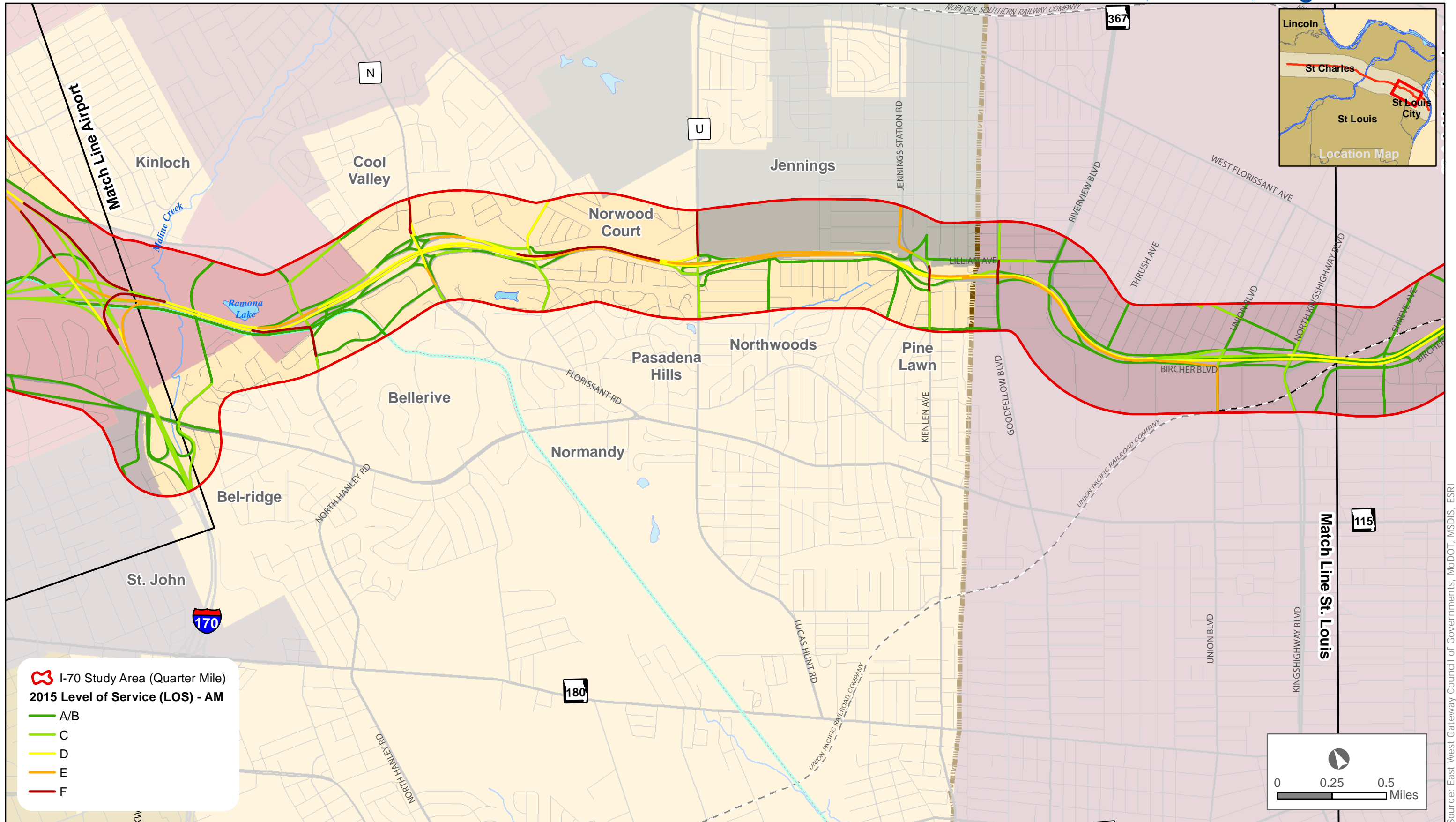
I-70 PEL STUDY - AIRPORT

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI





# 2015 Level of Service (LOS) - AM | Figure 2-7A

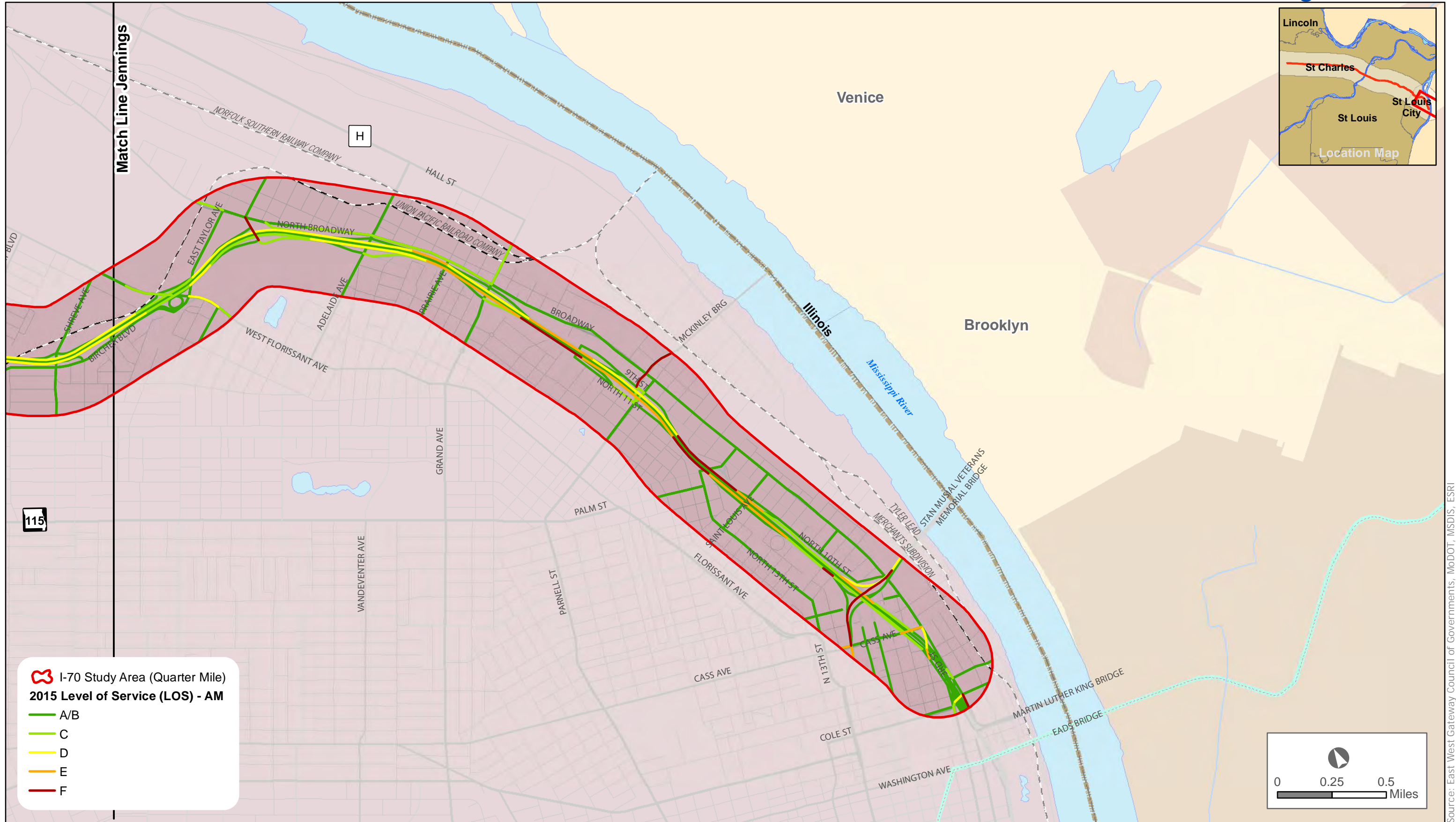


I-70 PEL STUDY - JENNINGS

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2015 Level of Service (LOS) - AM | Figure 2-7A

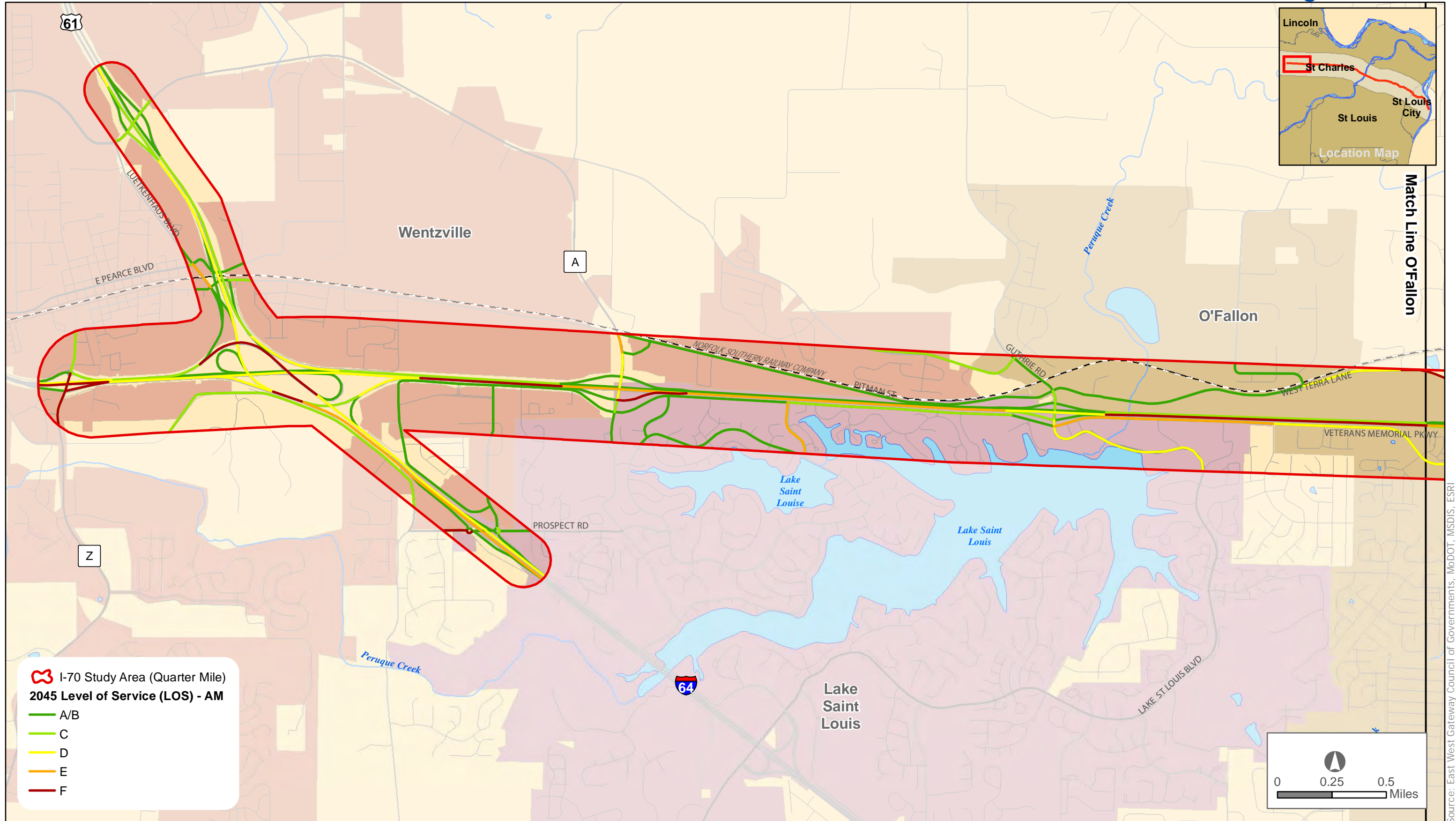


I-70 PEL STUDY - ST. LOUIS CITY

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2045 Level of Service (LOS) - AM | Figure 2-7B

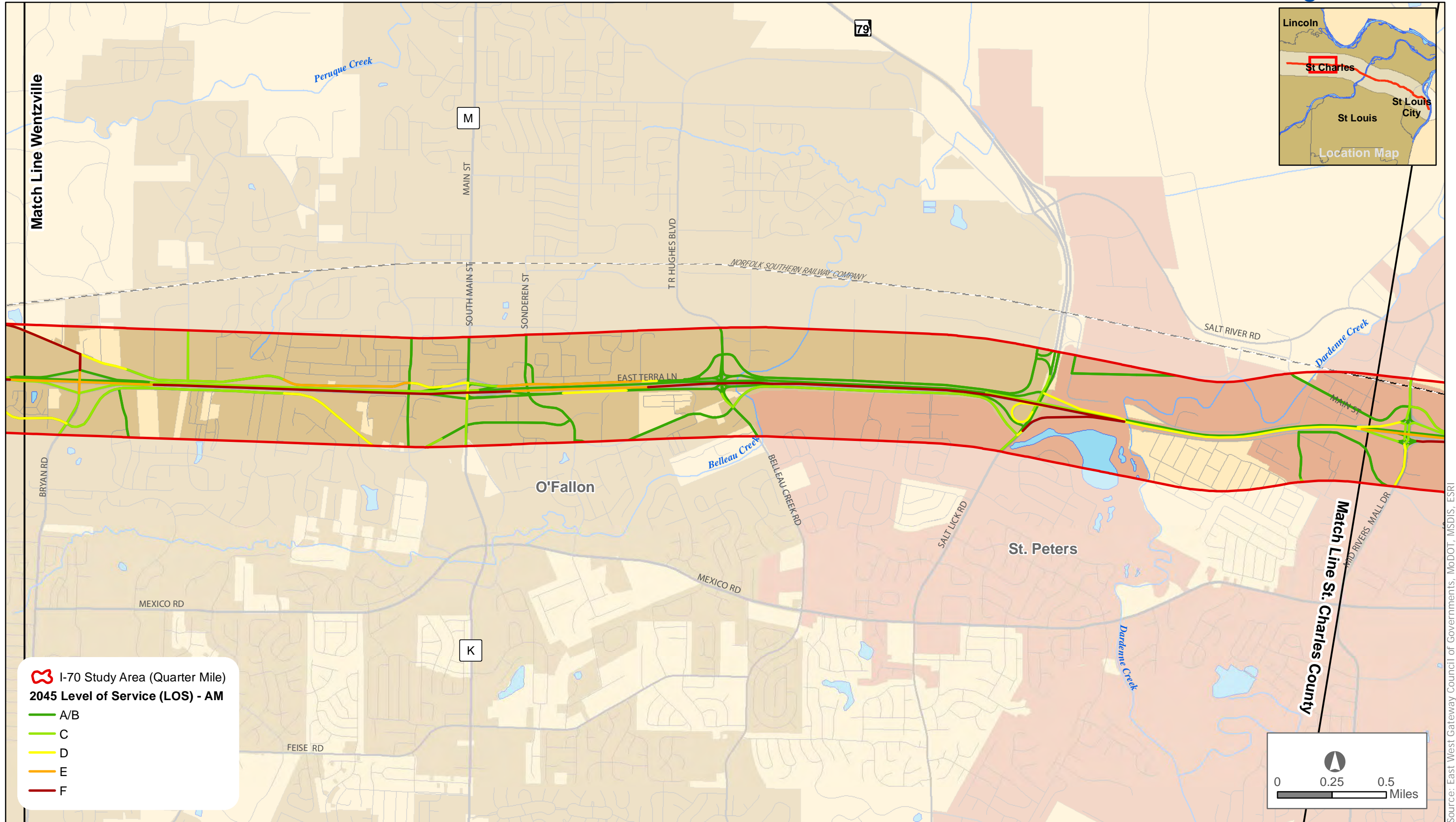


I-70 PEL STUDY - WENTZVILLE

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2045 Level of Service (LOS) - AM | Figure 2-7B

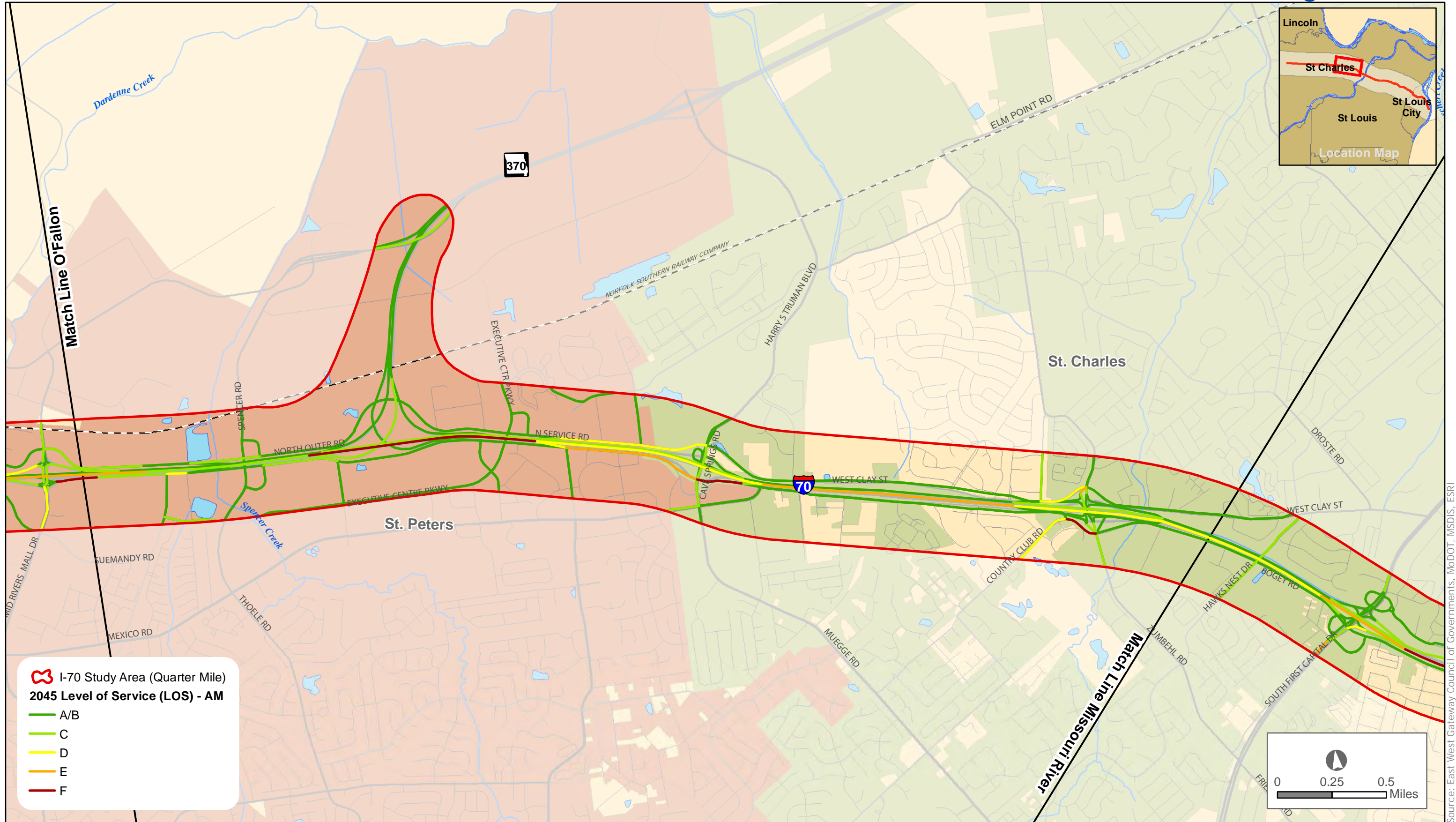


I-70 PEL STUDY - O'FALLON



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# 2045 Level of Service (LOS) - AM | Figure 2-7B

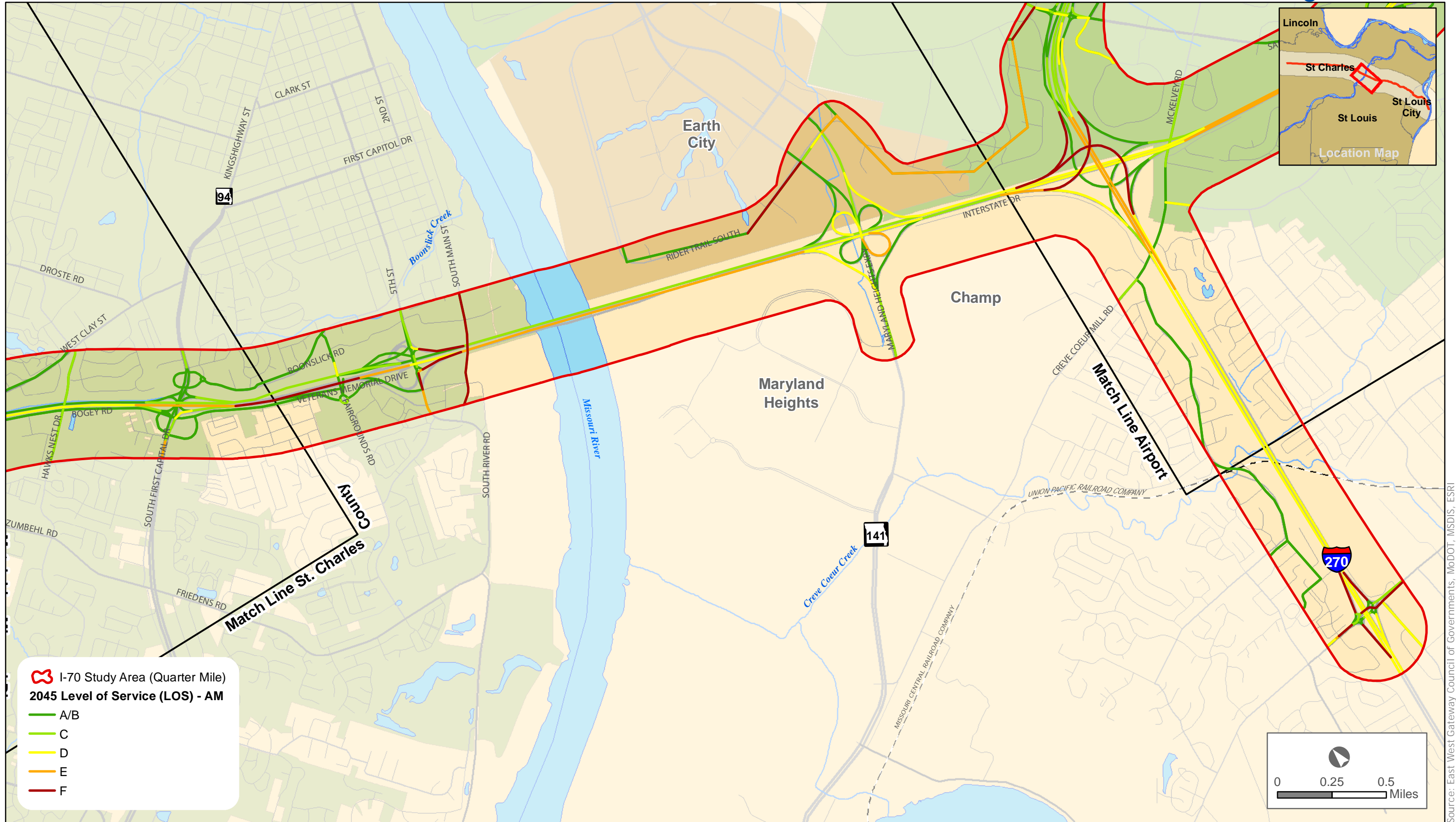


I-70 PEL STUDY - ST. CHARLES COUNTY

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2045 Level of Service (LOS) - AM | Figure 2-7B

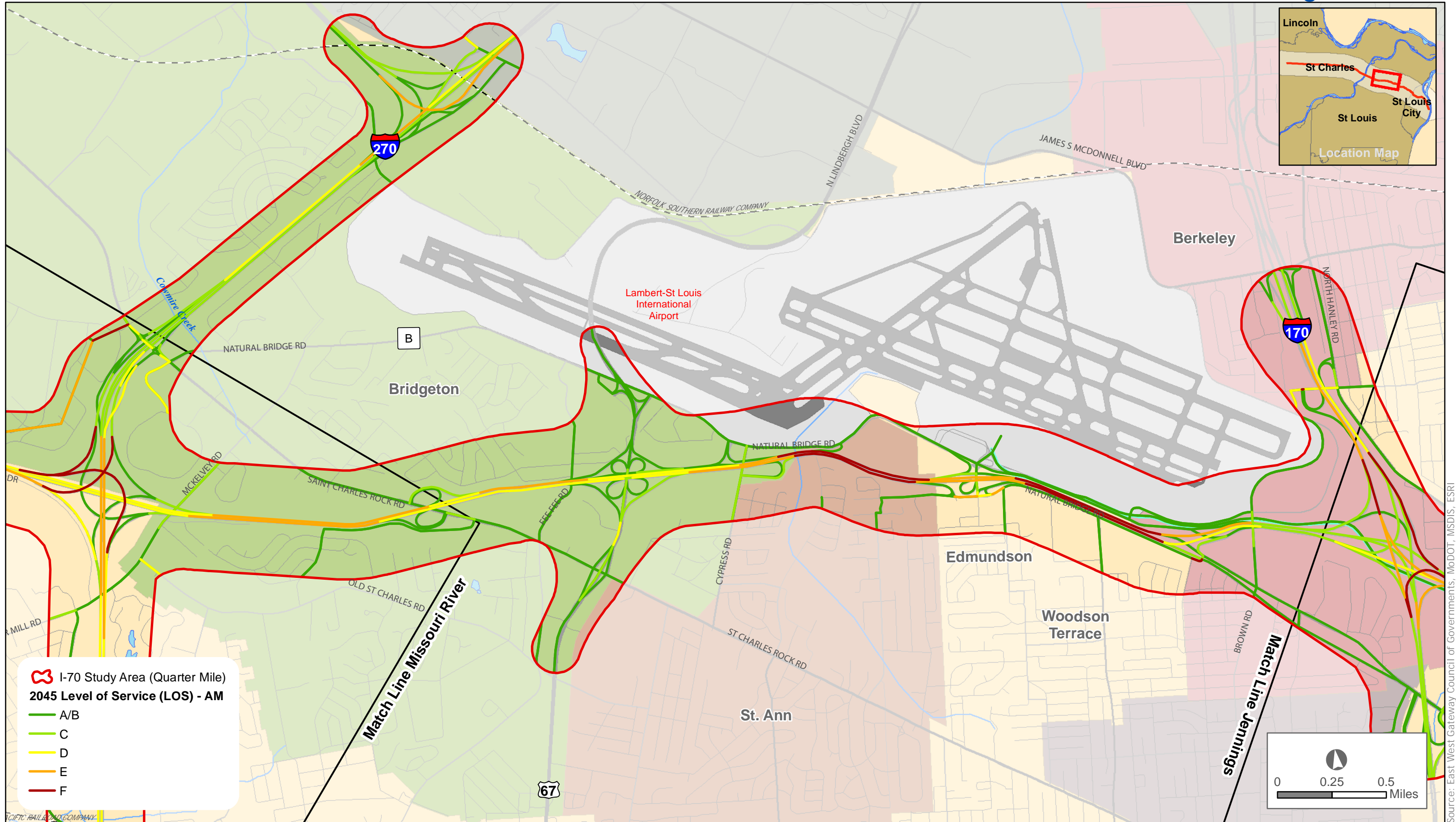


I-70 PEL STUDY - MISSOURI RIVER

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2045 Level of Service (LOS) - AM | Figure 2-7B

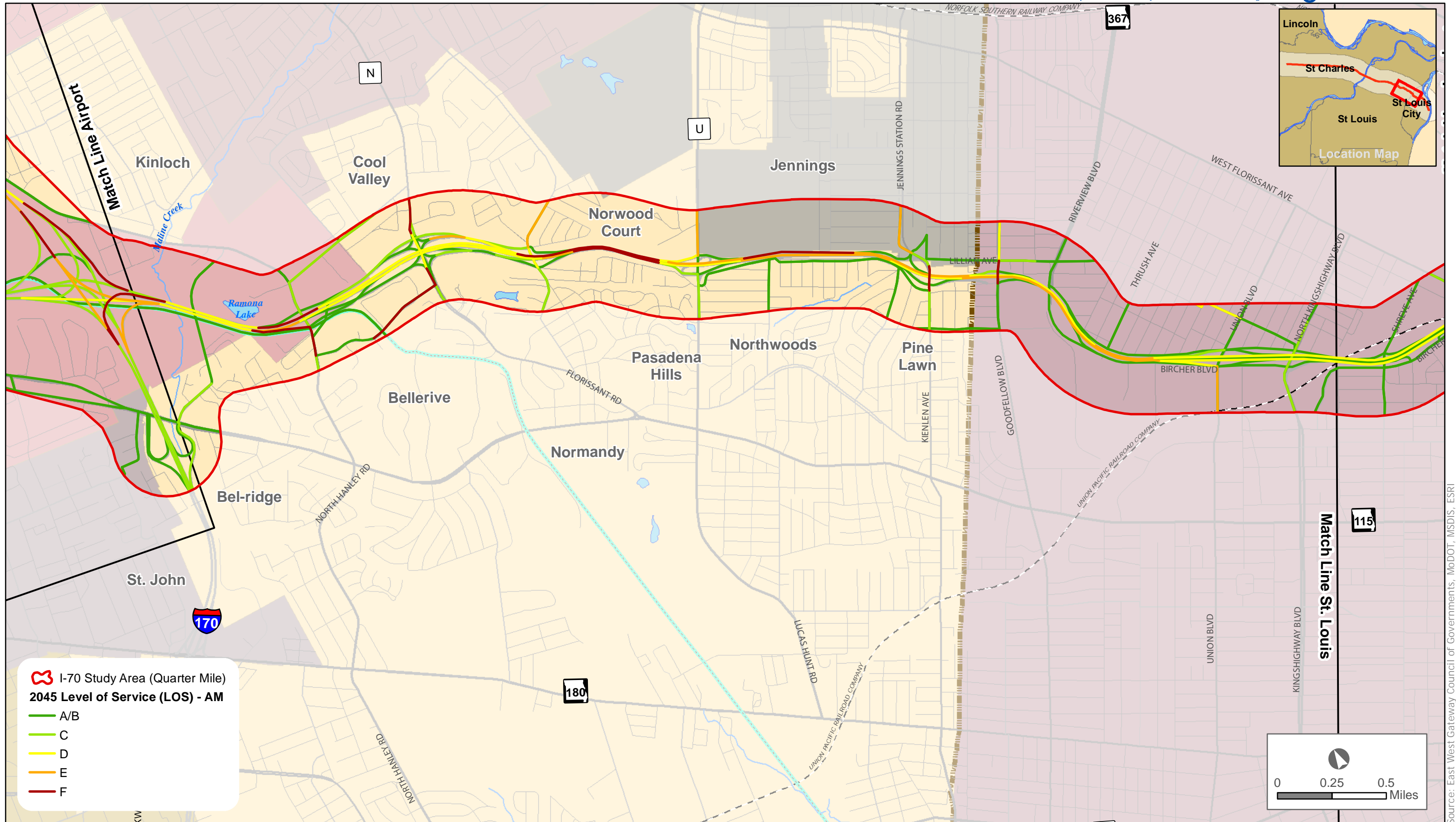


I-70 PEL STUDY - AIRPORT

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2045 Level of Service (LOS) - AM | Figure 2-7B



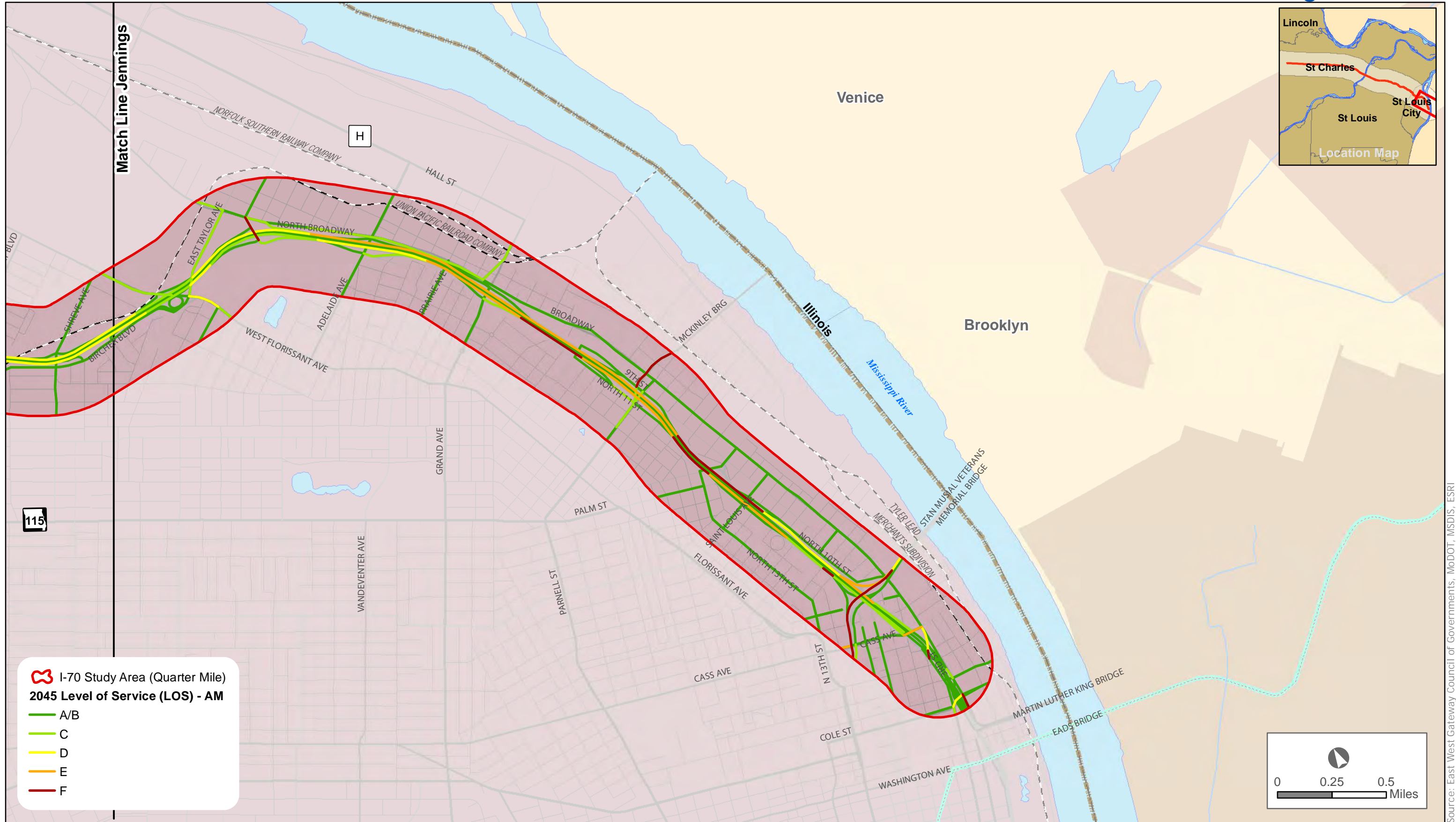
I-70 PEL STUDY - JENNINGS

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI





# 2045 Level of Service (LOS) - AM | Figure 2-7B

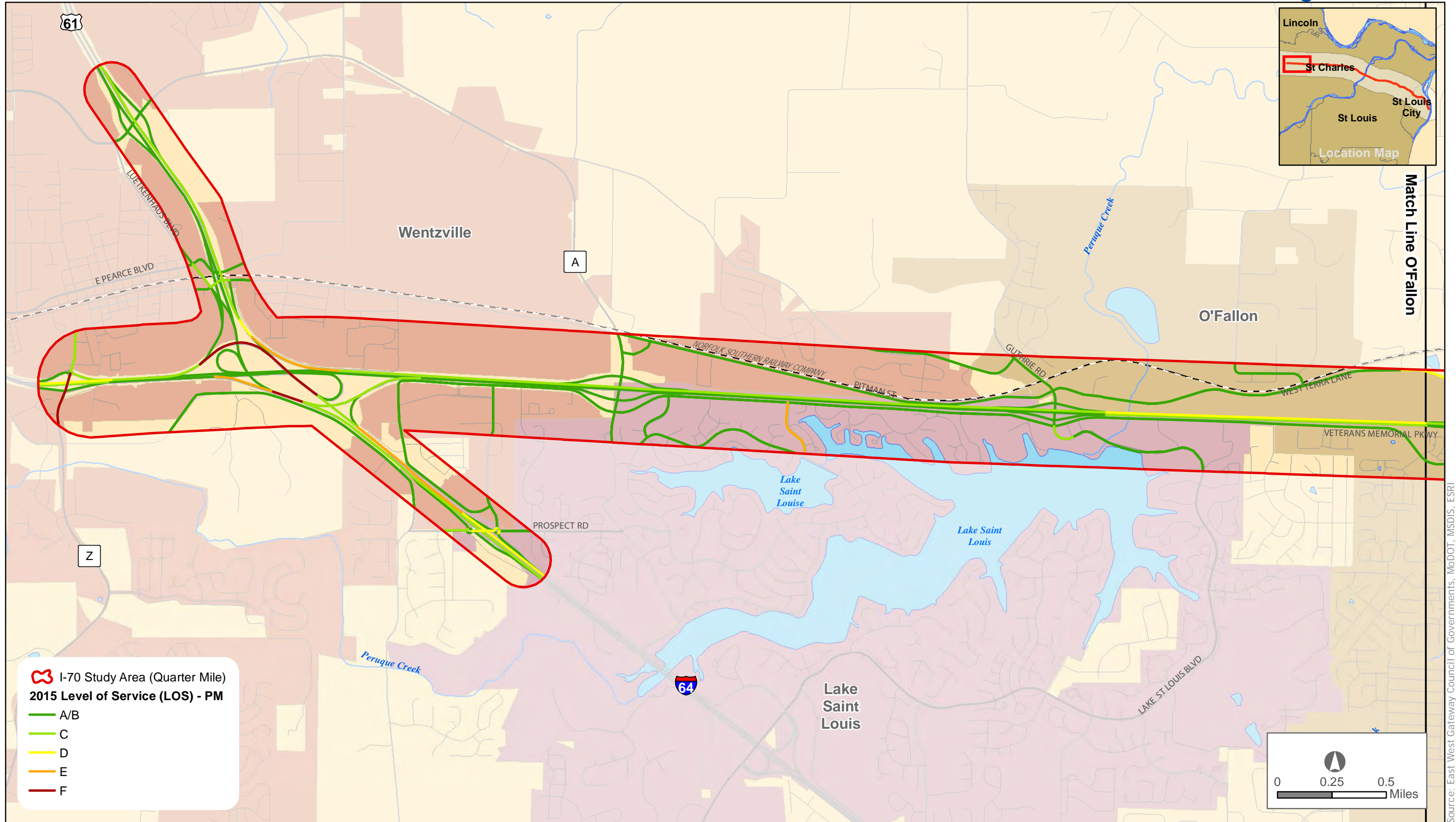


I-70 PEL STUDY - ST. LOUIS CITY

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2015 Level of Service (LOS) - PM | Figure 2-8A

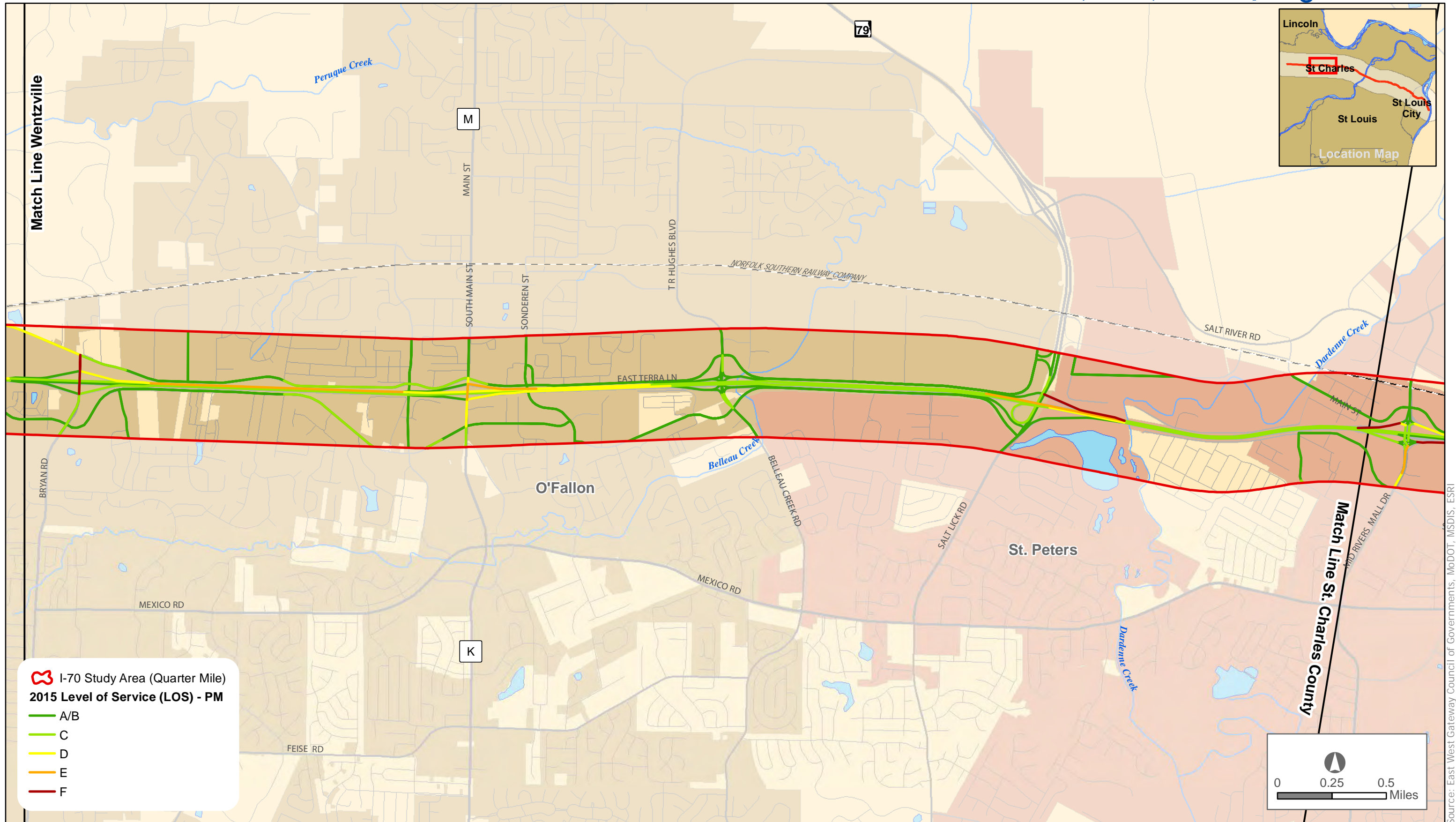


I-70 PEL STUDY - WENTZVILLE

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2015 Level of Service (LOS) - PM | Figure 2-8A

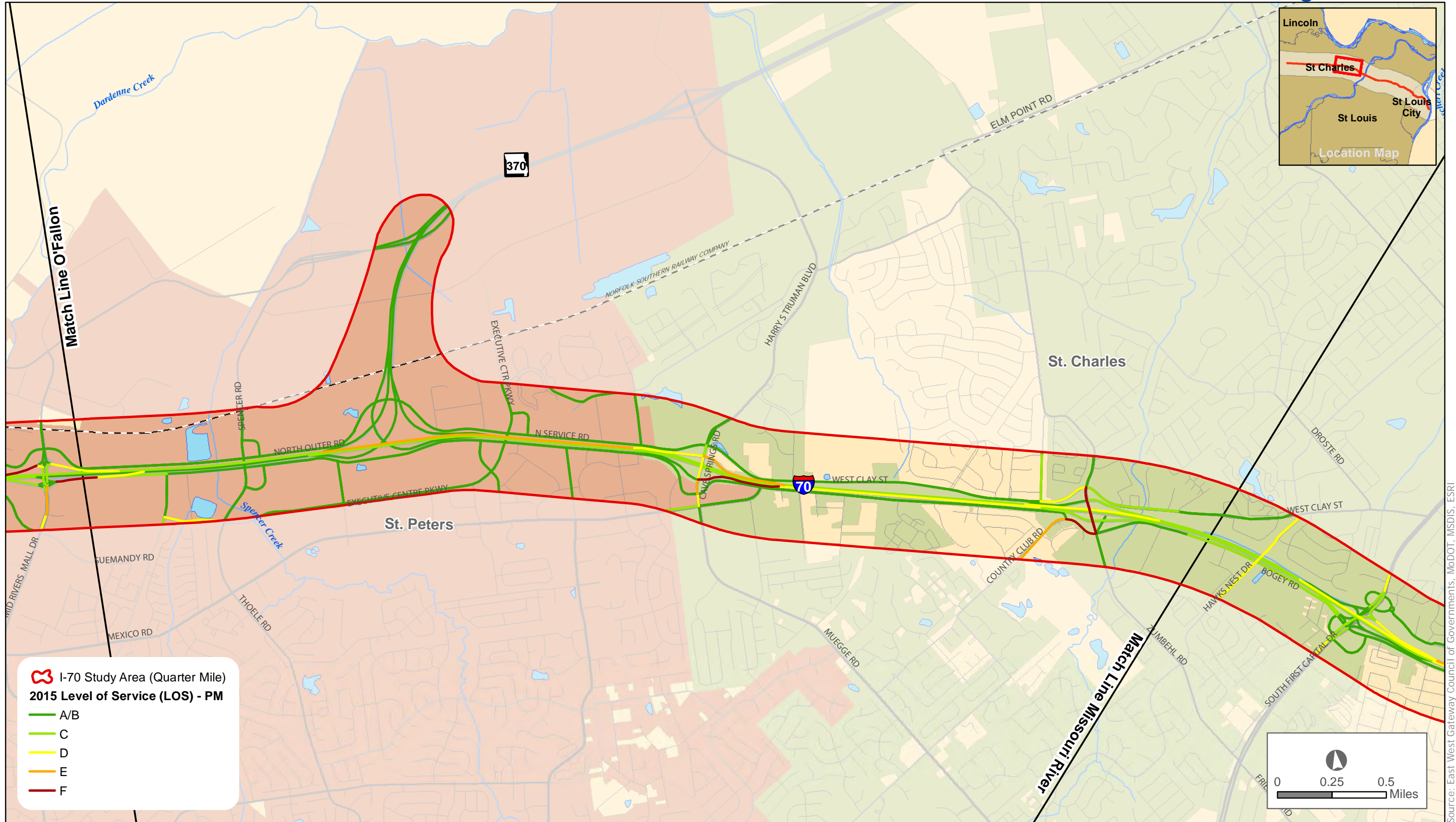


I-70 PEL STUDY - O'FALLON

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2015 Level of Service (LOS) - PM | Figure 2-8A

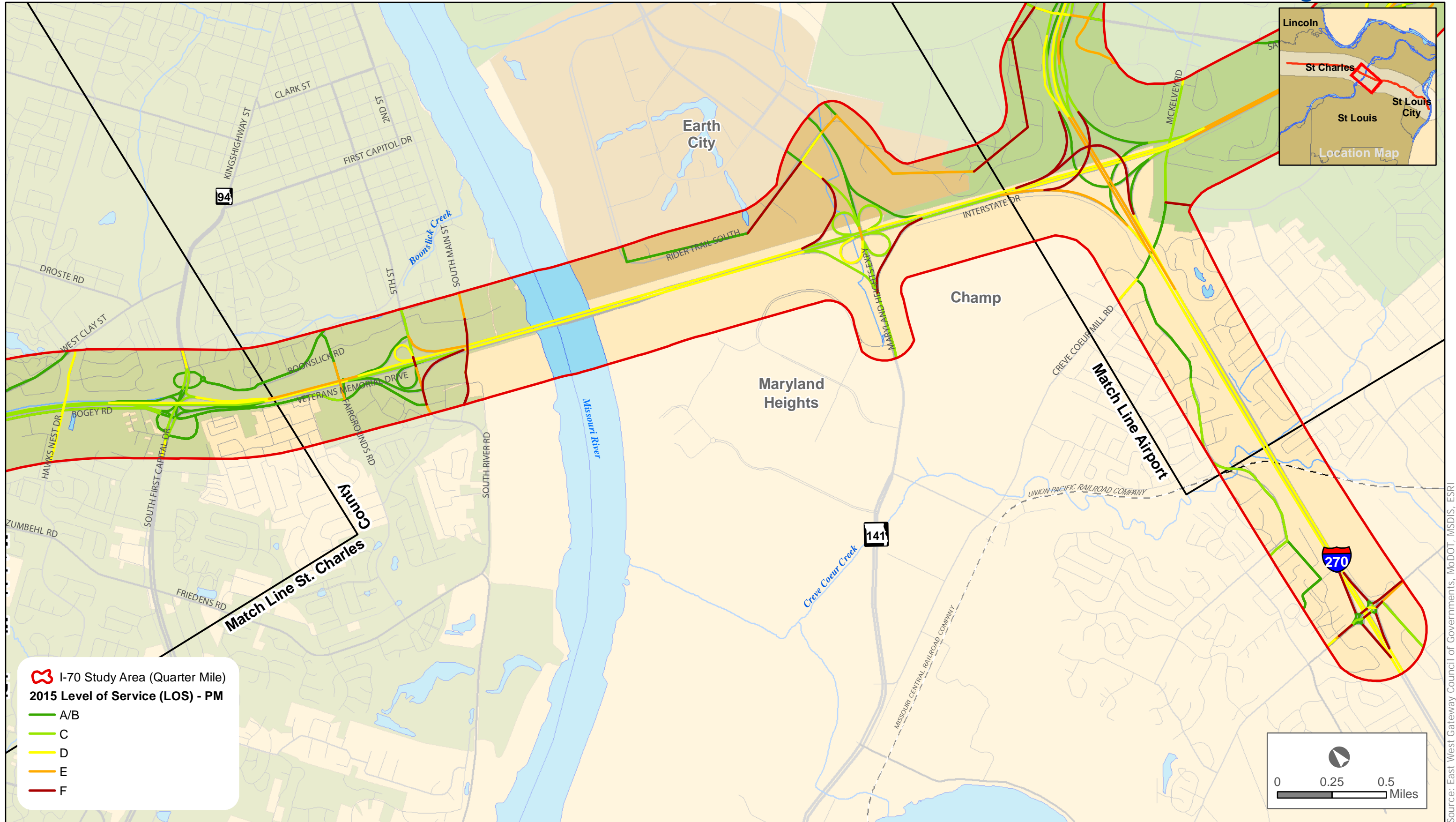


I-70 PEL STUDY - ST. CHARLES COUNTY

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2015 Level of Service (LOS) - PM | Figure 2-8A

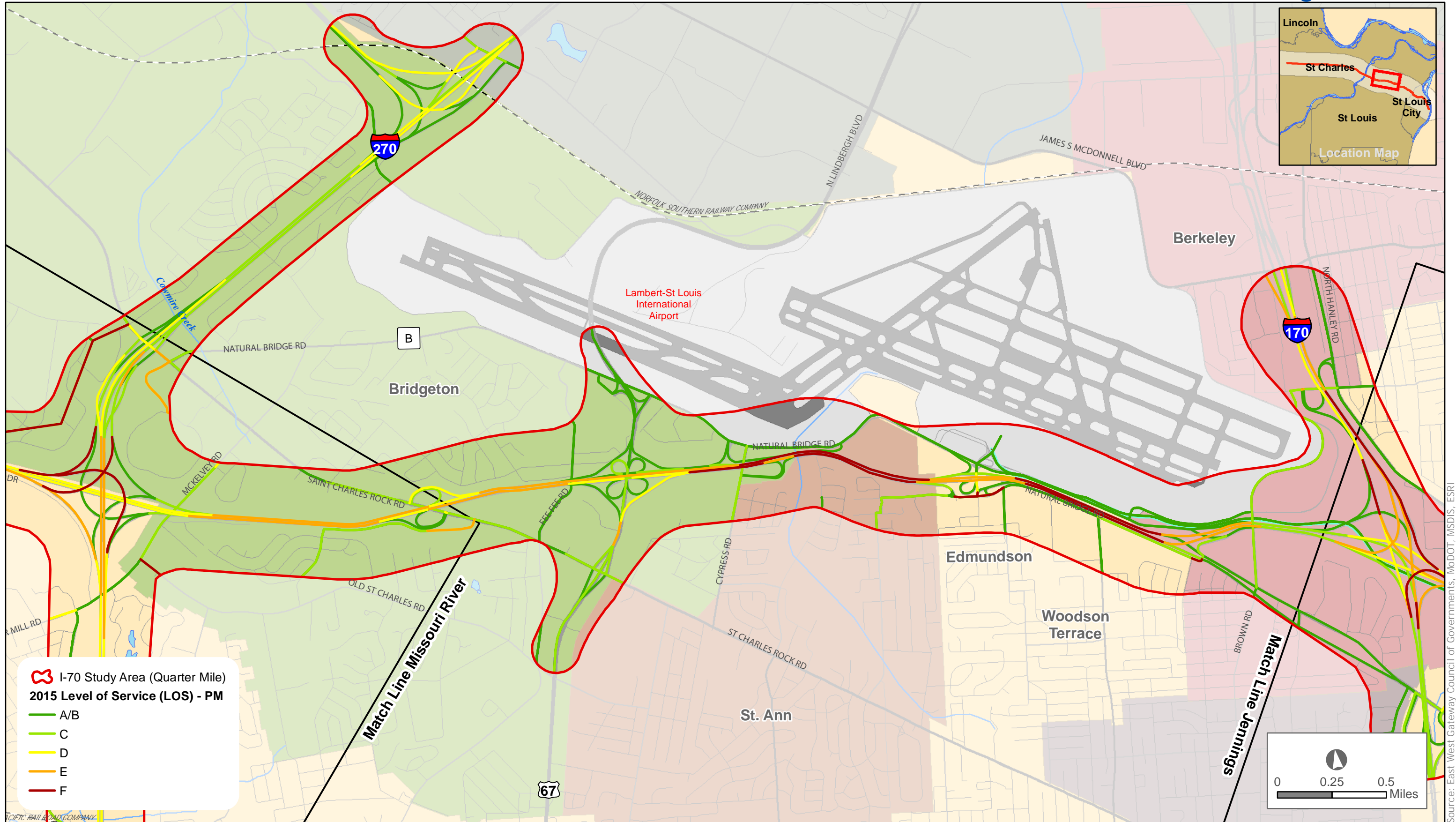


I-70 PEL STUDY - MISSOURI RIVER



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# 2015 Level of Service (LOS) - PM | Figure 2-8A

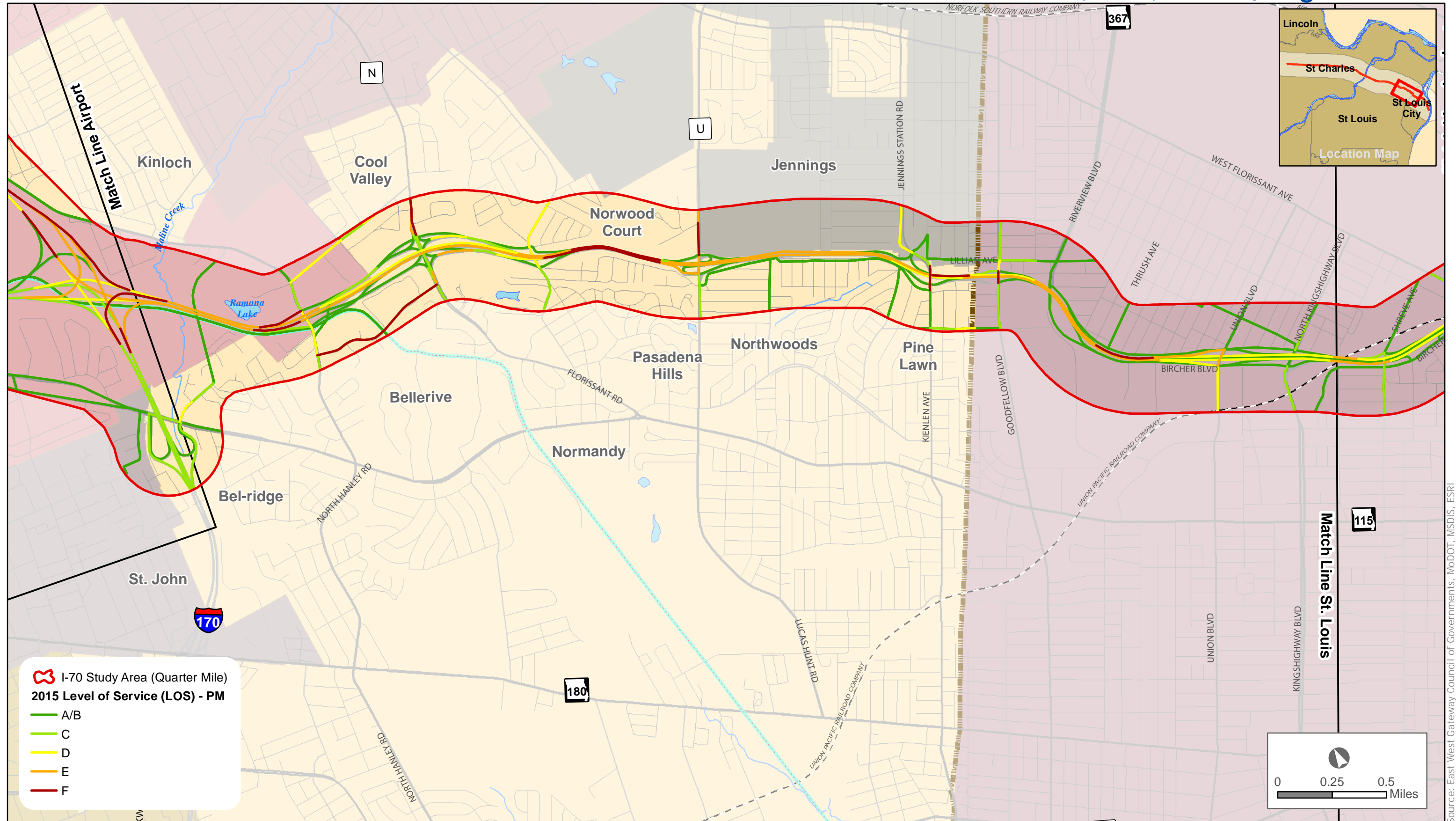


I-70 PEL STUDY - AIRPORT

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2015 Level of Service (LOS) - PM | Figure 2-8A

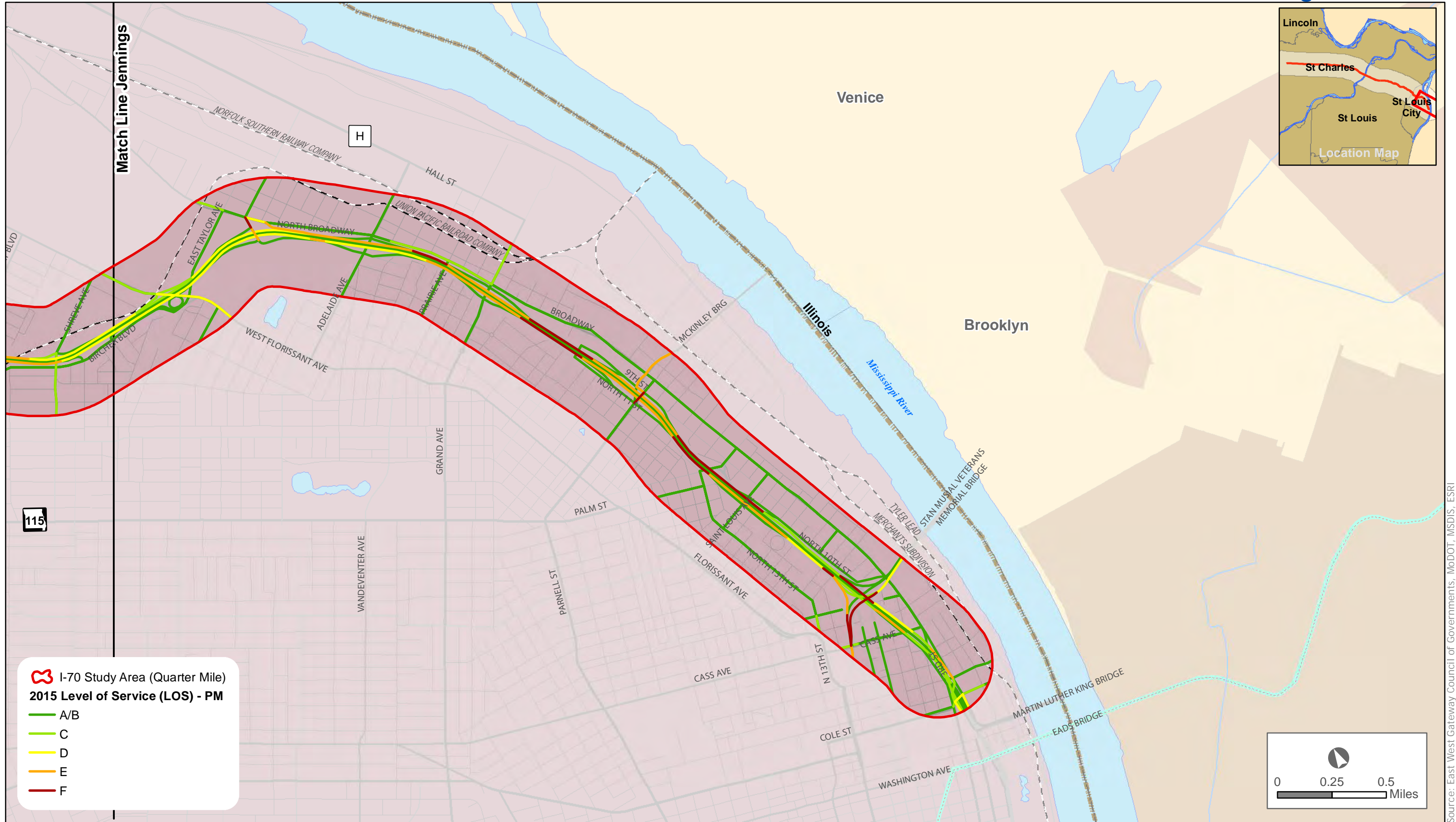


I-70 PEL STUDY - JENNINGS

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# 2015 Level of Service (LOS) - PM | Figure 2-8A



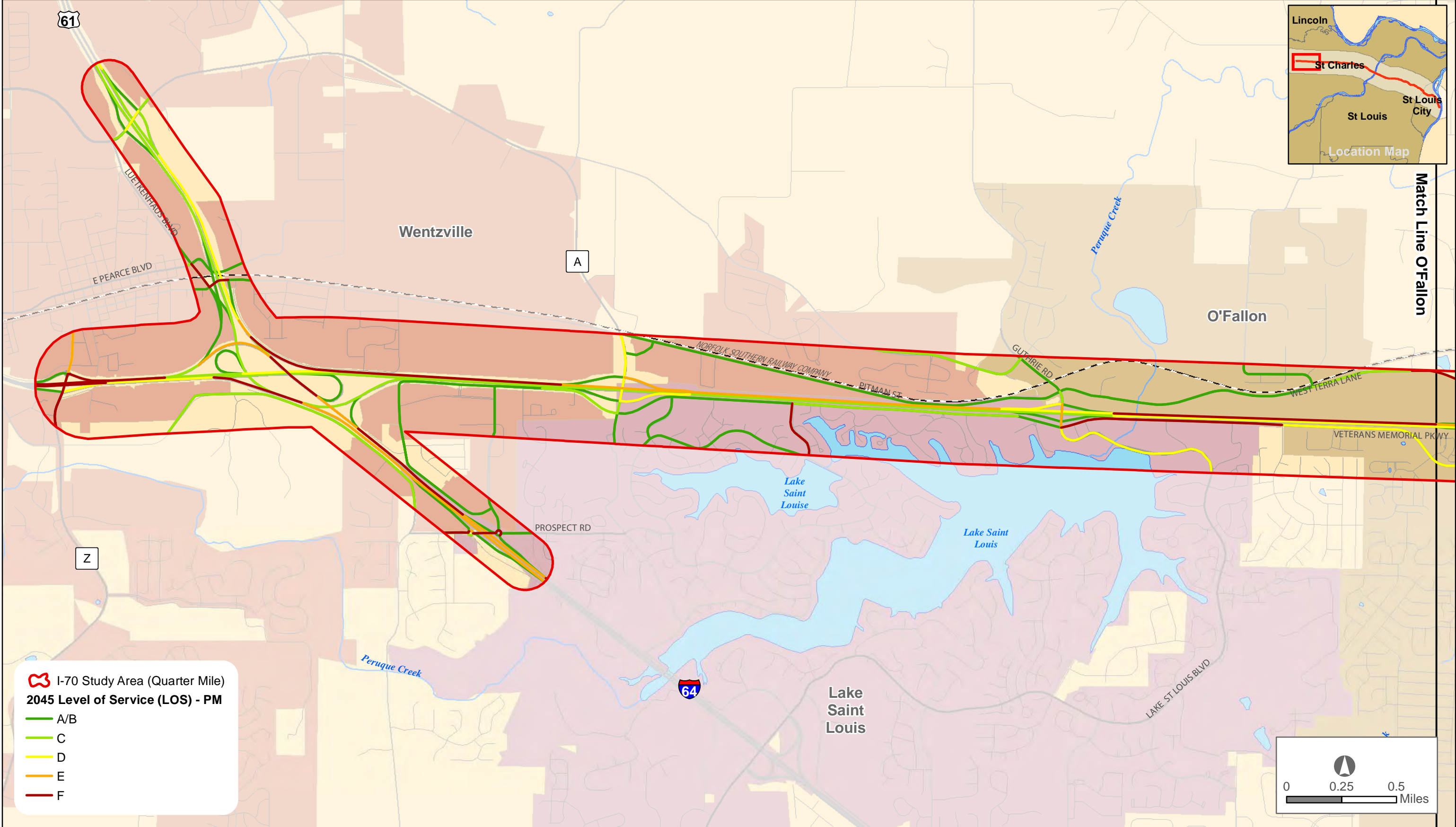
I-70 PEL STUDY - ST. LOUIS CITY

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI





# 2045 Level of Service (LOS) - PM | Figure 2-8B

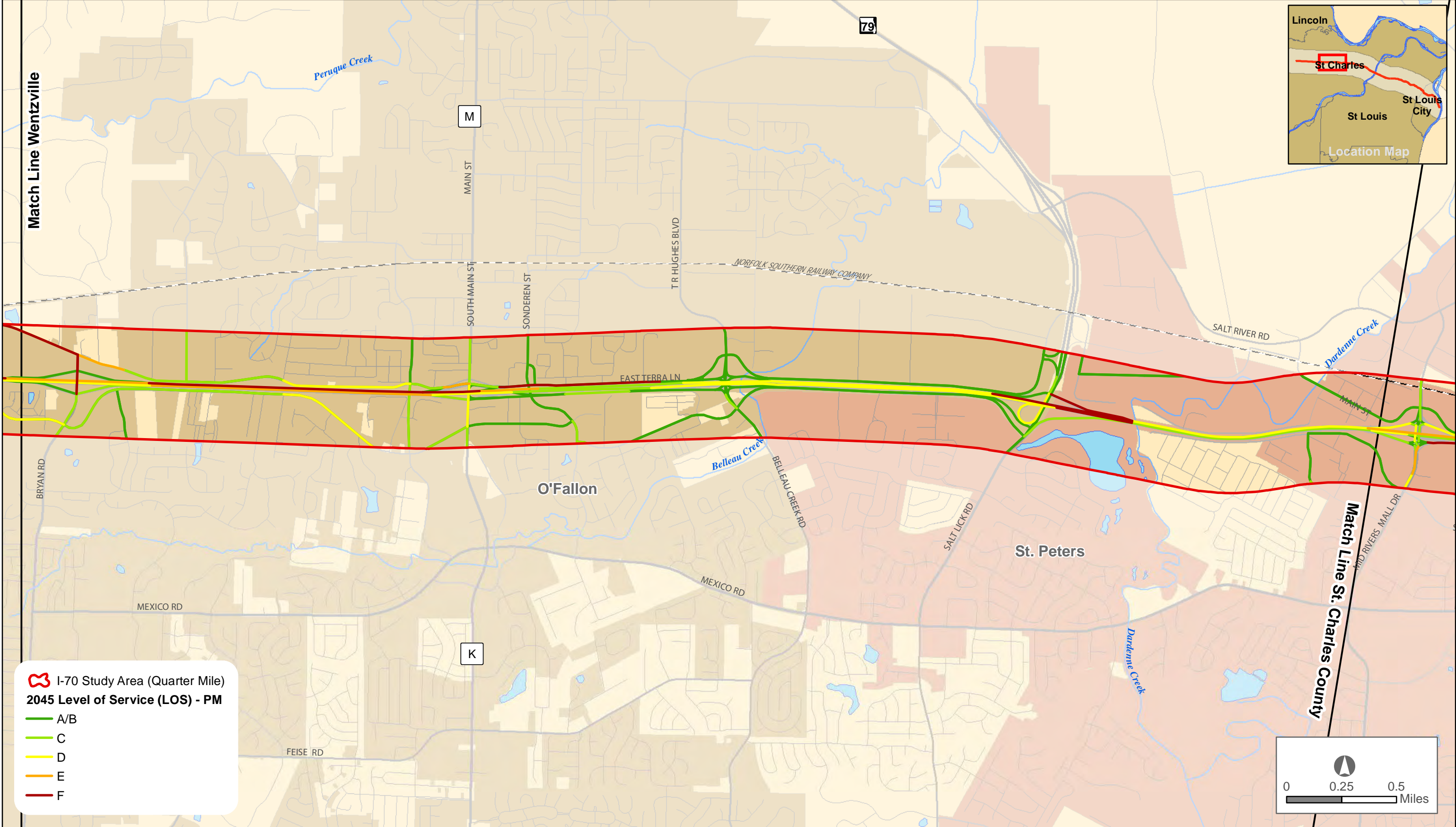


I-70 PEL STUDY - WENTZVILLE



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# 2045 Level of Service (LOS) - PM | Figure 2-8B

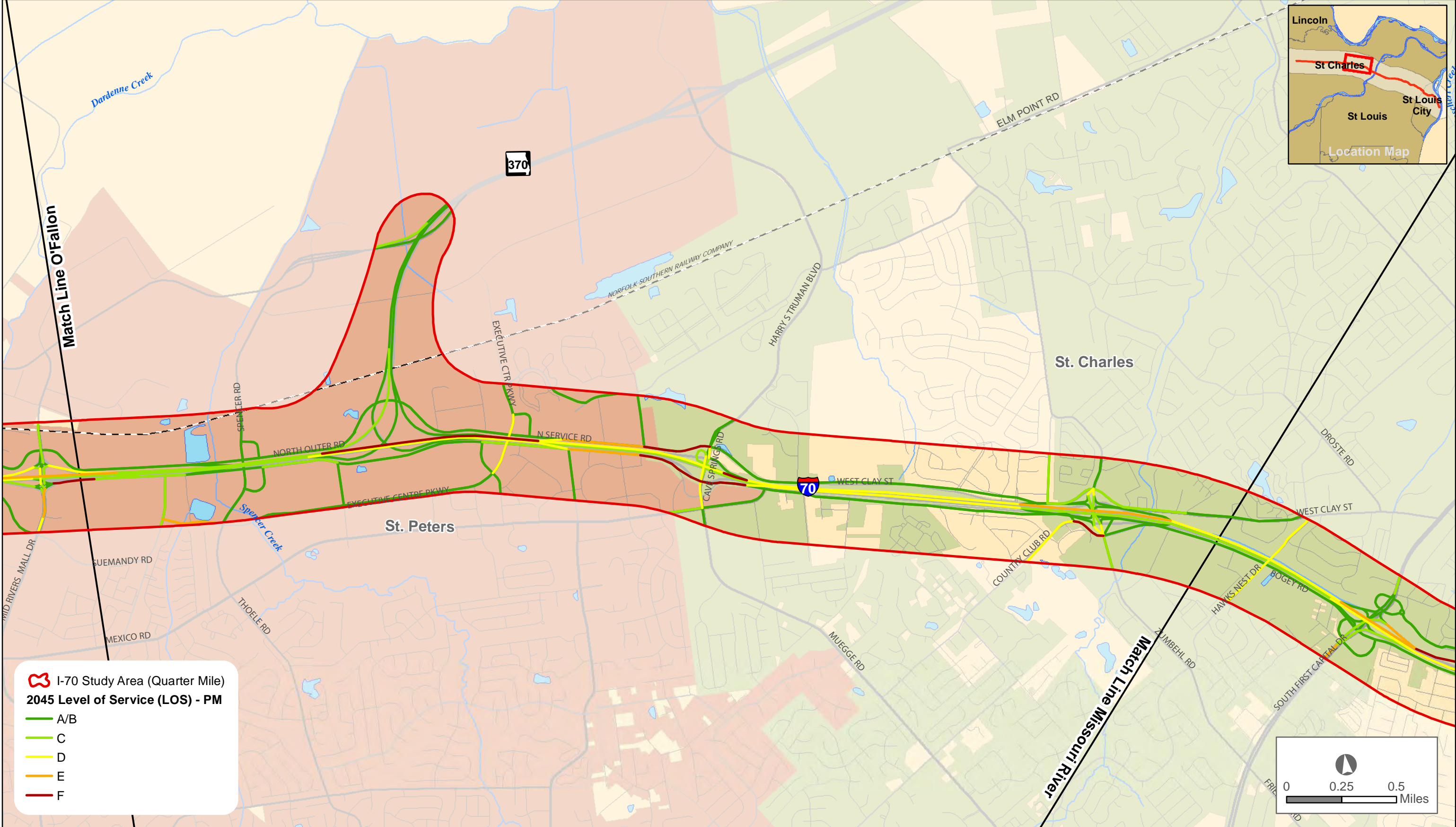


I-70 PEL STUDY - O'FALLON



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# 2045 Level of Service (LOS) - PM | Figure 2-8B

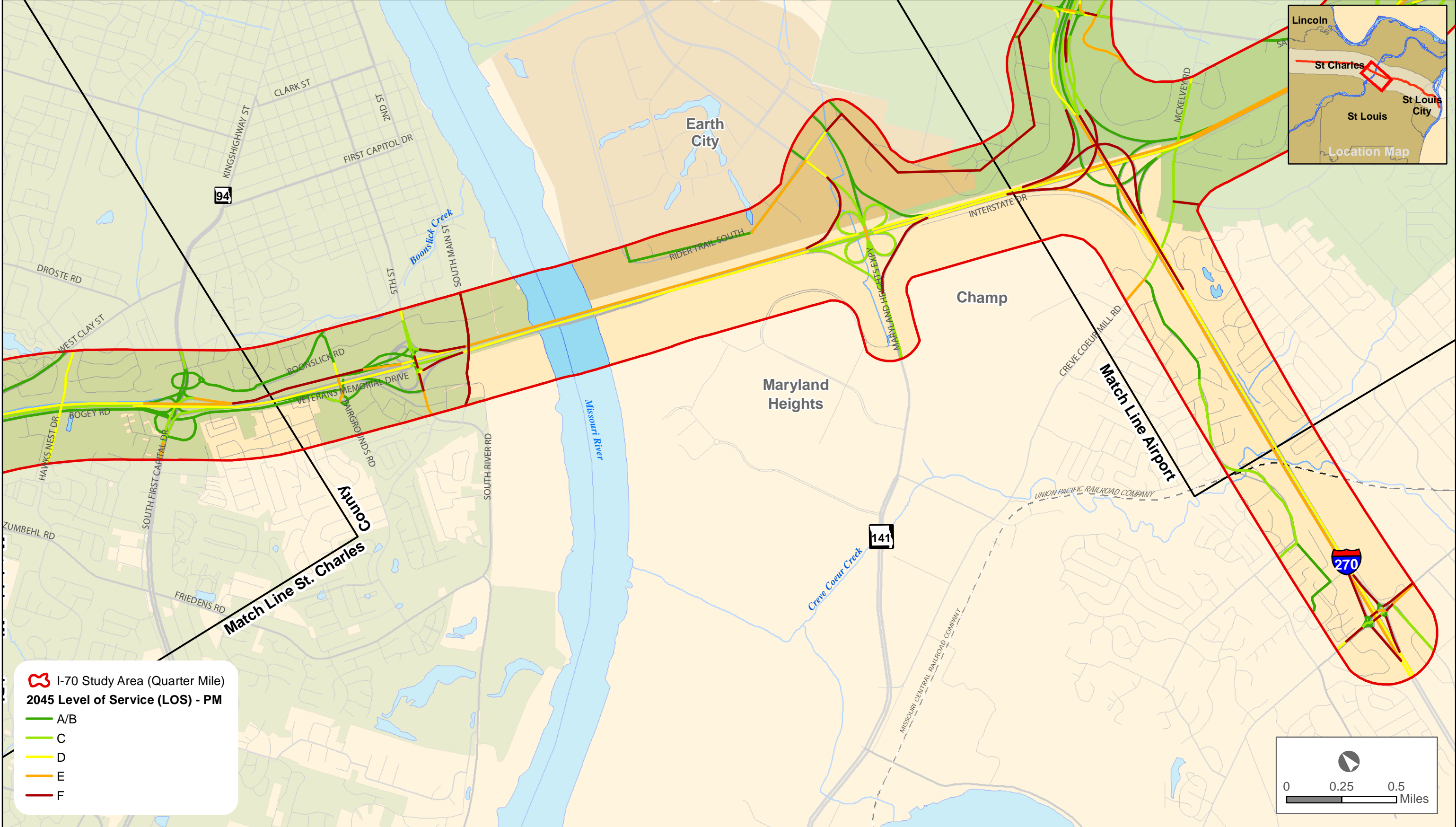


I-70 PEL STUDY - ST. CHARLES COUNTY



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# 2045 Level of Service (LOS) - PM | Figure 2-8B

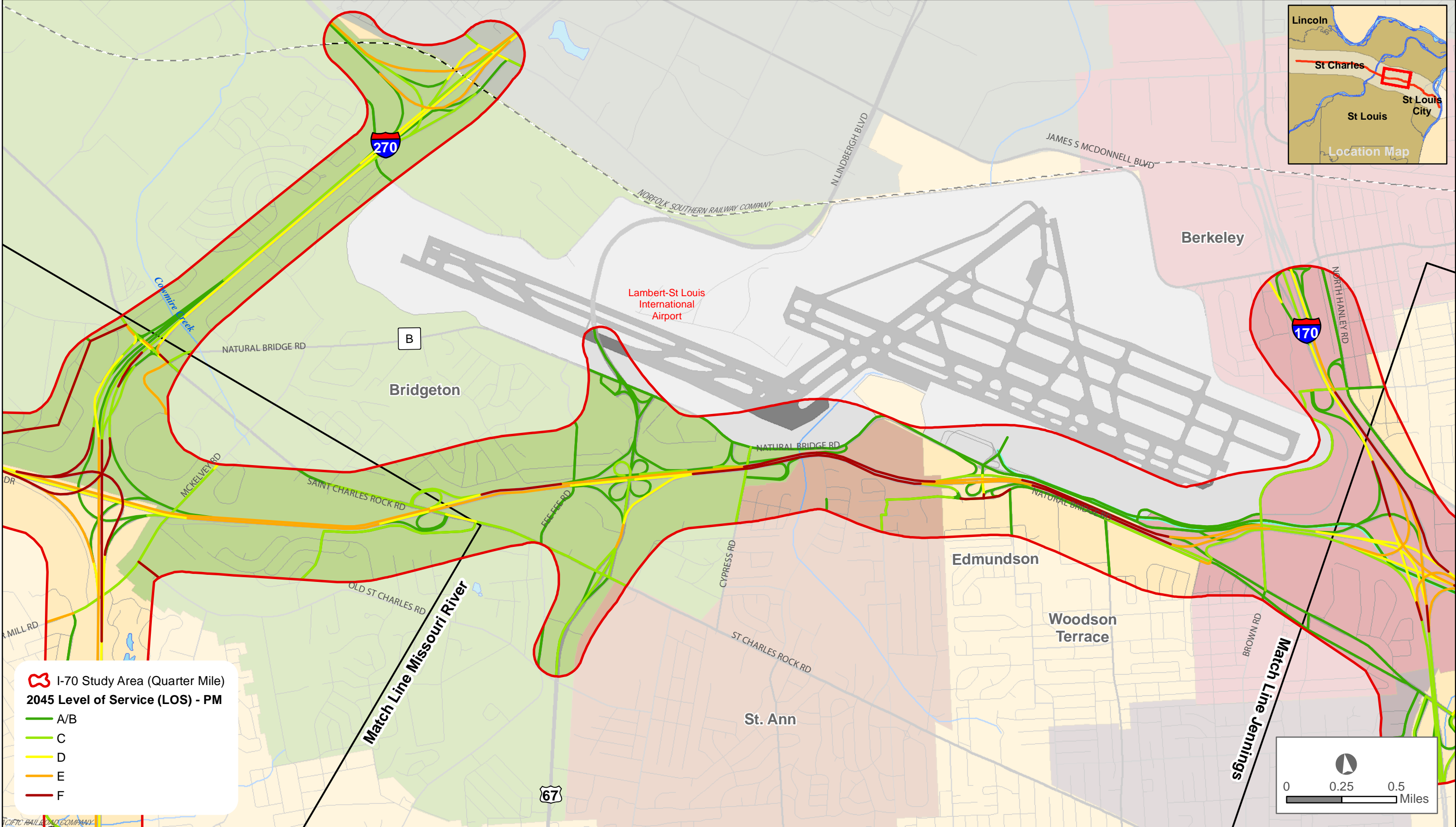


I-70 PEL STUDY - MISSOURI RIVER



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# 2045 Level of Service (LOS) - PM | Figure 2-8B

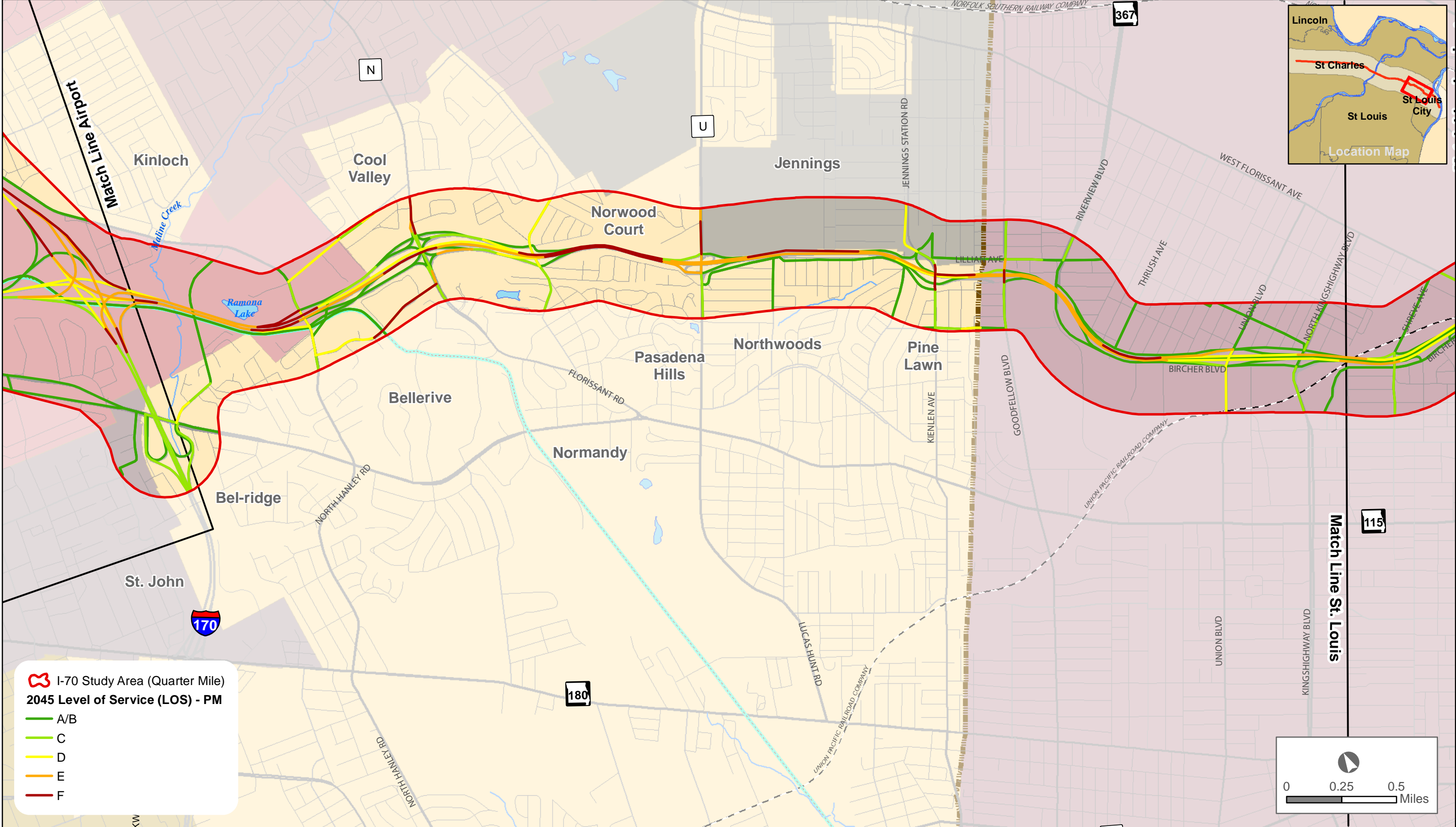


I-70 PEL STUDY - AIRPORT



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# 2045 Level of Service (LOS) - PM | Figure 2-8B

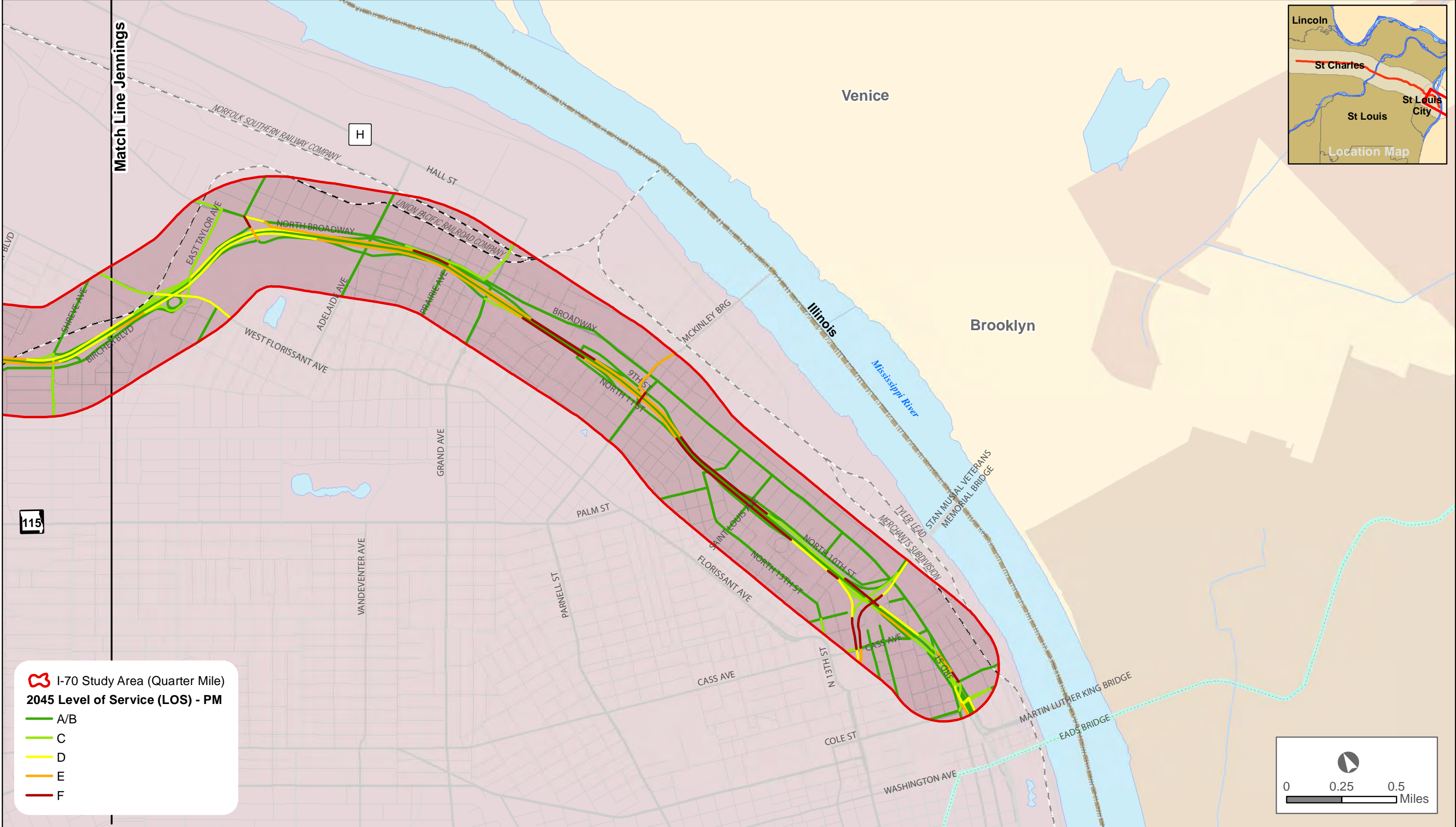


I-70 PEL STUDY - JENNINGS



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# 2045 Level of Service (LOS) - PM | Figure 2-8B

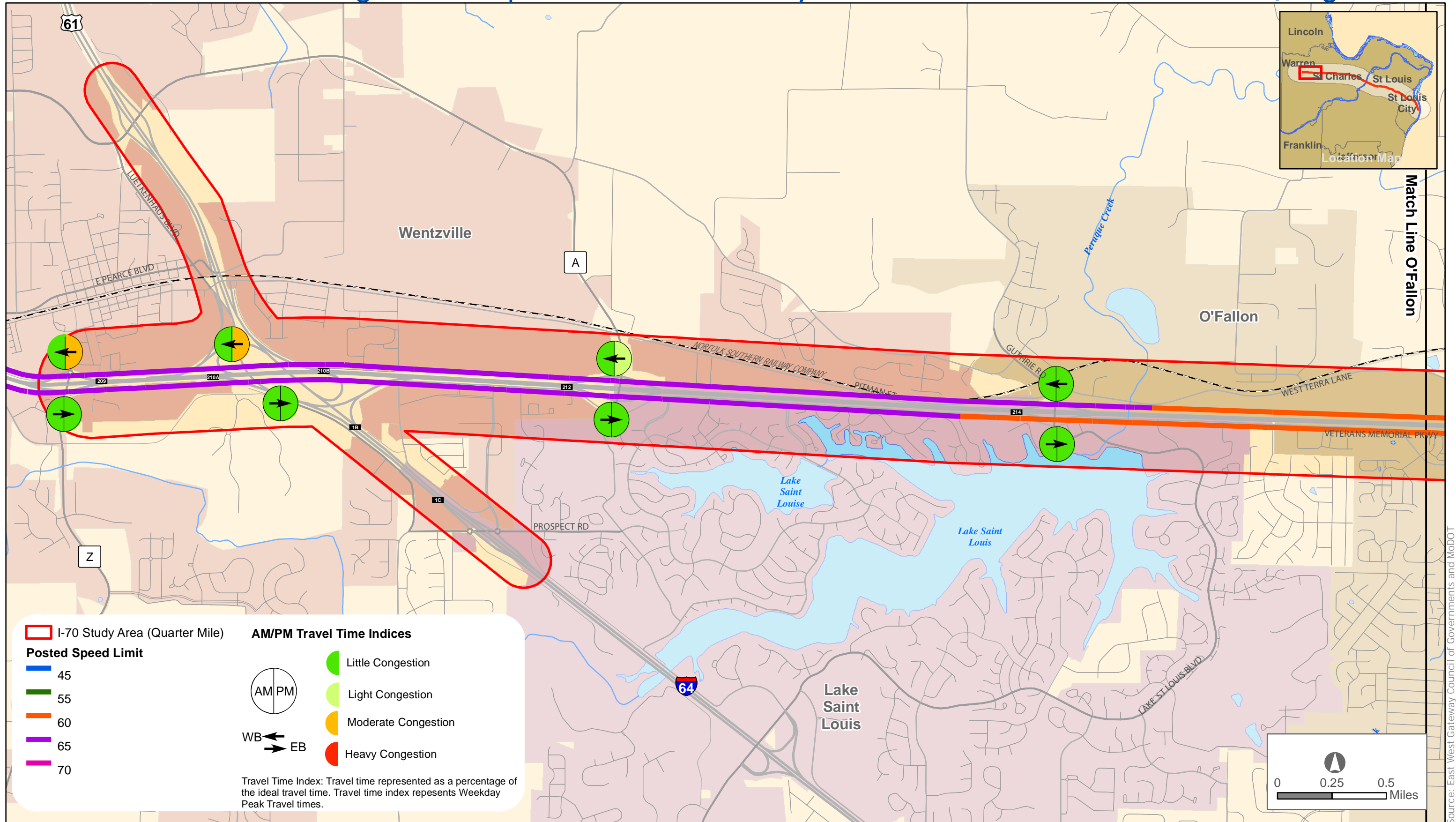


I-70 PEL STUDY - ST. LOUIS CITY



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

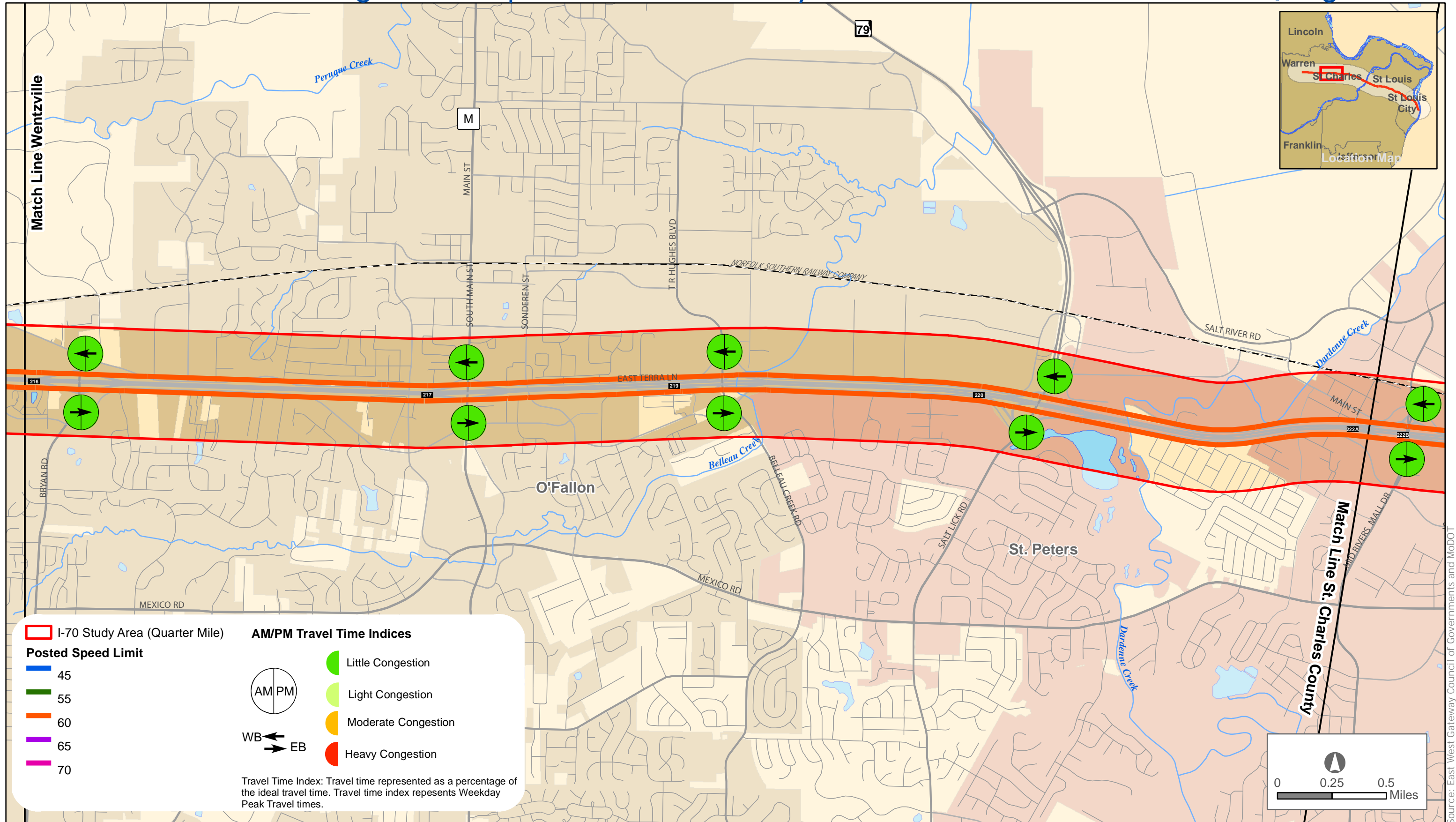
# Existing Posted Speeds and Weekday Peak Period Travel Time Index | Figure 2-9



I-70 PEL STUDY- WENTZVILLE

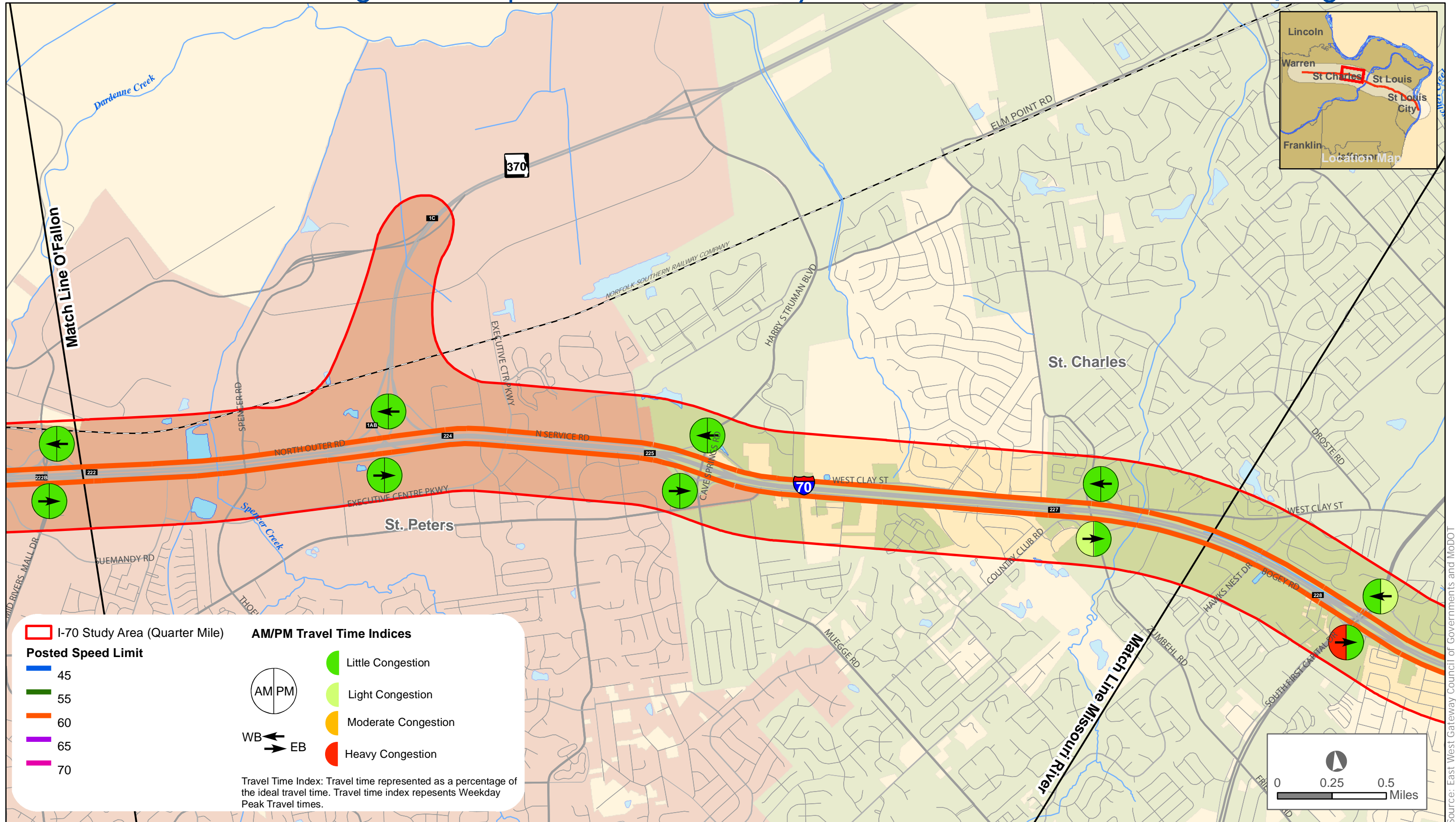


# Existing Posted Speeds and Weekday Peak Period Travel Time Index | Figure 2-9



I-70 PEL STUDY- O'FALLON

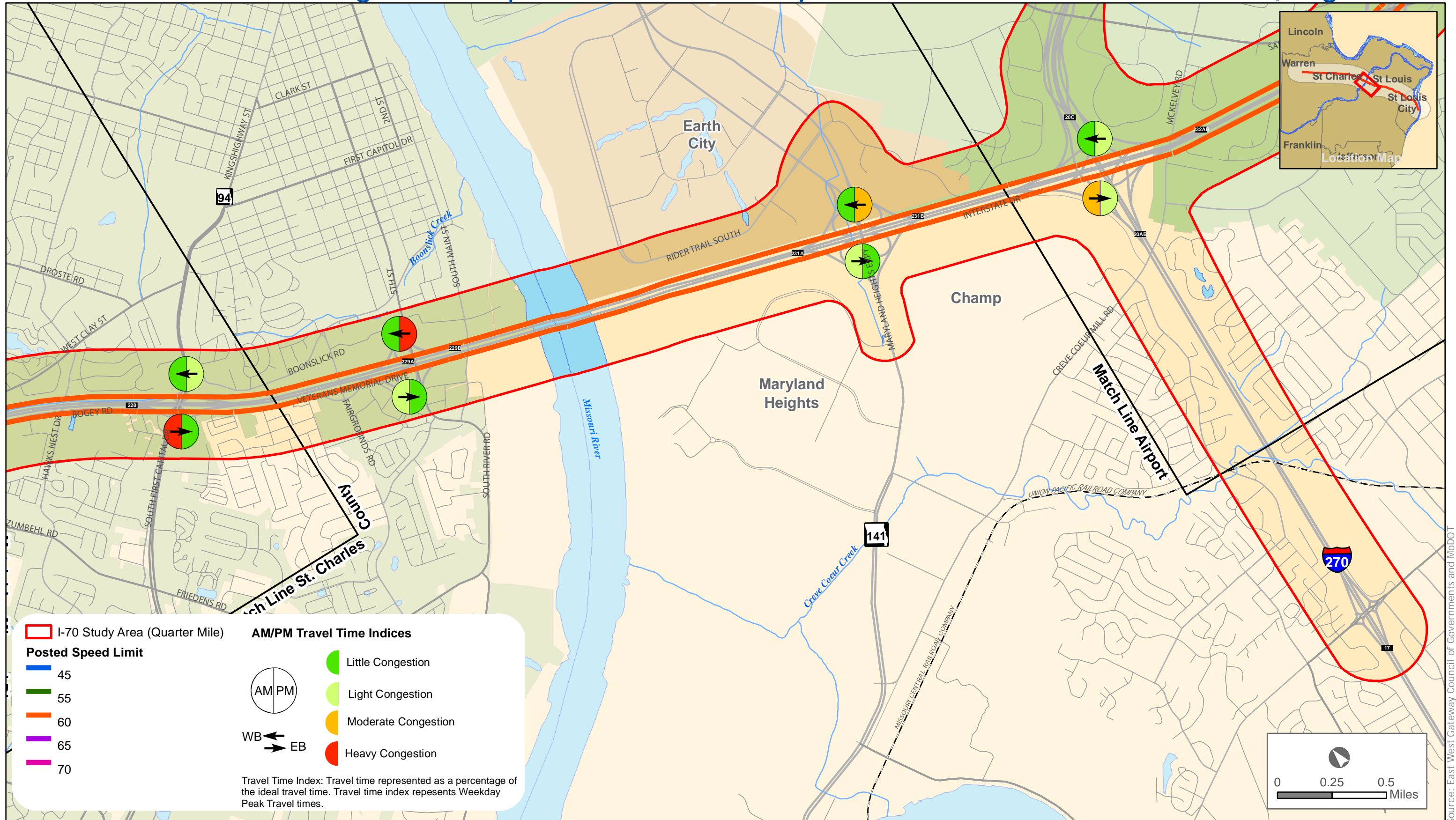
# Existing Posted Speeds and Weekday Peak Period Travel Time Index | Figure 2-9



I-70 PEL STUDY- ST. CHARLES COUNTY



# Existing Posted Speeds and Weekday Peak Period Travel Time Index | Figure 2-9

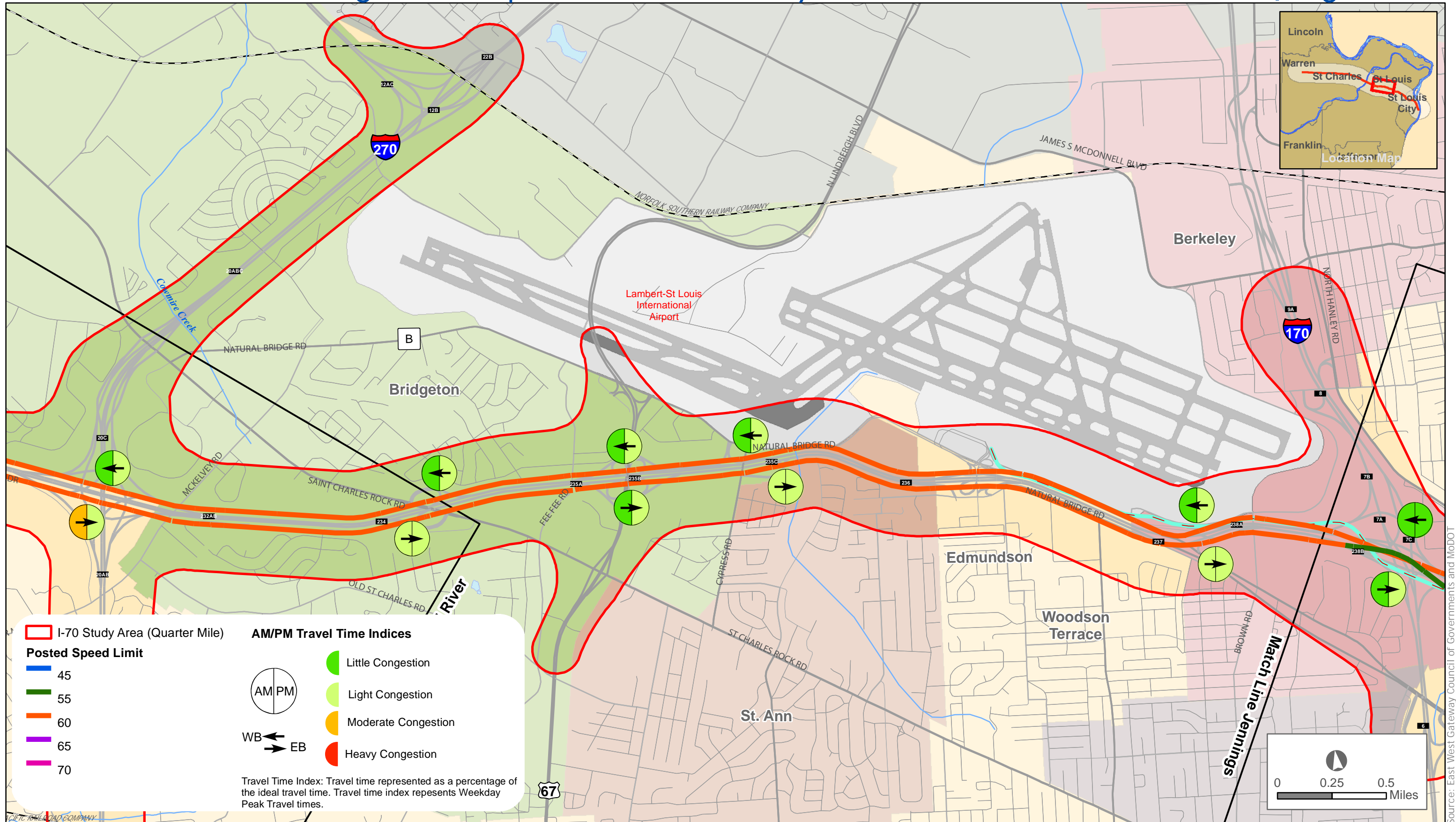


I-70 PEL STUDY- MISSOURI RIVER

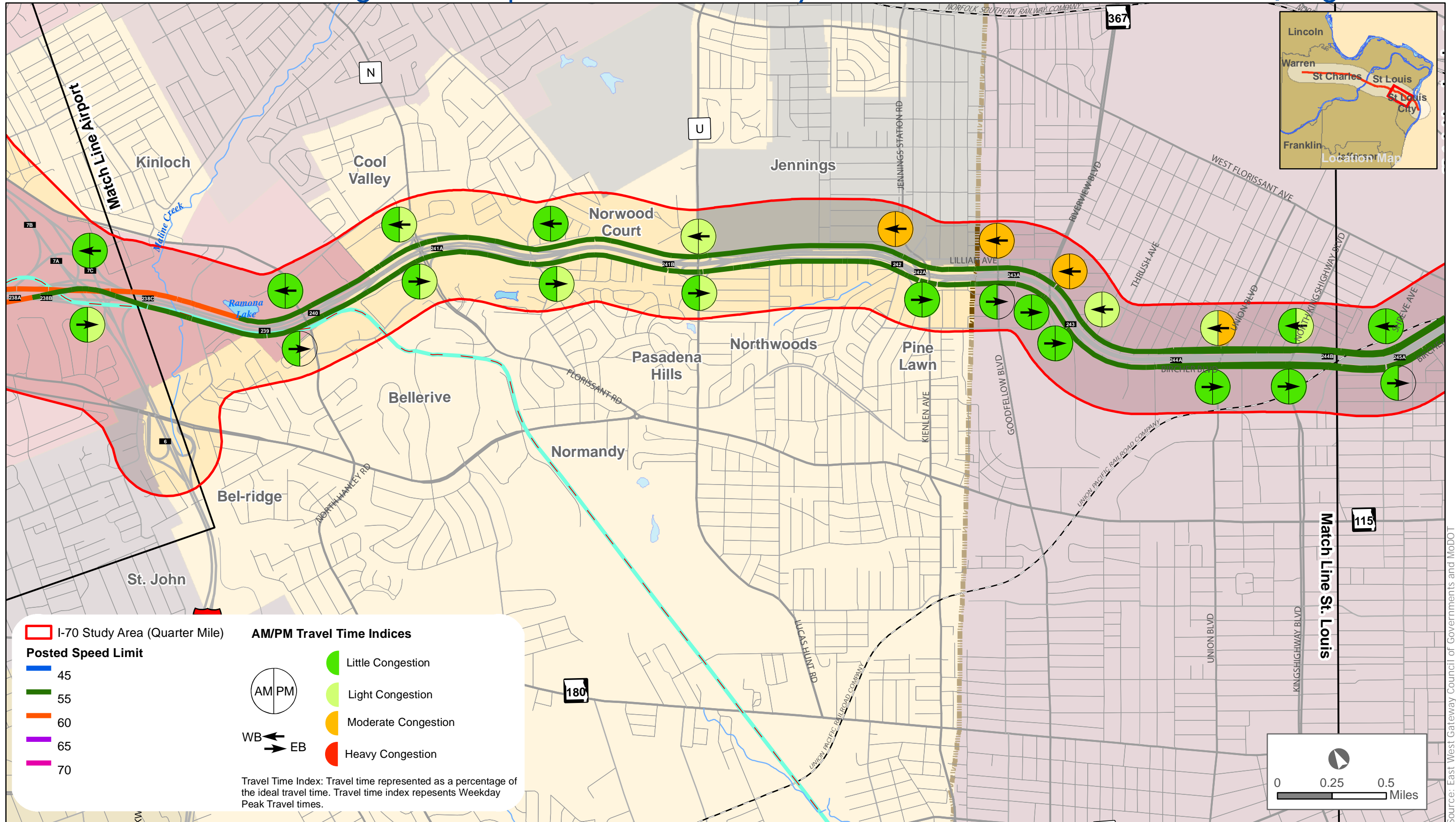
Source: East West Gateway Council of Governments and MoDOT



# Existing Posted Speeds and Weekday Peak Period Travel Time Index | Figure 2-9



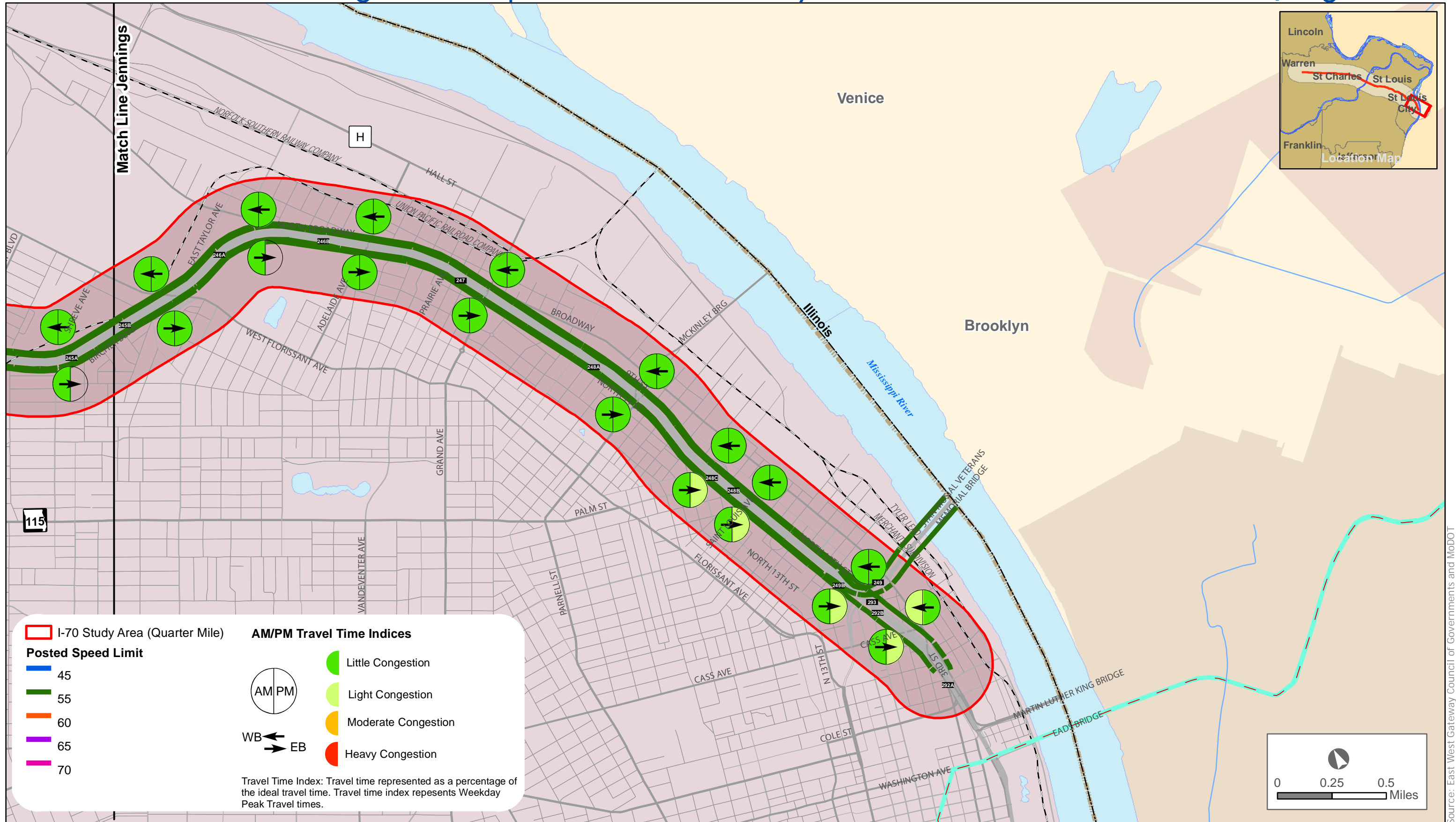
# Existing Posted Speeds and Weekday Peak Period Travel Time Index | Figure 2-9



I-70 PEL STUDY-JENNINGS



# Existing Posted Speeds and Weekday Peak Period Travel Time Index | Figure 2-9

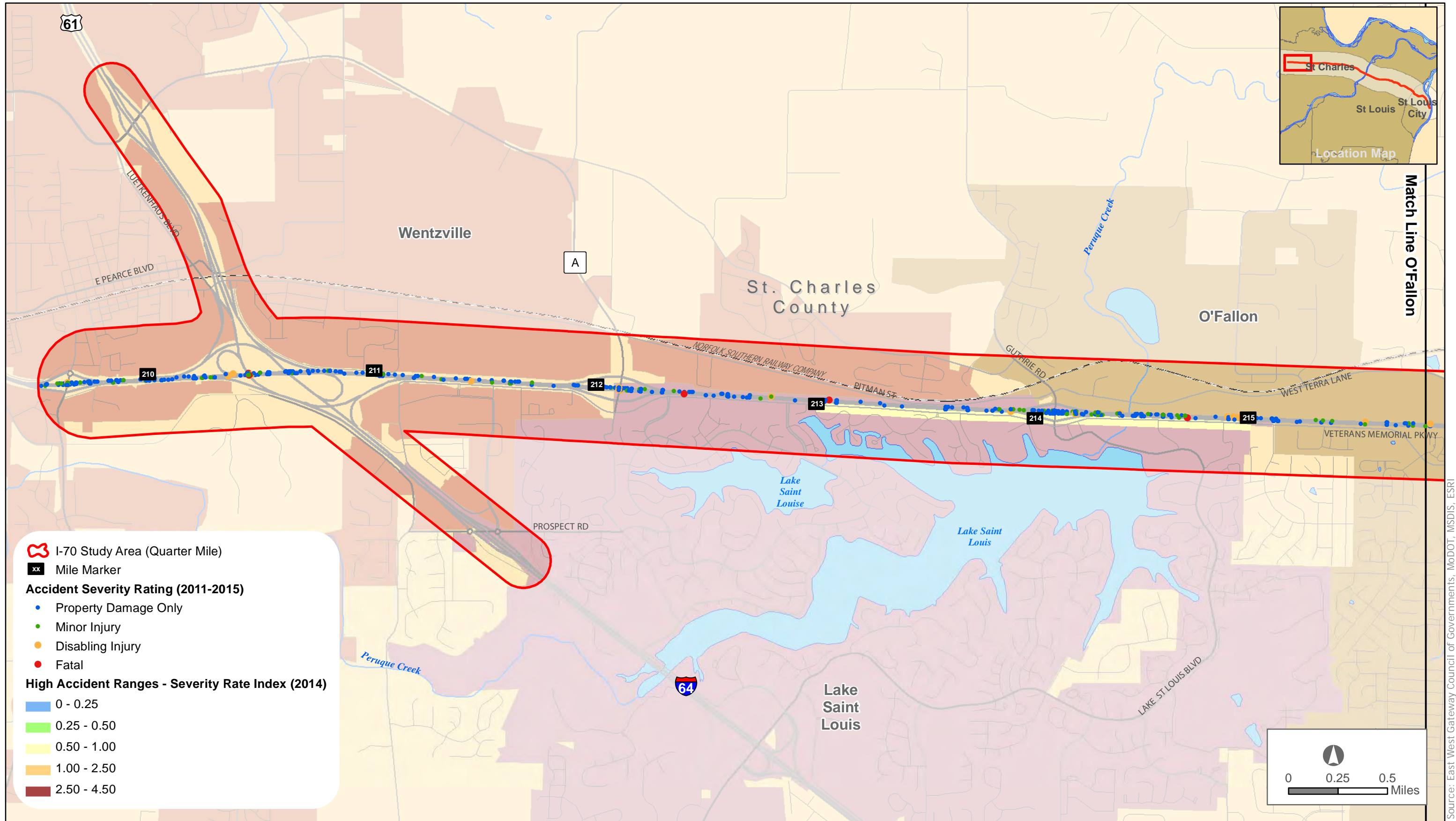


I-70 PEL STUDY- ST. LOUIS CITY

Source: East West Gateway Council of Governments and MoDOT



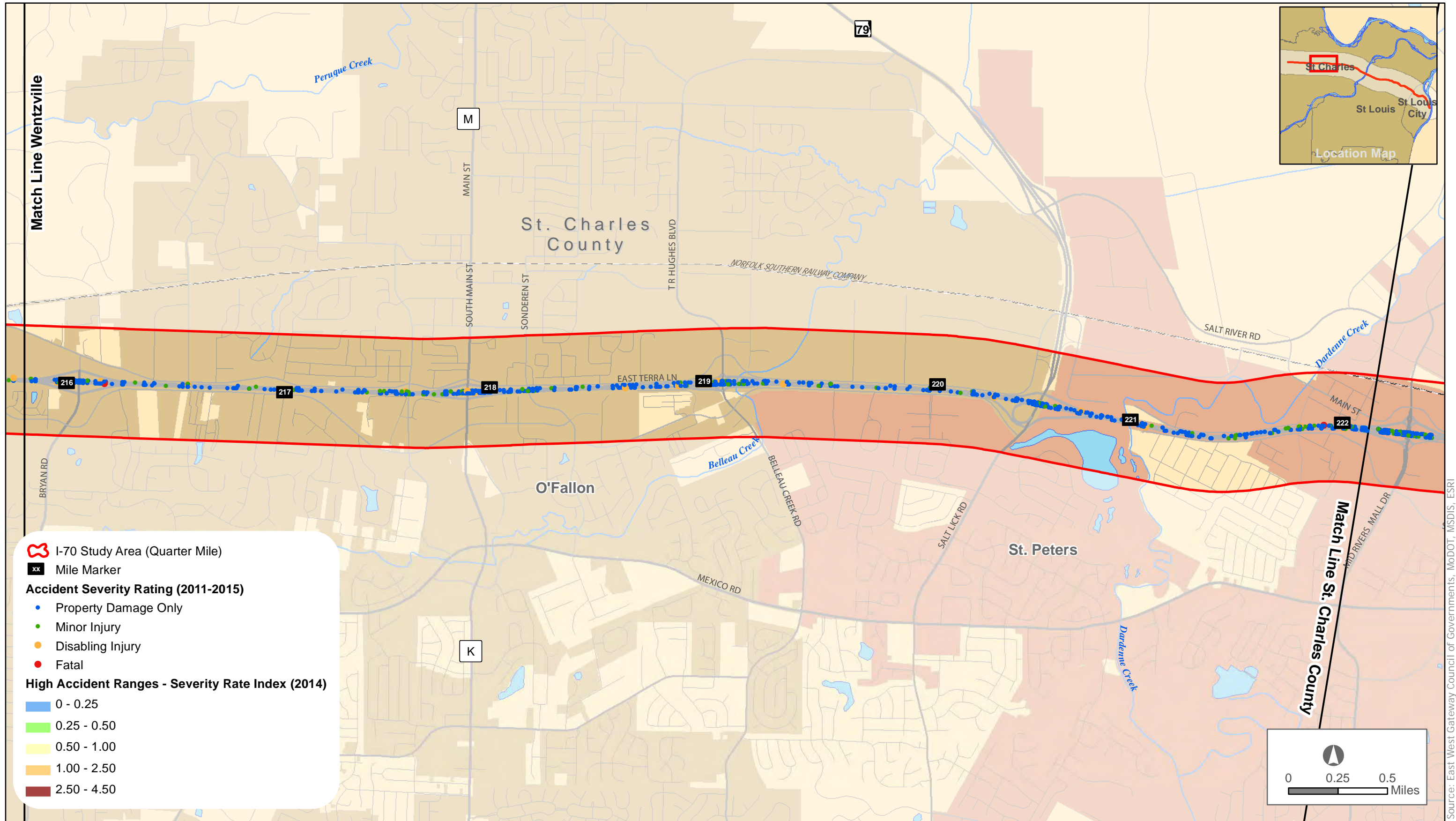
# Crash Patterns and Locations | Figure 2-10



I-70 PEL STUDY - WENTZVILLE

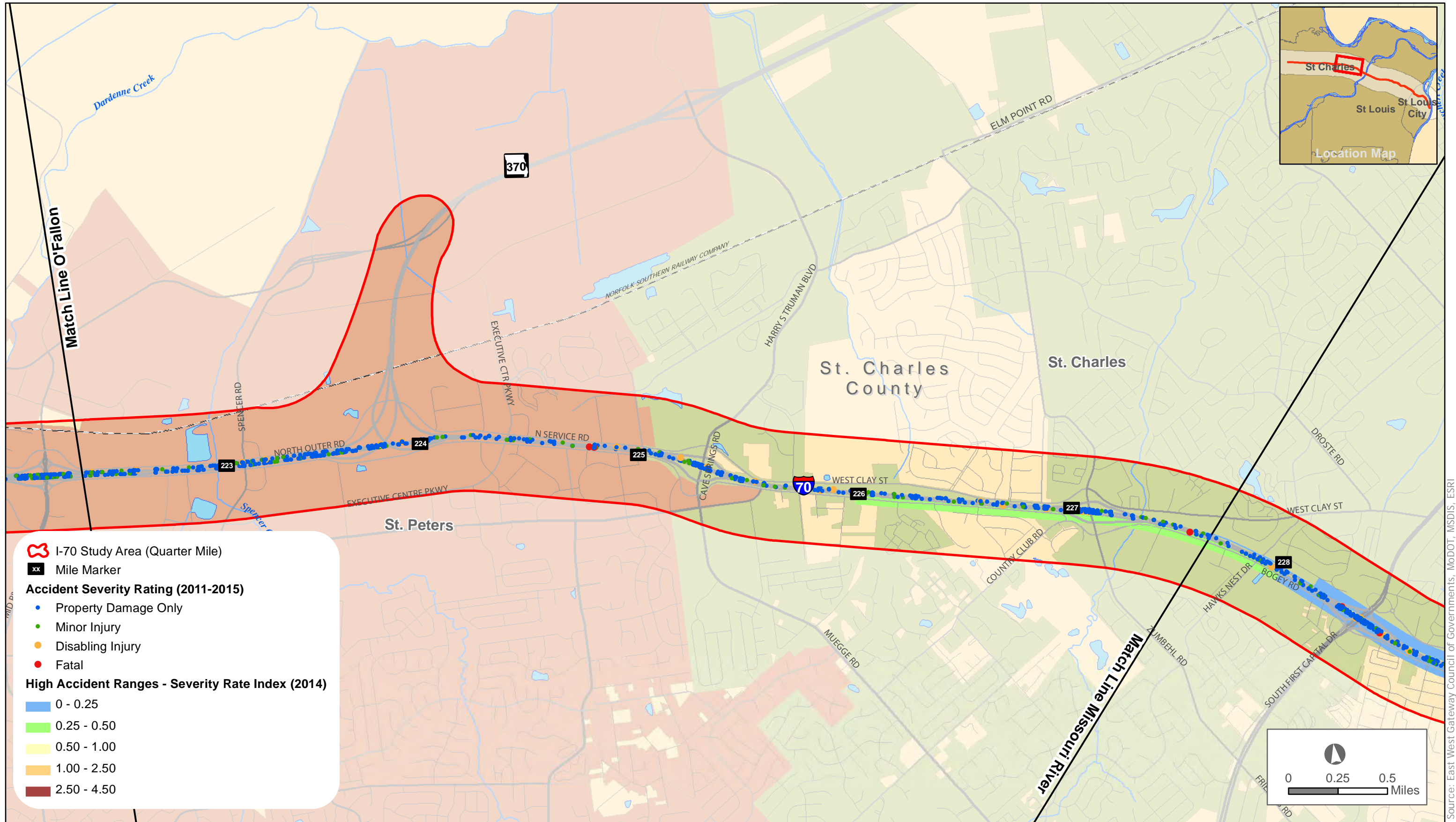


# Crash Patterns and Locations | Figure 2-10



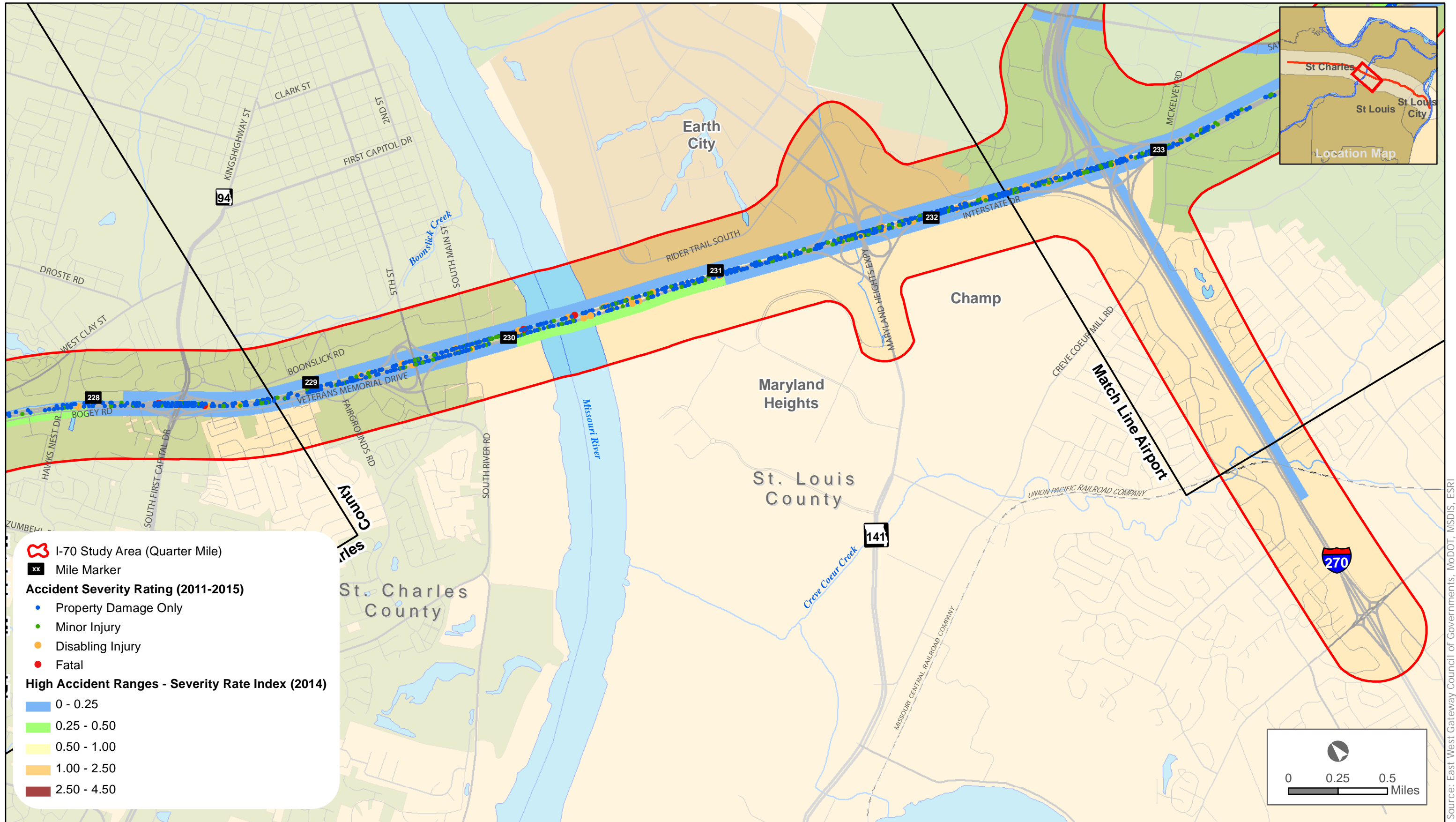


# Crash Patterns and Locations | Figure 2-10



I-70 PEL STUDY - ST. CHARLES COUNTY

# Crash Patterns and Locations | Figure 2-10

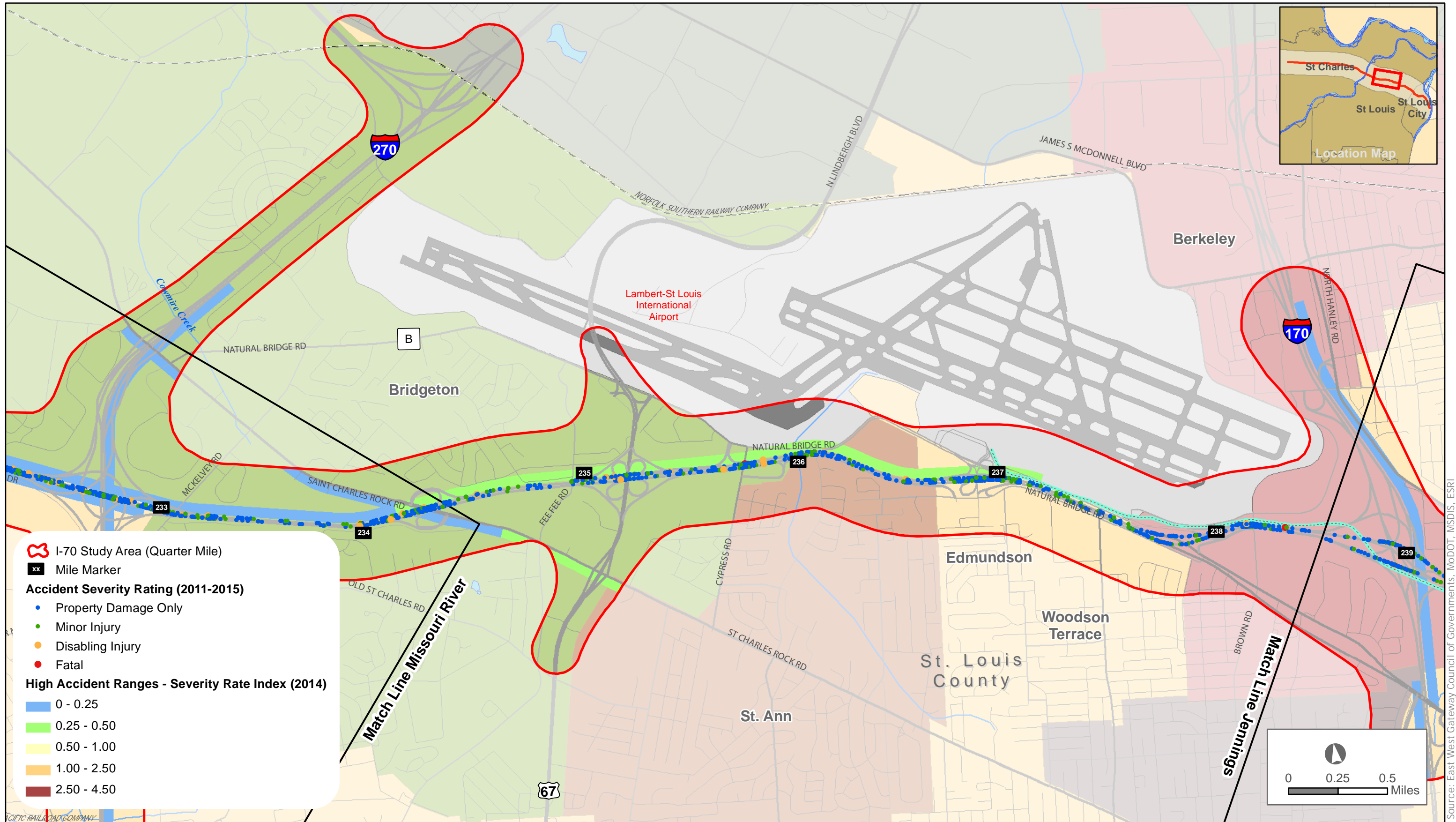


I-70 PEL STUDY - MISSOURI RIVER

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# Crash Patterns and Locations | Figure 2-10

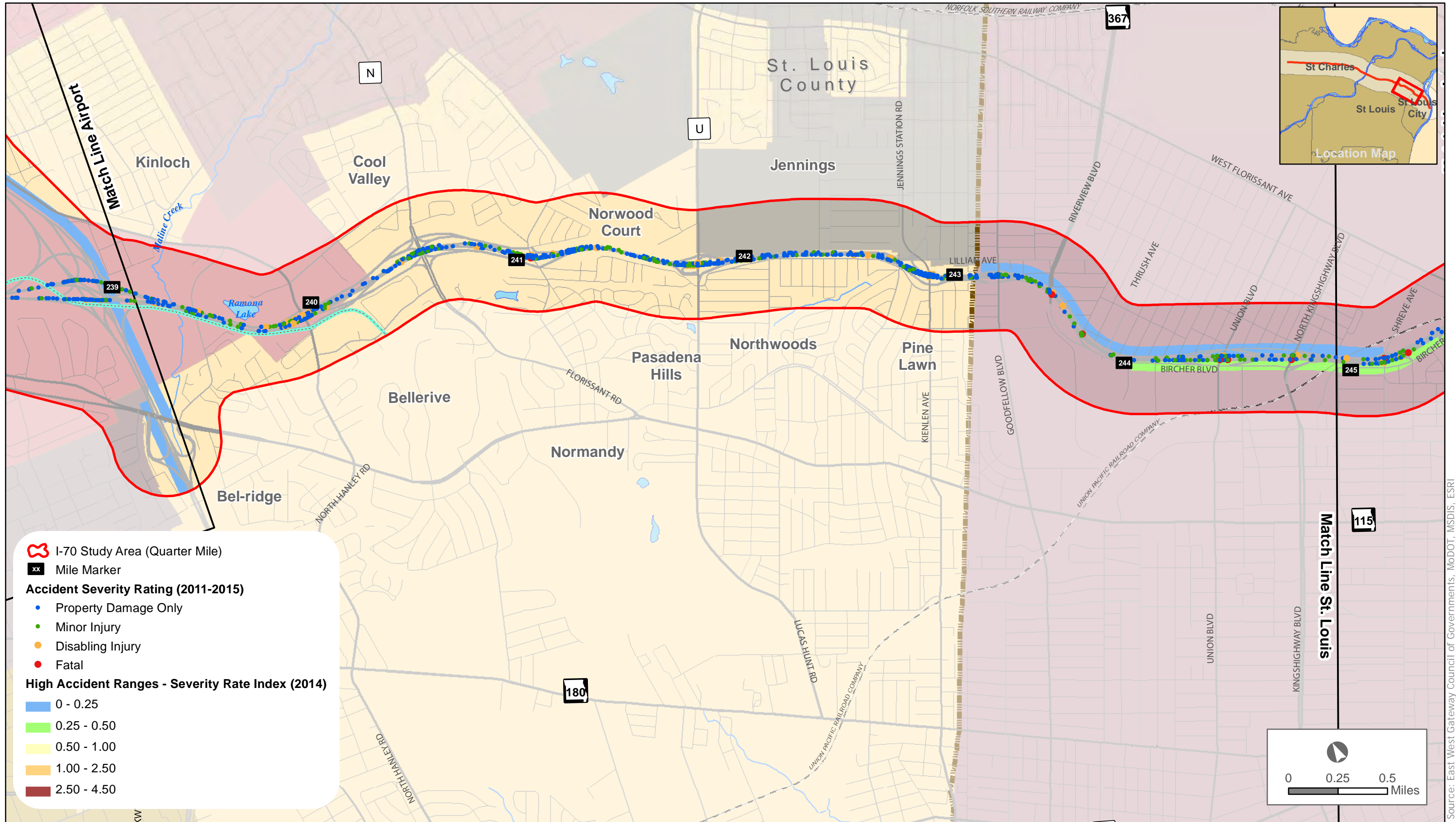


I-70 PEL STUDY - AIRPORT



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

# Crash Patterns and Locations | Figure 2-10

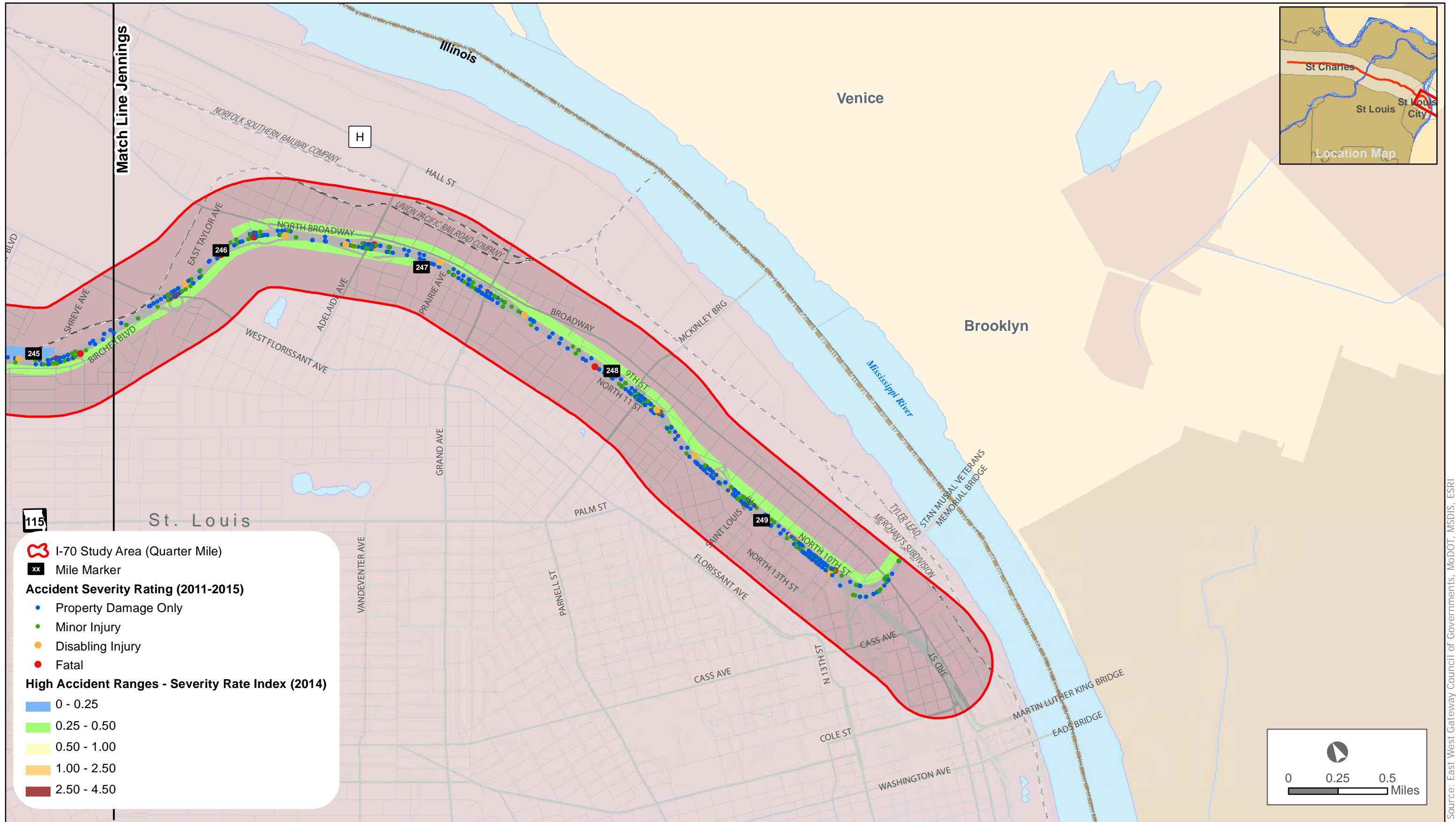


I-70 PEL STUDY - JENNINGS

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI



# Crash Patterns and Locations | Figure 2-10

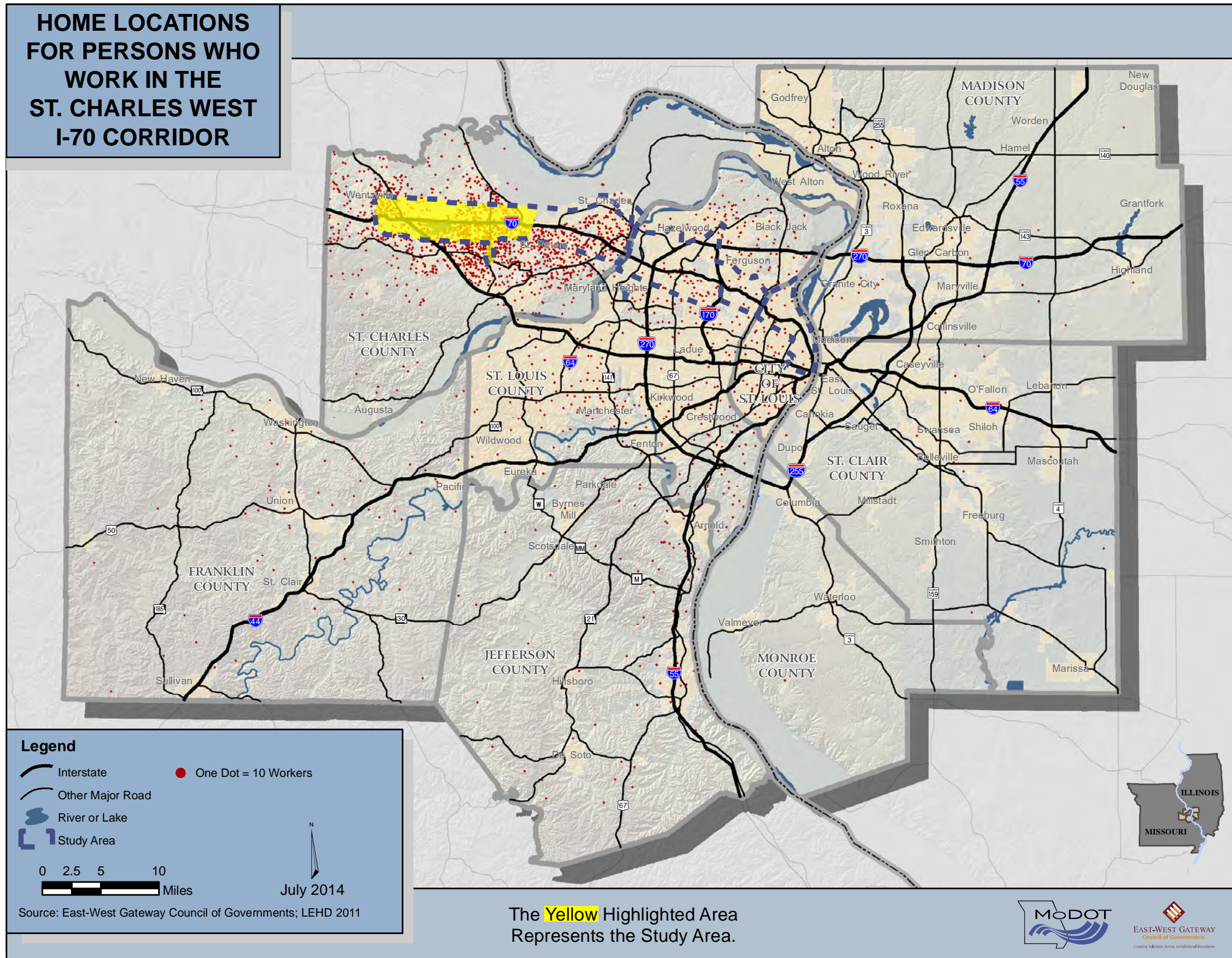


I-70 PEL STUDY - ST. LOUIS CITY

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI

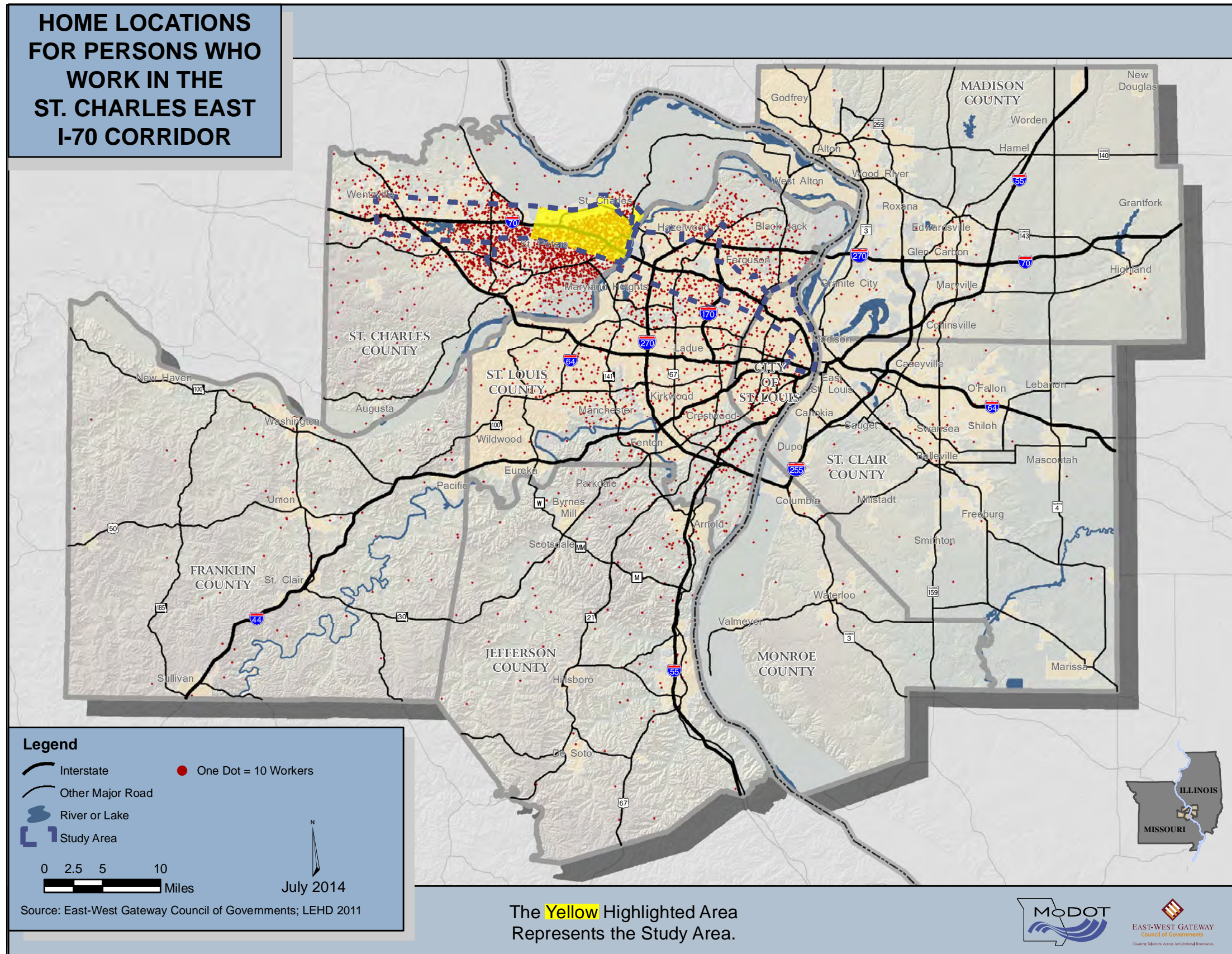


# Home Locations for Persons Who Work in St. Charles West | Figure 2-12



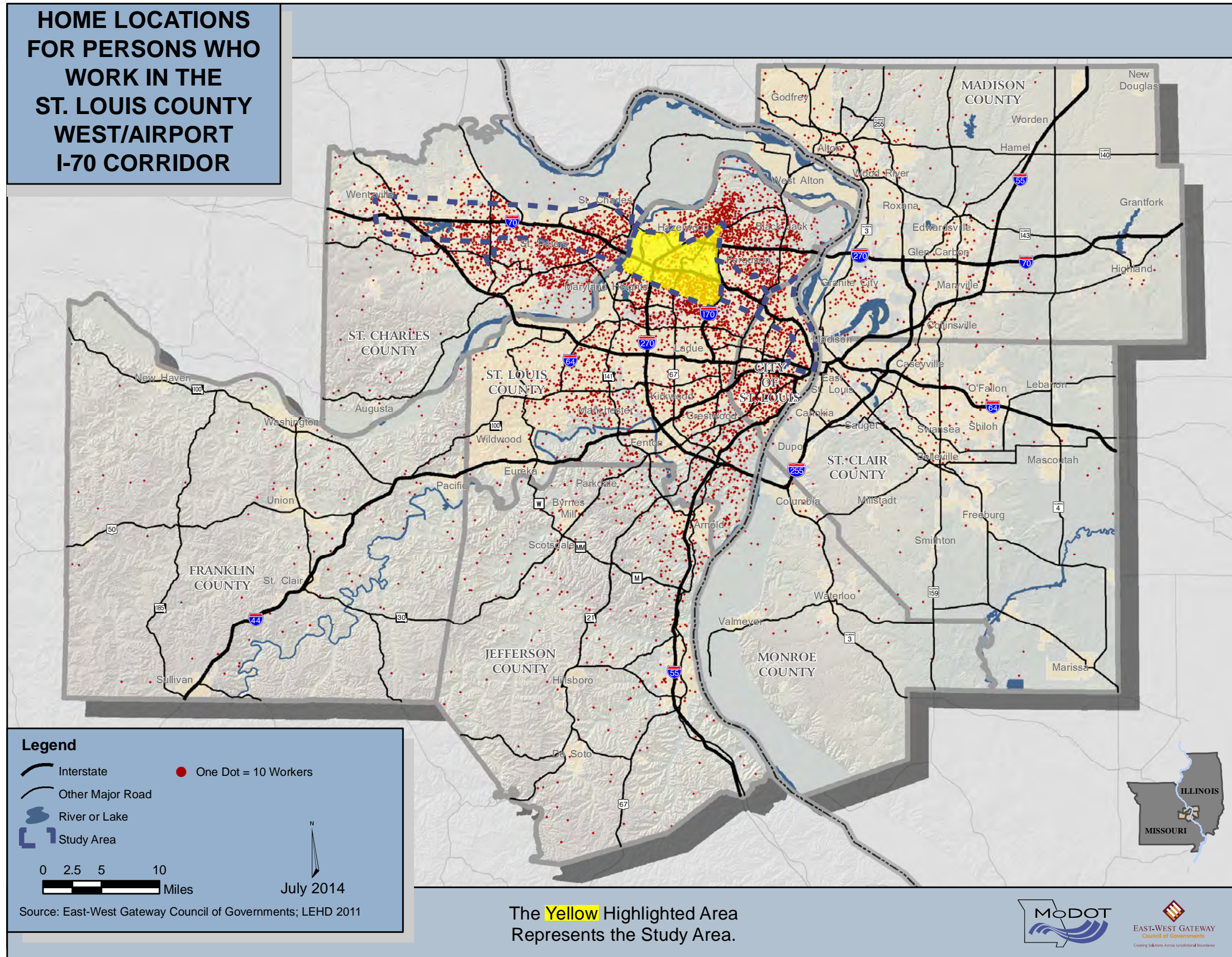
Source: East West Gateway Council of Governments and MoDOT

# Home Locations for Persons Who Work in St. Charles East | Figure 2-13



Source: East West Gateway Council of Governments and MoDOT

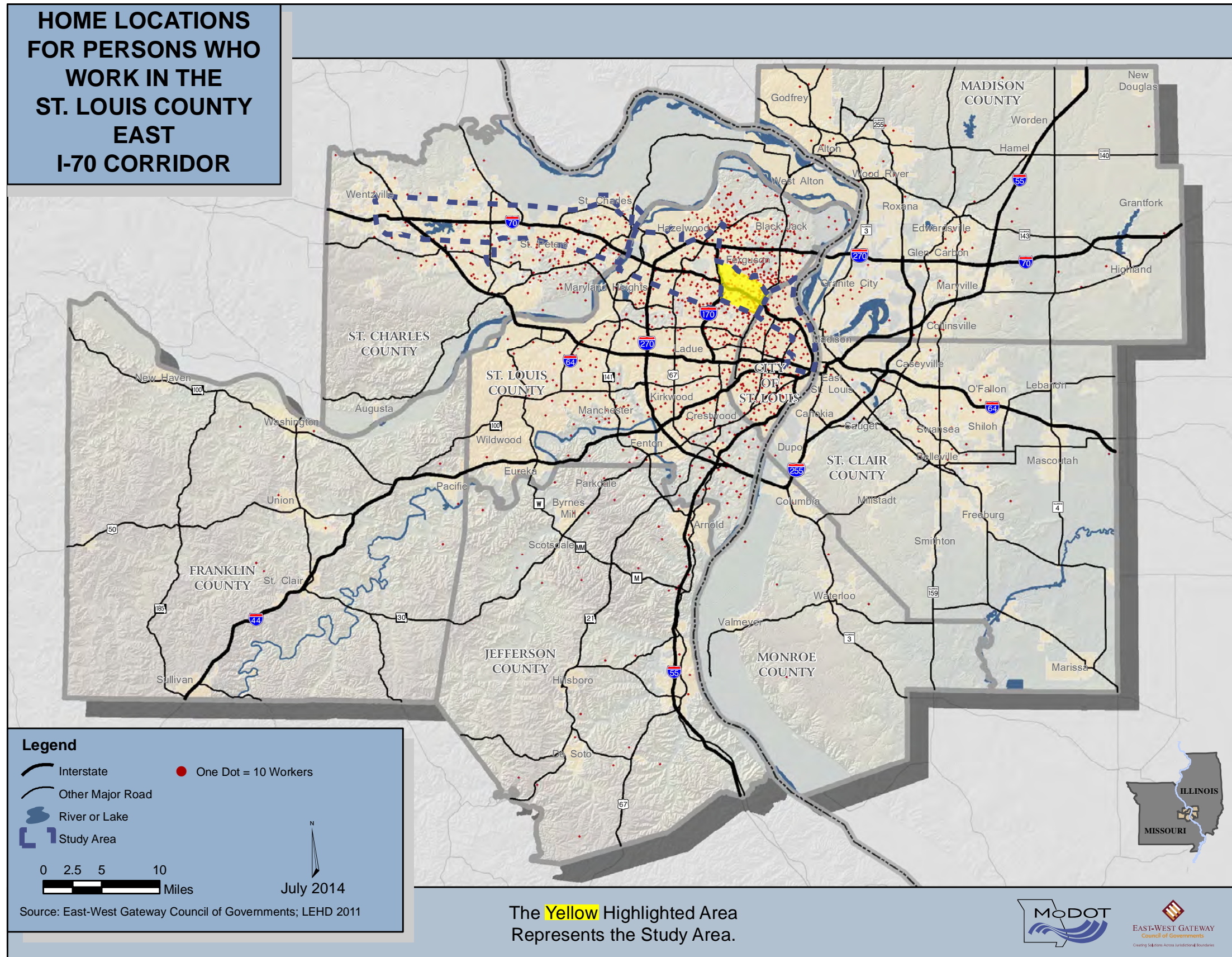
# Home Locations for Persons Who Work in St. Louis County West | Figure 2-14



Source: East West Gateway Council of Governments and MoDOT

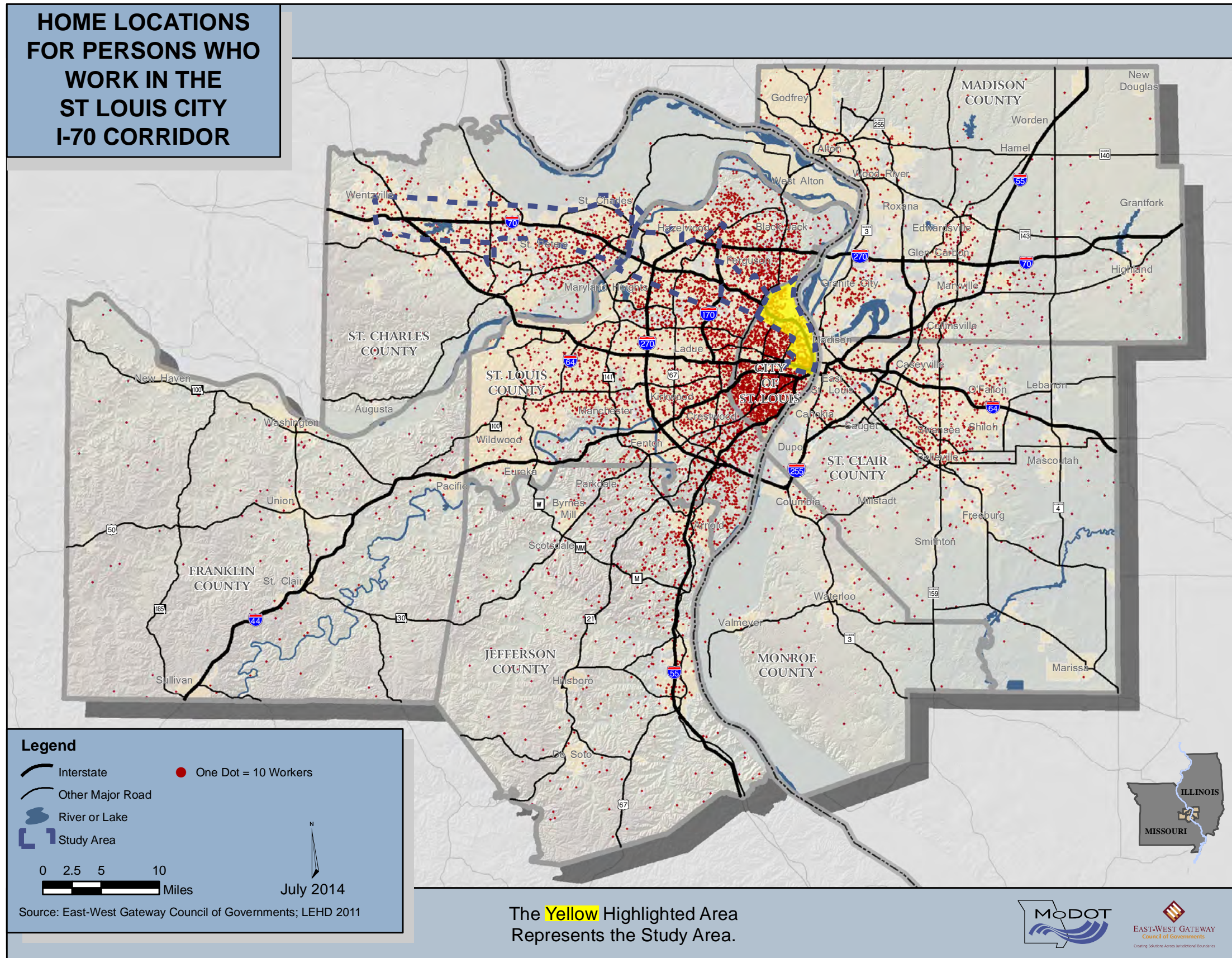


# Home Locations for Persons Who Work in St. Louis County East | Figure 2-15

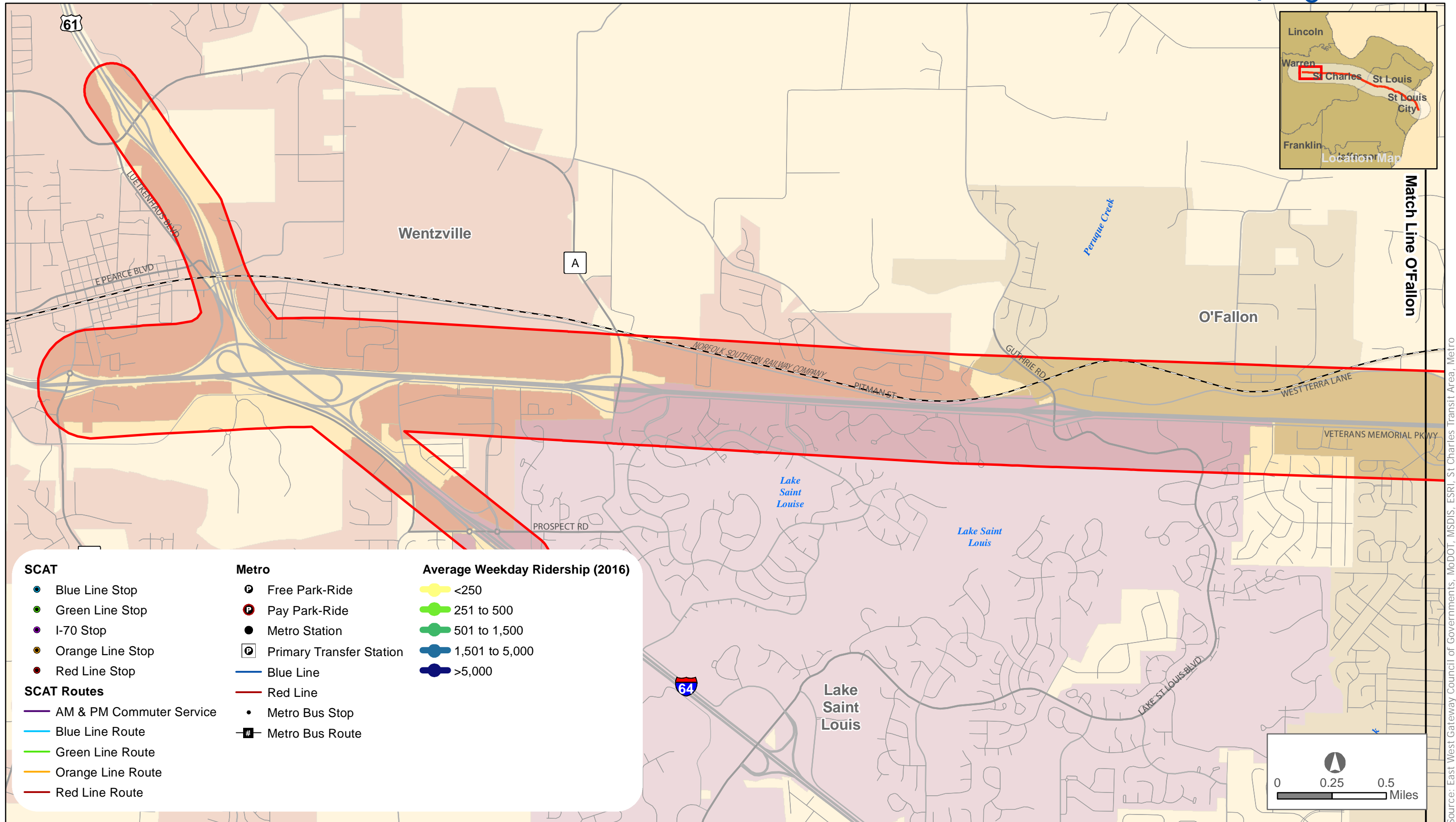


Source: East West Gateway Council of Governments and MoDOT

# Home Locations for Persons Who Work in St. Louis City | Figure 2-16



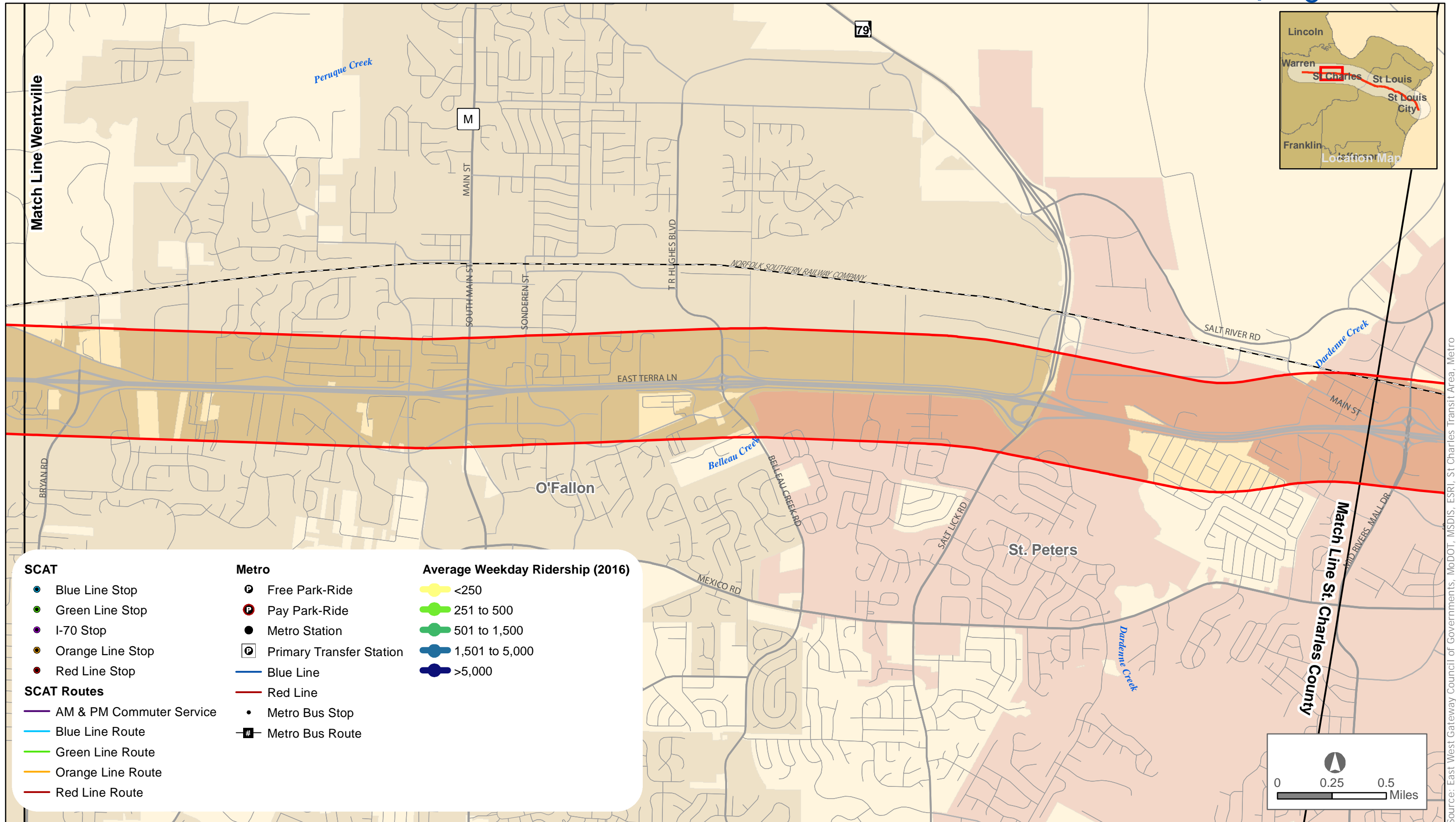
Source: East West Gateway Council of Governments and MoDOT



I-70 PEL STUDY- WENTZVILLE

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, St. Charles Transit Area, Metro

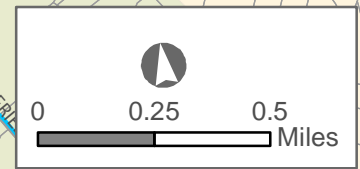
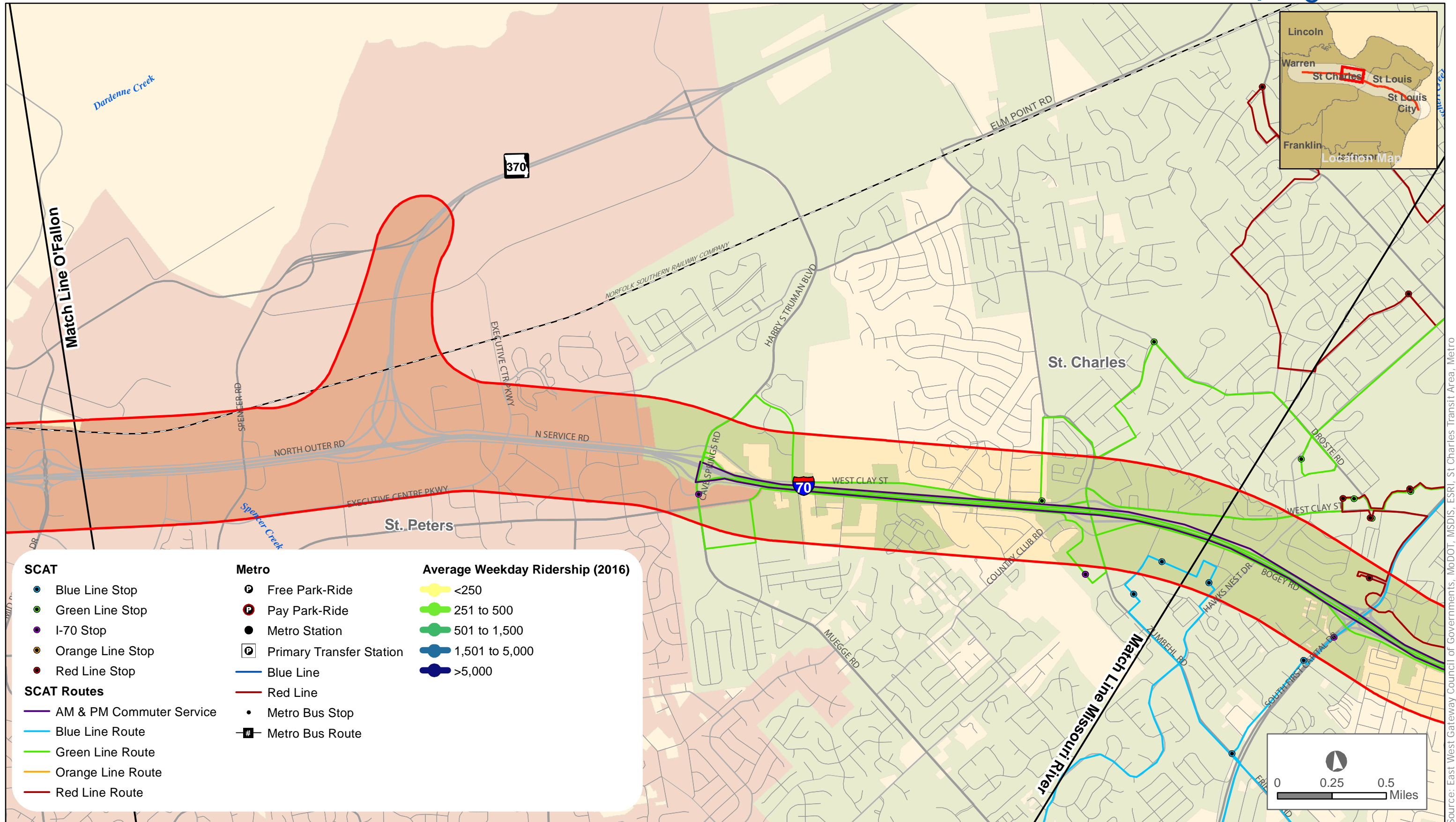




I-70 PEL STUDY- O'FALLON

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, St. Charles Transit Area, Metro

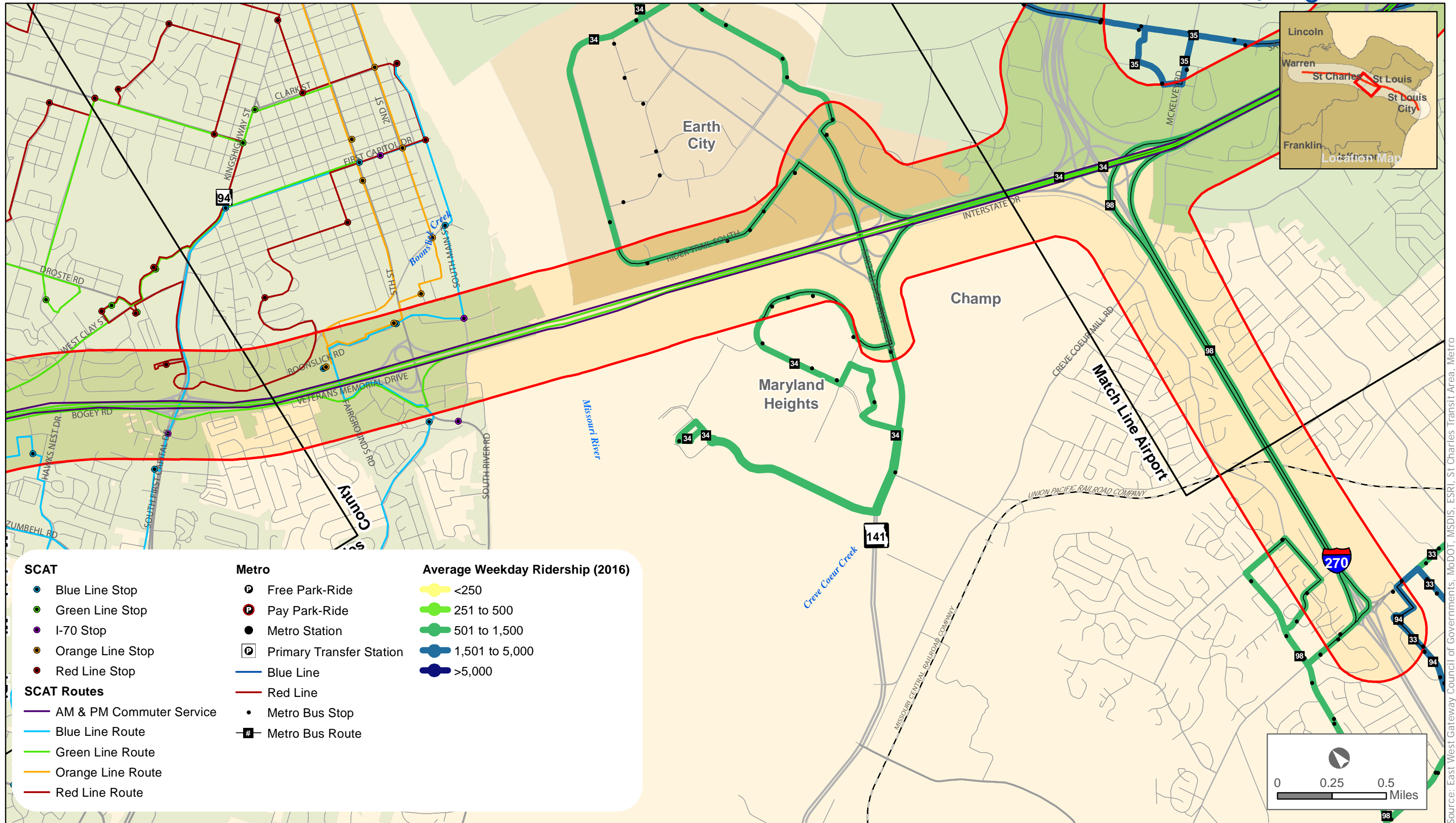




I-70 PEL STUDY- ST. CHARLES COUNTY

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, St. Charles Transit Area, Metro

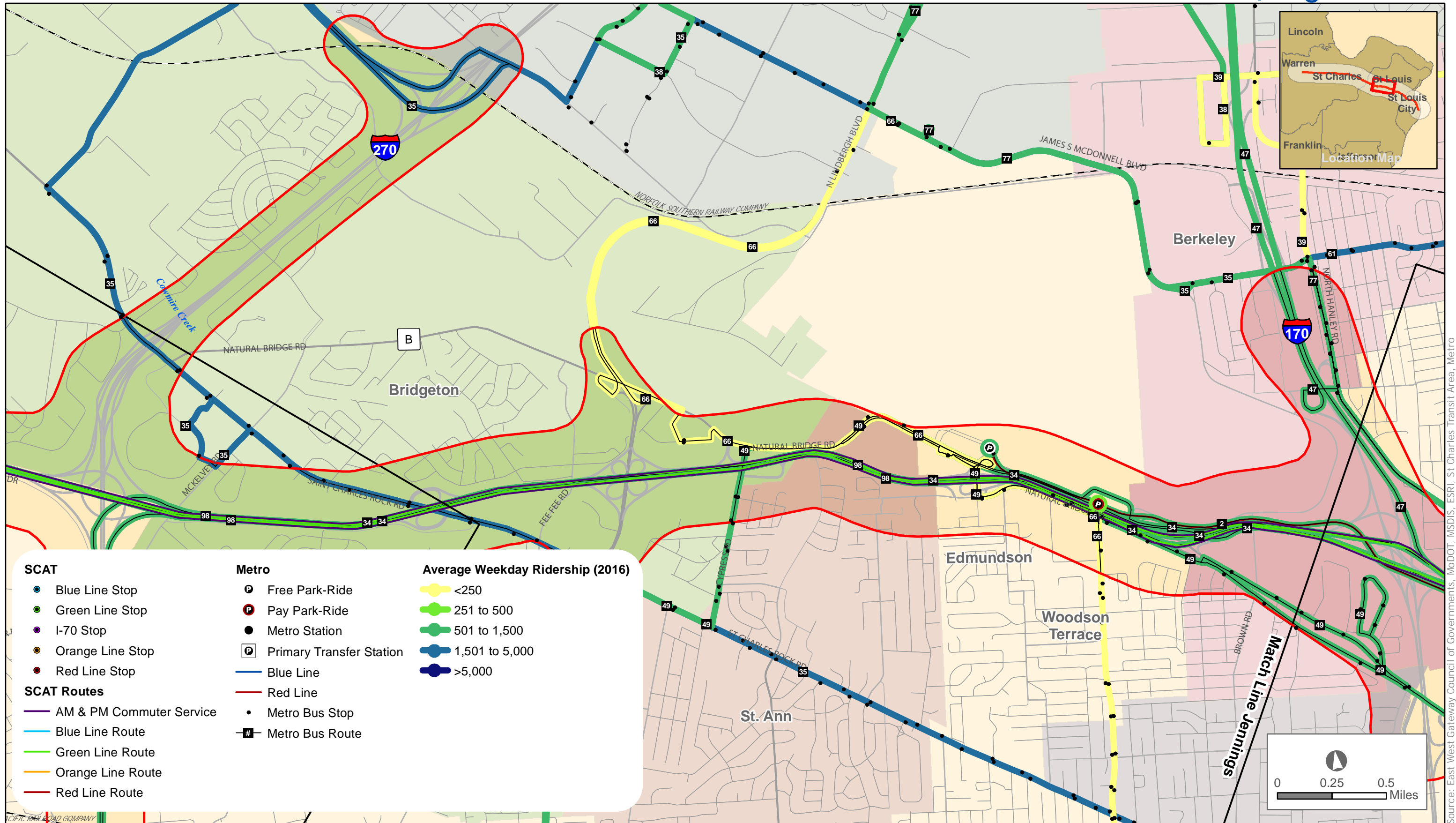




I-70 PEL STUDY- MISSOURI RIVER

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, St. Charles Transit Area, Metro

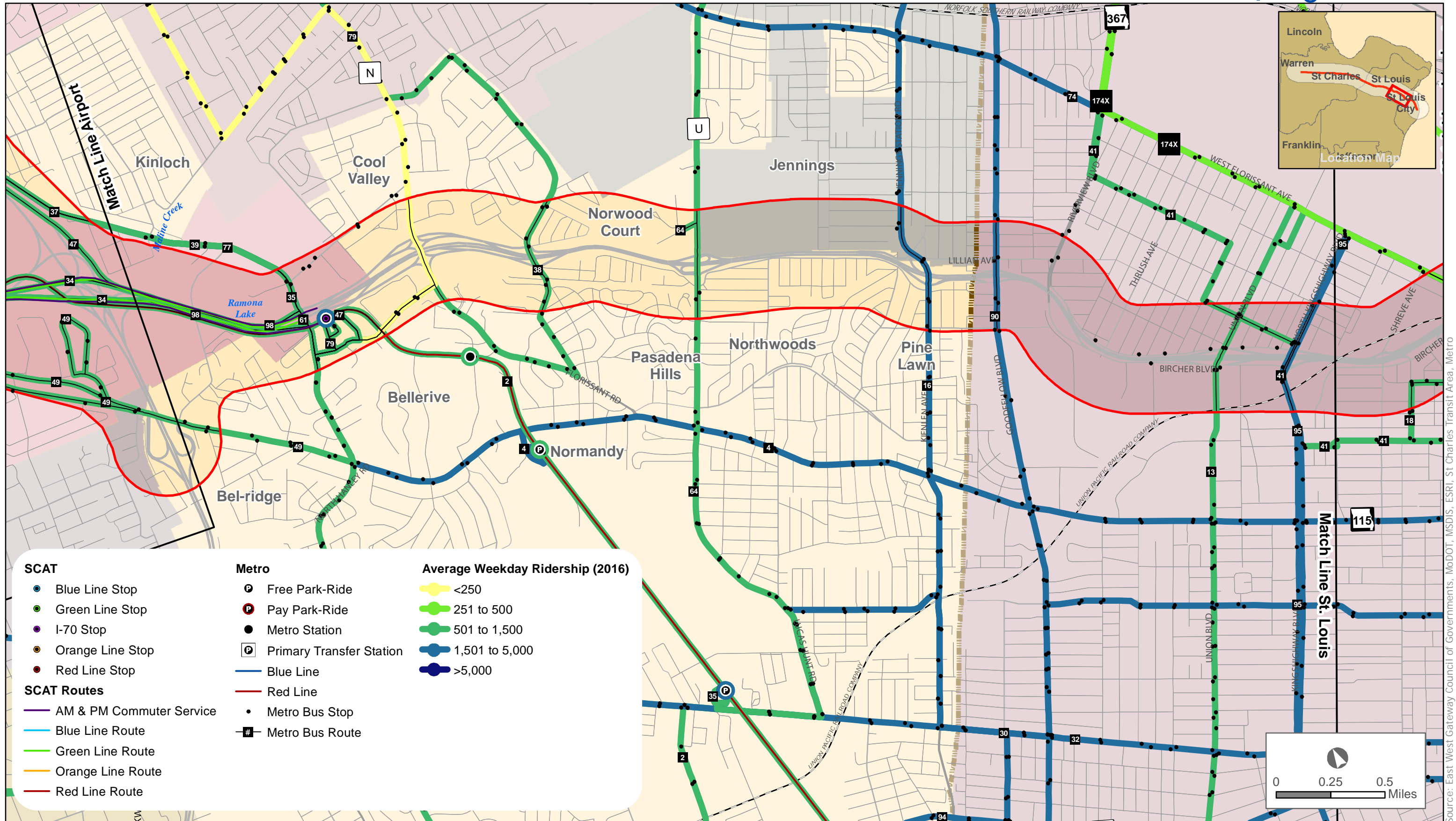




I-70 PEL STUDY- AIRPORT

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, St. Charles Transit Area, Metro

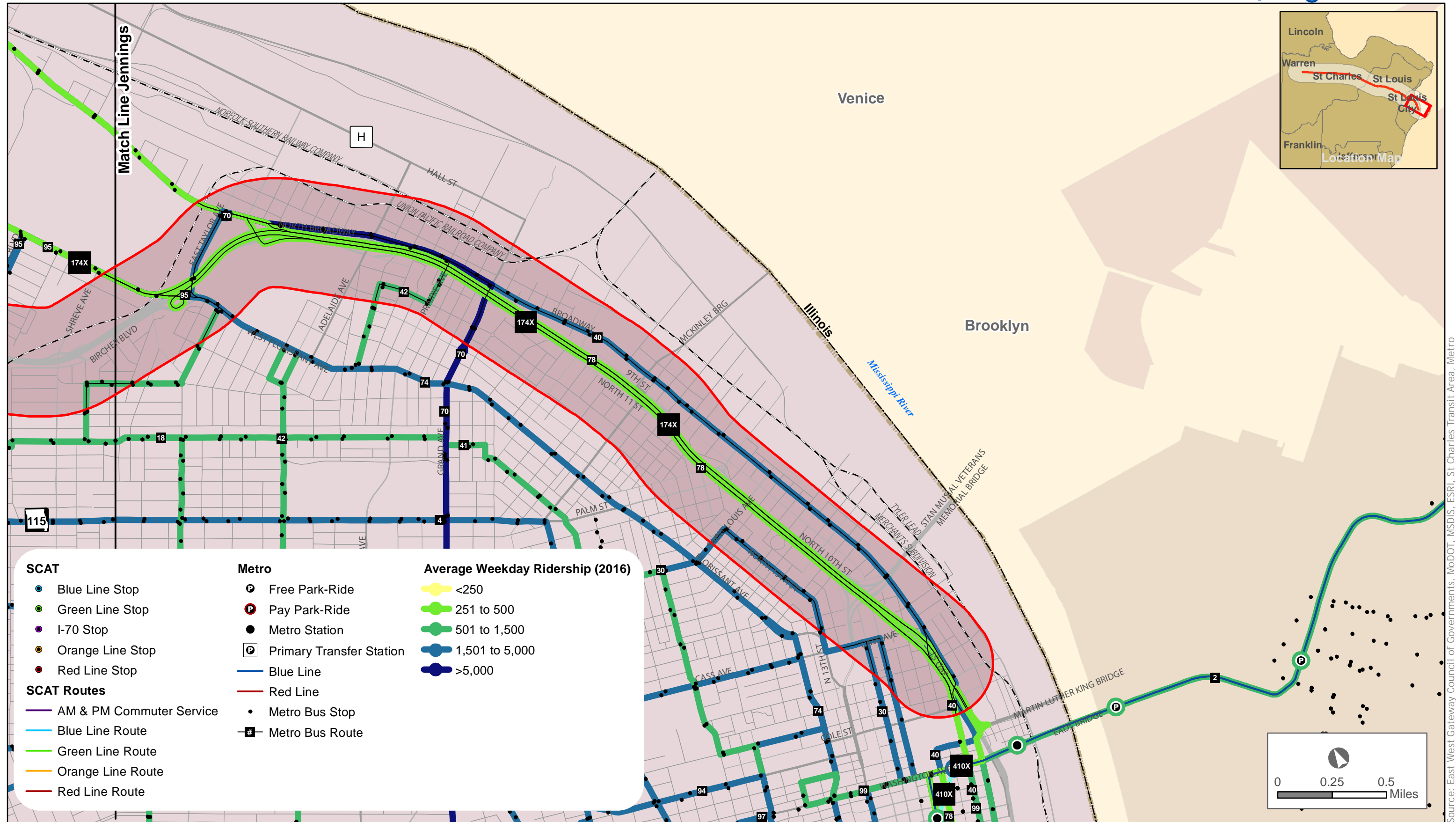




I-70 PEL STUDY-JENNINGS

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, St. Charles Transit Area, Metro

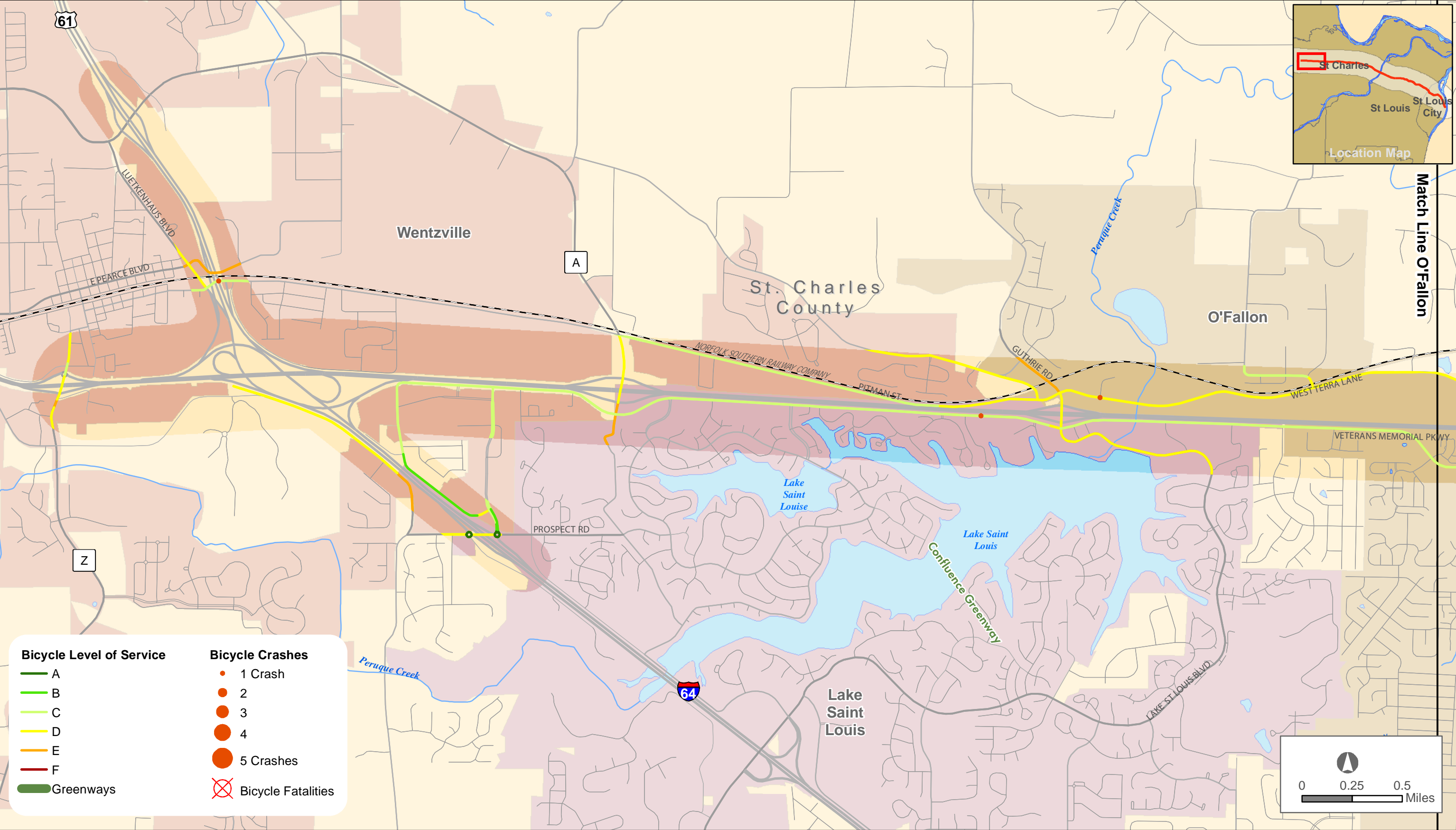




I-70 PEL STUDY- ST. LOUIS CITY

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, St. Charles Transit Area, Metro

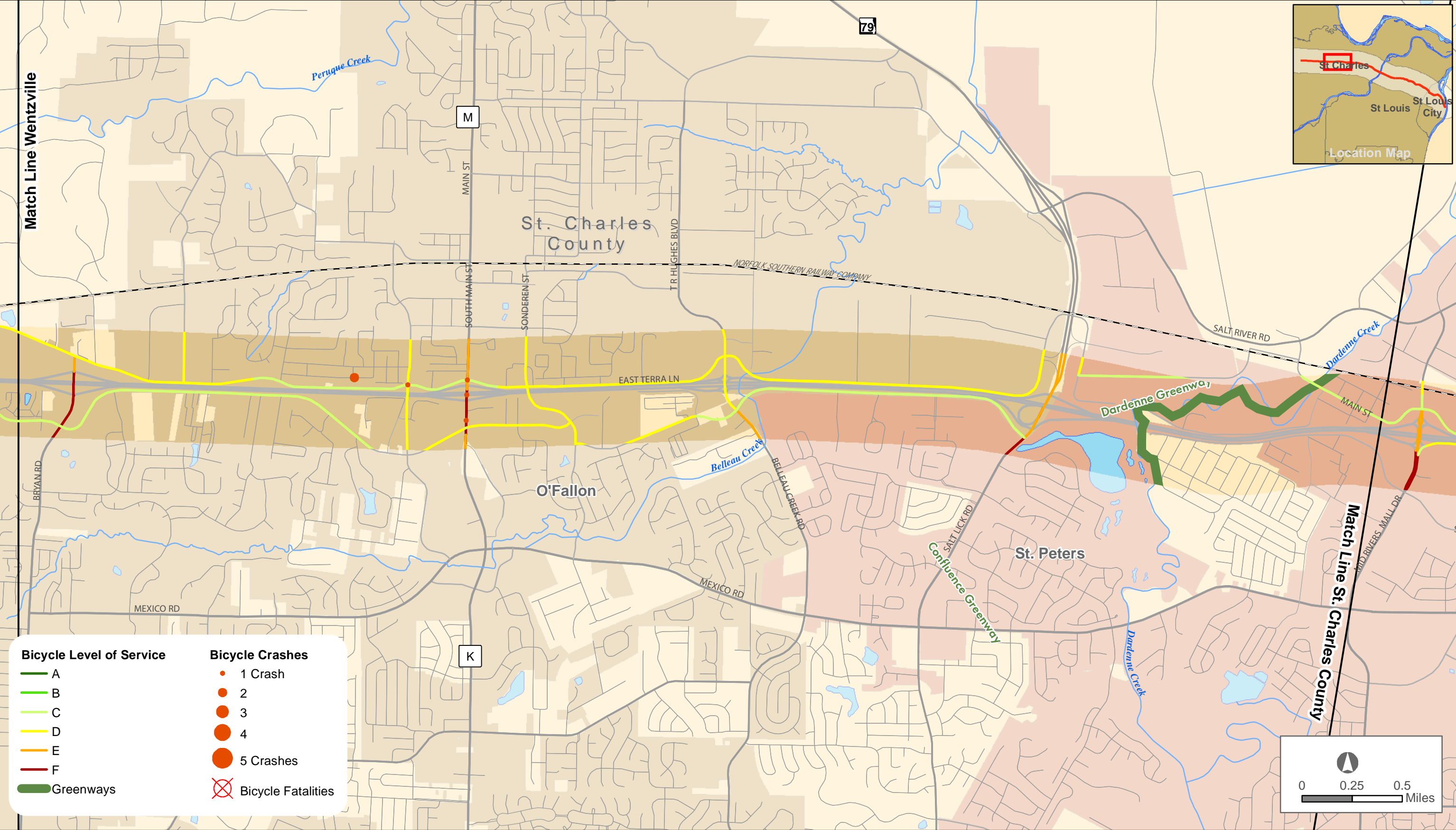




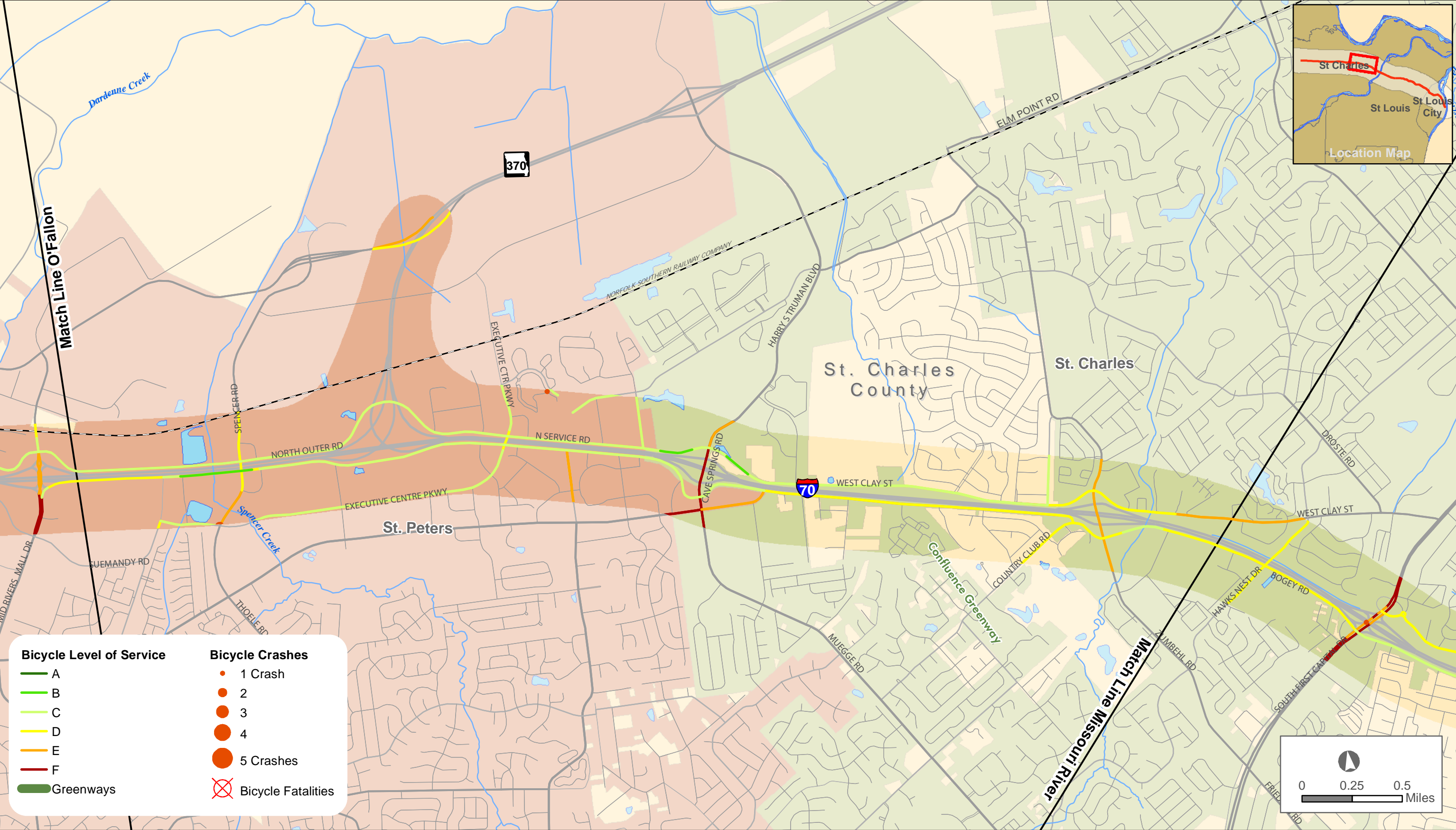
1-70 PEL STUDY-WENTZVILLE



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG



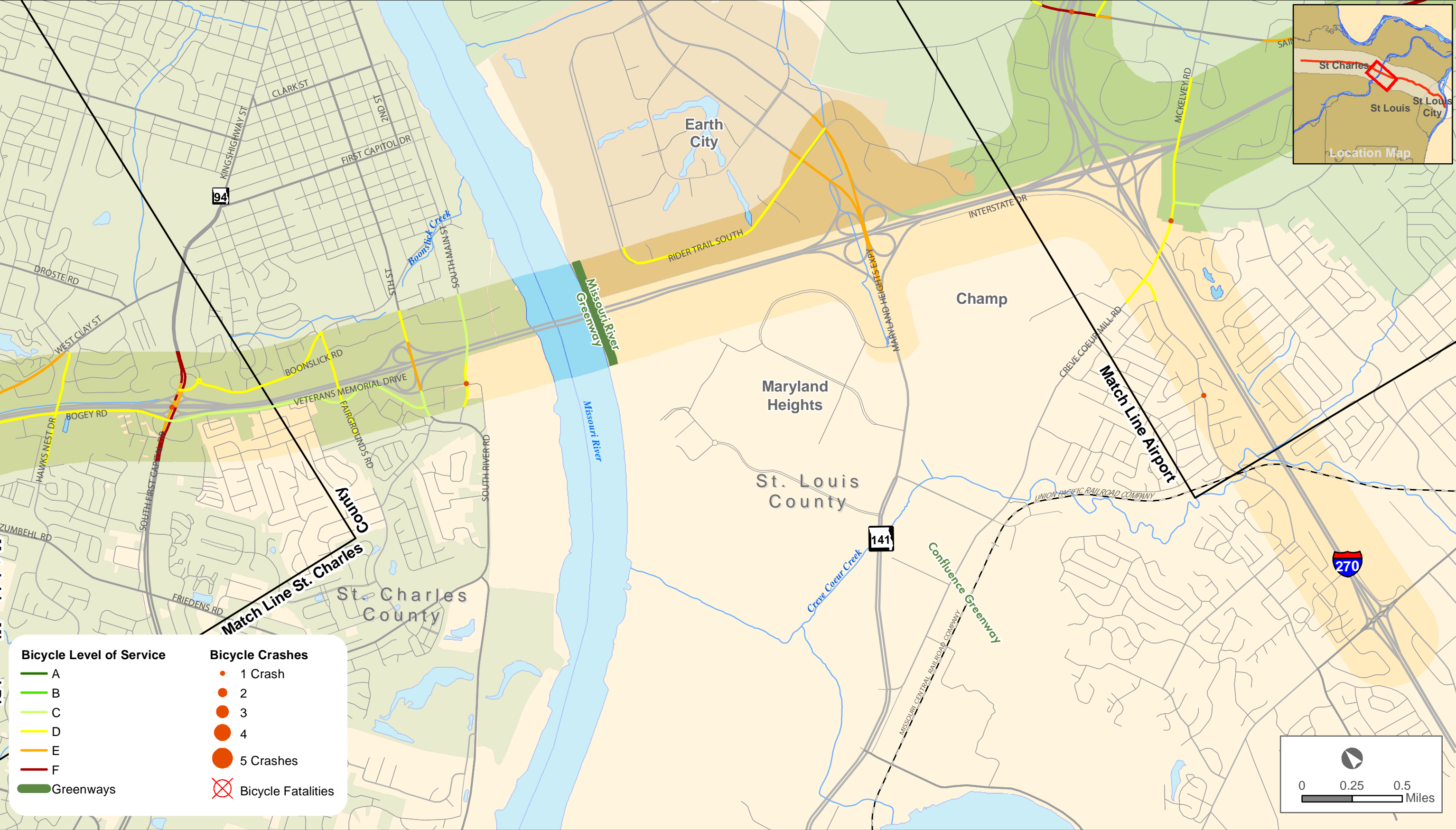
Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG



1-70 PEL STUDY- ST. CHARLES COUNTY



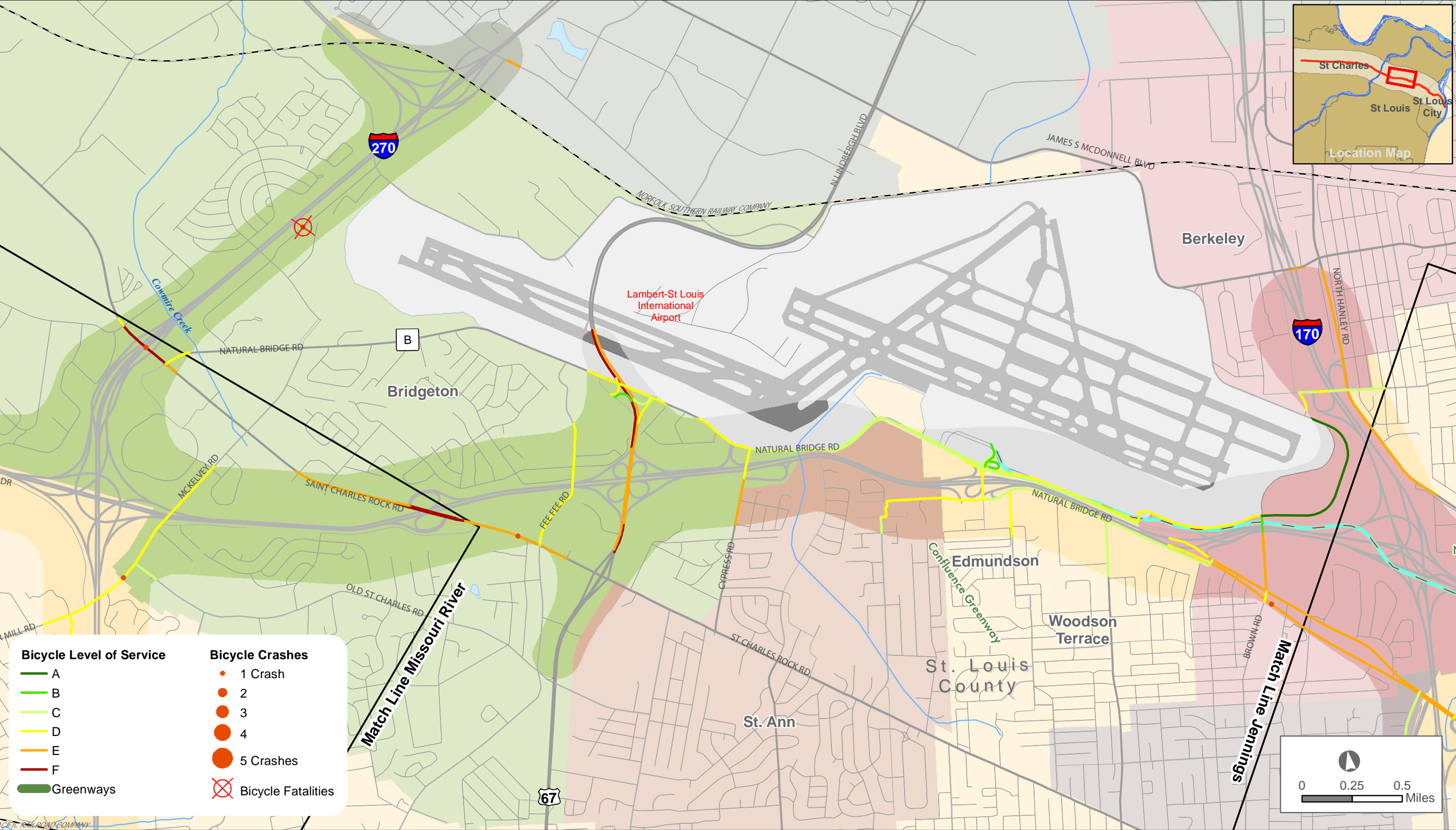
Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG



1-70 PEL STUDY- MISSOURI RIVER

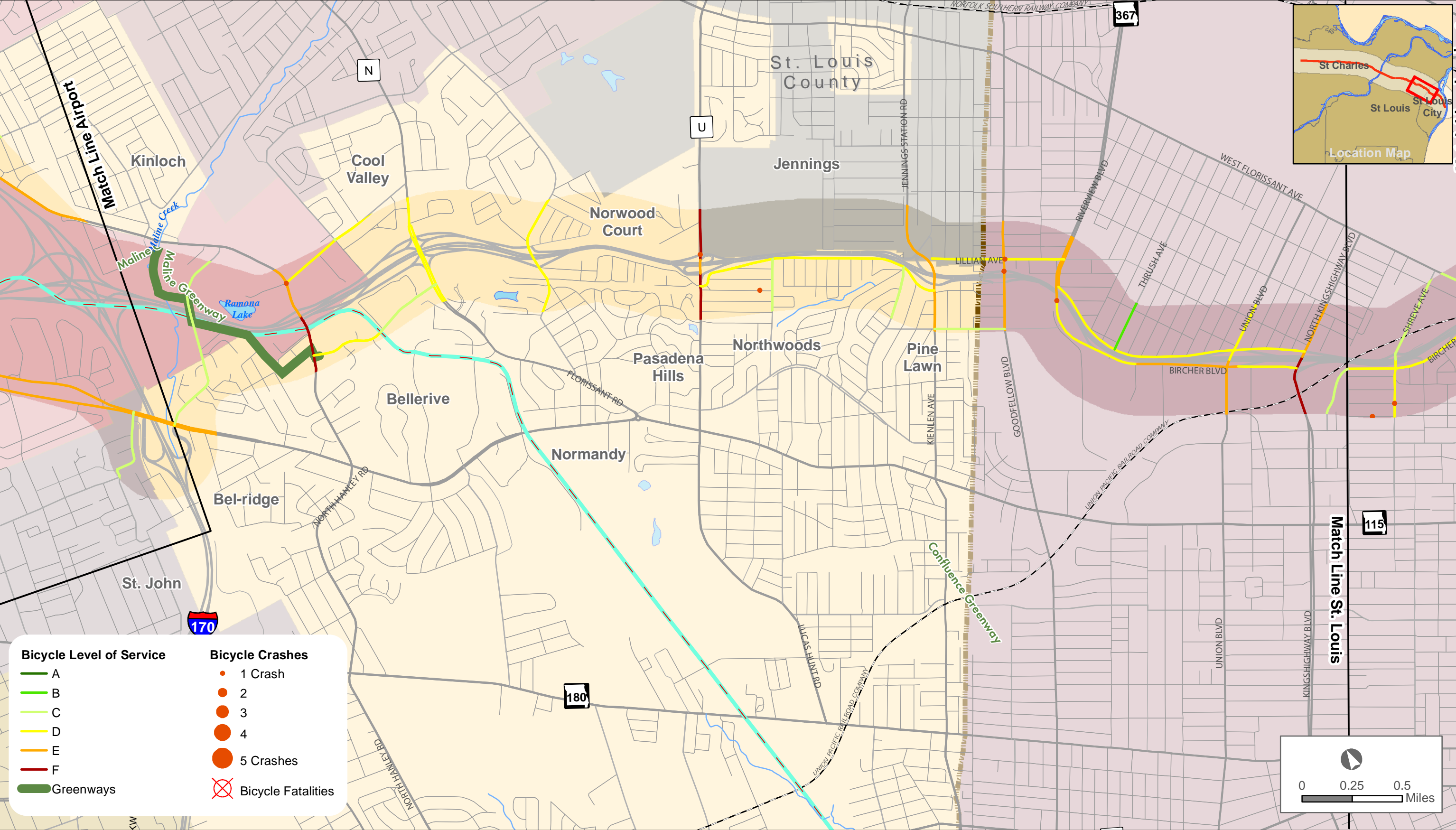
Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG

Bicycle Level of Service | Figure 2-18



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG

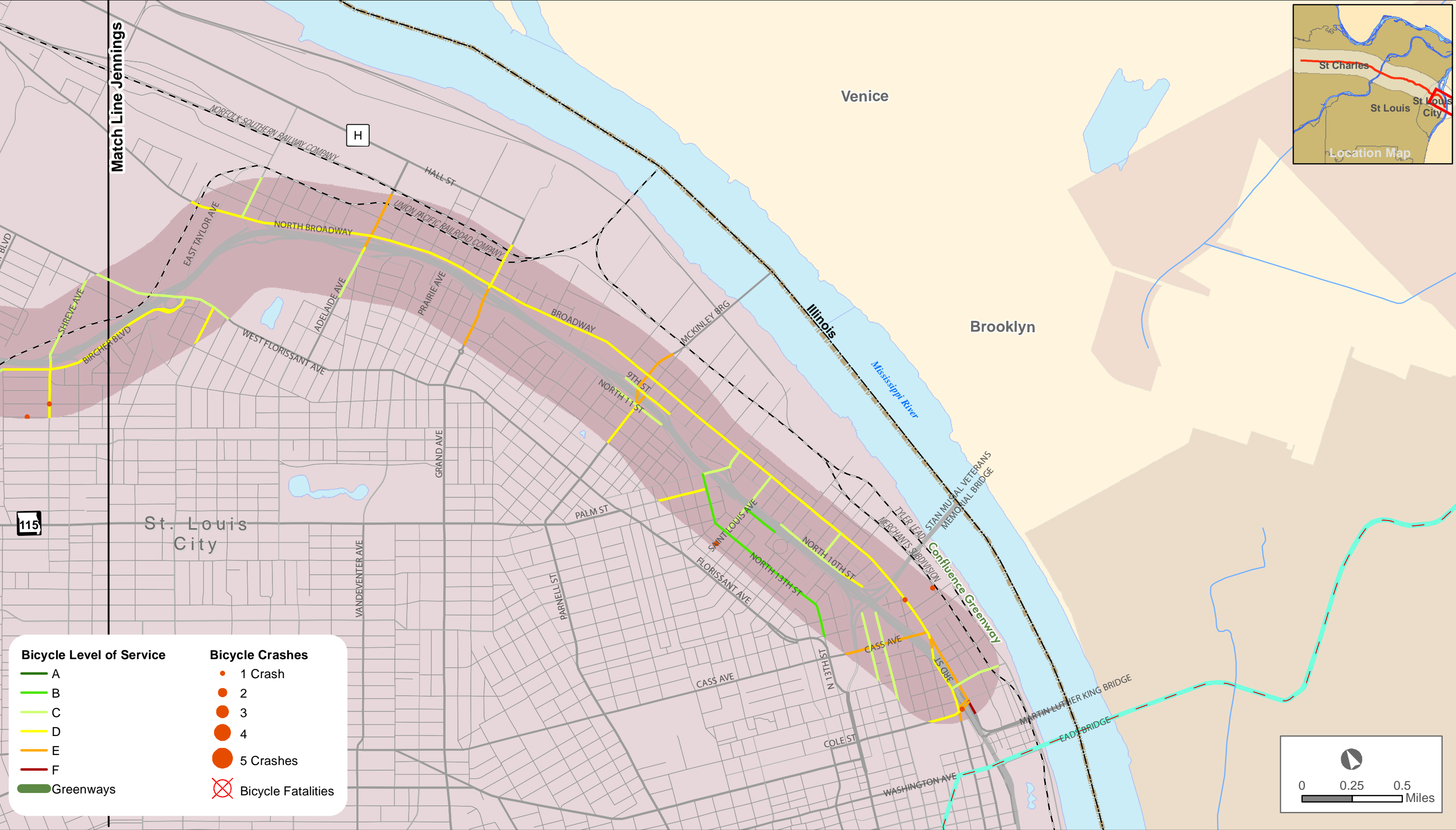
# Bicycle Level of Service | Figure 2-18



1-70 PEL STUDY-JENNINGS



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG

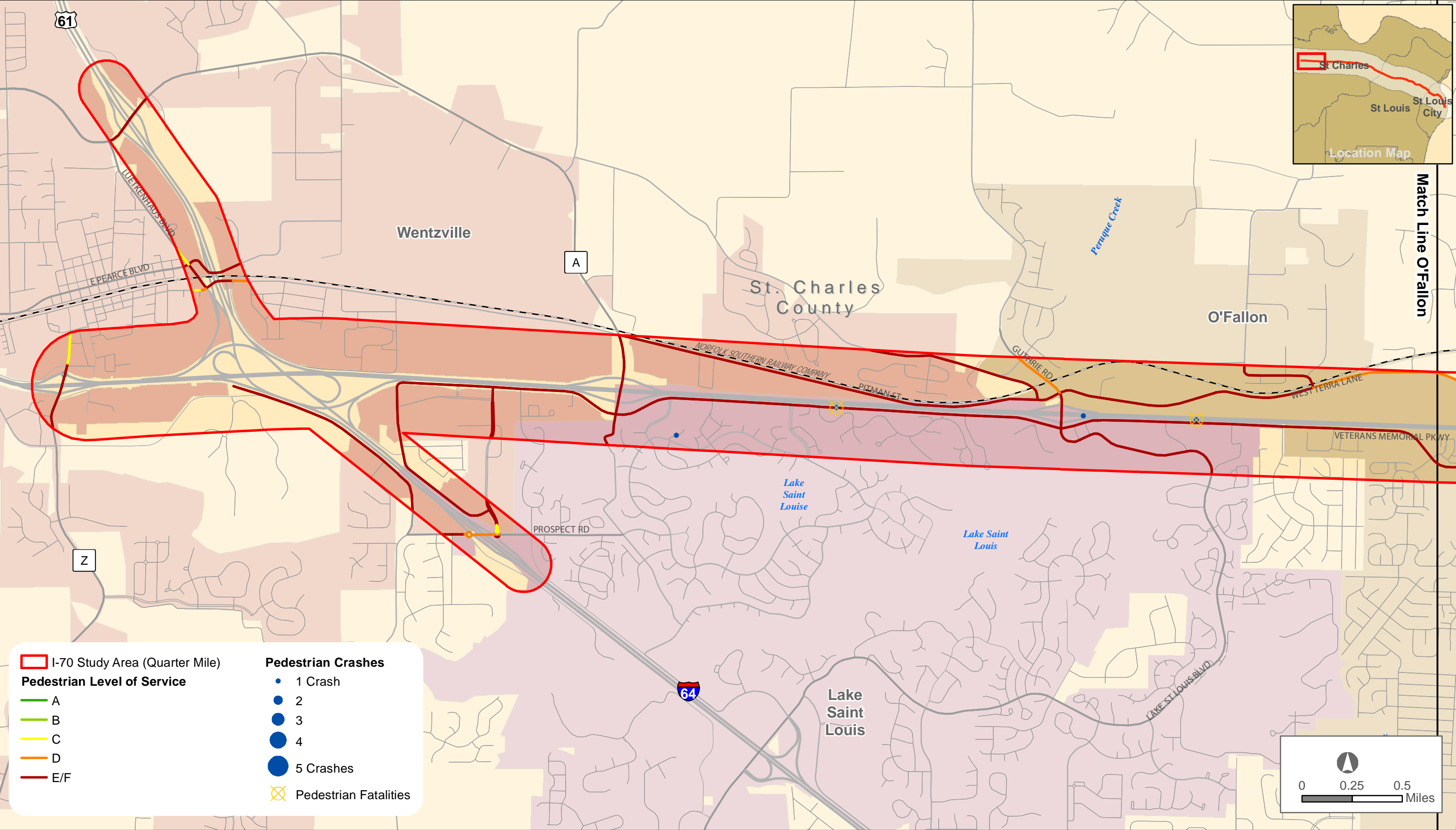


1-70 PEL STUDY- ST. LOUIS CITY



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG

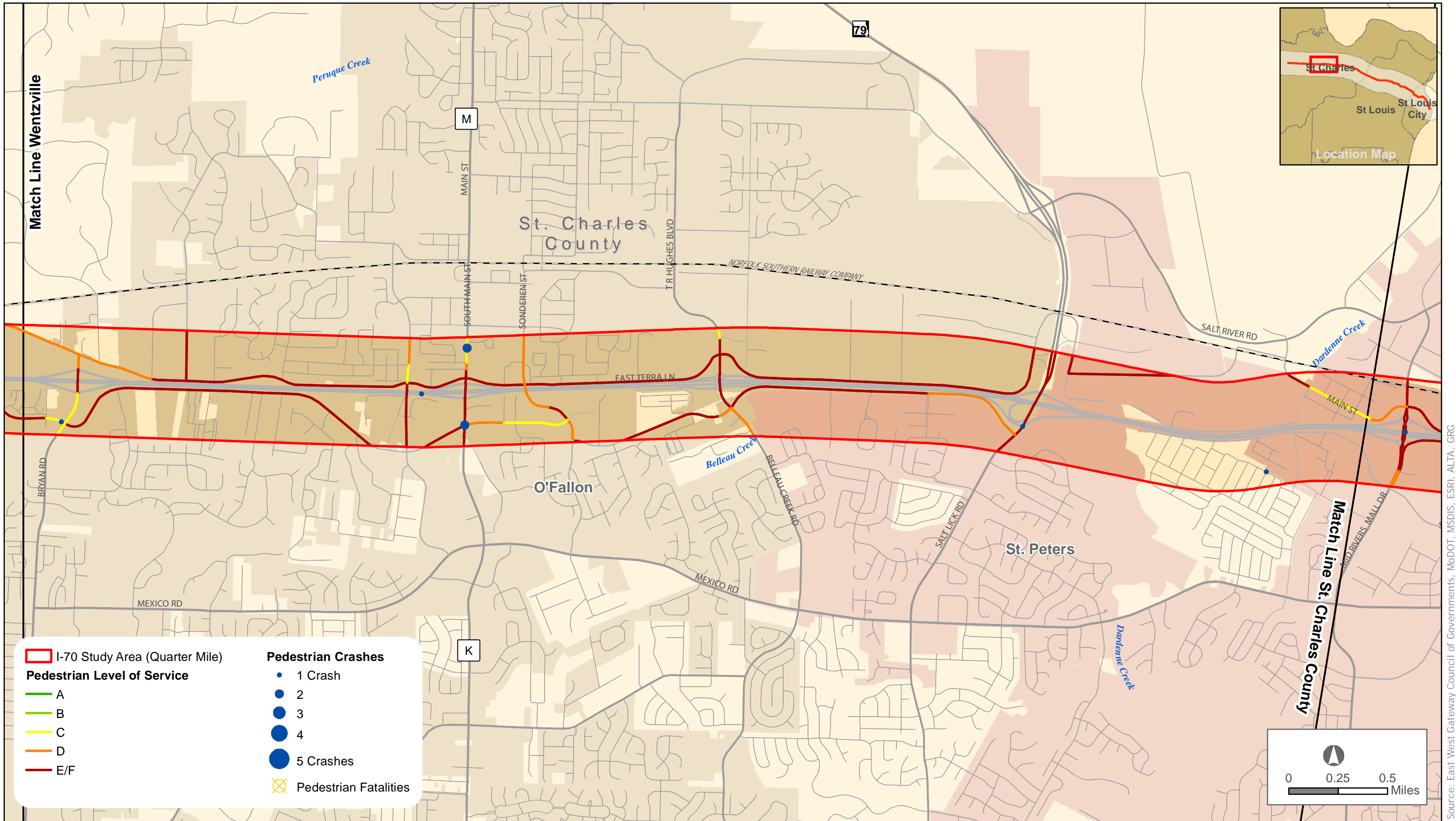




1-70 PEL STUDY-WENTZVILLE



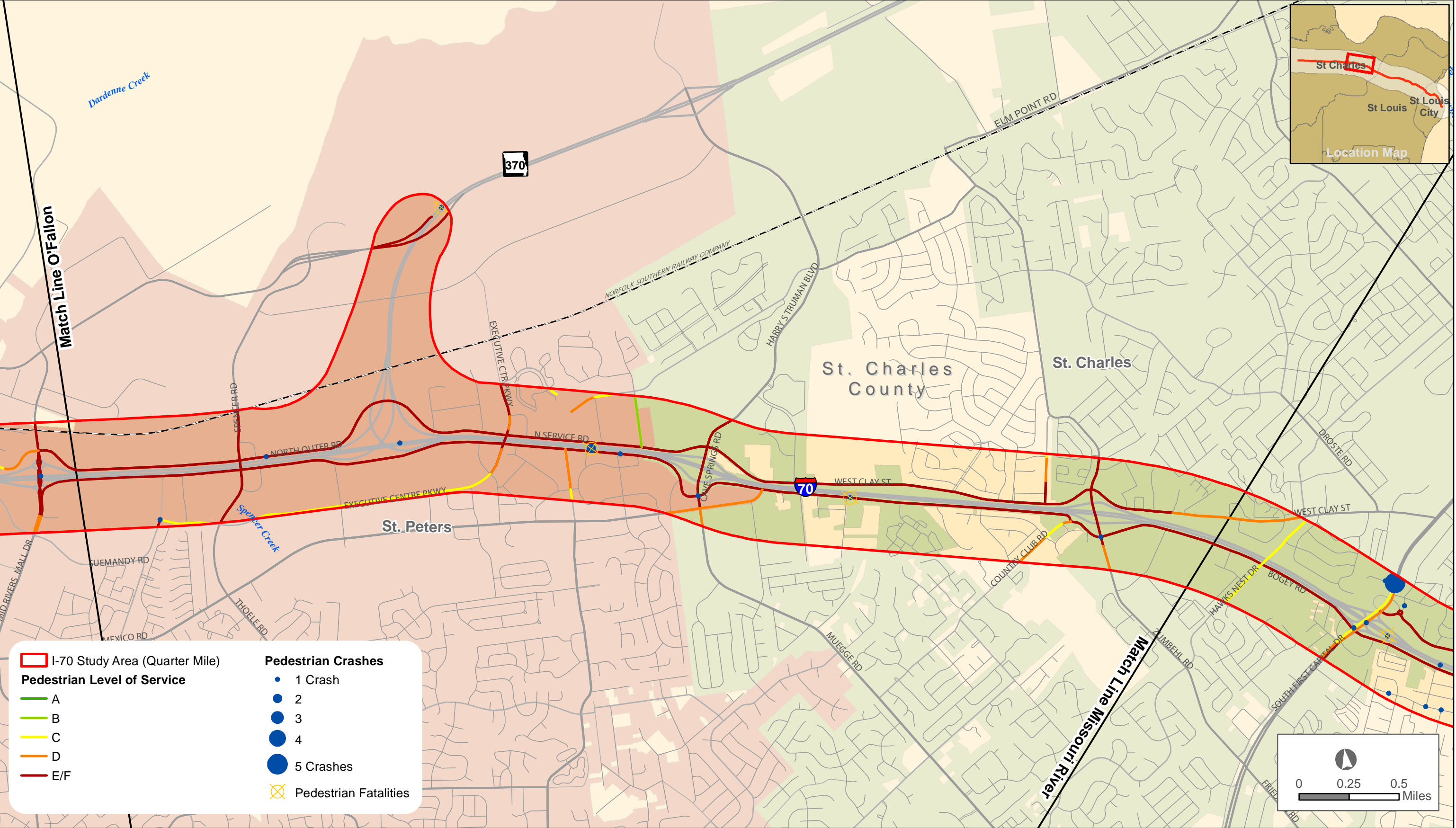
Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG



1-70 PEL STUDY- O'FALLON

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG





1-70 PEL STUDY- ST. CHARLES COUNTY



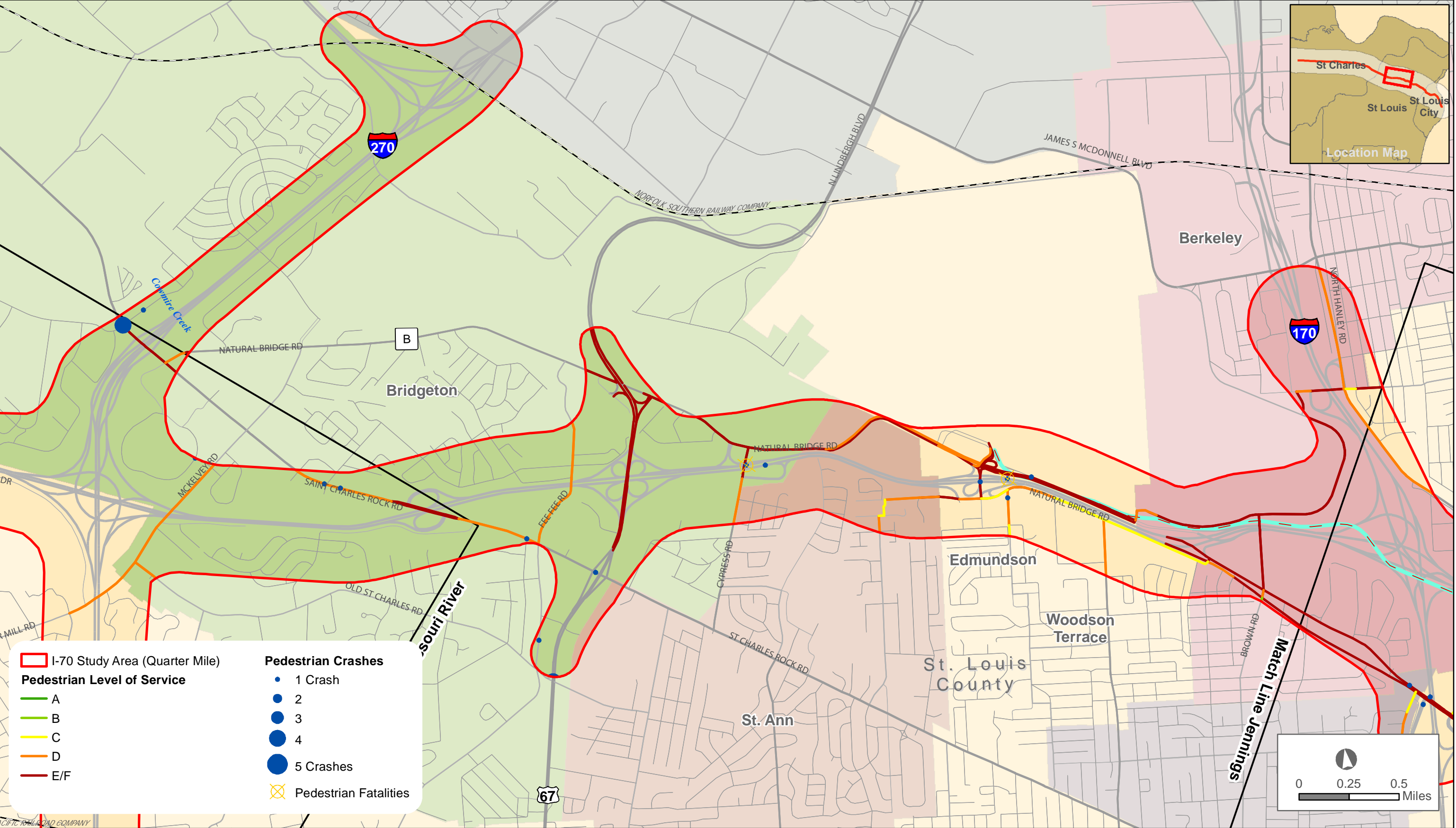
Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG



1-70 PEL STUDY- MISSOURI RIVER

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG

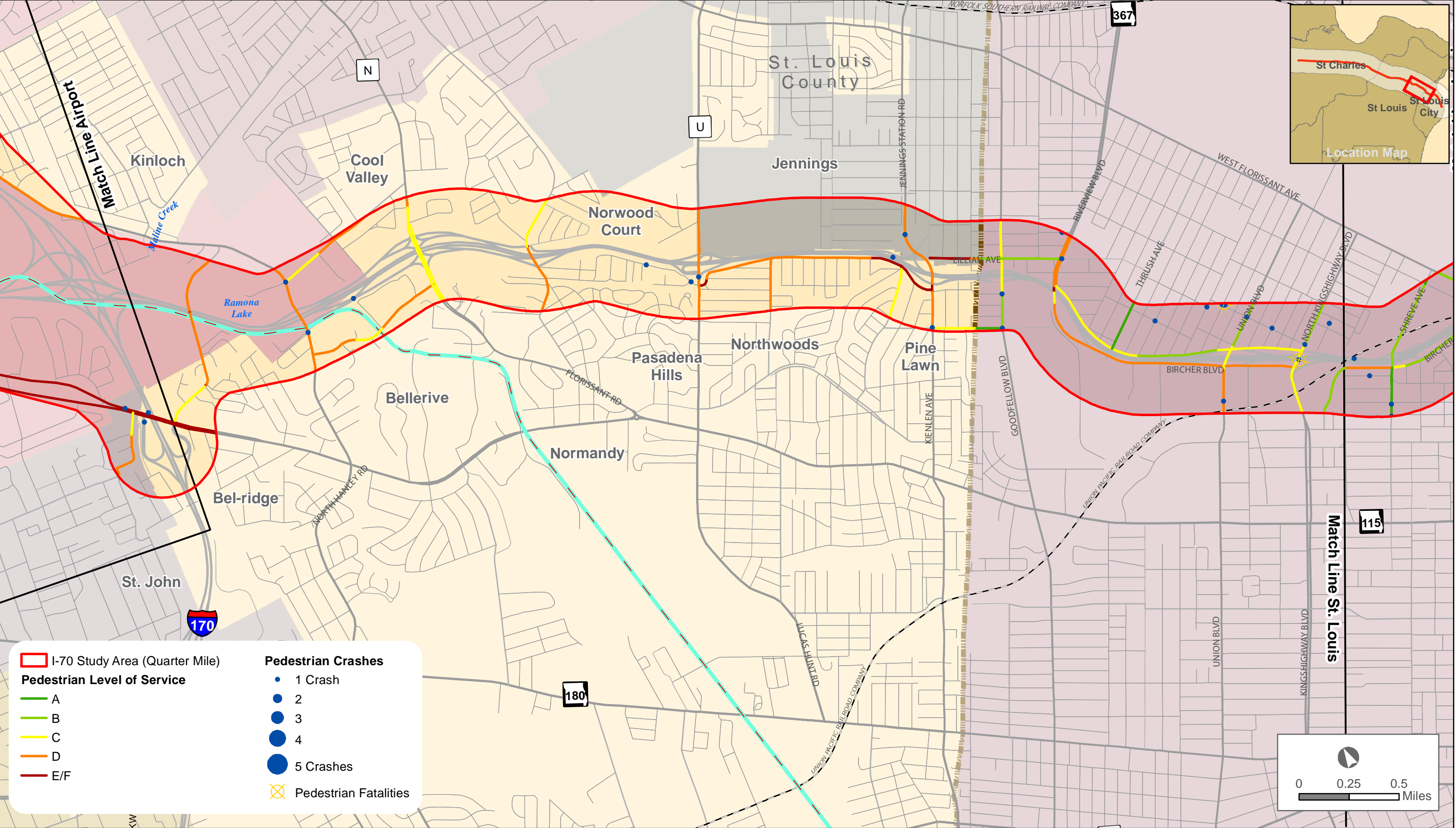




1-70 PEL STUDY-AIRPORT



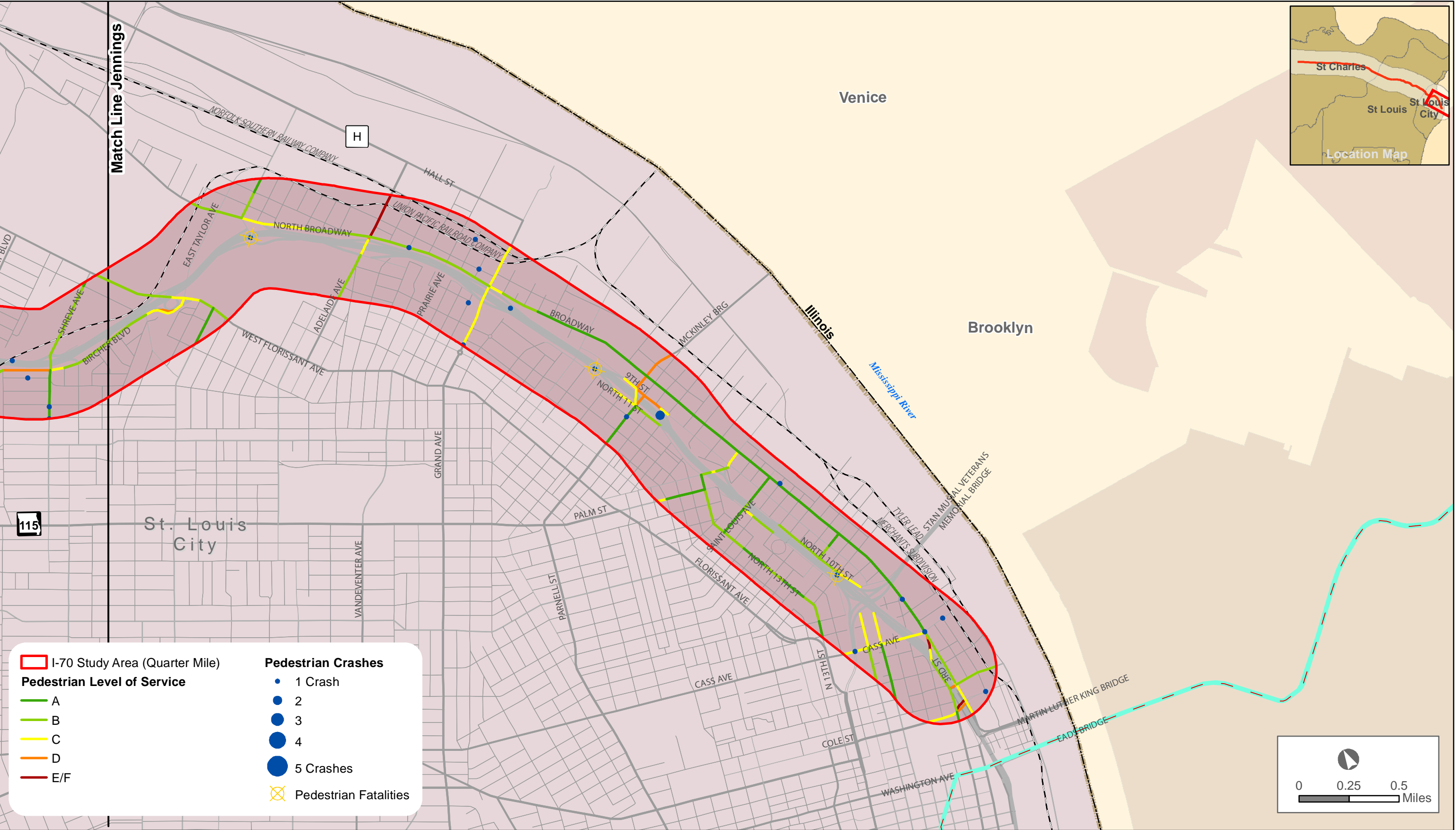
Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG



1-70 PEL STUDY-JENNINGS

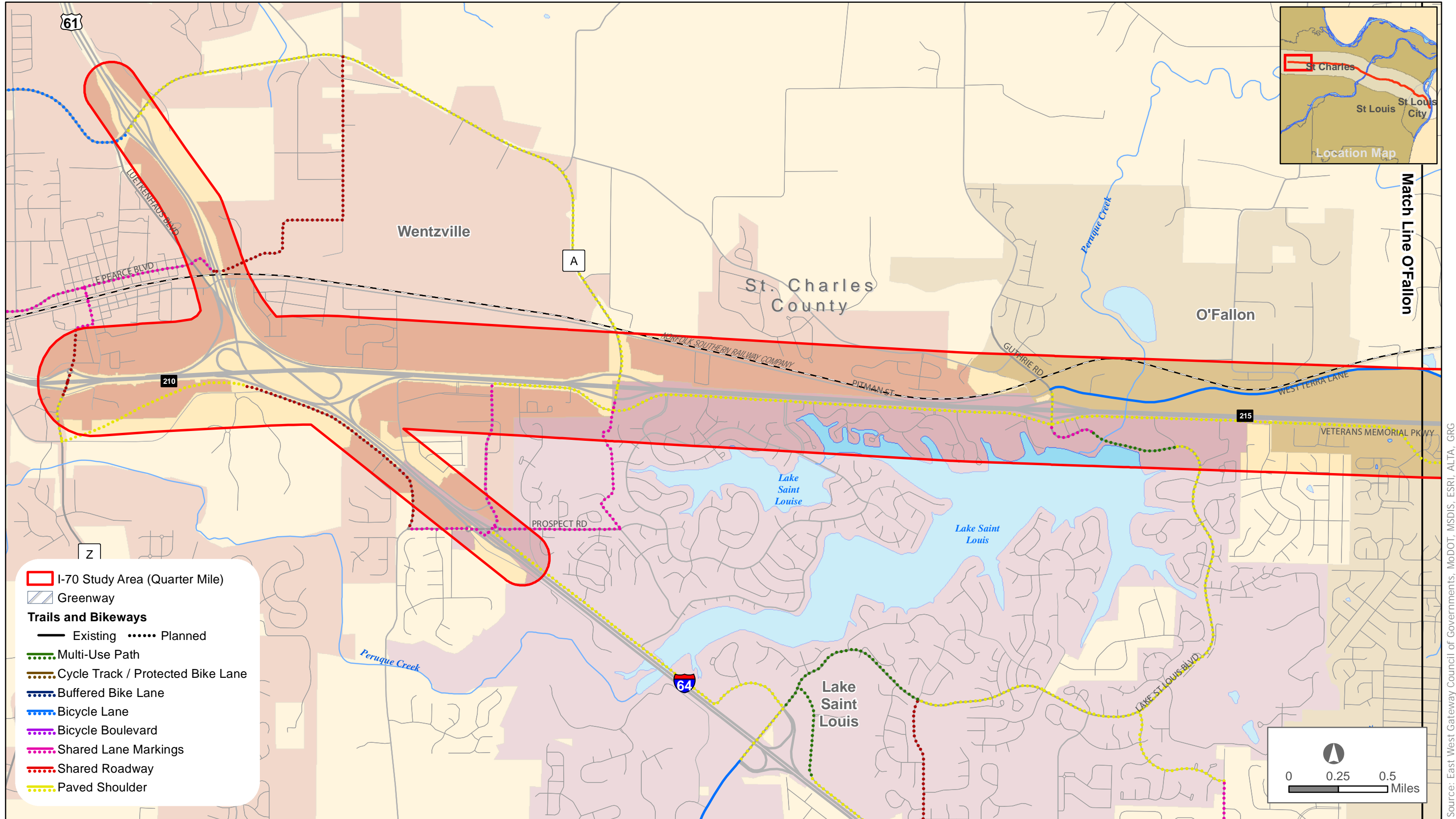


Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG



I-70 PEL STUDY- ST. LOUIS CITY

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG



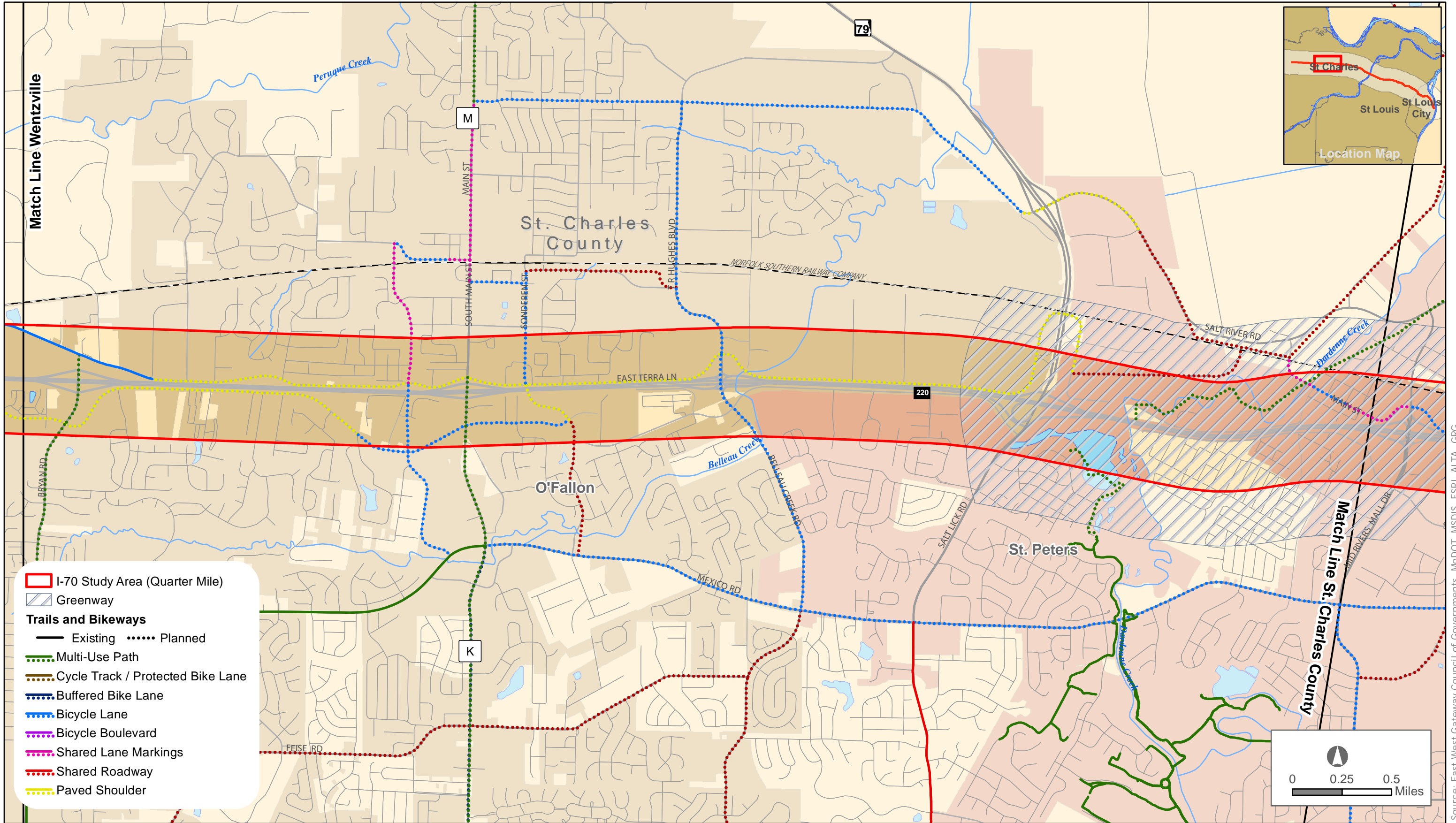
1-70 PEL STUDY- WENTZVILLE



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG



# Bike Paths and Greenways | Figure 2-20

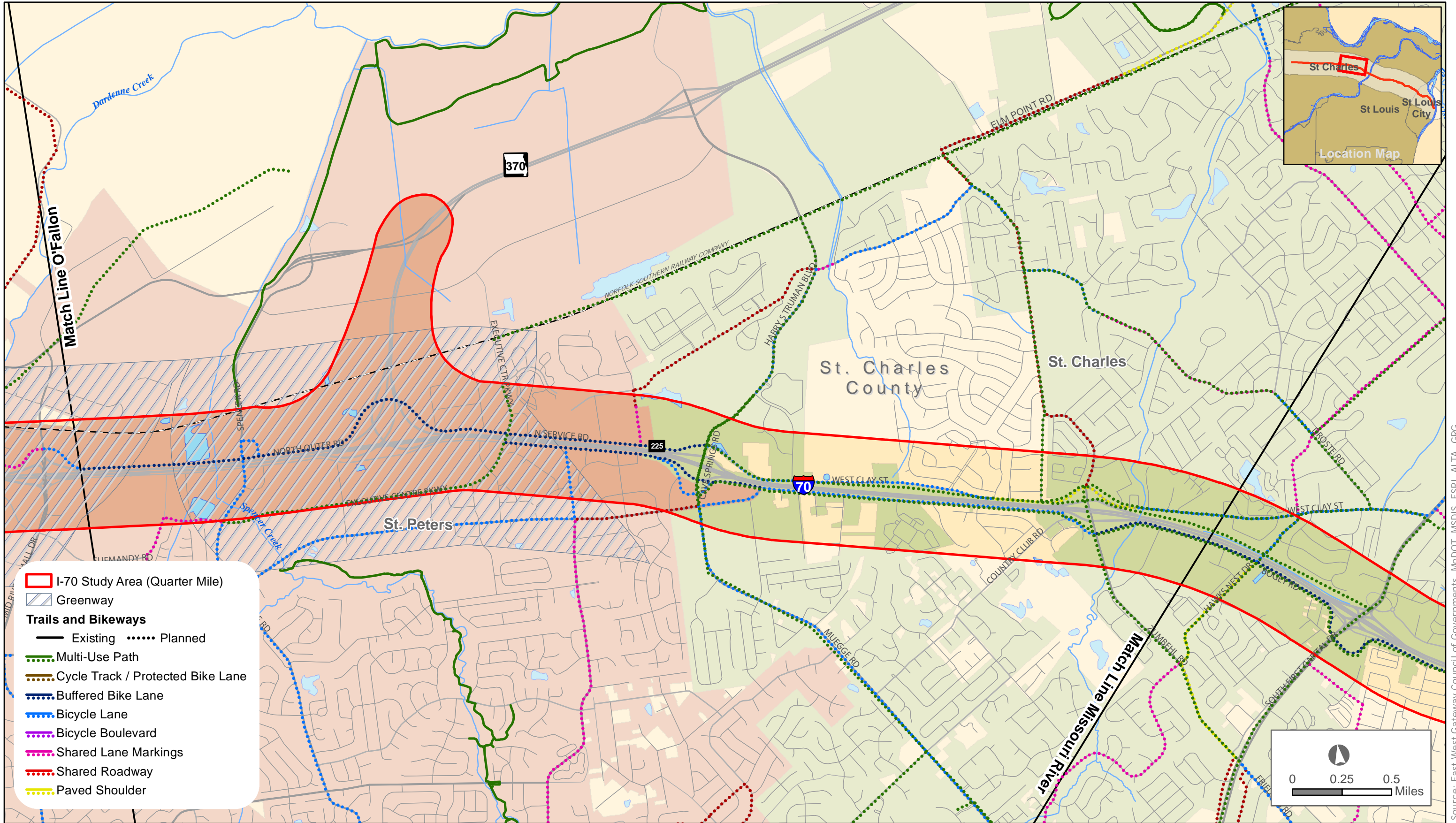


1-70 PEL STUDY- O'FALLON

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG



# Bike Paths and Greenways | Figure 2-20

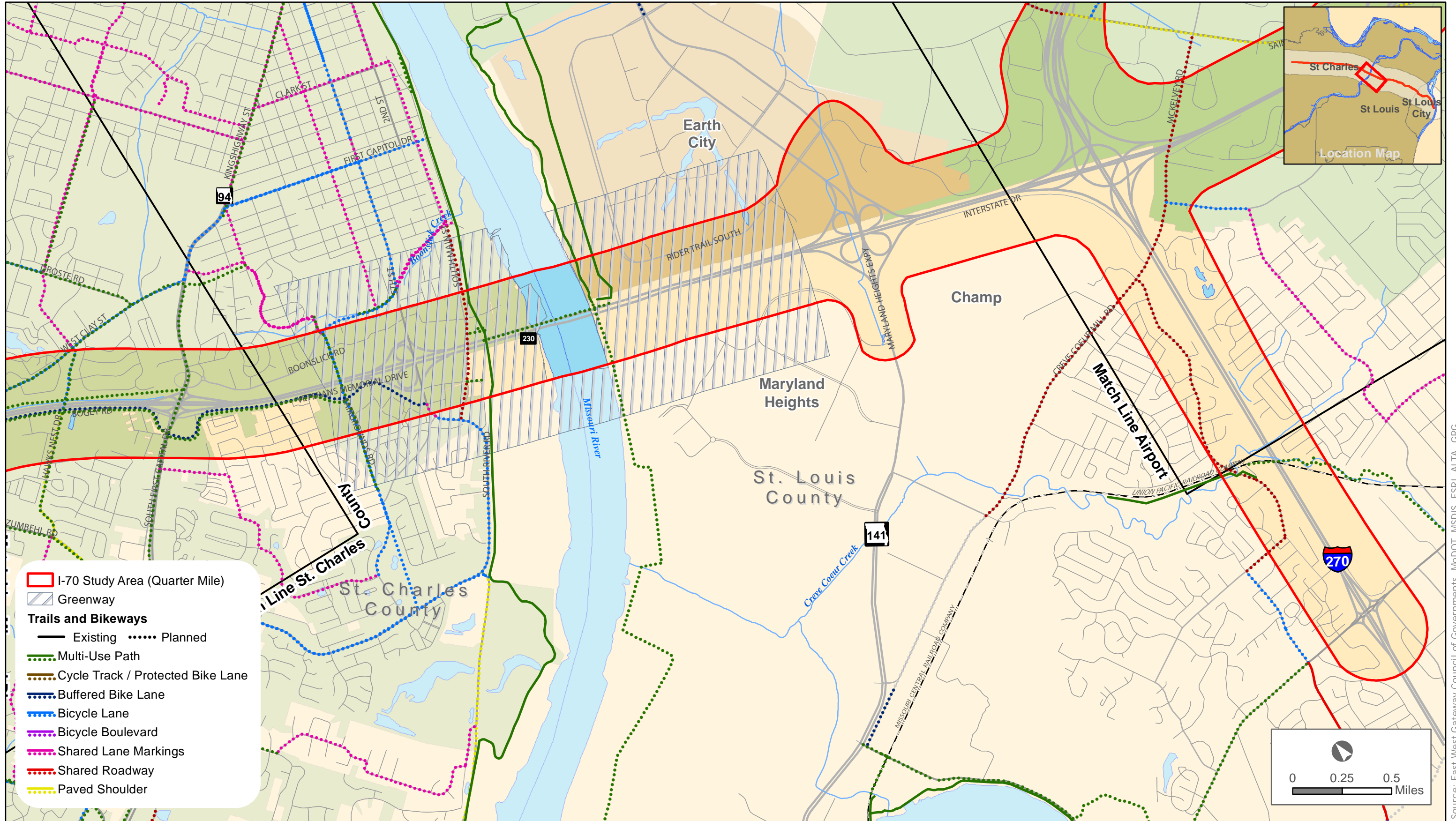


1-70 PEL STUDY- ST. CHARLES COUNTY



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG

# Bike Paths and Greenways | Figure 2-20

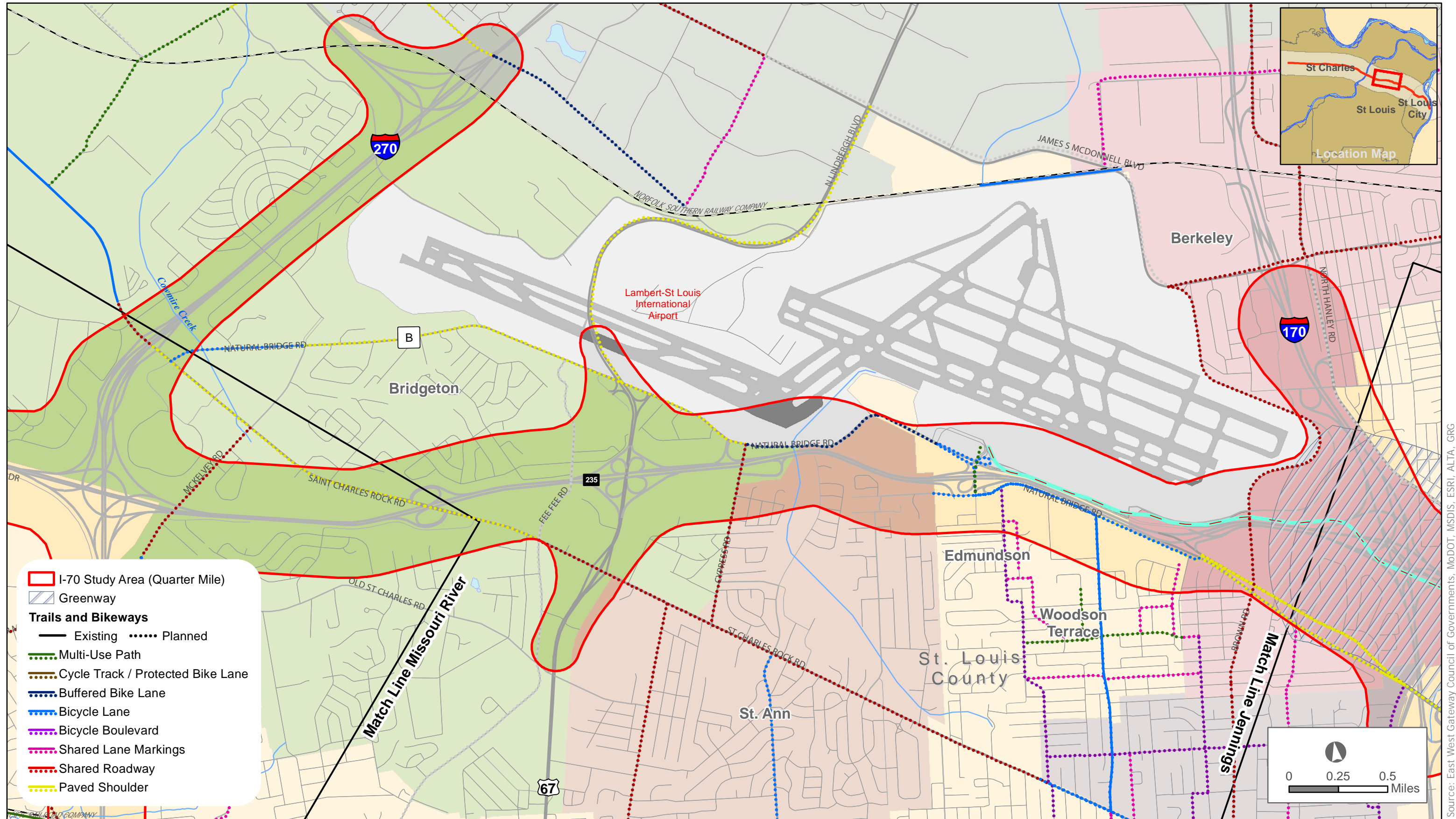


1-70 PEL STUDY- MISSOURI RIVER



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG

# Bike Paths and Greenways | Figure 2-20

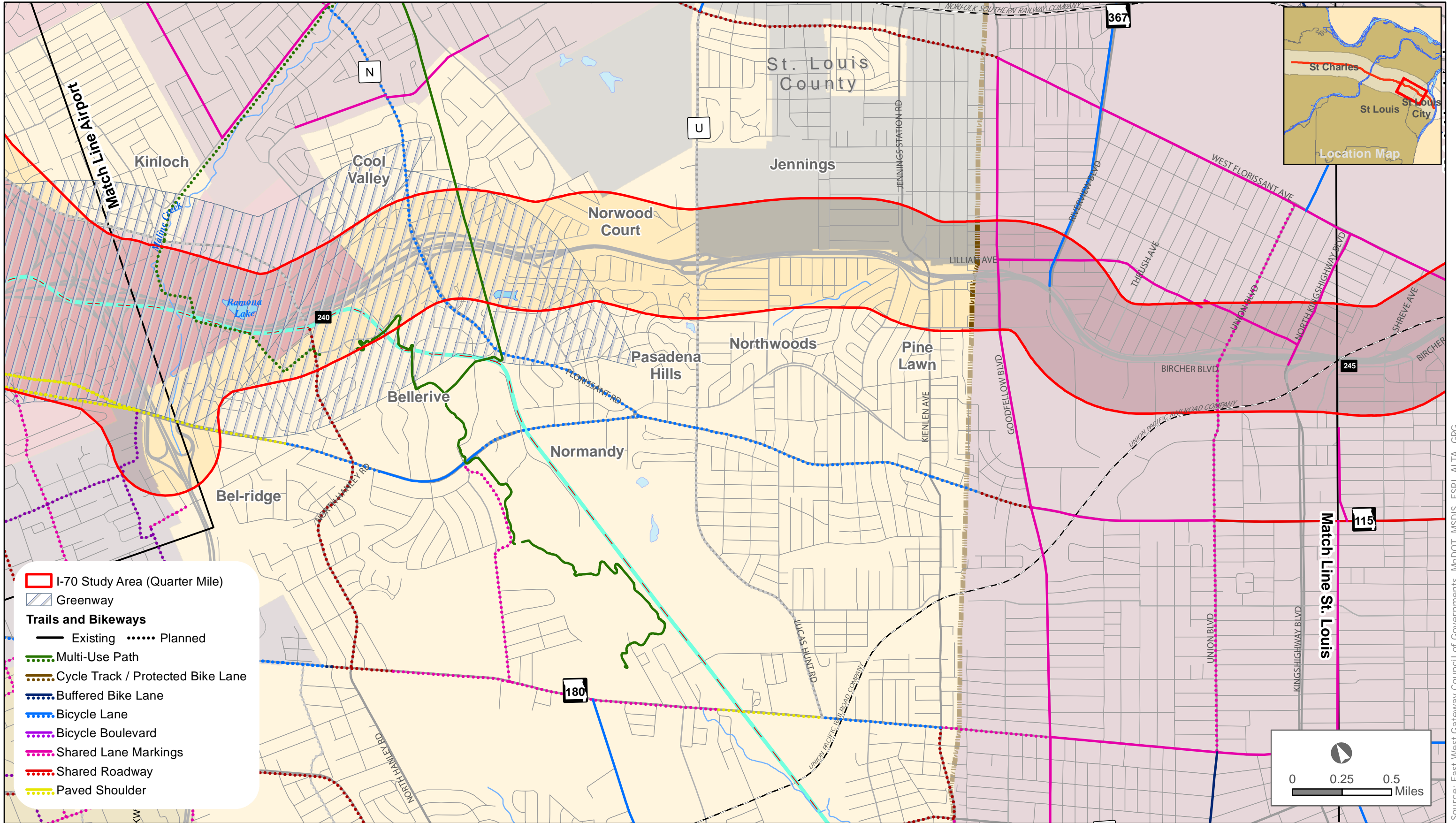


1-70 PEL STUDY-AIRPORT

Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG



# Bike Paths and Greenways | Figure 2-20

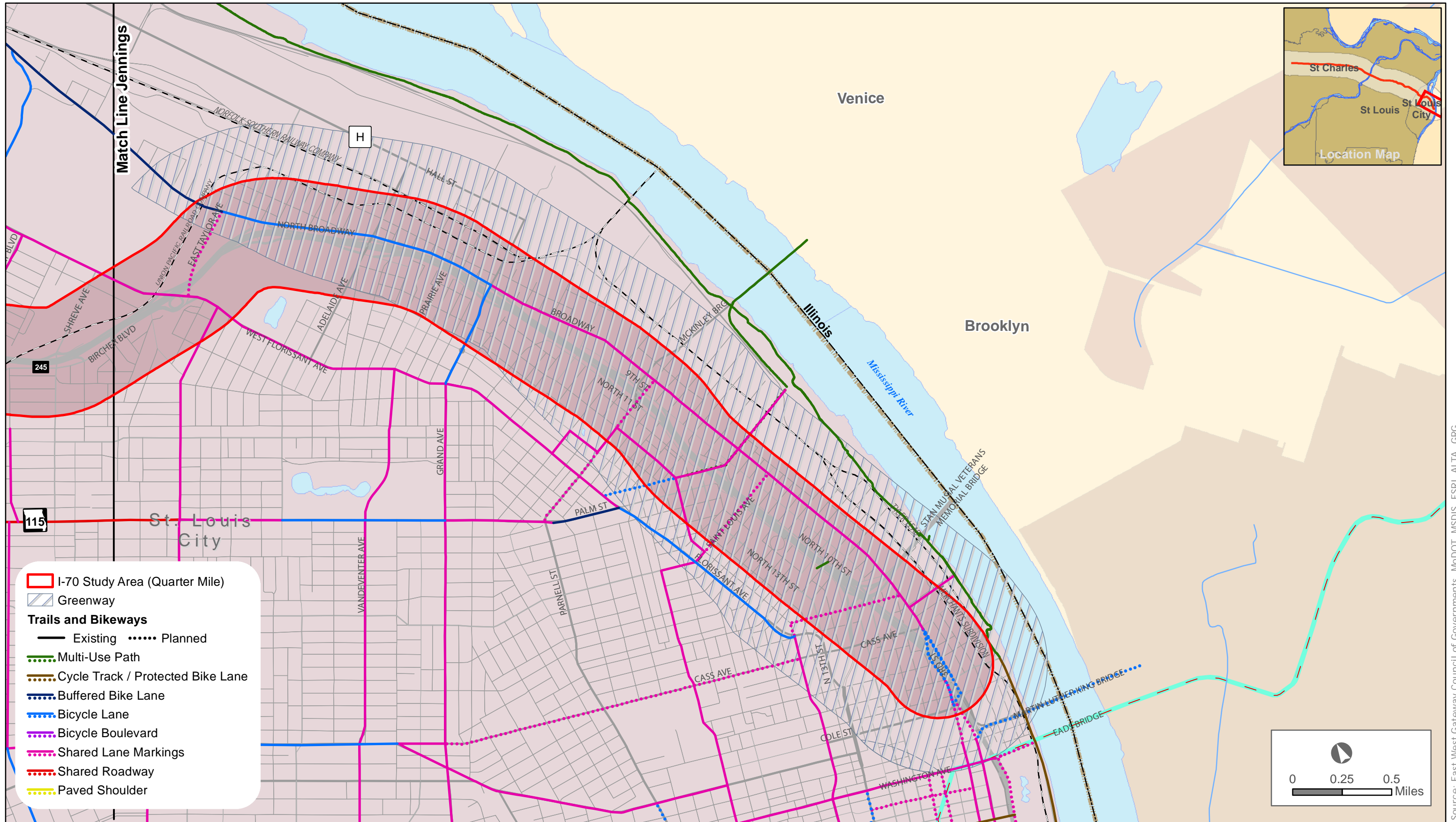


1-70 PEL STUDY-JENNINGS



Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG

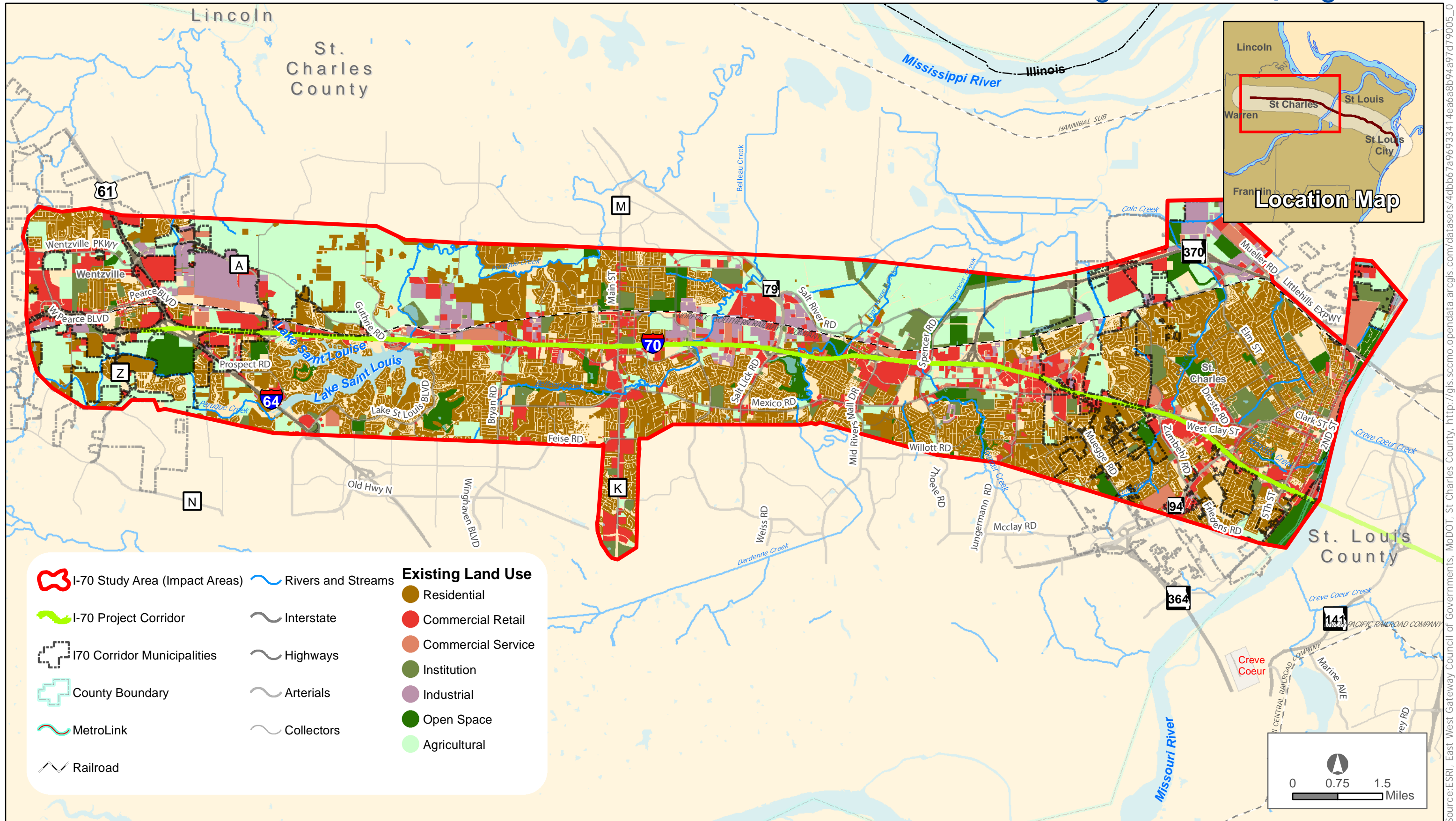
# Bike Paths and Greenways | Figure 2-20

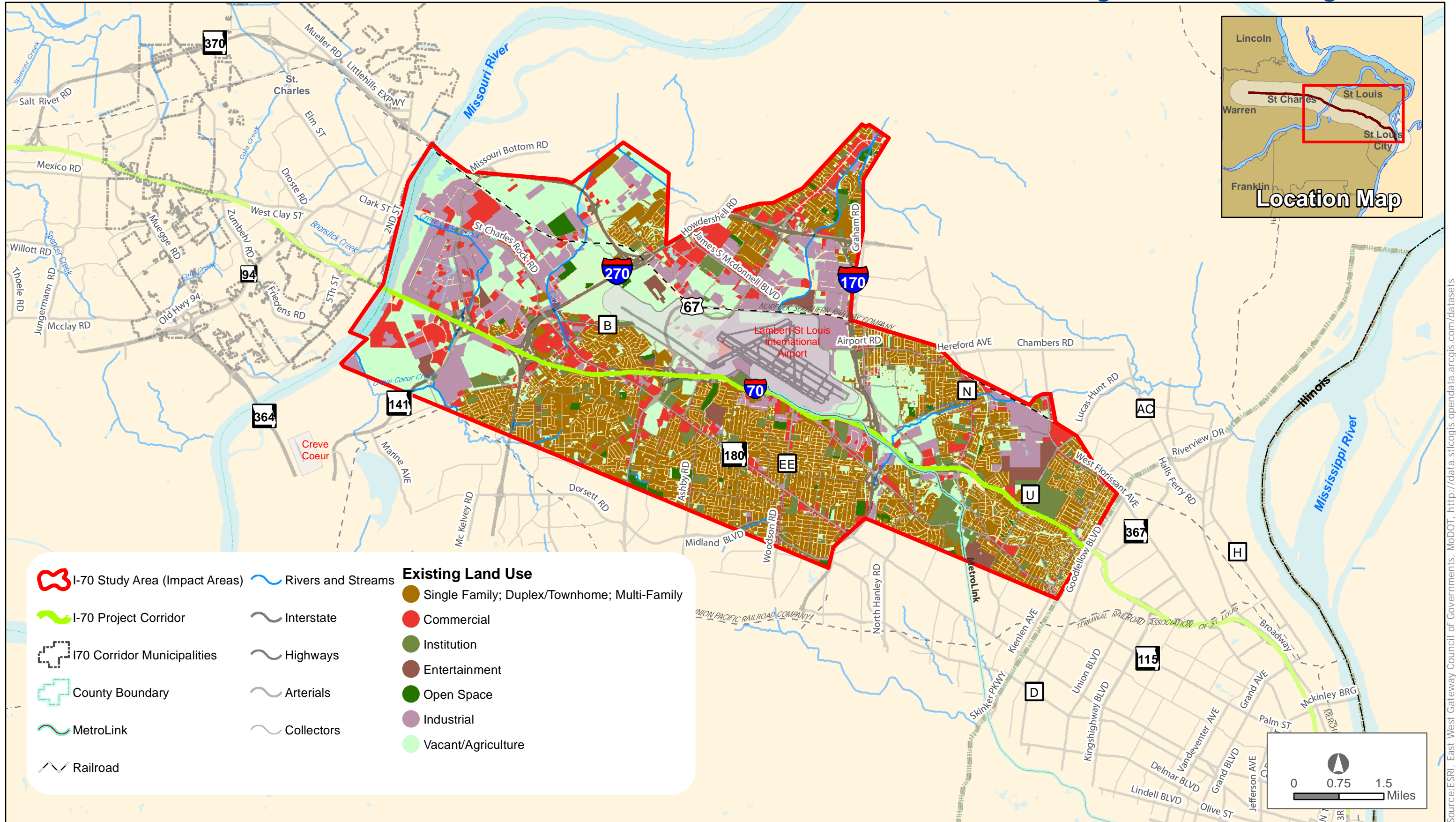


1-70 PEL STUDY- ST. LOUIS CITY

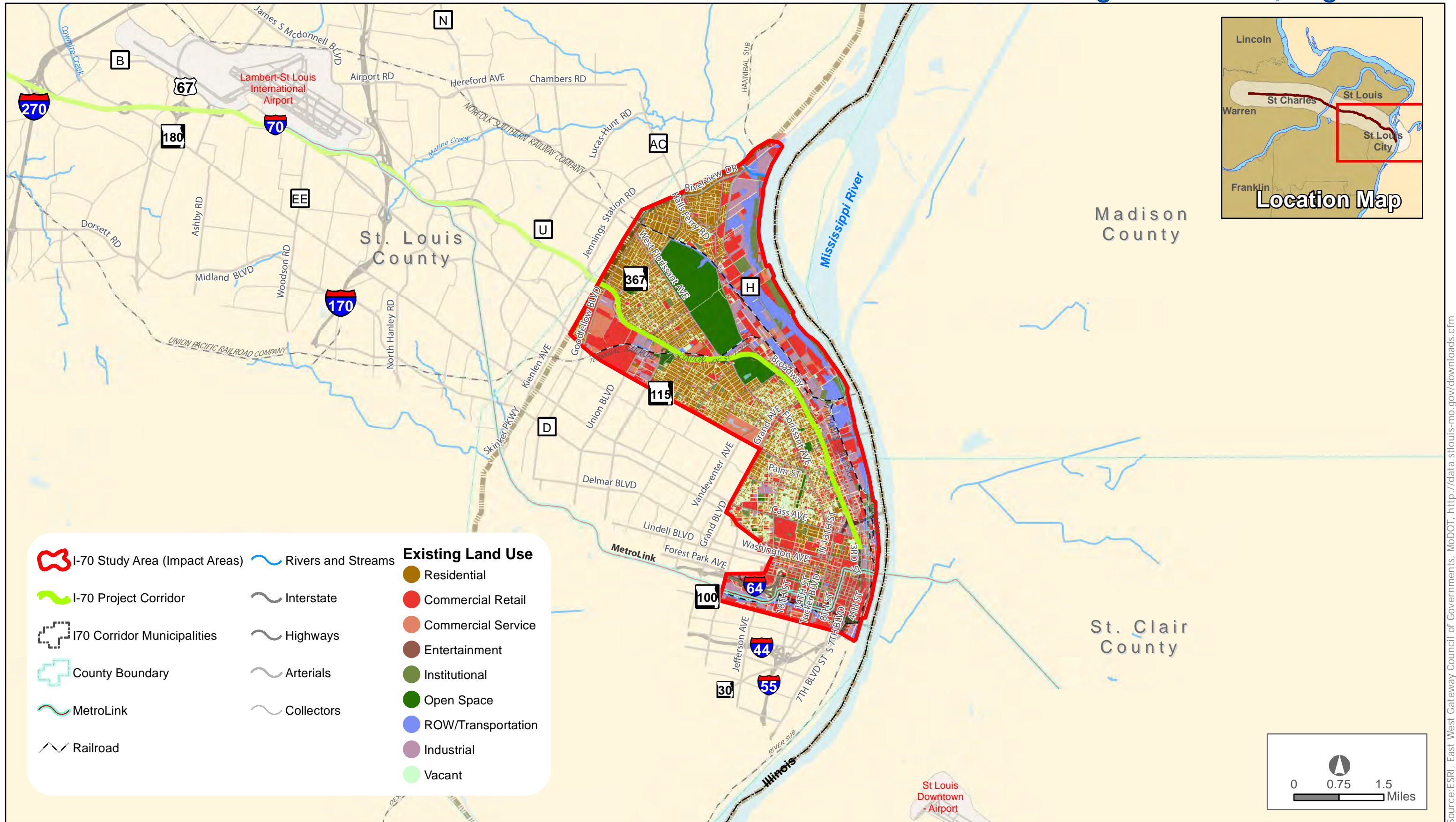
Source: East West Gateway Council of Governments, MoDOT, MSDIS, ESRI, ALTA, GRG







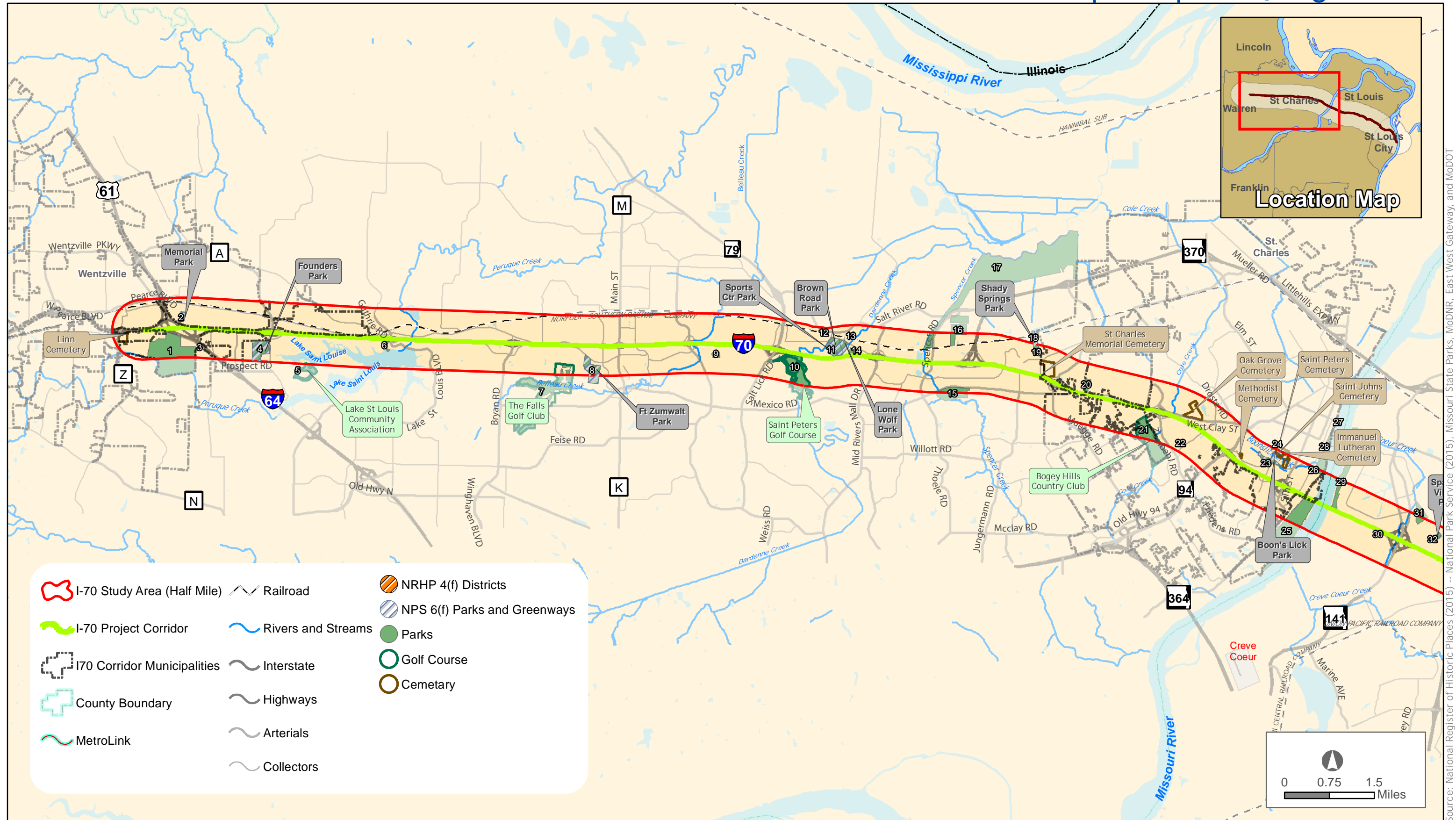




I-70 PEL STUDY - ST. LOUIS CITY

Source: ESRI, East West Gateway Council of Governments, MoDOT, <http://data.stlouis-mo.gov/downloads.cfm>

# Parks and Open Space | Figure 3-3



Source: National Register of Historic Places (2015) -- National Park Service (2015), Missouri State Parks, MoDNR, East West Gateway, and MoDOT

# Parks and Open Space | Figure 3-3

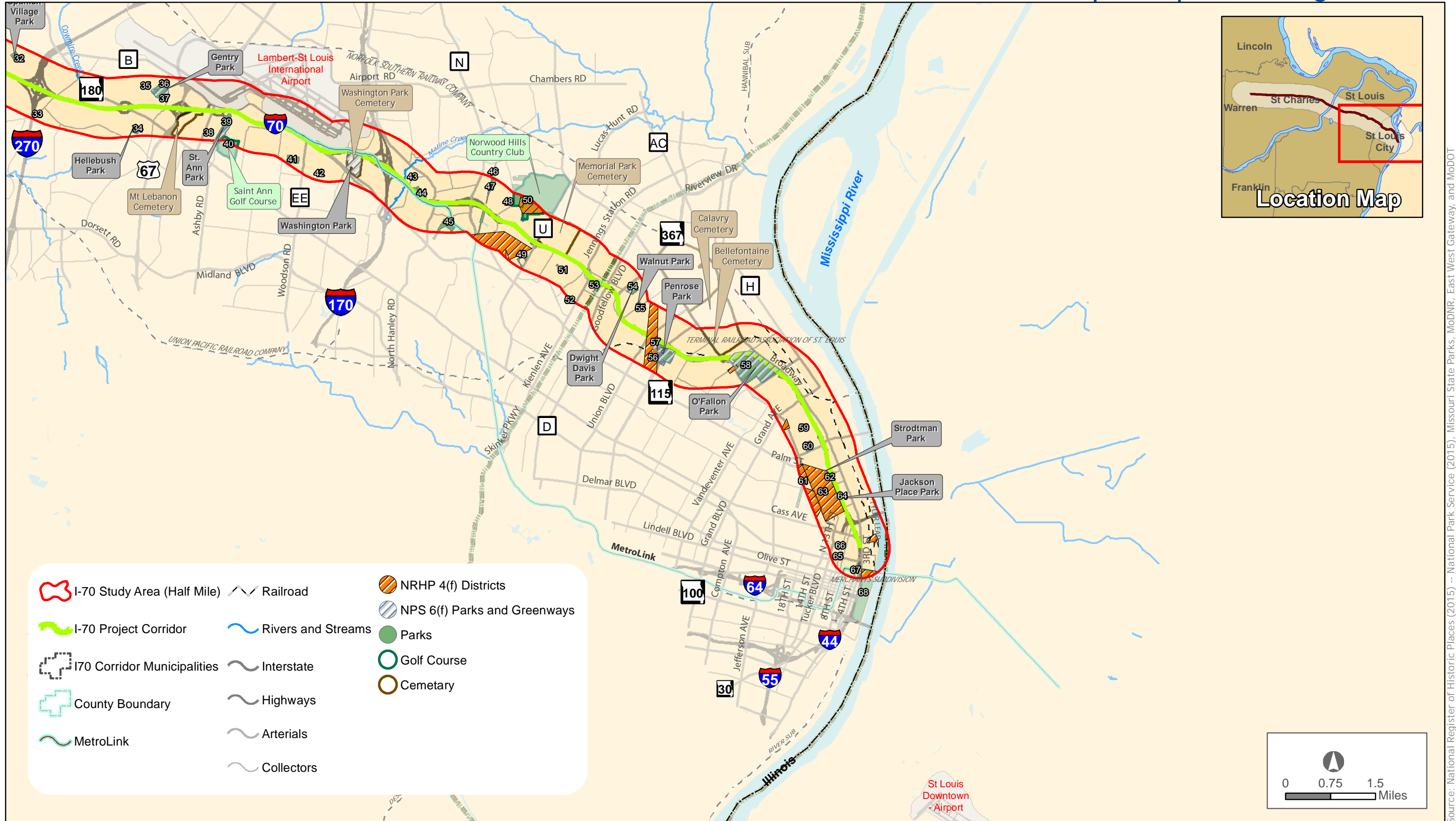


I-70 PEL STUDY - ST. LOUIS COUNTY



Source: National Register of Historic Places (2015) -- National Park Service (2015); Missouri State Parks, MoDNR; East West Gateway, and MoDOT

# Parks and Open Space | Figure 3-3

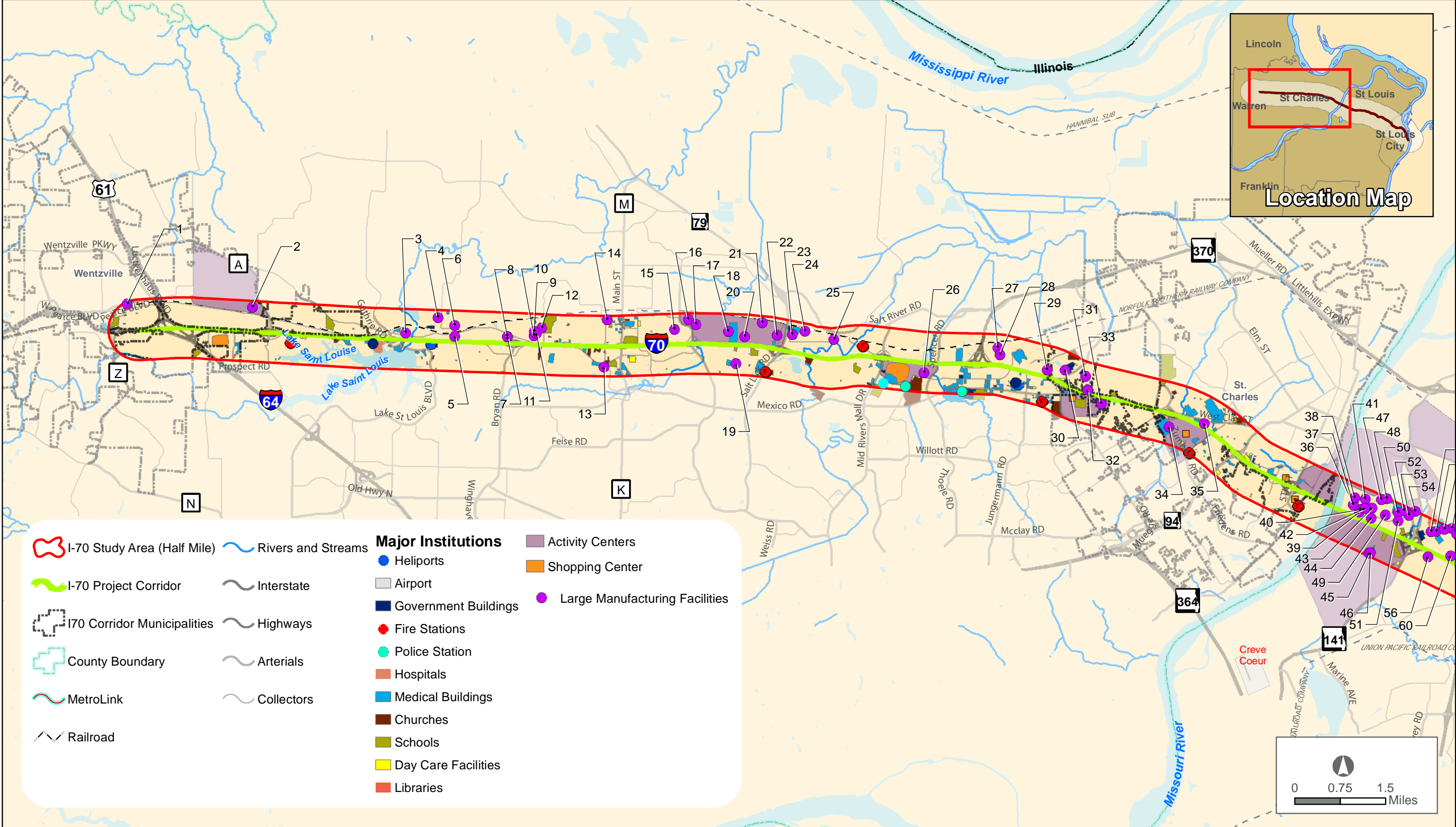


I-70 PEL STUDY - ST. LOUIS CITY

Source: National Register of Historic Places (2015) -- National Park Service (2015); Missouri State Parks, MoDNR, East West Gateway, and MoDOT



# Public/Large Commercial Facilities | Figure 3-4



I-70 PEL STUDY - ST. CHARLES COUNTY



Source: East West Gateway Council of Governments, Missouri Department of Health and Senior Services, ESRI Business Analyst, Missouri State Parks, and MoDOT

# Public/Large Commercial Facilities | Figure 3-4

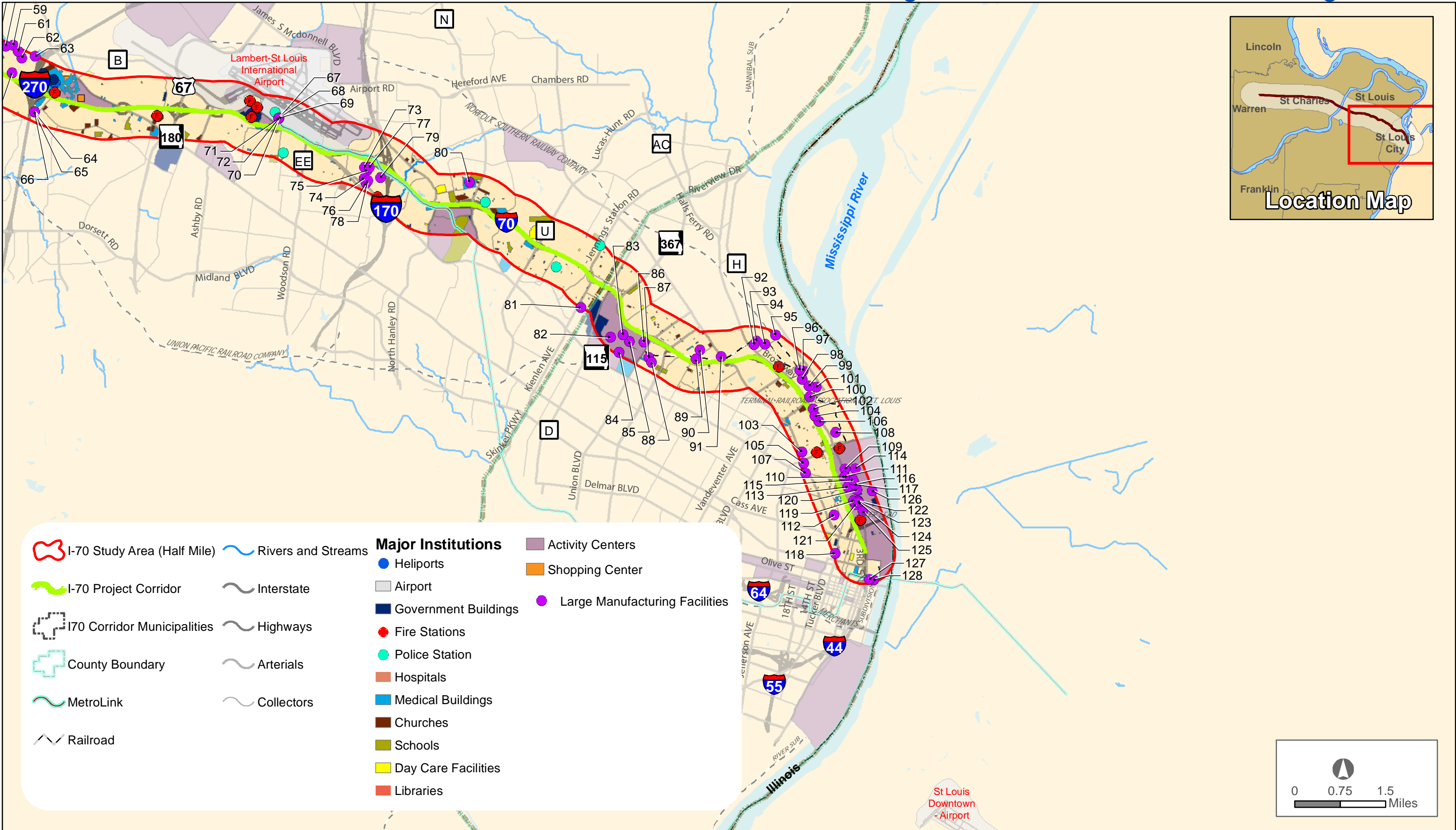


I-70 PEL STUDY - ST. LOUIS COUNTY



Source: East West Gateway Council of Governments, Missouri Department of Health and Senior Services, ESRI Business Analyst, Missouri State Parks, and MoDOT

# Public/Large Commercial Facilities | Figure 3-4

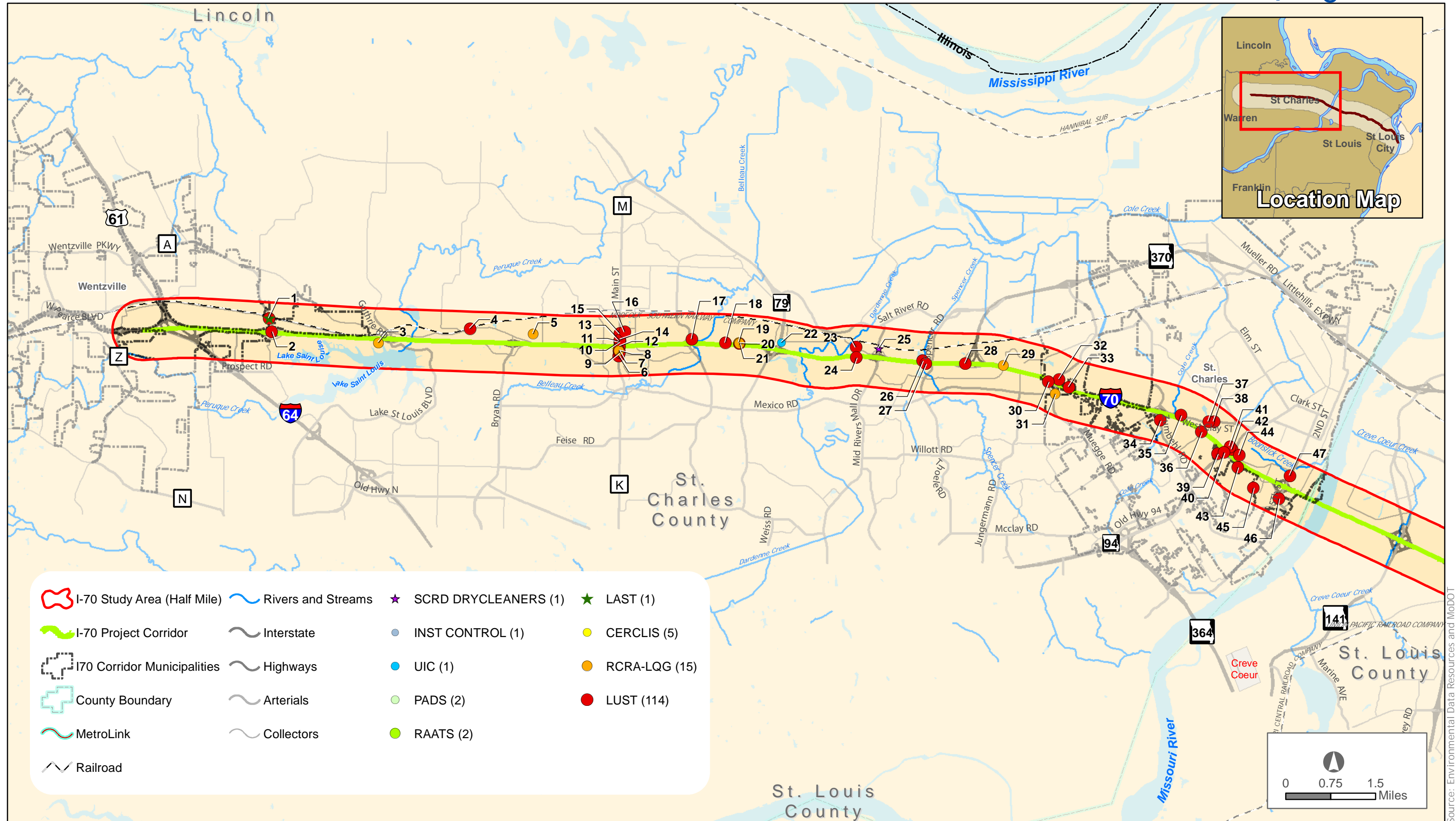


I-70 PEL STUDY - ST. LOUIS CITY



Source: East West Gateway Council of Governments, Missouri Department of Health and Senior Services, ESRI Business Analyst, Missouri State Parks, and MoDOT

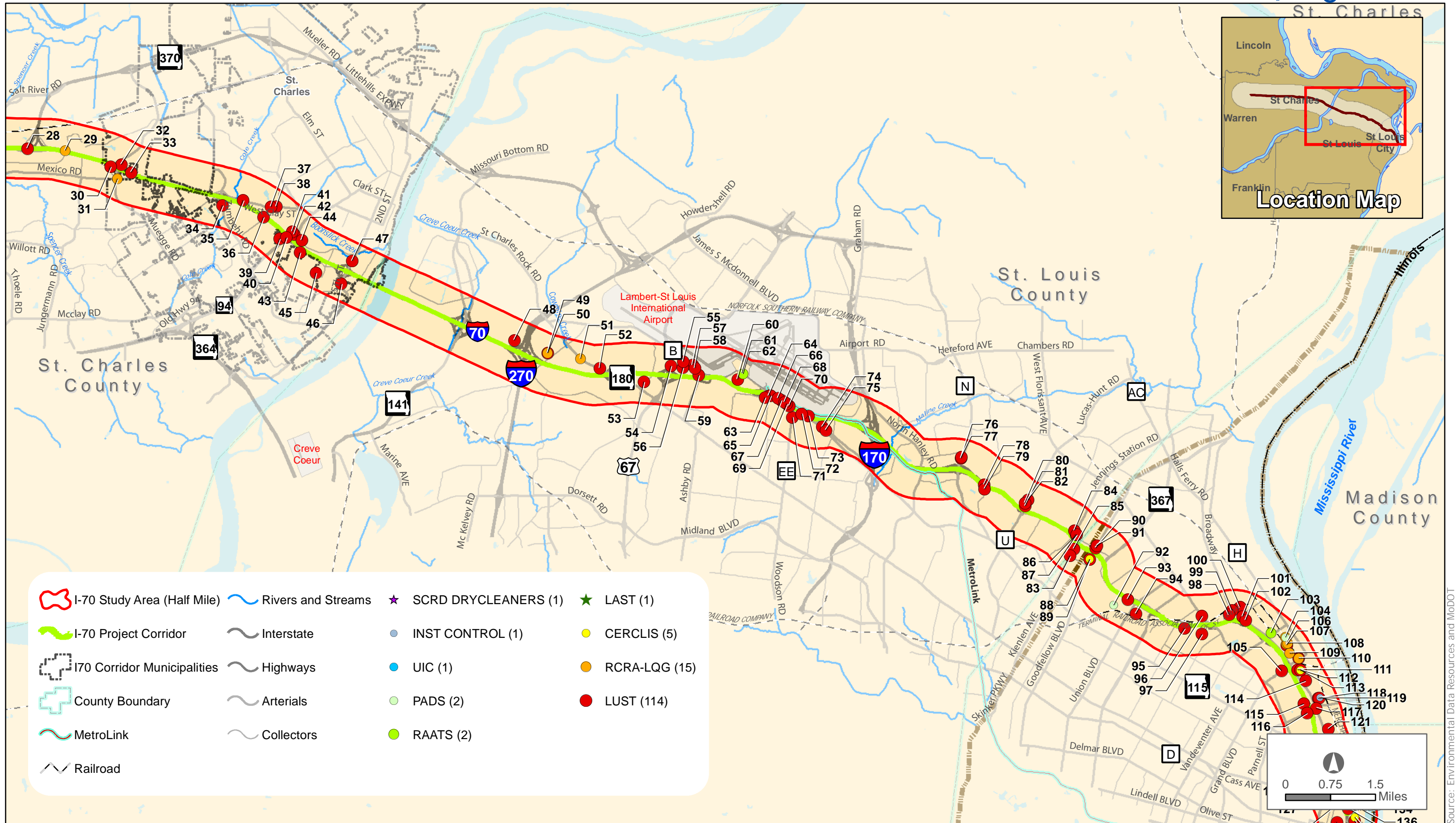
# Sites with Hazardous Substances | Figure 3-5



I-70 PEL STUDY- ST. CHARLES COUNTY



# Sites with Hazardous Substances | Figure 3-5

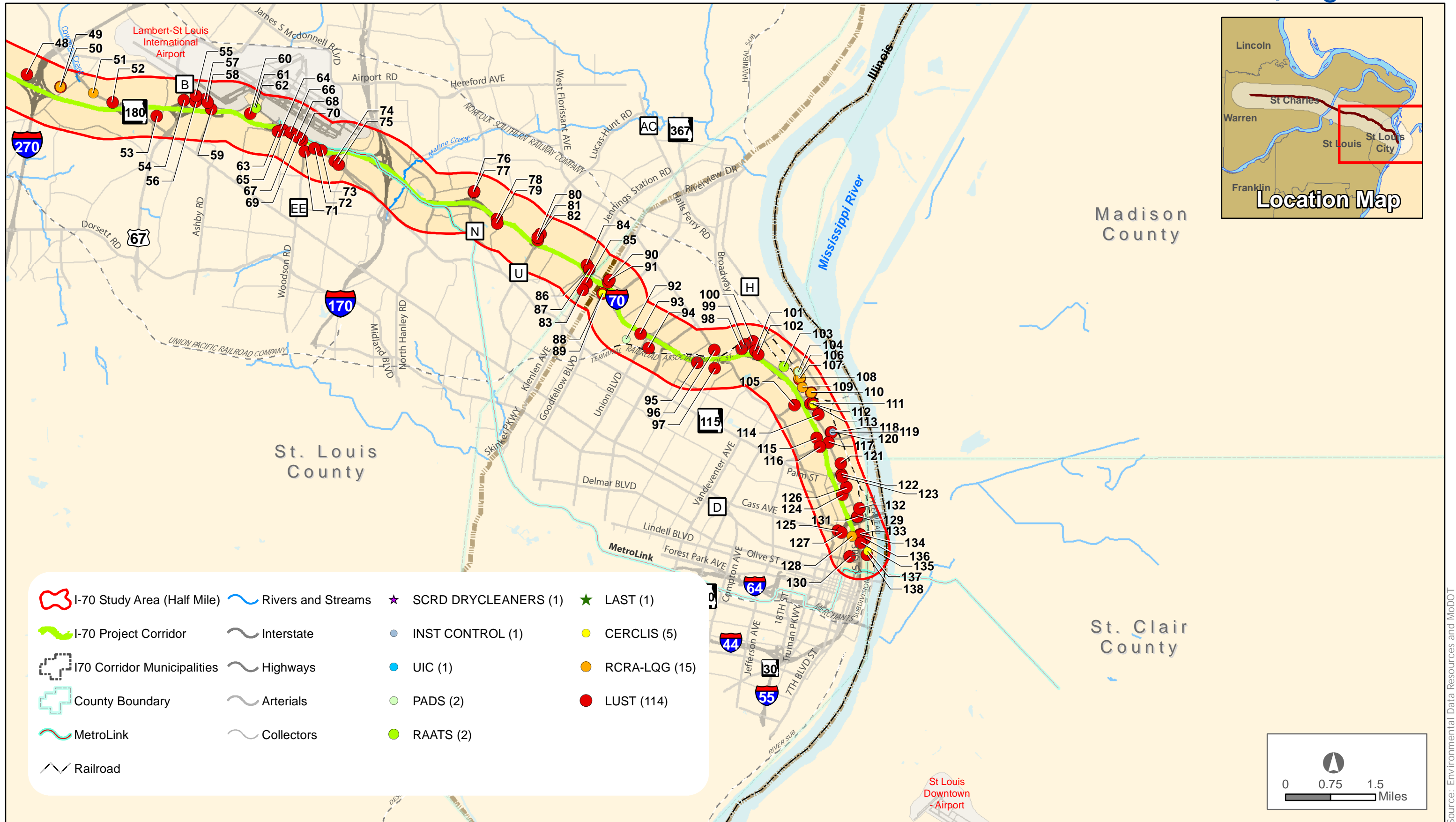


I-70 PEL STUDY- ST. LOUIS COUNTY

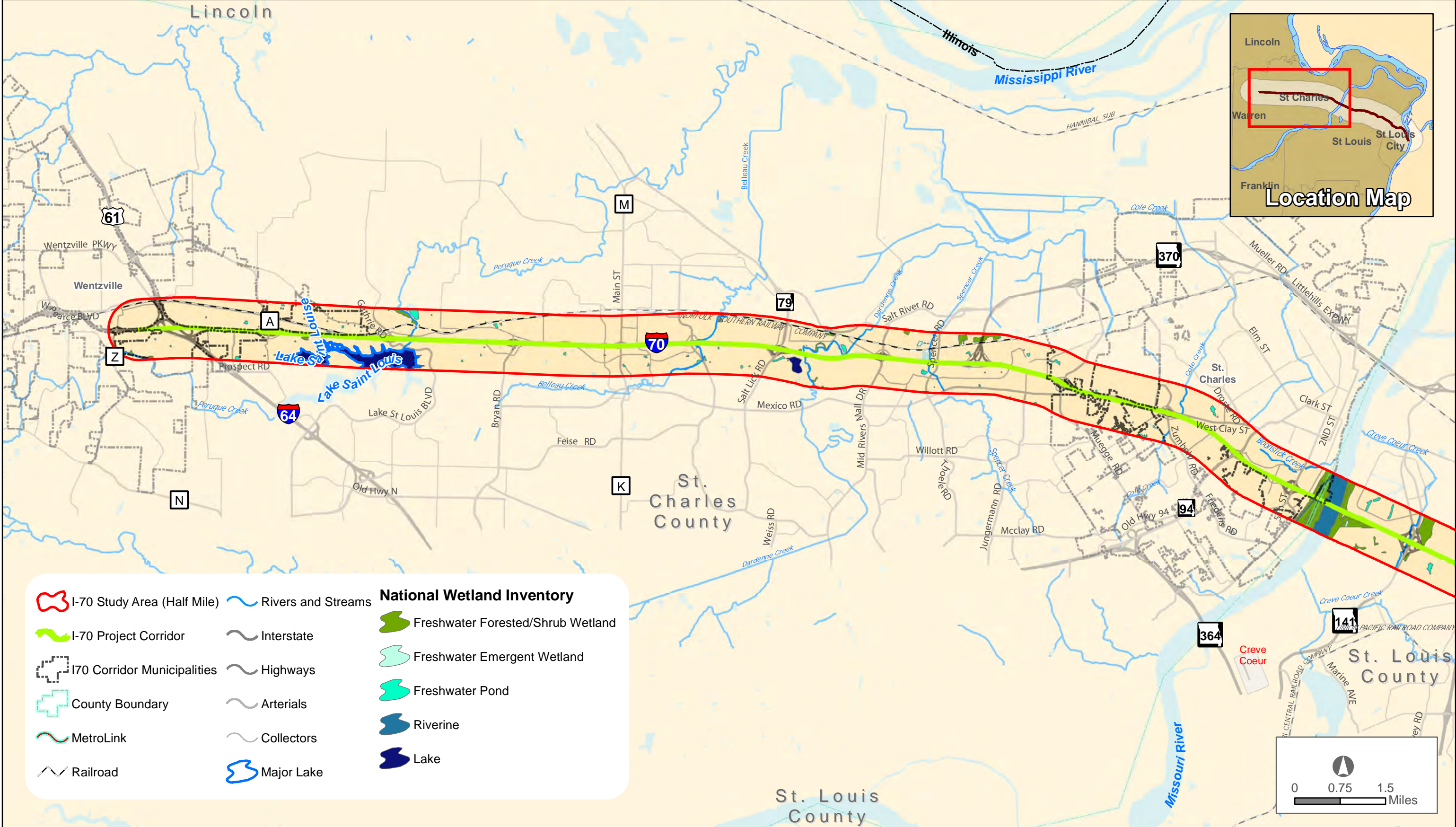


Source: Environmental Data Resources and MoDOT

# Sites with Hazardous Substances | Figure 3-5



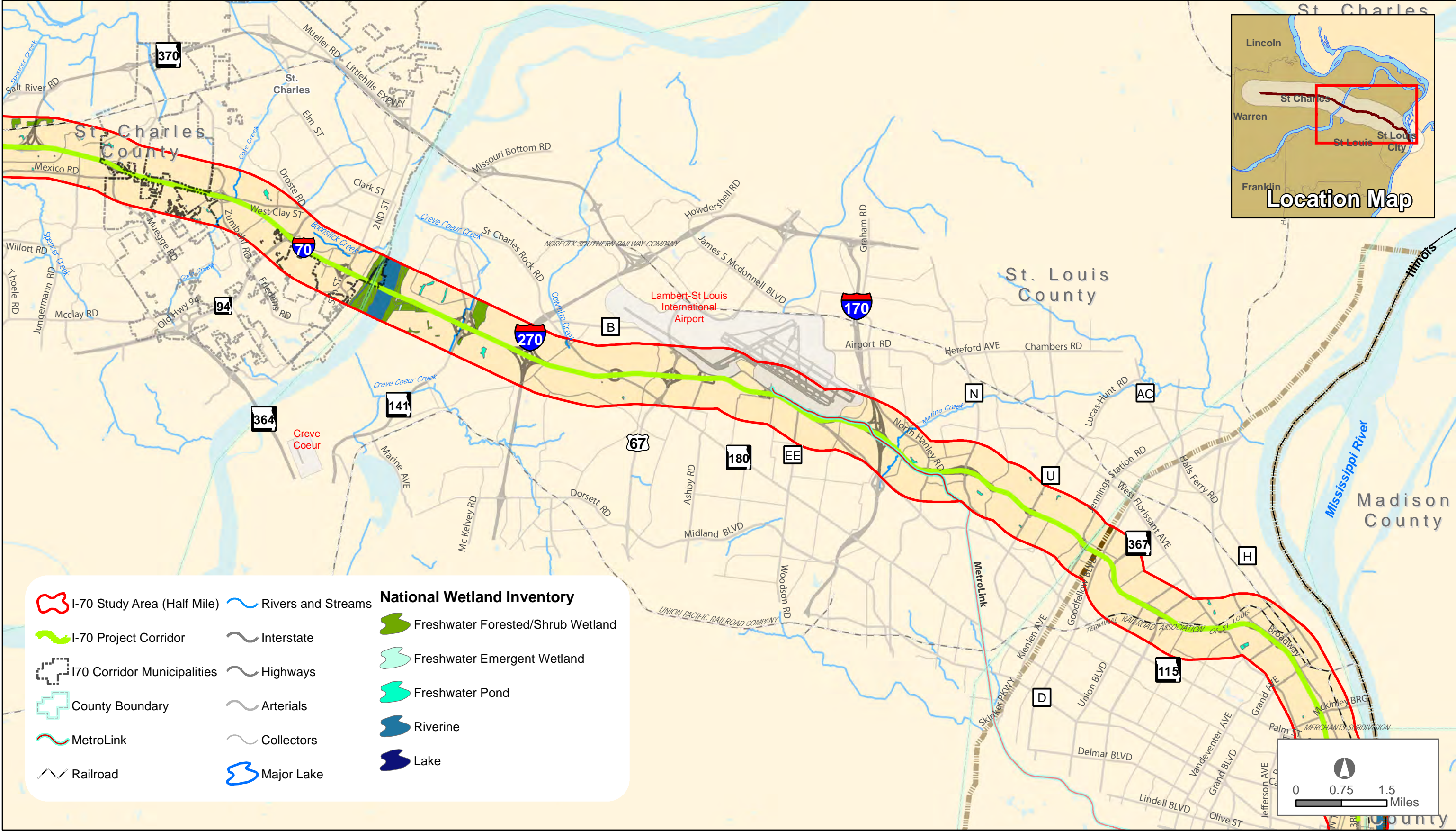
I-70 PEL STUDY- ST. LOUIS CITY



I-70 PEL STUDY - ST. CHARLES COUNTY



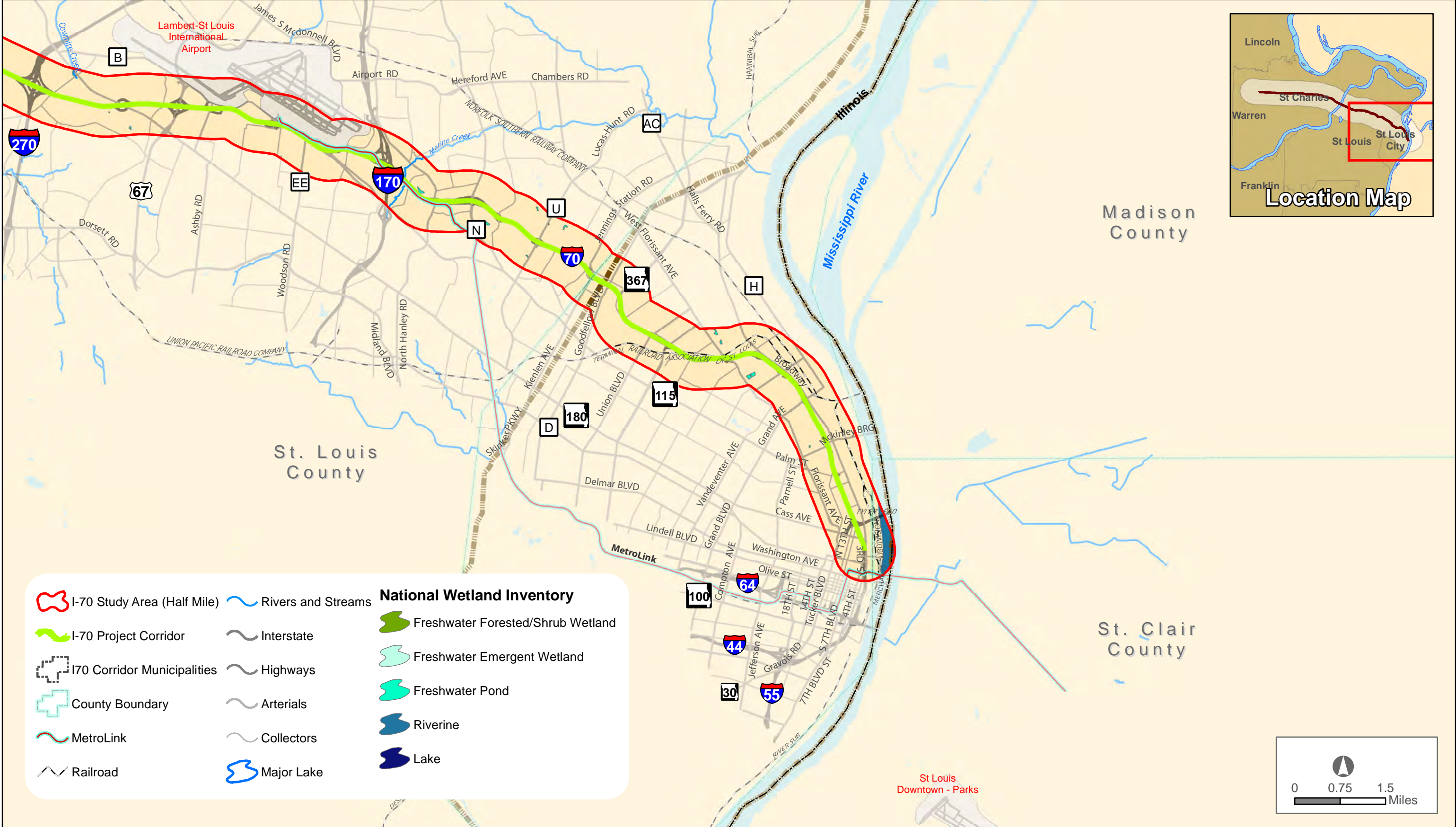
Source: ESRI, East West Gateway Council of Governments, MoDOT, MSDIS, FEMA, Fish and Wildlife Service



I-70 PEL STUDY - ST. LOUIS COUNTY



Source: ESRI, East West Gateway Council of Governments, MoDOT, MSDIS, FEMA, Fish and Wildlife Service

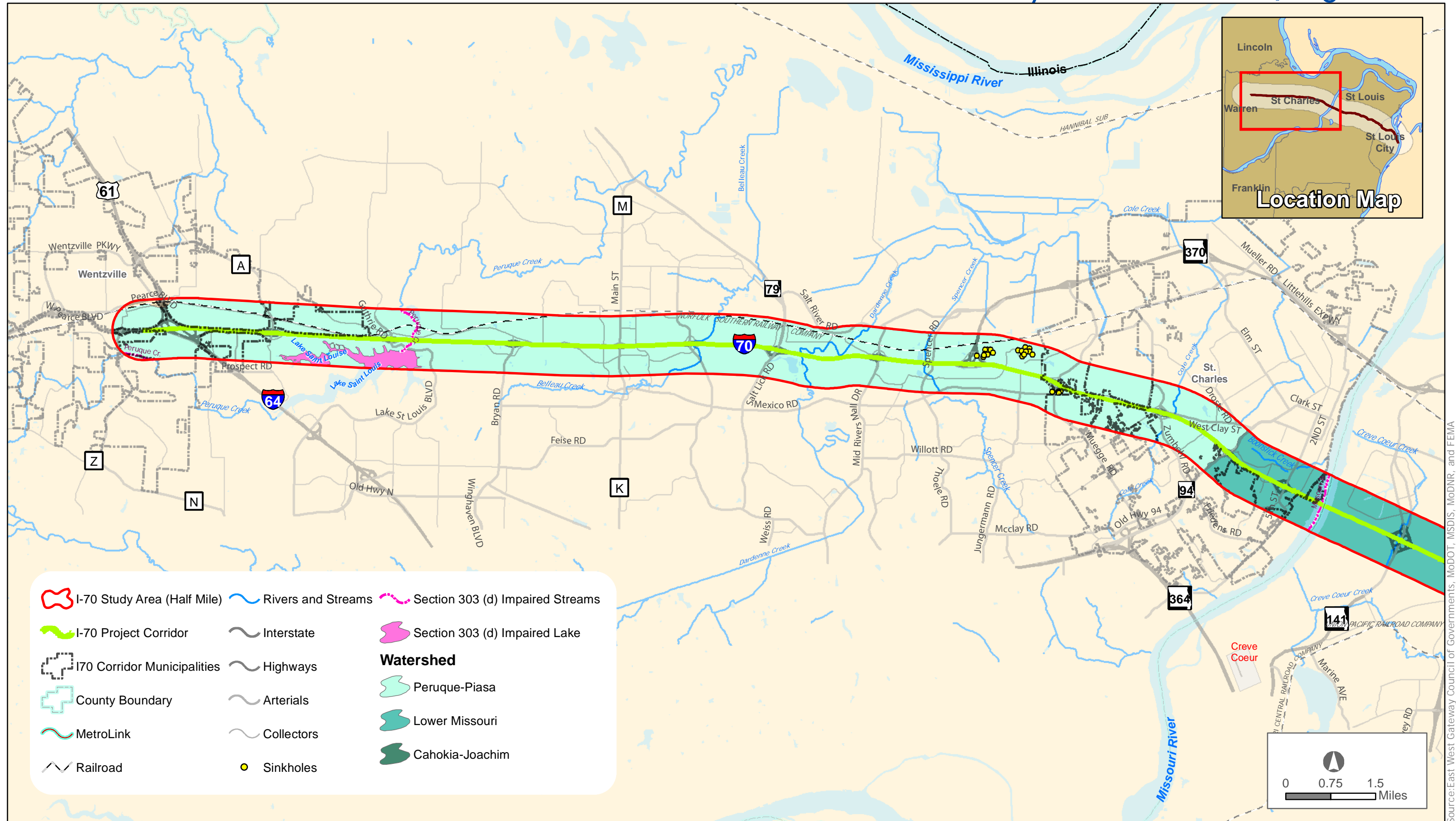


I-70 PEL STUDY - ST. LOUIS CITY



Source: ESRI, East West Gateway Council of Governments, MoDOT, MSDIS, FEMA, Fish and Wildlife Service

# Water Quality and Sinkholes | Figure 3-7

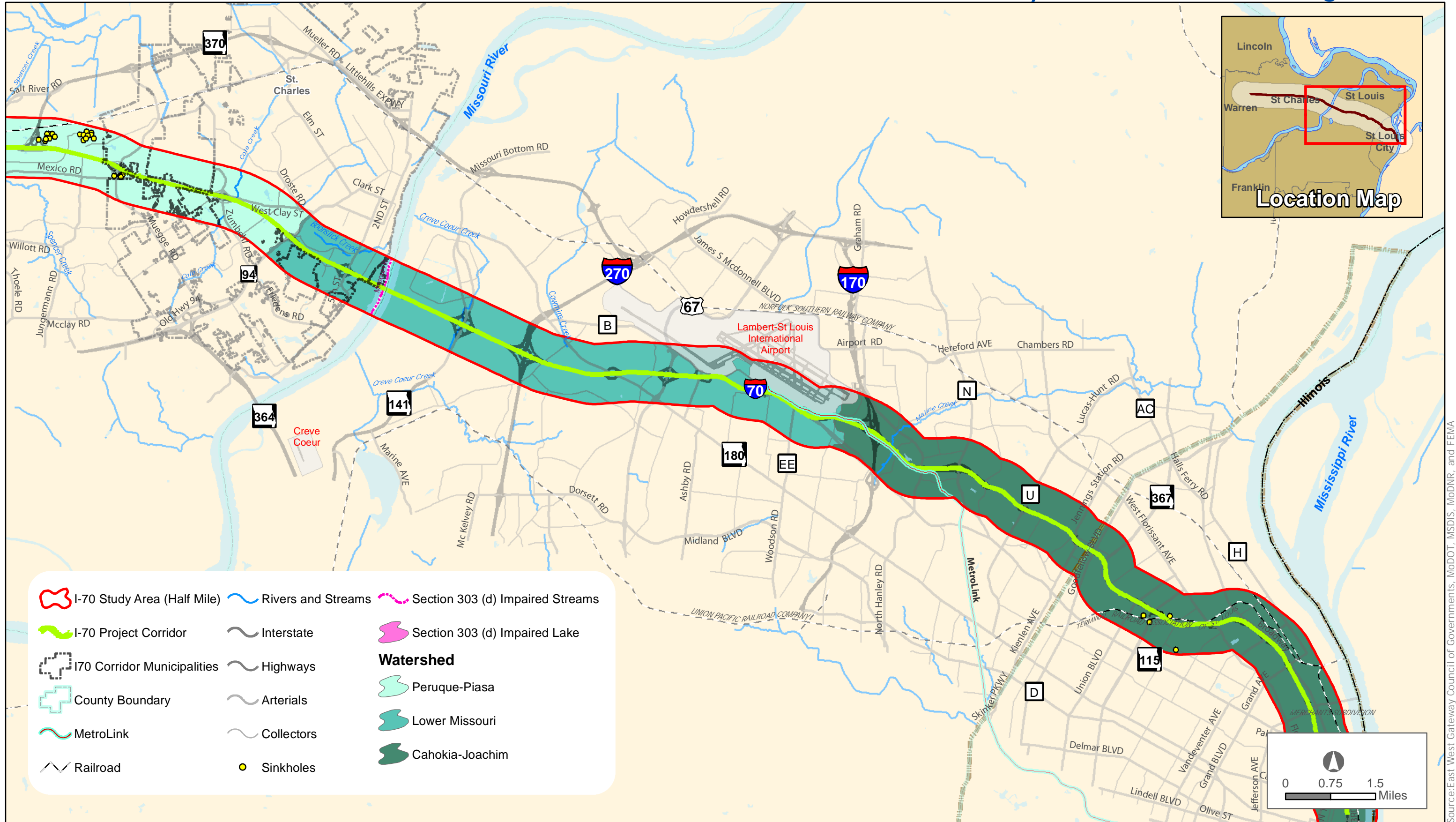


I-70 PEL STUDY - ST. CHARLES COUNTY



Source: East West Gateway Council of Governments, MoDOT, MSDIS, MoDNR, and FEMA

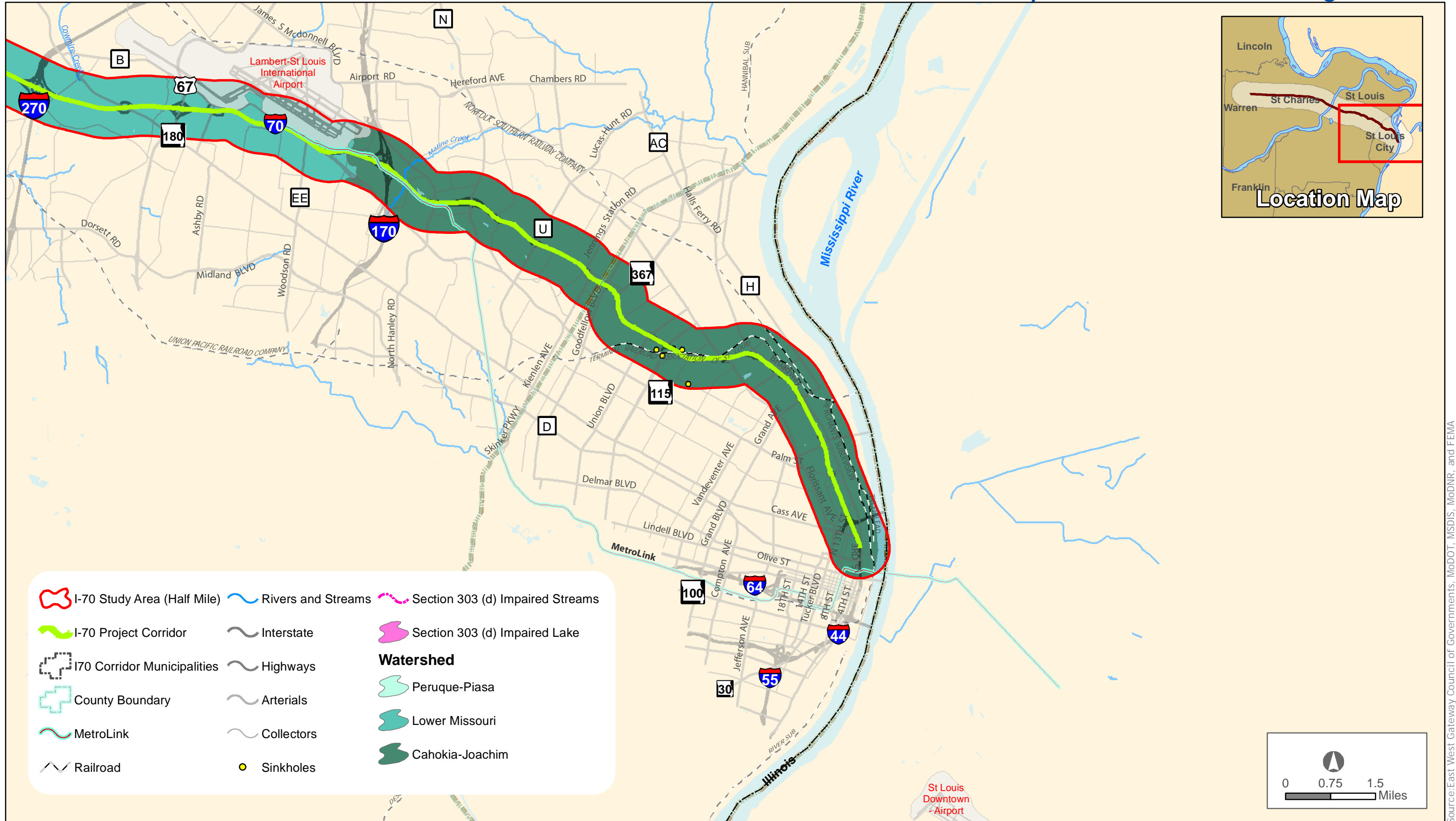
# Water Quality and Sinkholes | Figure 3-7



I-70 PEL STUDY - ST. LOUIS COUNTY



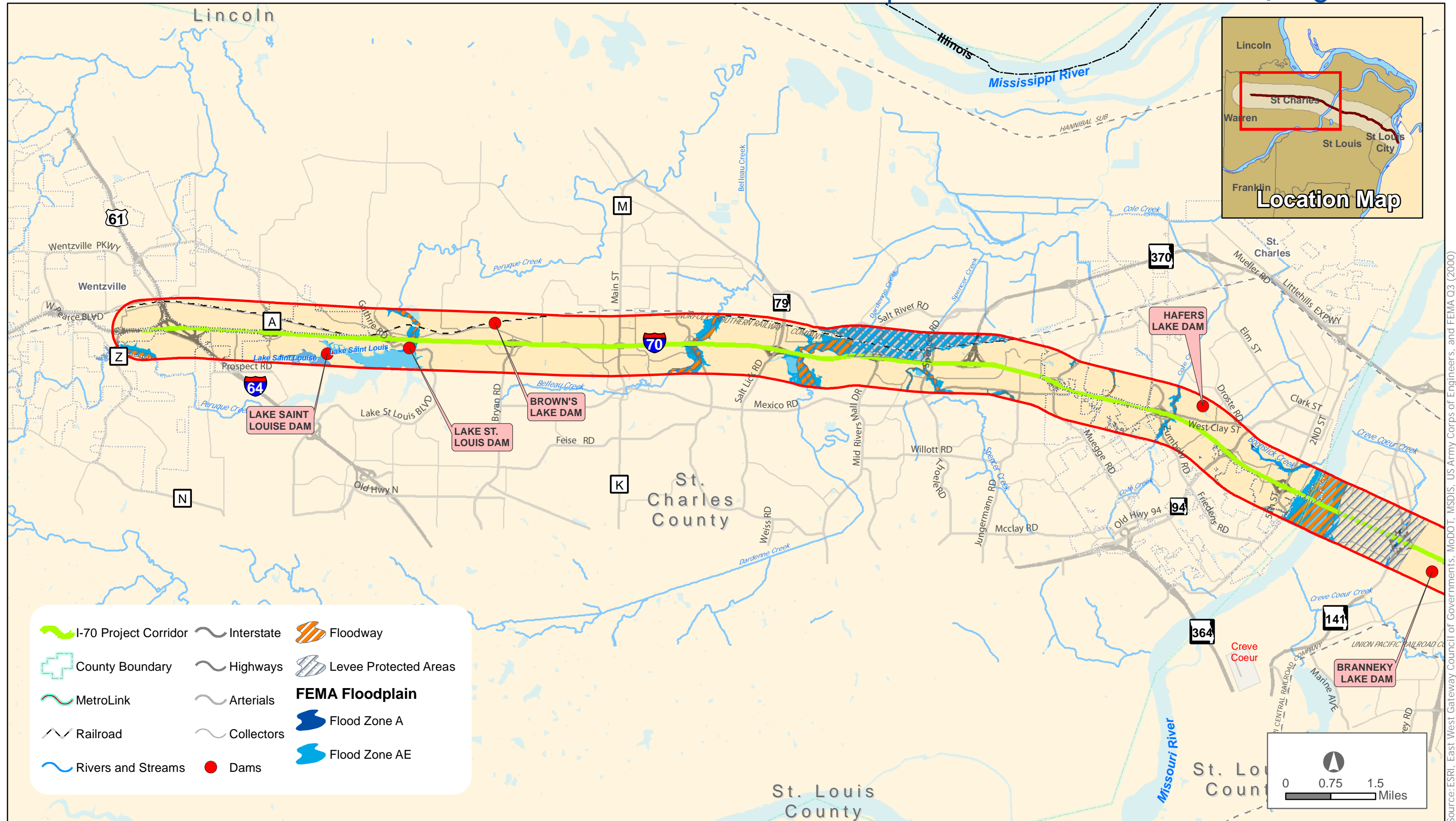
Source: East West Gateway Council of Governments, MoDOT, MSDIS, MoDNR, and FEMA



I-70 PEL STUDY - ST. LOUIS CITY



# Floodplains, Levees, and Dams | Figure 3-8



I-70 PEL STUDY - ST. CHARLES COUNTY



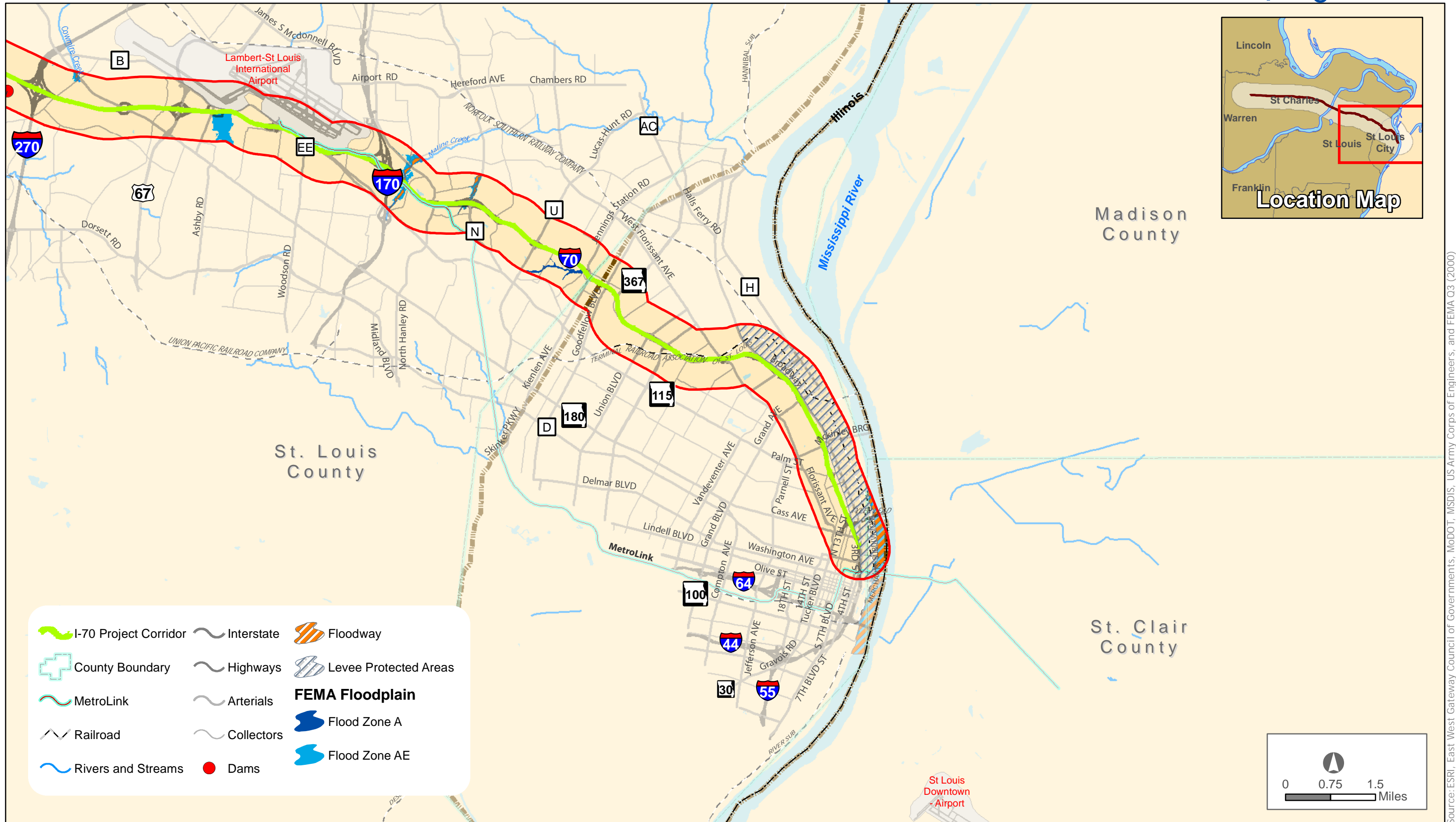
Source: ESRI, East West Gateway Council of Governments, MoDOT, MSDIS, US Army Corps of Engineers, and FEMA O3 (2000)

# Floodplains, Levees, and Dams | Figure 3-8



I-70 PEL STUDY - ST. LOUIS COUNTY

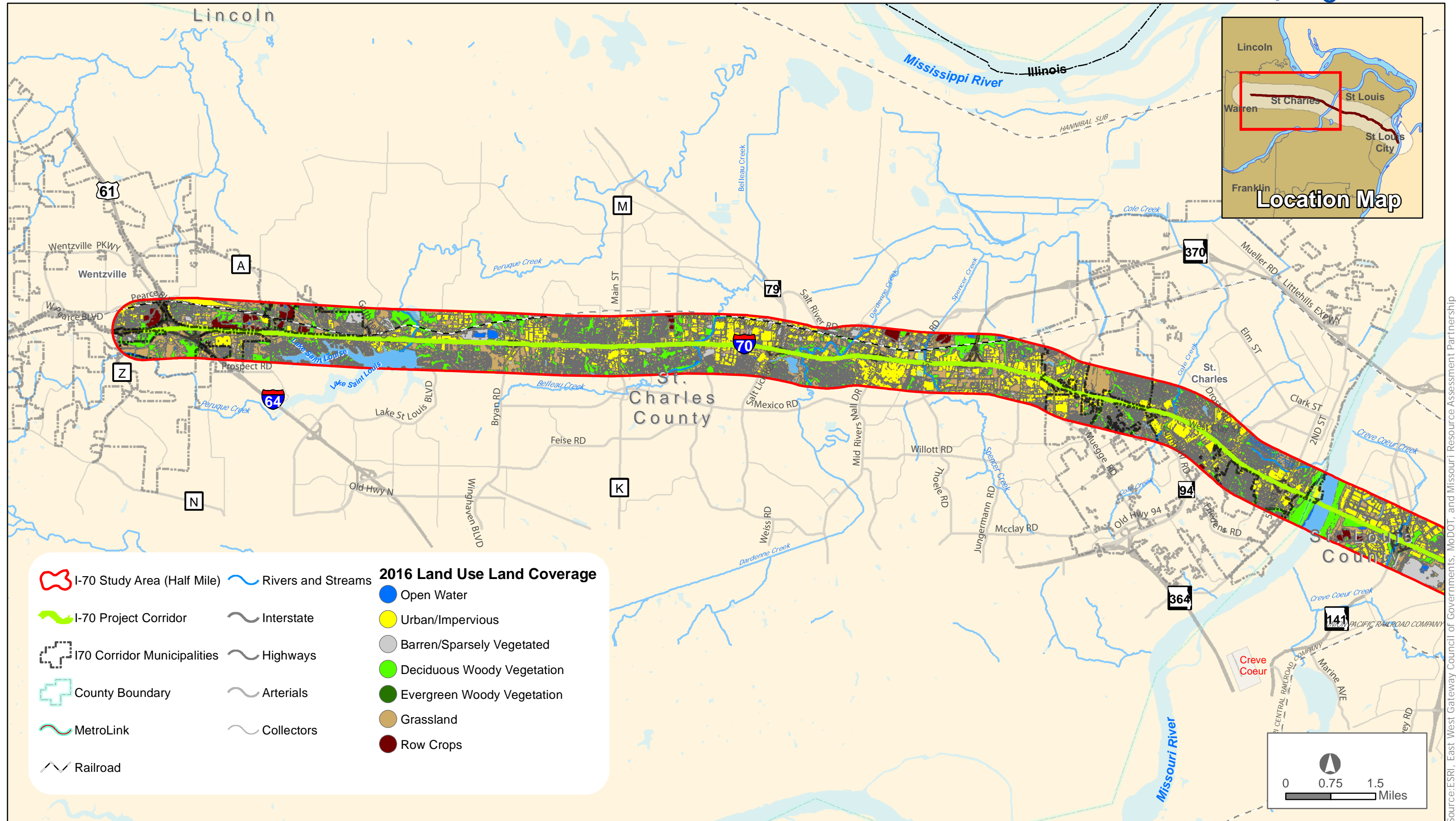
# Floodplains, Levees, and Dams | Figure 3-8



Source: ESRI, East West Gateway Council of Governments, MoDOT, MSDIS, US Army Corps of Engineers, and FEMA O3 (2000)

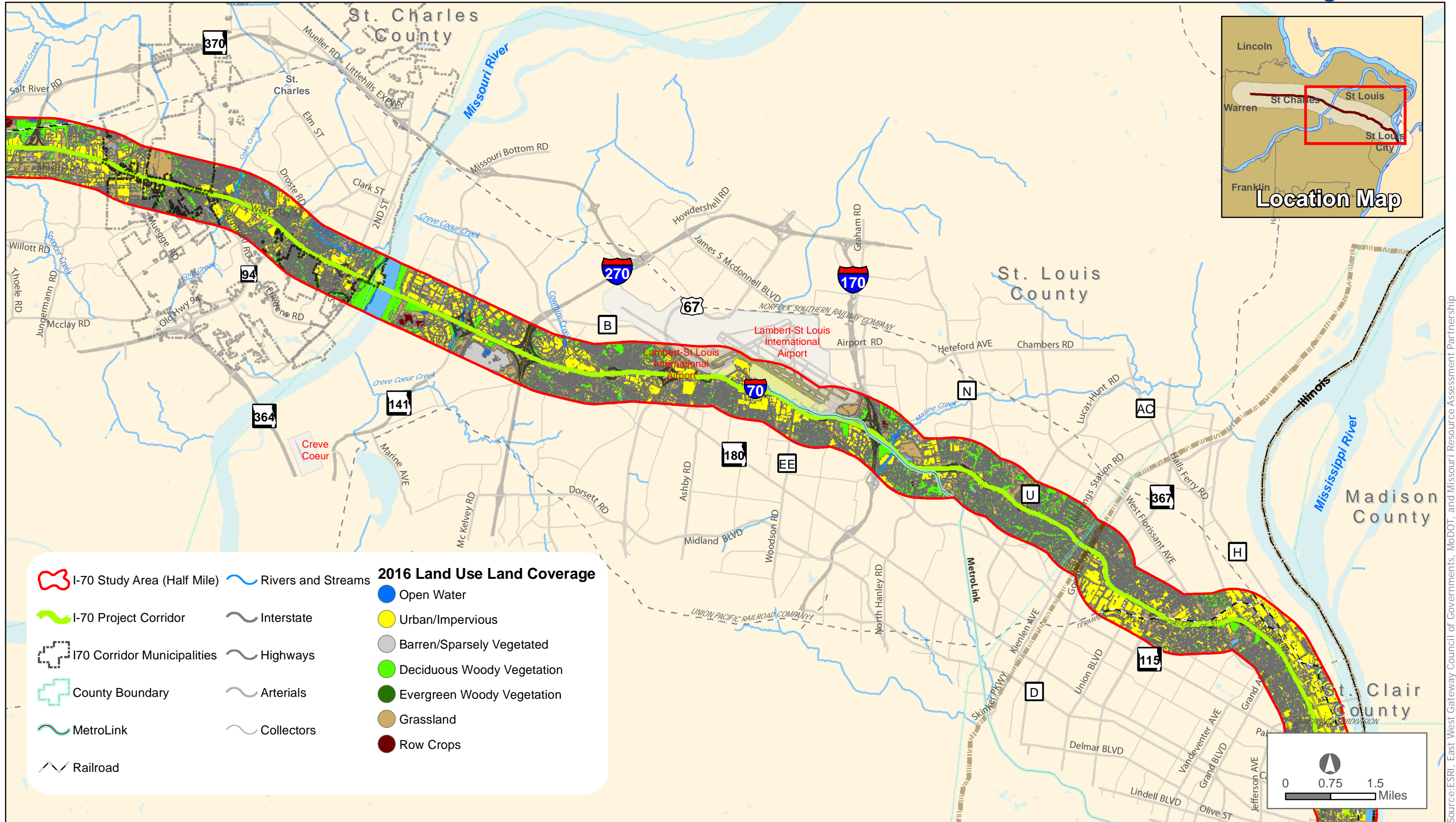
I-70 PEL STUDY - ST. LOUIS CITY





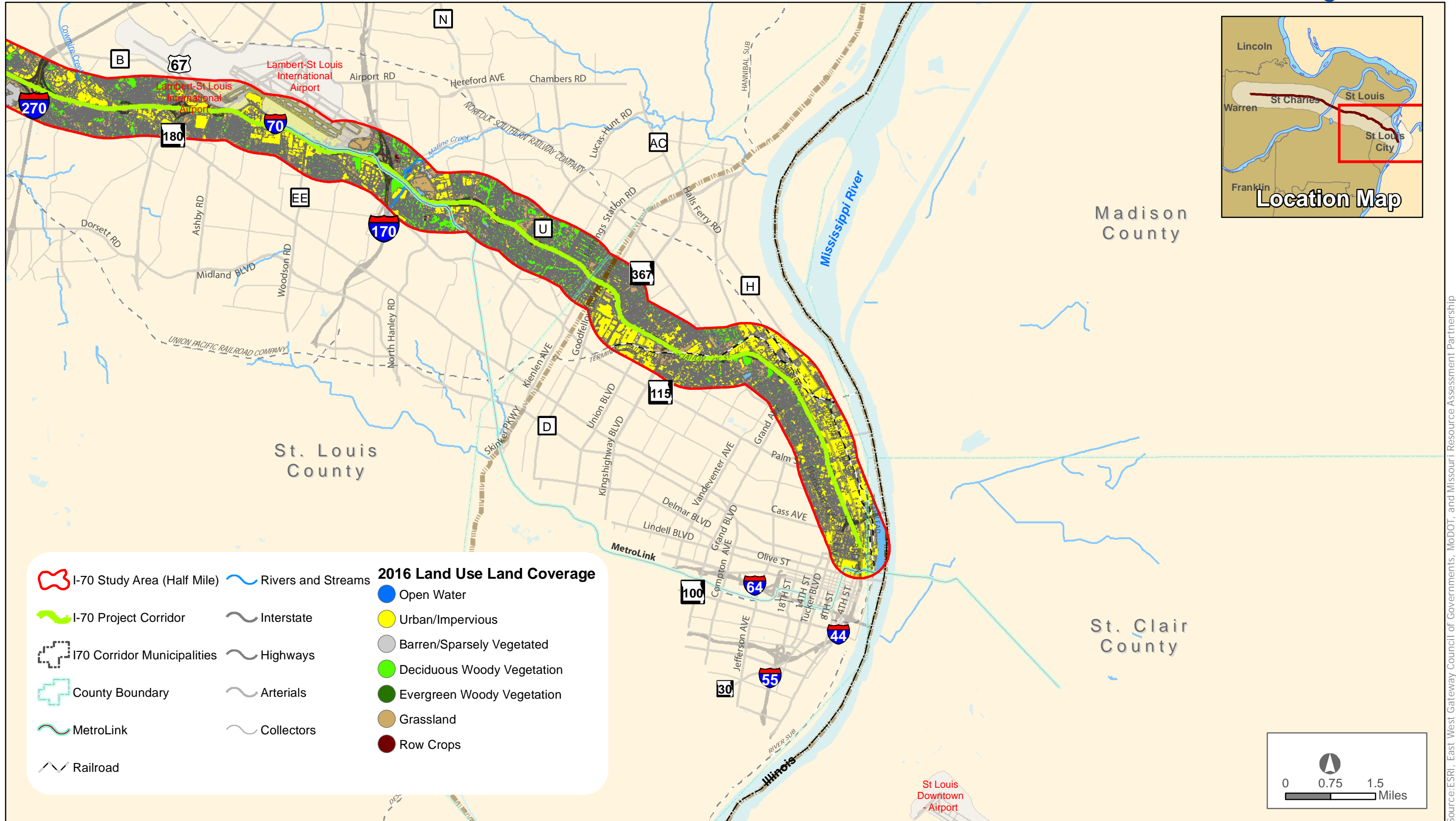
I-70 PEL STUDY - ST. CHARLES COUNTY

Source: ESRI, East West Gateway Council of Governments, MoDOT, and Missouri Resource Assessment Partnership

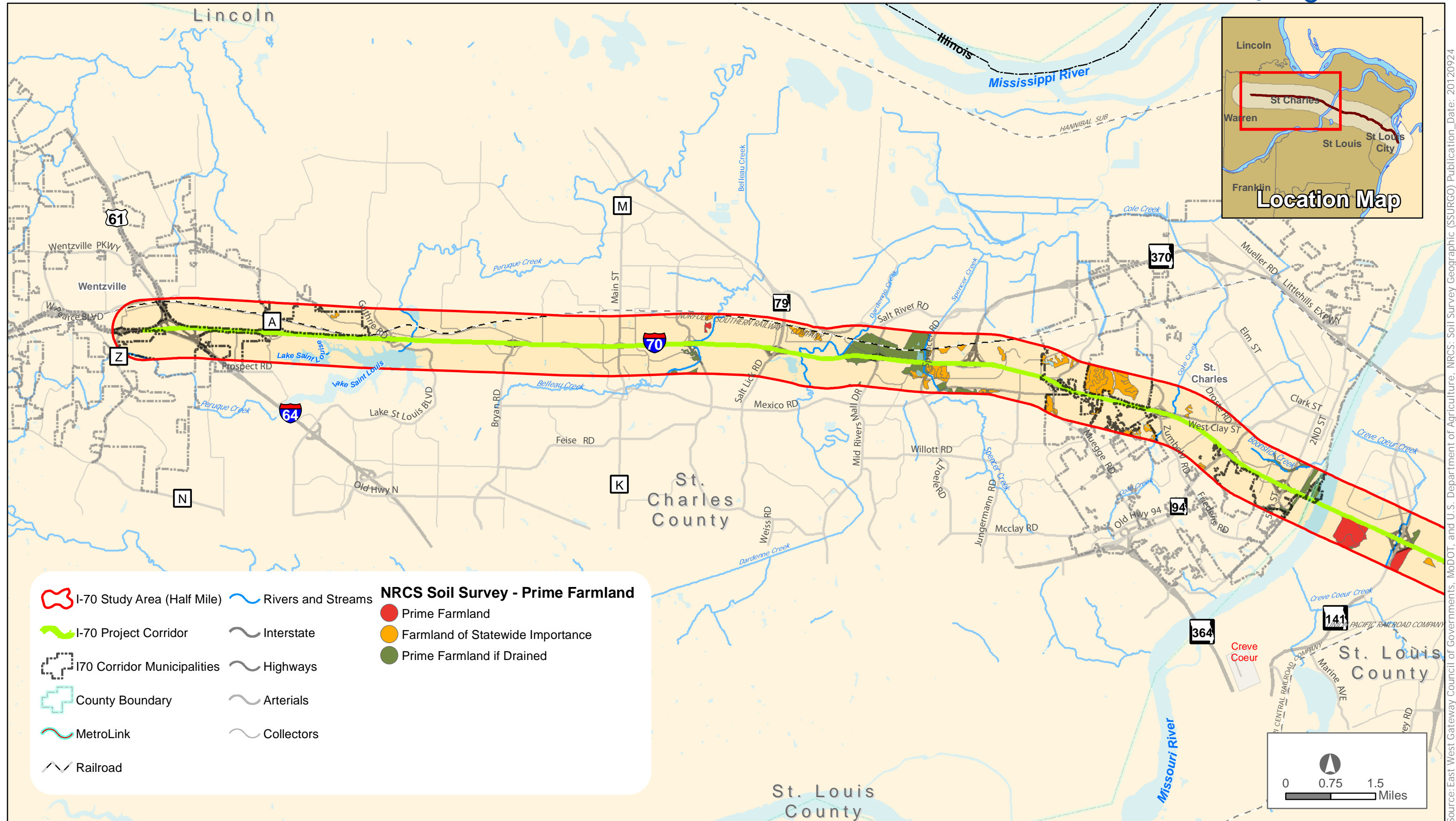


I-70 PEL STUDY - ST. LOUIS COUNTY

Source: ESRI, East West Gateway Council of Governments, MoDOT, and Missouri Resource Assessment Partnership



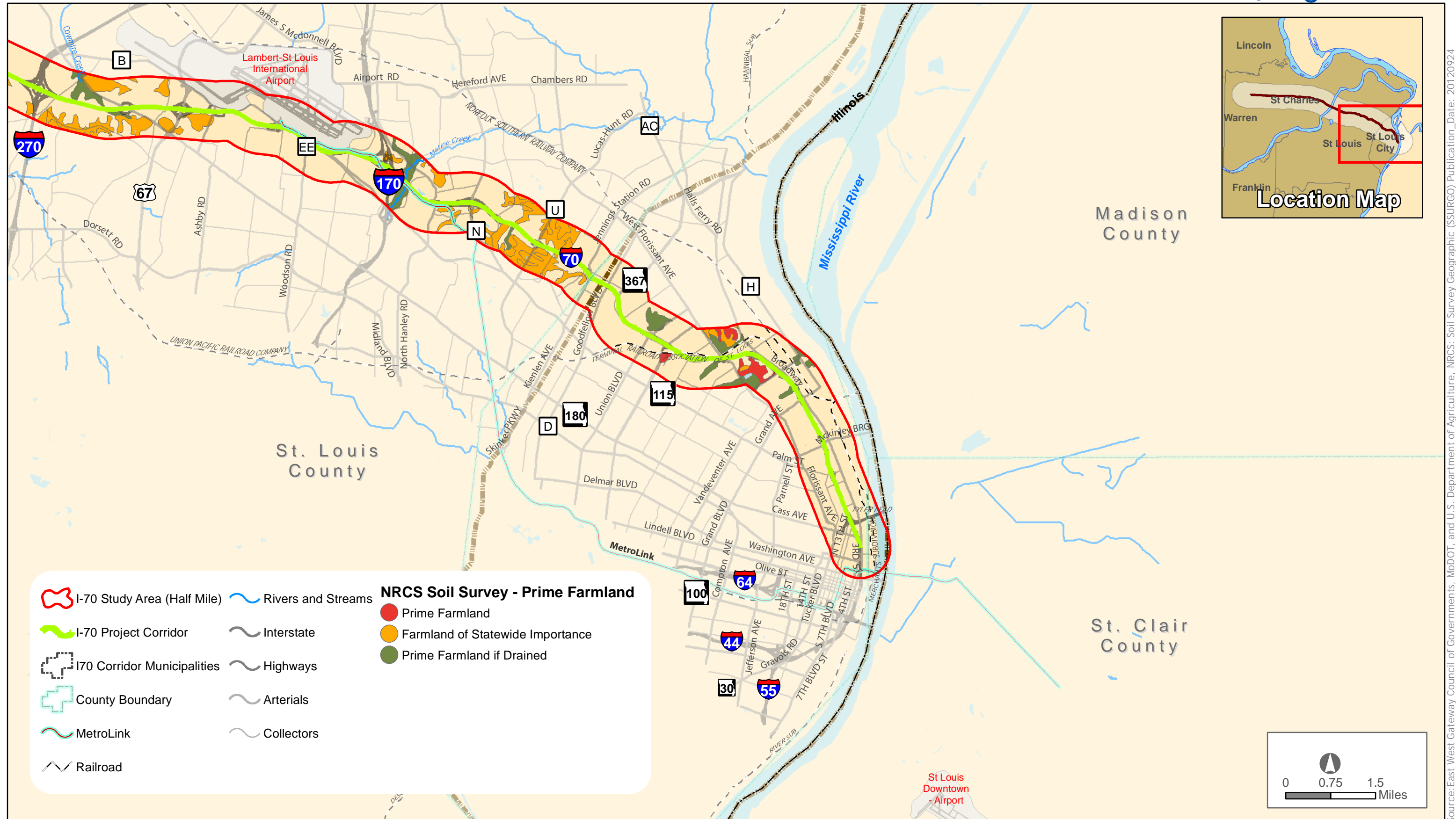
I-70 Study Area (Half Mile)	Rivers and Streams	<b>2016 Land Use Land Coverage</b>
I-70 Project Corridor	Interstate	Open Water
I70 Corridor Municipalities	Highways	Urban/Impervious
County Boundary	Arterials	Barren/Sparsely Vegetated
MetroLink	Collectors	Deciduous Woody Vegetation
Railroad		Evergreen Woody Vegetation
		Grassland
		Row Crops



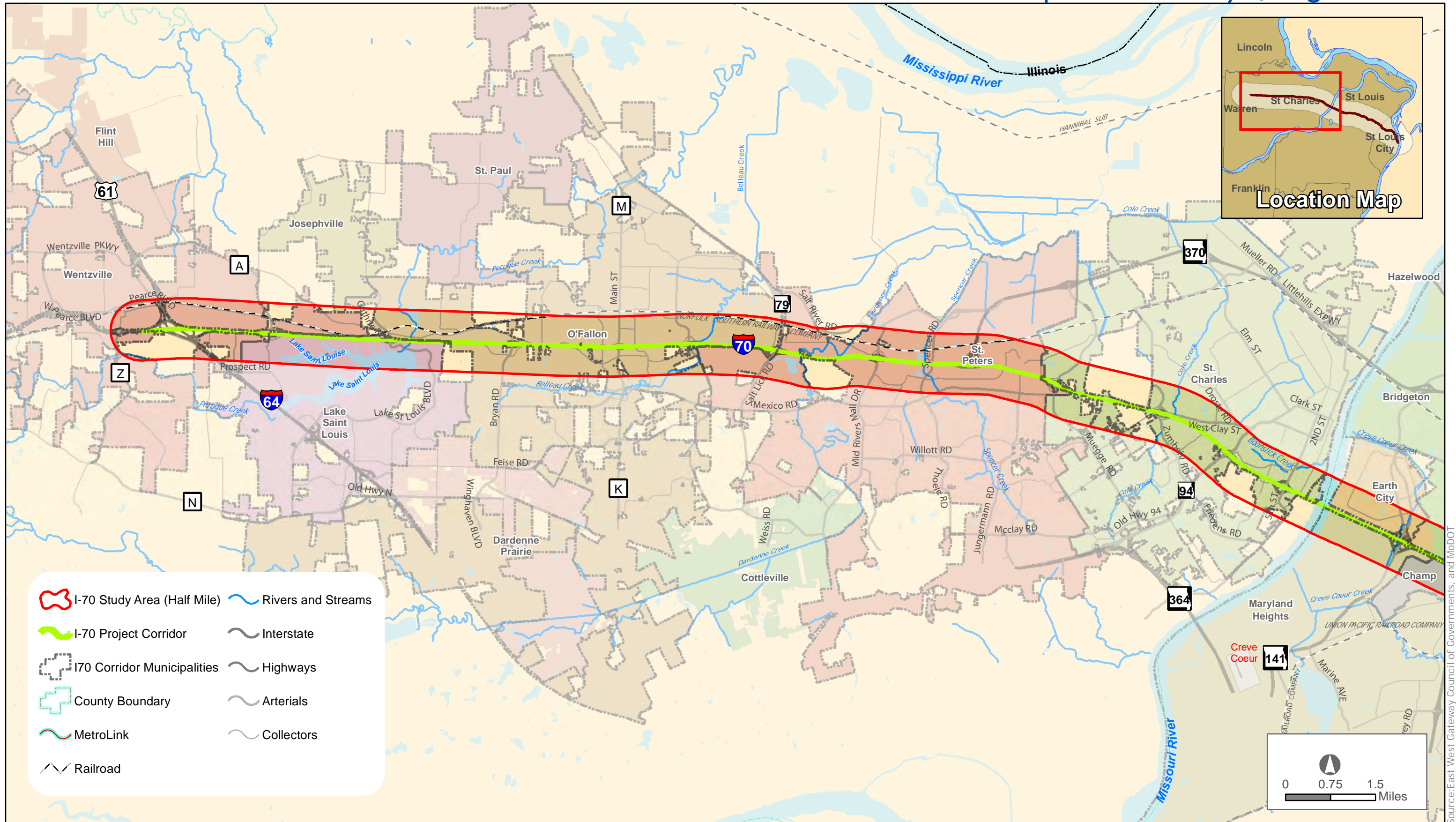


I-70 PEL STUDY - ST. LOUIS COUNTY





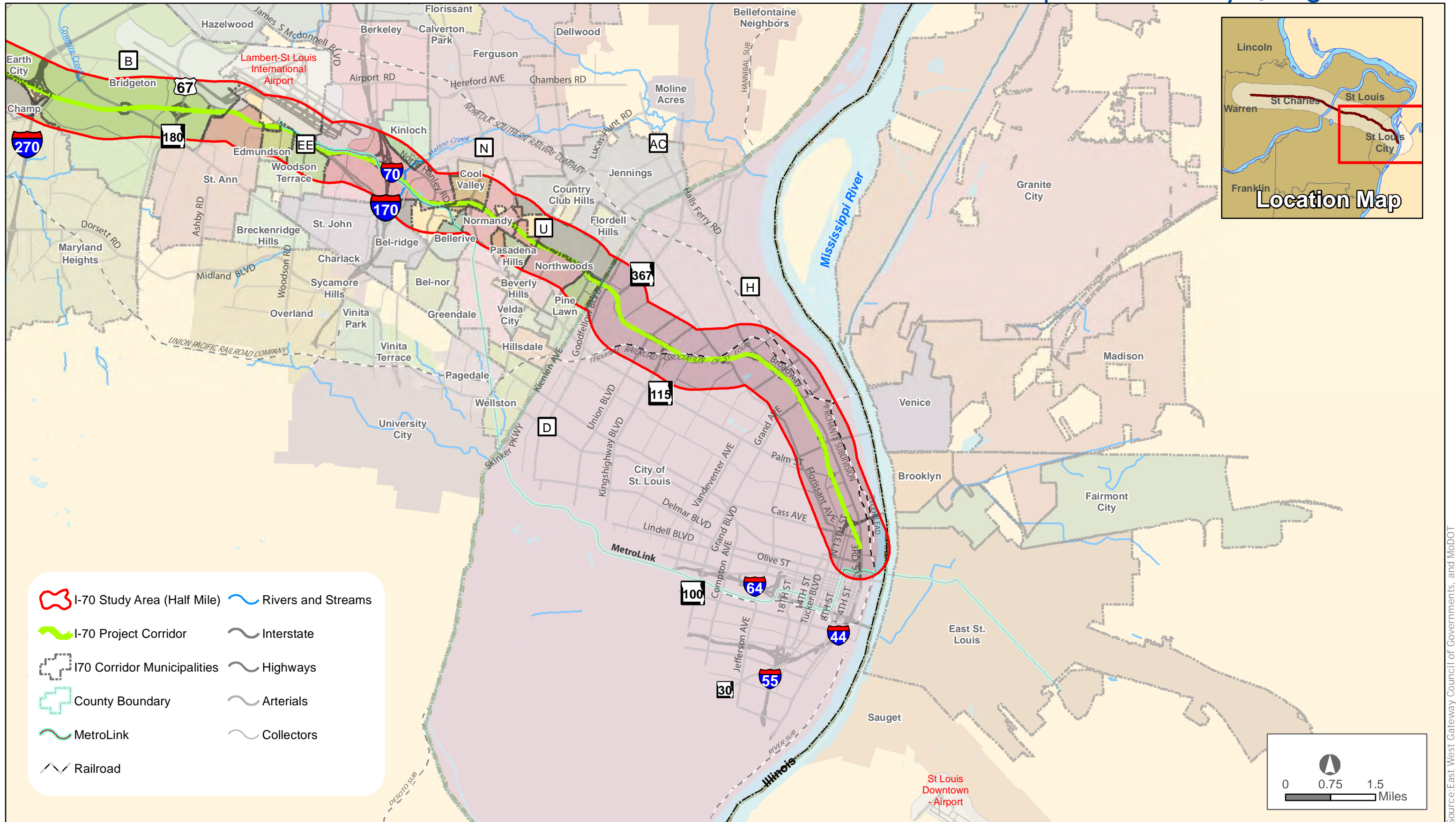
I-70 PEL STUDY - ST. LOUIS CITY





I-70 PEL STUDY - ST. LOUIS COUNTY

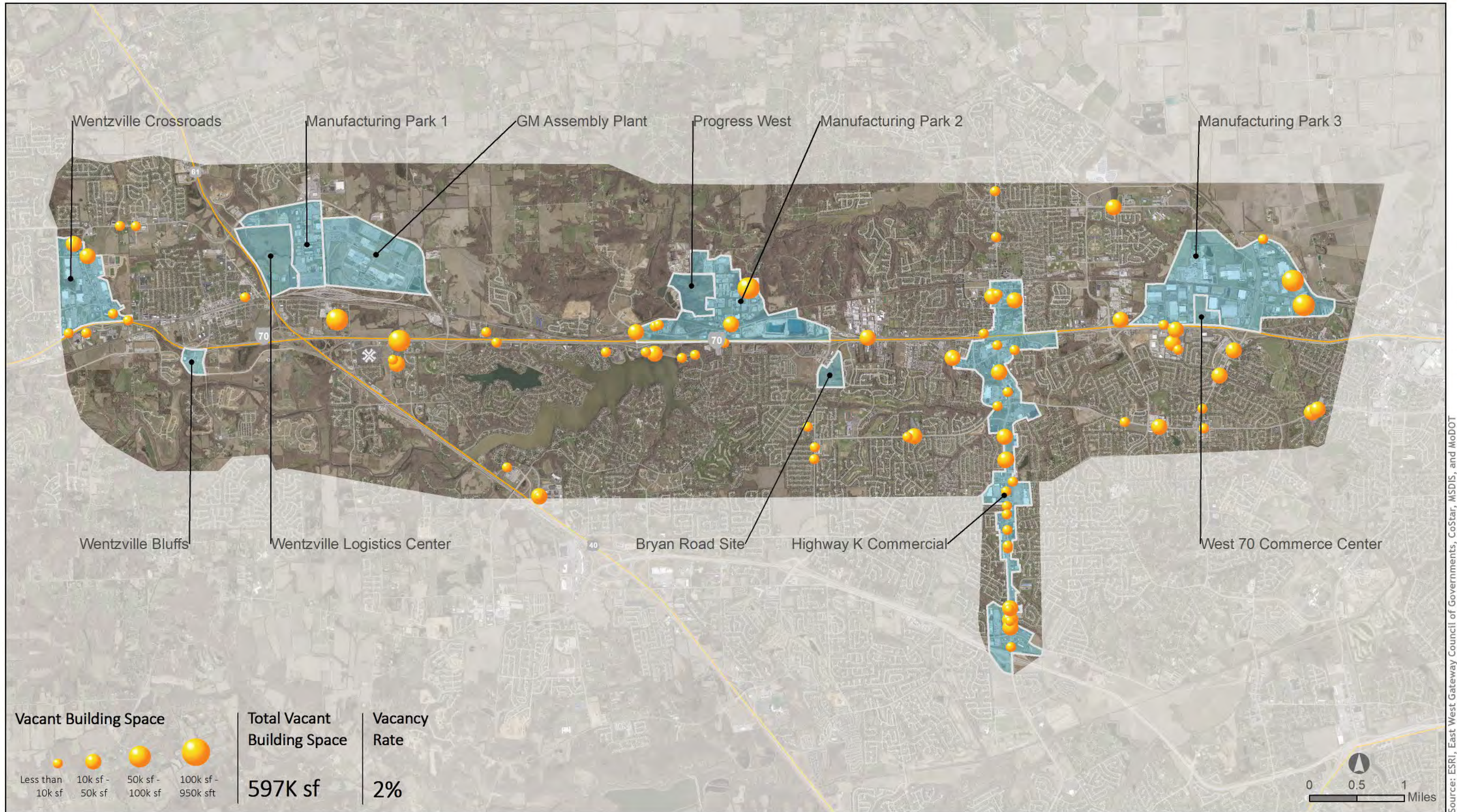
# Municipal Boundary | Figure 3-11



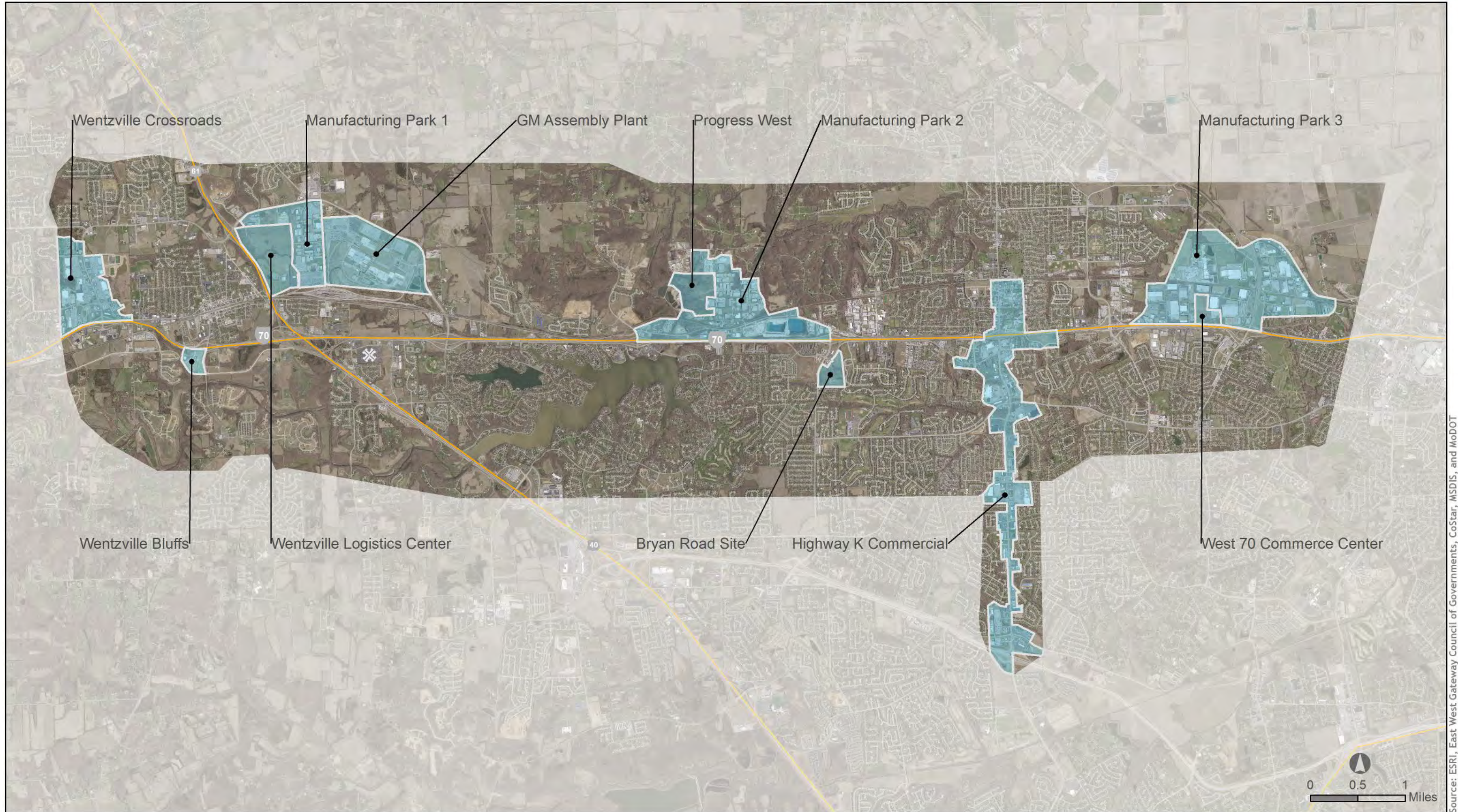
I-70 PEL STUDY - ST. LOUIS CITY



# St. Charles County West - Commercial Vacant Building Space - Figure 3-12

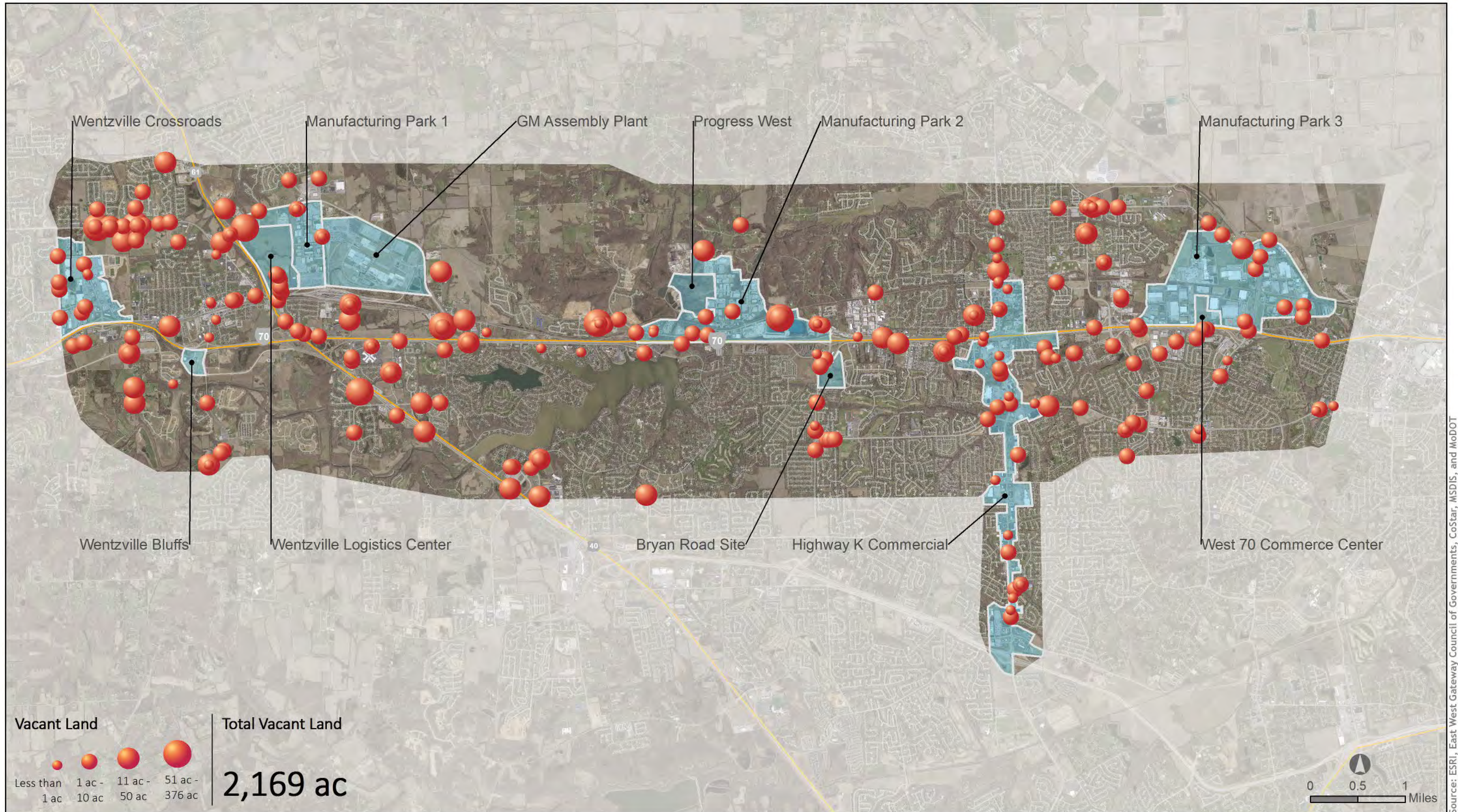


# St. Charles County West - Development Areas - Figure 3-13



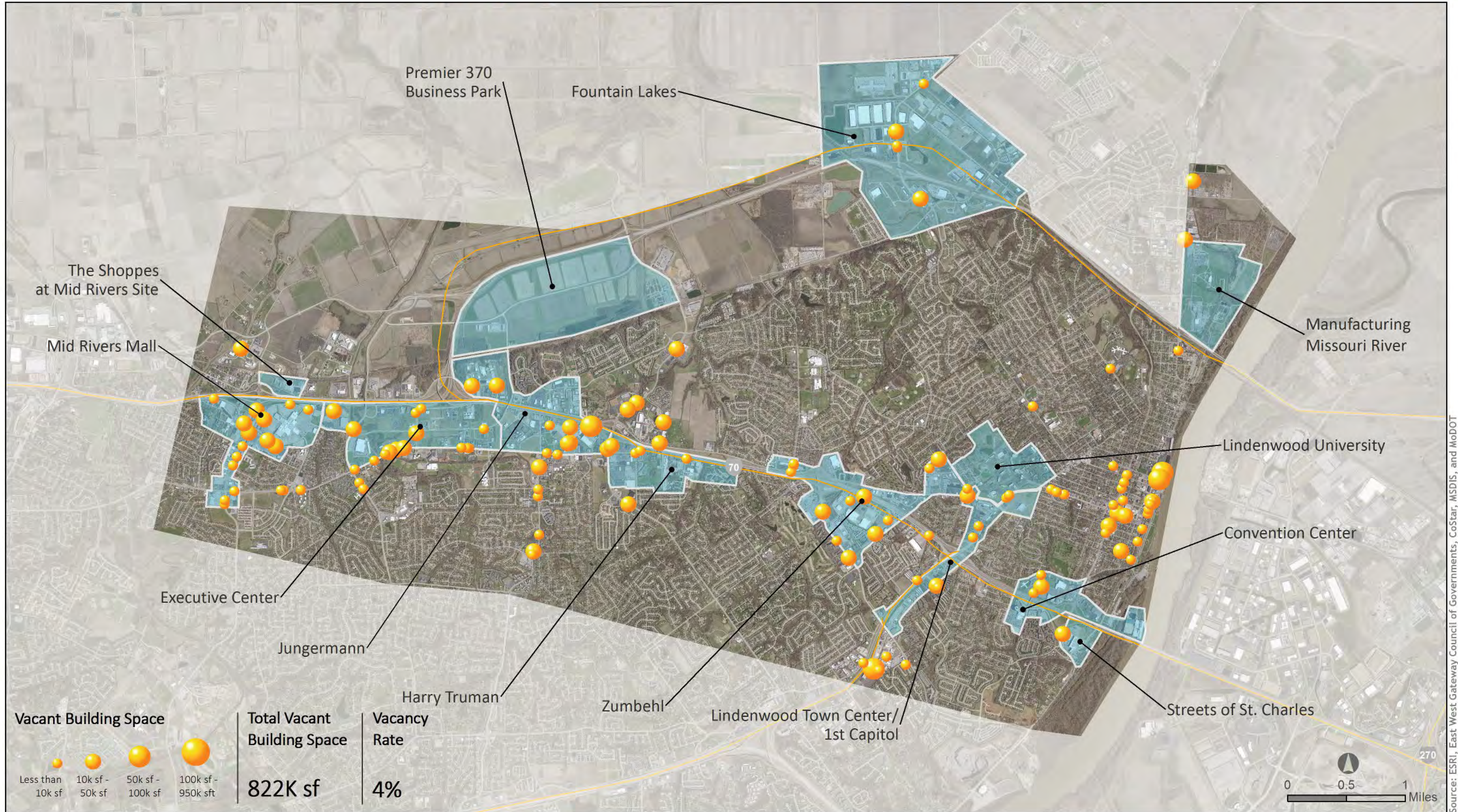
Source: ESRI, East West Gateway Council of Governments, CoStar, MSDIS, and MoDOT

# St. Charles County West - Commercial Vacant Land - Figure 3-14



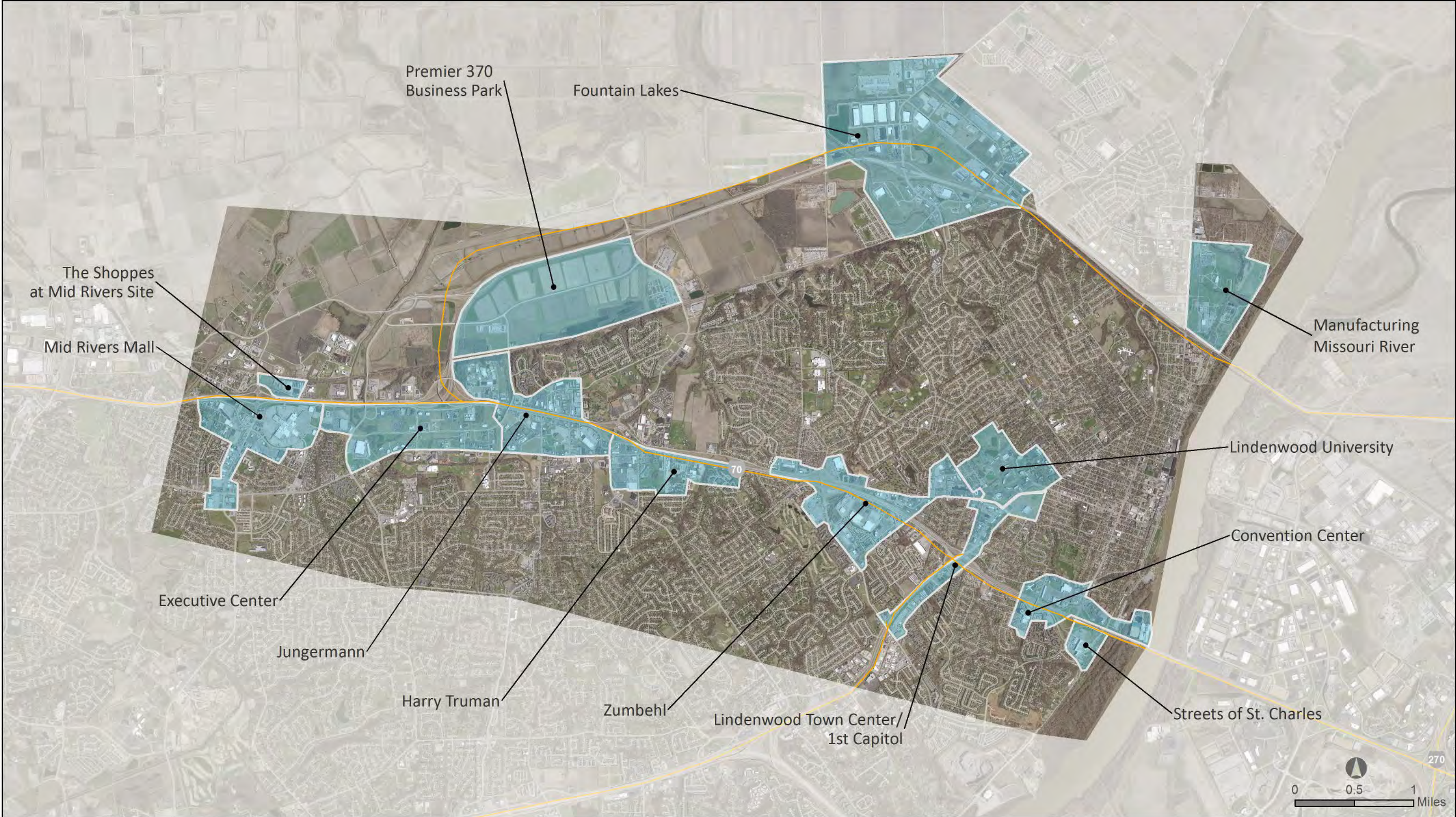
Source: ESRI, East West Gateway Council of Governments, CoStar, MSDIS, and MoDOT

# St. Charles County East - Commercial Vacant Building Space - Figure 3-15



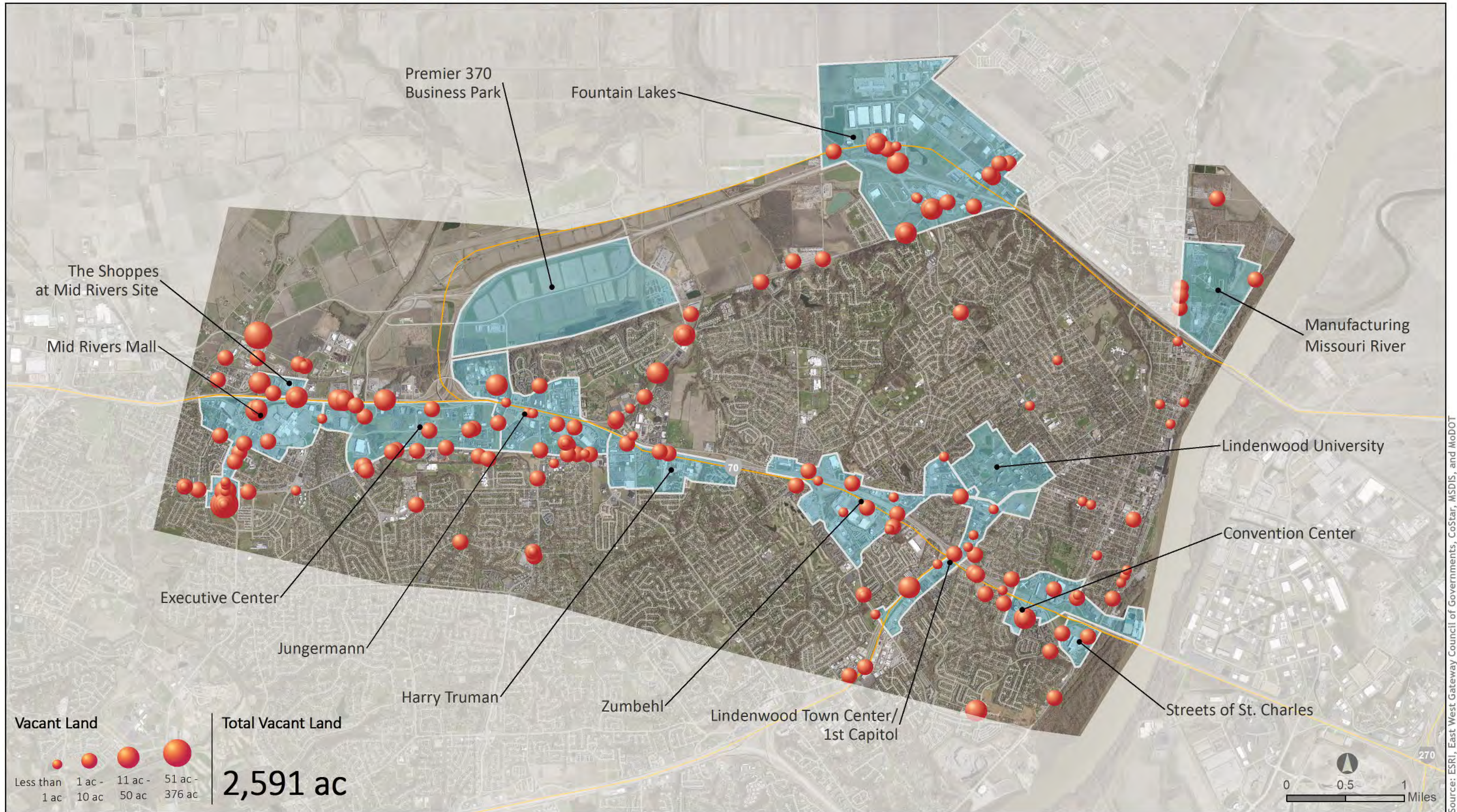


# St. Charles County East - Development Areas - Figure 3-16

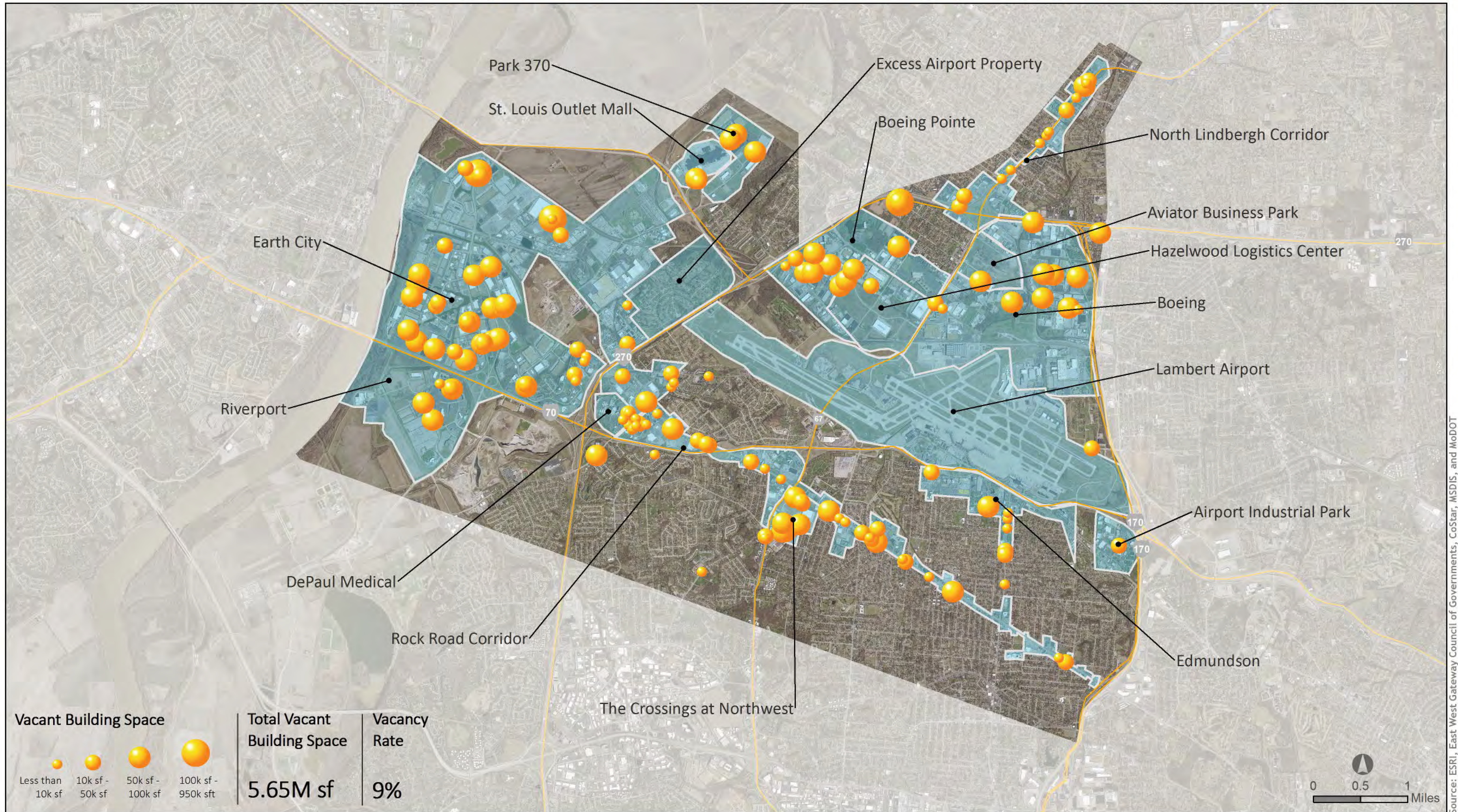


Source: ESRI, East West Gateway Council of Governments, CoStar, MSDIS, and MoDOT

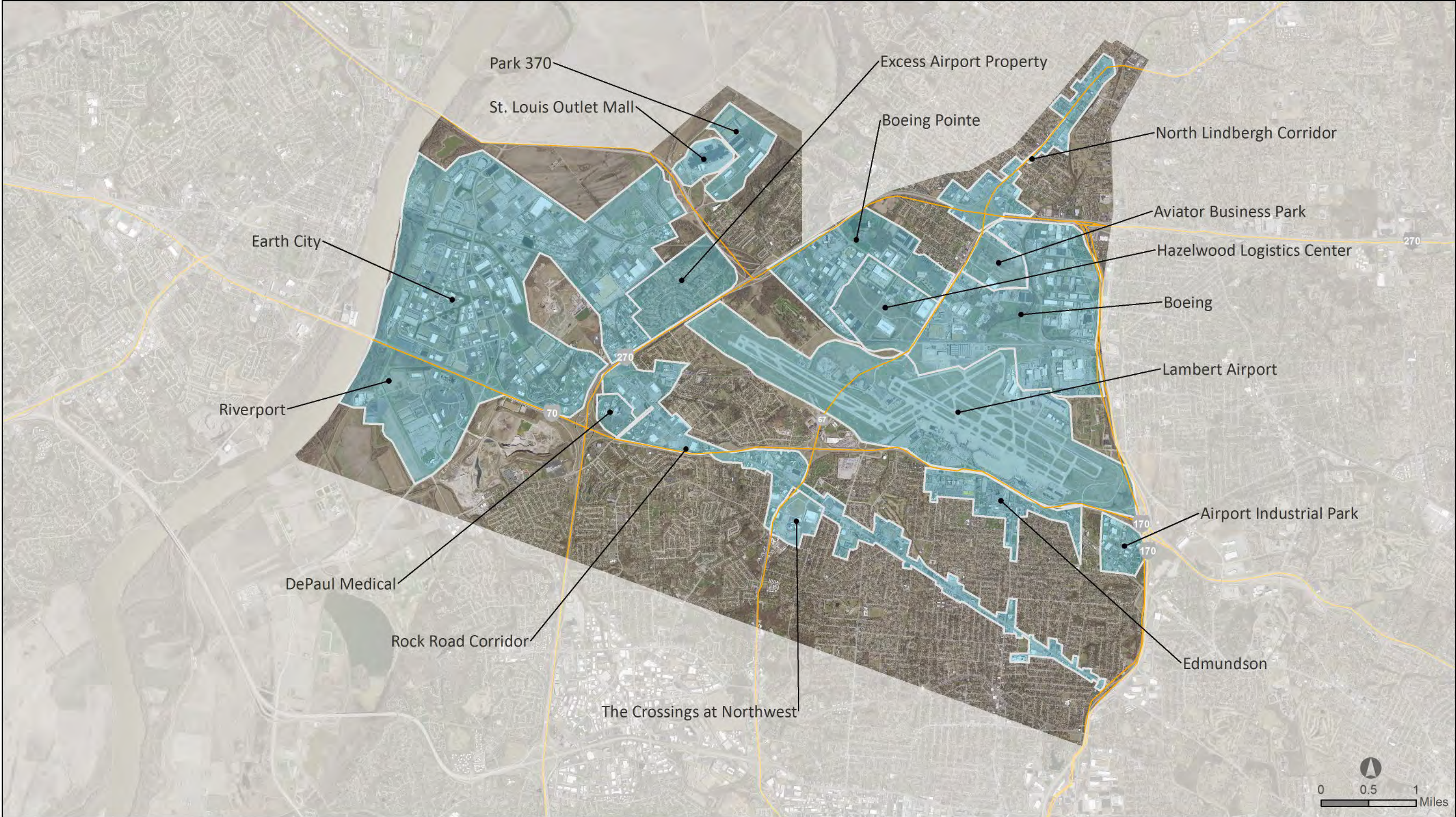
# St. Charles County East - Commercial Vacant Land - Figure 3-17



# St. Louis County West - Commercial Vacant Building Space - Figure 3-18

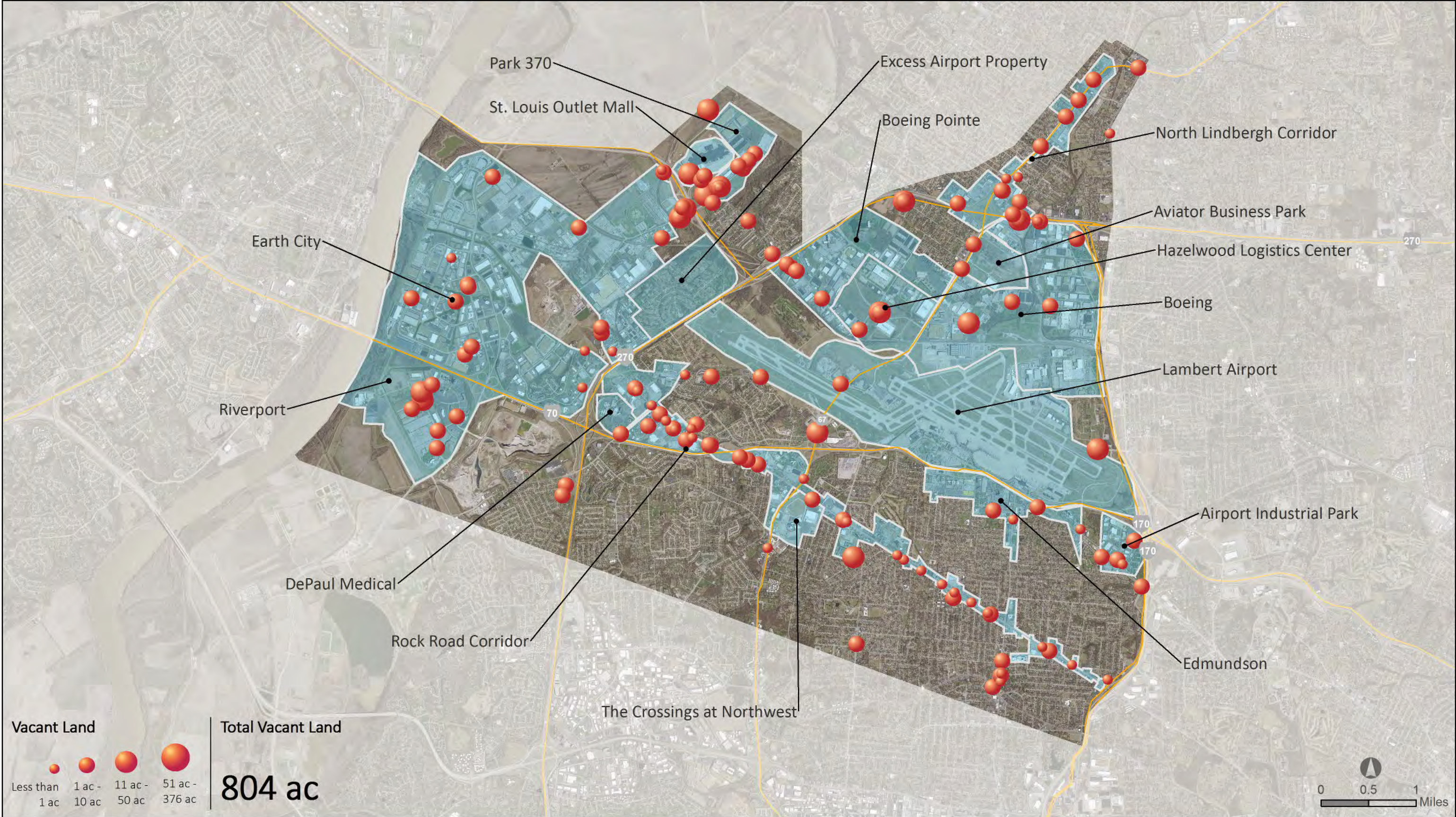


# St. Louis County West - Development Areas - Figure 3-19



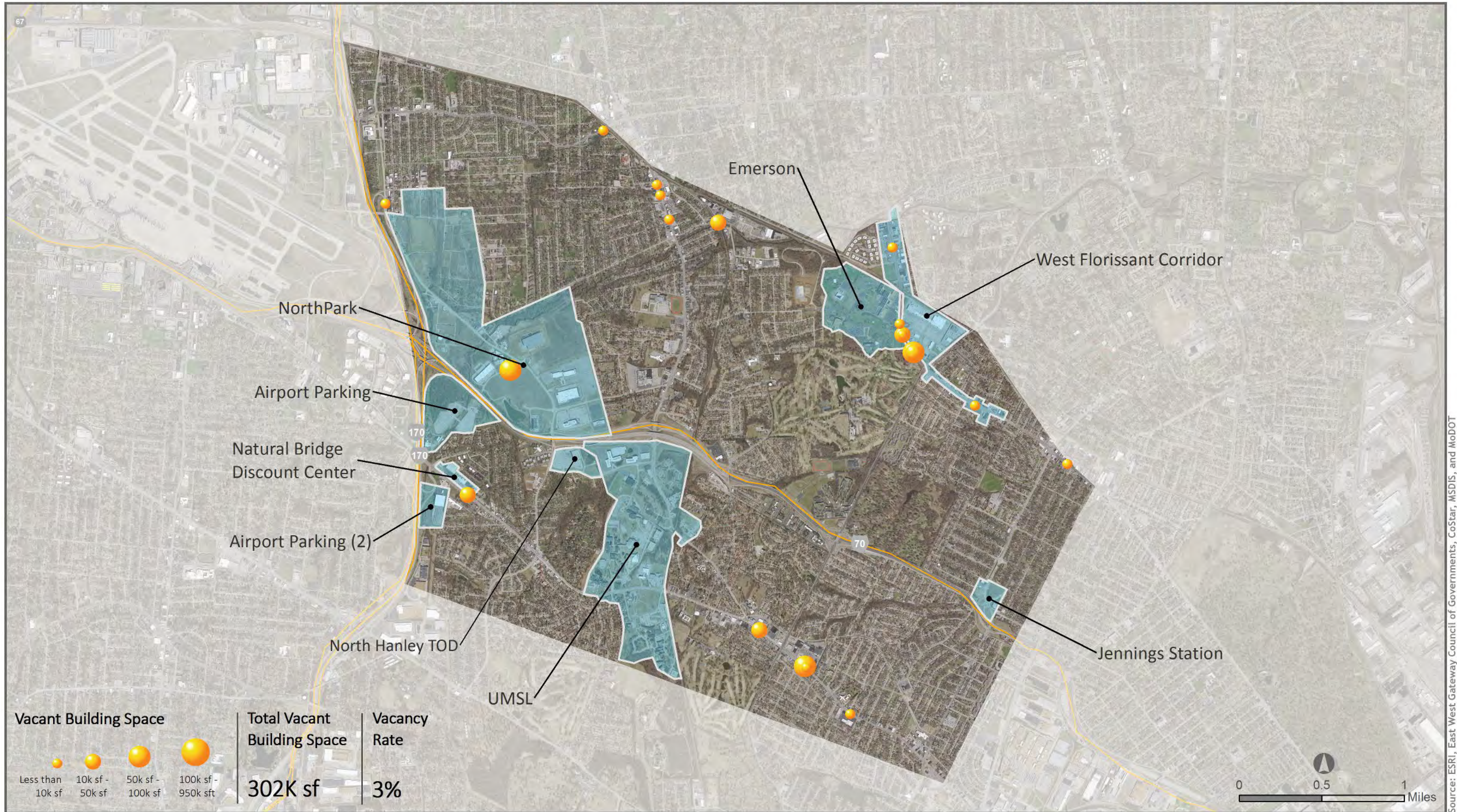
Source: ESRI, East West Gateway Council of Governments, CoStar, MSDIS, and MoDOT

# St. Louis County West - Commercial Vacant Land - Figure 3-20

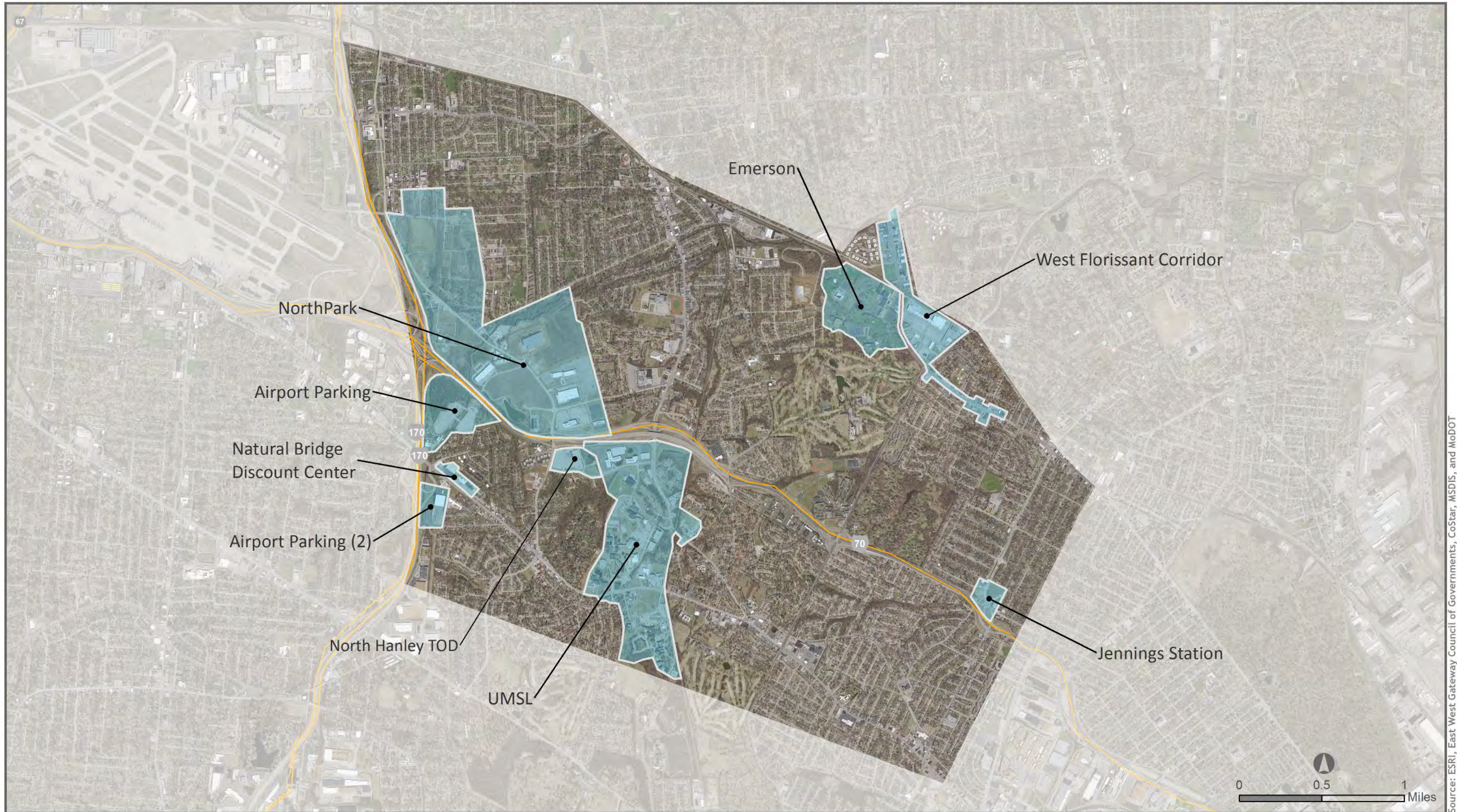


Source: ESRI, East West Gateway Council of Governments, CoStar, MSDIS, and MoDOT

# St. Louis County East - Commercial Vacant Building Space - Figure 3-21

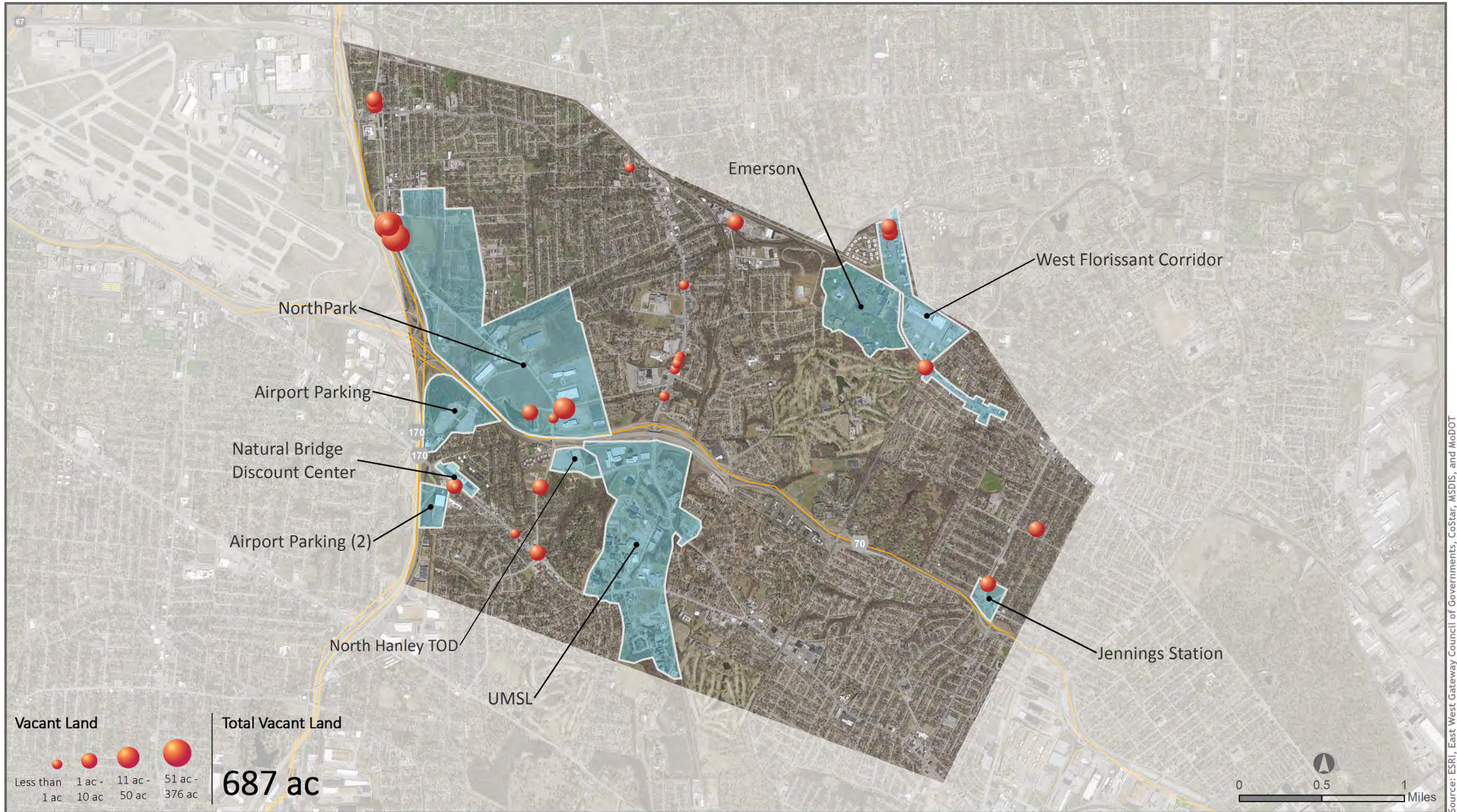


# St. Louis County East - Development Areas - Figure 3-22



Source: ESRI, East West Gateway Council of Governments, CoStar, MSDIS, and MoDOT

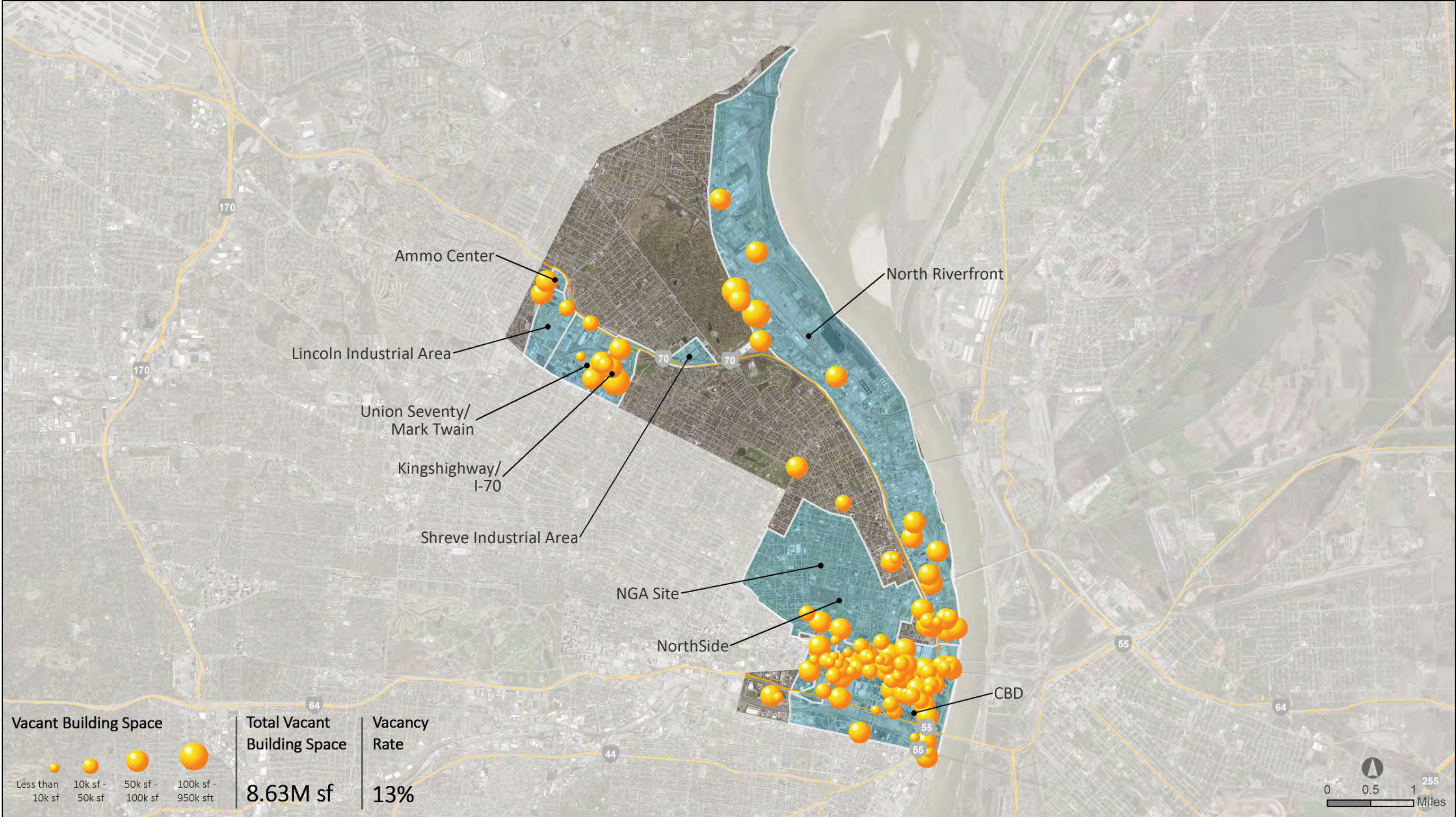
# St. Louis County East - Commercial Vacant Land - Figure 3-23



Source: ESRI, East West Gateway Council of Governments, CoStar, MSDIS, and MoDOT

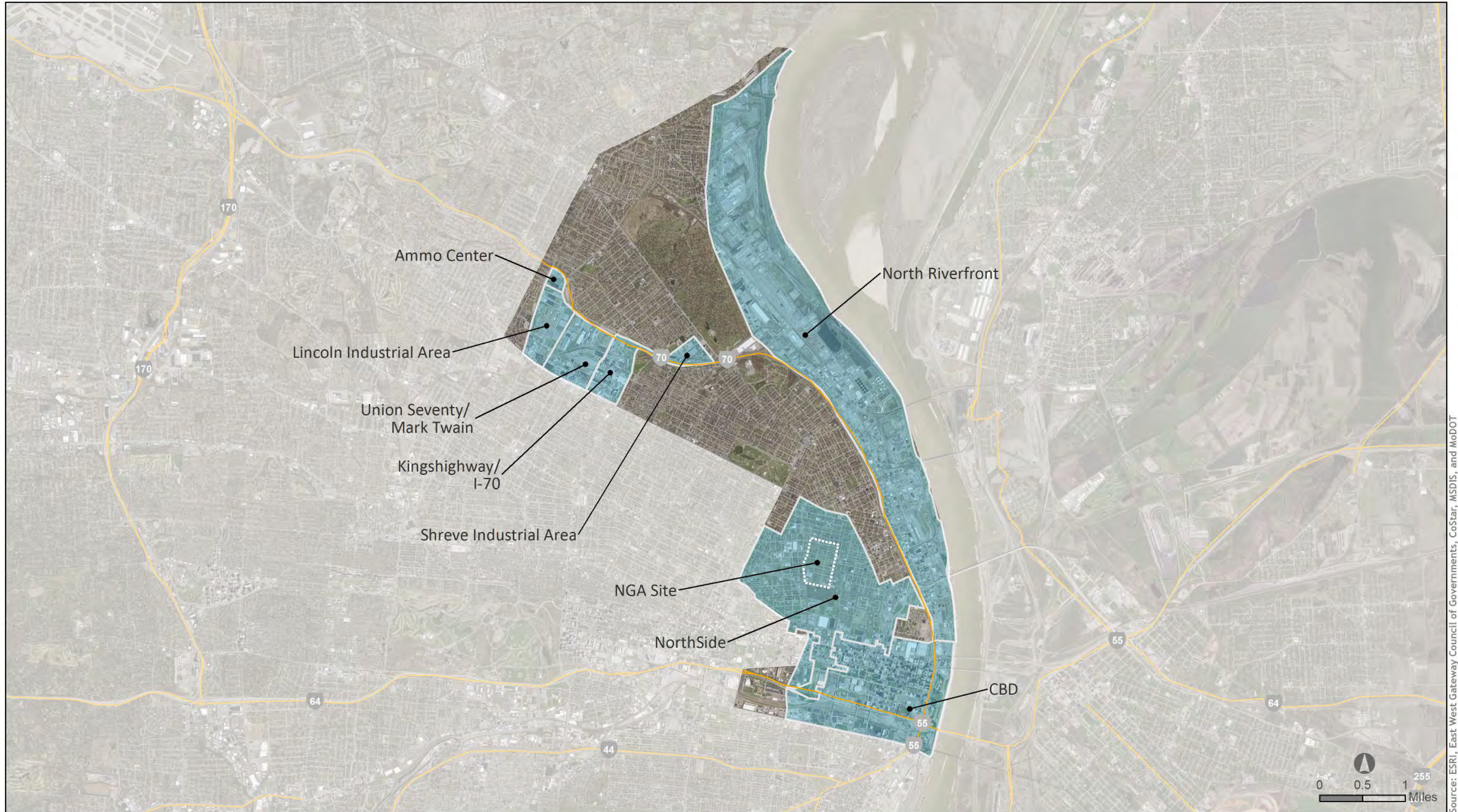


# St. Louis City - Commercial Vacant Building Space - Figure 3-24



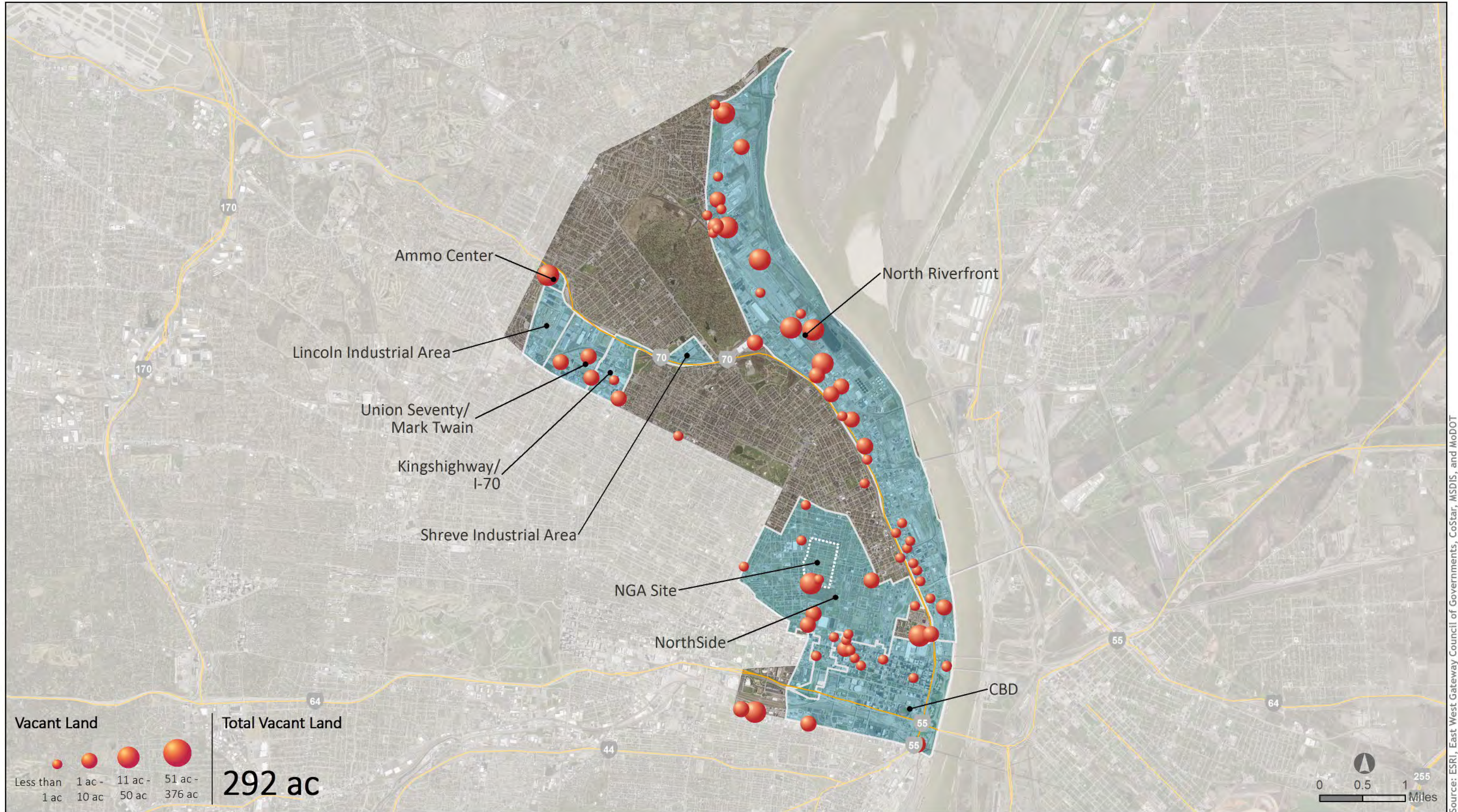
Source: ESRI, East West Gateway Council of Governments, CoStar, MSDIS, and MoDOT

# St. Louis City - Development Areas - Figure 3-25

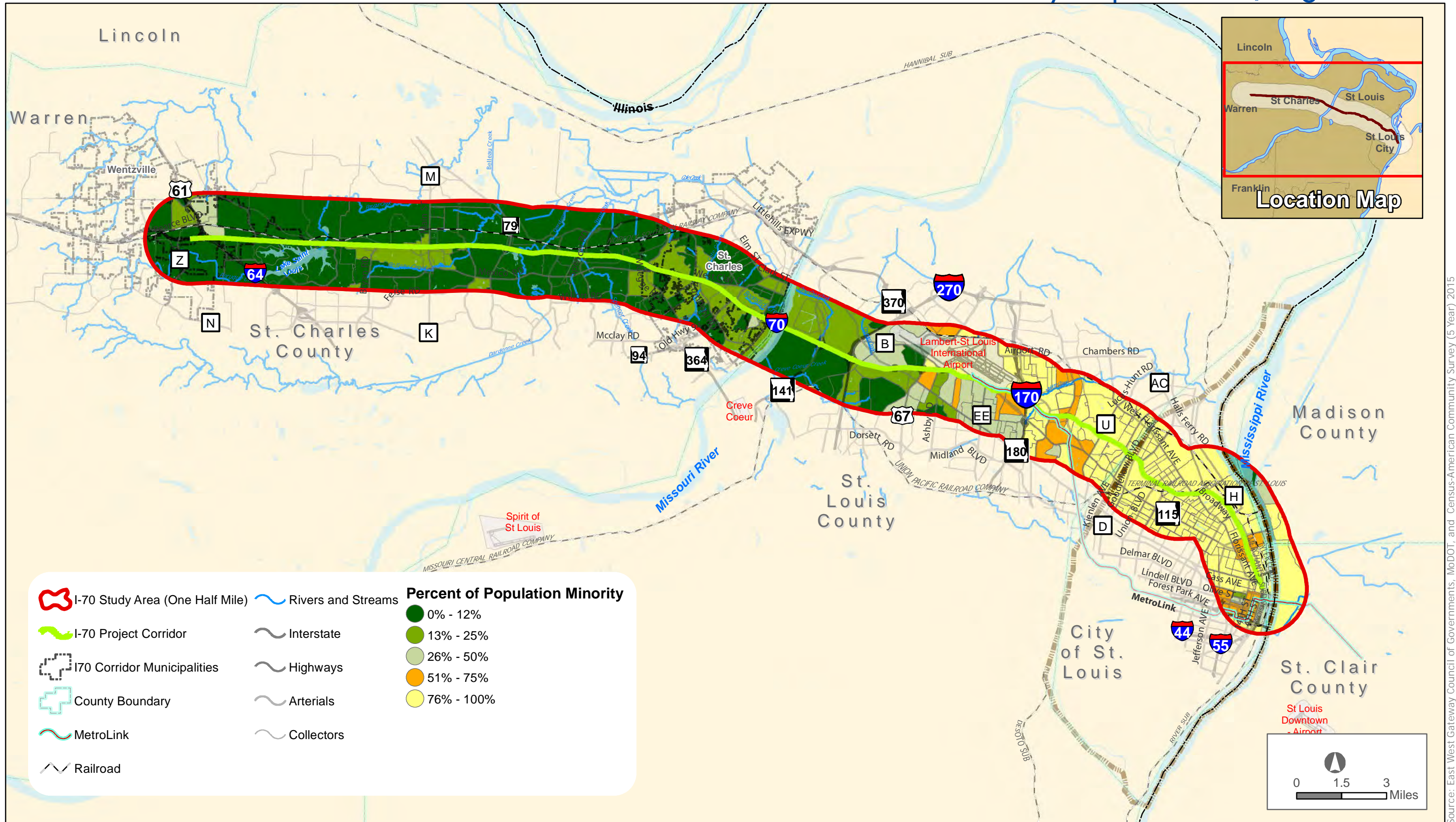


Source: ESRI, East West Gateway Council of Governments, CoStar, MSDIS, and MoDOT

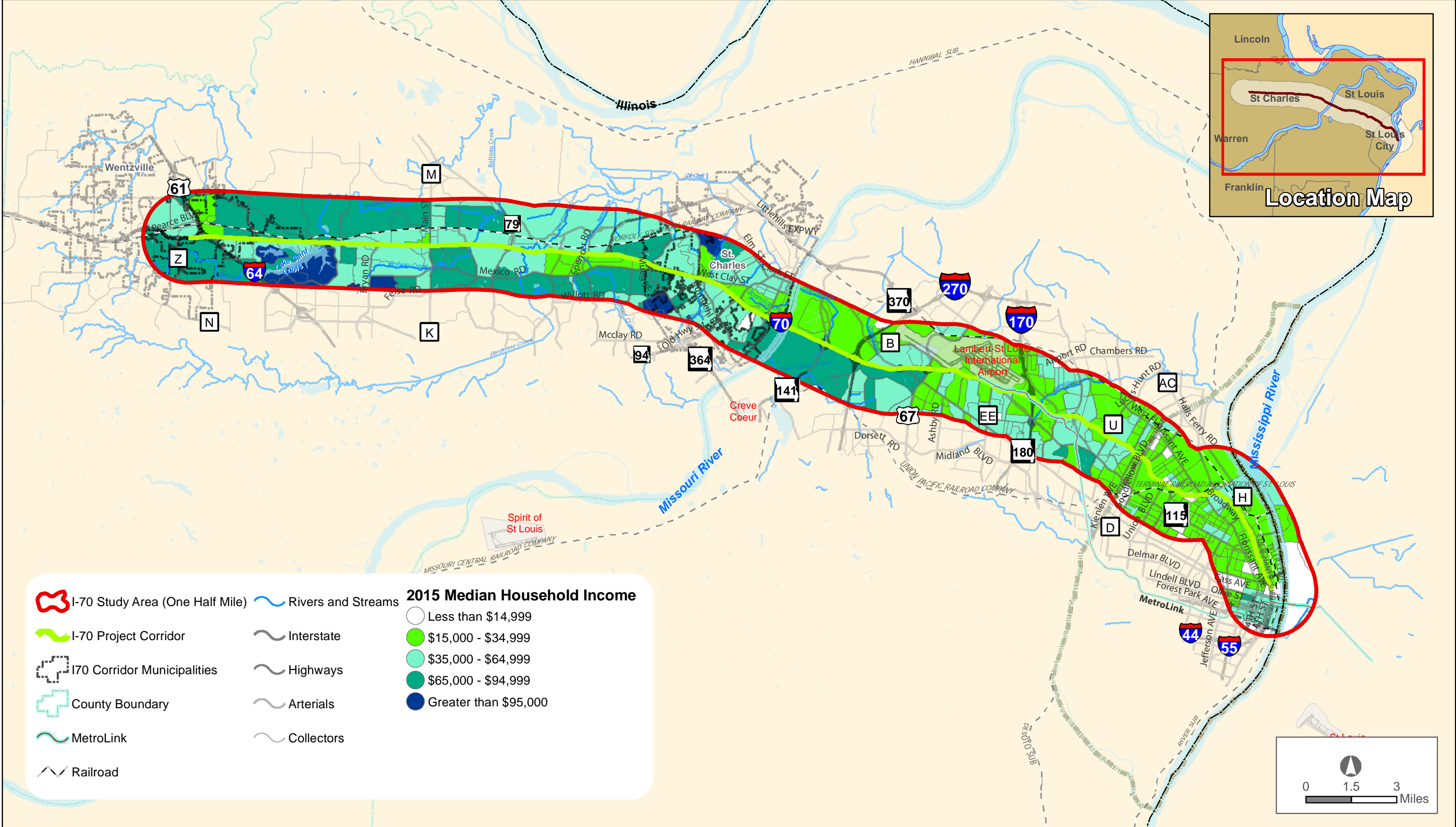
# St. Louis City - Commercial Vacant Land - Figure 3-26



Source: ESRI, East West Gateway Council of Governments, CoStar, MSDIS, and MoDOT

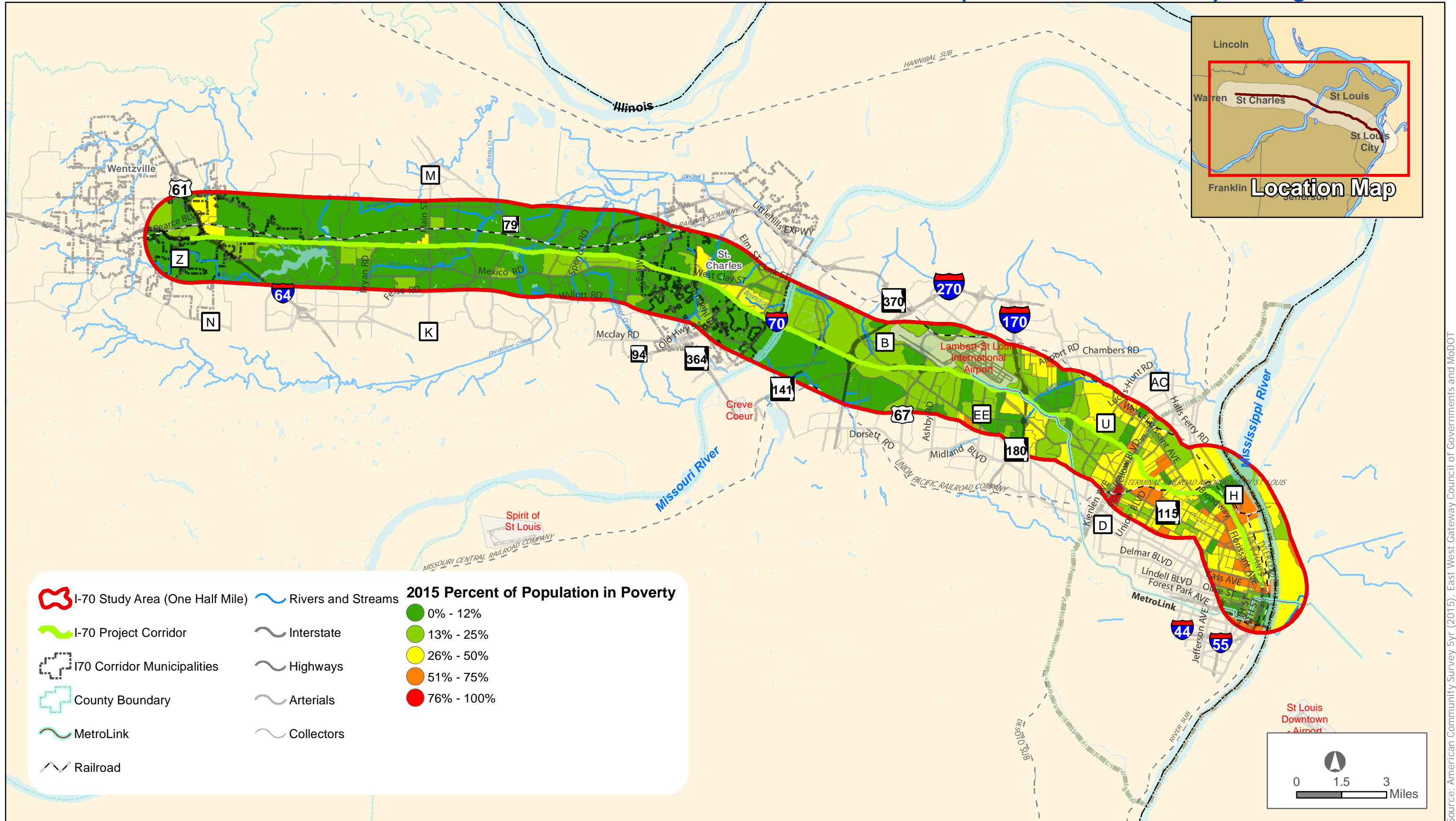


Household Income | Figure 3-28

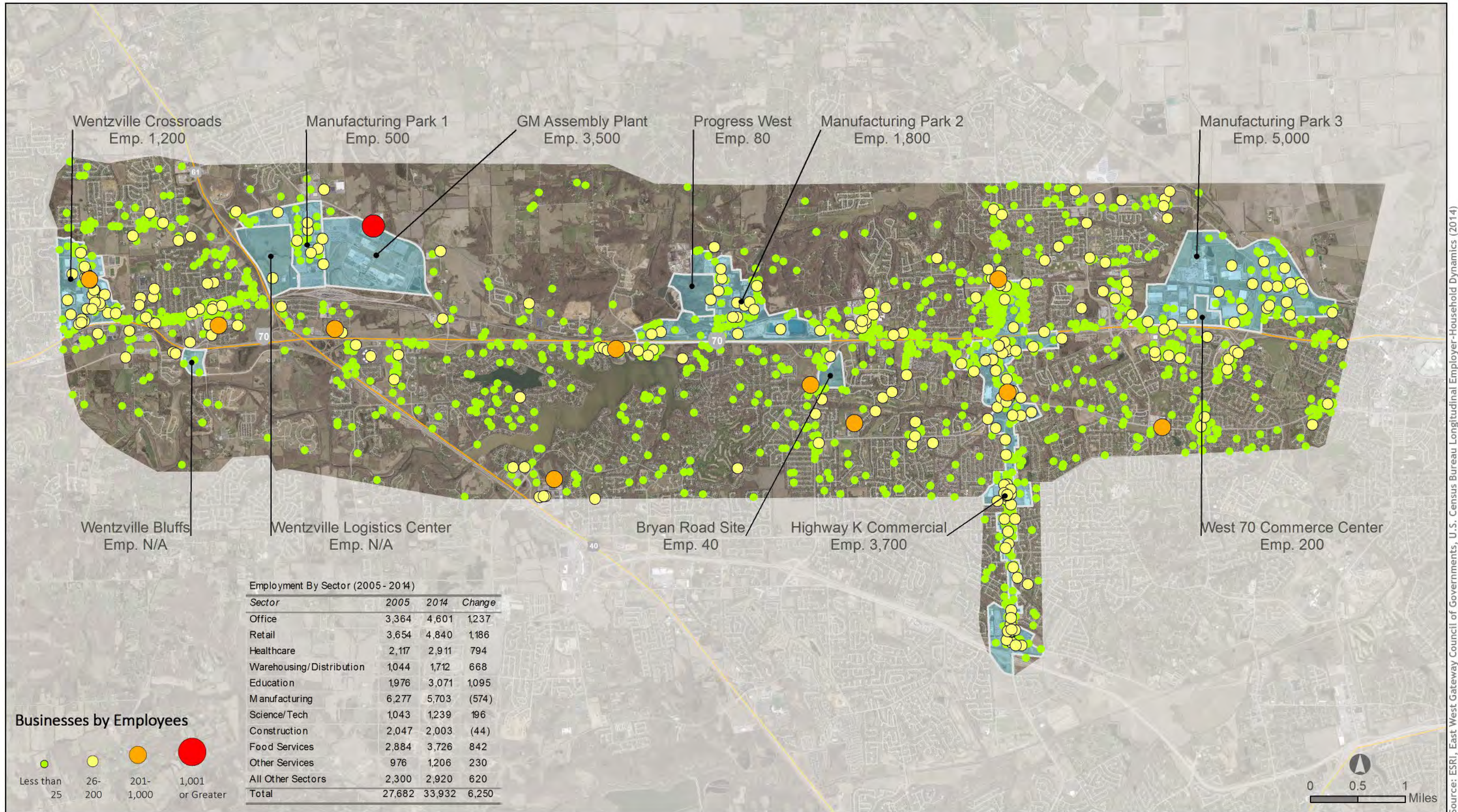


Source: American Community Survey 5yr (2015), East West Gateway Council of Governments, ESRI

# Population in Poverty | Figure 3-29

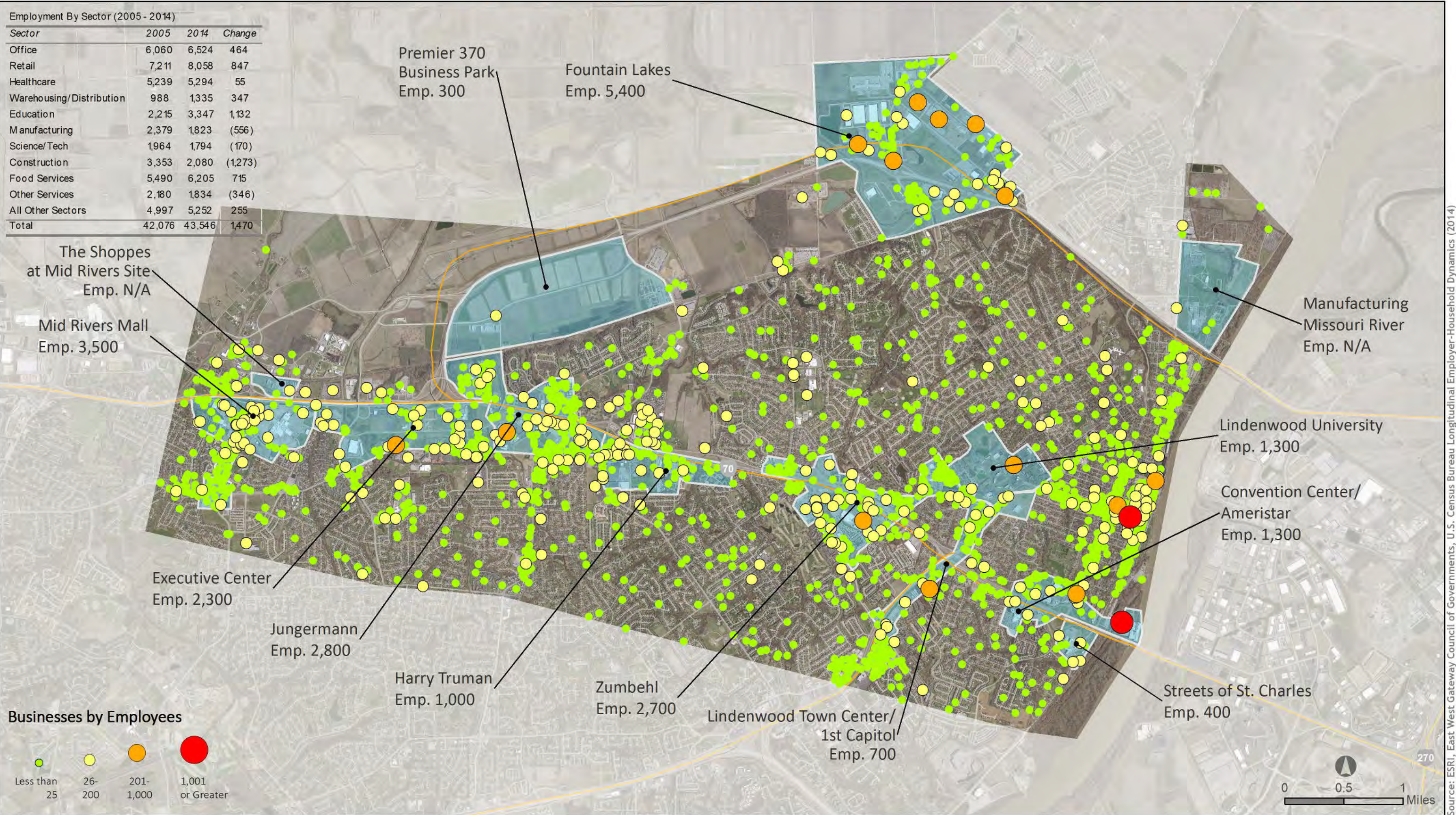


# St. Charles County West - Business Locations - Figure 3-30



Source: ESRI, East West Gateway Council of Governments, U.S. Census Bureau Longitudinal Employer-Household Dynamics (2014)

# St. Charles County East - Business Locations - Figure 3-31

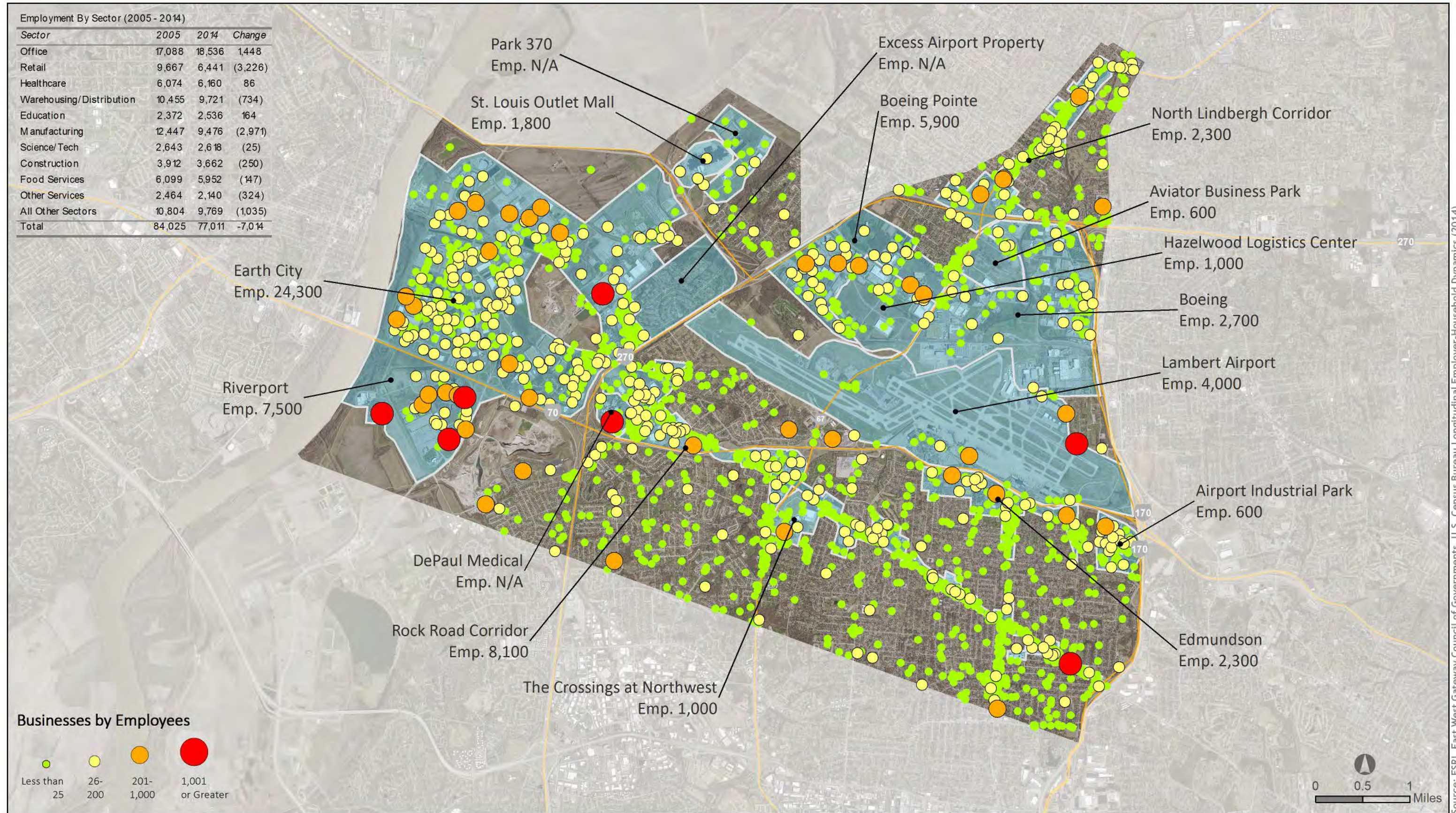


Source: ESRI, East West Gateway Council of Governments, U.S. Census Bureau Longitudinal Employer-Household Dynamics (2014)



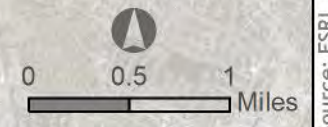
# St. Louis County West - Business Locations - Figure 3-32

Employment By Sector (2005 - 2014)			
Sector	2005	2014	Change
Office	17,088	18,536	1,448
Retail	9,667	6,441	(3,226)
Healthcare	6,074	6,160	86
Warehousing/Distribution	10,455	9,721	(734)
Education	2,372	2,536	164
Manufacturing	12,447	9,476	(2,971)
Science/Tech	2,643	2,618	(25)
Construction	3,912	3,662	(250)
Food Services	6,099	5,952	(147)
Other Services	2,464	2,140	(324)
All Other Sectors	10,804	9,769	(1,035)
<b>Total</b>	<b>84,025</b>	<b>77,011</b>	<b>-7,014</b>



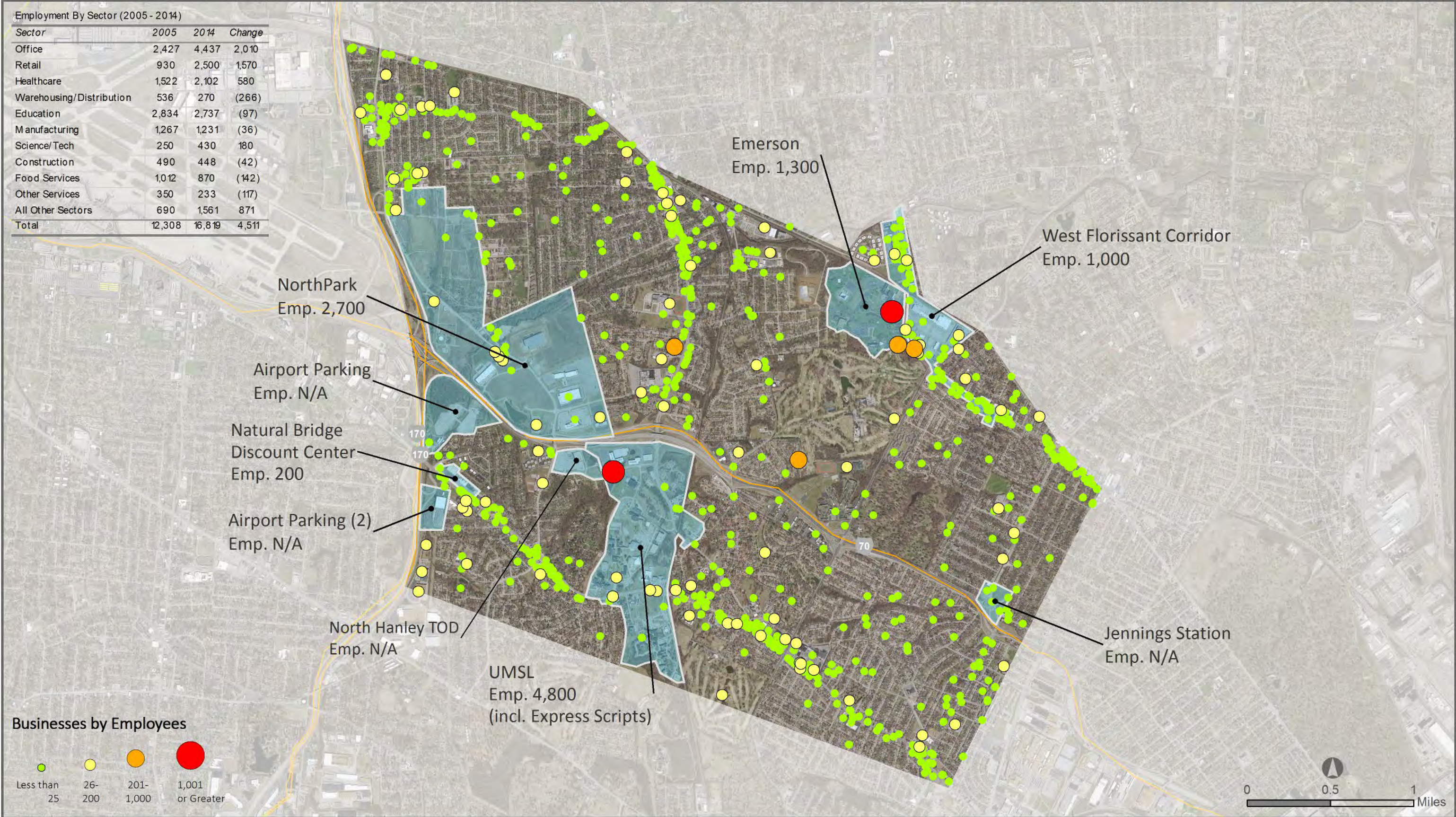
**Businesses by Employees**

- Less than 25
- 26-200
- 201-1,000
- 1,001 or Greater



Source: ESRI, East West Gateway Council of Governments, U.S. Census Bureau Longitudinal Employer-Household Dynamics (2014)

# St. Louis County East - Business Locations - Figure 3-33

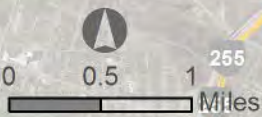
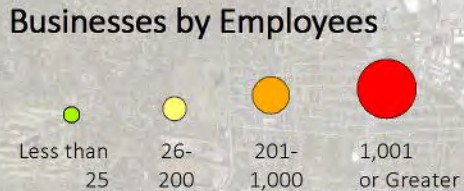
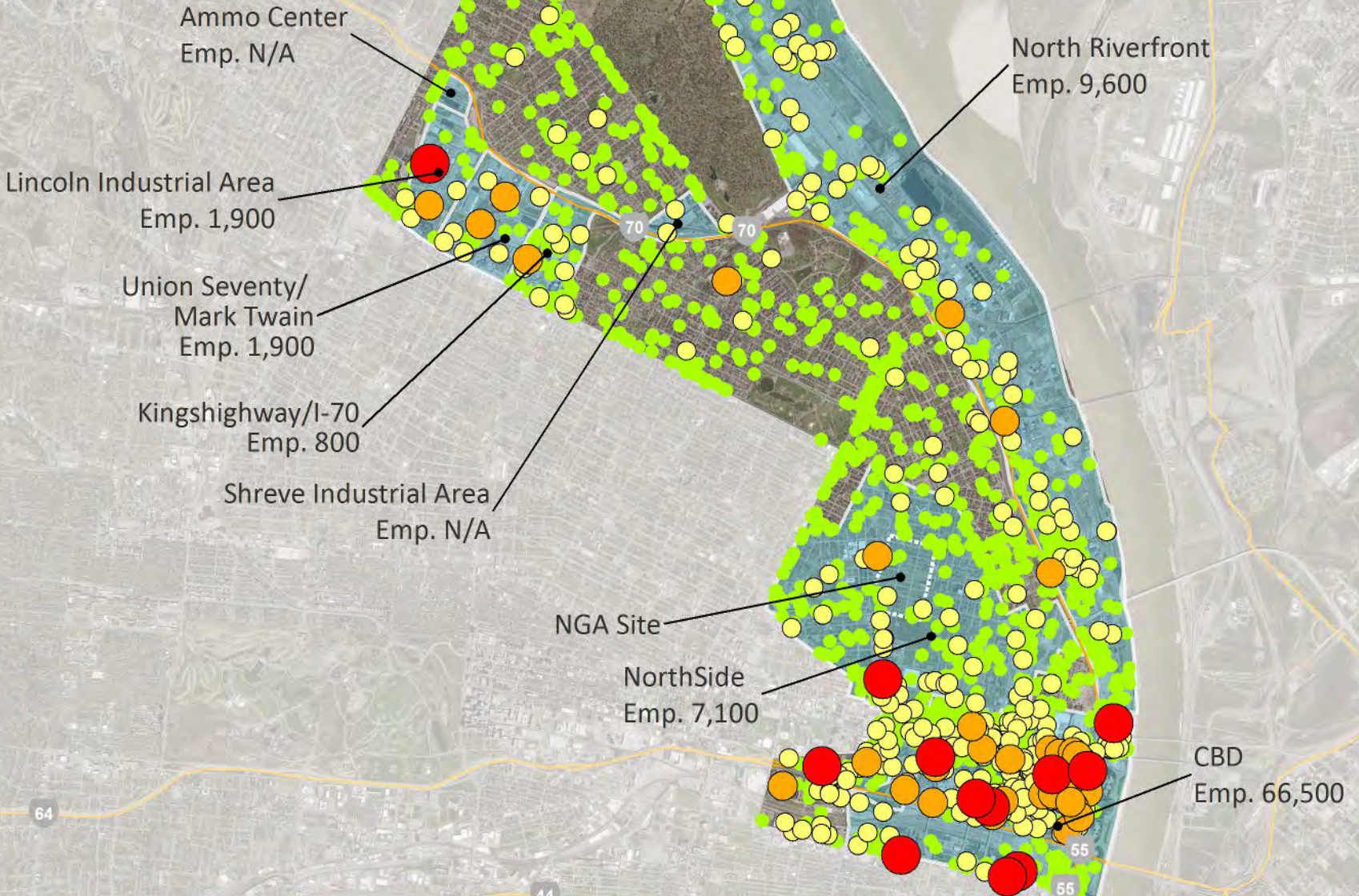


Source: ESRI, East West Gateway Council of Governments, U.S. Census Bureau Longitudinal Employer-Household Dynamics (2014)

# St. Louis City - Business Locations - Figure 3-34

Employment By Sector (2005 - 2014)

Sector	2005	2014	Change
Office	28,970	31,268	2,298
Retail	5,525	1,981	(3,544)
Healthcare	3,530	4,060	530
Warehousing/Distribution	5,053	5,250	197
Education	2,116	2,898	782
Manufacturing	6,546	6,600	54
Science/Tech	10,533	13,001	2,468
Construction	1,922	2,256	334
Food Services	7,626	7,535	(91)
Other Services	2,370	2,181	(189)
All Other Sectors	16,026	17,155	1,129
<b>Total</b>	<b>90,217</b>	<b>94,185</b>	<b>3,968</b>



Source: ESRI, East West Gateway Council of Governments, U.S. Census Bureau Longitudinal Employer-Household Dynamics (2014)