

Non-Interstate Truck Corridor Study

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St. Louis Regional Freightway | July 2023

TRANSYSTEMS

Non-Interstate Truck Corridor Study

St. Louis Regional Freightway | July 2023

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Index of Acronyms and Abbreviations

AASHTO American Association of State Highway and Transportation Officials **ACP** America's Central Port **ADT** Average Daily Traffic **CFI** Continuous Flow Intersection **CN** Canadian National Railway **CPKC** Canadian Pacific Kansas City **CSX** Chessie Seaboard X Corporation **DDI** Diverging Diamond Interchange **ELD** Electronic Logging Device **EWG** East-West Gateway Council of Governments **FEMA** Federal Emergency Management Agency **IDOT** Illinois Department of Transportation **ITS** Intelligent Transportation Systems J-Turn Restricted Crossing U-Turn **KRPD** Kaskaskia Regional Port District **MEV** Million Entering Vehicle MoDOT Missouri Department of Transportation MRT St. Louis Municipal River Terminal **MUTCD** Manual on Uniform Traffic Control Devices NCHRP National Cooperative Highway Research Program NGA National Geospatial-Intelligence Agency NS Norfolk Southern Corporation **RITIS** Regional Integrated Transportation Information System SPUI Single Point Urban Interchange STP-S Surface Transportation Program - Suballocated **TAZ** Transportation Analysis Zones Thru-turn Through U-Turn Intersection **TIF** Tax Increment Financing **TRB** Transportation Research Board TRRA Terminal Railroad Association of St. Louis **UP** Union Pacific

EXECUTIVE SUMMARY

Background

The St. Louis Regional Freightway (Freightway) established an Action Plan within the *St. Louis Regional Needs Analysis and Freight Development Plan (2017)* to help the Freightway serve its mission as an all-purpose authority for freight operations and opportunities within the St. Louis region – City of St. Louis, Illinois counties of Madison, Monroe, and St. Clair, and Missouri counties of Franklin, Jefferson, St. Charles, and St. Louis. The Action Plan identifies next steps for the Freightway, both near term and long term, and summarizes them in one of three categories *Educate, Advocate, Evaluate*. The first step in enhancing the St. Louis region as a premier international freight hub is to understand existing freight infrastructure, and then educate partners to increase overall awareness. One of the Action Plan tactics is to *provide information on the transportation assets in the St. Louis region* from the regional freight perspective and this study is intended to do just that for the movement of goods by truck.

Purpose and Objectives of the Study

In collaboration with East-West Gateway Council of Governments (EWG), the Freightway published this study in April 2020 to provide a planning tool that bring awareness to the freight-related role of the roadway assets beyond the interstate system. This effort compliments the *St. Louis Regional Freight Study* (2013). The *St. Louis Regional Freight Study* focused solely on the interstate system. The Freightway is filling a need to consider the next tier of infrastructure, the arterial system, to advocate for truck access to, from, and within the St. Louis region. This study recognizes there is a regional planning process in place that successfully identifies needs to ultimately propose and program roadway improvements for implementation; therefore, there are no projects proposed in this study.

The Non-Interstate Truck Corridor Study accomplished the following objectives:

- Identify non-interstate truck corridors throughout the St. Louis region
- Provide a planning tool from the regional freight perspective of goods movement by truck

This January 2023 publication provides an update of the regional infrastructure, roadway characteristics and socio-economic data associated with the identified non-interstate truck corridors.

The purpose of this study is to provide a valuable planning tool for bi-state regional transportation planners to guide infrastructure improvement considerations to include enhancement to freight movement by truck: *Educate, Advocate, Evaluate.*

Connectivity

Providing connectivity between established multimodal facilities and the interstate system is the primary criteria used to define the non-interstate truck corridors. Accepting the multimodal facilities as representative of freight generators, the roadway network was evaluated based on connectivity by assessing access to the following termini also illustrated in the exhibit excerpts that follow:

- Intermodal Rail Yards
- Public Ports and Waterways
- Freight-Related Airports

- Transportation-Related Employers
- Freightway Featured Industrial Real Estate Sites
- Industrial Site Areas Identified by EWG

Intermodal Rail Yards

(Exhibit 2-2)



Public Ports and Waterways (Exhibit 2-3)



Freight-Related Airports

(Exhibit 2-4)



Freightway Featured Industrial Real Estate Sites (Exhibit 2-6)



Transportation-Related Employment Clusters (*Exhibit 2-5*)



Industrial Site Areas Identified by EWG (Exhibit 2-7)



Non-Interstate Truck Corridors

Upon identifying non-interstate truck corridors based on the connectivity criteria described in the previous section, it became apparent that the corridors functioned differently as segments of the roadway network providing truck access to, from, and within the St. Louis region. Therefore, the corridor segments have been categorized as one of the following three types of Connectors:

- Freight Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to the Industrial Site Areas identified by EWG. These areas represent freight generators with developed industry clusters at or near full tenancy. Connections to these Areas are also notable because this is one of the evaluation metrics for proposed improvements competing for funding as a freight/economic development type project within the Surface Transportation Block Grant Program administered by EWG.
- Intra-Regional Connectors are non-interstate segments of the St. Louis region's roadway
 network that have existing multi-axle vehicle traffic providing access for freight and
 deliveries, primarily thru truck traffic or freight generators outside of the industrial site areas
 identified by EWG. The Intra-Regional Connectors offer system redundancies providing
 alternate routes to freight movement inbound and outbound from the interstate system.
- Emerging Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to Freightway Featured Industrial Real Estate Sites. These sites are regionally targeted priority sites not currently fully developed or near full tenancy.

Across the St. Louis region there are **54 Freight Connectors**, **41 Intra-Regional Connectors**, and **17 Emerging Connectors** as shown on the Regional Map, Exhibit E-1.

These connectors comprise a non-interstate freight network. When roadway improvements are needed, the minimum guidelines set forth by the appropriate local jurisdictional agency should always seek to be met. However, freight corridors should be designed more specifically to accommodate truck mobility, access, and circulation. EWG refers to these considerations as commercial vehicle countermeasures. As such, this study includes a design guide that provides project sponsors and transportation decision-makers guidance on how to better integrate freight movement into their roadway system. As the region's freight industry grows, it will be important that this growth be truly integrated in the community to mitigate impacts to the region's livability and to other transportation modes. As the regional freight advocate, the Freightway is presenting this document as a reference guide that can be used to not only provide project level design suggestions but to serve as overall educational piece, to help other professionals better understand the impacts and dynamics of freight within the local communities.



Non-Interstate Truck Corridors by Region

Illinois

Madison County

- Gateway Commerce Center Drive
- IL Route 3 between McKinley Bridge and IL Route 143
- IL Route 111 between I-55 and Madison Street
- IL Route 255 between I-255 and IL Route 143
- IL Route 143 between US Route 67 and IL Route 255
- IL Route 143 and US Route 40 to/from I-70
- IL Route 162 between IL Route 203 and I-255
- IL Route 203 between I-55 (beyond the county line) and IL Route 162
- IL Route 255 between IL Route 143 and US Route 67
- Madison Avenue / Hawthorne Street between IL Route 3 and IL Route 255
- New Poag Road between IL Route 3 and IL Route 255
- US Route 67 between IL Route 255 and IL Route 16 (beyond the county line into Jerseyville)

Monroe County

- Bluff Road (County Highway 6) between IL Route 156 and Hanover Road (connecting to IL Route 3)
- IL Route 3 between Monroe/Randolph County Line and I-255
- IL Route 156 between Bluff Road and IL Route 3

St. Clair County

- Air Mobility Drive / IL Route 158
- IL Route 3 between I-255 and I-55 (parallel to I-70 beyond the county line)
- IL Route 4 between IL Route 161 and I-64
- Sauget Business Boulevard
- US 50 between I-64 and IL-4
- IL Route 15 between I-255 and Green Mount Road
- IL Route 157 between I-255 and IL Route 3
- IL Route 203/Collinsville Road between Roselake Drive and I-55/I-70
- IL Route 158/177 and IL Route 159 north of IL Route 15

Missouri

City of St. Louis

- Arsenal Street between McCausland Avenue and I-44
- Compton Avenue between MO Route 100 and I-64
- Ellendale Avenue / McCausland Avenue / Wellington Avenue between BNSF Intermodal Facility and Southwest Avenue
- Forest Park Avenue between Vandeventer Avenue and I-64
- Goodfellow Boulevard between MO Route 115 and I-70
- Hall Street between MO Route H and Grand Avenue
- Hampton Avenue between I-44 and I-64
- Jamieson Avenue between I-44 and Arsenal Street
- Jefferson Avenue between I-44 and MO Route 115
- Kingshighway Boulevard between MO Route 115 and I-70
- Kingshighway Boulevard between MO Route 366 and I-64
- MO Route H between I-70 and I-270
- MO Route 100 between Hanley Road (beyond the city limit) and 1st Street
- MO Route 115 (Natural Bridge Avenue) between Goodfellow Boulevard and Kingshighway Boulevard
- North Broadway between Cass Avenue and Riverview Drive / MO Route H
- South Broadway / 7th Boulevard between I-55 and I-44
- South Broadway / MO Route 231 / Telegraph Road between I-270 and I-5
- Southwest Avenue between McCausland Avenue and I-44
- Union Boulevard between MO Route 115 and I-70
- Vandeventer Avenue between I-44 and Forest Park Avenue
- MO Route 115 (Natural Bridge Avenue) between Kingshighway Boulevard and Jefferson Avenue
 Franklin County
- MO Route A/Independence Drive between US Route 50 and MO Route 47
- MO Route 47 between I-44 and

Missouri River Bridge

- US Route 50 between Independence Drive and MO Route 47
- MO Route 100 between Vossbrink Drive and MO Route C
- MO Route 100 between Vossbrink Drive and I-44
- US Route 50 between MO Route 47 and I-44

Jefferson County

- Castle Acres Road / River Cement Road
- Crystal City-Herky Road / Riverview Plaza Drive
- Main Street (DeSoto) between MO Route N / Flucom Road and MO Route 110
- McNutt Street
- MO Route Z between I-55 and US Route 67
- MO Route 30 between MO Route MM and I-270 (beyond the county line)
- MO Route 110 between Main Street and US Route 67
- US Route 67 between MO Route 110 and I-55
- US Route 67 between Main Street (Herculaneum) and Joachim Avenue

St. Charles County

- MO Route A
- MO Route 61 between MO Route A and I-70
- MO Route 79 between Salt River Road and I-70
- MO Route 370
- New Town Boulevard between both intersections with Elm Point Industrial Drive
- Salt River Road/Mid-Rivers Mall Drive
- Terra Lane between TR Hughes Boulevard and Salt Lick Road
- Wentzville Parkway between I-70 and US Route 61
- Bryan Road between MO Route 364 and West Terra Lane
- Elaine Drive between West Terra Lane and North Central Avenue
- Luetkenhaus Boulevard (Business Route 61)
- Mexico Road
- MO Route K between I-64 and I-70
- MO Route N between MO Route Z and I-64
- MO Route Z between MO Route N and I-70
- MO Route 94 between MO Route 364 and I-70
- MO Route 364
- West Meyer Road / MO Route W between I-70 and Wentzville Parkway

- West Pearce Boulevard
- West Terra Lane between Lake St. Louis Boulevard and TR Hughes Boulevard
- David Hoekel Parkway
- Interstate Drive between Wentzville Parkway (future extension) and MO Route Z
- Harry S Truman Boulevard

St. Louis County

- Chesterfield Airport Road
- Creve Coeur Mill Road between MO Route 141 and Rose Acres Lane
- Dorsett Road between I-270 and US Route 67
- Green Park Road
- Hanley Road between I-70 and Scudder Avenue
- McDonnell Boulevard
- Missouri Bottom Road
- MO Route D / MO Route 364 between I-270 and Hanley Road
- MO Route 141 between MO Route 340 and MO Route 370
- MO Route 180 (St. Charles Rock Road) between I-270 and MO Route 141
- North Highway Drive
- Pritchard Farm Road
- South Highway Drive
- Taussig Road
- Union Road between Reavis Barracks Road and US Route 67
- US Route 67 between MO Route 364 and I-270
- Baumgartner Road / Meramec Bottom Road
- Hanley Road between MO Route 100 and I-64
- Aubuchon/Missouri Bottom Road between MO Route 370 and Teson Road
- MO Route 141 between MO Route 21 and MO Route 340
- MO Route 367 between I-270 and US Route 67
- US Route 67 between Union Road and I-44US Route 67 between MO Route 100 and
- MO Route D/364
- US Route 67 between I-270 and Clark Bridge
- MO Route 340 / MO Route 100 between I-64 and I-270
- Air Cargo Road
- Banshee Road
- Fee Road south of Missouri Bottom Road
- Gist Road
- MO Route 364 between I-270 and MO Route 141

CHAPTER 1 | INTRODUCTION

Background

The St. Louis Regional Freightway (Freightway) was founded in 2014 as an enterprise of Bi-State Development, a dynamic and multi-faceted resource for development in the St. Louis region. The Freightway is an all-purpose authority for freight operations and opportunities within the St. Louis region that seeks to enhance the region's standing as a premier international freight hub. The Freightway connects the private and public sectors while advocating the region's greatest freight and site selection strengths.

Members of the Freightway include a broad cross-section of industry leaders representing manufacturing, logistics, industrial real estate, workforce development, economic development organizations, academia, and all modes of transportation. The Missouri Department of Transportation (MoDOT), Illinois Department of Transportation (IDOT), and EWG Council of Governments are also important members.

St. Louis Region

The St. Louis region is an area within Illinois and Missouri at the confluence of the Mississippi and Missouri Rivers in the center of America's freight network. As displayed in Exhibit 1-1, the Freightway represents four counties in Missouri, three counties in Illinois, and the City of St. Louis. The region has nearly 2.6 million residents and access to all major modes of transportation: road, rail, river, and air.



Exhibit 1-1: St. Louis Region

Purpose and Objectives of the Study

The Freightway established an Action Plan within the *St. Louis Regional Needs Analysis and Freight Development Plan (2017).* The Action Plan identifies next steps for the Freightway, both near term and long term. The next steps are summarized in one of three categories – *Educate, Advocate, Evaluate* – to help the Freightway serve its mission as an all-purpose authority for freight operations and opportunities within the St. Louis region. The first step in enhancing the St. Louis region as a premier international freight hub is to understand existing freight infrastructure, and then educate partners to increase overall awareness. One of the Action Plan tactics is to *provide information on the transportation assets in the St. Louis region* from the regional freight perspective and this study was initiated to do just that from the regional freight perspective, namely, for the movement of goods by truck.

In collaboration with EWG, the Freightway initiated this study to provide a planning tool that bring awareness to the roadway assets beyond the interstate system. This effort compliments the *St. Louis Regional Freight Study* (2013). The *St. Louis Regional Freight Study* focused on the interstate system. The Freightway is filling a need to consider the next tier of infrastructure, the arterial system, to advocate for truck access to, from, and within the St. Louis region.

The purpose of this study is to provide a valuable planning tool for bi-state regional transportation planners to guide infrastructure improvement considerations to include enhancement to freight movement by truck: *Educate, Advocate, Evaluate.*

The Non-Interstate Truck Corridor Study accomplished the following objectives:

- Identify non-interstate truck corridors throughout the St. Louis region
- Provide a planning tool from the regional freight perspective movement of goods by truck

Study Outline

The Non-Interstate Truck Corridor Study is organized into the following sections:

- Chapter 2: This chapter provides a summary of the criteria used to identify and define three categories of non-interstate truck corridors.
- Chapters 3-10: Mapping, narrative summaries and performance data of the non-interstate truck corridors are provided via individual chapters for each of the seven counties and the City of St. Louis comprising the St. Louis region in which the non-interstate truck corridors, respectively.
- *Chapter 11:* This chapter provides descriptions of typical roadway characteristics favorable for truck traffic.
- *Chapter 12:* This chapter synthesizes the industry engagement to gain an understanding of the infrastructure concerns from the perspective of the trucking industry.

CHAPTER 2 | METHODOLOGY

The non-interstate truck corridor study effort initiates the identification of arterial routes that support freight movement to, from, and within the St. Louis region. While traffic volumes of multi-axle vehicles may be an initial indicator of potential truck routes, this study focuses on connectivity. This approach provides a broader assessment of the function of the non-interstate corridors within the region, from the freight movement perspective.

Proximity to Multimodal Facilities and the Interstate

Providing connectivity between established multimodal facilities and the interstate system is the primary criteria used to define the non-interstate truck corridors. Accepting the multimodal facilities as representative of freight generators, the roadway network was evaluated based on connectivity by assessing access to the following termini:

- Connectivity to Interstates
- Connectivity to Intermodal Rail Yards
- Connectivity to Public Ports
- Connectivity to Freight-Related Airports

Connectivity to Interstates

This study began with the non-interstate roadway system in terms of its connectivity from the interstates to provide access into, within, and from the St. Louis region for movement of goods by truck. The St. Louis region is located at the nexus of the north-south and east-west interstate system, as displayed in Exhibit 2-1, with four interstates that provide multi-directional access to major cities.

- I-70: East-west corridor connecting to Denver, Kansas City, Indianapolis, and Baltimore
- I-64: East-west corridor connecting to Louisville
- I-44: East-west corridor connecting to Oklahoma City and Tulsa
- I-55: North-south corridor connecting to New Orleans, Memphis, and Chicago

Due to the central location and major interstate connections, freight shipments can reach major Midwestern and Southern cities within a one-day drive or anywhere in the United States within a three-day drive. A regional interstate loop comprising of I-270 and I-255, combined with the I-170 inner belt, also offers connections to and from ports, businesses, warehouses, and distribution parks throughout the region. The extensive, toll-free roadway network in St. Louis experiences significantly lower congestion than other similarly sized urban areas in the United States.

The MoDOT and IDOT continue to assess and advance major updates to regional bridges and roadways that are pivotal to preserving the integrity of the freight network.



Exhibit 2-1: Interstates

Connectivity to Intermodal Rail Yards

This study assesses non-interstate connectivity to intermodal yards. The St. Louis region is the third largest rail hub by volume in the United States linking six Class I railroads, as displayed in Exhibit 2-2. Five of the six Class I railroads operate intermodal yards.

- BNSF: BNSF Railway, Lindenwood Yard (MO)
- CN: Canadian National Railway
- CSX: CSX Corporation, Rose Lake Yard (IL)
- CPKC: Canadian Pacific Kansas City
- Valley Junction Yard (IL) -- Previously Kansas City Southern Railway (KCS)
- NS: Norfolk Southern Corporation, Luther Yard (MO)
- UP: Union Pacific Railroad, Dupo Yard (IL)

Other prominent railroads include the Terminal Railroad Association of St. Louis (TRRA), the local switching terminal railroad that owns and operates the Merchants Bridge and MacArthur Bridge over the Mississippi River as well as the Madison Yard in Illinois. The Alton & Southern Railway is another switching railroad under the ownership of UP that operates the Gateway Yard in Illinois, not shown on the map.

The region serves all corners of the United States without the need for railroad interchange. Bargerail transload services provide supply-chain options for shipments to and from both Houston and New Orleans. These connections allow delivery of freight to St. Louis for distribution throughout the United States. Intermodal capabilities, offered by five Class I railroads and the TRRA, and rail proximity to customers and suppliers continues to play an important role in the growth of manufacturing and distribution centers in St. Louis.



Exhibit 2-2: Intermodal Rail Yards

Connectivity to Public Ports

This study assesses non-interstate connectivity to public ports. Identification of transportationrelated industries is the criteria that accounted for connectivity to the private port operations throughout the St. Louis region as described later in this chapter. The St. Louis region is situated at the confluence of the Mississippi and Missouri Rivers. The Illinois River and Kaskaskia River also terminate at the Mississippi River in the northern and southern portions of the region, respectively. The ports and barge industries are primarily based along the Mississippi River, within close proximity to the agricultural heartland, major Midwest populations, and manufacturing centers.

As displayed in Exhibit 2-3, there are four active public ports in the St. Louis region.

- ACP: America's Central Port (IL)
- MRT: St. Louis Municipal River Terminal (MRT, MO)
- KRPD #1: Kaskaskia Regional Port District #1 (IL)
- KRPD #2: Kaskaskia Regional Port District #2 (IL)
 (KRPD #2 is located outside the boundary of this study in Randolph County, IL)
- Fayetteville Terminal: Kaskaskia Regional Port District Fayetteville Terminal

ACP and MRT are located within the statistical area of the Port of Metropolitan St. Louis (PMSL) with many private ports along the stretch of the Mississippi River from northern Madison County, IL to the southern tip of Jefferson County, MO. On the inland river system, PMSL is the most efficient moving move tonnage per river mile than any other port. PMSL is responsible for only 8% of the 855 miles of the Mississippi River but carries one-third of the river's total freight. ACP (1,200-acres) and MRT (40-acres) are intermodal facilities that offer truck, rail, and barge service; ACP is the northern-most lock-and ice-free port on the Mississippi River with easy access to the Gulf of Mexico. KRPD, the eighth largest inland port by tonnage, is located on the Kaskaskia River in Illinois. Both ACP and the Port of Kaskaskia offer container-on-barge capabilities. Additional port districts within the St. Louis region, including Jefferson County Port Authority (MO), St. Louis County Port Authority (MO), St. Charles County Port Authority (MO), and Port of Metropolitan St. Louis (MO), are assessing opportunities and advancing development concepts, as appropriate.





Connectivity to Freight-Related Airports

The identification of non-interstate truck corridors accounts for the proximity to airports associated with freight-related cargo and industrial development. The St. Louis region includes two international cargo airports with rail access, as well as three other major regional airports, as displayed in Exhibit 2-4.

- St. Louis Lambert International Airport (MO)
- MidAmerica St. Louis Airport (IL)
- St. Louis Downtown Airport (IL)
- Spirit of St. Louis Airport (MO)
- St. Louis Regional Airport (IL)

St. Louis Lambert International Airport is Missouri's largest and most used airport serving nine passenger airlines and three all-cargo airlines and offers over 900 acres of land available for development. St. Louis Lambert International Airport has expansive cargo facilities serving FedEx, UPS, and Amazon. MidAmerica St. Louis Airport is the region's second full-service commercial/cargo and passenger airport, co-located with Scott Air Force Base. The airport hosts state-of-the-art air cargo support facilities for domestic and international customers, including over 2,500 acres of developable land.

St. Louis Downtown Airport, located across the Mississippi River from downtown St. Louis, provides quick access to the downtown area and available sites ideal for distribution, warehousing, and light industrial use. The Spirit of St. Louis Airport is the area's largest regional airport by acreage, and hosts over 150 businesses. St. Louis Regional Airport serves diverse clientele ranging from corporate aircraft to military.



Exhibit 2-4: Freight-Related Airports

Proximity to Freight-Related Industry

In addition to multimodal facilities, the study focuses on connectivity between the interstate systems and freight-related industry (current and future) to define the non-interstate truck corridors. For this high-level planning tool, the study has assessed a variety of criteria to represent freight-related industry throughout the St. Louis region.

Connectivity to Transportation-Related Employers

The Freightway presents the Employers in Manufacturing, Wholesale Trade, and Transportation and Warehousing Sectors to illustrate the breadth of transportation-related industry within the St. Louis region and the context of the Multimodal Transportation Priority Projects serving the industry. In addition, the Freightway depicted the location of the employees working in these industries to likewise illustrate the relevance of the Multimodal Transportation Priority Projects, not only to movement of goods, but also to accommodate the workforce commute. This data was provided by the St. Louis Regional Chamber (Hoover Data, 2022). Hoover Data is self-reported by companies that identify themselves categorically as employers, so there are limitations to its application; however, it is sufficient for a high-level study of this nature.

Continuing the collaboration with the St. Louis Regional Chamber, this study utilizes the 2022 Hoover Data graphically, as shown in Exhibit 2-5, to recognize the proximity of non-interstate corridors to Transportation Industry.



Exhibit 2-5: Transportation-Related Employment Clusters

Connectivity to Freightway Featured Industrial Real Estate Sites

To account for future freight generators, this study considered access to/from the Freightway Featured Industrial Real Estate Sites. These are development-ready parcels and/or industrial parks currently under capacity, and the Freightway advocates as having significant space readily available (as of December 2022) for industrial or transportation/warehousing-related land uses. Criteria for these featured sites are as follows:

- 20 acres or more available space
- Broker, developer, or local/quasi government agency management and marketing
- Modern bulk warehouse park features
 - Minimum 24-foot clear height within existing buildings, or
 - Rail spur, or
 - Rail potential (adjacent Class I track), or
 - Airport runway access, or
 - Riverfront/port access
- Existing building available and/or under construction
- Entitlements (e.g., zoned, site plan approved, etc.)

Freightway Featured Industrial Real Estate Sites are numbered in Exhibit 2-6.



Exhibit 2-6: Freightway Featured Industrial Real Estate Sites

Freightway Featured Industrial Real Estate Sites*

Illinois

Madison County

- 1. America's Central Port
- 2. Route 3 Industrial JLL (Coming Soon)
- 3. Lakeview Commerce Center
- 4. Gateway Commerce Center
- 5. Gateway TradePort
- 6. Alton Center Business Park
- 7. Eastport Center (Coming Soon)

St. Clair County

- 8. TRRA Land Site Options (Coming Soon)
- 9. Mid America Commerce Center
- 10. Belle Valley Industrial Park III
- 11. Sauget Business Park
- 12. Dupo Real Estate & Development Sites
- 13. Mid America Airport Sites

Monroe County

14.MCEC Property

- 15. Rock City Business Complex
- 16. Highway 3 & Gall Road, Waterloo
- * Not Shown on Exhibit 2-7

These locations are beyond the St. Louis region defined for this study.

17. Kaskaskia Port (Randolph County)

18. Alan E. Gaffner Business Park (Bond County)

19. Kelsey Business Park (Bond County)

20. Mid America International Gateway (Jersey County)

Missouri

Franklin County

47. Washington Real Estate Sites

48.Union Corporate Center

St. Louis County

- 21. Aviator Business Park
- 22. Pershall Business Center
- 23. Hazelwood Logistics Center
- 24. Hazelwood TradePort
- 25. Hazelwood Sites & Buildings
- 26. Park 370 Business Center
- 27. St. Louis Lambert International Airport Sites
- 28. Earth City Industrial
- 29. Riverport Business Park
- 30. Riverport Trade Center
- 31. NorthPark
- 37. Fenton Logistics Park
- 38. Westpoint Sites
- 39. Westport Commerce Center
- 40. 141 Logistics Center (Coming Soon)

City of St. Louis

- 32. 8000 Hall Street
- 33. North Broadway Distribution
- 34. North Riverfront Business Park
- 35. Soulard Business Park
- 36. River City Business Park

St. Charles County

- 41. Fountain Lakes Commerce Center
- 42. Premier 370
- 43. West 70 Commerce Center
- 44. Interstate Commerce Center The Cubes at Wentzville
- 45. Wentzville I-70/I-64 Real Estate Sites
- 46. Commerce Park West

Source: Freightway, July 2023

Connectivity to Industrial Site Areas Identified by EWG

In 2013, the St. Louis Regional Freight Study was completed for EWG. That study identified industrial areas based on established industrial complexes and input from the study's Steering Committee; in 2020, EWG updated the list of industrial sites to reflect changes in the area. The site area boundaries were ultimately defined as Transportation Analysis Zones (TAZs), which are used for long-range planning. TAZ boundaries are typically established by the surrounding transportation network, which may result in areas much greater than the developed industrial parcel; however, that does not imply an intent to fully build-out development within the entire TAZ. Generally speaking, a TAZ is simply a unit of geography associated with population and employment projections.

The 22 Industrial Site Areas Identified by EWG in Exhibit 2-7 represent established freight generators for the identification of non-interstate truck corridors in this study. These are established centers of freight-related employment within the transportation network. EWG further tiered these industrial areas based on magnitude, and this is discussed further in Chapter 12. For the purposes of this study, the Industrial Site Areas have been treated equally in terms of the non-interstate corridors providing truck access from the interstate to these defined areas.



Exhibit 2-7: Industrial Site Areas Identified by EWG

Industrial Site Areas Identified by EWG

Illinois

Madison County

- 5. Gateway Commerce
- 7. Lewis and Clark North
- 9. Route 3 North

St. Clair County

- 10. Dupo Yard
- 11. East Industrial Gateway
- 17. Downtown Airport
- 21. MidAmerica Airport

Monroe County

The boundary for Dupo Yard Industrial Site Area encroaches into Monroe County

Missouri

City of St. Louis

- 1. Broadway Arsenal
- 2. Broadway Hall
- 8. Manchester I-44
- 19. Kingshighway I-70
- 22. Vandeventer Chouteau

St. Louis County

Earth City
 Lambert Airport
 Page - I-270 Quadrant
 Page Corridor
 Chesterfield Airport
 Green Park
 Meramec - I-44

St. Charles County 4. Fountain Lake Elm Point 12. GM Plant 15. West I-70 - Arrowhead

Franklin County N/A

Jefferson County N/A

Non-Interstate Truck Corridor Categories

Upon identifying non-interstate truck corridors based on the criteria described in this chapter, it became apparent that the corridors functioned differently as segments of the roadway network providing truck access to, from, and within the St. Louis region. Therefore, the corridor segments have been categorized as one of the following three types of Connectors:

- Freight Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to the Industrial Site Areas identified by EWG. These areas represent freight generators with developed industry clusters at or near full tenancy. Connections to these Areas are also notable because this is one of the evaluation metrics for proposed improvements competing for funding as a freight/economic development type project within the Surface Transportation Block Grant Program administered by EWG.
- Intra-Regional Connectors are non-interstate segments of the St. Louis region's roadway
 network that have existing multi-axle vehicle traffic providing access for freight and
 deliveries, primarily thru truck traffic or freight generators outside of the industrial site areas
 identified by EWG. The Intra-Regional Connectors offer system redundancies providing
 alternate routes to freight movement inbound and outbound from the interstate system.
- Emerging Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to Freightway Featured Industrial Real Estate Sites. These sites are regionally targeted priority sites not currently fully developed or near full tenancy.

Chapters 3-10 describe the Connectors geographically for each of the seven counties and the City of St. Louis comprising the St. Louis region. The study provides a narrative description of their roadway characteristics, as well as available daily traffic volumes and truck percentages averaged across the identified corridor. Prominent freight-related industries have been provided for reference along **Freight**, **Intra-Regional**, and **Emerging** Connectors. Furthermore, safety and performance metrics are provided by EWG for the **Freight Connectors** where applicable.

Performance-Based Planning

Federal legislation introduced requirements to influence transportation decision-making through a performance-based approach to transportation planning. EWG, IDOT, and MoDOT are required to report performance measures and incorporate the metrics into the project prioritization process. Likewise, transportation planners at the county and municipal levels consider performance metrics as well. For roadway projects, these factors include but are not limited to safety data, bridge/pavement conditions, and traffic operations. Furthermore, freight-related project improvements expand the assessment to include factors such as truck travel time reliability, economic development, multimodal connectivity, job growth, and freight flow impacts. As transportation need when advocating for a freight-related roadway project.

This study recognizes there is a regional planning process in place that successfully identifies needs, ultimately proposing and programming roadway improvements for implementation. Data to quantitatively support needs identification may be gathered from federal, state, and local resources. For example, EWG manages the Regional Integrated Transportation Information System (RITIS) data for the St. Louis region. Performance and safety metrics are calculated from raw data to analyze the regional roadway network. Safety metrics that may be associated with truck corridors may include but are not limited to:

- Total number of crashes
- Percentage of crashes involving trucks
- Vehicular crash rate (total crashes per millions of entering vehicle-miles, MEV)
- Truck crash rate (truck crashes per millions of entering vehicle-miles, MEV)

Performance metrics that may be associated with truck corridors may include but are not limited to:

- Reference Speed: The calculated "free flow" mean speed for the roadway segment in miles per hour. This attribute is calculated based upon the 85th-percentile point of the observed speeds on that segment for all time periods, which establishes a reliable proxy for the speed of traffic at free-flow for that segment.
- Buffer Time: The extra time (or time cushion) that travelers must add to their average travel time when planning trips to ensure on-time arrival (95% Travel Time - Average Travel Time).
- Buffer Index: The Buffer Time's percentage value of the Average Travel Time (95% Travel Time Average Travel Time) / Average Travel Time). Its value increases as reliability gets worse. For example, a buffer index of .4 (40 percent) means that, for a 20-minute average travel time, a traveler should budget an additional 8 minutes (20 minutes x 40 percent = 8 minutes) to ensure on-time arrival most of the time.
- Planning Time: The total time a traveler should plan for to ensure on-time arrival (95% Travel Time).
- Planning Time Index: The total travel time that should be planned when an adequate buffer time is included (95% Travel Time / Free-flow Travel Time). The planning time index differs from the buffer index because it includes typical delay as well as unexpected delay. Thus, the planning time index compares near-worst case travel time to a travel time in light or free-flow traffic. For example, a planning time index of 1.60 means that, for a 15-minute trip in light traffic, the total time that should be planned for the trip is 24 minutes (15 minutes x 1.60 = 24 minutes).
- *Travel Time:* The time it will take to drive along the segment (Distance Traveled / Speed).
- *Travel Time Index:* The travel time represented as a percentage of the ideal travel time (Travel Time / Free-flow Travel Time).

(https://ops.fhwa.dot.gov/publications/tt_reliability/TTR_Report.htm)

The performance and safety data outputs may be a simple tabular format; however, RITIS is a platform for transportation system analysis and monitoring with powerful data visualization tools beyond tables. <u>No projects are being proposed in this study.</u> The purpose of including examples of data is to demonstrate the importance of gathering and monitoring performance metrics on the non-interstate truck corridors in the most efficient manner by working with EWG, IDOT, and MoDOT and other transportation data resources. Performance measures quantify need and project competitiveness.

Competitive funding programs for freight-related projects require evaluations of proposed projects using via freight-related metrics as specified in the funding application process. For example, EWG administers the Surface Transportation Block Grant Program which includes freight/economic Development project types. The *Guidance Document for STP-S Project Development* is a workbook that outlines the evaluation process and provides reference materials to project sponsors to complete the application process. Freight projects are assessed by metrics such as:

- Road or bridge condition (including associated Intelligent Transportation Systems (ITS), if any)
- Multimodal accommodation
- Social equity (located in an Environmental Justice area of the region)
- Safety countermeasures
- Travel time reliability
- Access to jobs
- Intermodal significance
- Environmental Impacts

In the context of this competitive funding example, RITIS safety and performance data may be used to evaluate the safety countermeasures and travel time reliability criteria for the STP-S funding of a freight-related project. In addition, the Freight Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to the Industrial Site Areas identified by EWG as the metric to evaluate intermodal significance. Therefore, projects associated with these corridors might be a candidate, depending on the competitiveness across all of the evaluation criteria, for submittal to compete for the STP-S funding. STP-S is just one example of competitive funding opportunities for freight-related roadway projects. EWG provides a compilation of transportation funding sources administered by other agencies. (www.ewgateway.org/transportation-planning/transportation-improvement-program/competitive-transportation-programs/other-agencies-funding-sources)

Population Changes

While population was not a direct factor used to identify the corridors, changes to population help identify trends in growth across the region. The table below is a summary of decennial census population data from 2010 to 2020 for each county, as well as the City of St. Louis.

Location	2010	2020	Percent Change
City of St. Louis (MO)	319,294	301,578	-5.5%
Franklin County (MO)	101,492	104,682	3.1%
Jefferson County (MO)	218,733	226,739	3.7%
Madison County (IL)	269,282	265,859	-1.3%
Monroe County (IL)	32,957	34,962	6.1%
St. Charles County (MO)	360,485	405,262	12.4%
St. Clair County (MO)	270,056	257,400	-4.7%
St. Louis County (MO)	998,954	1,004,125	0.5%
Total	2,571,253	2,600,607	1.1%

Source: U.S. Decennial Census, 2010 and 2020

CHAPTER 3 | CITY OF ST. LOUIS (MO)

St. Louis, Missouri sits in the central portion of the St. Louis region, and is bordered to the north, west, and south by St. Louis County, and by the Mississippi River to the east. For more than 50 years, the population of the City has been in decline. The majority of this population decline has occurred due to a shift of residential to the suburban areas in neighboring counties. The City of St. Louis has experienced a population decline of 5.5% (319,294 to 301,578) from 2010 to 2020 relative to the region (U.S. Census). Despite this decline, St. Louis remains the second largest city in the state of Missouri, and the center of economic activity in the St. Louis region. The large majority of the City is characterized by dense land uses and urban streetscapes.

Transportation-Related Industry

According to the U.S. Bureau of Labor Statistics (BLS), Manufacturing accounts for approximately 8.5% of the employment within the City of St. Louis (2022). The most significant manufacturing employer in the city is Anheuser-Busch InBev, employing more than 3,000 workers. Other significant manufacturing employers in St. Louis include MilliporeSigma, Nestle Purina PetCare Company, Precoat Metals, and Sensient Technologies. Other industries that have impacts upon freight movement in the region with a significant presence in the City include transportation/warehousing, wholesale trade, and construction. The trade and transportation sector accounts for nearly 11% of all employment in the county (BLS, 2022). Some of the significant employers in these industries include Union Pacific Railroad, Hilti Incorporated, Bi-State Development Agency of The Missouri-Illinois Metropolitan District, and United Fruit and Produce Company.

Intermodal (rail-road-barge) facilities for commodities transportation/storage play a major role in freight movement within the City of St. Louis, in particular, along corridors adjacent to the Mississippi River. Six such facilities are currently in operation within the City along the Mississippi River. Burlington Northern Santa Fe (BNSF) Railroad operates the Lindenwood Yard intermodal (rail-to-road) facility in the southwest part of the City near I-44. NS Railway operates the Luther Yard intermodal (rail-to-road) facility in the northern part of the City near I-70.

The Port Authority of the City of St. Louis supports economic development within the City's 6,000acre Port District, which lies along the City's 19 miles of Mississippi River frontage including the MRT. MRT is a public, general purpose facility that transloads a wide variety of bulk commodities.

Although located in adjacent St. Louis County, the City serves as an owner/operator for St. Louis Lambert International Airport, which provides a critical hub for freight entering/exiting the St. Louis region. St. Louis Lambert International Airport has expansive cargo facilities serving FedEx, UPS, and Amazon.

Industrial Site Areas Identified by EWG

EWG has identified five Industrial Site Areas that lie within the confines of the City of St. Louis. The Industrial Site Areas were chosen based on review of land use and existing site characteristics, and input provided by the Steering Committee. Site area boundaries were ultimately defined based on Transportation Area Zones, which are zones associated with population and employment planning used for long-range transportation planning.

The five identified within the City were defined as:

- Broadway Arsenal
- Broadway Hall
- Kingshighway I-70
- Manchester I-44
- Vandeventer Chouteau

It is also noteworthy that the City is adjacent to the East Industrial Gateway Industrial Site Area that resides across the river in St. Clair County. For purposes of this study, the presence of non-interstate truck corridors within the confines of, or adjacent to, these Industrial Site Areas influences their inclusion in the list of Freight Connectors.

Industrial Sites with Rail Potential

To support the region's decision makers, a comprehensive rail site analysis was performed in 2022. The resulting study showed the St. Louis Region is lacking in active rail sites that can attract national tenants. There is underutilized land around the region that have connections to Class 1 railroads. The goal of the study was to highlight the land sites with industrial rail potential. The result was 11 locations with 14 sites. These are certified/premier sites that are shovel ready with supportive owners/developers. The sites are a mix of states, counties, and connecting railroads.

In the City of St. Louis, there are two sites: Carrie Avenue Industrial Park and River City Business Park.

Freightway Featured Industrial Real Estate Sites

St. Louis Regional Freightway has identified five industrial parks within the City of St. Louis that have significant space readily available (as of July 2023) for industrial or transportation and warehousing-related land uses, shown below.

Location	Available Total Area	Minimum Lot Size	Tax and Related Incentives	Highway Access	Rail/Barge Access (Yes/No)		
8000 Hall	25,000 ft ²	Negotiable	Tax Abatement, Enterprise Zone	I-70, I-270	Yes/No		
Street	Major Tenants: Axens NA, Fleetpride, JB Hunt, Propak Corporation, Roadrunner Transportation Systems						
North Riverfront Business Park	55,750 ft ²	n/a	New Market Tax Credits, Chapter 353 Real Property Tax Abatement (15 year), Tax Increment Financing (TIF), Chapter 100 Personal Property Tax Abatement, Building Materials Sales Tax Exemption, Missouri Works, Foreign Trade Zone (FTZ)	I-70, I-55, I-44, I-255/I-270, I-64	Yes/No		
	Major Tenar	nts: CSTK	l.	l	[
North Broadway	n/a	n/a	Tax Abatement, Enterprise Zone	I-70	Yes/No		
Distribution Center	n Major Tenants: <i>Delivery Network, Fairfield Manufacturing</i> Note: North Broadway Distribution Center is a fully occupied development but may impact truck travel.						
River City Business Park	45 acres	n/a	New Market Tax Credits, Chapter 353 Real Property Tax Abatement, TIF, Chapter 100 Personal Property Tax Abatement, Building Materials Sales Tax Exemption, Missouri Works, FTZ	I-55, I-44, I-70, I-255/I-270	Yes/No		
	Major Tenants: JGB Enterprises, SoTel Systems,						
Soulard Business	27 acres 154,337 ft ²	238 ft ²	Enterprise Zone, Chapter 99 & 100 Tax Abatements	I-44, 1-55, I-70, I-64	No/No		
Park	Park Major Tenants: Faultless Linen, ImageFIRST						

Because of the aforementioned decline in population and the general presence of blighted areas, the city offers significant opportunities for redevelopment. In particular, a large tax increment financing (TIF) area has been established north of downtown St. Louis. This TIF, referred to as Northside Regeneration, involves a development plan covering over 1,500 acres, including 3 million square feet for offices, 2 million square feet for retail, 1 million square feet for technology, 3,000 residential units, and a primary care hospital. The National Geospatial-Intelligence Agency (NGA) West Headquarters has committed to building a \$1.75 billion campus on a 100-acre site within the Northside Regeneration TIF area. Construction has begun on the NGA West Headquarters at the northeast corner of Jefferson Avenue and Cass Avenue. Access to this area of the city is planned to be improved through a \$48 million project to reconstruct the interchange of Jefferson Avenue and I-

64. This project will add ramps from westbound I-64 to 22nd Street and Jefferson Avenue, reconstruct ramps from the eastbound side of I-64, add a driving lane on Jefferson Avenue, and reconnect part of the city street grid by extending Clark Avenue and 22nd Street. It is understood that City officials are also developing plans for additional improvement projects that improve streets between Market Street and MO Route 115 (Natural Bridge Avenue).

Non-Interstate Truck Corridors

In assessing the roadway network within St. Louis, it is important to note the overall travel patterns within the St. Louis region. Due to the City's role as the economic and geographic center of the St. Louis region, traffic congestion on the interstates within the City of St. Louis is common during the peak hours of travel. In particular, the convergence of I-44, I-55, I-64, and I-70 within the downtown area of the City is a particularly common area for traffic congestion. In identifying non-interstate truck corridors, the need to provide routes that are redundant to the interstate system, and which could be used to avoid interstate traffic congestion, was considered.

Exhibits 3-1 show a series of three maps of the non-interstate truck corridors identified as a part of this study within the City of St. Louis, including two insets on separate sheets for details. The corridor segments have been categorized as one of the following three types of Connectors:

- Freight Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to the Industrial Site Areas identified by EWG. These areas represent freight generators with developed industry clusters at or near full tenancy. Connections to these Areas are also notable because this is one of the evaluation metrics for proposed improvements competing for funding as a freight/economic development type project within the Surface Transportation Block Grant Program administered by EWG.
- Intra-Regional Connectors are non-interstate segments of the St. Louis region's roadway network that have existing multi-axle vehicle traffic providing access for freight and deliveries, primarily thru truck traffic or freight generators outside of the industrial site areas identified by EWG. The Intra-Regional Connectors offer system redundancies providing alternate routes to freight movement inbound and outbound from the interstate system.
- Emerging Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to Freightway Featured Industrial Real Estate Sites. These sites are regionally targeted priority sites not currently fully developed or near full tenancy.

For each Connector, variations in roadway characteristics such as number of lanes, posted speed limit, AADT, and truck percentages have been generalized to describe the overall roadway segment.



The map shows that 19 non-interstate truck corridors within the City are identified as **Freight Connectors**:

Arsenal Street between McCausland Avenue and I-44: This corridor is classified as a principal arterial route between McCausland Avenue and Jamieson Avenue, and as a minor arterial route between Jamieson Avenue and the I-44 ramps. The roadway lies within the confines of the Manchester - I-44 Industrial Site Area, identified by EWG. The roadway provides a connection between the Freight Connector corridor of Ellendale Avenue/McCausland Avenue and the regional interstate system, via I-44. Trucks exiting the nearby BNSF Intermodal Facility and wanting to travel to eastbound I-44 are directed, via roadside signage, to use Arsenal Street.

<u>Roadway Characteristics:</u> Arsenal Street shares a partial diamond interchange with I-44, only allowing access to/from the east. Motorists on I-44 can access Arsenal Street to/from the west by using the nearby partial diamond interchange with Jamieson Avenue and Ivanhoe Avenue. The roadway along this corridor is asphalt, but a significant portion of the corridor is concrete due to the presence of two concrete bridges. The corridor is three-lanes wide, including a center two-way left-turn lane. Auxiliary turn lanes are provided throughout the corridor to accommodate turning movements. The corridor has a 30 mile per hour speed limit; it reduces to 25 miles per hour during school peak times. This corridor currently has an approximate AADT of 7,600, with approximately 5% of the traffic volume being represented by trucks.

 Compton Avenue between MO Route 100 and I-64: This principal arterial route provides a connection between the MO Route 100 Freight Connector (discussed within this chapter) and the regional interstate system, via I-64. The roadway lies within the confines of the Vandeventer -Chouteau Industrial Site Area identified by EWG.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and concrete curb and sidewalk in each direction. The corridor has a posted speed limit of 35 miles per hour, and access to the corridor is limited to signalized intersections. This corridor currently has an approximate AADT of 7,200, with approximately 5% of this traffic volume being represented by trucks.

Ellendale Avenue / McCausland Avenue / Wellington Avenue between BNSF Intermodal Facility and Southwest Avenue: This corridor is classified as a minor arterial route between the underpass of I-44 and Arsenal Street, and as a principal arterial route between Arsenal Street and Southwest Avenue. Like the Arsenal Street corridor discussed above, this roadway lies within the confines of the Manchester - I-44 Industrial Site Area, identified by EWG. The primary freight generator along this corridor is the aforementioned BNSF Intermodal Facility, which is located at 3500 Wellington Avenue.

<u>Roadway Characteristics:</u> The roadway along this corridor is concrete, with the portion between St. James Square and Canterbury Avenue being asphalt. The corridor generally has two lanes in the northbound direction and a single lane in the southbound direction. The roadway has concrete curb and gutter on both sides, and sidewalk and/or mixed-use trail (River Des Peres Greenway) is provided along much of the corridor. Auxiliary turn lanes are provided at intersections along the corridor, where appropriate. The corridor has a 25 miles per hour posted speed limit. This corridor currently has an approximate AADT of 18,200, with approximately 5% of the traffic volume being represented by trucks.

 Forest Park Avenue between Vandeventer Avenue and I-64: In conjunction with the Vandeventer Avenue Freight Connector discussed within this chapter, this principal arterial route provides a connection between the MO Route 100 Freight Connector and the regional interstate system, via I-64. This roadway also lies within the confines of the Vandeventer - Chouteau Industrial Site Area identified by EWG.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with three lanes and concrete curb and sidewalk in each direction. Driveway entrances are present along the corridor, but access is limited due to opposing lanes being separated by a grass median. There is a small segment that has on-street parking. Auxiliary turn lanes are provided at the signalized intersection with Vandeventer Avenue, and the corridor has a 30 mile per hour posted speed limit. This corridor currently has an approximate AADT of 17,000, with approximately 6% of the traffic volume being represented by trucks.

 Goodfellow Boulevard between MO Route 115 and I-70: This minor arterial route lies within the confines of the Kingshighway - I-70 Industrial Site Area identified by EWG. This roadway provides a direct link between industrial properties, such as Park 70 and Union Seventy Business Park, and the regional interstate system, via I-70.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with three lanes and concrete curb, gutter, and sidewalk in each direction. There is a center two-way left-turn lane throughout the corridor. Access to the corridor is provided via either signalized intersections or driveway entrances. The corridor has a 35 miles per hour posted speed limit with a school speed limit of 20 miles per hour. This corridor currently has an approximate AADT of 19,000, with approximately 5% of the traffic volume being represented by trucks.

 Hall Street between MO Route H and Grand Avenue: This minor arterial route lies within the confines of the Broadway-Hall industrial area identified by EWG. This roadway provides a direct link between industrial properties, such as the North Riverfront Business Park, and the regional interstate system, via I-70.

<u>Roadway Characteristics:</u> North of Adelaide Avenue, the roadway is five-lanes with a center twoway left-turn lane. It has asphalt pavement with minimal asphalt shoulder in each direction. South of Adelaide Avenue, the roadway narrows to three-lanes and transitions to concrete. The roadway has a center two-way left turn lane. There is curb, gutter, and sidewalk along the southwest side and a concrete shoulder and ditch on the northeast side of the roadway. There are several at-grade highway-rail crossings along the corridor. Access to the corridor is provided via either signalized intersections or driveway entrances. The corridor has a 40/45 miles per hour posted speed limit. This corridor currently has an approximate AADT of 13,700, with approximately 15% of the traffic volume being represented by trucks.

 Hampton Avenue between I-44 and I-64: This principal arterial route provides access to multiple industrial and commercial properties within the Manchester - I-44 Industrial Site Area, as defined by EWG. This route provides a connection between the MO Route 100 Freight Connector and the regional interstate system, via both I-44 and I-64. Furthermore, this corridor serves as one of the shorter connections between the two interstates, I-44 and I-64, in the western part of the city.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with the exception of the large concrete overpass structure spanning the River Des Peres, MO Route 100, and the BNSF Railroad. The northbound direction has three lanes throughout the corridor, while the southbound direction has two lanes that widen out to three lanes at the concrete overpass. The roadway shares a signalized diamond interchange with I-44, and a single-point urban interchange with I-64. A center two-way left-turn lane is provided for the entire corridor, and access is provided via both signalized and unsignalized intersections and driveway entrances. The corridor has a 35 mile per hour posted speed limit. This corridor currently has an approximate AADT of 37,000, with approximately 5% of the traffic volume being represented by trucks.

 Jamieson Avenue between I-44 and Arsenal Street: This principal arterial route provides a connection between the aforementioned Arsenal Street corridor and I-44 traffic to/from the west. Jamieson Avenue shares a signalized intersection with Arsenal Street, and a partially signalized partial diamond interchange with I-44. The roadway lies within the confines of the Manchester -I-44 Industrial Site Area identified by EWG.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two lanes and concrete curb, gutter, and sidewalk in each direction. However, much of the corridor is concrete due to the presence of the I-44 overpass. Auxiliary turn lanes are provided at intersections, where appropriate. The corridor has a 35 miles per hour posted speed limit. This corridor currently has an approximate AADT of 18,000, with approximately 4% of the traffic volume being represented by trucks.

Jefferson Avenue between I-44 and MO Route 115: This principal arterial route provides a connection between the MO Route 100 Freight Connector and the regional interstate system, via I-64 and I-44. At its southern end, the route lies within the Vandeventer - Chouteau Industrial Site Area identified by EWG. For purposes of this study, the corridor also extends north of I-64 and connects to the MO Route 115 Intra-Regional Connector discussed within this chapter. As mentioned, plans are established to improve the Jefferson Avenue corridor to improve the accessibility to/from I-64. These improvements will aim to facilitate more commercial/office/ industrial development within the TIF area established by Northside Regeneration.

<u>Roadway Characteristics:</u> The roadway along this corridor is currently asphalt, with three lanes and concrete curb, gutter, and sidewalk in each direction. There is a two-way left-turn lane present throughout most of the corridor, and access is provided via intersections or driveway entrances. Between Olive Street and Scott Avenue, the roadway has two-lanes in each direction and a northbound and southbound exclusive bike lane. The corridor has a 35 mile per hour posted speed limit. This corridor currently has an approximate AADT of 24,500, with approximately 4% of the traffic volume being represented by trucks. Kingshighway Boulevard between MO Route 115 and I-70: This principal arterial route provides a connection between industrial properties, such as Park 70 and Union Seventy Business Park, and the regional interstate system, via I-70. The roadway lies within the confines of the Kingshighway - I-70 Industrial Site Area identified by EWG.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with three lanes and concrete curb and sidewalk in each direction. Opposing lanes are separated by a wide grass median, which is broken at certain locations to provide full-access unsignalized intersections. Kingshighway Boulevard shares a signalized intersection with MO Route 115, at which left-turn lanes are provided. The corridor has a 30 miles per hour posted speed limit. This corridor currently has an approximate AADT of 20,500, with approximately 5% of the traffic volume being represented by trucks.

Kingshighway Boulevard between MO Route 366 and I-64: This principal arterial route provides a connection between industrial properties within the Manchester - I-44 Industrial Site Area, as identified by EWG, and the regional interstate system, via I-44 and I-64. For purposes of this study, the corridor also extends south of I-44 to provide access to/from multiple commercial properties that exist along the roadway.

<u>Roadway Characteristics:</u> With the exception of two large concrete overpass structures over railroads, the roadway along this corridor is asphalt, with concrete curb, gutter, and sidewalk in each direction. Between MO Route 366 and Arsenal Street, there are generally two lanes in each direction. North of Arsenal Street, the corridor is generally three lanes in each direction. The roadway shares a signalized partial diamond interchange with I-44, and a single-point urban interchange with I-64. Access to the corridor is otherwise provided via signalized intersections or driveway entrances. Auxiliary turn lanes are provided where appropriate at the signalized intersections, and a center two-way left-turn lane is provided within the vicinity of driveway entrances. The corridor has a 35 mile per hour posted speed limit. This corridor currently has an approximate AADT of 35,500, with approximately 4% of the traffic volume being represented by trucks.

 MO Route H between I-70 and I-270: This principal arterial route runs through the Broadway -Hall Industrial Site Area identified by EWG and provides a connection to the regional interstate system via both I-70 and I-270. This corridor also provides direct access for two aforementioned properties identified by the Freightway, 800 Hall Street and North Riverfront Distribution Center, as well as other major industrial properties such as Home Depot Distribution, UPS, XPO Logistics, and Procter & Gamble.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a 45 mile per hour posted speed limit. For the Hall Street portion of the corridor (between Adelaide Avenue and Riverview Drive), there are two lanes in each direction with a two-way left-turn lane. This portion of the corridor has minimal shoulders, and noticeable deterioration of edge of pavement. The Riverview Drive portion of this corridor (between Hall Street and I-270) is generally one lane, with minimal shoulder and concrete curb, in each direction. Between Hall Street and Scranton Avenue, opposing lanes are separated by a grass median. Access to the corridor is provided via either signalized intersections or driveway entrances, with auxiliary turn lanes are provided, here
appropriate. This corridor currently has an approximate AADT of 12,800, with approximately 11% of the traffic volume being represented by trucks.

 MO Route 100 between Hanley Road (beyond the city limit) and 1st Street: This minor arterial route bisects both the Manchester 44 and Vandeventer - Chouteau Industrial Site Areas identified by EWG. This corridor also serves as a primary east-west alternate route to interstate corridors through the City, particularly I-64.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, generally with a single lane and concrete curb and sidewalk each direction. Either buffered bike lanes, non-buffered bike lanes, or designated shared lanes are provided in each direction for the entire corridor. At locations where sufficient roadway width is provided, on-street parking is present along the corridor. A two-way left-turn lane is present along much of the corridor, and auxiliary lanes are provided at intersecting roadways where appropriate. West of Kingshighway Boulevard, the corridor has a posted speed limit of 35 miles per hour, while, east of Kingshighway Boulevard, there is a posted speed limit of 30 miles per hour. This corridor currently has an approximate AADT of 11,800, with approximately 7% of the traffic volume being represented by trucks.

MO Route 115 (Natural Bridge Avenue) between Goodfellow Boulevard and Kingshighway Boulevard: This principal arterial route bisects the Kingshighway - I-70 Industrial Site Area identified by EWG. In conjunction with the intersecting roadways of either Goodfellow Boulevard, Union Boulevard, or Kingshighway Boulevard, MO Route 115 provides a connection between industrial properties, such as Park 70 and Union Seventy Business Park, and the regional interstate system, via I-70. This corridor also runs continuous to the portion of MO Route 115 identified in this chapter as an Intra-Regional Connector, providing a connection to redevelopment sites within north St. Louis.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and concrete curb and sidewalk in each direction. There is a center two-way left-turn lane present along the corridor, and access to the corridor is provided via either signalized intersections or driveway entrances. The roadway has a 35 miles per hour posted speed limit, and on-street parking is present at locations where sufficient roadway width is provided. This corridor currently has an approximate AADT of 15,600. The percentage of traffic represented by trucks was not able to be confirmed.

 North Broadway between Cass Avenue and Riverview Drive / MO Route H: This minor arterial route provides direct access for several industrial properties within the confines of the Broadway - Hall Industrial Site Area identified by EWG, including the aforementioned North Broadway Distribution Center. This corridor connects to the MO Route H Freight Connector corridor discussed above, as well as the interstate corridors of I-44 and I-70.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt. The roadway generally has one lane in each direction and has concrete curb and sidewalk. Bike lanes or designated shared lanes are provided in each direction for the entire corridor. There is some on-street parking available. The corridor has a 35 miles per hour posted speed limit, and access to the corridor is provided via either signalized intersections or driveway entrances. This corridor currently has an approximate AADT of 5,300, with approximately 11% of the traffic volume being represented by trucks.

South Broadway / 7th Boulevard between I-55 and I-44: This principal arterial route provides a connection between the regional interstate system, via I-44 and I-55, and several industrial properties within the confines of the Broadway - Arsenal Industrial Site Area identified by EWG. This corridor provides direct access for industrial properties such as the Anheuser-Busch InBev Brewery, YRC Freight, and the aforementioned Soulard Business Park.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and concrete curb and sidewalk generally in each direction. There is a separate bike lane and limited on street parking. Driveway entrances are along the corridor, but access is limited due to opposing lanes being separated by a grass median. Four-way intersections, both signalized and unsignalized, generally provide bi-directional access at breaks in the median. The roadway has a 35 miles per hour posted speed limit. This corridor currently has an approximate AADT of 10,500, with approximately 8% of the traffic volume represented by trucks.

South Broadway / MO Route 231 / Telegraph Road between I-270 and I-55: This minor arterial route runs adjacent to the Broadway - Arsenal Industrial Site Area identified by EWG. This roadway provides a connection between the regional interstate system, via I-55 and I-270, and several industrial properties such as Kinder Morgan and the aforementioned River City Business Park. The south end of this corridor actually resides within St. Louis County, but will be discussed exclusively with this chapter because the majority of the associated industrial destinations are within the City.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single travel lane and concrete curb and sidewalk in each direction. Bike lanes or designated shared lanes are provided in each direction for most of the corridor. There is a center two-way left-turn lane along the entire length of the single lane corridor. The roadway has a 35 miles per hour posted speed limit, and on-street parking is permitted where sufficient roadway width exists. South of the Broadway split off, the corridor changes to a four-lane roadway with two lanes in each direction. The roadway continues to be share the road with bikes and the speed limit is 40 miles per hour. Access to the corridor is provided via either signalized intersections or driveway entrances. This corridor currently has an approximate AADT of 11,300, with approximately 4% of the traffic volume being represented by trucks.

Southwest Avenue between McCausland Avenue and I-44: This major collector route connects the previously discussed Ellendale/McCausland Avenue Freight Connector with the regional interstate system, via I-44. This roadway provides motorists traveling to/from I-44 to the east with an alternate route to Arsenal Street, allowing another option for trucks accessing the aforementioned BNSF Intermodal Facility nearby. This corridor also provides direct access for major industrial employers such as Major Brands and BSI Constructors. The roadway lies within the confines of the Manchester I-44 Industrial Site Area identified by EWG.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt with a single travel lane, onstreet parking, concrete curb, and sidewalk provided in each direction. The corridor shares a signalized intersection with McCausland Avenue, an all-way stop-controlled intersection with Abbott Place, and an unsignalized partial cloverleaf interchange with I-44. Southwest Avenue features underpasses of both I-44 and BNSF Railroad, resulting in some vertical clearance restrictions that are not considerations with the nearby Arsenal Street and Jamieson Avenue corridors. Bike lanes or designated shared lanes are provided in each direction for the entire corridor, and the roadway has a 25 miles per hour posted speed limit. This corridor currently has an approximate AADT of 8,500, with approximately 5% of the traffic volume represented by trucks.

Union Boulevard between MO Route 115 and I-70: This minor arterial route provides a connection between industrial properties, such as Park 70 and Union Seventy Business Park, and the regional interstate system, via I-70. The roadway lies within the confines of the Kingshighway - I-70 Industrial Site Area identified by EWG.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and concrete curb, gutter, and sidewalk in each direction. There is a center two-way left-turn lane between Brown Avenue and I-70. The roadway has a 35 miles per hour posted speed limit, and access to the corridor is provided via either signalized intersections or driveway entrances. This corridor currently has an approximate AADT of 21,500, with approximately 5% of the traffic volume being represented by trucks.

Vandeventer Avenue between I-44 and Forest Park Avenue: This minor arterial route provides a connection between the MO Route 100 Freight Connector and the regional interstate system, via both I-44 and I-64. The route lies within the Vandeventer - Chouteau Industrial Site Area identified by EWG. The roadway also provides direct access to/from several commercial and industrial properties along the corridor.

<u>Roadway Characteristics:</u> The roadway along this corridor is currently asphalt, with two lanes and concrete curb and sidewalk in each direction. Access to/from I-44 is provided via a signalized diamond interchange, while access to/from I-64 is provided via the ramp at Papin Street for traffic to the west, and, for traffic from the east, via the Forest Park Avenue Intra-Regional Connector discussed within this chapter. Access to the corridor is otherwise provided via either signalized intersections, unsignalized intersections, or driveway entrances. At signalized intersections, auxiliary turn lanes are provided where appropriate. The corridor has a 30 mile per hour posted speed limit. This corridor currently has an approximate AADT of 14,500, with approximately 5% of the traffic volume being represented by trucks.

The map also shows that one non-interstate truck corridor within the City of St. Louis is identified as an **Intra-Regional Connector**, which is as follows:

 MO Route 115 (Natural Bridge Avenue) between Kingshighway Boulevard and Jefferson Avenue: This principal arterial route provides a connection between industrial properties within the Kingshighway - I-70 Industrial Site Area, as identified by EWG, and the Jefferson Avenue Freight Connector discussed within this chapter. Like Jefferson Avenue, this corridor could encounter increased traffic activity, as commercial/office/industrial development occurs within the Northside Regeneration TIF area.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt. Between Shreve Avenue and Jefferson Avenue, the roadway is one lane in each direction and is divided by a wide grass/concrete median. There is curb and gutter and sidewalk along both sides. The remainder

of the corridor has five lanes, including a center two-way left-turn bay. There are turn bays provided at most intersections along the corridor. The corridor has a 35 mile per hour posted speed limit with 25 mile per hour speed limit during school times. Access is provided via either signalized intersections, unsignalized intersections, or driveway entrances. This corridor currently has an approximate AADT of 13,200. The percentage of traffic represented by trucks could not be confirmed.

The map furthermore shows that the City of St. Louis has no routes identified as **Emerging Connectors**. The lack of Emerging Connectors is due to the relative lack of developable property, and the presence of substantial roadway infrastructure in the areas in which development or rezoning/repurposing of existing property could occur.

CHAPTER 4 | FRANKLIN COUNTY (MO)

Franklin County, Missouri covers the westernmost portions of the St. Louis region. The county has experienced growth due to residential shifts from the neighboring counties and the population of the county increased by 3.1% (101,492 to 104,682) from 2010 and 2020 (U.S. Census). Despite this growth, the majority of the county retains a rural character.

Transportation-Related Industry

Manufacturing accounts for a significant portion (>27%) of the employment in Franklin County, with the majority of these jobs located within the municipalities of Washington and Union (BLS, 2022). The most significant employers in Franklin County are the manufacturing firms of Aerofil Technology, Esselte Corp, Henniges Automotive Sealing Systems North America, Magnet, Silgan, Pharma Tech, and Meramec Group. The trade and transportation sector accounts for approximately 23% of all private employment in the county (BLS, 2022). Other major employers from the wholesalers and transportation/distribution industries include Climate Express Inc, Wolter Group, and Woody Bogler Trucking Company. It is also understood that the City of Washington owns and operates the only public rail spur of the UP Railroad.

Industrial Site Areas Identified by EWG

Industrial Sites Areas in Franklin County were not identified by EWG.

Freightway Featured Industrial Real Estate Sites

St. Louis Regional Freightway has identified two industrial centers within Franklin County that have significant space readily available (as of July 2023) for industrial land uses, shown below.

Location	Available Total Area	Minimum Lot Size	Tax and Related Incentives	Highway Access	Rail/Barge Access (Yes/No)		
Heidmann Industrial	30+ acres	n/a	Chapter 100 Tax Abatement, ACT Work Ready Community	MO Route 100	No/No		
Park/ Washington Real Estate Sites	Major Tenants: Canam Steel Corp, Clemco Industries, Computech, Frick's Quality Eats, Hodges Badge, LMI Aerospace, Melton Machine, M&R Plating, Rawlings Sporting Goods, RTI Advanced Forming, Shure Manufacturing, WEG Transformers, Texwrap						
Union	35+ acres	n/a	Chapter 100 Tax Abatement, ACT Work Ready Community	US 50, I-44	Potentially/No		
Corporate Center	Major Tenants: Buddeez, CT Industries, Earle M. Jorgensen, EMJ Metals, Esselte Corporation (TOPS), Hartog Oil, Heat and Control, Pharma Tech, Roadtex, Select Powder Coating, Silgan Plastics, Spray Dynamics, The Children's Factory, Town & Country Metals, Volpi Foods						

Non-Interstate Truck Corridors

Exhibit 4-1 shows a map of the non-interstate truck corridors identified as a part of this study within Franklin County. The corridor segments have been categorized as one of the following three types of Connectors:

- Freight Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to the Industrial Site Areas identified by EWG. These areas represent freight generators with developed industry clusters at or near full tenancy. Connections to these Areas are also notable because this is one of the evaluation metrics for proposed improvements competing for funding as a freight/economic development type project within the Surface Transportation Block Grant Program administered by EWG.
- Intra-Regional Connectors are non-interstate segments of the St. Louis region's roadway network
 that have existing multi-axle vehicle traffic providing access for freight and deliveries, primarily
 thru truck traffic or freight generators outside of the industrial site areas identified by EWG. The
 Intra-Regional Connectors offer system redundancies providing alternate routes to freight
 movement inbound and outbound from the interstate system.
- Emerging Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to Freightway Featured Industrial Real Estate Sites. These sites are regionally targeted priority sites not currently fully developed or near full tenancy.

For each Connector, variations in roadway characteristics such as number of lanes, posted speed limit, AADT, and truck percentages have been generalized to describe the overall roadway segment.



The map shows that the county has no identified Freight Connectors. As mentioned, the scale of industrial activity currently located within Franklin County is small when measured against the industrial activity of the St. Louis region as a whole, which is a major contributing factor to no Freight Connectors being identified for the county.

The map also shows that four non-interstate truck corridors within Franklin County are identified as **Intra-Regional Connectors**, which are as follows:

 MO Route A/Independence Drive between US Route 50 and MO Route 47: This minor arterial route provides local access to/from the City of Union's Central Business District, including the existing industrial sites (Spartan Showcase, Gateway Extrusions, LTD) located along West Park Road.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with generally one lane in each direction and a speed limit of 40 miles per hour. Significant portions of the corridor include asphalt shoulder, particularly, in the westbound and southbound directions. The corridor shares roundabout intersections with both North Washington Avenue and West Main Street and has been identified as a "Truck Route" by the City of Union. This corridor currently has a relatively low AADT of 5,100, with approximately 7% of this traffic volume is represented by trucks.

MO Route 47 between I-44 and Missouri River Bridge: This principal arterial route helps provide a connection between I-44 and I-70 (within the City of Warrenton in Warren County). It is understood that the newly constructed bridge carrying MO Route 47 over the Missouri River will remove the weight, height, and width restrictions associated with the old bridge. With this improvement, an increase in truck traffic should be anticipated. The route also represents the "fastest path" between the aforementioned Heidmann Industrial Park and the western portion of I-44.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with generally one lane and asphalt shoulder in each direction and is posted for 55 miles per hour. It is understood that MoDOT has studied improvements to this portion of MO Route 47, in order to address congestion issues, particularly at the intersection of MO Route 47 and US Route 50. This corridor experiences an approximate AADT of 16,000, with approximately 7% of the traffic volume being represented by trucks.

 MO Route 100 between Vossbrink Drive and MO Route C: This minor arterial route is a connection between I-44 the City of New Haven. This route provides the City of New Haven's Central Business District, including the Pepsi-Cola Bottling Company and Henniges Automotive Sealing company.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt. There is one lane and asphalt shoulder in each direction. The posted speed limit is 55 miles per hour. This corridor experiences an approximate AADT of 7,300, with approximately 10% of the traffic volume being represented by trucks.

 US Route 50 between Independence Drive and MO Route 47: Like the Route A/Independence Drive corridor, this principal arterial route provides access between the City of Union's Central Business District and the regional roadway network, which provides access to/from I-44 via the larger US Route 50 corridor.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and asphalt shoulder in each direction and a center two-way left-turn lane. The corridor is posted for 40 miles per hour and features signage guiding vehicles to use Independence Drive to access the existing industrial park located along West Park Road. This corridor currently has an approximate AADT of 20,500, with approximately 11% of the traffic volume being represented by trucks.

The map furthermore shows that two non-interstate corridors within Franklin County are identified as **Emerging Connectors**, which are as follows:

 MO Route 100 between Vossbrink Drive and I-44: This corridor is classified as a minor arterial between Vossbrink Drive and MO Route 47, and as a principal arterial between MO Route 47 and I-44. The route represents the "fastest path" between the aforementioned Heidmann Industrial Park and the eastern portion of I-44. Based on the same methodology as was applied to the MO Route 47 corridor, this corridor is classified as an Emerging Connector.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with one lane in each direction between Vossbrink Drive and High Street. Between High Street and I-44, the roadway has two lanes in each direction. The corridor is posted for 55 miles per hour and has asphalt shoulders in both directions. This corridor experiences an approximate AADT of 20,500, with approximately 11% of the traffic volume being represented by trucks.

 US Route 50 between MO Route 47 and I-44: This principal arterial provides direct access between the aforementioned Union Corporate Center and I-44. Based on the corridor's association with a significant amount of developable land within Union Corporate Center, this corridor has been classified as an Emerging Connector. However, it is important to note that the corridor provides a connection to other non-interstate corridors identified and discussed within this section.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with one lane in each direction. The corridor is posted for 45/55 miles per hour and has asphalt shoulders in both directions. This corridor experiences an approximate AADT of 21,300, with approximately 11% of the traffic volume being represented by trucks.

CHAPTER 5 | JEFFERSON COUNTY (MO)

Jefferson County, Missouri sits in the southern portion of the St. Louis region, bordered to the east by the Mississippi River and St. Louis County to the north. Between 2010 and 2020, the county experienced population growth of 3.7% (218,733 to 226,739 (U.S. Census). The majority of this population growth has occurred in the northeast portion of the county, and along the Interstate 55 (I-55) corridor that runs along the east part of the county. The southern and western portions of the county continue to be mostly rural in nature.

Transportation-Related Industry

Manufacturing accounts for approximately 11% of the employment in Jefferson County, with the majority of these jobs located along the I-55 corridor (BLS, 2022). Like Monroe County (IL), mining/quarrying and oil/gas extraction also contribute significantly to the economic activity within Jefferson County. The most significant manufacturing employers in Jefferson County are Metal Container Corp, Ardagh Group, H - J Enterprises, Dow Chemical Company, Sinclair & Rush Incorporated, and LMC Industries. Major employers in the wholesale industry include Engineered Oil Company, Etrailer Corporation, and Medart. The trade and transportation sector accounts for approximately 25% of total private employment in the county (BLS, 2022). Significant employers in the transportation/distribution industries operating in Jefferson County include Knights Company, SBR Transport, and the United States Postal Service.

In the context of emerging industry, The Jefferson County Port Authority is undertaking the development of multi-modal, public access, industrial port facility with the objective to create a cluster of public port facilities, private port development as well as public-private partnership for land redevelopment and other economic development opportunities. However, there is no active public access at this time. (www.jeffersoncountyportauthority.com/about)

Industrial Site Areas Identified by EWG

Industrial Sites Areas in Jefferson County were not identified by EWG.

Freightway Featured Industrial Real Estate Sites

The St. Louis Regional Freightway did not identify any industrial real estate sites based on featured site criteria. It should be noted that, in contrast to the large floodplain conditions that exist in Monroe County, the topography of Jefferson County allows for new opportunities for rail-to-barge facilities and/or expansion of existing like facilities. UP has a railway that runs north-south through the county between the Mississippi River and I-55 and is used by local companies such as Dow Chemical Company and Doe Run Company. It should also be noted that freight movement in the region is supported by the DeSoto Car Shop maintenance facility. The DeSoto Car Shop is one of the largest rail car repair and painting facilities owned and operated by UP Railroad, and is located in DeSoto, Missouri in the south-central portion of the county.

Non-Interstate Truck Corridors

Exhibit 5-1 shows a map of the non-interstate truck corridors identified as a part of this study within Jefferson County. The corridor segments have been categorized as one of the following three types of Connectors:

- Freight Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to the Industrial Site Areas identified by EWG. These areas represent freight generators with developed industry clusters at or near full tenancy. Connections to these Areas are also notable because this is one of the evaluation metrics for proposed improvements competing for funding as a freight/economic development type project within the Surface Transportation Block Grant Program administered by EWG.
- Intra-Regional Connectors are non-interstate segments of the St. Louis region's roadway network
 that have existing multi-axle vehicle traffic providing access for freight and deliveries, primarily
 thru truck traffic or freight generators outside of the industrial site areas identified by EWG. The
 Intra-Regional Connectors offer system redundancies providing alternate routes to freight
 movement inbound and outbound from the interstate system.
- Emerging Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to Freightway Featured Industrial Real Estate Sites. These sites are regionally targeted priority sites not currently fully developed or near full tenancy.

For each Connector, variations in roadway characteristics such as number of lanes, posted speed limit, AADT, and truck percentages have been generalized to describe the overall roadway segment.



The map shows that the county has no identified Freight Connectors. The scale of industrial activity currently located within Jefferson County is small when measured against the industrial activity of the St. Louis region as a whole, which is a major contributing factor to no Freight Connectors being identified for the county. Because of the lack of targeted properties identified by the St. Louis Regional Freightway, no Emerging Connectors have been identified for the county.

The map also shows that nine non-interstate truck corridors within Jefferson County are identified as **Intra-Regional Connectors**, which are as follows:

 Castle Acres Road / River Cement Road: This local roadway route provides access to/from the large River Cement quarry and intermodal (rail-road-barge) facility, and the regional interstate system, via I-55. This corridor provides access to a small number of residential properties, but its primary purpose is to serve the purposes of the River Cement property.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with one lane and minimal aggregate shoulder in each direction. Near the intersection with US Route 61, there is a long stretch of guardrail along the east side of the roadway. The corridor has a 45 mile per hour posted speed limit. This corridor currently has a relatively low approximate AADT of 1,100, with a high truck traffic volume of approximately 28%.

Crystal City-Herky Road / Riverview Plaza Drive: The Crystal City-Herky Road portion of this corridor is classified as a major collector road, and the Riverview Plaza Drive portion of this corridor is classified as a local roadway. With the McNutt Street corridor discussed within this chapter, this route provides a connection between the large intermodal (rail-road-barge) facility that is operated by Doe Run Company (Riverview Commerce Park), and the regional interstate system, via I-55.

<u>Roadway Characteristics:</u> The Crystal City-Herky Road, which is asphalt with one travel lane and concrete curb and gutter in each direction, shares a signalized intersection with US Route 67 and an unsignalized (stop-controlled) intersection with Riverview Plaza Drive. Riverview Plaza Drive is composed of concrete, with a single travel lane and concrete shoulder and guardrail in each direction. The Riverview Plaza Drive corridor includes a bridge across the Joachim Creek that was constructed in order to divert truck traffic associated with the Doe Run facility away from the city center. Both corridors along this route have a 30 mile per hour posted speed limit. The current daily traffic volumes and truck percentages were not able to be determined as a part of this study. However, it should be expected that traffic volumes along this corridor are relatively low, but with a relatively high percentage of truck traffic.

 Main Street (DeSoto) between MO Route N / Flucom Road and MO Route 110: This minor arterial route helps provide a link to the City of DeSoto's Central Business District and the DeSoto Car Shop from I-55. Access to/from I-55 is provided via the corridors of MO Route 110 and US Route 67 discussed within this section.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with one lane in each direction and a speed limit of 25 miles per hour. Auxiliary turn lanes are provided at several intersections. The corridor has curb on both sides of the roadway, with some portions of on-street parking. Along the west side of the roadway, there is a concrete sidewalk abutting the curb. This corridor currently has an approximate AADT of 6,300, with approximately 5% of this traffic volume being represented by trucks.

McNutt Street: This principal arterial route helps provide a connection between the large intermodal (rail-road-barge) facility that is operated by Doe Run Company (Riverview Commerce Park), and the regional interstate system, via I-55. This connection is formed in conjunction with the Crystal City-Herky Road / Riverview Plaza Drive corridor discussed within this chapter. McNutt Street also provides a connection to light industrial land uses on the west side of I-55 and along the Herculaneum Industrial Drive corridor.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two continuous lanes, minimal asphalt shoulder, and guardrail in each direction. A multi-lane roundabout was constructed along McNutt, just west of the I-55 interchange, in early 2019. Several new developments are under construction along the corridor. McNutt Street shares a signalized diamond interchange with I-55. Access to the corridor is otherwise provided via signalized intersections or driveway entrances. Access to/from driveway entrances is limited due to opposing lanes being separated by a concrete median. The corridor has a 35 mile per hour posted speed limit. This corridor currently has an approximate AADT of 17,500, with approximately 5% of the traffic volume being represented by trucks.

MO Route Z between I-55 and US Route 67: This minor arterial route helps provide access to the significant manufacturing industries of Dow Chemical Company and Doe Run Company from I-55. Access to/from these manufacturing land uses is provided via the corridors of US Route 67.

<u>Roadway Characteristics:</u> The lanes of this roadway are concrete. It is a three-lane corridor, including a center two-way left-turn lane with asphalt shoulder in each direction. The corridor is posted for 35 miles per hour. This corridor currently has an approximate AADT of 9,100, with approximately 8% of the traffic volume being represented by trucks.

 MO Route 30 between MO Route MM and I-270 (beyond the county line): This roadway corridor is classified by MoDOT as a freeway/expressway and represents the "fastest path" between the western portion of Jefferson County and Interstate 270 (I-270), which provides access to the St. Louis region.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and wide asphalt shoulder in both directions. The northbound and southbound lanes are separated by a grass median. Intersections that allow full access are controlled by traffic signals, and auxiliary turn lanes are provided for most intersection approaches. The corridor is posted for 60 miles per

hour. This corridor currently has an approximate AADT of 33,000, with approximately 9% of the traffic volume being represented by trucks.

MO Route 110 between Main Street and US Route 67: This principal arterial route helps provide a connection to/from the City of DeSoto's Central Business District, the DeSoto Car Shop, and I-55. As discussed, Main Street and US Route 67 helps complete the link between DeSoto and I-55.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, and generally has a single lane and asphalt shoulder in both directions. The corridor widens out to have two eastbound lanes for approximately one mile west of the interchange with US Route 67. The corridor is posted for 60 miles per hour. This corridor currently has an approximate AADT of 11,100, with approximately 11% of the traffic volume being represented by trucks.

US Route 67 between MO Route 110 and I-55: This roadway corridor is classified by MoDOT as a freeway/expressway and helps provide a connection to/from the City of DeSoto's Central Business District, the DeSoto Car Shop, and I-55. As discussed, Main Street and MO Route 110 helps complete the link between DeSoto and I-55.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two lanes and wide asphalt shoulder in both directions. The northbound and southbound lanes are separated by a grass median. Auxiliary turn lanes are provided at several intersection approaches along the corridor. The corridor is posted for 55/65 miles per hour. This corridor currently has an approximate AADT of 32,300, with approximately 8% of the traffic volume being represented by trucks.

 US Route 67 between Main Street (Herculaneum) and Joachim Avenue: This minor arterial helps provide access to the significant manufacturing industries of Dow Chemical Company and Doe Run Company from I-55. Access to/from I-55 is provided via the corridor of MO Route Z discussed within this section.

<u>Roadway Characteristics</u>: The lanes along this corridor are concrete, with two lanes and asphalt shoulder in each direction. The corridor is posted for 45 miles per hour. While this corridor has a relatively low AADT of approximately 8,900, approximately 8% of this traffic volume is represented by trucks.

CHAPTER 6 | MADISON COUNTY (IL)

Madison County, Illinois covers the northeastern portion of the St. Louis region. In the past 10 years, the county has seen a relatively slow decline in population, with the population of the county decreasing by 1.3% (269,282 to 265,859) between 2010 and 2020 The majority of the population has historically been concentrated in the western portion of the county, with suburban sprawl causing a shift to the central and eastern portions of the county in recent years.

Transportation-Related Industry

Manufacturing accounts for approximately 12% of the employment in Madison County (BLS, 2022). The most significant manufacturing employers in Madison County are U.S. Steel, Wieland Group, Basler Electric Company, Amsted Rail, West Star Aviation, and Kraft Foods Global Incorporated. It is also noteworthy that oil/gas refinement is prevalent in the local economy, with Phillips 66 Wood River Refinery being another major employer within the county. The trade and transportation sector accounts for approximately 30% of all private employment in the county (BLS, 2022). Major employers in Madison County in the transportation sector include GEODIS, Lanter Logistics, and Dynamic Transit Company. Some significant employers within the wholesale industry include Quality Packaging Specialists, Amazon Incorporated, Schnuck Markets, Alton Steel, Cope Plastics, and Center Point Terminal Company.

ACP is home to two public multi-modal Mississippi River harbors – Granite City and Madison. Granite City Harbor is a year-around 24-hour slack water operation, and the Madison Harbor is just south of Lock 27 providing open river barge navigation straight through to the Gulf of Mexico. ACP has container on barge capabilities. (https://www.americascentralport.com/river-operations)

TRRA of St. Louis (TRRA) operates the Madison Yard intermodal (rail-to-road) facility in the southwestern part of the county. The CSX East St. Louis Intermodal Terminal in Fairmont City and Washington Park is immediately adjacent to Madison County. It is furthermore important to note that the county has the opportunity to increase warehouse/logistics activity with respect to air transportation due to the presence of St. Louis Regional Airport.

Industrial Site Areas Identified by EWG

EWG identified three Industrial Site Areas that lie within the confines of Madison County. The Industrial Site Areas were chosen based on review of land use and existing site characteristics, and input provided by the Steering Committee. Site area boundaries were ultimately defined based on Transportation Area Zones, which are zones associated with population and employment planning used for long-range transportation planning. The three identified within Madison County were defined as:

- Gateway Commerce
- Route 3 North
- Lewis & Clark North

For purposes of this study, the presence of non-interstate truck corridors within the confines of, or adjacent to, these Industrial Site Areas influences their inclusion in the list of Freight Connectors.

Industrial Sites with Rail Potential

To support the region's decision makers, a comprehensive rail site analysis was performed in 2022. The resulting study showed the St. Louis Region is lacking in active rail sites that can attract national tenants. There is underutilized land around the region that have connections to Class 1 railroads. The goal of the study was to highlight the land sites with industrial rail potential. The result was 11 locations with 14 sites. These are certified/premier sites that are shovel ready with supportive owners/developers. The sites are a mix of states, counties, and connecting railroads. In Madison County there are four sites: TRRA – Metro East Land, America's Central Port, Lakeview Commerce Center, and Gateway Panattoni.

Freightway Featured Industrial Real Estate Sites

St. Louis Regional Freightway has identified seven industrial parks within Madison County that have significant space readily available (as of July 2023) for industrial or transportation/ warehousing-related land uses, shown below.

Location	Available Total Area	Minimum Lot Size	Tax and Related Incentives	Highway Access	Rail/Barge Access (Yes/No)		
Alton Center	55+ acres	Negotiable	Illinois Enterprise Zone, Alton Tax Increment Financing (TIF) District, Hub Zone	IL Route 143, IL Route 3, US 67	Yes/No		
Dusiness Faik	Major Tenants: Advanced Outsource Solutions, American Water Resources, American Water Works Service Company, Imperial Manufacturing Group						
America's Central Port	24 acres 260,00 ft ² Major Tenan The Delivery Engineered S Densificatior Lumber, Mid Managemen Industrial So	3 acres 5,300 sq. ft ts: Apex Oil, Network, DN Solutions, Ex Internation Coast Term t & Technolo lutions, Walt	FTZ #31, TIF District, Small Business Hub Zone, New Markets Tax Credits, Employer Training Investment Program, Edge Tax Credit Program, Southwest Madison County Enterprise Zone, Southwestern Illinois Development Authority Arizona Building Systems, Boise IJ Intermodal, Ehrhardt Automat press Chemical, Fairfield Proces al GDI, Granite City Terminals, G inal, Phillips 66, Rivers Edge Ter ogy, Shearwater Systems, St. Lou rers Metal - Wunderlich Corrugat	IL Route 3 Cascade, Celta (ion Systems, Ehr sing Corp, Grain reen Plains, Mati minals, SCF, Sier Jis Screw & Bolt, ed Packaging, W	Yes/Yes Chemical, hardt ringly ra Supplied WS. XPO		
Gateway Commerce Center	Logistics 95 acres	2 acres	Enterprise Zone, TIF District,	I-270, I-255	Yes/No		
	Major Tenants: Amazon, Anheuser Busch, Customized Distribution Services, (Dial), D.B. Schenker, FedEx, GEODIS, OHL, P&G, Phillips 66, Saddle Creek Logistics Service, Save-A-Lot, The Hershey Company, Unilever, UTI Integrated Logistics, Walgreens, World Wide Technology						

Location	Available Total Area	Minimum Lot Size	Tax and Related Incentives	Highway Access	Rail/Barge Access (Yes/No)	
Gateway Trade Port	602,000 ft ²	217,000 ft ²	Enterprise Zone, TIF District, Tax Abatement	IL Route 111, I-255, I-270	No/No	
	Major Tenants: Amazon, IMC Outdoor Living, LKQ Corp (Keystone Automotive), Major Custom Assemblies, Mygrant Glass, QPSI, Spectrum Brands					
Lakeview Commerce Center	300 acres 1.6M ft ²	n/a	Enterprise Zone, TIF District	IL Route 255, IL Route 111	Yes/No	
	Major Tenants: Amazon, FedEx, J.F. Electric, Spectrum Brands, World Wide Technology					
IL Route 3 Industrial - JLL	Coming Soon					
Eastport Center	Coming Soon					

Another industrial property has been identified in neighboring Jersey County, which will be discussed with this section due to Madison County's role in providing the primary access to/from Jersey County and the St. Louis region. **Mid-American International Gateway** is planned to be located east of the existing CPKC Railroad that passes through rural Jerseyville on its southeast side, near Crystal Lake Road. The planned 1,400-acre site will have direct access to the existing CPKC Railroad and nearby access to US Route 67.

Non-Interstate Truck Corridors

Exhibit 6-1 shows a map of the non-interstate truck corridors identified as a part of this study within Madison County. The corridor segments have been categorized as one of the following three types of Connectors:

- Freight Connectors are non-interstate segments of the St. Louis region's roadway network that
 provide linkages to the Industrial Site Areas identified by EWG. These areas represent freight
 generators with developed industry clusters at or near full tenancy. Connections to these Areas
 are also notable because this is one of the evaluation metrics for proposed improvements
 competing for funding as a freight/economic development type project within the Surface
 Transportation Block Grant Program administered by EWG.
- Intra-Regional Connectors are non-interstate segments of the St. Louis region's roadway network that have existing multi-axle vehicle traffic providing access for freight and deliveries, primarily thru truck traffic or freight generators outside of the industrial site areas identified by EWG. The Intra-Regional Connectors offer system redundancies providing alternate routes to freight movement inbound and outbound from the interstate system.
- Emerging Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to Freightway Featured Industrial Real Estate Sites. These sites are regionally targeted priority sites not currently fully developed or near full tenancy.

For each Connector, variations in roadway characteristics such as number of lanes, posted speed limit, AADT, and truck percentages have been generalized to describe the overall roadway segment.



Exhibit 6-1: Non-Interstate Truck Corridors in Madison County (IL)

≣⊞	Freightway Featured Industrial Real Estate Sites			
×	Freight Related Airports			
	Intermodal Rail Yards			
	Public Ports			
—	Freight Connectors			
—	Intra-Regional Connectors			
_	Emerging Connectors			
-+	Railroad			
	Transportation Related Employers (2022			
	Industrial Site Areas Identified by East-West Gateway Council of Governments			
NORTH	0 2 4 8 Miles			
Non-Interstate Truck Corridor Study July 2023				
ST LOUIS REGIONAL FREIGHTWAY				

The map shows that five non-interstate truck corridors within Madison County are identified as **Freight Connectors**, which are as follows:

 Gateway Commerce Center Drive: This major collector route is contained within the aforementioned Gateway Commerce Center Industrial Site Area. The roadway shares a signalized intersection with IL Route 111, and a full-access interchange with IL Route 255.

<u>Roadway Characteristics:</u> The roadway along this corridor is concrete, with two lanes and minimal asphalt shoulder in each direction. The roadway is posted for 35 miles per hour. Auxiliary turn lanes are provided at the intersection with IL Route 111 and the interchange with IL Route 255. This corridor currently has an approximate AADT of 5,900. The current truck traffic volumes were unable to be confirmed, but it is understood that a high truck traffic percentage should be expected on the corridor.

 IL Route 3 between McKinley Bridge and IL Route 143: This principal arterial route bisects the Route 3 North and Lewis & Clark North Industrial Site Areas identified by EWG and provides direct roadway access to the aforementioned ACP. The IL Route 3 corridor could also serve truck traffic accessing the future Mid-American International Gateway located to the north in Jersey County. The roadway also

serves as an important connection between downtown St. Louis and the I-270/I-255 circumferential loop.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, and the corridor is posted for 55 miles per hour. South of W. 20th Street, there are three lanes and asphalt shoulders in each direction. North of W. 20th Street, the corridor narrows down to two lanes in each direction. The corridor generally allows limited access, with the northbound and southbound lanes separated by either a grass median or concrete barrier. Access to the corridor is generally provided via signalized, at-grade intersections. This corridor currently has an approximate AADT of 13,000, with approximately 15% of the traffic volume being represented by trucks.

IL Route 111 between I-55 and Madison Street: This minor arterial route goes through the Gateway Commerce and Lewis & Clark North Industrial Site Areas identified by EWG. This roadway corridor helps provide roadway access to the aforementioned Gateway Commerce Center and Lakeview Commerce Center, and direct access to the Gateway Trade Port.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt and varies between two and four lanes. There is a paved shoulder in each direction. The roadway is posted for 50 miles per hour, and the northbound and southbound lanes are generally separated by a grass median in segments with a four-lane section. This corridor currently has an approximate AADT of 8,700, with approximately 13% of the traffic volume being represented by trucks.

 IL Route 255 between I-255 and IL Route 143: This corridor is classified as a freeway/ expressway and connects Gateway Commerce Center and Lakeview Commerce Center with the I-270/I-255 circumferential loop. This roadway corridor runs through the Gateway Commerce Center Industrial Site Area identified by EWG. This corridor also runs continuous to the portion of IL Route 255 identified as an Intra-Regional Connector within this chapter. <u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and asphalt shoulder in each direction. Opposing lanes are separated by a grass median. The corridor is posted for 65 miles per hour, and has full access control for the entire length, with no at-grade intersections present. This corridor currently has an approximate AADT of 31,000, with approximately 12% of the traffic volume being represented by trucks.

 IL Route 143 between US Route 67 and IL Route 255: This principal arterial route runs adjacent to the Lewis & Clark North Industrial Site Area identified by EWG. The connections to US Route 67, IL Route 3, and IL Route 255, in conjunction with proximity to potentially underutilized industrial properties, help classify this as a Freight Connector.

<u>Roadway Characteristics</u>: The roadway along this corridor is concrete, with two lanes and curb and gutter section in each direction. There is a 35 mile per hour posted speed limit, and a twoway left-turn lane is generally provided along the roadway east of the intersection with IL Route 3. West of the IL Route 3 intersection, the roadway lanes are asphalt, opposing lanes are separated by either grass median or concrete barrier, and the posted speed limit is 55 miles per hour. This corridor currently has an approximate AADT of 11,800, with approximately 5% of the traffic volume being represented by trucks.

The map also shows that four non-interstate corridors within Madison County are identified as Intra-Regional Connectors, which are as follows:

 IL Route 143 and US Route 40 to/from I-70: This minor/principal arterial route includes two segments that create a loop with direct connections between I-70 and a cluster of manufacturing and distribution industries within the City of Highland such as Eaton and WestRock. This loop corridor provides alternatives for eastbound or westbound freight movement accessing the regional interstate system.

<u>Roadway Characteristics:</u> Both IL Route 143 and US Route 40 roadway segments are asphalt, with generally a single lane and shoulder in each direction. The roadway corridor shares signalized intersections with Troxler Avenue/Koepfli Lane and US 40/Walnut Street as well as a roundabout with IL Route 160/Poplar Street that may be circumvented by using Troxler Avenue. Auxiliary turn lanes are generally provided at these signalized intersections as well as many access roads where appropriate. The roadway is posted for 45-55 miles per hour. This corridor currently has an approximate AADT of 8,400, with approximately 5% of the traffic volume being represented by trucks.

 IL Route 162 between IL Route 203 and I-255: This minor arterial route provides a direct connection between the Route 3 North Industrial Site Area identified by EWG and I-255. Specifically, the aforementioned U.S. Steel has a railyard of significant size near the intersection with IL Route 203.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single lane and asphalt shoulder in each direction. The roadway corridor shares signalized intersections with IL Route 203, 23rd Street, Maryville Road, Horseshoe Lake Road, and IL Route 111. Auxiliary turn lanes are generally provided at these signalized intersections. The roadway is posted for 45/55 miles per hour. This corridor currently has an approximate AADT of 6,000, with approximately 7% of the traffic volume being represented by trucks.

IL Route 203 between I-55 (beyond the county line) and IL Route 162: Like the IL Route 162 corridor, this principal arterial route provides a connection between the Route 3 North Industrial Site Area, the associated U.S. Steel property, and the St. Louis regional roadway system via I-55.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes in each direction. Curb and gutter are generally provided, and the corridor is posted for 45 miles per hour. Sidewalk is present within some denser residential/commercial portions of the corridor. This corridor currently has an approximate AADT of 12,600, with approximately 11% of the traffic volume being represented by trucks.

 IL Route 255 between IL Route 143 and US Route 67: This corridor is classified as a freeway/expressway and helps connect the northern portion of Madison County with Jersey County. This roadway corridor runs adjacent to the Lewis & Clark North Industrial Site Area identified by EWG and runs continuous to the portion of IL Route 255 identified as an Intra-Regional Connector within this chapter.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two lanes and asphalt shoulder in each direction. Opposing lanes are separated by a grass median. The corridor is posted for 65 miles per hour, and has full access control for the entire length, with no at-grade intersections present. This corridor currently has an approximate AADT of 17,800, with approximately 10% of the traffic volume being represented by trucks.

The map also shows that three non-interstate corridors within Madison County are identified as **Emerging Connectors**, which are as follows:

Madison Avenue / Hawthorne Street between IL Route 3 and IL Route 255: This minor arterial route runs through the Lewis & Clark North Industrial Site Area identified by EWG. Like IL Route 143, the connections to both IL Route 3 and IL Route 255, in conjunction with proximity to potentially underutilized industrial properties, help classify this as an Emerging Connector.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single travel lane and gravel shoulder in both directions. The roadway shares signalized intersections with IL Route 3, IL Route 111, and Hedge Road, as well as a full unsignalized interchange with IL Route 255. At these intersections, auxiliary turn lanes are provided. There are several highway-rail crossings along the corridor. The corridor generally has a 35 mile per hour posted speed limit. Madison Avenue/Hawthorne Street currently has an approximate AADT of 3,400. The current truck traffic volumes were unable to be confirmed.

New Poag Road between IL Route 3 and IL Route 255: This minor arterial route runs adjacent to both the Gateway Commerce and Lewis & Clark North Industrial Site Areas identified by EWG. Because of the aforementioned available space, development opportunities, and associated traffic growth potential within both the Gateway Commerce Center and Lakeview Commerce Center, this roadway has been classified as an Emerging Connector.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single travel lane and wide asphalt shoulder in both directions. The roadway shares signalized intersections with IL Route 3, and IL Route 111, as well as a full unsignalized interchange with IL Route 255. At these

intersections, auxiliary turn lanes are provided. The corridor has a 55 mile per hour posted speed limit. This corridor currently has an approximate AADT of 5,800. The current truck traffic volumes were unable to be confirmed, but a high truck traffic percentage is expected on the corridor.

• US Route 67 between IL Route 255 and IL Route 16 (beyond the county line into Jerseyville):

This principal arterial route helps provide access to/from the Mid-American International Gateway Industrial Site Area (as identified by EWG) in Jersey County and the St. Louis region. The IL Route 255 corridor discussed with the Intra-Regional Connectors helps complete the connection between the two. This route has been identified as an Emerging Connector because the Mid-American International Gateway site is yet to be developed.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt with generally two lanes an asphalt shoulder in each direction. The four-lane roadway reduces to two-lanes near the intersection of Stagecoach Road. The posted speed is 55 to 65 miles per hour for most of the corridor. Opposing lanes are generally separated by grass median, and auxiliary turn lanes are generally provided at intersections. This corridor currently has an approximate AADT of 10,000, with approximately 11% of the traffic volume being represented by trucks.

CHAPTER 7 | MONROE COUNTY (IL)

Monroe County, Illinois sits in the southern portion of the St. Louis region, bordered to the west by the Mississippi River and by St. Clair County to the northeast. Potential for future development has been secured due to construction of 100-year levee flood protection improvements are anticipated in 2020 resulting in full Federal Emergency Management Agency (FEMA) accreditation. Additional 500-year improvements are currently underway. The county has seen population growth due to residential shifts from the St. Louis region, increasing by 6.1% (32,957 to 34,962) between 2010 and 2020 (U.S. Census). Population growth has primarily occurred within or near the municipalities of Columbia and Waterloo, while the majority of the county has retained a rural character.

Transportation-Related Industry

Manufacturing accounts for approximately 4% of the employment in Monroe County, with another 21% of the employment involving wholesale trade or transportation/warehousing. Mining/quarrying, and oil/gas extraction also contribute significantly to the economic activity within Monroe County (BLS, 2022). The most significant manufacturing employers in Monroe County are Luhr Bros, Budnick Converting, Mar Business Forms Company, Hoya Corporation, Its Solar, and Ortho-Clinical Diagnostics. Primary transportation and wholesaling employers include Emco Chemical Distributors, United States Postal Service, Superior Express, and Mac Medical.

KRPD boundaries include Monroe County. KRPD #2 at Mile 18 upstream of the Kaskaskia River in Randolph County provides freight movement to and from the St. Louis region with IL Route 3 in Monroe County as a primary distribution route. This multimodal terminal served by rail with two docks includes two tenants: The Material Works and Gateway FS. The Material Works ships inbound truck, rail, and barge coiled steal for processing. Gateway FS ships outbound truck fertilizer and farm chemicals. This facility has the only 50-ton overheard crane in the St. Louis region at a port terminal and has container on barge capabilities.

The UP Intermodal Yard in Dupo is another freight generator that has regional connectivity to Monroe County's roadway system that supports containerized cargo transportation to Southwestern Illinois.

Industrial Site Areas Identified by EWG

Industrial Site Areas in Monroe County were not identified by EWG except for a portion of the Dupo Yard which is primarily located in St. Clair County.

Freightway Featured Industrial Real Estate Sites

St. Louis Regional Freightway has identified two properties within Monroe County that have significant space readily available (as of July 2023) for industrial land uses, shown below.

Location	Available Total Area	Minimum Lot Size	Tax and Related Incentives	Highway Access	Rail/Barge Access (Yes/No)	
Monroe County Electric Company Property	60 acres	Negotiable	None	IL Route 3	No/No	
	No Major Tenant Information Available Note: Monroe County Electric Company Property is willing to divide up acreage.					
Rock City Business Complex	137 acres 5,000,000 ft²	5,000 ft ²	50% Construction Costs; No Personal Property, Manufacturing, Earnings, or Equipment Taxes	IL Route 156, Bluff Road	No/No	
	Major Tenants: Coldco Logistics, National Archives & Records					
IL Route 3 & Gall Road - Waterloo	61 acres	n/a	Enterprise Zone	IL Route, IL-156	No/No	
	No Major Tenant Information Available					

Non-Interstate Truck Corridors

Exhibit 7-1 shows a map of the non-interstate truck corridors identified as a part of this study within Monroe County. The corridor segments have been categorized as one of the following three types of Connectors:

- Freight Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to the Industrial Site Areas identified by EWG. These areas represent freight generators with developed industry clusters at or near full tenancy. Connections to these Areas are also notable because this is one of the evaluation metrics for proposed improvements competing for funding as a freight/economic development type project within the Surface Transportation Block Grant Program administered by EWG.
- Intra-Regional Connectors are non-interstate segments of the St. Louis region's roadway network
 that have existing multi-axle vehicle traffic providing access for freight and deliveries, primarily
 thru truck traffic or freight generators outside of the industrial site areas identified by EWG. The
 Intra-Regional Connectors offer system redundancies providing alternate routes to freight
 movement inbound and outbound from the interstate system.
- Emerging Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to Freightway Featured Industrial Real Estate Sites. These sites are regionally targeted priority sites not currently fully developed or near full tenancy.

For each Connector, variations in roadway characteristics such as number of lanes, posted speed limit, AADT, and truck percentages have been generalized to describe the overall roadway segment.



The map shows that the county has no identified Freight Connectors or Intra-Regional Connectors. As mentioned, the scale of industrial activity currently located within Monroe County is small when measured against the industrial activity of the St. Louis region as a whole, which is a major contributing factor to no Freight Connectors or Intra-Regional Connectors being identified for the county. General travel patterns within Monroe County are associated with access to/from the Interstate 255 (I-255)/IL Route 3 interchange that sits near the northern county boundary line. I-255 provides direct access to the Jefferson Barracks Bridge that crosses the Mississippi River. The I-270/I-255 circumferential loop provides access further to the St. Louis region, and connects with four other major interstates serving the Midwest and the nation.

The map also shows that three non-interstate corridors within Monroe County are identified as **Emerging Connectors**, which are as follows:

Bluff Road (County Highway 6) between IL Route 156 and Hanover Road (connecting to IL Route 3): This rural major collector route helps provide access between the Rock City Business Complex and IL Route 3 to the north. In combination with Hanover Road, this corridor provides the "fastest path" between the Rock City Business Complex and the aforementioned I-255/IL Route 3 interchange. This corridor has been classified as an Emerging Connector and would benefit from elevation improvements maximizing the road's ability to handle increased worker and truck transportation demands of a fast-developing Rock City Business Complex. Local efforts are under way to secure federal and state assistance for those strategic improvements.

<u>Roadway Characteristics:</u> This stretch of Bluff Road is asphalt, with one lane and asphalt shoulder in each direction, and is posted for 45 and 55 miles per hour. The corridor features no traffic signals or stop signs. It is understood that Monroe County has studied improvements to this portion of Bluff Road, in order to address flooding. This corridor currently has an approximate AADT of 3,600. The portion of the existing traffic volumes represented by trucks on this corridor was not able to be confirmed with the preparation of this study.

IL Route 3 between Monroe/Randolph County Line and I-255: This principal arterial provides access between the aforementioned MCEC Property and the I-255/IL Route 3 interchange. As the primary north-south arterial within the county, the corridor provides access to other existing industrial land uses, as well as a connection to the Rock City Business Complex via IL Route 156.

The corridor is also included in the proposed Southwest Illinois Connector to develop a four-lane rural highway through Monroe, Randolph, Perry, and Jackson Counties on segments of IL Routes 3, 154, and 127 for the expansion of commerce. The proposed Southwest Illinois Connector is vital for potential new, relocating, and expanding industries in the region that require a four-lane expressway and is critical to connectivity to interstates, intermodal rail yards, public ports, and freight-related airports. Inbound and outbound truck traffic from the UP Intermodal Yard in Dupo is dependent on the efficiency of the proposed Southwest Illinois Connector project. Recently the State of Illinois appropriated \$15 million to start preliminary engineering for the Southwest Illinois Connector project.

KRPD #2 is in the process of adding eight acres to the south to accommodate a proposed third dock. Liquid fertilizer is a potential new product that could be shipped to this location. KRPD #2 is in the path of the Southwest Illinois Connector study. A partnering company with The Material Works would like to locate at the KRPD #2 but is requiring immediate access to a four-lane

highway or, at a minimum, within five miles of the terminal. The nearest four-lane highway is in the City of Waterloo approximately 20 miles to the northwest.

<u>Roadway Characteristics:</u> North of Market Street/Vandebrook Drive, the roadway is asphalt, with two lanes and asphalt shoulder in each direction. A two-way left-turn lane and 55 mile per hour posted speed limit are provided through this stretch of roadway. South of IL Route 156, the roadway has two lanes in each direction. South of the intersection with Market Street/Vandebrook Drive, the roadway is also asphalt with shoulders in both directions and narrows down to one lane in each direction. This stretch of corridor has a posted speed between 45 to 65 miles per hour. The four-lane section of the corridor currently has an approximate AADT of 23,000, with approximately 9% of the traffic volume being represented by trucks. The two-lane section of the corridor has an AADT of 7,700 with 11% represented by trucks. The corridor is been included within the Emerging Connector due to the future potential for increased truck traffic associated with the aforementioned Freightway properties and Southwest Illinois Connector.

IL Route 156 between Bluff Road and IL Route 3: This major collector provides access between the Rock City Business Complex and IL Route 3. This corridor serves as an alternate route to the "fastest path" to/from the Rock City Business Complex (via Bluff Road and Hanover Road). The need for an alternate route to Bluff Road is important to handle increasing traffic demands of Bluff Road and the need to provide another access to Rock City for truck traffic to and from the south on IL Route 3.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with one lane in each direction. The corridor is posted for 55 miles per hour and has minimal asphalt shoulders in both directions. This corridor currently has an approximate AADT of 2,900, with approximately 8% of the traffic volume being represented by trucks.

CHAPTER 8 | ST. CHARLES COUNTY (MO)

St. Charles County, Missouri sits to the northwest of St. Louis County, and is bordered to the north by the Mississippi River, and the Missouri River to the south. For more than 30 years, St. Charles County has been the fastest growing part of the St. Louis region and the fastest growing county in Missouri. The population of St. Charles County experienced the greatest population increase in the region at 12.4% (360,485 to 405,262) between 2010 and 2020 (U.S. Census). This growth has made St. Charles County the third largest county population in the state of Missouri. Much of the growth has extended from the corridors of I-64 and I-70. Despite this growth, the southwest portion of the county remains mostly rural, and the northeast portion of the county near the confluence of the Missouri River and Mississippi River remains mostly agricultural land uses.

Transportation-Related Industry

Manufacturing accounts for approximately 12% of the employment in St. Charles County, with many of these jobs located along the I-70 corridor (BLS, 2022). By a sizable margin, General Motors is the most significant manufacturing employer in the county, employing approximately 3,800 workers in their plant located in the City of Wentzville. Other significant manufacturing employers in St. Charles County include Nike IHM Incorporated, Heartland Coca Cola Bottling Company, True Manufacturing Company Incorporated, TVS Supply Chains Solutions, and Global Wafers.

Other industries that have impacts upon freight movement in the region with a significant presence in the county include transportation/warehousing, wholesale trade, and construction. The trade and transportation sector accounts for nearly 26% of all private employment in the county (BLS, 2022). Some of the significant employers in these industries include Medline, Aldi Distribution Center, STL8 Amazon Fulfillment Center, and Sysco Food Services of St. Louis. Truck-served facilities are more prevalent in St. Charles County as compared to the neighboring counties within the St. Louis region that have more intermodal (rail-road-barge) facilities for commodities transportation/storage. St. Charles County Port Authority was established in 2019 and its Board of Commissioners was appointed in 2020 is to work with other economic development organizations that share a common interest is creating new job opportunities, expanding the existing tax base, and promoting economic well-being; this will include future investment in more freight related industries. For example, several industrial areas within St. Charles County are capable of "rail-to-road" operations, with a significant example being the railroad pocket tracks that lie adjacent to the General Motors facility.

Industrial Site Areas Identified by EWG

EWG identified three Industrial Site Areas that lie within the confines of St. Charles County. The Industrial Site Areas were chosen based on review of land use and existing site characteristics, and input provided by the Steering Committee. Site area boundaries were ultimately defined based on Transportation Area Zones, which are zones associated with population and employment planning used for long-range transportation planning. The three identified within St. Charles County were defined as:

- Fountain Lake Elm Point
- GM Plant
- West I-70 Arrowhead

It is also noteworthy that two non-interstate corridors within the county, MO Route 364 and MO Route 370, have bridges that crossover into the large Earth City Industrial Site Area within St. Louis County. For purposes of this study, the presence of non-interstate truck corridors within the confines of, or adjacent to, these Industrial Site Areas influences their inclusion in the list of Freight Connectors.

Industrial Sites with Rail Potential

To support the region's decision makers, a comprehensive rail site analysis was performed in 2022. The resulting study showed the St. Louis Region is lacking in active rail sites that can attract national tenants. There is underutilized land around the region that have connections to Class 1 railroads. The goal of the study was to highlight the land sites with industrial rail potential. The result was 11 locations with 14 sites. These are certified/premier sites that are shovel ready with supportive owners/developers. The sites are a mix of states, counties, and connecting railroads.

In St. Charles County, there is one site: Interstate Commerce Center.

Freightway Featured Industrial Real Estate Sites

St. Louis Regional Freightway has identified three industrial parks within St. Charles County that have significant space readily available (as of July 2023) for industrial or transportation and warehousing-related land uses, shown below.

Location	Available Total Area	Minimum Lot Size	Tax and Related Incentives	Highway Access	Rail/Barge Access (Yes/No)		
Fountain Lakes Commerce Center	30.37 acres 290,000 ft ²	25,000 ft ²	Chapter 100 Tax Abatement	MO Route 370, I-70, I-270	No/No		
	Major Tenants: Almo Distributing, Centric Group, Friend Tire Company, Keefe Group, LMI Aerospace, MiTek Industries, Newco Enterprises, Southern Glazer's Wine Spirits, Victory Packaging, Vi-Jon						
Premier 370	72 acres 101,523 ft²	10,000 ft ²	Chapter 100 Tax Abatement	MO Route 370, I-70	Yes/No		
	Major Tenants: Amazon, Best Buy, Dayton Freight, Distribution Management, FedEx, Grove Collaborative, Medline Distribution, RB Manufacturing, Reckitt Benckiser, SAIA LTL Freight						
West 70	95,000 ft ²	n/a	n/a	MO Route 79, I-70	Yes/No		
Center	Major Tenants: ADS Logistics, CitiMortgage, Cosmos Corporate, Iron Mountain, McKesson Corporation, Phoenix Textile Corporation, True Manufacturing						
Interstate Commerce Center – The Cubes at Wentzville	195 acres 1M ft²	n/a	50% Real and Personal Property Tax Abatement	I-70, I-64	Yes/No		
	No Major Tenant Information Available						
Wentzville I- 70/I-64 Real Estate Sites	105,000 ft ²	n/a	n/a	I-70, I-64	Yes/No		
	Major Tenants: Comprehensive Logistics, Cosmos Corporation, eTrailer.com, Fourecia Interior Systems USA, General Motors, Knapheide, MiTek, Nike, Superior Home Products, Titanium Metals Corporation, TVS Supply Chain Solutions Note: Wentzville I-70/I-64 Real Estate Sites are fully occupied development but may impact truck travel.						
Commerce	209,800 ft ²	40,000 ft ²	n/a	I-70, I-64	Yes/No		
Park West	No Major Tenant Information Available						

Non-Interstate Truck Corridors

In assessing the roadway network within St. Charles County, it is important to note the overall travel patterns within the St. Louis region. St. Charles County sits outside of the I-270/I-255 circumferential loop, with the only interstate corridors within the county being I-64 and I-70. I-64 and I-70 converge at an interchange near the City of Wentzville, with I-70 continuing west as the primary east-west corridor in the state of Missouri. Particularly during weekday peak hours, congestion on both the I-64 and I-70 corridors is common. The traffic volume on I-70 in St. Charles County exceeds 140,000 AADT and has been relatively consistent over the past three years as have the truck volumes at just over 15,000 AADT. In identifying non-interstate truck corridors, the need to provide routes that are redundant to the interstate system was considered.

Exhibit 8-1 shows a map of the non-interstate truck corridors identified as a part of this study within St. Charles County. The corridor segments have been categorized as one of the following three types of Connectors:

- Freight Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to the Industrial Site Areas identified by EWG. These areas represent freight generators with developed industry clusters at or near full tenancy. Connections to these Areas are also notable because this is one of the evaluation metrics for proposed improvements competing for funding as a freight/economic development type project within the Surface Transportation Block Grant Program administered by EWG.
- Intra-Regional Connectors are non-interstate segments of the St. Louis region's roadway network that have existing multi-axle vehicle traffic providing access for freight and deliveries, primarily thru truck traffic or freight generators outside of the industrial site areas identified by EWG. The Intra-Regional Connectors offer system redundancies providing alternate routes to freight movement inbound and outbound from the interstate system.
- Emerging Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to Freightway Featured Industrial Real Estate Sites. These sites are regionally targeted priority sites not currently fully developed or near full tenancy.

For each Connector, variations in roadway characteristics such as number of lanes, posted speed limit, AADT, and truck percentages have been generalized to describe the overall roadway segment.



Exhibit 8-1: Non-Interstate Truck Corridors in St. Charles County (MO)

≣⊞	Freightway Featured Industrial Real Estate Sites			
X	Freight Related Airports			
	Intermodal Rail Yards			
	Public Ports			
—	Freight Connectors			
_	Intra-Regional Connectors			
—	Emerging Connectors			
-+	Railroad			
	Transportation Related Employers (2022)			
	Industrial Site Areas Identified by East-West Gateway Council of Governments			
NORTH	0 2.5 5 10 Miles			
Non-Interstate Truck Corridor Study July 2023				
ST LOUIS REGIONAL FREIGHTWAY				



Exhibit 8-2: Non-Interstate Truck Corridors in St. Charles County (MO)					
	Industrial Real Estate Sites				
X	Freight Related Airports				
	Intermodal Rail Yards				
	Public Ports				
	Freight Connectors				
_	Intra-Regional Connectors				
	Emerging Connectors				
++-	Railroad				
	Transportation Related Employers (2019)				
	East-West Gateway Industrial Site Areas				
RTH	MILES 0 2.5 5				
on-Interstate Truck Corridor Study July 2023					
	COUIS REGIONAL EIGHTWAY				

The map shows that eight non-interstate truck corridors within St. Charles County are identified as **Freight Connectors**, which are as follows:

 MO Route A: This minor arterial route provides a direct link between the General Motors Wentzville Assembly Center and the regional interstate system. The roadway runs through the GM Plant Industrial Site Area, identified by EWG. In addition to the GM Plant, the roadway provides access to several other industrial properties, such as Knapheide Truck Equipment.

<u>Roadway Characteristics:</u> The roadway along this corridor is concrete, with two lanes and asphalt shoulder in each direction. The corridor shares signalized diamond interchanges with both I-70 and MO Route 61, as well as signalized intersections with Enterprise Drive, Logistics Center Drive, and the two GM Plant entrances. Auxiliary turn lanes are provided at these intersections, as appropriate. The corridor has a 55 miles per hour posted speed limit. This corridor currently has an approximate AADT of 12,600, with approximately 7% of the traffic volume being represented by trucks.

 MO Route 61 between MO Route A and I-70: This corridor is classified as a freeway/expressway and provides a link between the aforementioned Freight Connector MO Route A and the regional interstate system. MO Route 61 also serves as the primary route to/from destinations in Lincoln County. This roadway corridor runs adjacent to the GM Plant Industrial Site Area identified by EWG.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two lanes and asphalt shoulder in each direction. Opposing lanes are separated by a grass median. The corridor has a 60 miles per hour posted speed limit, and access control is limited to grade-separated interchanges. This corridor currently has an approximate AADT of 51,000, with approximately 11% of the traffic volume being represented by trucks.

 MO Route 79 between Salt River Road and I-70: This principal arterial route runs through the West I-70 - Arrowhead Industrial Site Area identified by EWG. This roadway provides a direct link between the aforementioned West 70 Commerce Center and the regional interstate system.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two lanes and asphalt shoulder in each direction. Opposing lanes are separated by a grass median. The corridor has a 50 miles per hour posted speed limit, and access control is limited to grade-separated interchanges. This corridor currently has an approximate AADT of 21,000, with approximately 11% of the traffic volume being represented by trucks.

 MO Route 370: This corridor is classified as a freeway/expressway and provides a link between the aforementioned Fountain Lake - Elm Point Industrial Site Area and the regional interstate system. It provides the primary access to/from the Fountain Lakes Commerce Center, Premier 370 development, and I-70. MO Route 370 continues into St. Louis County, where the Earth City Industrial Site Area is located, via a bridge over the Missouri River.

<u>Roadway Characteristics:</u> The roadway along this corridor is concrete, with three lanes and concrete shoulder in each direction. Opposing lanes are separated by a concrete barrier. The corridor has a 60 miles per hour posted speed limit, and access control is limited to grade-

separated interchanges. This corridor currently has an approximate AADT of 45,500, with approximately 5% of the traffic volume being represented by trucks.

 New Town Boulevard between both intersections with Elm Point Industrial Drive: This corridor runs through the Fountain Lake - Elm Point Industrial Site Area and provides a link to the Freight Connector MO Route 370. North of MO Route 370 this roadway is classified as a collector, while south of the Route 370 corridor this roadway is classified as a minor arterial.

<u>Roadway Characteristics:</u> The roadway along this corridor is concrete, with two lanes and asphalt shoulder in each direction. New Town Boulevard shares signalized intersections with several roadways along this corridor, including a signalized diamond interchange with MO Route 370. Auxiliary turn lanes are provided at the signalized intersections, as appropriate. Several driveway entrances are also present along the corridor. The corridor has a 35 miles per hour posted speed limit. This corridor currently has an approximate AADT of 6,700, with approximately 6% of the traffic volume being represented by trucks.

 Salt River Road/Mid-Rivers Mall Drive: This roadway corridor is comprised of two minor arterial routes that help provide access between the West I-70 - Arrowhead Industrial Site Area identified by EWG and the regional interstate system. This I-70 access serves as an alternate to the aforementioned MO Route 79.

<u>Roadway Characteristics</u>: The roadway along this corridor is concrete, with two lanes and minimal concrete shoulder in the westbound direction and wide asphalt shoulder in the eastbound direction. Salt River Road shares a signalized diamond interchange with MO Route 79, and a signalized intersection with Mid Rivers Mall Drive. Auxiliary lanes are provided at these intersections, as well as other unsignalized intersections along the route. Salt River Road has a posted speed limit of 45 miles per hour, while Mid Rivers Mall Drive has a posted speed limit of 30 miles per hour. This corridor currently has an approximate AADT of 9,100, with approximately 10% of the traffic volume being represented by trucks.

Terra Lane between TR Hughes Boulevard and Salt Lick Road: This collector route runs through the West I-70 - Arrowhead Industrial Site Area identified by EWG. The route provides a link to the aforementioned MO Route 79 corridor. The routes associated with access to/from the Fountain Lakes Commerce Center have been classified as Freight Connectors because of the built-out current condition of that development. This portion of Terra Lane also provides access to/from several other industrial properties west of the Fountain Lakes Commerce Center, and also serves as an alternate east-west route to I-70.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single travel lane and asphalt shoulder in each direction. Terra Lane shares an unsignalized interchange with MO Route 79, and a signalized intersection with TR Hughes Boulevard. The roadway has a 45 miles per hour posted speed limit, and several driveway entrances exist along the corridor. This corridor currently has an approximate AADT of 3,500 with approximately 14% of this traffic volume is being represented by trucks.

 Wentzville Parkway between I-70 and US Route 61: This principal arterial route runs adjacent to the central business district of the City of Wentzville and runs continuous to the MO Route A
Freight Connector discussed within this chapter. This route also provides alternate access between the GM Plant Industrial Site Area identified by EWG and I-70 to/from the west. This alternate access is important due to the aforementioned traffic congestion that occurs at the interchange of I-64 and I-70. Furthermore, this route provides direct access to several large commercial properties north of I-70. It is also understood that plans are in place to extend Wentzville Parkway to the south to form an intersection with Interstate Drive.

<u>Roadway Characteristics:</u> The roadway along this corridor is concrete, with two continuous lanes and concrete curb and sidewalk in each direction. Access to the corridor is provided via either signalized intersections, unsignalized intersections, or driveway entrances. A two-way left-turn lane is generally provided throughout the corridor, but some concrete median is present in areas to restrict access to/from driveways. Wentzville Parkway has a 40 mile per hour posted speed limit. This corridor currently has an approximate AADT of 20,300, with approximately 5% of the traffic volume being represented by trucks.

The map also shows that twelve non-interstate truck corridors within St. Charles County are identified as **Intra-Regional Connectors**, which are as follows:

Bryan Road between MO Route 364 and West Terra Lane: This principal arterial route provides a connection between the MO Route 364 Intra-Regional Connector and I-70. Bryan Road also extends north of I-70, providing another connection to the West Terra Lane Intra-Regional Connector, discussed within this chapter. The corridor directly serves several small to mediumsized commercial land uses, with the presence of undeveloped land indicating that more commercial development could occur.

<u>Roadway Characteristics:</u> The roadway along this corridor is concrete, with two continuous lanes and concrete curb and sidewalk in each direction. The corridor shares a signalized diamond interchange with I-70, and a modified signalized diamond interchange with MO Route 364. Access to the corridor is otherwise provided via signalized intersections, unsignalized intersections, and driveway entrances. A two-way left-turn lane is provided throughout the corridor. Bryan Road has a 40 mile per hour posted speed limit. This corridor currently has an approximate AADT of 26,900, with approximately 5% of this traffic volume being represented by trucks.

 Elaine Drive between West Terra Lane and North Central Avenue: This major collector route provides a connection between the West Terra Lane Intra-Regional Connector, discussed within this chapter, and multiple light manufacturing and warehousing/distribution land uses.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single travel lane and concrete curb and gutter in each direction. There is concrete sidewalk along the east side of the corridor, and a center two-way left-turn lane present throughout the corridor. The roadway shares an unsignalized intersection with West Terra Lane, and access to the corridor is provided via either unsignalized intersections or driveway entrances. Elaine Drive has a 25 mile per hour posted speed limit. This corridor currently has an approximate AADT of 4,900, with approximately 5% of the traffic volume being represented by trucks.

Luetkenhaus Boulevard (Business Route 61): This major collector route runs through the central business district of the City of Wentzville and serves as an outer road that parallels US Route 61

between West Pearce Boulevard and Wentzville Parkway, which are both Intra-Regional Connectors described within this chapter. Luetkenhaus Boulevard also continues south of West Pearce Boulevard to provide ramp connections to eastbound I-64 and westbound I-70. This redundancy with US Route 61 is important because of the aforementioned traffic congestion that is frequently encountered at the interchange of I-70 and US Route 61. The corridor also provides direct access to several commercial land uses, as well as Wentzville Fire Protection Headquarters.

<u>Roadway Characteristics:</u> The roadway along this corridor is concrete, with concrete curb, gutter, and sidewalk in each direction. The roadway is three-lanes throughout, including a center two-way left-turn lane. The corridor shares signalized intersections with West Pearce Boulevard and Wentzville Parkway, and a roundabout intersection with Main Plaza Drive/Wall Street. The roadway has a 35 mile per hour posted speed limit. This corridor currently has an approximate AADT of 7,400. Truck volumes were not able to be confirmed as a part of this study.

Mexico Road: This principal arterial route serves as a primary non-interstate east-west route through the most populated areas of St. Charles County. The corridor extends from the Intra-Regional Connector Bryan Road to Veterans Memorial Parkway, which is close to the I-70/Cave Springs Road interchange. It also provides a connection to/from another Intra-Regional Connector discussed within this chapter, MO Route K. The corridor also serves as an alternate east-west route to I-70, which, as noted, frequently experiences traffic congestion. The route furthermore provides direct access to multiple commercial and/or light industrial land uses, particularly between Spencer Road and Veterans Memorial Parkway.

<u>Roadway Characteristics</u>: The roadway along this corridor is concrete, with two continuous lanes and concrete curb, gutter, and sidewalk in each direction. Access to the corridor is provided via either signalized intersections, unsignalized intersections, or driveway entrances. Auxiliary turn lanes are provided at signalized intersections, where appropriate, and there is a two-way left-turn lane present throughout much of the corridor. The roadway has a 35/40 mile per hour posted speed limit. This corridor currently has an approximate AADT of 12,400, with approximately 4% of the traffic volume being represented by trucks.

MO Route K between I-64 and I-70: This principal arterial route provides a connection between the MO Route 364 Intra-Regional Connector and the regional interstate system, via I-64 or I-70. MO Route K also extends just north of I-70, providing another connection to the West Terra Lane Intra-Regional Connector, discussed within this chapter. The corridor provides direct access to several commercial and/or light industrial land uses. At the south end of the corridor, the roadway lies adjacent to industrial land uses associated with Missouri Research Park, which serve businesses such as Nike, Zoltek Corporation, Natoli Engineering, and ITW Labels.

<u>Roadway Characteristics:</u> The roadway along this corridor is concrete, with two continuous lanes and concrete shoulders that also serve as bike lanes in each direction. Concrete or asphalt sidewalk is provided intermittently throughout the corridor. The route shares a partially signalized partial diamond interchange with I-64, a single-point urban interchange with MO Route 364, and a signalized diamond interchange with I-70. Access to the corridor is otherwise provided via either signalized intersections, unsignalized intersections, or driveway entrances. Auxiliary turn lanes are provided at intersections, where appropriate, and there is a two-way left-turn lane present throughout much of the corridor. The roadway has a 45 mile per hour posted speed limit. This corridor currently has an approximate AADT of 39,500, with approximately 5% of the traffic volume being represented by trucks.

 MO Route N between MO Route Z and I-64: This minor arterial route provides a connection between the MO Route Z Intra-Regional Connector, discussed within this chapter, and the regional interstate system, via I-64. This route also provides direct access to/from the light industrial land uses associated with Stag Industrial Boulevard.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single travel lane and minimal asphalt shoulder in each direction. Between Ridgeway Drive / Red Baron Drive and the cloverleaf interchange with I-64, opposing lanes are separated by a wide grass median. The intersection of MO Route N and MO Route Z is an unsignalized intersection that is configured with an acute skew angle, at which left turns are separated from the through movements prior to the intersection. Access to the corridor is otherwise provided via either signalized intersections, unsignalized intersections, or driveway entrances. Auxiliary turn lanes are provided at intersections, where appropriate. The corridor has a 45 mile per hour posted speed limit with a 40 mile per hour speed during school periods. This corridor currently has an approximate AADT of 21,300, with approximately 4% of the traffic volume being represented by trucks.

MO Route Z between MO Route N and I-70: This minor arterial route provides a connection between the MO Route N Intra-Regional Connector, discussed above, and the regional interstate system, via I-64. The corridor also provides a direct connection to/from some commercial land uses. The presence of undeveloped land, particularly south of MO Route N, also indicates that the corridor could serve more commercial and/or industrial land uses in the future.

<u>Roadway Characteristics</u>: North of the intersection with Interstate Boulevard, the roadway along this corridor is concrete. South of this point, the roadway along this corridor is asphalt. The corridor has a single travel lane, with shoulders that vary in width, in each direction. The corridor shares an unsignalized diamond interchange with I-70, with the intersection associated with the westbound ramps having a roundabout configuration. Access to the corridor is otherwise provided via either signalized intersections, unsignalized intersections, or driveway entrances. Auxiliary turn lanes are provided at intersections, where appropriate, and the corridor has a 45/50 mile per hour posted speed limit. This corridor currently has an approximate AADT of 17,800, with approximately 4% of the traffic volume being represented by trucks.

 MO Route 94 between MO Route 364 and I-70: This principal arterial route provides a link between the I-64, MO Route 364, and I-70 corridors. Because MO Route 364 provides a direct connection to St. Louis County, MO Route 94 also helps connect I-70 to destinations within the Earth City Industrial Site Area. A significant portion of the corridor is shared with MO Route 364 (discussed below).

<u>Roadway Characteristics:</u> At the south end of the corridor, the roadway lies adjacent to industrial land uses associated with Missouri Research Park (discussed with MO Route K within this chapter). The roadway along this corridor is asphalt, with three lanes and asphalt shoulder in each direction. The southern portion of the roadway has four lanes in each direction. The roadway has a posted speed limit of 55/60 miles per hour, and opposing lanes are separated by

a grass median for a significant portion of the corridor. Access to the corridor is generally limited to signalized at-grade intersections, where auxiliary turn lanes are provided. The roadway shares a single-point urban interchange with I-70. This corridor currently has an approximate AADT of 47,000, with approximately 4% of this traffic volume being represented by trucks.

MO Route 364: This corridor is classified as a freeway/expressway, and, like MO Route 370, this corridor has a bridge carrying the route over the Missouri River, providing a direct connection to St. Louis County, and the associated Earth City Industrial Site Area. From this bridge, MO Route 364 provides a connection to I-64 on its west end, and to I-70, via MO Route 94. The corridor also serves as an alternate route for many destinations within St. Charles County when congested traffic conditions on I-64 and/or I-70 occur.

<u>Roadway Characteristics</u>: The roadway along this corridor is concrete with two lanes in each direction, with lanes provided intermittently for exiting/entering merging space. Asphalt shoulders are provided in each direction, and opposing lanes are separated by a Grass median and wire barrier. The corridor has a 60 miles per hour posted speed limit, and access is limited to grade separated interchanges. This corridor currently has an approximate AADT of 34,800, with approximately 5% of the traffic volume being represented by trucks.

 West Meyer Road / MO Route W between I-70 and Wentzville Parkway: This major collector route provides a connection between the Wentzville Parkway Freight Connector, discussed within this chapter, and existing and potential industrial land uses near the City of Foristell.

<u>Roadway Characteristics:</u> West of the intersection with North Point Prairie Road, the roadway along this corridor is asphalt, with a single travel lane and minimal asphalt shoulder in each direction. This portion of the corridor generally does not have a two-way left-turn lane or signalized intersections. However, MO Route W has signalized intersections at the interchange with I-70, but auxiliary turn lanes are not provided at these intersections. East of this intersection, the roadway is concrete with two lanes and concrete curb and sidewalk in each direction. This portion of the corridor has a two-way left-turn lane provided, and shares signalized intersections with North Point Prairie Road, Peine Road, and Wentzville Parkway. The roadway has a 40 mile per hour posted speed limit. This corridor currently has an approximate AADT of 5,300, with approximately 7% of the traffic volume is being represented by trucks.

 West Pearce Boulevard: This minor arterial route provides a connection between two Intra-Regional Connectors discussed within this chapter, Luetkenhaus Boulevard and Wentzville Parkway. This route also runs through the central business district of the City of Wentzville, providing direct access to/from several commercial land uses. Furthermore, the corridor serves as an alternate east-west route to I-70, which, as mentioned, has frequent traffic congestion issues in this area.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with a single travel lane and concrete curb and gutter in each direction. A concrete sidewalk is provided along the north side of the roadway for a significant portion of the corridor. A two-way left-turn lane is provided for the entire corridor, and access is provided to the corridor via either signalized intersections, unsignalized intersections, or driveway entrances. The roadway has a 35 mile per hour posted

speed limit. This corridor currently has an approximate AADT of 8,500, with approximately 5% of this traffic volume being represented by trucks.

West Terra Lane between Lake St. Louis Boulevard and TR Hughes Boulevard: This major collector route provides a connection between I-70 and several properties currently being used for industrial, warehousing, and/or construction material purposes. This route is being included in this discussion despite not being associated with any Industrial Site Areas identified by EWG, or available properties identified on the Freightway's website. Most importantly, Fred Weber Construction operates a large quarry adjacent to West Terra Lane, but several other industrial businesses operate near the corridor, including SAK Construction, Peterbilt, and Bennett Building Supplies. The roadway along this corridor is asphalt, with a single lane in each direction.

<u>Roadway Characteristics:</u> West Terra Lane is a two-lane roadway with asphalt shoulders. The roadway shares signalized intersections with Lake St. Louis Boulevard, Hoff Road, Bryan Road, Woodlawn Avenue, MO Route K, and TR Hughes Boulevard, and has several driveway entrances providing access to the corridor. Auxiliary turn lanes are provided where appropriate. The corridor has a 40 miles per hour speed limit. This corridor currently has an approximate AADT of 10,400, with approximately 6% of the traffic volume is being represented by trucks.

The map furthermore shows that three non-interstate truck corridors within St. Charles County are identified as **Emerging Connectors**, which are as follows:

- David Hoekel Parkway: This planned arterial route will provide a new connection between I-70 and MO Route 61. The planned route will connect to the overpass at MO Route 61 near MO Route P and Peine Road in the City of Flint Hill. The I-70 and David Hoekel Parkway interchange and adjacent roadway opened in 2022. The route will be between these two interchanges and will pass through parts of the City of Wentzville and form a partial interchange with I-70 near the existing corridor of Point Prairie Road. The roadway will extend further to the south and east, in order to connect to the existing corridor of MO Route N and the associated interchange with I-64. As such, this corridor will serve similar industrial land uses as those described with the Intra-Regional Connector, MO Route N. The construction of this route also will invite new opportunities for the development of industrial and warehousing land uses, while also providing another alternate route for motorists seeking to avoid the frequently congested interchange of I-64 and I-70. With this project being currently involved in the design process, construction materials, design speed, and geometry of this corridor have not been specified at the time of this study.
- Interstate Drive between Wentzville Parkway (future extension) and MO Route Z: This major collector route will provide a connection between the future extension of the Freight Connector Wentzville Parkway and the Intra-Regional Connector MO Route Z. To the west, it currently connects to Hepperman Road and lies adjacent to what is primarily undeveloped or agricultural land. There is currently an existing developed warehousing land use, which is occupied by businesses such as Timet and XPO Logistics, in place at the northeast corner of the intersection with Wilmer Road.

<u>Roadway Characteristics</u>: The roadway along this corridor is concrete, with a single lane and concrete curb in each direction. There is a concrete mixed-use trail along the south side of the corridor, and a two-way left-turn lane present throughout the corridor. Interstate Drive shares a

signalized intersection with Mo Route Z, and an unsignalized intersection with Wilmer Road. Access to the corridor is otherwise provided via driveway entrances. The roadway has a 35/40 mile per hour posted speed limit. This corridor currently has an approximate AADT of 6,600, with approximately 5% of the traffic volume is being represented by trucks.

 Harry S Truman Boulevard: This principal arterial route provides access for the properties associated with the aforementioned Premier 370 development, and a connection to MO Route 370, and, by extension, the regional interstate system. The route is not associated with any Industrial Site Areas identified by EWG. Due to the currently-availability of industrial sites within the Premier 370 development, this corridor has been identified as an Emerging Connector.

<u>Roadway Characteristics:</u> The lanes and shoulder along this corridor are concrete from the roadway's intersection with Ehlmann Road and continuing north. South of that intersection, the roadway is asphalt with concrete curb and gutter. The entire corridor has two lanes in each direction, however there is a center two-way left-turn lane provided south of Ehlmann Road. The roadway shares a signalized diamond interchange with I-70, an unsignalized diamond interchange with MO Route 370, and several signalized and unsignalized intersections with roadways in between the two interchanges. Auxiliary turn lanes are provided where appropriate, and the corridor has a 40 mile per hour posted speed limit. This corridor currently has an approximate AADT of 12,900, with approximately 5% of the traffic volume being represented by trucks.

CHAPTER 9 | ST. CLAIR COUNTY (IL)

St. Clair County, Illinois sits due east of downtown St. Louis and between Monroe County to the south and Madison County to the north. The county has seen declining population rates as compared to the St. Louis region, with the population of the county decreasing by 4.7% (270,056 to 257,400) between 2010 and 2020 (U.S. Census). The majority of the population has historically been concentrated in the western portion of the county within cities such as East St. Louis. However, in recent years, there have been residential shifts to the central portion of the county to cities such as Belleville, Fairview Heights, and O'Fallon. The southeast portion of the county has retained rural characteristics, with mostly agricultural land uses.

Transportation-Related Industry

Manufacturing accounts for approximately 7% of the employment in St. Clair County (BLS, 2022). This percentage is influenced by the presence of significant government employment associated with Scott Air Force Base, as well as significant employment in the healthcare and education sectors. Significant manufacturing employers in St. Clair County include Oldcastle APG, Cablofil, Afton Chemical Corporation, Advancepierre Foods, Belleville Shoe, Cerro Flow Products, and Metro East Industries. It is also important to note that the county has a significant presence of rail-road-barge facilities on the Mississippi River serving the commodities industry. While the facilities owned by companies such as Louis Dreyfus and American Milling Company are not significant employers, these facilities generate significant truck traffic, particularly during harvest season.

The transportation/warehouse/logistics industry has a more significant presence in St. Clair County, accounting for 27% of private employment in the county (BLS, 2022). Some significant employers within these industries are Ingram Barge Company, R & L Transfer, Hubbell Wiegmann, Lanter Transport Incorporated, Henderson Trucking, and Beelman Truck Company. Significant logistics activity is also generated to/from the UP Dupo Intermodal Terminal in the City of Dupo, near the interchange of IL Route 3 and I-255, as well as the CSX Intermodal Rose Lake Yard located in the northern portion of the county near IL Route 203 and the CPKC Railway Valley Junction Yard near the City of Sauget. Furthermore, the county has the opportunity to increase warehouse/logistics activity with respect to air transportation due to the presence of both MidAmerica Airport and St. Louis Downtown - Parks Airport. The KRPD owns multiple public facilities on the Kaskaskia River, including KRPD #1 and the Fayetteville Terminal. KRPD #1 is a public bulk terminal in St. Clair County also served by the CN Railroad (www.kaskaskiaport.com/Facilities). The Fayetteville Terminal is located 10 miles south of Interstate 64, offering development potential with river and highway access.

Industrial Site Areas Identified by EWG

EWG identified five Industrial Site Areas that lie within the confines of St. Clair County. The Industrial Site Areas were chosen based on review of land use and existing site characteristics, and input provided by the Steering Committee. Site area boundaries were ultimately defined based on Transportation Area Zones, which are zones associated with population and employment planning used for long-range transportation planning. The five identified within St. Clair County were defined as:

- Downtown Airport
- Dupo Yard
- East Industrial Gateway
- MidAmerica Airport
- Port Kaskaskia

For purposes of this study, the presence of non-interstate truck corridors within the confines of, or adjacent to, these Industrial Site Areas influences their inclusion in the list of Freight Connectors.

Freightway Featured Industrial Real Estate Sites

St. Louis Regional Freightway has identified six industrial parks within St. Clair County that have significant space readily available (as of July 2023) for industrial or transportation/warehousing-related land uses, which are as follows:

Location	Available Total Area	Minimum Lot Size	Tax and Related Incentives	Highway Access	Rail/Barge Access (Yes/No)		
Belle Valley Industrial Park III	124 acres	2.5 acres	Tax Increment Financing (TIF), Enterprise Zone Pending	IL Routes 13, 15, 158/177	No/No		
	No Major Tenant Information Available						
Dupo Real Estate and Development Sites	200+ acres 210,560 ft²	5 acres 40,000 ft²	TIF, Enterprise Zone	IL Route 3. I-255	No/No		
	Major Tenants: The Miller Group, Cross Midwest Tire, Stellar Blending and Packaging Solutions, Hawkins, Kuna Foods						
MidAmerica	2,500+ acres	n/a	TIF, Foreign Trade Zone (FTZ) 31, Enterprise Zone	I-64, I-44, I-55, I-70	Yes/Yes		
Allport Sites	No Major Tenant Information Available						
Mid America Commerce Center	200 acres 1M ft ²	25,000 ft²	Mid America Enterprise Zone, 10-Year Tax Abatement	I-64 and IL Route 158	No/No		
	No Major Tenant Information Available						
Sauget Business Park	350 acres 202,300 ft²	n/a	TIF District, Enterprise Zone	I-255	Yes/No		
	Major Tenants: Amazon, FedEx, GEODIS, Holten Meat, Medline Industries, MidAmerica Fiber, R+L Carriers, Sensient Technologies, Stellar Manufacturing Co, Universal Air Filter						

In addition, TRRA is working on potential site options that will soon be incorporated into the Freightway's Featured Industrial Real Estate Site.

Non-Interstate Truck Corridors

Exhibit 9-1 shows a map of the non-interstate truck corridors identified as a part of this study within St. Clair County. The corridor segments have been categorized as one of the following three types of Connectors:

- Freight Connectors are non-interstate segments of the St. Louis region's roadway network that
 provide linkages to the Industrial Site Areas identified by EWG. These areas represent freight
 generators with developed industry clusters at or near full tenancy. Connections to these Areas
 are also notable because this is one of the evaluation metrics for proposed improvements
 competing for funding as a freight/economic development type project within the Surface
 Transportation Block Grant Program administered by EWG.
- Intra-Regional Connectors are non-interstate segments of the St. Louis region's roadway network that have existing multi-axle vehicle traffic providing access for freight and deliveries, primarily thru truck traffic or freight generators outside of the industrial site areas identified by EWG. The Intra-Regional Connectors offer system redundancies providing alternate routes to freight movement inbound and outbound from the interstate system.
- Emerging Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to Freightway Featured Industrial Real Estate Sites. These sites are regionally targeted priority sites not currently fully developed or near full tenancy.

For each Connector, variations in roadway characteristics such as number of lanes, posted speed limit, AADT, and truck percentages have been generalized to describe the overall roadway segment.



The map shows that five non-interstate truck corridors within St. Clair County are identified as **Freight Connectors**, which are as follows:

 Air Mobility Drive / IL Route 158: This principal arterial route runs along the west side of the MidAmerica Airport Industrial Site Area identified by EWG. IDOT has allocated funding to extend this Freight Connector to IL Route 158/177, an Emerging Connector. By extension, this would also connect to the Intra-Regional Connector IL Route 15.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and asphalt shoulder in each direction. There is a 55 mile per hour posted speed limit, opposing lanes are separated by grass median, and access to the corridor is limited to signalized intersections. Auxiliary turn lanes are provided at the signalized intersections, as appropriate. This corridor currently has an approximate AADT of 11,200, with approximately 7% of the traffic volume being represented by trucks.

IL Route 3 between I-255 and I-55 (parallel to I-70 beyond the county line): This principal arterial route runs through the East Industrial Gateway Industrial Site Area, and adjacent to the Dupo Yard Industrial Site Area, identified by EWG. The roadway also serves as an important connection between downtown St. Louis and the I-270/I-255 circumferential loop and provides access to several rail-road-barge facilities along the Mississippi River. IL Route 3 is part of the contiguous corridor through Monroe and Madison counties in conjunction with the regional interstate system via I-55/64/70. In addition, IL Route 3 offers access to routing alternatives among these interstates and four Mississippi River crossings (Poplar Street, Eads, McKinley, and Stan Musial Veterans Memorial bridges).

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt. The majority of the corridor is a five-lane roadway, including a center two-way left-turn lane. There is paved shoulder adjacent to both directions of travel. The corridor features several driveway entrances, and the corridor generally has a 45 mile per hour posted speed limit. This corridor currently has an approximate AADT of 16,100, with approximately 13% of the traffic volume being represented by trucks.

• IL Route 4 between IL Route 161 and I-64: This principal arterial route runs along the east side of the MidAmerica Airport Industrial Site Area identified by EWG.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single travel lane and asphalt shoulder in both directions. The roadway shares a signalized intersection with IL Route 161, an unsignalized intersection with Airport Boulevard, and a full signalized interchange with I-64. At these intersections, auxiliary turn lanes are provided. The corridor has a 55 mile per hour posted speed limit. This corridor currently has an approximate AADT of 9,500, with approximately 9% of the traffic volume being represented by trucks.

• Sauget Business Boulevard: This major collector route runs through the St. Louis Downtown Airport site area identified by EWG.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt with one lane and a narrow asphalt shoulder in each direction. There is a two-way left-turn lane present for the entire length, and the posted speed limit is 35/40 miles per hour. This corridor currently has an approximate

AADT of 5,150. There were no truck traffic volumes available, however the previous report stated approximately 16% of the traffic represented by trucks. Love's truck stop opened in early 2020 adjacent to this corridor.

 US 50 between I-64 and IL-4: This principal arterial route runs between the I-64 interchange and the City of Lebanon. Some vehicles use this roadway segment to connect between I-70 and I-64 via IL-4.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt with one lane and a narrow asphalt shoulder in each direction. The posted speed limit is 50/55 miles per hour. This corridor currently has an approximate AADT of 12,650 with approximately 13% of the traffic represented by trucks. Much of the corridor is protected by guardrail due to its wooded and water areas.

The map also shows that three non-interstate corridors within St. Clair County are identified as Intra-Regional Connectors, which are as follows:

IL Route 15 between I-255 and Green Mount Road: This principal arterial route helps provide a connection between the East Industrial Gateway Industrial Site Area and the MidAmerica Airport Industrial Site Area, as identified by EWG. With IL Route 158/177 and IL Route 159, IL Route 15 also provides access to/from the potential development of Belle Valley Industrial Park III and MidAmerica Airport Sites, and the I-270/I-255 circumferential loop. Between I-55 and I-255, this corridor provides access to/from other sizable industrial sites, such as Metro East Industries.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two lanes and asphalt shoulder in each direction. The roadway corridor shares signalized intersections with several intersections, with auxiliary turn lanes provided where appropriate. The roadway has a 55 mile per hour posted speed limit, and opposing lanes are separated by either a concrete median or concrete barrier for much of its length. The roadway widens to three lanes each direction to the east of Racehorse Drive/Pocket Road. This corridor currently has an approximate AADT of 24,000, with approximately 9% of the traffic volume being represented by trucks.

 IL Route 157 between I-255 and IL Route 3: This principal arterial route provides a connection between the aforementioned IL Route 3 Freight Connector, as well as the East Industrial Gateway Industrial Site Area, and the I-270/I-255 circumferential loop.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and asphalt shoulder in each direction. A two-way left-turn lane runs down the center of the roadway. Access to the roadway is generally provided via signalized intersections, with a few driveway entrances also present along the corridor. This corridor currently has an approximate AADT of 12,700, with approximately 7% of the traffic volume being represented by trucks.

 IL Route 203/Collinsville Road between Roselake Drive and I-55/I-70: This minor arterial route provides a direct connection between the CSX Intermodal Terminal facility and the I-55/I-70 corridor. This roadway corridor runs adjacent to the East Industrial Gateway Industrial Site Area identified by EWG. <u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two lanes and minimal asphalt shoulder in each direction. The IL Route 203 portion of this roadway segment has opposing lanes divided by a concrete median. The corridor is posted for 30 to 40 miles per hour. This corridor currently has an approximate AADT of 2,450. There were no truck traffic volumes available, however the previous report stated approximately 20% of the traffic volume was represented by trucks.

The map also shows that one non-interstate corridor within St. Clair County is identified as **Emerging Connectors**, which is as follows:

 IL Route 158/177 and IL Route 159 north of IL Route 15: This minor arterial route helps provide access for the planned Belle Valley Industrial Park III, but also could potentially provide a connection between the MidAmerica Airport Industrial Site Area and the Intra-Regional Connector IL Route 15. As mentioned, this connection could be facilitated by extending Air Mobility Drive.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with a single travel lane and narrow asphalt shoulder in both directions. At both signalized and unsignalized intersections along the corridor, auxiliary turn lanes are provided. The corridor has a 35 to 55 mile per hour posted speed limit. This corridor currently has an approximate AADT of 8,500 with approximately 5% of the traffic volume being represented by trucks.

CHAPTER 10 | ST. LOUIS COUNTY (MO)

St. Louis County, Missouri sits in the central part of the St. Louis region, bordered to the north by the Missouri River, the Meramec River to the south, and to the east by the City of St. Louis and the Mississippi River. St. Louis County has the largest county population in the state of Missouri and has minimally grown by 0.5% (998,954 to 1,004,125) between 2010 and 2020 (U.S. Census). Over the years, development has occurred in most portions of the county, resulting in a majority of urban and suburban densities and land uses.

Transportation-Related Industry

Despite the stagnant population growth, nearly one quarter of the state workforce is employed in St. Louis County, and the county has the highest per capita income in the state. Among transportationrelated industries, the most significant employment sector in St. Louis County is the trade/transportation sector, accounting for approximately 20% of the employment in St. Louis County (BLS, 2022). Manufacturing accounts for approximately 9% of the employment in St. Louis County (BLS, 2022). By a sizable margin, Boeing is the most significant manufacturing employer in the county, employing approximately 15,000 workers in their plant located in the City of Hazelwood. Other significant manufacturing employers in St. Louis County include Monsanto Company, Bayer Crop Science, Mallinckrodt, WestRock and Emerson Electric Company.

Other industries that have impacts upon freight movement in the region with a significant presence in the county include transportation and warehousing, wholesale trade, and construction. Some of the significant employers in these industries include Nag L.L.C., United Parcel Service Incorporated, Clayco Incorporated, Hogan Trucking, Centric Group, Pretium Packaging, American Airlines Incorporated, and Bunge North America Incorporated.

It is important to note that both St. Louis Lambert International Airport and Spirit of St. Louis Airport reside within the confines of St. Louis County, providing critical hubs for freight entering/exiting the St. Louis region. St. Louis Lambert International Airport has expansive cargo facilities serving FedEx, UPS, and Amazon. Intermodal (rail-road-barge) facilities for commodities transportation/storage are not prevalent in St. Louis County. Burlington Northern Santa Fe (BNSF) Railroad also operates the Lindenwood Yard intermodal (rail-to-road) facility near the eastern part of the county near I-44. However, like Jefferson County, the topography of the southern portion of St. Louis County, and its associated access to the Mississippi River, allows for new opportunities for rail-to-barge facilities and/or expansion of existing like facilities.

Industrial Site Areas Identified by EWG

EWG identified seven Industrial Site Areas that lie within the confines of St. Louis County. The Industrial Site Areas were chosen based on review of land use and existing site characteristics, and input provided by the Steering Committee. Site area boundaries were ultimately defined based on Transportation Area Zones, which are zones associated with population and employment planning used for long-range transportation planning. The seven identified within St. Louis County were defined as:

- Chesterfield Airport
- Earth City
- Green Park
- Lambert Airport
- Meramec I-44
- Page Corridor
- Page I-270 Quadrant

It is also noteworthy that St. Louis County borders several other Industrial Site Areas within the City of St. Louis, St. Clair County, and Madison County. For purposes of this study, the presence of non-interstate truck corridors within the confines of, or adjacent to, these Industrial Site Areas influences their inclusion in the list of Freight Connectors.

Industrial Sites with Rail Potential

To support the region's decision makers, a comprehensive rail site analysis was performed in 2022. The resulting study showed the St. Louis Region is lacking in active rail sites that can attract national tenants. There is underutilized land around the region that have connections to Class 1 railroads. The goal of the study was to highlight the land sites with industrial rail potential. The result was 11 locations with 14 sites. These are certified/premier sites that are shovel ready with supportive owners/developers. The sites are a mix of states, counties, and connecting railroads.

In St. Louis County, there is one site: BNSF – Fenton Business Park.

Freightway Featured Industrial Real Estate Sites

St. Louis Regional Freightway has identified nine industrial parks within St. Louis County that have space readily available (as of July 2023) for industrial or transportation/warehousing-related land uses, which are as follows:

Location	Available Total Area	Minimum Lot Size	Tax and Related Incentives	Highway Access	Rail/Barge Access (Yes/No)	
Aviator Business Park	416,093 ft ²	42,000 ft ²	Chapter 353 Tax Abatement, ACT Work Ready Community	I-270, I-170	Yes/No	
	Major Tenants: Amazon, Amcor Rigid Plastics, International Food Products Corp., Pilkington North America, Silgan Plastics, Weekends Only					
	13+ acres 850,000 ft²	20,000 ft ²	Chapter 100 Tax Abatement, ACT Work Ready Community	I-70, I-270, MO Route 370	No/No	
Earth City Industrial	Major Tenants: 24 Seven MO, Alro Steel Corp, American Tire Distributors, Aspen Marketing Services, Bassik Services, Beltservice Corporation, BlueLinx Corporation, Central Mine Equipment Company, Fresh Warehouse, FTL Nimbus, General Credit Forms, GEODIS, GPO, GTS Distribution, Jon-Don, Keefe Group, SP Richards Co, Spectrum Brands, St. Louis Appliance Outlet, Tight Line Composites, Trane, TRG Group, True Manufacturing, United Industries Corporation, Centric Group, Challenge Manufacturing, Concordance Healthcare Solutions, Cord Moving & Storage Emdeon Corp, Events Direct, FedEx Smart Post, Fresh Logistics, Laird Technologies, Legacy Pharmaceutical, Mercy Infusion, Mohawk Industries, Motors & Armatures, New Balance, PODS Moving & Storage, Reaction Auto Parts, UPS, U.S. Venture, Virbac Corporation, Wal-Mart, Whirlpool, Zynesher Pharmaceuticals					
Fenton Logistics Park	51,772 ft ²	n/a	Tax Increment Financing (TIF) District/Super TIF District, Chapter 100, ACT Work Ready Community	1-44, 1-270, MO Route 141	Yes/No	
	Major Tenants: 1st Phorm, Alkem, BASF, Beckwood Press, BJC, Curology, Hubbell- Killark, Sim Corlink					
Hazelwood Logistics Center	150,000 ft²	30,000 ft ²	Chapter 100 Tax Abatement, ACT Work Ready Community, Opportunity Zone	I-70, I-270, I-170 MO Route 370	Yes/No	
	No Major Tenant Information Available					
Hazelwood Sites & Buildings	123,000 ft ²	22,000 ft ²	n/a	I-270, I-170	Varies/No	
	No Major Tenant Information Available					

Location	Available Total Area	Minimum Lot Size	Tax and Related Incentives	Highway Access	Rail/Barge Access (Yes/No)		
Hazelwood Tradeport	250 acres 511,000+ ft²	29,000 ft ²	Tax Abatement with initial taxes of \$0.10/SF, ACT Work Ready Community	MO Route 370, I-270	No/No		
	Major Tenants: 8th Avenue Foods, Boeing Company, Crown Packaging, Dodge Moving & Storage, Elite Printing & Packaging, Glideaway, Imperial Bag & Paper, LKQ, Marson Foods, Mygrant Glass, Roto-Rooter, Ryder, Thunderstone Logistics, Wayfair, We Ship Express						
NorthPark	172 acres	n/a	Foreign Trade Zone (FTZ), Super TIF District, Chapter 99 & 100, ACT Work Ready Community	I-70, I-170, I-270, I-64	No/No		
	Major Tenants: Amazon, Express Scripts, Forte Frozen, MTI Distributing, PepsiCo, Schnucks, SKF						
Park 370 Business Center	15 acres 144,000 ft²	3 acres 70,000 ft²	Chapter 100 Tax abatement, ACT Work Ready Community	I-270, I-70, I-170, MO Route 370	No/No		
	Major Tenants: Agile Packaging Solutions, American Metals Supply Company, Distribution Management, Jacobson Companies, Legacy Pharmaceuticals Packaging, Potter Electric Signal Company, Presence From Innovation, Schnucks, XPO Logistics						
Pershall	83,000 ft ²	28,000 ft ²	10 Year Tax Abatement	I-270 & I-170	No/No		
Center	No Major Tenant Information Available						
Riverport Business Park	108,000 ft ²	14,000 ft ²	Near St. Louis Lambert International Airport, ACT Work Ready Community	I-70, I-270	No/No		
	Major Tenants: Aegis Home Protection Champion Heating & Air, Chrysler Training Center, Essence Healthcare, Federal-Mogul, Hunter Engineering Service Center, Koch Air, Potter Electric, Siemens Digital Industries Software, Spectrum, United Healthcare						
Riverport Trade Center	312,000 ft ²	45, 000 + ft²	ACT Work Ready Community	I-70, I-270	No/No		
	Major Tenants: Schattdecor						
St. Louis Lambert International Airport	165 acres	n/a	Numerous	James McDonnell Blvd, Banshee Rd, Missouri Bottom Rd, Airport Road, I-170	Yes/No Runway Access		
	Major Tenants: STL Fuel						

Note: Some locations are fully occupied development but may impact truck travel.

Non-Interstate Truck Corridors

In assessing the roadway network within St. Louis County, it is important to note the overall travel patterns within the St. Louis region. Certain corridors throughout the county typically carry some of the greatest traffic volumes in the entire region, with the interchange of I-64 and I-170, the interchange of I-70 and I-270, and the corridor of I-270 between I-55 and I-64 being particular areas of congestion. In identifying non-interstate truck corridors, the need to provide routes that are redundant to the interstate system, and which could be used to avoid interstate traffic congestion, was considered.

Exhibit 10-1 shows a map of the non-interstate truck corridors identified as a part of this study within St. Louis County. The corridor segments have been categorized as one of the following three types of Connectors:

- Freight Connectors are non-interstate segments of the St. Louis region's roadway network that
 provide linkages to the Industrial Site Areas identified by EWG. These areas represent freight
 generators with developed industry clusters at or near full tenancy. Connections to these Areas
 are also notable because this is one of the evaluation metrics for proposed improvements
 competing for funding as a freight/economic development type project within the Surface
 Transportation Block Grant Program administered by EWG.
- Intra-Regional Connectors are non-interstate segments of the St. Louis region's roadway network that have existing multi-axle vehicle traffic providing access for freight and deliveries, primarily thru truck traffic or freight generators outside of the industrial site areas identified by EWG. The Intra-Regional Connectors offer system redundancies providing alternate routes to freight movement inbound and outbound from the interstate system.
- Emerging Connectors are non-interstate segments of the St. Louis region's roadway network that provide linkages to Freightway Featured Industrial Real Estate Sites. These sites are regionally targeted priority sites not currently fully developed or near full tenancy.

For each Connector, variations in roadway characteristics such as number of lanes, posted speed limit, AADT, and truck percentages have been generalized to describe the overall roadway segment.





The map shows that 16 non-interstate truck corridors within St. Louis County are identified as **Freight Connectors**, which are as follows:

• **Chesterfield Airport Road:** This minor arterial route is the primary east-west non-interstate roadway within the Chesterfield Airport Industrial Site Area, identified by EWG.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two lanes and asphalt shoulder in each direction. There is a center two-way left-turn lane throughout. The corridor shares signalized intersections several corridors that provide access to nearby I-64 or nearby commercial, office, retail, and warehouse land uses. Auxiliary turn lanes are provided at these intersections, as appropriate. The corridor has a 45 miles per hour posted speed limit. This corridor currently has an approximate AADT of 16,900, with approximately 5% of the traffic volume being represented by trucks.

• Creve Coeur Mill Road between MO Route 141 and Rose Acres Lane: This major collector route provides a link between MO Route 141 and significant freight generators such as Fred Weber. This roadway corridor runs adjacent to the Earth City Industrial Site Area identified by EWG.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt with a single lane in each direction between Pritchard Farm Road and MO Route 141. North of the intersection with Pritchard Farm Road, the roadway is concrete with two lanes in each direction. The corridor has a 45 miles per hour posted speed limit and features several driveway entrances. This corridor currently has an approximate AADT of 3,800, with approximately 7% of the traffic volume being represented by trucks.

 Dorsett Road between I-270 and US Route 67: This minor arterial route runs adjacent to the Page - I-270 Quadrant Industrial Site Area identified by EWG.

<u>Roadway Characteristics:</u> The roadway along this corridor is concrete with concrete curb, gutter, and sidewalk in each direction. It is a five-lane roadway with a center two-way left-turn lane. The corridor has a 35 miles per hour posted speed limit, and access is provided via signalized intersections and driveway entrances. The intersection with I-270 is a diverging diamond interchange. This corridor currently has an approximate AADT of 21,800, with approximately 5% of the traffic volume being represented by trucks.

• **Green Park Road:** This major collector route serves as the primary connection to/from the Green Park Industrial Site Area identified by EWG.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single lane and concrete curb and gutter in each direction. The corridor has a 30 miles per hour posted speed limit, and access is provided via driveway entrances. This corridor currently has an approximate AADT of 7,700, with approximately 5% of the traffic volume being represented by trucks.

 Hanley Road between I-70 and Scudder Avenue: This minor arterial route provides direct access to properties within the aforementioned NorthPark development and lies within the Lambert Airport Industrial Site Area identified by EWG. An Amazon distribution warehouse opened along the corridor in 2021. <u>Roadway Characteristics:</u> The roadway along this corridor is concrete, with two lanes and concrete curb, gutter, and sidewalk in each direction. Hanley Road shares signalized intersections with several roadways along this corridor, including a signalized diamond interchange with I-70. Auxiliary turn lanes are provided at the signalized intersections, as appropriate. Several driveway entrances are also present along the corridor. The corridor has a 40 miles per hour posted speed limit. This corridor currently has an approximate AADT of 8,700, with approximately 5% of the traffic volume being represented by trucks.

 McDonnell Boulevard: This principal arterial route provides access between the aforementioned Hazelwood Logistics Center and the regional interstate system. This roadway lies within the Lambert Airport Industrial Site Area identified by EWG.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with three lanes and concrete curb and gutter in each direction. McDonnell Boulevard shares signalized intersections with several roadways along this corridor, including a signalized diamond interchange with I-270. Several driveway entrances are also present, and there is a two-way left turn lane throughout much of the corridor. The corridor has a 40 miles per hour posted speed limit. This corridor currently has an approximate AADT of 11,300, with approximately 5% of the traffic volume being represented by trucks.

 Missouri Bottom Road: This major collector route also provides access between the Hazelwood Logistics Center and the regional interstate system. This roadway also lies within the Lambert Airport Industrial Site Area identified by EWG.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and concrete curb, gutter, and sidewalk in each direction. McDonnell Boulevard shares signalized intersections with several roadways along this corridor, including a signalized partial diamond interchange with I-270. Several driveway entrances are also present, and there is a two-way left turn lane throughout much of the corridor. The corridor has a 40 miles per hour posted speed limit. This corridor currently has an approximate AADT of 11,400, with approximately 6% of the traffic volume being represented by trucks.

MO Route D / MO Route 364 between I-270 and Hanley Road: This roadway is classified as a freeway/expressway between I-270 and US Route 67, and as a principal arterial route between US Route 67 and Hanley Road. The route runs through both the Page - I-270 Quadrant and Page Corridor Industrial Site Areas identified by EWG, providing access to businesses such as Schnucks Distribution, Spectrum Brands, US Foods, XPO Logistics, and World Wide Technologies. This corridor also continues west into St. Charles County via the MO Route 364 bridge over the Missouri River.

<u>Roadway Characteristics:</u> The roadway along this corridor is generally asphalt. West of US Route 67, the roadway has a posted speed limit of 55 miles per hour, with three lanes and asphalt shoulder in each direction. Opposing lanes through this stretch are separated by either a grass median or concrete barrier, with access limited to signalized intersections or grade separated interchanges. East of US Route 67, the roadway has two lanes in each direction with a center two-way left-turn lane. Each direction provides concrete curb, gutter, and sidewalk. The posted

speed limit through this stretch is 40 miles per hour, and access is provided via either signalized intersections or driveway entrances. This corridor currently has an approximate AADT of 38,600, with approximately 5% of this traffic volume being represented by trucks.

 MO Route 141 between MO Route 340 and MO Route 370: This roadway is classified as a freeway/expressway and runs through the Earth City Industrial Site Area identified by EWG. As such, the corridor provides a direct connection between the aforementioned Earth City Industrial and Riverport Business Park developments and the regional interstate system.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two lanes and concrete shoulder in each direction. Opposing lanes through this stretch are separated by either a grass median or concrete barrier, with access limited to signalized intersections or grade-separated interchanges. South of MO Route 364, the roadway is three lanes in each direction. The corridor has a 55 miles per hour posted speed limit. This corridor currently has an approximate AADT of 22,600, with approximately 7% of this traffic volume being represented by trucks.

 MO Route 180 (St. Charles Rock Road) between I-270 and MO Route 141: This principal arterial route provides a connection between the aforementioned Earth City Industrial properties and the regional interstate system. The route also runs adjacent to several industrial land uses, including Hussman. This roadway lies within the Earth City Industrial Site Area identified by EWG.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two lanes and minimal asphalt shoulder in each direction. Access to the corridor is provided via either signalized intersections or driveway entrances. The corridor has a 45 miles per hour posted speed limit east of Taussig Road and a 50 mile per hour speed limit to the west. This corridor currently has an approximate AADT of 12,600, with approximately 17% of this traffic volume being represented by trucks.

• North Highway Drive: This major collector route provides access between the aforementioned Fenton Logistics Park and the regional interstate system.

<u>Roadway Characteristics:</u> This roadway lies within the Meramec - I-44 Industrial Site Area identified by EWG. This one-way road also serves a westbound outer road to nearby I-44. The roadway along this corridor is concrete, with two lanes and concrete shoulder on both sides. The corridor has a 45 miles per hour posted speed limit. Updated 2021 traffic volumes were unavailable along this corridor; however, previously the corridor currently had an approximate AADT of 13,700, with approximately 8% of this traffic volume being represented by trucks.

 Pritchard Farm Road: This major collector route provides an alternate connection between Creve Coeur Mill Road and MO Route 141, helping serve freight generators along Creve Coeur Mill Road such as Fred Weber.

<u>Roadway Characteristics</u>: This roadway corridor runs adjacent to the Earth City Industrial Site Area identified by EWG. The roadway along this corridor is concrete for the portion adjacent to MO Route 141, and asphalt for the remainder of the corridor. The roadway generally has two southbound lanes and one northbound lane, with auxiliary turn lanes provided as appropriate at intersections. Shoulder is present for the entire corridor, and there is a 45 miles per hour posted speed limit. This corridor currently has an approximate AADT of only 4,200, but approximately 11% of this traffic volume is being represented by trucks.

 South Highway Drive: This major collector route provides access between the aforementioned Fenton Logistics Park and the regional interstate system. This roadway lies within the Meramec -I-44 Industrial Site Area identified by EWG.

<u>Roadway Characteristics:</u> This one-way road also serves an eastbound outer road to nearby I-44. The roadway along this corridor is concrete, with two lanes and concrete shoulder on both sides. The corridor has a 45 miles per hour posted speed limit. This corridor currently has an approximate AADT of 1,750, with approximately 4% of this traffic volume being represented by trucks.

 Taussig Road: This major collector route provides a connection between MO Route 180 and MO Route 370. The corridor also provides direct access to industrial properties such as Hussman and Schnucks Distribution.

<u>Roadway Characteristics:</u> This roadway lies within the Earth City Industrial Site Area identified by EWG. The roadway along this corridor is concrete, with a single lane and concrete curb and gutter in each direction. Access to the corridor is provided via both signalized intersections and driveway entrances. The corridor has a 30 miles per hour posted speed limit but lowers to 20 miles per hour adjacent to the park. This corridor currently has an approximate AADT of only 4,400, but approximately 5% of this traffic volume is being represented by trucks.

 Union Road between Reavis Barracks Road and US Route 67: This minor arterial route provides a connection between the Green Park Industrial Site Area identified by EWG and the regional interstate system, via I-55.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and concrete curb, gutter, and sidewalk in each direction. Access to the corridor is provided via both signalized intersections and driveway entrances. The corridor has a 40 miles per hour posted speed limit. This corridor currently has an approximate AADT of 12,700, with approximately 5% of this traffic volume being represented by trucks.

 US Route 67 between MO Route 364 and I-270: This principal arterial route bisects the Lambert Airport Industrial Site Area and runs adjacent to both the Page - I-270 Quadrant and Page Corridor Industrial Site Areas identified by EWG. As such, it provides access to multiple industrial and warehouse/transportation land uses.

<u>Roadway Characteristics:</u> For the portion of US Route 67 south of Old Saint Charles Road, the roadway is asphalt with two lanes and shoulder in each direction. For the portion to the north, the roadway is concrete with three to four lanes in each direction. Access to the corridor is limited for the entire length, with opposing lanes separated by either grass median, concrete median, or concrete barrier. For the portion of the corridor adjacent to the aforementioned Aviator Business Park and Hazelwood Logistics Center, multiple auxiliary turn lanes are provided at nearby intersections and at access driveways. The corridor has a 40 miles per hour posted speed limit. This corridor currently has an approximate AADT of 24,500, with approximately 7% of this traffic volume being represented by trucks.

The map also shows that nine non-interstate truck corridors within St. Louis County are identified as **Intra-Regional Connectors**, which are as follows:

 Baumgartner Road / Meramec Bottom Road: This minor arterial route provides a connection between several industrial properties and the regional interstate system, via I-55. In particular, Fred Weber operates a large quarry facility on Baumgartner Road.

<u>Roadway Characteristics</u>: The Baumgartner Road portion of the roadway along this corridor is asphalt, with a single lane and asphalt shoulder in each direction. This portion of the corridor has a posted speed limit of 45 miles per hour, and several driveway entrances provide access to the corridor. The Meramec Bottom Road portion of the corridor is concrete with a single lane and minimal asphalt shoulder provided in both directions. There is a two-way left-turn lane provided along the Meramec Bottom Road portion of the corridor, and the posted speed limit is 40 miles per hour. This corridor currently has an approximate AADT of 9,000, with approximately 5% of this traffic volume being represented by trucks.

 Hanley Road between MO Route 100 and I-64: This principal arterial route provides a connection between the MO Route 100 Freight Connector and the regional interstate system, via I-64. Hanley Road also serves several commercial land uses along this corridor.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with the number of lanes varying from two to three in each direction, with lanes provided intermittently for access to/from intersecting roadways or driveways. Access to the corridor is generally limited to signalized intersection, although a few locations of driveway access have been permitted. The corridor has a 35 mile per hour posted speed limit. This corridor currently has an approximate AADT of 23,500, with approximately 5% of the traffic volume being represented by trucks.

 Aubuchon/Missouri Bottom Road between MO Route 370 and Teson Road: This minor arterial route provides a connection to the regional interstate system, via MO Route 370, and the nearby warehousing, distribution and manufacturing facilities including the aforementioned Park 370 Business Center.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single lane in each direction and minimal shoulders until the portion of Missouri Bottom Road becomes concrete with full shoulders leading to a signalized intersection to access the interchange with MO Route 370 via Earth City Expressway. Aubuchon Road has a 40 mile per hour posted speed limit. This corridor currently has an approximate AADT of 8,600 with 8% of the traffic volume being represented by trucks.

MO Route 141 between MO Route 21 and MO Route 340: This roadway is classified as a freeway/expressway and runs continuous to the portion of MO Route 141 discussed with the Freight Connectors. As such, this roadway provides a connection between the Earth City Industrial Site Area identified by EWG and the regional interstate system, via I-64. The corridor also runs adjacent to the Meramec - I-44 Industrial Site Area, providing an alternative north-south route to I-270 that also reconnects to the regional interstate system.

<u>Roadway Characteristics</u>: The roadway along this corridor is concrete, with three lanes and minimal concrete shoulder in each direction. Opposing lanes are separated by either a concrete median or concrete barrier. The roadway connects to several roadways through signalized intersections and interchanges. The corridor has a 50 miles per hour posted speed limit. This corridor currently has an approximate AADT of 42,000, with approximately 5% of this traffic volume being represented by trucks.

 MO Route 367 between I-270 and US Route 67: This roadway is classified as a freeway/expressway and runs continuous to the portion of US Route 67 that connects to Madison County, Illinois via the Clark Bridge (discussed below as another Intra-Regional Connector). As such, this corridor serves as a connection between the industrial properties discussed within the Madison County chapter and the regional interstate system that, in some cases, may be more efficient than the use of IL Route 3.

<u>Roadway Characteristics</u>: The roadway along this corridor is concrete. The roadway has three lanes and concrete shoulder in each direction north of Parker Road. South of Parker Road, it reduces down to two lanes in each direction. Access to the corridor is limited to interchange/ramp access, as the roadway is grade-separated with opposing lanes separated by either concrete barrier or grass median, for its entire length. The corridor has a 55 miles per hour speed limit. This corridor currently has an approximate AADT of 41,500, with approximately 5% of this traffic volume being represented by trucks.

 US Route 67 between Union Road and I-44: This principal arterial route provides an alternate route to the regional interstate system, as compared to I-270. The route connects directly to I-44, as well as the portion of Union Road discussed with the Freight Connectors. As such, it provides a link to the Green Park Industrial Site Area identified by EWG.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and concrete shoulder in each direction. There is a two-way left-turn lane present throughout the corridor, and access is provided to the corridor via either signalized intersections or driveway entrances. The corridor has a 40 miles per hour posted speed limit. This corridor currently has an approximate AADT of 30,000, with approximately 5% of this traffic volume being represented by trucks.

US Route 67 between I-64 and MO Route D/364/Page Avenue: This principal arterial route runs adjacent to both the Page Corridor and Page - I-270 Quadrant Industrial Site Areas identified by EWG. This corridor also provides an alternate north-south route to I-170 and I-270, while still providing access to the regional interstate system via I-64. Furthermore, it runs continuous to the portion of US Route 67 discussed within this chapter as a Freight Connector.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with two lanes and asphalt shoulder in each direction. Although access is provided via driveway entrances, opposing lanes are separated by either concrete median or concrete barrier for the entire length. At signalized intersections, auxiliary turn lanes are provided, as appropriate. The corridor has a 40 miles per hour posted speed limit. This corridor currently has an approximate AADT of 27,950, with approximately 7% of this traffic volume being represented by trucks.

US Route 67 between I-270 and Clark Bridge: This roadway is classified as a freeway/expressway between MO Route 367 and the Clark Bridge, and as a principal arterial route between I-270 and MO Route 367. This roadway also runs continuous to the portion of US Route 67 discussed within this chapter as a Freight Connector. Also, like MO Route 367 discussed above, the roadway can serve as a connection between the industrial properties discussed within the Madison County chapter and the regional interstate system that, in some cases, may be more efficient than the use of IL Route 3. Along the corridor between I-270 and MO Route AC, the corridor also serves multiple commercial land uses.

<u>Roadway Characteristics</u>: The roadway along this corridor is asphalt, with two lanes and concrete curb, gutter, and sidewalk in each direction. Auxiliary turn lanes are provided at signalized intersections. Several driveway entrances are also present, and there is a two-way left turn lane throughout much of the corridor. The corridor has a 40 miles per hour posted speed limit. North of the interchange with MO Route 367, US Route 67 has the same roadway characteristics as the MO Route 367 corridor listed above. A significant portion of the grade-separated portion of US Route 67 runs through St. Charles County but is discussed with this chapter due the corridor's primary function of connecting St. Louis County to Madison County. This corridor currently has an approximate AADT of 26,900, with approximately 4% of this traffic volume being represented by trucks.

MO Route 340 / MO Route 100 between I-64 and I-270: This roadway is classified as a principal arterial route. This roadway connects I-64 to MO Route 100 near Ellisville. The Ellisville area is home to several high employment companies, such as Cooper Bussman, that involve freight movement. The route also connects I-270 to MO Route 340 via MO Route 100. This roadway connector provides access for vehicles north/south and east/west travelling vehicles to/from St. Louis. Other than concentration on business in Ellisville, the corridor also serves multiple commercial land uses along MO Route 100.

Roadway Characteristics:

MO Route 340 is an asphalt roadway. The roadway is generally a five-lane roadway with a center two-way left-turn lane and asphalt shoulder. Some portions of the roadway have sidewalk. Auxiliary turn lanes are provided at signalized intersections. The posted speed limit is 45 miles per hour. The intersection of MO Route 340 and MO Route 100 is signalized. Similarly, MO Route 100 is generally a five-lane roadway with a center two-way left-turn lane. The roadway and shoulders are asphalt. Some of the roadway is signed as "Share the Road" for bicycle access. The posted speed limit is 45 mph. There is an interchange at I-64 and MO 340, MO 141 and MO 100, and MO 100 and I-270. MO Route 340 has an approximately AADT of 39,900 with approximately 3% of this traffic volume being represented by trucks. The MO Route 100 corridor currently has an approximate AADT of 40,175 with approximately 9% of this traffic, with a large percent of this being from single-unit trucks, rather than semi-trucks, due to its commercial and residential surroundings.

The map furthermore shows that five non-interstate truck corridors within St. Louis County are identified as **Emerging Connectors**, which are as follows:

 Air Cargo Road: This major collector route provides access for the properties associated with the aforementioned available properties associated with the St. Louis Lambert International Airport Sites. This roadway lies within the Lambert Airport Industrial Site Area identified by EWG. The route provides direct access to I-70 and, via Airport Road, I-170. Due to the current availability of these industrial sites, this corridor has been identified as an Emerging Connector.

<u>Roadway Characteristics</u>: The roadway along this corridor is concrete, with a single lane and concrete shoulder in each direction. Auxiliary turn lanes are provided where appropriate, and the corridor has a 40 mile per hour posted speed limit. This corridor currently has an approximate AADT of 3,200, with approximately 5% of the traffic volume being represented by trucks.

 Banshee Road: Like Air Cargo Road, this major collector provides access for the properties associated with the aforementioned available properties associated with the St. Louis Lambert International Airport Sites. This roadway lies within the Lambert Airport Industrial Site Area identified by EWG. The route provides direct access to the Freight Connectors US Route 67 and McDonnell Boulevard. Due to the current availability of these industrial sites, this corridor has been identified as an Emerging Connector.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt. Between Navaid Road and Missouri Bottom Road, it is a four-lane roadway with asphalt shoulder. The remainder of the corridor is a three-lane segment, with a center two-way left-turn lane, and has minimal asphalt shoulder in each direction. There is a variable speed limit throughout, varying between 20 and 40 mile per hour posted speed limits. This corridor currently has an approximate AADT of 10,500, with approximately 5% of the traffic volume being represented by trucks.

Fee Fee Road south of Missouri Bottom Road: This corridor is classified as a local street and provides a connection between taxiways at St. Louis Lambert International Airport and the Freight Connector Missouri Bottom Road. This roadway lies adjacent to properties within the aforementioned Hazelwood Logistics Center, and within the Lambert Airport Industrial Site Area identified by EWG. This corridor has been identified as an Emerging Connector because it will require an improved connection to Missouri Bottom Road in order to efficiently accommodate freight movements. With this roadway improvement, opportunities for additional industrial development could occur.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single lane, but no shoulder, in each direction. The corridor has a 30 miles per hour posted speed limit. This corridor currently has an approximate AADT of just 400, with approximately 4% of the traffic volume being represented by trucks.

Gist Road: This corridor is classified as a local street and provides a connection between the
portion of Fee Fee Road mentioned above and the Freight Connector Taussig Road. Like Fee Fee
Road, this corridor has been identified as an Emerging Connector because it will require an
improved connection of Fee Fee Road to Missouri Bottom Road in order to efficiently
accommodate freight movements and provide improved access to the Hazelwood Logistics

Center. With this roadway improvement, opportunities for additional industrial development could occur along Gist Road.

<u>Roadway Characteristics:</u> The roadway along this corridor is asphalt, with a single lane, but no shoulder, in each direction. The corridor has a 30 miles per hour posted speed limit. This corridor currently has a low approximate AADT of just 850, with approximately 5% of the traffic volume being represented by trucks.

MO Route 364 between I-270 and MO Route 141: This roadway is classified as a freeway/expressway and connects the portion of MO Route 141 identified as a Freight Connector with the portion of MO Route D / MO Route 364 identified as a Freight Connector. It also connects directly to the portion of MO Route 364 identified as an Intra-Regional Connector within the St. Charles County chapter of this study. This portion of the MO Route 364 has been identified as an Emerging Connector because of the presence of considerable parcels of land potentially available for development between the Missouri River and the MO Route 141 corridor.

<u>Roadway Characteristics:</u> The roadway along this corridor is concrete, with five lanes and concrete shoulder in each direction. Opposing lanes are separated by concrete barrier, and access to the corridor is limited to grade-separated interchanges. The corridor has a 60 miles per hour posted speed limit. This corridor currently has an approximate AADT of 73,300, with approximately 9% of this traffic volume being represented by trucks.

CHAPTER 11 | TRUCK-FRIENDLY INFRASTRUCTURE

The minimum guidelines set forth by the appropriate local jurisdictional agency should always seek to be met for roadway design improvements. Freight corridors should be designed more specifically to accommodate truck mobility, access, and circulation. EWG refers to these considerations as commercial vehicle countermeasures. As such, this chapter provides project sponsors and transportation decision-makers guidance on how to better integrate freight movement into their roadway system. As the region's freight industry grows, it is important that freight growth is accounted for in the design of communities to alleviate its impacts to the region's livability and to other transportation modes. This document has been designed as a reference guide that can be used to not only provide project level design suggestions but to serve as overall educational piece used to better understand the impacts and dynamics of freight in our communities.

It is important that these recommendations are viewed within the context of the physical or right-ofway constraints of the roadway, potential users of the corridor, and the ultimate purpose of the roadway. For example, some roadways should be designed to move regional truck traffic volumes quickly, while other roadways may serve multimodal corridors with significant truck traffic. Both need considerations for freight, but met with different methods, to accommodate the context and needs of the land use and community. The non-interstate truck corridors comprise a freight network that identifies roadways that support regional freight movements. When designing projects on this network, care should be taken to ensure the efficient movement of truck traffic volumes.

Even if the roadway is on the freight network, it may or may not of have all aspects in each example. Project sponsors also need to decide what can reasonably be accommodated by each project, which aspects are needed, and how those aspects work together to make the project better. Overall, the applicability of these recommendations depends on the roadway type, its operating conditions, physical location, and adjacent land uses patterns. While not prescriptive, this guide should prompt project sponsors to consult other references, and to examine more fully one or more aspects of their projects to make needed improvements or accommodations for freight / trucks.

Plan for Trucks Early in the Process

Planning for trucks requires an understanding of the physical characteristics of trucks to be encountered, the physical impediments in the built or unbuilt environment, and whether both factors can be addressed in a practical manner. Truck circulation should be considered early in the conceptual design of roadway improvements, as well as in the conceptual stages of a land-use development proposal. During preliminary roadway design, consideration should be given to the level of truck access to and from properties (including access to on- and off-street loading facilities). Other characteristics need to be carefully examined to evaluate their suitability for the types of trucks that service businesses, including:

- Roadway classification
- Lane width
- Design of existing intersections
- Roadway capacity
- Other land uses in the area that use trucks

Local project sponsors are also encouraged to consult the local governing agency's established comprehensive land-use plan for more information regarding the regional freight network and other planning aspects to otherwise consider in their project planning.

Types of Trucks (Design Vehicles)

The size and shape of a truck is generally determined by the goods or materials being hauled, and the distance that they travel. The AASHTO has developed a classification system that identifies trucks by their approximate height, width, and length. This classification ranges from the SU-30 Single Unit truck (e.g., cement trucks, large rental trucks, local delivery trucks) to the WB-67 Interstate truck (large semi-trailer with sleeper cab equipped tractor; this class also includes double and triple trailer combinations). Exhibit 11-1 shows the typical dimensions of the AASHTO standard vehicles referenced in these guidelines. Additional information on these and other design vehicles can be found in the AASHTO Policy on Geometric Design of Highways and Streets.

In analyzing the physical geometry of roadways, the designer must understand the types of transportation modes that will use the corridor. This information can be obtained from traffic counts and interviews with businesses and other establishments. The type of truck and the frequency of their use are two of the most important factors in the selection of the design vehicle. Other factors that should be considered in the selection of the design vehicle include, but are not limited to:

- Roadway system users
- Number of existing departure lanes
- Existing lane widths
- Existing roadway speeds
- Intersection traffic control
- Adjacent land use and zoning
- Bus/transit routes
- Emergency routes
- Accident and road maintenance records

On freight corridors, the WB-67 is generally the appropriate design vehicle. The WB-67 truck represents the interstate semi-trailer with a 53-foot trailer and a wheelbase of 67 feet. With an understanding of the expected truck type, the designer evaluates the turning track maneuvers of a vehicle using AASHTO turning templates or specialized computer software such as AutoTURN, including the path followed by the corners of the vehicle body or trailer, as well as the inside rear wheels. For a typical passenger vehicle, the path followed by the rear wheels is almost the same as that of the front wheels. With larger vehicles, the swept area becomes much larger as the inside rear





wheels track substantially inside of the path of the front wheels. This becomes the most critical factor in sizing the intersection.

When developing designs to fully accommodate truck movements through an intersection, the designer establishes a travel path that allows the selected vehicle to remain entirely within its designated lane or lanes as it completes its turn. To accommodate trucks on narrower streets. the designer assumes more latitude for the vehicle path, including encroachment on adjacent lanes approaching and/or departing the intersection. Exhibit 11-2 shows an example of how a designer might accommodate truck movements in a low volume situation.



When accommodating larger vehicles in tight roadway

environments, the designer often assumes a truck driver will shift to the left, hugging the lane line, before beginning a right turn, and will use all available lanes moving in their direction to begin and complete the turn. This can create interference with other traffic when trucks are turning. This is referred to as "operational accommodation" since the compromise is some loss of operational efficiency of traffic movements. In meeting other needs or avoiding certain other constraints, the designer may count on the truck driver to use adjacent lanes if such use is relatively infrequent. A designer may select a smaller semi-trailer truck such as a WB-50 as the design vehicle, anticipating that it will stay in its own lane throughout a turn, and choose to accommodate a WB-67, assuming that it will occupy part of the adjacent lanes when it makes its turn.

Freight Corridor Geometric Design Characteristics

There are several specific geometric design characteristics that should be considered in designing a freight corridor. These include:

- Lane and shoulder widths
- Horizontal and vertical clearances
- Intersection/interchange area geometry
- Access management considerations
- Truck parking improvements

These considerations are intended for elected officials, planners, engineers, and others interested in roadway design, and identify the processes employed and the practices used to develop safe and accessible streetscapes to accommodate truck movements. Designers should also refer to the

design standards of the applicable agency, along with *A Policy on Geometric Design of Highways and Streets (8th Edition),* also referred to as the AASHTO Green Book, published by AASHTO.

Lane Width/Shoulder Width

Lane width is a key consideration for truck operations along a freight corridor. Trucks require lanes that are wide enough for them to safely navigate roadways. Because truck width is about 10 feet wide (including side mirrors), it is important to provide adequate lane width to allow travel without encroaching on an adjacent lane where another vehicle could be struck or forced to take evasive action. For freight corridors, the preferred lane width is 12 feet. In cases of severe constraint resulting from right of way and building setbacks and other physical features, 11-foot lanes may be acceptable.

Lane width depends on a number of factors, including whether the lane in question is an inside travel lane or an outside travel lane. Outside lanes (those nearest the curb) can be lanes, but can also be designated as parking lanes, bus lanes, bicycle lanes, or a combination of each. Inside lanes are closest to the median of a street, and may include turn lanes, through lanes, or a combination of both. Outside lanes are the preferred location for truck and bus traffic because these vehicles tend to accelerate slower, travel more slowly, and have large blind spots to the right side of the vehicle. Outside travel lanes are often wider than inside lanes due to the greater presence of trucks.

The width of the adjacent shoulder pavement is also a significant factor in providing enhanced mobility and safety for freight corridors. All freight corridors, including those within dense urban areas, should have shoulder widths of at least two feet. However, freight corridors should seek to provide ten feet of shoulder width wherever feasible. A continuous shoulder width of this magnitude allows adequate space for enforcement, maintenance, and recovery activities, and provides a sense of security so all drivers making emergency stops will leave the traveled way completely.

Horizontal and Vertical Clearances

Common roadside obstructions that come in conflict with truck movements include:

- Road signs
- Above-ground utilities
- Street trees
- Traffic signal poles
- Street light poles
- Overhead structures

Because of the size of trucks and their associated freight containers, collisions with roadside obstructions such as these are particularly common. As such, it is important to adhere to minimum horizontal and vertical clearances along freight corridors.

For short-turning roadways (typically within a channelized intersection), horizontal clearance to obstructions should be two to four feet from the edge of traveled way (AASHTO, 2018). For straight or turning roadways with curves that are intermediate-to-long in length, horizontal clearance to obstructions on the left side of the road should be four to ten feet from the edge of traveled way, and six to twelve feet on the right side of the road (AASHTO, 2018). Even when these minimum clearances are met, the "dynamic envelopes" associated with truck turning movements should be

assessed to verify that obstructions within the right-of-way are not typically at risk of being struck. This is of particular importance for traffic signal equipment, which, if damaged to the point of inoperability, can cause significant and prolonged disruptions to traffic flow. Where feasible, consideration should be given to longer mast arm lengths and traffic signal pole and controller placement near the edge of a given freight corridor right-of-way, in order to provide the most separation from the traveled way. The placement of street trees within a freight corridor should also be executed only with special attention to the expected growth patterns and their potential impact upon the sight lines for large trucks.

Vertical clearances to overhead obstructions such as overpass structures, signal heads, and overhead sign structures should be a minimum of 16 feet on freight corridors (FHWA). Overhead electric lines that are above roadway surfaces should be at least 18 feet above the ground, as measured at their lowest point. It should be noted that the dimensions associated with these recommendations should be increased based on sight distance considerations, where appropriate.

Truck routing around known roadside obstructions ensures movement of freight is uninterrupted. As non-interstate freight corridors continue to arise, improvements can be made to reduce obstructions. However, where roadside obstructions remain, adequate signage to warn drivers of obstructions is critical.

Intersection/Interchange Area Design

Intersections that often have the highest truck traffic volumes are interchanges, as they are the major connection points between the Interstate system and the local roadway system. Freight companies and services related to freight often locate near interchanges as well, making them critical design components of the truck freight system. It is very important to examine all aspects of intersections and interchange areas with respect to truck turning radii, travel paths, signage, and striping.

Intersection/interchange area design along freight corridors must consider the largest anticipated truck type, which is typically a WB-67. A WB-67 requires enough maneuvering room to complete a right turn without encroaching into the lanes of opposing traffic, and enough turning area to avoid mounting curbs or sidewalks. The key design element to keep a truck within the confines of its lanes is the radius of the curb. For freight corridors, curb radii should be typically designed for these truck movements. This includes locations at which curb extensions are planned in order to reduce pedestrian crossing distances.

Truck movements can be accommodated using several design tools and practices. Specific design practices could be particularly applicable to built urban environments, in which significant presence of other roadway users, such as pedestrians, bicycles, transit, and commuter vehicles, exists.

Number of Lanes

The number of lanes on the roadway from which a truck is turning can significantly impact the roadway's ability to accommodate large trucks. The presence of several lanes on the departure roadway allows truck drivers greater flexibility to position their trucks further to the left, even to the extent of occupying part of an adjacent travel lane, before beginning a right turn. Also, the number of lanes on the receiving roadway may be the single most important factor in accommodating large

trucks. Having two or more lanes available to turn into allows a truck driver considerable latitude in moving away from the curb for the completion of a turn. With two or more receiving lanes moving away from the intersection for the truck to turn into, designing for a large WB-67 semi-trailer truck that turns into the far lane allows a smaller curb radius. In general, the presence of multiple lanes makes it easier for a truck driver to make a turn with a large truck.

In areas with heavy freight volumes, exclusive left-turn and/or right-turn lanes should be considered to allow for the flow of through traffic, without incurring delays created by the turning vehicles. Auxiliary lanes such as these should have longer storage lengths and tapers to help accommodate multiple trucks.

Multiple Centered Curbs/Corners

When trucks perform a right turn, they create a shape that can be more closely approximated by use of a corner design with two or three centered curves. This intersection corner design reduces the overall pedestrian crossing distances and required right-ofway over a more traditional single radius corner. Exhibit 11-3 shows how a two-centered curve can more closely approximate truck turning maneuvers, as compared to a single simple curve.

Tapered Curbs/Corners

The tapered corner allows for the use of a radius curve combined with a 6:1 taper. The taper better approximates the swept path of a truck on the corner exit and allows for the use of a smaller radius curve as compared to a single radius corner. Like the multiplecentered corner, this intersection corner design reduces the overall pedestrian crossing distances and required right-of-way over a more traditional single radius corner. Exhibit 11-4 shows how a tapered curb design can more closely approximate truck turning maneuvers, as compared to a single simple curve.

Corner Islands

Corner islands, which are sometimes used for channeling or separating right turns, often present a challenge to truck drivers. An island eliminates pavement that would be occupied by the cab as a truck driver seeks to keep the right rear of the trailer from running up on the curb. Along freight corridors, however, a corner island can still be beneficial to mitigate the long pedestrian crossing distances created by designing for large trucks. Corners with these types of islands must be designed to fully

Exhibit 11-3: Two-Centered Curve Curb Design











accommodate the turning movement associated with the largest anticipated truck type, such as is shown with Exhibit 11-5.

An alternative to the above uses a channelized right-turn lane. This type of corner creates a much larger refuge island and additional queuing space for large trucks. This requires more right of way, so it is not recommended in locations with development close to the existing intersection. This type of design is shown in Exhibit 11-6.

Median Refuge Island Modifications

Medians at intersections can provide a pedestrian refuge for wide street crossings, an opportunity to visually enhance a streetscape with low-growing landscaping, and control access to abutting businesses. There are several options in designing a median nose to accommodate large turning vehicles. If the frequency of large vehicles that would run over the median nose is high, it can be shaped to match the design vehicle turning path or constructed with a mountable curb. A median nose could be designed flush to the pavement and constructed with the same color material to provide a visual cue for drivers. A median can also be designed without a nose. Exhibit 11-7 shows how these various types of modifications would look at a typical intersection.

Exhibit 11-6: Corner Island Design with Channelized Right-Turn Lane



Exhibit 11-7: Median Island Modification Options


Mountable Curbs/Truck Aprons

Mountable curbs can provide a means for a large truck to more easily traverse a curb while making a turning movement. These types of curbs are most useful on approaches to driveways not wide enough for the occasional truck, and at median noses. These curbs could also be used on intersection radii; however, such practice should only be considered on a limited basis and must be carefully designed to prevent trucks from overrunning pedestrian areas. Allowing trucks to drive over sidewalk areas for right turns presents a significant safety hazard to pedestrians and bicyclists since the truck has limited visibility to the right, even with properly adjusted mirrors. As such, it is recommended that the mountable areas of sidewalks, or truck apron area, utilize a different color and texture of concrete, as compared to the standard sidewalk areas. The surfacing behind the mountable curb must be designed for truck loadings and the area kept free of obstructions such as a signal nales and numbers.

signal poles and pull boxes, signs, or fire hydrants. Mountable curb can better withstand off-tracking from trucks than a standard curb and may reduce the potential for sidewall damage to tires. Exhibit 11-8 shows some examples of cross sections associated with typical mountable curbs.

Exhibit 11-8: Mountable Curb Design Options



The specification of mountable curbs and truck aprons is of particular importance in innovative interchange and intersection designs that have become more widely used around the nation because of their ability to provide additional traffic safety and/or capacity benefits. Innovative designs that have been implemented in the St. Louis region, and at which the specification of mountable curbs should be considered, are:

- The roundabout intersection
- The continuous flow intersection (CFI)
- The diverging diamond interchange (DDI)
- The single point urban interchange (SPUI)
- The through U-turn intersection (Thru-turn)
- The restricted crossing U-turn (J-turn)

In particular, mountable truck aprons are a standard design element that should be incorporated adjacent to central islands associated with roundabout designs.

Location of Intersection Stop Bars Signalized intersections can be striped to improve the overall geometry for turning trucks without compromising traffic engineering requirements. This would generally be done at intersections without medians, at which stopped cars can be moved further back from the curb return in order to provide additional area for a right-turning trucks to complete turns without conflicts with other vehicles. Moving back the STOP bar can also assist left-turning truck movements and pedestrian movements, allowing for smaller curb radii. Exhibit 11-9 shows how an alternative location of intersection stop bar can help accommodate a truck turning movement.





Length of Queueing

Where there are large volumes of trucks anticipated, a key consideration is the length of queues. This is of particular concern at closely spaced intersection corridors and those associated with interchange areas. The key consideration is that trucks queued from one intersection do not block movements at another intersection. Proposed signal timings should be considered the analysis of anticipated queues at signalized intersections. Also, other access points to the public roadway system should be spaced far enough away to prevent conflicts with the operation of adjacent intersections. Both operational and safety issues may result if these topics are not considered in sufficient detail with appropriate truck forecasts.

Lane Encroachment Between Parallel Turning Lanes

At intersections with dual turn lanes, designers should consider how the "dynamic envelopes" associated with truck turning movements interact with each other when two or more trucks attempt to make a particular turning movement at the same time. This is of particular importance with multilane roundabout intersections or other innovative intersection designs at which minimal control delay is expected. In this case, the designer should evaluate the turning track maneuvers of a vehicle using AASHTO turning templates or specialized computer software such as AutoTURN, while also considering how proposed splitter island and central island geometry, signing, pavement marking, and sight lines are incorporated within the design. Extensive guidance on the design of roundabouts; *An Informational Guide, Second Edition (NCHRP Report 672, TRB, 2010).* In a built environment with narrower existing roadway conditions, the designer can assume an "operational accommodation" in order to allow parallel turning paths to encroach upon each other.

While procedural guidelines can be developed to provide general direction for design of intersections and interchange areas for trucks, the final configuration and best overall design of an intersection must still be completed by experienced designers. Basic geometric considerations such as the angle at which the roads intersect, the presence of buildings abutting the right of way, and the of turn lanes will vary from intersection to intersection. The surrounding land use, existing development patterns, and other factors could also influence specific decisions about intersection and interchange area design.

Access Management

MoDOT defines access management as "the proper planning and design of access to the public roadway system that helps ensure traffic flows more smoothly, with fewer crashes, which means everyone travels safer". MoDOT's access management guidelines include proper spacing of interchanges, public road intersections, traffic signals and driveways. Similarly, IDOT defines access management as "the process of governing access to land development by a public agency where the agency considers the highway facility and its surrounding activities as part of an overall system. Individual parts of the system (e.g., zoning, land-use planning, site plan development, driveway permits, public transportation, roadway network) should be properly integrated and coordinated. Through proper application of access management, the objectives of providing safe and efficient traffic flow coupled with access to abutting properties can be achieved." In a freight context, access management typically involves the placement of driveways and curb cuts into and out of a manufacturing or warehousing areas or other areas and is highly dependent upon the adjacent land use context.

Since freight vehicles compete for roadway and parking spaces with other vehicles and modes, including transit and pedestrians, controlling, and managing access typically becomes more critical and complex with increasing urban density. Specific access guidance can be found in MoDOT's Access Management Guidelines, Chapter 35 "Access Control/Access Management" of IDOT Bureau of Design and Environment Manual, and St. Louis County Department of Highways and Traffic Access Management Guidelines. Access management techniques within the public right-of-way can include:

- Control of access for particular vehicles to parking spaces
- Delivery hour restrictions
- Restriction of access for particular vehicles to entire roadway corridors

However, the most common access management techniques are those applied to proposed site designs for properties adjacent to the public roadway system and the associated layout of access points. With the development of a property, the design of access points (or entrances/driveways) to the roadway system is critical to account for the needs of anticipated truck traffic. The implementation of access management at a particular property can involve several factors, including:

- Number of access points
- Spacing of access points
- Geometric design(s) of access point(s)
- Intersection stop control at access point(s)
- Pavement design of access point(s)
- Pavement "breakover" angle at access point(s)

The necessary number of access points is a function of the trip generation characteristics of the proposed site. More than one access point could be considered to prevent heavy delay at a single location. Wherever practical, projects should consider multiple access points to facilitate expedited traffic volumes to and from a location. The specific locations of access points should be spaced appropriately, taking into account factors such as the functional classification and speed of the

roadway, along with the location of other access points on the same property and those associated with adjacent properties.

Like the determination of the number of access points, the geometric design is determined by the trip generation characteristics of the proposed site, in conjunction with the existing traffic volumes along the adjacent public roadway. Geometric considerations include:

- Number of departure lanes
- Number of receiving lanes
- Departure lane channelization / specification of auxiliary turn lane(s)
- Functional length of the associated departure lanes

Freight generators also frequently utilize secure access points. For secure access points, site design should take into account vehicle queuing, the presence of credential/vehicle check spaces, and average service times of credential/vehicle check activities. This is especially important so that queuing vehicles do not impact lanes within the public right-of-way. In some cases, the actual entrance needs to be set back from the roadway to provide adequate vehicle queuing/storage areas. With the geometric design of the access point, the appropriate form of intersection stop control should be determined in order to properly assess the operation of the proposed access point geometric design.

The pavement design of access points should consider the weight of a fully loaded multi-axle truck, typically with a trailer that is 53 feet long and weighing approximately 80,000 pounds. The expected type of truck and frequency of truck should be known to determine the Equivalent Single Axle Load (ESAL). This, along with a proper soil analysis, should be used to determine the material design necessary to construct a durable pavement section which can support the heavy vehicle weight.

A final consideration of access point locations is the pavement breakover angle. The breakover angle is defined as the maximum possible supplementary angle (usually expressed in degrees) that a vehicle, with at least one forward wheel and one rear wheel, can drive over without the apex of that angle touching any point of the vehicle other than the wheels. A properly designed breakover angle will prevent the undercarriage of long commercial vehicles from striking the roadway. This is typically important at entrances that intersect a railroad crossing or at intersections that have a potential to have excessive grade changes transverse to the centerline (intersections where a superelevation on the mainline has been introduced, for example). At existing public highway locations where vehicles might have a chance of getting "high-centered", the W10-5 warning sign may be needed and should be installed in advance of the area of concern. This is a standard sign per the Manual on Uniform Traffic Control Devices (MUTCD). Design guidance for proper grades at railroad crossings can be found in the AASHTO publication, A Policy on Geometric Design of Highways and Streets. Various other research documents exist for design guidance on entrance design, such as the NCHRP document, Geometric Design of Driveways.

Truck Parking

Because both short-term truck parking associated with loading/unloading, and long-term parking associated with required rest, should be considered, the space available for truck parking comprises a couple of critical design factors in accommodating freight movements. Within built environments, narrow curbside parking lanes make it difficult for trucks to find on-street parking. In such situations, truck drivers may resort to parking on the curb where space is limited, reducing the functional width

of the sidewalk. To prevent this, designated on-street truck parking spaces adjacent to delivery destinations should be considered by evaluating them for safety and operations. Truck aprons or reinforced pavement for the loading zone can be included to ensure that these parking spaces are maintained long-term. In some cases, freight-loading zones on heavily travelled arterials can be structured with time restrictions during peak period travel. This will allow the curb lane to be used as a travel lane during peak commuting periods to reduce traffic congestion, and as a loading/unloading zone during other times of the day. Efforts must also be made to comply with truck parking policies set forth by state, county, or local transportation departments. For example, when truck ADT exceeds 10%, it may trigger diagonal parking to be removed from a roadway to be replaced with parallel parking or parking relocated to an off-street facility.

Metropolitan areas often feature little to no capacity for long-term truck parking. As a result, many truck drivers deliberately give up potential driving hours (and revenue) to stage an hour or two outside of an urban area to avoid parking in an area where sufficient space may not be available. Current levels of public and privately provided truck parking outside of urban areas, generally, does not fulfill current truck parking demands. This can often result in trucks parking in undesignated areas, like highway interchange ramps which are not designed to safely accommodate a parked truck. Drivers parked in undesignated or unmonitored areas also expose themselves to assaults and theft. Additionally, recent changes in federal law (hours of service, electronic logging devices (ELD)) have resulted in increased parking demands. In recent years, public agencies have employed new solutions to creating additional truck parking capacity. These include the:

- Conversion of existing interchanges to provide truck parking
- Construction of truck parking turnouts within existing right-of-ways
- Conversion/improvement of rest stop areas
- Implementation of ITS solutions

The solutions to these parking challenges are typically implemented along interstate corridors. However, it is relevant to this design guide in order to exhibit how improvements could be applied at critical junctions such as interchanges of interstates with non-interstate corridors. These type of parking solutions can also be considered to address congestion and efficiency within privately owned manufacturing and distribution centers.

Multimodal Considerations

When designing a corridor with high volumes of truck activity, other modes of travel using the corridor should be considered. The presence and frequency of pedestrian, bicycle, and transit activity typically helps determine the appropriate travel speed, as the posted speed limit should preserve safety for all modes of travel, and balance access and mobility to reflect the local context. Lower speeds should be considered to help reduce the potential for truck conflicts in areas with multiple freight access points. In general, higher operating speeds on freight corridors are associated with greater safety concerns, create greater probability of errors in navigation, and should only be employed where appropriate.

Where pedestrian activity has been confirmed, such as urban environments, priority should be given to pedestrian safety. This is often achieved through design elements such as sidewalks, curb ramps, crosswalks, pedestrian signal phasing and timings that reduce pedestrian wait time, and curb "bump-outs" (curb extensions) that reduce the pedestrian crossing distance. Exhibit 11-10 exhibits

how intersection corners must still accommodate the design vehicle, even in the case in which curb extensions have been implemented. Larger intersections with heavy truck movements and pedestrian activity should provide pedestrian refuge islands. As discussed within the "Intersection/Interchange Area Design" section, modifications of the median refuge island, such as the shaped median island shown in Exhibit 11-11, can be incorporated in order to accommodate truck-turning movements.

Exhibit 11-11: Pedestrian Refuge





Urban environments also encounter frequent bicycle activity.

Bicyclist safety can be accommodated through the design of bike lanes or, where right-of-way is available, shared-use paths. When bike lanes are located on freight corridors, and no alternative routes are available, consideration should be given to making the bike lane "protected" or "buffered". A protected bike lane provides lateral separation from the bike lane and the nearest vehicular travel lane. This separation is typically provided through the use of a striped buffer and/or protection barriers. Protected bike lanes also typically provide some type of raised physical feature between the protected bike lane and travel lane.

Bicycles using freight corridors also require special consideration at intersections. Trucks can encroach on the bicycle lane in right-turn movements. Dedicated right-turn lanes for trucks are preferable in these situations as they allow the bicycle lane to transition to the left of the right-turn lane and minimizes potential truck/bicycle conflicts (see Exhibit 11-12). Designers must recognize that a truck driver's vision is limited when making right turns at intersections. This is a particularly important consideration wherever trucks turn right across bicycle lanes. Many roadways within the St. Louis region feature vehicle lanes that are shared by bicycles and motor vehicles. This shared lane concept should be discouraged along freight corridors, particularly those with just a single travel lane.

Shared-use paths are designed for two-way travel and provide a facility for pedestrians and bicyclists that is set back from the roadway. Shared-use paths are considered the safest treatment for bicyclists and pedestrians and are strongly encouraged for implementation along freight corridors. Exhibit 11-12: Right-Turn Lane Design



From a vehicular operations perspective, transit circulation along freight corridors is generally compatible to truck circulation. Similar to trucks, buses require wider lanes and more generous curb radii for right-turn movements. However, potential conflicts with trucks need to be considered where passengers access bus stops and MetroLink stations. Easy and convenient pedestrian access needs to be considered wherever a bus stop or light-rail station is located, and where truck operations are being addressed. Transit stops on freight corridors should be located to balance good passenger access with pedestrian safety. Stop locations should minimize the potential for jaywalking, minimize passenger-walking distance, and avoid unnecessary crosswalk movements. Where feasible, transit stops should be located by the main entrances of industrial and commercial complexes and business centers. Transit stops should provide adequate space for amenities, such as benches, shelters, and trash receptacles, while considering the visual sight lines for freight trucks to see passengers. In many cases, a transit stop may have to be moved further from an intersection corner than initially desired due to the need to accommodate truck maneuverability. Bus route navigation signs, or other signs, identifying the location of transit stops can help give advance warning to trucks to the potential presence of increased pedestrian activity.

Navigation/Information Technology

Navigation in the context of this design guide refers to wayfinding and directional information, specifically aimed at freight/trucks. This is especially important for first and last mile segments, but also pre and post trip to provide information on closures, congestion, incidents, and truck parking. Wayfinding signs are often used to get drivers and trucks to a particular location well in advance of where it actually is. Signage often starts as soon as a driver gets onto the network or roadways leading to a destination, sometime as early as the off ramp from an interstate. The signs direct

drivers in the general direction of their destination and provide turn-by-turn navigation, reinforcement and directions until the destination is reached. Location of signs, associated sight lines, excessive sign messaging, and information overload are concerns that designers and project sponsors need to be aware of when specifying new signs in an existing operating environment. The implementation of wayfinding signs should not replace regulatory and warning signs governed exclusively by the Manual on Uniform Traffic Control Devices MUTCD.

The location and messaging of signs needs to be planned to give drivers appropriate cues ahead of decision points. Sign spacing and letter height should follow MUTCD guidance based on roadway speed. Drivers' visual and cognitive abilities vary greatly and these affect how easily a sign can be read and understood. The legibility standards established in the MUTCD are based on research into all of these areas and can act as a guide.

Freight-specific trip and route directional information in the vehicle is often handled by private sector providers who provide pre-, en-route and post-trip information. This is often accessed through commercially available systems via subscription, or through proprietary systems specific to large trucking companies who pay for tailored information specific to their needs or have their own systems or applications. Smaller owner-operators may rely on commercially available information, often marketed to the general public. However, this information is often not freight specific. The public sector typically contributes information about maintenance, closures, and other incidents to this commercially available information set. For example, MoDOT partners with the Waze app to provide information on maintenance, incidents and other conditions affecting travel on MoDOT roadways. MoDOT also provides information about road conditions and closures via the "Gateway Guide" software application. IDOT provides similar information via the "Getting Around Illinois" software application, and, more specifically, the Metro-East St. Louis traveler map.

An Intelligent Transportation System (ITS) is an advanced application, which:

- Aims to provide innovative services relating to different modes of transportation and traffic management
- Aims to enable users to be better informed to make safer and more efficient use of transportation networks
- Typically encompasses a broad range of information, control, and electronics technologies for managing surface transportation
- Helps monitor and manage traffic flow, reduce congestion, and provide alternative routes to travelers when integrated into the roadway system and the vehicles of roadway users

The EWG Council of Governments (EWG) has developed a St. Louis Regional ITS Architecture, which serves as a roadmap for transportation systems integration, and was developed through a cooperative effort by the region's transportation agencies. Local governments and agencies that wish to integrate technology into projects, whether they be stand-alone technology-focused ones, or others where technology may be a component, should consult these documents to ensure that their projects are compatible with the overall ITS Architecture and align with the various service packages identified. The service packages within the overall ITS Architecture typically include an integrated system of sensors, cameras, and data-sharing technology. Collected data is disseminated to motorists via dynamic message signs, highway advisory radio, local media, and internet service providers. Project sponsors should consider the operations of the St. Louis Regional ITS Architecture and integrate ITS data into their systems and communications protocols whenever feasible.

CHAPTER 12 | TRUCK CORRIDOR OUTREACH

For the initial publication of the Non-Interstate Truck Corridor Study (April 2020), TranSystems contacted businesses in the region to solicit input on existing operational constraints related to truck freight movement. The intent of this outreach was to get a sense of "on the ground" realities, to enhance data and technical analysis. Not only were businesses in the freight industry contacted but also industry-adjacent businesses, such as local delivery businesses. A focus was reaching businesses in or near each of the 33 development-ready sites on the Freightway's website as well as along identified truck corridors. This allowed outreach in each of the counties considered in this study. Each business, in the immediate area, or in the region. Depending on the respondent's level of knowledge of semi-truck operations, examples of semi-truck issues were provided to jog memories. This included but was not limited to turning challenges, bottlenecks, or other notable observed behaviors.

In total, 68 businesses were contacted, with 40 (59%) responding. The majority of respondents did not note any issues and were happy with accessibility to their location currently. Unsurprisingly, semi-truck drivers generally find ways to negotiate local roadway issues. A sizable number of the region's freight businesses are logistics brokers or docking/warehousing facilities, so they do not move freight themselves. Instead, they use a third-party delivery or supply chain service such as FedEx, Penske, or UPS.

For business that do have their own drivers and trucks, wait times for unloading or loading are critical and factors external to the region play a key role in determining loading/unloading times. These factors range from national/international supply chain considerations, to traffic or weather in the origin/destination region. For example, if loading/unloading requires more time than anticipated, drivers may speed or otherwise drive more aggressively in order to make their delivery appointment(s). Speeding and other aggressive driving is not only an inherent safety issue, but such driving behavior can burn out brakes, resulting in other safety issues. In addition, respondents noted the recent federal regulation requiring semi-truck drivers to install an ELD because it has inadvertently prompted more aggressive driving. Extended loading/unloading times may also cause time to log/pass during unanticipated delays thereby shrinking the amount of time drivers have to make their appointment(s) before they must stop for a required break. (Note: Semi-truck drivers can be on duty for 14 hours per day. In that window, they can drive a maximum of 11 hours. After the 14 hours pass, they are required to stop for 10 hours.)

In older areas where industrial parks have been redeveloped, such as in the City of St. Louis and in other historic city/town centers, different issues were noted by the respondents.

- Semi-trucks, especially longer ones, can have a difficult time maneuvering in and/or out via the non-redeveloped areas. Consequently, trucks will load/unload in medians or shoulders.
- Unplanned construction on roads to repair aging infrastructure such as water mains can essentially close that portion of the road for semi-trucks with little or no notice.

In newer industrial parks, most key intersections such as at highway ramps are all-way stops. As development takes place in the future, traffic volumes should be monitored to determine when traffic signal warrants are met. Finally, respondents discussed the challenges presented to truck drivers by municipalities who have prohibited semi-truck parking, including along roads adjacent to industrial parks. This requires drivers to arrive early to stage on the shoulder of state highways.

In summary, the general consensus among the respondents is that the top operational constraints related to movement of goods by truck are external to the St. Louis region. While the Freightway and other regional and local stakeholders cannot change federal regulations, the national/international supply chain, or other factors external to the region, transportation planners can continue to enhance truck traffic by considering improvements to make the first/last-mile more freight friendly. Suggestions noted by the respondents include:

In areas where industrial parks are in historic or long-established neighborhoods:

- Consider adding on-street truck loading zones in strategic locations.
- Seek opportunities to improve existing loading which encroach on travel lanes, impeding through traffic.
- Identify ways to improve communication with truck drivers when utility repairs require unanticipated road construction, limiting truck movements. When closures are necessary, adequate advance signage denoting alternate routes should be posted and coordination with mapping/navigation service applications should be prioritized to notify drivers of closures.

In areas where industrial parks are planned or still being developed:

- Coordinate among stakeholders (e.g., developer/landowner, state department of transportation, county, city, etc.) to plan and implement traffic control and infrastructure improvements proactively, in anticipation of the growth trends.
- Encourage small town/rural developments to ensure loading areas do not cause trucks to encroach on roadways, even if they currently have low traffic volumes, because growth is anticipated along the identified truck corridors.
- Consider mechanisms to expand safe parking alternatives for trucks. Suggestions included amending bans on truck parking, identifying appropriate zones (with or without enforceable time limits) for allowable staging of trucks to accommodate early arrivals or unanticipated loading/unloading constraints, developing off-site parking in close proximity to freight generators, with tools to ensure queuing is not disrupted.



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