2050

ACADIANA MPO

Long Range Plan

Developed for
Acadiana Planning Commission
LA DOTD

In Coordination
Neel-Schaffer

mpo.planacadiana.org

This document was prepared in cooperation with:
The Acadiana Planning Commission
The Louisiana Department of Transportation and Development

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Record of Adoption and Amendments

Long Range Plan 2050

Public Comment Period: March 1st – March 15th

Final Adoption: March 16th, 2022

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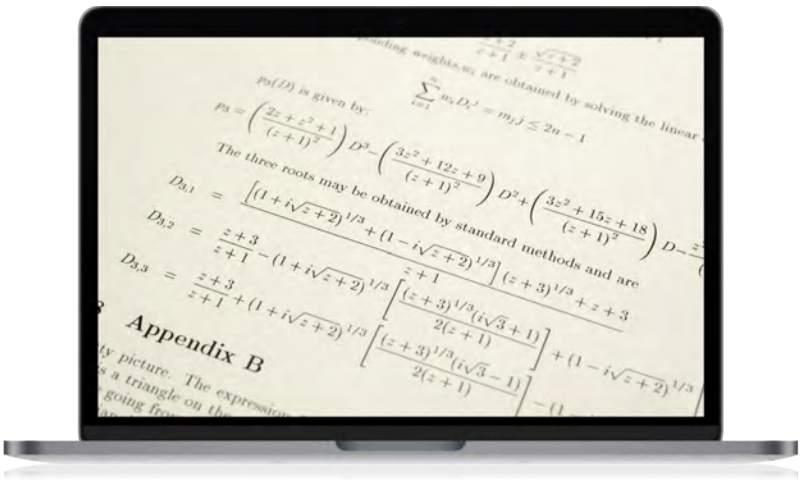
Appendices



ACRONYMS

O&M Operations and Maintenance

ROW Right-of-Way

TTC Technical Technical Committee

EJ Environmental Justice

FAST Fixing America's Surface Transportation Act

FHWA Federal Highway Administration

FTA Federal Transit Administration

TIP Transportation Improvement Program

DOTD Louisiana Department of Transportation and Development

TMA Transportation Management Area

USDOT United States Department of Transportation

USC United States Code

LRTP Long Range Transportation Plan

MAP 21 Moving Ahead for Progress in the 21st Century Act

MPO Metropolitan Planning Organization

ITS Intelligent Transportation Systems

CFR Code of Federal Regulations

Introduction

The Acadiana Metropolitan Planning Organization is responsible for programming all federal transportation funding in the Acadiana region. Through collaboration with state, local elected officials and residents , the MPO helps build a better Acadiana. Decisions that are made today will have an impact on the Acadiana of 2050.

The MPO is governed by a series of federal laws that establish the MPO's roles and responsibilities, along with public participation.

In addition to the responsibility of providing public input and facilitation on federal funding for projects developed and managed by LA DOTD, the MPO has the responsibility of programming approximately $6 million dollars of Surface Transportation Program funding for projects developed by local governments in Acadiana. The projects are prioritized utilizing quantitative and qualitative measures, including the projects ability to assist the MPO in meeting federal performance measure targets and recommendations outlined in the Congestion Management Process. The projects are ultimately selected for programming by the Transportation Policy Committee.

FEDERALLY REQUIRED PLANNING FACTORS

(1) Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;

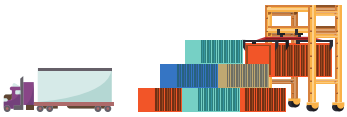
(2) Increase the safety of the transportation system for motorized and non-motorized users;

(3) Increase the security of the transportation system for motorized and non-motorized users;

(4) Increase accessibility and mobility of people and freight;

(5) Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;

(6) Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;



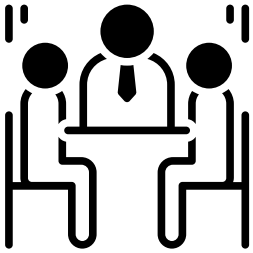
(7) Promote efficient system management and operation;

(8) Emphasize the preservation of the existing transportation system;

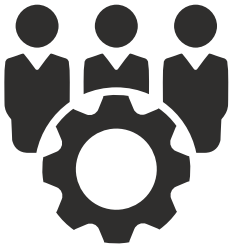
(9) Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and

(10) Enhance travel and tourism

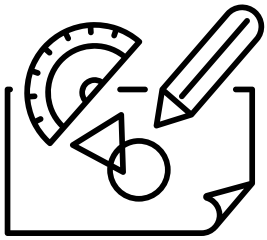
MPO Governance



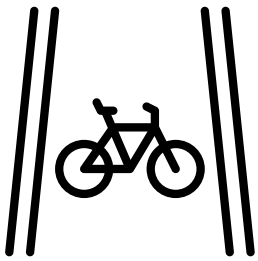
The Transportation Policy Committee is comprised of principal elected officials, or their designees, in the metropolitan area as well as state and federal representatives. The TPC has the final say on all MPO actions.



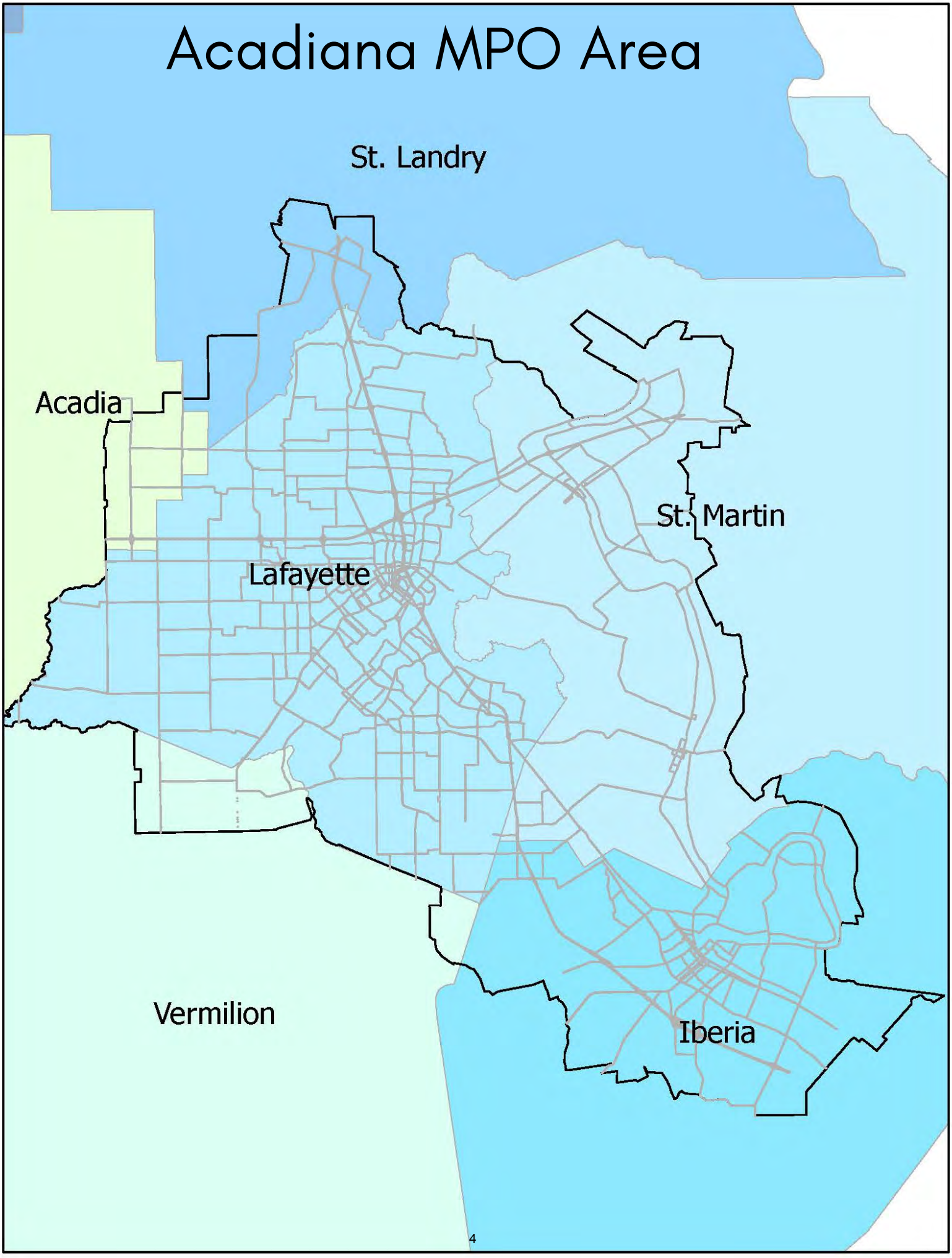
The Transportation Technical Committee membership includes local, state and federal transportation planners and engineers from participating local governments. The TTC provides technical guidance to the TPC.



The Project Evaluation Subcommittee is comprised of TTC and TPC members who provide an evaluation of project applications and project transfers. The Subcommittee recommends a proposed project program to the TTC and TPC.

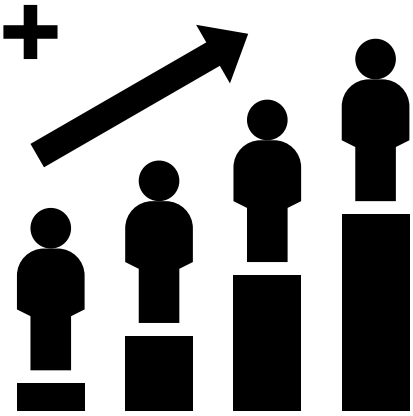


The Bike Subcommittee provides direction on the development of bike facilities in the region.


Acadiana MPO Area
St. Landry
Acadia
St. Martin
Lafayette
Vermilion
Iberia

Demographics of MPO Area

366,233 residents in 2020



338,456 residents in 2010

The MPO planning area consists of six parishes in Acadiana. Lafayette Parish is fully within the MPO planning area, and the majority of Iberia Parish, including the city of New Iberia, and St. Martin Parish, including the cities of St. Martinville and Breaux Bridge, are within of the boundaries. Portion of Acadia, St. Landry, and Vermilion Parishes are included in the planning area as well.

The MPO's urbanized area grew 8.2% from 2010 to 2020, which is higher than the overall national growth of 6.6%. The region increased 5.5% in population over the entire MPO area, indicating a redistribution of population from the rural sections of Acadiana into the urbanized area.

Parish Profiles

Acadia

57,600 residents
in 2020

14.402 jobs
in 2020

24,840 housing
units
in 2020

Iberia

69,900 residents
in 2020

26,541 jobs
in 2020

30,924 housing
units
in 2020

Lafayette

241,800 residents
in 2020

132,852 jobs
in 2020

107,922 housing
units
in 2020

Parish Profiles

St. Landry

82,500 residents
in 2020

23,754 jobs
in 2020

36,723 housing
units
in 2020

St. Martin

51,800 residents
in 2020

11,793 jobs
in 2020

23,515 housing
units
in 2020

Vermilion

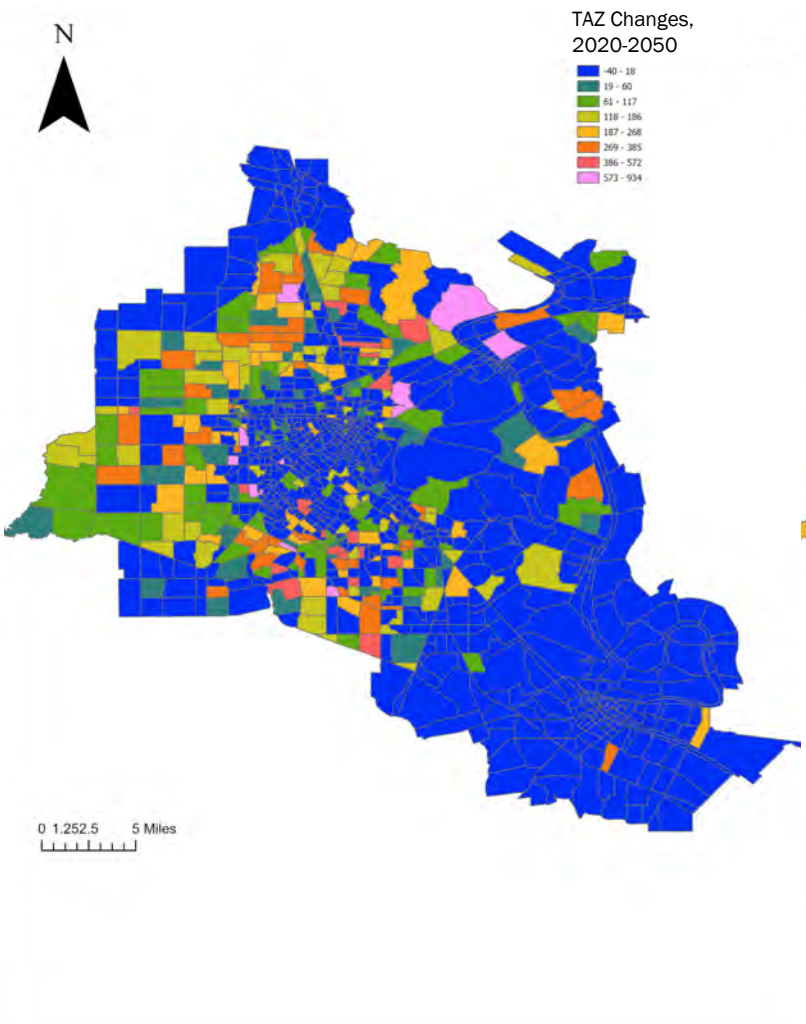
57,400 residents
in 2020

12,973 jobs
in 2020

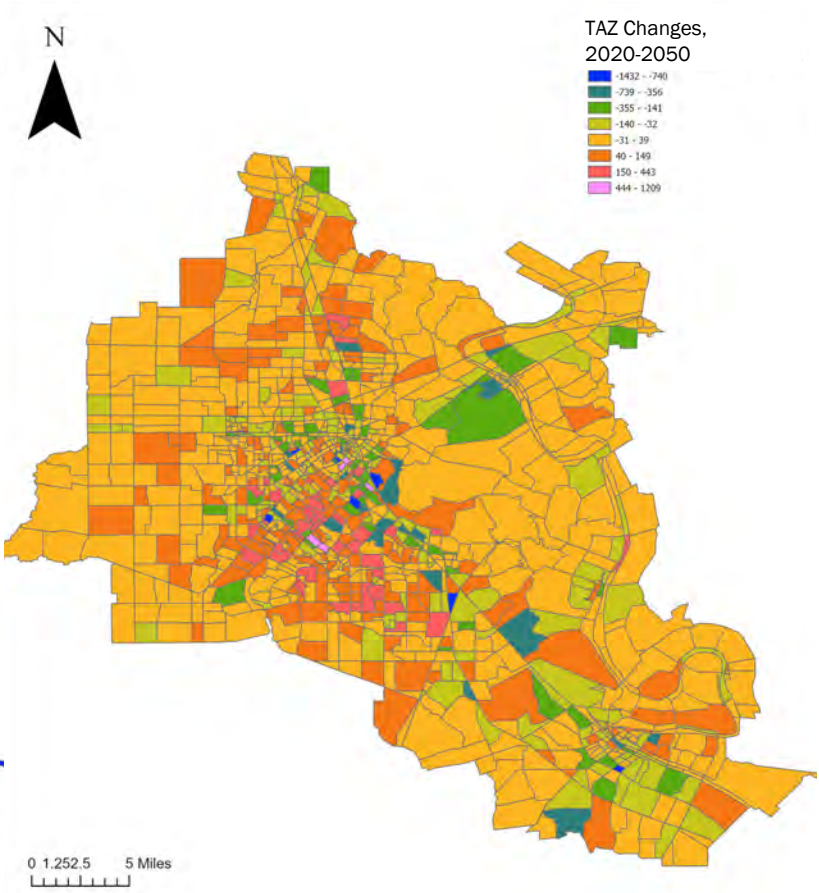
25,741 housing
units
in 2020

Employment and Population Shifts

Population Changes in MPO Area, 2020-2050



Employment Changes in MPO Area, 2020-2050



Employment is projected to shift in the MPO area from concentrated urban employment centers to traffic analysis zones or TAZs in areas formerly classified as rural.

The population is projected to move towards the west and the north of the MPO area.

Plans and Programs

In addition to the Long Range Plan, the MPO is federally required to maintain three other plans: the Public Participation Plan, the Transportation Improvement Program, and the Congestion Management Process.

The Long Range Plan is a guiding document that drives the development of the other plans. In addition, the MPO maintains a Regional Transit plan, Title VI plan, a long range bike plan, and a pedestrian plan to ensure equitable access to all plans and programs and encourage the development of non-motorized transportation facilities and improved transit operations.

FEDERALLY REQUIRED MPO PLANS AND PROGRAMS

2017
Last Long Range Plan Adoption

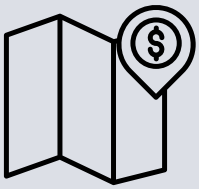
2018
Congestion Management Process Adoption

2019
New TIP Funding Cycle, 2019-2022, Adoption

2020
Public Participation Plan Adoption

2022
New Long Range Plan Adoption

TRANSPORTATION IMPROVEMENT PROGRAM



The short range transportation plan that details federal spending for the MPO area over the next four years.

CONGESTION MANAGEMENT PROCESS

Utilizing travel time runs and crowd sourced data, the MPO developed potential strategies for addressing the most congested corridors in the Acadiana area.

PUBLIC PARTICIPATION PLAN

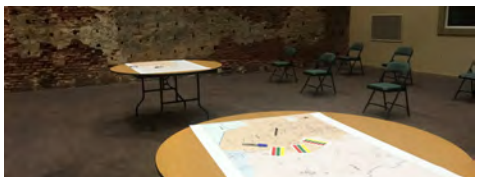
Appropriate Technology

Utilizing new technology and social media, the MPO expanded access to meetings and public comment to vulnerable populations via social media optimized technology.

Revised Public Comment Process

The MPO revised its public comment process to provide more and diverse opportunities for residents to engage in planning operations.

PUBLIC PARTICIPATION



4 PUBLIC HEARINGS

3 Social Media Campaigns

1 Online Survey

400+ Responses

LONG RANGE PLAN PUBLIC OUTREACH

The MPO developed a variety of strategies to receive input from the Acadiana public on transportation needs. The necessity of pivoting to digital became even more pressing after the COVID-19 outbreak placed limits on person to person interaction.

The MPO utilized FHWA's Virtual Public Involvement best practices to engage the Acadiana community. The MPO built an extensive online survey that provided a wide range of input options, including heat maps, ranking questions, and open-ended text boxes. The software was optimized for mobile users, which allowed for complete engagement of the Acadiana market. The survey results are included as an appendix to the plan.

Social Media Ads and Social Media Broadcast Meetings

Social media advertisements across three different platforms allowed the MPO to reach a diverse audience of residents. The advertisements garnered significant levels of engagement in the transportation survey and also generated an email contact list for community members to stay involved in the process. The MPO also began recording and broadcasting the Committee meeting over its Facebook page to allow for community participation across time and space.

Public Meetings

To ensure that all area residents were provided the opportunity to participate, the MPO held traditional public meetings in four different regions across the MPO area. The meetings were held in accessible locations with tangible and large print materials for community members to provide feedback. Staff were on hand to discuss concepts and provide education on the plan development process.

Goals, Objectives, and Performance Measures

The MTP is required to meet current federal transportation planning requirements once the plan is written and approved.

Development of the 2050 MTP was guided by regulations implementing the FAST Act, which was passed on December 4, 2015.

The FAST Act has a 5-year authorization and extends through federal fiscal year 2020 (with continuing resolutions through November 2021). The FAST Act also continues the national goals and themes from MAP-21. The Infrastructure Investment and Jobs Act was passed in November 2021, but it had yet to be fully promulgated at the time of this plan's development.

Through the adoption of performance measure targets and utilization of the performance measure priorities to develop projects funded by the MPO's STP program, the MPO is able to implement the goals and objectives set by federal laws. The System Performance Report (Appendix A) provides a concise overview of the performance measures' record of adoption, the MPO's progress in achieving the targets, and guidance on areas of focus for federal funding allocation in Acadiana.

Goals	Objectives
CREATE A ROADWAY NETWORK THAT IS SAFE FOR ALL USERS	Reduce fatal and serious injury crashes for vehicle passengers and non-motorized roadway users through the integration of proven safety countermeasures in MPO Projects
ENHANCE SYSTEM RELIABILITY OF THE TRANSPORTATION NETWORK	Systemically identify and address the root causes of delay along the National Highway System by prioritzing funding for intelligent transportation system projects
INCORPORATE ASSET MANAGEMENT PRINCIPLES TO THE TRANSPORTATION PLANNING PROCESS	Analyze transportation system for storm water and climate change impacts and implement drainage solutions and green infrastructure during the project development process
DEVELOP A TRANSPORTATION SYSTEM THAT PROMOTES ENVIRONMENTAL SUSTAINABILITY AND RESILIENCY	Maintain and rehabilitate the existing transportation system to achieve and maintain a state of good repair for all modes by prioritizing pavement preservation in the project development process
REDUCE CONGESTION AND IMPROVE OPERATIONS	Evaluate proposed projects for congestion impacts and program congestion improvement projects identified through the Congestion Mitigation Process
REDUCE PROJECT DELAYS AND IMPROVE THE PROJECT DELIVERY PROCESS	Coordinate project development with LA DOTD and local public agencies and provide assistance and communication with LA DOTD and local represenatives

MPO Performance Areas are defined by 23 U.S.C. 150. MPOs must set specific targets for:

- **Safety:** The targets apply to the number of fatal and serious injuries, rate of fatal and serious injuries, and non-motorized fatal and serious injuries.

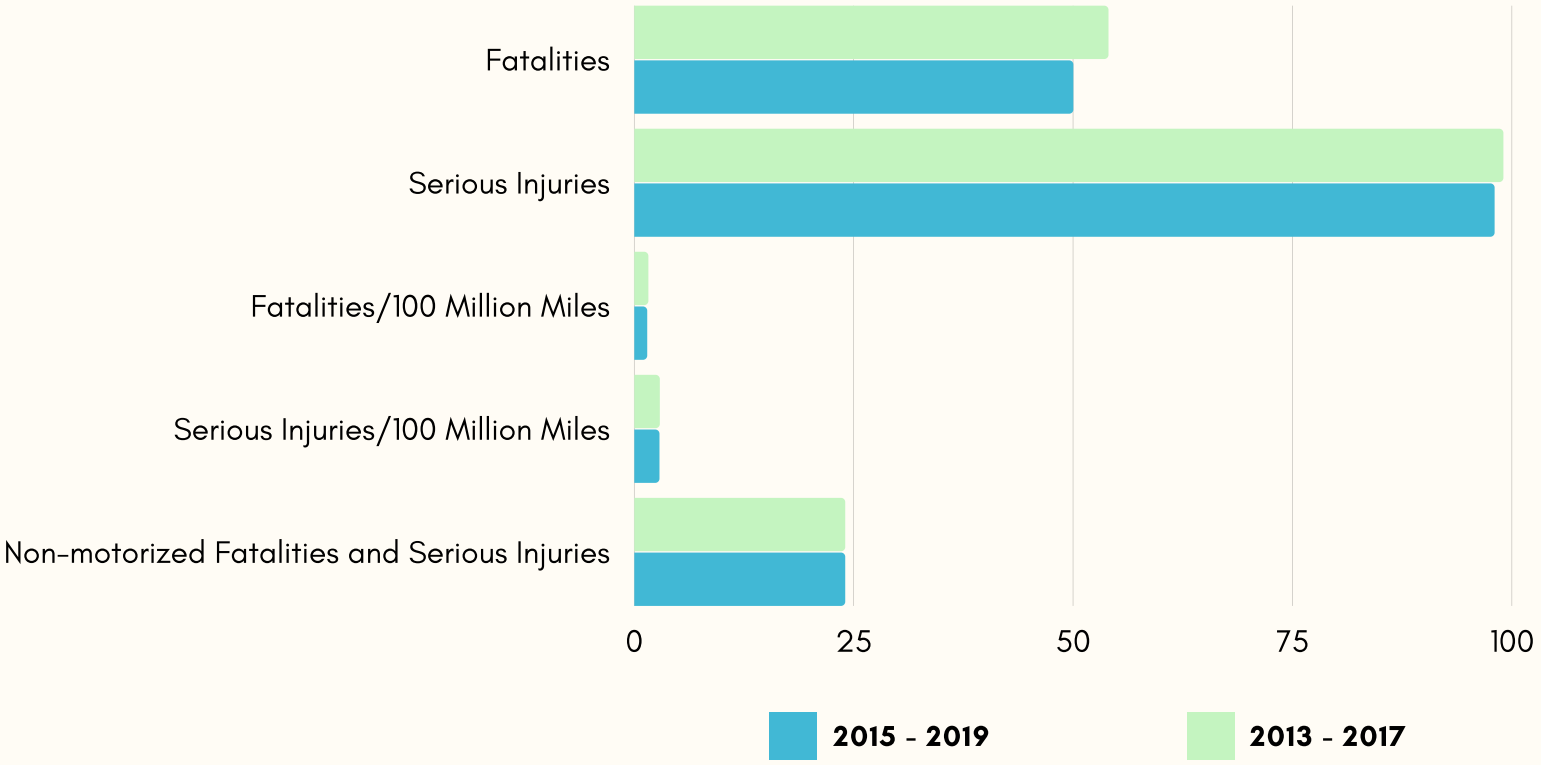
- **Infrastructure Condition (Bridge and Pavement):** Percentage of pavement in good and poor condition on the Interstate and NHS and percentage of NHS bridges in good and poor condition.

- **Highway and Freight Reliability:** The consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day, for the Interstate, NHS, and Freight systems in the MPO area.

- **Emission Reduction:** Total emissions reduction (not applicable to Acadiana MPO area due to air quality attainment status).

- **Traffic Congestion:** Peak Hour Excessive Delay Per Capita and Percentage of Non-Single Occupancy Vehicle Travel (not applicable to the Acadiana MPO area due to air quality attainment status).

Safety

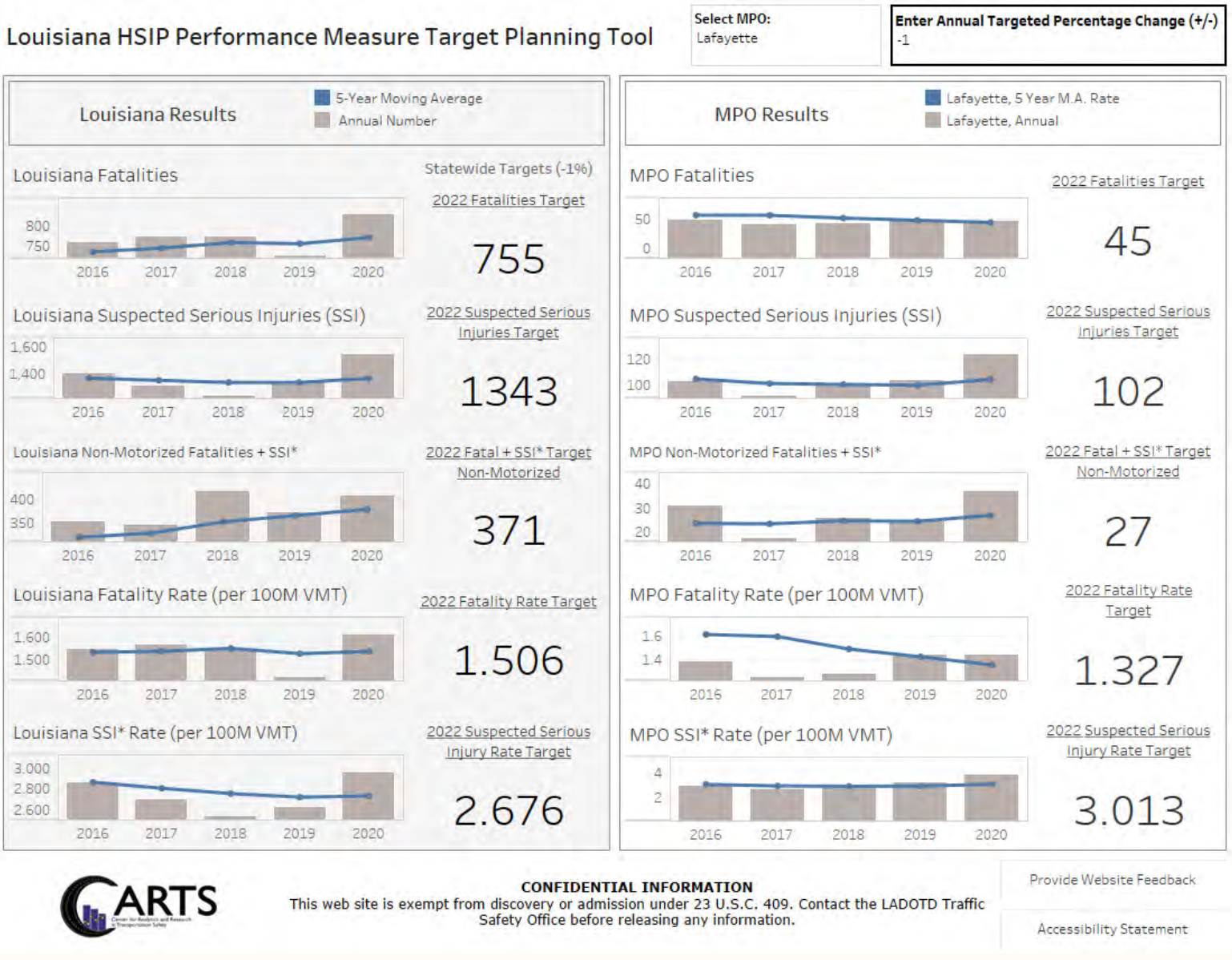


The MPO sets Safety Performance Targets on an annual basis. In 2018, the MPO set the statewide targets, but in subsequent years utilized a tool that allowed the MPO to set a local target for each performance measure. The targets are a 1% reduction in the previous 5 year rolling average.

The MPO has met each of the targets set for 2019 and 2020 with the exception of the rate measure for Serious Injuries per 100 Million Miles and the overall Serious Injury Crash number for the MPO area.

The MPO evaluates each project for the incorporation of proven safety countermeasures by documenting the crashes at the project location and analyzing the crash types for applicable countermeasures to reduce fatal and serious injury crashes. The MPO works with the Acadiana Regional Transportation Safety Coalition to review and develop Highway Safety Improvement Projects and Local Road Safety Projects to address fatal and serious injury crashes outside of the STP program.

2022 Safety Targets for MPO Area



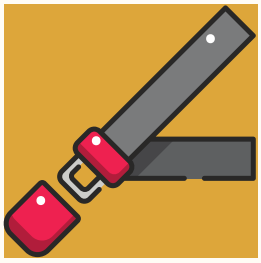
Acadiana Regional Transportation Safety Coalition

The MPO hosts the Acadiana Regional Transportation Safety Coalition to assist the LA DOTD and the MPO in reaching its goal of "Destination Zero Deaths", a 50% reduction in fatal and serious injury crashes in the Acadiana area. The Safety Coalition focuses not just on infrastructure and operations improvements, but working to change the behavior of Acadiana residents to prevent crashes from occurring and lessen the severity of the crashes if they do occur.

Coalition Emphasis Areas:

Young Drivers

- Provide Education to Young Drivers and their driving educators to prevent crashes throughout their life.
- Young Drivers are over-represented in Fatal and Serious Injury crashes.



Occupant Protection

- Educate the community on all forms of occupant protection, including child passenger seat safety and seat belt usage.
- Encourage business owners and other community members to adopt policies to encourage vehicle restraint usage.

Impaired Driving

- Educate law enforcement, prosecutors, and the judiciary on all forms of impaired driving enforcement, including prescription and illegal drug impairment.
- Provide information on training for drug impaired driving enforcement.

Distracted Driving

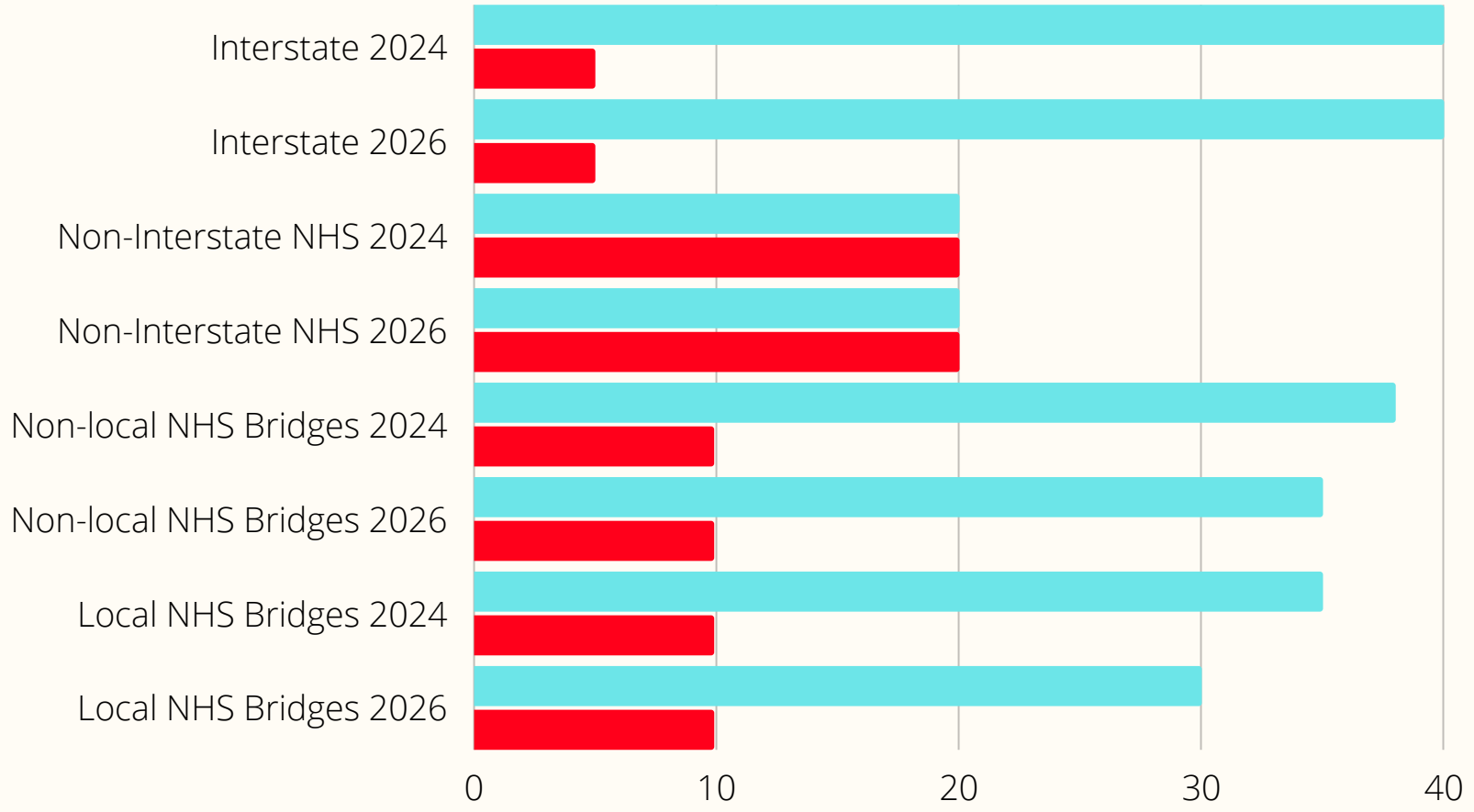
- Provide education to local officials on distracted driving enforcement and legislation.
- Coordinate educational initiatives on distracted driving prevention, such as distracted driving awareness for young drivers.

Infrastructure and Operations

- Coordinate Highway Safety Improvement Program funding and Local Road Safety Program funding to build safety improvements in the Acadiana area.

The Coalition holds quarterly meetings to develop strategies for implementation of safety initiatives and monitor progress of Coalition objectives. A diverse group of Acadiana residents are involved in the Coalition, including law enforcement, emergency responders, educators, engineers, and anyone else in the community that is working to make Acadiana's roadways safer. For more information, visit:
www.destinationzerodeaths.com

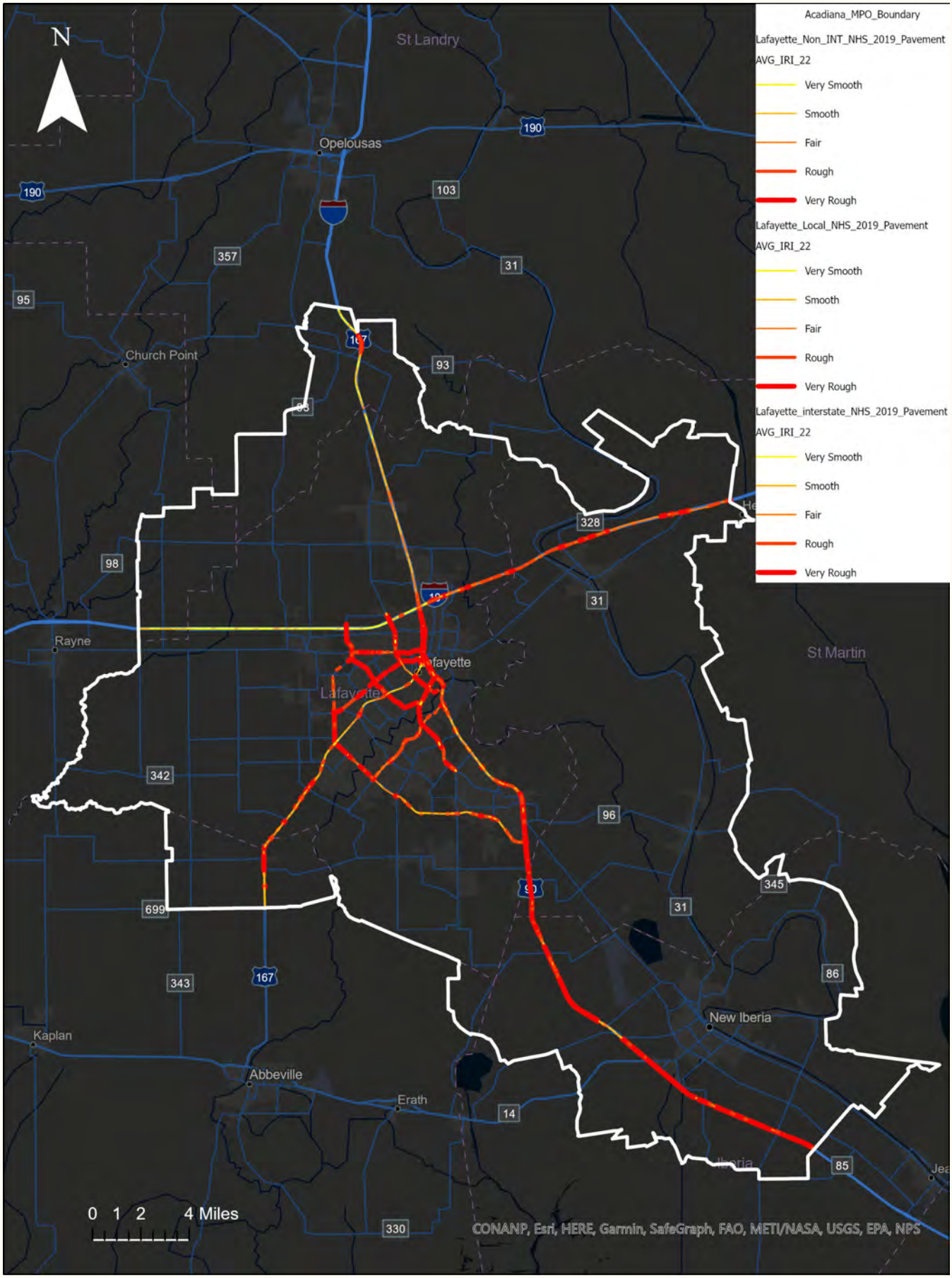
NHS Pavement and Bridge Condition



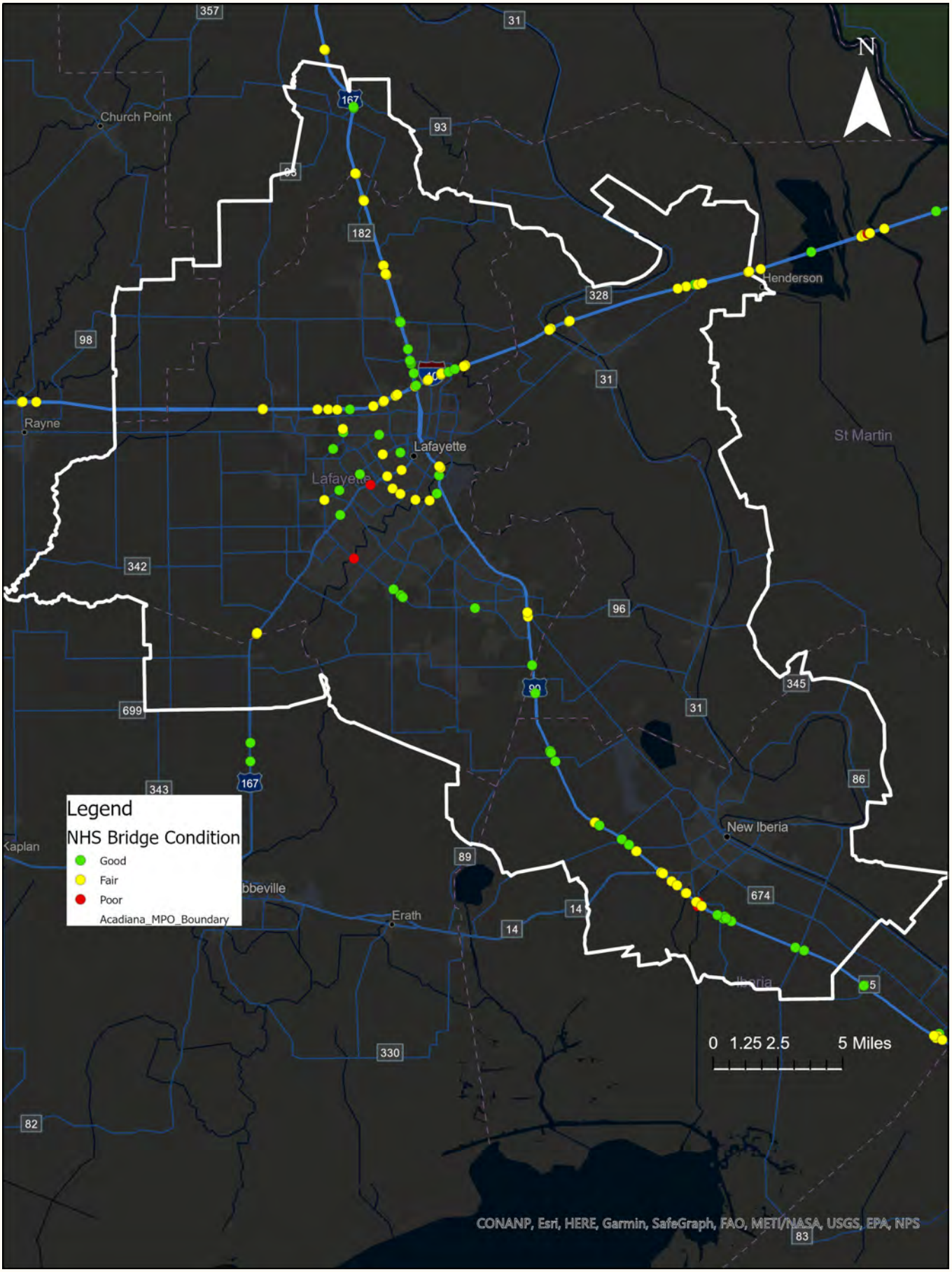
The MPO set the 2 and 4 year Bridge and Pavement Condition performance measures utilizing the targets set by the state. The two year target is set for 2024 and the 4 year is set for 2026.

Data provided by DOTD on road and bridge condition provide the basis for STP project development by the MPO and local officials to ensure that the MPO makes progress towards reaching the targets. The System Performance Report in Appendix A contains full documentation of pavement quality improvement implementation.

NHS Pavement Quality Map

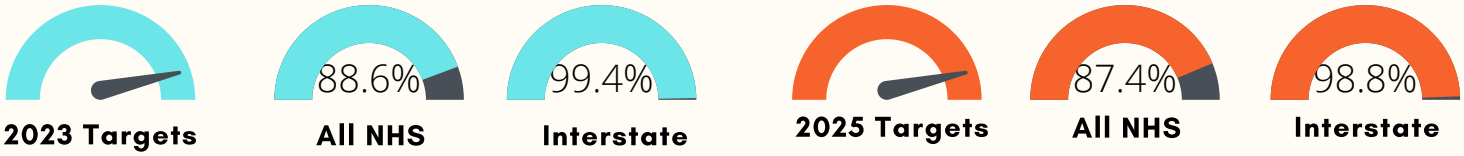


NHS Bridge Condition Map



Travel Time Reliability

Person Miles Reliable

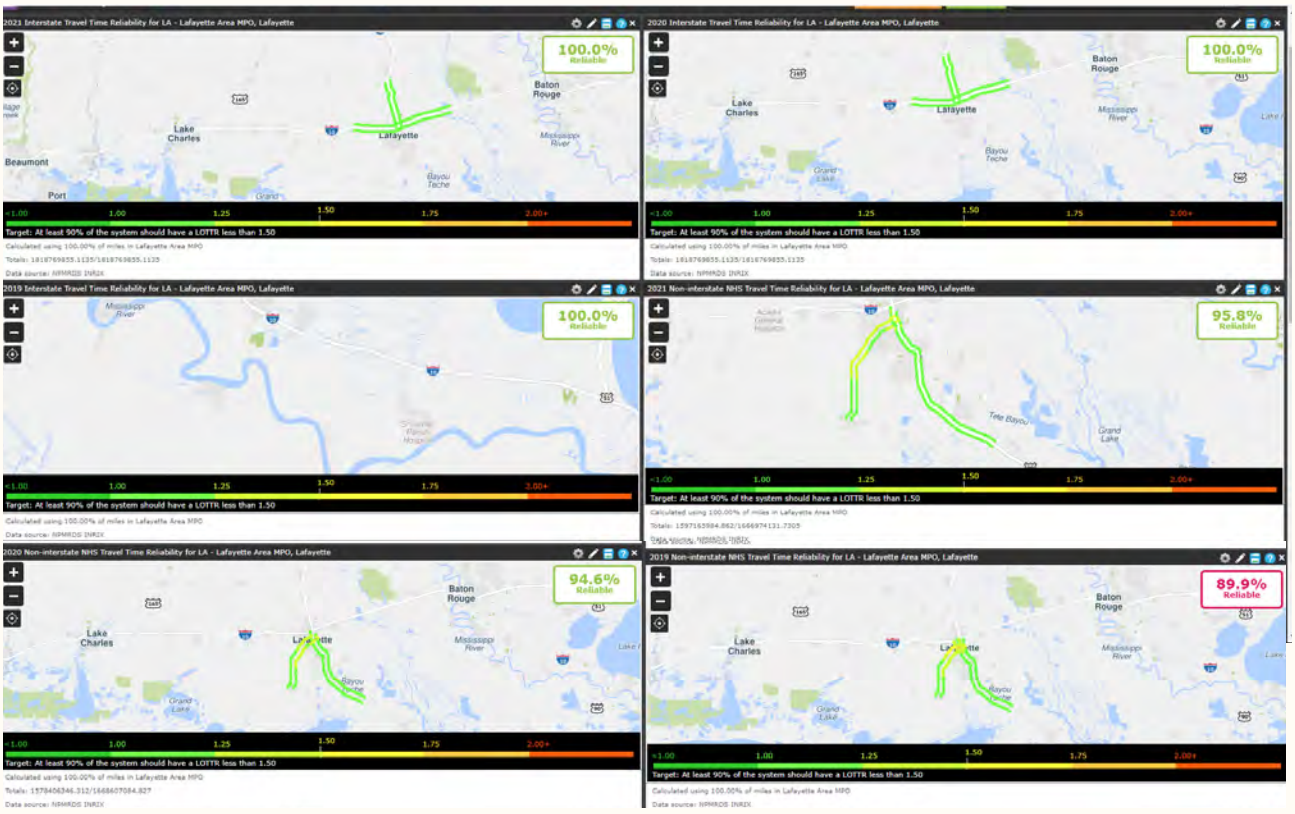


Truck Time Reliability

2023 Target: 1.15

2025 Target: 1.17

Actual Values



Source: National Performance Management Research Data Set

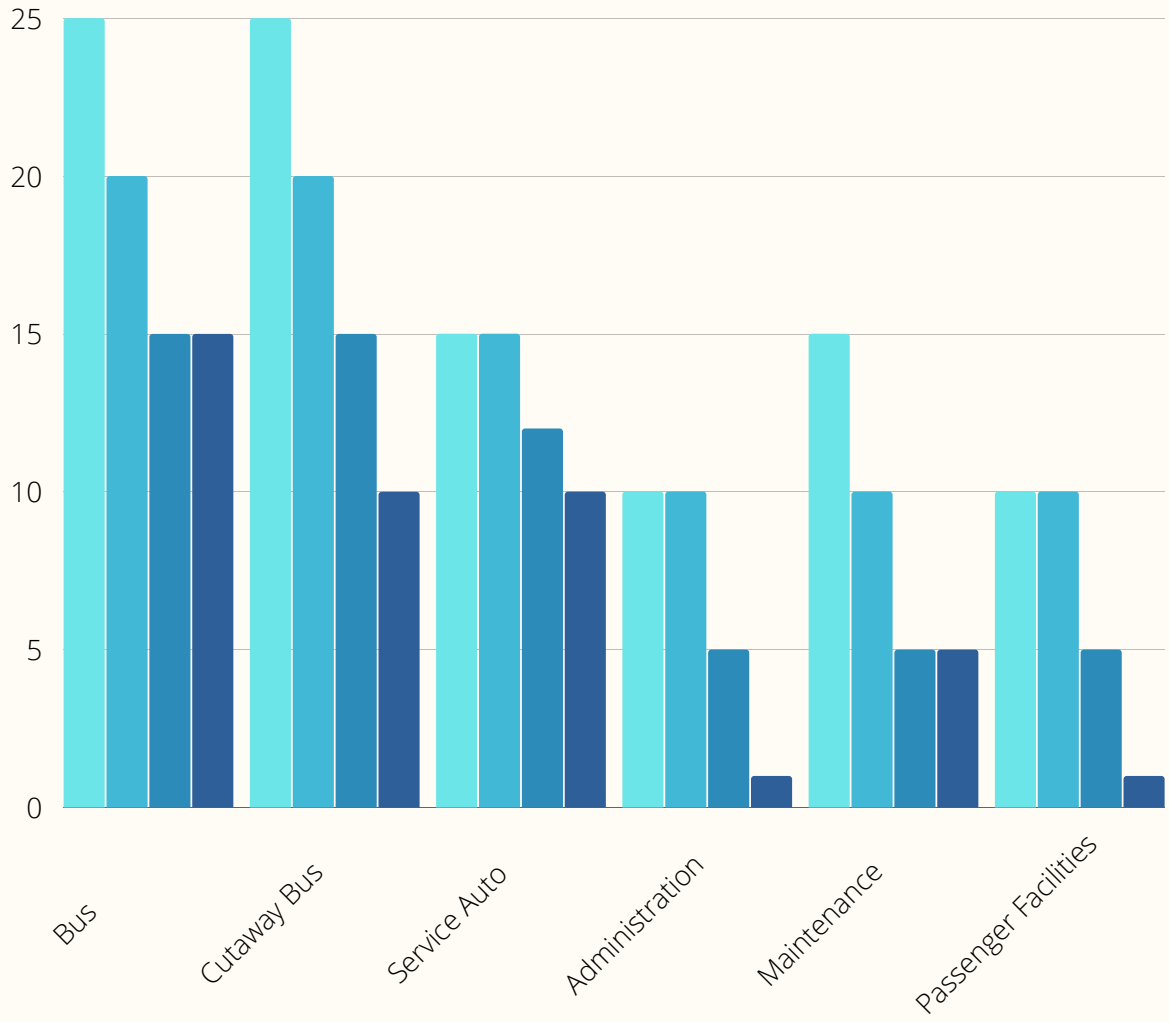
The Travel Time Reliability targets were developed by the MPO for the Acadiana region due to the high performance of the region when contrasted with the state. The MPO utilizes NPMRDS data and recommendations from the Congestion Management Process in the STP project development process to ensure the continuation of reliable travel in the MPO area.

Transit Performance Measure Targets

Transit Asset Management

Percent of vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark , 2020-2023

Percent of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale, 2020 - 2023



Public Transportation Agency Safety Plan

Measure	Baseline	Target
Fatalities	0.2	0.2
Rate of Fatalities*	0.000000255	0.000000255
Injuries	0	0
Rate of Injuries*	0	0
Safety Events	0.4	0.4
Rate of Safety Events*	0.000000510	0.000000510
Mean Distance Between Major Mechanical Failure	17,905	17,905

*rate = total number for the year/total revenue vehicle miles traveled

TRANSPORTATION PRIORITIES

Equity

Provide equitable access, participation, and funding to neighborhoods with high concentrations of vulnerable populations (such as low-income households, minorities, and car-free households). The MPO's TIP Selection Process, Title VI Plan, and Public Participation Plans have highly detailed processes for equitable inclusion.

Regional Transit

In 2020, the MPO completed the Regional Transit Plan for the Acadiana area. The MPO is actively working to encourage communities to facilitate and improve upon transit operations and coordinate transit operators for efficient and expanded service provision.

Vulnerable Roadway Users

The MPO has developed bike and pedestrian plans to assist local public agencies in the development of facilities for vulnerable roadways users. Bike and pedestrian facilities are also prioritized in the TIP selection process and integration of these facilities into roadway projects is strongly encouraged.

Environment

Maintaining a transportation system that is sustainable and resilient is a primary goal of the MPO, and projects are evaluated and developed with these priorities throughout the project development process. The MPO is working on a diverse slate of environmental initiatives such as broadband infrastructure expansion in transportation ROW to improve access for rural communities to facilitate working from home, and funding adaptive signal controls improvements to reduce vehicle emissions from idling.

TRANSPORTATION PRIORITIES

Travel Demand Management

By providing transportation options such as cycling and pedestrian facilities, ridesharing, alternative work schedules, and other demand management policies, the MPO will work to develop a transportation system that is not constrained by peak hour demands on the network. This will lower congestion and improve travel time reliability for the area.

Resilience Strategies

Ensuring that the Acadiana transportation network is safe and navigable in the event of a major disaster is essential to the continued economic stability to the region. The MPO is working to collect data on roadway inundation and pavement quality in order to prioritize projects to improve resiliency on the roadways.

Freight

Freight operations are the cardiovascular system of America's economy. Freight truck movements and connectivity with other modes of freight transportation have been a federal concern for many years now, and studying and facilitating these movements is a major work task for the MPO. The MPO will continue to work with private freight operators and port and rail officials to continue a reliable freight network in Acadiana.

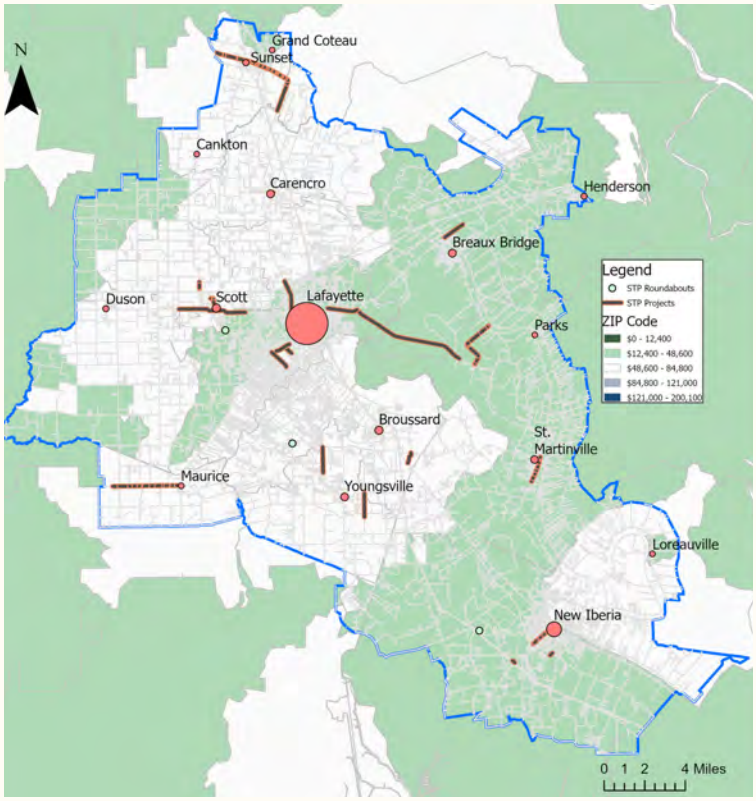
TRANSPORTATION EQUITY

The MPO utilizes Census data in order to track inclusion and equity in the STP project development process. GIS mapping software is used to map projects and potential projects in the development process to ensure environmental justice when funding decisions are determined. Metrics such as elderly and disabled population by census tract, underserved populations, minority populations, and households without access to personal vehicles are all considered when reviewing potential projects. Transit service and non-motorized projects also utilize this analytical framework when evaluating investment decisions.

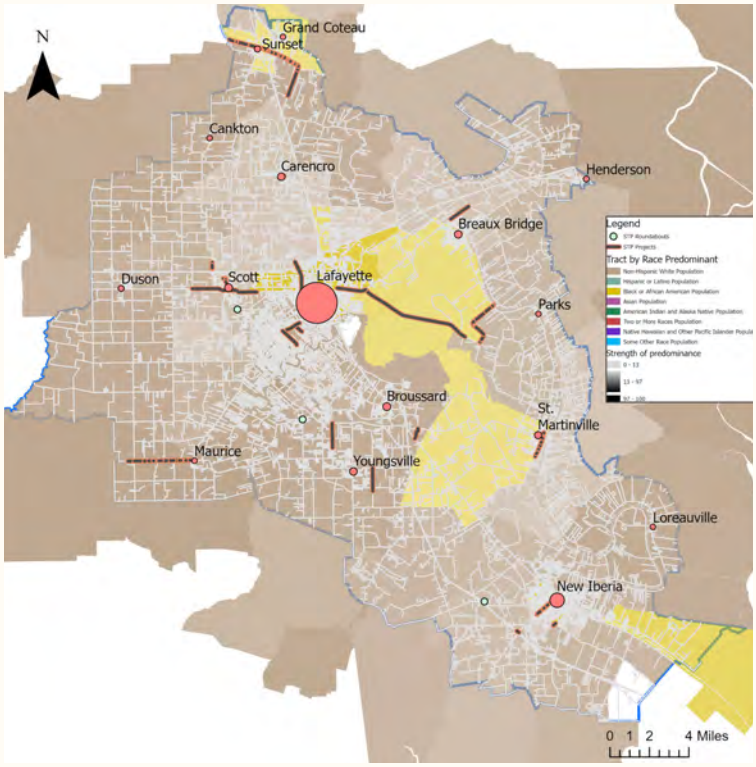
By using visualization techniques, the MPO staff can quickly assess and evaluate the equitable distribution of transportation investments.

The MPO uses the Screening Tool for Equity Analysis of Projects developed by FHWA to generate a written report on the equity of each project in addition to the equity visualization tools.

TIP Projects by Area Income



TIP Projects by Area Predominant Race

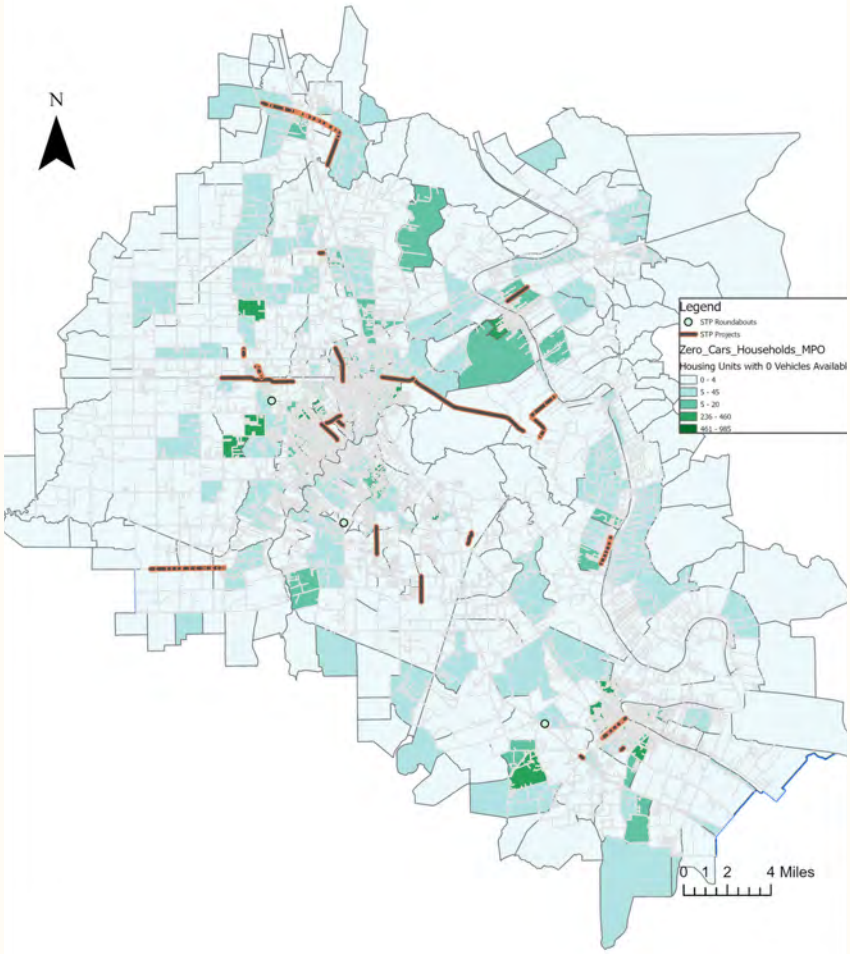


Equitable transportation decision making is also emphasized in the Public Participation Plan. Extensive research was utilized to develop the most equitable process to provide information and receive comments from all residents in Acadiana.

Technology adoption and integration in American society has allowed opportunities for the public to participate in ways never before imagined in earlier iterations of the Public Participation Plan. The Pew Research Center estimates that 85% of all Americans own and use a smart phone as their primary communication device, and that is a number consistent among ethnic groups and a rate not significantly lower amongst low income Americans. Streaming meetings via Facebook has allowed people to watch and participate from their homes or workplace. Public notices postings and comment forms are placed right into residents' social media feeds. These and many more technological innovations implemented in the past five years has revolutionized the public engagement process to bring public information to the height of equitable access.

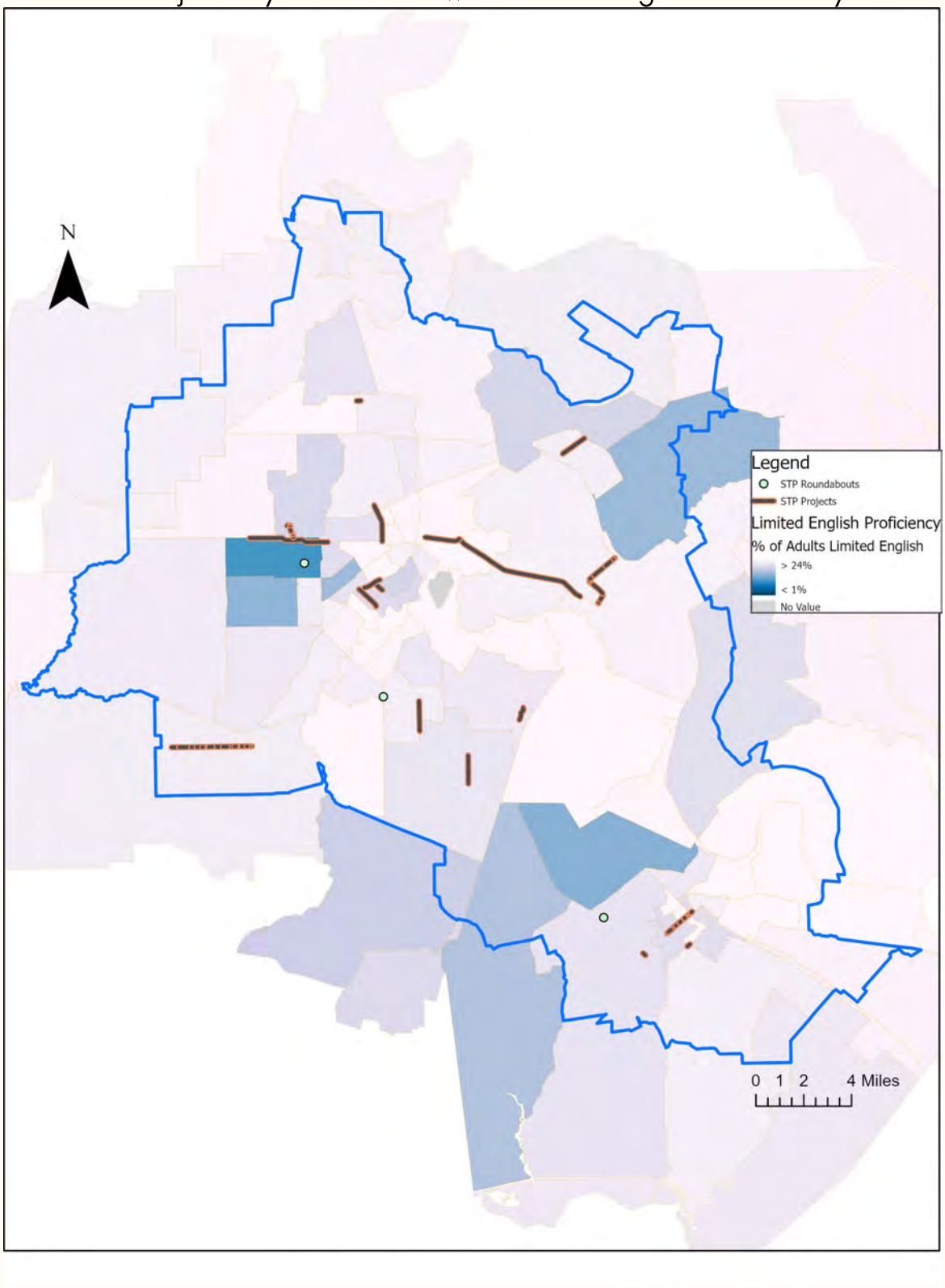
TIP Projects by Elderly Disabled Population

TIP Projects by Area Zero Car Households

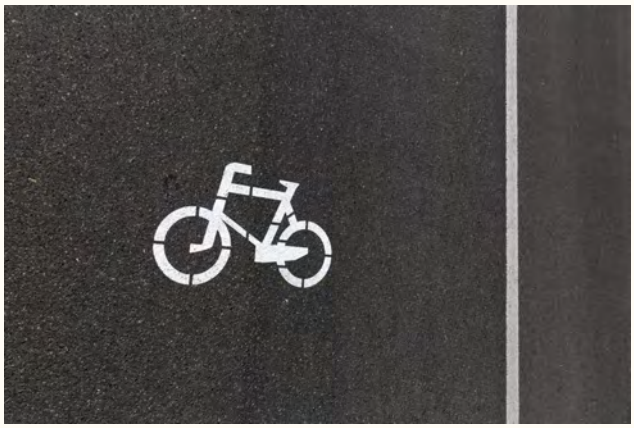


https://www.pewresearch.org/internet/fact-sheet/mobile/?menuItem=8fffa996-faa6-4cee-ae6b-d58c239bc009

TIP Projects by Area Adults with Limited English Proficiency



VULNERABLE ROADWAY USERS



Cyclists and pedestrians are significantly more likely to be killed or seriously injured in the event of a crash with a motor vehicle. The MPO has taken care to ensure the inclusion of non-motorized users in the STP project development process. The MPO has a Complete Street Policy that is used to incorporate bike and pedestrian facilities into vehicle-oriented projects and a pledge to set-aside 10% of STP funding towards non-motorized roadway user projects.

Bike and Pedestrian Plans developed by the MPO provide a framework for local governments looking to develop non-motorized projects in their area. The plans also contain information on how local governments can utilize transportation data to facilitate the development of projects on the local level.

The Bike and Pedestrian Plans are located on the MPO website in an accessible format for Acadiana residents. The plans have been used extensively in the I-49 Connector Planning Process, the University Corridor Plan, and other regionally significant plans.

Environment

Measuring and reviewing the environmental impact of transportation projects is an important aspect in the decision making process for the federal funding allocation in the MPO area. The Acadiana MPO has taken a multi-pronged approach to addressing this issue when working with local governments in the area.

Air Quality

The MPO is currently in attainment for Air Quality.

MPO

STP Projects with positive environmental impacts

- **Adaptive Signal Control** - Significant reduction in idling time at intersections
- **Electric Buses** - No mobile source emissions from internal combustion engine
- **Bike and Pedestrian Improvements** - allows for modal choice of travel with no environmental impact from trip generation
- **Transportation Demand Management Program** - Increases access for residents to participate in ridesharing, allowing for a reduction in trips and reduce impact on transportation network

The MPO is coordinating with the Acadiana Planning Commission to expand broadband internet infrastructure into the rural areas of the MPO region. This expansion will allow for more residents to work from home, creating an opportunity to significantly reduce trips on the roadway network.

Resilience Strategies

The Acadiana Metropolitan Planning Area is no stranger to the transportation disruption caused by extreme weather events. These events, including heat waves, tropical storms, high winds, storm surges and heavy downpours, causing damage to roads and bridges and cost large sums to repair. Unfortunately, these events are becoming more frequent and severe, but the good news is that FHWA has been responding to these threats, by implementing transportation law requiring the transportation planning process to include resilience as a planning factor.

The first step to build resilience is to know the vulnerabilities, which starts with data collection. With pavement conditions and climatic data being collected, the pavement deterioration can be tracked and analyzed, the results can not only help with optimizing decision making on rehabilitation and maintenance, furthermore, they can exhibit the correlation of damage with extreme weather events.

At the state level, LADOTD has been using ARAN (Automatic Road Analyzer) system since 1995. ARAN collects roughness (IRI – International Roughness Index), rut, cracking, patching, and faulting data. And pavement treatment performance models have also been developed, particularly the IRI models for overlay treatment of composite and flexible pavements. Climatic indices pertaining to Louisiana exhibited strong statistical significance along with other variables, and the models are successfully used to make decisions on timely rehabilitation and preservation to minimize cost and maximizing benefits.

Within the Acadiana MPO areas, there are many local roads which have been susceptible to extreme weather damages, but there is no performance data on those assets, which made it very challenging to conduct timely rehabilitation/preservation. Data collection needs to get started. Once a database is established, options and priorities can be considered to preserve our transportation investments at a systemwide level.

Travel Demand Management

Travel Demand Management is the application of strategies to redistribute or reduce the demand on the roadways by reducing congestion and emissions primarily through the reduction and redirection of single occupancy vehicle trips in space or time. This is achieved by analyzing trips by mode and congested peak hour time periods and proposing and implementing programs to redirect and redistribute that demand. TDM also encourages alternative commute options such as ridesharing, bicycling, walking, telecommuting and transit.

Journey to Work by Mode and Geographic Distribution

Trips to work are the most common vehicle trip in the transportation network, so how and when workers make this trip is an essential part of balancing network capacity in the MPO area. For the Acadiana area, the overwhelming majority of trips are made in non-carpooling vehicles. At 82%, the Acadiana Metro area has 6% more vehicles with lone drivers than the national mode split. However, the Acadiana area has 2% more vehicles choosing carpooling than the U.S. as a whole. Significantly fewer commuters use transit in the region than the nation, less than 0.5% compared to 5.2%. Given that fixed route transit service is relegated to City of Lafayette, this is not unexpected. Walking, bicycling, and working at home are about half of the national numbers.

Table 11: 2012-2016 ACS Journey to Work Data for Acadiana Metro Area

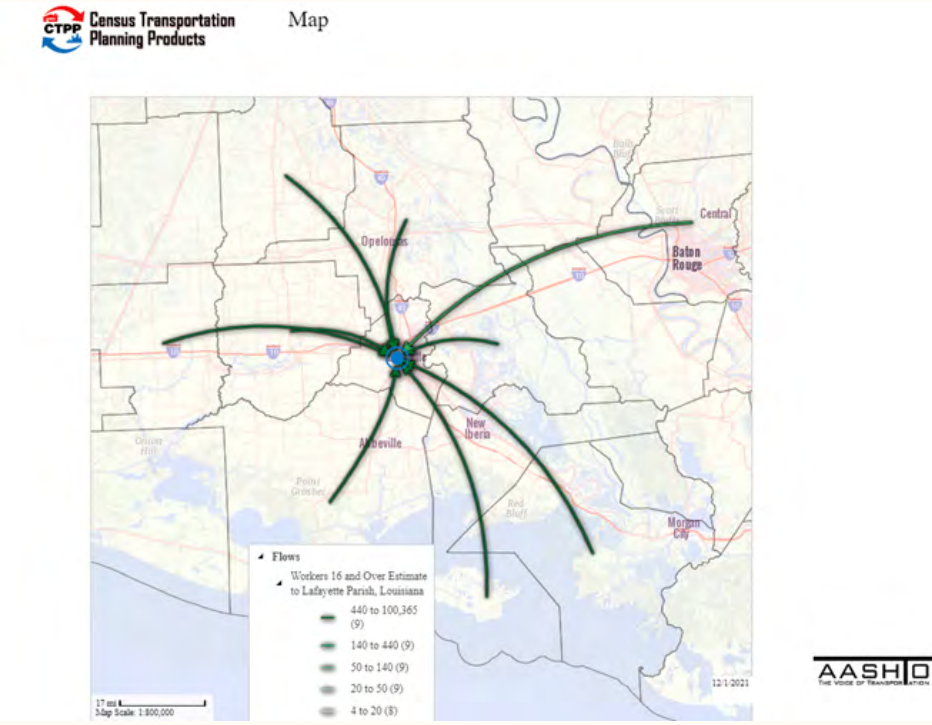
Total:	219,235	Percentage
Drove alone	181,300	82.70%
Carpooled:	24,349	10.47%
Bus or trolley bus	1,012	0.47%
Bicycle	783	0.46%
Walked	3,379	1.97%
Taxicab, motorcycle, or other means	3,320	1.55%
Worked at home	4,822	2.39%

The Acadiana MPO regional hub is Lafayette Parish; it accounts for the majority of trips commuting in and holds the majority of trips commuting out.

TOTAL INTO LAFAYETTE PARISH:

36,990 Commute Trips

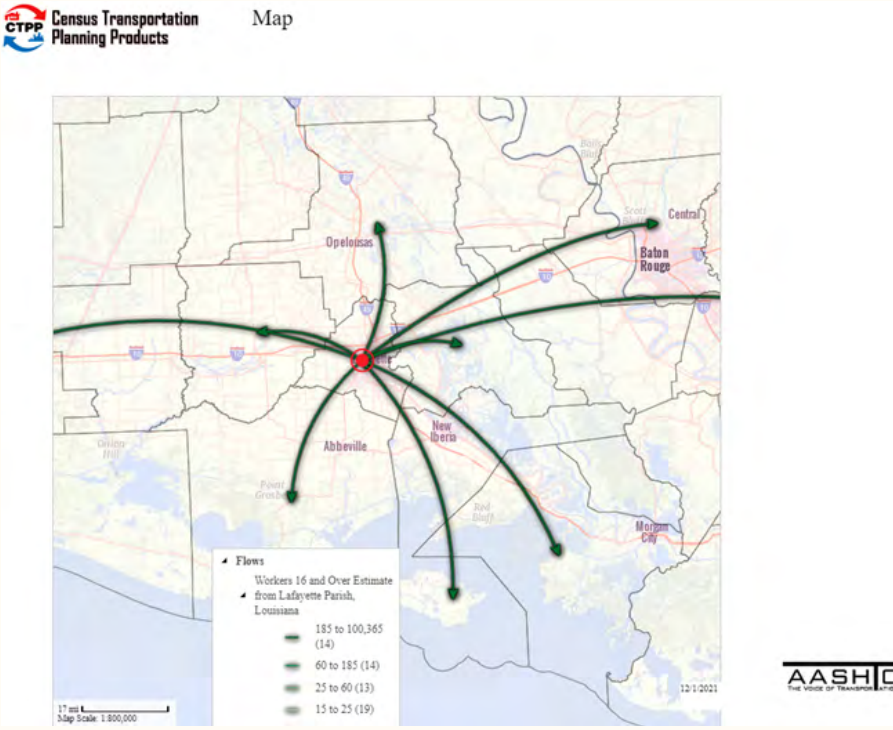
Commute Trips into Lafayette Parish



TOTAL OUT OF LAFAYETTE PARISH:

10,170 Commute Trips

Commute Trips out of Lafayette Parish



Commutes by Parish

	Into Lafayette	Out of Lafayette
St. Martin	9,980	2,035
St. Landry	7,390	1,470
Vermilion	7,145	1,790
Acadia	6,945	1,280
Iberia	5,530	3,595

Programs to Lower Demand and Redistribute Trips

The MPO has worked to develop a variety of programs to lower demand on the roadways and redistribute trips to different modes. The staff has reached out to the community through visiting employers to educate and promote travel demand information and trip planning through the MPO website.

Telecommuting

“In 2018, five percent of U.S. workers were working from home. By September 2020, workers in 58 percent of U.S. households had at least one employed member report that they had substituted some or all of their in-person work for tele-work, a share that increased to 62 percent in March 2021 .”1 While most employers found that remote work was positive some have said moving forward, they would like to see a hybrid work schedule where employees would telecommute two or three days a week and work in the office the other days.

1 Transportation Impact and Implications of COVID-19. https://tripnet.org/wp-content/uploads/2021/05/TRIP_COVID-19_Transportation_Impact_Report_May_2021.pdf

Alternative Work Schedule

An alternative work schedule program for employers is a benefit to their employees and a benefit to the traffic congestion on area roadways. Alternative work schedules allow for employees to have greater flexibility in their work schedules, from starting times to eliminating work trips one to two days a week through a 4/10 or 9/9 work schedules.

Regional Transportation Plan

The 2040 Acadiana Regional Transit Study and Plan (ARTS) was developed to identify transit conditions in the Acadiana Planning Commission (APC) service area. Upon review of the current state of transit and corresponding problems, the ARTS proposes possible resolutions to complex challenges. Areas of focus include fixed-route public transit, Coordinated Human Services Transportation Plan (CHSTP), public grade school transportation, University transit service, and transit expansion

Vanpools and Carpools

Carpools and vanpools are the second most common mode of journey to work in the MPO area. In working with the state and other MPO's Commuter Krewe was developed. Commuter Krewe is a website that is available to residence within the state as well as the Acadiana MPO area that will help individuals identify commute options that work for them as well as register for the ridesharing program that allows commuters to be matched with other individuals going to the same area.

Freight

Facilitating the movement of goods and services for economic purposes is one of the most important aspects of the US transportation system. Ensuring our “Nation has the safest, most efficient and modern transportation system in the world, improves the quality of life for all American people and communities, from rural to urban, and increases the productivity and competitiveness of American workers and businesses ”. 1 MPOs work to ensure that freight operators have a voice at the table when it comes to allocating transportation improvement funding.

Legislation

In 2012 the Moving Ahead of Progress in the 21st Century (MAP-21), established national freight goals and required the US DOT to define a Primary Freight Network of no greater in length than 27,000 miles. On December 4th, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act, the first stable federal transportation funding bill in ten years. The importance of this signing is that the FAST Act created a National Highway Freight Program to provide financial assistance for projects of regional or national significance. This bill represented a substantial shift in resources for freight related transportation projects, and MPOs must work to ensure that their planning documents reflect this change.

1 Executive Summary, National Freight Strategic Plan

According to the American Society of Civil Engineers' Infrastructure Report card 42% of the 617 bridges across the US are more than 50 years old and 43% of the 4 million miles of public roadways are in poor or mediocre condition .1 "For an industry whose entire business model centers on interstate commerce and the safe and efficient movement of freight over the road, this state of decay carries consequences not fully conveyed. The consequences are best captured in the real, measurable and rising costs borne directly by motor carriers as the system breaks down ." 2

The American Transportation Research Institute estimates traffic congestion cost an additional $74.1 billion in operational costs yearly. Freight bottlenecks occur in every region of the U.S. and amounts to 1.2 billion hours of lost productivity annually for the trucking industry – the equivalent of 425,533 commercial truck drivers sitting idle for an entire year. 3

1 2021 Report Card for America's Infrastructure https://infrastructurereportcard.org/

2 American Trucking Association Article Bipartisan Infrastructure Bill is a win for the American truckers and the US supply chain https://www.trucking.org/infrastructure-win-for-trucking

3 https://truckingresearch.org/2018/10/18/trucking-industry-congestion-costs-now-top-74-billion-annually/

AM Peak, US 90/Future I-49 Connector

INRIX

The primary freight network in Acadiana MPO area, is primarily Interstate-10 (I-10) and the Evangeline Thruway (future I-49 Connector) through the city of Lafayette. Currently, the 5.5-mile segment of the Evangeline Thruway (US 90) that is the future I-49 Connector acts as an at grade interstate with around 3,300 cars an hour and presents major delays for truck movements. Data from INRIX shows the Connector corridor as being the bottleneck for freight in the Acadiana region region during the AM and PM peaks. Bringing the current US 90 up to interstate standards (Future I-49) will provide a game-changing investment for the Acadiana Region. The I-49 Lafayette Connector is a future limited-access highway that will extend I-49 from I-10 to the Lafayette Regional Airport. It is a critical transportation link for Lafayette and the state as a whole. The I-49 Lafayette Connector will Function as a critical hurricane evacuation route; complete a major energy and trade corridor to the nation, enhance safety, relieve traffic congestion and improve multi-modal transportation. This project is indicated in the regional transportation model to have a significant improvement on the movement of freight in the state of Louisiana.

PM Peak, US 90/Future I-49 Connector

INRIX

Air

There are two airports that service flight operations in the Acadiana MPO region, the Lafayette Regional Airport (LFT) and the Acadiana Regional Airport (ARA). The Lafayette Airport is primarily a commercial airport with two air cargo operators, UPS and FedEx. In 2019 LFT enplaned 8 million pounds of cargo and deplaned 19 million pounds. The Acadiana Airport is a general aviation airport that houses an 8,002-foot military grade concrete runway and a fully staffed Air Traffic Control Tower.

Water

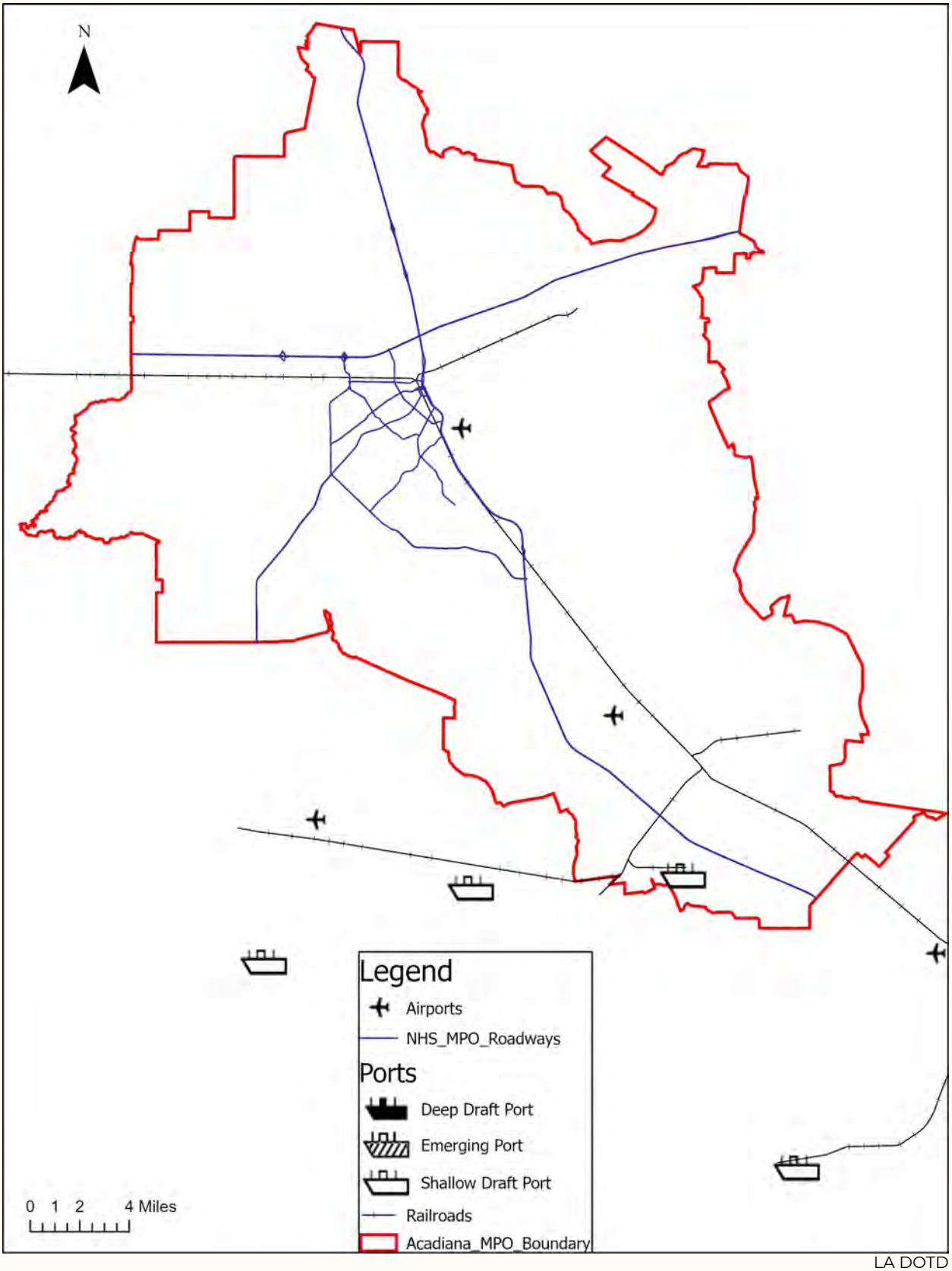
The MPO area has navigable waterways in the area, though neither waterways are used for freight nor transportation related movements. Just outside of the planning area is the Port of Iberia. The port is located in Iberia Parish, within one mile of the future I-49 Corridor and connected to the Louisiana and Delta Railroad network. The port has its own Commercial Canal that provides access to the Gulf of Mexico.

Rail

Seven Class 1 railroads operate 140,000 rail miles within the U.S. freight rail network . The Acadiana MPO has one Class 1 rail freight operator, a line jointly owned by BNSF and Union Pacific. BSNF has a Class 1 traditional carload switching yard in Lafayette. The line follows the US 90 corridor from the west to south into New Iberia and operates at a high level of service, moving between 5 to 10 million tons of freight a year. In addition to carrying significant amount of freight, this line also services the Amtrak Sunset Limited a passenger rail service between New Orleans and Los Angeles.

The Acadiana MPO area also has one short line operator, Louisiana Delta Railroad operates two Class III short line freight services for small agricultural operations in the region and the Port of Iberia.

Freight Facilities in Acadiana MPO Area



LA DOTD

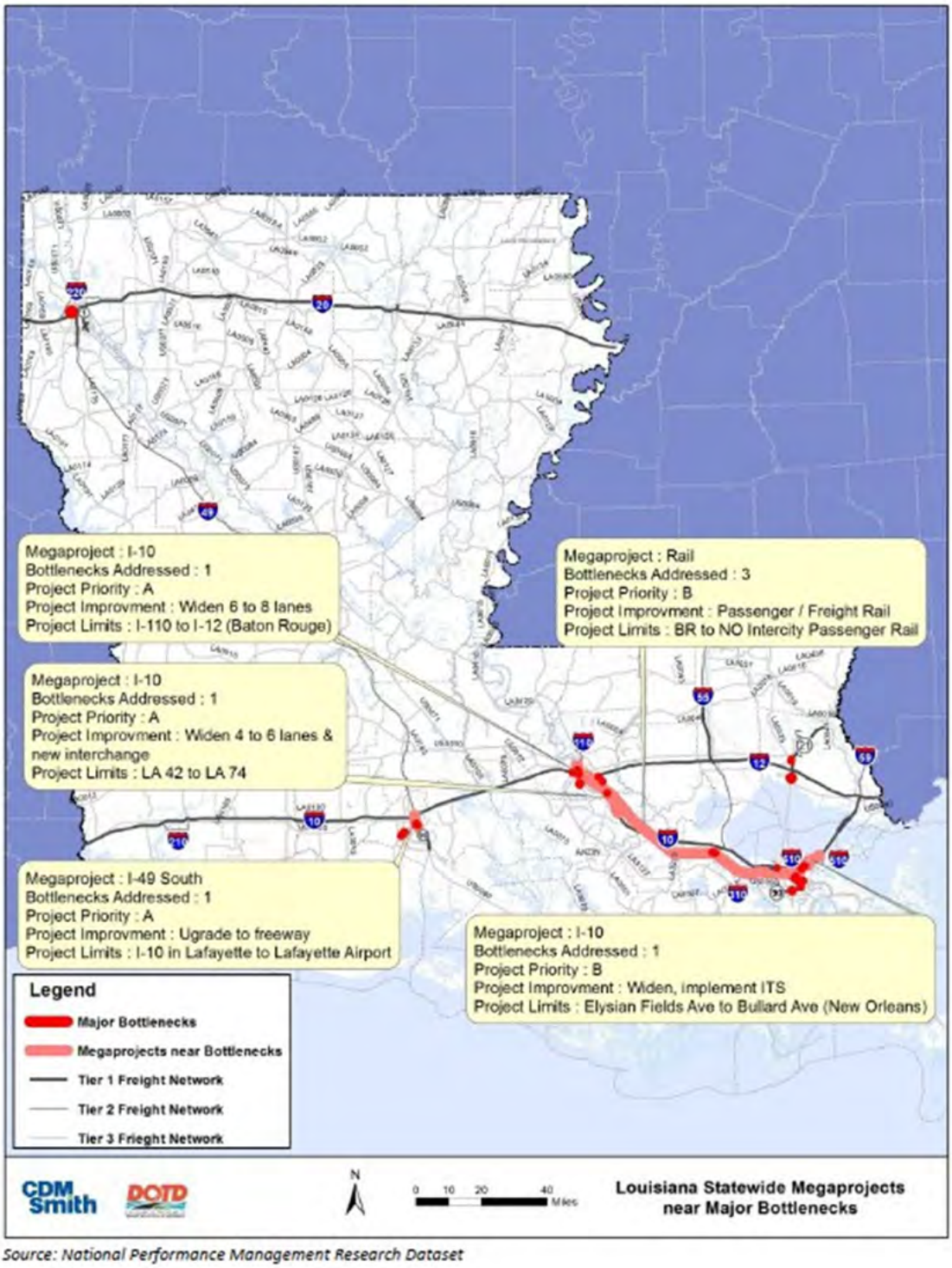
The upgrading of the US 90 corridor to I-49 is the project with the greatest improvement on traffic congestion in the Acadiana region. Originally built in 1929 as the "Old Spanish Trail", this corridor has boomed as a result of the proliferation of business servicing the oil and gas industry along its route. Due to the substantial cost and regional and statewide impact on traffic operations, it has been classified as a mega-project by the state. The Louisiana Freight Mobility Plan identified it as the top priority megaproject that would alleviate one of the worst freight bottlenecks in the state.

Table 10-8: Priority A Megaprojects

ID No.	Area	Facility	Limits	Improvement Type	Mode/Tier	Total Cost ($M)	DOTD ($M)	Other ($M)
1	Lafayette	I-49 South	I-10 in Lafayette to Lafayette Airport	Upgrade to freeway	Trucking/2	$750	$700	$50
4	Lafourche & St. Charles Parishes	I-49 South	Raceland to Des Allemands	Upgrade to freeway	Trucking/2	$190	$190	$0
23b	Shreveport	I-20	Red River Bridge (I-49, Shreveport to Traffic Street, Bossier City)	Widen to 6 lanes	Trucking/1	$135	$135	$0
23c	Shreveport	I-20	LA 3 to I-220 E	Widen to 6 lanes	Trucking/1	$90	$90	$0
24	Monroe	I-20	LA 546 to LA 594 (Monroe)	Widen to 6 lanes	Trucking/1	$220	$220	$0
25	Sulphur/Lake Charles	I-10	TX SL to LA 108	Widen to 6 lanes	Trucking/1	$65	$65	$0
26	Lake Charles	I-10 (Calcasieu River BR./ Approaches)	I-210W to US 90 (Lake Charles)	Replace bridge, widen highway	Trucking/1	$450	$450	$0
27	Lake Charles	I-10	UPRR Overpass (Lake Charles) to I-210	Widen 4 to 6 lanes	Trucking/1	$50	$50	$0
28	Lafayette	I-10	LA 93 to I-49	Widen 4 to 6 lanes	Trucking/1	$100	$100	$0
29	Baton Rouge	I-10	I-110 to I-12 (Baton Rouge)	Widen 6 to 8 lanes	Trucking/1	$320	$320	$0
30a	Ascension	I-10	LA 42 to LA 74	Widen 4 to 6 lanes & new interchange	Trucking/1	$100	$100	$0
31	New Orleans	I-10	Williams Blvd. (LA 49) to Veterans Blvd	Widen to 8 lanes	Trucking/1	$150	$150	$0
34	Slidell	I-12	LA 21 to Airport Rd (to I-10/ I-59)	Widen 4 to 6 lanes	Trucking/1	$170	$170	$0
44	New Orleans	LA 23	Belle Chasse Tunnel (New Orleans)	Build 4-lane bridge	Trucking/3	$180	$160	$20
64	St. Tammany	LA 3241 (TIMED)	I-12 to Bush	New 4 lane	Trucking/?	$230	$230	$0
65	St. Bernard	Florida Avenue (TIMED)	Bridge and Approaches	New Bridge and Approaches	Trucking/3	$270	$270	$0

Source: CDM Smith and LA DOTD

Louisiana Statewide Megaprojects Near Major Bottlenecks



Source: CDM Smith and LA DOTD

PUBLIC TRANSIT

Numerous public transportation options exist within the Acadiana Metropolitan Planning Organization area. Public transportation in the Acadiana Region is fragmented- in service, funding, maintenance, cost, political support, public and private support, geography, efficiency, management, ridership, accessibility, convenience, and in information. The transportation services that are available differ by local jurisdiction and depending on the agency that operates the service, users may be required to establish eligibility for rides through an application process with a social service program. The MPO area is also served by passenger rail, bus, and air service and the Acadiana MPO is consistently coordinated transportation efforts through elected officials, transit providers, federal agencies, and the general public.

LAFAYETTE TRANSIT SYSTEM

At the center of the urbanized area lies the City of Lafayette Rose Parks Multi-Model Transportation Center which is the inner-city transit hub to a population of 122,000 residents. Nearly 90 percent of the population utilizes single vehicles as the primary mode of transportation. The remaining residents rely on a combination of transportation modes including the fixed route transit service, Lafayette Transit System (LTS). LTS is the only mass transit service within the MPO area, it consists of 7 routes which operate solely within the City of Lafayette. Buses are scheduled to converge simultaneously at the Rosa Parks Transportation Center every half hour or hour, depending on the frequency of the route. This allows passengers to conveniently transfer from one route to another to reach their destination in a safe and secure environment. Daytime service operates between the hours of 5:45 am to 6:30 pm, after 6:30 pm, evening routes are operated on a reduced schedule until 11:20 pm in order to serve night shift workers. Daytime and evening routes have different routing, fare structures, vehicles and schedules. LTS is designed as a hub-and-spoke system where all routes begin and end at the Rosa Parks Transportation Center Terminal located in Downtown, Lafayette.

IMPACTS OF COVID ON TRANSIT

Through a national lens, Covid-19 has greatly decreased the use of public transit for fear of spreading or acquiring the virus. Transit systems in metropolitan cities are facing losses of hundreds of millions of dollars or more. On the local level, changes were gradually made as the need became apparent. On April 3, 2020, Lafayette Consolidated Government's Department of Public Works, Transit Division announced Lafayette Transit System precautions relating to COVID-19. This involved modified staffing for the fixed service routes, as well as implementing disinfection of buses and minimization of bus seating (Acadiana Transit Study, page 6). In May of 2020, LTS made the decision to decrease their operating routes from 12 to 7 daily due to the declining passenger numbers from the impacts of COVID-19.

Rosa Parks Transportation Center is also a central stop for alternative inter-city transportation modes such as Greyhound and Amtrak. These service providers are steps away from the LTS bus stop bays. LTS also offers fixed route, fixed schedule shuttle service accommodations for the public on a contracted basis for special events such as holidays, Festival International, and Festivals Acadiens et Créoles.. LTS carries about 1.3 million passengers per year and is primarily funded through the federal 5307 grant program and local money from the Lafayette Consolidated Government.

1 Acadiana Transit Study, pages 34-37

EXPANSION OF LTS SERVICE[1]

In 2019 the City of Carencro collaborated with APC to expand the public transit service to the municipality. The City of Carencro is located in Lafayette Parish bordering the northern limits of the City of Lafayette. Based on the successful implementation of Ride Acadiana, APC determined that extending transit to Carencro would best be accomplished as a service operated by LTS under contract with the City of Carencro.

At the city's request, APC initially considered the use of one service vehicle that could be shared between Carencro and the City of Scott. Running time analysis showed that the geographic proximity of these two cities could provide a level of service needed to operate and reduce the operating capital required by both cities. The two municipalities had varying projected timelines for arriving at a decision to implement a shared service. As a result, APC made the strategic decision to plan transit service for each municipality as a stand-alone operation.

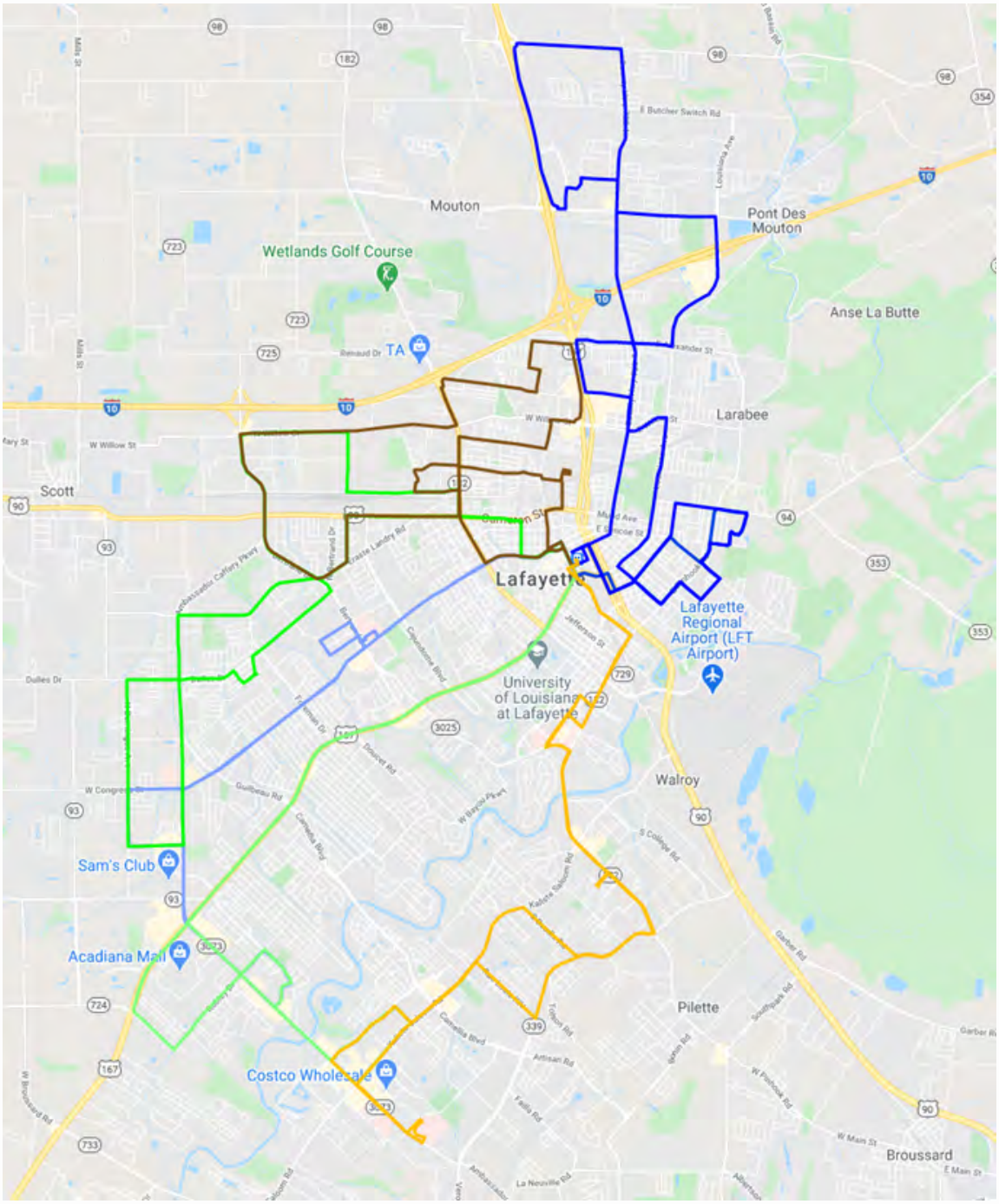
Carencro has a significant density of zero-car households indicating a healthy potential for transit ridership. APC identified two likely types of transit service demand in Carencro. The first was for short trips within Carencro for shopping, school, employment, and municipal services. Short errands require at least a thirty-minute service frequency to attract passengers. The second type of demand was for travel for a variety of purposes to Lafayette. The planning challenge for APC was to come up with a proposal that provided frequent trips to major destinations within Carencro and at the same time allow Carencro residents to conveniently go to Lafayette by transit.

Fortunately for Carencro, the northernmost LTS bus stop was across Gloria Switch Road from the Carencro city limits, beside Lowes. This is one of the busiest stops in the LTS system and is served by the Blue Route, if a new Carencro transit service stopped there, passengers would be able to make a convenient connection to Downtown Lafayette and points in between such as the Stirling Lafayette Shopping Center on Louisiana Avenue where there is a Target and many other stores.

In Carencro, the new Amazon Facility as well as "big box" shopping is located on the I-49 North Frontage Road and includes a new Walmart Supercenter and a Super 1 Foods. This new commercial center replaced the now closed Northside Walmart. The proposed route for Carencro would be scheduled to meet the Blue Route bus beside Lowes so transferring passengers would not have a long wait. The bus is proposed to operate in a continuous counterclockwise direction to place bus stops on the side of the street to minimize risk for passengers who would have to make an unprotected crossing of a major street if the bus ran in the opposite direction. LTS and the City of Carencro are hoping to have the new route in operation sometime in 2022.

1 Acadiana Transit Study, pages 34-37

LTS SERVICE MAP



DEMAND RESPONSE SERVICES

Coordinated Human Services Transportation is a type of supplementary transit service that aims to provide individualized rides for specific populations including the disabled, veterans, and other individuals who need assistance. Services are not typically defined by fixed routes or timetables. In Acadiana approximately, thirteen providers offer service to this specific population and the type of service is often dictated by the funding source. The Coordinated Human Services Transportation agencies aim to bring a comprehensive approach to transit operations in Acadiana while ensuring equitable access to transportation for all residents of the area. Paratransit users can contact their local agency by phone, and request service. This demand response service is most requested between 7 and 8 am on the weekdays.

UNIVERSITY TRANSIT

The University of Louisiana Lafayette (ULL) is the second-largest university in Louisiana with a student population over 19,000. As a significant driver of economic activity, the University attracts students from across the globe. The campus itself amasses a large part of Central Lafayette and contributes to traffic activity around several major corridors in the city. To minimize traffic congestion on main campus streets, UL provides shuttle bus service between the surface parking lot at Cajun Field stadium (off-campus) and the main campus area. During the fall and spring semesters UL operates approximately eight peak period buses and two buses during summer semester. In order to help their student passengers the UL Transit office offers an App that allows passengers to view buses in real time so they can see when they will arrive at different stops. The ULL bus services annual ridership is about 760,000 passenger boarding's.

REGIONAL PASSENGER BUS

Greyhound provides a regularly scheduled inter-city passenger bus service through the Acadiana MPO area. Its Coast-to-Coast service follows Interstate 10 between Houston and New Orleans and stops in Lafayette. Another route connects Baton Rouge with Alexandria and Shreveport, via Lafayette and Opelousas. Greyhound coaches leave from the same transit island as Lafayette Transit System buses at the Rosa Parks Multi-Modal Transportation Center. The Rosa Parks Transportation Center provides an enclosed waiting area with restroom facilities for patrons of the Amtrak and Greyhound services.

TAXI AND SUBSCRIPTION SERVICES

The Acadiana region has various types of services such as traditional taxi services, ride-hailing services such as Uber and Lyft that allow passengers to book and pay for their trip via an app on their smartphone as well as ride sharing services (aka carpooling) that matches customers traveling in a similar direction to a single driver-partner operated vehicle. The Acadiana MPO region has taxicab services through the Dixie Cab Company, ride hauling services such as Uber and Lyft and a ride sharing match site called Commuter Krewe of Louisiana that matches potential carpooling passengers.

Source: www.waymarking.org

PASSENGER RAIL

The Acadiana MPO has two passenger rail stops on the Amtrak Sunset Limited service between New Orleans and Los Angeles that feature sleeper compartments. Trains make stops in New Iberia at the New Iberia Train Station located on W. Washington St. and in Lafayette at the Rosa Parks Transportation Center located in Downtown Lafayette.

The Sunset Limited operates three days a week in each direction, arriving and departing during convenient daylight hours.

Source: www.wikipedia.org

Source: www.lftairport.com

PASSENGER AIR

Lafayette Regional Airport (LFT) is the only airport in the Acadiana MPO area that provides commercial passenger air transportation. It is located in Lafayette adjacent to US 90 and "officers flights to major domestic destinations with connecting service to points around the globe"(LFT website, www.lftairport.com) Currently LTF sits on approximately 1,116 acres with a state of the art facility providing service to area travelers and business. A new passenger terminal is currently under construction and is scheduled to open to passengers in 2022. Not only does LTF serve more than 400,000 travelers annually it is also the regional air cargo depot for UPS and Federal Express.

LAFAYETTE REGIONAL AIRPORT

Source: www.iberiaparishgovernment.com

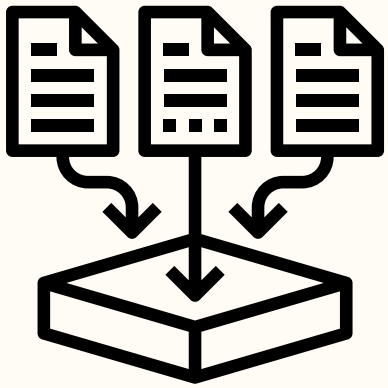
The Acadiana Regional Airport (ARA) in Iberia Parish is centrally located between Houston and New Orleans along US Highway 90 (future corridor of I-49). The 2,000-acre General Aviation Airport houses an 8,002-foot military grade concrete runway and a fully staffed Air Traffic Control Tower, as well as direct rail access and a 5,000 foot lighted water runway for amphibious aircraft and a rail-to-truck offloading facility. In 2017 The Brig. General Wiltz P. Segura Passenger Terminal was opened and offers Executive, VIP, Air Charter and Air Taxi services. The passenger terminal allows the Acadiana Regional Airport to currently serve economic flights to the West (Houston, Dallas, Ft. Worth, and Las Vegas), the East (Destin, Tampa, Florida Keys, and Memphis), the Western Atlantic and the Caribbean (Nassau, Freeport/Grand Bahama and Montego Bay).

ACADIANA REGIONAL
AIRPORT
LAND TO EXPAND

Source: June 8th, 2021: ARA Website. Acadianaregionalairport.com

Data and Analysis

The MPO contracted with Neel-Shaffer to develop an updated Travel Demand Model for the Acadiana region. The model data inputs included population, business, and area roadway capacity that were used to build a framework for evaluating the impacts of potential transportation projects. The Acadiana model is based upon the conventional trip-based four- step modeling approach. For purposes of the Acadiana Model, Mode Choice has been subtracted as a step due to it being negligible, as defined as less than 1% of all daily trips.

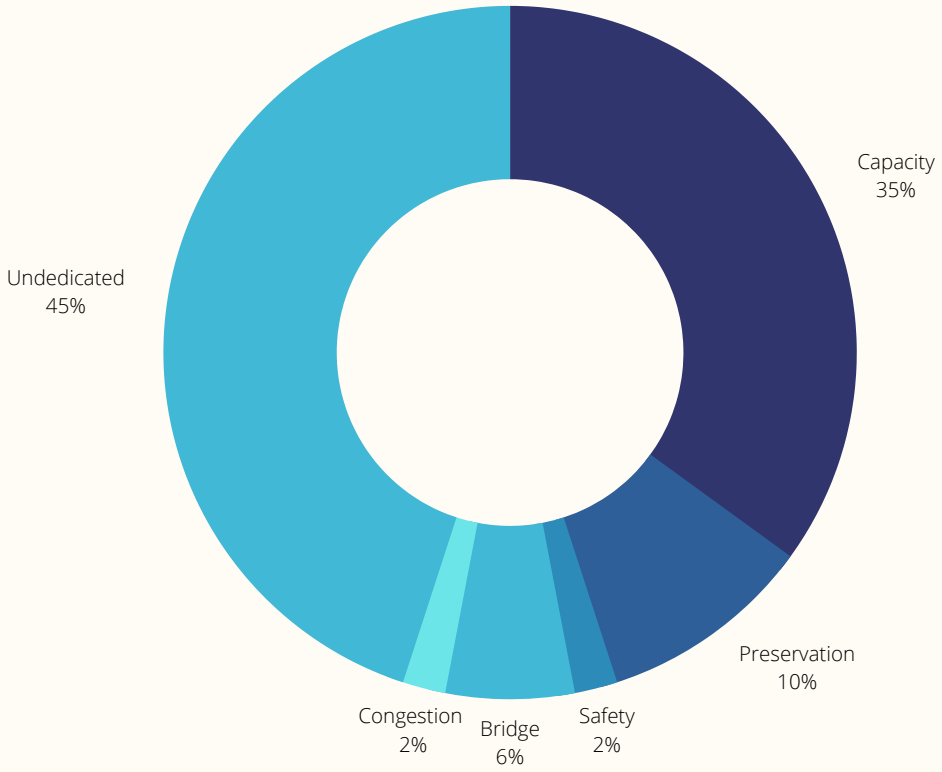


The main model components fall within the following categories:

- Trip Generation – The process of estimating trip productions and attractions at each Traffic Analysis Zone (TAZ).
- Trip Distribution - The process of linking trip productions to trip attractions for each TAZ pair.
- Trip Assignment – The process of assigning auto and truck trips onto specific highway facilities in the region.

The base year network was defined as the street and highway system in the year 2020. Once the base year travel demand model was calibrated and validated, the Existing + Committed network was developed by compiling a list of committed projects from area local governments. Committed projects were those improvements for which construction was either completed or begun since 2020, a contract for construction has been awarded, or projects for which funding has been dedicated such as through legislative approval of the proposed construction program.

The MPO developed its funding plan for the next 30 years based on previous federal funding allocations. Projects were planned out based on a percentage of funding dedicated to each type of improvement:

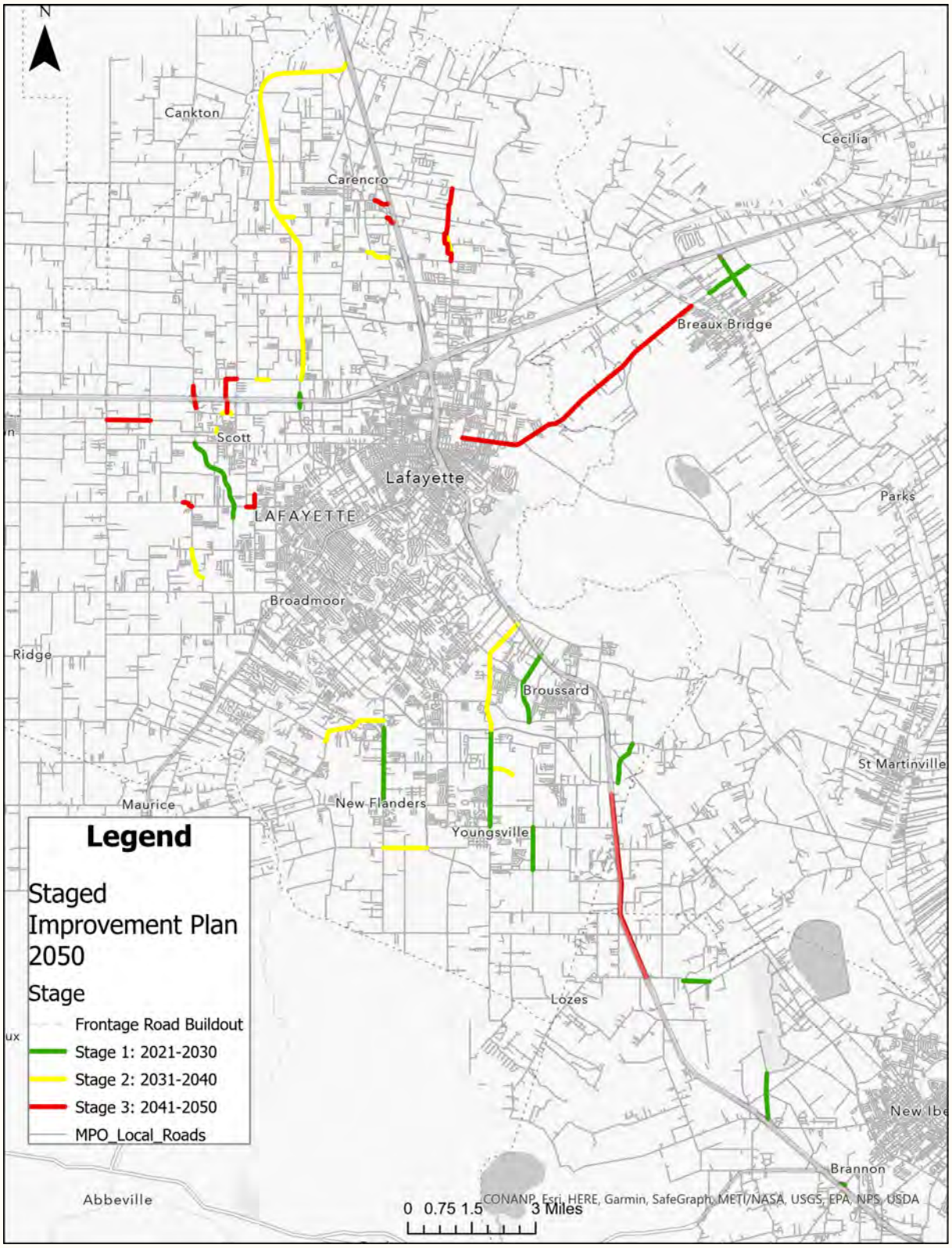


Given the level of work needed to develop new capacity projects, potential new capacity projects were solicited from local government agencies to evaluate and grade based on the impact to the transportation system. The projects were evaluated using the federally required planning factors, including:

- Benefit/Cost of Congestion Reduction
- Safety Improvements
- Bike and Pedestrian Network
- Freight Movements
- Local Plan Alignment
- Supports Transit Network
- Improves Pavement Condition
- Environmental Impact

The projects were ranked and put into the staged improvement program, based on available funding in each time period. More information model development and plan inputs can be found in Appendix 2, Tech Memo. The undedicated funding will allow the MPO Committees to direct funding based on emerging local priorities.

New Capacity Projects



Staged Improvement Plan
Stage 1

Project	Jurisdiction	Roadway	Limits	Improvement	Total Cost
		STAGE 1 - Identified Projects			
1	E+C/MPO	St. Nazaire Extension Phase 1	LA 96 to LA 182	New 4 Lane Roadway	$6,069,218
2	NFI	St. Nazaire Extension Phase 2	LA 182 to Come	New 4 Lane Roadway	$7,014,681
3	E+C/MPO	LA 89 Widening	Young Street to Recovery Rd	Widening to 3 lanes	$6,833,571
4	E+C/MPO	Mills St	LA 328 to Doyle Melancon	New 2 Lane Roadway	$1,982,000
5	Local Funding	Apollo Road Phase 2 and 3	800 feet south of JB Road to Dulles	New 4 Lane Roadway	$13,500,000
7	E+C/MPO	US 90 Frontage Road Extension	Frontage Rd Terminus to LA 329	Extension of existing frontage road	$1,725,000
8	Local Funding	Bernard Road Extension	Albertson Pkwy to LA 182	New 4 Lane Roadway	$3,915,000
9	Local Funding	Bernard Road Extension	LA 182 to US 90	Widening of 2 Lane Roadway to 3 Lane	$5,940,000
10	E+C/MPO	Larriviere Widening	LA 92 to Almonaster	Widening of 2 Lane Roadway to 3 Lane	$4,808,700
11	Local Funding	Airport Access Road Phase 1	LA 675 to LA 3212	New 5 Lane Roadway	$6,470,196
12	Local Funding	Airport Access Road Phase 2	LA 3212 Roundabout to Hanger Drive	New 5 Lane Roadway	$10,606,879
13	Local Funding	Champagne Blvd	1.1 miles north of Belle Dr to Latiolais Dr	New 2 Lane Roadway	$1,964,144
203	City of Lafayette	LA 339	South of Vincent to LA 92	Widen to 4 lanes	$27,602,000
204	City of Lafayette	LA 3184 Overpass	Overpass over I-10	Widen Overpass	$55,204,000
	Misc.	Non-Line Item Excluding Capacity			$149,881,228
		Subtotal - Stage 1			$303,516,617
		STAGE 1 - Line Item Projects			
6	HSIP	LA 88 Curve Realignment	LA 88 to Fremin Rd	Realignment of LA 88 and Extension of Fremin Road	$5,440,500
	Various	Unidentified Enhancement Projects	Various	Various	$3,485,610
	Various	Unidentified Safety Projects	Various	Various	$5,016,330
	Various	Unidentified Bridge Projects	Various	Various	$20,913,660
	Various	Unidentified Overlay Projects	Various	Various	$31,370,490
	Various	Unidentified Preservation Projects	Various	Various	$3,485,610
	Various	Unidentified Congestion Management Projects	Various	Various	$6,971,220
		Subtotal - Stage 1 Line Items			$76,683,419
		Stage 1 - Grand Total			**$380,200,036**

Staged Improvement Plan
Stage 2

Project	Jurisdiction	Roadway	Limits	Improvement	Total Cost
107	City of Lafayette	Widen Vincent	LA 733 to LA 339	Widen to 3 lanes	$7,327,377.85
113	City of Scott	St. Mary St Extension	St. Mary St curve to Dronet	New 2 Lane Roadway	$4,577,518.62
118	City of Carencro	Realignment of Gloria Switch	Melanie to Lumina	Realignment of roadway	$1,631,517.65
108	City of Scott	Le Violon Extension	W Congress to Ile des Cannes Rd	New 2 Lane Roadway	$6,378,509.56
105	City of Youngsville	Fortune Extension	LA 89 to Fairfield terminus	Extension of Fortune Road	$4,127,270.89
121	City of Carencro	Prejean Rd to Ambassador Extension	Prejean Rd terminus to future Ambassador Caffery	New 2 Lane Roadway	$2,551,403.82
110	City of Scott	Lions Club Extension	Lions Club Curve to Delhomme Ave	New 2 Lane Roadway	$750,412.89
117	City of Scott	Renaud Extension East	Renaud intersection with Roger to Renaud terminus	New 2 Lane Roadway	$1,650,908.36
102	City of Carencro	Realignment of Moss Street	LA 98 to Thoroughbred Dr	Realignment	$2,692,004.12
104	City of Youngsville	Widen Savoy	LA 339 to Chemin Metairie	Widen to 3 lanes	$4,585,230.31
202	City of Broussard	LA 89	Ambassador to US 90	Widen to 4 lanes	$52,779,200.00
101	City of Carencro	Ambassador Caffery North	Renaud to La 182	2 Lane Roadways	$69,338,150.96
	Misc.	Non-Line Item Excluding Capacity			$173,671,568.35
		Subtotal - Stage 2			$332,061,073.37
		STAGE 2 - Line Item Projects			
	Various	Unidentified Enhancement Projects	Various	Various	$4,257,193.25
	Various	Unidentified Safety Projects	Various	Various	$12,771,579.74
	Various	Unidentified Bridge Projects	Various	Various	$25,543,159.49
	Various	Unidentified Overlay Projects	Various	Various	$38,314,739.23
	Various	Unidentified Preservation Projects	Various	Various	$4,257,193.25
	Various	Unidentified Congestion Management Projects	Various	Various	$8,514,386.50
		Subtotal - Stage 2 Line Items			$93,658,251.46
		Stage 2 - Grand Total			**$425,719,324.83**

Staged Improvement Plan
Stage 3

Project	Jurisdiction	Roadway	Limits	Improvement	Total Cost
120	City of Carencro	St. Anne Extension	Guilbeaux to Frontage	New 2 Lane Roadway	$3,201,624.41
106	City of Scott	Landry Road Realignment	Landry to Dulles/Le Violon intersection	Realignment of Landry/Le Violio Curve to Dulles	$1,243,007.78
112	City of Scott	Westgate Extension	Dulles to City Limits	New 2 Lane Roadway	$3,293,099.39
116	City of Scott	Renaud Extension West	Renaud curve to Mills	New 2 Lane Roadway	$2,378,349.56
103	City of Carencro	Widen Moss Street	LA 98 to Hector Connoly	Widen to 3 lanes	$5,972,959.00
115	City of Scott	Hancock Extension South	Existing Frontage Rd to south of recreation facilities	New 2 Lane Roadway	$3,658,999.33
114	City of Scott	Hancock Extension North	Renaud to New Frontage Rd (north side)	New 2 Lane Roadway	$4,116,374.24
109	City of Scott	Delhomme Extension	Andres Rd to S Fieldspan Rd	New 2 Lane Roadway	$9,330,448.28
111	City of Scott	N Domingue Extension	Ole Colony to Dulles	New 2 Lane Roadway	$2,652,774.51
119	City of Carencro	Arceneaux Rd Extension	Potier to Frontage Rd	New 2 Lane Roadway	$2,012,449.63
201	City of Broussard	US 90	Wellhead to LA 88	Widen to 6 lanes	$104,548,600.00
205	City of Lafayette	LA 94	Louisiana to Bernard	Widen to 3 lanes	$32,168,800.00
206	City of Scott	LA 93 Overpass	Overpass over I-10	Widen Overpass	$80,422,000.00
	Misc.	Non-Line Item Excluding Capacity			$111,802,522.50
		Subtotal - Stage 3			$366,802,008.63
		STAGE 3 - Line Item Projects			
	Various	Unidentified Enhancement Projects	Various	Various	$4,702,589.85
	Various	Unidentified Safety Projects	Various	Various	$14,107,769.56
	Various	Unidentified Bridge Projects	Various	Various	$28,215,539.13
	Various	Unidentified Overlay Projects	Various	Various	$42,323,308.69
	Various	Unidentified Preservation Projects	Various	Various	$4,702,589.85
	Various	Unidentified Congestion Management Projects	Various	Various	$9,405,179.71
		Subtotal - Stage 3 Line Items			$103,456,976.79
		Stage 3 - Grand Total			**$470,258,985.43**

Implementation

The Project Solicitation Process for the MPO is the implementation stage of the Metropolitan Transportation Plan. The Acadiana MPO utilizes its Project Selection Process and its weighted evaluations to balance the requests from the community with the goals outlined in the MTP.

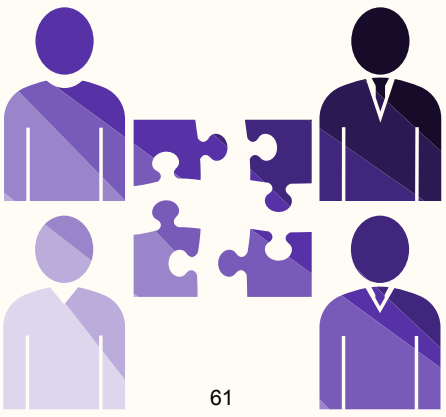
The MPO staff meets with each member entity on an annual basis to assist in developing projects that will have the greatest impact on the traffic reduction, pavement preservation, and asset management. The local governments make the determination as to what projects to develop and submit applications to the MPO committees for consideration of funding.

When projects are submitted, staff evaluate and rank projects based on the federally defined performance measures, presence on Staged Improvement Plan, placement on Congestion Management Program and other MPO plans such as the Bike and Pedestrian Plan, and availability of funding. The projects then go the Project Evaluation Subcommittee for review and funding assignment by fiscal year. The Transportation Technical Committee provides technical comments and revisions. Ultimately, the MPO Policy Committee has the final determination of the projects that are slated for MPO funding. Public input on projects are solicited at the Transportation Technical Committee, the Transportation Policy Committee, and through the Public Comment Process for the Transportation Improvement Program as defined in the MPO's Public Participation Plan.

The Acadiana Metropolitan Planning Organization has had a long history of vibrant and active transportation planning which will continue with the 2050 Transportation Plan. It is an essential requirement to ensure that the transportation system is serving the travel demand in an efficient and effective manner.

The MPO does receive and will continue to receive periodic status reports on the progress of infrastructure improvement projects. This information assists the MPO in evaluating its progress and future planning activities. The MPO will use this information to update and review the plan on an annual basis. In addition, the MPO will update the plan when federal performance measures are changed to reflect new goals and objectives for the roadways in the MPO area. A record of adoption and amendments with dates and notation of changes can be found on page 3.

The MPO appreciates the contribution of all of the community members and local governments who worked to provide information and input in the development of this plan.



APPENDIX 1: PUBLIC PARTICIPATION RESULTS

Report for Long Range Plan Survey

Response Counts

Completion Rate:	**72.6%**		
	Complete		283
	Partial		107

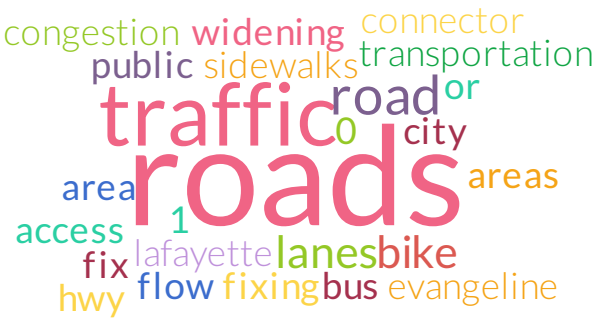
Totals: 390

1. How should transportation investment be focused in Acadiana?

2. How should transportation investment be focused in Acadiana? - Text Analysis

Percent

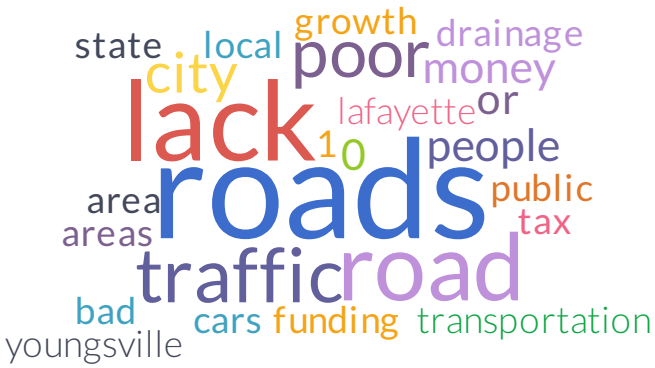
3. What transportation improvements are most important to you?



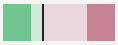
4. Are there any specific, non-motorized, or transit improvements which you think should/should not be made?

5. What are your thoughts on the current transportation network including roadway, non-motorized, and public transportation infrastructure?

6. What regional/local issues do you think are affecting transportation?



7. How would you prioritize the following categories of projects? (Rank 1-4, with 1 being the most important, 2 being second most important, etc.)

Item	Overall Rank	Rank Distribution	Score	No. of Rankings
Roadway reconstruction/maintenance projects (preservation of existing roads)	1		918	292
Roadway capacity projects (adding or expanding roads)	2		796	302
Non-motorized projects (i.e. bike/pedestrian facilities including sidewalks etc..)	3		643	290
Public transit projects (i.e. buses, transit facilities, carpool services)	4		611	297

8. In your opinion, which Long Rang goals and objectives are most important?

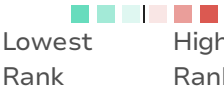
	Create a Roadway Network that is Safe for All Users	Enhance System Reliability of the Transportation Network	Incorporate Asset Management Principles to the Transportation Planning Process	Develop a Transportation System that Promotes Environmental Sustainability and Resiliency	Remove Congestion and Improve Operations	Reduce Project Delays and Improve the Project Delivery Process
Row 1	★★★★½ Count: 291 Not Applicable: 0	★★★★☆ Count: 283 Not Applicable: 0	★★★½☆ Count: 276 Not Applicable: 0	★★★★☆ Count: 285 Not Applicable: 0	★★★★½ Count: 295 Not Applicable: 0	★★★★½ Count: 283 Not Applicable: 0

9. On a scale of 1 to 5, rate the quality of the following within the Acadiana region (1 star being the lowest and 5 stars being the highest quality)

	Roads & Streets	Bike paths & Sidewalks	Public Transit Services	Traffic Signs & Signals	Parking & Bicycle Facilities
Row 1	★★★☆☆ Count: 305 Not Applicable: 0	★★½☆☆ Count: 300 Not Applicable: 0	★★½☆☆ Count: 289 Not Applicable: 0	★★★½☆ Count: 301 Not Applicable: 0	★★½☆☆ Count: 295 Not Applicable: 0

10. Rank the following from 1-6 in order of importance to you. (Starting from the top, 1 being most important, 2 being second most important, etc.)

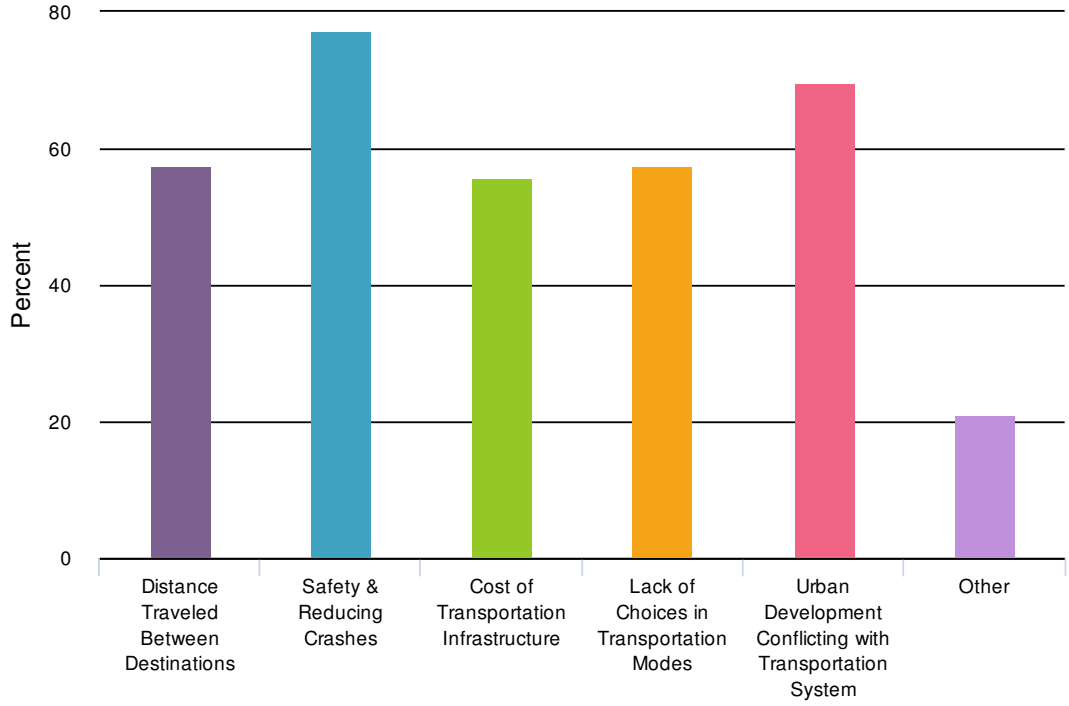
Item	Overall Rank	Rank Distribution	Score	No. of Rankings
Maintenance & Resurfacing of Existing Roads	1		1,425	299
Re-designing Roads to Reduce Congestion	2		1,306	296
Upgrading Traffic Signals & Signs to Improve Safety	3		927	295
Supporting Non-Motorized Development	4		920	293
Improving/Adding/Expanding Public Transit Services	5		842	295
Consideration of Environmental Impacts	6		801	293



11. Rate what you think about the following transportation development strategies to address transportation issues. (1 showing low support & 5 showing strong support)

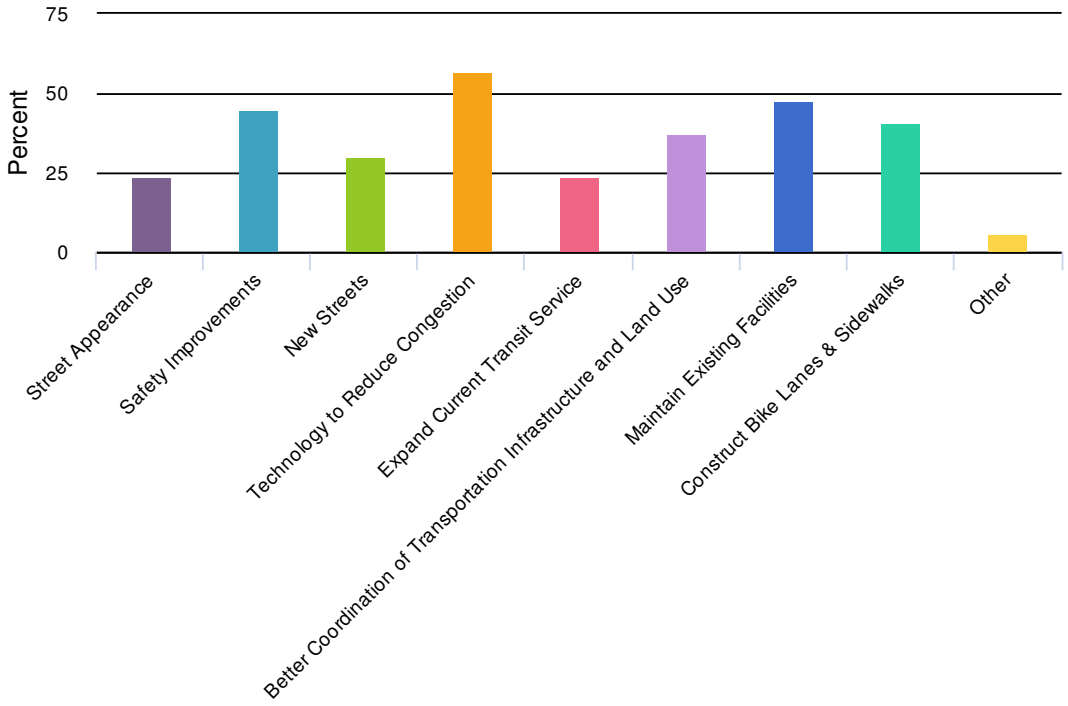
	Revitalization of Downtown & Main Streets	Servicing the existing transportation infrastructure	Building more facilities for walking & bicycling	Constructing new transportation infrastructure
Row 1	★★★½☆ Count: 297 Not Applicable: 0	★★★★½ Count: 297 Not Applicable: 0	★★★½☆ Count: 295 Not Applicable: 0	★★★★☆ Count: 301 Not Applicable: 0

12. In your opinion, which transportation issues require the most attention in future development (select 4 choices)



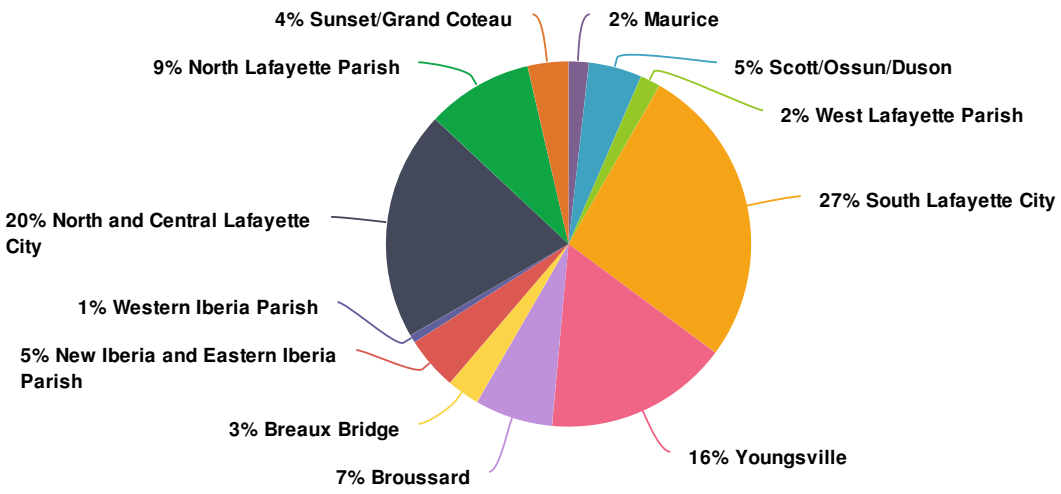
Value	Percent	Responses
Distance Traveled Between Destinations	57.6%	171
Safety & Reducing Crashes	77.4%	230
Cost of Transportation Infrastructure	55.6%	165
Lack of Choices in Transportation Modes	57.6%	171
Urban Development Conflicting with Transportation System	69.7%	207
Other	21.2%	63

13. If you had the authority to fund transportation improvements, which of the following would you fund? (Select 3 choices)



Value	Percent	Responses
Street Appearance	24.0%	72
Safety Improvements	44.7%	134
New Streets	30.0%	90
Technology to Reduce Congestion	57.0%	171
Expand Current Transit Service	23.7%	71
Better Coordination of Transportation Infrastructure and Land Use	37.3%	112
Maintain Existing Facilities	47.7%	143
Construct Bike Lanes & Sidewalks	40.7%	122
Other	6.0%	18

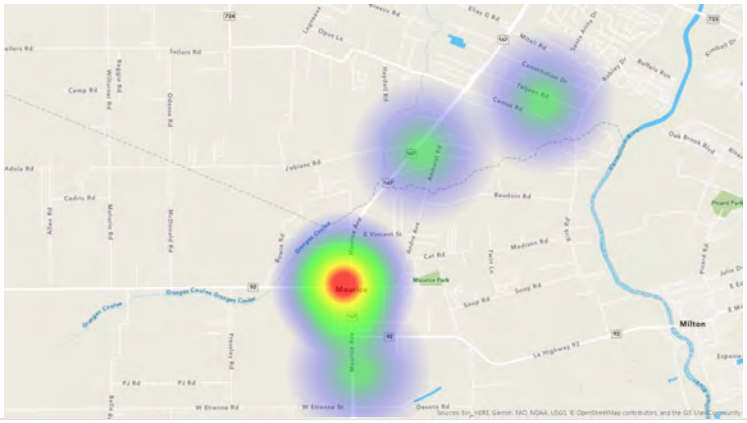
14. What part of the Acadiana Region do you live in?



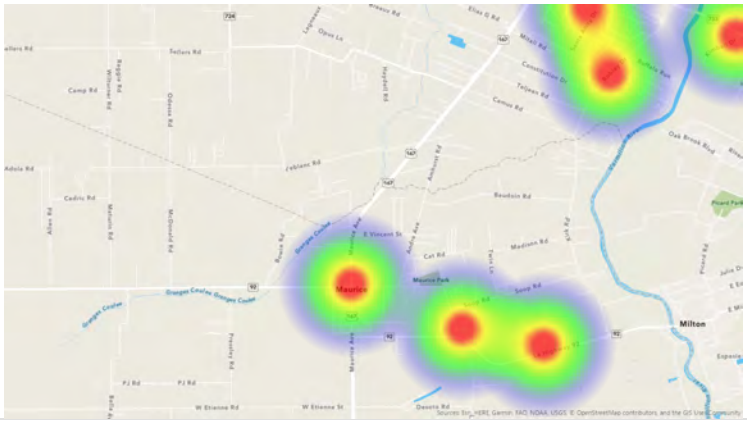
Value	Percent	Responses
Maurice	1.8%	5
Scott/Ossun/Duson	4.7%	13
West Lafayette Parish	1.8%	5
South Lafayette City	26.8%	74
Youngsville	16.3%	45
Broussard	6.9%	19
Breaux Bridge	2.9%	8
New Iberia and Eastern Iberia Parish	4.7%	13
Western Iberia Parish	0.7%	2
North and Central Lafayette City	20.3%	56
North Lafayette Parish	9.4%	26
Sunset/Grand Coteau	3.6%	10

Totals: 276

15. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

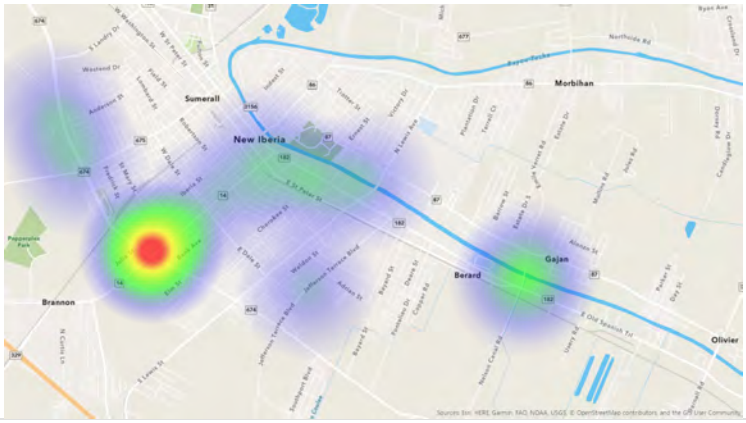


	Value	Count		Comment
	Good Traffic Flow	5		4

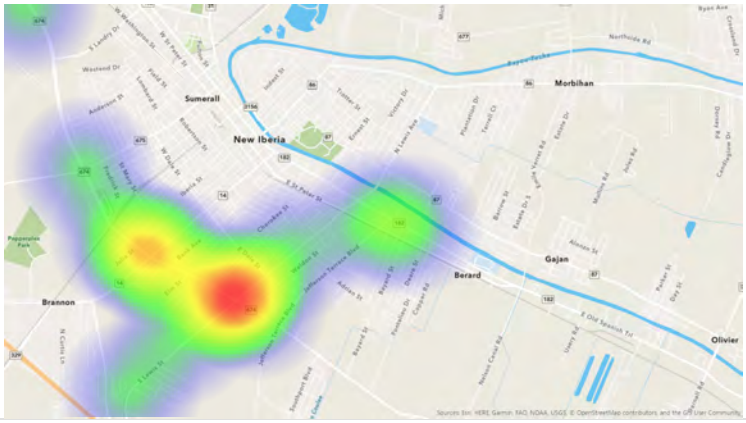


	Value	Count		Comment
	Bad Traffic Flow	6		4

16. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

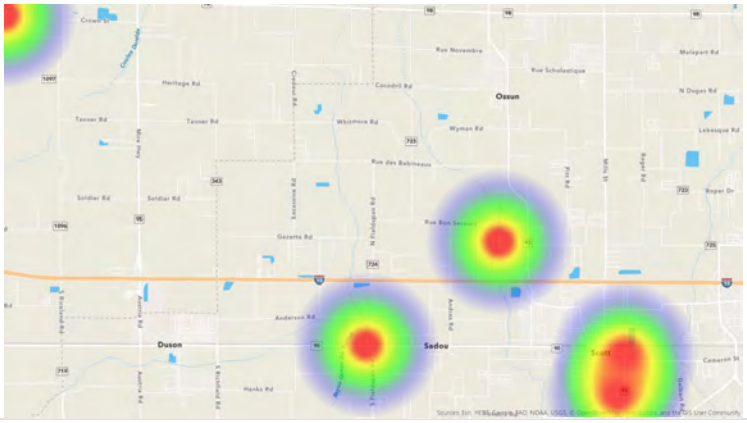


	Value	Count		Comment
👁	Good Traffic Flow	12		9

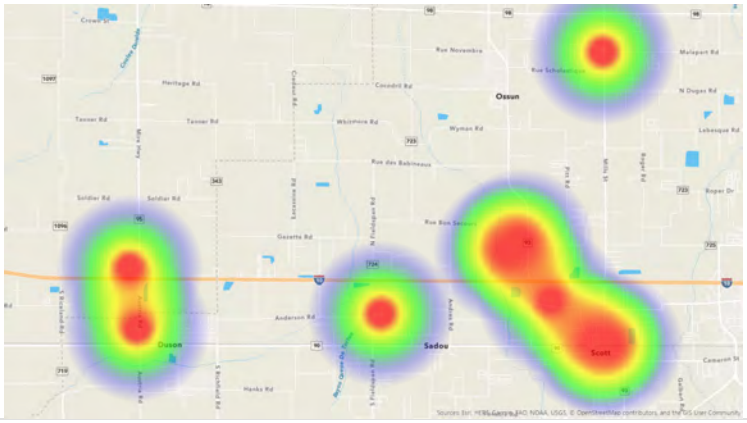


	Value	Count		Comment
👁	Bad Traffic Flow	15		9

17. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

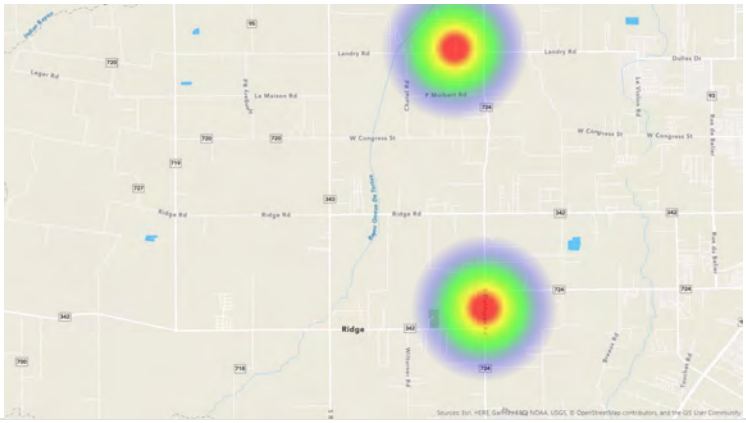


	Value	Count		Comment
👁	Good Traffic Flow	5		7

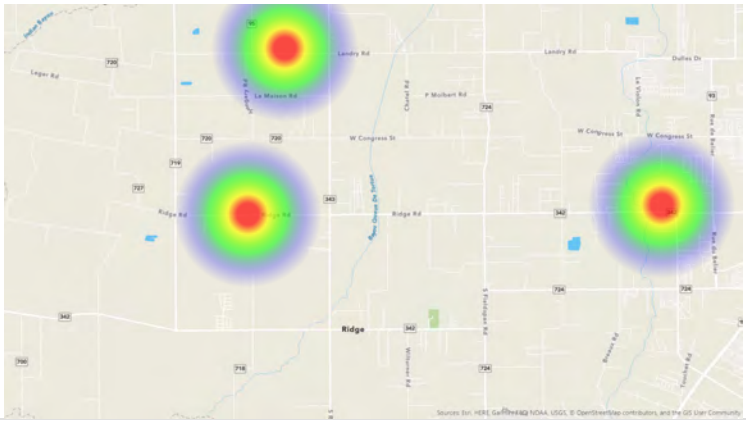


	Value	Count		Comment
👁	Bad Traffic Flow	9		7

18. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

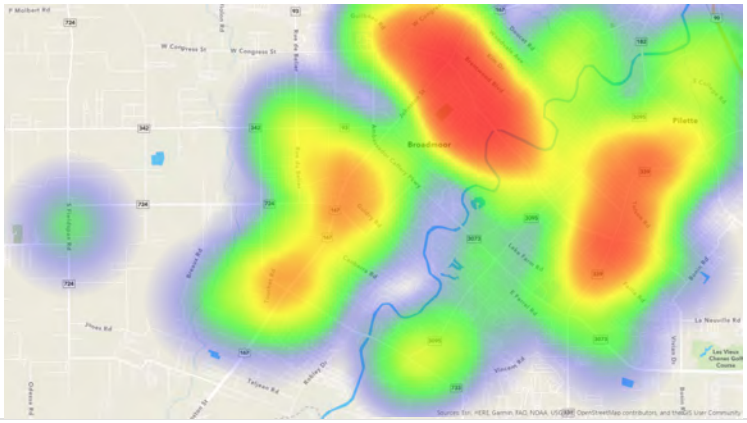


	Value	Count		Comment
👁	Good Traffic Flow	2		4

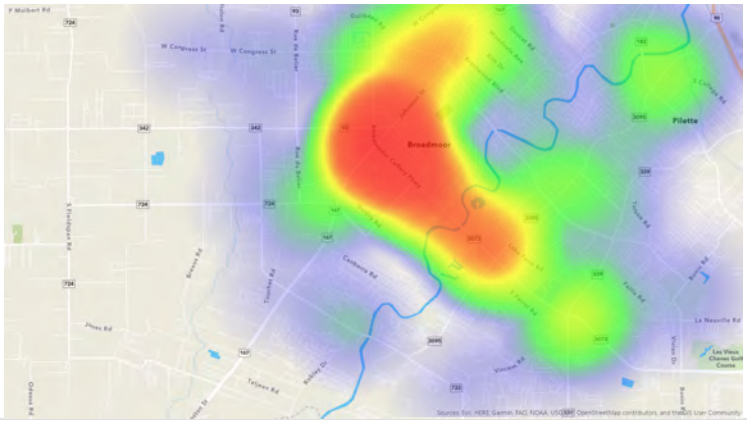


	Value	Count		Comment
👁	Bad Traffic Flow	3		4

19. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.



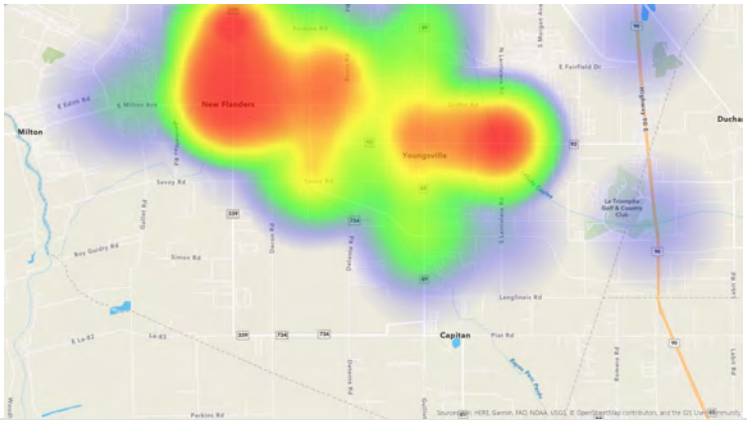
	Value	Count		Comment
👁	Good Traffic Flow	67		62



	Value	Count		Comment
👁	Bad Traffic Flow	133		62

20. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

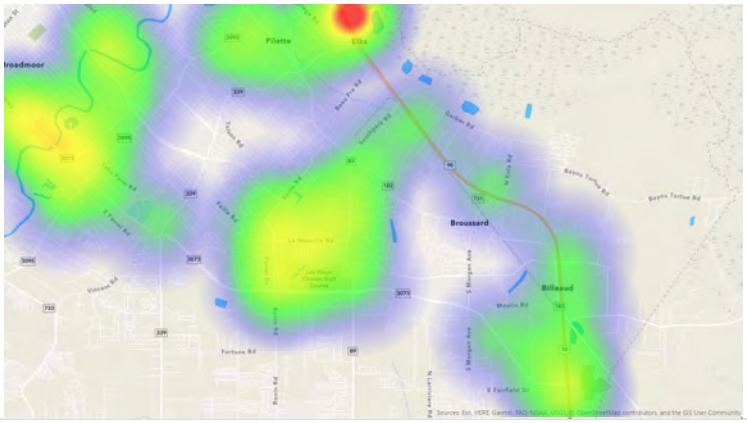
	Value	Count		Comment
👁	Good Traffic Flow	34		37



	Value	Count		Comment
👁	Bad Traffic Flow	64		37

21. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

	Value	Count		Comment
👁	Good Traffic Flow	16		13



	Value	Count		Comment
👁	Bad Traffic Flow	30		13

22. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

Value	Count	Comment
Good Traffic Flow	0	0

Value	Count	Comment
Bad Traffic Flow	0	0

23. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

Value	Count	Comment
Good Traffic Flow	0	0

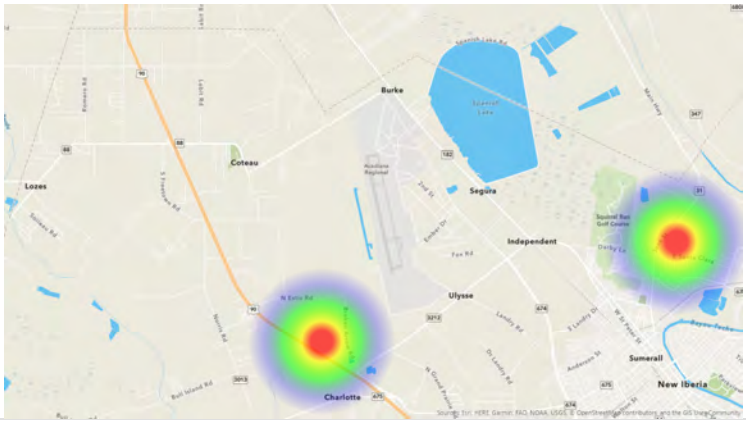
Value	Count	Comment
Bad Traffic Flow	0	0

24. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

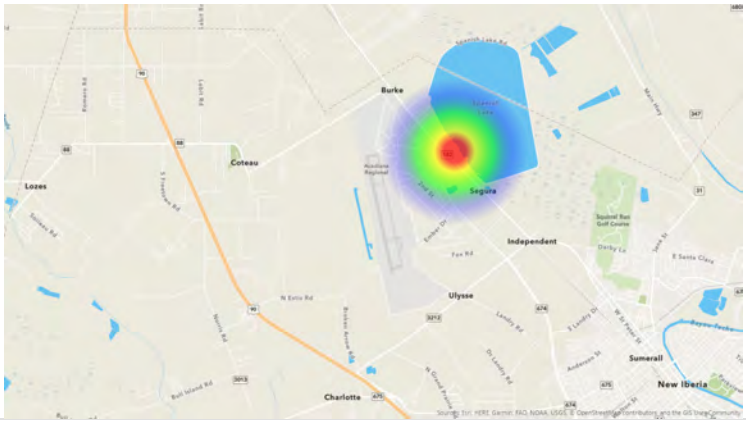
	Value	Count		Comment
👁	Good Traffic Flow	7		7

	Value	Count		Comment
👁	Bad Traffic Flow	9		7

25. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

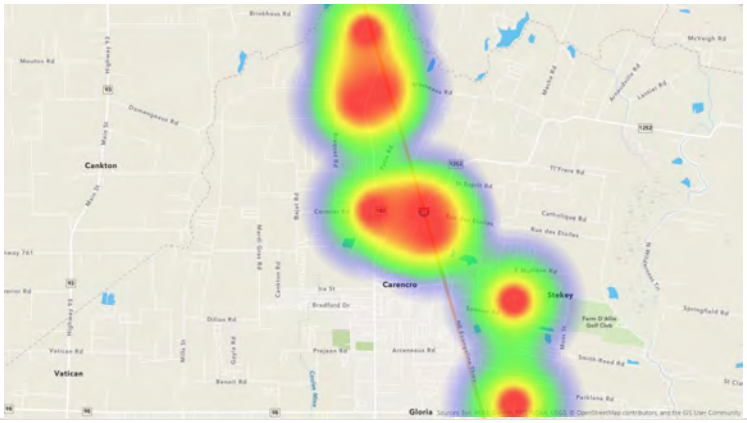


	Value	Count		Comment
👁	Good Traffic Flow	2		2

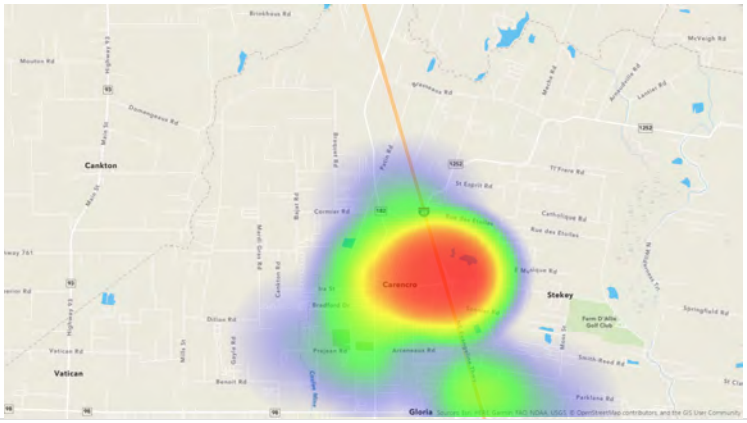


	Value	Count		Comment
👁	Bad Traffic Flow	1		2

26. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

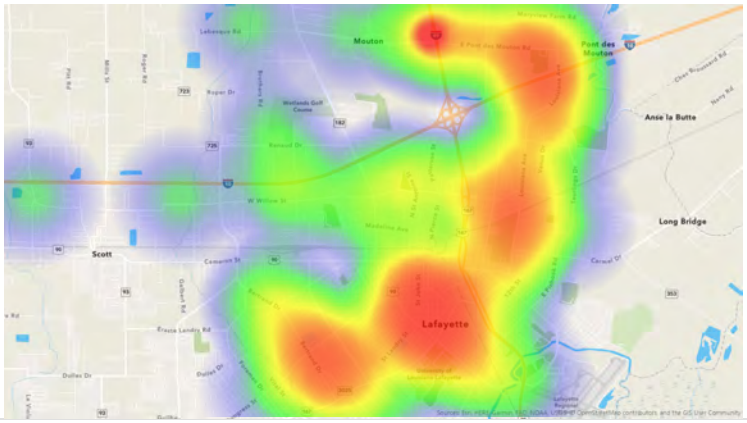


	Value	Count		Comment
👁	Good Traffic Flow	8		20



	Value	Count		Comment
👁	Bad Traffic Flow	28		20

27. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.



	Value	Count		Comment
👁	Good Traffic Flow	58		41

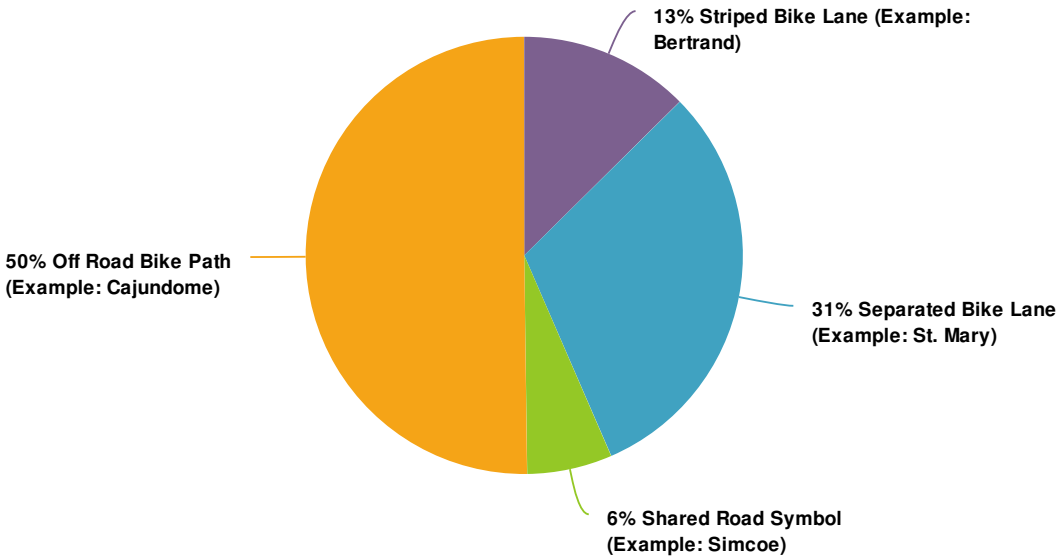
	Value	Count		Comment
👁	Bad Traffic Flow	90		41

28. How do you feel about the traffic congestion in your area? Click on an area of the map and select "Good Traffic Flow" and click areas with good traffic movement and select "Bad Traffic Flow" to show areas with more congestion/bad flowing traffic.

	Value	Count		Comment
👁	Good Traffic Flow	6		7

	Value	Count		Comment
👁	Bad Traffic Flow	7		7

29. What type of bike facilities would you like to see in your community? Choose one image that best represents the type of facility you would like to see.



Value	Percent	Responses
Striped Bike Lane (Example: Bertrand)	12.6%	34
Separated Bike Lane (Example: St. Mary)	30.9%	83
Shared Road Symbol (Example: Simcoe)	6.3%	17
Off Road Bike Path (Example: Cajundome)	50.2%	135

Totals: 269

30. Email Address to stay informed on MPO Action!

APPENDIX 2: TECH MEMO

2050 Metropolitan Transportation Plan

Technical Report #1

Transportation Modeling , Forecasting, and Project Scoring

Acadiana Planning Commission

DRAFT

January 2022

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Table of Contents

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1.0 Introduction and Model Overview

1.1 Introduction

This report includes a description of the procedures used in developing the updated demographics and travel estimates used in the 2050 Metropolitan Transportation Plan (MTP) for the Lafayette urbanized area Metropolitan Planning Organization (MPO), the Acadiana Planning Commission (APC). It also describes the relationship between planning data and trip making, and the calibration and testing of the model. This report does not include how to operate the model.

1.2 Model Overview

The Lafayette MPO Travel Demand Model (TDM) is being updated for use in the MPO's new 2050 MTP. The new TDM is an update of the model used in the previous MTP. The updated model was calibrated and validated to meet the requirements established by the Federal Highway Administration (FHWA) and uses the calibration and validation parameters described in the latest *Minimum Travel Demand Model Calibration and Validation Guidelines for State of Tennessee*[1].

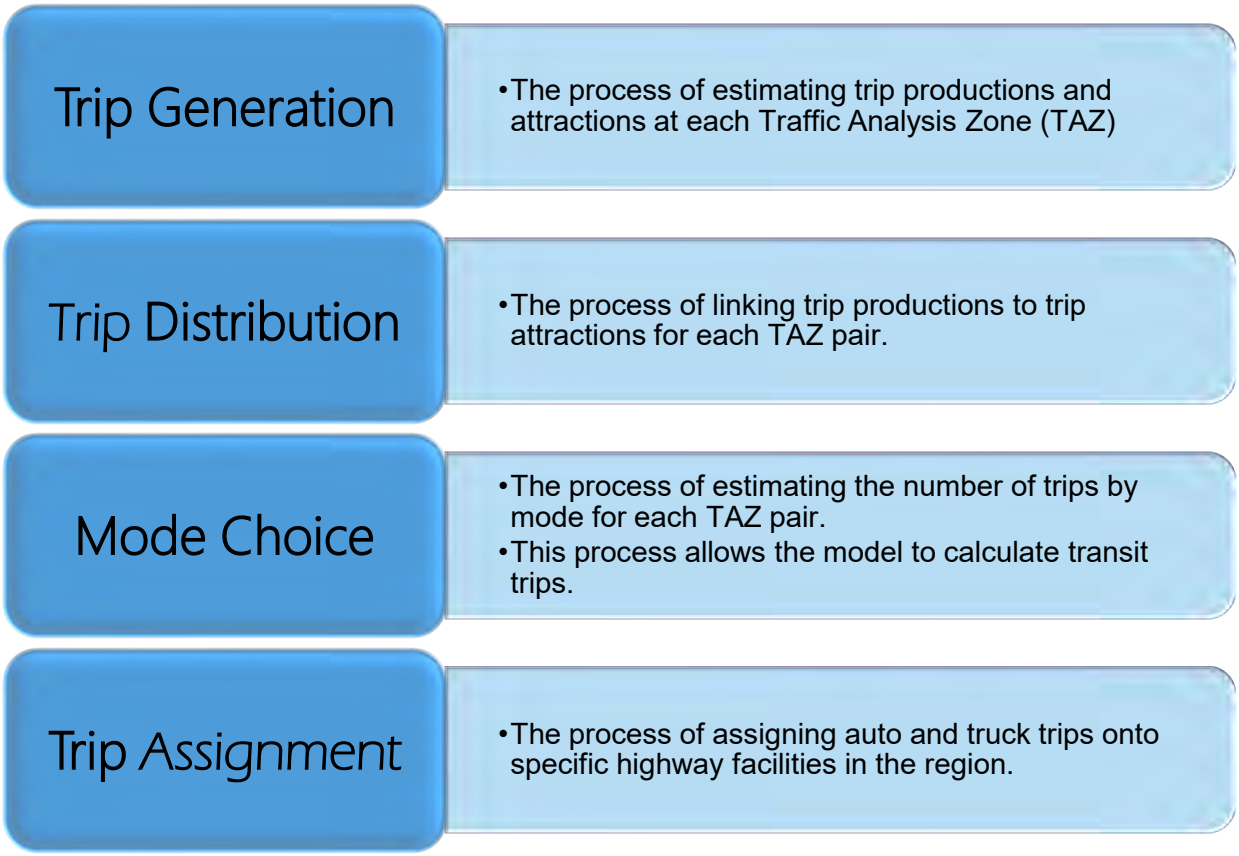
The updated TDM uses a 2020 base year. Additional updates to the TDM include:

- updated master roadway network;
- updated traffic analysis zones;
- updated socioeconomic data and trip rates; and
- updated turn penalties, time penalties, capacity factors, and external trip data.

[1] http://tnmug.utk.edu/wp-content/uploads/sites/47/2017/06/MinimumTravelDemandModel2016.pdf

The Lafayette MPO TDM is based upon the conventional trip-based four-step modeling approach.

Broadly, the main model components fall within the following four categories:



The TDM's focus is on the region's highway network due to a limited number of transit trips. As a result, a transit element has not been included, eliminating the Mode Choice step. The TDM was developed in TransCAD 8.0 travel demand forecasting software and the model interface was developed using GISDK macros.

2.0 Traffic Analysis Zones and Socioeconomic Data

2.1 Study Area and Traffic Analysis Zones

The accuracy necessary for generating trips from planning data requires it to be aggregated by small geographic areas. In the TDM these areas are called Traffic Analysis Zones (TAZs).

TAZs are generally homogeneous areas and were delineated based on:

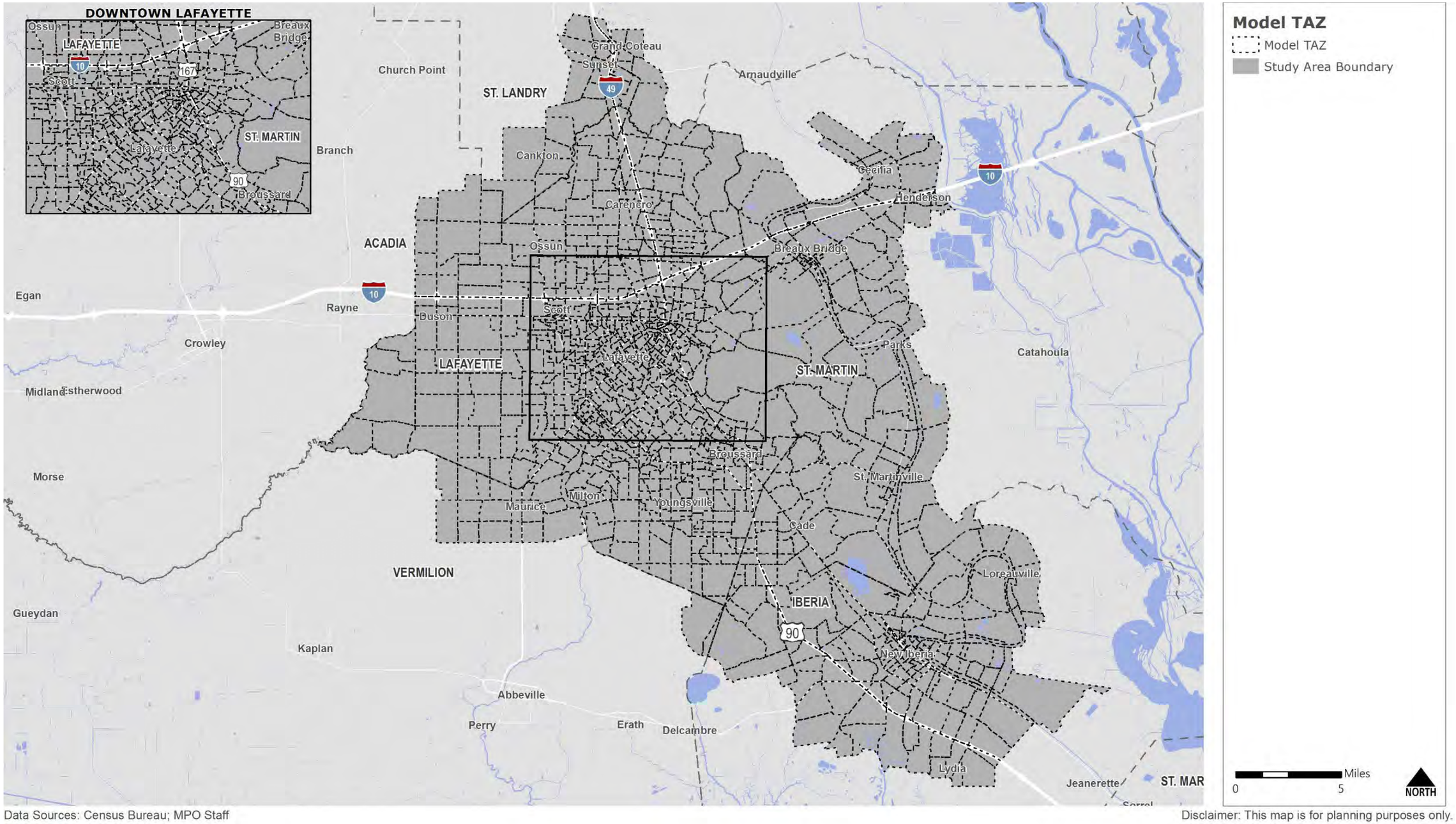
- population,
- land use,
- census geography,
- physical landmarks, and
- governmental jurisdictions.

The 2050 MTP study area is the same as that of the 2040 MTP effort. However, the TAZ structure has been revised. The Lafayette study area was divided into 1,169 TAZs with:

- 13 in Acadia Parish
- 175 in Iberia Parish
- 765 in Lafayette Parish
- 33 in St. Landry Parish
- 161 in St. Martin Parish
- 22 in Vermilion Parish

Additionally, there are 42 external stations. A map of the TAZs is shown in Figure 2.1.

Figure 2.1: MPO Study Area



Data Sources: Census Bureau; MPO Staff

Disclaimer: This map is for planning purposes only.

2.2 Base Year (2020) Model Socioeconomic Data Update

The previous TDM had a 2010 base year that used housing, income, employment, and school attendance data as model inputs. These values were updated to reflect the new base year, 2020. This section describes the procedures used to update the model files to create the updated base year socioeconomic data.

Household Data Update

Development of population and household data for the TDM effort started with obtaining housing data from the Melissa database. This data was geocoded and uploaded to Geographic Information System (GIS) layers to place each dwelling unit at its physical location. The GIS layers were then checked for accuracy using aerial imagery and local knowledge. College apartments were removed since the occupants are considered part of the group quarters population.

Once the accuracy checks were completed, the housing data was aggregated to the block group level and compared to 2019 ACS estimates and Census data sources. Where large differences were observed, the cause for the difference was explored and it was determined these differences are the result of:

- the one-year difference between the 2019 ACS and 2020 Melissa data,
- large apartment complexes not shown in the ACS data sources, or
- over counting in some blocks in the Census data.

The overall Parish-level and study area-level dwelling unit (DU) counts were close to the Census estimates, leading to the determination DU totals were sufficient. Using Census 2010 occupancy percentages and average household sizes by TAZ, the 2020 population in each TAZ by Melissa data was estimated. This was used to determine the proportion of the population in each TAZ based upon the Parish it is located in.

The 2050 MTP uses total population as a control total to determine housing units. The Census 2020 total population by Parish was not available at the time of the model development, leading to the use of historical American Community Survey (ACS) data, by year, from 2010 through 2019, to determine a 2020 population estimate. The average growth rate for each Parish obtained from the ACS data was used to extrapolate the 2019 population to 2020, providing the total population for each Parish. Using the relative percentage of population within the study area to that of the entire Parish from 2010, the 2020 study area populations were determined by applying the percentage to the Parish control total.The proportion of the population in each TAZ calculated from the Melissa data was then applied to the control total population to obtain the total population in each TAZ. Households and total dwelling units were derived from these population totals by using the Census 2010 occupancy percentages and average household sizes by TAZ. Table 2.1 displays the base year population control totals, by Parish, for entire parishes and their study area portions.

Table 2.1: Study Area Total Population Control Totals, Base Year 2020

Parish	Total Population Parish	Total Population Study Area
Acadia	62,594	2,694
Iberia	70,754	58,319
Lafayette	249,716	249,716
St Landry	82,838	7,640
St Martin	54,152	42,808
Vermilion	60,454	5,056
Total	**580,508**	**366,233**

Source: APC; NSI, 2021

Employment Data Update

The employment values used in the model were updated using data purchased from InfoUSA and adjusted to meet the control totals derived from Quarterly Census of Employment and Wages (QCEW) data.

The TDM used InfoUSA data for all six (6) parishes to locate employment within the study area. This data reflects January 2020 prior to the COVID-19 "lockdown" orders or changes in employment status caused by the pandemic. This data was imported into GIS and then checked for accuracy. Additional checks for larger employers were conducted to ensure they were in the right location and that their employment values match known data from the local Chambers of Commerce. The employment by TAZ and type was calculated. These values were then adjusted for the Parish to meet the control totals established by APC based on the QCEW data.

Table 2-2 displays the study area base year control totals. For modeling purposes, employment variables were differentiated into the following categories:

- Agriculture, Mining and Construction (NAICS 11, 21, 23)
- Manufacturing, Transportation/Communications/Utilities, and Wholesale Trade (NAICS 31-33, 48-49, 22, 42)
- Retail Trade (NAICS 44-45, NAICS 722)
- Government, Office, and Services (NAICS 51-56, 61, 62, 71, 721, 81, 92)
- Other Employment (NAICS 99)

Table 2.2: Study Area Employment Control Totals, Base Year 2020

Parish	Total Employment
Acadia	547
Iberia	23,597
Lafayette	132,852
St Landry	1,107
St Martin	10,504
Vermilion	1,033
Total	169,640

Source: InfoUSA, 2020; NSI, 2021

School Enrollment Data Update

The TDM obtained school attendance data from the U.S. Department of Education. School attendance figures include:

- Public and private elementary, middle, and high schools.
- Colleges and universities.
- Vocational and business schools.

Total school attendance in the study area in 2020 was 91,823 students; with:

- 605 in Acadia Parish
- 11,895 in Iberia Parish
- 66,853 in Lafayette Parish
- 1,610 in St. Landry Parish
- 8,781 in St. Martin Parish
- 2,079 in Vermilion Parish

For modeling purposes, the school attendance is measured by the number of students attending a school in a traffic zone, and not by the number of students residing in a traffic zone. School enrollment at the University of Louisiana at Lafayette is split between the relevant TAZs based upon student parking availability, including Cajun Field.

3.0 Roadway Network

3.1 Network Line Layer

The simulation of travel patterns in a computer model requires a representation of the street and highway system in digital format. The TransCAD model creates such a network from a geographic line layer in GIS. The line layer dataview records contain descriptive information for each link and its properties. Turn prohibitions are also coded into the network at locations where certain movements are not allowed or physically cannot be made.

Adjustments were made to the model network to update the base year for accuracy.

These adjustments included:

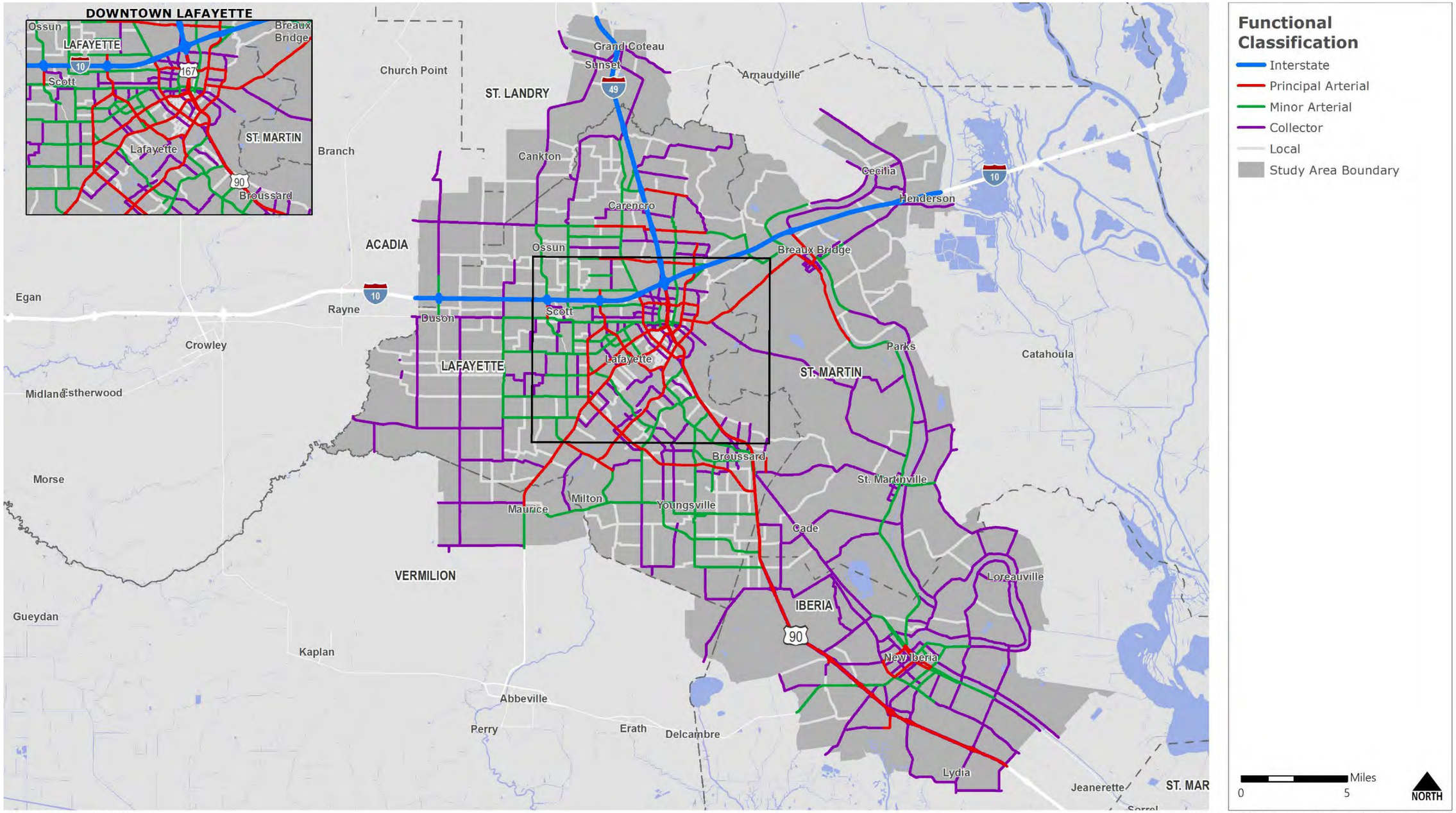
- number of lanes,
- speeds,
- functional classification to the most up-to-date data,
- volume-delay function parameters (alpha and beta values),
- new capacity factors, and
- daily traffic counts and traffic stations (where necessary).

The updated TDM continues to use a master network in the model's setup folder. This line layer contains the records for all roadway links used in the TDM process. The master network contains the data for the base year, Existing Plus Committed network, and all roadway test projects. Figure 3.1 displays the base year roadway network links and link functional classifications used in the TDM.

3.2 Functional Classification

Each link in the model's roadway network was assigned a functional classification based on the system maintained by the Louisiana Department of Transportation and Development (LADOTD). The functional classifications used in the TDM are shown in Table 3.1.

Figure 3.1: Roadway Network and Functional Classification, Base Year



Data Sources: LADOTD

Disclaimer: This map is for planning purposes only.

Table 3.1: Functional Classification Used in MPO Model

FHWA Functional Classification		Description	LADOTD Functional Classification Number
Rural	01	Interstate	1
	02	Other Principal Arterial	2
	06	Minor Arterial	6
	07	Major Collector	7
	08	Minor Collector	8
	09	Local	9
	N/A	Ramp	10
Urban	11	Interstate	11
	12	Freeway/Expressway	12
	14	Principal Arterial	14
	16	Minor Arterial	16
	17	Urban Major Collector	17
	N/A	Urban Minor Collector	18
	19	Local	19
	N/A	Ramp	20
Other	N/A	Centroid Collector	99

**NOTE: Ramps follow the same functional classification as the primary roadway they connect to.

Source: FHWA; LADOTD, 2021

3.3 Model Link Speeds and Capacities

Roadway speeds and capacities are important TDM inputs that affect the traffic assignment model. The posted speed, which is assumed to be the free flow speed, for each roadway link is contained In the network database. The model has been updated with new capacity factors, which are shown in Figure 3.2. The capacity inputs consider factors such as:

- Roadway functional classification
- Location of roadway in an urban or rural area
- Number of lanes
- Width of travel lanes
- Presence of a median or dividing feature
- Presence and width of shoulder on roadway

Figure 3.2: Model Capacity Factors

Link Capacity (LOS D)

Vehicles per hour per lane - vphpl

Functional Class		vphpl Directional
All Interstate		
2 Lanes		2,300
>2 Lanes		2,400
Principal Arterial		
Rural	Divided	1,700
Rural	Undivided	1,500
Urban	Divided	1,500
Urban	Undivided	1,300
Minor Arterial		
Rural	Divided	1,600
Rural	Undivided	1,350
Urban	Divided	1,400
Urban	Undivided	1,150
Collector		
Rural	Divided	1,350
Rural	Undivided	1,150
Urban	Divided	1,150
Urban	Undivided	950
Local		
Rural	2 Lane	900
Rural	>2 Lane	1,000
Urban	2 Lane	800
Urban	>2 Lane	900
Ramps		1,000
Centroid Connectors		9,999

SF = c x N x Fw x Fhv x Fp x Fe x Fd x Fsd x Fctl x Fpark X (V/C)i

SF = Model vphpl for desired level of service
c = Ideal vphpl
N = Number of Lanes
(V/C)I = Rate of service flow for level of service D

Adjustment Factors

Acronym	Name	Facility Type	Lane Width	LW Code	Shoulder	SW Code	Factor
Fw	Lane & Shoulder Width	Interstate & Sys Ramp	<=10'	1	0-<2'	1	0.78
		Interstate & Sys Ramp	<=10'	1	2'-5'	2	0.83
		Interstate & Sys Ramp	<=10'	1	>5'	3	0.88
		Interstate & Sys Ramp	>10'	2	0-<2'	1	0.90
		Interstate & Sys Ramp	>10'	2	2'-5'	2	0.95
		Interstate & Sys Ramp	>10'	2	>5'	3	1.00
		Principal Arterial Div	<=10'	1	0-<2'	1	0.78
		Principal Arterial Div	<=10'	1	2'-5'	2	0.83
		Principal Arterial Div	<=10'	1	>5'	3	0.88
		Principal Arterial Div	>10'	2	0-<2'	1	0.92
		Principal Arterial Div	>10'	2	2'-5'	2	0.96
		Principal Arterial Div	>10'	2	>5'	3	1.00
		Principal Arterial Undiv	<=10'	1	0-<2'	1	0.78
		Principal Arterial Undiv	<=10'	1	2'-5'	2	0.82
		Principal Arterial Undiv	<=10'	1	>5'	3	0.86
		Principal Arterial Undiv	>10'	2	0-<2'	1	0.90
		Principal Arterial Undiv	>10'	2	2'-5'	2	0.95
		Principal Arterial Undiv	>10'	2	>5'	3	1.00
		Minor Arterial Div	<=9'	3	0-<2'	1	0.81
		Minor Arterial Div	<=9'	3	2'-5'	2	0.86
		Minor Arterial Div	<=9'	3	>5'	3	0.93
		Minor Arterial Div	>9'	4	0-<2'	1	0.94
		Minor Arterial Div	>9'	4	2'-5'	2	1.00
		Minor Arterial Div	>9'	4	>5'	3	1.05
		Minor Arterial Undiv	<=9'	3	0-<2'	1	0.77
		Minor Arterial Undiv	<=9'	3	2'-5'	2	0.83
		Minor Arterial Undiv	<=9'	3	>5'	3	0.88
		Minor Arterial Undiv	>9'	4	0-<2'	1	0.89
		Minor Arterial Undiv	>9'	4	2'-5'	2	0.95
		Minor Arterial Undiv	>9'	4	>5'	3	1.00
		Collector Div	<=9'	3	0-<2'	1	0.81
		Collector Div	<=9'	3	2'-5'	2	0.86
		Collector Div	<=9'	3	>5'	3	0.93
		Collector Div	>9'	4	0-<2'	1	0.96
		Collector Div	>9'	4	2'-5'	2	1.00
		Collector Div	>9'	4	>5'	3	1.05
		Collector Undiv	<=9'	3	0-<2'	1	0.81
		Collector Undiv	<=9'	3	2'-5'	2	0.85
		Collector Undiv	<=9'	3	>5'	3	0.90
		Collector Undiv	>9'	4	0-<2'	1	0.94
		Collector Undiv	>9'	4	2'-5'	2	1.00
		Collector Undiv	>9'	4	>5'	3	1.04
		Local 2 Lane	<=9'	3	0-<2'	1	0.65
		Local 2 Lane	<=9'	3	2'-5'	2	0.78
		Local 2 Lane	<=9'	3	>5'	3	0.90
		Local 2 Lane	>9'	4	0-<2'	1	0.85
		Local 2 Lane	>9'	4	2'-5'	2	1.00
		Local 2 Lane	>9'	4	>5'	3	1.04
		Local >2 Lane	<=9'	3	0-<2'	1	0.81
		Local >2 Lane	<=9'	3	2'-5'	2	0.85
		Local >2 Lane	<=9'	3	>5'	3	0.92
		Local >2 Lane	>9'	4	0-<2'	1	0.96
		Local >2 Lane	>9'	4	2'-5'	2	1.00
		Local >2 Lane	>9'	4	>5'	3	1.10

Fhv	Heavy Vehicle	Interstate		0.88
		Principal Arterial		0.90
		Minor Arterial		0.90
		Collector		0.92
		Local		0.97
Fp	Driver Population	Rural Interstate		0.90
		Urban Interstate		0.92
		System Ramp		0.92
		Principal Arterial		0.95
		Minor Arterial		0.98
		Collector		NA
		Local		NA
Fe	Driving Environment	Interstate		NA
		Rural Prin Art	Divided	1.00
		Rural Prin Art	Undivided	0.90
		Urban Prin Art	Divided	0.90
		Urban Prin Art	Undivided	0.80
		Rural Minor Art	Divided	1.00
		Rural Minor Art	Undivided	0.90
		Urban Minor Art	Divided	0.90
		Urban Minor Art	Undivided	0.80
		Rural Collector	Divided	1.00
		Rural Collector	Undivided	0.90
		Urban Collector	Divided	0.90
		Urban Collector	Undivided	0.80
		Rural Local	2 Lane	0.90
		Rural Local	>2 Lane	0.90
		Urban Local	2 Lane	0.80
		Urban Local	>2 Lane	0.80
Fd	Directional Distribution (Local only)	2 Lane	Divided	0.94
		>2 Lane	Divided	1.16
		2 Lane	Undivided	0.94
		>2 Lane	Undivided	1.10
Fsd	Signal Density	Principal Arterial - CBD		0.90
		Principal Arterial - Urban		0.85
		Principal Arterial - Suburban		0.88
		Minor Arterial - CBD		0.90
		Minor Arterial - Urban		0.92
		Minor Arterial - Suburban		0.95
		Collector - CBD		0.90
		Collector – Urban		1.00
		Collector - Suburban		1.00
		Local - CBD		0.90
		Local - Urban		1.00
		Local - Suburban		1.00
Fctl	Center Turn Lane	Interstate		NA
		All Other		1.08
Fpark	On Street Parking	Any		0.95

3.4 Centroid Connectors

Centroid connectors are imaginary roadway network links that connect a TAZ's centroid to the adjacent roadway network at nodes. These links represent the local streets on the street and highway system that are not in the model network. Centroid connectors provide the model the ability to move trips generated from individual TAZs to the roadway network. Where centroid connectors access the model network is based on features such as neighborhood roadway entrances, driveways, and parking lots.

During the TDM update, the centroid connectors were adjusted to match locations where traffic is most likely to access the model's roadways. This was accomplished by relocating the centroid for the TAZ to reflect the "center of mass" of developed land and/or moving the centroid connector roadway network access points to a location where trips generally enter or leave the TAZ. This changes the length of the centroid connectors and the travel times on the links to encourage modeled traffic to use certain access points to reflect the observed traffic.

3.5 Traffic Counts

The updated model contains traffic counts obtained from LADOTD and represent traffic volumes as close to pre-COVID 2020 as possible. The update process included the verification of count stations upon the existing TDM links and ensuring that the ADTs are assigned to the correct link, with adjustments made as necessary.

3.6 Network Attributes

Table 3.2 displays the network attributes used on the links in the TDM.

Table 3.2: Model Link Attributes

Attribute Name	Description	Input Type
LENGTH	Real (4 bytes) Segment length in miles	Automatic
DIR	Integer (2 Bytes) 0 = Two way link 1 = One way link, AB fields will be used -1 = One way link, BA fields will be used.	Automatic but user can override.
FULL_NAME	Character Street Name	User
DOTD Station	Character DOTD Traffic Count Station	User
ADT_20	Integer (4 bytes) 2020 Daily Traffic Count	User
ADT_Year	Integer (4 bytes) ADT Count Year	User

Attribute Name	Description	Input Type
NETWORK_20	Integer (2 bytes) 1= Network Road link 2= Centroid connector 0 or null= Link will not be included in the model run	User*
AB_DOTD_FC_20	Integer (4 bytes) Refer to Table 3.1	User
BA_DOTD_FC_20	Integer (4 bytes) Refer to Table 3.1	User
DOTD_FC_DESC_20	Character Refer toTable 3.1	User
MODEL_FC_20	Integer (4 bytes) Model functional classification code	User*
MODEL_FC_DESC_20	Character Model functional classification description	User
AB_CLASS_20	Integer (4 bytes) Field denoting number of lanes and configuration in AB direction	User
BA_CLASS_20	Integer (4 bytes) Field denoting number of lanes and configuration in BA direction	User
POSTED_SPEED_20	Integer (4 bytes) Posted Link Speed (mph)	User
AB_SPEED_20	Real (8 bytes) Link speed (mph) in AB direction	User*
BA_SPEED_20	Real (8 bytes) Link speed (mph) in BA direction	User*
LANES_20	Integer (4 bytes) Number of lanes for the roadway	User
AB_LANES_20	Integer (4 bytes) Number of lanes in AB direction	User*
BA_LANES_20	Integer (4 bytes) Number of lanes in BA direction	User*
ALPHA_20	Real (8 bytes) BPR Function Parameter	User*
BETA_20	Real (8 bytes) BPR Function Parameter	User*
AB_TT_20	Real (8 bytes) Link travel time in AB direction	Model
BA_TT_20	Real (8 bytes) Link travel time in BA direction	Model
AB_AM_TT_20	Real (8 bytes) Morning link travel time in AB direction	Model

Attribute Name	Description	Input Type
BA_AM_TT_20	Real (8 bytes) Morning link travel time in BA direction	Model
AB_MD_TT_20	Real (8 bytes) Mid-day link travel time in AB direction	Model
BA_MD_TT_20	Real (8 bytes) Mid-day link travel time in BA direction	Model
AB_PM_TT_20	Real (8 bytes) Afternoon link travel time in AB direction	Model
BA_PM_TT_20	Real (8 bytes) Afternoon link travel time in BA direction	Model
AB_NT_TT_20	Real (8 bytes) Nighttime link travel time in AB direction	Model
BA_NT_TT_20	Real (8 bytes) Nighttime link travel time in BA direction	Model
Fw_20	Real (8 bytes) Capacity factor for lane and shoulder width	User
Fhv_20	Real (8 bytes) Capacity factor for heavy vehicles	User
Fp_20	Real (8 bytes) Capacity factor for driver population	User
Fe_20	Real (8 bytes) Capacity factor for driving environment	User
Fd_20	Real (8 bytes) Capacity factor for directional distribution	User
Fctl_20	Real (8 bytes) Capacity factor for center turn lanes	User
Fpark_20	Real (8 bytes) Capacity factor for on street parking	User
Fall_20	Real (8 bytes) Overall capacity factor	User
IDEAL_VPHPL_20	Real (8 bytes) Maximum capacity in vehicles/hour/lane	User
AB_VPHPL_20	Real (8 bytes) Capacity in AB direction in vehicles/hour/lane	User
BA_VPHPL_20	Real (8 bytes) Capacity in BA direction in vehicles/hour/lane	User
IS_MANUAL_CAP_20	Integer (2 bytes) 0 or null= Model calculates the link capacity Any other value= Link capacity value input by User will be retained	User*
AB_CAPACITY_20	Integer (4 bytes) Capacity in AB direction	Model
BA_CAPACITY_20	Integer (4 bytes) Capacity in BA direction	Model

Attribute Name	Description	Input Type
AB_CAP_AM_20	Integer (4 bytes) Morning capacity in AB direction	Model
BA_CAP_AM_20	Integer (4 bytes) Morning capacity in BA direction	Model
AB_CAP_MD_20	Integer (4 bytes) Mid-day capacity in AB direction	Model
BA_CAP_MD_20	Integer (4 bytes) Mid-day capacity in BA direction	Model
AB_CAP_PM_20	Integer (4 bytes) Afternoon capacity in AB direction	Model
BA_CAP_PM_20	Integer (4 bytes) Afternoon capacity in BA direction	Model
AB_CAP_NT_20	Integer (4 bytes) Night time capacity in AB direction	Model
BA_CAP_NT_20	Integer (4 bytes) Night time capacity in BA direction	Model
DAILY_FLOW	Real (8 bytes) Total daily model volume	Model
AB_DAILY_FLOW	Real (8 bytes) AB directional daily model volume	Model
BA_DAILY_FLOW	Real (8 bytes) BA directional daily model volume	Model
DAILY_TOT_VMT	Real (8 bytes) Total daily vehicle miles travelled	Model
DAILY_AB_VMT	Real (8 bytes) AB directional daily vehicle miles travelled	Model
DAILY_BA_VMT	Real (8 bytes) BA directional daily vehicle miles travelled	Model
DAILY_TOT_VHT	Real (8 bytes) Total daily vehicle hours travelled	Model
DAILY_AB_VHT	Real (8 bytes) AB directional daily vehicle hours travelled	Model
DAILY_BA_VHT	Real (8 bytes) BA directional daily vehicle hours travelled	Model
DAILY_TOT_VHD	Real (8 bytes) Total daily vehicle hours delay	Model
DAILY_AB_VHD	Real (8 bytes) AB directional daily vehicle hours delay	Model
DAILY_BA_VHD	Real (8 bytes) BA directional daily vehicle hours delay	Model
DAILY_AB_VOC	Real (8 bytes) AB directional volume/capacity	Model
DAILY_BA_VOC	Real (8 bytes) BA directional volume/capacity	Model

Attribute Name	Description	Input Type
DAILY_MAX_VOC	Real (8 bytes) Higher of AB and BA volume/capacity	Model
DAILY_TRK_FLOW	Real (8 bytes) Total daily model truck volume	Model
AB_DAILY_TRK_FLOW	Real (8 bytes) AB directional daily model truck volume	Model
BA_DAILY_TRK_FLOW	Real (8 bytes) BA directional daily model truck volume	Model
DAILY_TOT_TRK_VMT	Real (8 bytes) Total daily truck miles travelled	Model
DAILY_AB_ TRK_VMT	Real (8 bytes) AB directional daily truck miles travelled	Model
DAILY_BA_ TRK_VMT	Real (8 bytes) BA directional daily truck miles travelled	Model
DAILY_TOT_ TRK_VHT	Real (8 bytes) Total daily truck hours travelled	Model
DAILY_AB_ TRK_VHT	Real (8 bytes) AB directional daily truck hours travelled	Model
DAILY_BA_ TRK_VHT	Real (8 bytes) BA directional daily truck hours travelled	Model
DAILY_TOT_ TRK_VHD	Real (8 bytes) Total daily truck hours delay	Model
DAILY_AB_ TRK_VHD	Real (8 bytes) AB directional daily truck hours delay	Model
DAILY_BA_ TRK_VHD	Real (8 bytes) BA directional daily truck hours delay	Model

Note:

1. Each of the suffix "20" fields should be repeated for EC, VIS, and SCE suffixes as well.

2. Volume-delay function parameter fields ALPHA_20 and BETA_20 are based on Bureau of Public Roads (BPR) function.

3. In addition to the base year fields, each planned year should have a field called "PROJECT_[suffix]" of type Integer. This field should have a unique project number for each committed or planned project.

Source: NSI, 2021

4.0 External Travel

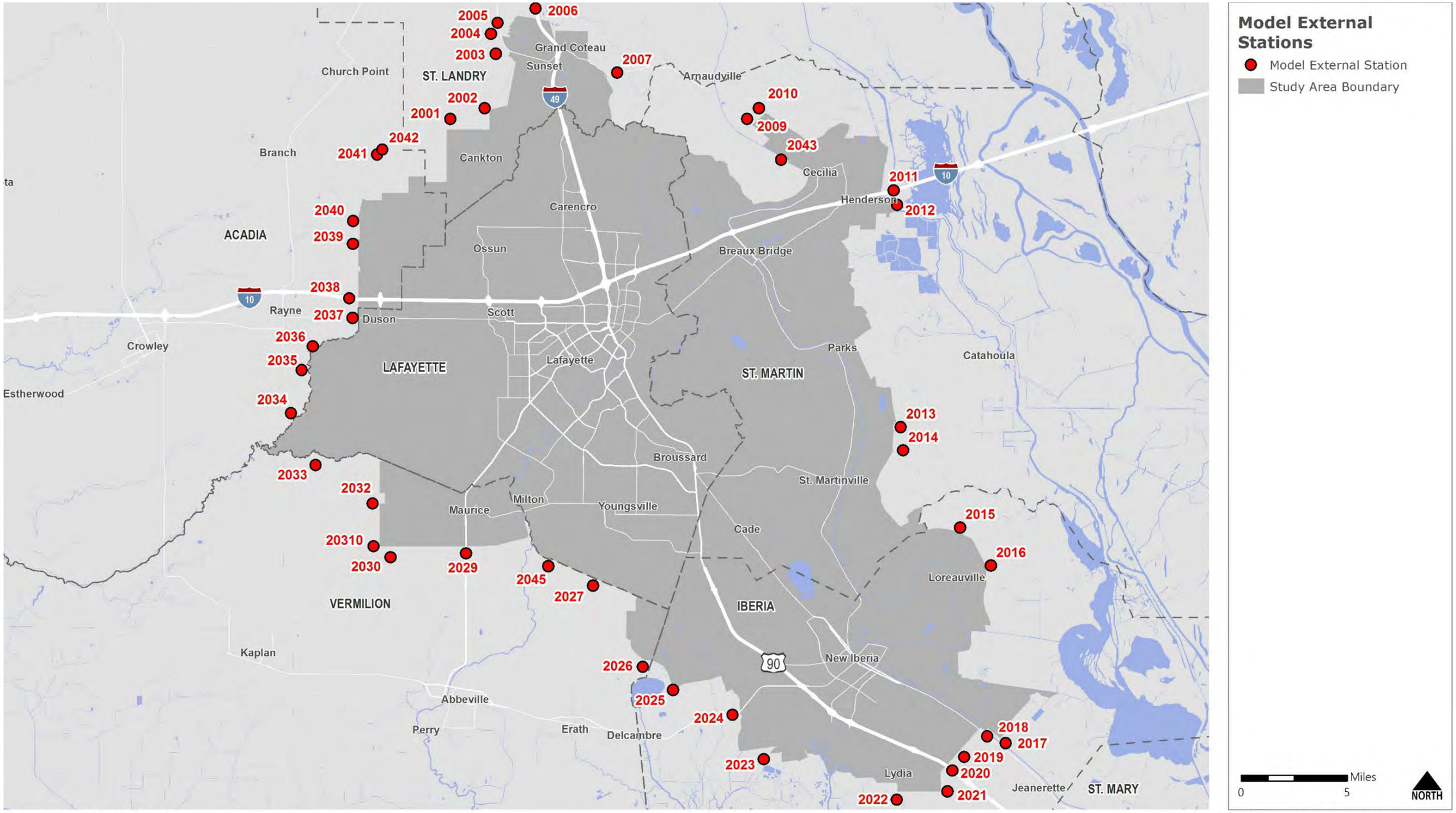
There are two (2) types of external travel trips: External-Internal (EI) trips and External-External (EE) trips. EI trips have one end of the trip inside the study area, and the other outside. EE trips pass through the study area and have no origin or destination within the study area itself. Both trip types are assigned at external stations located on significant roadways that are at the study area's periphery. These stations represent most of the trips that are crossing the study area boundary.

Since there were no changes to the study area boundary, and no additional roadways were added to the network crossing the study area boundary, the external stations are the same as the previous model.

The locations of the TDM's external stations are shown in Figure 4.1.

External trips in the model are divided into auto trips (AUTO) and truck (TRK) trips. Auto trips are those that are made in a personal vehicle. While not actually an auto trip, commercial vehicle (CMVEH) trips are included in AUTO trips for the purposes of external trips and represent four-tire commercial vehicles. Commercial vehicles include delivery and service vehicles. Truck trips represent single-unit with six or more tires and multi-unit with three-plus axle combination trucks.

Figure 4.1: Model External Stations



Data Sources: Neel-Schaffer, Inc.

Disclaimer: This map is for planning purposes only.

4.1 External-External Trips

The 2050 MTP TDM uses StreetLight data as a seed matrix, combined with traffic counts from LADOTD stations, to create the 2020 trips between external stations. External trips within the matrix are broken down by AUTO and TRK trips. The data is stored in the External_2020.mtx file within the TDM.

4.2 External-Internal Trips

The EI attraction equations used in this model were derived from those of the 2040 MTP effort. In addition, EI trips were also separated into auto and truck trips based on the vehicle classification counts at external stations.

The following EI attraction equations were used in the travel demand model for EIAUTO and EITRK trips.

EIAUTO Attractions = 0.7760 * (OCCDU) + 0.7130 * (RET_EMP + RET_EMP2) +

0.3840 * (OS_EMP) * 0.2230 * (AMC_EMP) + 0.6090 * (MTCUW)

EITRK Attractions = = 0.0920 * (OCCDU) + 0.1140 * (RET_EMP + RET_EMP2) +

0.0600 * (OS_EMP) * 0.0020 * (AMC_EMP) + 0.1480 * (MTCUW)

Descriptions of the variables used in the equations were included in Tables 2.1 and 2.2. Table 4.1 displays the EI trips at each external station.

Table 4.1: External Station EI Data

TAZ	ADT	Percent Car	Percent Truck	Percent EE	EI AUTO	EI TRK
2001	1,154	97.9%	2.1%	21.6%	886	19
2002	541	97.9%	2.1%	33.1%	354	8
2003	3,095	97.9%	2.1%	36.7%	1,918	42
2004	3,514	97.9%	2.1%	50.9%	1,689	37
2005	5,021	97.9%	2.1%	46.2%	2,642	57
2006	41,328	90.1%	9.9%	17.5%	30,710	3,377
2007	5,281	95.0%	5.0%	40.1%	3,006	158
2008	2,218	94.4%	5.6%	30.3%	1,459	87
2009	1,788	96.7%	3.3%	18.1%	1,416	48
2010	3,394	98.0%	2.0%	22.6%	2,576	52
2011	53,038	74.1%	25.9%	45.0%	21,648	7,548
2012	1,874	95.0%	5.0%	19.6%	1,432	75
2013	1,822	92.1%	7.9%	8.6%	1,532	132
2014	879	98.0%	2.0%	19.0%	698	14
2015	1,372	98.0%	2.0%	14.7%	1,146	23
2016	1,521	98.0%	2.0%	7.2%	1,383	28
2017	1,838	99.1%	0.9%	11.7%	1,608	15
2018	5,436	96.5%	3.5%	8.2%	4,820	173
2019	8,184	95.0%	5.0%	9.9%	7,007	369
2020	23,394	85.3%	14.7%	24.1%	15,155	2,602
2021	937	98.0%	2.0%	24.4%	694	14
2022	2,115	98.0%	2.0%	13.7%	1,789	37
2023	2,366	98.0%	2.0%	22.1%	1,806	37
2024	14,641	88.8%	11.2%	27.4%	9,446	1,190
2025	1,920	96.0%	4.0%	15.0%	1,568	65
2026	3,616	96.5%	3.5%	13.3%	3,025	111
2027	5,634	97.5%	2.5%	9.0%	5,000	129
2028	1,607	97.4%	2.6%	17.8%	1,288	34
2029	19,066	96.2%	3.8%	13.7%	15,820	625
2030	1,958	96.2%	3.8%	30.0%	1,318	52
2031	3,170	96.2%	3.8%	38.9%	1,862	74
2032	2,717	97.6%	2.4%	19.1%	2,146	52
2033	1,020	98.0%	2.0%	31.2%	688	14
2034	1,223	98.0%	2.0%	29.8%	841	17

TAZ	ADT	Percent Car	Percent Truck	Percent EE	EI AUTO	EI TRK
2035	298	98.0%	2.0%	9.8%	263	5
2036	1,813	99.0%	1.0%	8.9%	1,635	16
2037	5,461	95.6%	4.4%	9.9%	4,704	219
2038	78,652	80.4%	19.6%	35.9%	40,526	9,866
2039	427	97.4%	2.6%	15.3%	352	10
2040	1,793	97.4%	2.6%	20.4%	1,389	38
2041	1,042	95.9%	4.1%	30.8%	692	30
2042	3,122	98.3%	1.7%	24.6%	2,313	40

Source: LADOTD; StreetLight; NSI, 2021

5.0 Trip Generation

This section describes the procedures used to determine the number of trips that begin or end in a given traffic zone. Trip generation is the estimation of the amount of person trips that are produced and attracted to each TAZ. Trip rates for the various types of trips are based upon the land use properties and demographic characteristics of each TAZ.

The model considers the following internal trip purposes:

- Home-based Work (HBW)
- Home-based Other (HBO)
- Non-home-based Work (NHB)
- Non-home-based Other (NHBO)
- Home-based School (HBSCH)
- Commercial Vehicle (CMVEH)
- Truck (TRK)

Home-based trips are those that have one trip end located at the traveler's household. Examples of home-based trips include travel from home to work, shopping, or other personal business. Non-home-based trips include travel to and from any location that does not involve the traveler's household. Examples of these trips can include travel from work to shopping, from school to daycare, and from work to a lunch location.

5.1 Internal Travel Model

For home-based trips, the productions refer to the home end, and the attractions refer to the non-home end of the trip. For NHB, CMVEH, and TRK trips, productions and attractions refer to the origin and destination, respectively.

The model uses cross-classification trip production models for the home-based and non-home-based trip purposes. This means that trip rates that vary by household type are applied at the zonal level. The trip attraction models are linear regression equations that relate zonal employment, school enrollment, and households to trip attractions. For the commercial vehicle and freight vehicle trip purposes, the model applies a linear regression equation that relates zonal employment and households to trip productions and attractions. These equations are based on the Quick Response Freight Manual II.

The trip production and attraction models used in the 2050 TDM are displayed in Table 5.1

Table 5.1: MTP 2050 Travel Demand Model Trip Rates

	OCC DU	RET EMP	OS EMP	AMC EMP	MTCUW EMP	OTH EMP	SCHATT	WRK0 VEH0	WRK0 VEH1	WRK0 VEH2	WRK0 VEH3	WRK1 VEH0	WRK1 VEH1	WRK1 VEH2	WRK1 VEH3	WRK2 VEH0	WRK2 VEH1	WRK2 VEH2	WRK2 VEH3	HH1 SCHP0	HH2 SCHP0	HH2 SCHP1	HH3 SCHP0	HH3 SCHP1	HH3 SCHP2	HH4 SCHP0	HH4 SCHP1	HH4 SCHP2	HH4 SCHP3
		Employment						Household Breakdowns																					
Productions																													
HBW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.060	0.060	0.150	1.230	1.240	1.310	1.710	2.000	2.100	2.430	3.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HBO	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.607	2.875	3.349	2.875	4.997	3.534	3.188	5.158	6.950	10.315
HBSCH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061	0.371	0.111	0.610	0.759	0.111	0.615	1.253	1.691
NHBW	0.000	1.220	0.904	0.904	0.904	0.904	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NHBO	1.335	2.359	0.767	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CMVEH	0.210	0.685	0.303	0.839	0.708	0.303	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRK	0.010	0.016	0.002	0.044	0.026	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Attractions																													
HBW	0.000	2.304	1.124	1.124	1.124	1.124	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HBO	1.883	3.347	0.713	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HBSCH	0.000	0.000	0.000	0.000	0.000	0.000	0.718	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NHBW	0.000	1.220	0.904	0.904	0.904	0.904	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NHBO	1.335	2.359	0.767	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CMVEH	0.210	0.685	0.303	0.839	0.708	0.303	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRK	0.010	0.016	0.002	0.044	0.026	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: OCCDU refers to Households in the TAZ

Employment classifications defined in Section 2.2

WRK2 refers to households with two or more workers

VEH3 refers to households with three or more workers

HH4 refers to households with four or more persons living in the home

SCHP3 refers to households with three or more school-aged children living in the home

Source: NSI, 2021

5.2 Special Generators

A special generator is a land use with unusually low or high trip generation characteristics when compared to the established trip generation rates. For the Lafayette TDM, there were several locations identified as special generators. These special generators can be found in the SG_[Year].bin files included with the model. These special generators add trips to each Traffic Analysis Zones based on:

- Hospital beds
- Daily flights out of airports
- Parking for the University of Louisiana at Lafayette

5.3 Balancing Productions and Attractions

Productions and attractions are balanced at the study area level for all trip purposes. This means that the area-wide trip attractions match the amount of area-wide trip productions. All trips within the 2050 TDM effort are balanced by holding the productions as a constant. Table 5.2 shows the daily trips by trip purpose before and after balancing.

Table 5.2: Balanced Productions and Attractions

Trip Purpose	Before Balancing		After Balancing	
	Productions	**Attractions**	**Productions**	**Attractions**
HBW	238,826	232,500	238,826	238,826
HBO	552,843	470,952	552,843	552,843
NHBW	164,569	164,569	164,569	164,569
NHBO	355,028	355,028	355,028	355,028
CMVEH	112,489	112,489	112,489	112,489
TRK	3,510	3,510	3,510	3,510
HBSCH	53,772	53,771	53,772	53,772

Source: NSI, 2021

5.4 Summary

Two separate documents were used In the calibration and validation of the Lafayette MPO TDM. The first is the *Minimum Travel Demand Model Calibration and Validation Guidelines for State of Tennessee*, which was last updated in 2016. The second is the *Travel Model Validation and Reasonableness Checking Manual, 2nd Edition*.[2] Using these guidelines, several key statistics for trip generation were monitored, which are shown in Table 5.3.

[2] Travel Model Validation and Reasonableness Checking Manual, 2nd Edition. Travel Model Improvement Program.

Table 5.3: Modeled vs Benchmark Trip Rates

Trip Rate	Modeled	Low Benchmark	High Benchmark
Person Trips per Person	4.0	3.3	4.0
Person Trips per Household	10.6	8.0	10.0
HBW Trips	18.2%	12.0%	24.0%
HBO Trips	46.3%	45.0%	60.0%
NHB Trips	39.6%	20.0%	33.0%

Source: Minimum Travel Demand Model Calibration and Validation Guidelines for State of Tennessee; NSI, 2019

These statistics are within the reasonable limits established by the Tennessee Model Users Group (TNMUG) guidance, except person trips per household and non-home-based, which is slightly off from the recommended benchmark range. No further adjustments were made since the model was performing well within all other benchmark ranges.

6.0 Trip Distribution

The next step in travel demand modeling is the trip distribution process. This function determines the destinations of trips produced in the trip generation model, and conversely, where the attracted trips originated.

6.1 Gravity Model

Many models are available for this process; however, the Lafayette MPO TDM effort used the traditional gravity model.

This model employs two relationships, the first of which is indirect:

> The shorter the travel time to the destination zone, the greater the number of trips will be distributed to it from the origin zone.

The second relationship is a direct one:

> The more attractions there are in a destination zone, the more trips will be distributed to it from the origin zone.

The generalized equation for this model is:

$$T_{ij} = \frac{(P_i)(A_j)(F_{ij})}{\sum_{j=1}^{n}(A_j)(F_{ij})(K_{ij})}$$

Where:

T_{ij} = Trips distributed between zones i and j

P_i = Trips produced at zone i

A_j = Trips attracted to zone j

F_{ij} = Relative distribution rate (friction factors or impedance function) reflecting impedance between zone i and zone j

K_{ij} = Calibration parameter

n = Total number of zones in study area

6.2 Shortest Path Matrix

The TDM uses a travel time impedance matrix for each zonal pairing within the study area. This matrix traced the shortest free-flow travel time path from zone i (the start of the trip) to zone j (the end of the trip). These values are used in the calculation of F_{ij},as described in Section 6.1.

6.3 Friction Factors

Friction factors are another input used to calculate F_{ij}. This is the first relationship that was mentioned for the gravity model. These factors measure the probability of trip making at one-minute increments of travel time. Friction factors in the gravity model are an inverse function of travel time and each unique trip purpose has its own friction factors. This TDM effort uses the gamma function to derive the friction factors. Calibration of a gamma impedance function involves estimating the three parameters of the gamma function; a, b, and c. The gamma function parameter values used for each trip purpose are shown in Table 6.1.

Table 6.1: Gamma Function Friction Factors

Trip Purpose	a	b	c
HBO	49,102.9681	1.4100	0.0945
HBSCH	66,356.1238	0.7507	0.1627
HBW	339,783.4165	-0.9192	0.1264
NHBO	44,330.9948	1.3221	0.0824
NHBW	41,059.3227	1.8810	-0.0171
CMVEH	1,000.0000	0.0000	0.0800
EIAUTO	80.7682	-1.9333	0.2051
EITRK	8.7408	-2.1436	0.1824
TRK	1,000.0000	0.0000	0.0300

Source: NSI, 2021

6.4 Terminal Times

Terminal times reflect additional travel that is associated with a trip. These can be events such as parking or walking to vehicles and/or facilities. This factor was added to the beginning and end of each trip and is stored in a matrix used by the model. This value was derived from the previous TDM and adjusted as needed. Currently all terminal times are set to zero (0) minutes.

6.5 Trip Length Frequency Distribution

As mentioned previously, the gravity model develops friction factors in one minute increments and accommodates various trip lengths. The average trip lengths obtained from the model are displayed in Table 6.2. The average trip lengths were estimated based on travel survey data borrowed from the

Baton Rouge, Louisiana region and are also displayed in Table 6.2. Figures 6.1 through 6.3 show the modeled trip length frequency distribution for HBW, HBO, and NHB trips.

Table 6.2: Average Trip Length by Trip Purpose

Trip Purpose	2020 Model Average Trip Length (min)	2019 CRPC Survey Average Trip Length (min)
HBO	9.7	9.8
HBW	16.9	17.4
NHB	9.8	9.7

Source: NSI, 2021

Figure 6.1: Modeled HBW Trip Length Frequency Distribution

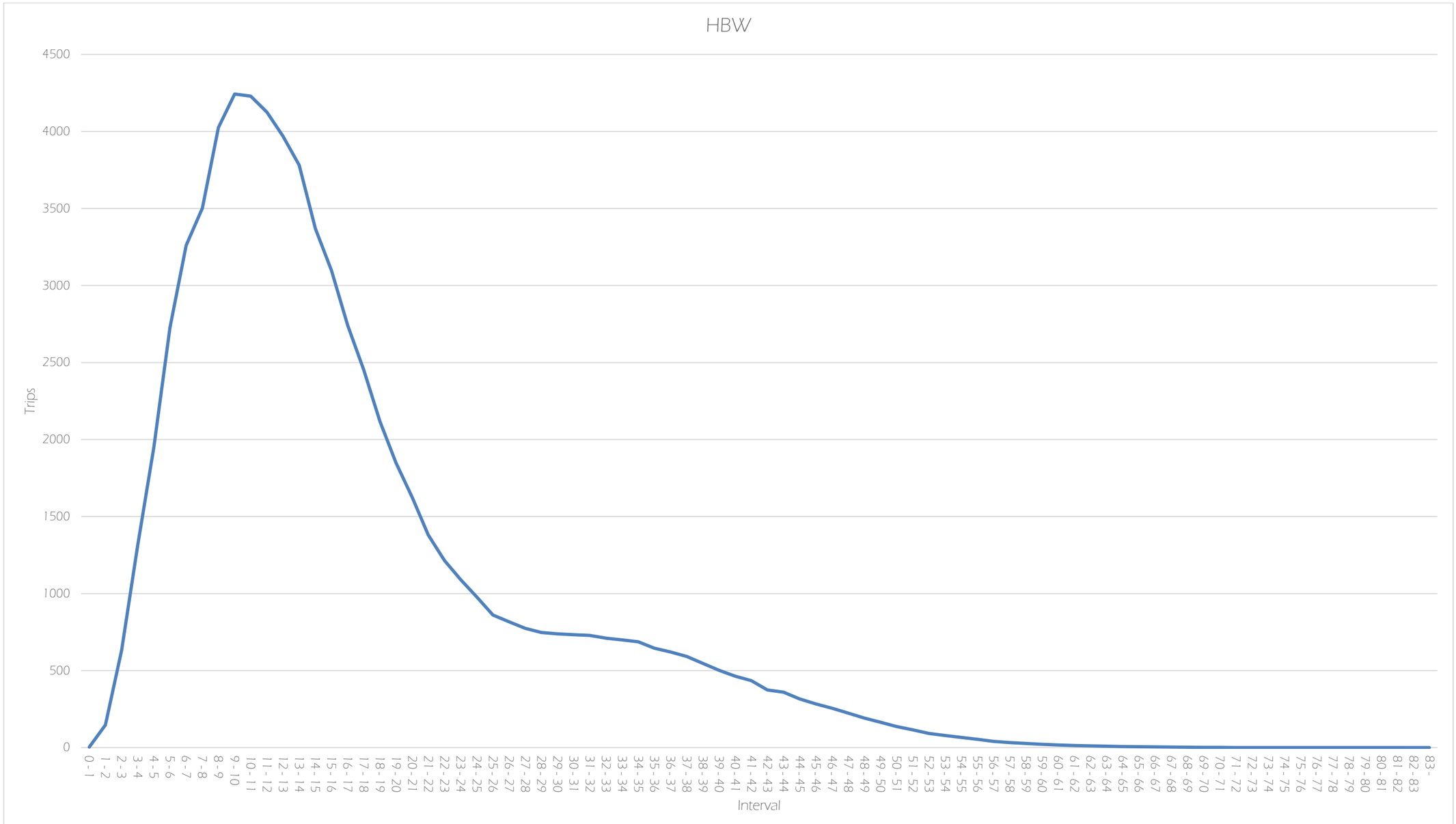


Figure 6.2: Modeled HBO Trip Length Frequency Distribution

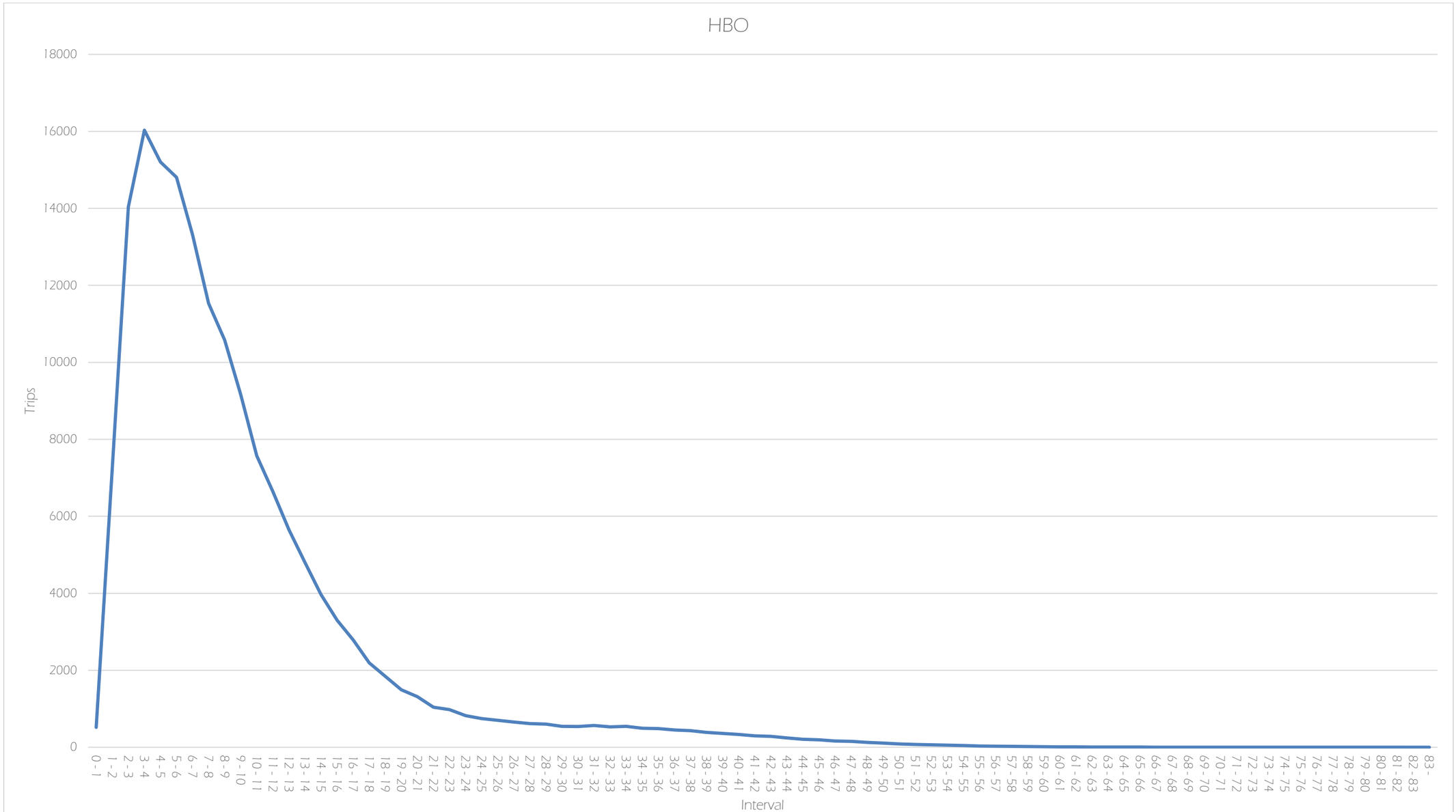
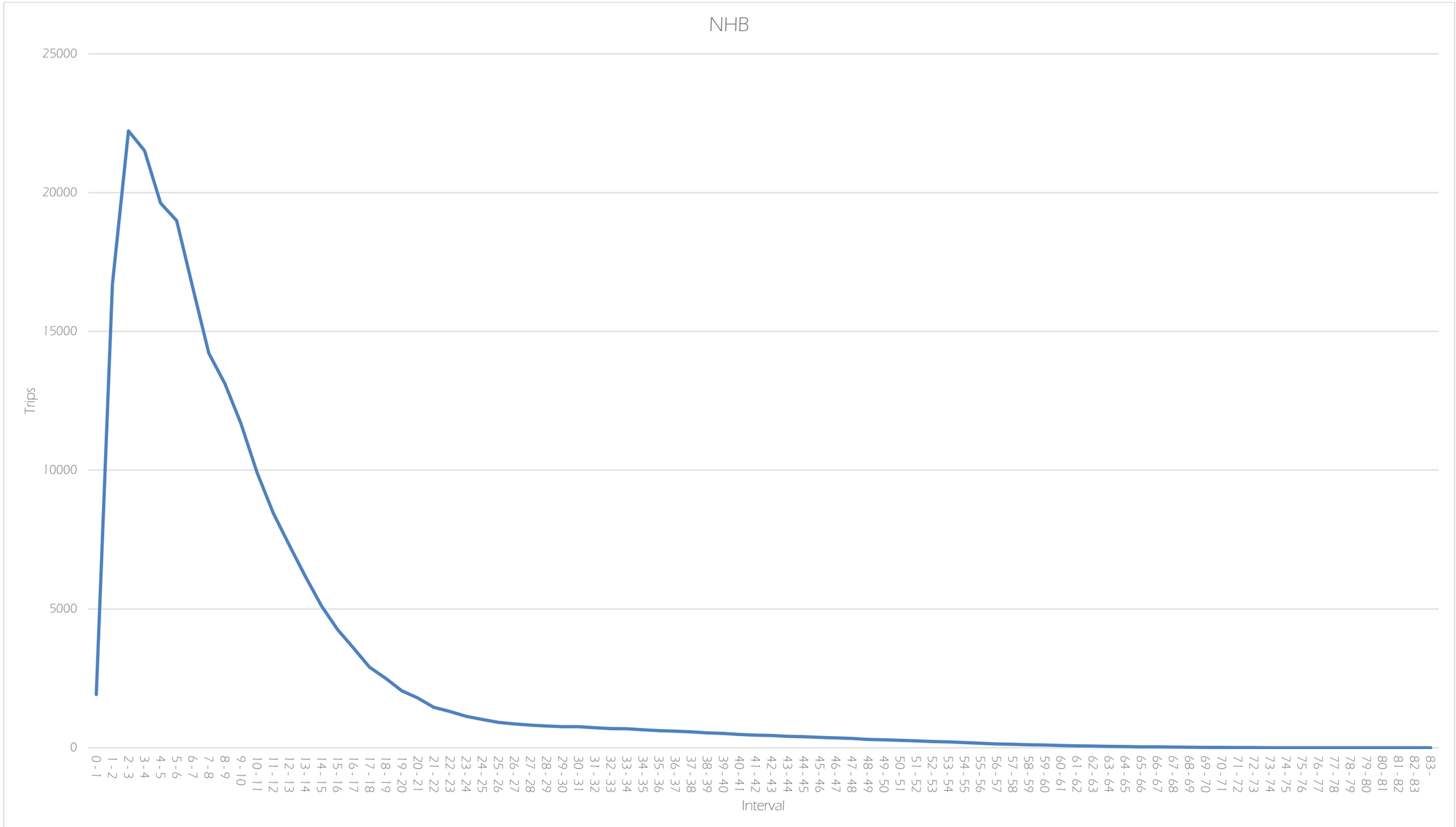


Figure 6.3: Modeled NHB Trip Length Frequency Distribution



6.6 Auto Occupancy Rates

The trip rates calculated in the Trip Generation step for HBW, HBO, HBSCH, NHBW, and NHBO trips are in person trips. In order for the TDM to assign vehicles to the roadway network, the amount of trips assigned must be in vehicle trips. This process is done using auto occupancy factors. It divides the amount of person trips by the corresponding occupancy factors shown in Table 6.3.

Table 6.3: Model Auto Occupancy Factors

Trip Purpose	Auto Occupancy Factor
HBW	1.135
HBO	1.921
NHBW	1.399
NHBO	2.041
CMVEH	1.000
TRK	1.000
HBSCH	2.298

Source: NSI, 2021

7.0 Trip Assignment

Trip assignment is the final step in the traditional four step planning model.

Traffic assignment models are used to estimate the traffic flows on a network.

The main input to these models is a matrix of flows that indicate the volume of traffic between Origin-Destination (O-D) pairs. The other inputs to these models are network topology, link characteristics, and link performance functions.

The trips between each O-D pair are loaded onto the network based on the travel time or impedance of the alternative paths that could carry this traffic. The 2050 MTP model is a user equilibrium model with a generalized cost assignment that uses travel time as the cost.

7.1 BPR Volume-Delay Functions

The TDM link travel time was estimated by the Bureau of Public Roads (BPR) Volume-Delay function. The values that were used in the BPR formula are determined by facility type. The TDM uses the same alpha and beta values from the previous MTP effort, which are assigned by a roadway's functional classification. The assignment process used in the TDM analyzes link and intersection delay. As traffic volume increases on a roadway and approaches its maximum capacity, the average speed on the roadway declines. After a point, the roadway speed declines past that of the free flow speed and indicates congestion.

The generalized equation for the BPR formula is:

$$T = T_0 * (1 + \alpha * (\frac{v}{c})^{\beta})$$

Where: T = Congested travel time

T_0 = Free flow travel time

v = Assigned link volume

c = Capacity

α, β= BPR coefficients

This allows for the calculation of the roadway's peak hour travel:

$$\text{Peak Hour Travel Speed} = (\text{Free Flow Speed}) / (1 + \alpha * (\frac{v}{c})^{\beta}$$

The BPR coefficients used in the TDM are shown in Table 7.1.

Table 7.1: BPR Volume-Delay Function Parameters

Model Functional Classification	Alpha	Beta
Rural Interstate	0.71	2.10
Rural Principal Arterial	0.71	2.10
Rural Minor Arterial	0.71	2.10
Rural Major Collector	0.60	1.60
Rural Minor Collector	0.60	1.60
Rural Local	0.60	1.60
Rural Other	0.60	1.60
Rural On/Off Ramp	0.56	3.60
Urban Interstate	0.71	2.10
Urban Expressway	0.71	2.10
Urban Principal Arterial	0.71	2.10
Urban Minor Arterial	0.71	2.10
Urban Collector	0.60	1.60
Urban Local	0.60	1.60
Urban Other	0.60	1.60
Urban On/Off Ramp	0.56	3.60
System Ramp	0.71	2.10
Centroid Connector	0.15	4.00

Source: NSI, 2021

8.0 Model Validation

The purpose of model validation is to make the adjustments necessary to replicate the base-year traffic conditions as closely as possible.

In practice, this means making the link assignment volumes approximate the traffic estimates, based on actual counts, within acceptable limits of deviation. Generally speaking, the lower the volume, the greater the relative deviation that is acceptable. Conversely, the greater the amount of traffic, the greater the degree of accuracy required. This is because the ultimate purpose of the model is to determine whether additional vehicular capacity will be needed on any given roadway at a designated future date.

Where existing volumes are low, the model assignment may deviate from actual conditions by 40 or 50 percent without affecting the projected need for additional capacity. On the other hand, in the case of a heavily traveled interstate route, a deviation of 20 percent may be significant (i.e., alter the projection of required capacity). The validation process is intended to ensure that the model is performing within the limits that define acceptable ranges of deviation from observed "real-world" values.

As stated previously, this modeling effort uses *the Minimum Travel Demand Model Calibration and Validation Guidelines for State of Tennessee* and the *Travel Model Validation and Reasonableness Checking Manual, 2nd Edition*, as guidelines for the validation of TDMs.

The following criteria were used to validate the Lafayette MPO TDM:

- Percent Root Mean Square Error (RMSE) by ADT Group
- Percent RMSE by Roadway Functional Classification
- Percent Error/Deviation by ADT Group
- Percent Error/Deviation by Functional Classification

8.1 Percent RMSE

The RMSE measure was chosen because when comparing model flows versus counts, sometimes a direct aggregate sum by link group can be misleading. The sum of all traffic counts for a particular link group may be close to the sum of the corresponding traffic flows, but individual link flows may still be very different than their corresponding link count. However, the RMSE statistic does not convey information about the magnitude of the error relative to that of the counts. Therefore, the Percent Root Mean Square Error (Percent RMSE or % RMSE) is often computed. This measure expresses the RMSE as a percentage of the average count value. The Percent RMSE is defined below:

$$\%RMSE = \frac{\sqrt{\sum_j (Model_j - Count_j)^2 / (Numberofcounts)}}{\left(\sum_j Count_j / Numberofcounts\right)} * 100$$

Validation results by ADT group and functional class are shown in Table 8.1 and Table 8.2, respectively.

Table 8.1: RMSE by ADT Group

ADT Range	Number of Observations	Total Count	Total Model Volume	% RMSE	% RMSE Limit[1]
ADT<5,000	130	346,029	358,482	47.2	45.0 - 100.0
5,000 <= ADT < 10,000	62	462,253	448,508	27.8	35.0 - 45.0
10,000 < =ADT < 15,000	36	448,691	451,973	20.4	27.0 - 35.0
15,000 < =ADT < 20,000	21	366,606	355,285	23.8	25.0 – 30.0
20,000 < =ADT < 30,000	41	993,998	1,044,500	19.8	15.0 – 27.0
30,000 < =ADT <40,000	28	991,098	922,761	17.6	15.0 – 25.0
ADT>=40,000	4	179,948	187,932	10.3	10.0 – 20.0
Areawide	322	3,788,623	3,769,440	26.7	35.0 – 45.0

Source: Minimum Travel Demand Model Calibration and Validation Guidelines for State of Tennessee; NSI, 2019

Table 8.2: RMSE by Functional Classification

Functional Classification	Number of Observations	Total Count	Total Model Volume	% RMSE	% RMSE Limit[1]
Interstate	28	859,712	795,322	16.3	20
Principal Arterial	81	1,687,212	1,736,483	21.6	30
Minor Arterial	70	728,381	744,880	26.4	40
Collector	99	421,923	397,090	40.3	70
Local	44	91,395	95,665	45.2	N/A
Areawide	322	3,788,623	3,769,440	26.7	35.0-45.0

Source: Minimum Travel Demand Model Calibration and Validation Guidelines for State of Tennessee; NSI, 2019

[1] % RMSE Limit is the maximum acceptable magnitude of the error relative to that of the counts conducted by LADOTD

8.2 Percent Error

The next measure of model validation is the percent error, or percent deviation, of the model's assigned traffic volumes to the observed traffic counts. Tables 8.3 and 8.4 display the validation results by ADT group and by facility category, respectively.

Table 8.3: Percent Deviation by ADT Group

ADT Range	Number of Observations	Total Count	Total Model Volume	% Deviation	% Deviation Limit[1]
ADT<1,000	130	346,029	358,482	3.6	200.0
1,000 < =ADT < 2,500	62	462,253	448,508	-3.0	100.0
2,500 <= ADT < 5,000	36	448,691	451,973	0.7	50.0
5,000 <= ADT < 10,000	21	366,606	355,285	-3.1	25.0
10,000 < =ADT <25,000	41	993,998	1,044,500	5.1	20.0
25,000 < =ADT < 40,000	28	991,098	922,761	-6.9	15.0
ADT>=40,000	4	179,948	187,932	4.4	10.0
Areawide	322	3,788,623	3,769,440	-0.5	5.0

Source: Minimum Travel Demand Model Calibration and Validation Guidelines for State of Tennessee; NSI, 2019

Table 8.4: Percent Deviation by Functional Classification

Functional Classification	Number of Observations	Total Count	Total Model Volume	% Deviation	% Deviation Limit[1]
Interstate	28	859,712	795,322	-7.5	+/- 7.0
Principal Arterial	81	1,687,212	1,736,483	2.9	+/- 15.0
Minor Arterial	70	728,381	744,880	2.3	+/- 15.0
Collector	99	421,923	397,090	-5.9	+/- 25.0
Local	44	91,395	95,665	4.7	N/A
Areawide	322	3,788,623	3,769,440	-0.5	+/- 5.0

Source: Minimum Travel Demand Model Calibration and Validation Guidelines for State of Tennessee; NSI, 2019

[1] % Deviation Limit is the maximum acceptable magnitude of the error relative to that of the counts conducted by LADOTD

With the exception to Interstate deviations, which is only slightly above the limit, the validation effort concluded that the Lafayette MPO study area travel demand forecasting model performs within the established limits of acceptable deviation from base-year estimated volumes.

9.0 Future Year Model Development

Future year models were developed to forecast traffic that the study area will experience based on its anticipated growth. This includes forecast socioeconomic data, external travel, and special generator data. Forecast models also require updates to the roadway network based on projects that are expected to occur or have allocated funding in the near future.

9.1 Future Year Socioeconomic Data Development

To adequately forecast future transportation system needs, future projections of demographic variables were developed for each Traffic Analysis Zone (TAZ).

Population and Employment Growth

Parish-level and study area-level population and employment control totals for the year 2045 were developed in consultation with APC. Later, the horizon year of the MTP was changed to 2050 and year 2050 data was developed using extrapolation. These forecasts were based on historical trends, national projections, and stakeholder input and were validated against third-party projections. Areas in a Parish that are not included in the MPO study area were included in this analysis and then removed at the end, so that growth allocation for only the study area could be conducted.

After setting control totals for the portion of each Parish in the study area, growth was then sub-allocated to each TAZ in the travel demand model.

- First, growth that has occurred since the base year was added, based upon local and MPO staff knowledge of recent development (Downtown Lafayette housing redevelopment, new personal protective equipment facilities, new Amazon distribution center, etc.)
- Then, the remaining available growth was allocated through 2045, with an emphasis on areas that experienced growth from 2010 through 2020.
    - This reflects that currently growing areas will continue to grow until they have been built out.
    - Growth potential for every TAZ was measured both for population growth and employment growth; meaning a TAZ could experience no growth, growth of one type, or growth of both types.
- Growth potentials, determined separately for population and employment, were defined as:
    - “Higher” in areas that received moderate to high growth from 2010 through 2020.
    - “Lower” for those that received low growth during that period.
    - “Unlikely” for those that received no growth or even declind during that period.
    - “Built-out” for those that have no remaining room to build or only have wetlands remaining.

- The MTP 2040 zones were used to determine the maximum growth a TAZ could receive, meaning that the maximum population or employment in 2040 would be considered the upper limit to build out a 2050 TAZ.
- The available growth was allocated to "Higher" potential growth areas first until they reached their built-out value.
- Once these zones reached their maximum population or employment, the process was repeated for "Lower" potential zones and then "Unlikely" potential zones if necessary until the control totals, by study area portions within each Parish, were met.
- These 2045 totals were extrapolated to 2050 as a result of the horizon year change.

Figures 9.1 and 9.2 show the projected growth in population and employment by TAZ to year 2045.

School Enrollment Growth

For all schools, enrollment growth was projected to grow at the same rate as the total population of the Parish it is located within.

Table 9.2: Population Control Totals, Base and Forecast

Population Control Totals					
	Full Parish			Study Area	
Parish	**2020**	**2045**		**2020**	**2045**
Acadia	62,594	66,297		2,694	2,853
Iberia	70,754	71,523		58,319	58,953
Lafayette	249,716	307,105		249,716	307,105
St. Landry	82,838	80,188		7,640	7,396
St. Martin	54,152	60,277		42,808	47,650
Vermilion	60,454	66,067		5,056	5,525
Total	**580,508**	**651,458**		**366,233**	**429,482**

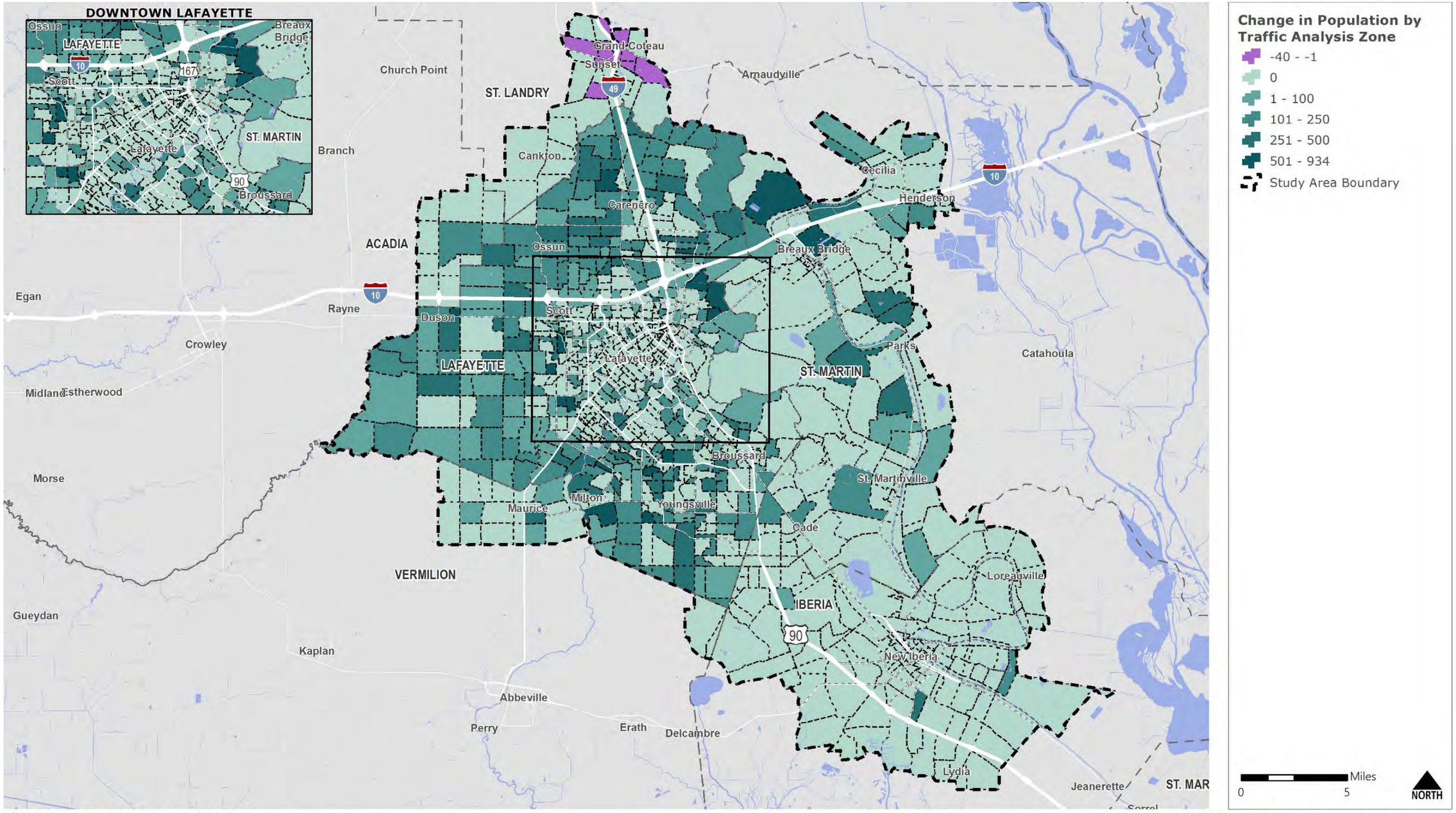
Source: NSI, 2021

Table 9.2: Employment Control Totals, Base and Forecast

Employment Control Totals				
	Full Parish		Study Area	
Parish	**2020**	**2045**	**2020**	**2045**
Acadia	14,402	18,227	547	692
Iberia	26,541	28,484	23,597	25,324
Lafayette	132,852	168,068	132,852	168,068
St. Landry	23,754	30,887	1,107	1,439
St. Martin	11,793	18,467	10,504	16,448
Vermilion	12,973	14,708	1,033	1,171
Total	**222,314**	**278,840**	**169,640**	**213,143**

Source: NSI, 2021

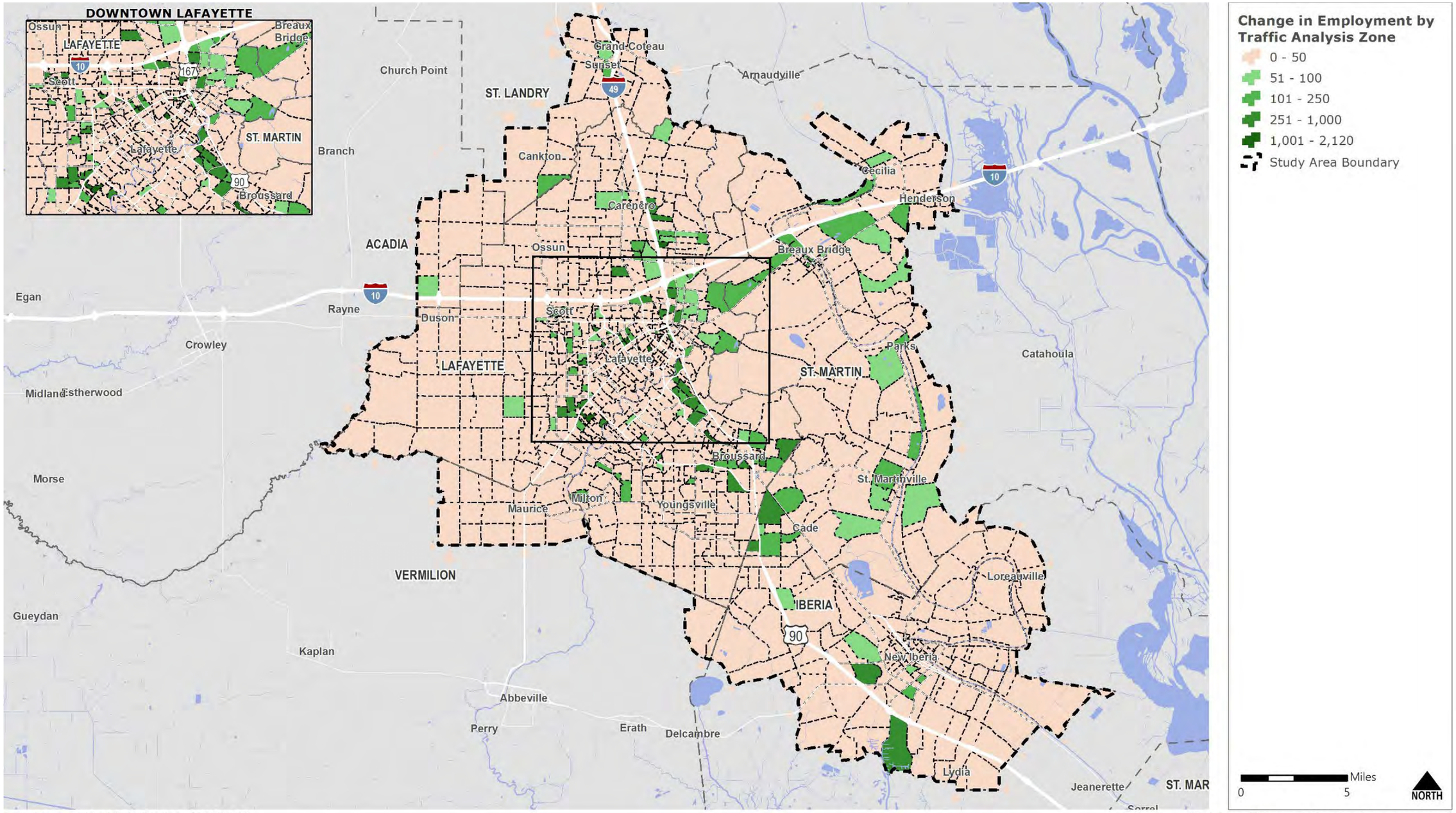
Figure 9.1: Population Growth, 2020-2045



Data Sources: Neel-Schaffer, Inc.; MPO Staff

Disclaimer: This map is for planning purposes only.

Figure 9.2: Employment Growth, 2020-2045



Data Sources: Neel-Schaffer, Inc.; MPO Staff

Disclaimer: This map is for planning purposes only.

9.2 Existing Plus Committed (E+C) Network

The base year network was defined as the street and highway system that existed in year 2020. Once the base year network was calibrated, the E+C network was developed, which included committed projects.

Committed projects are those improvements for which:

- construction was either completed or begun since 2020,
- a contract for construction has been awarded,
- have completed the National Environmental Policy Act (NEPA) phase, or
- have funding for right-of-way and/or construction programmed in the MPO's Transportation Improvement Program.

Committed projects were added to the base network using the following procedure:

- New routes were coded with the proposed number of lanes, and with the posted speed and volume-delay function attributes that reflect the project's functional classification.
- Widened roadways change the number of lanes to the appropriate amount in each direction as well as the lane configuration field required by the network.
- All E+C projects were flagged in the 'PROJECT_EC' field using a unique project ID.

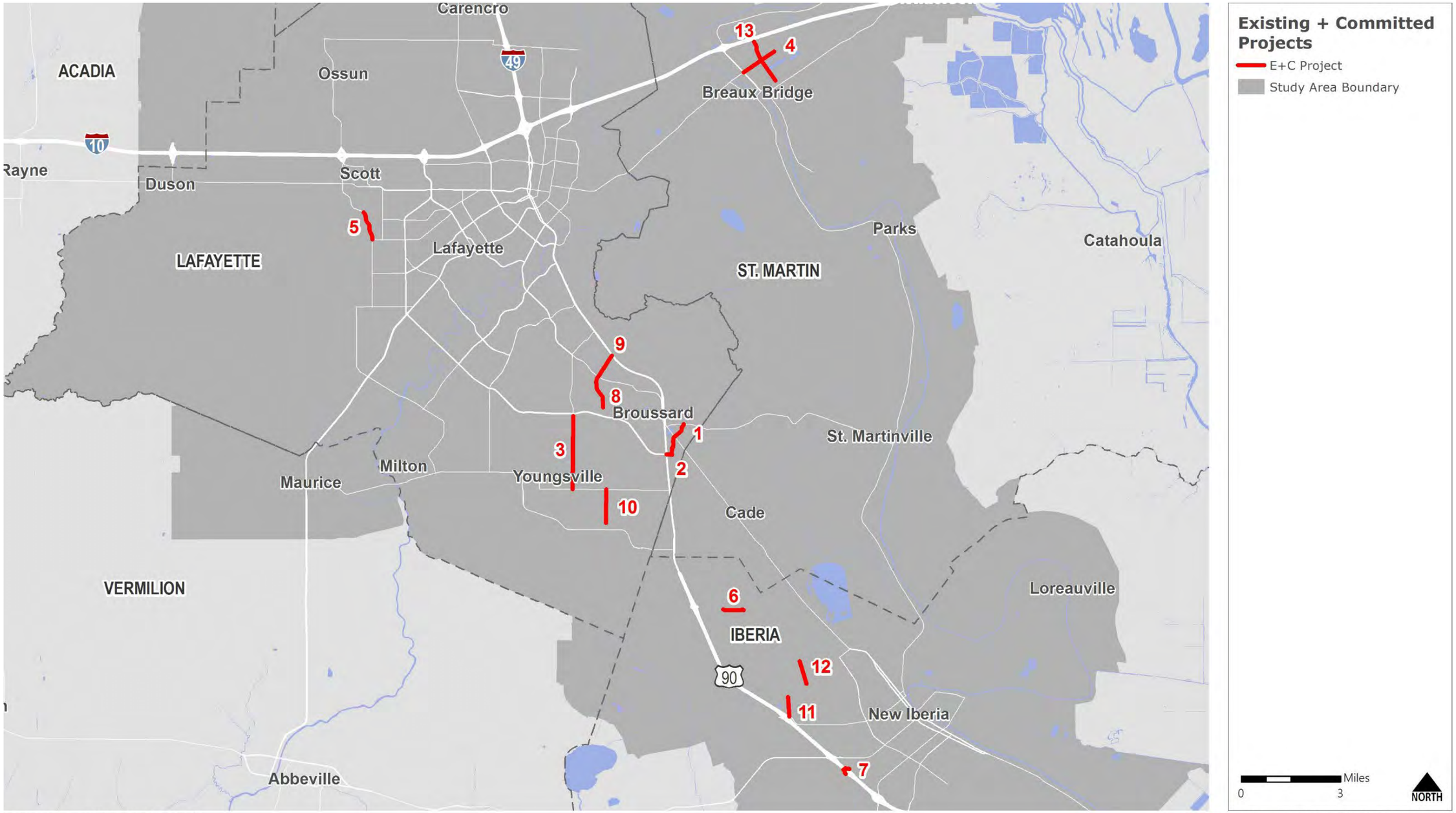
The committed projects are listed in Table 9.3 and shown in Figure 9.3.

Table 9.3: Existing + Committed Projects

Project ID	Roadway	Location	Improvement
1	St. Nazaire Extension Phase 1	LA 96 to LA 182	New 4 Lane Roadway
2	St. Nazaire Extension Phase 2	LA 182 to Corne Rd	New 4 Lane Roadway
3	LA 89 Widening	Young Street to Recovery Rd	Center Turn Lane
4	Mills St	LA 328 to Doyle Melancon Rd	New 2 Lane Roadway
5	Apollo Road Phase 2 and 3	800 feet south of JB Road to Dulles St	New 4 Lane Roadway
6	LA 88 Curve Realignment	Fremin Rd to 0.03 miles east of New Horizons Dr	Realignment of LA 88 and Extension of Fremin Road
7	US 90 Frontage Road Extension	Frontage road terminus to LA 329 @ Frontage Road existing intersection	Extend Frontage Road
8	Bernard Road Extension	Albertson Pkwy to LA 182	New 4 Lane Roadway
9	Bernard Road Extension	LA 182 to US 90	Center Turn Lane
10	Larriviere Widening	LA 92 to Almonaster	Center Turn Lane
11	Airport Access Road Phase 1	LA 675 to LA 3212 where a roundabout will be constructed to intersect with Grand Prairie Hwy	New 5 Lane Roadway
12	Airport Access Road Phase 2	LA 3212 Roundabout to Hanger Drive	New 5 Lane Roadway
13	Champagne Blvd	1.10 miles north of Belle Dr to Latiolais Dr	New 2 Lane Roadway

Source: APC, LADOTD

Figure 9.3: Existing + Committed Projects



Data Sources: LADOTD; MPO Staff

Disclaimer: This map is for planning purposes only.

9.3 External Station Growth

The base year traffic counts at each external station were projected to 2025, 2035, and 2045 using growth factors developed based on historic traffic counts at the external stations. Development of the growth rates used the following methodology:

- Used current ADT counts at the external stations as well as historical ADT counts to determine the six-year growth rate and three-year growth rate of traffic at each external station.
- Obtained the average of the two (2) growth rates and established that rate as the initial external station growth rate.
- If the external station rate exceeded three (3) percent annually, the growth rate was adjusted to three (3) percent.
- If the external station growth rate was less than one (1) percent, including negative growth rates, the external growth rate was adjusted to one (1) percent.
- For some stations, three (3) percent annual growth rate produced unrealistic results or reflects recent explosive growth that is not expected to continue into the future.
    - Stations where this occurred further had the growth rate adjusted to reflect more reasonable expected growth.
- These 2045 totals were extrapolated to 2050 as a result of the horizon year change.

The final forecast growth rates for each external station and comparison of external travel forecast for the base year and target years is shown in Table 9.4.

The total traffic at each station was then divided into EI and EE trips with the assumption that there would not be a significant change in the distribution from the base year. In addition, both EI and EE forecast trips were also separated into auto and truck trips.

Table 9.4: External Station Forecast Growth

External Station	Forecast Growth Rate	2020 Volume	2025 Volume	2035 Volume	2045 Volume	2050 Volume
2001	2.4%	1,154	1,297	1,638	2,069	2,285
2002	3.0%	541	627	843	1,133	1,278
2003	1.0%	3,095	3,253	3,593	3,969	4,158
2004	2.0%	3,514	3,880	4,729	5,765	6,283
2005	2.0%	5,021	5,544	6,758	8,237	8,978
2006	1.0%	41,328	43,436	47,981	53,000	55,516
2007	1.0%	5,281	5,550	6,131	6,773	7,093
2008	1.0%	2,218	2,331	2,575	2,844	2,979
2009	1.0%	1,788	1,879	2,076	2,293	2,402
2010	1.0%	3,394	3,567	3,940	4,353	4,560
2011	1.0%	53,038	55,743	61,575	68,018	71,243
2012	1.0%	1,874	1,970	2,176	2,403	2,517
2013	1.0%	1,822	1,915	2,115	2,337	2,448
2014	1.0%	879	924	1,020	1,127	1,180
2015	1.0%	1,372	1,442	1,593	1,759	1,843
2016	1.0%	1,521	1,599	1,766	1,951	2,044
2017	1.7%	1,838	1,998	2,362	2,791	3,006
2018	1.0%	5,436	5,701	6,272	6,899	7,215
2019	2.3%	8,184	9,169	11,511	14,450	15,920
2020	1.1%	23,394	24,734	27,649	30,907	32,539
2021	3.0%	937	1,086	1,460	1,962	2,213
2022	1.0%	2,115	2,223	2,455	2,712	2,841
2023	1.0%	2,366	2,487	2,747	3,034	3,178
2024	1.0%	14,641	15,388	16,998	18,776	19,668
2025	1.1%	1,920	2,032	2,276	2,549	2,685
2026	2.0%	3,616	3,992	4,867	5,932	6,466
2027	1.0%	5,634	5,921	6,541	7,225	7,569
2028	1.5%	1,607	1,734	2,020	2,352	2,519
2029	2.9%	19,066	21,975	29,192	38,780	43,577
2030	1.2%	1,958	2,079	2,343	2,641	2,790
2031	3.0%	3,170	3,675	4,939	6,637	7,487
2032	3.0%	2,717	3,150	4,233	5,689	6,418

External Station	Forecast Growth Rate	2020 Volume	2025 Volume	2035 Volume	2045 Volume	2050 Volume
2033	1.0%	1,020	1,072	1,184	1,308	1,370
2034	3.0%	1,223	1,418	1,905	2,561	2,889
2035	3.0%	298	345	464	624	704
2036	2.7%	1,813	2,068	2,691	3,502	3,908
2037	1.0%	5,461	5,740	6,340	7,003	7,337
2038	1.0%	78,652	82,664	91,313	100,866	105,549
2039	2.3%	427	478	601	754	831
2040	1.0%	1,793	1,884	2,082	2,299	2,409
2041	1.0%	1,042	1,095	1,210	1,336	1,400
2042	1.0%	3,122	3,281	3,625	4,004	4,194

Source: Lafayette MPO; NSI, 2019

9.4 Future Year Model Runs

The TDM was used to forecast traffic for the future years using the E+C network and forecast socioeconomic, external station, and special generator data. Interpolation was used where necessary to obtain a future year scenario that occurred between the base year (2020), interim years (2025 and 2035), or the original horizon year (2045). A set of year 2050 socioeconomic data and external station volumes was created using extrapolation between the 2035 and 2045 data.

10.0 Test Project Development, Prioritization, and Scoring

This chapter summarizes how committed and potential transportation projects were identified, prioritized, and scored.

10.1 Project Identification

A preliminary list of roadway projects was developed for capacity projects. Projects included the following:

- All capacity projects included in the current Transportation Improvement Program (TIP)
- Projects from the previous MTP that the MPO wished to continue pursuing
- Projects addressing needs frequently cited in public input
- Projects identified in stakeholder consultation and in existing plans

10.2 Roadway Capacity Project Prioritization and Scoring

To maximize the selections of projects using the limited funding available within the MPA, roadway capacity projects were prioritized. Table 10.1 shows the criteria and weights that were utilized to prioritize the identified roadway capacity projects. This methodology is intended to support input received from the public outreach conducted by APC.

The results of this prioritization exercise are shown in Table 10.2 and illustrated in Figure 10.1.

Table 10.1: Project Prioritization Criteria

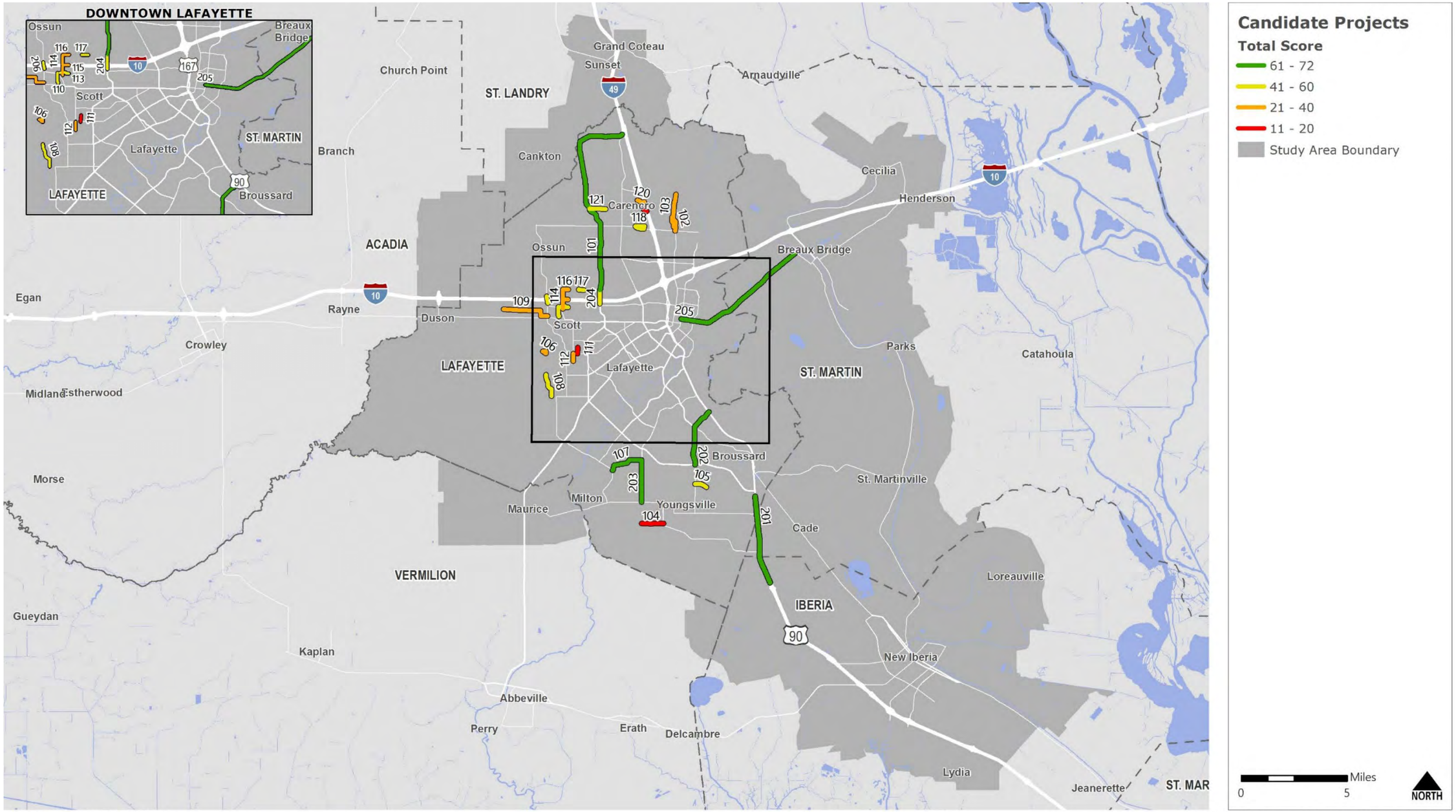
Criterion	Rationale	Measure	Scoring Scale (Points Possible)				
			0	5	10	15	20
Congestion Reduction	Prioritize projects that reduce congestion.	Reduction in Vehicle Hours of Delay from baseline conditions (Existing + Committed Network)	Points awarded in increments of 5 based upon to be determined breaks in the data (Projects in the CMP will receive higher scores based on priority.)				
Benefit Cost Ratio	Prioritize projects with congestion reduction benefits exceeding construction costs and maximize limited federal funds.	Benefit/Cost Ratio: annual dollars saved from delay reduction divided by project cost.	Points awarded in increments of 5 based upon to be determined breaks in the data				
Safety Benefits	Prioritize projects that will improve safety conditions.	Qualitative assessment based on crash data, bridge conditions, and engineering analysis.	Minimal safety benefits	Some safety benefits	Moderate safety benefits	Significant safety benefits	
Bicycle and Pedestrian Benefits	Prioritize projects that will allow for incidental bike/ped improvements.	Demand for biking, walking, and transit within 0.25 mile of project based on aerial analysis and local knowledge.	Minimal demand (or along Interstate or Expressway)	Some demand	Moderate or Significant demand		
Freight Benefits	Prioritize projects that benefit the movement of goods.	Reduction in Truck Hours of Delay from baseline conditions (Existing + Committed Network). Designation as part of the statewide freight network.	Points awarded in increments of 5 based upon to be determined breaks in the data (projects that are part of statewide freight network automatically receive maximum points)				
Supports Existing Plans	Prioritize projects that have been vetted in locally-adopted plans or existing studies and plans.	In locally-adopted plan, previous MTP, or existing study/plan.	Not in previous plan or study	In previous MTP OR existing study/plan (not in comprehensive plan)	In previous MTP AND existing study/plan (not in comprehensive plan) OR in local comprehensive plan		
Supports Transit	Prioritize projects that support exsiting transit or future transit growth.	Qualitative assessment of current transit system or future plans.	Not on current or future transit route.	On current or future transit route.			
Pavement Preservation	Prioritize projects that maintain the existing system.	Roadway pavement condition.	Pavement in "Good" condition.	Pavement in "Fair" or "Poor" condition.			
Environment & Environmental Justice	Prioritize projects that reduce environmental damage or don't disproportionately affect communities.	Qualitative assessment based on GIS analysis of environmental assets and Census data.	More points will be awarded if the project is not impacting or close to environmentally sensitive issues or communities of concern.				

Table 10.2: Project Scoring Results

Rank	Project ID	Source	Location	Limits	Length (miles)	Improvement	Cost	Congestion Reduction Score	Benefit/ Cost Score	Safety Benefit Score	Bike/Ped Benefit Score	Freight Benefit Score	Plan Consistency Score	Supports Transit Score	Pavement Preservation Score	Environmental Score	Total Score
1	101	City of Carencro	Ambassador Caffery North	Renaud to La 182	9.24	2 Lane Roadways	$52,549,604	20	10	15	0	15	5	0	0	7	72
2	205	MPO	LA 94	Louisiana to Bernard	8.20	Widen to 3 lanes	$20,000,000	15	5	10	10	15	5	0	0	7	67
3	203	MPO	LA 339	South of Vincent to LA 92	1.70	Widen to 4 lanes	$25,000,000	20	10	5	5	10	5	0	5	6	66
4	201	MPO	US 90	Wellhead to LA 88	4.50	Widen to 6 lanes	$65,000,000	20	5	5	0	15	5	0	5	9	64
5	107	City of Youngsville	Widen Vincent	LA 733 to LA 339	1.63	Widen to 3 lanes	$5,553,231	15	5	15	10	5	0	5	0	8	63
6	202	MPO	LA 89	Ambassador to US 90	2.90	Widen to 4 lanes	$40,000,000	20	5	5	10	10	0	0	5	6	61
7	204	MPO	LA 3184 Overpass	Overpass over I-10	0.30	Widen Overpass	$50,000,000	15	5	10	0	10	5	0	5	8	58
8	206	MPO	LA 93 Overpass	Overpass over I-10	0.30	Widen Overpass	$50,000,000	15	5	10	0	15	0	0	5	8	58
9	113	City of Scott	St. Mary St Extension	St. Mary St curve to Dronet	0.61	New 2 Lane Roadway	$3,469,184	10	10	10	10	10	0	0	0	5	55
10	118	City of Carencro	Realignment of Gloria Switch	Melanie to Lumina	0.40	Realignment of roadway	$1,236,485	10	15	5	0	10	0	0	5	9	54
11	108	City of Scott	Le Violon Extension	W Congress to Ile des Cannes Rd	0.85	New 2 Lane Roadway	$4,834,109	15	10	5	5	10	0	0	0	7	52
12	105	City of Youngsville	Fortune Extension	LA 89 to Fairfield terminus	0.55	Extension of Fortune Road	$3,127,953	10	10	5	10	5	0	0	0	9	49
13	121	City of Carencro	Prejean Rd to Ambassador Extension	Prejean Rd terminus to future Ambassador Caffery	0.34	New 2 Lane Roadway	$1,933,643	5	20	0	5	5	0	5	0	9	49
14	110	City of Scott	Lions Club Extension	Lions Club Curve to Delhomme Ave	0.10	New 2 Lane Roadway	$568,719	5	20	0	10	5	0	0	0	8	48
15	117	City of Scott	Renaud Extension East	Renaud intersection with Roger to Renaud terminus	0.22	New 2 Lane Roadway	$1,251,181	10	15	0	5	5	0	0	0	9	44
16	102	City of Carencro	Realignment of Moss Street	LA 98 to Thoroughbred Dr	0.66	Realignment	$2,040,201	0	5	10	5	0	0	0	5	8	33
17	120	City of Carencro	St. Anne Extension	Guilbeaux to Frontage	0.35	New 2 Lane Roadway	$1,990,515	10	0	0	0	5	0	5	0	9	29
18	106	City of Scott	Landry Road Realignment	Landry to Dulles/Le Violon intersection	0.25	Realignment of Landry/Le Violio Curve to Dulles	$772,803	0	0	15	0	0	0	0	5	8	28
19	112	City of Scott	Westgate Extension	Dulles to City Limits	0.36	New 2 Lane Roadway	$2,047,387	5	5	0	5	5	0	0	0	8	28
20	116	City of Scott	Renaud Extension West	Renaud curve to Mills	0.26	New 2 Lane Roadway	$1,478,668	5	5	0	5	5	0	0	0	8	28
21	103	City of Carencro	Widen Moss Street	LA 98 to Hector Connoly	1.09	Widen to 3 lanes	$3,713,511	0	0	5	5	0	0	5	5	7	27

Rank	Project ID	Source	Location	Limits	Length (miles)	Improvement	Cost	Congestion Reduction Score	Benefit/ Cost Score	Safety Benefit Score	Bike/Ped Benefit Score	Freight Benefit Score	Plan Consistency Score	Supports Transit Score	Pavement Preservation Score	Environmental Score	Total Score
22	115	City of Scott	Hancock Extension South	Existing Frontage Rd to south of recreation facilities	0.40	New 2 Lane Roadway	$2,274,875	5	5	0	10	0	0	0	0	6	26
23	114	City of Scott	Hancock Extension North	Renaud to New Frontage Rd (north side)	0.45	New 2 Lane Roadway	$2,559,234	5	5	0	0	5	0	0	0	10	25
24	109	City of Scott	Delhomme Extension	Andres Rd to S Fieldspan Rd	1.02	New 2 Lane Roadway	$5,800,930	0	0	10	5	0	0	0	0	8	23
25	104	City of Youngsville	Widen Savoy	LA 339 to Chemin Metairie	1.02	Widen to 3 lanes	$3,475,028	5	0	5	0	0	0	0	0	8	18
26	111	City of Scott	N Domingue Extension	Ole Colony to Dulles	0.29	New 2 Lane Roadway	$1,649,284	0	0	0	5	0	0	5	0	8	18
27	119	City of Carencro	Arceneaux Rd Extension	Potier to Frontage Rd	0.22	New 2 Lane Roadway	$1,251,181	0	0	0	0	0	0	5	0	6	11

Figure 10.1: Project Prioritization Results for Roadway Capacity Projects



Data Sources: Neel-Schaffer, Inc.

Disclaimer: This map is for planning purposes only.

11.0 Staged Improvement Program

11.1 Financial Plan

Federal legislation requires that Metropolitan Transportation Plans be fiscally constrained. To demonstrate fiscal constraint, the costs of programmed projects must not exceed the amount of funding that is reasonably expected to be available.

Using analysis of historical funding within the MPA, the forecasted amount of federal funding that the MPO can reasonably expect to be available for roadway projects over the next 25 years was developed. These forecasts account for inflation and were provided for several categories:

- Capacity
- Non-Line Item Excluding Capacity (Special Projects)
- Enhancement
- Safety
- Bridge
- Overlay
- Preservation
- Congestion Management

Using the assumptions above, the amount of federal funding reasonably expected to be available for roadway projects in the MPO, used at the MPO's discretion through 2050 is as follows:

- Capacity Projects
  - Stage 1 (2022-2030) - $271,877,577
  - Stage 2 (2031-2040) - $332,061,073
  - Stage 3 (2041-2050) - $366,802,009
- Non-capacity Funding
  - Stage 1 (2022-2030) - $76,683,419
  - Stage 2 (2031-2040) - $93,658,251
  - Stage 3 (2041-2050) - $103,456,977

11.2 Fiscally Constrained Plan

The fiscally constrained plan is the list of transportation projects that best address the needs of the region with the limited funding available. All other projects are "unfunded" and are listed later as visionary projects.

Over the next 25 years, the MPO plans to implement a variety of roadway capacity projects (adding lanes or new roadways) and roadway non-capacity projects.

The MPO receives funding from many federal sources and provides local funding in addition to federal funding. Based on projections from this historical funding analysis, approximately $1.24 billion in federal funds will be available to the MPO for roadway projects from 2021 to 2050.

Tables 11.2 through 11.4 lists all roadway capacity and line-item funding projects in the fiscally constrained, which are mapped in Figure 11.1.

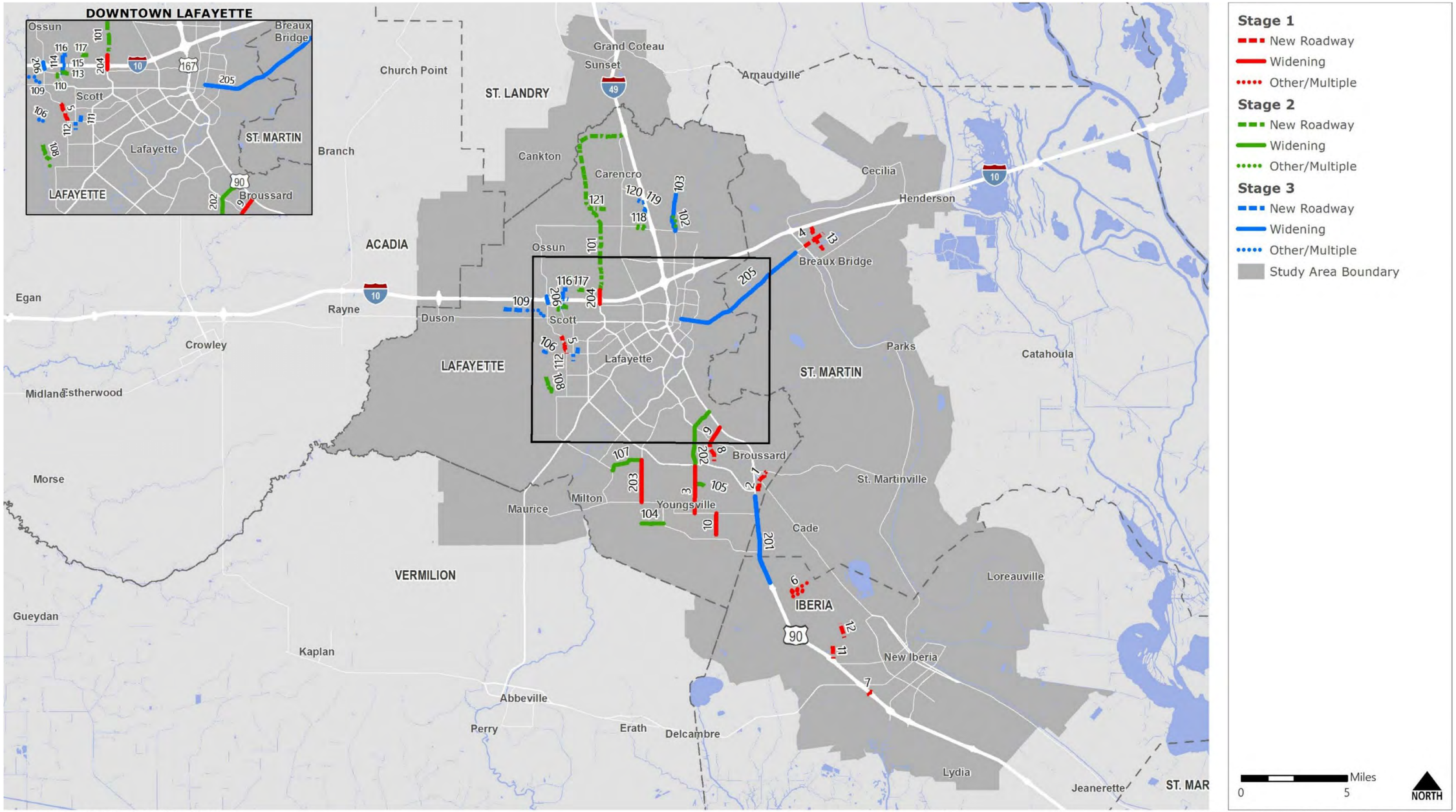
As shown in Table 11.1, the fiscally constrained capacity projects will reduce vehicle hours of delay by one (1) percent; representing over 200 hours per day, when compared to only implementing projects that are currently funded.

Table 11.1: Travel Impacts of Fiscally Constrained Roadway Capacity Projects

	2050 Existing and Committed	2050 Fiscally Constrained Roadway Capacity Projects	Difference	Percent Difference
Vehicle Miles Traveled	2,673,816	2,659,485	-14,331	-0.54%
Vehicle Hours Traveled	66,151	65,733	-418	-0.63%
Vehicle Hours of Delay	21,434	21,216	-218	-1.02%

Source: APC Regional Travel Demand Model; NSI

Figure 11.1: Fiscally Constrained Roadway Capacity Projects



Data Sources: Neel-Schaffer, Inc.; MPO

Disclaimer: This map is for planning purposes only.

Table 11.2: Fiscally Constrained Staged Improvement Program, Stage 1 (2021-2030)

Project ID	Jurisdiction	Roadway	Limits	Improvement	Year of Expenditure Fed/St Cost	Year of Expenditure Local Cost	Year of Expenditure Total Cost	Fiscal Constraint Portion
Identified Projects								
1	E+C/MPO	St. Nazaire Extension Phase 1	LA 96 to LA 182	New 4 Lane Roadway	$6,069,218	$0	$6,069,218	$6,069,218
2	NFI	St. Nazaire Extension Phase 2	LA 182 to Corne	New 4 Lane Roadway	$7,014,681	$0	$7,014,681	$7,014,681
3	E+C/MPO	LA 89 Widening	Young Street to Recovery Rd	Widening to 3 lanes	$6,833,571	$0	$6,833,571	$6,833,571
4	E+C/MPO	Mills St	LA 328 to Doyle Melancon	New 2 Lane Roadway	$1,982,000	$0	$1,982,000	$1,982,000
5	Local Funding	Apollo Road Phase 2 and 3	800 feet south of JB Road to Dulles	New 4 Lane Roadway	$0	$13,500,000	$13,500,000	$0
7	E+C/MPO	US 90 Frontage Road Extension	Frontage Rd Terminus to L A329	Extension of existing frontage road	$1,725,000	$0	$1,725,000	$1,725,000
8	Local Funding	Bernard Road Extension	Albertson Pkwy to LA 182	New 4 Lane Roadway	$0	$3,915,000	$3,915,000	$0
9	Local Funding	Bernard Road Extension	LA 182 to US 90	Widening of 2 Lane Roadway to 3 Lane	$0	$5,940,000	$5,940,000	$0
10	E+C/MPO	Larriviere Widening	LA 92 to Almonaster	Widening of 2 Lane Roadway to 3 Lane	$4,808,700	$0	$4,808,700	$4,808,700
11	Local Funding	Airport Access Road Phase 1	LA 675 to LA 3212	New 5 Lane Roadway	$0	$6,470,196	$6,470,196	$0
12	Local Funding	Airport Access Road Phase 2	LA 3212 Roundabout to Hanger Drive	New 5 Lane Roadway	$0	$10,606,879	$10,606,879	$0
13	Local Funding	Champagne Blvd	1.1 miles north of Belle Dr to Latiolais Dr	New 2 Lane Roadway	$0	$1,964,144	$1,964,144	$0
203	City of Lafayette / Youngsville	LA 339	South of Vincent to LA 92	Widen to 4 lanes	$27,602,000	$0	$27,602,000	$27,602,000
204	City of Lafayette	LA 3184 Overpass	Overpass over I-10	Widen Overpass	$55,204,000	$0	$55,204,000	$55,204,000
	Misc.	Non-Line Item Excluding Capacity			$149,881,228	$0	$149,881,228	$149,881,228
Line Item Projects								
6	HSIP	LA 88 Curve Realignment	LA 88 to Fremin Rd	Realignment of LA 88 and Extension of Fremin Road	$5,440,500	$0	$5,440,500	$5,440,500
	Various	Unidentified Enhancement Projects	Various	Various	$3,485,610	$0	$3,485,610	$3,485,610
	Various	Unidentified Safety Projects	Various	Various	$5,016,330	$0	$5,016,330	$5,016,330
	Various	Unidentified Bridge Projects	Various	Various	$20,913,660	$0	$20,913,660	$20,913,660
	Various	Unidentified Overlay Projects	Various	Various	$31,370,490	$0	$31,370,490	$31,370,490
	Various	Unidentified Preservation Projects	Various	Various	$3,485,610	$0	$3,485,610	$3,485,610
	Various	Unidentified Congestion Management Projects	Various	Various	$6,971,220	$0	$6,971,220	$6,971,220
Stage 1 Grand Total					**$337,803,817**	**$42,396,219**	**$380,200,036**	**$337,803,817**

Table 11.3: Fiscally Constrained Staged Improvement Program, Stage 2 (2031-2040)

Project ID	Jurisdiction	Roadway	Limits	Improvement	Year of Expenditure Fed/St Cost	Year of Expenditure Local Cost	Year of Expenditure Total Cost	Fiscal Constraint Portion
Identified Projects								
107	City of Lafayette	Widen Vincent	LA 733 to LA 339	Widen to 3 lanes	$7,327,378	$0	$7,327,378	$7,327,378
113	City of Scott	St. Mary St Extension	St. Mary St curve to Dronet	New 2 Lane Roadway	$4,577,519	$0	$4,577,519	$4,577,519
118	City of Carencro	Realignment of Gloria Switch	Melanie to Lumina	Realignment of roadway	$1,631,518	$0	$1,631,518	$1,631,518
108	City of Scott	Le Violon Extension	W Congress to Ile des Cannes Rd	New 2 Lane Roadway	$6,378,510	$0	$6,378,510	$6,378,510
105	City of Youngsville	Fortune Extension	LA 89 to Fairfield terminus	Extension of Fortune Road	$4,127,271	$0	$4,127,271	$4,127,271
121	City of Carencro	Prejean Rd to Ambassador Extension	Prejean Rd terminus to future Ambassador Caffery	New 2 Lane Roadway	$2,551,404	$0	$2,551,404	$2,551,404
110	City of Scott	Lions Club Extension	Lions Club Curve to Delhomme Ave	New 2 Lane Roadway	$750,413	$0	$750,413	$750,413
117	City of Scott	Renaud Extension East	Renaud intersection with Roger to Renaud terminus	New 2 Lane Roadway	$1,650,908	$0	$1,650,908	$1,650,908
102	City of Carencro	Realignment of Moss Street	LA 98 to Thoroughbred Dr	Realignment	$2,692,004	$0	$2,692,004	$2,692,004
104	City of Youngsville	Widen Savoy	LA 339 to Chemin Metairie	Widen to 3 lanes	$4,585,230	$0	$4,585,230	$4,585,230
202	City of Broussard	LA 89	Ambassador to US 90	Widen to 4 lanes	$52,779,200	$0	$52,779,200	$52,779,200
101	City of Carencro	Ambassador Caffery North	Renaud to La 182	2 Lane Roadways	$69,338,151	$0	$69,338,151	$69,338,151
	Misc.	Non-Line Item Excluding Capacity			$173,671,568	$0	$173,671,568	$173,671,568
Line Item Projects								
	Various	Unidentified Enhancement Projects	Various	Various	$4,257,193		$4,257,193	$4,257,193
	Various	Unidentified Safety Projects	Various	Various	$12,771,580	$0	$12,771,580	$12,771,580
	Various	Unidentified Bridge Projects	Various	Various	$25,543,159	$0	$25,543,159	$25,543,159
	Various	Unidentified Overlay Projects	Various	Various	$38,314,739	$0	$38,314,739	$38,314,739
	Various	Unidentified Preservation Projects	Various	Various	$4,257,193	$0	$4,257,193	$4,257,193
	Various	Unidentified Congestion Management Projects	Various	Various	$8,514,386	$0	$8,514,386	$8,514,386
Stage 2 - Grand Total					**$425,719,325**	**$0**	**$425,719,325**	**$425,719,325**

Table 11.3: Fiscally Constrained Staged Improvement Program, Stage 3 (2041-2050)

Project ID	Jurisdiction	Roadway	Limits	Improvement	Year of Expenditure Fed/St Cost	Year of Expenditure Local Cost	Year of Expenditure Total Cost	Fiscal Constraint Portion
Identified Projects								
120	City of Carencro	St. Anne Extension	Guilbeaux to Frontage	New 2 Lane Roadway	$3,201,624	$0	$3,201,624	$3,201,624
106	City of Scott	Landry Road Realignment	Landry to Dulles/Le Violon intersection	Realignment of Landry/Le Violio Curve to Dulles	$1,243,008	$0	$1,243,008	$1,243,008
112	City of Scott	Westgate Extension	Dulles to City Limits	New 2 Lane Roadway	$3,293,099	$0	$3,293,099	$3,293,099
116	City of Scott	Renaud Extension West	Renaud curve to Mills	New 2 Lane Roadway	$2,378,350	$0	$2,378,350	$2,378,350
103	City of Carencro	Widen Moss Street	LA 98 to Hector Connoly	Widen to 3 lanes	$5,972,959	$0	$5,972,959	$5,972,959
115	City of Scott	Hancock Extension South	Existing Frontage Rd to south of recreation facilities	New 2 Lane Roadway	$3,658,999	$0	$3,658,999	$3,658,999
114	City of Scott	Hancock Extension North	Renaud to New Frontage Rd (north side)	New 2 Lane Roadway	$4,116,374	$0	$4,116,374	$4,116,374
109	City of Scott	Delhomme Extension	Andres Rd to S Fieldspan Rd	New 2 Lane Roadway	$9,330,448	$0	$9,330,448	$9,330,448
111	City of Scott	N Domingue Extension	Ole Colony to Dulles	New 2 Lane Roadway	$2,652,775	$0	$2,652,775	$2,652,775
119	City of Carencro	Arceneaux Rd Extension	Potier to Frontage Rd	New 2 Lane Roadway	$2,012,450	$0	$2,012,450	$2,012,450
201	City of Broussard	US 90	Wellhead to LA 88	Widen to 6 lanes	$104,548,600	$0	$104,548,600	$104,548,600
205	City of Lafayette	LA 94	Louisiana to Bernard	Widen to 3 lanes	$32,168,800	$0	$32,168,800	$32,168,800
206	City of Scott	LA 93 Overpass	Overpass over I-10	Widen Overpass	$80,422,000	$0	$80,422,000	$80,422,000
	Misc.	Non-Line Item Excluding Capacity			$111,802,523	$0	$111,802,523	$111,802,523
Line Item Projects								
	Various	Unidentified Enhancement Projects	Various	Various	$4,702,590	$0	$4,702,590	$4,702,590
	Various	Unidentified Safety Projects	Various	Various	$14,107,770	$0	$14,107,770	$14,107,770
	Various	Unidentified Bridge Projects	Various	Various	$28,215,539	$0	$28,215,539	$28,215,539
	Various	Unidentified Overlay Projects	Various	Various	$42,323,309	$0	$42,323,309	$42,323,309
	Various	Unidentified Preservation Projects	Various	Various	$4,702,590	$0	$4,702,590	$4,702,590
	Various	Unidentified Congestion Management Projects	Various	Various	$9,405,180	$0	$9,405,180	$9,405,180
Stage 3 - Grand Total					**$470,258,985**	**$0**	**$470,258,985**	**$470,258,985**

APPENDIX 3: SYSTEMS PERFORMANCE REPORT

Acadiana MPO

Systems Performance Report

Table of Contents

Introduction

To assist MPOs and State DOTs in the transportation investment process, the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) have established goals and objectives for MPOs and DOTs to utilize when programming federal transportation funds. The goals and objectives are enumerated through the use of performance measure targets.

The targets require a significant amount of data in order to evaluate project decisions. The Louisiana Department of Transportation and Development (DOTD) has taken on the role of collecting the data and providing assistance to the MPO to set the targets.

The first target set in 2017 was the Highway Safety targets, 5 different numbers to be revised and adopted on an annual basis. Following targets were set in Pavement and Bridge Condition (4 targets), Travel Time Reliability (3 Targets), Transit Asset Management (6 Targets), and Transit Safety (7 Targets).

The data inputs used in the project development process include crash data., both raw numbers and normalized by traffic volume, pavement and bridge condition expressed in GIS, the National Performance Management Research Data Set, and asset condition data from Lafayette Consolidated Government. The MPO uses this data when assisting local governments in project development when evaluating and prioritizing projects for inclusion in the MPO's Surface Transportation Program (STP) funding allocation.

This effort is moving the MPO towards "Performance Based Planning Process" or PBPP, where data inputs drive the project development process with the goal of achieving specific targets. The data contained in this report is part of the Long Range Transportation Plan that guides the allocation of federal funding in the MPO area.

Scorecard

Category	Performance Measure	Benchmark	Status
Safety	Fatalities – 50	49	
	Serious Injuries– 98	99	
	Non-Motorized – 24	26	
	Fatality Rate – 1.439	1.42	
	Serious Injury Rate – 2.832	2.86	
Pavement and Bridge Condition	20% Good Condition: Non-Interstate NHS, 2 Year	44%	
	20% Poor Condition: Non-Interstate NHS, 2 Year	19.2%	
	20% Good Condition: Non-Interstate NHS, 4 Year		
	20% Poor Condition: Non-Interstate NHS, 4 Year		

Scorecard

Category	Performance Measure Benchmark* Target	Status
Travel Time Reliability	Travel Time Reliability for Interstate (% of Person Miles Reliable): 90%	100%
	Travel Time Reliability for Non Interstate (% of Person Miles Reliable): 90%	94.5%
	Truck reliability index for Interstate (Level of Truck Travel time Reliability): 1.3	1.12
Transit Asset Management	Percent of Buses within a particular asset class that have met or exceeded their Useful Life Benchmark , 2020-2023: 25% in 2019 to 15% in 2023	
	Percent of Cutaway buses within a particular asset class that have met or exceeded their Useful Life Benchmark , 2020-2023: 25% in 2019 to 10% in 2023	
	Percent of Service Automobiles within a particular asset class that have met or exceeded their Useful Life Benchmark , 2020-2023: 15% in 2019 to 10% in 2023	
	Percent of Administration facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale, 2020 - 2023: 10% in 2019 to 1% in 2023	
	Percent of Maintenance facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale, 2020 - 2023: 20% in 2019 to 5% in 2023	
	Percent of Passenger facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale, 2020 - 2023: 10% in 2019 to 1% in 2023	

Scorecard

Category	Performance Measure Benchmark*	Target Status
Transit Safety	Transit Fatalities – 0	
	Rate of Transit Fatalities – 0	
	Transit Serious Injuries – 0	
	Rate of Transit Serious Injuries – 0	
	Safety Events – 0	
	Rate of Safety Events – 0	
	Mean Distance between Major Mechanical Failure – 88,376	

Meeting or Exceeding Target

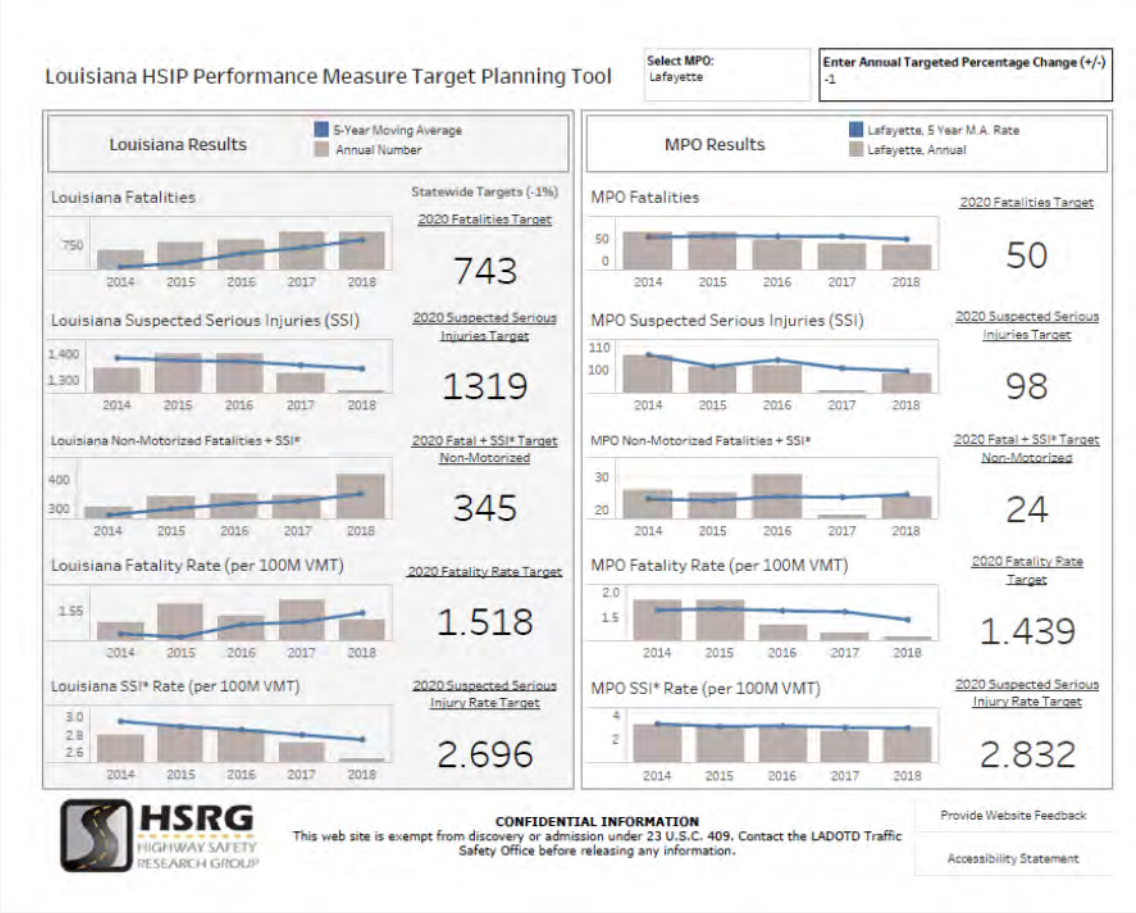
No Progress or Data for Target

Not Meeting Target

Highway Safety

Since 2018, the MPO has set a 1% reduction in overall fatal and serious injuries and non-motorized fatal and serious injuries, and a 1% reduction in the rate of fatal and serious injuries, utilizing a tool provided by LA-DOTD that allows MPOs to set their own targets for the MPO area.

Every year, the data is reviewed and presented to the MPO Committees on the progress towards reaching these safety targets. in 2018, 2019, and 2020, the MPO met the target for Fatalities and Fatality Rate. The MPO did not meet the goal for Non-Motorized, Serious Injury or Serious Injury Rate for 2018 and 2019.



Fatalities

The number of fatalities in the subject year

Serious Injuries

The number of serious injuries in the subject year

Non-Motorized

The number of fatal and serious injuries of non-motorized roadway users in the subject year

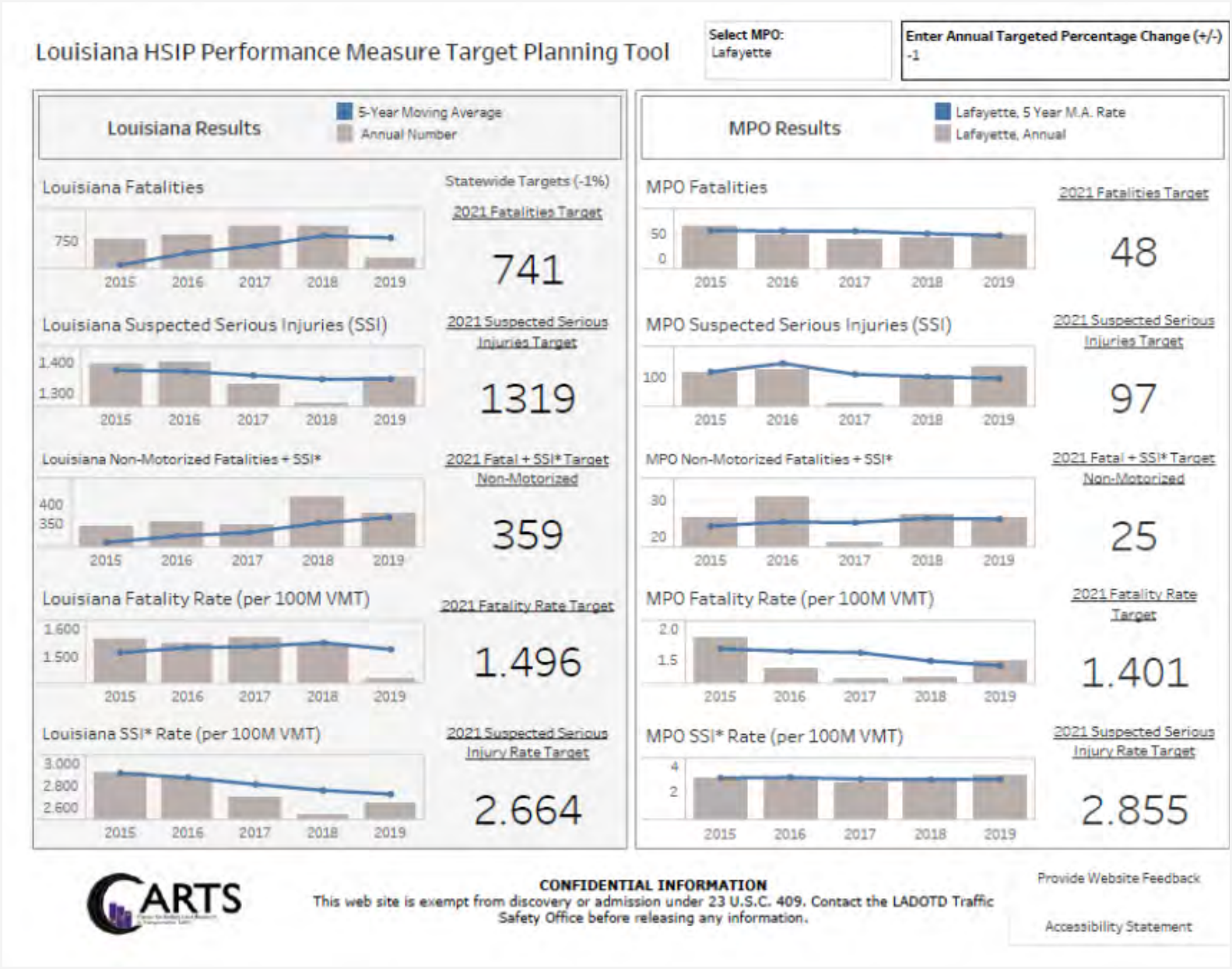
Fatality Rate

The rate of fatalities per 100 Million Vehicle Miles Traveled in the subject year

Serious Injury Rate

The rate of serious injuries per 100 Million Vehicle Miles Traveled in the subject year

2021 Highway Safety Targets



Highway Safety Projects and Countermeasure Implementation

The MPO reviews all STP projects for integration of Proven Safety Countermeasures, such as signal light timing to facilitate pedestrian crossings and walkways. The MPO and LA DOTD also has several projects with safety as the primary purpose of the project.

Source: FHWA

Reduced Left-Turn Conflict Intersections

H.010353 US 167: ACCESS MANAGEMENT (LFT TURN LNS) is an Highway Safety Improvement Program project to close and convert two-way crossovers along US 167 to restricted crossing signalized U-turns.

Source: FHWA

Roundabouts

H.012792 LA. 675 @ Airport Rd. Roundabout, H.012869 LA 182 (UNIV) @ LA 723 (RENAUD), Mills @ LA 98 Roundabout, La 93 @ Eraste Landry Roundabout, and LA 724/Fieldspan @ Landry Roundabout are projects to convert stop controlled intersections to roundabouts.

Source: FHWA

Rumble Strips and Curve Delineation

H..013823 DIST.03 RUMBLESTRIPS (SOUTH and H.012800 LOCAL ROADS HFST (LAFAYETTE) are two projects in the MPO area addressing roadway departure crashes on the local and state roadway system.

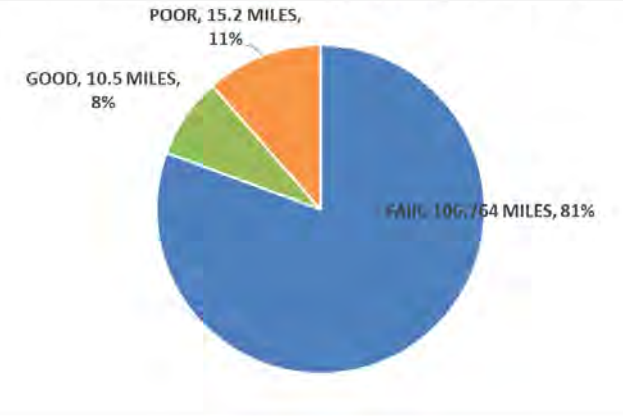
Pavement and Bridge Condition

The MPO is required to monitor the pavement and bridge for the National Highway System road ways in the MPO area. The MPO chose to adopt the LA DOTD targets for pavement and bridge condition. The targets are the percentage of roadways and bridges in Good and Poor condition in 2 and 4 year increments.

The MPO first adopted the targets in 2018 through the year 2022. The 2050 MTP uses revised year up to 2026.

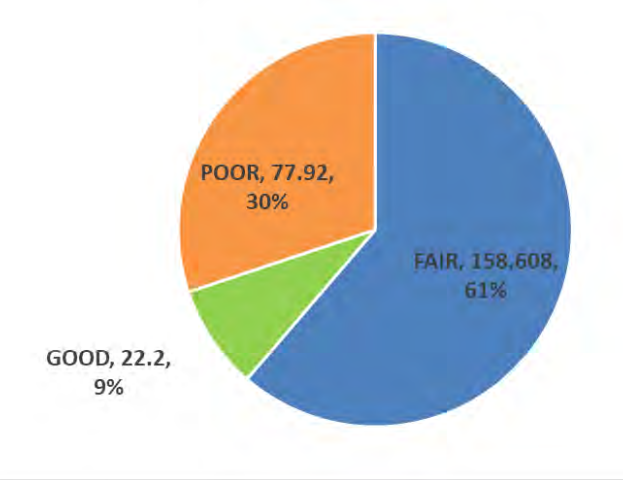
Condition	Percentage of Roadways/Bridges	Roadway Type and Year
Good	10%	Interstate System, 4 Year
Poor	4%	Interstate System, 4 Year
Good	20%	Non-Interstate NHS, 2 Year
Poor	20%	Non-Interstate NHS, 2 Year
Good	20%	Non-Interstate NHS, 4 Year
Poor	20%	Non-Interstate NHS, 4 Year
Good	35%	NHS Bridges, 2 Year
Poor	9.9%	Local NHS Bridges, 2 Year
Good	30%	Local NHS Bridges, 4 Year
Poor	9.9%	Local NHS Bridges, 4 Year

Interim Pavement Condition Data



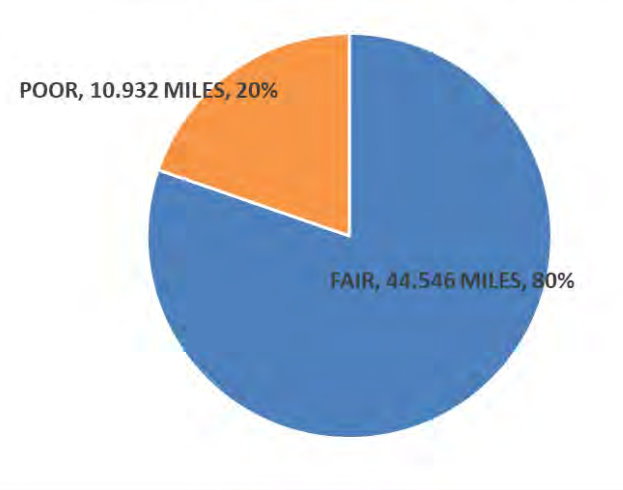
INTERSTATE

Percentage of Good, Fair, and Poor by Lane Miles



STATE NON-INTERSTATE

Percentage of Good, Fair, and Poor by Percentage

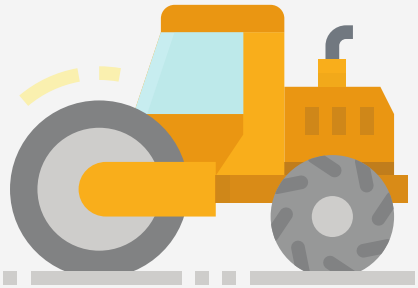


LOCAL NHS ROADS

Percentage of Good, Fair, and Poor by Lane Miles

Pavement and Bridge Condition Projects

The MPO, LA DOTD, and local governments have developed several projects with the aim of improving pavement quality on the National Highway System.



H.011832 CAMERON ST. OVERLAY

This MPO project will be a complete overlay of US 90/Cameron Street through the City of Scott.

H.010353 US 167: ACCESS MANAGEMENT (LFT TURN LNS)

Although the primary purpose of the project is safety, this project will also include a complete overlay of several miles of the NHS roadway in the MPO area.

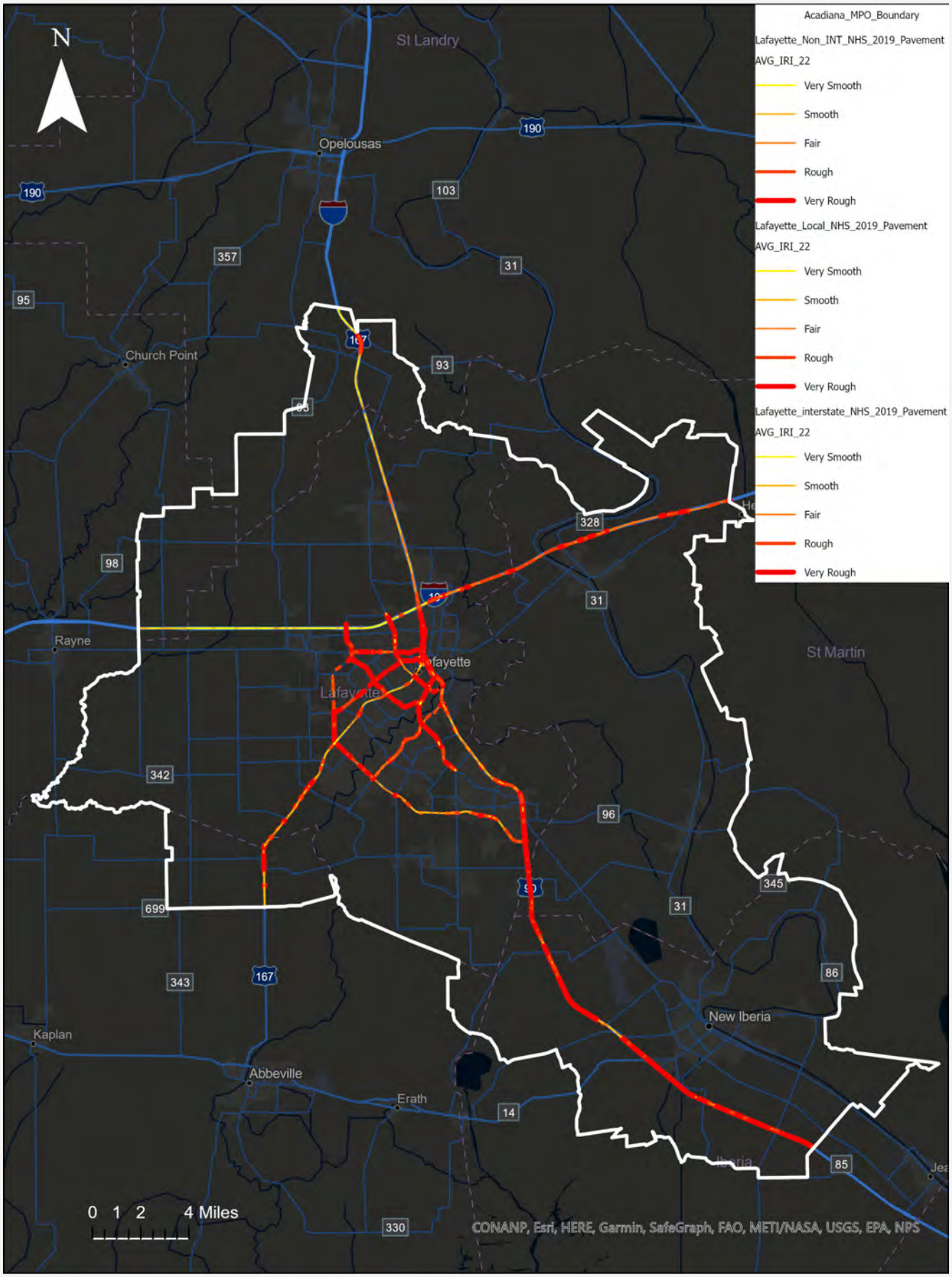
H.012980.6 LA 3073
Limits: US 167 – Kaliste Saloom Road

This project is a panel replacement project on the LA DOTD owned section of Ambassador Caffery.

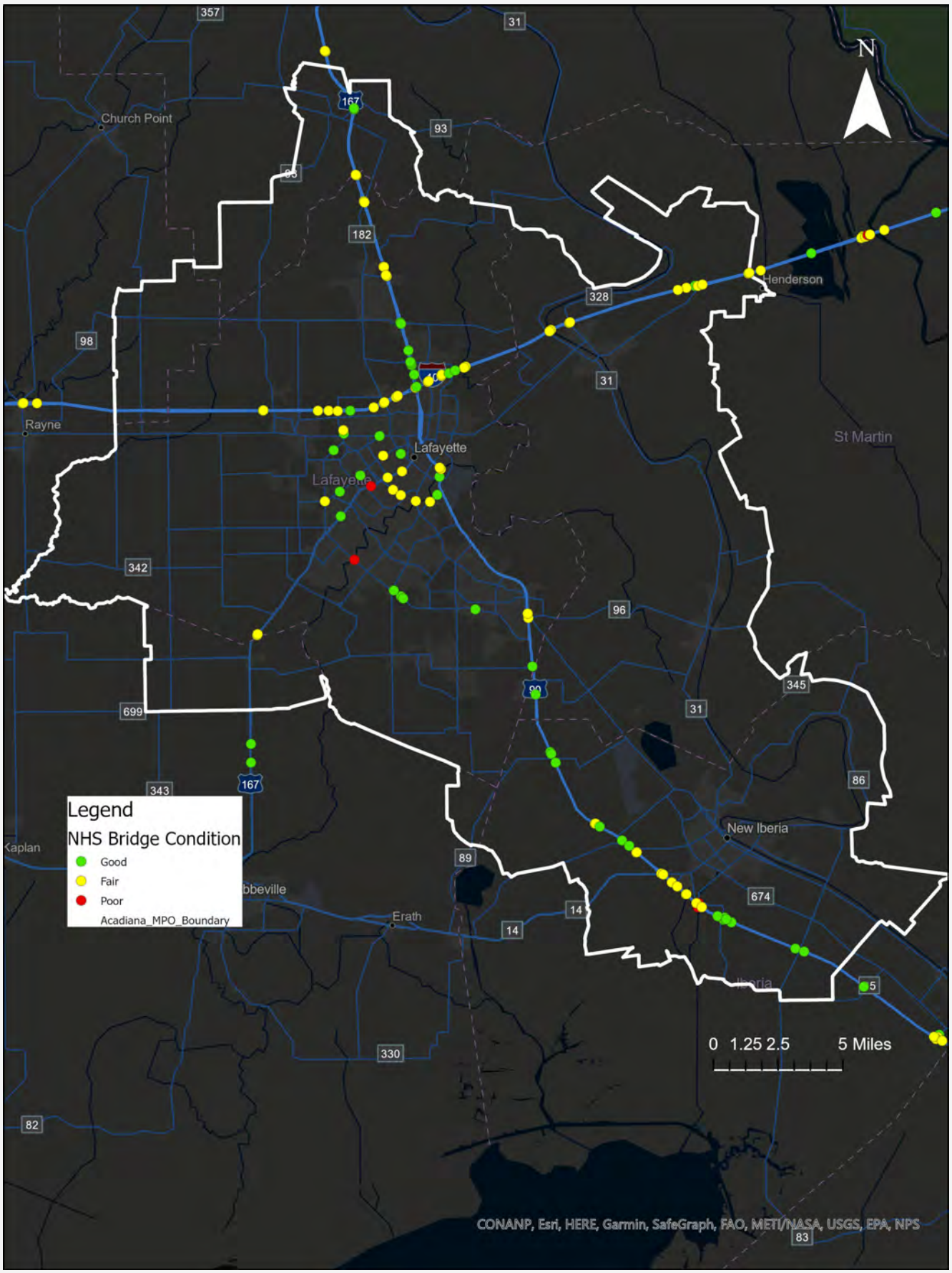
Lafayette Consolidated Government Concrete Panel Replacement Projects on Local NHS

Lafayette Consolidated Government maintains a proactive concrete panel replacement program where local NHS routes on Congress, Kaliste, and the local section of Ambassador Caffery are kept at a high level of good pavement condition.

Pavement Condition Map



Bridge Condition Map



Travel Time Reliability

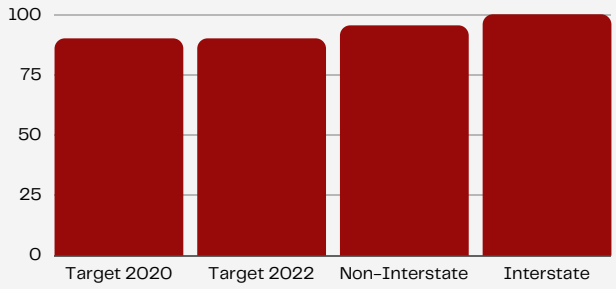
The MPO has set its own targets for Travel Time Reliability for Person Miles Reliable on the Interstate and Non-Interstate NHS and the Truck Travel Time Reliability Index using the National Performance Management Research Data Set.

The MPO set the targets in 2018 in 2 and 4 year increments. The MPO has surpassed the targets every year since the targets were set, in one case reaching 100%, the highest level of measurement. The Truck Travel Time Reliability Index is set at 1.3, and the Acadiana MPO area measured 1.12 in 2019.

The primary project keeping this measure at a high level is the FASTLANE funded I-10 widening project through Lafayette and St. Martin Parish. This project is widening 15 miles of interstate through the MPO area.

The STP-funded Adaptive Signal Control project through the City of Lafayette will improve travel times on the state and local NHS through the use of adaptive signal technology to dynamically control traffic signal timing based on real-time traffic conditions.

Person Miles Reliable Targets

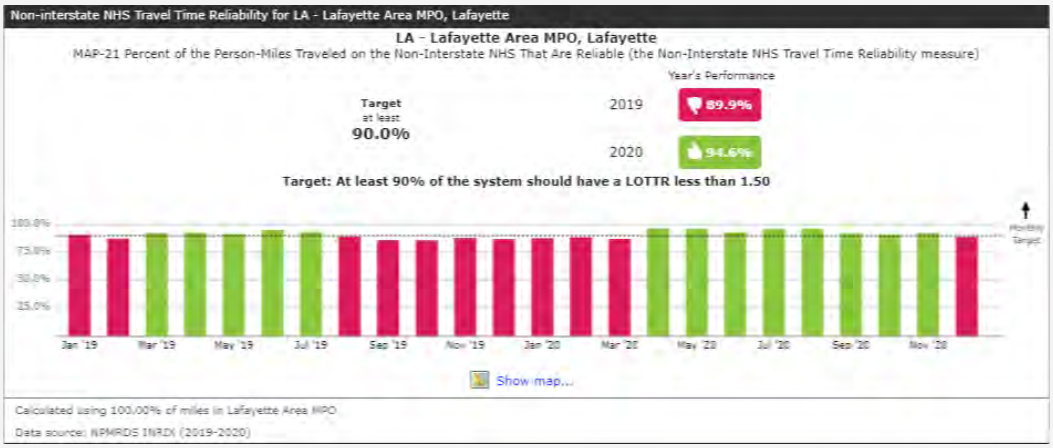


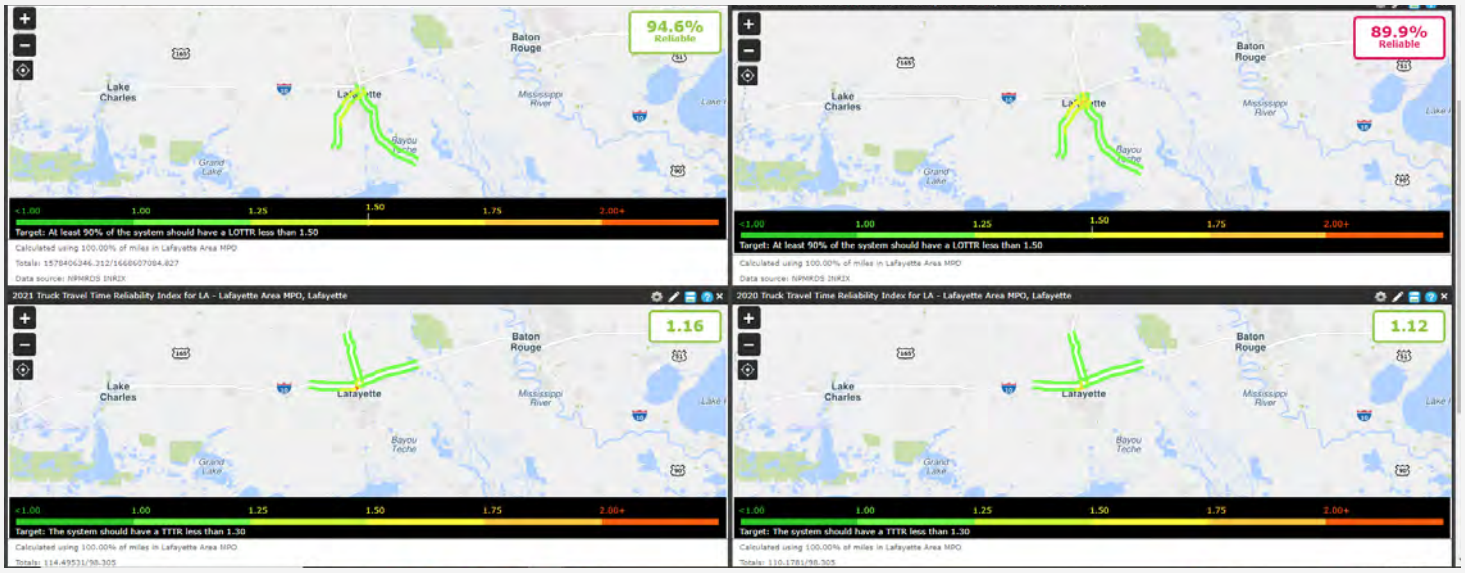
100%
Travel Time Reliability on Interstate System

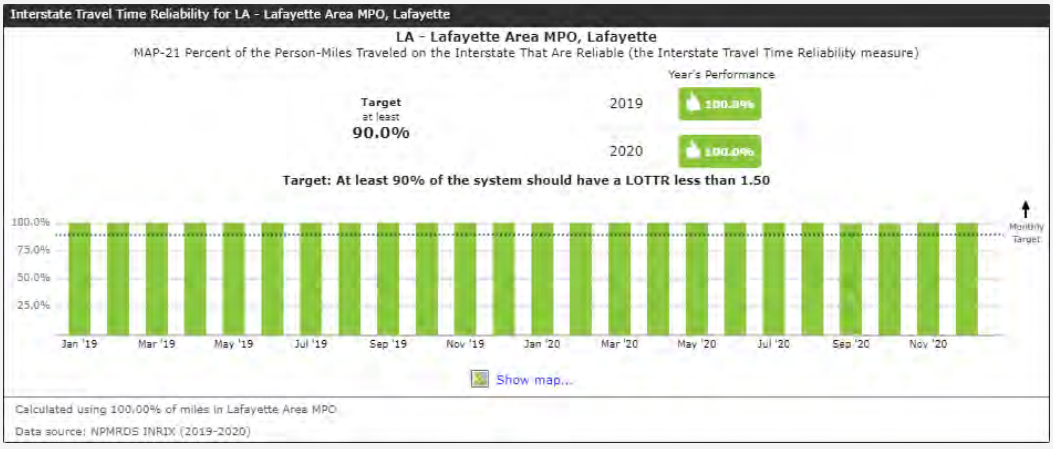
94.5%
Travel Time Reliability on Non-Interstate NHS

Truck Travel Time Reliability Index Target

NPMRDS Dashboards

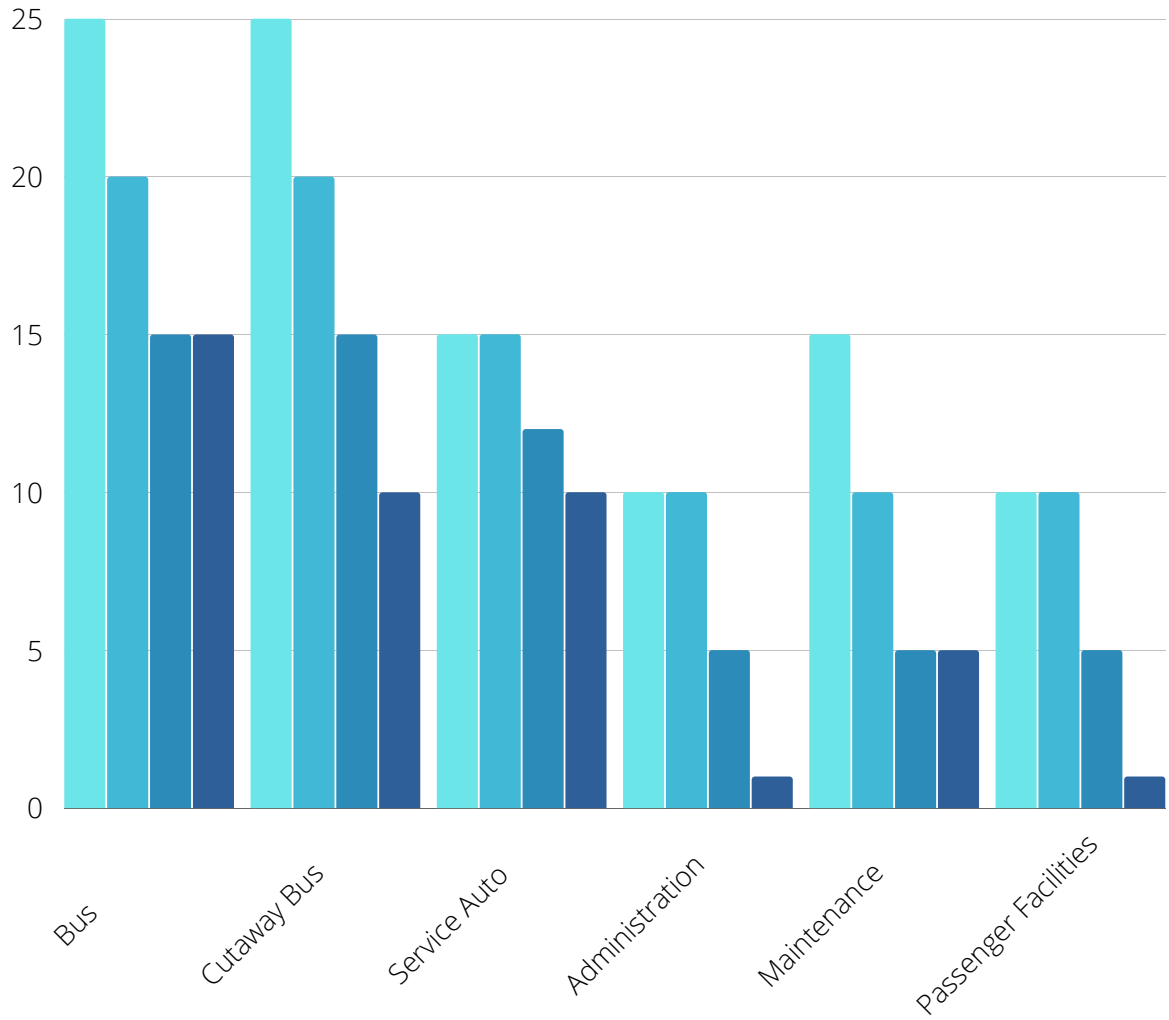






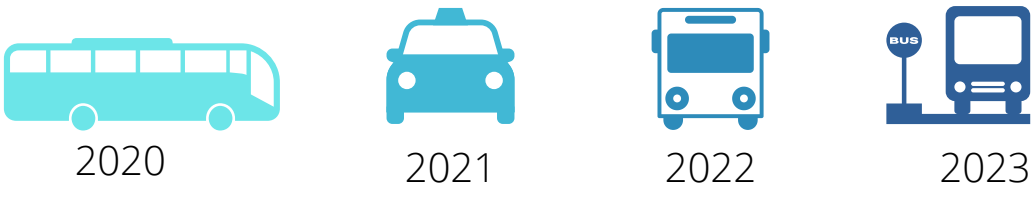
Transit Asset Management

The Acadiana MPO has one fixed route transit provider, the Lafayette Transit System . It is a division of the department of Public Works under the Lafayette Consolidated Government. The service area is centered on the city of Lafayette. Pre-COVID, Lafayette Transit operated from 5:15 AM to 6:45 PM with 13 buses on 12 routes. It also operated 4 night routes from 6:30 PM to 10:30 PM. The fleet consists of about 25 low floor buses. The system is a hub and spoke pulsed system with mostly 30 minute headways operating out of a central downtown multimodal terminal. The system also utilizes an FTA funded vehicle maintenance facility a short distance away. The main assets are the bus fleet, a maintenance facility, an administrative facility, and the main downtown terminal. The MPO adopted the targets in 2018. The MPO has several capital transit projects in its STP program that will assist LTS in maintaining its asset management goals.



Percent of vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark , 2020-2023

Percent of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale, 2020 - 2023



Transit Safety

Lafayette Transit System, Lafayette Consolidated Government, and the Acadiana MPO adopted the Public Transportation Agency Safety Plan in 2020, The plan has several important functions:

- Develops and documents Safety Management Systems in the plan
- Controls risk
- Detects and corrects safety problems in a timely manner
- Shares and analyzes safety data
- Measures safety performance

As part of the plan adoption process, the MPO analyzed transit and pedestrian crash locations to assist LTS in the safety planning process. This will maintain the success of the LTS system in reaching its targets.

Table 7: Demand Response Safety Performance Targets

Measure	Baseline	Target
Fatalities	0	0
Rate of Fatalities*	0	0
Injuries	0	0
Rate of Injuries*	0	0
Safety Events	0	0
Rate of Safety Events*	0	0
Mean Distance Between Major Mechanical Failure	88,376	88,376

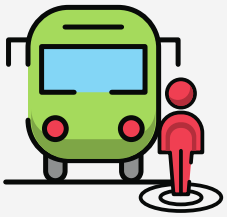
*rate = total number for the year/total revenue vehicle miles traveled

Transit Asset and Safety Management in PBPP

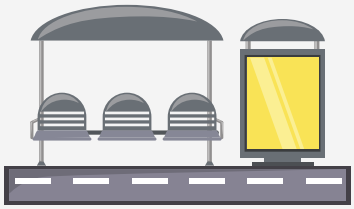
The MPO is coordinating with LTS on implementation of the Asset Management and Safety targets, which can often work in conjunction.

An Example of PBPP in Action

Through the annual target setting process for rolling stock, City Transit Agency finds that X model bus fleet has exceeded its Useful Life Benchmark.

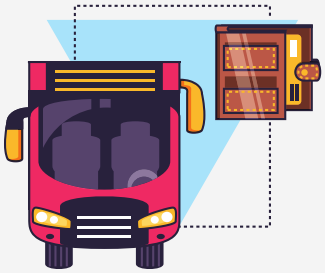


This initiates a Safety Risk Assessment through the SMS process, City Transit Agency with the MPO's technical assistance finds that there are a high number of pedestrian injuries along bus route Y due to high levels of pedestrian and vehicle traffic and fleet X also has an obsolete radio system.



The agency proposes a safety mitigation of moving the bus stops and modifying bus operator training to reduce the safety risk, in addition to purchasing new rolling stock with newer radio system.

City Transit Agency shares TAM and safety investment priorities and performance targets with State and MPO.



The MPO leads a process to determine that the high safety risk bus route should be converted to a different operation, with new buses purchased for the transit system to replace the fleet over its Useful Life Benchmark