NLCOG 2045 METROPOLITAN TRANSPORTATION PLAN

Metropolitan Transportation Plan for Caddo, Bossier, DeSoto, and Webster Parishes - State Project No. H.972357 - Federal Project No. H972357

NLCOG 2045

Freight Analysis Memorandum

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NORTHWEST LOUISIANA NLCOG COUNCIL OF GOVERNMENTS

ATG ALLIANCE TRANSPORTATION GROUP

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OVERVIEW

The movement of goods in a region is a vital component of a healthy economy and a well-functioning transportation network. This analysis discusses freight activity in the NLCOG Metropolitan Planning Area (made up of Bossier, Caddo, DeSoto, and Webster parishes) in terms of major locations of freight trip generation and trip attraction, restrictions to freight mobility, and gaps in the freight network.

FINDINGS

The regional freight facility network consists of nearly 1,830 miles of roads, one regional airport, over 518 miles of railway, 30 miles of marine highway (all-water routes serving as extensions of the surface transportation system[1]), and 10 marine facilities (including ports, docks, and locks). Nearly 70 total miles (4%) of freight corridor roads have historic patterns of congestion-related mobility restrictions and/or gaps in service. Further, roughly 4.5 miles of freight corridor roads report above the failing threshold provided by National Performance Management Research Data Set (NPMRDS) Truck Travel Time Reliability Index (TTTRI) measures, suggesting unpredictable delay along these critical freight corridors. Additional restrictions to freight movement stem from connectivity and adequacy of the freight network, a shortage of truck parking, a lack of intermodal centers, and issues of institutional function and oversight.

PLAN REVIEW

The following documents were reviewed to provide a background on the existing NLCOG freight network conditions:

- Louisiana Freight Mobility Plan, 2015
- Louisiana State Rail Plan, 2015
- Mobility 2040: Long Range Transportation Plan, 2016
- Louisiana Statewide Transportation Improvement Plan 2019-2022, 2019

Louisiana Freight Mobility Plan, 2015

The 2015 Louisiana Freight Mobility Plan is a long-term plan that looks at needs and issues within the state's freight network. According to the plan, Louisiana's freight traffic could be better served if the state's Department of Transportation and Development (DOTD) were well-positioned to leverage existing resources that may normally remain outside of their normal operations. This includes potential for collaboration with the Louisiana Department of Economic Development (LED), creating public-private partnerships, or developing multi-state coordination. The goal of collaboration would be to support DOTD in identifying freight transportation needs and to fund or add value to transportation improvement projects that improve freight mobility.

[1] https://www.maritime.dot.gov/grants/marine-highways/marine-highway

The 2015 Freight Mobility Plan highlights that Louisiana has a higher concentration of energy and mining businesses, and therefore special attention should be paid to routes serving those industries. The plan also states that rural connections and access to international trade markets are important to the success of the national freight network.

Louisiana State Rail Plan, 2015

In close alignment with the 2015 Freight Mobility Plan, the Louisiana State Rail Plan (2015) calls for improvements to the rail network that will allow for better movement of goods through, largely rural, northwest Louisiana. The plan suggests mitigating potential crashes at highway-rail grade crossings through safety improvements. The plan further suggests improving access to ports and new industrial leads, investing in intermodal facilities, creating a designated Rail Program to assist in funding, and leveraging public-private partnerships for funding rail improvements.

Mobility 2040: Long Range Transportation Plan, 2016

Like the two plans above, the Long-Range Transportation Plan (LRTP) offers an evaluation of the freight system for the study year (2016). Noting that most goods move through the area by heavy trucks, the LRTP cites congestion as a major obstacle for freight movement. Congestion, according to the LRTP, affects a business' desire to locate in an area and can also increase the cost of goods in proportion to the travel time delay. In 2016, the LRTP reported congestion at several small road segments in and around Shreveport. At present, most of I-20 between Minden and the Texas border is slated for widening from four to six lanes. These widenings and new access at the I-220 and I-20 interchange are expected to alleviate some of the congestion. The LRTP also recommends investments in access management to further mitigate issues of capacity.

Louisiana Statewide Transportation Improvement Plan 2019-2022, 2019

Louisiana's 2019 Statewide Transportation Improvement Plan (STIP) provides additional background on the state of freight in the NLCOG area. The STIP uses the Truck Travel Time Reliability Index (TTTRI) for gauging the efficiencies of the freight network. TTTRI is a dataset that includes the average travel time for each segment of the National Highway System (NHS) for each 15- minute period of each day. As a planning tool, the TTTRI allows states and MPO's to determine the reliability of freight corridors. The dataset is available by special request[2] and should be collected and analyzed for a more detailed analysis of the state of NLCOG's freight network.

[2] Requests for TTTRI data are made through LA DOTD. More information is available at: https://ops.fhwa.dot.gov/perf_measurement/index.htm

REGIONAL FREIGHT FACILITY NETWORK

In the four-parish (Bossier, Caddo, DeSoto, and Webster) NLCOG area there are nearly 1,830 miles of roads, one regional airport, over 518 miles of railway, 30 miles of marine highway, and 10 marine facilities (ports, docks, and locks). Geospatial Federal Highway Administration (FHWA) data on the National Highway Freight Network (NHFN) was referenced to identify any Critical Urban Freight Corridors (CUFC) or Critical Rural Freight Corridors (CRFC) but the four-parish area contained neither class of road. Therefore, two primary data sources served as the basis for the truck freight analysis and are described below.

The State Freight Mobility Plan identifies the FHWA Primary Freight Network (PFN) as Tier 1, with the remainder of interstates classified as Tier 2. The Critical Freight Corridors connecting Tiers 1 and 2 are identified as Tier 3. Other Freight Connectors not included in Tiers 1-3 that serve freight related businesses are mostly classified as Tier 4, though the criteria for Tier 4 is not defined in plan and is "fluid." To analyze the freight network within the NLCOG Metropolitan Planning Area (MPA) several sources for data were utilized.

The first source of freight network data was the Regional Travel Demand Model (TDM) supplemented with data from the Highway Performance Monitoring System (HPMS). HPMS data was used to identify highway segments with higher-than-average truck traffic that could be considered primary freight corridors within the NLCOG planning area. The HPMS dataset is updated annually and reports on the condition and use of all public roads based on state DOTD data and includes the PFN and Freight Analysis Framework (FAF). The dataset includes information on the percent of peak traffic that is heavy truck (freight) traffic. To identify corridors that can be considered "freight corridors" all roadways in the HPMS network with higher-than-average freight percentages during peak hours were selected for analysis. These roads, in combination with the other facilities listed in this section, make up the freight facility network within the NLCOG MPA.

Second to the HPMS data, the Bureau of Transportation Statistics (BTS) in cooperation with the FHWA produces a Freight Analysis Framework (FAF) that includes all the national roads that are components of the national freight network. FAF data comes from US Census Bureau Commodity Flow Surveys (CFS) and provides summary statistics for the movement of freight by all modes throughout the country.

In addition to truck traffic, rail service is an integral part of the freight network. It contributes to a substantial part of the local economy. The NLCOG freight rail network's 518 miles of railway are operated by two Class I railroads that offer service between the U.S., Canada, and Mexico: Kansas City Southern (KCS) and Union Pacific (UP). According to the 2015 Louisiana Rail Plan, rail freight is forecast to increase through 2040 at a compound annual growth rate of 1.7% making rail safety of the utmost importance. The NLCOG area has eleven at-grade rail crossings on freight corridors.

The NLCOG planning area contains one rail switching yard located at the intersection of KCS's east-west and north-south corridors which contributes substantially to the local economy but has no intermodal service. The KCS rail yard, (Deramus Yard) covers 257 acres of North Shreveport near Lakeview.

The yard, which is the hub of all KCS operations in the region, has 75 miles of track, a locomotive repair shop, and contributes to local employment. According to executives, the company is planning a $50 million expansion scheduled to kick-off sometime soon.[3]

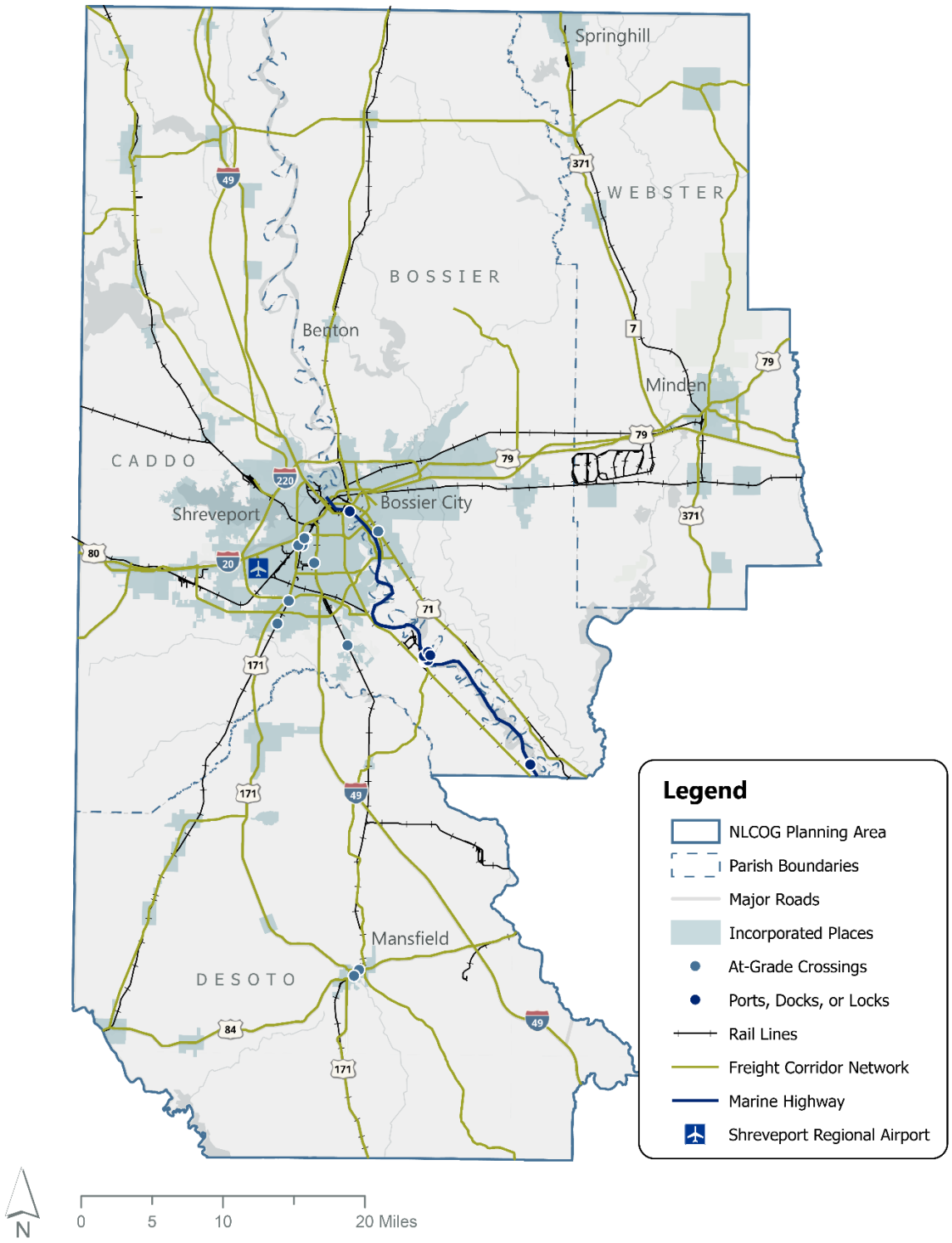
NLCOG also relies on one main marine highway traveling up the Red River to the Port of Caddo-Bossier. There are several smaller docks capable of handling barge traffic along that route. The Port of Caddo-Bossier is a 2,500-acre facility located on the Red River in Bossier and Caddo Parishes. The port is a point of entry for foreign trade and U.S. Customs and terminal slots are available. The 9' deep, 200' wide channel is maintained by the Army Corps of Engineers. The site also houses a three-locomotive switching yard with daily service operated by Union Pacific Railroads that connects to service by KCS and Burlington Northern Santa Fe, another Class I railroad company.

Though there are several airports in the NLCOG MPA, there is only one airport handling cargo, the Shreveport Regional Airport, which is currently recognized as the second busiest air cargo airport in the State of Louisiana. Strategically located near I-20, I-49, and nearby rail access, the airport provides direct connections to all modes of freight transportation and allows air cargo to continue to regional/national destinations or to the Caddo-Bossier Port to the southeast. The airport has daily cargo service through FedEx and UPS and has two air cargo buildings totaling 56,000 square feet within an industrial park referred to as Air Cargo West.[4]

NLCOG planning area freight facilities are shown in **Figure 1**.

[3] https://www.ksla.com/story/3538324/kcs-plans-to-expand-its-shreveport-yard
[4] https://www.flyshreveport.com/95/Air-Cargo-Operations

FIGURE 1: NLCOG FREIGHT FACILITY NETWORK, 2020



Freight Travel Mode Makeup

FAF data was used to develop an understanding of how freight moves through the NLCOG planning area. FAF data includes, but is not limited to, travel mode, freight value, travel distance, origin, and destination of freight by FAF zone. The four FAF zones in Louisiana are Baton Rouge, Lake Charles, New Orleans Metro, and the Remainder of Louisiana Zone. The FHWA provides GIS data, FAF outputs in non-GIS applications, and a user's guide on the FHWA website. [5]

Freight trends across northwest Louisiana are consistent with regional freight patterns identified in the 2015 Freight Mobility Plan and the 2016 LRTP and are assumed to be consistent with freight traveling through the Remainder of Louisiana FAF Zone. According to FAF data, most freight arrives in or departs from the Remainder of Louisiana Zone via heavy truck, pipeline, or by more than one mode, typically air to truck or barge to truck.

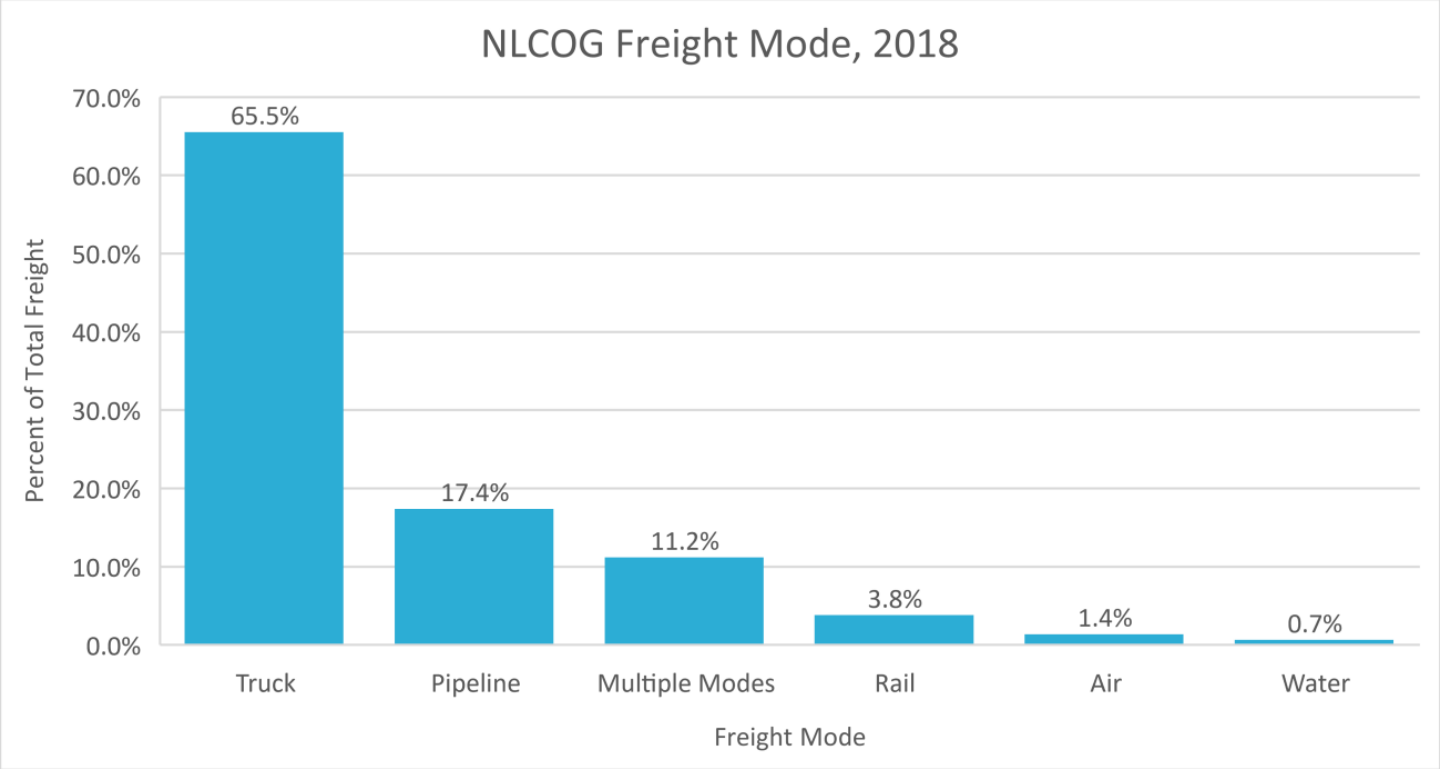
FAF data shows that nearly two thirds ($139,581M) of freight traffic arriving or departing from the Remainder of Louisiana FAF Zone travels by heavy truck. The data also shows that 17.4% ($37,056M) of freight in the zone is moved by pipeline and 11.2% ($23,831M) of freight is moved by multiple modes. In addition, .7% ($1,407M) of freight travels by water and 1.4% ($2,958M) travels by air (**Figure 2**). Based on this information, the NLCOG region is likely to continue to see most of its freight moved by heavy truck and investments in freight infrastructure should be aligned with interstate and truck freight corridor needs.

TABLE 1: FREIGHT ARRIVING IN OR DEPARTING FROM NLCOG FAF ZONE, 2018

Mode	O&D Freight Quantity (Million $)	% of O&D Freight
Air	$2,958	1.4%
Multiple Modes	$23,831	11.2%
Pipeline	$37,056	17.4%
Rail	$8,117	3.8%
Truck	$139,581	65.5%
Water	$1,408	0.7%

[5] https://ops.fhwa.dot.gov/freight/freight_analysis/faf/faf3/userguide/

FIGURE 2: PERCENT OF FREIGHT ($ VALUE) ARRIVING OR DEPARTING NLCOG FAF ZONE BY MODE,



FREIGHT ACTIVITY CENTERS

Freight activity centers are locations within the planning area where freight traffic is generated, such as a distribution center or manufacturing plant, or where goods switch from one mode to another, such as goods arriving by air and transferred to a truck. To identify potential freight activity generators congestion trends were compared with an inventory of business locations in Bossier, Caddo, DeSoto, and Webster parishes to draw conclusions about sites which may be contributing to large amounts of truck traffic. Businesses that were located near congestion points were then manually checked to verify whether they were large enough to support the transfer of large amounts of goods. Then, activity generators that were identified in the 2016 LRTP were checked for closures and relocations and the updated 2016 list was added to the newly identified sites for a final list of 53 freight-generating sites in the NLCOG planning area.

Methodology

Since the 2016 LRTP, NLCOG has expanded to include Webster and DeSoto Parishes. The following steps outline the process for identifying businesses in the NLCOG area that can be considered freight activity generators. This includes updating the 2016 LRTP activity generator list to account for the two additional parishes and for new investments since the LRTP was written.

CONGESTION TRENDS

Because most of NLCOG's freight is carried by heavy trucks, the first stage of the freight activity analysis was to identify freight movement in relation to congestion on the freight network. For this study, activity centers were assumed to be businesses or industry centers that generate or attract a disproportionate amount of freight truck traffic with the potential to cause congestion at, or near, the site location. To identify businesses that could be capable of producing large quantities of freight traffic, the locations of all local businesses were compared with congestion trends throughout the four parishes.

FAF data contains average volume to capacity (V/C) ratios for all public roads that are considered part of the national freight network. V/C ratio can be translated to level of service (LOS) by applying standard measures of congestion to the V/C index shown in the dataset. The LOS scale is from "A" to "F" [6] where A has no congestion and F is heavily constrained (**Table 2**). The regional TDM modeled AM LOS values for freight network roadways in the NLCOG area are mapped below (**Figure 3**). PM LOS values are shown on the page following in **Figure 4.**

TABLE 2: LEVEL OF SERVICE (LOS) CATEGORIES

LOS Score	Definition
A	Free Flowing
B	Reasonably Free Flowing
C	Constrained
D	Unstable
E	Nearing Capacity
F	Heavy Congestion

Source: NCHRP Report 825, 2016

[6] http://www.trb.org/NCHRP/Blurbs/174958.aspx

FIGURE 3: AM LEVEL OF SERVICE (LOS) ON NLCOG TDM FREIGHT NETWORK

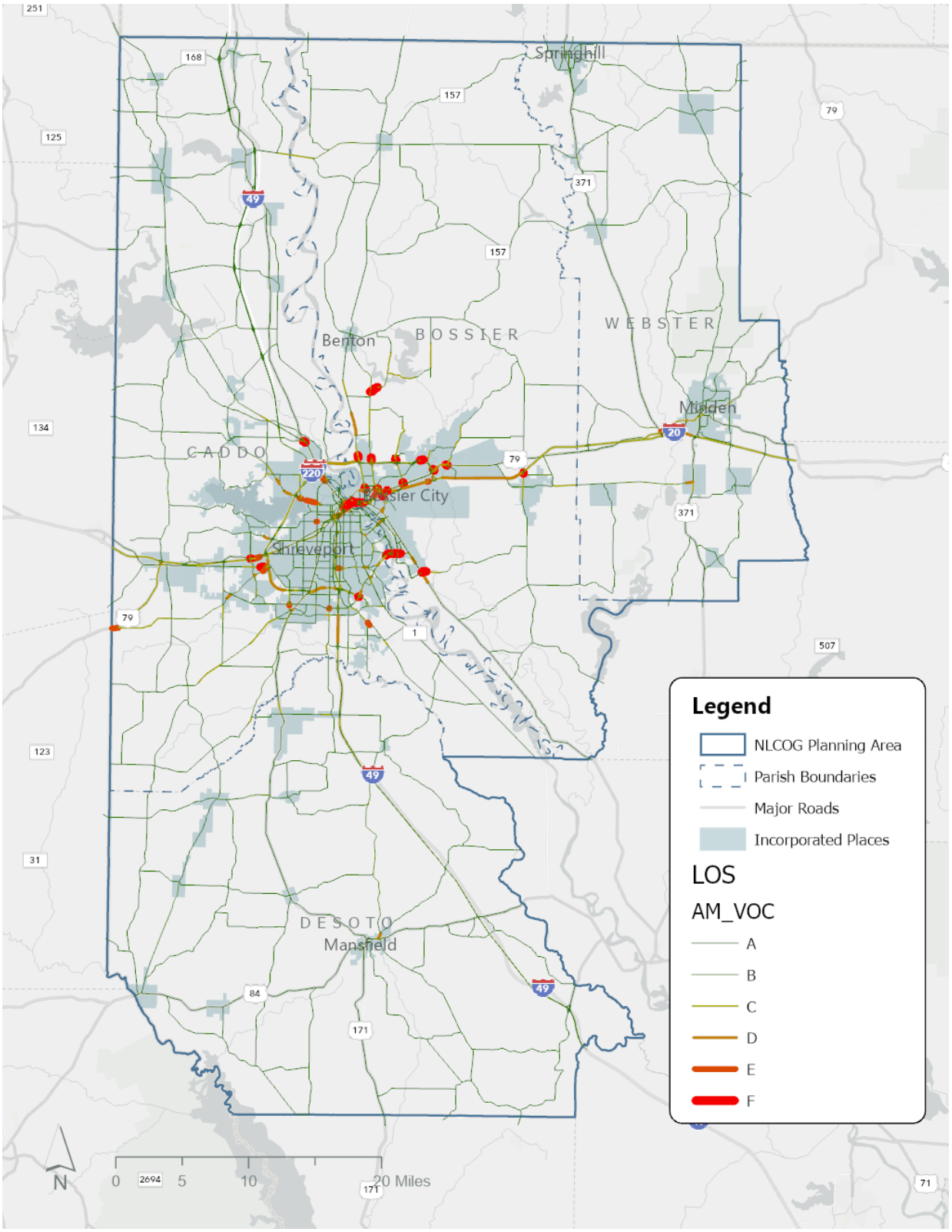
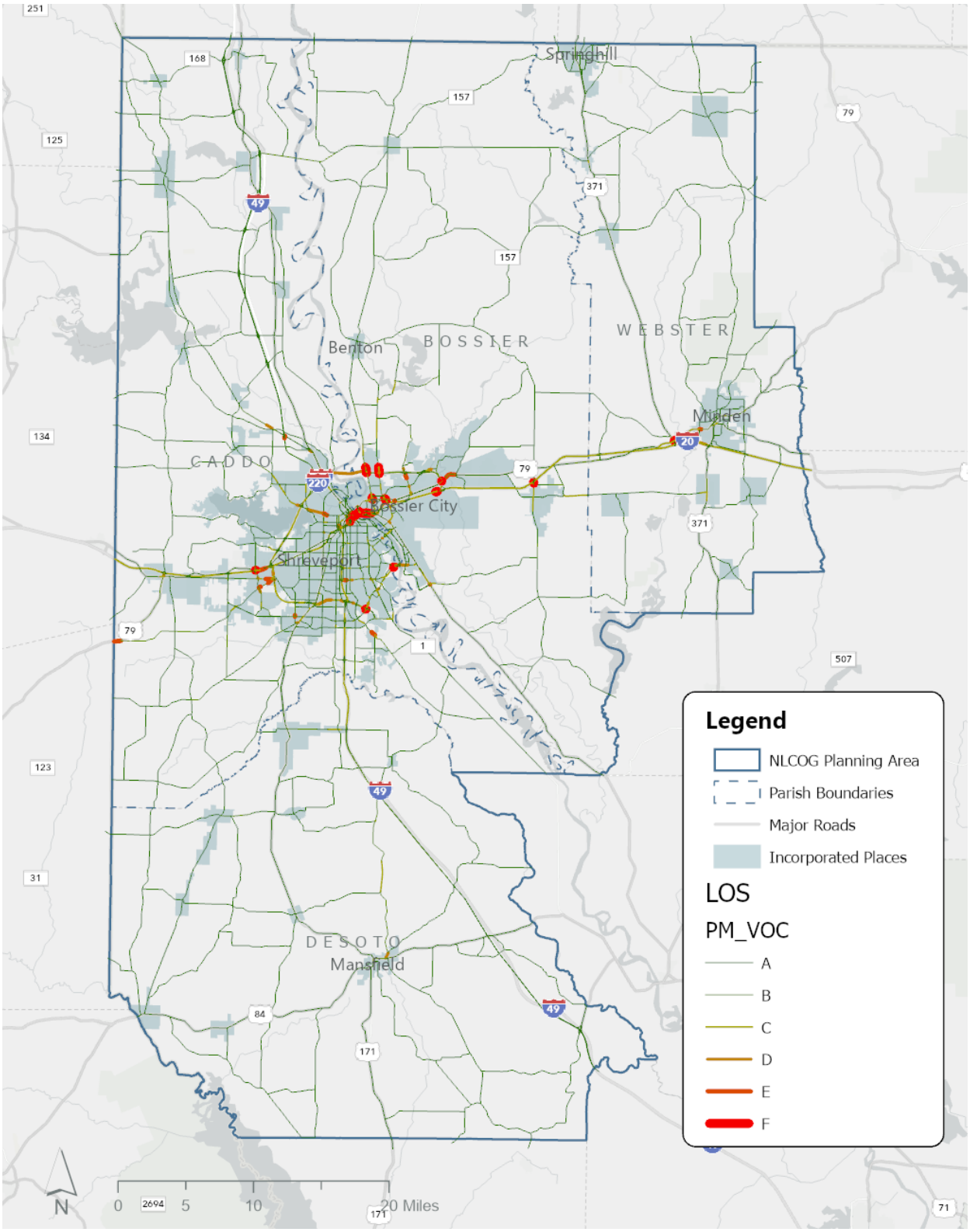


FIGURE 4: PM LEVEL OF SERVICE (LOS) ON NLCOG TDM FREIGHT NETWORK



The LOS analysis showed that several segments of the NLCOG freight network experience substantial levels of congestion. These segments were identified as places where truck trips may be originating or ending. The targeted segments were mapped and then checked for nearby potential activity generating businesses using a GIS-based buffer analysis based on InfoUSA's comprehensive business inventory dataset provided by the client. The most congested segments are in and around the Shreveport and Bossier City urbanized areas. AM LOS for Shreveport and Bossier City are shown in **Figure 5** below and PM LOS for the same area are shown in .

FIGURE 5: AM LEVEL OF SERVICE (LOS) IN SHREVEPORT & BOSSIER CITY

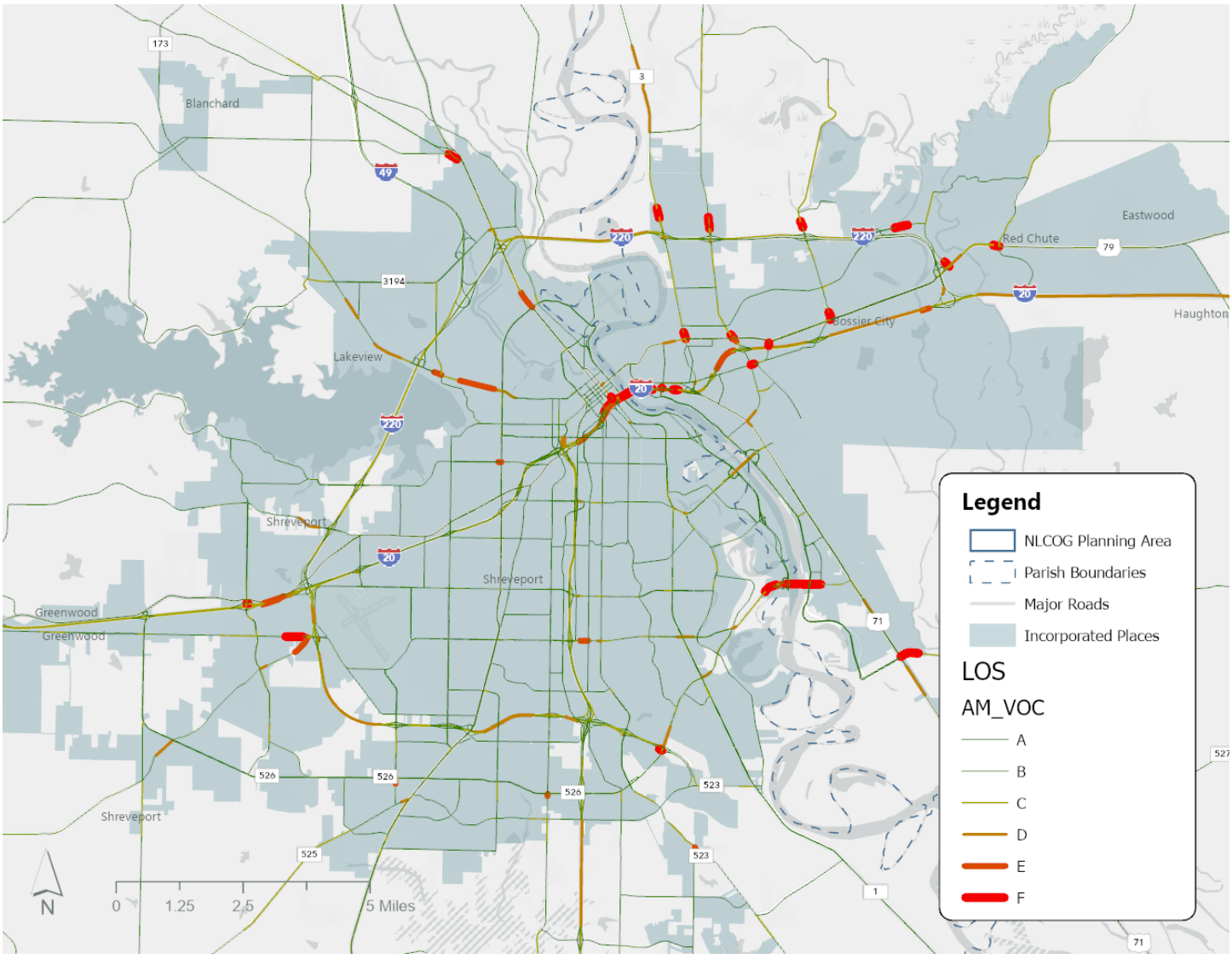
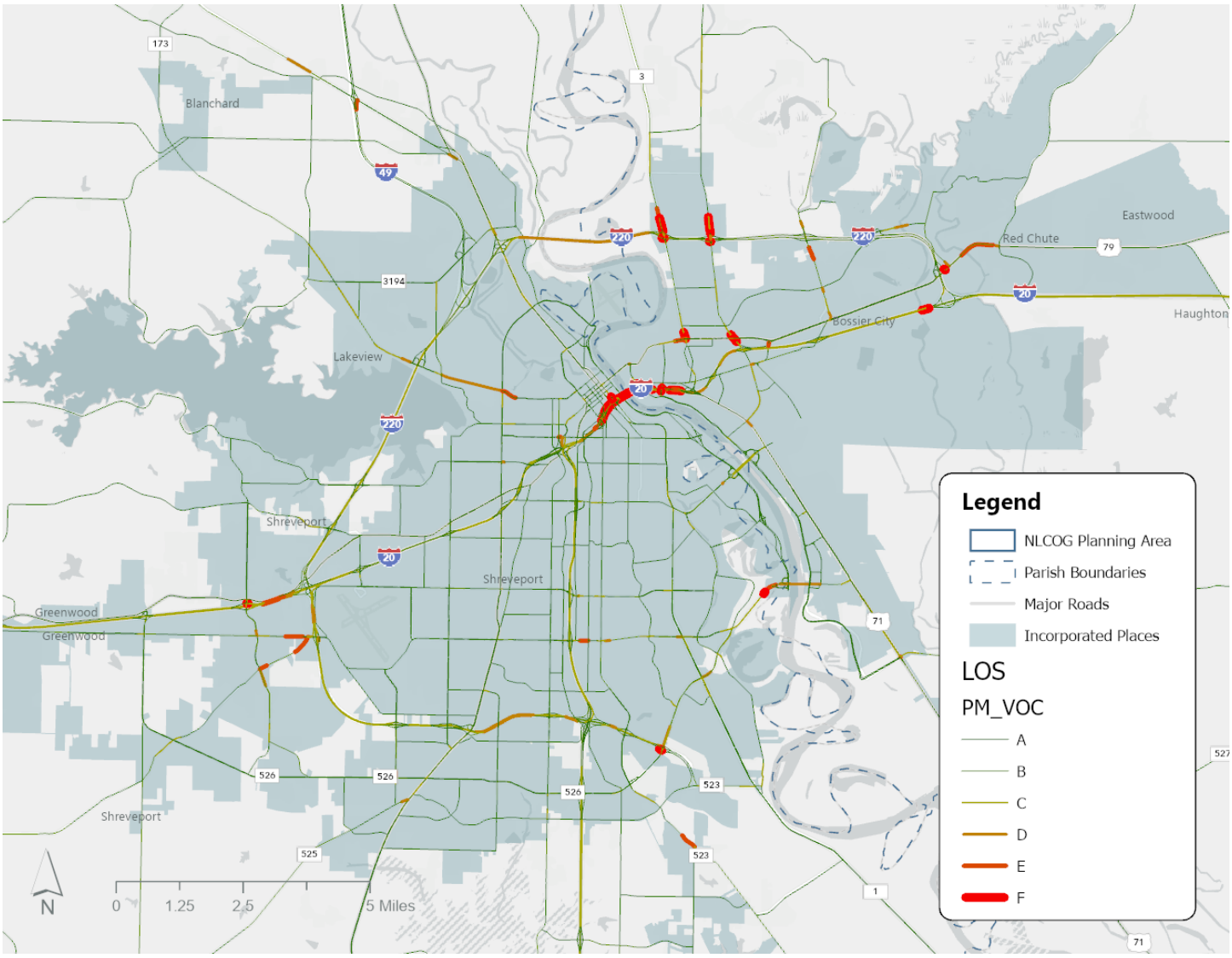


FIGURE 6: PM LEVEL OF SERVICE (LOS) IN SHREVEPORT & BOSSIER CITY



Following comparison with congested segments, the resulting list of potential activity centers was evaluated by North American Industry Classification System (NAICS) industry, site size, fleet size (if any), commodity traded and/or transported, and the number of employees at the location. These factors provided insight into whether the business could be assumed to be a likely contributor to freight traffic.

VISUAL VERIFICATION

Businesses selected as likely contributors to freight traffic were then manually verified using Google Earth Pro to assure that the site had the types of freight transfer facilities or heavy truck service facilities that would be necessary to handle large amounts of freight. In addition to verifying the sites identified in the congestion analysis, all roads in the freight corridor network were manually scanned for large factories, industrial centers, parking facilities, or other signs of freight activity. **Figure 7** shows an aerial view of a freight activity-generating location identified via the visual verification process. The visual verification of the LOS analysis and the freight corridor network resulted in 25 activity generators in the NLCOG area.

FIGURE 7: EXAMPLE OF ACTIVITY CENTER LOCATED DURING VISUAL VERIFICATION, 2020

Image Source: Google, 2020

FREIGHT ACTIVITY CENTERS ANALYSIS RESULTS

The result of this freight activity center analysis is a list of 53 likely freight-activity generators that includes the 28 activity centers from the 2016 LRTP (after accounting for closures and relocations) and an additional 25 sites located through a combination of GIS-based analyses and manual verifications described above. Most of the freight generating activity centers from both the 2016 LRTP and this analysis are in the Shreveport and Bossier City urbanized area. The tables and maps below show the list of preliminary activity centers identified in the 2016 LRTP and refined for the current study year ("Existing Activity Centers") and the 25 newly identified activity centers resulting from the LOS evaluation and manual verifications.

TABLE 3: EXISTING ACTIVITY CENTERS IN NLCOG

Map Reference	Freight Activity Centers (Existing)
1	AAA Cooper Transportation
2	Acme Truck Line, Inc. (1)
3	Roll & Hold Division
4	Acme Truck Line, Inc. (2)
5	Acme Truck Line, Inc. (3)
6	AFS Logistics
7	Caddo-Bossier Port Commission
8	Central-Herrin Storage & Transfer
9	Central Freight Lines, Inc.
10	FedEx Freight
11	Gemaire Distributors
12	Harbor Freight Tools
13	Hytorc Louisiana
14	Murphy Bonded Warehouse (1)
15	Murphy Bonded Warehouse (2)
16	North Louisiana Construction Contractors, LLC
17	Old Dominion Freight Line
18	Price Supply, Inc.
19	R + L Carriers Freight & Logistics
20	Red River Intermodal, LLC
21	Saia LTL Freight
22	Shreveport Downtown Airport
23	Shreveport Regional Airport
24	Southeastern Freight Lines
25	Transport Service Co.
26	U-Pack Moving Services
27	UPS Freight
28	Yellow Transportation

TABLE 4: NEWLY IDENTIFIED ACTIVITY CENTERS IN NLCOG

Map Reference	Freight Activity Centers (Newly Identified)
29	Aeropres Corporation
30	Allen Brothers Oil Company
31	Alpha Service & Products Corporation
32	Anchor Drilling Fluids USA, LLC
33	Azure Midstream Co., LLC
34	Calumet Cotton Valley Refining
35	Calumet Lubricants, Princeton
36	Calumet Lubricants, Shreveport
37	CNC Oilfield
38	FDF Energy
39	Gly-Tech, Inc.
40	Haughton Environmental
41	International Paper Company (1)
42	International Paper Company (2)
43	M-I Swaco Drilling
44	Newt Brown Contractors
45	Nuverra Environmental Solutions
46	OWC, Inc.
47	Peak Oilfield Services
48	Pine Island Transport, LLC
49	Pinnergy Limited
50	Select Energy Services
51	Springhill Land & Timber Company
52	Steve Kent Trucking, Inc.
53	Summit Oil Field Services

Figure 8 and **Figure 9** provide labels to match existing and newly identified freight activity centers within the NLCOG planning area. Further, the maps show that freight activity centers tend to be located along the defined freight corridor network. Activity centers located off freight corridors (e.g., activity centers 22, 24 in Bossier City) suggest first-mile/last-mile freight trips on local roads as well as drayage movement and should be considered moving forward following the metropolitan planning process. Such trips can add to local congestion and safety issues.

FIGURE 8: NLCOG ACTIVITY GENERATORS & FREIGHT CORRIDOR NETWORK

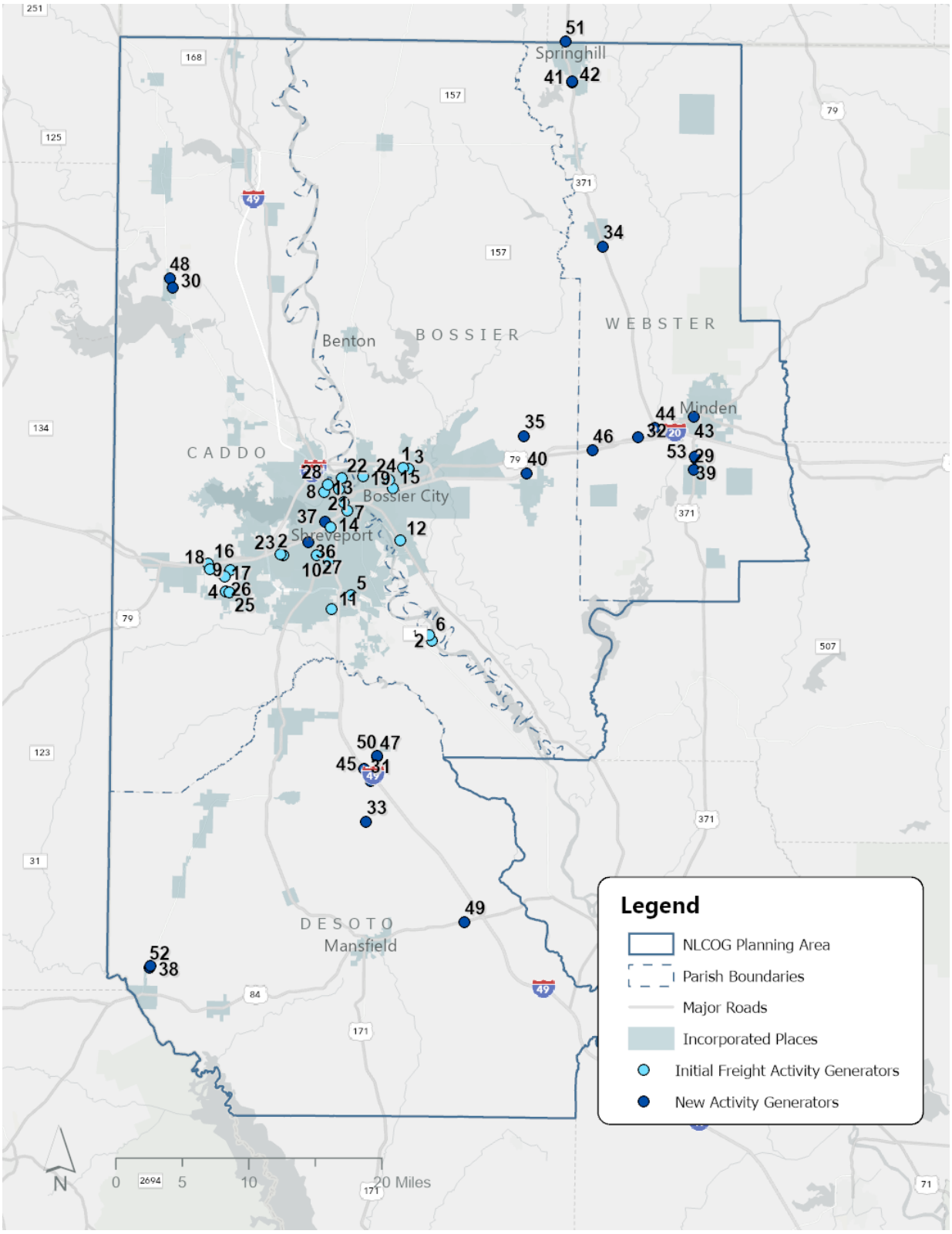
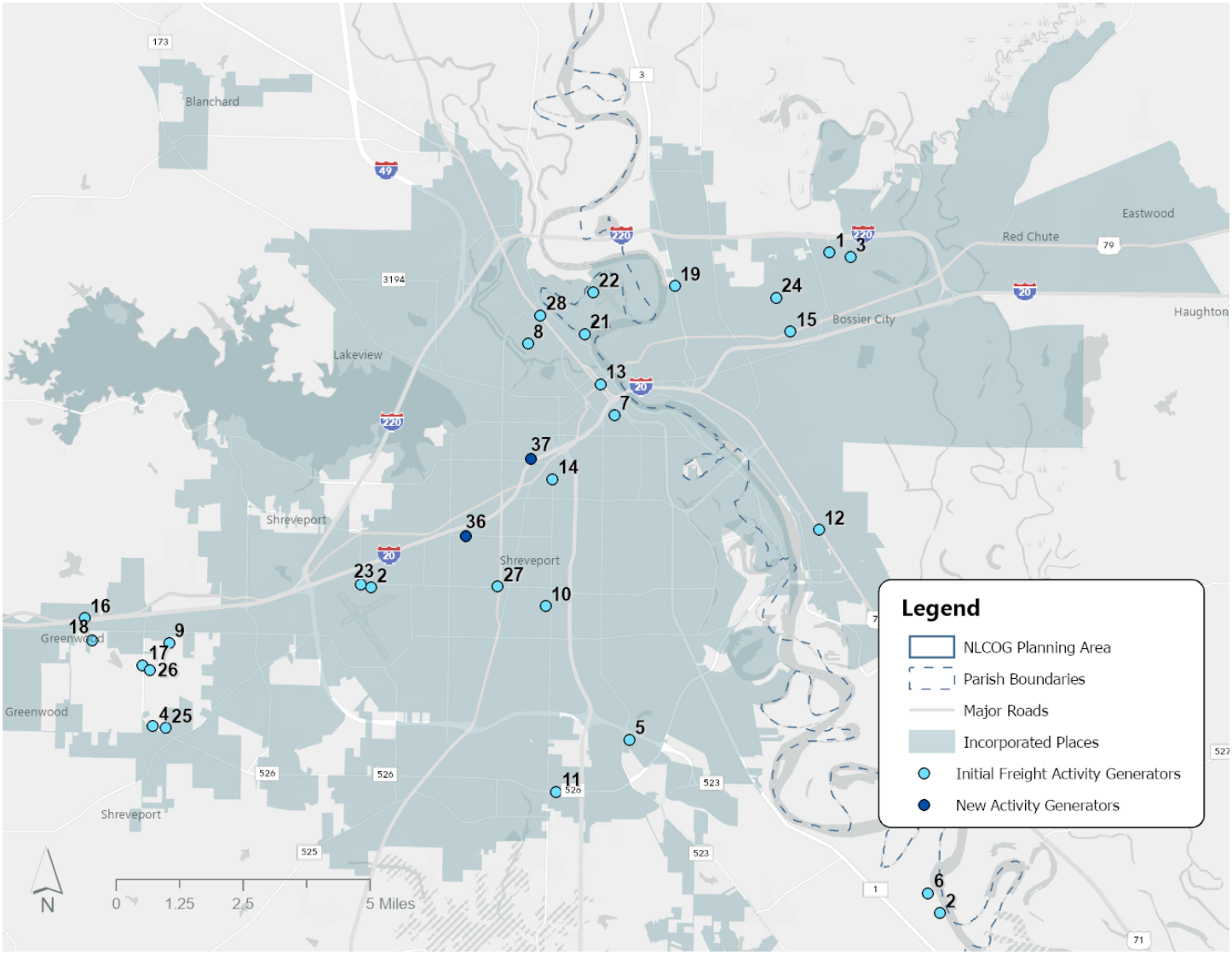


FIGURE 9: SHREVEPORT & BOSSIER CITY ACTIVITY GENERATORS



FREIGHT MOBILITY RESTRICTIONS

Freight traffic can be restricted by issues with the road network itself, such as congestion or lack of access, physical and natural barriers, or problems in the regulatory environment (such as restrictive ordinances). This section looks at freight mobility within the planning area as a means of identifying where freight travel is disrupted or restricted and where further study is needed.

Congestion

LOS scores show segments where congestion could be restricting freight traffic flow. Because the FAF network does not include all local roads, the congestion analysis accounts only for roads that are part of the NHS. The majority of the NLCOG freight network is part of the NHS network. Based on LOS the biggest areas of congestion are the I-20 corridor between Minden and the Texas border. **Table 5** below displays freight corridors containing LOS from D (Unstable Flow) to F (Heavy Congestion), in turn highlighting areas with potential freight mobility restrictions due to congestion.

TABLE 5: NLCOG FREIGHT CORRIDORS WITH FAILING LOS

Roadway (LOS D – F)	Limits From	Limits To
I-20	US-79	US-371 (Minden)
US-70	Buncomb Rd	I-20
LA 3132	I-20	LA 523
LA 3132	Inner Loop Expy	SH 1 (Youree Dr)
I-49	Hollywood Ave	LA 3132
LA 511	Clyde Fant Memorial Pkwy	US-71

The Mega Projects list identified earlier in this report shows that these highway segments are already slated for widening and may see reduced congestion as a result. The other segments with poor LOS scores are I-49 to the south of Shreveport and I-220 along the west side of Shreveport. **Figure 3** shows the Level of Service in NLCOG parishes.

Travel Time Delay

TTTRI is an indicator of unexpected delay or the predictability of congestion. TTTRI is an important measure to consider for freight analysis as many businesses rely on predictable, just-in-time freight deliveries as part of their operations. If businesses can anticipate certain levels of congestion, they are able to plan their deliveries and operations around that congestion and avoid missed deliveries and unnecessary delays.

TTTRI is a metric that indicates freight reliability and FHWA provides data resources for reporting TTTRI values specifically for interstate segments. Using FHWA's 2020 NPMRDS truck travel time data, the metric was calculated as a ratio of the 50th percentile of truck travel time to the 95th percentile truck travel time for a given segment.[7] A value above 1.5 indicates a segment that is unreliable for truck travel, and the higher the value, the more unreliable the segment. Regionwide, between 2017 and 2020, the TTTRI has remained under 1.5 and has been trending downward, meaning the regionwide interstate freight network can be considered reliable.

[7] Methodology for calculating TTTR was taken from FHWA guidance calculating national performance measures (https://www.fhwa.dot.gov/tpm/guidance/hif18040.pdf)

Table 6 shows the TTTRI for the entire NLCOG MPA by year and indicates the percentage of interstate miles used in the calculation.

TABLE 6: NLCOG 2017-2020 REGIONAL TTTRI

Year	TTTRI	Data Sampling Availability
2017	1.22	Calculated using 100.00% of miles in NLCOG MPA
2018	1.2	Calculated using 100.00% of miles in NLCOG MPA
2019	1.18	Calculated using 98.94% of miles in NLCOG MPA
2020	1.11	Calculated using 99.11% of miles in NLCOG MPA

Table 7 displays interstate segments found to have index values greater than 1.5, based on the 2020 TTTRI data. For contiguous roadway segments containing values above 1.5, segment TTTRI was averaged to create an index value representative of the corridor. Though only I-20 is an interstate the other segments shown also registered data in the NPMRDS. Of note is Clyde Fant Memorial Parkway* which does not allow for truck traffic. As a potential point of emphasis with the NPMRDS shows this is occurring, the data could mean that trucks are not clear about this restriction and do not and make the exit/necessary turnaround, which may warrant further analysis/discussion.

TABLE 7: NLCOG 2020 INTERSTATE SEGMENTS - TTTRI GREATER THAN 1.5

Roadway	City	Direction	From	To	Avg. TTTRI
I-20	Shreveport	EB	I-49	Market St	2.41
	Bossier	WB	Exit 21/Old Minden Rd	Exit 19B/Traffic St	1.88
Dixie Blanchard Rd	Dixie	EB	I-49 SB Frontage	I-49 NB Frontage	1.96
Clyde Fant Memorial Pkwy*	Shreveport	WB	E Stoner Ave	Milam St	2.98
US 79	Minden	WB	US 371	Goodwill Rd	2.79
Exit 47 Direct Connector	Minden	EB	I-20	US 373	1.64

Figure 10 presents all interstate segments in the NLCOG planning area with an index score that indicates that travel times on the segment are unreliable. Such segments occur within Caddo, Bossier, and Webster parishes. **Figure 11** through **Figure 13** further detail the areas containing these segments, specifically in the cities of Shreveport/Bossier, Minden, and Dixie. Moving forward, these freight corridor segments should be emphasized when considering freight mobility and freight network improvements.

FIGURE 10: NLCOG 2020 INTERSTATE SEGMENTS - TTTRI GREATER THAN 1.5

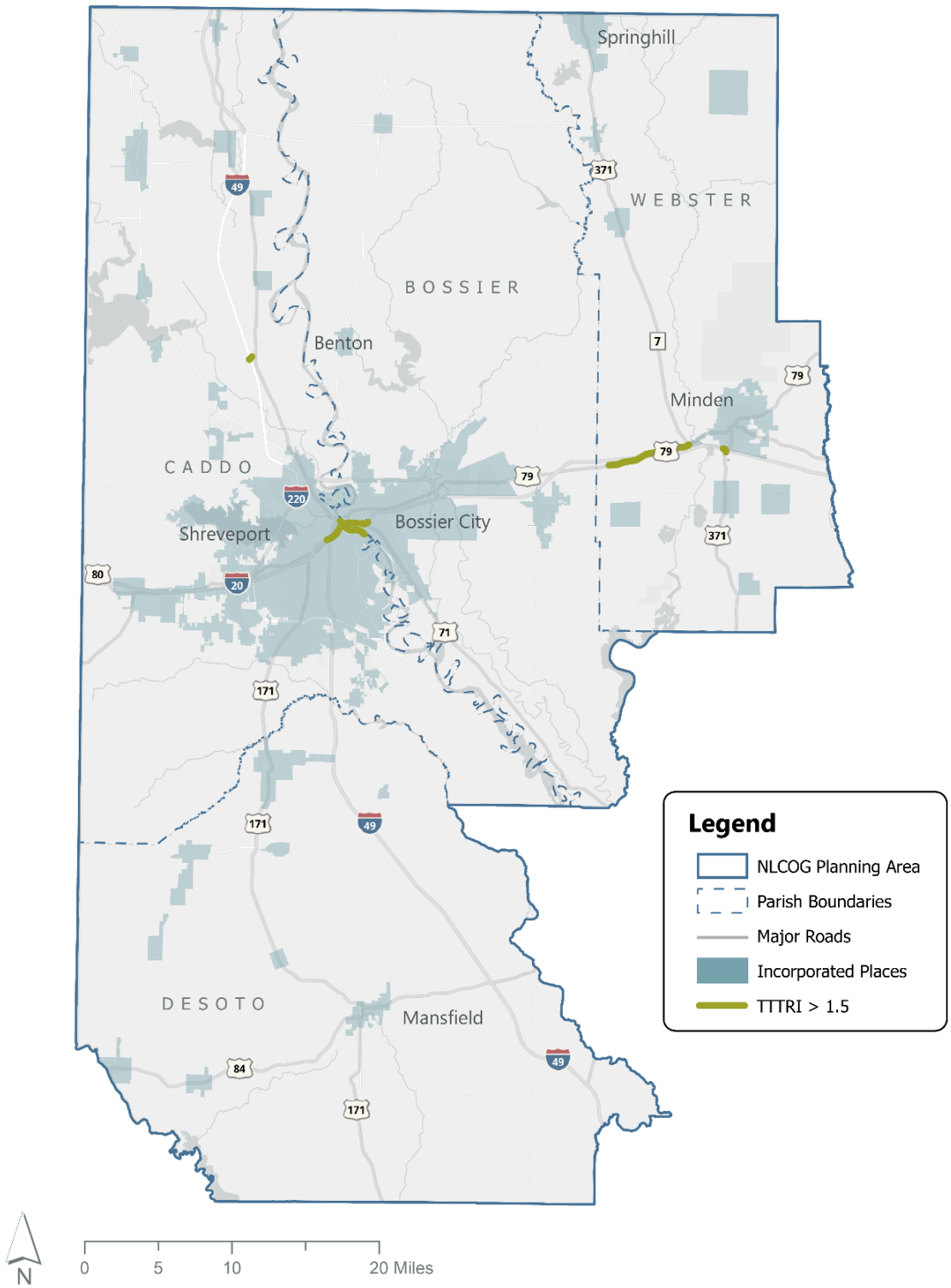


FIGURE 11: SHREVEPORT BOSSIER CITY - TTTRI GREATER THAN 1.5

FIGURE 12: MINDEN- TTTRI GREATER THAN 1.5

FIGURE 13: DIXIE - TTTRI GREATER THAN 1.5

Truck Safety Parking

In 2012, the U.S. Congress enacted Jason's Law (Section 1401 of the Moving Ahead for Progress in the 21st Century) to address the lack of legal truck parking facilities. Jason's Law established a "national priority on addressing the shortage of long-term parking for commercial motor vehicles on the National Highway System to improve the safety of motorized and non-motorized users and for commercial motor vehicle operators." The law also states that FHWA Division Offices should provide technical assistance to State agencies to update State freight plans and investment programs to support commercial motor vehicle parking solutions, both for facilities and technology for commercial motor vehicle parking information systems (FHWA, 2019).

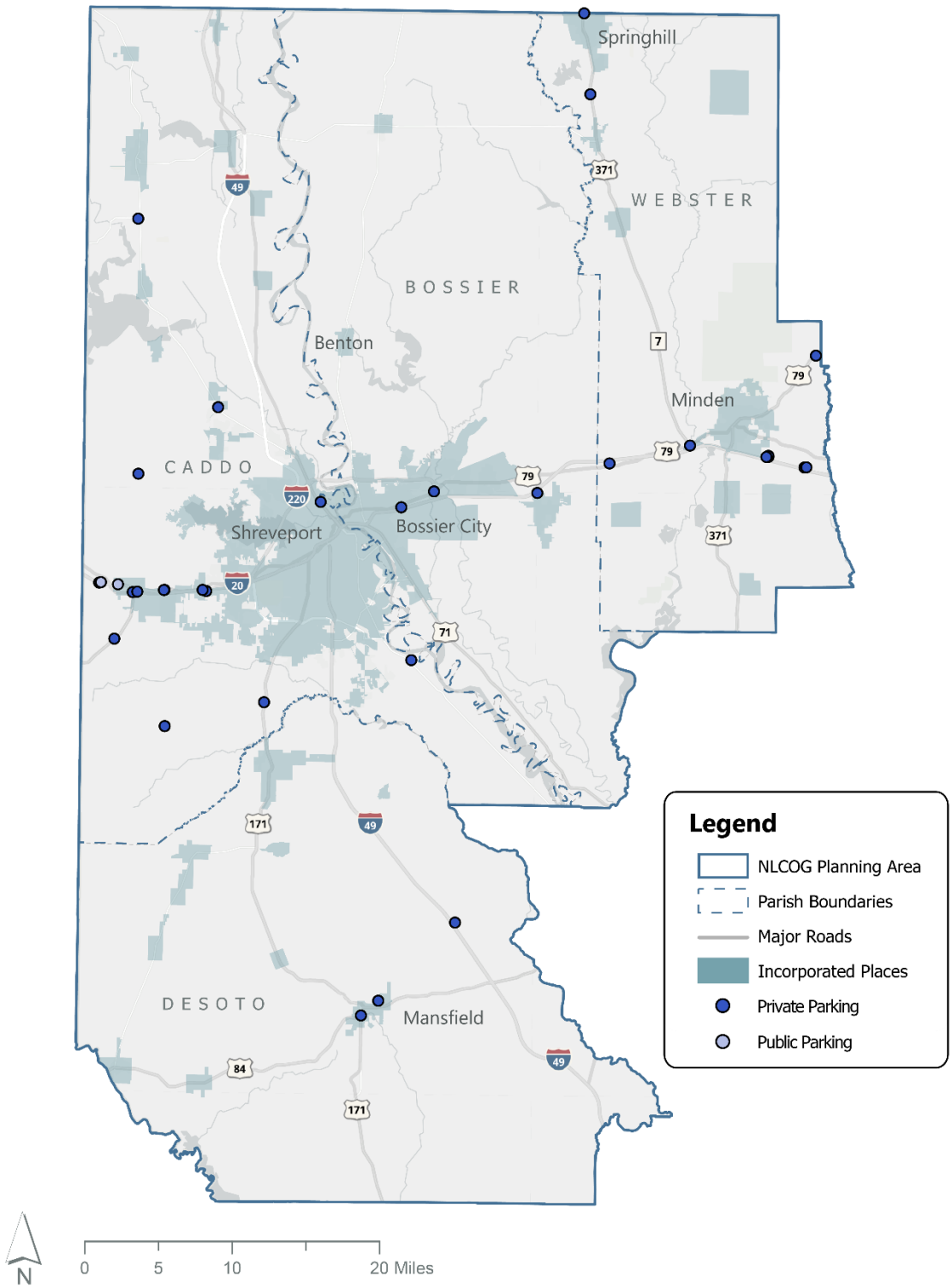
Federal regulations on hours of service (HOS) for commercial truck drivers (49 C.F.R. §395), often referred to as the "11-14-10 rule", require that drivers can drive no more than 11 hours in a single day (with up to 3 additional hours of non-driving on-duty time) after which a period of 10 hours of rest is then required before going back on-duty to operate their vehicle again. Other regulations can require longer rest periods. Complying with these regulations can require that the driver find a legal parking spot to obtain the required rest during long haul trips. Finding that legal parking spot is often difficult, as there is often both a shortage of legal parking spots available as well as a lack of a system that indicates where any available legal parking spots can be found on a real time basis.

A lack of rest areas for truck drivers can also lead to tired drivers staying on the road longer or parking in unsafe locations (e.g., shoulders or exit ramps) that are not designed to handle heavy cargo traffic. It is crucial to the safety of the nation's truck drivers to provide them with facilities where they can pull off to rest.

Accordingly, the FHWA collects and distributes data on the availability of truck safety parking by state through the Department of Freight Management and Operations. While there is no standard number for "adequate" truck parking, the average number of spaces at public rest stop facilities is about 20 truck spaces per facility and just over 14 spaces per 100,000 miles of truck vehicle miles traveled (VMT). The State of Louisiana averages just under 16 spaces per facility and only 4 spaces per 100,000 truck VMT suggesting that there may be a shortage of truck parking spaces at public rest facilities.

Figure 14 displays the distribution of public and private parking facilities throughout the NLCOG planning area based on 2015 FHWA Freight Management and Operations data. Out of the 34 parking facilities displayed, only three are recorded as being public facilities (found west of Shreveport along I-20 in the Greenville area). Further, only public facilities provide parking space counts for trucks, with only one of the three public facilities providing over 20 truck parking spots. Because of the importance of this issue, the MPO should work with LA DOTD to include truck parking safety program initiatives into its continuing planning program related to system operations and management.

FIGURE 14: NLCOG TRUCK PARKING FACILITIES BY TYPE, 2015



Policy

Most of the four-parish planning area has policies that are supportive of freight movement. The municipal plans and regulations reviewed for this study do not appear to add undue constraint on freight travel. In addition, sufficient special permitting exists statewide in support of the movement of heavy trucks that are oversized or overweight.

Adjacent Land Uses

Because of the large amount of rural land with no street-facing residences or walkable/bikeable corridors along primary freight routes, there are very few restrictions to freight mobility that result from adjacent land uses. The exception lies in the Shreveport-Bossier City Urbanized Area where concentrations of commercial and residential use may restrict road widening. It will be the responsibility of all levels of transportation authority to study impacts on neighboring land uses prior to any investment in increased capacity.

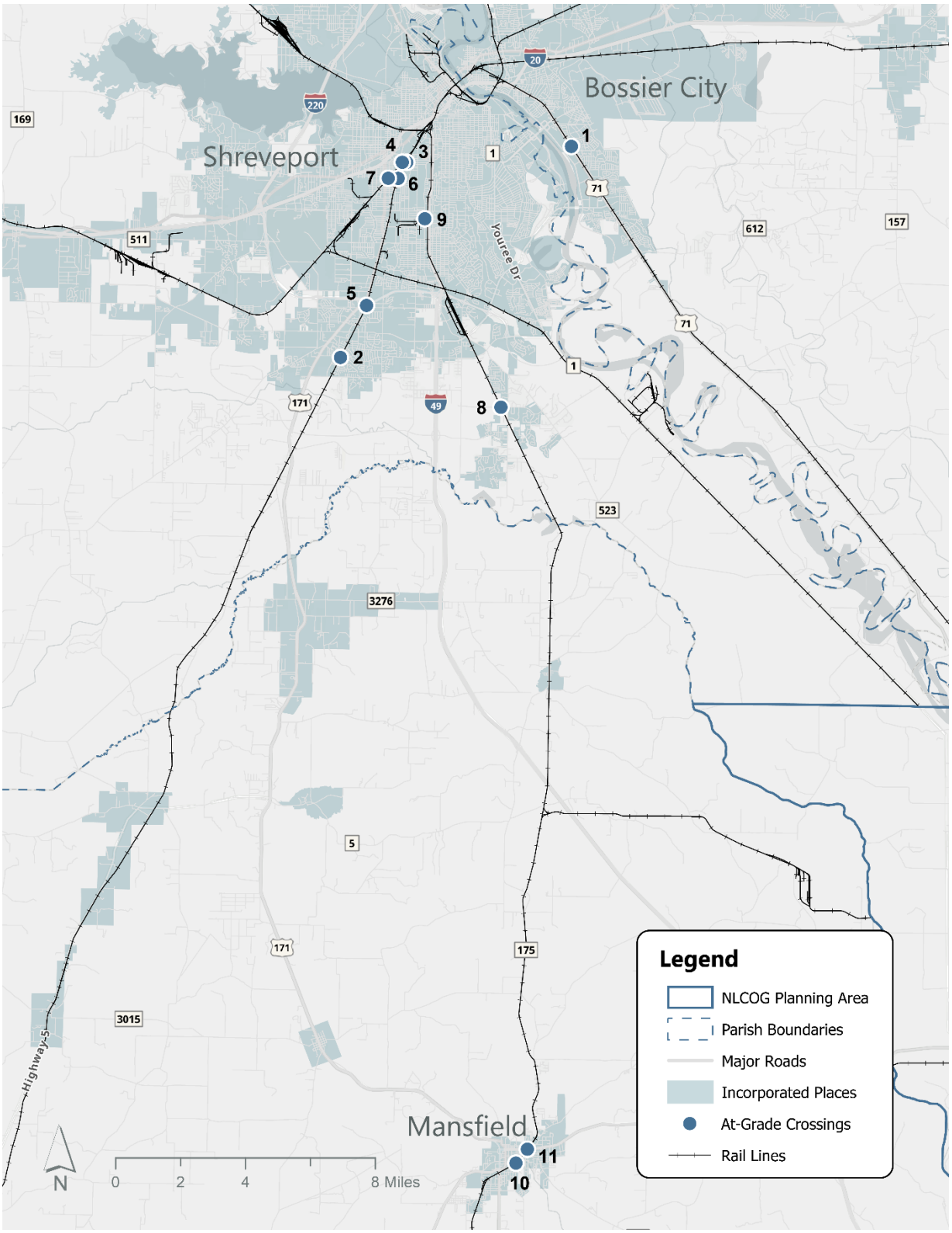
At-Grade Rail Crossings

There are eleven railroad crossings on the NLCOG freight corridor network. Four of the crossings are in residential areas and the remaining are in either commercial, industrial, or open space areas. Of these crossings, ten have mounted flashing lights, and eight are gated. The proximity of several of these crossings to schools or commercial areas makes safety a concern. Investment in traffic studies at each crossing will provide valuable insight into the best way to manage traffic. The crossing locations and safety features are shown in **Table 8** and **Figure 15**.

TABLE 8: NLCOG AT-GRADE RAIL CROSSINGS ON THE FREIGHT CORRIDOR NETWORK

Parish	ID #	Crossing Location	Land Use Type	Gate Arms	Flashing Lights	Traffic Signal Controlling Crossing
Bossier	1	Bellaire Blvd	Residential	Yes	Yes	Yes
Caddo	2	Baird Rd	Residential	Yes	Yes	No
	3	Claiborne Ave	Industrial	Yes	Yes	No
	4	Claiborne Street	Industrial	No	Yes	No
	5	Live Oak Rd	Open Space	Yes	Yes	No
	6	Midway Ave	Industrial	Yes	Yes	No
	7	Midway St	Industrial	No	Yes	No
	8	Overton Brooks	Residential	Yes	Yes	No
	9	St Vincent Ave	Commercial	No	No	No
DeSoto	10	Oxford Rd	Residential	Yes	Yes	No
	11	Polk St	Commercial	Yes	Yes	No

FIGURE 15: NLCOG AT-GRADE RAIL CROSSINGS ON THE FREIGHT CORRIDOR NETWORK, 2020



SERVICE GAPS & RECOMMENDATIONS

Gaps in freight service are those obstacles which restrict or prevent freight from traveling efficiently through the NLCOG area. This includes places where LOS is reduced, where there are disruptions to system continuity, where capacity is reduced due to some physical or natural barrier, and aspects of the regulatory and institutional environment which adversely affect freight movement. This section identifies gaps in service and offers recommendations for improvement.

Congestion

The freight mobility analysis shows several points of congestion in and around Shreveport, through Minden, and upon entry to Mansfield from the west on US-84 (**Figure 3**). Several widening projects on I-20 from the Texas border into Shreveport are scheduled and may alleviate bottlenecks. There is additional congestion on I-49 from the DeSoto Parish border to the Shreveport urbanized area boundary and on the I-220 loop around the city of Shreveport (**Figure 5**).

Although widening is often the quick-fix solution to address areas of congestion on the highway network, the responsibility of the MPO is to look at potential investments that better serve the entire community in the long run. This can include alternate routes, access management, signal timing, and the effect of freight traffic on nearby residential communities. Focusing on redundancies, investments that shorten personal trips, and alternate modes of travel aligns the MPO with existing local and state plans.

Another way that MPOs can address bottlenecks is through the creation and implementation of a Congestion Management Plan. Congestion Management Plans can be more flexible than freight management plans because they allow an evaluation of a range of planning projects at various scales so that considerations for multiple planning areas are incorporated into the vision. The Congestion Management Plan can build on the existing Congestion Management Process (CMP) outlined in the 2019-2022 NLCOG Transportation Improvement Plan (TIP) and relies on modern best practices in data collection, analysis, planning, and inter-agency coordination to function efficiently.

Intermodal Centers

At present, there is one air-to-truck or rail center at Shreveport Regional Airport and one rail or truck transfer center from marine freight arriving at the Port of Caddo-Bossier.

The port and airport are critical links that facilitate the transfer of freight headed for the entire southern region of the country. NLCOG's location in relation to the Red River and interstate truck freight movement makes it an ideal area to invest in intermodal hubs. Stakeholders noted that the region is aiming to pursue the acquisition of surrounding land to add and/or attract new industries as officials see existing port infrastructure as a catalyst for regional growth. However, existing issues with port access were highlighted during the stakeholder engagement process and should be considered in future planning efforts. Currently, the port is somewhat isolated from freight corridors as it is largely connected to the network by LA 1.

Stakeholders saw a need for another direct route connecting the port to the surrounding freight network and expressed a desire for solutions to address the lack of freight connectivity.

There are also many "last-mile" corridors for freight headed to nearby destinations. These facilities require continued support and collaboration to assure future success. Investment in these facilities or new intermodal centers will contribute to a healthy freight economy for the region.

NLCOG Freight Advisory Committee

During the planning process for the 2016 LRTP, the planning team developed a list of stakeholders who could provide information on the efficiency and operations of the MPO's freight network. Many of the activity-generating stakeholders contacted during this effort were either unavailable or unresponsive to requests for information. As part of developing a comprehensive system, it is vital to understand how freight access and connectivity affect key contributors to the local economy. By establishing a Freight Advisory Committee, NLCOG will be oriented toward future success when making determinations, prioritizing projects, and planning for long-term sustainability in freight-related decisions. For reference, the Louisiana State Freight Advisory Committee that was formed in 2015 for the Freight Mobility Plan consisted of members representing the following organizations:

- Louisiana Department of Transportation and Development
- Louisiana State Police
- Louisiana Economic Development (LED)
- Ports Association of Louisiana
- Big River Coalition
- American Waterways Operators
- Louisiana Airport Managers and Associates
- Louisiana Railroads Association
- Public Belt Railroad
- Louisiana Motor Transport Association, Inc.
- Southeastern Motor Freight
- Louisiana Oil and Gas Association
- Louisiana Planning Council
- Louisiana Oil and Gas Association
- Institute for Trade and Transportation Studies
- Federal Motor Carrier Safety Administration Federal Highway Administration

National Highway Freight Network

In 2015, the FHWA established a National Highway Freight Network (NHFN) made up of urban and rural corridors as well as interstates that serve freight transportation traffic. This network is re-designated every five years as a part of the Fixing America's Surface Transportation (FAST) Act and serves as a tool for directing funding to roadways that support the vitality of the economy.

The NHFN is also a primary recipient of funds from the Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE) Grants Program. The designated network consists of the following four levels of roadway.

- Primary Highway Freight System (PHFS)
- Interstates not otherwise a part of the PHFS
- Critical Rural Freight Corridors (CRFCs)
- Critical Urban Freight Corridors (CUFCs)

CRFCs are defined as public roads in rural areas that connect to the Interstate system and provide access to ports, public transportation facilities, or other intermodal facilities. CUFCs, likewise, are public roads in urban areas that provide similar connections. At present, Louisiana's freight network is not registered with the FHWA as an official part of the NHFN. This means that besides interstates not otherwise a part of the PHFS, no Louisiana roadways are designated for important funding that is earmarked for NHFN projects.

By working with DOTD to designate important freight corridors, both urban and rural, NLCOG may be better able to meet funding needs not otherwise available for freight improvement projects that meet national goals outlined in the National Highway Freight Program (23 U.S.C. 167(b)) and the Nationally Significant Freight and Highway Projects (23 U.S.C. 117(a)(2)) codes. Louisiana is eligible to designate some 150 miles of highway as a CRFC and an additional 75 miles of highway as a CUFC. This process should be undertaken collaboratively by the state and MPOs. For more information on the requirements for CRFC and CUFC designation, please review the FHWA website.[8]

Truck Parking Spaces at Public Rest Stop Facilities

The FHWA Survey of State Capability to Provide Adequate Truck Parking 2017 shows a shortage of parking spaces for heavy trucks at public facilities along the state's highway network. Inadequate truck parking can lead to hazardous driving conditions for drivers who are unable to take breaks. This can lead to vehicles being parked in potentially hazardous manners, along the side of the highway or ramps, that may obstruct traffic or lead to crashes. A thorough inventory of public and private rest locations in relation to truck travel through northwest Louisiana will be necessary to identify the exact location of any shortages in parking for heavy trucks.

CONCLUSION

The TTTRI is a useful NPMRDS tool for understanding the reliability of NLCOG roads in the freight network. NPMRDS data is location based (e.g., cell phone, GPS, etc.) data compiled by INRIX and licensed to the FHWA and State DOTs and is available through the Regional Integrated Transportation Information System (RITIS) through an online portal. Executing a data sharing agreement and collecting/becoming familiar with TTTRI data from FHWA could benefit future freight analyses.

[8] https://ops.fhwa.dot.gov/fastact/crfc/sec_1116_gdnce.htm

The freight network in Bossier, Caddo, DeSoto, and Webster Parishes is well-supported by local, state, regional, and federal regulatory environments. The continued success of a mobile and connected freight facility network will depend on the ability of the regulating institutions to adequately gauge growth and plan for future expansion. By aligning investment with emerging best practices in transportation planning, NLCOG will be well-suited to keep up with the demands of future freight movement through the northwest Louisiana region.

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