Metropolitan Transportation Plan

For Bossier, Caddo, DeSoto, and Webster Parishes

APRIL 2021

This document was prepared by:
The Northwest Louisiana Council of Governments (NLCOG)
In cooperation with
The Louisiana Department of Transportation and Development (LADOTD)

This plan covers a 25-year planning horizon for the NLCOG Metropolitan Planning Area, being the Metropolitan Transportation Plan for Caddo, Bossier, DeSoto, and Webster Parishes

State Project No. H.972357 and Federal Project No. H972357

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This document was publicized for public comment on March 9, 2021 to be reviewed and adopted by the NLCOG Metropolitan Planning Organization's Transportation Policy Committee on April 7, 2021

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Table of Contents

List of Figures

List of Tables

Record of Changes

Date of Change/Update	Administrative Modification or Amendment	Description of Change/Update	Page #

1 | INTRODUCTION TO THE PLANNING PROCESS

This chapter provides an introduction to the Metropolitan Transportation Planning process and the purpose of this resulting document; the Metropolitan Transportation Plan. Additionally, this chapter reviews federal and state enabling legislation for the Metropolitan Planning Organization; an overview of Northwest Louisiana Council of Governments; and a summary of the committees and staff involved in ensuring the planning process is compliant with Federal and State requirements and is conducted as efficiently and effectively as possible.

THE METROPOLITAN TRANSPORTATION PLANNING PROCESS

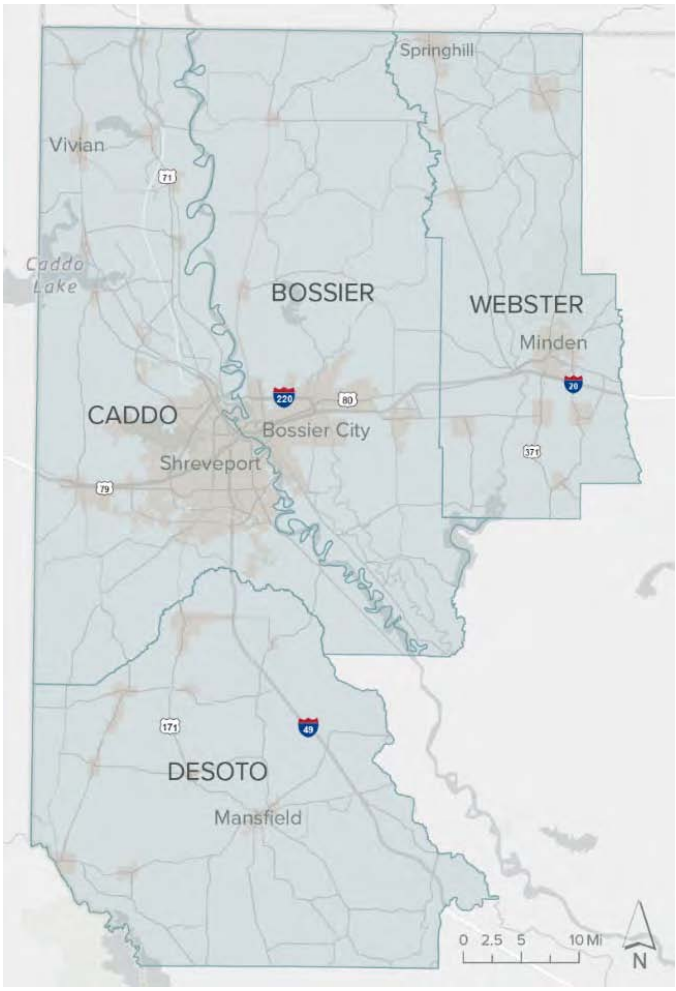
Since the establishment of the Federal Highway Act of 1962, all major cities within the United States are required to adopt a Metropolitan Transportation Plan (MTP) to guide the long-term development of each region's multimodal transportation system. The act established specific rules and regulations for carrying out the long-range transportation planning process and required the formation of Metropolitan Planning Organizations (MPOs) for any urbanized area (UZA) with a population greater than 50,000.

The Metropolitan Transportation Planning Process is a cooperative, comprehensive, and continuing (3-C) effort conducted by an MPO. Although the process is federally mandated, the process is executed in coordination with the Louisiana Department of Transportation and Development (LADOTD), local elected officials, local transit operators, regional stakeholders, and the public to create a vision for the community and future multimodal transportation system. The process is revisited every four to five years with the purpose of revising, reaffirming, or, where needed, readjusting the goals and processes represented in the MTP.

The Northwest Louisiana Council of Governments (NLCOG), the MPO for Bossier, Caddo, DeSoto, and Webster Parishes, coordinates and facilitates this planning process with the aforementioned planning partners, regional stakeholders, and the public within the Metropolitan Planning Area (MPA) shown in **Figure 1-1**.

The NLCOG 2045 MTP update uses comprehensive methods and data to review current and expected future conditions. This plan is driven by state, regional, and local plans; robust technical analysis on all aspects of the NLCOG transportation system; and inclusive stakeholder and public outreach. The plan is developed in coordination with LADOTD, the planning partners represented in the NLCOG MPO Committees, regional stakeholders, and public input.

FIGURE 1-1: NLCOG MPA



Plan Purpose

A major focus of the MTP is facilitating a comprehensive, well connected, and coordinated multimodal transportation system. This is done by promoting regional coordination and prioritizing investments in transportation projects that improve or contribute to regional goals in the development and maintenance of the multimodal system. Prioritization is conducted using a performance-driven, outcome-based planning approach.

The MTP is updated every four to five years and has at least a twenty-year planning horizon. This recurring and incremental approach to long-range planning is designed to ensure that the plan's goals and objectives reflect the values of the community and do not become stagnant. This is largely achieved through ongoing public engagement, and by incorporating the most recent planning assumptions and updated existing conditions (roadway conditions, population/employment, etc.) into the long-range transportation planning process. To continually enhance the region's transportation system, data is collected and reviewed on an ongoing basis as part of a performance management process. This process is carried out by NLCOG staff, who monitors the progress and performance of the multimodal transportation system. Staff then presents performance reports to the MPO Committees, which in turn helps gauge the effectiveness of the strategies set out in the MTP.

Federal regulations require specific considerations to be included in the plan document. NLCOG is responsible for carrying out provisions of 23 USC §134, 59 USC §5303 (Metropolitan Transportation Planning), and 23 CFR 450.300 et seq. (Metropolitan Transportation Planning and Programming). Under these regulations, the planning process and final MTP are required to include:

- A vision that aligns with community goals;
- A multimodal approach that includes projects spanning all aspects of the transportation system;
- A minimum 20-year planning horizon (the NLCOG 2045 MTP update planning horizon is approximately 25 years);
- A financial outline proving the plan is financially responsible and fiscally constrained;
- If applicable, an air quality analysis to show that forecasted emissions will not exceed National Ambient Air Quality Standards (NAAQS); and
- A comprehensive and inclusive public participation process that engages all interested parties with particular sensitivity to traditionally disenfranchised communities.

This process allows for the creation of an MTP that promotes an understanding of existing regional conditions of the transportation system, supports intergovernmental coordination, and develops a fiscally constrained and prioritized list of transportation projects and strategies to achieve regional mobility goals.

Role of the MPO

The development of the NLCOG 2045 MTP is governed by the requirements of the Fixing America's Surface Transportation (FAST) Act and its accompanying metropolitan planning regulations. Under these federal regulations, NLCOG is responsible for carrying out the 3-C planning process in cooperation with all levels of government to develop the MTP. Doing so allows NLCOG and its planning partners to determine how best to invest federal transportation funding in the region. NLCOG also serves as the designated forum for transportation-program-related decision-making by principal elected officials of general-purpose local governments in the MPA.

NLCOG BACKGROUND, VISION, AND ORGANIZATION

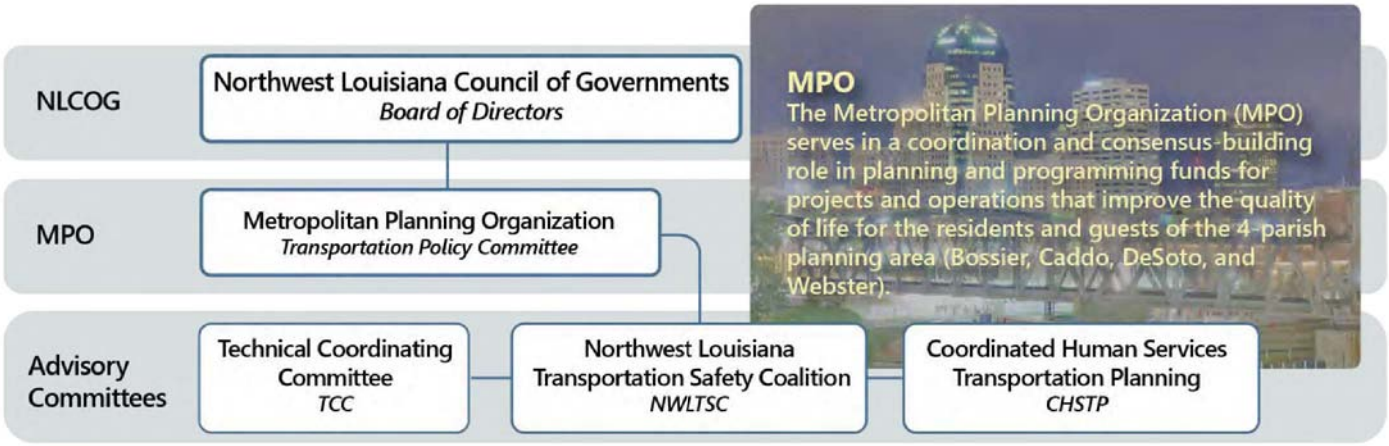
NLCOG represents an association of local governments and serves as a regional planning organization and as the MPO. NLCOG works to fulfill its responsibilities through its vision/mission to "develop Northwest Louisiana economically, socially, and environmentally through a variety of projects aimed at improving the quality of life for all of its citizens." Though this vision is carried out through a number of functions, the MPO also develops and maintains processes for transportation policy-making which are guided by core planning factors laid out in Federal legislation concerning MPOs. The processes maintained by the MPO are documented in four primary documents. These documents are described in **Table 1-1**.

TABLE 1-1: PRIMARY MPO DOCUMENTS

Document	Description
Metropolitan Transportation Plan (MTP)	A document detailing the requirements and the processes carried out for long-range multimodal transportation planning. The document results in a financially feasible program of multimodal transportation projects to guide the investment of federal and state funds in the MPO study area.
Transportation Improvement Program (TIP)	A capital improvement program that typically represents the implementation stage of the MTP and is developed cooperatively by participating governments.
Unified Planning Work Program (UPWP)	A one-to-two-year planning and budget document that defines planning priorities in the region and describes all transportation-related planning activities carried out by the MPO and its staff.
Public Participation Plan (PPP)	A document detailing the MPO's strategies and activities to engage and inform the public regarding transportation planning.

The following sections detail the personnel behind the MTP planning process, consisting of the Board of Directors (BOD), Transportation Policy Committee (TPC), Technical Coordinating Committee (TCC), Northwest Louisiana Transportation Safety Coalition (NWLATSC), and MPO staff. **Figure 1-2** shows the NLCOG Organizational Chart.

FIGURE 1-2: NLCOG ORGANIZATIONAL CHART



NLCOG Board of Directors

The NLCOG Board of Directors (BOD) is the governing body for NLCOG. The BOD hosts the MPO and acts as its fiscal agent.Representation and members of the BOD are shown in **Table 1-2**.

TABLE 1-2: NLCOG BOARD OF DIRECTORS

Title/Representative	Current Representation
Mayor of Bossier City	Mayor Lorenz Walker
Mayor of Shreveport	Mayor Adrian Perkins
Bossier Parish Administrator	Bill Altimus
Caddo Parish Administrator	Dr. Woodrow Wilson
Desoto Parish Administrator/Engineer	Steve Brown, P.E.
Webster Parish Police Juror, District 1	Bruce Blanton
Caddo Parish Tax Assessor	Charles Henington

MPO Transportation Policy Committee

Elected and appointed officials comprise the TPC, which is the MPO decision-making body responsible for approving and adopting all transportation planning activities and programs of the MPO. Membership of the TPC is governed by an agreement between the affected local governments and the governor of Louisiana and is reviewed periodically to ensure adequate representation of all parties. Membership consists of 8 voting members and 2 non-voting members, with representatives from the member agencies detailed below in **Table 1-3** on the following page.

TABLE 1-3: MPO TRANSPORTATION POLICY COMMITTEE

Voting Status	Title/Representative	Current Representation
Voting Members	City of Shreveport – Mayor	Adrian Perkins
	Bossier City – Mayor	Lorenz Walker
	Caddo Parish – Administrator	Dr. Woodrow Wilson
	Bossier Parish Policy Jury – Administrator	Bill Altimus
	Desoto Parish Police Jury – Administrator	Steve Brown, P.E.
	Webster Parish Police Jury – Police Juror, District #1	Bruce Blanton
	SporTran – CEO	Dinero' Washington
	Port of Caddo/Bossier – Director	Eric England
	Shreveport Metropolitan Planning Commission – Executive Director	Alan Clarke
	Bossier City/Parish Metropolitan Planning Commission – Executive Director	Carlotta Askew-Brown, URPL
	LA DOTD – Administrator, District 04	David North, P.E.
Non-Voting Members	FHWA, Louisiana Division Office – Community Planner (MPO Liaison)	Laura Phillips, AICP
	FTA Region VI – Community Planner	Lynn Hayes

MPO Technical Coordinating Committee

The TCC serves in an advisory role to the TPC and is responsible for professional and technical review of work programs, policy recommendations, and transportation planning activities.

Membership consists of local and state technical and professional personnel knowledgeable in the transportation field. Membership is capped at 29 members. Current representation is displayed in **Table 1-4**.

TABLE 1-4: MPO TRANSPORTATION COORDINATING COMMITTEE

Title/Representative	Current Representation
NLCOG, Deputy Director – TCC Secretary	Christopher Petro, AICP
City of Shreveport – City Engineer	Patrick Furlong, P.E.
LA DOTD, District 04 – Traffic Engineer	Jim Hollier, P.E.
Shreveport Transit – Planning Director	Jacob Rajlich
Caddo Parish – Public Works Director	Tim Weaver, P.E.
Bossier Parish Police Jury – Asst. Parish Engineer	Eric Hudson, P.E.
Bossier City – Designated Engineer	Ben Rauschenbach, P.E.

Title/Representative	Current Representation
Shreveport MPC – Asst. Director	Stephen Jean, AICP
Port of Caddo/Bossier – Director of Eng. & Planning	Rick Nance, P.E.
Desoto Parish Police Jury – Desoto Parish Representative	Bruce Easterly, P.E.
FHWA – La. Div. – District Area Engineer	Jacquole Johnson, P.E.
LADOTD – State Planning Engineer/Administrator	Dawn Sholmire, P.E.

Northwest Louisiana Transportation Safety Coalition

The NWLATSC is a multidisciplinary team formed to implement the Louisiana Strategic Highway Safety Plan (SHSP) at the regional level. The coalition works to collaborate efforts between local governments, law enforcement, public health organizations, education leaders, civic organizations, LADOTD, and other safety stakeholders on matters concerning transportation safety. The goals and emphasis areas of the coalition are discussed at greater length in Chapter 2. There are over 230 partners and stakeholders representing close to 110 statewide and local agencies, municipalities, community groups, and safety-invested stakeholders. **Table 1-5** shows the agencies currently represented in the NWLATSC. Many of the entities shown are represented by multiple participants from City Mayors, Police Jurors, staff, technicians, and community leaders.

TABLE 1-5: NWLA TRANSPORTATION SAFETY COALITION

Representation	Representation	Representation
Bossier Parish Schools	Red River Schools	Marks Driving Academy
City of Shreveport	LA Emergency Response Network (LERN)	Caddo Parish 911
Louisiana Department of Transportation and Development (DOTD)	Safety Coalition CenLA Region	Louisiana Department of Health (DHH)
Mothers Against Drunk Driving (MADD)	SporTran	Caddo Parish Schools
Bossier Parish Community College (BPCC)	Louisiana Highway Safety Commission	Safety Coalition No. Shore
Louisiana State University in Shreveport (LSUS)	LSUS Police	Jefferson Parish DA Office
Ochner Health System	Centenary Police	Shreveport Fire-EMS
Senator District 37	Aillet, Fenner, Jolly & McC	Shreveport Police
Louisiana State Police (LSP)	Safety Coalition New Orleans	Heflin Police
Shreveport Police	ACE Digital	Sarepta Mayor
DigiVision	Port of Caddo/Bossier	Louisiana District Attorneys Association (LDAA)

Representation	Representation	Representation
Federal Highway Administration (FHWA)	Red River Sheriff's Office	Press - Bossier Press Tribune
Bossier Parish Police Jury	Bienville Parish	Caddo Sheriff's Safety Town
Bossier Sheriff's Office	American Bikers for Awareness, Training, and Education (ABATE)	US DOT Fed. Railroad Admin.
Louisiana Passenger Safety Task Force (LPSTF)	Webster Sheriff's Office	Haughton Police
Bossier City Fire	Bossier Office of Homeland Security	AT&T
Motorists Assistance Patrol (MAP)	Coordinating & Development Corp.	Bienville Parish Sheriff
Bossier City Police	LSU Health Shreveport	Safety Coalition Acadiana
LPSTF/Sudden Impact	Desoto Sheriff's Office	Plain Dealing Police Dept.
DeSoto Police Jury	LSU AgCenter	Vivian Police
Webster Police Jury	Judicial	Claiborne Sheriff's Office
Think First	Centenary	Claiborne Parish
First Class Driving School	Kansas City Southern (KCS) Railroad	LA Organ Procurement
Shreveport Green	Northwest LA Human Services District	Greenwood Police Dept.
Safety Coalition - South Central	BPCC Police	Heflin Police
Louisiana Highway Safety Commission (LHSC)	Bienville Sheriff's Office	Bee Safe Driving School
NLCOG/Caddo Assessor	Caddo Coroner	Safety Coalition Northeast
Alcohol Tobacco Control (ATC)	Caddo Parish	Bienville ADA
Northwest Louisiana Council of Governments (NLCOG)	Safety Coalition Cap. Region	Webster Parish
Caddo Parish Commission	Bossier Parish EMS	Minden Mayor
Caddo Sheriff's Office	Coushatta Police Chief	Haughton Police
Shreveport Fire-EMS	Bossier Chamber	Oil City Police
LA Operation Lifesaver	Downtown Development	Bossier Parish 911
Center for Analytics & Research in Transportation Safety (CARTS)	Bossier City	Springhill Police
Louisiana Local Technical Assistance Program (LTAP)	Bossier Parish	Red River Parish
Bossier Parish Schools	Red River Schools	Marks Driving Academy

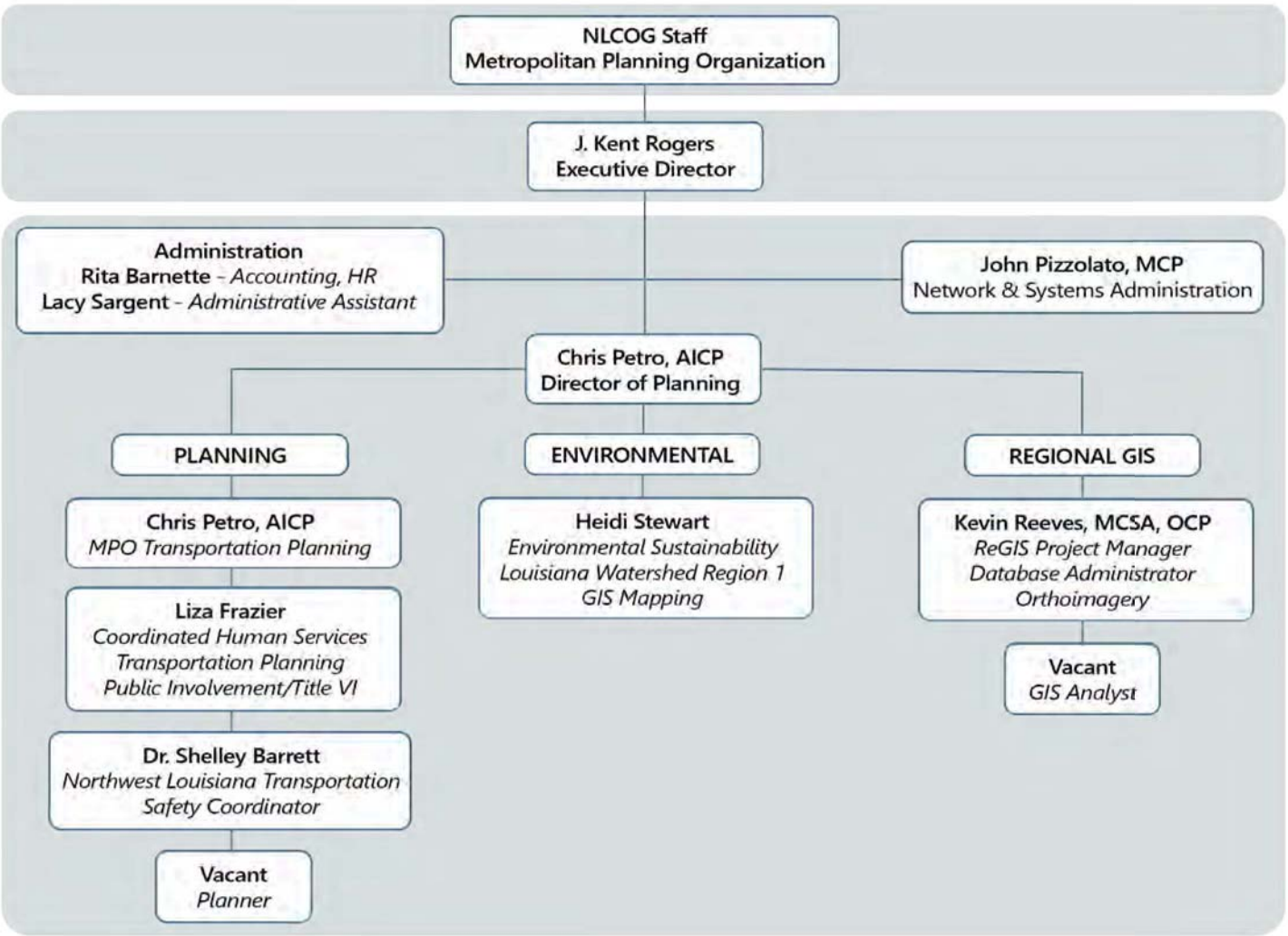
Coordinated Human Services Transportation Planning Committee

Coordinated Human Services Transportation Planning Committee (CHSTP) members include specialized and public transportation operators in Bienville, Bossier, Caddo, Claiborne, DeSoto, Lincoln, Natchitoches, Red River, Sabine, and Webster Parishes; and representatives of human service agencies specializing in employment, healthcare, and homeless advocacy.

NLCOG Staff

The NLCOG Board and MPO Committees are supported by a staff of professional planners and administrators who conduct and oversee the regional and metropolitan planning processes and carry out the day-to-day administration of the metropolitan planning program in accordance with federal, state, and local guidelines. **Figure 1-3** represents the organizational chart for staff.

FIGURE 1-3: NLCOG STAFF ORG CHART



2 | VISIONS, GOALS, AND OBJECTIVES

This chapter describes the federal guidelines for metropolitan transportation planning, the process of developing the vision, goals, and objectives, and the supporting performance measures used to monitor the proposed strategies for the NLCOG 2045 MTP. When combined, these components make up the guiding principles of the NLCOG 2045 MTP.

FEDERAL GUIDELINES

In 2015, the Fixing America's Surface Transportation (FAST) Act became the fifth intermodal surface transportation bill passed by Congress since 1991, the previous four laws being the Intermodal Surface Transportation Efficiency Act (ISTEA), the Transportation Equity Act for the 21st Century (TEA-21), the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and the Moving Ahead for Progress in the 21st Century Act (MAP-21). The FAST Act and its predecessors have served as a means to provide funding to states and local governments for surface transportation planning and investment. The FAST Act authorized $305 billion nationally for projects related to highways, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs over five fiscal years (2016 – 2020).

Though this initial time period is concluding, Congress has adopted a continuing resolution to extend the FAST Act authorization on a yearly basis until a new bill is written and adopted.

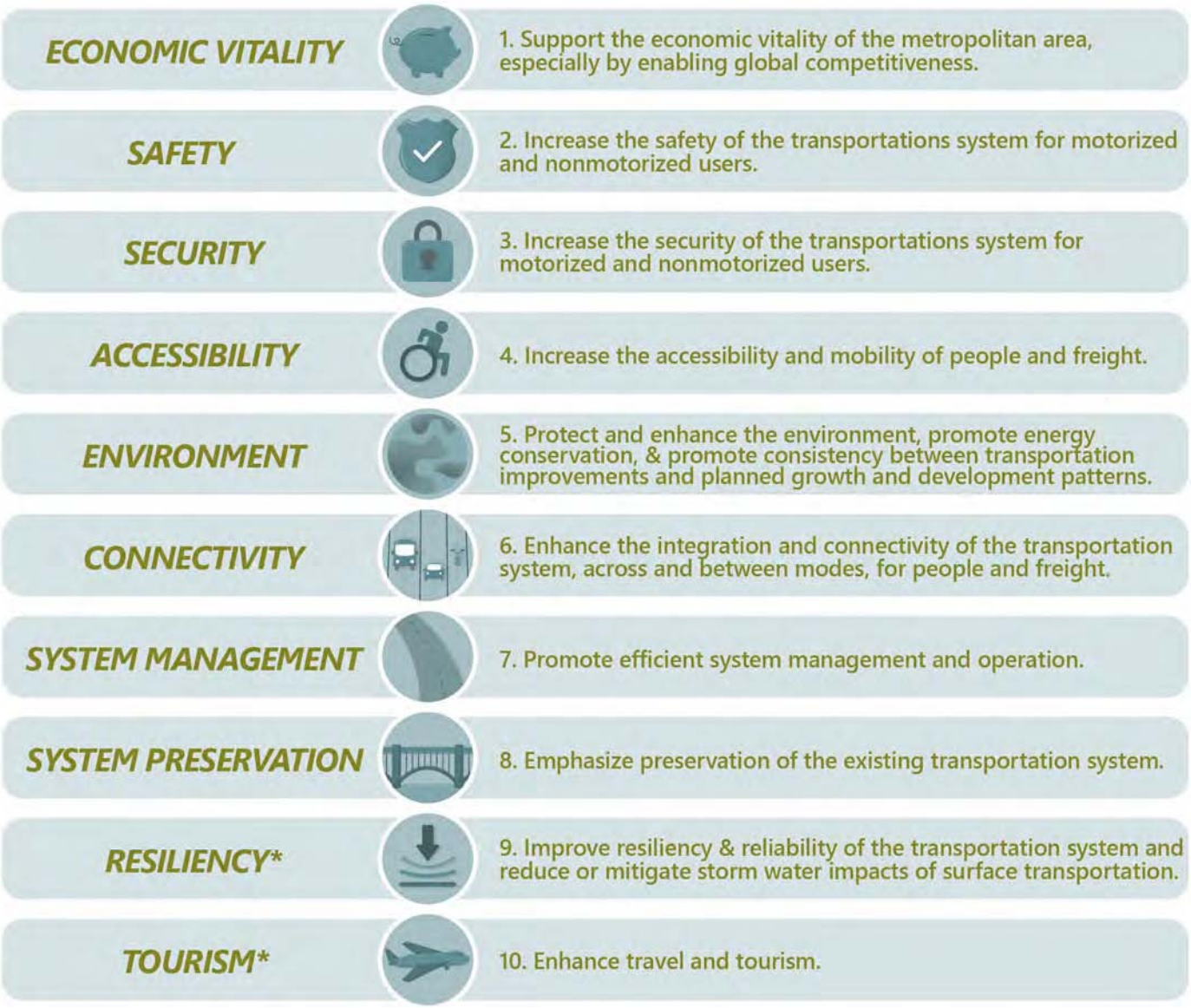
Planning Factors

The FAST Act retains the eight federal planning factors established under ISTEA and expanded under SAFETEA-LU, while adding two additional factors for consideration in the planning process.

This MTP update describes how the NLCOG provides for consideration and implementation of projects, strategies, and services that address the FAST Act planning factors represented in **Figure 2-1**.

Though these planning factors are discussed throughout the entirety of the MTP, Chapter 5 describes in detail how each of these factors is given consideration during the planning process.

FIGURE 2-1: FAST-ACT PLANNING FACTORS



**New factors introduced by the FAST Act.*

National Performance Goals

The FAST Act also maintains the requirement for a continuing, cooperative, and comprehensive long-range transportation planning process for making transportation decisions in metropolitan areas, while continuing and further defining requirements set forward in MAP-21 for state DOTs and MPOs to set performance measures and goals.

The application of performance measures to evaluate whether policies and transportation investments addresses goals in transportation planning creates the framework for a performance-based decision-making process.

This decision-making process uses objective, data-driven analysis to identify issues and assess proposed improvements against existing and expected future performance in these goal areas.

The process also inspires reasonable expectations that this data driven approach inherently increases transparency in decision making, and in turn yields investments that better align with the long-term mobility needs and goals of the community.

As major stakeholders in the multimodal transportation system, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have set forward National Performance Goals in order to encourage efficient investment of Federal transportation funds, increase the accountability and transparency of funding decisions, and to improve project decision-making through performance-based planning and programming. The FHWA defined national performance goals[1] are shown in **Figure 2-2**.

The FTA has set additional performance goals focusing on Safety and Asset Management that provide guidance on the implementation of scalable systems-level thinking processes for FTA funding recipients nationwide. Both FHWA and FTA performance goal areas and associated performance measures are presented in **Table 2-1**.

The application of these goals and the performance measures used in identifying existing needs and reporting transportation system performance to inform the decision-making process are discussed in greater detail in Chapters 4 and 5.

A system performance report is also provided in the final chapter (8) of the MTP.

FIGURE 2-2: FEDERAL PERFORMANCE GOALS

[1] https://uscode.house.gov/view.xhtml?req=(title:23%20section:150%20edition:prelim)

TABLE 2-1: PERFORMANCE GOALS AREAS AND ASSOCIATED PERFORMANCE MEASURES

Performance Goal Area	Performance Measure
FHWA PM1 Safety	Number of Fatalities
	Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT)
	Number of serious injuries
	Rate of serious injuries per 100 million VMT
	Number of non-motorized fatalities
	Number of non-motorized serious injuries
FHWA PM2 Infrastructure Condition	Percentage of pavements of the Interstate System in Good condition
	Percentage of pavements of the Interstate System in Poor condition
	Percentage of pavements of the non-Interstate NHS in Good condition
	Percentage of pavements of the non-Interstate NHS in Poor condition
	Percentage of NHS bridges classified as in Good condition
	Percentage of NHS bridges classified as in Poor condition
FHWA PM3 System Performance/Freight/ Congestion Management and Air Quality	Percentage of person-miles traveled on the Interstate that are reliable
	Percentage of person-miles traveled on the non-Interstate NHS that are reliable
	Percentage of Interstate system mileage providing for reliable truck travel time (TTTRI)
	* Annual Total Tailpipe CO2 Emission on NHS
	* Annual Hours of Peak Hour Excessive Delay (PHED) per capita
	* Percent of Non-SOV Travel on network
FTA State of Good Repair	Percentage of revenue vehicles (by type) that exceed useful life benchmark (ULB)
	Percentage of non-revenue service vehicles (by type) that exceed ULB
	Percentage of facilities (by group) rated less than 3.0 on Transit Economic Requirements Model (TERM) scale
FTA Safety	Total number of reportable fatalities
	Rate of reportable fatalities per total vehicle revenue miles by mode
	Total number of reportable injuries
	Rate of reportable injuries per total vehicle revenue miles by mode
	Total number of reportable events
	Rate of reportable events per total vehicle revenue miles by mode
	Mean distance between major mechanical failures by mode

**Applies to areas designated as nonattainment or maintenance for ozone, carbon monoxide or particulate matter. None of the parishes within the NLCOG planning area are within nonattainment or maintenance status as of January 31, 2021.*

PLAN REVIEW

The metropolitan transportation planning process also considers, directly or by reference, additional goals, objectives, performance measures, and targets beyond those set by federal guidance. The additional input is derived from state, regional, and local transportation plans, and transportation processes, as well as other locally developed plans by providers of public transportation, all of which are integrated in the metropolitan transportation planning process.

The integration of the goals, objectives, and performance measures in these plans helps both ensure that the stakeholder input is maximized, and that the planning process is comprehensive.

The following sections review and summarize planning documents at the state, regional, and local level as part of this process to ensure consistency with regional planning efforts and ongoing state and local planning activities.

Local Planning

Planning occurs at various levels of detail depending on the scope and scale of the goals, objectives, or purpose of the planning effort. Coordination and cooperation between these levels is important for successful planning, especially where local municipalities are vested stakeholders in the regional planning process. Planning processes, efforts, and documents were reviewed at the parish, city and local agency level in order to provide an assessment of current efforts and incorporation of goals and objectives into the MTP process.

TABLE 2-2: LOCAL PLANNING DOCUMENTS REVIEWED

Document Sponsor	Planning Focus	Document Name
NLCOG	Active Transportation	Caddo Parish Bicycle Plan
City of Shreveport	Asset Management	Administrative Action Plan 2015-2017: Roadway Improvements
City of Shreveport	Multimodal Transportation	City of Shreveport Strategic Plan
Bossier City		Bossier Downtown Re-Envisioning Plan
NLCOG	Public Transportation	NLCOG Public Transportation Study
Bossier Parish	Resilience and Hazard Mitigation	Bossier Parish Hazard Mitigation Plan Update
Caddo Parish Sheriff's Office		Caddo Parish Emergency Operations Plan
Webster Parish		Webster Parish Hazard Mitigation Plan
SPORTRAN	Safety	Shreveport Area Transit System (SPORTRAN) Public Transportation Agency Safety Plan

The planning documents referenced in **Table 2-2** express a range of goals and objectives that inform the application of the federal planning factors at the local and regional level. The integration of these efforts in metropolitan transportation planning helps ensure that the FATS Act factors bridge from high level concepts to the application at the local level. Additionally, the coordination evident in the local plans not only supports regional mobility but incorporates strategies that support and safeguard the personal security of motorized and non-motorized users. This includes emergency relief and disaster preparedness plans, as well as policies, and strategies that support Homeland Security.

CADDO PARISH BICYCLE PLAN

The 2016 bicycle plan for Caddo Parish is an advisory document that informs the MTP using a Complete Streets focus. The plan extends parish wide and looks at key connections and potential extensions within the existing active transportation network that would support bicycle use, while balancing safety, system preservation, as well as environmental sustainability.

CITY OF SHREVEPORT ADMINISTRATIVE ACTION PLAN

The Administrative Action Plan lays out a capital improvement program to maintain and improve city streets in Shreveport. This plan details overlay and improvement programs including bicycle improvements. Though the horizon year of the Administrative Action Plan predates the beginning of this MTP update, the coordination and efforts toward citywide improvements directly support the development of goals and objectives for the MTP update.

CITY OF SHREVEPORT STRATEGIC PLAN

The City of Shreveport's 2015 Strategic Plan is a tool for managing, measuring, and tracking goals for the city. Metrics for performance management are on community "vision." Four of those goals relate to the transportation system. These are:

1. Provide a safe and secure aviation/multimodal transportation system that is financially self-sustaining, an economic catalyst for the region, and an organization that is efficient and customer focused.
2. Build a healthy and sustainable community where all citizens have access to economic development opportunities and a high quality of life.
3. Maintain an effective, efficient, safe, and clean citywide infrastructure system in a cost-effective manner while responding to citizens' needs and desires.
4. Provide safe, dependable, convenient, and courteous public transportation.

BOSSIER DOWNTOWN RE-ENVISIONING PLAN

Bossier City's Downtown Re-Envisioning Plan is a $15M downtown development plan produced in 2016 that highlights the need for a road diet on a portion of the roadway along Barksdale Blvd as well as the need for accommodation of active transportation access. The district developed as a part of the plan is now known as the Eastbank District and represents the community's desire for green infrastructure improvements.

NLCOG PUBLIC TRANSPORTATION STUDY

This transit performance study covers the Shreveport-Bossier City Urbanized Area (UZA) as served by Shreveport Area Transit System (SporTran) and reviews the performance of the system. The study provides detailed plans for meeting the demand needs of the UZA. Performance measures identified in the study are used to define and clarify goals, monitor performance, set targets, guide policy and investment decision making, and assess effectiveness of projects and strategies.

The study recommends that SporTran establish baseline performance standards and recommends selecting metrics for these standards from one or two performance measures from each category encompassing 52 recommended metrics. The study also suggests specific route changes to accommodate the concerns identified during the stakeholder engagement process.

BOSSIER PARISH HAZARD MITIGATION PLAN UPDATE, 2016

The Bossier Parish Hazard Mitigation Plan serves as a resource for understanding access and connectivity prior to and during emergency events. This plan documents the framework for coordination and chain of command during an event and directly references regional planning processes as part of the planning process.

Additionally, the Bossier Parish Hazard Mitigation Plan identifies crucial transportation arteries in Bossier Parish and includes mitigation strategies ranging from improved coordination across agencies to individual drainage improvements. The goals and objectives in this plan also directly correlate to regional resilience and environmental sustainability.

CADDO PARISH EMERGENCY OPERATIONS PLAN, 2017

Like the Bossier Parish Hazard Mitigation Plan, Caddo Parish's adopted 2017 emergency plan provides guidance for strategies and priorities that support mitigating hazards and risks prior to any occurrence as well as defining frameworks for emergency response. The Caddo Parish Emergency Operations Plan identifies potential hazards that can be expected to impact roadways throughout the study area and identifies courses of action for response to each threat to safety and security. Of note is the identification of specific roadways that will become inundated at varied flood event levels.

Coordination with transit agencies for the use of buses during emergency evacuation is also of particular consideration within this emergency operations plan. In addition, the plan outlines an order of operations based on recovery need for clearance of specific roadways following a disaster event so that relief and recovery vehicles can access their destinations.

WEBSTER PARISH HAZARD MITIGATION PLAN

The Webster Parish Hazard Mitigation Plan, produced in 2016, is a tool for inter-agency coordination in the response to and mitigation of potential emergency situations. This comprehensive document encompasses capabilities and strategies across all planning levels within the parish. Of note is the identification of portions of the roadway network which serve vulnerable populations and will be crucial to response and recovery in emergency events as well as goals and objectives directly tying to regional resilience and economic recovery.

SPORTRAN PUBLIC TRANSPORTATION AGENCY SAFETY PLAN (PTASP)

The Public Transportation Agency Safety Plan (PTASP) serves as an implementation plan for reducing risks and improving security of transit agency services provided by SporTran. The PTASP was completed following guidance by FTA set forward in 49 CFR part 673. The performance metrics used to represent baselines and set performance targets are fatalities, rate of fatalities per 100k vehicle revenue miles, number of injuries and rate of injuries per 100k vehicle revenue miles, number of safety events, rate of safety events per 100k vehicle revenue miles, and mean distance between major mechanical failure. SporTran is a participant in the MPO, Transit Asset Management (TAM) performance targets are likewise shared with NLCOG. These safety performance measures are incorporated in the systems performance report of this MTP update.

Regional Planning

Regional planning by nature must be comprehensive and integrate local goals and objectives with those presented at the statewide and even national level. Documents represented in **Table 2-3** cover multiple areas of focus and are inherently all multimodal, though for purposes of representation have been identified by the primary subject of each plan. Planning documents produced by NLCOG represent coordination across the agencies and municipalities represented by members of the NLCOG committees referenced in Chapter 1. These documents represent considerable effort and coordination in establishing and working towards regional goals.

TABLE 2-3: REGIONAL PLANNING DOCUMENTS REVIEWED

Document Sponsor	Planning Focus	Document Name
NLCOG	Economic and Cultural Development	North Louisiana Passenger Rail Feasibility Study
NLCOG	Multimodal Transportation	Caddo Bossier 2040 Thoroughfare Study
NLCOG		Mobility 2040: Long Range Transportation Plan
NLCOG		Transportation Improvement Program 2019-2022
NLCOG		Transportation Performance Measurement MPO Framework for Performance Measures and Target Setting
NLCOG	Public Transportation	Coordinated Human Services Transportation Plan for Northwest Louisiana
DOTD	Intelligent Transportation Systems	Shreveport Regional ITS Architecture

NORTH LOUISIANA PASSENGER RAIL FEASIBILITY STUDY, 2015

The 2015 passenger rail study looks at the Shreveport, LA-Vicksburg, MS corridor as a potential location for passenger rail service. The new service would use 170 miles of existing freight rail line as it is the only viable route that is cost effective. The rail corridor contains 12 passing sidings, eight additional short sidings (less than a mile in length), interchanges in Shreveport, Monroe, and Gibsland. The study identifies infrastructure improvements necessary for successful service, market demand for the service, necessary financial resources, and potential revenue sources.

CADDO-BOSSIER 2040 REGIONAL THOROUGHFARE STUDY, 2017

In 2017, NLCOG produced a Regional Thoroughfare Study with the goal of ensuring the completion of community-identified future network needs. The study focuses on right-of-way (ROW) preservation, and aligns with local ordinances, providing information for updating both those ordinances and current master street plans. Through the planning process a tool was developed for future roadway design. The tool provides direction on functional classification, land use context, and design elements and is available on the NLCOG website. The study also highlights existing design standards from the Unified Development Codes of the cities of both Bossier City and Shreveport, provides a table of functional classifications, and lists prioritized projects from the Mobility 2040: Long Range Transportation Plan.

MOBILITY 2040: LONG RANGE TRANSPORTATION PLAN

The NLCOG Mobility 2040, the preceding MTP to this update, places an emphasis on connectivity for all modes of transportation. Using performance-based criteria Mobility 2040 identifies gaps in the transportation network and ranks potential improvements using community inputs and multiple planning scenarios to create a prioritized project list. Projects included in the prioritized projects list span three main categories: System Preservation, Capacity Improvements, and Safety and Other. The Safety and Other category includes active transportation, transit, and operational improvements. The goals and strategic guidelines provided in the Mobility 2040 MTP provide direct input in the formation of goals for this 2045 MTP update.

TRANSPORTATION IMPROVEMENT PROGRAM (TIP) 2019-2022

The 2019-2022 Transportation Improvement Program (TIP) serves as the project programming and coordination tool for the implementation stage of the Mobility 2040 plan and establishes investments and their respective performance-based planning standards. Details of the project selection and prioritization process are included in the plan.

NLCOG 2019 FRAMEWORK FOR PERFORMANCE MEASURES AND TARGET SETTING

Transportation Performance Management (TPM) integrates system-level details with national objectives to ensure a functional transportation system. The data-driven process described in the Framework document produced in 2019 provides means for monitoring effectiveness of programs and projects as they relate to national goals.

The goals identified in the TPM framework relate to safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays. The TPM framework also outlines metrics for each of those goals and includes two- to four-year targets for each metric. These targets support other statewide and regional transportation plans and directly integrate into MTP and TIP update processes.

COORDINATED HUMAN SERVICES TRANSPORTATION PLAN FOR NORTHWEST LOUISIANA

This plan is a comprehensive strategy for public transportation service delivery for individuals with disabilities, older adults, and individuals with limited incomes. A review of service deficiencies and infrastructure gaps shows that there are unmet transportation infrastructure needs across the entire planning area. Service gaps identified in the Coordinated Human Services Transportation Plan (CHSTP) include inaccessible walkways, unsafe crossings, unsafe rural and suburban roads for pedestrian and wheelchair users, inadequate pedestrian crossing times at signalized intersections, and lack of amenities for seniors in public spaces.

The 2017 CHSTP includes a vision, goals, and action steps that support a service concept for regional and community-based service networks that allows organizations to work together and better serve transit dependent and special needs populations. Strategies to meet those goals involve needs assessments, gap identification, coordination, and travel training for transit agencies.

NORTHWEST LOUISIANA TRANSPORTATION SAFETY COALITION STRATEGIC HIGHWAY SAFETY PLAN

The Northwest Louisiana (NWLA) Transportation Safety Coalition represents a broad spectrum of stakeholders and serves in coordination with DOTD as the regional implementation strategy for the Strategic Highway Safety Plan (SHSP) at the regional level. The NWLA SHSP was first presented in 2016 and is a living document that uses data driven analysis. This ongoing process works on renewing approaches to regional safety needs and proven countermeasures, addressing focus areas of Impaired Driving, Distracted Driving, Young Drivers, Occupant Protection, and Infrastructure & Operations..

SHREVEPORT REGIONAL ITS ARCHITECTURE

The Shreveport Regional Intelligent Transportation Systems (ITS) Architecture plan focuses on using the national ITS architecture framework in order to facilitate cross regional and statewide integration and interoperability while reflecting the goals and objectives of the NLCOG region. The ITS Architecture document also details how this framework addresses the federal planning factors and national performance goals.

Statewide Planning

Statewide planning efforts serve as the bridge between national performance goals, federal transportation funding requirements, and the needs and goals of regional and local communities. The documents shown in **Table 2-4** represent extensive research, outreach, and coordination and provide direction for transportation performance target setting.

TABLE 2-4: STATEWIDE PLANNING DOCUMENTS REVIEWED

Document Sponsor	Planning Focus	Document Name
LA DOTD	Active Transportation	Complete Streets Policy Update
LA DOTD	Asset Management	Louisiana Transportation Asset Management Plan 2018 (infrastructure)
LA DOTD		Transit Asset Management Plan (transit)
LA DOTD	Economic and Cultural Development	Louisiana Freight Mobility Plan
LA DOTD		Louisiana State Rail Plan 2015
LA DOTD	Multimodal Transportation	Louisiana Statewide Transportation Improvement Plan 2019-2022
LA DOTD		Louisiana Statewide Transportation Plan
LA DOTD	Safety	Destination Zero Deaths: Louisiana Strategic Highway Safety Plan
LHSC		Strategic Plan: FY 2020-2021 – 2024-2025

COMPLETE STREETS POLICY UPDATE

In 2017, the LA DOTD updated their Complete Streets policy regarding planning for pedestrian and bicycle facilities on all new and reconstruction roadway projects with LA DOTD funds. Updates include up-to-date lists of municipal bicycle and pedestrian plans, updates to minimum design guidelines, clarification of implementation tools and performance reporting, and most recent crash data.

LOUISIANA TRANSPORTATION ASSET MANAGEMENT PLAN 2018 (TAMP)

The Transportation Asset Management Plan (TAMP) for the state includes a list of assets relevant to the transportation network and provides information on their current condition, objectives for future management, and measures for achieving those goals. The plan relies on travel demand and life cycle planning to identify investment strategies for improved performance across the transportation network.

Key to the success of the 2018 TAMP is a shift away from "Worst First" road and bridge asset replacement strategy toward a "Preservation First" strategy that is more cost-effective in the long run. By investing in preservation, the state aims to preserve a much larger number of assets. The TAMP provides numerous evaluation tools and datasets toward this end.

TRANSIT ASSET MANAGEMENT (TAM) PLAN, 2018

In 2018, an updated Transit Asset Management (TAM) Plan was produced by LA DOTD to identify the current conditions and performance targets of public transportation assets within the state. The TAM Plan lays out steps for meeting the FTA standard of a State of Good Repair (SGR) where transit assets function to their best capability. The TAM plan serves as an investment and prioritization tool for DOTD as the direct recipient of section 5311 and 5310 transit funds. The 2018 Louisiana TAM Plan builds from ongoing statewide coordination and support activities of rural transit agencies and includes specific strategies for maintenance, overhaul, and acquisition. It also provides a detailed explanation of a vital data management tool DOTD developed for transit providers called the Statewide Tracking and Reporting System (STTARS).

LOUISIANA FREIGHT MOBILITY PLAN, 2015

The Louisiana Freight Mobility Plan serves as a guide toward a healthy and functional freight system. In coordination with other state plans, the goals and objectives of the plan cover five distinct planning areas. These are:

1. Economic Competitiveness and Efficiency
2. Safety and Security
3. Infrastructure Preservation and Maintenance
4. Environmental Stewardship
5. Performance and Accountability

The Freight Mobility Plan also identifies strategies for meeting the above goals and objectives. These performance measures pertain to the function of highway, railroad, and waterway assets in terms of their ability to meet freight-related demand. Because available funding falls short of need the plan stresses cost-sharing among partners and beneficiaries of freight-related transportation projects. The plan also shows how the goals in the Freight Mobility Plan align with the goals stated in the State Transportation Plan (LA DOTD, 2015) as well as national goals.

LOUISIANA STATE RAIL PLAN 2015

The 2015 Louisiana Rail Plan provides information on the capacity, performance, and demand on freight and passenger service for the Louisiana railway system from 2015 to 2035. The Rail Plan includes a detailed inventory of rail facilities, their condition, and respective ownership. Objectives included in the rail plan are divided into two categories - freight rail and passenger rail - and cover issues surrounding safety, financing, economic development, and multimodal planning.

The Rail Plan includes a detailed inventory of rail facilities, their condition, and respective ownership.

LOUISIANA STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM 2019-2022

In 2019, the Louisiana Department of Transportation Development (LA DOTD) produced an updated Statewide Transportation Improvement Program (STIP). The 4-year budgetary program outlined in the STIP includes projects across the state programmed for near term implementation using state and federal dollars. The STIP incudes projects for each of Louisiana's eleven MPO's as reflected in their respective TIPs. The statewide program also includes GIS maps and reiterates goals and objectives for highway, bridge, public transit, bike, pedestrian, railroad, and other transportation system improvements as stated in other statewide plans such as Transportation Asset Management Plans (TAMP) and Transportation Performance Management Plans (TPM). [2]

LOUISIANA STATEWIDE TRANSPORTATION PLAN

The 2015 Statewide Transportation Plan (STP) provides recommendations for meeting the demand that all modes within the Louisiana transportation network are expected to see in the coming 30 years. The STP, written in close collaboration with public and private sector partners as well as communities across the state, focuses on the state's financial setting as it relates to the condition and performance of the current transportation system. The top concerns identified by stakeholders during the visioning process of the STP are preservation and maintenance of existing roads within the network. In addition, there was a notable trend in favor of a broader range of transportation options as opposed to focusing primarily on cars and roads. Policies and recommendations for meeting DOTD and partner agency goals were identified in the STP through data-driven demand modeling of the system in terms of deficiencies in maintenance, preservation, modernization, and expansion.

DESTINATION ZERO DEATHS: LOUISIANA STRATEGIC HIGHWAY SAFETY PLAN

The 2017 Louisiana Strategic Highway Safety Plan (SHSP) works toward eliminating traffic-related deaths and serious injuries. The 2017 plan titled, Destination Zero Deaths, provides detailed background on the progress of safety goals and directs further progress using tools such as education, evaluation, outreach, and interagency coordination. Just like the regional SHSP this plan is a living document that works in conjunction with regional efforts. Statewide efforts support each of the Regional Safety Coalitions and their approaches to implementing SHSP policies at the regional level.

LHSC STRATEGIC PLAN

For the 5-year period from fiscal year 2020-2021 through 2024-2025, the Louisiana Highway Safety Commission (LHSC) Strategic Plan works in conjunction with the SHSP and serves as a guide for transportation programming that reduces death and injury on Louisiana highways and identifies performance indicators for measurable success of implementation.

[2] http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Multimodal/STIP/Misc%20Documents/Current%202019,%202020,%202021,%202022%20STIP.pdf\

PRELIMINARY MTP GOALS AND VALUES

The tenets, goals, objectives, and related performance measures from the aforementioned plans were compiled and reviewed alongside the federally prescribed goals, objectives, and performance measures in order to develop the preliminary goals for this MTP update. These goals and objectives were then used as a starting point for the regional visioning process carried out during public involvement.

The preliminary NLCOG 2045 MTP Goals (Values) represented in **Figure 2-3** are a synthesis of previous planning efforts, current scoring criteria, and national performance goals. These proposed goals were crafted to help create a unified regional perspective on long-range transportation planning and inform the project scoring and public involvement processes. Accompanying objectives and correlation with national performance goals at greater length in Chapters 5 and 8.

FIGURE 2-3: PRELIMINARY MTP GOALS (VALUES)

REGIONAL VISIONING PROCESS

Though the planning process used for the creation of the NLCOG 2045 MTP is prescribed by state and federal regulations, the vision is developed locally. This plan focuses on forging a new regional vision by combining the knowledge of each parish government and local community, while following the state and federal guidelines that direct the general planning process.

The vision is achieved not only through a review of locally generated plans and information described in the previous section, but extensive public input and collaboration of regional stakeholders including local, state, and federal agencies and governing bodies, public and private transportation providers, and the business community.

Input from the public and from these stakeholders is integrated into the metropolitan planning process so that the community's visions and goals coalesce into defined principles that help guide transportation policy and investment decisions within the NLCOG MPA. The resulting recommendations and proposed improvements impact all users of the transportation system.

The specific ways in which the research and planning were used in the public involvement and regional visioning process is described in Chapter 3 Public Engagement.

3 | PUBLIC ENGAGEMENT

This chapter summarizes public outreach efforts undertaken in the development of the NLCOG 2045 MTP, including public visioning opportunities, stakeholder interviews, surveys, and the draft plan public comment period, as well as adapted public participation methods used during the COVID-19 pandemic.

INTRODUCTION

Public involvement efforts are essential to any transportation plan, ensuring that the members of the community impacted by the plan are informed of the process and given the opportunity to participate in their development. Public input enables planners and local officials to make decisions and develop solutions that are sensitive to the needs of the community.

The public participation process equips decisionmakers to maintain community dialogue and address the needs and goals of the public effectively. Methods may vary by region, but the collaborative process of public involvement remains an integral part of creating a well-rounded transportation plan. To maximize public input, public participation efforts were implemented early and continuously throughout the development of the NLCOG 2045 MTP, beginning in mid-2020 and extending through plan adoption in April 2021.

FEDERAL REQUIREMENTS

As required by the FAST Act and 23 CFR §450.316, MPOs must provide opportunity for the public to comment on the development and content of the MTP, TIP, and any other revisions to major plans.

'The public' includes "citizens, affected public agencies, representatives of public transportation employees, freight shippers, providers of freight transportation services, private providers of transportation, representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, and other interested parties" [1201(i)(6)(A)].

NLCOG works in consultation with state and local agencies in the coordination of updating the transportation plan with other existing plans.

NLCOG Public Involvement Plan

In accordance with federal requirements, the NLCOG 2045 MTP was developed using methods outlined in the NLCOG Public Involvement Plan (PIP). The PIP was adopted on February 16, 2018 and establishes public outreach methods and guidelines for NLCOG projects.

The PIP requires NLCOG to proactively inform and solicit input from members of the public by sharing information about plans and projects and why they are needed, and by providing opportunities for feedback throughout the planning stages. Benefits of proactive, comprehensive outreach as described in the PIP include:

- Early identification of potential community issues that should either be addressed to allow the project to move forward or cause the project to be re-evaluated.
- Building a credible and trusting relationship between the MPO and the community it serves through partnering, outreach, active listening, and two-way communication.
- Sustaining or improving the quality of life in a community through an open dialogue and understanding of issues related to transportation planning and project development.

- Minimizing conflict through understanding the relationship between transportation decisions and the community.[1]

Federal guidelines for effective public engagement are described in the PIP as shown below:

- Provide timely information about transportation issues and processes.
- Provide reasonable public access to technical data and policy information that is used in plan development.
- Give adequate notice of opportunities for public involvement using outlets such as social media, radio, or newspaper ads, email, and flyers or posters.
- Allow time for public review and comment at key points in the planning process. Comment periods before the adoption of an MTP should be no less than 30 days.
- Respond in writing to public input when applicable.
- Seek out and emphasize input from communities historically underserved by existing transportation systems.
- Coordinate public outreach efforts with those of other local, state, and federal entities whenever possible and appropriate.[2]

The PIP addresses parameters of Title VI of the Civil Rights Act of 1964 and highlights the need to target traditionally marginalized populations, such as racial and ethnic minority populations, the disabled, the elderly, low-income populations, and those with limited ability to speak, read, or write in English, which have historically been underrepresented or excluded from political processes.

OUTREACH PLAN

In addition to the NLCOG PIP, the development of this plan was guided by the NLCOG MTP Outreach Plan (OP). The OP laid out how the project team would inform and engage the general public as well as key stakeholders in order to gather local knowledge and input that would supplement the technical analyses informing plan recommendations. The OP upheld key goals of the NLCOG PIP, including:

- Increase the public's understanding of the transportation planning and decision-making process in Northwest Louisiana.
- Ensure the public is aware of involvement opportunities and that they are adequate, appropriate, and meaningful.
- Identify and involve traditionally underserved communities in Northwest Louisiana in the decision-making process.

By adhering to the NLCOG PIP, the MTP outreach process ensured compliance with federal transportation planning requirements. The OP defined unique parameters for virtual meeting and engagement methods that were implemented during the ongoing COVID-19 pandemic.

[1] Northwest Louisiana Council of Governments, "Public Involvement Plan," February 16, 2018. 28-29.

http://www.nlcog.org/pdfs/PIP/FINAL_NLCOG_Public_Involvement_Plan_update_02162018.pdf

[2] Northwest Louisiana Council of Governments, "Public Involvement Plan," 14-15.

OUTREACH EFFORTS

NLCOG conducted multiple public and stakeholder outreach efforts to better understand the community's transportation challenges, needs, and opportunities. The participants' responses provided insight into their vision for the future of the transportation system and their goals for the Northwest Louisiana region in 2045. This section describes all public engagement strategies used in developing the NLCOG 2045 MTP, including online visioning exercises, public surveys, stakeholder meetings, and the virtual public comment platform.

Online Visioning

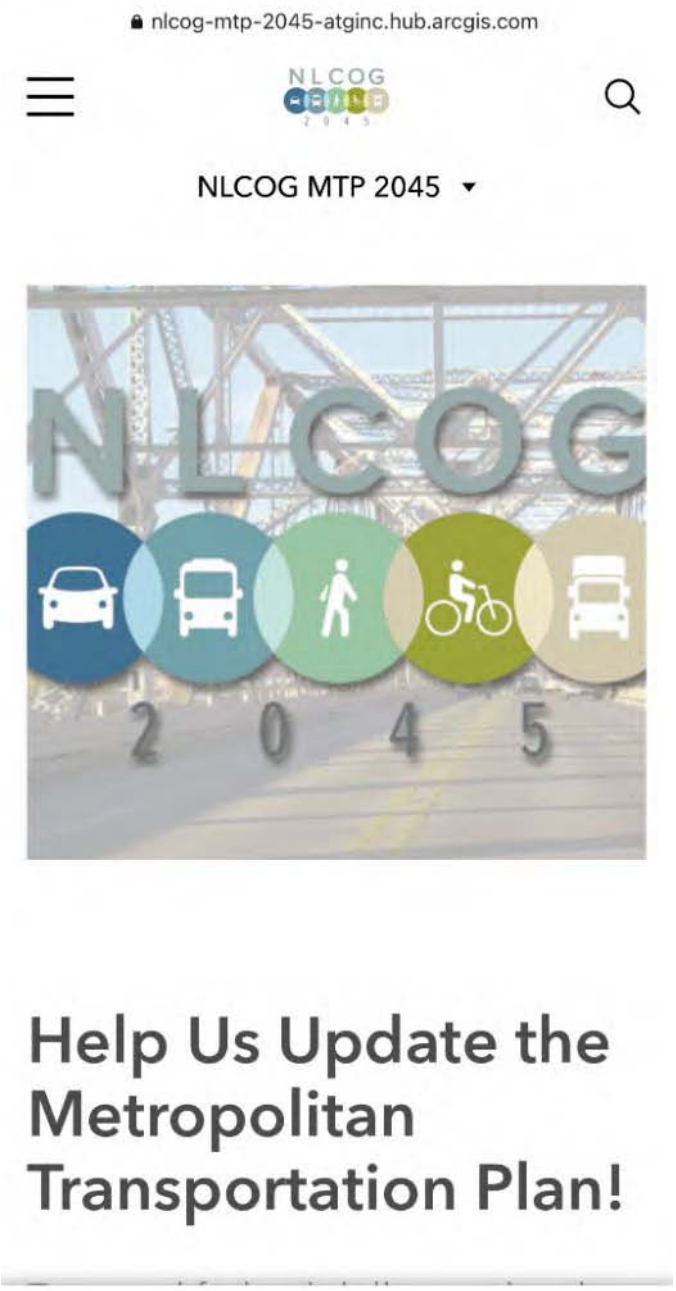
At the outset of the MTP process, the project team sought input from members of the community regarding their priorities for the future regional transportation system. Due to public health restrictions caused by the COVID-19 pandemic, the visioning process was conducted online. The community was notified of the opportunity through social media posts, stakeholder outreach, and the NLCOG website. An example of a social media advertisement is shown in **Figure 3-1**.

FIGURE 3-1: EXAMPLE SOCIAL MEDIA POST

The feedback provided through the online visioning tool shaped the MTP goals and objectives and provided critical insights that helped NLCOG prioritize the transportation improvement projects proposed for inclusion in the plan. The visioning process was conducted through a custom-built website with various modules that explained the purpose of the MTP and gathered different types of feedback about community values and existing conditions.

Accessibility was considered in the creation of the online visioning platform. The site is mobile-friendly so that people without access to a computer were still able to participate, shown in **Figure 3-2**. For those with difficulty speaking or writing in English, the site can also be translated using an embedded translation tool on desktop and mobile.

FIGURE 3-2: MOBILE VISIONING SITE

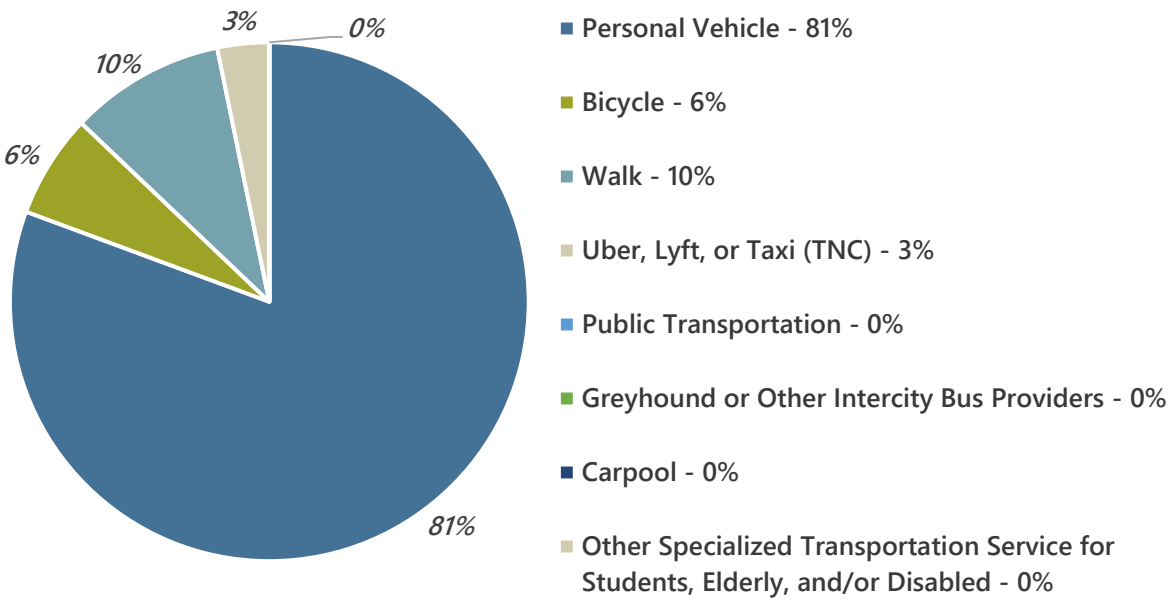


DEMOGRAPHIC SURVEY

One component of the visioning process surveyed participants for general demographic information. This was done in accordance with the NLCOG PIP guidelines for requesting and collecting demographic data at public meetings, which is required by the Federal Highway Administration to ensure that a diverse range of perspectives in the community are represented in public feedback gathered.

Thirty people responded to the demographic survey. Respondents were primarily older, with 68% over 45 years old, and white, with nearly 92%. Additionally, 20% reported making $50,000 per year or less and approximately 8% reported having a disability. The forms of transportation reported as the most commonly used by respondents are shown in **Figure 3-3** on the following page**.**

FIGURE 3-3: VISIONING SURVEY RESULTS, TRANSPORTATION MODE SPLIT



GOAL PRIORITIZATION

The visioning tool was also used to ask participants to prioritize nine goal statements, which were derived from the FAST Act planning factors discussed in Chapter 2. These goals are shown in **Figure 3-4**.

The ranking exercise served to educate the public on each of the focus areas below, why they matter to the community, and how the MTP addresses them. The ranking results were then used as a weighting factor in the project scoring process. Responses to the goal prioritization are shown in **Figure 3-5**.

FIGURE 3-4: GOAL PRIORITIZATION OPTIONS

FIGURE 3-5: GOAL PRIORITIZATION RESULTS

"Quality of Life is providing adequate transportation so that average citizens can travel from home to work to school to play while spending an acceptable amount of time traveling including sitting in traffic."

– Public Comment

COMMENT MAP

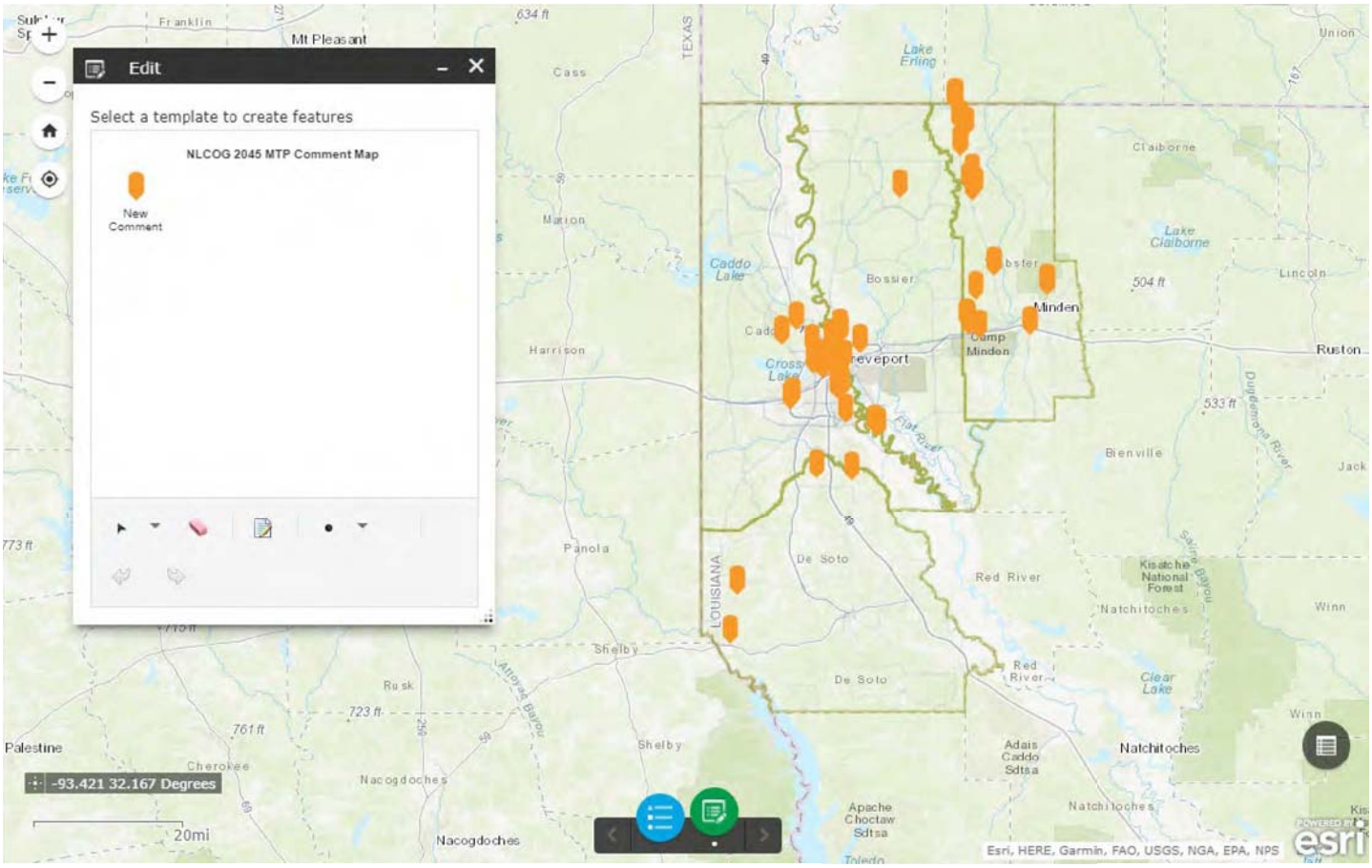
The final component of the online visioning platform was an interactive map that allowed participants to view the NLCOG planning area and leave written comments tied to a geographic location. Respondents were able to specify which of the above MTP goal areas their comment referenced.

A total of 42 comments were recorded on the map, shown in **Figure 3-6**. Most comments concerned specific roads, pointing out locations in the NLCOG planning area experiencing high levels of congestion, deteriorating road conditions, and roads that could benefit from expansion. Many comments highlighted areas that are growing and may warrant infrastructure investments to spur economic growth.

For example, one participant commented that "small businesses, neighbors, and [the] college would benefit from a road-diet between Creswell and Centenary on Kings Hwy." A significant number of the comments also indicated the desire for enhancements to the bicycle and pedestrian network throughout the region, identifying roads and intersections that are currently perceived as unsafe for people walking and biking.

The georeferenced feedback from the visioning map was considered in tandem with various technical analyses in the project evaluation process. The project selection and evaluation process are described further in Chapter 5 and Chapter 9.

FIGURE 3-6: VISIONING COMMENT MAP



Stakeholder Interviews

Stakeholder meetings were conducted to provide opportunities for key members of the community to contribute relevant feedback to the MTP process. Stakeholders were identified based on an individual's or group's technical expertise and local knowledge that would be valuable to the development of the MTP, as well as their ability to help build community awareness and support for the process.

Stakeholder groups included transit agencies, airports, Parish and local governments, freight companies, the Port of Caddo Bossier, transportation providers, and local community groups. Meetings were conducted virtually between September 2020 and January 2021. Stakeholder feedback is summarized by topic in **Table 3-1** on the following page.

TABLE 3-1: STAKEHOLDER MEETING SUMMARIZED FEEDBACK

Topic	Stakeholder Feedback
Capacity	- Main corridors are highly congested - Bossier Parish population growth over past decade has increased demand - Traffic slows through Shreveport due to highways narrowing - Lack of funding for some expansion projects (Benton Rd at I-220, Swan Lake Rd, LA 3 at Cypress Bend)
Funding	- There are constraints on funding from LA DOTD and the state - Bureaucratic roadblocks slow projects - Local street improvements included in Bossier construction plan - I-69 highway project is important to economic development, federal funding - Issues with adequate funding to complete projects
Transit	- Public transportation options are limited in most of the region - Enhanced inter-Parish transit options would help with access to employment centers - Expansion of SporTran service to the Port, deeper into rural areas - Most of the region is highly car-dependent - Development does not emphasize connectivity that supports transit
Growth	- Lack of 4-lane highways slows travel and limits development/industry, contributes to underemployment - Development and population in Shreveport are stalled/leveling off - Some increased development in Bossier City - Residential growth pockets in Stonewall, SE Shreveport, Blanchard, Greenwood - Growth in northern Caddo and Bossier Parishes dependent on increased access to water system - Growth at Louisiana Downs, Shreveport/Bossier City casinos and boardwalk - "The Triangle" – between I-20, Bellevue Rd, and Highway 157
Freight	- Some disjointed aspects of the freight system, availability of land is hampered by lack of solid road network to handle freight - Majority of freight is long-range to and from Dallas, Birmingham, Houston - The Port relies on infrastructure to grow capacity - Interstates are high priority considerations - Rail improvements would alleviate I-20 traffic demand
Airports/ Ports	- Port of Caddo Bossier somewhat isolated, LA 3132 would provide direct route - Overall connectivity between road, rail, and port network - Shreveport Airport would benefit from development nearby - There is potential for Webster and DeSoto airports to grow and alleviate pressure on Shreveport downtown facility - Expensive to fly out of regional airports, see more corporate/industry use - Bossier Parish adding additional locks and dams to help manage maritime traffic

Topic	Stakeholder Feedback
Roadway Conditions	- Interstate corridors not best shape compared to those in Texas - LA 5 is the main corridor crossing from Texas to I-49, needs improvements - Caddo Parish maintenance schedule is working well - Limited funding for some state roads - US 371 corridor to Springhill/North Webster Parish needs expansion or improved alternative from Arkansas to I-20 - Trucks and freight in shale region damages roads
Safety	- Interstate traffic through Shreveport on narrow parts of I-20, experiences a lot of accidents - US 371 condition, impatient drivers - I- 220 crossing I-20 experiences high volume of crashes - I-69 service road connection to Port - High accident rate between Benton and Bossier City - Signaling improvements in growing areas - Lighting issues on some corridors, I-20 and LA 3132 - Improved education on how to share the road with bicycles - Local support for separating local and through traffic where possible
Bicycle/ Pedestrian	- Dissatisfaction with lack of safe bicycle facilities, especially E/W corridors - Interest in shared use path projects to connect subdivisions - Signage increasingly important as facilities are built - Increasing park space is important - There is a lack of political will for a lot of active transportation projects - Plans for pedestrian bridges in Bossier Parish, walking paths to connect North Bossier - Improve education on safe routes
Coordination	- The state's project development processes take a long time to complete - Looking for improvements to online data sharing and awareness - Public can give up on projects because they are delayed - There are good collaborative relationships between city and Parish governments, NLCOG; newer relationship with Webster Parish - Community groups see communication issues with public outreach, lack of response from elected officials

Delphi Meetings

In addition to stakeholder interviews, the project team conducted multiple sessions with groups of stakeholders using an abridged form of a Delphi consensus building process. The purpose of the Delphi meetings was to convene a group of community members with local knowledge of development patterns and growth trends. These included representatives from Bossier Parish, Caddo Parish, the Shreveport Convention and Tourism Bureau, the Port of Caddo Bossier, LSU Shreveport, and the Bossier Economic Development Foundation.

The Delphi meetings were held in November and December of 2020. The conversations explored locations in the NLCOG planning area that pose opportunities for or constraints on population and economic growth. Findings from the Delphi meetings were used in the process of developing population control totals for each Parish used in demographic forecasting, which is described further in Chapter 4.

Meetings were facilitated with the use of an interactive map for recording feedback on regional growth patterns. Stakeholder comments were recorded as either points, indicating specific locations, or polygons, indicating general areas. Stakeholder comments are mapped in **Figure 3-7** and summarized in **Table 3-2** on the following page.

FIGURE 3-7: DELPHI COMMENT MAP

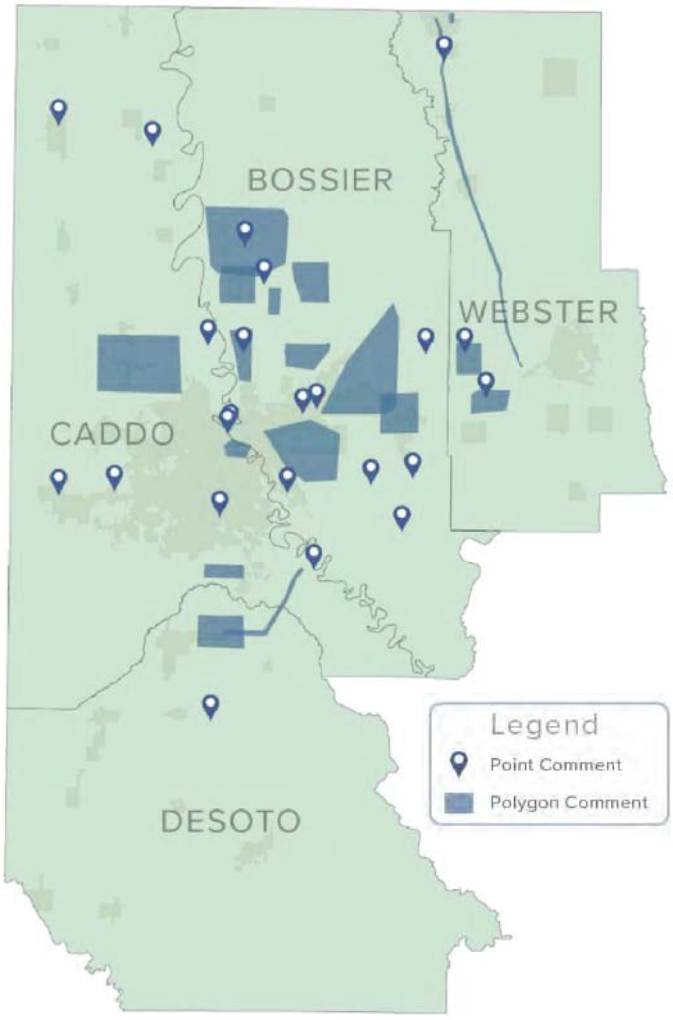


TABLE 3-2: DELPHI MEETING SUMMARIZED COMMENTS

Feedback Type	Stakeholder Comments

Growth Opportunities	- High residential growth occurring
	  o Benton
	  o Greenwood
	  o Vivian
	  o Blanchard along I-49
	  o Haughton (I-20 to Hwy 157)
	  o Southern Caddo Parish
	- Approx. 3,000 acres for lease surrounding Port of Caddo Bossier; neighbors who were limiting growth have been moving away from the port, population growth within 5 miles, attracting more industry and high-end housing development
	- Casino and boardwalk areas in Bossier City
	- Southeast Shreveport – high employment activity; medical development, LSU Shreveport
	- Retail, hotels, big box development near Stonewall and I-49 anticipating future I-69 service road
	- New buyer at Louisiana Downs may increase activity
	- Extension on 3132 Inner Loop
	- Events bring activity along 3049, "Boom or Bust Byway"
	- Urbanization and growth increasing between Bossier City and Benton; new residential subdivision
	- Possible site for Amazon or other distribution center – Greenwood at Bert Kouns Industrial Loop
	- Camp Minden has some water that could be used to serve new development in East Bossier Parish
	- Older unused expo hall in Shreveport may be converted in near future
	- Company in Springhill industrial area is expanding, employment growth and increasing freight traffic
	- "Triangle" located in East Bossier – formed by I-20, Hwy 157, Bellevue Rd

Growth Constraints	- Water line access needs to be extended and/or improved in several areas before residential growth can increase
	  o East Bossier Parish
	  o Southern Bossier Parish
	  o North DeSoto Parish
	- Zoning code restricts development that encroaches on Barksdale Air Force Base
	- Wellheads are very expensive to remove and restrict development
	- Springhill industry looking for better North/South access; US 371 conditions create issues drawing business and for freight connection to I-20
	- Growth in Shreveport has been leveling off in areas over the past decade due to constraints on available land

Draft Plan Review and Adoption

The draft MTP was available for public comment for a 30-day period from March 9 to April 7 in accordance with federal guidelines established in the NLCOG PIP. Due to the COVID-19 pandemic, public comment opportunities were conducted virtually.

The custom-built website created for the community visioning process was updated to include the draft chapters of the MTP and a survey that members of the community were asked to complete to share their comments on the plan. The comment map remained available for participants to use to leave location-based feedback. NLCOG publicized the opportunity to review the draft plan via social media posts and information on their website, ensuring the public was notified of the comment period.

As with the initial visioning effort, a mobile-friendly version of the site was available for people without access to desktop computers, and both desktop and mobile sites included a translation capability.

The draft MTP did not receive any comments from the public.

PUBLIC ENGAGEMENT SUMMARY

Public participation has long been a federal requirement for the long-range transportation planning process. The public participation process carried out by NLCOG in support of the 2045 MTP not only complies with federal regulations, but ensures the plan goes above and beyond the results of the technical analyses and incorporates information on how the public experiences and perceives the transportation system, which may not always align with the technical data.

NLCOG conducted a comprehensive public involvement and stakeholder engagement process to identify issues and understand the needs of the community, as well as those of agencies and organizations with a specific interest in the Northwest Louisiana transportation system. Developing the plan in close cooperation with the public and key stakeholders helps to ensure broad community support for plan adoption and implementation.

As state DOTs and MPOs across the nation transition to a performance-based planning and programming process as required under the FAST Act, it will be increasingly important to develop outcome-based goals and objectives that are closely tied to the adopted federal performance measures. These goals and objectives provided guidance to NLCOG and policy makers in selecting the projects that are included in the NLCOG 2045 MTP and help to link other transportation planning processes and documents produced by the MPO, like the Transportation Improvement Plan (TIP) and the Unified Planning Work Program (UPWP), with the long-term vision of the community.

4 | MULTIMODAL NEEDS ANALYSIS

This chapter examines existing and projected multimodal conditions to properly identify areas that represent deficiencies in the multimodal network. In turn, the chapter provides respective strategies to offset or eliminate these problem areas in the future. This analysis takes a holistic approach by analyzing all modes of travel within the NLCOG planning area and supports a data driven performance-based planning approach.

MULTIMODAL NEEDS ANALYSIS

A data driven analysis of current and future needs is a critical component of informed decision making. The following performance-based planning analysis is based on the most up-to-date estimates and assumptions for regional population, employment, land use, travel, congestion, economic activity, and equity in the NLCOG MPA. The analysis reviews all modes of transportation in terms of existing transportation infrastructure and facilities and their integration into the regional transportation system. Infrastructure and facilities reviewed include:

- Major roadways,
- Public transportation facilities,
- Intercity bus facilities,
- Multimodal and intermodal facilities for both passengers and freight,
- Nonmotorized transportation facilities (e.g. pedestrian walkways and bicycle facilities),
- Intermodal connectors, and
- Existing facilities that serve important national and regional transportation functions.

By reviewing the multimodal assets and activities within the planning area, the NLCOG 2045 MTP helps ensure that mobility strategies and transportation investments will address the needs within the area. Project recommendations were based on the analysis of current conditions (2018) and supplemented, where applicable, by conditions projected to exist in 2045.

To better understand the transportation and mobility needs within the NLCOG multimodal network, the review of existing and projected conditions included:

- Equity
- Demographics
- Roadway
- Freight
- Transit
- Active Transportation
- System Safety

This chapter is a high-level summary of the in-depth information contained in a series of needs analysis technical memorandums. All technical memorandums can be accessed through the NLCOG and provide additional detail on all analysis conducted and their key findings.

Analysis was also conducted, where applicable, to obtain baseline performance measures used to compare to FAST Act performance targets. These findings are summarized in Chapter 9.

Tools and Data Used

Due to the complexity of travel needs and the variety of modal systems available to address them, the project team used various resources and methods to create robust analysis detailing all multimodal aspects of the NLCOG MPA transportation system. The following sections define the tools and data used for the multimodal need analysis for the NLCOG MPA.

FEDERAL DATA SOURCES

To ensure a) a complete understanding of existing conditions on the NLCOG MPA roadway and freight networks and b) a federally compliant MTP, the project team used FHWA's National Performance Management Research Data Set (NPMRDS) to calculate baseline FAST Act system reliability performance measures for the existing system. These values were aggregated from the NPMRDS and joined to the NPMRDS Louisiana roadway network to spatially analyze and target areas of concern. The results of this analysis provide the NLCOG with quantitative values for performance measures for use in the evaluation and prioritization of transportation investments. The mobility measures used in the analysis include:

- Level of Travel Time Reliability (LOTTR)
- Truck Travel Time Reliability Index (TTTRI)
- Percent of person-miles traveled on interstate segments that are reliable
- Percent of person-miles traveled on non-interstate National Highway System (NHS) segments that are reliable

The project team also used FHWA's National Bridge Index (NBI) dataset and Highway Performance Monitoring System (HPMS) data to complete the operations and maintenance analysis for the NLCOG roadway network. This in turn produced baseline federal performance measures for the infrastructure condition goal area.

This data was used alongside the FHWA Computation Procedure for the Bridge Condition Measures and the Code of Federal Regulations (23 C.F.R 490.409) to determine the condition of each bridge asset, as well as guidance from the Code of Federal Regulations (23 C.F.R. 490.313) to categorize pavement conditions by International Roughness Index (IRI).

Geospatial FHWA data on the National Highway Freight Network (NHFN) was also examined to identify any Critical Urban Freight Corridors (CUFC) or Critical Rural Freight Corridors (CRFC). The four-parish area contains no identifiable roadways in either class of road. Therefore, two primary data sources served as the basis for the truck freight analysis. The first source of freight network data was the HPMS. In addition to the HPMS data, the Bureau of Transportation Statistics (BTS) in cooperation with the FHWA produces a Freight Analysis Framework (FAF) that that was used in the analysis. The FAF includes all the national roads that are components of the national freight network.

LADOTD DATA SOURCES

Data sets from LADOTD were used throughout the multimodal needs assessment. LADOTD crash data was the basis for all regional safety analyses and provided baseline federal performance measures for the safety goal area. This crash data covers the most recent five-year period (2015-2019) of data available in support of the requirements set forward in the Safety Performance Management Measures Final Rule (49 CFR part 490). This database contains a collection of records regarding motor vehicle traffic crashes as submitted by law enforcement officers through a standardized crash report.

These reports are processed to exclude personal information but include other crash details relevant to analysis, such as crash severity, contributing factors, time of day, location, and roadway condition.

TRAVEL DEMAND MODEL (TDM)

As part of the MTP update, the geographic limits of the NLCOG Travel Demand Model (TDM) were updated to include Webster Parish. Using the NLCOG TDM and Traffic Analysis Zones (TAZ) demographic inputs, existing and future population and employment values were developed to inform the needs analysis. Existing demographics are represented by the 2018 base year and future demographics by the 2045 forecast year for TAZs within the MPA, while the external inputs of traffic through, into, or out of the region were also informed by the use of purchased data sets such as Streetlight.

Further, a TDM roadway network was generated and used to analyze existing and future roadway network conditions. An existing plus committed (E+C) network was created by coding TIP projects underway or soon to be started to represent the 'committed' portion of the future roadway network. The E+C network was treated as the 2045 no-build network – a network with no other transportation investments beyond the 2018 E+C network – to highlight potentially deficient roadway segments within the NLCOG region. The 2018 E+C values were also compared to the 2045 build scenario to show potential improvements generated by the recommended projects. The 2045 build scenario included current, short- to mid-, and long-term capacity expansion projects included as part of the MTP in addition to the E+C network TIP projects.

The socioeconomic data necessary to run the model was gathered from a mixture of sources. The datasets included public domain data sources, published commercial datasets, and stakeholder input via a Delphi consensus building process.

CENSUS DEMOGRAPHIC DATA

Many demographic data types were used to determine the location and characteristics of people in the region. The analysis focused on existing populations and their demographic characteristics. The analysis relied primarily on 2014-2018 American Community Survey (ACS) five-year sample data. ACS data is based on a sample population measured at the block group level. Employment data is derived from the work-based Longitudinal Employer-Household Dynamics Origin-Destination Employment Statistics (LODES) for 2018, which is an aggregate dataset based on the census block group geography.

DESTINATION DATA

Data for destinations in the region was collected using the Info USA data sets for 2019. This data contains 18,359 mapped points of employment and employer data covering the four parish MPA. The data includes company names, estimates of total employees and categories for the business locations using North American Industry Classification System (NAICS) codes. The point data was reviewed for location accuracy using web-based mapping tools. Where central addresses were used to indicate all employment for a business, employment density was disaggregated from those central business addresses where appropriate.

For example, Info USA might show all jobs associated with a school district pin-pointed on the main office for the district, where all the employees are actually throughout the parish at the various schools. Business categories were developed from this to provide comparisons for different types of businesses in the NLCOG MPA. Data points with no employees, such as PO boxes and ATM machines were excluded from this analysis.

STREETLIGHT DATA

StreetLight Data was acquired by NLCOG and used to assist with the update to external station estimations for the NLCOG TDM Update. The external stations are locations at a point where a roadway identified in the roadway network crosses the boundary of the NLCOG TDM. Since the model boundary was extended to include Webster Parish, StreetLight Data provided the ability to gather data at these external stations without having to do field data collection or make overly generalized assumptions. The StreetLight Data provided origin-destination trip movements to understand the behavior of trips entering or exiting the expanded study area. For each external station, StreetLight Data provided useful information in understanding the percentage of passenger and truck trips that traveled from an external location to an internal location, as well as those that traveled from an external location to another external location without stopping somewhere within the NLCOG region. The origin-destination component of the StreetLight Data also informed about the exact external stations being used for the movements between two external stations.

GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

Throughout the NLCOG 2045 MTP multimodal needs analysis, GIS analysis was used to visualize data spatially, and accordingly generate key findings for all aspects of the transportation system. This quantitative analysis was paired with qualitative findings from public and stakeholder outreach, as well as plan reviews to create an in depth understanding of system deficiencies and needs both now and over the next 26 years. The primary tools used for analysis were ArcGIS Pro and ArcGIS Online.

EXISTING EFFORTS AND RESOURCES

Existing planning efforts were used to inform the multimodal needs analysis. Existing plans spanning all levels of government (state, parish, and municipal) and term (immediate, medium-term, long-term) were reviewed to guide the analysis. Further information from the plan review can be found in Chapter 2.

ANALYSIS RESULTS

The following sections highlight key findings from all multimodal analyses. As previously mentioned, detailed analysis can be found in the NLCOG 2045 MTP technical memorandums accessible through the NLCOG.

Demographics

When planning for the next 25 years, it is important to understand the population and employment trends within the NLCOG MPA as these factors greatly impact the transportation network. Demographic analysis was conducted using NLCOG 2045 TDM data to compare base year population and employment in 2018 to the future projections for population and employment in 2045.

This analysis provides important insights into where population and employment are concentrated today and where changes are expected to occur in the future. It also helps the NLCOG prioritize projects to ensure the transportation system is meeting the needs of the community.

REGIONAL GROWTH

It is critical to understand and visualize where growth is occurring within the region to guide the MTP development process.

Population is expected to grow around a compound annual growth rate (CAGR) of 0.338%, coming to a total of just over 40,000 persons. This equates to a 9.55% population growth over the 25 year period (2018 to 2045). The CAGR for employment is projected around 1.4% equating to just over 70,000 jobs or 45.54% total employment growth over the same 25 year period. This is represented in Figure 4-1.

FIGURE 4-1: PROJECTED NLCOG POPULATION & EMPLOYMENT GROWTH

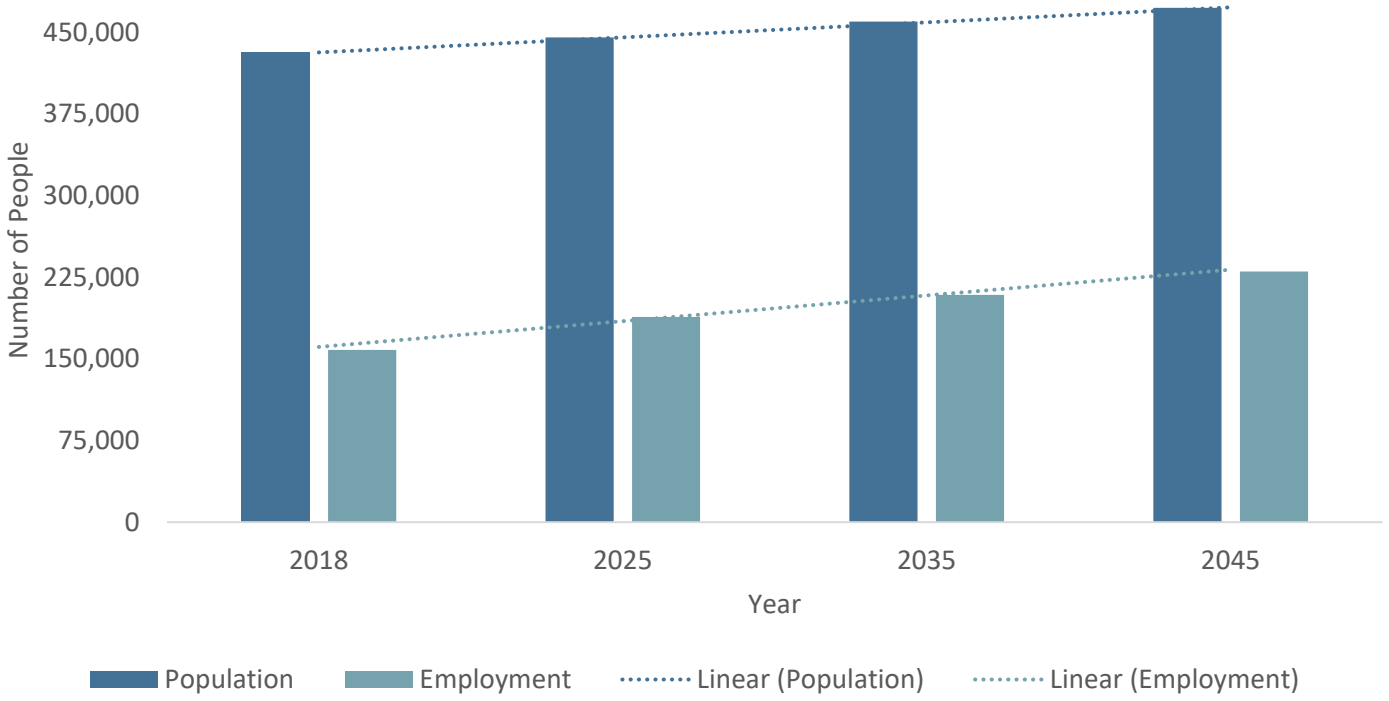


Figure 4-2 presents population growth by density (per acre) at the TAZ level over the forecast horizon. High growth is projected near the Downtown Riverfront area in Bossier City around the intersection of I-20 and US-71.

Figure 4-3 presents employment growth by density (per acre) at the TAZ level over the same forecast horizon. Areas projected to experience high employment growth also cluster around the Downtown Riverfront area in Bossier City.

FIGURE 4-2: PROJECTED NLCOG POPULATION GROWTH (2018 - 2045)

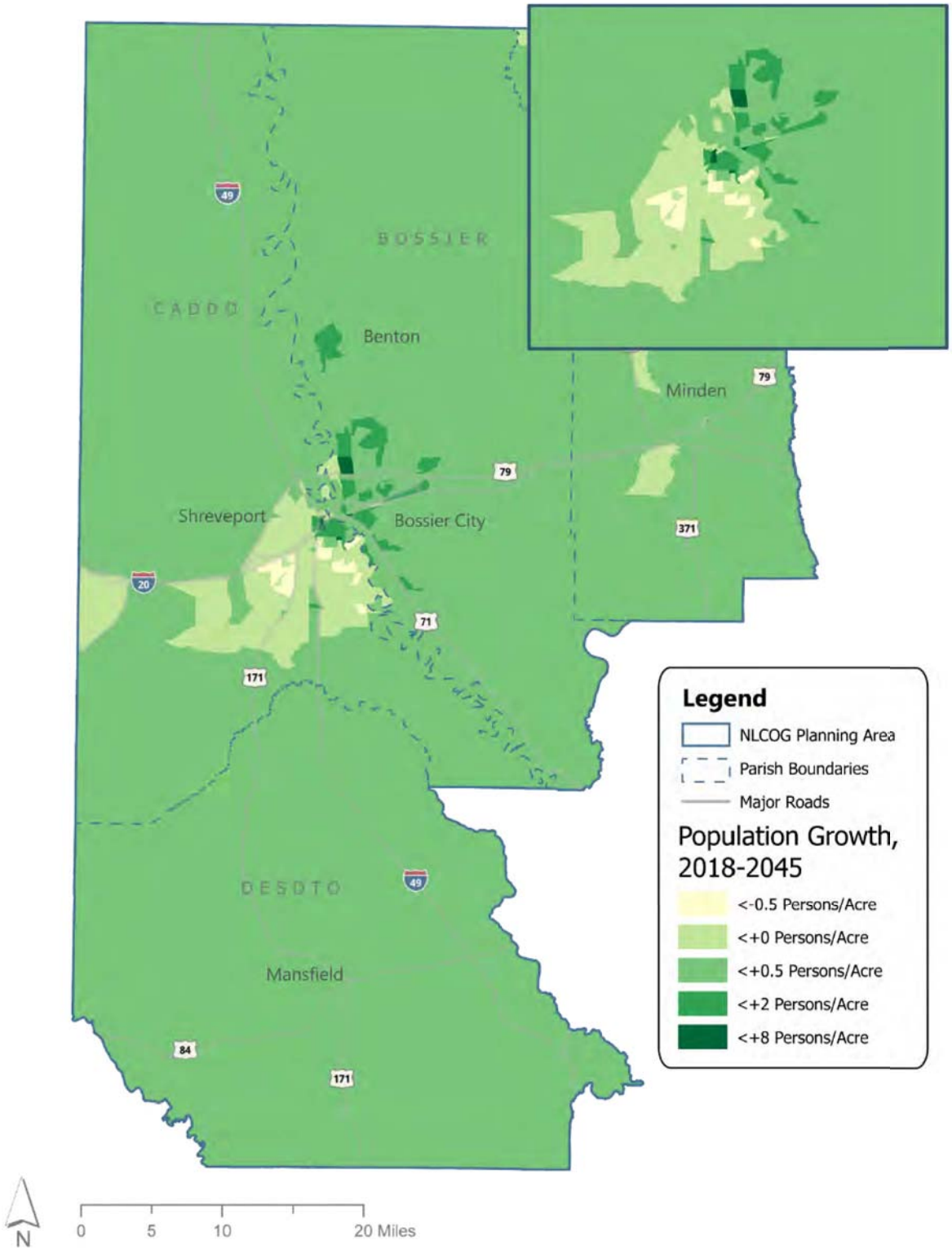
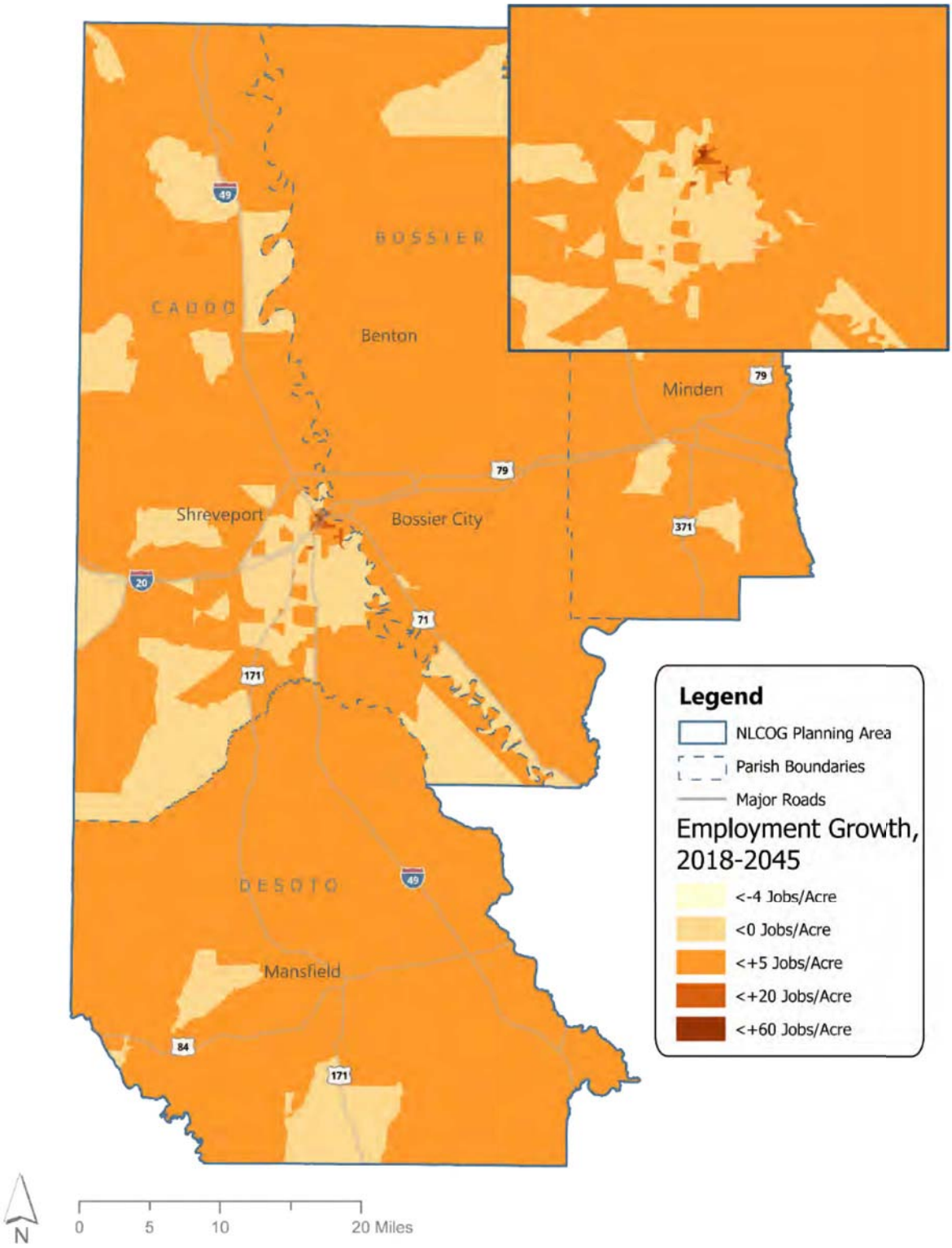


FIGURE 4-3: PROJECTED NLCOG EMPLOYMENT GROWTH (2018-2045)



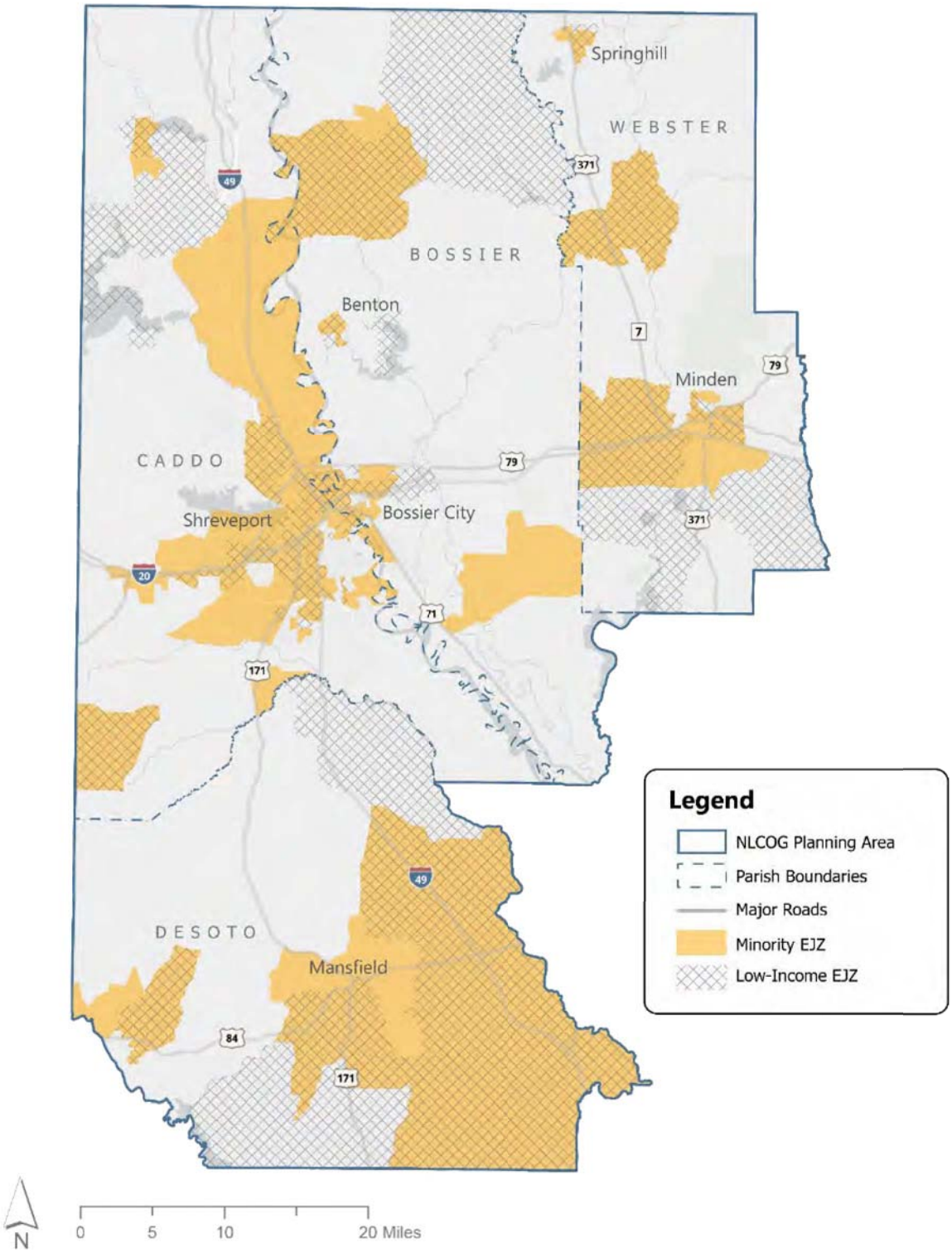
Equity

Equitable implementation of projects and plans takes into consideration historically disenfranchised communities to ensure that all people regardless of race, color, national origin, or income are accounted for when planning for a region. This equity can be achieved by analyzing Environmental Justice Zones (EJZs). Using the guidance in the metropolitan planning regulations, the study team incorporated Environmental Justice considerations into the development of the NLCOG 2045 MTP. The study team identified and mapped low-income and minority populations to identify regional EJZs. EJZs were defined by the following criteria:

- Minority EJZs: Block groups containing at least 40% of the total block group population identified as minority population. Of the NLCOG MPA's census block groups, 182 (55%) were identified as minority EJZs.
- Low Income EJZs: Block groups containing at least 20% of the total block group population identified as living at or below the poverty line. Of the NLCOG MPA's census block groups, 131 (40%) were identified as low-income EJZs.

Figure 4-4, below, presents the identified concentrations of Minority EJZs located in the region. EJZs were identifed in the Shreveport/Bossier City area, extending north along the Red River and in the eastern portion of DeSoto Parish surrounding Mansfield and along I-49. Low-Income EJZs show similar distributions in the Shreveport/Bossier City area and Desoto Parish, as well as in northern Bossier Parish and south Webster Parish surrounding Minden. These EJZs are further analyzed in relationship to the NLCOG 2045 MTP project list for disparate impacts in Chapter 8.

FIGURE 4-4: NLCOG ENVIRONMENTAL JUSTICE ZONES



Equitable planning can also be reviewed by using the Housing and Transportation (H+T) Affordability Index to highlight areas where expenditures towards housing and transportation are considered unaffordable. The index identifies what percentage of a household's income is spent on housing and transportation combined, with the unaffordable threshold being 45% of income.

Figure 4-5 reveals that 86% of households by block groups within the NLCOG MPA spend equal to or greater than 45% of household income on the two living expenses as compared to regional income expenditures. This indicates a higher risk at the regional level when analyzing the H+T Affordability Index. While high H+T Affordability Index conditions occur throughout the MPA, block groups substantially beyond the 45% threshold exist largely in the southern part of Caddo Parish and the central area of Bossier Parish, surrounding the Shreveport – Bossier City area.

As the region's planning partners continue to plan for future growth, it will be critical to consider actions that improve transportation mode options, as well as mobility and accessibility in these regions to potentially decrease transportation costs among households.

TRAVEL PATTERNS

The most common transportation mode in the NLCOG MPA is the automobile. Understanding where most of the population in the region is traveling reveals the most heavily used travel patterns or 'desire lines' in the region. NLCOG TDM outputs were used to better understand the movement of people in the NLCOG MPA within municipal boundaries (**Figure 4-6**). Accordingly, results display the most traveled city pairs between Benton, Bossier City, Mansfield, Minden, Shrevesport, and Springhill (roughly 175,000 annual trips). This analysis works in tandem with population and employment growth projections described in the previous sections to provide increased understanding of where transportation improvements are most needed within the NLCOG MPA.

FIGURE 4-5: NLCOG MPA HOUSING & TRANSPORTATION COSTS - % OF HOUSEHOLD INCOME

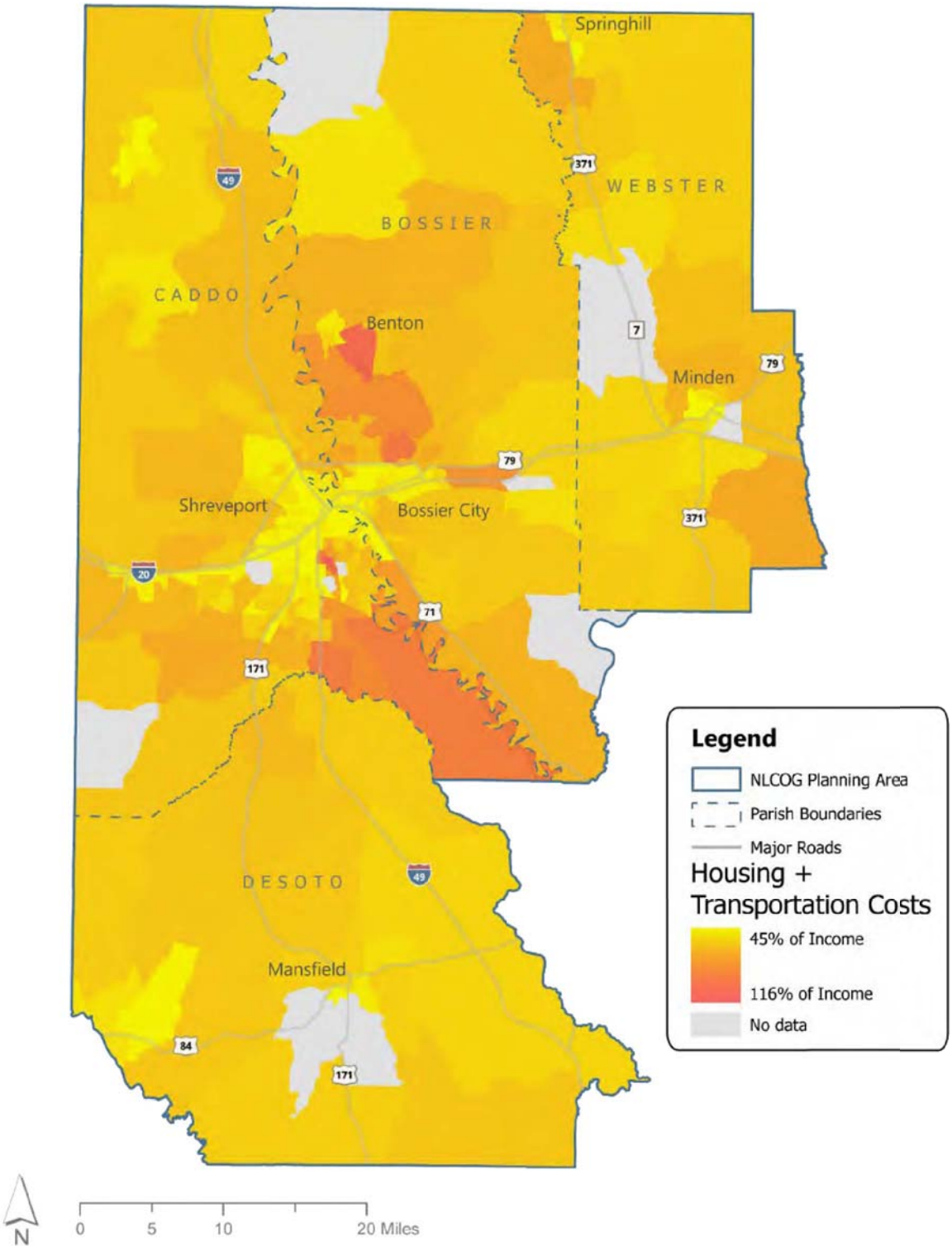
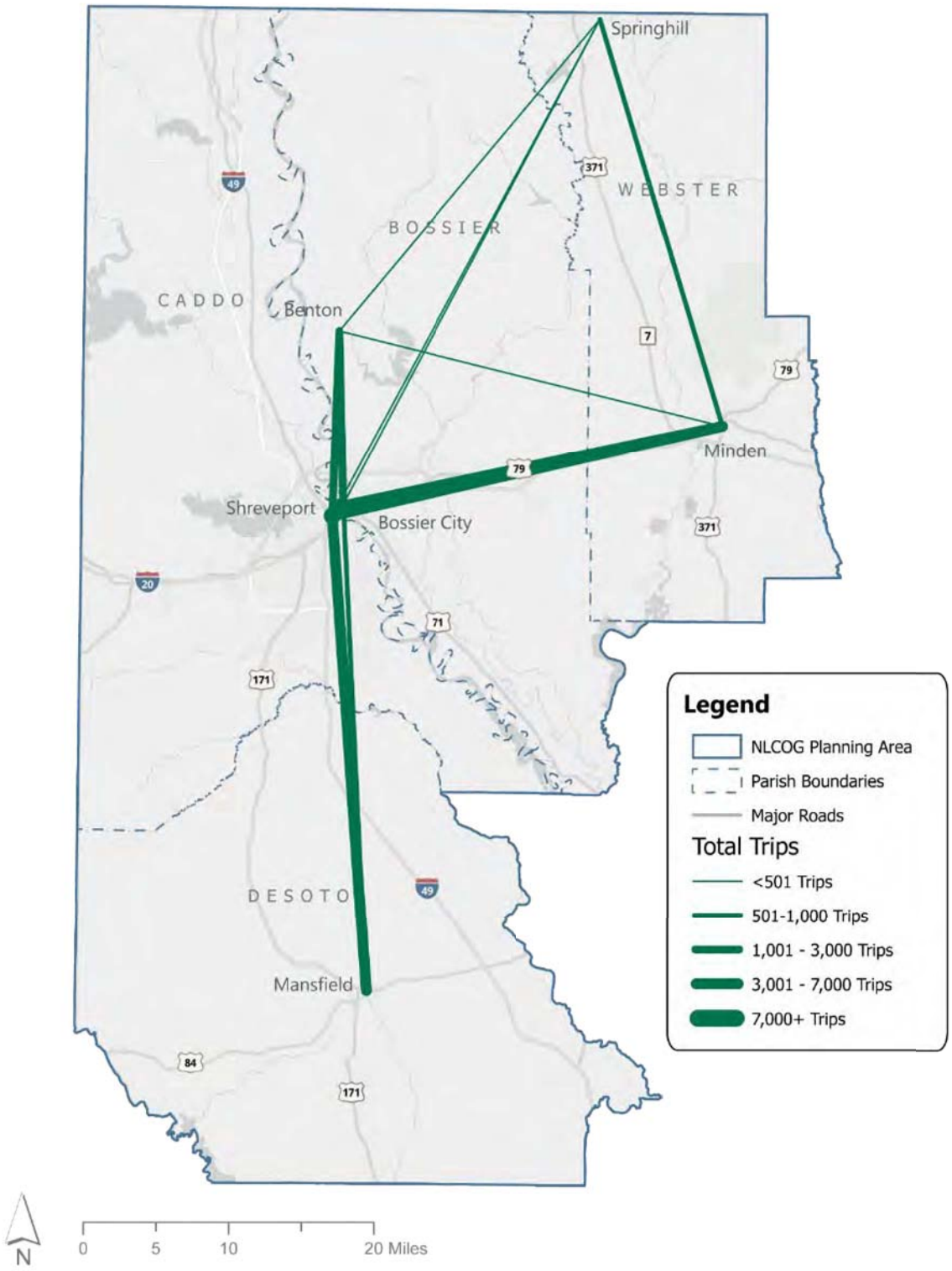


FIGURE 4-6: NLCOG MPA DESIRE LINES



Roadway

The roadway analysis provides policy makers and the public with a better understanding of how the roadway network will be impacted by changes in the region over time if no improvements are made to the existing transportation system. The project team looked at three aspects of roadway performance for the analysis, listed below:

- Existing roadway performance using FHWA's NPMRDS
- Transportation system performance over time using the NLCOG TDM to report anticipated trends in roadway performance over the MTP planning horizon
- Capacity deficiencies analysis using the NLCOG TDM

This approach provided a holistic understanding of the state of the NLCOG MPA's roadway infrastructure, as well as where improvements should be focused as the NLCOG moves forward with the MTP planning process. Key findings from the NLCOG 2045 MTP roadway analysis include:

- The existing interstate and the non-interstate NHS network meet the FHWA system reliability target of 90%
- The percentage of non-SOV travel on the NHS network suggests SOV to be the NLCOG MPA's mode of choice
- TDM outputs show large increases in all congestion measures at the regional and per capita level between 2018 and the 2045 No-Build scenario

The following sections detail findings from analyses based on FHWA's NPMRDS and the NLCOG TDM to create a robust understanding of existing and future roadway conditions.

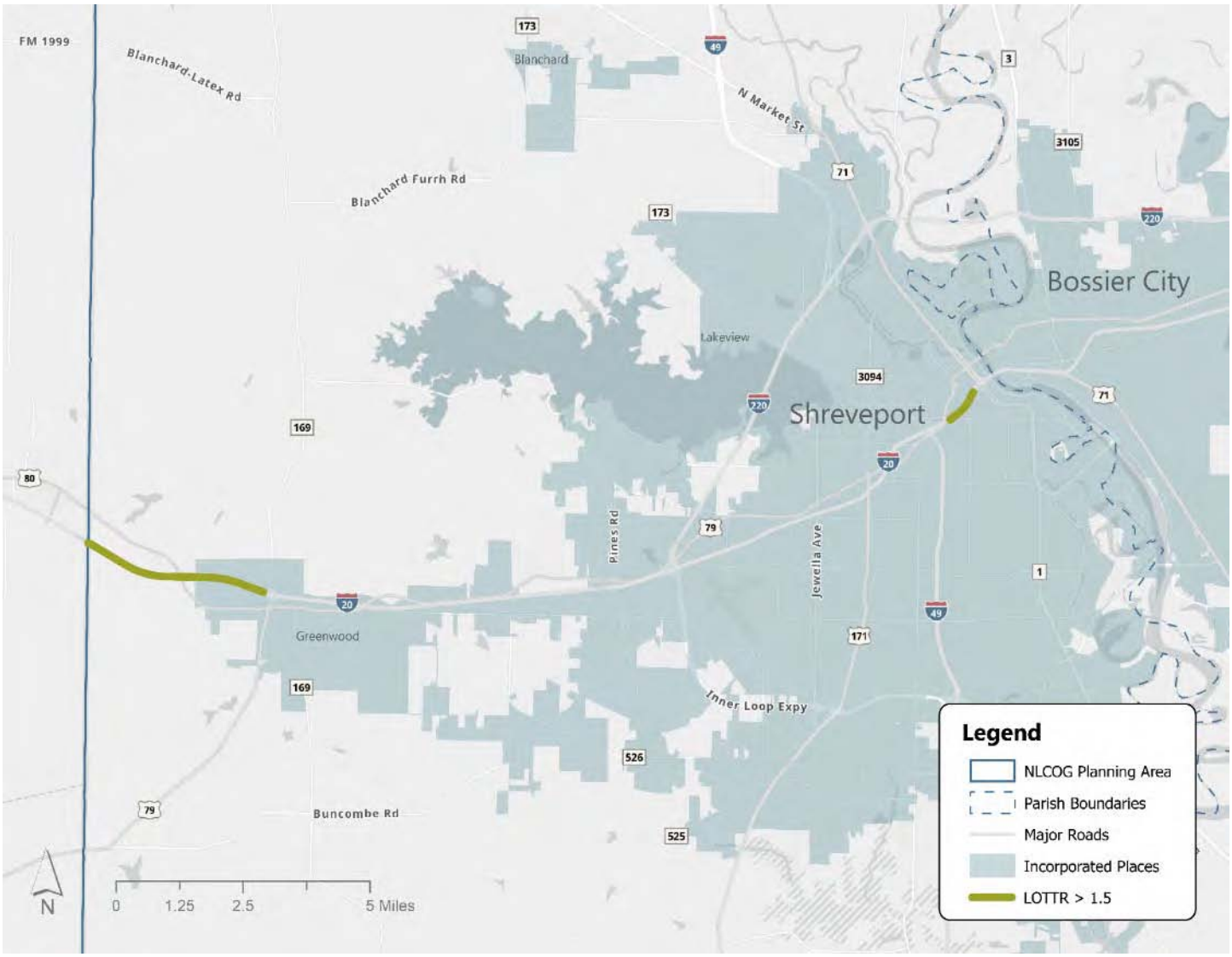
CONGESTION & DELAY ANALYSIS

Level of Travel Time Reliability (LOTTR) is a measure of the consistency or dependability of travel times from day to day or across different times of day for a given roadway. While congestion typically focuses on the average roadway conditions in terms of delay, travel time reliability indicates the level to which traffic or roadway conditions can be anticipated for travelers to plan around expected delays. Reliability of the roadway network is important because it allows travelers to reach their destinations at their planned time. LOTTR is a federally mandated performance measure. NLCOG LOTTR measures can be found in Chapter 9.

Per the 2018 NPMRDS, the current system reports 98.6% percent of person-miles traveled on interstate segments that are reliable. The current system further reports 94.6% percent of person-miles traveled on non-interstate National Highway System (NHS) segments that are reliable.

Figure 4-7 displays segments at the NLCOG MPA level for Interstate and non-interstate NHS facilities with an LOTTR greater than 1.5. This value represents the threshold for a roadway segment concerning its designation as 'reliably congested'. Two segments with poor LOTTR exist on I-20 (Central Shreveport and West Caddo Parish) and should be prioritized when considering transportation infrastructure improvements.

FIGURE 4-7: INTERSTATE AND NON-INTERSTATE NHS SEGMENTS - 2018 LOTTR > 1.5



To supplement the NPMRDS information on existing conditions, separate congestion measures from the NLCOG TDM outputs were analyzed for both 2018 and 2045 and compared to no-build outputs to highlight potential future issues in terms of congestion and delay. Outputs were calculated to represent performance trends at a system and per capita level. The following measures were used to gain this detailed understanding:

- Vehicle Miles Traveled (VMT) - The amount of roadway miles traveled by vehicles within a specified segment for AM and PM peak period travel times
- Vehicle Hours Traveled (VHT) - The number of hours traveled by vehicles
- Vehicle Hours of Delay - Additional hours spent in traffic due to congestion on the roadway network

- Travel Time Index (TTI) - The ratio of travel time during peak travel periods (congested time) required to make the same trip at free-flow speeds.

Table 4-1 shows the existing and 2045 No-Build transportation systems to have some areas of congestion based on TDM outputs.

TABLE 4-1: NLCOG CONGESTION TRENDS

Measure	2018 – Existing Conditions*			2045 – No-Build			% Change for Totals
	Interstate	Arterials	Total	Interstate	Arterials	Total	
Daily VMT**	5,866	7,319	13,186	6,786	9,088	15,875	20%
per person	-	-	30.58	-	-	33.67	10%
Daily VHT**	103	174	277	132	226	358	29%
per person	-	-	0.64	-	-	0.76	18%

**2018 was used as stand in for current conditions because it is the most recent year for which complete data is available.*
***VMT & VHT represent metrics/1,000 and rounded to nearest whole number.*

The TDM also provides capacity attributes, which create the base for the NLCOG roadway system deficiencies analysis of anticipated 2045 transportation system performance. Volume to Capacity (V/C) Ratio was used to generate Level of Service (LOS) values and is defined below.

- V/C Ratio – The ratio of traffic flow to capacity (maximum allowable traffic flow) on a roadway segment, where a ratio of 1 represents a segment at full capacity and higher values indicate more severe congestion.

Table 4-2 displays NLCOG planning area capacity measures for the base year (2018) and the 2045 no build scenario. The 2045 average V/C ratio suggests that the roadway network would be roughly 61% below capacity when looking at daily value outputs from the TDM, increasing by 13% from 2018. The 2045 No Build average V/C ratio falls within LOS C, which indicates speeds are near flow traffic as the status quo for the NLCOG planning area if no action were taken. While the percent of roadway miles with heavy congestion has a large percent change from 2018 to 2045 (227%), this equates to less than 4% more of roadway miles being heavily congested (1.32% to 4.32%).

TABLE 4-2: NLCOG CAPACITY MEASURES

Measure	2018 – Existing Conditions*			2045 – No-Build			% Change for Totals
	Interstate	Arterials	Total	Interstate	Arterials	Total	
Avg. V/C Ratio	0.4	0.21	0.31	0.45	0.24	0.35	13%
% of Roadway Miles with Heavy Congestion	-	-	1.32%	-	-	4.32%	227%

As congestion and system deficiencies are a locally experienced phenomena, these metrics are less about system averages and more about hotspots and bottle necks. An LOS C in a Houston or Dallas network might be considered a good level of service, however the peak period LOS in Shreveport drives what appears as an average C condition across the network and is indicative of peak period hotspots. A deeper analysis of these conditions was performed in a roadway conditions technical memo.

Figure 4-8 displays the NLCOG MPA roadway network LOS values for 2018 to further illustrate potential roadway system deficiencies within the NLCOG MPA. LOS is an indicator of congestion on a scale from A to F, with A representing a high-quality LOS under which the traveler experiences free-flow traffic conditions and F represents a failure in service delivery under which the traveler experiences severe congestion with major delays.

TDM outputs forecast worsening LOS conditions (pushing some roadways to LOS D-F) along the regional highways and interstates as well as some peripheral roadways to the cities of Shreveport and Bossier City, **Figure 4-9**.

FIGURE 4-8: NLCOG MPA LOS - 2018 EXISTING CONDITIONS

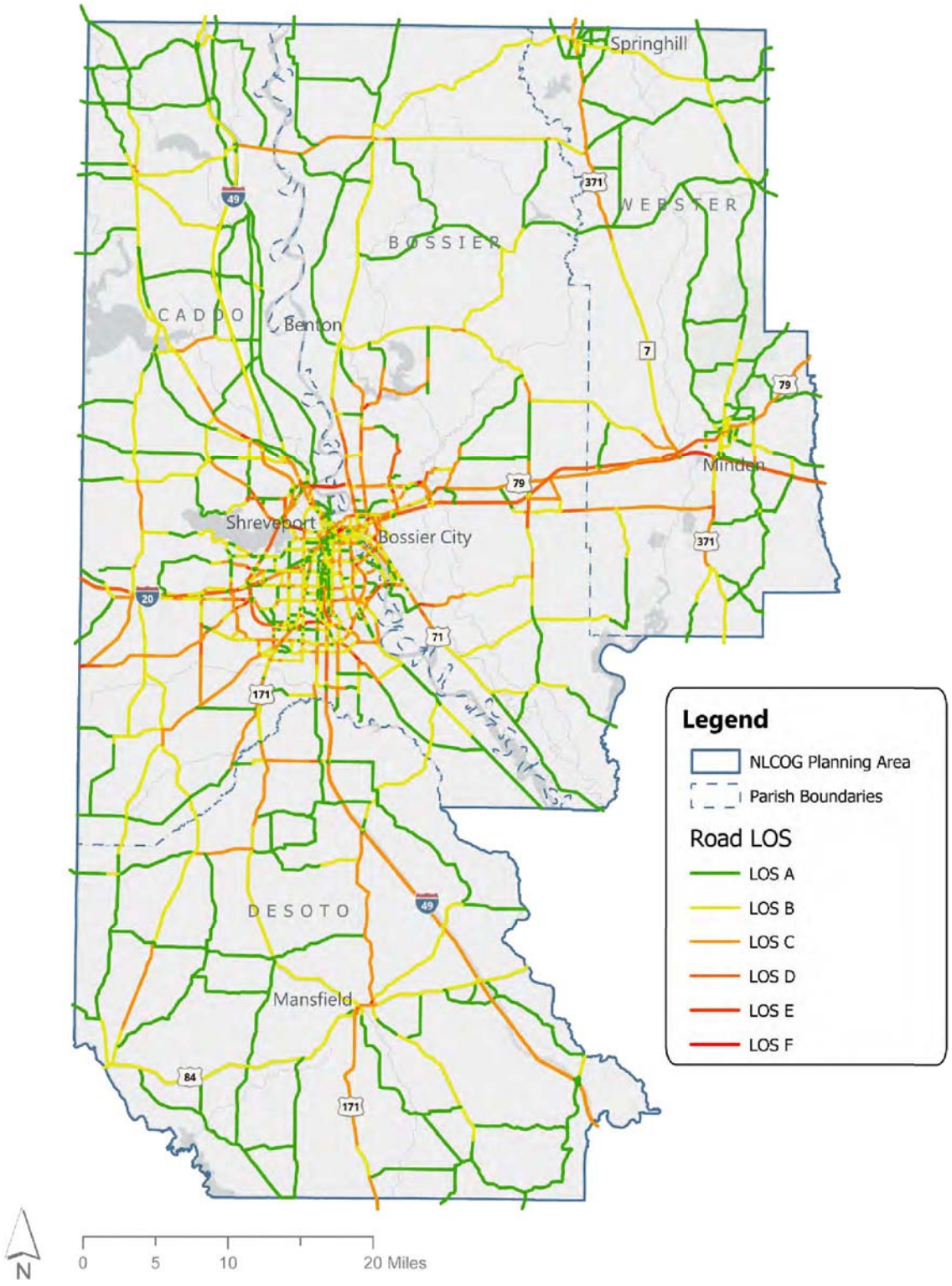
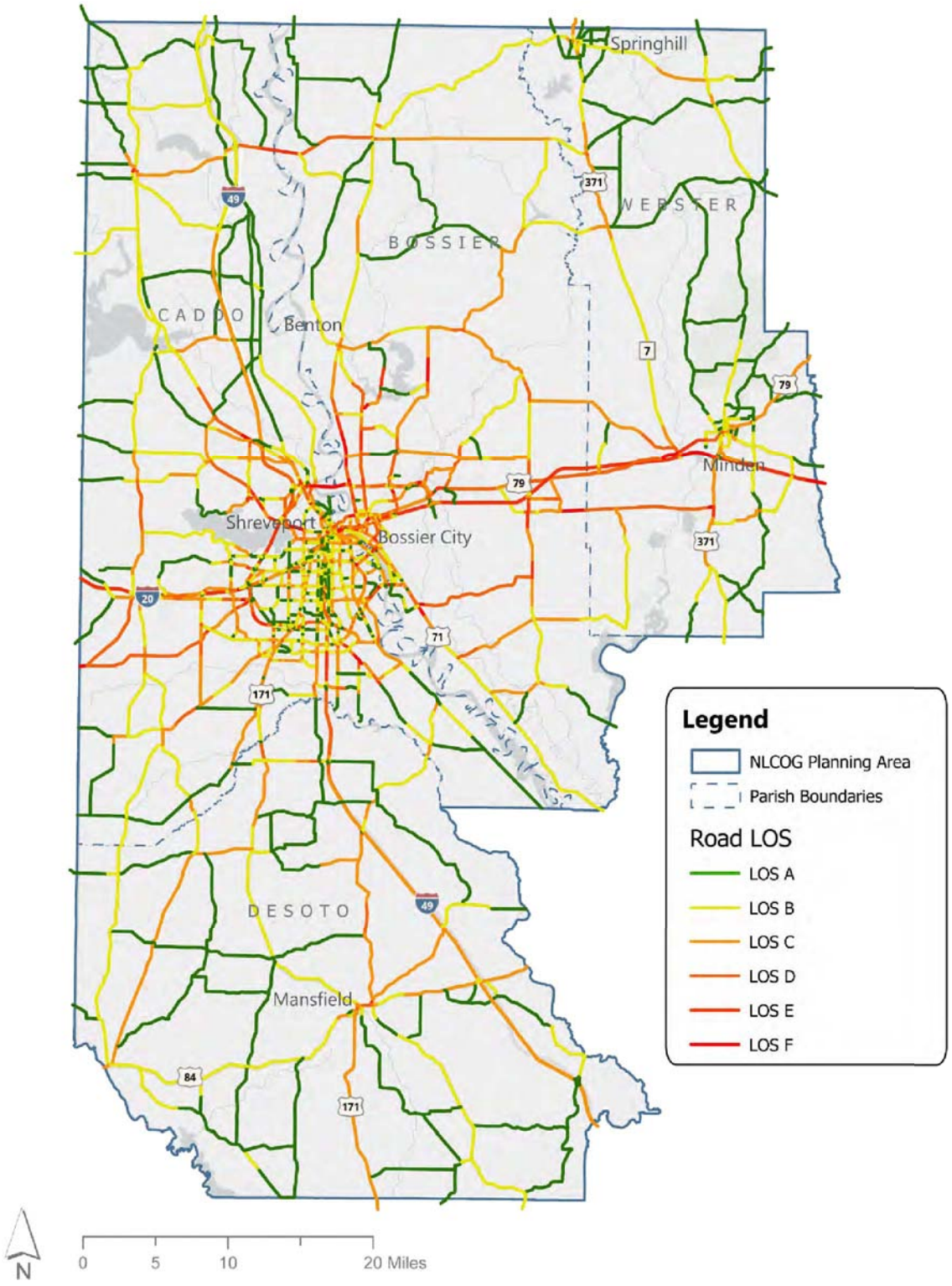


FIGURE 4-9: NLCOG MPA LOS - 2045 PROJECTED CONDITIONS



OPERATIONS & MAINTENANCE

In addition to being federally required, creating an inventory of the region's bridge and roadway conditions helps to promote the safe and efficient movement of people and goods throughout the NLCOG MPA. This inventory allows regional and local decision-makers to understand which facilities are in a state of good repair, which are in fair condition and require oversight, and which are in poor condition and must be prioritized for improvement.

Bridge Conditions

The bridge conditions analysis used the most up-to-date version of LADOTD's GIS layer titled "NHS Bridges". The layer included location and condition information for 444 bridges both on and off of the state-maintained highway system within the NLCOG MPA as of October 2018. It must be noted that of the 444 bridges identified in the dataset, only four off-system bridges were included, all located south of Minden and in good condition. This allowed the bridge condition analysis to focus on bridges within the NHS network, in turn supporting federal and state performance management goals.

Out of the 444 bridges considered for the analysis, 26 were identified as being structurally deficient.

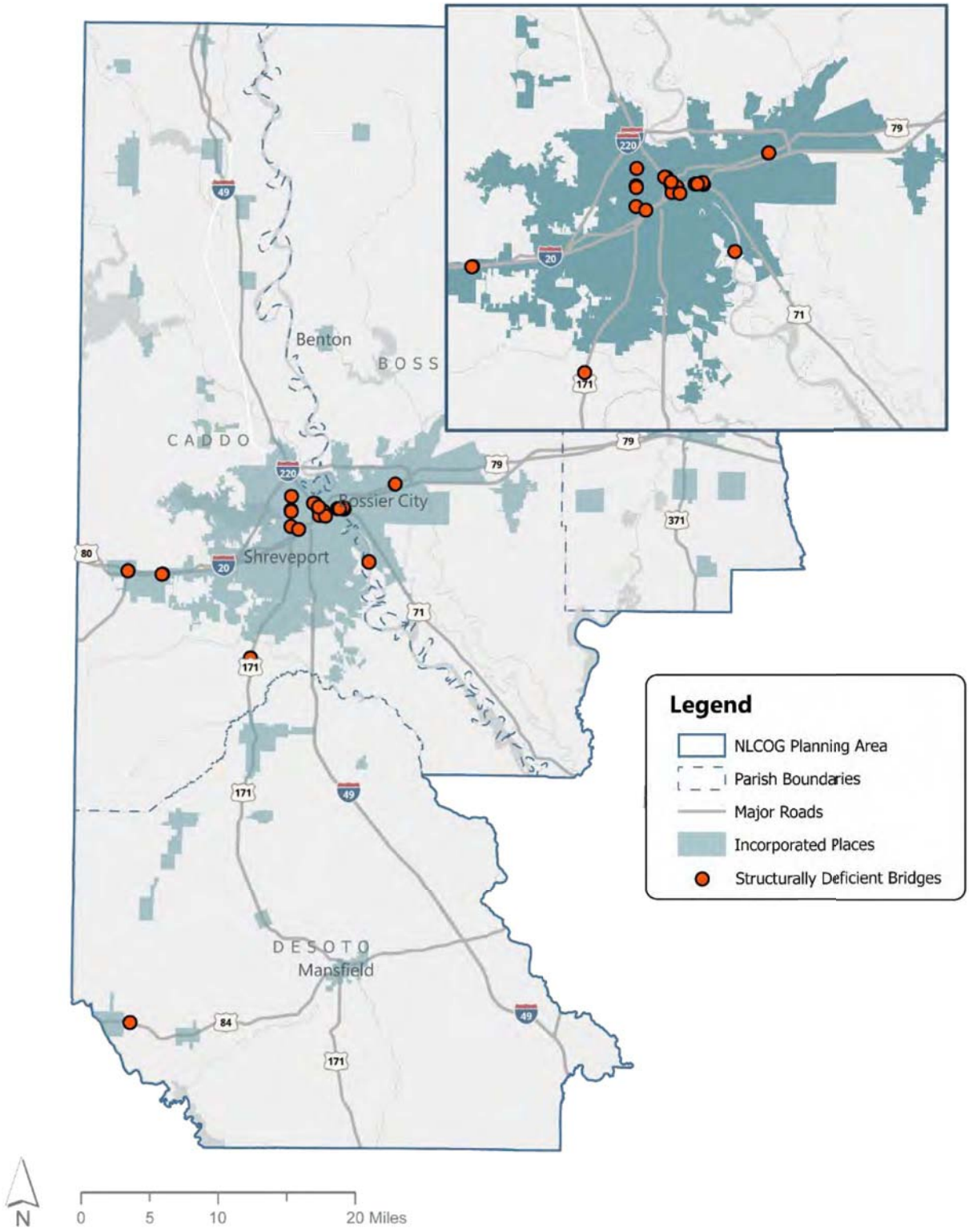
Table 4-3 shows the percentage of bridge deck area by condition for bridges in the NLCOG MPA, as well as those located on the NHS in the study area.

Figure 4-10 displays structurally deficient bridges at the NLCOG MPA level, showing poor bridge infrastructure conditions occur largely in rural and/or local areas of the roadway network.

TABLE 4-3: NLCOG BRIDGE CONDITIONS

Metric	Total	Interstate and Non-Interstate NHS
% in Good Condition	215	48%
% in Fair Condition	203	46%
% in Poor Condition	26	6%
Total	**444**	**100%**

FIGURE 4-10: STRUCTURALLY DEFICIENT BRIDGES - NLCOG MPA



Pavement Conditions

The roadway pavement condition analysis for the NLCOG 2045 MTP was based on 2018 data from LADOTD NHS Road and Bridges Condition ArcGIS Online data set.[1] This LADOTD follows guidance provided by FHWA and supplements the FHWA HPMS dataset. LADOTD data provided a condition rating based on the IRI for roadways in the NLCOG MPA. This includes roadway segments found on the NHS, as well as various other roadways critical to the movement of people and goods in the region. Present Serviceability Rating (PSR) values, a secondary roadway condition metric, were not included in the 2018 dataset. Additionally, some segments contained no data and were not included in the calculation of lane miles or percent condition.

Pavement condition data was totaled to represent the number of lane miles for each of the three pavement condition categories, allowing the project team to calculate the percentage of interstate (NHS) and non-interstate NHS lane miles and percentage of lane miles by condition. **Table 4-4** presents the pavement condition results which coincide with the national performance measures identified by the FHWA and contains information on only the sampled roadways.

TABLE 4-4: NLCOG NHS PAVEMENT CONDITIONS

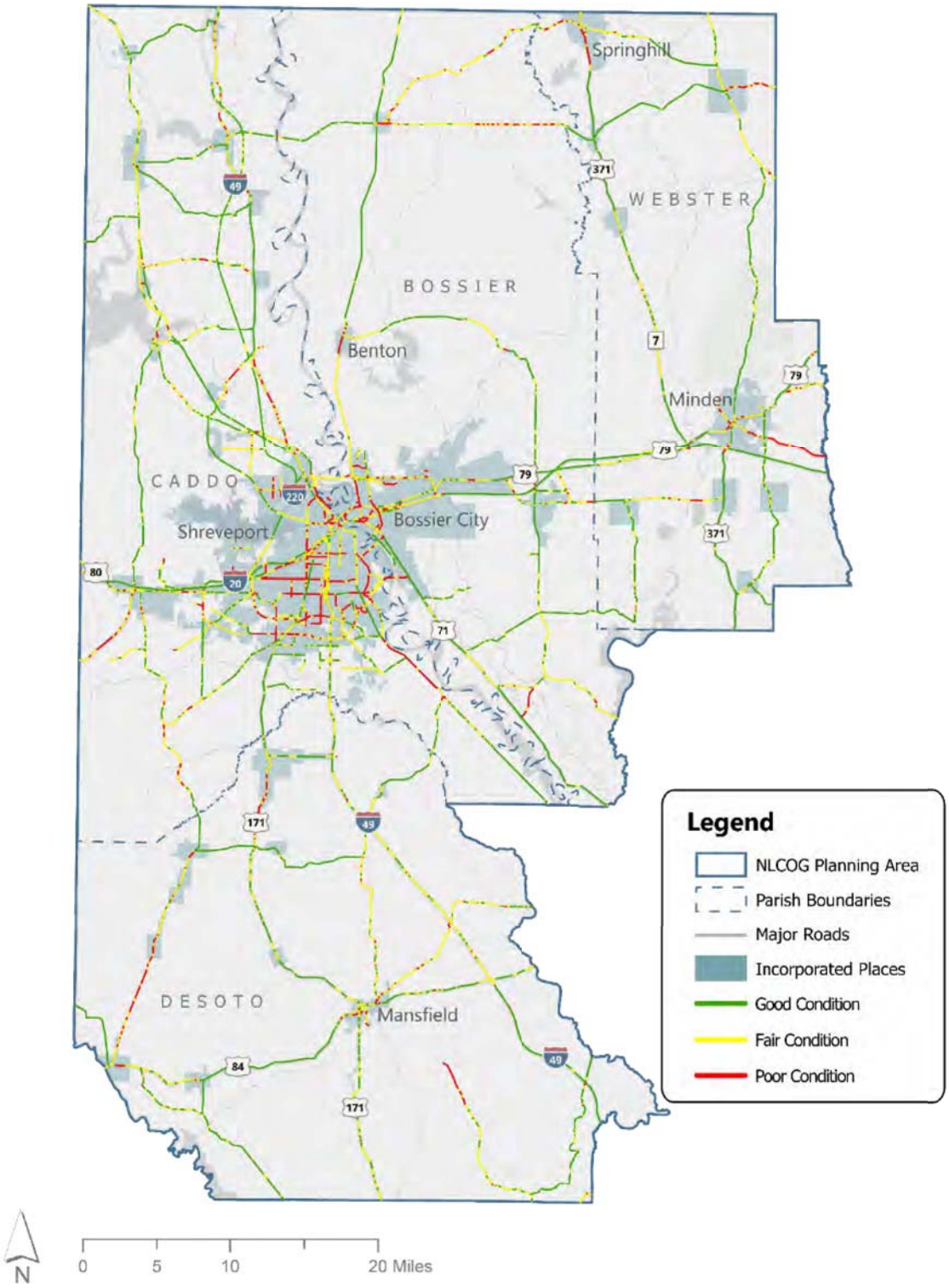
Metric	Total Lane Miles with Data			Interstate and Non-Interstate NHS % of sampled total NHS Mileage by Category		
	Interstate	Non-Interstate NHS	Total NHS	Interstate	Non-Interstate NHS	Total NHS
Poor	21.55	36.80	58.354	5.97%	13.27%	9.14%
Fair	56.98	60.528	117.512	15.78%	21.83%	18.41%
Good	282.48	179.948	462.43	78.25%	64.9%	72.45%
Total	361.02	277.28	638.296	100%	100%	100.00%

Out of the 638 total NHS lane miles with IRI data, 72.45 % were found to be in good condition, while 18.41 % were recorded as being in fair condition. This suggests that 90.86 % of the NHS roadway pavement conditions are either in a state of good repair or adequate for utilization.

This puts the pavement conditions in the NLCOG MPA as succeeding in meeting the statewide performance target of having 10% or less of NHS lane miles in poor conditions, set out in the 2018 Louisiana Biennial Performance Report. **Figure 4-11** displays pavement conditions at the regional level.

[1] Louisiana Department of Transportation & Development (arcgis.com)

FIGURE 4-11: NLCOG PAVEMENT CONDITIONS



Freight

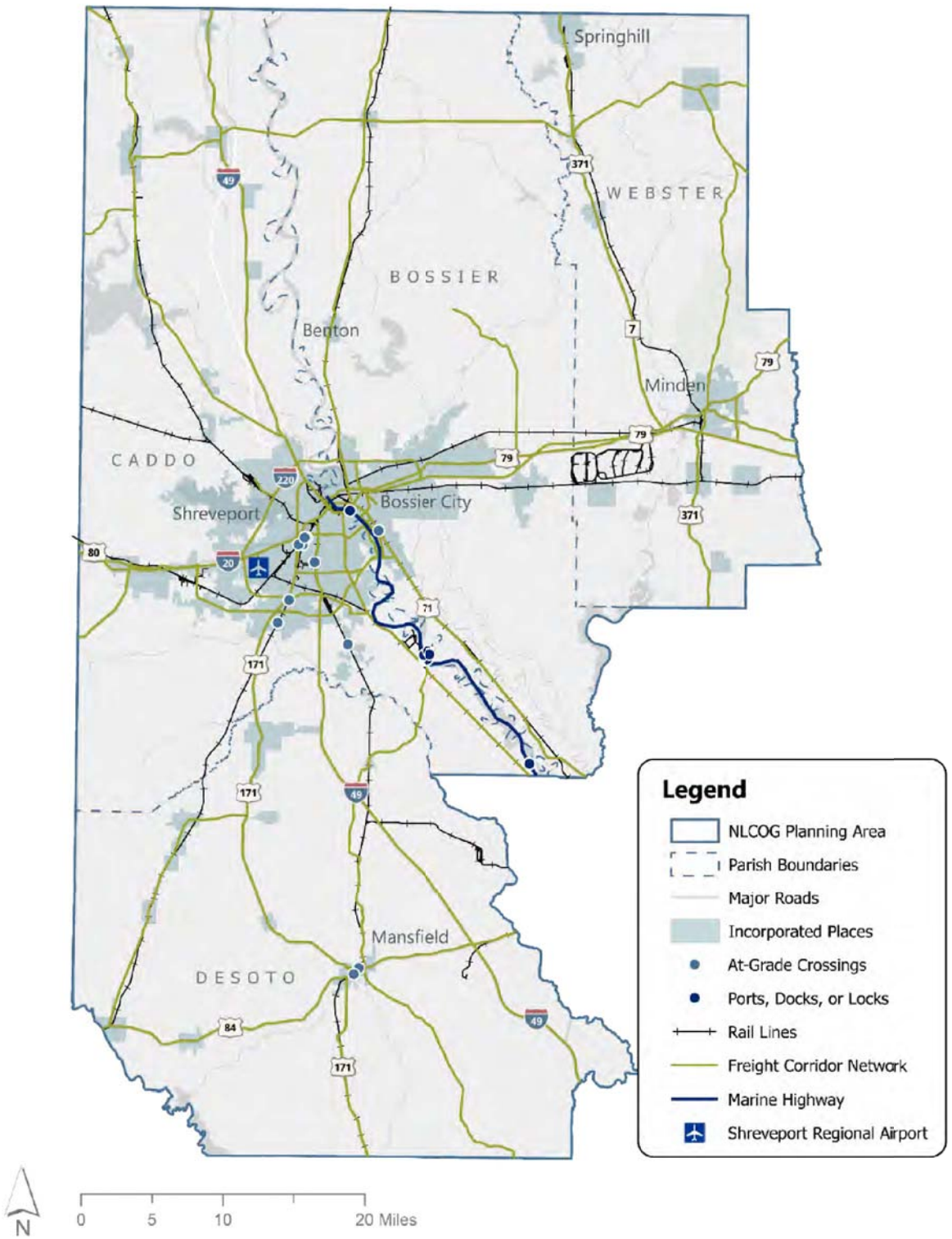
The NLCOG MPA is a multimodal freight hub due to its location on the Red River. This creates a unique need for freight connectivity within the region. The NLCOG MPA multimodal freight network serves critical connections throughout the region, state of Louisiana, and United States through an intricate network of freight facilities, including major interstate and highway infrastructure, railroads, ports, and airports. The following sections detail existing freight infrastructure and performance within the NCOG MPA.

ASSETS

Within the NLCOG MPA 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). Most freight traffic travels by truck in northwest Louisiana.

NLCOG also relies on one main marine highway (i.e., a navigable waterway used to divert freight traffic from the roadway network) traveling along the Red River to the Port of Caddo-Bossier. There are several smaller docks capable of handling barge traffic along that route. Though there are several airports in the region, the Shreveport Regional Airport is the only airport with freight facilities. Freight facilities are shown in **Figure 4-12.**

FIGURE 4-12: NLCOG FREIGHT FACILITY NETWORK, 2020



CONDITIONS & PERFORMANCE

Delay

Trucks carry more freight tonnage than any other single mode (rail, water, or air) operating in the Louisiana multimodal freight transport system. The roadway network is critical to the movement of freight within, into, and out of the NLCOG MPA. It is critical that the NLCOG's roadways provide safe, efficient, and reliable routes for the movement of goods.

TTTRI is a primary metric used in the NLCOG freight analysis that indicates freight reliability. 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. 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.

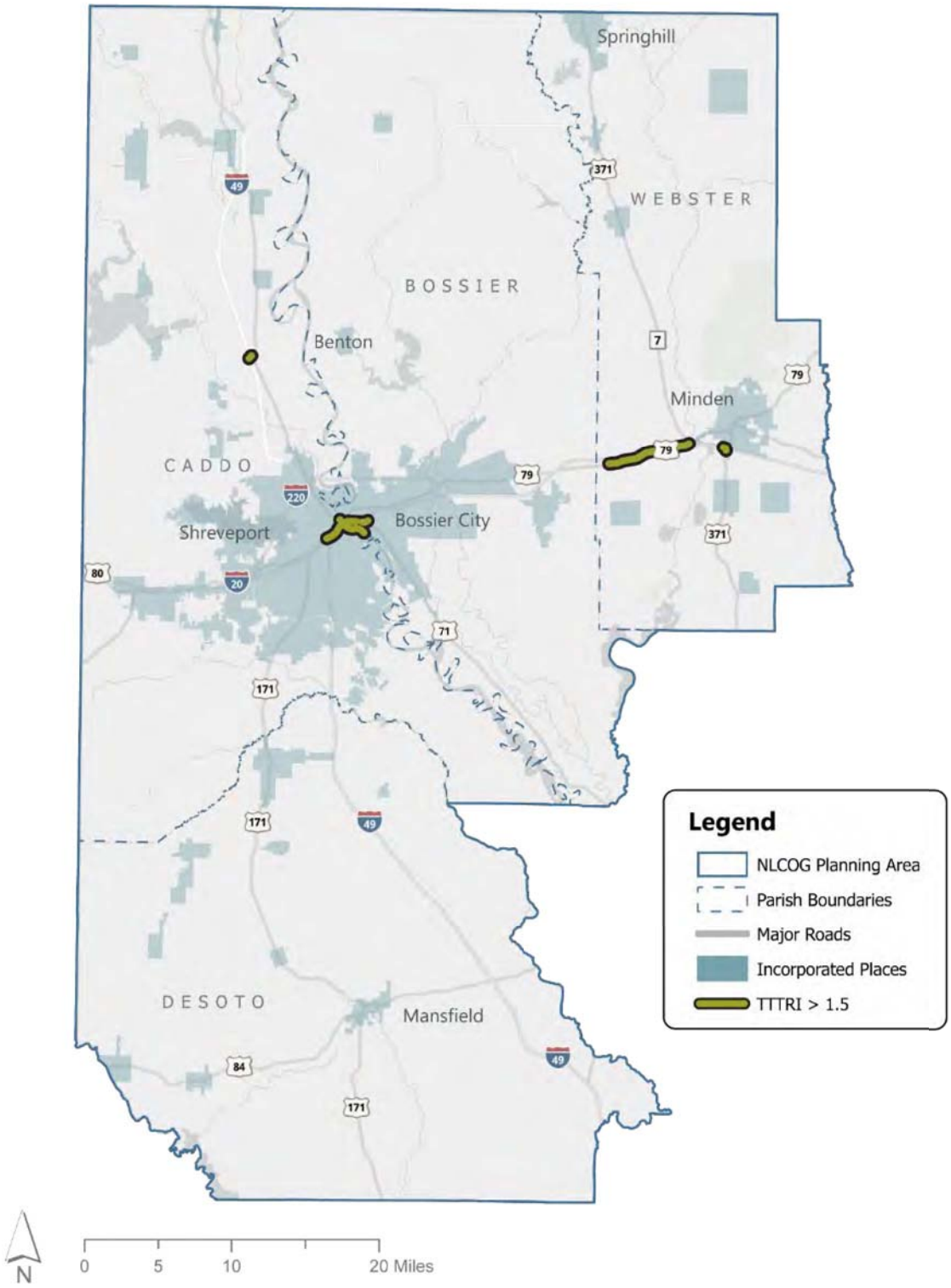
Table 4-5 displays interstate segments found to have index values greater than 1.5, based on the 2020 TTTRI data. For continuous roadway segments containing values above 1.5, the TTTRI value for the segments were averaged to create an index value representative of the corridor.

Figure 4-13 presents all interstate segments in the NLCOG MPA with an index score that indicates that travel times on the segment are unreliable. Such segments occur within Caddo, Bossier, and Webster parishes. These freight corridor segments should be emphasized when considering freight mobility and freight network improvements in future planning efforts.

TABLE 4-5: NLCOG 2020 FREIGHT ROUTE SEGMENTS - TTTRI GREATER THAN 1.5

Roadway	City	Direction	From	To	Avg. TTTRI
I-20	Shreveport	EB	I-49	Market St	2.41
	Bossier City	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 (restricted to truck traffic)	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 4-13: NLCOG 2020 INTERSTATE SEGMENTS - TTTRI GREATER THAN 1.5

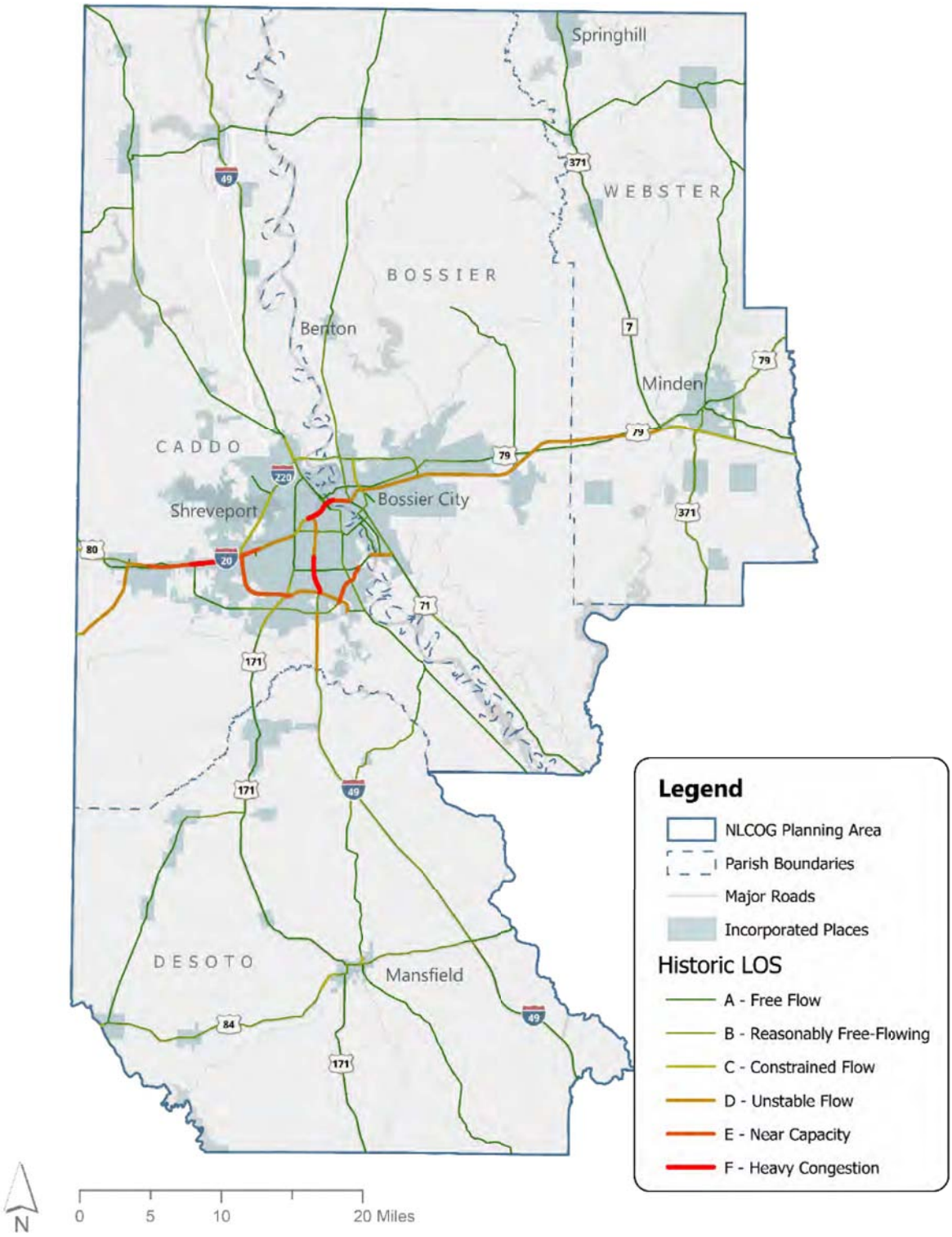


Congestion

To understand where deficiencies exist within the NLCOG freight network, historic congestion levels were analyzed at the NLCOG MPA level. Accordingly, FHWA's FAF data was used to attribute levels of congestion to the freight network. FAF 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" where A has no congestion and F is heavily constrained.

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 most congested segments are in and around the Shreveport and Bossier City urbanized areas; specifically, I-20, I-49, LA 3132, and LA 526. The most recently available LOS values for freight network roadways in the NLCOG area are mapped below (**Figure 4-14**).

FIGURE 4-14: LEVEL OF SERVICE (LOS) ON NLCOG FREIGHT NETWORK, 2012



Transit

To properly understand the coverage and unmet needs within the NLCOG MPA, it is important to create an inventory of the existing transit services. By creating an inventory of existing transit services, unmet needs and gaps in service can be identified and locally sensitive solutions can be applied. Transit providers in NLCOG MPA include one fixed route provider serving the general population, one fixed route provider serving the elderly, and several demand response providers serving the elderly or those with disabilities. The transit analysis is focused on the Shreveport-Bossier Area Transit System (SporTran) because the system is the largest provider of general purpose transit trips in the region. **Figure 4-15** and **Figure 4-16** display current transit routes in the region for both weekday and weekend service.

FIGURE 4-15: SPORTRAN ROUTES, MON - FRI WEEKDAY SERVICE

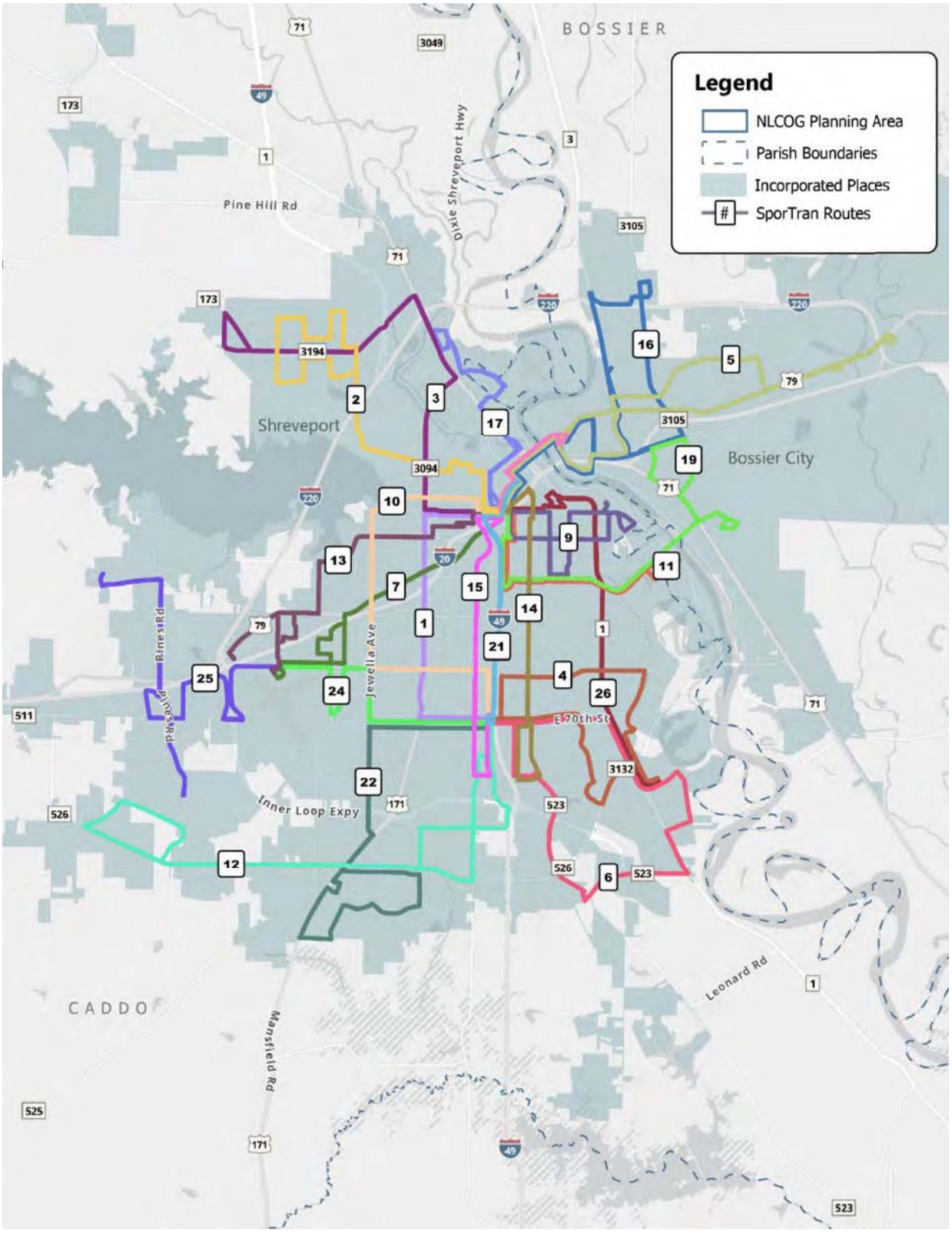
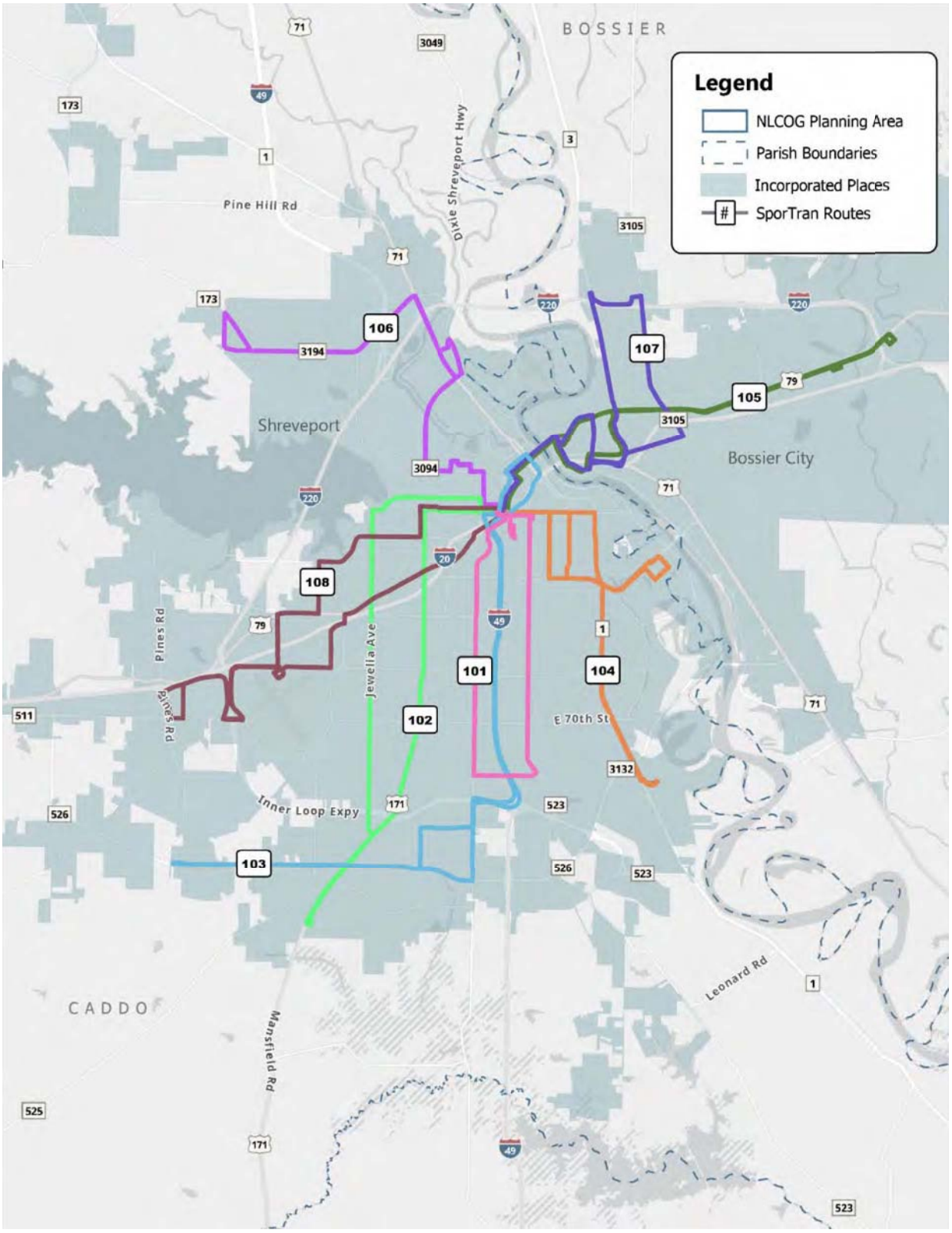


FIGURE 4-16: SPORTRAN ROUTES, WEEKNIGHT & WEEKEND SERVICE



TRANSIT SUPPLY, POTENTIAL, NEED, & GAPS IN SERVICE

Transit Supply

SporTran provides the only fixed route transit service that serves the general public in the region. Each route was analyzed for the level of supply provided. Based on transit industry standards, individual routes were assumed to serve a 0.25-mile service coverage area (i.e., 0.25-mile route buffer) and given a score based on the level of supply or service provided. This score allowed the project team to quantify the level of service being provided along each corridor in the service coverage area. Each corridor (0.25-mile coverage) was scored based on the highest level of service provided by the routes servicing that corridor. Next, the buffer scores were translated to the block group level based on the percentage of transit coverage in each block group and the level of service or supply score of that transit service. The resulting transit supply scores mapped by block group can be found in **Figure 4-17**.

Transit Potential

Developments and land uses that have a mix of jobs, retail, and housing indicate areas with high activity and potential for supporting transit. The method used to identify locations in the NLCOG MPA that support transit involved evaluating the measurements of population density, employment density, and potential destinations.

Of the total NLCOG MPA population, approximately 57% live in a block group with transit coverage, and approximately 81% of the total employment is located in a block group with transit coverage. Of the regional destinations, 48% (895 of 1,876) are located within SporTran transit coverage.

To gain a detailed understanding of the areas with higher transit propensity, the population, employment, and destinations were aggregated at the block group level and scored in comparison to regional averages. Block groups with high scores can be indicative of development and land uses that support transit use and can assist in the identification of service gaps. The results of this scoring process can be found in **Figure 4-18**. Most of the highest scores can be found within the more urban areas, especially Shreveport and Bossier City.

FIGURE 4-17: SPORTRAN TRANSIT SUPPLY SCORE BY BLOCK GROUP

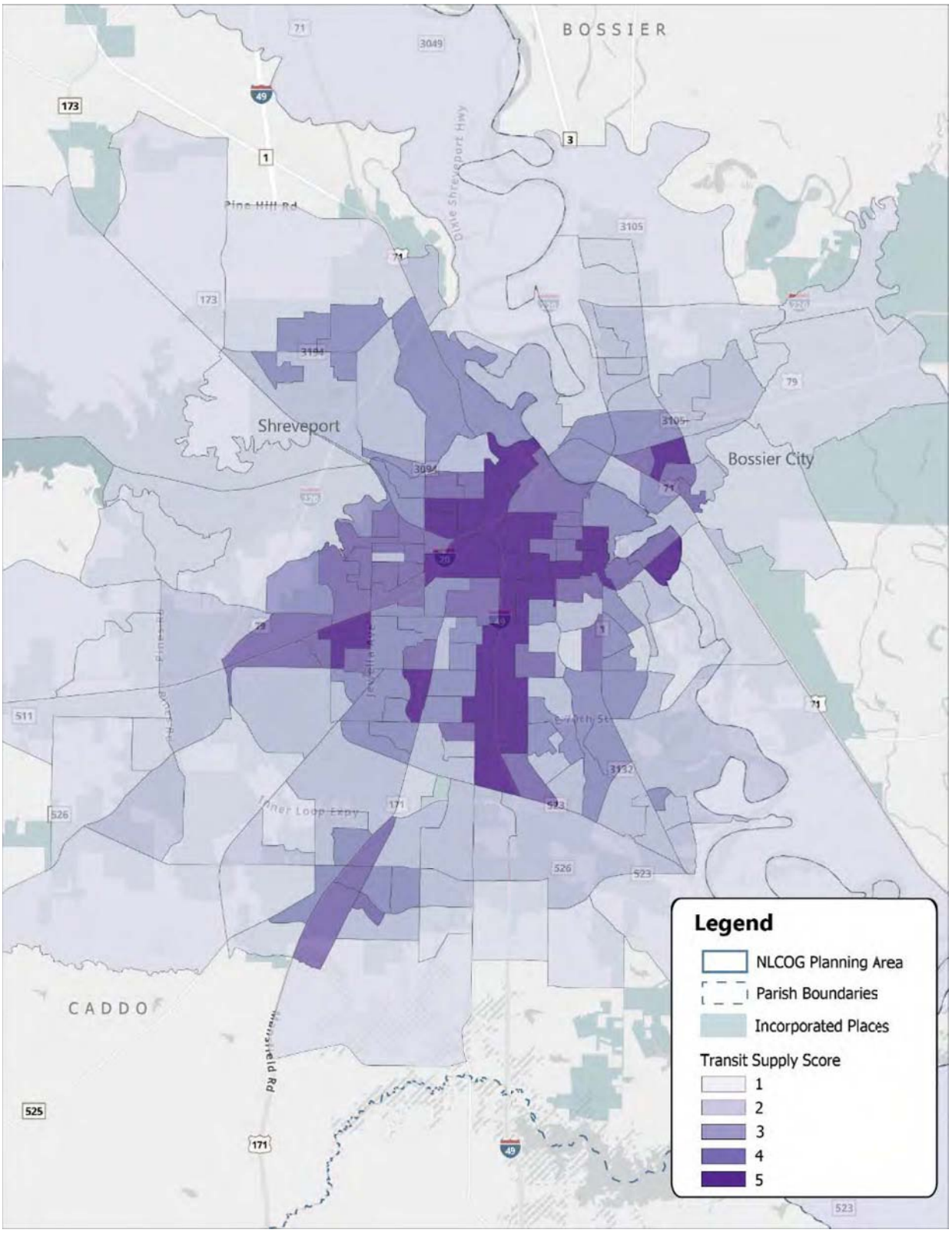
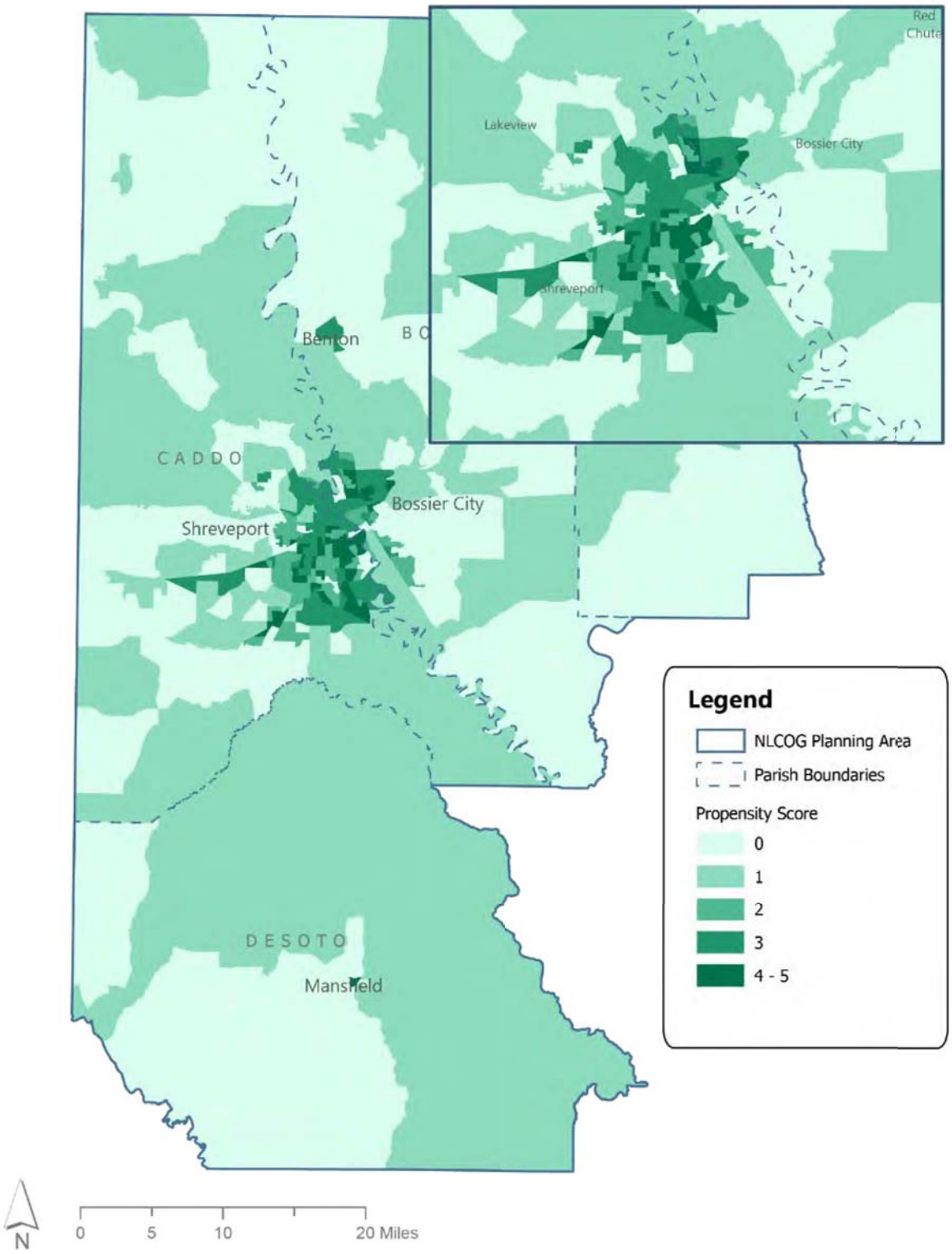


FIGURE 4-18: TRANSIT PROPENSITY SCORE



Transit Need

An analysis of target transit riders can help to identify the locations which have a higher need for transit service and help to prioritize transit adjustments to better support the community. A transit need includes the following demographic subgroups:

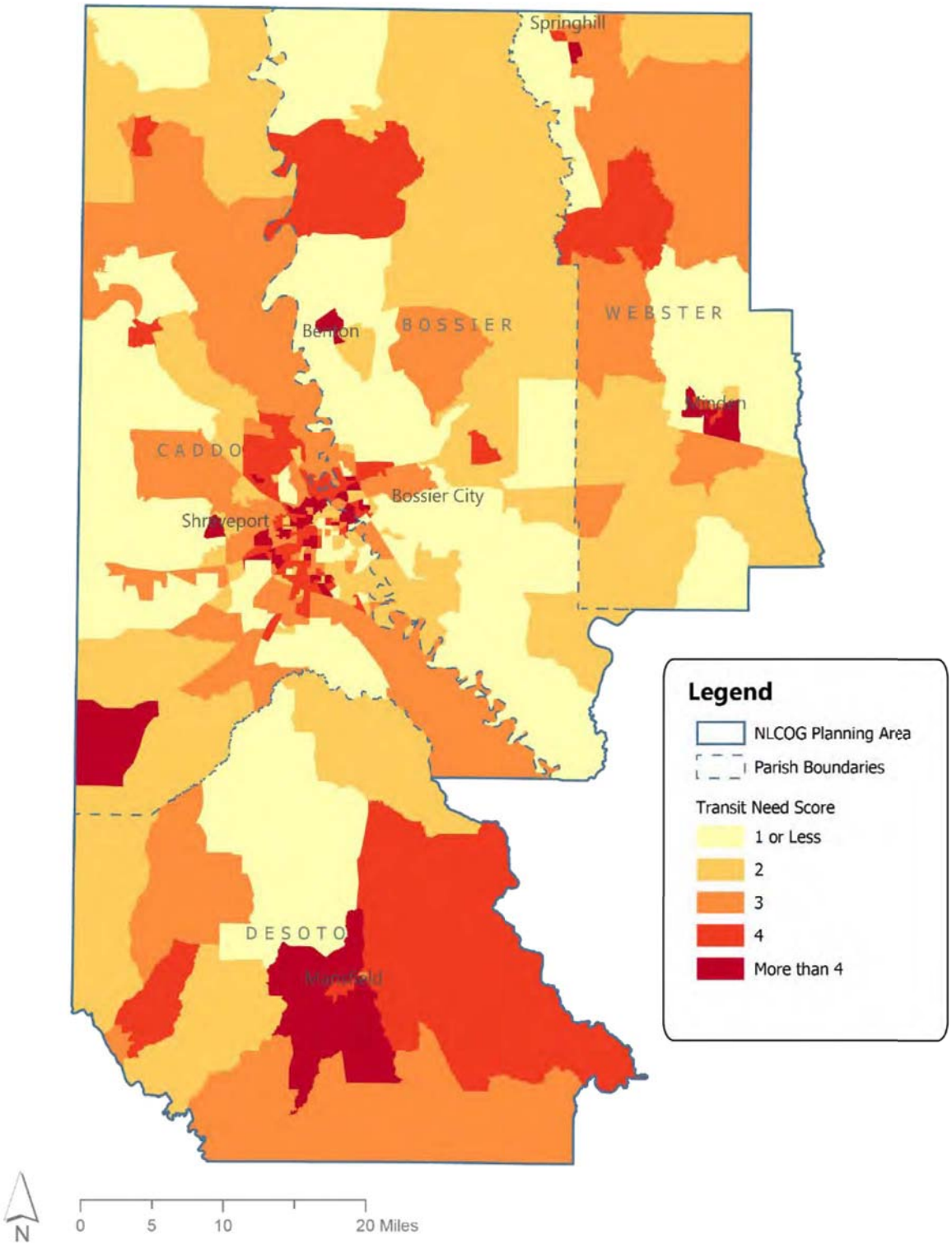
- Non-driving population (Youth under 18, and Elderly over 65)
- Population with LEP
- Minority populations
- Population with disabilities
- Population living in poverty
- Population without access to a personal automobile

It is generally assumed that individuals in these demographic subgroups are more likely to rely on public transportation for their mobility needs. Locating the areas in which these subgroups are concentrated can help ensure that the people with the highest need for services have access to reliable and effective transit. These demographic subgroups are considered as categories of transit need for the analysis.

Like the scoring of transit propensity, each block group was scored compared to the NLCOG regional averages to provide an understanding of the comparative need in the local context.

The results of this transit need scoring process can be seen in **Figure 4-19**. The higher the numeric score (1 through 4+), the greater the transit need. In contrast to the propensity score, the populations which have evidence of high transit need are distributed throughout the NLCOG MPA and not simply concentrated in the urban areas. Although some areas that are more rural may be difficult to serve with fixed route transit, they should be considered in the coordination of on-demand services to ensure that these groups have access to mobility options.

FIGURE 4-19: TRANSIT NEED SCORE



Service Gaps

Service gaps are areas where transit supply is inadequate or could be improved to meet the expected demand. Identifying locations that have high potential demand and inadequate transit supply can assist in the prioritization of future transit investments. Assigning a cumulative score of transit demand that is on the same scale and geography as the transit supply score can create a useful comparison for identifying unmet areas of demand for transit. Accordingly, criteria from the transit propensity and transit need analyses were selected, standardized, and scored to provide a cumulative look at transit demand. The resulting transit demand score can be seen in **Figure 4-20.** The transit demand score and the transit supply score presented were subtracted to gain an understanding of the locations of potential gaps, or areas where there is not enough transit supply to meet the apparent demand. The resulting analysis of potential gaps in service and the transit supply area are shown in **Figure 4-21**.

The SporTran supply is meeting or exceeding current transit demand in much of the Shreveport and Bossier City area. A few gaps which have demand for more service or supply are evident from the map of the SporTran supply area, including:

- North Bossier City: Between Airline Dr, I-220, and Shed Rd.
- North Bossier City: Near the Pierre Bossier Mall
- Southeast Shreveport: Between LA-1, Flournoy Lucas Rd, and E Bert Kouns Industrial Loop

FIGURE 4-20: TRANSIT DEMAND SCORE

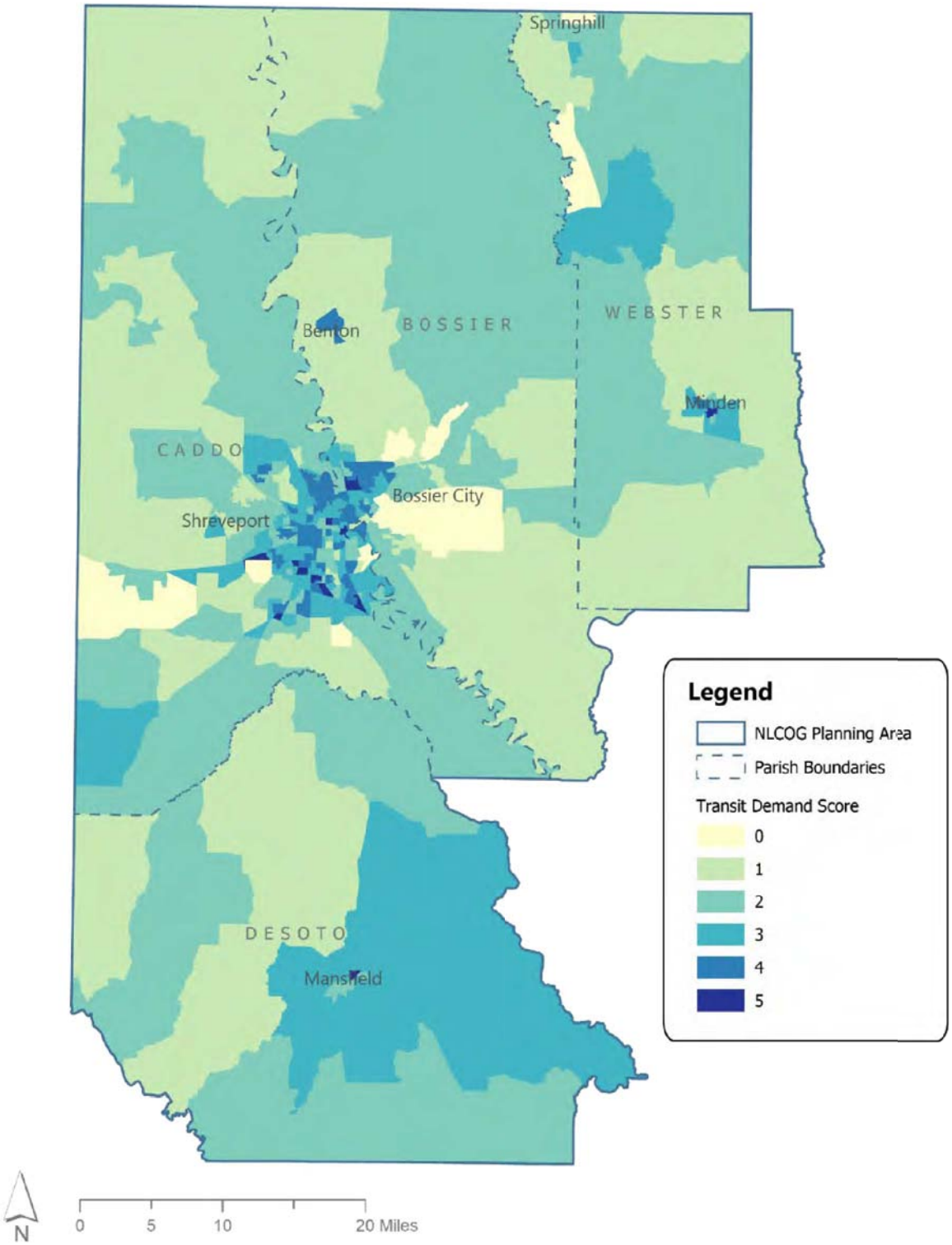
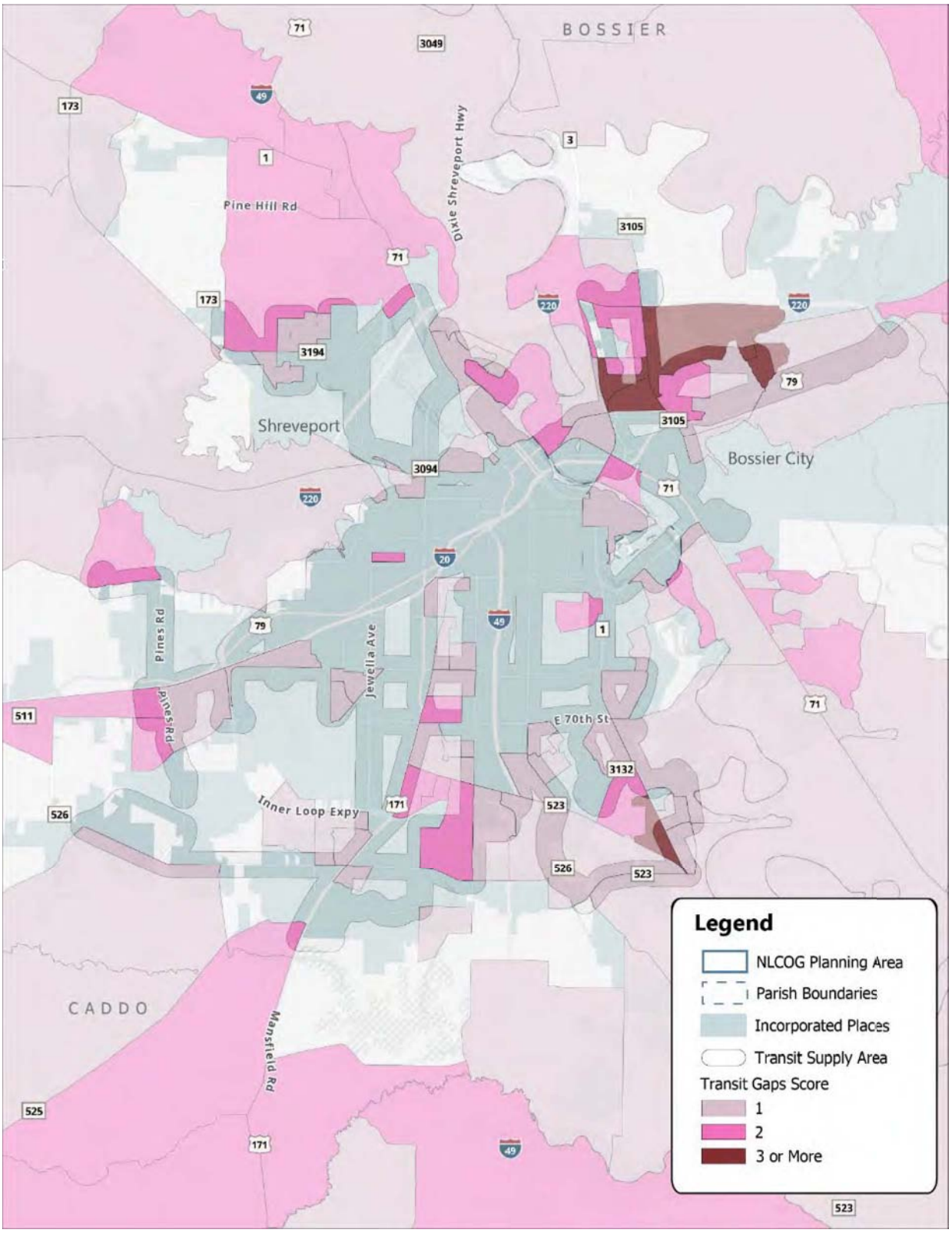


FIGURE 4-21: GAP ANALYSIS SCORE



Active Transportation

The active transportation existing conditions and deficiencies analysis provides policy makers and the public with a better understanding of how the transportation network serves the mobility of persons relying on non-motorized transportation throughout the region. The analysis reviewed existing conditions and network gaps to gauge existing active transportation network performance.

EXISTING CONDITIONS & SYSTEM GAPS

The current pedestrian and bicycle network in the NLCOG MPA consists mainly of shared-use roads with minimal lane markings or signage. Of the four parishes, Caddo has the longest network of bicycle and pedestrian facilities with just over 10 miles of shared-use paths, about 7.5 miles of pedestrian use paths, 10.5 miles of bicycle lane markings (marked shared use lanes (sharrows) or separated lanes) in the Shreveport city center, and 67 miles of bicycle safety signage, according to information in the Caddo Parish Bicycle Plan (2016). Second to Caddo, Bossier is home to a 9.1 miles long shared-use trail, a handful of recreation loops at local parks and lakes, and a 1.5 miles long shared-use path with protections, lighting, lane markings, signage, and seating (all aspects of a high-quality facility) in downtown Bossier City. In both cases, city governments have spearheaded these investments.

Data is a critical component of building and prioritizing projects for the active transportation network. However, data on pedestrian and bicycle facilities in the four-parish region is very limited. Due to the data limitations, the current conditions analysis performed includes both a Bicycle Environmental Quality Index (BEQI) and a Pedestrian Environmental Quality Index (PEQI) conceptual review to supplement the current conditions review.

These analyses establish the region's current provision of pedestrian and bicycle supportive infrastructure.

The BEQI and PEQI rate roads and intersections for bicycle and pedestrian use based on indicators that have been shown to support those active modes. Results of the analyses rank each location on a scale of poor, low, average, higher, and highest quality. This model was applied to 202 random sample points on roads throughout the study area.

As the NLCOG MPA seeks to improve the active transportation network, it is important to identify key areas that will be the most positively impacted by potential projects supporting walking and biking. Areas of high demand – where a high density of people and jobs are present – are likely to both need and support walking and biking facilities. These areas are identified and assessed for facility adequacy using the PEQI and BEQI methodology. Accordingly, areas containing high demand and poor existing active transportation infrastructure are representative of system gaps. **Figure 4-22** and **Figure 4-23** display the results of the assessments.

FIGURE 4-22: BEQI ANALYSIS RESULTS IN HIGH DEMAND AREAS

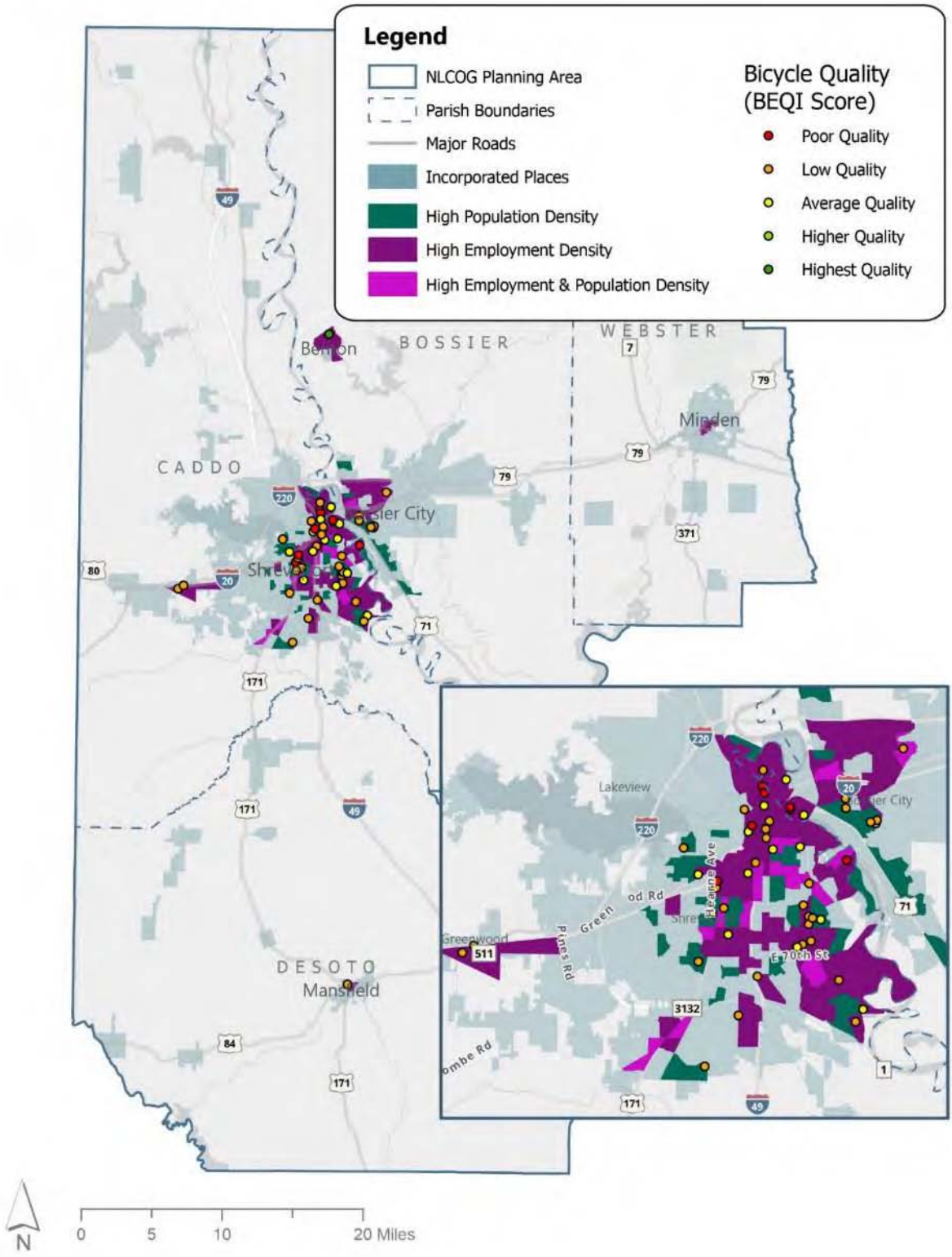
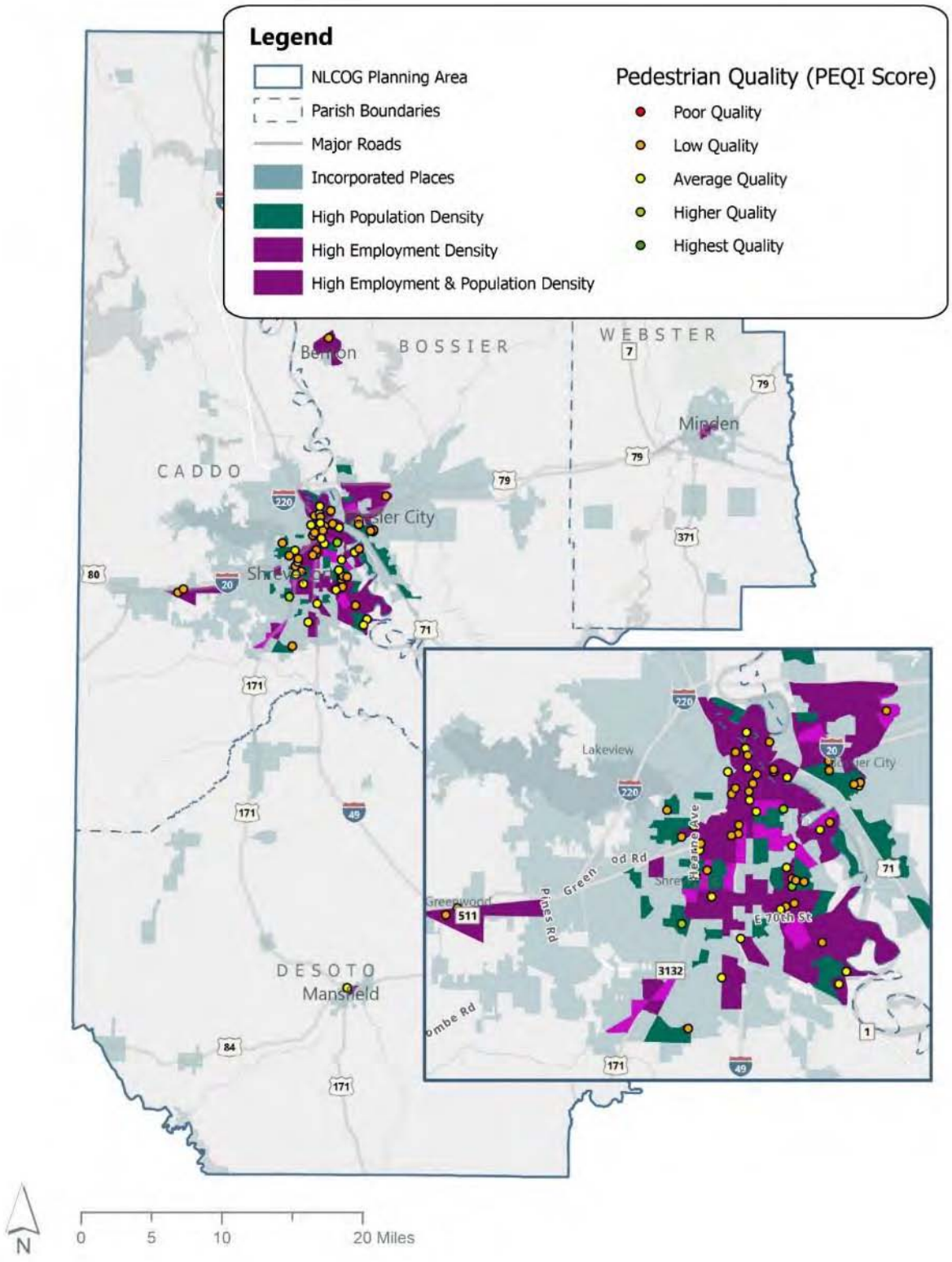


FIGURE 4-23: PEQI ANALYSIS RESULTS IN HIGH DEMAND AREAS



System Safety

Transportation safety data analysis provides planners, policy makers, and the public with a better understanding of where critical safety issues are occurring in the transportation system and what factors may be contributing to regional crashes and crash rates. As such, safety data analysis is a critical component of regional transportation planning.

The following analysis on regional crash trends for the NLCOG MPA multimodal transportation network will help the NLCOG prioritize projects by understanding where high priority intersections exist, and how to best implement safety enhancements. This information will also help the MPO understand and identify factors that contribute to crash totals and severity, which will in turn inform future planning efforts within the NLCOG MPA.

REGIONAL CRASH TRENDS

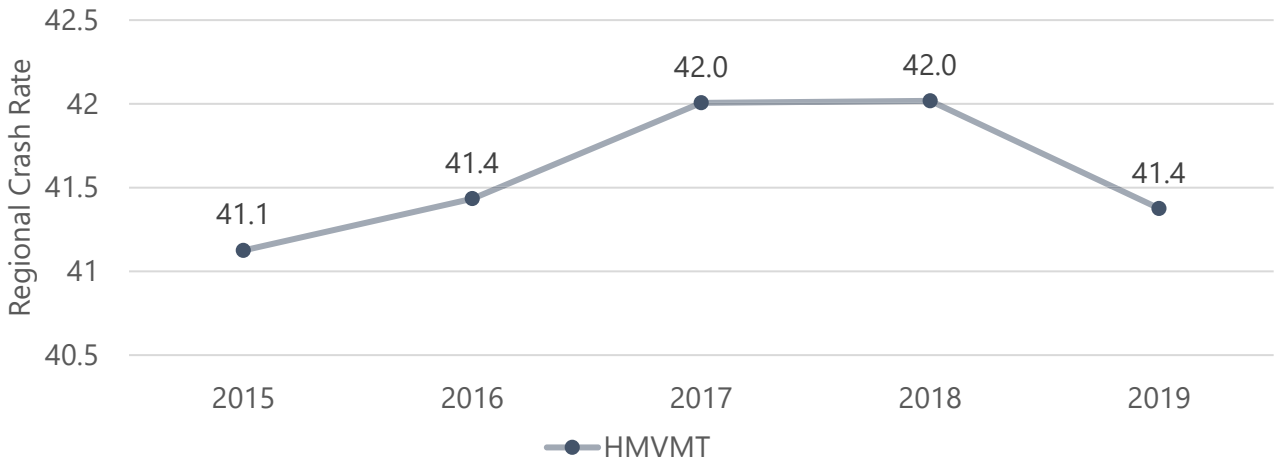
Between 2015 and 2019, there were a total of 82,765 crashes in the NLCOG MPA (**Table 4-6**). Of these crashes, less than 0.4% resulted in a fatality and 69.2% were reported to have no injury. An additional 1.0% resulted in a "severe injury", which is a non-fatal incapacitating injury that prevents a person from walking, driving, or otherwise continuing activity they were capable of prior to the injury, while 7.1% resulted in a moderate, or non-incapacitating injury, and 22.4% resulted in a complaint, which is a possible injury with no visible evidence.

TABLE 4-6: NLCOG CRASH SEVERITY BY YEAR, 2015-2019

Severity	2015	2016	2017	2018	2019	All Years	
Fatal	55	61	71	72	57	316	0.4%
Severe	174	189	158	131	155	807	1.0%
Moderate	1,189	1,204	1,181	1,235	1,026	5,835	7.1%
Complaint	3,398	3,668	3,756	3,891	3,817	18,530	22.4%
No Injury	11,823	11,828	11,476	11,539	10,611	57,277	69.2%
Total	**16,639**	**16,950**	**16,642**	**16,868**	**15,666**	**82,765**	**100%**

Crash rate is a metric that illustrates the ratio of crashes that occurred per vehicle miles traveled (VMT) within the region. This provides a method to normalize the gross crash count by including a consideration of roadway usage (i.e., VMT). Crash rates over the five-year period remain consistent, with a gradual increase from 2015 to 2018 and a gradual decrease from 2018 to 2019. Over this five-year period, VMT gradually increased from 4.1 billion annual VMT to 4.2 billion annual VMT. **Figure 4-24** shows the crashes per 100 million vehicle miles traveled for the region between 2015 and 2019.

FIGURE 4-24: NLCOG CRASH RATE PER 100 MILLION VMT, 2015-2019



Crash severity is a crucial aspect of each reported accident because crashes that result in fatalities or serious injuries represent a higher safety risk. Understanding where there are concentrations of these types of crashes can illuminate opportunities for operational or design improvements. The NLCOG 2045 MTP reviews crash data in three different ways – total crashes/crash rate, the total number/rate of crashes resulting in fatality, and the total number/rate of crashes resulting in serious injury – and compares the rolling averages of these values to those at the statewide level. The data represented in **Table 4-7** demonstrates that, on average, only 0.98% of crashes in the region resulted in a serious injury, and 0.38% resulted in a fatality.

Figure 4-25 illustrates annual rates of fatal crashes by parish and **Figure 4-26** shows annual rates of serious injury crashes by parish. It is worth noting that the total crash rate and the fatal crash rate have a positive correlation over the five-year period.

TABLE 4-7: NLCOG MPA CRASH TOTALS & RATES BY YEAR & 2019 5-YEAR ROLLING AVERAGE

Measure	2015	2016	2017	2018	2019	2019 5 Yr. Rolling Ave.	% of Total
Number of Crashes	16,639	16,950	16,642	16,868	15,666	16,553	100%
Rate of Crashes per 100 million VMT	41.125	41.434	42.006	42.018	41.375	41.592	-
Number of Fatalities	55	61	71	72	57	63	0.38%
Number of Fatalities per 100 million VMT	1.337	1.472	1.690	1.714	1.378	1.518	-
Number of Serious Injuries	174	189	158	131	155	161	0.98%
Number of Serious Injuries per 100 million VMT	4.231	4.561	3.761	3.118	3.746	3.884	

FIGURE 4-25: FATALITIES PER HMVMT BY PARISH, 2015-2019

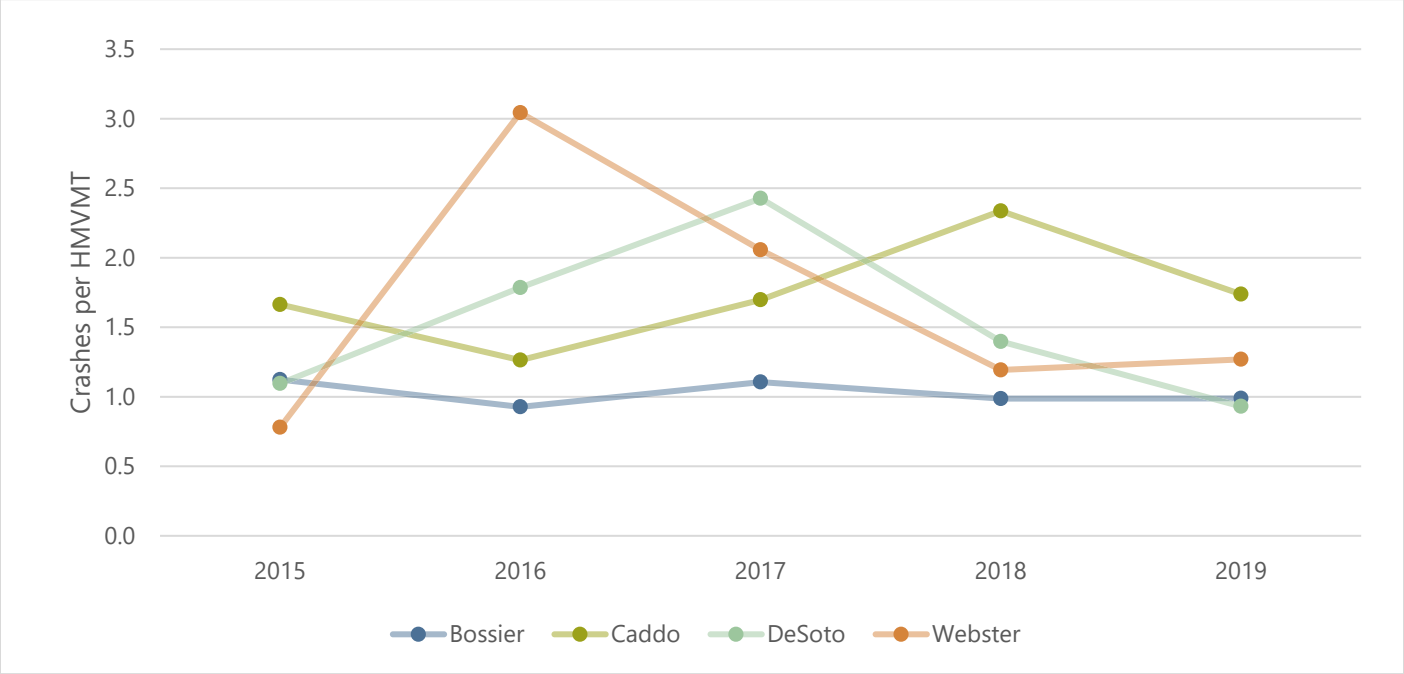
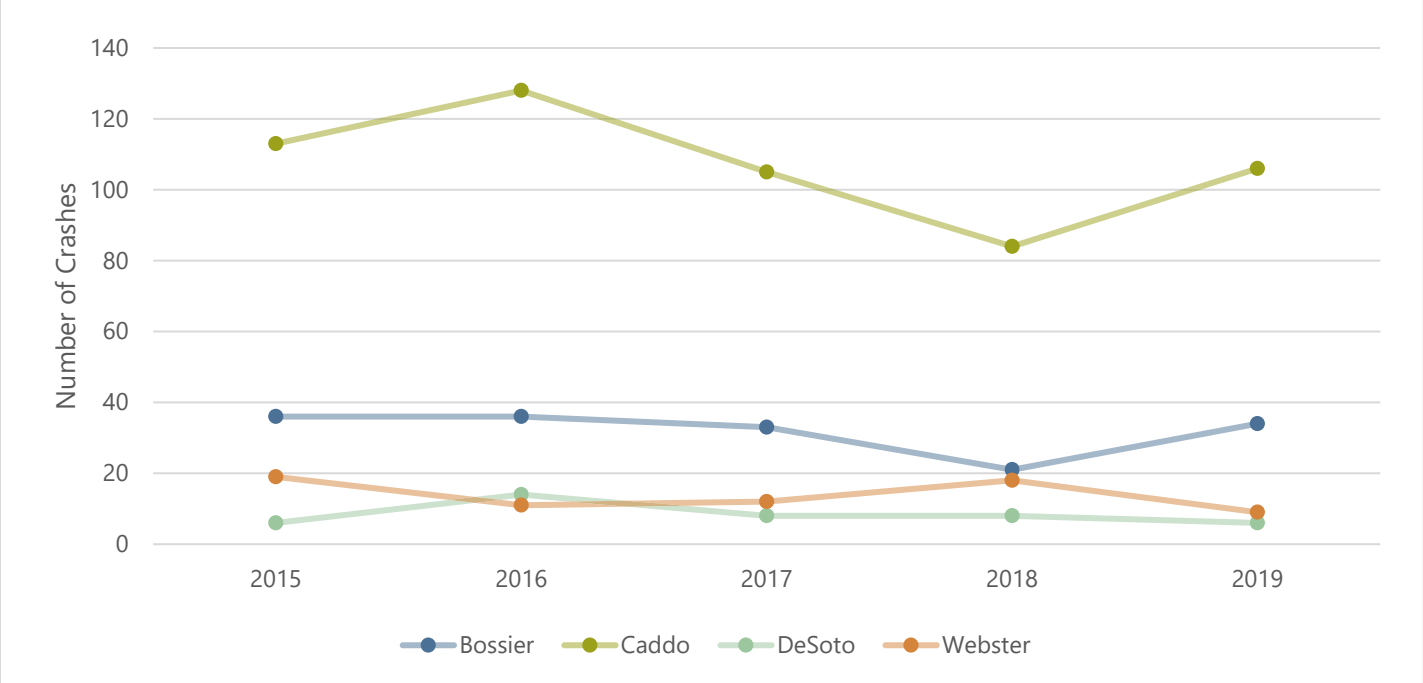


FIGURE 4-26: SEVERE INJURIES BY PARISH, 2015-2019



CRASH MODIFICATION FACTORS

FHWA has set out a variety of proven safety countermeasures in response to top contributing factors factor (e.g., driving under the influence, failure to yield, etc.), such as implementing a roundabout at an intersection with a high crash rate or installing walkways to increase safety for pedestrians on segments where pedestrian-related crashes were higher than others.

In some cases where the implementation of a proven safety countermeasure in response to a top contributing factor is not possible, a risk management approach can be used by applying crash modification factors. Failure to control speed might indicate that the improvement of a roadway should incorporate traffic calming techniques, however, in the case of interstates, traffic calming measures would be prohibited. Crash modification factors (CMF) become useful tools the goal to reduce the risk and/or severity of a crash where speeding was a factor. One such CMF would be to install cable rails in the clear zone for non-elevated portions of the interstate.

A crash might still occur in this location, but the likely severity of the crash could be greatly reduced by the cable rail compared to the potential severity if no rail or concrete barriers were present.

Additionally, the consideration of safety countermeasures and CMFs is useful when scoring and comparing new roadways where no data is yet available. In these instances, the design and scope of the new roadway can be scored based on what safety countermeasures and CMFs it incorporates in comparison to the region's top contributing factors. A new commercial corridor that implements access management should ostensibly receive a better score than a roadway that allows any number of driveways, as the first example has a higher likelihood of improving regional safety performance because it directly addresses the top contributing factor of failure to yield.

Point scale and range for this scoring process is then a critical step to consider thoroughly and carefully to avoid creating a false sense of bias. FHWA Proven Safety Countermeasures shows the safety countermeasures promoted by FHWA, and further detail can be found on FHWA's safety page.[2] Additional information on CMFs can be found on the CMF Clearinghouse.[3]

[2] https://safety.fhwa.dot.gov/provencountermeasures/fhwasa18029/

[3] http://www.cmfclearinghouse.org/

FIGURE 4-27: FHWA PROVEN SAFETY COUNTERMEASURES

CRASH HOTSPOTS

Crash hotspots were identified within the NLCOG MPA through spatial analysis of intersections and roadway segments that experienced the highest number of crashes over the five-year period. Total crashes, crashes involving pedestrians, crashes involving bicyclists, and crashes resulting in serious injury or fatality are all considered in this analysis. **Figure 4-28** and **Figure 4-29** display crash hotspots located at intersections and along roadway segments identified through geolocation of the collected crash data.

The hot spot analysis consisted of a combination of spreadsheet and GIS based steps to arrive at the top twenty intersections (**Table 4-8**) and top twenty roadway segments (**Table 4-9**) in the four-parish study area.

FIGURE 4-28: NLCOG MPA TOP 20 INTERSECTION HOT SPOTS, 2015-2019

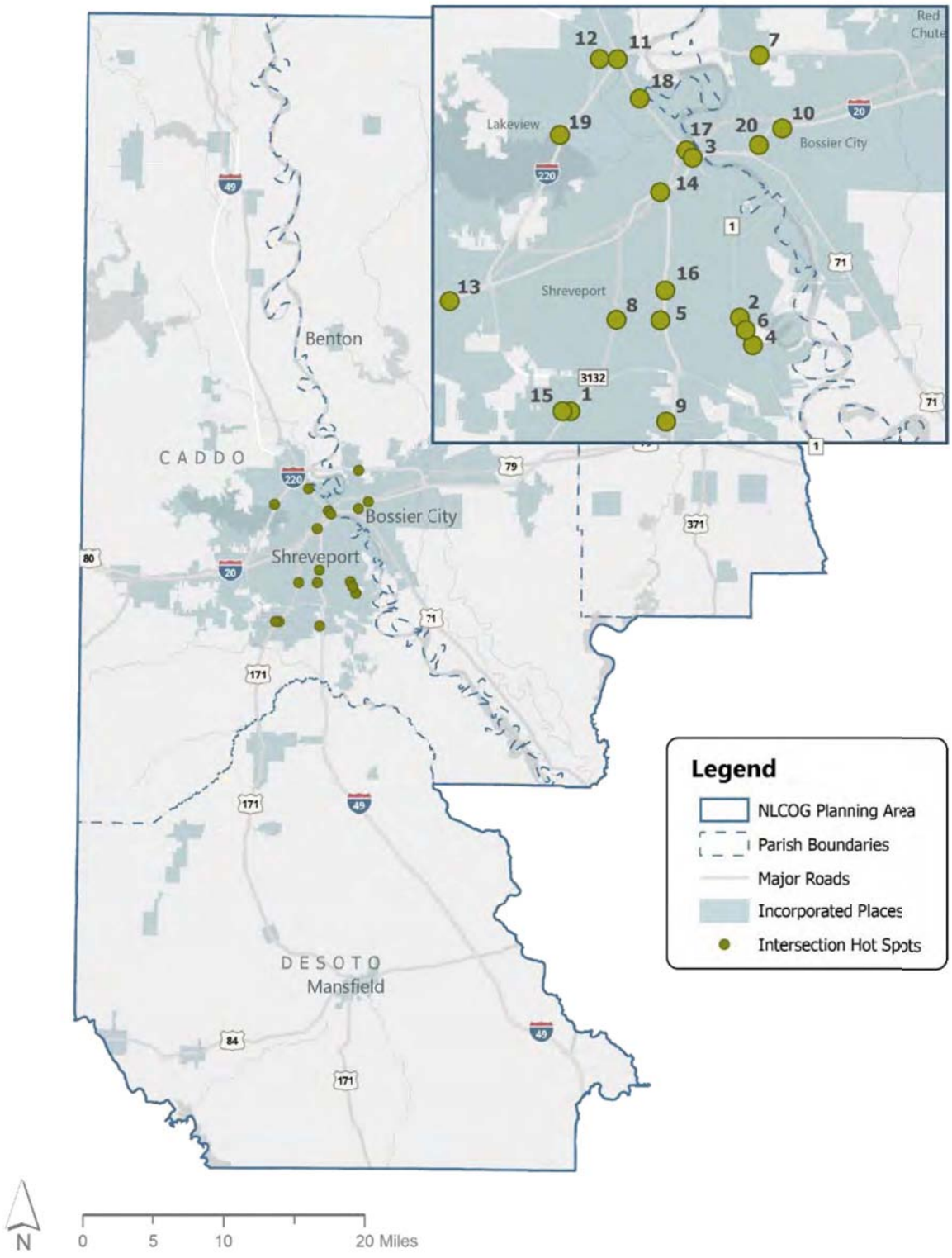


TABLE 4-8: NLCOG TOP 20 INTERSECTION HOT SPOTS, 2015-2019

Rank	Primary Road	Intersecting Road	Parish	Crash Count 2015-2019
1	Bert Kouns Industrial Loop	Mansfield Rd.	Caddo	333
2	70th St.	Youree Dr.	Caddo	300
3	Lake St.	Spring St.	Caddo	295
4	Bert Kouns Industrial Loop	Youree Dr.	Caddo	287
5	70th St.	I-49	Caddo	262
6	Regal Dr.	Youree Dr.	Caddo	230
7	Airline Dr.	I-220	Bossier	227
8	70th St.	Mansfield Rd.	Caddo	208
9	Bert Kouns Industrial Loop	I-49	Caddo	195
10	Airline Dr.	I-20	Bossier	192
11	I-220	Market St.	Caddo	184
12	Dr Martin Luther King Dr.	Market St.	Caddo	181
13	I-20	Pines Rd.	Caddo	180
14	I-20	I-49	Caddo	175
15	Bert Kouns Industrial Loop	Walker Rd.	Caddo	169
16	Kings Hwy.	I-49	Caddo	159
17	Spring St.	Texas St.	Caddo	154
18	Hearne Ave.	Market St.	Caddo	153
19	Hilry Huckaby III	I-220	Caddo	153
20	I-20	Old Minded Rd.	Bossier	149

FIGURE 4-29: NLCOG MPA TOP 20 SEGMENT HOT SPOTS, 2015-2019

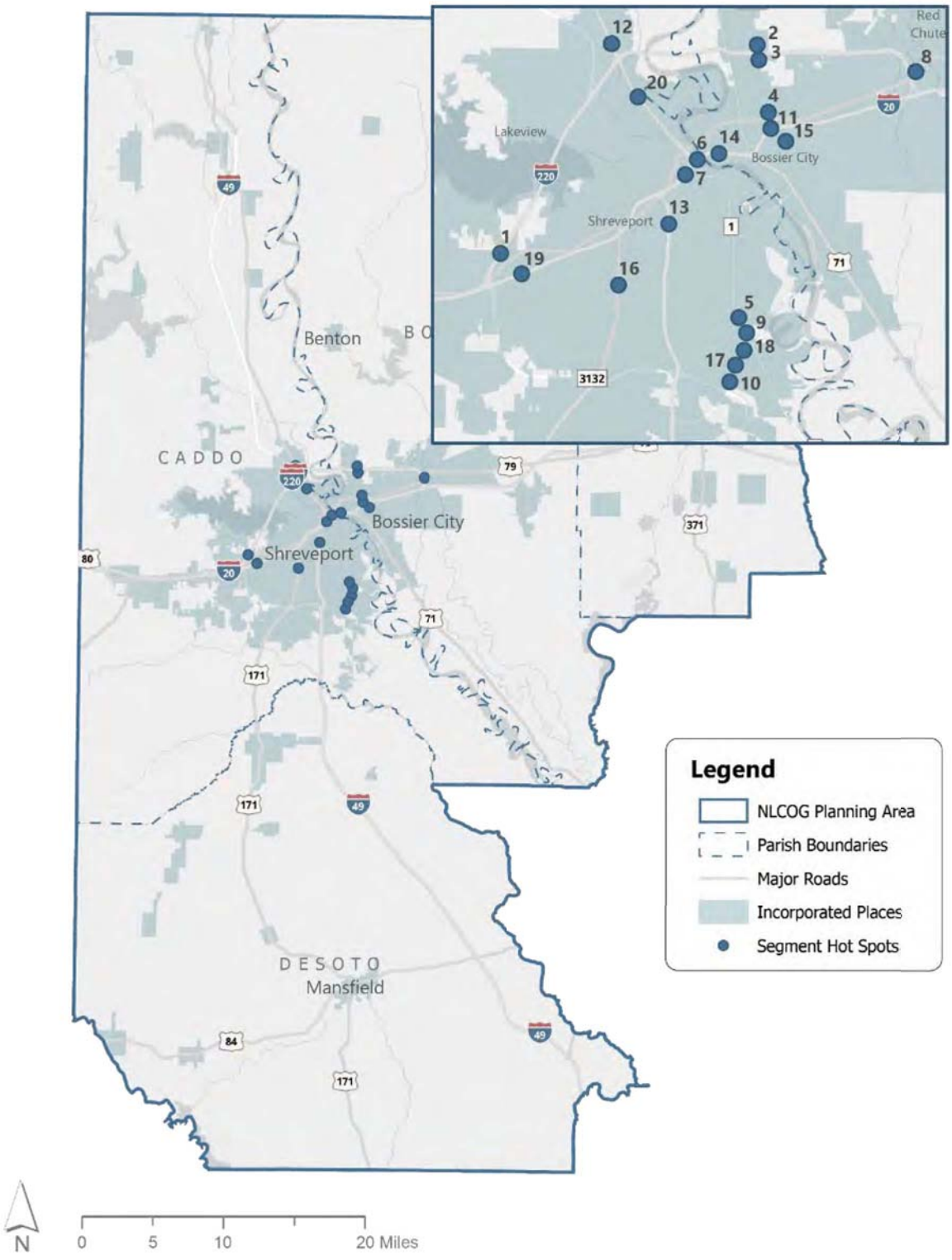


TABLE 4-9: NLCOG TOP 20 SEGMENT HOT SPOTS, 2015-2019

Rank	Primary Road	Intersecting Roads	Parish	Crash Count 2015-2019
1	Airline Dr.	E. Texas St. to I-20	Bossier	639
2	Airline Dr.	Melrose Ave. to Viking Dr.	Bossier	554
3	Airline Dr.	Viking Dr. to Beene Blvd.	Bossier	425
4	Spring St.	4th St. to Milam St.	Caddo	373
5	Airline Dr.	Douglas Dr.	Bossier	351
6	Market St.	Northside Dr. to Melrose Ave.	Caddo	318
7	Benton Rd.	Shed Rd. to Northside Dr.	Bossier	308
8	I-20	Hamilton Rd. to Benton Rd.	Bossier	293
9	I-20	Old Minden Rd. to Airline Dr.	Caddo	292
10	E. Texas St.	McArthur Dr. to Clovis St.	Bossier	285
11	I-20	Traffic St. to Hamilton Rd.	Bossier	280
12	Bert Kouns Industrial Loop	Millicent Way to Youree Dr.	Caddo	270
13	Barksdale Blvd.	St. Charles St. to Garden St.	Bossier	258
14	E. Texas St.	Youree St. past Benton Rd.	Bossier	229
15	Polk St.	Washington Ave. to Louise St.	DeSoto	206
16	I-20	I-49 to Fairfield Ave.	Caddo	190
17	I-20	Stoner Ave. to Louisiana Ave.	Caddo	188
18	Spring St. Northbound	I-20 to Airport Dr.	Caddo	187
19	I-20	Barksdale Blvd. to Old Minded Rd.	Bossier	176
20	Old Minden Rd.	Preston Blvd. to John Wesley Blvd.	Bossier	171

SUMMARY ON ANALYSIS OF MULTIMODAL NEEDS

The findings of the NLCOG multimodal needs assessment reflects the current state of the region's transportation system and show projections where possible for the future of its various components. Overall, the region is slowly growing and will continue to do so over the next 25 years. This growth will impact each aspect of the regional transportation network, requiring the community to invest in transportation policy and projects that address the infrastructure, land use, and socioeconomic changes that will arise in the coming years. The analysis summarized here provides a holistic understanding of the regional transportation system encompassing the community's roadways, transit and active transportation systems, freight network, and socioeconomic landscape. This framework provides data-driven insight into the needs of the community and informs the review and consideration of investments and strategies that are laid out in subsequent chapters of the NLCOG 2045 MTP, specifically Chapter 5, Transportation Strategies.

5 | TRANSPORTATION STRATEGIES

As a facilitator for continuous, cooperative, and comprehensive planning, NLCOG coordinates strategies, services, and investment projects that address regional goals and priorities for mobility. This chapter reviews technology, coordination, and policy strategies, offering a menu of methods to address and improve regional mobility. This chapter also introduces how NLCOG reviews and prioritizes infrastructure investment projects.

REGIONAL MOBILITY STRATEGIES

This chapter introduces current and potential future strategies that address regional mobility in the NLCOG MPA by looking holistically at the transportation network and making improvements for all modes and users. Complementing the planning initiatives, goals, and objectives discussed in Chapter 2, this chapter provides a review of mobility strategies that go beyond new infrastructure investment and capacity expansion projects to provide scalable alternatives that address regional mobility issues that people experience.

Due to inherent fiscal constraints involved in infrastructure investment, it is critical to understand and implement strategies that utilize available technology, coordination, and policy measures that support a more efficient and sustainable transportation system.

The following sections describe strategies that can be implemented in combination with typical infrastructure investments, providing a broader range of methods with which to address the regional transportation needs discussed in the Multimodal Needs Assessment (Chapter 4).

COORDINATION & POLICY

The success of regional transportation solutions depends on a collaborative environment across jurisdictions, as well as coordination with statewide transportation planning processes. The following section details strategies for effective coordination, programs, and policies that address mobility needs for all users.

Transportation Demand Management

Transportation demand management strategies seek to reduce congestion on existing roadways, especially during peak travel periods, by reducing the overall number of cars using roads or by redistributing people in cars away from congested areas or on to other modes within the transportation network. Transportation demand management strategies help to get the most value out of the whole transportation system for each dollar invested.

Encouraging the use of active modes of transportation (such as transit, biking, or walking) and increasing the number of travelers in each vehicle are key methods by which transportation demand management strategies reduce single-occupant vehicle demand on existing roadways. Transportation demand can be managed by providing travelers with a wide range of efficient and accessible choices for reaching their destination.

With limited funding available to address congestion through increasing roadway capacity, transportation demand management is a cost-effective means to improve use of the existing transportation system.

Transportation demand management strategies are designed to accomplish the following:

- Improve mobility and accessibility by expanding and enhancing the range and quality of available travel choices.
- Improve system reliability by decreasing the number of vehicles using the roadway.
- Reduce congestion by shifting vehicle travel to non-peak periods.
- Increase safety by addressing congestion, which is generally related to higher occurrences of traffic crashes.
- Improve air quality by reducing the number of vehicle miles traveled, thereby saving energy and decreasing the number of short vehicle trips.

STRATEGIES TO REDUCE SINGLE OCCUPANCY VEHICLE TRIPS

Transportation Management Organizations

Transportation Management Organizations (TMO), sometimes referred to as Transportation Management Associations, are non-profit organizations voluntarily created by a group of businesses – often with local government support – to coordinate transportation services in a defined area (typically a commercial district, medical center, or industrial park, but may also be city or region wide). Because they tend to serve a small geographic area and constituency, these groups can be very responsive to members' needs. TMOs provide a variety of transportation demand management services that encourage more efficient use of transportation and parking resources, particularly through commute trip reduction strategies, incentive-based programs, and ridesharing.

TMOs are generally funded through employer membership but can also draw upon federal or state grants.

Employer-Based Tools & Incentives

The commute to and from work is a significant contributor to traffic congestion along area roadways, particularly during peak travel times. Transportation demand management strategies that focus on employer-based tools and incentives can be an effective way to reduce travel by single occupant vehicles by coordinating ridesharing among employees, encouraging the use of alternate transportation modes for work trips, shifting work trips away from peak hours, and reducing work travel times and the number of overall trips. TMOs are a common practitioner of these types of programs and can assist employers who may not have the resources to provide such tools.

Employer-based transportation demand management strategies fall into several categories:

- Encouraging employees to travel by active transportation modes.
- Shifting trips away from peak periods of travel and reducing the total number of trips through flexible work schedules, remote working, and teleworking options.
- Using location-specific solutions - such as locating employment centers in developments with a mix of employment, residential, and service uses - to shorten the work commute.

Regional transportation planning entities can actively work with area employers to reduce

congestion by expanding the transportation options available to their employees.

This type of information can be provided on a website or delivered through a "speaker series" for educating area employers regarding options available and their benefits to employers, employees, and the community.

Pooling Programs

Carpool, vanpool, and school-pool programs encourage travelers with common destinations, particularly employment and school destinations, to share vehicles. These can be based on informal arrangements between individuals or formally arranged through ride-matching services. Available research indicates that improving awareness, trust, and willingness to ride with strangers, as well as flexibility in scheduling, may help to increase carpool use. Incentives are another effective tool for encouraging ridesharing.

Resources that may help to increase the use of carpooling, vanpooling, and school-pooling include publishing a webpage with "Frequently Asked Questions" (FAQs) that address the benefits of carpooling, tips for finding other carpoolers, advice on how to organize pick-ups and drop-offs, carpooling etiquette, safety concerns, among others.

Additionally, some entities have used websites to facilitate the matching of individuals with other carpoolers by either hosting their own free ride-matching service using online ride share software, or publicizing ride-matching applications available to the public, such as web-based carpooling apps.

Parking Management & Incentives

Parking management strategies and incentives encourage the use of active modes and can be implemented by both local jurisdictions and employers.

These strategies typically rely on disincentivizing travel by single occupant vehicle by passing along more of the cost of parking to employees and/or limiting the availability of parking. Improved management of parking facilities can result in potential savings to communities and may reduce parking needs, therefore allowing for more creative use of unused parking space.

Parking-fee pay outs to employees who choose to get to work using active modes may also help to reduce single occupancy vehicle trips and decrease the expenses and amount of space employers need for parking.

Safe Routes to School Programs

Safe Routes to School (SRTS) programs aim to improve the ability to walk, bike, or roll to schools. The program works with parents, schools, and local governments to prioritize and select projects that improve active transportation access to schools and ensure safe and comfortable routes for all students.

Open Streets Events

Open Street events, also known as "Ciclovias" or Sunday Parkways, are dedicated to shifting roadway use away from cars for a pre-determined period of time.

When closed to automobile traffic, streets can be used by residents for activities such as exercise, games, or playing music. Community vendors and business may be involved to activate the street space or incorporate local traditions. The purpose of Open Streets events is two-fold: to provide an opportunity to build community and enjoy public space in a safe, quiet environment, and to encourage residents to use active modes of travel such a walking, biking, or transit, for daily activities.

Social Behavior Change Programs

Many urban areas have started to offer additional information and support to residents who are interested in learning more about using active modes of travel. Municipalities, transit agencies, and non-profit groups have maintained such programs to help reduce single occupancy vehicle trips, and increase trips made by walking, biking, or taking transit. Generally, programs work with individuals who are already interested or who have considered making such changes but are unsure of how to do so, rather than those residents who are not interested or not ready to change their mode of travel. Community events, social media campaigns, competitions and gamification, and door to door marketing are all methods used to communicate with residents who choose to participate with the program. Successful programs have been shown to accomplish reductions in vehicle miles traveled. Four of the focus areas in the Northwest Louisiana Regional Safety Coalition's implementation of the Strategic Highway Safety Plan (SHSP) approach safety concerns using these program techniques. These strategies are discussed in greater detail in following sections addressing safety.

Strategies for Developing the Active Transportation Network

To ensure the active transportation network supports travel choice, accessibility, and connectivity, it is important to have a clear understanding of strategies that help support the current bicycle and pedestrian conditions and needs identified in Chapter 4. Walking and biking-supportive infrastructure can enrich the livability of a community, reduce congestion, improve air quality, and encourage a better quality of life for all. Additionally, the benefits of a connected active transportation network extend to transit users and the transit system. A connected active transportation network provides the "first and last mile" infrastructure to help people travel to and from transit stops. Some of these strategies help provide methods to continue the development of accessible active transportation facilities in the NLCOG MPA.

COMPLETE STREETS

The concept of "Complete Streets" is rooted in the idea that roads are public space and should be built with all users in mind, not just the private automobile. While Complete Streets principles include many transportation demand management and Transportation and System Management Operations (TSM&O) strategies, the concept focuses less on improving traffic conditions and more on enhancing the livability of places through a combination of safety, efficiency, and comfort. Complete Streets strategies address the needs of all users of the transportation system, including the young and the old, those with mobility limitations, and users of transit or non-motorized forms of transportation. They yield a wide range of benefits related to safety, equity, access, economic development, air quality, health, and livability.

While Complete Streets policies are often adopted at the state or municipal level, MPOs can be integral partners in promoting and implementing Complete Streets strategies.

COORDINATION WITH ROADWAY PROJECT IMPLEMENTATION

In 2020 DOTD passed the most recent Complete Streets Policy Update, which accompanies the 2017 Complete Streets Directive update to the Engineering Directives and Standards Manual (EDSM). These statewide efforts were passed along with an update to the Strategic Highway Safety Plan to establish a goal to end all deaths on Louisiana roadways. Both statewide initiatives were developed in coordination and communication with regional planning agencies and MPOs and include priorities, goals, countermeasures, and strategies for continued regional and local partnership. These initiatives advance strategies to meet the needs of people who walk, bike, or have other mobility constraints.

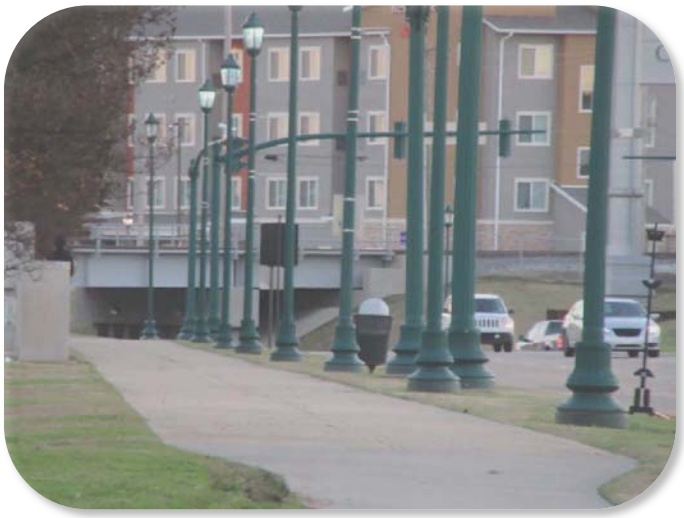
Bicycle transportation facilities and pedestrian walkways are considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities, except where bicycle and pedestrian use are not permitted such as the Interstate.

This policy does exclude minor, or spot replacement projects if active transportation or transit facilities do not already exist in adjoining infrastructure. As DOTD continues coordination with NLCOG on project planning and programming in District 4, efficiencies can be gained by focusing investments along major corridors that link multiple destinations in the region. The navigability of these routes can be enhanced through wayfinding and signage, as well as streetscape enhancements such as lighting, bicycle parking, and street trees.

The projects that coincide with regional and state active transportation plan segments, or address gaps in the active transportation network become ideal opportunities to conjoin project programming efforts.

CONNECT MAJOR DESTINATIONS AND ADDRESS BARRIERS

Creating a well-connected network requires identifying areas where people would like to travel at the regional, city, and neighborhood level. Projects that enhance pedestrian and bicycling conditions near major employers, schools and universities, and residential areas, for example, should be given highest priority, as these have the potential to attract the greatest number of trips. Projects that enhance pedestrian and bicycling conditions near transit stops should also be prioritized to take advantage of the complementary nature of these modes. Barriers can take the form of dangerous intersections, controlled access highways, railroad track crossings, bodies of water, gaps in the sidewalk or bike network, or topography, among other physical features of the region. Projects that help address barriers also contribute to safety and regional resilience.



ALL AGES & ABILITIES FACILITIES

Designing and building active transportation facilities that provide a high comfort level for all users including the young, old, or people with limited mobility, is a Complete Streets strategy that offers a more equitable approach and includes more people in the active transportation network. All ages and abilities facility types focus on intuitive design, separation from motor vehicles, and a high level of comfort along all segments of the route. Bike facilities often have gaps which place vulnerable users in an uncomfortable position on the roadway, whereas all ages and abilities facility types will have a continuous and connected system. An example of this type of facility in the NLCOG planning area are the protected bike lanes located along Barksdale Blvd. in the East Bank District of Bossier City. For people walking or using a mobility device, audible crossing signals, pedestrian crossing countdown timers, crossing islands at large intersections, and pedestrian leading intervals are all tools that can be used to create safe, comfortable crossings for all users.

TRANSIT

Improving the quality of transit services involves strategies that shorten the overall travel times, increase traveler's comfort both while waiting for the bus and when on-board, and provide added flexibility with travel time and destinations. Transit can also provide a less expensive means of travel compared to personal automobiles. National statistics have shown that commuters that switch from driving to transit for their daily commute can save more than $9,000 annually. However, providing new routes or increased levels of transit service must always be balanced against funding availability.

Urban Transit Services

Following the previous MTP update, SporTran has been continuously implementing transit service improvements to both address mobility needs and sustainability initiatives. As shown in Chapter 4, the current SporTran service is meeting or exceeding current transit demand in much of the Shreveport and Bossier City area. A few gaps which have demand for more service or supply are evident from the map of the SporTran supply area. Other suburban and rural areas also show transit demand that is not met by the SporTran service as they are outside the service area. SporTran also operates demand response service throughout the area by special application and approval.

To better meet the demand identified in this analysis, service provided by the City of Shreveport via SporTran's fixed route network could be expanded in collaboration with other municipalities or with political support as appropriate within the planning area. Given known service and funding constraints, the best means for meeting unmet demand will be dependent on the agency's ability to engage with stakeholders to identify more detailed areas for investment and to garner the necessary support in those regions.

At present, SporTran is scheduled to begin some expansion into rural parts of Caddo Parish via increased demand-response service under a new paratransit contract. Further, the upcoming SporTran strategic plan is expected to consider other public transportation alternatives. Additional strategies could include the creation of a Rural Transportation Planning Organization (RTPO) adjacent to NLCOG, increased collaboration via existing municipal plans, or a public-private partnership with rideshare services such as Uber and Lyft to close service gaps.

Demand Response Transit Services

Because of the region's large, rural block groups, it is a challenge to pinpoint specific places where transit may be in higher demand within these areas. In addition, denser block groups near Benton in Bossier Parish, Minden in Webster Parish, and Mansfield in DeSoto Parish are home to higher transit demand that may be more likely to be

transit dependent compared with the rest of the NLCOG MPA. According to the CHSTP discussed in Chapter 2, demand response transit service reaches the entirety of the four-parish planning area, however, many of the demand response service providers only serve disabled or aging segments of the population. Further review of the transit demand in relation to these demand-response services should be conducted to understand service effectiveness.

TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS

Transportation System Management and Operations (TSM&O) strategies seek to improve the performance of existing roadways through increased efficiency and throughput of vehicles on roadways. TSM&O strategies not only rely on traffic engineering solutions – such as signal synchronization and access management – to optimize the existing system, but also rely on resource utilization, infrastructure, personnel, and data management strategies to extend the useful life of the existing transportation system and improve its reliability. These strategies also help relieve congestion and maximize the safety and mobility of people and goods.

Maintenance

Infrastructure maintenance is a critical aspect of TSM&O. Most infrastructure management agencies prefer to schedule routine repairs and inspections instead of embarking on ad-hoc patching and repairing. Schedule management for inspection and street repairs will enable city and county personnel to efficiently use limited resources. Regularly scheduled roadway resurfacing is necessary to provide uniform improvements to the existing roadways and to extend their useful life. Older roads, especially those built according to discontinued standards, should be reviewed to upgrade deficient sections based on modern design standards.

Access Management

Access management refers to the regulation of the number of access points between a development and the adjacent roadway network. Many access management solutions involve installation of roadway medians where feasible to guide turning movements to the appropriate locations and improve traffic flow and safety. Another example of access management is optimizing the number and locations of driveway curb cuts in commercial or industrial zones. Effective access management has significant implications for mobility, accessibility, and safety by reducing crashes, increasing capacity, reducing travel time and delay, extending the life of the roadway, and reducing vehicular emissions.

Targeted Traffic Enforcement

Consistent and reliable enforcement of traffic laws helps address public concerns about traffic issues. Focused speed studies (using radar trailers and traffic counters) and enforcement can be employed to discourage speeding on roadways within the region.

Safe Passing Ordinances are an example of traffic enforcement that increases bicycle and pedestrian safety and can help encourage citizens to use active modes of transportation. These ordinances protect vulnerable road users by requiring a safe passing distance of 3 feet or more by motor vehicles and 6 feet for commercial vehicles when conditions allow.

The same can be said for parking enforcement laws, which prevent automobiles from parking in ways that may be harmful to or discourage pedestrian and bicycle travel, such as parking, stopping, or standing in marked bike facilities.

Traffic Calming

Because there are many instances where the number of aggressive drivers is greater than the capacity to enforce traffic laws, many cities and counties have implemented various "self-enforcing" speed and volume control devices. Most of these measures are referred to as "traffic calming." These physical devices and design elements can assist law enforcement in influencing driver behavior. The design of traffic calming measures is intended to lower vehicle speeds, which makes roadways safer for all users.

Most traffic calming measures are applied to residential streets, though certain measures can be applied to higher volume roadways as well. Broadly defined, the goals of traffic calming measures are:

- To slow down the average vehicle speeds for a roadway.
- To address excessive volumes for a roadway.
- To make drivers aware of the context and surroundings of roadways.

Traffic calming measures have the potential to impact access and response time for emergency personnel. Representatives of fire, police, and emergency services departments should be involved in the review of proposed traffic calming devices. NLCOG can work with planning partners and emergency response agencies to identify locations suitable for traffic calming implementation. Common examples of traffic calming installations include:

- Speed humps or cushions
- Bulb outs
- Chicanes
- Raised crosswalks
- Traffic circles

Traffic Incident Management

Traffic Incident Management (TIM) consists of a planned and coordinated process to detect, respond to, and quickly clear traffic incidents so that traffic flow may be restored as safely and quickly as possible. Effective TIM strategies reduce the duration and impacts of traffic incidents and improve the safety of motorists, crash victims, and emergency responders. Traffic incident management involves coordination among several public and private sector partners, including:

- Law enforcement
- Emergency management and preparedness
- Fire and rescue
- Emergency medical services
- Towing and recovery
- Transportation departments
- Hazardous materials contractors
- Public safety communications
- Traffic information media

Safety & Security

The FAST Act requires that the transportation planning process address both the safety and security of the transportation system for motorized and non-motorized users. Federal guidelines define safety as "freedom from unintentional harm," and define security as "freedom from intentional harm."

NLCOG is responsible for addressing safety and security through the programming of transportation improvements.

Their role in coordinating regional transportation needs between the various local, state, and federal transportation agencies is vital to creating successful safety and security policies and enhancing regional mobility.

By integrating the safety and security goals and objectives of regional stakeholders into the transportation planning process, NLCOG can ensure that its plans and studies are consistent with and help support safety and security planning in the region.

This also helps ensure that planning efforts contain strategies and policies that support homeland security, safeguard the personal security of all motorized and non-motorized users, and ultimately support regional resilience. The following sections discuss the various safety and security initiatives relevant in the NLCOG planning area and focus on implementation strategies. Full descriptions of referenced plans are discussed in Chapter 2.

STRATEGIC HIGHWAY SAFETY PLAN

The state of Louisiana is working towards "Destination Zero Deaths" through their Strategic Highway Safety Plan (SHSP). "Destination Zero Deaths" is the state of Louisiana's goal to eliminate traffic fatalities and serious injuries on roadways, because even one death is an unacceptable number. The plan provides ample background on the progress of safety goals and performance measures and discusses strategies such as education, evaluation, outreach, and interagency coordination.

Each of the state's Regional Safety Coalitions are established to implement the SHSP at the regional level. The Northwest Louisiana Transportation Safety Coalition is supported by DOTD through training, data, and technical support in the development and implementation of data driven strategies to address region specific safety concerns within identified emphasis areas.

The emphasis areas are based on crash data and leading contributing factors in crashes resulting in fatal and severe injury. The five emphasis areas are, impaired driving, occupant protection, infrastructure and operations, young drivers, and distracted driving.

While the infrastructure and operations team focus on the inclusion of crash modification factors and proven safety countermeasures in the development of Highway safety Improvement Program (HSIP) projects, the other teams develop action plans to address these emphasis areas using social change programs, education campaigns, targeted enforcement, and community outreach to implement these strategies.

Louisiana Highway Safety Commission Strategic Plan: FY 2020-2021 – 2024-2025

For the 5-year period from fiscal year 2020-2021 through 2024-2025, the Louisiana Highway Safety Commission Strategic Plan serves as a guide for transportation programming to reduce death and injury on Louisiana highways. This 5-year strategic plan works in conjunction with the SHSP and identifies performance indicators for measuring progress.

The objectives of the plan include:

- Reduce the number of traffic fatalities by 6% each year
- Reduce the percent of alcohol-impaired traffic fatalities each year
- Increase safety belt usage
- Reduce the number of vulnerable road user fatalities each year
- Reduce the number of highway-rail grade crossing fatalities

ADDITIONAL SAFETY AND SECURITY EFFORTS

Shreveport Area Transit System (SPORTRAN) Public Transportation Agency Safety Plan (PTASP)

The Public Transportation Agency Safety Plan (PTASP) serves as an implementation plan for reducing risks and improving security of transit agency services provided by SporTran. The PTASP relies on 2019 safety performance measures, the most recently available National Transit Database (NTD) reported averages, as a baseline for gauging successful implementation. The baseline metrics discussed in the plan are fatalities, rate of fatalities per 100k vehicle revenue miles, number of injuries, number of safety events, rate of safety events per 100k vehicle revenue miles, and mean distance between major mechanical failure. Procedures for reporting, training, and communication within the agency are all components of this plan. As mentioned in Chapter 2, SporTran coordinates as a member of the MPO in the sharing of and development of targets to the maximum extent practicable.

Bossier Parish Hazard Mitigation Plan Update, 2016

In terms of transportation network requirements, the Bossier Parish Hazard Mitigation Plan serves as a resource for understanding access and connectivity during emergency events. During emergency operations and response there are seven arteries which become crucial. Those are:

- Interstates I-20 and I-220
- U.S. Highways 71, 79, and 80
- State Highways 2 and 3

The Bossier Parish Hazard Mitigation Plan identifies the likelihood of events that might make the above routes impassable, and outlines means for mitigating those events and recovering should those events occur. Mitigation activities aim to reduce safety hazards, health hazards, and property damage that could be caused by hazard events. Activities included in the update range from improved coordination across agencies to individual drainage improvements.

Caddo Parish Emergency Operations Plan, 2017

Like the Bossier Parish Hazard Mitigation Plan, Caddo Parish's adopted 2017 Emergency Operations Plan provides guidance for strategies and priorities that support emergency response. The Caddo Parish Emergency Operations Plan identifies potential hazards that can be expected to impact roadways throughout the study area and identifies courses of action for response to each threat to safety and security. Of note is the identification of specific roadways that will become inundated at varied flood event levels.

The plan identifies the flood level, in feet, that will cause transportation options to become limited to evacuees or emergency operations during hazard events. Coordination with transit agencies of buses for emergency evacuation is also of particular consideration within this emergency operations plan. In addition, the plan outlines an order of operations based on recovery need for clearance of specific roadways following a disaster event so that relief and recovery vehicles can access their destinations.

Webster Parish Hazard Mitigation Plan, 2016

The Webster Parish Hazard Mitigation Plan, produced in 2016, is a tool for inter-agency coordination in the response to and mitigation of potential emergency situations. This comprehensive document encompasses capabilities and strategies across all planning levels within the parish. Of note is the identification of portions of the roadway network which serve vulnerable populations and will be crucial to response and recovery in emergency events.

TECHNOLOGY STRATEGIES

The following section details strategies to address mobility needs related to TSM&O. These strategies focus on the utilization of up-to-date transportation facility technologies that can help the NLCOG meet its mobility needs.

Intelligent Transportation Systems

Transportation infrastructure is no longer limited to concrete pavement and asphalt. Recent improvements in operations and data collection have led to digital controls and integrated computer networks that require maintenance and management.

Opportunities for advancing the NLCOG's electronic infrastructure comes in the form of Intelligent Transportation Systems (ITS), which includes technologies that improve transportation safety and efficiency by integrating advanced communications into infrastructure and vehicles. The following electronic infrastructure has the potential to provide the NLCOG and local planning partners with a favorable return on investment in terms of improved safety and mobility for the transportation network.

RAMP METERS

Ramp meters are traffic signals installed on the entrance ramps of freeways that alternate between red and green light signals to control the flow of vehicles as they enter the freeway facility. This technology allows for more controlled merging movements and could therefore improve safety on major roadway entrance ramps where merging has proven to be particularly dangerous.

TRAVELER INFORMATION SYSTEMS (TIS)

TIS is a strategy that involves making information about trip departures, routes, and travel time readily available to travelers and can be used for a variety of modes of transportation. This can be accomplished via websites, telephone hotlines, television, radio, and dynamic messaging signs, which are digital signs that are installed along roadways and are updated with real-time travel information.

SIGNAL PREEMPTION FOR EMERGENCY VEHICLES

Signal preemption is a technology that allows emergency vehicles to change signal cycles, allowing them to advance through traffic lights efficiently and safely. A preemption device is located on mast arms and can detect and alter signal cycles when emergency vehicles approach the intersection. This technology is most effective along roadways in which emergency vehicles will typically need to travel longer distances, or intersections where minor arterials/roads connect to larger road classifications. The end goal for signal preemption is to reduce overall response times for emergency vehicles.

TRANSIT SIGNAL PRIORITY (TSP)

Like signal preemption, transit signal priority allows transit vehicles to communicate with traffic signals. This communication allows transit vehicles to proceed with priority through intersections, allowing for more frequent and predictable transit service for passengers. TSP technology is especially important for high-capacity transit such as bus rapid transit or light rail transit.

VIDEO DETECTION (NON-PAVEMENT-INVASIVE DETECTION)

Video detection is a form of non-pavement-invasive detection, also known as a traffic detector, which allows for the collection of traffic information, such as vehicle presence, volume, speed, and occupancy. Video detection provides a method of data collection that does not require invasive procedures to be carried out on the pavement and thus has little to no impact on pavement resilience. The data collected allows for more informed decisions when making infrastructure improvements.

Traffic Signal & Intersection Improvements

Roadway users encounter traffic control signage and intersection signals on nearly every route they travel. While the primary function of intersection traffic control is to improve safety at intersections, it is also often a significant source of delay. Improper signage and poor signal timing result in unnecessarily long queues and impact the reliability of the transportation system. Improving signage, signal timing, and equipment is a cost-effective way to facilitate improved traffic flow along a corridor.

TRAFFIC SIGNAL OPTIMIZATION

Traffic signal optimization is critical to managing congestion and traffic flow. The timing and phasing of signalized intersections should be reviewed periodically, especially in areas of the region experiencing rapid development or increased commercial activity. Traffic signals can also be coordinated along a corridor or throughout an entire system. As traffic volumes increase, signal coordination can be used to optimize high priority traffic corridors and increase the throughput of critical thoroughfares.

Adaptive signal control, which adjusts the timing of traffic lights based on real-time travel conditions, can also provide significant relief to congested corridors and cut costs associated with traffic signal timing data collection and computation.

Traffic Data Collection

As transportation technology grows increasingly sophisticated, obtaining the amount of data required by new traffic optimization interfaces presents significant challenges to due to fiscal constraints. Automated traffic data collection creates an opportunity for transportation management agencies to receive a continuous supply of traffic data at a low cost. Because automated traffic data collection gathers data in real time, it facilitates many of the demand responsive TSM&O strategies discussed earlier in this section (such as traffic signal optimization). New types of traffic data collection, such as Bluetooth and Wi-Fi detectors, are particularly appealing due to their lower operational and maintenance costs compared to in-road loop detectors.

These types of detectors have the added benefit of being able to gather traveler information beyond traditional automobiles to include bicycle and pedestrian roadway users.

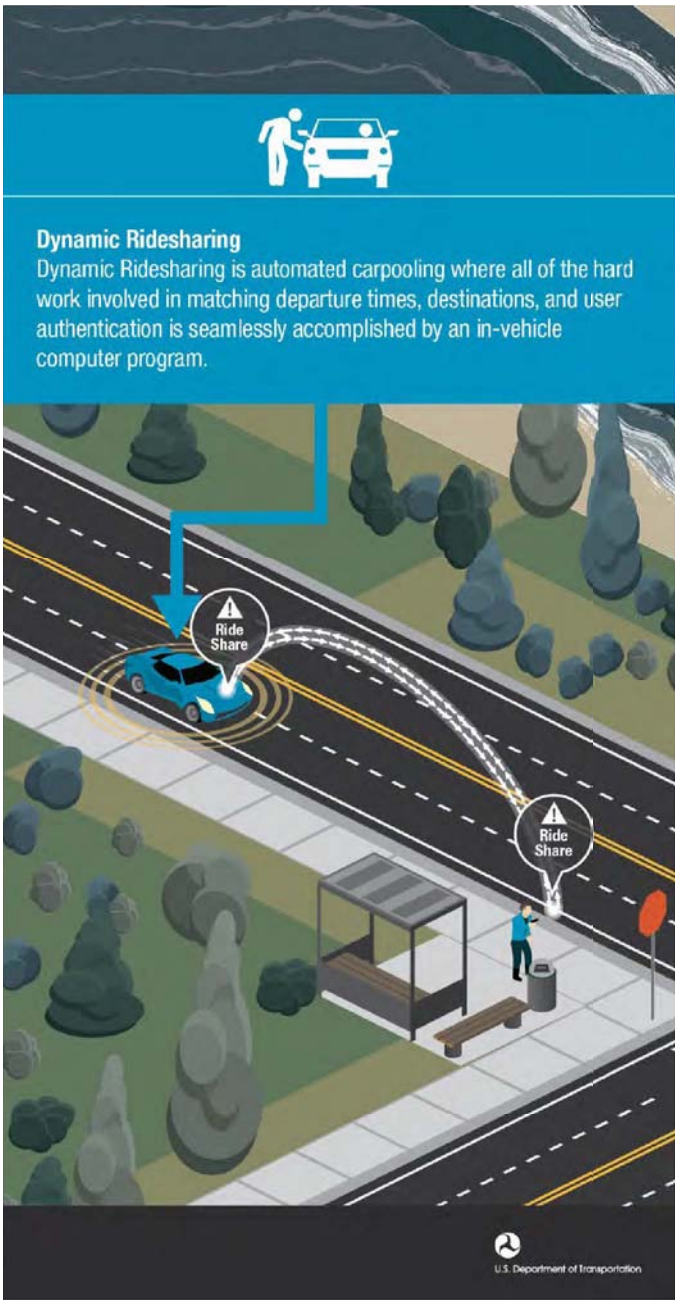
Emerging Technologies

In addition to the implementation of some of the ITS capability mentioned above, the emergence of new technologies and the adoption of policies and legislation will provide future decision makers with a new set of strategies to consider.

CONNECTED & AUTONOMOUS VEHICLES

Connected and autonomous vehicles (AV) can be integrated into existing ITS architecture and could potentially improve mobility, traffic operations, and safety. This technology could also benefit freight and economic growth since improved travel times and traffic operations could have positive impacts on the economic vitality of rural and urbanized areas within the region. The National Association of City Transportation Officials (NACTO) provides further advice and guidance about AV in their "Blueprint for Autonomous Urbanism." Similarly, the Society of Automotive Engineers (SAE) and the National Highway Traffic Safety Administration (NHTSA) are working to provide guidance for safety and programming levels of automation.

Municipal and regional staff can help the development and deployment of these technologies throughout the region by beginning discussions on policy and land use, as well as keeping its planning partners informed about developments in autonomous vehicle technology.



SMARTPHONE APPLICATIONS

Transportation Network Companies (TNCs), such as Lyft, Uber, and other rideshare applications for smartphones are already influencing how people are choosing to commute. Uber recently unveiled (February 2018) their new "Express Pool" service in the Washington D.C. Metro Area. This new service uses traffic analytics and routing software to reduce backtracking and rerouting to pick up multiple passengers, as was the case with their "UberPool" service. In exchange for significant discounts and more direct routing, riders are picked up within two blocks of their origins, and dropped off within two blocks of their destinations, which entails passengers walking more at the beginning and end of their trips.

METROPOLITAN TRANSPORTATION PLANNING

The ongoing efforts by the MPO and their staff to coordinate and prioritize strategies helps address regional mobility needs within fiscal constraint. This process is itself a transportation strategy that emerged in the 1960's and was codified and reinvigorated in 1991 by the Intermodal Surface Transportation Efficiency Act (ISTEA). Through coordination with state and regional agencies and the plans discussed in Chapter 2, the MTP process supports the economic vitality of the metropolitan area and helps enable global competitiveness, productivity, and efficiency.

NLCOG coordinates with DOTD in the selection and prioritization of funds and projects to address mobility needs in the MPA, primarily through the application of Surface Transportation Block Grant funds for areas of population over 200 thousand (STBG>200k). These funds are a formula-based grant, requiring a local match and project sponsor. Details on program requirements are discussed in greater detail in Chapter 7.

Set Aside Programming

An MPO may elect to set aside, or flex STBG>200k funding to strategies that do not fall directly in the traditional infrastructure investment category. As such, NLCOG elects to set aside a certain amount of these funds every four years to support the metropolitan planning process and address some of the transportation strategies that were discussed in previous sections of this chapter.

The program set asides and associated planned amounts are discussed in greater detail in Chapters 6 and 7.

The five main recuring set aside funding initiatives carried out through this process cover the following:

- **Multi Year Aerial Flight** – a multiyear multi flight program to gather aerial photography to support planning efforts.
- **Planning Studies** – Planning study funding set aside to support MTP and other planning updates.
- **Controlled Access Facility Lighting** – Funding set aside to improve safety through lighting upgrades on controlled access facilities.
- **Motorist Assistance Patrol (MAP)** – The MAP program provides free roadside assistance to stalled or stranded motorists.
- **Transit Transfer** – Program funding set aside for bus replacement and support of SporTran fleet state of good repair.

Infrastructure Investment

To implement investment in infrastructure through the STBG>200k funding program NLCOG has developed a Project Selection Process. This process fulfills several needs in the metropolitan transportation planning process and is based on scoring criteria developed to review and address expected performance of infrastructure projects, specifically as they relate to regional, state, and national performance goals.

PROJECT IDENTIFICATION

Projects are eligible to be evaluated for possible funding under the STBG>200k program and included in the 'financially constrained' component of the TIP and MTP if they meet the following criteria.

1. Proposed projects are consistent with the area's long-range goals.
2. Proposed projects have a funding source (STBG and local match) and cost estimate with supporting documents.
3. Proposed projects have project readiness information and other details necessary to complete the 'MPO Stage 0 Process.'
4. Projects fall within the Metropolitan Planning Area boundaries and are functionally classified according to the adopted functional class roadway system (Interstate, Principal Arterial, Minor Arterial, Major Collector, Minor Collector and Local).

All eligible projects are reviewed and evaluated by a special Transportation Coordinating Committee (TCC) working group based on the criteria detailed in the System Performance Report (Chapter 9). Once evaluated and prioritized, projects are placed in the 'financially constrained component' of the MTP and TIP based on projected available funding levels, the project's evaluation, the project's implementation timeline (readiness), and input from interagency consultation and coordination.

The projects that do not meet the above parameters and cannot be included in the MTP or TIP and are placed in the 'unconstrained/unmet needs component' to be considered for review when the next update process begins.

The Project Selection Process consists of five (5) steps being a project call, project submission, project review and evaluation, technical coordinating committee approval and recommendation, transportation policy committee review and approval.

STEP 1. PROJECT CALL

The MPO Director, in consultation with the TCC, sends out a call for projects notice to all member governments of NLCOG. The project call is open for approximately 90 days, with submittals due prior to the ending date specified in the project call letter.

STEP 2. PROJECT SUBMISSION

Those projects complying with the requirements listed in the previous section are prioritized and potentially selected for funding by a working group of the TCC. The TCC working group includes representatives from eligible Sponsor Agencies. MPO staff coordinate and conduct TCC work group meetings and provide technical guidance.

STEP 3. PROJECT EVALUATION

The working group evaluates the projects based on a number of criteria including safety protection of the environment, congestion reduction, land use and economic development support, increased connectivity, improved access, energy conservation, increase in multimodal options, cost sharing, and improvement to quality of life.

Cost sharing is also included in the evaluation process, though no points are associated with this criterion. A detailed breakdown of examples and associated points for the criteria is included in Chapter 9 as a means to frame the performance management process and system performance report.

STEP 4. TECHNICAL COORDINATING COMMITTEE (TCC) PRIORITIZATION AND RECOMMENDATION

After reviewing the work group recommendations, the TCC chooses to forward a recommendation to the TPC for review and approval.

STEP 5. TRANSPORTATION POLICY COMMITTEE REVIEW AND APPROVAL

The NLCOG Urbanized Area Transportation Policy Committee (TPC) then reviews the TCC recommendations. If the TPC chooses to reject the recommendation of the TCC, the project listing is sent back to the TCC work group for further review and evaluation. If the TCC's recommendations are adopted, the prioritized list will be included in the MTP and TIP where funding allows.

The final list of prioritized projects is presented in the following chapter, which displays the project list in a phased plan for fiscally constrained implementation over the 25-year plan horizon.

CONCLUSION

There are a multitude of policies, technologies and tools discussed in this chapter that will help develop an efficient and cost-effective transportation network for all transportation users whether they walk, bike, use a mobility device, ride transit, or drive a vehicle or truck. The NLCOG can work closely with local planning partners to select and implement topics and strategies discussed in this chapter.

6 | STAGED IMPROVEMENT PLAN

This chapter details the NLCOG 2045 MTP's staged improvement plan. Improvements, or projects, are broken down into phases coinciding with the TIP and remaining years of the MTP's planning horizon. The chapter provides a fiscally constrained program of projects for roadway, active transportation, and transit improvements.

PROJECT PROGRAMMING & FISCAL CONSTRAINT

The NLCOG 2045 MTP is required by Federal statute to be fiscally constrained. This means that all identified projects must be financially feasible based on estimated costs and forecasted revenue through the MTP planning horizon (2045). Though various funding sources exist for transportation improvements, the primary category used to fund projects coordinated by the NLCOG is the Surface Transportation Block Grant Program for areas with population over 200 thousand (STBG > 200k). This program is formerly known as the Surface Transportation Program.

As part of the process to support fiscal constraint, the NLCOG 2045 MTP project list was grouped into three stages based on related transportation improvement programming and planning documents, as well as staging of revenue forecasts discussed in Chapter 7.

The first stage is set up to coincide with existing plus committed (E+C) projects in the Transportation Improvement Program (TIP). The next stage includes projects expected to be in operation within the MTP's short to mid-range program. The remaining projects represented in this chapter are those that fall within the long-range program horizon of this MTP. The years covered by the stages of the NLCOG 2045 MTP are separated as follows:

- **Current Stage:** 2021 – 2025
- **Short- to Mid- Term Stage:** 2026 – 2035
- **Long-Term Stage:** 2036 – 2045

Projects planned for STBG > 200k funding in this MTP have been grouped into three program categories within each stage as follows:

- **System Preservation:** This category includes projects that maintain or preserve the existing transportation infrastructure, the goal being a state of good repair. This includes roadway resurfacing, replacement, reconstruction and/or rehabilitation, bridge restoration, and/or operational improvements.
- **Capacity Expansion:** This category includes projects that add additional capacity on a roadway, either through the construction of new roadways, the addition of lanes of traffic, or through operational improvements that increase the effective capacity of a roadway (e.g., intersection capacity improvements).
- **Safety & Other:** This category includes projects that enhance intersection safety and capacity, system management and integration projects, and alternative transportation projects. Intersection safety projects in this category are separate from HSIP funded projects and encourage safety strategies addressing railroad crossing safety, signal preemption and synchronization, and pedestrian safety improvements. System Management and Integration projects include TSM&O and ITS implementation. Alternative Transportation projects include projects that promote alternatives to Single Occupant Vehicle (SOV) usage and include transit, travel demand management, active transportation, and multimodal connections.

As discussed in Chapter 5, NLCOG elects to set aside a portion of STBG>200k funding on a four-year basis to implement strategies that support regional mobility but are not expressly infrastructure projects. These Set Asides (SA) support regional mobility, safety, and help support the metropolitan planning process.

These recurring SA funding programs cover:

- **Multi Year Aerial Flight** – a multiyear multi flight program to gather aerial photography to support planning efforts.
- **Planning Studies** – Planning study funding set aside to support MTP and other planning updates.
- **Controlled Access Facility Lighting** – Funding set aside to improve safety through lighting upgrades on controlled access facilities.
- **Motorist Assistance Patrol (MAP)** – The MAP program provides free roadside assistance to stalled or stranded motorists.
- **Transit Transfer** – Program funding set aside for bus replacement and support of SporTran fleet state of good repair.

Additionally, a list of vision projects has been included. These projects are important to the region but are currently unfunded within the 2045 planning horizon.

In addition to any transit projects covered under STBG > 200k funding, transit projects utilizing FTA funding are listed by stage and categorized by operational and capital costs. Operational costs include vehicle operations, vehicle maintenance, non-vehicle maintenance, and general administration. Capital costs include rolling stock, facilities, and other transit supportive capital improvements.

PRIORITIZED PROJECT LIST

The following sections provide tables and maps that describe and illustrate the projects included in the NLCOG 2045 MTP based on the project stage, program category, and availability of funding. Each project was provided a unique project ID based on the project's prioritization rank and program category. For example, a Capacity Expansion project ranking first through the prioritization process would be coded as 01-CE. It must be noted that four Safety & Other projects tied for the first ranking among the program categories. Accordingly, these projects were codded as 01.1-SO through 01.4-SO to display their top rank while still providing the projects with unique IDs. Vision Projects were provided similar IDs; however, their label numbers are not representative of rank and only serve as a unique identifier to match with the accompanying map.

The staged project list tables (**Table 6-1** - **Table 6-3**) contain the following attributes, detailed below:

- **ID:** NLCOG 2045 MTP project ID
- **Project:** Project title and/or facility the project covers
- **Limits:** The boundaries or extent of the project
- **Improvement:** A brief description of what the project accomplishes
- **YOE Cost Estimate:** Project cost estimates using 2015 or 2021 values presented in 000s; projects using 2015 estimates are highlighted in blue
- **Sponsor:** Agency and/or organization sponsoring/providing matching funds for the project
- **Rank:** Final prioritization rank

Table 6-4 (Vision Projects) does not include information on cost estimates, sponsorship, and project rank. Project IDs with asterisks (*) are those that are not provided in the accompanying map(s) due to lack of spatial data, or project scope (e.g., safety project programs spanning entire parishes). Transit projects have also been listed by MTP project implementation stage and are further distinguished by funding source(s).

Roadway Projects

The following tables (**Table 6-1** - **Table 6-4**) and maps (**Figure 6-1** - **Figure 6-4**) present the NLCOG 2045 MTP project list by implementation stage and program category for all fiscally constrained roadway projects. Each map is labeled by project ID to help match project information with project location.

TABLE 6-1: CURRENT STAGE ROADWAY PROJECTS (2021 - 2025)

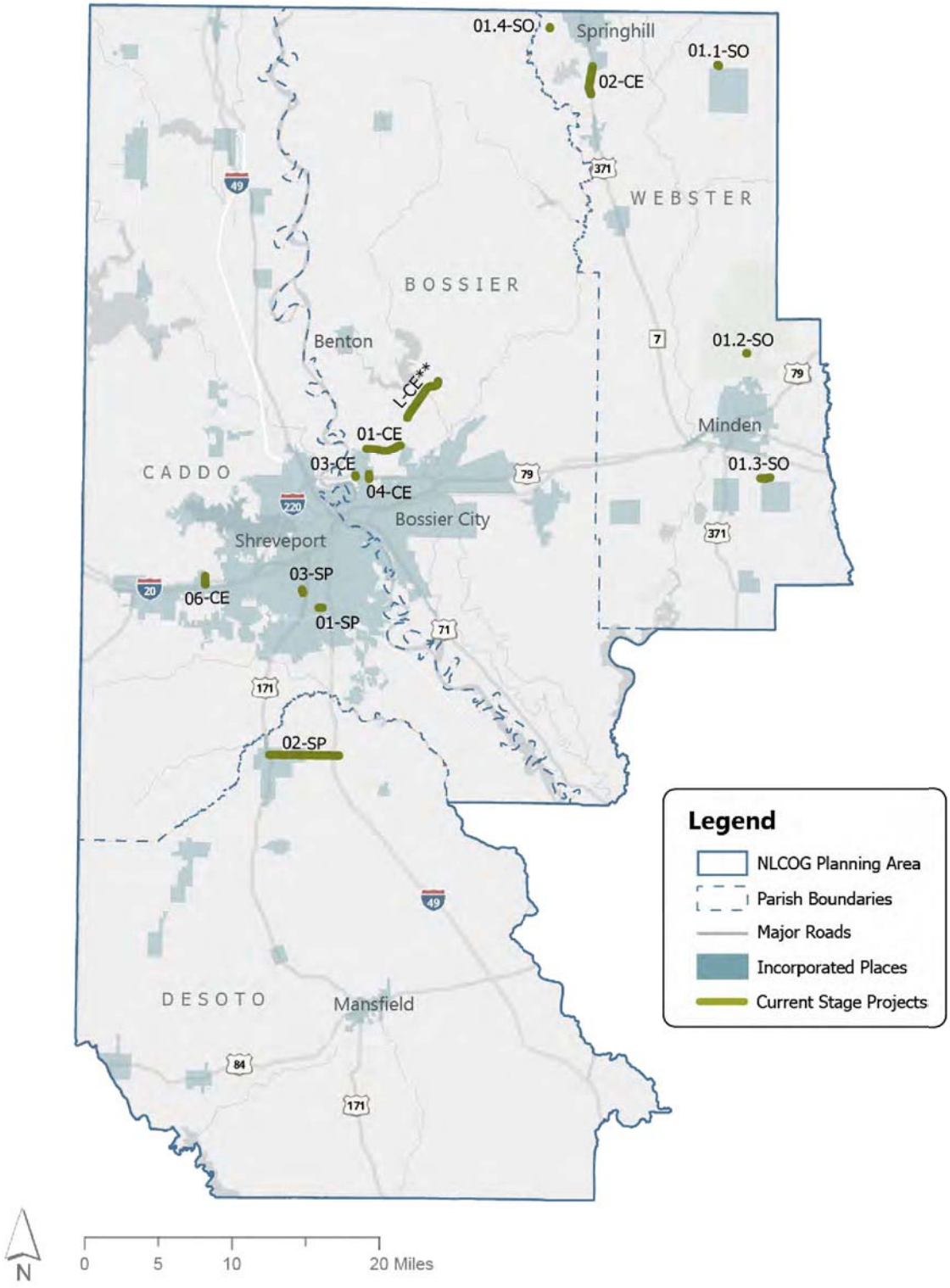
MTP ID	Project	Limits	Improvement	Total YOE Cost (000s)	Sponsor	Rank
System Preservation (SP)						
01-SP	W 84th St	Linwood Ave to Wallace Ave	Pavement Reconstruction	$1,347	Shreveport (COS)	1
02-SP	LA 3276	US Hwy 171 to I-49	Pavement Reconstruction	$12,500	LADOTD/MPO	2
03-SP	W Canal Blvd	W 70th St (LA 511) to Marquette Ave	Pavement Reconstruction	$1,374	Shreveport (COS)	3
Capacity Expansion (CE)						
01-CE	Winfield Rd Ext - Phase I	East terminus at Winfield Rd/Bellevue Rd intersection west to LA 3	New Roadway Construction	$12,500	Bossier Par. (BPPJ)	1
02-CE	US 371 Phase I	Henrietta White Blvd to Cook-Baker Rd	Widening: 4-ln cross-section	$11,500	Webster PPJ (WPPJ)	2
03-CE	I-220	I-220/Benton Ramp Signal (N) to I-220/Benton Ramp Signal (S)	New Ramp Traffic Signals	$475	Bossier City	3
04-CE	Airline Dr	Beene Blvd to Viking Dr	Capacity/Access Improve.	$3,000	Bossier City	4
06-CE	Bert Kouns Industrial Loop Ext	Greenwood Rd (US Hwy 79/US Hwy 80) to Shreveport City Limits	New Const. - Access Road	$3,699	Shreveport (COS)	6
L-CE**	Swan-Lake Rd	Flat River to Crouch Road	Phase 2: Extension/ New Construction	--	Bossier Par. (BPPJ)	--

MTP ID	Project	Limits	Improvement	Total YOE Cost (000s)	Sponsor	Rank
Safety & Other (SO)						
01.1-SO	LA 159 at LA 157 / LA 615	LA 159 at LA 157 / LA 615	LED Flashing Stop Signs; Rumble Strips/Signage: Advance Warning	$50	WPPJ and Webster Par. Sheriff's Office (WPSO)	1
01.2-SO	Caney Lake at LA 159	LA 159	LED Flashing Stop Signs; Rumble Strips/Signage: Advance Warning	$35	WPPJ and Webster Par. Sheriff's Office (WPSO)	1
01.3-SO	Shadows Lane at Penal Farm at LA 531	LA 531	LED Flashing Stop Signs; Rumble Strips/Signage: Advance Warning	$50	WPPJ and Webster Par. Sheriff's Office (WPSO)	1
01.4-SO	Timothy Church Rd at LA 157	LA 157	LED Flashing Stop Signs; Rumble Strips/Signage: Advance Warning	$35	WPPJ and Webster Par. Sheriff's Office (WPSO)	1
02-SO*	I-20	Caddo, Bossier, & Webster Par.	Lighting Study/Implementation	$4,000	Shreveport / Bossier City	2
Set Aside*	Multi Year Aerial Flight	Region wide	multiyear multi flight (program every 4 yrs.)	$2,000	MPO – 25% match	--
Set Aside*	Planning Studies	Region wide	planning studies (program every 4 yrs.)	$1,600	MPO – 25% match	--
Set Aside*	Controlled Access Facility Lighting	Region wide	upgrade lighting (program every 4 yrs.)	$4,000	MPO – 25% match	--
Set Aside*	Motorist Assistance Patrol (MAP)	Region wide	map contract (program every 4 yrs.)	$2,000	MPO – 25% match	--
Set Aside*	Transit Transfer	SporTran	bus replacements (program every 4 yrs.)	$2,500	MPO – 25% match	--

**Project not included in map.*

***Locally funded, regionally significant project*

FIGURE 6-1: CURRENT STAGE ROADWAY PROJECTS (2021 - 2025)



***Locally funded, regionally significant project*

TABLE 6-2: SHORT- TO MID-TERM STAGE ROADWAY PROJECTS (2026 - 2035)

MTP ID	Project	Limits	Improvement	Total YOE Cost (000s)	Sponsor	Rank
System Preservation (SP)						
04-SP	Valley View Dr	Mansfield Rd (US 171) to Jewella Ave	Pavement Reconstruction	$5,189	Shreveport (COS)	4
05-SP*	Line Ave / Common St	Olive St to Crockett St	Joint & Panel Repair	$515	Shreveport (COS)	5
06-SP	Jewella Ave	Mansfield to Milam	Joint & Panel Repair	$2,041	Shreveport (COS)	6
07-SP	Pines Rd	70th St to Jefferson Paige	Joint & Panel Repair	$984	Shreveport (COS)	7
08-SP*	Line Ave	70th St to Southfield Rd	Joint & Panel Repair	$446	Shreveport (COS)	8
Capacity Expansion (CE)						
05-CE	US 71 (N Market St)	Common St to bridge at 12-mile Bayou	N Market St Study/Improvements	$18,263	Shreveport (COS)	5
07-CE	SHDC** Improvements Project	I-49 to I-20	TSM&O/Pavement/Bike/Ped /Transit Improvements Along Kings Hwy Corridor (Const. Phase)	$18,716	Shreveport (COS)	7
15-CE	Buncomb Rd	LA 511 (W 70th St) to LA 526	Buncomb Rd Widening	$2,686	Caddo Parish	15
16-CE	Williamson Way	Kingston Rd to Linwood Ave	Williamson Way Extension	$5,371	Caddo Parish	16
Safety & Other (SO)						
03-SO*	I-220 / LA 3132	Caddo & Bossier Par.	Lighting Study/Implementation	$3,000	Shreveport / Bossier City	3
Set Aside*	Multi Year Aerial Flight	Region wide	multiyear multi flight (program every 4 yrs.)	$4,000	MPO – 25% match	--
Set Aside*	Planning Studies	Region wide	planning studies (program every 4 yrs.)	$3,200	MPO – 25% match	--
Set Aside*	Controlled Access Facility Lighting	Region wide	upgrade lighting (program every 4 yrs.)	$8,000	MPO – 25% match	--
Set Aside*	Motorist Assistance Patrol (MAP)	Region wide	map contract (program every 4 yrs.)	$4,000	MPO – 25% match	--
Set Aside*	Transit Transfer	SporTran	bus replacements (program every 4 yrs.)	$5,000	MPO – 25% match	--

**Project not included in map.*

***Shreveport Healthcare & Development Corridor.*

2015 cost estimates.

FIGURE 6-2: SHORT- TO MID-TERM STAGE ROADWAY PROJECTS (2026 - 2035)

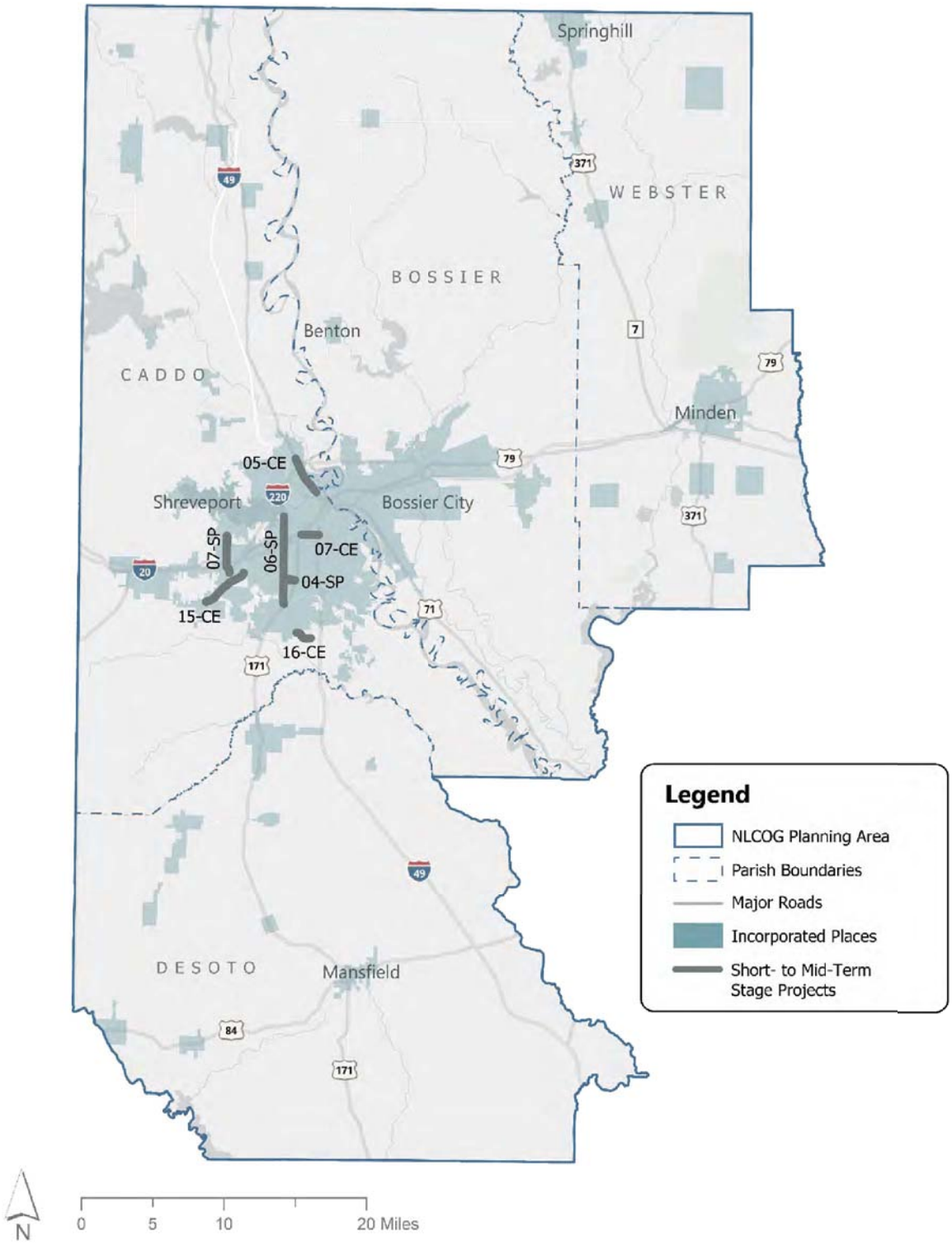


TABLE 6-3: LONG-TERM STAGE ROADWAY PROJECTS (2036 - 2045)

MTP ID	Project	Limits	Improvement	Total YOE Cost (000s)	Sponsor	Rank
System Preservation (SP)						
09-SP	LA 5	Keachi to Longstreet	Pavement Surface Overlay	$2,700	LADOTD/MPO	9
10-SP	LA 3015	US Hwy 171 to LA 175	Pavement Surface Overlay	$2,500	LADOTD/MPO	10
Capacity Expansion (CE)						
08-CE	Winfield Rd Ext - Phase II	Winfield Rd/Bellevue Rd intersection west to LA 3	New Const. East-West Corridor (Phase II)	$8,000	Shreveport (COS)	8
09-CE	Winfield Rd Ext - Phase III	Winfield Rd/Bellevue Rd intersection west to LA 3	New Const. East-West Corridor (Phase III)	$25,000	Bossier Par. (BPPJ)	9
10-CE	US 371 Phase II	Cook-Baker Rd to LA 2 (Sarepta)	Widening: 3-ln cross-section	$25,000	Webster PPJ (WPPJ)	10
11-CE	LA 173 (Ford / Caddo St)	Marshall St west to Pierre Ave	LA 173 (Ford / Caddo St) Widening	$9,669	Shreveport (COS)	11
12-CE*	LA 526	LA 526 / I-20 intersection	LA 526 Bridge Widening overpass at I-20	$37,600	Shreveport (COS)	12
13-CE	Shreveport-Blanchard Hwy	Roy Rd to I-220	Shreveport-Blanchard Hwy Widening	$32,290	Shreveport (COS)	13

MTP ID	Project	Limits	Improvement	Total YOE Cost (000s)	Sponsor	Rank
14-CE	LA 157	LA 157 to LA 3227 intersection (Haughton)	LA 157 at LA 3227 Intersection Improve	$1,817	Bossier Par. (BPPJ)	14
17-CE	US 71	LA 612 (Sligo Road) to LA 527	US 71 Widening	$5,371	Bossier Par. (BPPJ)	17
18-CE	Colquitt Rd	Dean Rd to Woolworth Rd	Colquitt Rd Widening	$4,297	Caddo Parish	18
19-CE	Wafer Rd	Wafer Rd/Winfield Rd intersection north to Bellevue Rd	Wafer Rd Extension	$2,791	Bossier Par. (BPPJ)	19
20-CE	Bodcau Station Rd	I-20 to US 80 (Texas St)	Bodcau Station Rd Widening	$1,611	Bossier Par. (BPPJ)	20
21-CE	LA 3 Widening	LA 160 to LA 162	LA 3 Widening	$39,749	Bossier Par. (BPPJ)	21
22-CE	LA 157	LA 157 overpass at I-20 (Haughton)	LA 157 Bridge Widening overpass at I-20	$37,600	Bossier Par. (BPPJ)	22
23-CE	LA 173	Jct LA 3094 to Jct I-220	LA 173 (Widen-Rehab)	$13,957	Caddo Parish	23
Safety & Other (SO)						
04-SO*	I-49	Shreveport Urban Section	Lighting Study/Implementation	$1,000	Shreveport (COS)	4
05-SO*	I-49 (Other)	Caddo & Desoto Par.	Lighting Study/Implementation	$1,000	Caddo / Desoto Parish	5
Set Aside*	Multi Year Aerial Flight	Region wide	multiyear multi flight (program every 4 yrs.)	$5,000	MPO – 25% match	--
Set Aside*	Planning Studies	Region wide	planning studies (program every 4 yrs.)	$4,000	MPO – 25% match	--
Set Aside*	Controlled Access Facility Lighting	Region wide controlled access facilities	upgrade lighting (program every 4 yrs.)	$10,000	MPO – 25% match	--
Set Aside*	Motorist Assistance Patrol (MAP)	Region wide	map contract (program every 4 yrs.)	$5,000	MPO – 25% match	--
Set Aside*	Transit Transfer	SporTran	bus replacements (program every 4 yrs.)	$6,250	MPO – 25% match	--

**Project not included in map;*
2015 cost estimates.

FIGURE 6-3: LONG-TERM STAGE ROADWAY PROJECTS (2036 - 2045)

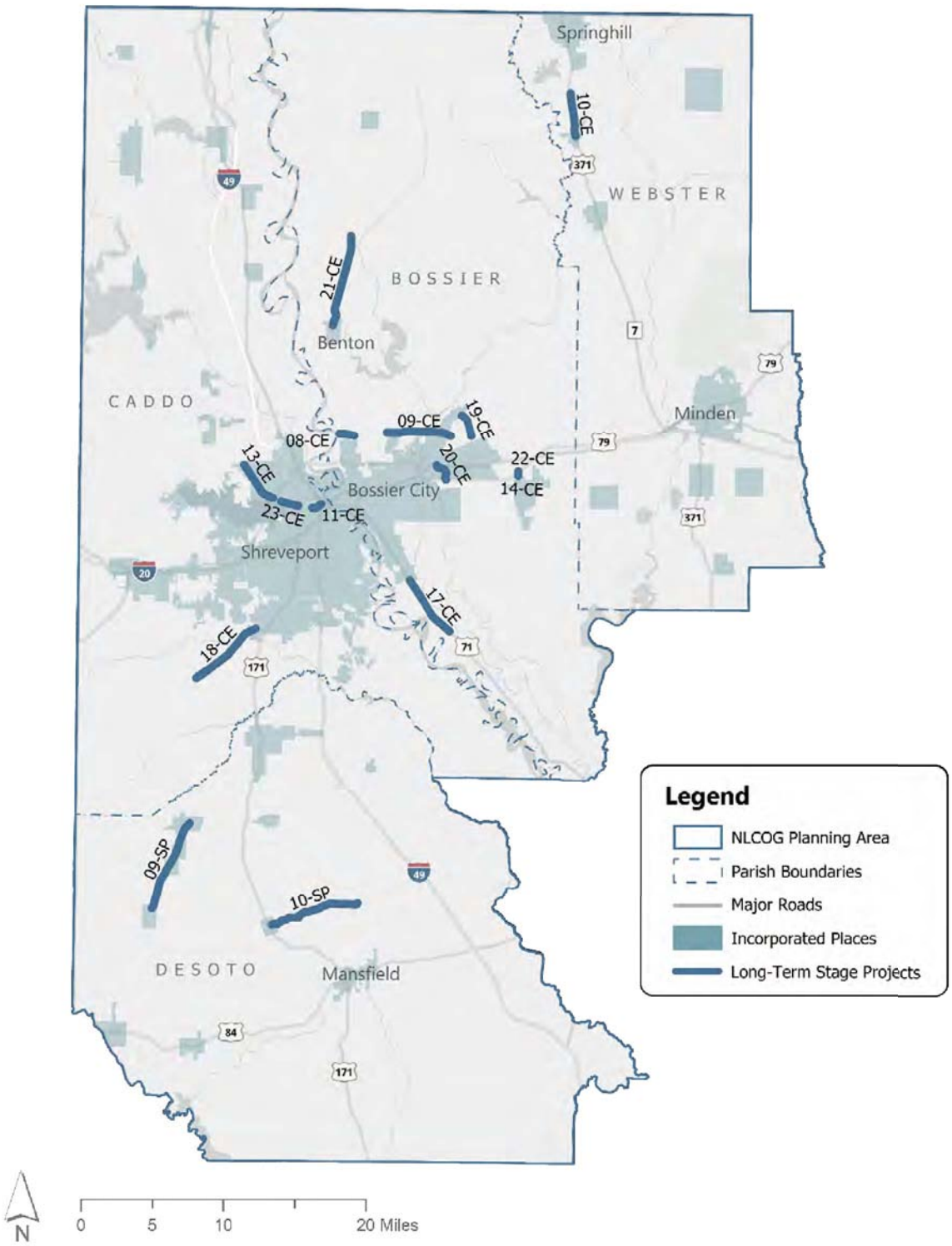
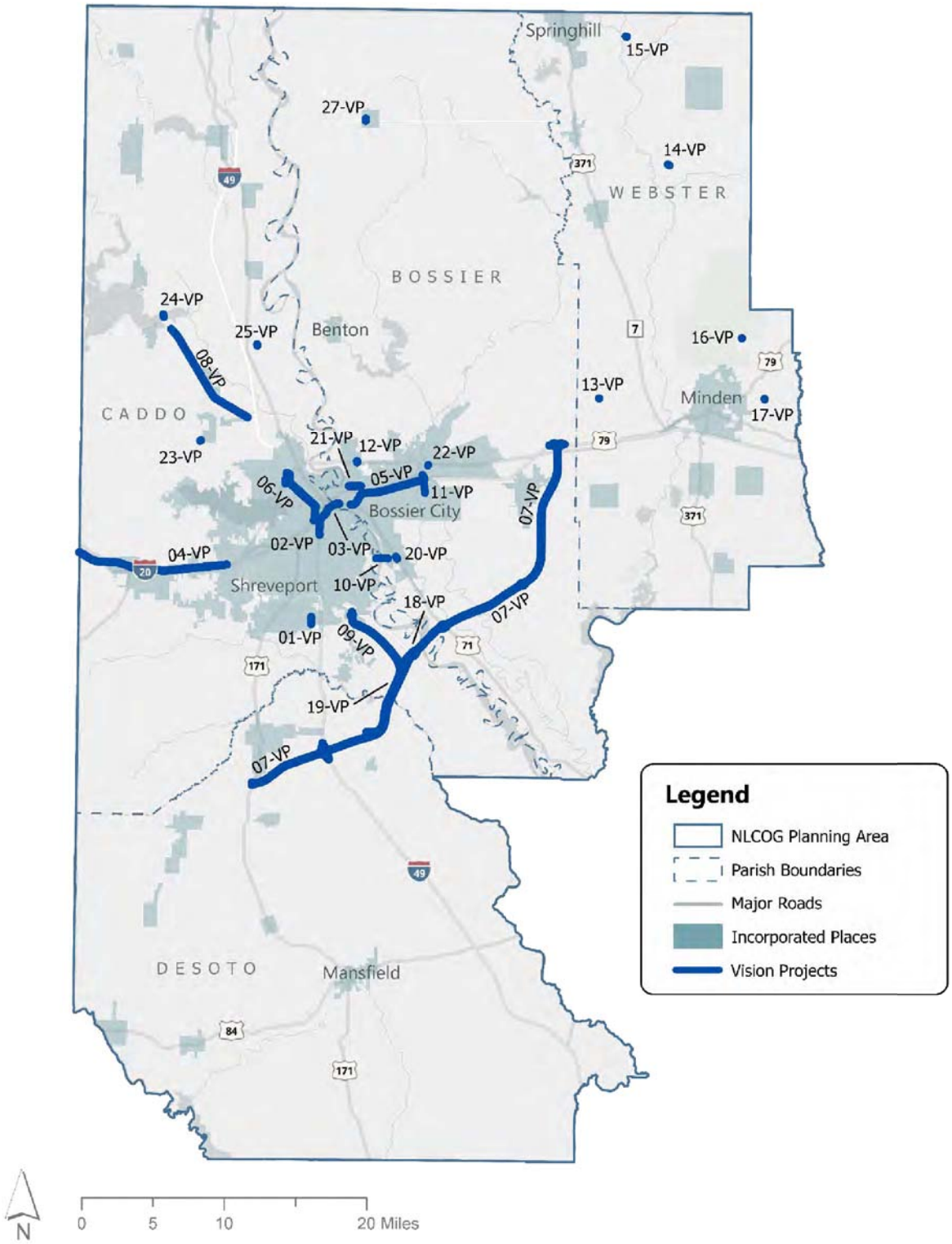


TABLE 6-4: NLCOG 2045 MTP VISION PROJECTS

MTP ID	Project	Limits	Improvement
		System Preservation	
02-VP	Southern Ave	Kings Highway to Fairfield	--
22-VP	Bayou Fifi Bridge	US 80 at Bayou Fifi	--
23-VP	Blanchard Furrh Rd	Blanchard Furrh Rd at Choctaw Bayou	--
24-VP	Caddo Lake Bridge	LA 1 at Caddo Lake	--
25-VP	Creek Bridge and Irish Bayou	LA 3049 at Irish Bayou	--
		Capacity Expansion	
01-VP	Linwood Ave	LA 526 to Flournoy Lucas Rd	Widening
03-VP	I-20	I-20 Red River crossing between I-49 and Traffic St interchanges	--
04-VP	I-20	Texas SL to Pines Rd	Widening
05-VP	I-20	US 71/LA 3 interchange to I-220 (east)	Widening
06-VP	I-49 Inner City Connector	I-49/I-20 interchange (south) to I-220/new I-49 north interchange	New Interstate
07-VP	I-69 (SIU-15)	I-20 to US 171 (Shreveport urban section)	--
08-VP	LA 1	LA 538 to LA 173, LA 173 to LA 169	Widening
09-VP	Inner Loop Ext.	LA 523 to I-69 (Port)	--
10-VP	Jimmie Davis Bridge	LA 511 (J Davis Hwy) Red River crossing	--
11-VP	I-220	I-220 at I-20 interchange (Bossier City) and south to Barksdale AFB	South Extension
12-VP	I-220	I-220/Airline Ramp Signal (North) to I-220/Airline Ramp Signal (South)	New traffic signals
18-VP	LA 1 to LA 3276	LA 1 to LA 3276	--
19-VP	LA 1 to LA 3276	LA 1 to LA 3276	--
21-VP	Shed Road Phase VII	LA 3 (Benton Rd) to LA 3105 (Airline Dr)	--
27-VP	LA 3 Left Turn Lane	LA 3 at Cnt. Sec. 044-02	--
		Safety & Other	
13-VP	Goodwill Rd	Goodwill Rd at Hwy 528	--
14-VP	Fire Tower Rd	LA 160 to LA 3008	Site obstruction, stop sign at LA 3008; no traffic control on LA 160
15-VP	Hilltop Rd	LA 157 Intersection	High traffic volume, sight problem
16-VP	Germantown Rd	Dogwood Trail Intersection	--
17-VP	Middle Rd	Old Arcadia Rd Intersection	Sight distance
20-VP	US 71 J-Turn Intersection	US 71 at Jimmie Davis Bridge	--
26-VP	Cul-de-Sac @ I-49 N C of A Line	Phelps Rd/Montana St	Road Closure

FIGURE 6-4: NLCOG 2045 MTP VISION PROJECTS



Transit Projects

SporTran and the rural Human Services Transportation providers discussed in Chapter 5 comprise the public transportation agencies within the NLCOG MPA. As the Shreveport / Bossier City urbanized area is a Transportation Management Area (TMA), SporTran directly receives federal dollars for Section 5307, 5339, 5310, and 5311 from FTA. DOTD and SporTran provide state and local matches to these funds where applicable. The rural Section 5310, and 5311 providers receive funding and capital support as subrecipients of DOTD. Though FTA Section 53 funding is discussed in greater detail in Chapter 7, **Table 6-5** below represents a high-level description of these funding categories, and **Table 6-6** shows the federal, state, and local matching shares for each program.

TABLE 6-5: FTA FUNDING DESCRIPTIONS

FTA Section	FTA Section Description
5307	Section 5307: Capital Funding
5339	Section 5309: Discretionary Funding
5310	Section 5310: Capital Funding for the Elderly and Disabled
5311	Section 5311: Rural Transportation System Support

TABLE 6-6: FTA FUNDING SHARES

FTA Section	Federal Share	State Share	Local Share
5307	80%	10%	10%
5339	80%	10%	10%
5310	80%	20%	
5311	80%	20%	

Based on forecasting TIP analysis and National Transit Database (NTD) time series data, SporTran operating expenses [1] will be a total of approximately $607.3 million over the next twenty-five years. Capital expenses, [2] including rolling stock, facilities, and other supporting expenses are anticipated to be approximately $102 million over the same period and using the same forecasting methods. A summary of these totals is presented on the next page in **Table 6-7** and **Table 6-8**. A discussion of fiscal constraint and a comparison of costs to funding and revenue forecasts is provided in greater detail in Chapter 7.

Expected capital and operational project costs for the MPA's fixed route transit provider SporTran have been forecasted for the three implementation stages, presented in **Table 6-7** and **Table 6-8** on the following page. These values are based on historic capital and operational expenditures to provide an estimate of future expenditures, over the planning horizon. Annual values within each implementation stage have been aggregated to provide an estimated average capital and operational funding amount per stage. A more detailed explanation of this forecasting method can be found in Chapter 7. As mentioned previously Elderly and Disabled Service providers and Rural Public Transportation providers (Section 5310 and 5311) are subrecipients to DOTD and are include in statewide planning efforts.

[1] TS2.2 - Service Data and Operating Expenses Time Series by System | FTA (dot.gov)

[2] TS3.1 - Capital Expenditures Time Series | FTA (dot.gov)

TABLE 6-7: SPORTRAN PROJECTED OPERATIONAL PROJECT COSTS

Operational Costs	Current Stage (000s) 2021 - 2025	Short to Mid-Term Stage (000s) 2026 - 2035	Long-Term Stage (000s) 2036 – 2045
Vehicle Operations	$53,687	$131,464	$163,042
Vehicle Maintenance	$20,186	$49,068	$61,696
Non-Vehicle Maintenance	$8,326	$21,492	$28,699
General Administration	$10,607	$25,982	$33,081
Total Operating	**$92,806**	**$228,006**	**$286,518**

TABLE 6-8: SPORTRAN PROJECTED CAPITAL COSTS

Capital Costs	Current Stage (000s) 2021 - 2025	Short-Term Stage (000s) 2026 - 2035	Long-Term Stage (000s) 2036 – 2045
All Rolling Stock	$9,350	$23,340	$30,488
All Facilities	$4,348	$10,496	$13,266
All Other	$2,043	$4,159	$4,655
Total Capital	**$15,742**	**$37,995**	**$48,409**

STAGED IMPROVEMENT PLAN CONCLUSIONS

The proposed fiscally constrained transportation investments represented in this chapter support the operation, maintenance, and development of an integrated metropolitan transportation system by including consideration of major roadways, public transportation systems and facilities as well as nonmotorized transportation facilities (e.g., pedestrian walkways and bicycle facilities). Proposed improvements that occur along current and planned interstate facilities, state highway, and freight route corridors help support the development of important national and regional transportation functions over the horizon of this plan.

As previously mentioned, the data driven project selection process and criteria used to assess how proposed improvements align with future goals is discussed in Chapter 9. System Performance Report. An assessment of potential impacts of proposed projects is carried out at a systems level through data and spatial analysis using geographic information system (GIS) software. This systems level analysis includes a discussion of types of potential environmental mitigation activities, potential areas to carry out these activities, and is discussed further in Chapter 8. System Level Analysis.

7 | FINANCIAL PLAN

This chapter summarizes the funding programs available at the federal, state, and local levels for transportation projects, and forecasts estimated project costs and available funds for all transportation projects programmed into the planning horizon of the NLCOG 2045 MTP.

FORECASTING FUNDING ESTIMATES

Federal regulations require that proposed investments in an MTP show fiscal constraint by demonstrating that projects can be implemented using committed, available, or reasonably available revenue sources. This funding must reasonably support the anticipated project costs, while validating the ability to adequately operate and maintain the transportation system.

The Financial Plan includes descriptions of the funding categories, sources, and specific dollar amounts that are expected to be available to fund projects listed in the NLCOG 2045 MTP. This chapter also steps through the process of determining available funding levels and project cost development for Year of Expenditure (YOE).

Federal regulations also require these financial forecasts to consider inflation regarding the value of the dollar over time, which should be considered for both funding sources and project costs that are discussed within this chapter. These funding sources and project costs were estimated in year-of-receipt and YOE dollars, respectively.

The following sections will summarize the processes used to forecast both roadway and transit funding levels over the 25-year period in the NLCOG 2045 MTP.

ROADWAY FUNDING SOURCES

Federal, state, and local funding programs were considered when reviewing and forecasting the total amount of funding for roadway projects within the 2045 MTP timeframe.

An estimate of available funding available for projects in the MPA through the lifespan of the 2019 – 2022 TIP was used in conjunction with a review of historical spending by each funding category. These estimates form the base-year funding assumptions that were extrapolated to complete the funding forecast for the duration of the MTP.

The following section describes funding sources at the federal, state, and local levels available for roadway projects.

Potential Federal Funding Sources

In late 2015, federal administration enacted the Fixing America's Surface Transportation Act (FAST Act), which provides funds for surface transportation activities. The FAST Act provided just over $300 billion dollars for surface transportation projects through the fiscal years of 2016 to 2020. In October of 2020, Congress passed a continuing resolution extending the FAST Act through the end of 2021.

NATIONAL HIGHWAY PERFORMANCE PROGRAM (NHPP)

Every year the FAST Act provides a little over $23 billion for the NHPP to preserve the condition and performance of the NHS. NHPP funds can also be used to construct new NHS facilities and ensure that projects are making progress toward performance goals set out in each state's asset management plan.

MAP-21 eliminated the programs with dedicated funding for repair by consolidating the Interstate Maintenance and Highway Bridge Repair programs and shifting these funds to the new NHPP.

NHPP provides funding for improvements to rural and urban roads that are part of the NHS, including the Interstate System and designated connections to major intermodal terminals. Under certain circumstances, NHS funds may also be used to fund transit improvements in NHS corridors. The FAST Act created additional eligibilities for the NHPP. A State may use NHPP funds to pay for:

- The subsidy and administrative costs of Transportation Infrastructure Finance and Innovation Act (TIFIA) credit assistance.
- Vehicle-to-Infrastructure (V2I) communication equipment.
- Reconstruction, resurfacing, restoration, rehabilitation, or preservation of a non-NHS bridge if the bridge is on a Federal-aid highway.

SURFACE TRANSPORTATION BLOCK GRANT (STBG) PROGRAM

Previously titled the Surface Transportation Program (STP), the STBG is a block grant funding program with subcategories for states and urban areas. STBG funding may be used for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals.

These funds can be used for any public road, including an NHS roadway, that is not functionally classified as a local road or rural minor collector. The state portion can be used on roads within (or outside) an urbanized area, while the urban portion can only be used on roads within an urbanized area. The funding ratio is 80/20 (federal/local). For urban areas with a population of greater than 200,000 people within the Metropolitan Planning Area (MPA), the MPO is the lead agency for funding allocation in consultation with the State.

In urban areas with a population of less than 200,000 people, the State is the leading agency for fund allocation in consultation with the MPO. NLCOG acts as the MPO for the purposes of planning of STBG funded improvements within the NLCOG MPA.

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

As referenced in Chapter 5, the purpose of the HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands.

The HSIP includes requirement for a comprehensive, data driven, SHSP that defines State safety goals and describes a program of strategies to improve safety. To obligate HSIP funds a State develops, implements, and updates a SHSP; produces a program of projects or strategies to reduce identified safety problems; and evaluates the SHSP on a regular basis.

The SHSP is evidenced both as a statewide coordinated plan developed in cooperation with a broad range of multidisciplinary stakeholders, and a regional SHSP developed in coordination with DOTD by the regional safety coalition.

States are required to have a safety data system to perform problem identification and countermeasure analysis on all public roads, adopt strategic and performance-based goals, advance data collection, analysis, and integration capabilities, determine priorities for the correction of identified safety problems, and establish evaluation procedures.

The FAST Act continues MAP-21 authorization of a lump sum for this program, and it is the responsibility of the State to divide these funds according to the State's priorities. For a project to be eligible under the HSIP Program, the project must be consistent with the State's SHSP and correct or improve a hazardous road location or feature or address a highway safety problem. Workforce development, training, and education activities are also eligible uses of HSIP funds. The Federal share for HSIP is 90%.

TRANSPORTATION ALTERNATIVES (TA)

The FAST Act replaced the MAP-21 Transportation Alternatives Program (TAP) with a set-aside of STBG program funding for Transportation Alternatives (TA) to provide funding for a variety of alternative transportation projects that were previously eligible activities under TAP. Unless a State opts out, it must use a specified portion of its TAP funds for recreational trails projects.

Eligible activities include:

- Facilities for pedestrians, bicyclists, and other non-motorized forms of transportation
- Safe routes for non-drivers
- Conversion and use of abandoned railroad corridors for trails
- Community improvement activities

States and MPOs (for urbanized areas with more than 200,000 people) conduct a competitive application process for use of the sub-allocated funds. Other than the recreational trails set-aside, States are given broad flexibility to use these funds. A 20% local funding match is required for most projects.

CONGESTION MITIGATION AND AIR QUALITY (CMAQ)

Urban areas that do not meet ambient air quality standards are designated as non-attainment areas by the U.S. Environmental Protection Agency (EPA). CMAQ funds are apportioned to those urban areas for use on projects that contribute to the reduction of mobile source air pollution through reducing vehicle miles traveled, fuel consumption, or other identifiable factors. Both roadway and transit projects are eligible for CMAQ funds.

Starting in FY 2013, all CMAQ projects were required to provide a 20% local match, with the exception of carpool and vanpool projects, which will remain 100% federally funded. To be eligible for CMAQ funds, projects must meet the following three criteria:

- Be a transportation project;
- Contribute to emission reductions; and
- Be located in or benefit a nonattainment or maintenance area for ozone, carbon monoxide, and particulate matter.

No parish within the NLCOG MPA is currently considered a non-attainment or maintenance area.[1]

COMPETITIVE HIGHWAY BRIDGE PROGRAM (CHBP)

These funds go toward highway bridge replacement or rehabilitation projects on public roads that demonstrate cost savings by bundling at least two highway bridge projects into a single contract.

Potential State Funding Sources

State transportation funding comes from several sources of revenue. Traditionally this revenue is used to match federal sources and to fund the operations of the LADOTD. The basic funding source for the state program comes from the State Transportation Trust Fund (TFF), which includes 20-cent gasoline tax, license fees, interest, weight permits and fines, and aviation fuel tax. Additional funding comes from the State Highway Improvement Fund (HIF).

STATE BOND MONIES (ST-BONDS)

State Secured Bonds are acquired through the Capital Outlay Program. The Capital Outlay Program is a complex program for funding the state's annual construction budget and the multi-year nature of most projects.

STATE CASH (ST-CASH)

State Cash is funded primarily through the general fund. Traditionally this source of revenue has been for maintenance projects.

STATE GENERAL FUND REVENUES (ST-GEN)

The State General Fund is funded primarily through previous year's revenue surplus funds. Revenue surplus funds can be recognized by the state's Revenue Estimating Committee only at the end of a fiscal year. According to the Louisiana Constitution, any surplus can only be used for capital construction, retirement, or payment of debt, providing payments against the unfunded accrued liability of the retirement systems, or placed in the Budget Stabilization or "Rainy Day" fund.

MISCELLANEOUS REVENUE SOURCES

Miscellaneous Revenue Sources constitutes the remainder of state funding. These sources include the I-49 Unclaimed Property fund, maintenance funds, funding from the state overlay program, reimbursable expenses incurred by other agencies, and public works funding from the LADOTD's non-transportation section, as well as public/private partnerships.

[1] https://www3.epa.gov/airquality/greenbook/ancl.html

Maintenance and Operations

The maintenance and operation of the transportation system was considered in the development of the NLCOG 2045 MTP and staged improvement program. Typically, maintenance costs are applicable to the system as a whole. Where possible, maintenance projects are identified individually. However, it is not possible to develop project specific maintenance schedules beyond the near term. As such a series of strategies are deployed by LADOTD, NLCOG, and local planning partners. As part of the STIP, LADOTD programs statewide line items to address maintenance, safety, and operations on an ongoing as need basis.

A variety of both federal and state funds are used to implement the statewide overlay, maintenance, and operations program. This includes STBG Funds, NHS Funds, General Louisiana Trust Fund monies, and State of Louisiana general funds. In addition to this strategy, the STBG>200k subcategories that are established by the project selection process allocate an average 40% of funding STBG>200k allocations to system preservation.

The balancing act of meeting identified transportation improvement needs and maintaining the present transportation system will continue throughout the horizon of this MTP. However, these strategies and sustained collaboration in system assessment and asset management help stabilize the balancing act. Recommendations in this plan are conservative, as they factor in the impact of maintenance costs in the determination of available funding.

Potential Local Funding Sources

It is typically the responsibility of the local government jurisdictions to cover any costs not covered by federal and state programs. Local funding can come from a variety of sources including property taxes, sales taxes, user fees, special assessments, and impact fees. Match requirements make local funds critical to maintain eligibility for several federal and state funding sources. The local match requirement is typically around 20% of total project costs for most federal funding sources.

PROPERTY TAXES

Property taxation has historically been the primary source of funding for local governments in the United States. Property taxes account for more than 80% of all local tax revenues. Property is not subject to federal government taxation but is taxed at the state and local level, including special districts such as school and utility districts.

GENERAL SALES TAXES

The general sales and use taxes are also an important funding source for local governments. The most common form of the general sales tax is the retail sales tax. The retail sales tax is imposed on a wide range of commodities, and the rate is usually a uniform percentage of the selling price.

USER FEES

User fees are fees collected from those who use a service or facility. The fees are collected to pay for the cost of a facility, finance the cost of operations, and/or generate revenue for other uses.

User fees are commonly charged for public parks, water and sewer services, transit systems, and solid waste facilities. The theory behind the user fee is that those who directly benefit from these public services pay for the costs.

SPECIAL ASSESSMENTS

Special assessment is a method of generating funds for public improvements, whereby the cost of a public improvement is collected from those who directly benefit from the improvement. In many instances, new streets are financed by special assessment. For these assessments, property owners located adjacent to the new streets are assessed a portion of the cost of the new infrastructure based on the amount of frontage they own along the new streets. Special assessments have also been used to generate funds for general improvements within special districts, such as central business districts. In some cases, these assessments are paid over a period of time, rather than as a lump sum payment.

IMPACT FEES

Development impact fees have been generally well received in other states and municipalities in the United States. Impact fees for road and drainage impacts have seen limited usage in a few areas of Louisiana but have seen some increased usage in recent years, especially in the case of drainage and stormwater impacts. New developments create increased traffic volumes on the streets around them, and development impact fees are a way of attempting to place a portion of the burden of funding improvements on developers who are creating or adding to the need for improvements.

BOND ISSUES

Property tax and sales tax funds can be used on a pay-as-you-go basis, or the revenues from these taxes can be used to repay general obligation or revenue bonds. These bonds are issued by local governments upon approval of the voting public.

ROADWAY REVENUE FORECAST DEVELOPMENT

Historically, transportation improvement projects in the MPA have been funded through a combination of federal, state, and local dollars. The process of developing reasonable expectations for future revenues includes several factors in reviewing these historical funds. Historical TIPs and lists of obligated projects from the last 20 years were compiled and project funding was sorted by year and funding category.

The revenue history was then screened for outliers and one-time, non-recurring expenditures. Additionally, the process of spending down carryover funds was compared to recurring obligation of funding to account for what would otherwise appear as a drastic ongoing reduction in revenues. These events and changes in funding categories, and additional funds received after a natural disaster could ostensibly create a skew in understanding the normal trends and are identified early in the process to help normalize the trend analysis used in forecasting.

The resulting normalized trends in funding were analyzed over that historical 20-year period to establish preliminary growth rates for funding by category. **Table 7-1** summarizes the totals for each applicable funding category broken out into 5-year periods over the last 20 years.

TABLE 7-1: HISTORICAL ROADWAY FUNDING

Fund	Description	2000-2004 (000s)	2005-2009 (000s)	2010-2014 (000s)	2015-2019 (000s)
HBP ON	On/Off Fed. Aid System Bridges	$23,026	$27,741	$42,779	$0
HBP OFF	Off Federal Aid System Bridges	$6,300	$3,812	$5,276	$1,713
IM	Interstate Maintenance	$47,913	$1,244	$37,275	$891
ITS	Intelligent Transportation Systems Integration Program - Metropolitan Areas*	$1,580	$4,715	$0	$0
NHS	National Highway System	$6,298	$9,897	$7,963	$0
TAP	Transportation Alternatives Set-Aside	$0	$0	$0	$644,511
STP>200k	Sub-allocation: Population over 200,000 (TMAs)	$12,947	$15,135	$1,591,902‡	$46,088
STP FLEX	Flexible Set Aside - Use for Any Area	$54,774	$47,463	$26,798	$68,421
STP ENH	Transportation Enhancement	$82	$204	$349	$0
STP HAZ	Safety - Hazard Elimination Program*	$3,367	$10,787	$3,541	$0
Safe Routes	Safe Routes to Schools and Public Places	$0	$0	$298	$0
HSIP	Highway Safety Improvement Program (Optional)**	$0	$0	$8,883	$2,415
STATE BONDS	State Secured Bonds - Capital Outlay Program	$1,500	$4,625	$1,300	$0
STATE	State funding, includes State Cash from General Fund	$2,860	$77,378	$357,360‡‡	$21,785
HPP	High Priority Projects	$0	$14,843	$46,666	$0
NHPP	National Highway Performance Program	$0	$0	$13,200	$68,241
NCIIP	Natl' Corridor Infrastructure Improvement Program	$0	$27,776	$129,971‡‡	$0
LOCAL	Local Project Sponsor Derived Funding	$21,122	$11,072	$89	$5,337
OTHER	Other or Innovative Funding Mechanism	$30,352	$15,889	$866	$0
Total		**$212,121**	**$272,581**	**$2,274,516**	**$859,402**

**** Of the 50% state/local match support, 30% must be eligible "in-kind" support and 20% is cash funding support.*

*** 100% for certain projects.*

‡ *A onetime expenditure for ROW acquisition for congestion relief in 2013 is included in this summary but was not used in forecast development. This expenditure as well as the one indicated in the following footnote create a much higher than average total for this spending period.*

‡‡ *State and federal monies expended in this period on the construction of significant portions of I-49 likewise show atypical spending in this period and are included here for transparency but not included in the forecast development.*

To estimate the funding available for historical projects in 2019 dollars, an average annual Consumer Price Index (CPI) factor was calculated using the historical South Urban Areas CPI factors that are shown in **Table 7-2** and applied to the historical dollar amounts. To better estimate the expected future revenues, the non-recurring funds were excluded from each year's total historical revenue.

TABLE 7-2: HISTORICAL ROADWAY PROGRAMMING SUMMARY AND CPI

Period	Totals (000s)	CPI Factor	2019 Value (000s)
2000 – 2004	$212,121	1.355	$287,424
2005 – 2009	$272,581	1.185	$323,008
2010 – 2014	$2,274,516	1.068	$2,429,183
2015 – 2019	$859,402	1.000	$859,402

Using phases of recurring historical revenues, an average was calculated to establish a baseline for projecting future revenues. The calculated baseline average excludes the most recent fiscal year as data for lettings in that year was incomplete. The total revenues were summed and divided by the number of years to obtain the historic average revenue that was available to the NLCOG area over the last 20 years.

Roadway Funding Forecast

To determine the fiscal feasibility of implementing a program of projects in the MTP, an analysis of programmed funding was conducted. The NLCOG coordinates with LADOTD on an ongoing basis to determine reasonably expected funding and acceptable inflation rates for projects. This resulted in a compounded annual inflation rate of 4.0%.

The NLCOG 2045 fiscally constrained MTP is partitioned into three stages of time. The first 5-year stage is developed to coincide with other planning and programming efforts such as the TIP which typically covers a three-to-five-year period. The remaining 20 years of the MTP planning horizon are banded into 10-year stages to assist in the development of future TIP and STIP programming efforts.

The first five years of the NLCOG 2045 MTP, FY 2021-2025, are fiscally constrained by funding category based on funding allocations identified through the 2019-2022 TIP and recurring average annual STBG funding amounts. The remaining 20 years are also fiscally constrained based on the comparison of historical and recent recurring funding amounts in comparison to the estimated project costs submitted through the MTP project call.

Historical information obtained from the previous TIPs and LADOTD indicates that on average, in the last 20 years, approximately $58.2 million per year in 2019 dollars have been programmed for construction and maintenance of the transportation infrastructure within Caddo, Bossier, DeSoto, and Webster Parishes (not including one-time expenses).

As noted in the previous 2040 MTP update, changes in funding methodologies over the historical period indicate that the most recent five-year period, in conjunction with expected programming amounts, serve as a more stable basis for revenue forecasts. An annual average roadway revenue from 2014-2019 serves as a more appropriate number to use to forecast future roadway funding.

Not including the programming or spending down of carry over funds, the average annual recurring roadway revenue from the last five years is $54.9 million from all recurring sources. This amount was used as the baseline to forecast funding to 2045.

Roadway Funding Overview

Reviewing the project funding, aggregated annual forecast amounts, and appropriate inflation rates resulted in the following levels (**Table 7-3**) of roadway funding estimated to be available for each stage of the plan. Federal funding administered by NLCOG in the 2045 MTP is in line with historical trends and reflects guidance by LADOTD in adjusted spending expectations.

The current stage (2021-2025) contains approximately $57.2 million in STBG and TAP carryover funds, which have not been included in the projection of the latter two stages. Additionally, it is worth noting that the current plan might appear to contain less projected funding than the previous plan, however the spending down of carryover funds has not been projected as NLCOG has diligently applied strategies to ensure that funds are obligated in a timely manner.

TABLE 7-3: ROADWAY FUNDING BY STAGE

Stage	Estimated Totals (000s)
Current 2021-2025	$331,904
Short- Mid-Term 2026-2035	$665,550
Long-Term 2036-2045	$826,597
Totals	**$1,824,051**

Roadway revenue forecasts shown in **Table 7-3** represent a summation of all funding categories. It is also useful to examine funding for the categories that are used to support the call for projects. The STBG, TAP, and local revenues have been presented as a subset of these funds in **Table 7-4**.

These funds have been denoted for the purposes of supporting the MPO specific roadway projects fiscal constraint analysis in further sections of this chapter.

TABLE 7-4: MPO ROADWAY FUNDING BY STAGE

Stage	STBG, TAP, & Local Totals (000s)
Current 2021-2025	$118,843
Short- Mid-Term 2026-2035	$149,183
Long-Term 2036-2045	$185,281
Totals	**$453,307**

TRANSIT FUNDING SOURCES

Transit providers in the MPA are funded through a combination of federal, state, and local sources. Aside from local funding, the FTA administers the primary funding programs used by transit providers in the study area. Of these programs, the Section 5307 Urbanized Area Formula Program is the largest source of funding. Other FTA funding programs are more limited in nature.

Federal Funding Sources

SECTION 5307 (URBANIZED AREA FORMULA PROGRAM)

Section 5307, the Urbanized Area Formula Program (49 U.S.C. 5307) makes federal funding available to urbanized areas for transit capital and operating assistance and for transit-related planning activities. Funding for the formula program is determined based on the level of transit service provision, population, and other factors.

SECTION 5311 (FORMULA GRANTS FOR RURAL AREAS)

This formula-based program (49 U.S.C. 5311) provides states and tribal governments with funding for administration, capital, planning, and operating assistance to support public transportation in rural areas, defined as areas with fewer than 50,000 residents.

There are set asides within this program for the Intercity Bus Program, the Rural Transit Assistance Program (RTAP), Public Transportation on Indian Reservations, and the Appalachian Development Public Transportation Program.

SECTION 5310 (ENHANCED MOBILITY OF SENIORS AND INDIVIDUALS WITH DISABILITIES)

The Enhanced Mobility Program provides formula funding to assist in meeting the transportation needs of the elderly and persons with disabilities when the primary transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs.

The purpose of this program is to enhance mobility for seniors and persons with disabilities by providing funds for programs to serve the special needs of transit-dependent populations beyond traditional public transportation services and paratransit services. Funds from the 5310 Program can be used for both capital improvements and operating expenses. However, at least 55% of program funds must be used on capital projects ("traditional" project) that are public transportation projects planned, designed, and carried out to meet the special needs of seniors and individuals with disabilities when public transportation is insufficient, inappropriate, or unavailable.

The remaining 45% of program funds may be used for capital and operating expenses for new public transportation services ("nontraditional" projects) and alternatives beyond those required by the ADA, designed to assist individuals with disabilities and seniors.

Funds are apportioned for urbanized and rural areas based on the number of seniors and individuals with disabilities. The federal share for capital projects (including acquisition of public transportation services) is 80%; the federal share for operating assistance is 50%.

SECTION 5339 (BUS AND FACILITIES)

The FAST Act updated this previously formula-based program (49 U.S.C. 5339) authorizes FTA to award Bus Program grants through a competitive process.

This program provides capital funding to states and designated recipients to replace, rehabilitate, and purchase buses, vans, and related equipment, and to construct bus-related facilities and is intended to improve the condition of the nation's public transportation bus fleets, expand transportation access to employment, educational, and healthcare facilities, and to improve mobility options in rural and urban areas throughout the country.

This program ties to transit asset management and safety directives and includes prioritization for projects that demonstrate connectivity and implementation of advanced technologies. Competitive grants go towards eligible projects under the Bus Program from an authorized $213 million.

However, an oversight takedown reduces this amount to $211 million. The Section 5339 Program also includes authorization for Low or No Emission Bus Programs and prioritizes the implementation of adoption of these technologically advanced vehicles.

OTHER FTA FORMULA AND DISCRETIONARY GRANTS

There are several other FTA grant programs with funding available. Most of these grant programs are focused on fixed guideway systems or on temporary assistance.

Section 5309 (Capital Investment Grants)

The Capital Investment Grant (CIG) Section 5309 Program is a discretionary grant program for funding major transit capital investments. These investments include:

- Heavy rail
- Commuter rail
- Light rail
- Streetcars
- Bus rapid transit (BRT)

By law, projects seeking CIG funding must complete a series of steps over several years to be eligible for funding. New Starts and Core Capacity projects are required by law to complete the Project Development and Engineering phases in advance of receipt of a construction grant agreement. Small Starts projects are required by law to complete the Project Development phase in advance of receipt of a construction grant agreement.

- New Starts Projects
  - Total project cost is equal to or greater than $300 million or total New Starts funding sought equals or exceeds $100 million
  - New fixed guideway system (light rail, commuter rail etc.)
  - Extension to existing system
  - Fixed guideway BRT system
- Small Starts Projects
  - Total project cost is less than $300 million and total Small Starts funding sought is less than $100 million
  - New fixed guideway systems (light rail, commuter rail etc.)
  - Extension to existing system
  - Fixed guideway BRT system
  - Corridor-based BRT system
- Core Capacity Projects
  - Substantial corridor-based investment in existing fixed guideway system
  - Located in a corridor that is at or over capacity or will be in five years
  - Increase capacity by 10%
  - "Not include project elements designated to maintain a state of good repair"

By law FTA rates projects at various points in the process, evaluating project justification and local financial commitment according to statutory criteria. FTA provides policy guidance on the CIG process and the evaluation criteria on their website.

Flexible Federal Funding Sources

Funding from the NHPP, the STBG, CMAQ, and TAP can be “flexed” to transit projects, with certain eligibility restrictions depending on the funding source.

TRANSIT REVENUE FORECAST DEVELOPMENT

Historical data was gathered from TIPs and from the National Transit Database (NTD) regarding transit funding, capital, and operating funding, and expenses in the NLCOG MPA over a historical 25-year period. **Table 7-5** presents a summary of the current TIP transit funding while **Table 7-6** presents average yearly operating and capital expenses, as well as average yearly revenues.

TABLE 7-5: 2019-2022 TIP TRANSIT SUMMARY

Project Name	Totals (000s)
Preventive Maintenance	$15,043
Non-Fixed Route ADA Paratransit Service	$1,794
Construct Enhanced ADA	$221
Support Equipment & Service Vehicles	$1,019
Bus Rolling Stock	$3,661
Transit Amenities	$218
Access/Mobility	$54
Electric Bus Purchase	$1,756
Cutaway Purchase	$2,059
Construct Multimodal Resource Center	$1,184
Total	**$27,009**

TABLE 7-6: TRANSIT AVERAGE YEARLY HISTORICAL EXPENSES (000S)

Period	Operating (000s)	Capital (000s)	Fare Revenues (000s)
1995-1999	$6,109	$2,038	-
2000-2004	$7,751	$1,575	$1,185
2005-2009	$11,074	$1,168	$2,298
2010-2014	$13,572	$2,306	$2,617
2014-2019	$15,951	$4,097	$2,563

Transit Funding Forecast

After applying a similar process to the one described in the roadway chapter, future funding cost and revenue estimates were generated for each revenue and cost type. **Table 7-7** shows the total transit funding forecast for the various stages of the NLCOG 2045 MTP. The estimated annual funding levels for SporTran are nearly $12 million, with just under $8.8 million from federal, state, and local sources, $2.6 million from fares. In addition to these estimated revenues SporTran receives roughly $2.5 million from STBG funding set aside through MPO programming every four years.

Including local matching funds, the total amount of transit funding estimated to be available for the duration of the MTP is approximately $390M.

TABLE 7-7: 2021-2045 TRANSIT FUNDING FORECAST (ALL-SOURCES)

Stage	Amounts (000s)
Current 2021 – 2025	$64,071
Short- Mid- Term 2026 – 2035	$145,445
Long-Term 2036 – 2045	$180,640
Total 2021 – 2045	**$390,157**

ESTIMATING COSTS

Federal regulations define "total project cost" for the purpose of estimating fiscal constraint in the MTP to include:

- Planning elements (e.g., environmental studies and functional studies)
- Engineering costs (e.g., preliminary engineering and design)
- Preconstruction activities (e.g., ROW acquisition)
- Construction activities; and
- Contingencies

The following assumptions helped guide the development of cost estimates for the proposed projects in the NLCOG 2045 MTP as well as the maintenance and operation of the existing transportation system.

1. Because federal regulations do not require that the cost of maintenance and operations activities be computed for individual projects, the funding needed for maintenance and operation of the transportation infrastructure was estimated on a system-wide level.
2. Whenever a detailed engineering estimate for a particular project was not available, generalized planning-level cost figures (developed by NLCOG in close coordination with LADOTD) were used to assess the cost of each of the project's elements. These generalized cost figures were based on estimates provided by LADOTD, and other available resources.
3. Project costs are estimated to include construction costs as well as right-of-way acquisition and engineering costs in consultation with project sponsors.

Both typical improvement costs and local knowledge of other project costs were used to develop cost estimates for the projects considered for the MTP. In keeping with federal regulations, cost estimates were computed in average YOE dollars across 5-year periods within the MTP planning horizon using the inflation factors outlined above in accordance with FHWA and LADOTD guidance. **Table 7-8** presents the aggregate total of estimated YOE total project costs for each period addressed by the MTP. These total project costs include MPO submitted projects as well as an estimation of LADOTD funded projects as based on historical and current projects included in the NLCOG TIP. Each period also includes programmatic cost estimates for general system maintenance and operation, which is discussed in a later section of this chapter. The complete list of MPO projects considered for inclusion in the MTP, along with estimated YOE costs, can be found in Chapter 6. The summarized funding for both mobility and preservation programs, in contrast to the total costs of projects, shows fiscal constraint not only for the development and construction of the planned projects, but for the sustained maintenance and operations of these projects as well.

TABLE 7-8: SUMMARY OF ESTIMATED COSTS

Stage	Roadway Costs (000s)	Transit Costs (000s)
Current 2021 – 2025	$142,128	$64,071
Short- Mid-Term 2026 – 2035	$679,000	$145,445
Long-Term 2036 – 2045	$1,000,071	$180,640
Total 2021 – 2045	**$1,821,198**	**$390,157**

Maintenance and Operations

The maintenance and operation of the transportation system was considered in the development of the NLCOG 2045 MTP and its staged improvement program. Typically, maintenance costs are applicable to the system as a whole. Where possible, maintenance projects are identified individually. However, it is not possible to develop project-specific maintenance schedules beyond the near term.

The maintenance costs identified in this plan are the responsibility of various governmental jurisdictions. The balancing act of meeting identified transportation improvement needs and maintaining the present transportation system will continue as the system ages.

Recommendations in this plan are conservative, because they factor in the impact of maintenance costs in the determination of available funding. Reviewing the estimated funding available in the MPA for maintenance and operations as administered by LADOTD helps to better inform decision making at the MPO level when coordinating strategies with regional planning partners. This review includes considerations for operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods as described in greater detail in the grouped project categories listed in the TIP.

For types of projects that are not yet determined, but known to occur within the planning horizon, FHWA allows LADOTD to develop statewide groupings of line-item projects that are identified by a line-item project number. These types of line-item projects include safety, bridge replacement, railroad crossing improvements, preventative maintenance as well as projects such as ITS systems implementation. Use of statewide groupings of projects allows for a more efficient method of programming and letting projects by decreasing the need to revise the TIP and MTP as frequently.

Table 7-9 shows LADOTD District 04 line-item projects in associated phases, typical funding programs, as well as current TIP and forecasted costs over the horizon of this MTP update (2021-2045). As District 04 covers a larger area than is encompassed in the MPA, a reduction factor was used based on historical allocation where appropriate.

TABLE 7-9: HIGHWAY PROGRAM LADOTD DISTRICT 04 - STATEWIDE STIP LINE ITEMS

State Project Number	Project Description	Project Phase	Funding Source	Total Cost (000s)	Federal Share (000s)	Fed %	Forecast Costs 2021-2045 (000s)
L.000038	Planning, Training Research	Feasibility	STP>200k, SPR OPT, SPR MAND	$2.40	$1.92	80%	$55
L.000040	Federal Bridge Inspection	Construction	STPFlex	$462.00	$369.60	80%	$10,515
L.000046	Miscellaneous STP Enhancement Projects	Construction	TAP>200k	$907.50	$726.00	80%	$20,655
L.000047	Miscellaneous National Trails Projects	Construction	RTP	$184.58	$147.66	80%	$4,201
L.000048	Scenic Byways of LA	Construction	NSB	$29.37	$23.50	80%	$668
L.000050	LA Public Lands Highway Program	Construction	FLH	$440.00	$352.00	80%	$10,014
L.000051	Overlay or surface repair on Interstate	Construction	NHPP	$4,840.00	$3,872.00	80%	$110,159
L.000053	Statewide Overlay Program	Construction	STPFlex, NHPP	$12,100.00	$9,680.00	80%	$275,398
L.000054	Road Preventive Maintenance Program	Construction	STPFlex	$1,049.40	$839.52	80%	$23,884
L.000055	Railroad Crossing Improvements	Construction	RAIL HE	$220.00	$176.00	80%	$5,007
L.000056	Miscellaneous Hazard Elimination Program	Construction	HSIP	$4,246.00	$3,396.80	80%	$96,640
L.000057	Soft Side Safety	Feasibility	HSIPPEN, HSIP	$507.00	$405.60	80%	$11,539
L.000060	Local Roads Safety Program	Construction	HSIPPEN, HSIP	$254.03	$203.23	80%	$5,782
L.000061	Safe Routes to Public Places Program	Construction	HSIPPEN	$459.14	$367.31	80%	$10,450
L.000062	Motorist Assistance Patrol (MAP)	Construction	NHPP, STP>200k	$413.60	$330.88	80%	$9,414
L.000063	Traffic Control Devices Program	Construction	HSIPPEN, STPFLEX, NHPP	$8,250.00	$6,600.00	80%	$187,771
L.000064	Transportation Systems Management Program	Construction	NHPP, STPFLEX	$856.90	$685.52	80%	$19,503
L.000065	ITS Systems (Statewide)	Feasibility	NHPP, STPFLEX	$50.00	$40.00	80%	$1,138
L.000066	ITS Systems (Statewide)	Engineering	NHPP, STPFLEX	$100.00	$80.00	80%	$2,276

State Project Number	Project Description	Project Phase	Funding Source	Total Cost (000s)	Federal Share (000s)	Fed %	Forecast Costs 2021-2045 (000s)
L.000067	ITS Systems (Statewide)	Construction	NHPP, STPFlex	$982.30	$785.84	80%	$22,357
L.000067	Interstate Lighting, Electrical Projects	Construction	NHPP	$319.00	$255.20	80%	$7,260
L.000068	Access Management Projects	Construction	NHPP, HSIP, STPFLEX	$1,146.89	$917.51	80%	$26,103
L.000069	Road Transfer Program	Construction	STPFlex, NFA	$1,100.00	$880.00	80%	$25,036
L.000071	Weigh State Rehabilitation/Upgrade	Construction	NHPP	$57.53	$46.02	80%	$1,309
L.000072	Moveable Bridge Program	Construction	STP Flex	$195.89	$156.71	80%	$4,458
L.000073	Urgent Bridge Repair/Replacement	Construction	STP Flex	$633.38	$506.70	80%	$14,416
L.000074	Bridge Preventive Maintenance	Construction	STP Flex, NHPP	$1,502.05	$1,201.64	80%	$34,187
L.000075	Bridge Painting Program	Construction	STP Flex, NHPP	$803.00	$642.40	80%	$18,276
L.000076	On System Bridge Program	Construction	STP Flex	$9,362.32	$7,489.86	80%	$213,088
L.000077	Bridge Scour Analysis	Construction	NHPP	$8.80	$7.04	80%	$200
L.000078	Off-System Bridge Replacement Program	Construction	FBR Off	$3,240.60	$2,592.48	80%	$73,757
L.000079	Bridge Discretionary Program	Construction	BDP	$10.56	$8.45	80%	$240
L.000080	Misc. Federal Discretionary Projects	Construction	FLH	$17.60	$14.08	80%	$401
L.000081	Various Demo Projects	Construction	Demo	$528.00	$422.40	80%	$12,017
L.000082	Misc. Statewide TCSP Projects	Construction	TCSP	$184.80	$147.84	80%	$4,206
L.000083	Payback for Advance Construction	Construction	STP Flex, NHPP	$1,804.00	$1,443.20	80%	$41,059
L.000084	Modified Project Agreement	Construction	STP Flex	$1,056.00	$844.80	80%	$24,035
L.000085	Advanced Traffic Management Center	Construction	CM	$17.60	$14.08	80%	$401
L.000087	Stage 0 and Feasibility Studies	Feasibility	STP Flex	$359.00	$287.20	80%	$8,171
L.000092	DBE Supportive Services	Feasibility	DBE/SS	$24.00	$19.20	80%	$546

State Project Number	Project Description	Project Phase	Funding Source	Total Cost (000s)	Federal Share (000s)	Fed %	Forecast Costs 2021-2045 (000s)
L.000093	Statewide Congestion Mitigation	Construction	CM	$448.80	$359.04	80%	$10,215
L.000094	Urban Transit (Include Transfer to Agencies)	Construction	STP>200K, STP Flex, TAP>200k	$864.60	$691.68	80%	$19,678
Total							**$1,372,080**

STBG has been noted as STP in line item programming to reflect current TIP/STIP publications

CONSTRAINING THE PLAN

Projects not already included in the current TIP were sorted into 2026-2035 and 2036-2045 stages by priority ranking, estimated project costs, and expected funding availability. Projects that are regionally significant but fall outside of fiscal Constraint have been categorized as unfunded Vision projects. Total anticipated constrained program costs are estimated to be just over $1.8 billion in YOE dollars for roadway projects and just over $390 million for transit. Because the total available program funding is expected to be greater than program costs, the NLCOG 2045 MTP can reasonably be considered fiscally constrained. **Table 7-10** shows the fiscal constraint summaries for all roadway costs.

TABLE 7-10: ROADWAY FISCAL SUMMARY

Funding Type	Est. Funding (000s)	Est. Cost (000s)
Roadway (All Categories)	**$1,842,621**	**$1,821,198**

In addition to ensuring that the 2045 MTP is fiscally constrained at the aggregate level, it is also useful to the decision-making process to verify the fiscal constraint of the subset of funding categories used to support the projects selected through the Call for Projects. **Table 7-11** shows the fiscal constraint summaries for the STBG, TAP, and transit programs covered in the 2045 MTP, including local match.

TABLE 7-11: 2021-2045 MPO PROGRAM FISCAL SUMMARY

Funding Type	Est. Funding (000s)	Est. Cost (000s)
Roadway (STBG & TAP)	$453,307	$437,698
Transit	$390,157	$390,157
Total	**$843,464**	**$827,855**

Based on the foregoing analysis, NLCOG is confident that in the aggregate, and at the specific program and project level, projected revenues equal or exceed projected costs and the 2045 MTP is fiscally constrained.

A full listing of the fiscally constrained program of projects over the lifespan of this MTP update (2021-2045) can be found in Chapter 6. This listing includes 2021 TIP Projects, regionally significant locally funded projects within the MPA, and the MPO prioritized list of projects. A listing of vision projects, or unfunded needs projects is also included in Chapter 6. The vision projects represent project costs exceeding expected funding for mobility projects over the next 25 years as has been stated.

Although the current projections show an unexpended amount and some of the unfunded illustrative projects could be advanced into the program, the economic impacts of the shutdown associated with COVID-19 as well as considerations for cost variables have been included to maintain fiscal Constraint.

Maintaining a cushion between expenditures and revenues pending further insight into current economic trends provides a conservative outlook that allows the NLCOG to be confident that the MTP is financially constrained regardless of fluctuations in economic factors or construction material costs.

8 | SYSTEM LEVEL ANALYSIS

Metropolitan transportation planning is concerned with more than the best way to move people and goods. The planning process also analyzes the interaction of proposed transportation improvements with the natural and human environment. The MTP program of projects is evaluated for its system-wide impacts on environmental resources and quality of life.

SYSTEM LEVEL ANALYSIS

The primary goal of the system level analysis is to evaluate whether potential transportation improvements will impact environmental features or have negative impacts on historically disenfranchised populations. It is intended to serve as an evaluation guide for agencies and elected officials as projects progress through the development process, and in turn allow NLCOG to prioritize projects with lessened environmental and cultural impacts.

Once a project moves from the planning stage to the programming stage, more detailed analysis of the specific impacts associated with capacity projects is performed using processes that meet the requirements of the National Environmental Protection Act (NEPA). The analysis in this chapter does not take the place of the NEPA assessment but does provide NLCOG an initial understanding of potential project impacts on the region.

Identifying potential impacts caused by these new transportation projects involves a three-step process that includes:

- Developing an inventory of environmental resources, cultural resources, and Environmental justice populations (e.g., minority populations and low-income populations) within the NLCOG MPA.
- Assessing the potential impacts, both positive and negative, of proposed transportation improvements through technical and spatial analysis.
- Addressing possible mitigation activities system wide.

The following sections describe the methods, approach, and outcomes of the system level analysis.

ENVIRONMENTAL MITIGATION ANALYSIS

The NLCOG MPA is host to a wide variety of environmental and cultural resources, anchored by the Red River which extends through the center of the planning area, dividing Shreveport and Bossier City. To understand the potential environmental impacts created by the NLCOG 2045 project list, locations of all available environmental and cultural resources were first inventoried as a part of the environmental mitigation analysis. The data and information used to conduct the analysis was collected from publicly available databases maintained by the US Census Bureau, EPA, ESRI, InfoUSA, National Park Service, FEMA, and the U.S. Fish and Wildlife Service. These inventoried resources are displayed in **Figure 8-1** and **Figure 8-2**.

FIGURE 8-1: CULTURAL, ENVIRONMENTAL, & HISTORIC RESOURCES IN THE NLCOG MPA

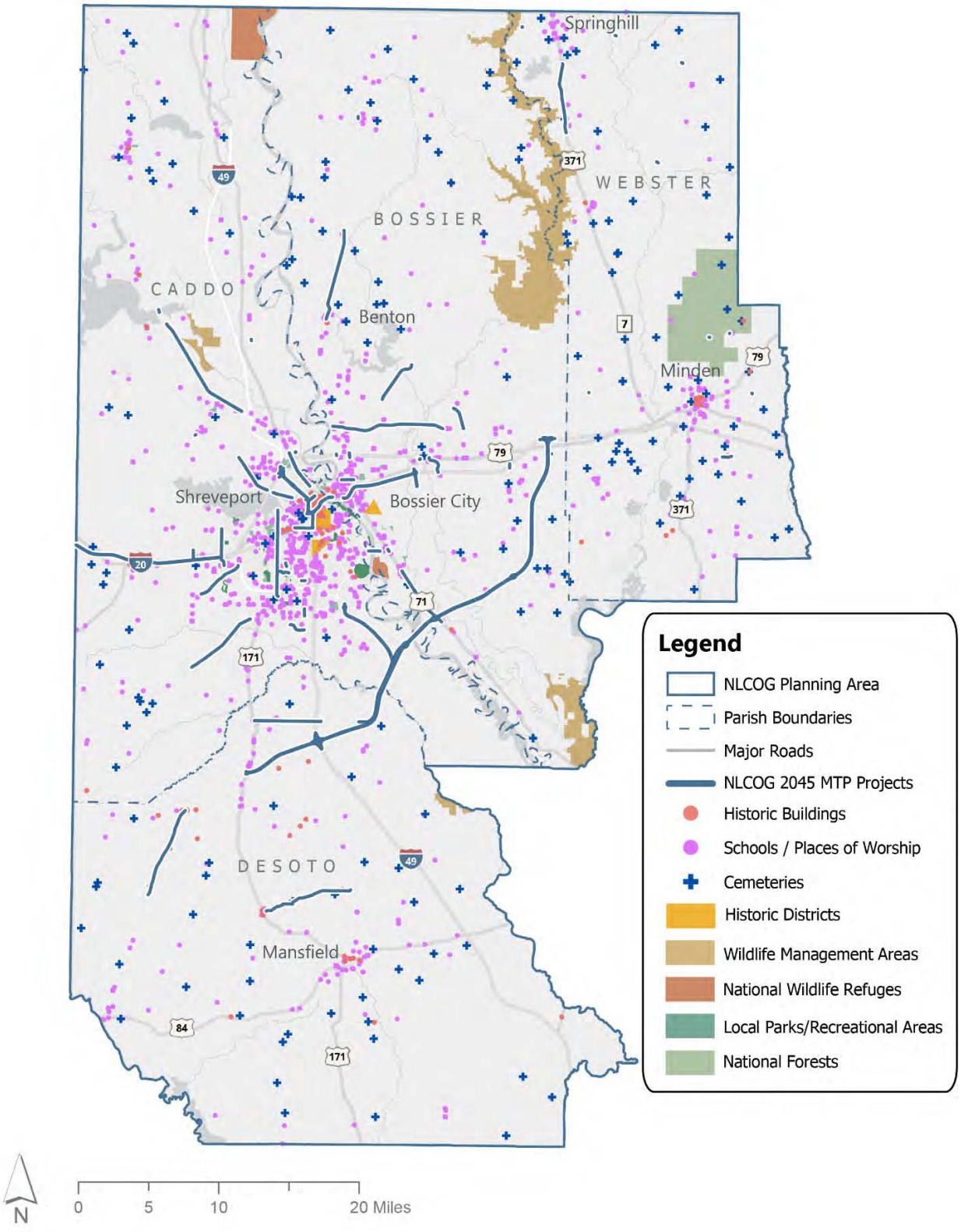
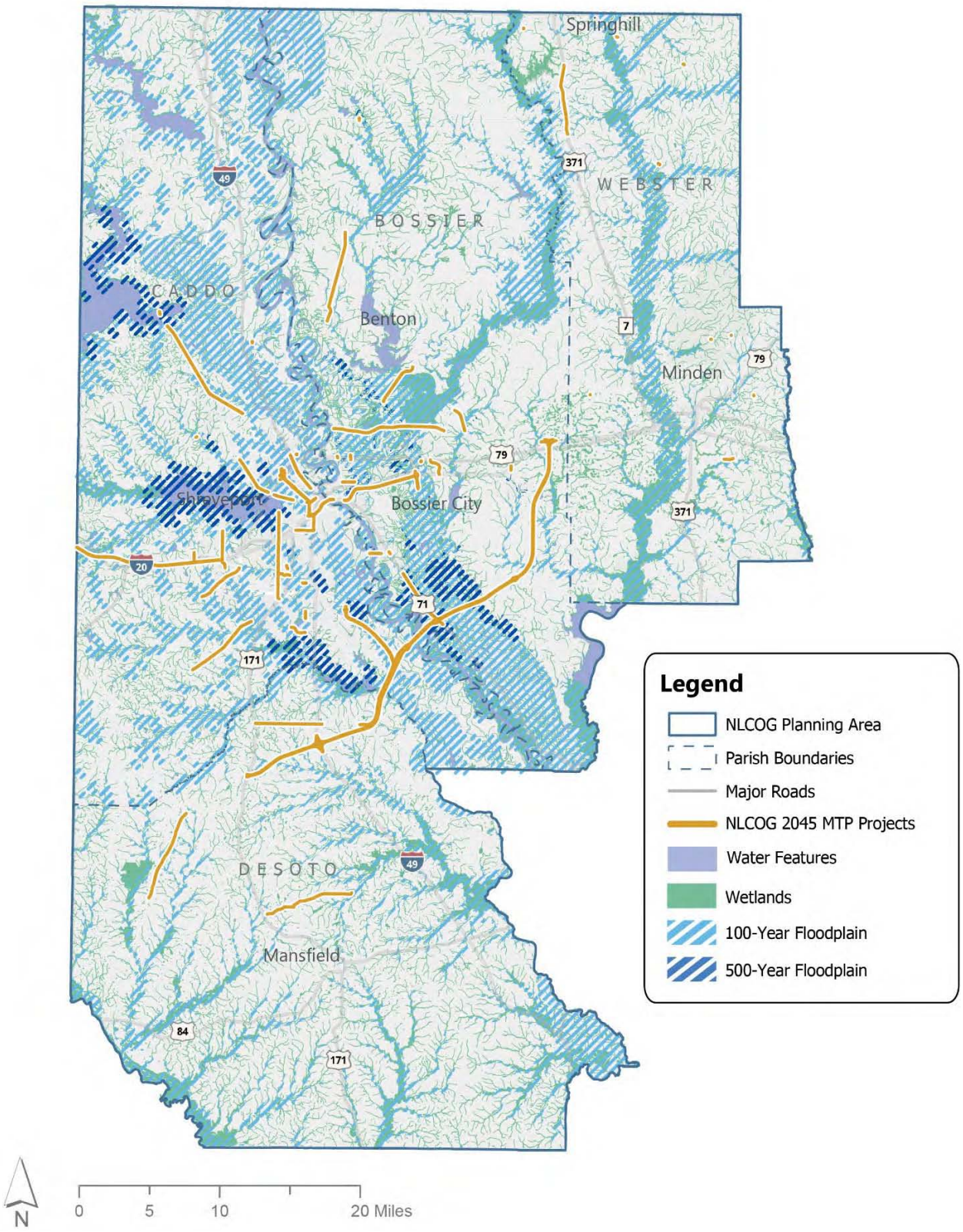


FIGURE 8-2: WATER FEATURES IN THE NLCOG MPA



Following data collection, a GIS buffer analysis was conducted, to determine how the 2045 MTP programmed projects might affect the inventoried resources. The analysis groups projects into categories (Capacity Expansion, System Preservation, Safety & Other), and applies buffer zones for each project.

Table 8-1 presents totals for each project type analyzed. It must be noted that some projects were not analyzed where the projects did not require the purchase of right of way or, by categorical exclusion were not capacity projects; therefore, the total number of projects analyzed in this section does not reflect the total number of projects in the NLCOG 2045 MTP Staged Improvement Plan (Chapter 6).

TABLE 8-1: PROJECT TYPES ANALYZED

Project Category	Total Number of Proposed Projects Analyzed
Capacity Expansion	38
Safety & Other	12
System Preservation	13
Total	63

Buffer distances were scaled based on the environmental/cultural resource and the potential area of potential impact to that resource by a project. For example, cultural features may only be affected by a project directly adjacent to the resource while water features may be impacted by projects a greater distance away. **Table 8-2** presents buffer sizes used in relation to each resource.

TABLE 8-2: BUFFER DISTANCES FROM PROJECTS

Resource	Buffer Distance
Water Resources	.25 miles
Cemeteries	.25 miles
Historic Sites/Districts	250 feet
Sensitive Land Uses	250 feet
Wildlife Refuges	250 feet
Forested Areas	250 feet
Parks & Recreation Areas	250 feet

Assigned buffers and inventoried resources were then used to conduct a GIS intersect analysis to identify areas of overlap. Overlapping areas suggest potential impact between planned projects and environmental and/or cultural resources. **Figure 8-3** provides an example of the buffer analysis displaying potential project impacts due to overlap.

Table 8-3 presents the count of features that are affected by the proposed projects. Wetlands and floodplains have the most potential to be impacted by proposed projects, with 58 and 56 projects intersecting the feature types, respectively. Further, the intersect analysis results suggests the list of programmed projects present few concerns for cultural resources, wildlife refuges/areas, and parks and recreation/forested areas.

FIGURE 8-3: BUFFER ANALYSIS EXAMPLE

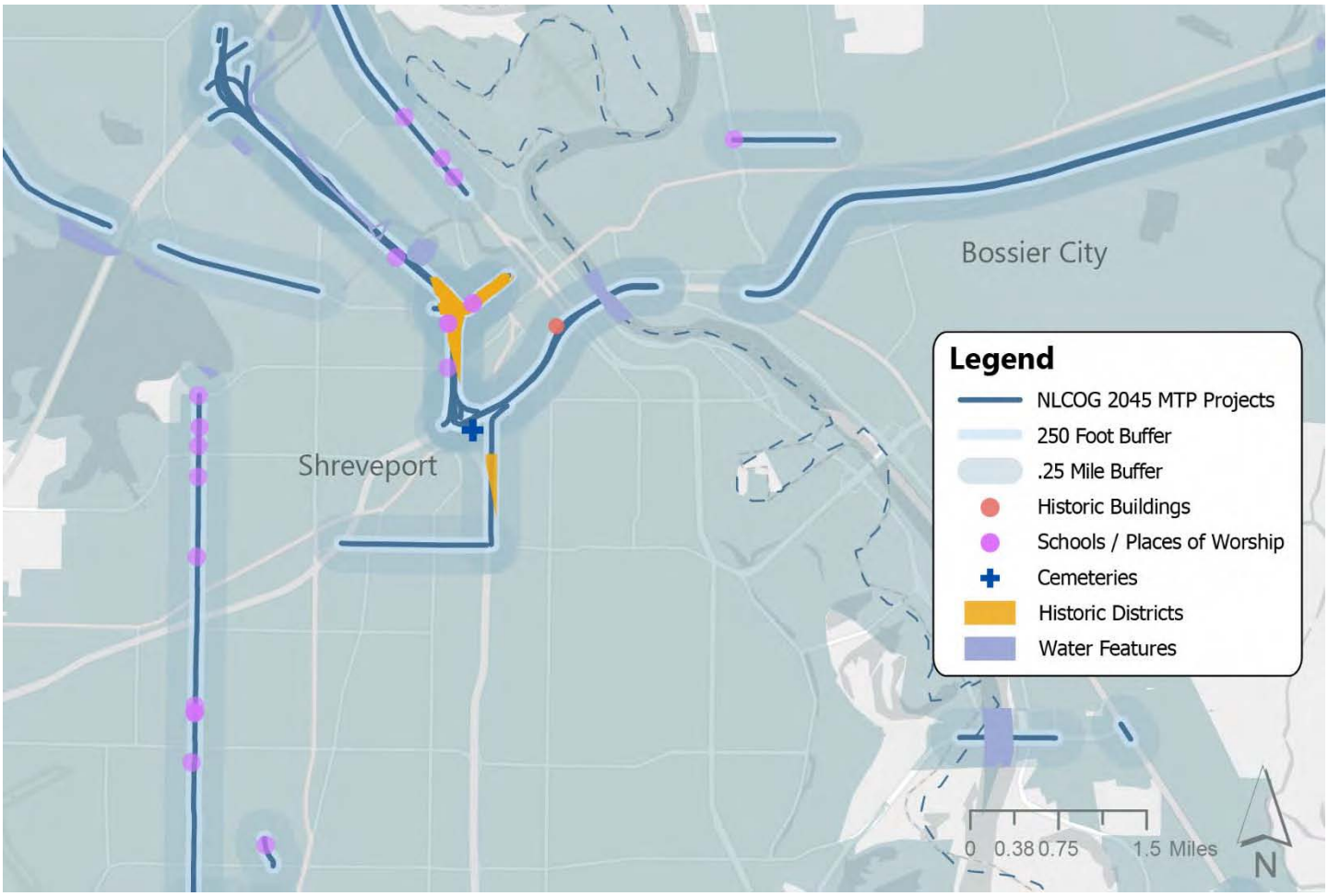


TABLE 8-3: BUFFER ANALYSIS RESULTS

	Resource Type	Project Buffer & Environmental Resource Intersect Count	Number of Projects Intersecting
Water Resources	Wetlands	4,188	58
	Water Features	370	21
	100 Year Floodplain	9,333	56
	500 Year Floodplain	1,721	21
Cultural Resources	Historic Buildings	3	2
	Historic Districts	1,538	3
	Cemeteries	18	7
Sensitive Land Uses	Schools	3	3
	Churches	48	19
Wildlife	National Wildlife Refuges	0	0
	Wildlife Management Areas	0	0
Parks & Forested Areas	Local Parks	9	4
	Recreation Areas	24	7
	National Forests	2	2

Overall, the system level analysis suggests that the planned projects do not pose substantial negative impacts to regional environmental resources. However, projects that do intersect environmental features should be examined at a project level further along the project planning process to mitigate any potential negative impacts from occurring during implementation.

Air Quality

Improving regional air quality and maintaining compliance with federal air quality standards is a fundamental consideration in the MTP process. The construction of new transportation infrastructure increases the capacity for vehicles on regional roadways, which has the potential to increase traffic-related air pollutants in the NLCOG MPA.

In 1963, in response to increasing air pollution, the U.S. Congress passed the original Clean Air Act which established a federal program for researching techniques to monitor and control air pollution. The Clean Air Act of 1970 increased federal enforcement authority and authorized the development of national air quality standards to limit common and widespread pollutants.

These standards, known as the National Ambient Air Quality Standards (NAAQS), define the allowable concentration of pollution in the air for six "criteria" pollutants, including carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide. The NLCOG MPA is in attainment for air quality and is not required to take any specific steps to address air quality issues. But as part of its goal to be a good steward of the regional environment, NLCOG continues to work toward limiting air pollutants and maintaining air quality.

The Clean Air Act identifies two types of national ambient air quality standards:

- Primary standards provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly.
- Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The existing standards for each of the six criteria pollutants are listed in **Table 8-4**. The units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air (µg/m3). The EPA issued its final rule strengthening the ozone standards to 0.070 ppm on October 1, 2015.

EPA has delayed issuing guidance on conformity requirements for transportation planning in relation to the 2015 Ozone rule. Until then, the NLCOG 2045 MTP is only required to maintain compliance with the 2008 standard definition.

TABLE 8-4: NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

Pollutant	Primary/Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8 Hours 1 Hour	9 ppm 35 ppm	Not exceeded more than once a year
Lead	Primary/Secondary	3 Month Rolling Avg	0.15 µg/m3	Not to be exceeded
Nitrogen Dioxide (NOX)	Primary Primary/Secondary	1 Hour Annual	100 ppb 53 ppb	98th percentile, averaged over 3 years annual mean
Ozone	Primary/Secondary	8 hours	0.075 ppm	Annual, fourth highest maximum daily 8-hour concentration averaged over 3 years.
Particle Pollution	Primary Secondary	Annual Annual	12 µg/m3 15 µg/m3	Annual mean averaged over 3 years Annual mean averaged over 3 years
PM 2.5	Primary/Secondary Primary/Secondary	24 hours 24 hours	12 µg/m3 15 µg/m3	98th percentile, averaged over 3 years Not to be exceeded more than once per year, averaged over 3 years
Particle Pollution	Primary Secondary	1 hour 3 hours	75 ppb 0.5 ppm	9th percentile of daily 1 hour maximum, averaged over 3 years Not to be exceeded more than once per year

Regions are designated by the EPA as either in attainment or nonattainment of the NAAQS. Attainment means the concentration of each pollutant successfully meets the NAAQS. The NLCOG MPA is designated as being in attainment of NAAQS standards. Non-attainment means the concentration of at least one pollutant exceeds the maximum defined threshold.

If an area is designated as non-attainment, the State must develop and submit a State Implementation Plan (SIP). Areas of nonattainment can apply for Congestion Mitigation Air Quality (CMAQ) funds which can be used to help develop the SIP and use the funding to implement the mitigation activities. CMAQ and other funding opportunities are further described in Chapter 7. The SIP addresses each pollutant that exceeds NAAQS and establishes an overall regional plan to reduce air pollution emission levels and maintain attainment status.

Once a nonattainment area meets the standards, EPA will designate the area to attainment as a "maintenance area." Maintenance areas are required to have a Maintenance Plan in place to ensure continued attainment of the respective air quality standard. The Clean Air Act defines specific timetables to attain air quality standards and requires nonattainment areas to demonstrate reasonable progress in reducing air pollutants until the area achieves attainment.

Though the NLCOG MPA has achieved attainment for air quality, NLCOG continues to proactively promote projects that have positive impacts on air quality such as alternative fuel and electric bus replacement as well as active transportation projects.

Monitoring & Conditions in the NLCOG MPA

Existing air quality within the NLCOG MPA has generally been rated as moderate to good per the EPA's Outdoor Air Quality Data. **Figure 8-4** represents the EPA's daily Air Quality Index (AQI) values from 2016 – 2020 for all relevant AQI pollutants (Ozone, SO2, PM2.5, PM10) in the NLCOG MPA. The AQI helps quantify a region's air quality using a scale ranging from 0 to 500; in general air quality is assumed to be satisfactory if it measures within the 0 to 100 range.

Figure 8-4 displays the Shreveport-Bossier City area AQI values and shows satisfactory (good or moderate) values for almost the entirety of the five-year measurement period. Only a small number of days were rated as unhealthy for sensitive groups, and there were no readings in the worst three groups (unhealthy, very unhealthy, or hazardous),

Many of the days that rated poorly tended to occur in the summer months, specifically June and July, which is a typical pattern for most metropolitan areas. Although, not perfect, these are generally positive results. Although there is always room for improvement, these results show that the region's air quality successfully meets the needs of the general public and compares favorably to similar metropolitan areas.

Collection area locations are presented in **Figure 8-5**. The NLCOG MPA currently has three active air monitoring sites including Dixie (Ozone), Shreveport/Airport (Ozone, SO2, PM 10), and Shreveport/Calumet (PM 2.5) which are monitored by the Louisiana Department of Environmental Quality (LDEQ)'s Assessment Division.

FIGURE 8-4: SHREVEPORT-BOSSIER CITY DAILY AQI VALUES, 2016 - 2020

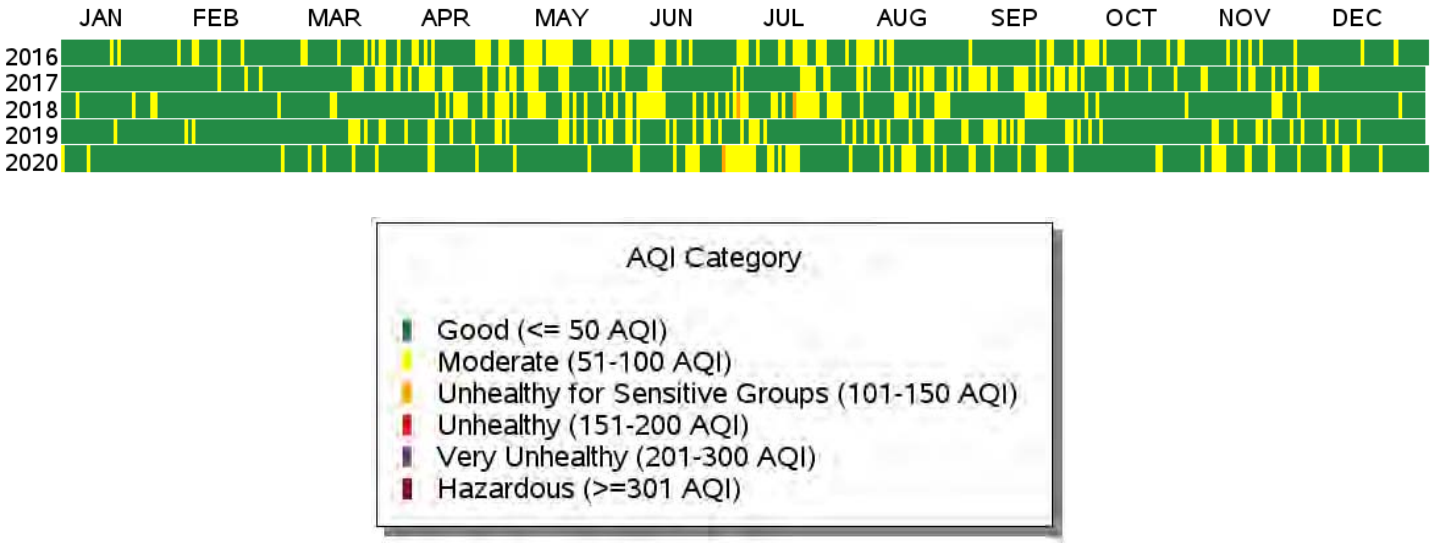
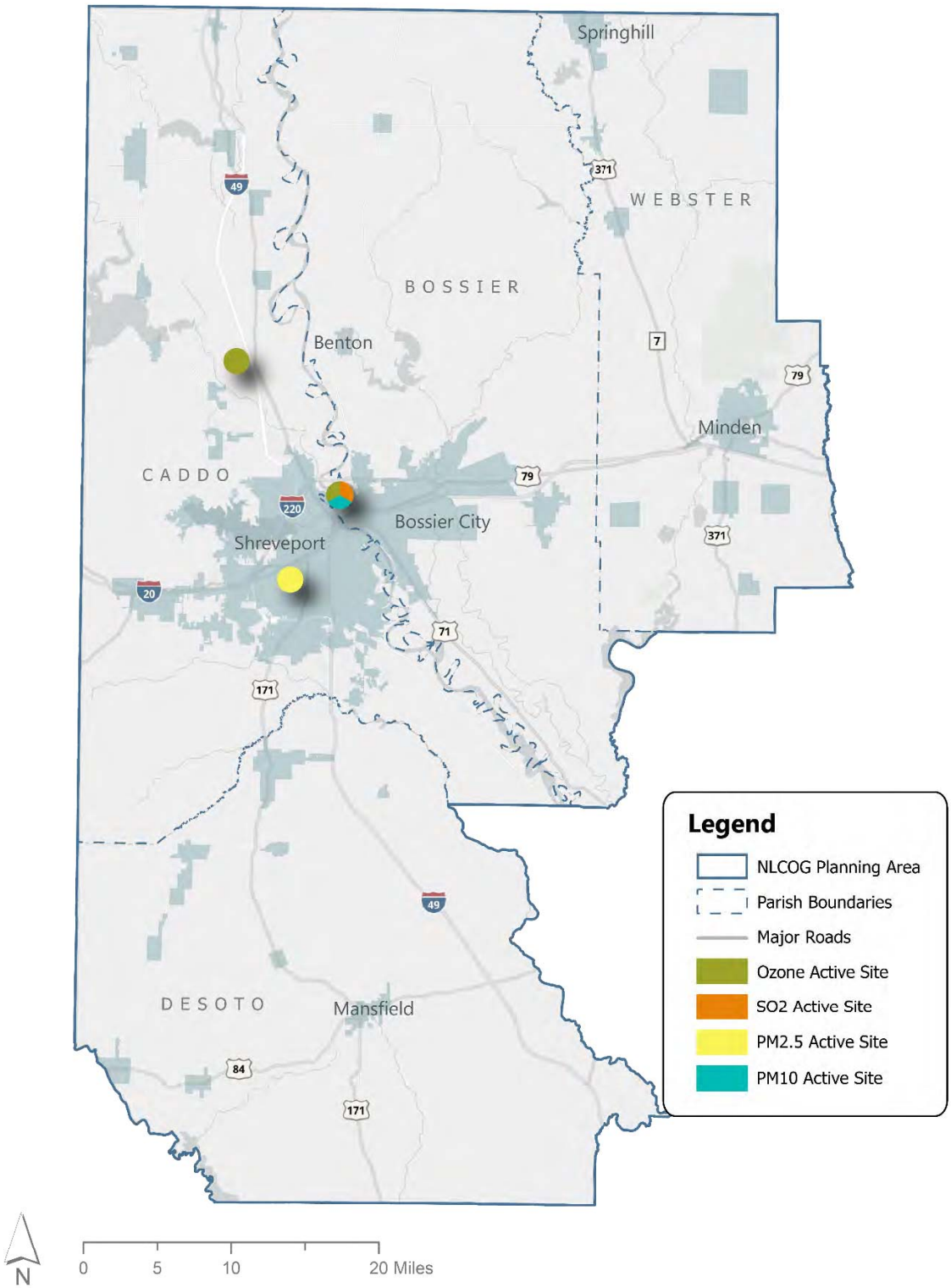


FIGURE 8-5: NLCOG MPA AIR QUALITY SYSTEM ACTIVE SITES



Potential Mitigation Activities

Federal regulations require the MTP process to include a discussion about potential mitigation activities that can revive and maintain the environmental resources of an area. These mitigation strategies apply to areas for air quality and Environmental Justice concerns. FHWA recommends an ordered approach to mitigation known as "sequencing" that involves understanding the affected environment and assessing transportation effects through project development. This ordered approach involves:

- Avoiding the impact altogether (this should be the priority), minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected area.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources.

The type and level of mitigation activities will vary depending on the scope of the project. Several mitigation measures and general areas where these activities can be implemented are presented in **Table 8-5** on the following page, and are intended to be regional in scope and may not necessarily address potential project-level impacts. As proposed projects progress through the project development process, mitigation is an integral part of alternatives development and the analysis process to maximize the effectiveness of mitigation strategies.

In many instances an assessment of the effectiveness of potential mitigation activities is developed in consultation with applicable federal, state, and tribal land management, wildlife, and regulatory agencies to eliminate or mitigate any potential negative impacts to the natural environment or to cultural and historic resources. The timeframes for performing these consultations are scalable depending on the size of the project and the possible extent of the impact. As projects phase from planning to programming, planning partners have an opportunity to assess the extent and timeframe for performing the mitigation consultation process. Some of the outside agencies involved in consultation, where applicable include some of the following types of agencies:

- Land use management
- Natural resources
- Environmental protection
- Conservation
- Historic preservation

Some levels of this consultation also include a comparison of regional and local transportation plans with statewide conservation, flood mitigation, and resiliency plans or maps.

TABLE 8-5: MITIGATION MEASURES BY RESOURCE

Resource	Mitigation Measures
Wetlands or Water Resources	Avoidance, Minimization or Compensation • Preservation • Creation • Restoration • In-lieu Fees • Riparian Buffers • Design Exceptions and Variances Environmental Compliance Monitoring
Cultural Resources	Avoidance Minimization Landscaping for Historic Properties Preservation in Place or Excavation for Archaeological Sites Design Exceptions and Variances Environmental Compliance Monitoring
Parks and Recreation Areas	Avoidance, Minimization, Mitigation Design Exceptions and Variances Environmental Compliance Monitoring
Ambient Air Quality	Transportation Control Measures Transportation Emission Reduction Measures
Forested and Other Natural Areas	Avoidance, Minimization Replacement Property for Open Space Easements to be of Equal Fair Market Value and of Equivalent Usefulness Design Exceptions and Variances Environmental Compliance Monitoring
Agricultural Areas	Avoidance, Minimization Design Exceptions and Variances Environmental Compliance Monitoring
Endangered or Threatened Species	Avoidance, Minimization Time of Year Restrictions Construction Sequencing Design Exceptions and Variances Species Research/Fact Sheets Memoranda of Agreements for Species Management Environmental Compliance Monitoring

ENVIRONMENTAL JUSTICE ANALYSIS

Environmental Justice was first defined in the metropolitan transportation planning process in 1994 with Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. The executive order is meant to ensure that minority and low-income populations are not adversely affected by federal actions.

Environmental Justice is the fair treatment and involvement of all people regardless of race, color, national origin, educational level, or income with respect to the development, implementation, and enforcement of environmental laws. Environmental Justice works to provide access to public information for health, environmental planning, regulations, and enforcement for minority and low-income populations. It ensures that no populations are forced to shoulder a disproportionate burden of the negative human health or environmental impacts of pollution or other environmental hazards caused by a federally funded project.

Using the guidance in the metropolitan planning regulations, the study team incorporated Environmental Justice considerations into the development of the NLCOG 2045 MTP. The study team identified and mapped low-income and minority populations (i.e., EJZs) and performed a GIS-based analysis of the proximity of proposed transportation projects to these communities.

These populations were obtained from the appropriate U.S. Census data and analyzed at the census block group level (based on 2018 ACS 5-year estimate data). Minority EJZs are represented by block groups containing at least 40% of the total block group population identified as minority population. This threshold is based on U.S. Census Bureau 2019 estimates for minority population percentage in the United States. Minority EJZs are dispersed throughout the NLCOG MPA, with high concentrations in the Shreveport-Bossier City area extending north along the Red River; Webster Parish near Minden and along LA 7/US 371; and DeSoto Parish surrounding Mansfield. Of the NLCOG MPA's census block groups, 182 (55%) were identified as minority EJZs.

Low-income EJZs are represented by block groups containing at least 20% of the total block group population identified as living at or below the poverty line. Low-income EJZs are also dispersed throughout the NLCOG MPA, with high concentrations existing within the Shreveport-Bossier City urbanized area and in northern Caddo Parish; throughout the western portion of DeSoto Parish along I-49 and US 171; in Webster Parish surrounding the Minden municipal area, extending north along LA 7/US 371; and in northern Bossier Parish. Of the NLCOG MPA's census block groups, 131 (40%) were identified as low-income EJZs.

Table 8-6 displays the number of projects by category that may impact the identified EJZs. Out of the total project list, 54% have potential to affect minority EJZs, while 43% have potential to affect low-income EJZs. Out of the project categories, capacity expansion and System Preservation projects intersected EJZs the most, with both categories seeing roughly half of the programmed projects potentially affecting minority and low-income EJZs. Conversely, projects categorized as Safety & Other are displayed as having the least potential towards impacting minority (42%) and low-income EJZs (8%).

TABLE 8-6: POTENTIAL PROJECT IMPACTS ON ENVIRONMENTAL JUSTICE ZONES

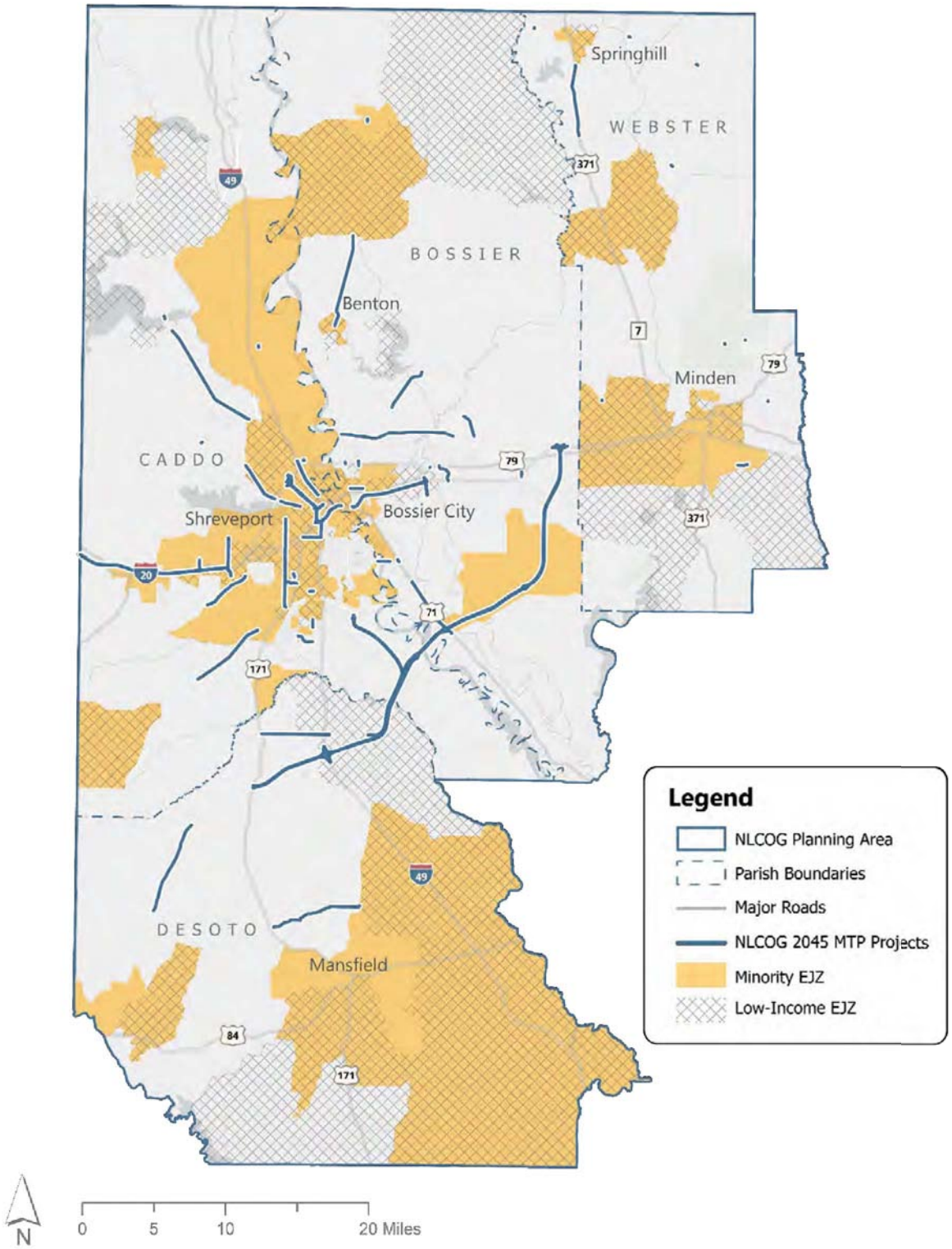
Project Category	Projects Affecting Minority EJZs	% of Total Projects	Projects Affecting Low-Income EJZs	% of Total Projects	Total # of Projects
Capacity Expansion	22	58%	19	50%	38
Safety & Other	5	42%	1	8%	12
System Preservation	7	54%	7	54%	13
Total	**34**	**54%**	**27**	**43%**	**63**

Figure 8-6 displays EJZ locations within the NLCOG MPA in relation to the programmed projects. Nearly 40% of the minority EJZs and over 30% of the low-income EJZs are intersected by potential MTP projects. Using the findings from the environmental justice analysis, a more detailed, project-level analysis will be performed where applicable to better understand potential impacts of transportation improvements on minority and low-income populations in coordination with partner agencies once projects move from planning to programming. The proximity of projects to these identified populations may have both positive and negative impacts. For example, it is assumed that the mobility, access, and safety benefits of most projects accrue most strongly to those areas near the project. Therefore, if the project objectives are consistent with the travel market needs of adjacent communities, the project is viewed as having a positive impact.

On the other hand, the physical impacts of project construction and footprint also have the greatest negative impacts on adjacent communities. Large infrastructure projects whose objectives are not consistent with community needs represent potential negative impacts.

The key consideration in determining unintended consequences or disparate impacts to environmental justice populations is how the project objectives match the community's transportation needs. NLCOG is committed to working with project sponsors to mitigate negative impacts on environmental justice communities using measures such as impact minimization and context sensitive solutions (appropriate functional and/or aesthetic design features).

FIGURE 8-6: ENVIRONMENTAL JUSTICE ZONES & PROPOSED PROJECTS



9 | SYSTEM PERFORMANCE REPORT

This chapter summarizes the multimodal needs assessment described in Chapter 4 and compares the FAST Act NLCOG Transportation System Performance to State Targets.

This chapter also details strategies for assessing progress towards goals and targets through Performance Management in future plan updates.

TRANSPORTATION PERFORMANCE MANAGEMENT

Performance based planning, as has been discussed in earlier chapters, is a data driven approach to reviewing how investment decisions impact change towards stated goals. This includes a review of past as well as expected future performance of the transportation system resulting from investment strategies and project implementation. Federal guidance has been established to support this process and provide resources on perfmormance measures and target setting to support the decision making framework.

NLCOG follows the Transportation Performance Management (TPM) guidelines provided by the FAST Act, which continues MAP-21 Act TPM objectives. The FHWA defines TPM as "a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals". The implementation of TPM provides the following general benefits:

- Enhanced investment decisions
  - Goals, measures, and data allow organizations to make better informed decisions about how to invest their transportation funding at a multimodal level
  - Allows organizations to use taxpayer dollars as efficiently as possible
- Creates a better performing transportations system
  - Targets, plans, and reporting TPM results ensures accountability for system performance
  - Helps identify system strengths and deficiencies, highlighting areas in need of improvement and/or maintenance
- Produces safe, connected, and productive communities
  - Focuses on the safe and efficient delivery of people and goods
  - Emphasizes reliable commutes to work, and travel to school, recreation, and community activities

NLCOG performance reporting is accomplished primarily through TIP and MTP planning processes, which include targets for applicable TPM measures. TPM reporting is further supported through the *MPO Framework for Performance Measures and Target Setting* discussed in Ch 2. This framework was developed by NLCOG staff in order to support and clarify the TPM process at the regional level.

This chapter also details the NLCOG TIP/MTP Project Selection Process (PSP) and summarizes the performance measures described in Chapter 4. MPA system performance is compared to statewide targets where available. For each of the applicable TPM goals areas the chapter discusses how these performance measures and targets are used in assessing performance of the transportation system as well as an assessment of progress.

Performance-Based Planning

NLCOG's approach to performance-based decision making supports the national goals described in 23 U.S.C. 150(b). These goals have been discussed in Chapter 2 and throughout this MTP. This performance-based planning (PBP) process uses data to review past and current performance of the transportation system in comparison to investment prioritization to gauge progress towards goals and refine project development considerations.

This iterative process also helps improve investment and project prioritization processes.

To track progress towards goals, federal performance measures are continuously tracked in coordination with LADOTD's TPM targets (**Table 9-1** below). Due to NLCOG's current air quality attainment status, the organization currently is required to include consideration for only 15 of the 18 federal performance measures.

These measures focus on the safety of the MPA transportation network, condition and reliability of interstate and non-interstate NHS infrastructure, and reliability of freight movement throughout the region. Data for reporting these measures comes from LADOTD's crash data, FHWA's NPMRDS, FTA National Transit Data (NTD) and local data reported by FTA funded transit agencies.

For each roadway performance measure, NLCOG is required to either establish a regional performance target for the MPA or adopt LADOTD's targets. These targets are reviewed and set on an ongoing basis and occur in cycles interdependent of each other. LADOTD Safety targets are updated annually, infrastructure condition targets as well as freight and reliability targets are based on a 4-year performance period. the first of which is from 2018 to 2021. As more baseline data is established, the standard 5-year performance period for reliability targets may be more feasible to apply.

Transit performance measures are incorporated into the MPO planning process no less than 180 days after the transit provider has established its targets. Though the transit targets are measured and set by the transit agency, FTA has provided guidance that transit agencies, MPOs and state DOTs coordinate to the maximum extent practicable in the setting of transit targets.

Table 9-1: Federal Performance Measures

Goal Area	Measure
FHWA PM1 Safety	Number of Fatalities
	Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT)
	Number of serious injuries
	Rate of serious injuries per 100 million VMT
	Number of non-motorized fatalities
	Number of non-motorized serious injuries
FHWA PM2 Infrastructure Condition	Percentage of pavements of the Interstate System in Good condition
	Percentage of pavements of the Interstate System in Poor condition
	Percentage of pavements of the non-Interstate NHS in Good condition
	Percentage of pavements of the non-Interstate NHS in Poor condition
	Percentage of NHS bridges classified as in Good condition
	Percentage of NHS bridges classified as in Poor condition

Goal Area	Measure
FHWA PM3 System Performance/Freight/ CMAQ	**System Performance:** Percentage of person-miles traveled on the Interstate that are reliable (LOTTR)
	System Performance: Percentage of person-miles traveled on the non-Interstate NHS that are reliable (LOTTR)
	Freight Movement: percentage of Interstate system mileage providing for reliable truck travel time (TTTRI)
	***CMAQ:** Annual Total Tailpipe CO2 Emission on NHS
	***CMAQ:** Annual Hours of Peak Hour Excessive Delay (PHED) per capita
	***CMAQ:** Percent of Non-SOV Travel on network
FTA Transit Asset Management (TAM)	Percentage of revenue vehicles (by type) that exceed useful life benchmark (ULB)
	Percentage of non-revenue service vehicles (by type) that exceed ULB
	Percentage of facilities (by group) rated less than 3.0 on Transit Economic Requirements Model (TERM) scale
FTA Public Transportation Agency Safety Plan (PTASP)	Total number of reportable fatalities
	Rate of reportable fatalities per total vehicle revenue miles by mode
	Total number of reportable injuries
	Rate of reportable injuries per total vehicle revenue miles by mode
	Total number of reportable events
	Rate of reportable events per total vehicle revenue miles by mode
	Mean distance between major mechanical failures by mode

**Applies to areas designated as nonattainment or maintenance for ozone, carbon monoxide, or particulate matter and is not currently applicable to the NLCOG MPA.*

PROJECT SELECTION PROCESS

A spectrum of methods exists for prioritizing projects using data and PBP principles. Regardless of the method, the process of applying existing and historical performance measures to the evaluation of expected performance of proposed investments relies on one core principle; namely, using and referencing data to perform due diligence in assessing expected performance of investments as much as is possible.

The PBP project scoring process applies due diligence by reviewing contributing factors and applying technical expertise to gauge and score how well proposed improvements will contribute to national, state, and regional goals and targets. The NLCOG staff has coordinated extensively with the Technical Coordinating Committee (TCC) to develop their Project Selection Process (PSP) using scoring criteria that reflect the regional and national priorities.

The NLCOG scoring process leverages the technical expertise embodied in the TCC and references performance criteria. This balance of data driven

criteria and local technical expertise help ensure a robust process for vetting and promoting projects geared to contribute towards targets and supporting regional goals.

This scoring process likewise provides a platform to communicate with project sponsors and decision makers about project implications. The process also investigates what conditions a proposed project is improving and asks the sponsor to reflect on why they are submitting the project being reviewed.

The continuity of this process will invariably refine and improve the process by which projects are submitted for consideration as well as the projects themselves.

Table 9-2 shows the Scoring Criteria used by the NLCOG staff and TCC when evaluating the submitted projects. The table contains evaluation criteria, the maximum points a project can receive for each criterion, the description and factors related to each criterion, and the evaluation method that instructs evaluators on how to assign points to the projects based on the criteria.

TABLE 9-2: NLCOG PROJECT SCORING CRITERIA

Evaluation Criteria	Evaluation Method - Scoring
1. Improve Safety and Security	Safety is defined as protection against unintentional harm and relates to both motorized and non-motorized modes of travel; and Security is defined as protection against intentional harm and relates to both motorized and non-motorized modes of travel. While Safety and Security are considered as two separate and distinct factors in transportation planning, they are considered as a single factor in this document. **Examples** of improved safety and security could be: reduction in the number of automobile crashes, reduction of the risk of individual acts of criminal behavior on a transit line, improvement in the emergency response capacity after an act of terrorism, etc. **0 - 15 Points**
2. Protect the Environment	Methods for protecting the environment are as unique as the local environments that they serve. Therefore, **examples** of ways in which a transportation system can impact the environment are myriad. In the NLCOG Urbanized Area, the most important environmental protection issues are wetlands protection and flood protection. Examples of ways to protect the environment are: not building roads in environmentally sensitive areas; or building projects that reduce idling time by big trucks. **0 - 10 points**
3. Reduce Congestion	Congestion is defined as a roadway system operating at speeds below that for which it was designed due to high demand. **Examples** of ways in which congestion could be reduced are: the addition of turning lanes; or improvements to signalization. **0 - 10 Points**

Evaluation Criteria	Evaluation Method - Scoring
4. Support Land Use & Economic Development Goals	Land Use and Economic Development Goals are inexorably connected, and can be impacted by many factors, one of which is the transportation system. Therefore, the transportation investment decisions must consider the state and local economic and land use goals. **Examples** of ways in which the Land Use and Economic Development Goals of the community could be met include not building new roads into areas prone to flooding; or, providing lanes for non-motorized travel; and providing pedestrian amenities along a business corridor; or improving the efficiency of freight movement to and from a port. **0 - 10 Points**
5. Increase Connections	The connectivity of the streets network and circulation system is measured through the ease by which people and goods can move to their desired destinations. Connectivity relates not only to the ease of movement of people and goods within the community, but also to external destinations – regional, national, and international. **Examples** of ways in which connections could be increased are by adding bridges across water barriers; or adding bike and pedestrian paths from neighborhoods to schools that do not necessitate crossing a major arterial. **0 – 10 Points**
6. Improve Access	Improving access involves control and management of the entrance and exit points to a transportation facility for people and freight. Increasing the number of access points does not necessarily improve access. Improved access is based on a balance between the number of access points and the efficient movement of traffic through the transportation facility. **Examples** of ways in which access could be improved are a reduction in the number of driveways that enter a major arterial; or development of a hierarchical master street plan that designs roads based on use. **0 - 10 Points**
7. Increase multimodal Options & Energy Conservation	The various modes of travel within the community function best when people and goods can easily move from one mode of travel to another. Energy conservation has become a national priority in recent years. The transportation sector uses the largest portion of energy consumed in the US. Therefore, increase in multi-modal options and connectivity between them will lead to conservation of energy. **Examples** of ways this could be achieved includes a reduction in the use of single occupancy vehicles; expansion of the fixed route transit system into previously unserved areas; an increase in the number of streets with sidewalks; and an increase in intermodal freight transfer facilities. **0 - 15 Points**

Evaluation Criteria	Evaluation Method - Scoring
8. Improve Quality of Life	The quality of life of a community is a term that the community must define for itself. The transportation system can have both positive and negative impacts on the quality of life in a community. **Examples** of ways that a transportation system could have a positive impact on the quality of life are a reduction in mobility gaps experienced by low-income communities; or a reduction in the time that families spend commuting to school and work. **Examples** of ways that the transportation system can have a negative impact on the quality of life in a community are addition of access points to a neighborhood that encourages through traffic that endangers children at play; or widening of roadways to improve port access that also encourages truck traffic carrying hazardous materials through residential neighborhoods. **0 - 15 Points**
9. Cost Sharing	The STBG Urban Mobility/Rehabilitation funding category requires a mandatory 20% local match. If the project has more than 30% local match, it will be awarded 5 points. **0 - 5 Points**
10. Project Readiness (No Points)	This criterion determines the year in which a project or phase of a project will be programmed in the TIP. This criterion is used specifically to assess the project timelines and not as a ranking factor for the project prioritization process. The following factors determine project readiness: • Design Delays • Right of Way (ROW) Acquisition • Environmental Problems • Availability of funding **No Points**
Total Points	**0 - 100**

NLCOG 2045 MTP Update Performance Reporting

For each federal performance goal area relevant to the NLCOG, current performance measures are compared to existing LADOTD targets, providing the status of the MPO's progress towards meeting the established targets. All recorded performance measures are derived from the most up-to-date and readily available data.

PM1 SAFETY PERFORMANCE

Current safety performance measures are calculated using a 5-year rolling average and are presented in **Table 9-3** below. Targets for both NLCOG and LADOTD are shown below as well and represent the target 1% reduction in safety performance measures. These measures and targets extend beyond the MPA as the impact of safety performance is not limited to the metropolitan planning boundaries.

TABLE 9-3: 5-YR. ROLLING AVERAGE SAFETY PERFORMANCE MEASURES AND TARGETS

Measures	NLCOG PM1	NLCOG 2021 Target	LADOTD 2021 Target
Number of fatalities	62	61	741
Rate of fatalities per 100 million Vehicle Miles Traveled (VMT)	1.453	1.424	1.496
Number of serious injuries	175	172	1,319
Rate of serious injuries per 100 million VMT	4.07	3.995	2.664
Number of non-motorized fatalities and serious injuries	32*	31	359

**indicates combined fatal injury and suspected serious injury for non-motorized travel.*

Assessment of Progress

NLCOG PM1 performance measures are currently split; namely, rate of fatalities per 100 million VMT is below the 2021 LADOTD target and rate of serious injuries per 100 million VMT is above the 2021 LADOTD target. Investments in safety improvements by NLCOG and DOTD as well as the efforts of the NWLA Regional Transportation Safety Coalition tend to indicate a positive impact in safety performance measures. Though driver behavior remains a relatively unpredictable factor, the steady marked decrease in PM1 measures indicates that the project selection process as well as the social behavior programs coordinated through the safety coalition are likely having the intended impact. As the performance management process continues in the following years, the review of efforts and investments in comparison to measures and targets will prove to be of continued value to the decision-making process.

PM2 INFRASTRUCTURE CONDITION PERFORMANCE

Current infrastructure condition performance measures and targets for both the NLCOG MPA and LADOTD are presented in **Table 9-4** below:

TABLE 9-4: INFRASTRUCTURE CONDITION PERFORMANCE MEASURES

Measures	NLCOG MPA PM2	LADOTD 2-Yr. Target	LADOTD 4-Yr. Target
Percentage of pavements of the Interstate System in good condition.	78.25%	12%	10%
Percentage of pavements of the Interstate System in poor condition.	5.97%	3%	4%
Percentage of pavements of the non-Interstate NHS in good condition.	64.9%	16%	14%
Percentage of pavements of the non-Interstate NHS in poor condition.	13.27%	10%	12%
Percentage of NHS bridges classified as in good condition.	48%	35%	30%
Percentage of NHS bridges classified as in poor condition.	6%	9.9%	9.9%

Assessment of Progress

NLCOG PM2 performance measures currently all meet or exceed contribution to LADOTD available reported targets. The system performance is evidence of successful asset management and preservation by DOTD, NLCOG and the regional planning partners. A focused designation of 40% of STBG funding to system preservation supports this trend and fully supports the mandate set by Federal guidance to not only balance system preservation within the investment strategy process but to provide adequate consideration for ongoing system management and preservation.

As PM2 metrics and targets are reviewed moving forward, the decision-making processes established by the MPO TPM framework and the PSP allow for adjustments as necessary to support the current collaboration and data driven decision-making process carried out by NLCOG and its planning partners. This flexibility will ensure that the considerations set forward in the MTP and TIP update processes continue to be effective.

PM3 SYSTEM PERFORMANCE & FREIGHT RELIABILITY PERFORMANCE

Current system performance and freight reliability measures and targets are presented in **Table 9-5** for both LADOTD and NLCOG.

TABLE 9-5: SYSTEM PERFORMANCE AND FREIGHT RELIABILITY PERFORMANCE MEASURES

Measures	NLCOG MPA PM3*	LADOTD 2-Yr. Target	LADOTD 4-Yr. Target
Percentage of person-miles traveled on the interstate that are reliable.	100	88.9	88.4
Percentage of person-miles traveled on the non-Interstate NHS that are reliable.	93.2	**	88.6
Truck Travel Time Reliability Index (TTTRI)	1.11	1.37	1.4

**NLCOG PM3 represents 2020 Data from the National Performance Management Research Data Set (NPMRDS).*
***No 2 Yr. Statewide Target Provided.*

Assessment of Progress

As NLCOG was not required to establish a baseline for these PM3 measures under the previous MTP update, this baseline provides a basis to continue to monitor percentage of person-miles traveled on the interstate and non-interstate NHS that are reliable and unreliable, as well as TTTRI. These are federally required performance measures and provide the region with information that suggests which segments of interstate roadway may be intermittently congested and cause increased delays for both automobile and freight traffic. Although the deficiencies analysis described in Chapter 4 show there are hot spots causing delay along some segments of the interstate, regional reliability and system performance measures show a trend in regional performance that is better than the statewide average.

Additional Performance Measures

The NLCOG has developed additional tools to supplement the performance-based decision-making process supported by the PMs provided by the FAST Act TPM guidelines. These tools help provide additional measures to gauge expected future system performance to help decision-makers make informed investment decisions. This process in turn leads to a better performing transportation system, which helps produce safe, connected, and productive communities within the NLCOG MPA.

TRAVEL DEMAND MODEL PERFORMANCE MEASURES

These additional performance measures are primarily metrics from the NLCOG TDM and provide further information on system congestion in terms of delay. The measures help supplement the NPMRDS national performance measure information for existing multimodal transportation system conditions.

Explanations for each measure can be found in Chapter 4. **Table 9-6** through **Table 9-8** display the additional performance measures analyzed by NLCOG.

Current year (2018 E+C) outputs were compared to both the 2045 no-build (**Table 9-6**) and build outputs (**Table 9-7**) to emphasize potential issues on the NLCOG MPA roadway network, as well as highlight expected improvements and performance resulting from the implemented set of MTP projects (2045 build scenario).

Table 9-8 compares the E+C No Build with the Build network consisting of the fiscally constrained capacity projects represented in this MTP update. The difference in the metrics between No-Build and Build scenarios helps provide a decision-making tool to gauge expected improvements in reducing congestion and delay for future demographic, job growth, and land use scenarios represented in the TDM.

TABLE 9-6: NLCOG TDM PERFORMANCE MEASURES – E+C NO BUILD ANALYSIS

Measures	2018 – Existing Conditions*			2045 – No Build			% Change for Totals
	Interstate	Arterials	Total	Interstate	Arterials	Total	
Daily VMT**	5,866	7,319	13,186	6,786	9,088	15,875	20%
per person	-	-	30.58	-	-	33.67	10%
Daily VHT**	103	174	277	132	226	358	29%
per person	-	-	0.64	-	-	0.76	18%

**2018 was used as stand in for current conditions because it is the most recent year for which complete data is available.*
***VMT & VHT represent metrics/1,000 and rounded to nearest whole number.*

TABLE 9-7: NLCOG TDM PERFORMANCE MEASURES – BUILD ANALYSIS

Measure	2018 – Existing Conditions*			2045 – Build			% Change for Totals
	Interstate	Arterials	Total	Interstate	Arterials	Total	
Daily VMT**	5,866	7,319	13,186	6,770	9,117	15,887	20%
per person	-	-	30.58	-	-	33.70	10%
Daily VHT**	103	174	277	132	226	357	29%
per person	-	-	0.64	-	-	0.76	18%

**2018 was used as stand in for current conditions because it is the most recent year for which complete data is available.*
***VMT & VHT represent metrics/1,000 and rounded to nearest whole number.*

TABLE 9-8: NLCOG TDM PERFORMANCE MEASURES – E+C NO BUILD VS BUILD ANALYSIS

Measure	2045 – No Build			2045 – Build			Change from No Build
	Interstate	Arterials	Total	Interstate	Arterials	Total	
Daily VMT**	6,786	9,088	15,875	6,770	9,117	15,887	0.1%
per person	-	-	33.67	-	-	33.70	0.1%
Daily VHT**	132	226	358	132	226	357	-0.2%
per person	-	-	0.76	-	-	0.76	-0.2%

***VMT & VHT represent metrics/1,000 and rounded to nearest whole number.*

Assessment of Progress

The comparison of the no-build and build TDM outputs suggests a projected, desirable decrease in vehicle miles traveled as well as vehicle hours traveled. Though slight, the VMT does increase, which suggests people are willing/able to travel slightly longer distances to get to the locations they want. Conversely, the VHT is lower between build and no build, suggesting the time required to travel to those destinations has decreased as a result of the added capacity/new construction.

Transit Performance Measures

MAP-21 granted the FTA the authority to establish and enforce a comprehensive framework to oversee the safety of public transportation throughout the United States. MAP-21 expanded the regulatory authority of FTA to oversee safety, providing an opportunity to assist transit agencies in moving towards a more holistic, performance-based approach to Safety Management Systems (SMS). This authority was continued through the FAST Act.

In compliance with MAP-21 and the FAST Act, FTA promulgated a Public Transportation Safety Program on August 11, 2016 that adopted SMS as the foundation for developing and implementing a Safety Program. FTA is committed to developing, implementing, and consistently improving strategies and processes to ensure that transit achieves the highest practicable level of safety. SMS helps organizations improve upon their safety performance by supporting the institutionalization of beliefs, practices, and procedures for identifying, mitigating, and monitoring safety risks.

There are several components of the national safety program, including the National Public Transportation Safety Plan (NSP), that FTA published to provide guidance on managing safety risks and safety hazards. One element of the NSP is the Transit Asset Management (TAM) Plan. Public transportation agencies implemented TAM plans across the industry in 2018. The subsequent final ruling by FTA to implement the NSP is the Public Transportation Agency Safety Plan (PTASP) rule, 49 CFR Part 673, and guidance provided by FTA.

PTASP PERFORMANCE MEASURES

Safety is a core business function of all public transportation providers and should be systematically applied to every aspect of service delivery. Regarding SporTran, all levels of management, administration and operations are dedicated to and responsible for the safety of their clientele and themselves. To improve public transportation safety to the highest practicable level in the State of Louisiana and comply with FTA requirements, the LADOTD has developed individual Agency Safety Plans (ASP) in collaboration with the NLCOG, and the primary Section 5307 Public Transportation Provider (SporTran) in the NLCOG.

To ensure that the necessary processes are in place to accomplish both enhanced safety at the local level and the goals of the NSP, SporTran has recently adopted their respective PTASP and the tenets of SMS including a Safety Management Policy (SMP) and the processes for Safety Risk Management (SRM), Safety Assurance (SA), and Safety Promotion (SP), per 49 U.S.C. 5329(d)(1)(A).[1] Though the NLCOG is not yet required to report these targets, they have been included and considered throughout the planning process.

Table 9-9 on the following page displays the five-year average safety performance measures by mode of service provided by SporTran. The modes of service represented in the table are fixed route and demand response (DR). As the development and implementation of SMS is a relatively new requirement, SporTran has elected to maintain the benchmark performance as the first reporting year's target.

TABLE 9-9: NLCOG 5307 AGENCY (SPORTRAN): PTASP PERFORMANCE MEASURES

Measure/Target	SporTran	
	Fixed Route	DR
Total number of reportable fatalities	0	0
*Rate of reportable fatalities per total vehicle revenue miles by mode	0	0
Total number of reportable injuries	18.2	3.8
*Rate of reportable injuries per total vehicle revenue miles by mode	0.81	0.595
Total number of reportable events	9.8	3
*Rate of reportable events per total vehicle revenue miles by mode	0.435	0.47
Mean distance between major mechanical failures by mode	6,206 mi	51,483 mi

**rate = total number x 100,000/total revenue vehicle miles traveled*

[1] Federal Register, Vol. 81, No. 24

Assessment of Progress

Because the rule establishing safety performance targets for urban transit agencies is a new requirement, new data is not available to assess progress.

TRANSPORTATION ASSET MANAGEMENT (TAM) PERFORMANCE MEASURES

Following the FAST Act, a 2015 FTA study found that roughly 40 percent of buses and 23 percent of rail transit assets were listed in marginal or poor condition, with a total backlog of around 90 billion dollars. Thus, the FTA took action to prevent further deterioration of public transit networks. In July 2016, TAM plans were codified as a legal requirement for transit agencies receiving FTA funding that provide open public transportation. Given limited funding, this framework establishes procedures and guidance for all public transportation networks to move towards a state of good repair.

The majority of transit assets owned or managed by the qualifying FTA-funded public transportation provider (SporTran) in the NLCOG MPA are in good condition.

SporTran is dedicated to continuously providing transportation solutions for accessibility to employment, education, medical care, grocery stores, and other services. With limited funding and a growing backlog of needs, it is critical to maximize existing resources, maintain a State of Good Repair (SGR), and provide the tools necessary for Public Transportation providers to provide safe, reliable, and cost-effective services.

Though asset management is a data focused endeavor, developing a plan is a collaborative process, requiring coordination and data sharing from many different agencies with different operating systems and reporting processes. **Table 9-10** represents the TAM targets of SporTran, as the 5307 Program transit agency in the NLCOG MPA.

TABLE 9-10: SPORTRAN TAM TARGETS

Asset Class – Performance Measure	Asset Type	2019 Target (%)	2020 Target (%)
Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark	Bus	15%	15%
	Cutaway	15%	15%
	Van	15%	15%
Equipment - Percent of service vehicles that have met or exceeded their useful life benchmark	Automobiles	40%	0%
	Trucks and other Rubber Tire Vehicles	50%	21%
Facility - Percent of facilities rated below 3 on the condition scale	Administrative / Maintenance Facilities	25%	71%
	Passenger / Parking Facilities	25%	25%

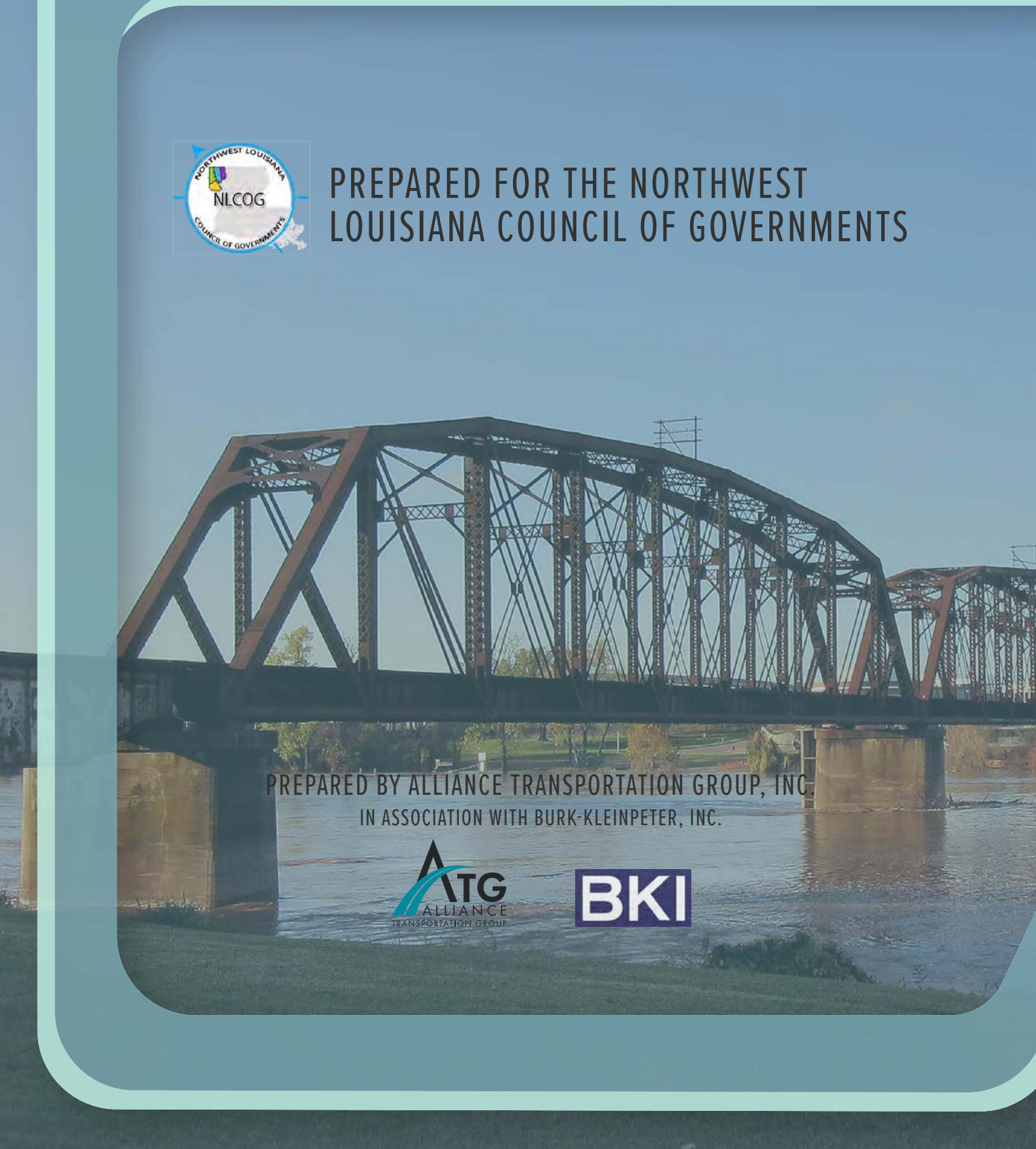
Assessment of Progress

As the goal of TAM targets is preservation of the conditions of public transportation vehicles and facilities and moving to a State of Good Repair priority, maintenance and capital projects for transit have a positive effect in moving TAM performance targets. Ultimately, Transit is an integral part of the multimodal network for the region and dependability is a key factor. Target achievement is based upon the actual conditions derived from the region's public transit providers, as reported in the most recently available TAM targets data set from the National Transit Database. [2]

SYSTEM PERFORMANCE CONCLUSION

Overall, the multimodal transportation system in the NLCOG MPA is in a state of good performance and is supported by a variety of partnerships, coordinated efforts and data drive decision making processes. Continued coordination and cohesion in the decision-making process will likely continue to yield positive results for regional mobility, systemic resiliency, and improved quality of life. The primary challenge in maintaining positive trends in the NLCOG MPA is not unique to NLCOG, being sustained funding over time. Local investments and matches to STBG funding have proven an important element in the reduction of project deliver delays as well as the overall performance of the transportation system within the MPA.

[2] 2019 Annual Database Performance Measure Targets | FTA (dot.gov)



PREPARED FOR THE NORTHWEST LOUISIANA COUNCIL OF GOVERNMENTS

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