SEMPO Multimodal Freight Study

Task 2: Market Assessment and Analysis Report

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1 Executive Summary

The Cape Girardeau-Jackson Metropolitan Planning Organization area, known as SEMPO, serves as a critical multimodal junction for the Mid-Mississippi Valley, facilitating the movement of essential goods through a network of highways, railways, and inland waterways. As shown in Figure 1, this regional freight market is anchored by the Interstate 55 corridor and the Mississippi River, which provides high-volume connectivity between major national hubs like St. Louis and Memphis.

The SEMPO region serves as a vital multimodal hub, where the strategic intersection of Interstate 55, Class I railroads, and the Mississippi River facilitates the efficient movement of regional and national goods. This market assessment highlights a freight ecosystem deeply rooted in the transport of bulk commodities like stone and gravel that is adapting to significant growth in manufactured goods and emerging industrial sectors. By leveraging its unique intermodal assets, the Cape Girardeau-Jackson area continues to strengthen its position as a major inland port of significance within the Mid-Mississippi Valley. Some of the core findings of this report include the following.

Regional Freight Market Overview

- Core Commodities: The region's economy is heavily dependent on the movement of bulk and manufactured goods. The top commodity group by tonnage is stone, sand, gravel, and ores. Other significant commodities include durable manufactured products, mixed freight, consumer goods, liquids/gases, and farm products.
- Top Trading Partners: The region exhibits strong internal and localized trade patterns. Over 50% of annual truck trips originating in the SEMPO area remain within the region. Top external trading partners include Rural Southeast Missouri, Sikeston, St. Louis, and Rural Southern Illinois.
- Freight Assets: The network is characterized by the synergy of I-55 (a Primary Highway Freight System and STRAHNET route), the Mississippi River (M-55 Marine Highway), and the convergence of BNSF, Union Pacific, and the SEMO Port Railroad.

Key Mode Shifts and Trends

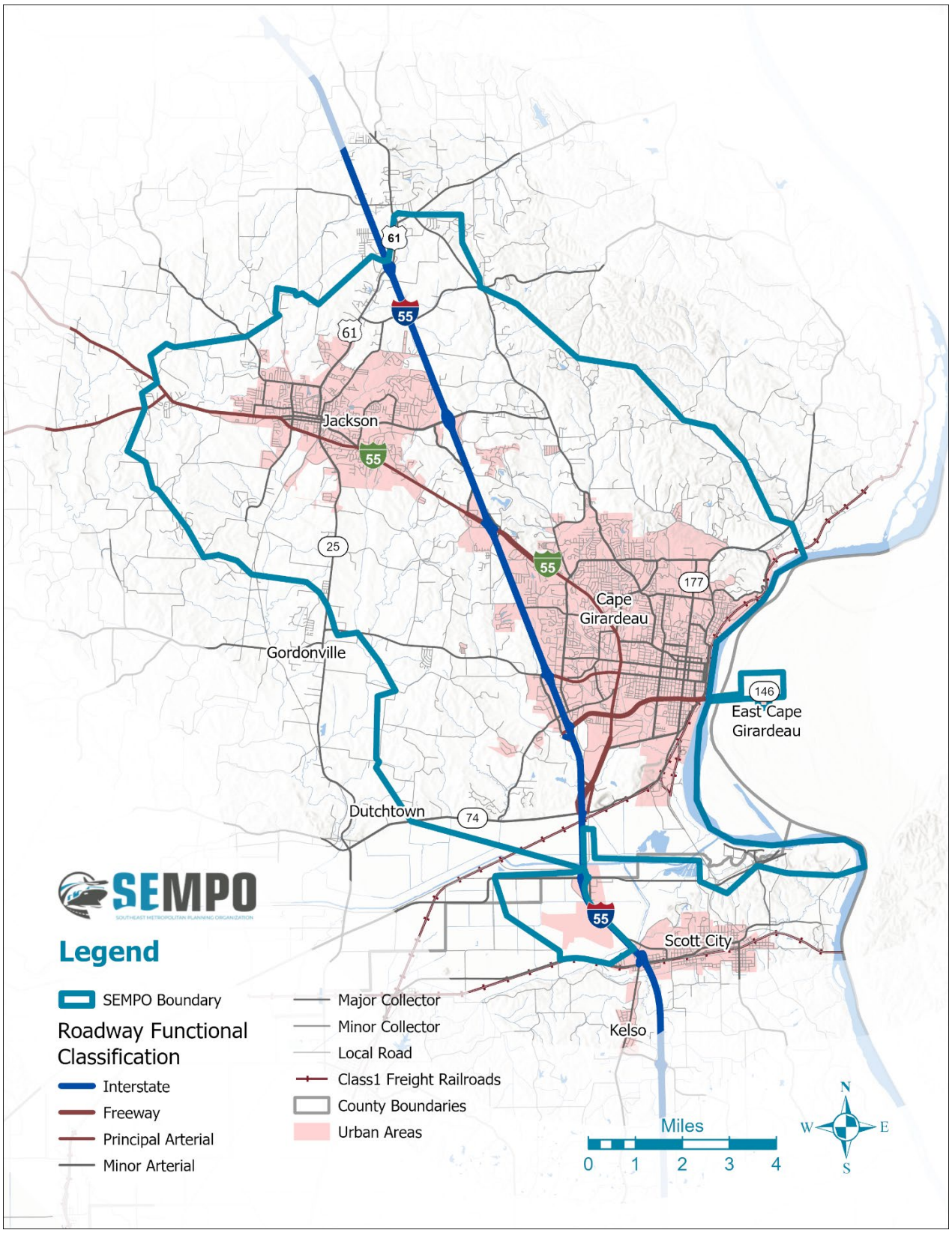
- Intermodal Synergy: There is a high degree of "surface-to-water" and "surface-to-rail" connectivity, particularly at the SEMO Port, which transloads bulk commodities from barge to rail or truck.
- Growth Projections: The SEMPO region functions as a vital multimodal hub within the Mid-Mississippi Valley , where the strategic intersection of Interstate 55, Class I railroads, and the Mississippi River facilitates the movement of over 3,600 daily truck trips and a commodity flow dominated by bulk materials—specifically stone, sand, and gravel —that is projected to see a 58.9% increase in total truck tonnage by the year 2050.

Organization of Report

This report is structured into eight primary chapters to provide a comprehensive evaluation of the regional freight landscape:

- Chapter 1: Executive Summary: Offers a high-level overview of the region's freight markets, top trading partners, and core commodities.
- Chapter 2: Planning Documentation Review: Summarizes national, state (Illinois and Missouri), and regional planning efforts that inform the study.
- Chapter 3: Regional Freight Vision, Goals, and Objectives: Establishes the strategic framework for multimodal investments over the next 20 years.
- Chapter 4: Freight Assets: Provides an inventory of the regional truck route network, railroads, intermodal facilities, and air cargo gateways.
- Chapter 5: Commodity Flow Analysis: Analyzes current and future truck flows and tonnages using the Freight Analysis Framework (FAF5).
- Chapter 6: Origin/Destination (O/D) Analysis: Evaluates long-distance travel patterns for trips beginning or ending in the Cape Girardeau region.
- Chapter 7: Warehouse and Distribution Center Inventory: Profiles major regional freight generators and their spatial relationship to the transportation network.
- Chapter 8: Key Findings and Performance Assessment: Synthesizes analysis results into a framework for assessing future freight system performance.

Figure 1: Study Area



2 Previous Planning Documentation and Data Review

The SEMPO freight plan is a blueprint for enhancing the region's freight transportation network. The plan builds on past planning efforts at the regional, state, and national levels including the National Freight Strategic Plan (NFSP), the Missouri Department of Transportation 2026 State Freight and Rail Plan (SFRP), the Illinois Department of Transportation 2023 State Freight Plan (SFP), and the SEMPO 2025 Metropolitan Transportation Plan (MTP). Working together these plans strengthen the freight network ensuring it remains resilient, reliable, and ready to meet the growing demands.

National Freight Planning

The safe and efficient movement of goods through the nation's freight system is a top priority for the U.S. Department of Transportation (U.S. DOT).[1] The National Freight Strategic Plan (NFSP) defines the vision and goals of the national multimodal freight system. It addresses infrastructure challenges, supply chain disruptions, and increasing freight demand.[2] U.S. DOT uses this plan to guide national freight policy, programs, initiatives and investments.

Relative to the SEMPO region, the NFSP emphasizes the importance of inland waterways, rail corridors, intermodal hubs, and highway corridors for multi-jurisdictional coordination supporting economic growth and economic competitiveness. NFSP Strategic Objectives pertinent to the region include:

- Improve consideration of freight in transportation planning.
- Reduce conflicts between passenger and freight traffic.
- Mitigate the impacts of freight movement on communities.
- Support the development and adoption of automation, connectivity, and other freight safety technologies.

Beginning with the Fixing America's Surface Transportation (FAST) Act and continuing through the 2021 Infrastructure and Investment Jobs Act (IIJA), states were required to have a State Freight Plan developed in accordance with 49 U.S.C. 70202. These state freight plans discuss 16 required elements describing the freight assets, freight bottlenecks, safety of the system, the state's efforts to address the national multimodal freight policy goals, and proposed investments to address any challenges. Missouri and Illinois developed State Freight Plans that meet all the national requirements. As a bi-state planning area, SEMPO will use these plans to inform the multimodal freight plan.

Illinois 2023 State Freight Plan

The Illinois Department of Transportation (IDOT) State Freight Plan fulfills Federal requirements for state freight planning, identifies opportunities for Illinois to invest in its freight system, and positions Illinois to take full advantage of Federal formula and discretionary funding programs for freight transportation

[1] 2020 National Freight Strategic Plan Executive Summary https://www.transportation.gov/sites/dot.gov/files/2020-09/NFSP_execsum_508.pdf

[2] MoDOT 2026 State Freight and Rail Plan

investments.[3] The Freight Plan is part of IDOT's family of plans under the umbrella of the Long Range Transportation Plan.[4] In addition to the statewide plan, IDOT created nine individual District Freight Plans and 102 County Freight Profiles.[5]

The plan establishes five goals to advance Illinois' competitive position.

- Plan. Prioritize the development of plans and policies and deployment of innovative technologies, that help achieve the vision of the plan.
- Partner. Drive collaboration and foster partnerships with public agencies and private sector freight stakeholders throughout Illinois.
- Invest. Make investments and implement policies that improve the safety, resiliency, and reliability of access to the multimodal freight system.
- Implement. Implement a data informed approach to freight asset management, preservation of the multimodal freight system, and stewardship of public funds.
- Protect. Incorporate socioeconomic and environmental impacts into freight related decision-making.

The IDOT District 9 Freight Plan focuses on freight activity, needs, and priorities at the District level.[6] County-level Freight Plans are included in the district plans. Review of the District 9 Plan and counties adjacent to the SEMPO boundary are most relevant to the SEMPO multimodal freight plan to identify freight assets and freight commodity flow. Truck parking, Mississippi River crossing redundancy, and resiliency are noted as challenges for the region. The growth in e-commerce and state investments through the Rebuild Illinois System are identified as strengths and opportunities.

MoDOT 2026 State Freight and Rail Plan

The MoDOT SFRP, developed in conjunction with the Long-Range Transportation Plan, meets the Federal requirements for both multimodal freight planning and passenger rail planning. It includes an analysis of freight assets, commodity flow, identifies trends impacting and anticipated to impact freight transportation, and provides recommendations to guide MoDOT to meet today's needs and prepare for the future freight flows. Performance metrics were developed using data that is currently maintained by MoDOT or another publicly available source. The 13 recommendations included in the plan incorporate a discussion of what needs the recommendations are addressing, implementable action items, and correlation back to the SFRP goals and performance metrics.

MoDOT's strategic vision was used to draft six goals with objectives.

- Stewardship. Preserve the assets and services currently in place.

[3] Illinois 2023 State Freight Plan, https://idot.illinois.gov/programs-and-projects/rail-and-freight/illinois-state-freight-plan.html

[4] Illinois 2023 State Freight Plan, https://idot.illinois.gov/programs-and-projects/rail-and-freight/illinois-state-freight-plan.html

[5] Illinois 2023 State Freight Plan, https://idot.illinois.gov/programs-and-projects/rail-and-freight/illinois-state-freight-plan.html

[6] IDOT District 9 Freight Plan https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/reports/opp/freight/district-fp/District%209%20Freight%20Plan%20Final%2020240409.pdf

- Safety. Enhance safety for all users of the transportation system.
- Reliable. Maintain a transportation network that is efficient and dependable.
- Connected. Maximize mobility and connect communities through multimodal transportation options.
- Innovative. Leverage technology and creative solutions to build a future-ready transportation network.
- Prosperous. Drive economic growth through transportation investments.

The SEMPO multimodal freight plan will be informed by the contents of this plan. Areas of particular interest include:

- Recommendations
- Performance metrics
- Freight flow analysis
- Truck parking memorandum
- Public port economic impact analysis

SEMPO 2050 Metropolitan Transportation Plan

The SEMPO 2050 MTP serves as the blueprint for the region's transportation future, identifying key challenges, opportunities, and priorities over the next two decades to ensure SEMPO's planning efforts align with the evolving demands of the community.[7] The MTP is SEMPO's long-range transportation plan and meets the federal requirements of 23 USC 134 and 23 CFR 450.324.

The MTP developed six goals with objectives and strategies for the region.

- Accessibility. Provide transportation options that are accessible to all users.
- Economic Enhancement. Support economic resiliency and prosperity with transportation solutions.
- Environmental Protection. Conduct transportation-related activities in a manner that supports responsible management of the environment.
- Public Involvement. Promote the coordination of transportation-related activities and the effective engagement of stakeholders.
- Safety. Ensure the safety of all users of the transportation system, regardless of mode.
- System Management. Facilitate efficient management of the transportation system, with an emphasis on preserving the existing system and ensuring reliability.

The MTP is the foundation for the multimodal freight plan. Therefore, multiple aspects of the MTP will inform the multimodal freight plan, including:

- Goals, objectives and strategies
- Performance metrics
- Performance analysis

[7] SEMPO 2050 Metropolitan Transportation Plan

3 Regional Freight Vision, Goals, and Objectives

SEMPO developed the 2050 Metropolitan Transportation Plan (MTP) and the Freight Plan (FP) to guide its multimodal investments for the next 20 years. The MTP is the foundation for the FP and establishes the overarching Vision for the region.

> *The SEMPO Metropolitan Planning Area (MPA) is a growing and thriving center for business, education, health care, and culture, which is supported by a safe, efficient, dependable, equitable, and innovative multimodal transportation network that facilitates an integrated approach to land use and development.*

The FP builds on the goals and strategies established in other efforts, including the U.S. Department of Transportation (USDOT) National Freight Plan, Missouri Department of Transportation 2026 State Freight and Rail Plan (SFRP), Illinois Department of Transportation 2023 State Freight Plan (SFP), and the MTP to support meaningful progress towards the Vision.[8]

These plans were developed with robust public and freight stakeholder engagement. Freight stakeholders identified a need for safe, reliable, efficient, and connected multimodal transportation network where their cargo was secure. They identified emerging technology and near-shoring as supply chain trends that could benefit the region's economy and public agencies should be preparing for that now. Six themes emerge when comparing these plans' goals as shown in Table 1.

Table 1 Goal Comparison from Prior Planning Documents

Goals Category	IDOT 2023 State Freight Plan (SFP)	MoDOT 2026 Statewide Freight & Rail Plan (SFRP)	SEMPO 2050 Metropolitan Transportation Plan (MTP)
Safety	Make investments and implement policies that improve the safety, resiliency, and reliability of access to the multimodal freight system.	Enhance safety for all users of the transportation system.	Ensure the safety of all users of the transportation system, regardless of mode.
Reliability & System Management	Implement a data informed approach to freight asset management, preservation of the multimodal freight system, and stewardship of public funds.	Maintain a transportation network that is efficient and dependable. Preserve the assets and services currently in place.	Facilitate efficient management of the transportation system, with an emphasis on preserving the existing system and ensuring reliability.

[8] The Infrastructure and Investment and Jobs Act (IIJA) enacted in 2021 defined criteria for state freight plans, however, it does not establish any requirements for the metropolitan planning organization freight plan. Therefore, the national goals and policies are incorporated in the SEMPO freight plan through the SFRP and the SFP.

Innovation	Prioritize the development of plans and policies and deployment of innovative technologies, that help achieve the vision of the State Freight Plan.	Leverage technology and creative solutions to build a future-ready transportation network.	None
Funding & Economic Enhancement	None	Drive economic growth through transportation investments.	Support economic resiliency and prosperity with transportation solutions.
Environmental Stewardship & Social Equity	Incorporate socioeconomic and environmental impacts into freight related decision-making.	None	Conduct transportation-related activities in a manner that supports responsible management of the environment and ensures the fair treatment of all people.
Coordination & Engagement	Drive collaboration and foster partnerships with public agencies and private-sector freight stakeholders throughout Illinois.	Maximize mobility and connect communities through multimodal transportation options.	Promote the coordination of transportation-related activities and the effective engagement of stakeholders. Provide transportation options that are accessible to all users.

Informed by the prior planning document comparison, six goals aligning with these themes were developed for the SEMPO freight plan. These freight plan goals and the corresponding goals in the MTP that guide SEMPO's investment and policy decisions are shown in Table 2. These resulting goals incorporate the freight stakeholder needs for a safe, reliable, and interconnected transportation system that is preparing for supply chain trends with the understanding that the system must support the quality of life desired by the residents of the region.

Table 2. Alignment of SEMPO MTP and Freight Plan Goals

Goals Theme	SEMPO 2026 Metropolitan Transportation Plan (MTP)	2026 SEMPO Freight Plan
Safety	Ensure the safety of all users of the transportation system, regardless of mode.	Ensure the safety of all users of the transportation system as they interact with the regions freight network and assets.
Reliability & System Management	Facilitate efficient management of the transportation system, with an emphasis on preserving the existing system and ensuring reliability.	Optimize the reliability of the multimodal freight network by prioritizing the maintenance of existing infrastructure and leveraging data to improve system efficiency.
Innovation	None	Adopt and support innovative technologies and "future-ready" operational strategies that enhance the efficiency, security, and resiliency of freight movement.
Funding & Economic Enhancement	Support economic resiliency and prosperity with transportation solutions.	Strengthen the regional economy by targeting transportation investments that support freight-dependent industries and improve the global competitiveness of local businesses.
Environmental Stewardship & Social Equity	Conduct transportation-related activities in a manner that supports responsible management of the environment and ensures the fair treatment of all people.	Minimize the environmental and community impacts of freight operations while ensuring equitable access to economic opportunities and the fair treatment of all residents.
Coordination & Engagement	Promote the coordination of transportation-related activities and the effective engagement of stakeholders. Provide transportation options that are accessible to all users.	Foster proactive collaboration between public agencies and private-sector stakeholders to ensure freight planning is integrated, transparent, and responsive to regional needs.

Objectives were developed to define measurable outcomes to help SEMPO reach those goals. These objectives were informed by the SFRP and the MTP and are shown in Table 3. As additional data analysis and stakeholder engagement is completed to identify needs and performance metrics, actionable strategies will be identified for each objective to detail an approach to meet these desired outcomes.

Table 3 Freight Plan Objectives Aligned with Goals

Goals Theme	Freight Plan Goal	Objective
Safety	Ensure the safety of all users of the transportation system as they interact with the regions freight network and assets.	• Reduce the number of crashes involving freight vehicles. • Reduce the number of modal conflicts. • Enhance safety and security at transportation mode connection points. • Consider truck parking utilization and gaps during needs identification. • Invest in safety improvements to reduce fatalities and serious injuries for all modes.
Reliability & System Management	Optimize the reliability of the multimodal freight network by prioritizing the maintenance of existing infrastructure and leveraging data to improve system efficiency.	• Increase the reliability of the transportation system in bottleneck areas. • Enhance emergency and alternative routes to maintain the movement of goods during disruptions. • Provide a transportation system in a state of good repair. • Provide reliable and accessible intermodal connections. • Consider first and last mile freight connections during needs identification. • Reduce the cost burden of managing the system through life-cycle analysis.

Goals Theme	Freight Plan Goal	Objective
Innovation	Adopt and support innovative technologies and "future-ready" operational strategies that enhance the efficiency, security, and resiliency of freight movement.	• Integrate traffic management systems and vehicle detection systems to monitor and improve traffic congestion. • Explore technology that result in lower life-cycle costs. • Reduce dependence on fossil fuels in freight transportation.
Funding & Economic Enhancement	Strengthen the regional economy by targeting transportation investments that support freight-dependent industries and improve the global competitiveness of local businesses.	• Explore and support stable funding to support the current multimodal system and services. • Support projects that provide demonstrated economic benefit. • Increase sites meeting criteria for MoDED Certified Sites Program. • Identify and fund regional freight industry transportation needs.
Environmental Stewardship & Social Equity	Minimize the environmental and community impacts of freight operations while ensuring equitable access to economic opportunities and the fair treatment of all residents.	• Enhance the transportation system by avoiding, minimizing, or mitigating impacts to natural and cultural resources. • Improve air quality.

Goals Theme	Freight Plan Goal	Objective
Coordination & Engagement	Foster proactive collaboration between public agencies and private-sector stakeholders to ensure freight planning is integrated, transparent, and responsive to regional needs.	• Support the sharing of information among transportation agencies. • Increase partnership coordination with businesses, transportation service providers, and other sectors to identify what transportation projects can better support local economies. • Increase communications with public on benefits of efficient freight transportation to their daily lives.

This vision, goals, and objectives will set the stage for strategic investments and measurable progress for the region.

4 Freight Assets

The Cape Girardeau-Jackson Metropolitan area serves as a critical junction for freight, moving goods such as agricultural products, plastics, chemicals, grain, and cement. The primary freight assets include the highway network, which connects with the M-55 Marine Highway and is part of the National Waterway System, and includes railroads which all converge at the SEMO Port. This section explores the freight assets that make up the truck route network, railroads, waterway and intermodal connections for the study area. It provides a comprehensive assessment of the freight network and its impact on the area. It begins by examining the truck route network, differentiating between designated and restricted routes, and evaluates the availability of truck parking and staging areas. It then examines the railroads, air cargo, and waterways within the intermodal network.

Truck Route Network

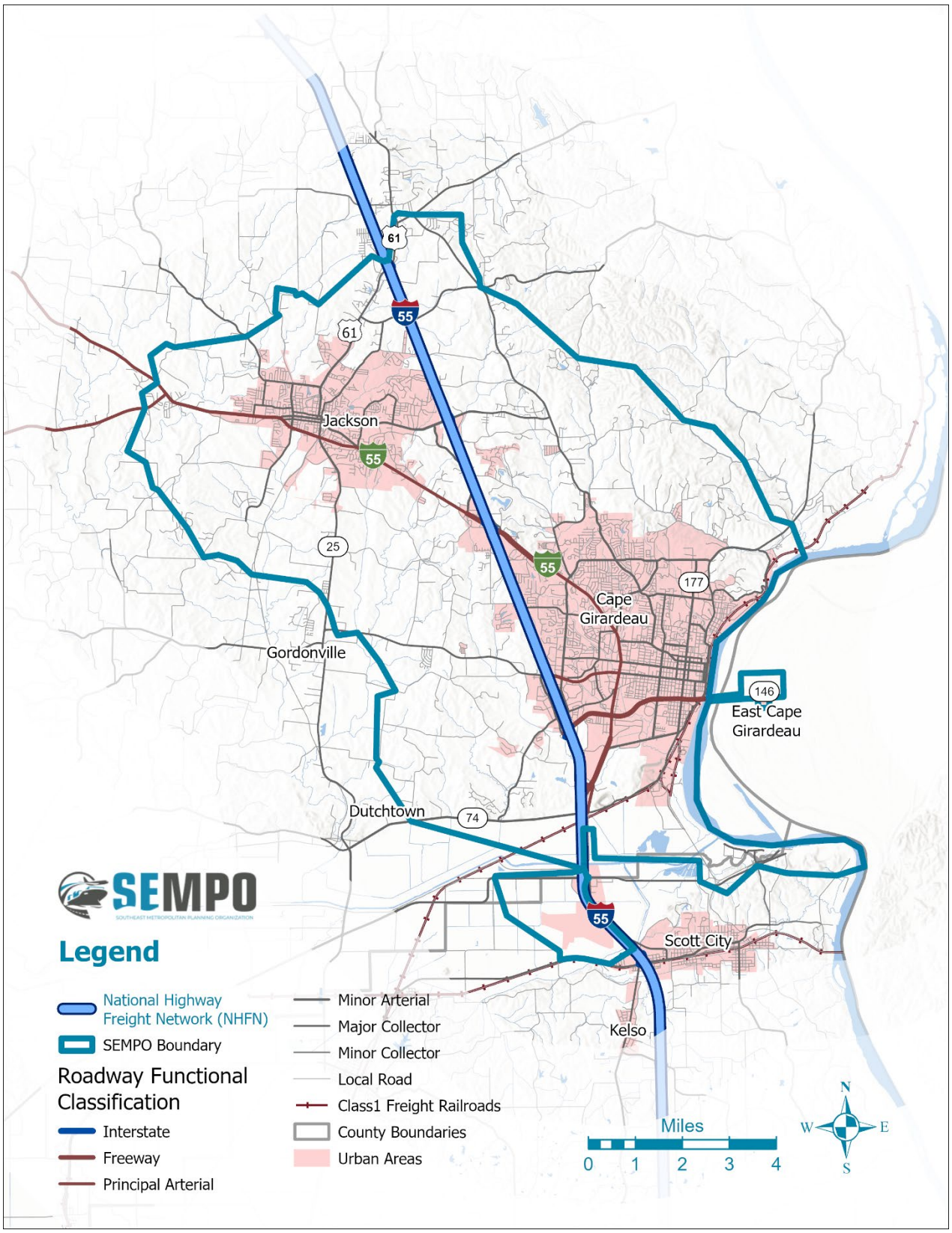
The regional truck network within the SEMPO planning area serves as a critical nexus for multimodal commerce, integrating long-haul interstate movements with local industrial access. This hierarchy of roadways is designed to facilitate the efficient flow of goods between production centers, such as the industrial clusters in Jackson and Cape Girardeau with broader domestic markets. Beyond the primary interstate system, the network relies on a series of principal arterials and minor collectors to manage "last-mile" delivery and regional distribution. These last-mile connections are vital for the economic health of the area, as they bridge the gap between high-capacity freight corridors and specific destinations like the Southeast Missouri (SEMO) Port, regional manufacturing plants, and retail centers. Ensuring adequate transitions between these tiers of infrastructure is essential for reducing congestion and maintaining the competitive advantage of the region's freight-dependent industries.

Central to this regional infrastructure is the National Highway Freight Network (NHFN), a federally designated system established to strategically direct resources toward improved freight movement. As defined by the Federal Highway Administration, the NHFN comprises the Primary Highway Freight System (PHFS), non-PHFS interstates, and critical rural and urban freight corridors (Federal Highway Administration [FHWA], 2022)[9]. Within the SEMPO boundary, as illustrated in Figure 2, the NHFN is represented by the Interstate 55 corridor. I-55 functions as the region's primary freight artery, providing the high-volume capacity necessary for interstate trade while serving as the anchor for the area's urban and rural freight connectors (Bureau of Transportation Statistics [BTS], n.d.)[10]. The integration of I-55 with local routes like BUS-55, MO-74 and US-61 ensures that freight moving through Southeast Missouri can efficiently transition from the national network to the local grid, supporting both regional throughput and essential last-mile operations.

[9] Federal Highway Administration. (2022). *National Highway Freight Network*. U.S. Department of Transportation. https://ops.fhwa.dot.gov/freight/infrastructure/nfn/index.htm

[10] Bureau of Transportation Statistics. (n.d.). *National Highway Freight Network (NHFN)*. U.S. Department of Transportation. https://geodata.bts.gov/datasets/usdot::national-highway-freight-network-nhfn/about

Figure 2: National Highway Freight Network (NHFN)



Strategic Highway Network (STRAHNET)

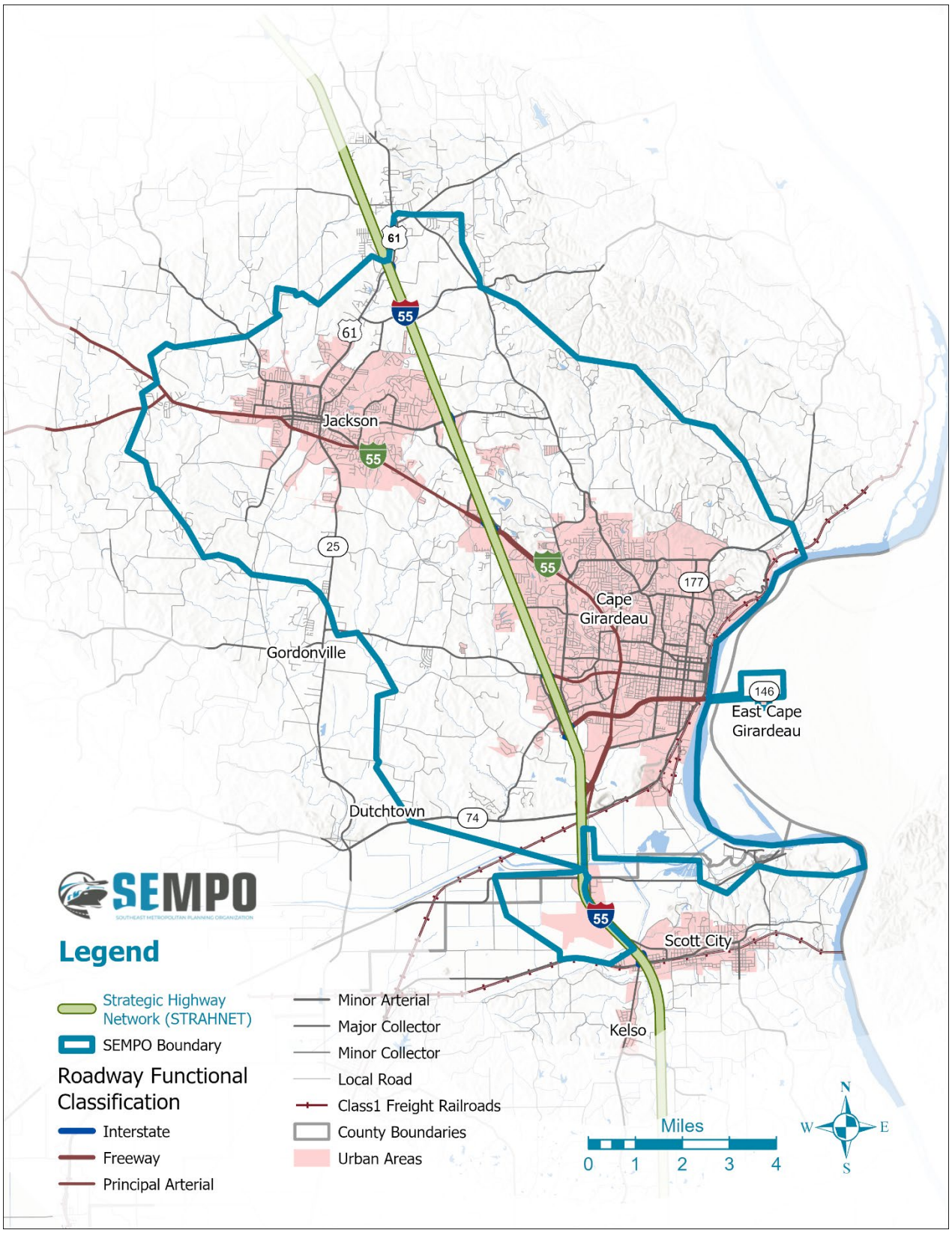
The Strategic Highway Network (STRAHNET) is a federally designated system of public highways essential to the United States' national defense policy. Managed by the Federal Highway Administration (FHWA) in direct coordination with the Department of Defense (DOD), the STRAHNET serves as a critical subsystem of the National Highway System (NHS). It encompasses approximately 62,800 miles of roadway, including the entirety of the Interstate Highway System and an additional 15,500 miles of "connector" routes (Bureau of Transportation Statistics [BTS], n.d.)[11]. These segments are prioritized based on their ability to provide rapid, continuous, and high-capacity mobilization of military personnel and equipment between major installations, ports of embarkation, and other strategic staging areas during both peacetime operations and national emergencies (Federal Highway Administration [FHWA], 2022)[12].

In the context of the SEMPO regional freight profile, the STRAHNET designation is centered on the Interstate 55 corridor; it is the sole facility in the planning area with the STRAHNET classification. This is illustrated in Figure 3 I-55 serves a dual role. It is the primary north-south highway for the MPO, facilitating critical connectivity between the St. Louis and Memphis freight hubs and is a key link in the national security chain, requiring specific design standards and maintenance considerations to support heavy-load military mobilization. While the SEMPO boundary contains a robust network of supporting freight infrastructure—including Class I freight railroads, the Mississippi River marine highway, and principal arterials like US-61 and MO-74, I-55 is a vital conduit for regional commerce and national defense.

[11] Bureau of Transportation Statistics. (n.d.). *Strategic Highway Network (STRAHNET)*. U.S. Department of Transportation. https://geodata.bts.gov/datasets/usdot::strategic-highway-network-strahnet/about

[12] Federal Highway Administration. (2022). *The National Highway System: STRAHNET and Connectors*. U.S. Department of Transportation. https://www.fhwa.dot.gov/planning/national_highway_system/

Figure 3: Strategic Highway Network (STRAHNET)



Designated Truck Routes

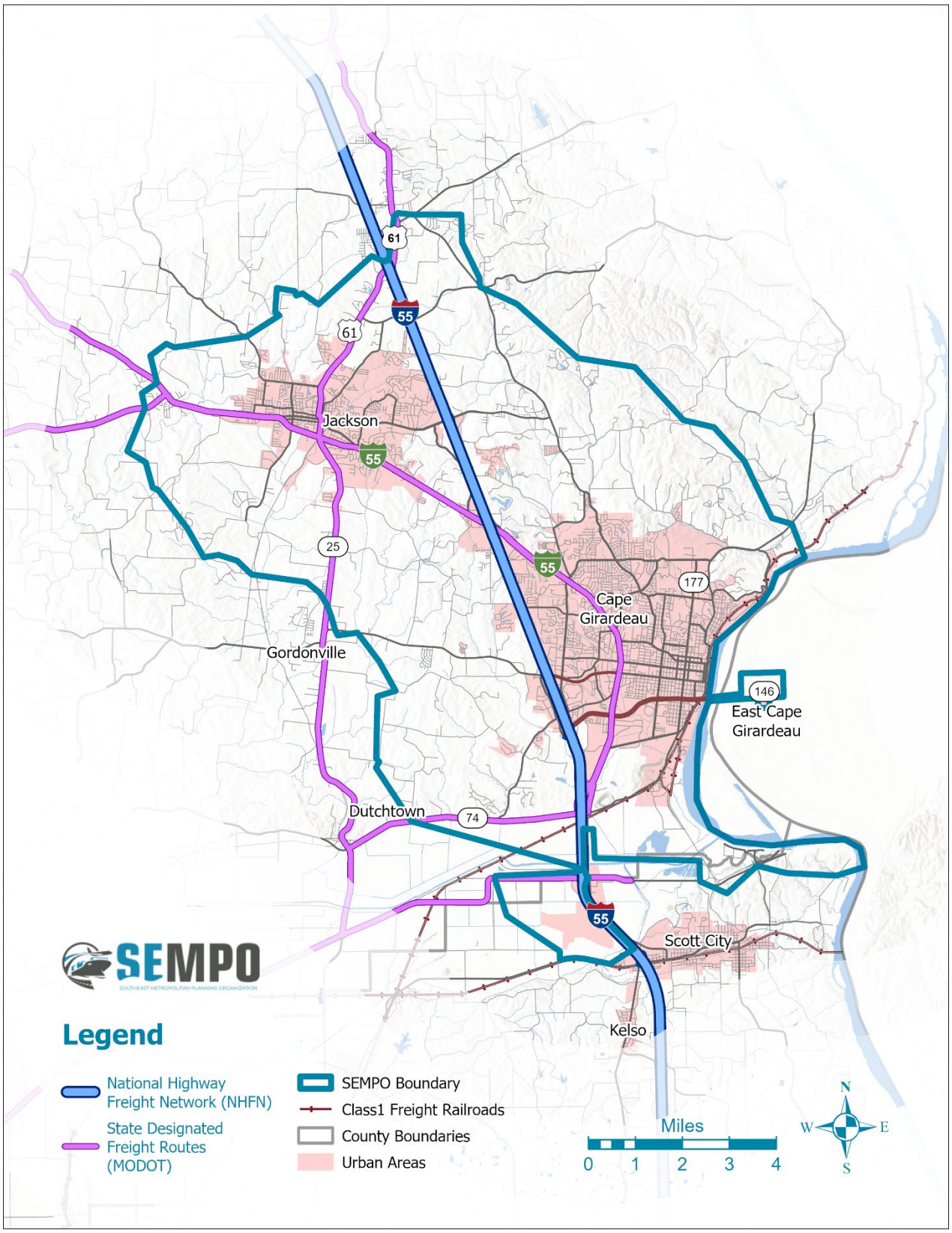
The truck route network in the Cape Girardeau-Jackson Metropolitan Area is fundamentally anchored by Interstate 55, which serves as the primary north-south backbone for the region's freight movement. While I-55 facilitates long-haul transit and connects the region to major national markets, its efficacy is entirely dependent on a robust secondary network of State Designated Freight Routes. These state designated freight routes, highlighted in purple in Figure 4 are engineered to accommodate heavy vehicle configurations and serve as the critical "connective tissue" between the high-capacity National Highway Freight Network and the region's diverse industrial clusters. By bridging the gap between interstate travel and local delivery, these routes ensure that the regional freight network maintains operational fluidity from the corridor level down to the facility gate.

The supporting network within the SEMPO boundary consists of several key arteries that manage both regional distribution and essential last-mile connections:

- BUS-55/ US Route 61 / Kingshighway: Functioning as the primary north-south commercial artery through the urban core, this route provides vital access to retail and light industrial zones in both Jackson and Cape Girardeau.
- MO Route 74 (Shawnee Parkway): This route serves as a high-priority east-west link, connecting the I-55 corridor directly to the Bill Emerson Memorial Bridge. It is a cornerstone for interstate freight crossing the Mississippi River into Illinois.
- MO Route 25 and MO Route 34/72: These designated routes provide essential connectivity for the western portions of the MPO, linking the agricultural and industrial activities in Jackson and Dutchtown to the primary interstate system.
- Route 177: Serving the northeastern industrial sector, this route is critical for heavy vehicle access to specialized manufacturing sites along the riverfront.
- Nash Road: A vital last-mile connector for the southern portion of the region; Nash Road provides the primary heavy-truck access for industrial areas near Scott City and the Cape Girardeau Regional Airport.
- Downtown Connectors (Broadway and Independence Streets): These routes facilitate specialized freight access to the historic downtown and riverfront areas, supporting the unique logistical needs of the local commercial district.

Major industrial traffic is heavily concentrated where these state-designated routes interface with the I-55 corridor, particularly near the regional airport and the established industrial parks. The integration of these MoDOT routes with local access roads ensures that freight can transition efficiently from 70-mph interstate speeds to the precise, lower-speed maneuvers required for last-mile delivery, thereby sustaining the region's economic competitiveness.

Figure 4: Designated Truck Routes



Truck Operational Restrictions and Local Regulations

To preserve infrastructure integrity and maintain public safety, the SEMPO region operates under a tiered system of freight regulations. While the designated truck routes identified in the previous section are engineered for high-volume heavy vehicle traffic, the transition to "last-mile" delivery points often requires navigation through more restrictive local environments. These constraints are governed by Missouri State Law and municipal ordinances, focusing primarily on vehicle geometry and weight-bearing capacity[13] [14].

State-Level Dimensions and Weight

On the non-interstate system and secondary state routes, Missouri standardizes legal limits to prevent premature pavement failure and bridge fatigue. Key restrictions include:

- Vertical Clearance: A standard height limit of 13'6" applies to non-interstate roads, requiring careful route planning for high-cube trailers or specialized industrial equipment.
- Weight Limitations: While the NHFN typically supports up to 80,000 lbs, local and non-interstate routes are often subject to limits ranging from 20,000 lbs to 72,000 lbs, depending strictly on axle configuration and the Federal Bridge Formula.
- Bridge Postings: Specific structures throughout the SEMPO area may carry lower weight ratings, necessitating detours for heavy freight moving toward riverfront industrial zones.

Local Land Use and Sensitive Zone Restrictions

At the municipal level, the City of Cape Girardeau and the City of Jackson utilize "Schedule W" and similar local ordinances to steer heavy commercial traffic away from vulnerable corridors. Notable restrictions are concentrated in three primary areas:

- Residential Neighborhoods: To maintain livability, heavy trucks (exceeding 24,000 lbs) are prohibited from residential side streets unless performing a specific delivery.
- SEMO University: High pedestrian volumes have led to localized traffic calming and truck restrictions to enhance safety.
- Cape Girardeau Downtown Riverfront District: Narrower streets and the historic district nature discourage through-truck traffic, prioritizing freight on MO-74 and US-61.
- Downtown Jackson: US-61 in the downtown Jackson area is not truck friendly due to the several tight turns in the area.

For "last-mile" operations that require access to these restricted zones, drivers are legally mandated to utilize the shortest and most direct path from a designated freight route to their destination. This regulatory structure ensures that while businesses remain accessible, the majority of the region's freight tonnage remains on the high-capacity corridors designed to sustain it[15].

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[13] Missouri Department of Transportation. (2023). *Missouri Oversize/Overweight Permit Regulations*. https://www.modot.gov/OSOW

[14] Missouri Revised Statutes. (n.d.). *Section 304.180: Regulations as to weight, axle load, and quintaxle groups*. https://revisor.mo.gov/main/OneSection.aspx?section=304.180

[15] City of Cape Girardeau. (2025). *Code of Ordinances: Section 26-137, Truck Traffic Prohibited*. Municode Library. https://library.municode.com/mo/cape_girardeau

Truck Parking Locations

Truck parking availability is a fundamental component of the SEMPO regional freight ecosystem, directly impacting the safety of the traveling public and the operational efficiency of the logistics supply chain. For commercial drivers, access to secure, designated parking is not merely a convenience but a regulatory necessity. Under federal hours of service (HOS) regulations, drivers must adhere to strict driving and rest windows; a lack of available parking often forces drivers to continue operating while fatigued or to park illegally on highway shoulders and off-ramps, creating significant safety hazards (Federal Motor Carrier Safety Administration [FMCSA], 2024)[16]. Consequently, the provision of adequate parking and staging areas is a priority for ensuring reliable delivery times and maintaining high turnaround percentages for regional industries.

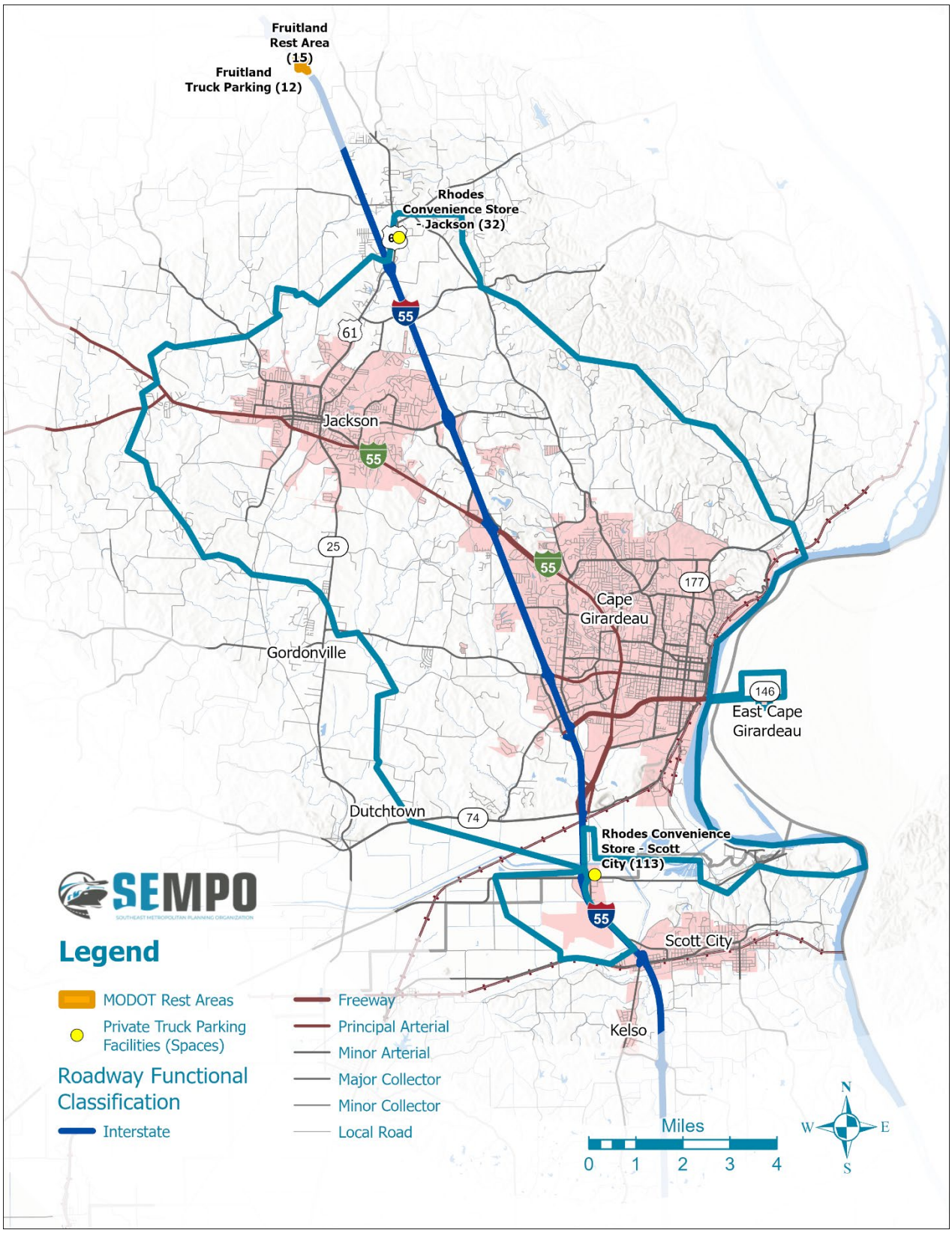
As illustrated in Figure 5: Truck Parking Facilities in the SEMPO area utilize a combination of public rest areas and private commercial facilities to meet this demand, primarily clustered along the I-55 corridor:

- **Public Facilities (MoDOT):** To the north of the planning area, the Fruitland Rest Area and dedicated **Fruitland Truck Parking** provide a combined 27 spaces. These public assets serve as vital safety valves for long-haul drivers entering or exiting the SEMPO region.
- **Private Commercial Facilities:** Most of the region's high-capacity parking is provided by the private sector. The Rhodes Convenience Store in Scott City serves as the primary regional anchor with 113 spaces, offering full-service amenities and staging capabilities for trucks destined for the SEMO Port or southern industrial zones. To the north, the Rhodes Convenience Store in Jackson provides an additional 32 spaces, supporting the industrial clusters near the US-61 interchange.
- **Staging and Last-Mile Integration:** Beyond overnight parking, these facilities function as critical staging areas. They allow drivers to time their arrivals at local manufacturing plants and distribution centers, reducing congestion at the "last-mile" delivery point and minimizing the impact of heavy vehicle idling within urbanized areas.

While these primary facilities offer approximately 172 designated spaces within the immediate vicinity, the Plan recognizes that unauthorized staging at local retail lots or industrial cul-de-sacs remains a challenge. Continued coordination between MoDOT, local municipalities, and private developers is essential to expand parking capacity in alignment with projected freight volume growth.

[16] Federal Motor Carrier Safety Administration. (2024). *Summary of Hours of Service Regulations*. U.S. Department of Transportation. https://www.fmcsa.dot.gov/regulations/hours-service/summary-hours-service-regulations

Figure 5: Truck Parking Facilities



Railroad Network and Intermodal Facilities

The SEMPO region functions as a vital multimodal gateway, where the intersection of Class I rail carriers and local switching operations facilitates the movement of heavy bulk and containerized freight. The network is anchored by two Class I railroads—BNSF Railway and Union Pacific (UP)—and the SEMO Port Railroad (SE), a common carrier switching operation that provides the essential "last-mile" link between the national rail grid and regional industrial tenants.

Railroad Lines and Operations

As shown in Figure 6: Railroads, Railroad Crossings, and Rail Yards, the regional rail infrastructure is characterized by high-capacity corridors that parallel the Mississippi River and extend into the industrial heart of Scott City and Cape Girardeau.

- SEMO Port Railroad (SE): Established in 1994, SE operates on a strategic six-mile segment (formerly a UP branch line) with a harbor extension. SE provides critical interchange services with UP and BNSF. Notably, the SE infrastructure is engineered to handle modern freight demands, supporting car weights up to 287,000 pounds and maintaining vertical clearances of 20'3" to accommodate double-stack container movements.
- BNSF Railway: The BNSF main line runs north-south through Cape Girardeau, connecting the region to the St. Louis and Memphis hubs. This line serves as a primary conduit for transcontinental freight moving toward Chicago, the Pacific Northwest, and Gulf Coast ports.
- Union Pacific (UP): UP operations are centered near the double-track bridge south of Scott City. This corridor provides high-volume connectivity to North Little Rock, Dallas, and Mexico to the south, and Chicago and Kansas City to the north.

Railroad Crossings and Safety

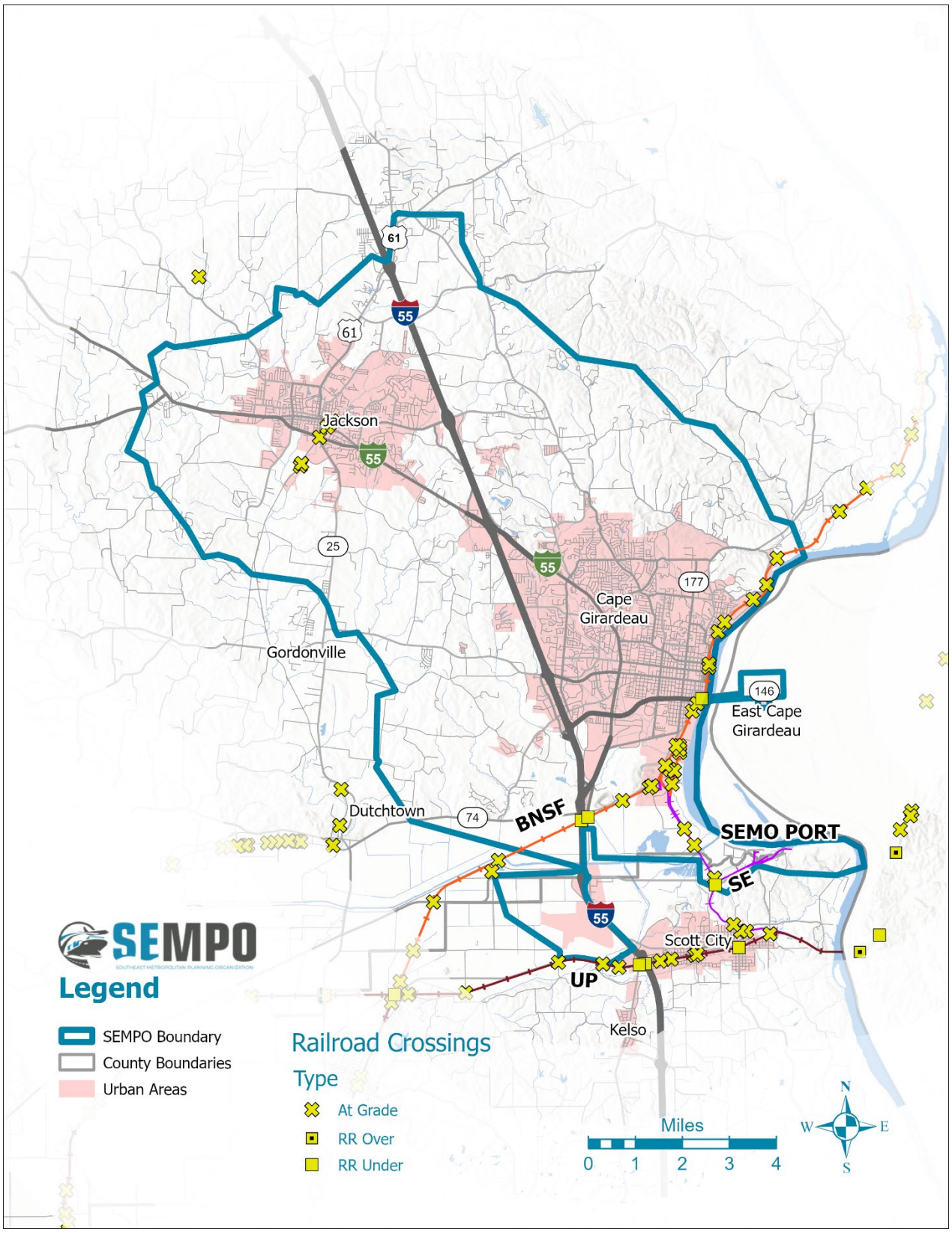
The SEMPO region features a high density of rail crossings, particularly along the riverfront and industrial spurs. The management of these interfaces is a primary safety and operational concern for the MPO.

- Crossing Density: Significant at-grade crossings are concentrated along the riverfront (Water St. and Main St.) and within the industrial zones of Scott City.
- Safety Risks: A substantial number of "passive crossings"—those lacking gates or flashing signals—exist in the rural outskirts. These locations pose an elevated risk for collisions, especially in low-visibility conditions.
- Emergency Service Impacts: Blocked crossings represent a critical friction point. Regional data indicates approximately 3,134 annual incidents of blocked traffic. These delays can last up to an hour, potentially isolating neighborhoods and forcing emergency responders (EMS, Fire, Police) into lengthy detours that jeopardize response times.

Rail Yards and Highway Connectivity

Rail yard activity is concentrated near the SEMO Port and the Scott City interchange, where the SE, UP, and BNSF lines converge. These yards serve as the primary staging areas for breaking down long-haul trains into local deliveries. Their proximity to I-55 and MO-74 allows for efficient drayage operations, enabling freight to transition from rail to truck for final distribution to regional manufacturing centers.

Figure 6: Railroads, Railroad Crossings, and Rail Yards

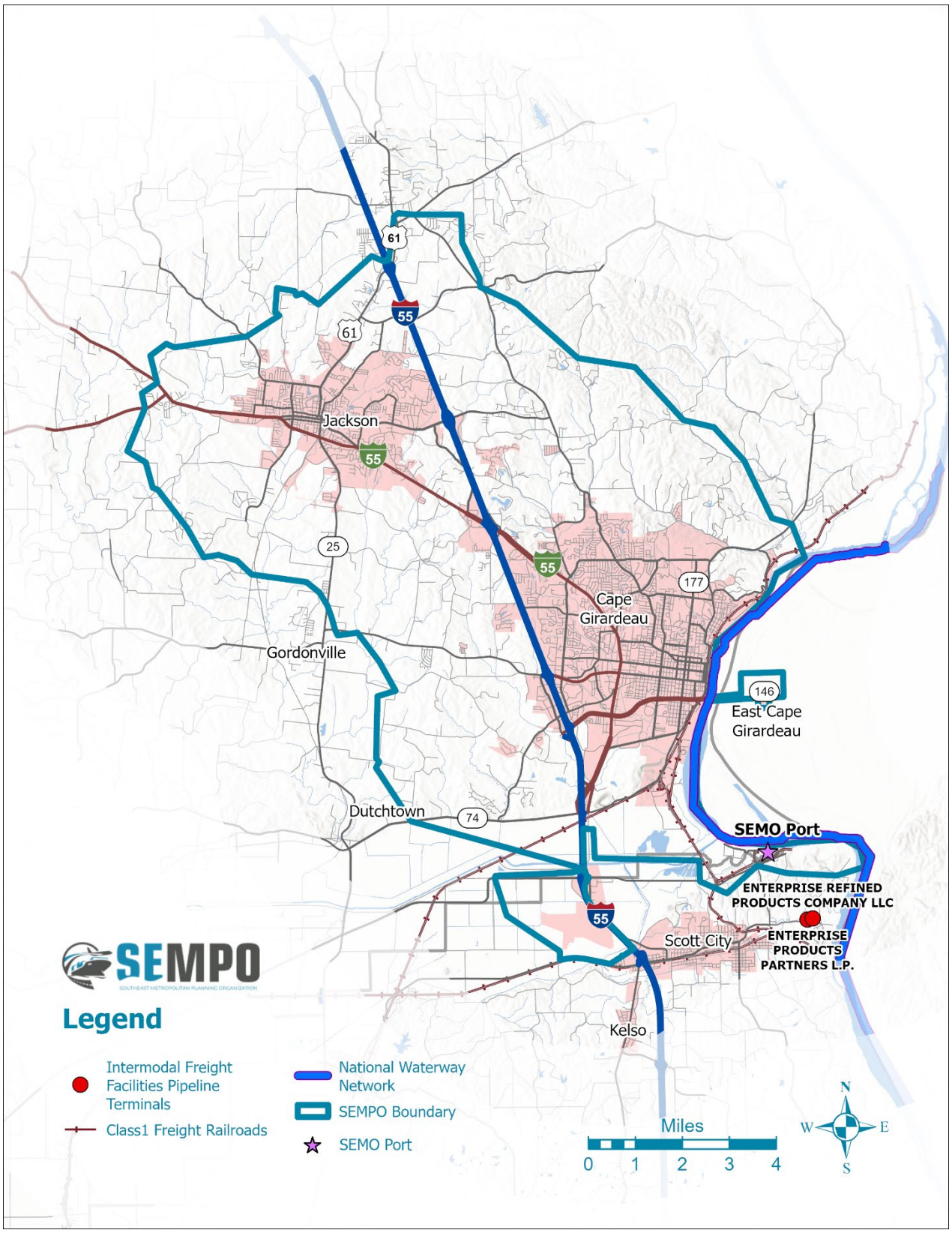


Intermodal Facilities and River Ports

The SEMPO region's competitive advantage lies in its ability to facilitate transitions between rail, highway, and waterborne freight. As illustrated in Figure 7: Intermodal Facilities and Port Locations, these assets are clustered along the Mississippi River, leveraging the National Waterway Network.

- SEMO Port (Southeast Missouri Regional Port): The Port serves as the primary intermodal hub in the region. By integrating the SEMO Port Railroad with barge access on the Mississippi River, the facility allows for the efficient transload of bulk commodities (such as grain, chemicals, and steel). Its direct connection to the state-designated truck network via Nash Road ensures that waterborne freight can rapidly reach the Interstate System.
- Pipeline Terminals: The regional intermodal profile is further bolstered by energy infrastructure. Facilities such as Enterprise Refined Products Company LLC and Enterprise Products Partners L.P. near Scott City represent critical nodes where pipeline, rail, and truck modes intersect. These terminals are vital for the regional distribution of refined petroleum and chemical products.
- Regional Connectivity: The synergy between the SEMO Port, the Class I rail lines, and the I-55 corridor creates a high-functioning "freight triangle." This multimodal density reduces overall logistics costs for local industries and positions the Cape Girardeau-Jackson area as a major inland port of significance within the Mid-Mississippi Valley.

Figure 7: Intermodal Facilities and Port Locations



Air Cargo and Aviation Facilities

While the SEMPO region does not currently host a dedicated primary air cargo hub, aviation infrastructure remains a key component of the regional multimodal landscape. Air cargo is typically reserved for high-value, time-sensitive shipments, and the region's ability to access the global air freight network is dictated by its highway connectivity to major national cargo hubs. In the context of the regional freight market, the local aviation assets serve primarily as secondary support facilities, while long-haul air freight is funneled through the larger regional gateways in the Midwest.

Local Aviation Infrastructure

As illustrated in Figure 8: Airport Locations, the regional aviation network is anchored by the Cape Girardeau Regional Airport (CGI). Situated at the southern edge of the SEMPO boundary near Scott City, CGI offers direct proximity to the Interstate 55 and US-61 corridors. While the airport primarily facilitates general aviation and commercial passenger service, its strategic location adjacent to major industrial parks and the SEMO Port creates long-term potential for integrated express or small-package freight staging.

In addition to CGI, the regional aviation profile includes critical life-safety and high-value logistics nodes through several helipads, including those at St. Francis Medical Center (MO50) and Southeast Health (MU10). These facilities provide specialized, immediate-response air transport for medical supplies and time-critical logistics that support the regional healthcare cluster.

Regional Air Cargo Gateways and Connectivity

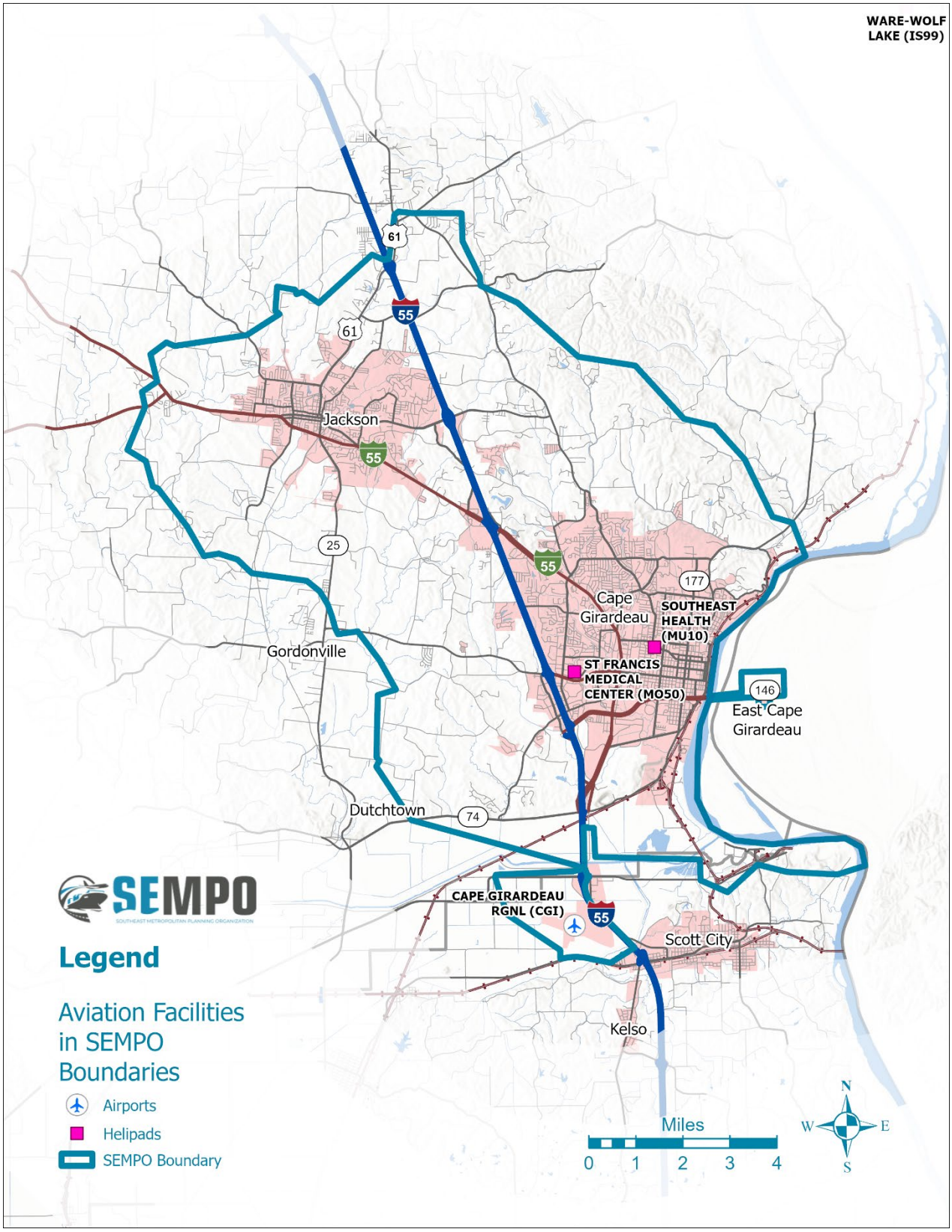
The SEMPO region's air cargo demand is largely met through high-speed "surface-to-air" drayage operations. Freight generated within Cape Girardeau and Jackson is typically consolidated into truckloads and transported via the National Highway Freight Network (NHFN) to several major air cargo centers within a 200-mile radius:

- St. Louis Lambert International (STL): The primary northern gateway for regional belly cargo and dedicated freight services.
- Memphis International (MEM): One of the busiest cargo airports globally and a primary hub for FedEx Express, reachable via the I-55 corridor.
- Nashville International (BNA): A major eastern hub for cargo and logistics operations.
- Springfield-Branson National (SGF): A secondary regional node for air freight in Southwest Missouri.

The efficiency of air cargo for SEMPO-based industries is therefore intrinsically linked to the reliability of the I-55 corridor. Any congestion or infrastructure degradation on the regional highway network directly impacts the "last-flight" connectivity for local manufacturers who rely on these larger hubs for international trade and just-in-time delivery (Federal Aviation Administration [FAA], 2024)[17]

[17] Federal Aviation Administration. (2024). *National Plan of Integrated Airport Systems (NPIAS) 2025–2029*. U.S. Department of Transportation.

Figure 8: Airport Locations



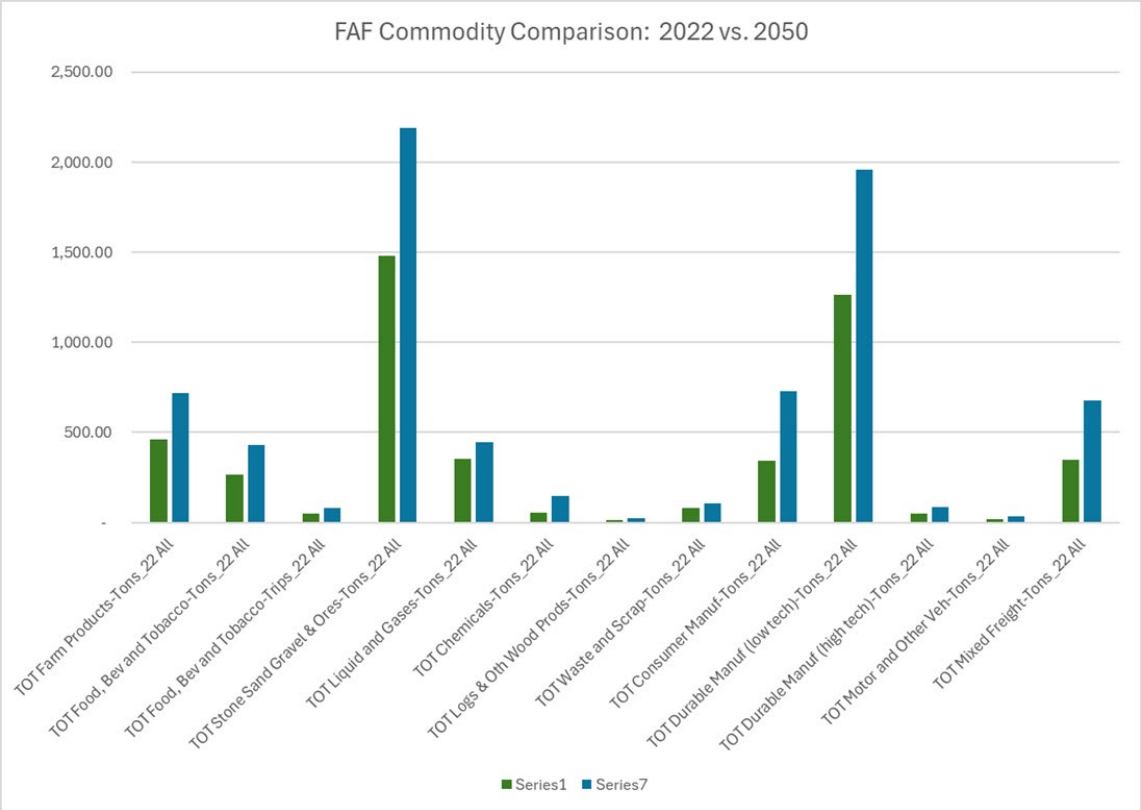
5 Commodity Flow Analysis

The study team used the Federal Highway Administration (FHWA) Freight Analysis Framework Version 5.0 (FAF5) as one of several sources to forecast truck commodity flows into, from, and through the SEMPO region. Note that all tons estimated by FAF are in annual thousands of units and all trips are daily total truck trips. FAF5 anticipates a significant increase in daily truck flows from the base year of 2022 to the horizon year of 2050 on key roadways throughout the SEMPO region. As summarized in Table 4, daily truck trips with origins and destinations in Cape Girardeau, MO are anticipated to increase from roughly 555 to 910 over the period 2022-2050, while annual truck tons will likely increase from 4,700 to 7,500 over this same period. In both analysis years, according to FAF, the top commodity group in the region is stone, sand, gravel, and ores. Figure 9 is a bar chart comparison of FAF truck tons to/from Cape Girardeau County, MO.

Table 4: FAF Truck Trips and Tons to/from Cape Girardeau County, MO

Metric	2022 FAF	2050 FAF	FAF Diff
Truck Trips (Daily)	554.89	910.49	355.60
Truck Tons (Annual)	4,747.75	7,544.20	2,796.45
Top Commodity, Tons: Stone Sand Gravel & Ores (Both Years)	1,481.83	2,190.13	708.30

Figure 9: Bar Chart Comparison of FAF Truck Tons to/from Cape Girardeau County, MO



Other top commodities flowing in and out of Cape Girardeau County, for both analysis years, include durable manufactured (low tech) products, mixed freight, consumer manufacturing, liquid and gases, and farm products.

Estimated daily directional 2022 and 2050 FAF truck flows are depicted in Figure 10 and Figure 11, respectively. These maps are more useful in showing flows through Cape Girardeau County as FAF only includes one "centroid connector" for the entire county, with all truck trips loading onto Business Loop 55 southeast of the I-55 interchange. As expected, the highest truck volumes are anticipated to be on the I-55 corridor, in both analysis years.

Figure 10: 2022 FAF Truck Trips in Cape Girardeau County, MO

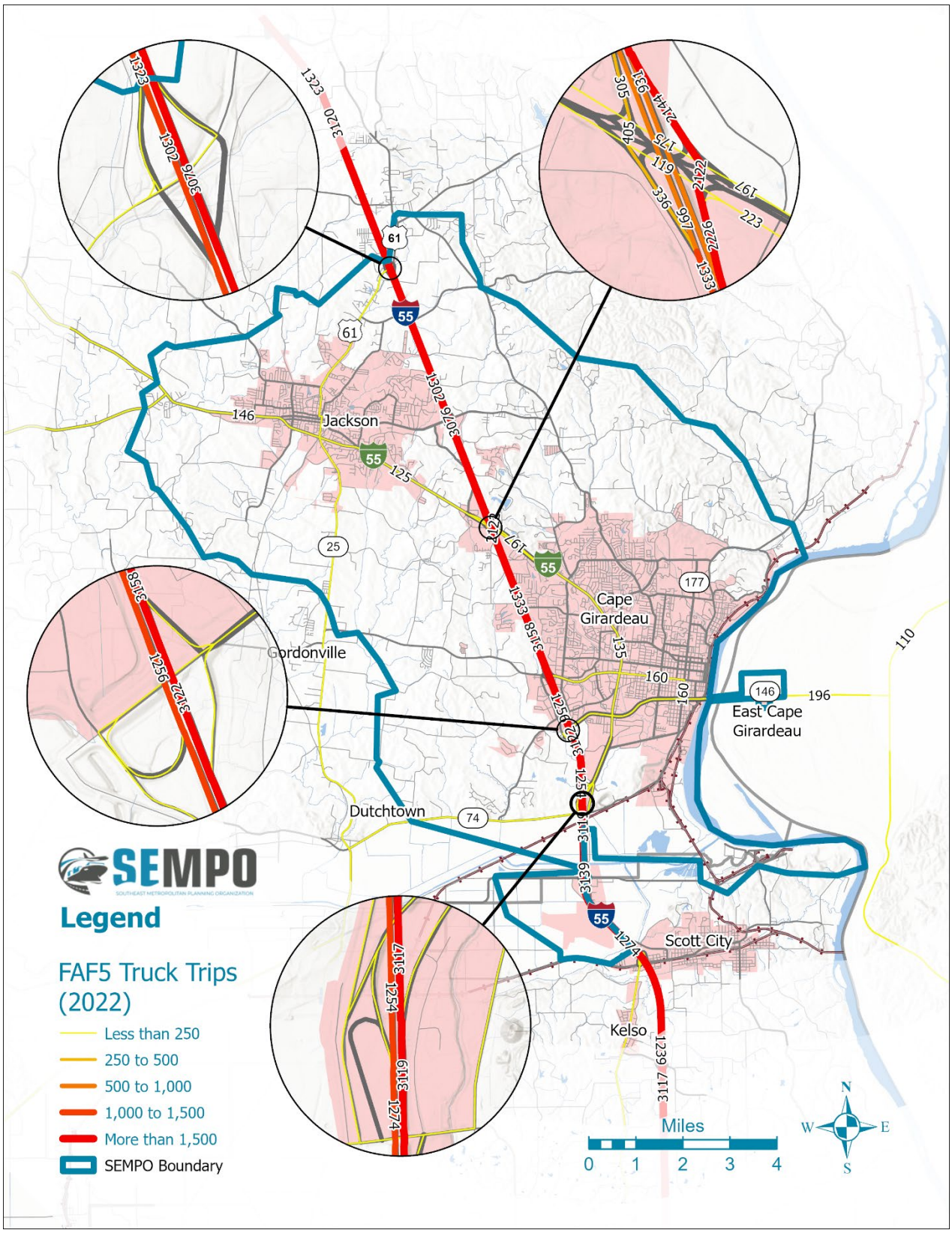
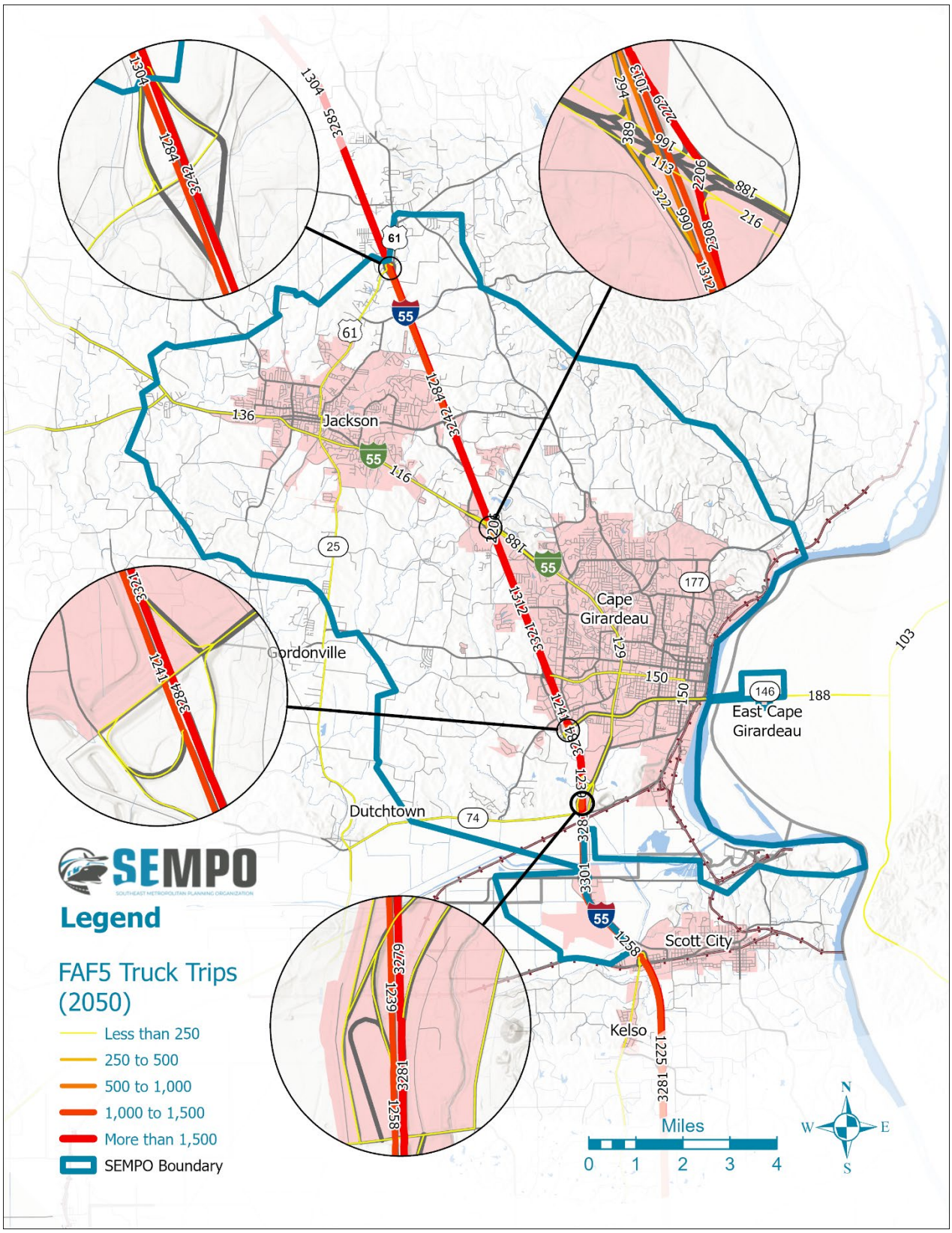


Figure 11: 2050 FAF Truck Trips in Cape Girardeau County, MO



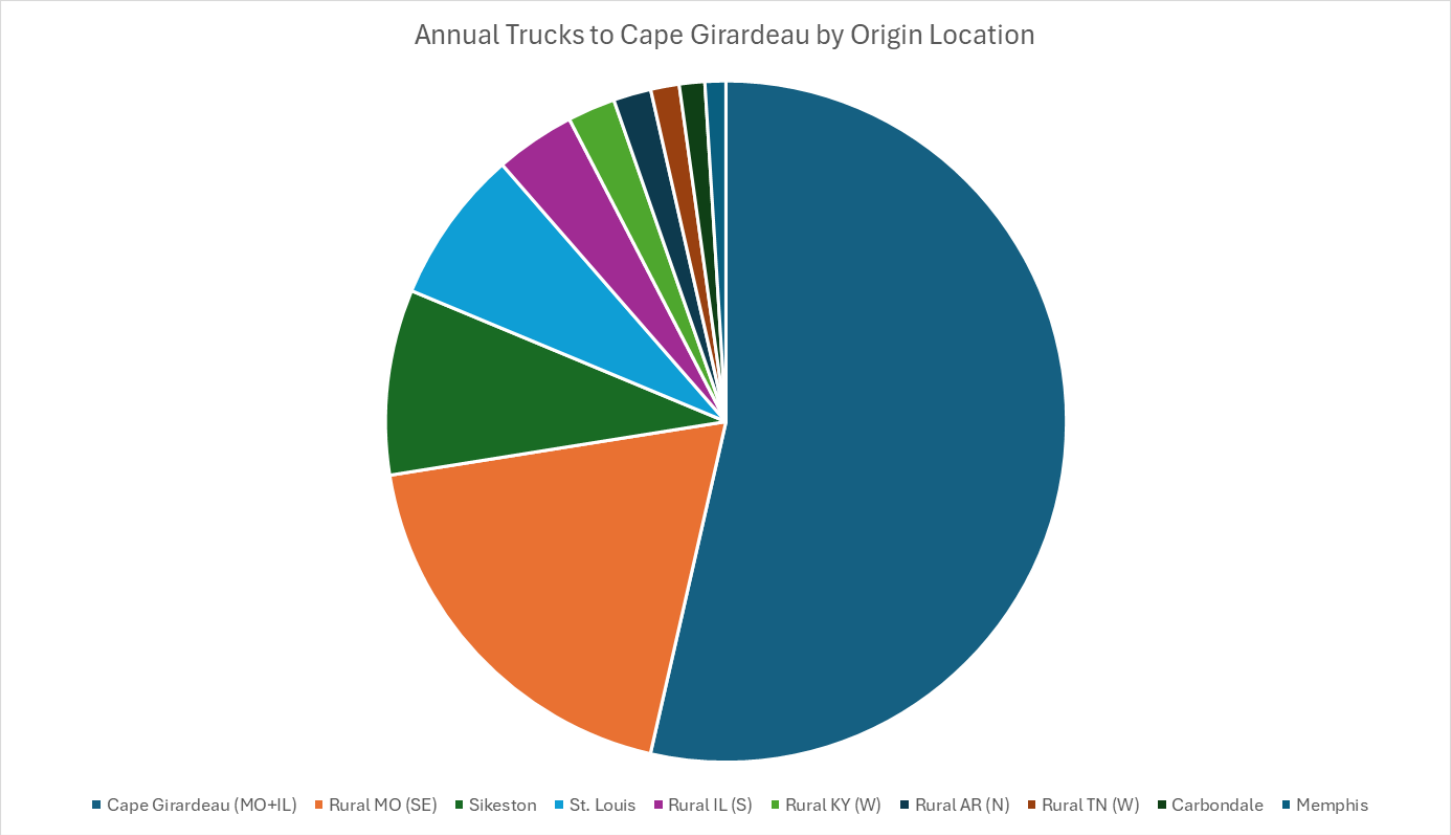
6 Origin/Destination Analysis (OD) Analysis

2022 NextGen NHTS (National Household Travel Survey) Origin/Destination (O/D) Data were used to better understand the long distance travel patterns of truck trips that begin or end in the Cape Girardeau region. NextGen data are derived from passive big data housed at the University of Maryland's CATT (Center for Advanced Transportation Technology) Laboratory. Data can be reported at zones comprising metropolitan areas in the U.S. Not surprisingly, NextGen data shows that over 50 percent of annual truck trips originating in Cape Girardeau remain within the region. The second most common destination for SEMPO area truck trips are rural zones within Missouri, followed by trips to Sikeston, St. Louis, and rural Illinois. Table 5 provides annual truck trip estimates from 2022 Next Gen NHTS by urban area while Figure 12 depicts the same data in a pie chart format.

Table 5: NHTS NextGen 2022 Annual Truck Trip Origins and Destinations

MSA Rank	*Origin Zone Name*	*Destination Zone Name*	*Annual Total Trips*	*Daily Trucks*	*Percent*
1	Cape Girardeau (MO+IL)	Cape Girardeau (MO+IL)	709,277	1,943	53.6%
2	Rural MO (SE)	Cape Girardeau (MO+IL)	250,531	686	18.9%
3	Sikeston	Cape Girardeau (MO+IL)	116,386	319	8.8%
4	St. Louis	Cape Girardeau (MO+IL)	96,876	265	7.3%
5	Rural IL (S)	Cape Girardeau (MO+IL)	50,322	138	3.8%
6	Rural KY (W)	Cape Girardeau (MO+IL)	30,028	82	2.3%
7	Rural AR (N)	Cape Girardeau (MO+IL)	23,702	65	1.8%
8	Rural TN (W)	Cape Girardeau (MO+IL)	17,922	49	1.4%
9	Carbondale	Cape Girardeau (MO+IL)	15,998	44	1.2%
10	Memphis	Cape Girardeau (MO+IL)	13,131	36	1.0%
	Top 10 Total		**1,324,173**	**3,628**	**100%**

Figure 12: Pie Chart of NHTS NextGen 2022 Annual Truck Trip Origins and Destinations



Multiple data sources were used to estimate existing and future truck traffic in the SEMPO region. These sources included the following:

- Missouri Department of Transportation (MoDOT) 2024 average annual daily traffic (AADT).
- Base year 2018 and future year 2045 SEMPO TransCAD travel demand model files.
- Future year 2050 SEMPO socioeconomic data.
- Year 2045 Illinois Statewide TransCAD travel demand model.
- Year 2022 and 2050 FAF loaded TransCAD model networks.

Each of the above sources is discussed in the following paragraphs.

MoDOT 2024 AADT and Truck Counts. The study team was able to obtain year 2024 AADT estimates and truck counts from MoDOT in a tabular format. AADTs were listed by travelway, segment description, segment ID, and beginning/ ending mileposts, along with traffic estimates by vehicle type. Vehicle types included single-unit and multi-unit trucks.

SEMPO 2018 and 2045 TransCAD model files. The previous 2045 SEMPO long-range transportation plan (LRTP) included development of base year and horizon year travel demand model files. The model is executed using standard TransCAD planning tools. Thus, unlike most TransCAD models, there is no graphic user interface (GUI) used to select and execute model scenarios. Traffic volume forecasts are available; however not specifically for trucks. While truck percentage is included in the model network, this number is based solely on 2018 traffic count data. While one could apply the truck percentage to the 2045 SEMPO

total volumes, the model does not forecast future truck trips. As such, truck trips estimated using these percentages would not reflect sensitivity to future network capacity or changes in future employment.

Future year 2050 SEMPO socioeconomic data. The recently completed 2050 LRTP did not include any updating of the 2018/2045 TransCAD model files other than preparing 2050 socioeconomic forecasts. In the absence of a travel demand model, use of these demographic forecasts is limited to an understanding of future growth potential at the traffic analysis zone (TAZ) level.

Year 2045 Illinois Statewide TransCAD travel demand model (ILSTDM). The study team recently used the ILSTDM for a study with the Illinois DOT and it includes the entirety of the SEMPO region. The model includes single-unit and multi-unit truck forecasts for the year 2045 along major highways in the SEMPO Multimodal Freight Study area.

Year 2022 and 2050 FAF loaded TransCAD model networks. FHWA provides FAF loaded model networks in TransCAD and ESRI shape formats for the base year 2022 and horizon year 2050 at no charge. The FAF network covers the entire U.S. for all roadways on the National Highway System (NHS). FAF 5.0 used a dissagregation process to provide truck estimates at the county level. Link specific truck estimates are best used in conjunction with other available estimates as a single centroid connector for an entire county can lead to irregular looking traffic assignments.

Truck Forecasts for I-55 and SR 74. The study team reviewed truck volumes from the above sources to develop a methodology to derive 2050 truck forecasts along segments of I-55 and SR 74. As already noted, neither of the two SEMPO models have the capability to estimate truck trips so these models were ruled out as a source for truck forecasts. The northbound and southbound volumes depicted earlier are very different in the FAF forecasts so it was determined that FAF forecasts along I-55 are too imbalanced to use for future truck volumes.

The ILSTDM produces truck forecasts based on a national highway network without the level of directional imbalances found in the FAF forecasts. One drawback of the ILSTDM is that its forecasts are produced for a horizon year of 2045. The ILSTDM has nine directional links along I-55 and SR 74 where 2045 forecasts are lower than 2024 truck counts. Several alternative methodologies were considered to extrapolate these 2045 forecasts to the study horizon year of 2050.

Compound annual growth rates (CAGRs) were computed for the period of 2024 (MoDOT counts) to 2045 (ILSTDM forecasts) and applied against the 2045 estimates to extrapolate these numbers to represent the year 2050. While this achieved 2050 estimates that were generally greater than the initial 2045 forecasts, this did not correct for the few roadway segments where the ILSTDM forecasts were lower than existing counts. Several alternative approaches were found to have unintended consequences so it was decided to assume no growth from the year 2024 at these locations.

Table 6 depicts the different forecasts described in this section, along with the resulting 2050 truck projections by directional roadway segment. Locations where 2050 truck trips are maintained at 2024 levels are depicted in red italics. Figures 13 and 14 depict unadjusted 2045 ILSTDM forecasts.

Table 6: Comparison of Alternative Truck Forecasts for I-55 and SR 74

SEG_ID	SEGMENT_DESC	TRAVEL WAY	MoDOT 2024 AADT	MoDOT 2024 ALL_TRUCKS	IL_STM 2045 ALL TRUCKS	2045 IL_STM -2024 Trucks	2045-2024 CAGR	Extrapolated 2050 Trucks	FAF 2050	2050 FAF - 2024 Trucks	2050 FAF - 2045 ILSTDM	Seg. No.
744853	MO 77	IS 55 N	11,716									
744852	US 61-RTS K-M	IS 55 N	12,350	2,974	3,021	*47*	*0%*	**3,032**	4,237	*1,263*	*1,216*	1
750970	RT AB	IS 55 N	14,979	2,816	3,471	*655*	*1%*	**3,648**	4,237	*1,421*	*766*	2
744849	CAPE GIRARDEAU CO LINE	IS 55 N	22,967	4,797	3,419	*(1,378)*	*-2%*	***4,797***	4,211	*(586)*	*792*	3
750782	MO 74 JCT	IS 55 N	13,570	2,849	4,081	*1,232*	*2%*	**4,446**	4,258	*1,409*	*177*	4
727866	RT K	IS 55 N	12,895	2,962	4,081	*1,119*	*2%*	**4,405**	4,258	*1,296*	*177*	5
727865	MO 34	IS 55 N	14,644	3,364	4,080	*716*	*1%*	**4,272**	4,258	*894*	*178*	6
727862	MAIN ST	IS 55 N	20,236	4,323	4,080	*(243)*	*0%*	***4,323***	4,147	*(176)*	*67*	7
727864	US 61	IS 55 N	14,640	3,126	3,840	*714*	*1%*	**4,033**	4,147	*1,021*	*307*	8
1051943	CAPE GIRARDEAU UL	IS 55 N	9,492	2,028	3,840	*1,812*	*3%*	**4,471**	4,215	*2,187*	*375*	9
727859	RT KK	IS 55 N	9,496	2,028	3,840	*1,812*	*3%*	**4,471**	4,215	*2,187*	*375*	10
727858	RT B	IS 55 N	9,106	*3,127*	*3,775*	*649*	*1.1%*		*4,218*	*<Average NB I-55*		
740452	CAPE GIRARDEAU CO LINE	IS 55 S	11,280									
727861	RT KK	IS 55 S	9,643	2,079	3,963	*1,884*	*3%*	**4,621**	1,993	*(86)*	*(1,970)*	10
1051942	CAPE GIRARDEAU UL	IS 55 S	9,641	2,079	3,963	*1,884*	*3%*	**4,621**	1,993	*(86)*	*(1,970)*	9
727867	US 61	IS 55 S	11,074	2,388	3,963	*1,575*	*2%*	**4,471**	1,958	*(430)*	*(2,005)*	8
727863	MAIN ST	IS 55 S	15,091	3,252	4,177	*925*	*1%*	**4,434**	1,958	*(1,294)*	*(2,219)*	7
727868	MO 34	IS 55 S	15,899	3,274	4,177	*903*	*1%*	**4,427**	2,014	*(1,260)*	*(2,163)*	6
727869	RT K	IS 55 S	13,241	2,726	4,179	*1,453*	*2%*	**4,626**	2,014	*(712)*	*(2,165)*	5
1047398	MO 74 JCT	IS 55 S	16,909	4,026	4,179	*153*	*0%*	**4,216**	1,874	*(2,152)*	*(2,305)*	4
727871	US 61-MO 74	IS 55 S	22,967	3,852	3,486	*(366)*	*0%*	***3,852***	1,873	*(1,979)*	*(1,613)*	3
750969	SCOTT CO LINE	IS 55 S	18,355	3,839	3,511	*(328)*	*0%*	***3,839***	1,901	*(1,938)*	*(1,610)*	2
744855	US 61-RTS K-M	IS 55 S	14,190	4,266	3,070	*(1,196)*	*-2%*	***4,266***	1,901	*(2,365)*	*(1,169)*	1
744856	MO 77	IS 55 S	12,533	*3,178*	*3,867*	*689*	*1.1%*		*1,948*	*<Average SB I-55*		
728112	IS 55	MO 74 E	5,530	589	693	*104*	*1%*	**720**	25	*(565)*		1
1047227	SILVER SPRINGS RD	MO 74 E	5,767	615	693	*78*	*1%*	**713**	25	*(591)*		2
750165	MO 74 BEG DIV	MO 74 E	7,182	820	756	*(64)*	*0%*	***820***	165	*(655)*		3
728068	WEST END BLVD	MO 74 E	6,314	865	756	*(109)*	*-1%*	***865***	165	*(700)*		4
728066	SPRIGG ST	MO 74 E	5,887	672	756	*84*	*1%*	**778**	165	*(507)*		5
				712	731	19	0.2%		109	*<Average EB SR 74*		
728067	SPRIGG ST	MO 74 W	5,982	598	687	*89*	*1%*	**710**	165	*(433)*		5
728069	WEST END BLVD	MO 74 W	6,683	662	687	*25*	*0%*	**693**	165	*(497)*		4
750166	MO 74 BEG DIV	MO 74 W	7,522	752	687	*(65)*	*0%*	***752***	165	*(587)*		3
1047323	SILVER SPRINGS RD	MO 74 W	6,099	995	662	*(333)*	*-2%*	***995***	25	*(971)*		2
728113	IS 55	MO 74 W	6,407	307	662	*355*	*4%*	**795**	25	*(283)*		1
				663	677	14	0.4%		109	*<Average WB SR 74*		

Figure 13: 2045 ILSTDM Truck Trip Forecasts

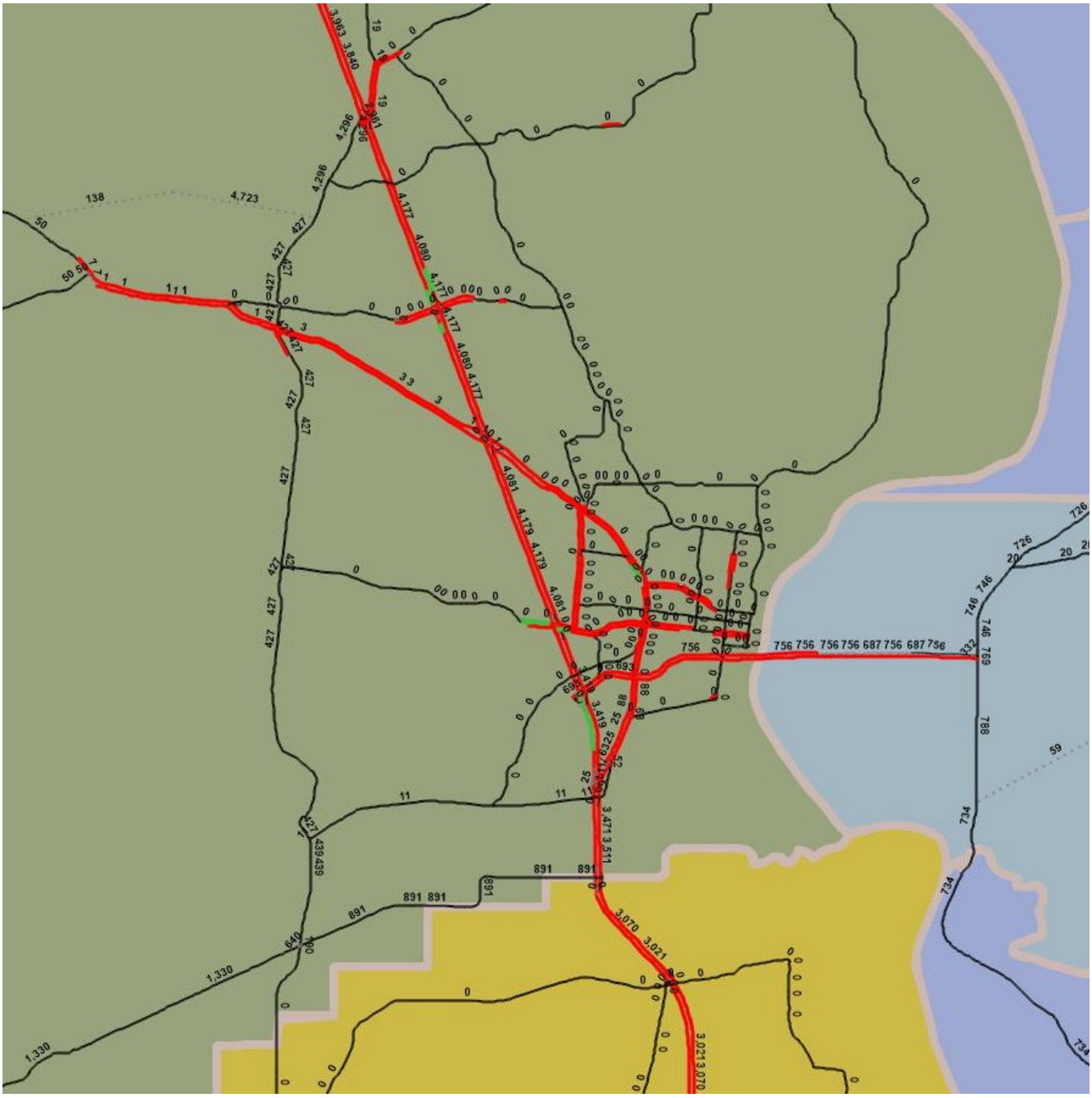
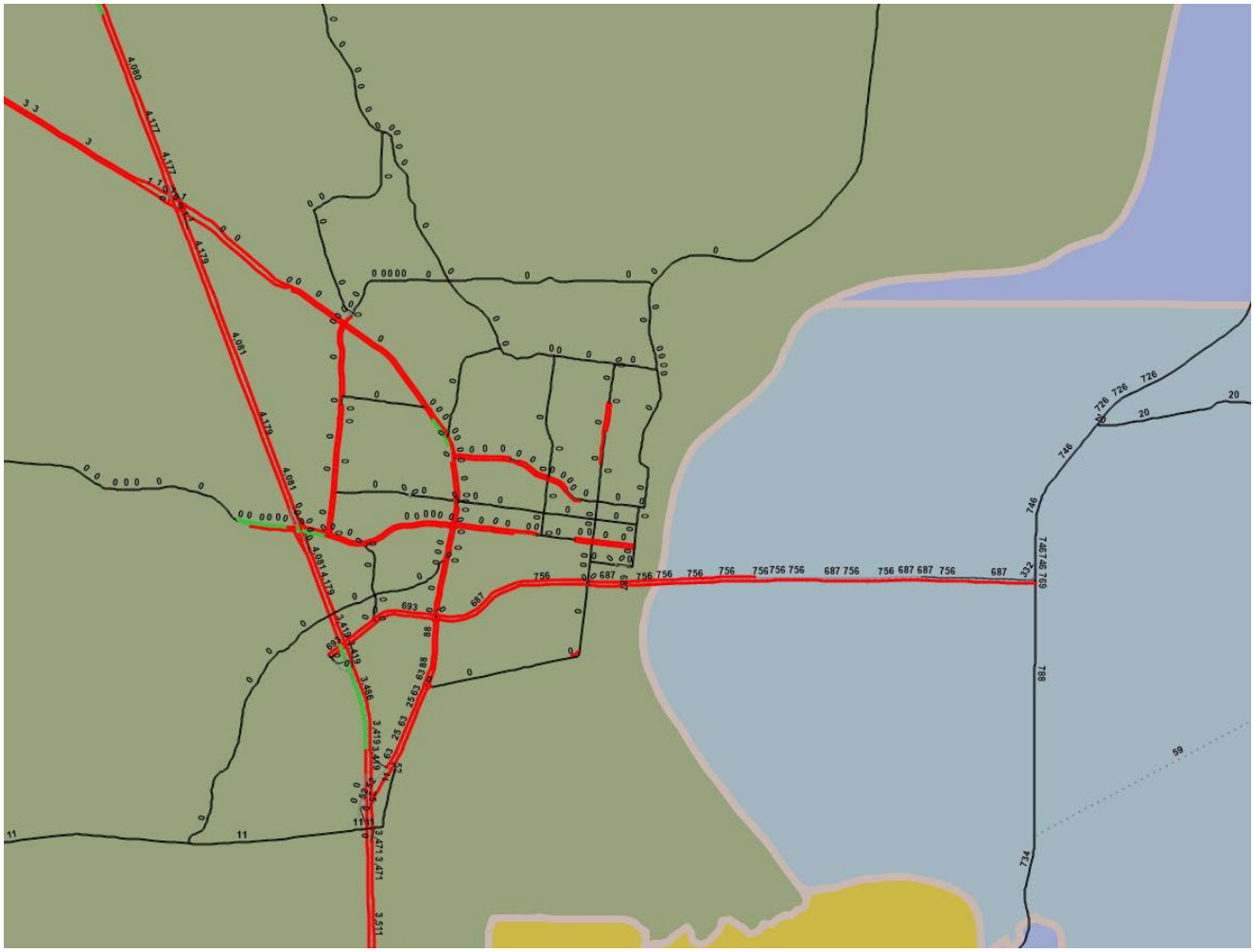


Figure 14: 2045 ILSTDM Truck Trip Forecasts (Cape Girardeau Inset)



7 Warehouse and Distribution Center Inventory and Evaluation

This section provides a comprehensive evaluation of the SEMPO region's industrial asset inventory, specifically focusing on manufacturers, warehouses, and distribution centers. Utilizing the NCHRP Report 739 methodology (Freight Trip Generation and Land Use), this assessment analyzes how these facilities generate truck traffic and their spatial relationship to the regional multimodal network.

Industrial Facility Inventory and Distribution

The SEMPO region's industrial landscape is characterized by a high concentration of large-scale manufacturing and distribution facilities, predominantly clustered along the I-55 corridor and near the Mississippi River. As shown in Figure 15, these facilities are strategically located to minimize drayage distances and maximize access to the high-capacity freight network.

Spatial Analysis of Industrial Freight Nodes

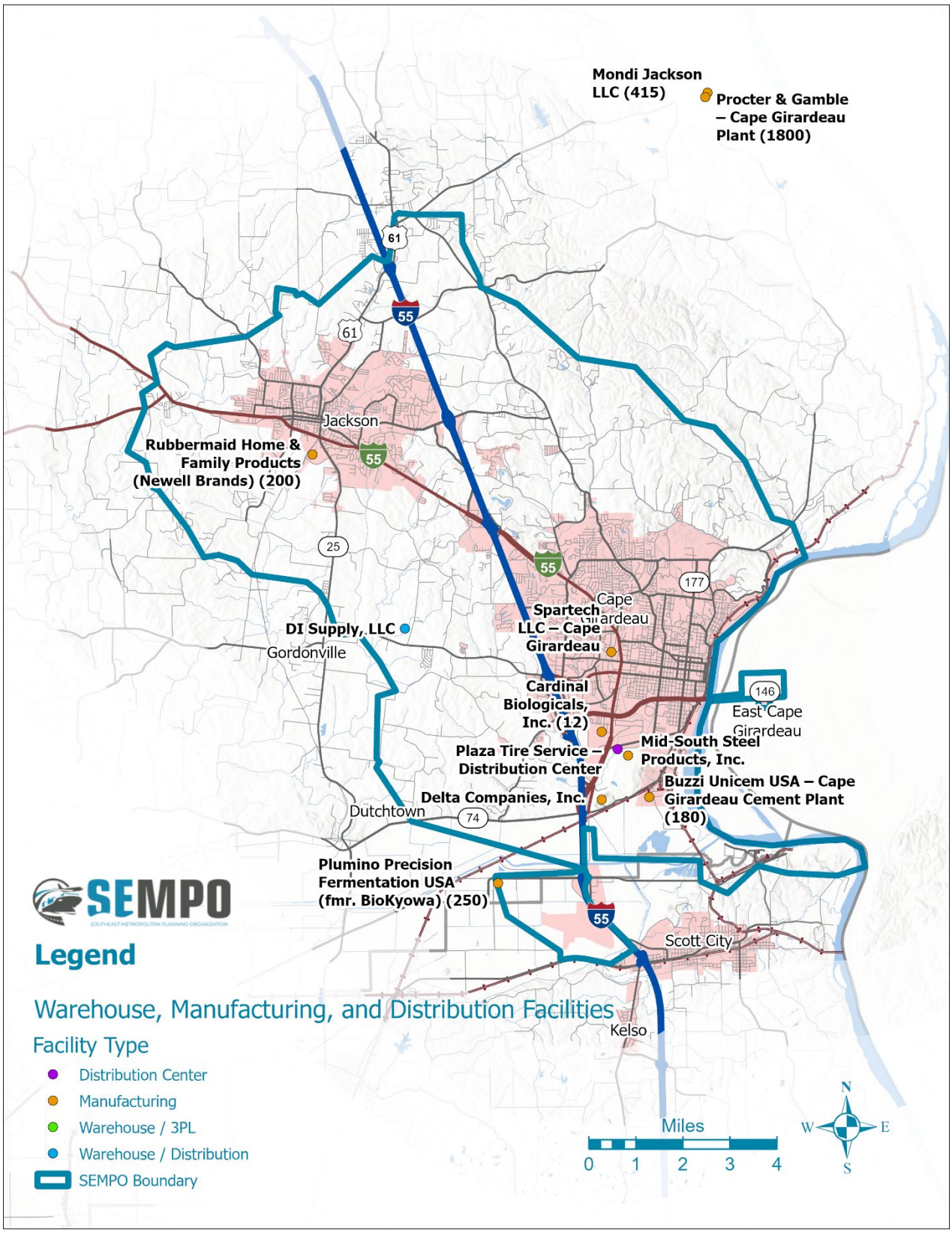
The SEMPO region's industrial activity is organized into three distinct nodes, each optimized for specific commodity types and transportation assets:

- **The Northern Node (Jackson):** Anchored by Procter & Gamble and Mondi, this cluster focuses on consumer goods and packaging. It utilizes MO-177 and US-61 as heavy-haul feeders, channeling high-velocity truck traffic directly into the I-55 corridor for "just-in-time" distribution.
- **The Southern Node (Scott City/Port):** Clustered along Nash Road, this node is the region's intermodal gateway. Facilities like Schaefer's Electrical leverage the confluence of the SEMO Port, Class I rail, and the Regional Airport to manage complex barge-to-rail-to-truck transfers.
- **The Central/Riverfront Node (Cape Girardeau):** This historic core, home to Buzzi Unicem, handles raw bulk commodities. These heavy industrial operations are tethered to the riverfront and the SEMO Port Railroad, using specialized "short-line" rail to move heavy tonnage through the urban environment to the national grid.

Table 7: Major Regional Freight Generators

Major Regional Generators	Primary Sector	Strategic Location
Procter & Gamble (P&G)	Consumer Goods	MO-177 / Jackson Corridor
Mondi Jackson LLC	Packaging/Manufacturing	MO-177 / Jackson Corridor
Buzzi Unicem USA	Cement Manufacturing	S. Sprigg St / Riverfront
Nestlé Purina PetCare	Food Processing	Regional Access
Pratt Industries	Packaging/Recycling	Jackson Industrial Zone
Schaefer's Electrical	Electrical Enclosures	Nash Road / Scott City

Figure 15: Warehouses, Manufacturers, and Distribution Centers



Logistics and Multimodal Connectivity

NCHRP 739 developed a methodology to evaluate how freight generators connect to the broader logistics chain. That methodology shows that in the SEMPO region connectivity is robust but varies by mode:

- Highway Connectivity (External): Facilities are exceptionally well-linked to the I-55 corridor. This ensures that high-volume producers, such as P&G, have a direct pipeline to the St. Louis and Memphis hubs.
- Rail Connectivity (Class I & SE): Major manufacturers like Buzzi Unicem and the Scott City clusters have direct access to the SEMO Port Railroad (SE), which provides the critical "short-line" interchange to BNSF and Union Pacific.
- Waterborne Connectivity: The SEMO Port acts as a primary staging and transload point for the region's bulk generators. The 287,000-lb rail capacity and double-stack clearances of the SE railroad further enhance the port's role as a multimodal anchor.
- Aviation Connectivity: While the Cape Girardeau Regional Airport (CGI) does not currently provide dedicated air cargo, its location adjacent to the Nash Road industrial corridor (home to Schaefer's Electrical and SEMO Milling) positions it as a future "fast-freight" staging area for high-value components.

Future Land Use and Economic Impacts

As regional freight volumes are projected to grow (see Table 4), future land use planning must account for the increasing footprint of distribution and "last-mile" facilities.

- Land Use Encroachment: Expanding residential areas near the US-61 and MO-177 corridors may create friction between passenger safety and heavy truck traffic.
- Chamber of Commerce Coordination: Data from the Cape Girardeau Area and Jackson Chambers of Commerce indicates a growing trend toward "advanced manufacturing" and "precision fermentation" (e.g., Plumino). These emerging sectors require high-frequency, smaller-scale freight movements that will place new demands on the local road network.
- Sustainable Expansion: There is significant "brownfield" and industrial-zoned acreage available near the SEMO Port and along the Nash Road corridor. Future development should be prioritized in these areas to leverage existing multimodal infrastructure and minimize impacts on the urban core.

The SEMPO region possesses a highly functional inventory of freight-generating assets. The synergy between the P&G-anchored manufacturing base and the intermodal capabilities of the SEMO Port creates a resilient freight ecosystem. Future planning should focus on maintaining the MO-177 and Nash Road connectors to ensure these major generators can continue to reach the national market efficiently.

8 Key Findings and Framework for Performance Assessment

Based on the market assessment, the following key findings categorize the current state of the SEMPO freight network and establish the framework for the Task 3 Performance Assessment.

Key Findings by Category

Infrastructure and Asset Condition

The SEMPO region relies on a high-capacity highway backbone, with Interstate 55 serving as the singular primary artery for both national commerce and national defense. This critical corridor is complemented by significant rail modernization, specifically the SEMO Port Railroad (SE), which is engineered to handle modern freight demands including 287,000-pound car weights and vertical clearances of 20'3" for double-stack container movements. Furthermore, the region's bi-state connectivity is defined by a heavy bridge dependency; the Bill Emerson Memorial Bridge (MO-74) serves as the essential east-west link for interstate freight crossing the Mississippi River, making it a critical point for regional redundancy and resiliency.

Operational Bottlenecks and Safety

Significant operational challenges exist due to high rail crossing density, particularly along the riverfront and within industrial zones, resulting in approximately 3,134 annual blocked traffic incidents. These delays can last up to an hour, potentially isolating neighborhoods and jeopardizing emergency response times for EMS, fire, and police. Safety is further impacted by truck parking scarcity; although there are approximately 172 designated spaces in the region, persistent unauthorized staging in retail lots and industrial cul-de-sacs indicates a capacity gap that threatens driver safety and regulatory compliance. Additionally, regulatory friction occurs during the transition from high-speed interstates to "last-mile" delivery points, where movements are hampered by a standard 13'6" vertical clearance limit and local weight restrictions ranging from 20,000 to 72,000 lbs on secondary state and municipal roads.

Future Growth and Land Use

The regional freight network faces long-term pressure from increasing commodity volumes, with truck tons projected to rise from 4,747 to 7,544, a 58% increase by the year 2050. This growth is expected to exacerbate existing bottlenecks on I-55 and other primary state routes. Moreover, land use encroachment is becoming a primary concern as expanding residential areas near established industrial corridors, such as US-61 and MO-177, create increasing friction between passenger vehicle safety and heavy truck traffic. Future development must be strategically prioritized toward available industrial-zoned acreage near the SEMO Port and Nash Road to leverage existing multimodal infrastructure while minimizing impacts on the urban core.

Freight Performance Assessment Framework

The comprehensive inventory and data analysis completed within this market assessment provide the analytical foundation for evaluating the current and anticipated conditions of the regional freight network. By identifying the core infrastructure, commodity flows, and operational friction points in this phase, SEMPO is positioned to transition into a data-driven performance evaluation. The following framework outlines the potential key metrics, categorized by mode to align with recent planning discussions, which will be formally evaluated as part of the Task 3: Freight Performance Assessment.

Modal Category	Key Performance Metrics (Proposed)
Roadway	• **Reliability:** Truck Travel Time Reliability (TTTR) on I-55; AADT vs. LOS on Nash Rd/MO-177 . • **Safety:** Frequency of commercial vehicle crashes at 1-55 interchanges . • **Infrastructure:** Bridge clearance and load ratings on "last-mile" connectors.
Railroad	• **Operations:** Terminal dwell times at SE/UP/BNSF yards; daily train counts . • **Safety:** Number of passive vs. active at-grade crossing incidents; frequency of blocked crossings.
Ports & Waterways	• **Efficiency:** Tonnage transloaded (barge-to-rail/truck); berth and channel depth maintenance. • **Intermodal:** Ease of drayage access via Nash Road.
Air Cargo	• **Connectivity:** Surface-to-air drayage reliability to Memphis and St. Louis hubs • **Local Growth:** Tonnage trends for time-critical medical and industrial components.
Facilities	• **Utilization:** Truck parking occupancy rates at Fruitland and Scott City facilities . • **Resiliency:** Impact of FEMA flood zones on riverfront industrial nodes.