January 2018

METROPOLITAN TRANSPORTATION PLAN

PLAN → BUILD → GROW

MOVE 2042

Baton Rouge Metropolitan Planning Organization

Capital Region Planning Commission

333 N. 19th Street Baton Rouge, LA 70802

Capital Region Planning Commission
CRPC

This document was prepared in cooperation with:

The Capital Region Planning Commission
And
The Louisiana Department of Transportation and Development

The plan was adopted by:

The Baton Rouge MPO Policy Committee
On January 30, 2018

This document was developed under contract with the:

STATE PROJECT NO. H.972200.1

FEDERAL AID PROJECT NO. H972200

BATON ROUGE MPO TRANSPORTATION PLAN UPDATE (MOVE 2042)

ASCENSION, EAST BATON ROUGE, IBERVILLE, LIVINGSTON, AND WEST BATON ROUGE PARISHES

"The preparation of this report has been financed in part through grant[s] from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation."

TABLE of CONTENTS

List of Appendices

A: Existing Conditions Report
B: Public Outreach Report
C: Conformity Analysis Report
D: Travel Demand Forecasting Process
E: Recurring and Non-Recurring Congestion Analysis
F: MOVE 2042 Transportation Safety Report

Note: All of the appendices can be found at http://www.crpcla.org/move2042

MOVE 2042

List of Tables

List of Figures

1 | Introduction to MOVE 2042

1.0 | About Metropolitan Transportation Planning

What is the Metropolitan Planning Organization (MPO)

The **metropolitan planning organization (MPO)** is a federally- mandated and federally-funded transportation policy-making body composed of representatives of local government and public transportation agencies and authorities within the metropolitan region. MPOs were first introduced in the Federal-Aid Highway Act of 1962, which required the formation of an MPO for any urbanized area (UZA) with a population greater than 50,000.

The MPO is the policy framework designated to carry out the metropolitan transportation planning process that guides investment in the regional transportation system. As established by federal regulation, the Metropolitan Transportation Plan (MTP) "shall include both long-range and short-range strategies/actions that lead to the development of an integrated, multimodal, transportation system that facilitates the safe and efficient movement of people and goods in addressing current and future transportation demand." (23 CFR 450.422, Federal Register May 27, 2016).

The planning process produces a suite of federally-mandated documents that guide investment: the long-range Metropolitan Transportation Plan (MTP), the Transportation Improvement Plan (TIP), which programs the implementation of specific projects to address the identified issues and needs, and the annual Unified Planning Work Program (UPWP).

Purpose and Primary Function

Congress created the MPO structure to ensure that regional decision-making for existing and future expenditures of Federal funds for transportation projects and programs is based in a continuing, cooperative, and comprehensive ("3 C") planning process. Statewide and metropolitan transportation planning processes are governed by federal law (23 U.S.C. §§ 134–135) which requires transparency through public access to participation in the planning process, as well an electronic publication. The intent is that federal transportation funds will be spent in a manner grounded in region-wide plans developed through intergovernmental collaboration, rational analysis, and consensus-based decision making. The regional MPO provides the necessary vehicle to facilitate collaboration of regional government, interested parties/ stakeholders, and residents in the planning process. Emphasis is on recognizing that:

- Transportation investment means allocating scarce federal and other transportation funding resources appropriately;
- Transportation planning needs to reflect the region's shared vision for its future;
- Adequate transportation planning requires a comprehensive examination of the region's future, and investment alternatives.

Transportation planning must thus address a broad array of goals. Initial improvements in accessibility, mobility, safety, security, equity, and affordability should interact with environmental goals to reduce air pollution, greenhouse gasses, noise pollution, and minimize ecosystem impacts. All goals should work together to promote appropriate land uses, maintain community cohesion, improve livability, capitalize on opportunities for workforce development, widely engage the public, while reflecting the true costs of planned/proposed improvements and maintenance.

The regional Metropolitan Transportation Plan (MTP) must be consistent with the long-range statewide transportation plan developed by LADOTD. Updates to the MTP are required every five years except when, the region is an air-quality non-attainment area. The CRPC-MPO is currently in maintenance status for National Ambient Air Quality Standards (NAAQS), but has struggled in the past to achieve and maintain attainment. This status requires that the MTP document be updated every four years and that the regional plan must conform with the State Implementation Plan (SIP) for air quality developed by LADEQ, as described in Chapter 4, Environment.

Federal Designation

MPOs are designated by agreement between the governor and local governments that together represent at least 75% of the affected population. This includes the largest incorporated city, based on population. MPO boundaries may also be created in accordance with procedures established by applicable state or local law. MPOs self-certify that they have met all federal requirements when submitting a transportation improvement program to the state for inclusion in the statewide program.

Officially designated under federal law as the Baton Rouge Metropolitan Planning Organization, the Capital Region Planning Commission (CRPC) has been designated by the Governor of Louisiana as the MPO for the Baton Rouge Metropolitan Planning Area. The original designation of CRPC as the MPO was made in 1972.

As an urbanized area with a population over 200,000, the CRPC-MPO area has also been designated a Transportation Management Area (TMA) by the Secretary of the U.S. Department of Transportation (DOT). The TMA designation, defined in 49 U.S.C. 5303(k), recognizes the greater complexity of transportation issues in large urban areas. This designation gives the CRPC-MPO a stronger voice in identifying the regional freight network, setting priorities for implementing projects listed in the transportation improvement program and responsibility for additional planning products. The planning processes for MPOs in designated TMAs must be certified by the Secretary of Transportation as being in compliance with federal requirements.

About the Baton Rouge Urbanized Area

The MPO study area includes the entirety of East Baton Rouge and Ascension Parishes and the urbanized portions of West Baton Rouge, Livingston and Iberville Parishes. This area contains the municipalities of Baton Rouge, Zachary, Baker, Central, Denham Springs, Walker, Livingston, Gonzales, Sorrento, Donaldsonville, Port Vincent, French Settlement, St. Gabriel, White Castle, Plaquemine, Addis, Brusly, and Port Allen. The MPO study area (on the following page) is comprised of the Baton Rouge Urbanized Area (defined by the 2010 U.S. Census) and the greater Metropolitan Planning Area (MPA). Throughout this document this geographic area is referred to as the CRPC-MPO study area or the Capital Region MPA. Baton Rouge and CRPC MPO are used interchangeably throughout this document.

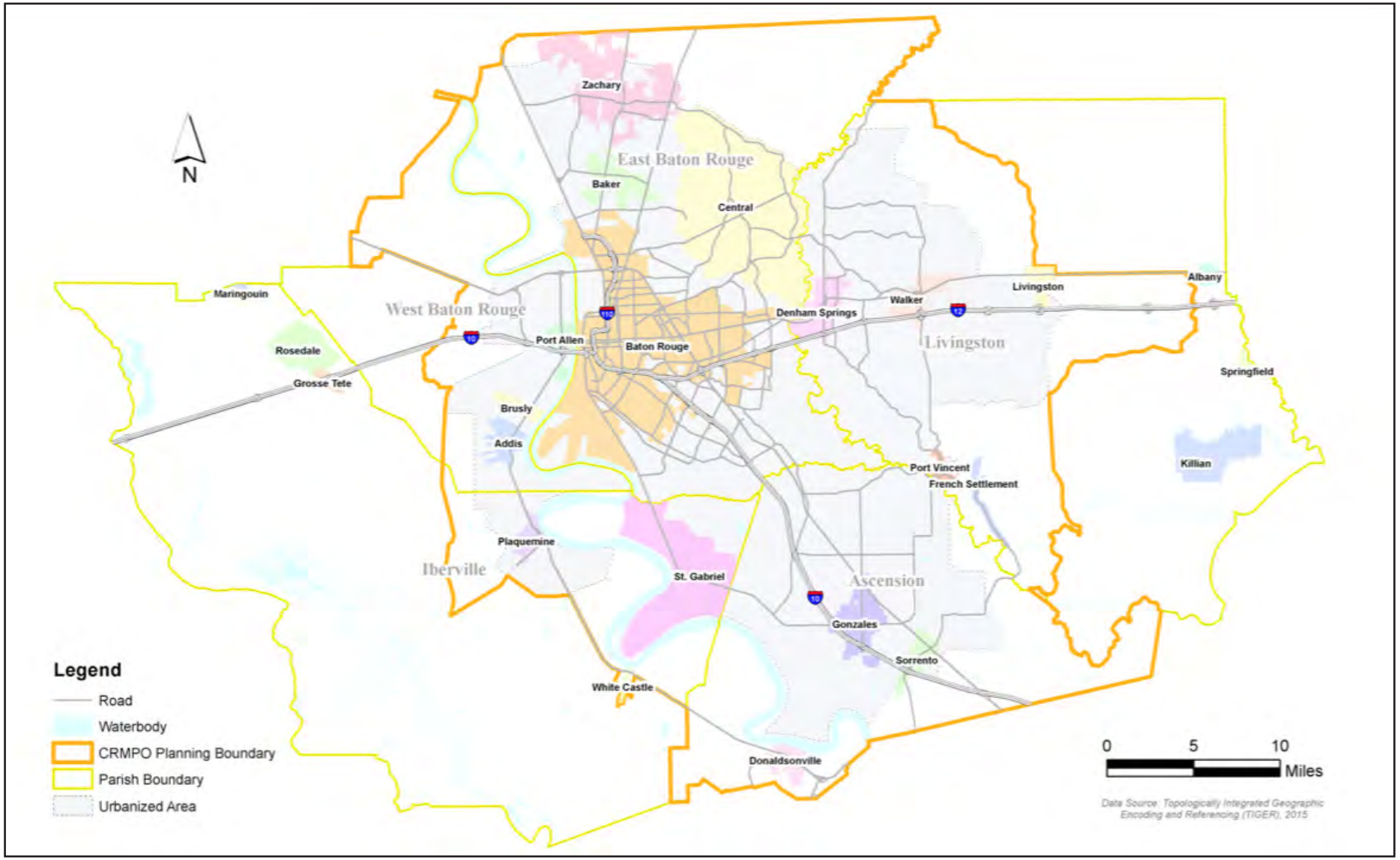


Figure 1-1: Capital Region Metropolitan Planning Area

1.1 | WHAT IS MOVE 2042?

Purpose and Authority of Plan

Move 2042 is the most recent update to the CRPC MPO's Metropolitan Transportation Plan (MTP). The MTP fulfills the Federal DOT requirements under MAP-21 and the FAST Act. As stated in 23 CFR 450, MAP-21 continued many provisions related to transportation planning from prior laws. The FAST Act made minor edits to the existing provisions to make the regulations consistent with current statutory requirements. Changes include a new mandate for State departments of transportation and metropolitan planning organizations (MPO) to take a performance-based approach to planning and programming; a new emphasis on the nonmetropolitan transportation planning process, by requiring States to have a higher level of involvement with nonmetropolitan local officials and providing a process for the creation of regional transportation planning organizations (RTPO); a structural change to the membership of the larger MPOs; a new framework for voluntary scenario planning; new authority for the integration of the planning and environmental review processes; and a process for programmatic mitigation plans.

Other changes include requiring States, MPOs, and public transit operators to integrate the goals, objectives, performance measures, and targets of those performance-based plans and processes into transit planning processes. FAST also continues implementation of the MAP–21 project delivery provisions concerning coordination between the transportation planning and environmental review processes, with the final rule amending existing planning regulations to add a reference to a new statutory process for integrating planning and the environmental review activities. Projects must be included in this document to be eligible for funding. When projects expand capacity, it must be shown they will not add to air quality issues.

The MTP will serve as the region's long-range metropolitan transportation vision and plan to meet future transportation needs for the 25 years until 2042, given recognized financial constraints. The MPO may revise the transportation plan at any time without a requirement to extend the horizon year.

Federal Requirements

MOVE 2042 meets Federal requirements by providing a blueprint to guide transportation planning and establish project priorities, from short- to long- range, to address transportation issues in the Capital Region. The current update to the regional MTP has been developed with the motto: Plan, Build, and Grow While Efficiently Moving People and Goods in the Capital Region.

The plan seeks to balance investment in various transportation modes with anticipated funding from federal, state and local sources. Federal requirements specify that the MTP be updated every five years to capture changing needs, new federal and state regulations and policies, and measure progress on transportation system management, improvements and air quality. In MPO areas not in attainment (or in maintenance) with federal air quality NAAQSs, the update period is shortened to every four years.

Maintenance status for NAAQS applies to a geographic region that the EPA previously designated as a non-attainment area for one or more pollutants pursuant to the Clean Air Act (CAA) Amendments of 1990 and subsequently re-designated as an attainment area, subject to the requirements to develop a maintenance plan under section 175A of the CAA, as amended (42. USC. 7058)

MTP Planning and Development Process

MTP planning process begins with an easily understood and communicated vision of the area's future that is then used to build consensus regarding the need for transportation improvements in the region. This vision is translated into a set of goals and objectives that will guide the development of transportation improvement projects, programs, and policies. The planning process seeks to determine how future resources can best be invested to expand and improve the existing transportation infrastructure. The Baton Rouge MPO identifies a variety of potential funding options and weighs the benefits of providing various modal options to meet anticipated travel demand. The study also takes into consideration the long-range implications of improvements for both individual communities and the larger environment.

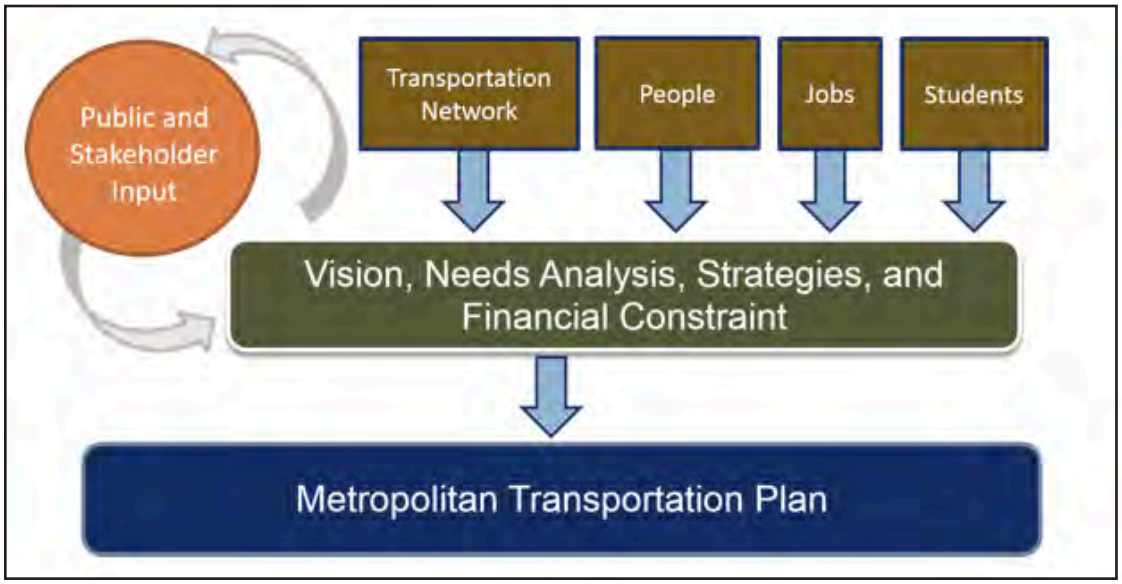


Figure 1-2: MTP Planning Process

The planning process is intended to fulfill the following responsibilities undertaken by the MPO:

- ✓ Provide opportunities for public involvement in development of the long-range plan
- ✓ Forecast future population and employment in the region and assess projected land uses
- ✓ Identify major growth corridors
- ✓ Analyze transportation needs and options, and develop alternative capital and operating strategies
- ✓ Estimate the impact of the transportation system on air quality and the environment
- ✓ Develop fiscally constrained plans and programs that serve both to preserve the existing system and provide for new capital investments.

Adoption of the MTP is the first step towards the implementation of a transportation project. Following formal adoption of the plan, a project can be programmed for design, right-of-way acquisition, or construction in the short-range Transportation Improvement Program (TIP), which identifies funding sources and the estimated amount of funding to be used. TIP is a management tool for implementing the projects programmed in the MTP. The projects in the TIP move towards implementation once the funds are authorized and obligated.

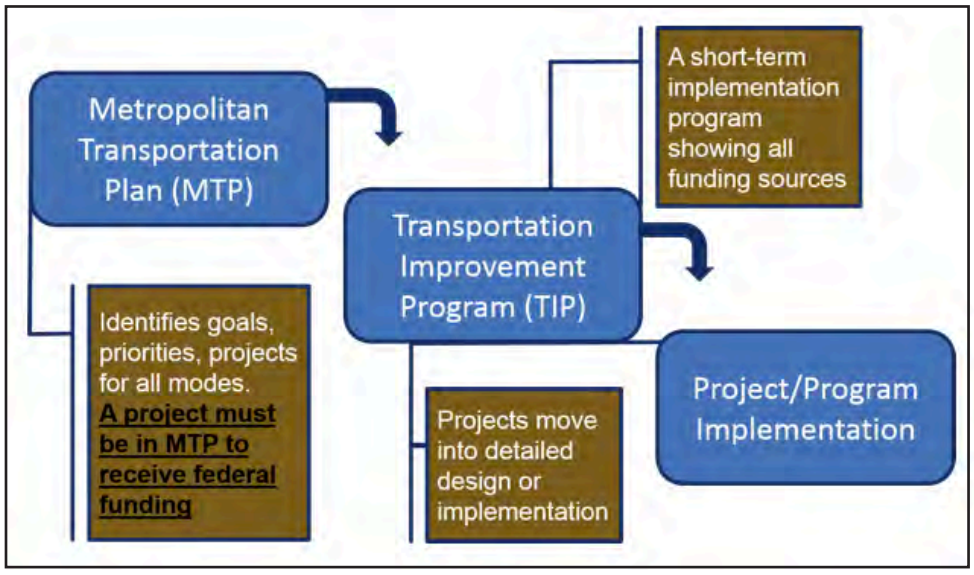


Figure 1-3: MTP Implementation Process

The process that will be used to adopt the MTP is as follows:

- ✓ The proposed list of projects will be published for public review and comment.
- ✓ Public input on the proposed list will be solicited through both the MPO website and through public meeting(s).
- ✓ Any further analysis requested by the MPO Policy Committee based on public comment will be conducted.
- ✓ The MPO Policy Committee will adopt a final fiscally constrained list of projects and approve the MTP.
- ✓ The MTP will be forwarded to LADOTD, the FHWA, and the FTA for their review and comment.

Amending and Modifying the MTP

As mentioned above, in non-attainment or maintenance areas the MTP is updated every four years. From time to time, projects or plan assumptions change. The federal process, requires inclusion of capacity or expansion projects in the regional transportation plan. When new projects arise, the plan must be amended. Since the Baton Rouge Capital Region is designated as a maintenance area for air quality (based on the 2008, 8-hr ozone standard), the following project changes require a MTP amendment and air quality conformity analysis.

- Addition of a new regionally significant roadway project irrespective of funding source. The project could be either widening an existing road or adding a new roadway. Regional significance of a project is determined collectively by the air quality interagency committee which is made up of members from the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the Environmental Protection Agency (EPA), the Louisiana Department of Environmental Quality (LDEQ), the Louisiana Department of Transportation and Development (LADOTD), and the staff of the CRPC-MPO.
- Shifting of regionally significant project from among the three MTP timeframes requires the MTP to be amended.

  The projects in the MTP are programmed in three different time frames.

  - Short Range/Stage I (2018 – 2022)
  - Medium Range/Stage II (2023 – 2032)
  - Long Range/Stage III (2033 – 2042)

If a new federally funded project arises that is not regionally significant; or, if it is exempt from air quality conformity analysis, the MTP can be amended without air quality analysis so long as adherence to financial constraint is demonstrated. Projects that may be exempt from air quality analysis are those that generally improve air quality by reducing congestion such as transit or non-motorized improvements. Some safety projects may also be exempt from air quality conformity analysis. Projects that are entirely locally funded and that are not regionally significant do not necessitate a MTP amendment.

1.2 | TRANSPORTATION SYSTEM IN THE CAPITAL REGION

In the chapters that follow, MOVE 2042 seeks to answer key questions regarding future regional transportation needs in the CRPC-MPO study area:

- What do changing socio-demographics mean for transportation in the CRPC-MPO region? Where do people live and where are they moving? Where are jobs located now and in the future? How do demographics impact travel modes across the region?
- How do current and future land use, population, economic and travel patterns affect regional transportation, economy and quality of life?
- What do changing technologies mean for regional mobility and safety?
- How are growing environmental concerns affecting transportation choices?
- How can improvements in and greater access to public transportation affect traffic flows, connectivity and accessibility in the CRPC-MPO region?

- How can improved bike and pedestrian facilities affect individual health, connectivity and accessibility in the CRPC-MPO region?
- How do declining transportation revenues affect regional capacity to maintain existing system and make improvements for better traffic flow? How do we prioritize our limited resources?
- How does growth in MPO regional area freight demand impact traffic flow, congestion, and economic competitiveness?

Changing Socio-Demographics

Since 2000, most population growth in the CRPC-MPO study area has occurred outside the City of Baton Rouge corporate limits, although the city continues to have the region's highest population concentration. Livingston and Ascension Parishes, with extensive new subdivision development, have experienced the highest population growth among the five CRPC MPO parishes. Populations in the two parishes grew by almost 30% from 2000 to 2010. Although growth levelled off from 2010 to 2015, Ascension Parish still had a 10% increase, while Livingston had a 7% increase in population during that time period. In the fifteen years from 2000 to 2015, largely rural West Baton Rouge Parish had combined growth of nearly 15%, while urban East Baton Rouge Parish had modest growth and more rural Iberville Parish experienced a slight drop in population.

Elderly and disabled populations face special transportation challenges. Significant percentages of both groups either cannot drive or lack personal vehicles. In the CRPC MPO region, the challenges are further complicated by the dispersed settlement pattern and little or no public transit services in many areas. The challenges can be expected to increase as the regional population ages, where it is anticipated that people will age in place in suburban areas without access to transit.

Social and demographic changes are expected to have increasing impacts on travel demand and modal choices. A major factor is the trend toward what has been termed "Collaborative Consumption," with the millennial generation tending to own fewer cars. Car sharing and services like Uber, Lyft and ZipCar enable on-demand mobility without having to own a personal or family vehicle. This reduces worry about finding parking, speeding tickets, and paying for fuel and insurance.

Changing Technology

In addition to changing demographics, global technological developments already underway will continue and are expected to have increasing impacts on regional mobility and safety. The CRPC MPO emphasizes System Management and Integration, with projects that implement new technology systems to improve management and communication between transportation-related systems. Sample projects identified may include, but would not be limited to:

- Highway courtesy patrols;
- Congestion/Incident Management Systems;
- Advanced Traveler Information Systems (ATIS);
- Intermodal transportation facilities and systems (including CVISN);
- Traffic management center capital and Operations and Management costs;
- Data storage and transmission;
- ITS (Intelligent Transportation Systems) that integrate wireless communication into transportation infrastructure and vehicles.

The website Government Technology Online (Nov. 4, 2014) offered a short review of additional technological resources already available, in development, and anticipated. These are discussed in greater detail in other sections of the MTP document.

- **ITS**, such as synchronized traffic signals and electronic information and variable speed limit signs, improve traffic flows. Distributing real-time traffic data via social media and mobile apps helps users plan routes.
- **Autonomous and Connected Vehicles**, include vehicle-to-vehicle (V2V); vehicle-to- pedestrian (V2P); and vehicle-to-infrastructure (V2I) communications, known collectively as V2X, as well as self-driving vehicles that use LIDAR, GPS, optical cameras to process and analyze possible roadway scenarios and take appropriate action.

- **Electric Vehicles**, with supportive charging-station systems can create potential economic development opportunities.
- **Real-Time Driving Data** can link connected vehicles and infrastructure to enable learning from technology and practices of private companies with large fleets, as well as multi-modal networking through crowdsourcing, smartphone transit ticketing, calculating multi-trip options, and integrating car or bike sharing to solve "last mile" challenges of transit use.
- **New Materials**: Fuel efficiency standards motivate lower weight vehicles. Changes in design, through technologies like 3-D printing, have the potential to transform vehicle design.

Environmental Concerns

Growing environmental concerns have and will continue to affect transportation choices. Transportation has significant direct environmental impacts, which vary by mode and effect air, water and soil quality. Environmental impacts of the transportation network include being a major user of energy, burning most of the world's petroleum, and the generation of resulting air pollution, as well as runoff that effects nearby soils and waterbodies. Emissions, including nitrogen oxides (precursors of ground-level ozone) and small particulates, contribute to ongoing air-quality attainment challenges in the CRPC region. Stop-and-go traffic congestion and automobile-oriented "sprawl" development increase emissions, while the latter also consume natural habitat and agricultural lands. Although environmental regulations have reduced individual vehicle emissions, these are offset by higher traffic volumes, congestion and longer commutes.

The Baton Rouge MSA is a maintenance area for national standards for ground-level ozone. This status is closely linked to vehicle exhaust emissions during peak traffic congestion times in hot weather months.

Paved highway and roadway facilities with inadequate drainage contribute to flood and runoff risks in storms and high-water events. Road and rail infrastructure can divert water flow which can result in ponding. The regional flooding in 2016 increased awareness about storm water management and the need for a collaborative approach to addressing drainage infrastructure needs.

Declining Transportation Revenue

The Federal Highway Trust Fund collects and distributes money raised through the fuel tax dedicated to federal highway and transit projects. The federal government provides roughly one-quarter of public spending on highways and mass transit, mostly in the form of grants to states, with states and localities funding the remainder. The trust fund's primary source of revenue is federal taxes on gasoline and diesel fuel, which are 18.3 cents and 24.3 cents per gallon, respectively. The gas and diesel tax rates, which have not changed since 1993, account for 90% of the fund's revenues. The remaining revenue is derived from taxes on sales of tires, trucks and trailers, as well as interest credited to the trust fund.

Federal fuel tax revenues to support the Trust Fund have declined due to improved vehicle fuel efficiency, while inflation has eroded the fund's purchasing power. In recent years, the Trust Fund has consistently spent more than it receives in fuel tax revenues. Congress has addressed past shortfalls with temporary infusions from the general fund. Because the trust fund is prohibited from incurring a negative balance, states may periodically face payment delays or across-the-board cuts. Such incidents increase uncertainty, even for already authorized projects. Maintenance deferred due to fiscal limits increases long-term maintenance and replacement costs.

Annual deficits are expected to grow. By 2025, the Congressional Budget Office (CBO) predicts that the Highway Trust Fund will take in only $38 billion, but spend $60 billion, representing a $22 billion deficit, based on current trends. If the Highway Trust Fund continues spending as projected by the CBO, it would generate a $180 billion deficit over the next decade, pushing the potential cumulative shortfall to $168 billion.

How does the decline in transportation revenues affect regional capacity to maintain existing system and make improvements for better traffic flow? Like its counterparts across the country, the CRPC MPO faces the need to find ways to do more, or at least the same, with less. Limited resources reduce capacity to keep existing transportation facilities in a state of good repair, let alone make needed improvements. Infrastructure in less than good repair affects regional traffic flows and decreases economic efficiency and vitality at the regional level. At the household level, infrastructure that is not maintained to a sufficient level increases individual transportation costs.

Summary

The CRPC MPO region is complex and is faced with many transportation challenges; not the least of which, is limited resources. Throughout the development of this plan update, the MPO reached out to citizens, business leaders, elected officials, state resources agencies and other stakeholders to ask hard questions about what we need, what we can afford and how we might look for creative ways to increase revenues. Given our constraints, MOVE 2042 seeks to identify ways to improve our system reliability and safety knowing that building roadway and bridge infrastructure to increase capacity, will be limited.

2 | Public Outreach and Scenario Planning Process

The MTP is a local plan designed specifically to meet community needs and reflect community values. To develop a functional transportation plan that meets those needs and values, extensive public involvement activities were conducted. The principal purpose was to provide opportunities for individuals to participate in the development of MOVE 2042. Members of the public participated by:

- ✓ Expressing opinions and/or providing relevant information regarding goals and objectives for the transportation planning process;
- ✓ Identifying specific needs to be addressed in the creation and implementation of the transportation plan;
- ✓ Participating in on-line surveys to identify local priorities for mode choices and funding options;

Local stakeholders and agencies were also consulted for their input. The remainder of this chapter provides a description of activities and analyses of input received through this process.

3,685 PEOPLE PROVIDED INPUT INTO THE PLAN

2.1 | Public Involvement Process

Federal Requirements

Federal regulations (23 CFR 450.316) requires that each MPO develop and use a documented participation plan that defines a process for providing citizens with reasonable opportunities to be involved in the metropolitan transportation planning process. This PPP is required to address the following:

- ✓ Adequate public notice of activities and time for public review and comment;
- ✓ Timely notice and access to information;
- ✓ Employment of visualization techniques to describe plans and programs;
- ✓ Make information available electronically and on the internet;
- ✓ Hold meetings at convenient times and easily accessible venues;
- ✓ Consider and respond to public input in a timely fashion;
- ✓ Seek out and consider the needs of the traditionally underserved in the community, such as low income and minority populations;
- ✓ Provide additional opportunity for public comment on all plans, and changes to plans, following initial agency and public reviews during development, especially the MTP and TIP;
- ✓ Coordination with statewide public involvement and consultation processes;
- ✓ Periodically review procedures and effectiveness of plan strategies;
- ✓ Provide a summary of public comments on the draft for the MTP and TIP and include those in the final documents;
- ✓ Provide a minimum of a 45 day public comment period before finalization of a PPP Plan or an update of an existing PPP Plan.

Federal legislation and executive orders also prohibit discrimination and/or exclusion from participation in any program or activity receiving federal financial assistance on the basis of race, color, national origin, or disability. Special accommodations must also be made for minority, low-income, and Limited English Proficiency (LEP) populations.

Public Participation Plan Requirements

The MPO's PPP addresses all the federal requirements and can be found on their website (http://crpcla.org/public-involvement).

Beyond the requirements for the MTP, all MPO activities must accommodate persons with disabilities and LEP persons. All MPO meetings were required to take place in locations which are accessible by persons with mobility limitations or other impairments. The public outreach scope allowed for up to two mini-meetings per parish and calls for a personalized, parish-specific approach to engage Environmental Justice populations, LEP populations, low-mobility populations, and

other populations that are typically underrepresented or have unique needs.

2.2 | Title VI in Development of the Metropolitan Transportation Plan

The Capital Region Planning Commission (CRPC) is committed to ensuring public participation in the development of all transportation plans and programs. It is the overall goal of the Metropolitan Planning Organization (MPO) that the transportation planning process is open, accessible, transparent, inclusive, and responsive. Helping to achieve the MPO's goal, the MTP development process is compliant with and follows all Title VI laws, processes, and programs, including the following:

- Civil Rights Act of 1964, 42 USC 2000d, et seq. prohibits exclusion from participation in any federal program on the basis of race, color, sex, or national origin;
- Rehabilitation Act of 1973, 29 USC 701 Section 504, prohibits discrimination on the basis of a disability, and in terms of access to the transportation planning process;
- Americans with Disabilities Act of 1990 prohibits discrimination based solely on disability. ADA encourages the participation of people with disabilities in the development of transportation and paratransit plans and services. In accordance with ADA guidelines, all MTP meetings take place in locations which are accessible by persons with mobility limitations or other impairments;
- Executive Order 12898, referred to as Environmental Justice, requires that federal programs, policies, and activities affecting human health or the environment will identify and avoid disproportionately high and adverse effects on minority or low income populations. The intent is to ensure that no racial, ethnic, or socioeconomic group bears a disproportionate share of negative environmental consequences resulting from government programs and policies;
- Limited English Proficiency (LEP) Plan which is required by Title VI of the Civil Rights Act of 1964, Executive Order 13166, and FTA Circular C 4702.1B, October 2012.

The MPO's Public Participation Plan (PPP) supports Title VI compliance by enabling and encouraging all members of the public to actively participate in the development of the MTP. Details on the public involvement process, both with the general public and the stakeholders in the study area, for the MTP are discussed in the next section.

2.3 | Stakeholder Consultation and Coordination

To develop an effective transportation plan that addresses the needs of all system users, it is necessary to obtain input from all stakeholders. For this reason, the consultation and coordination process is an important component of plan development. The consultation process is designed to gather input from key stakeholder constituencies that may not be adequately represented in the public participation process described later in the report.

Federal Requirements

As with public involvement for citizens, Federal regulations (23 CFR 450.316) require MPOs to develop and use a documented participation plan that defines a process for providing transportation-related stakeholders with reasonable opportunities to be involved in the metropolitan transportation planning process. These stakeholders include:

- Affected public agencies;
- Representatives of public transportation employees;
- Freight shippers;
- Providers of freight transportation services;
- Private providers of transportation;
- Representatives of users of public transportation;
- Representatives of users of pedestrian walkways and bicycle transportation facilities;
- Representatives of the disabled;
- Other interested parties.

Federal regulations also encourage MPOs to consult with agencies and officials responsible for other planning activities within the Metropolitan Planning Area (MPA) that are affected by transportation or to coordinate its planning process, to the maximum extent practicable, with such planning activities. Beyond this, MTPs are required to give due consideration of other related planning activities within the MPA and to include transportation services and projects within the MPA that are provided by other agencies that receive federal funding, such as public transit systems or national parks.

The metropolitan planning process requires that where an MPA includes federal public lands and/or Indian Tribal lands, the affected federal agencies and Indian Tribal governments shall be involved appropriately in the development of transportation plans and programs.

Consultation Groups

Beyond the opportunities provided to the general public described in later sections of the report, the MPO's PPP provides a list of agencies for consultation. This list includes:

- Elected Officials;
- Local Government Staff;
- Transportation Agencies (Airports, Transit, Freight Services, etc);
- Local Media (TV, Radio, Print, etc);
- Homeowners Associations;
- Civic Groups;
- Special Interested Groups;
- Libraries (For Public Display);
- Consultation with federal, state, and local agencies responsible for land use management, natural resources, environmental protection, conservation and historic preservation, and other environmental issues;
- Consultation with parties that would have an interest in the planning and development of the transportation network including affected public agencies in the metropolitan planning area;
- Private Freight Shippers;
- Representatives of Public Transportation Employees;
- Providers of Freight Transportation Services;
- Private Providers of Transportation;
- Representatives of Users of Public Transportation;
- Representatives of Users of Pedestrian Walkways;
- Representatives of Users of Bicycle Transportation Facilities;
- Representatives of the Disabled;
- Indian Tribal Governments.

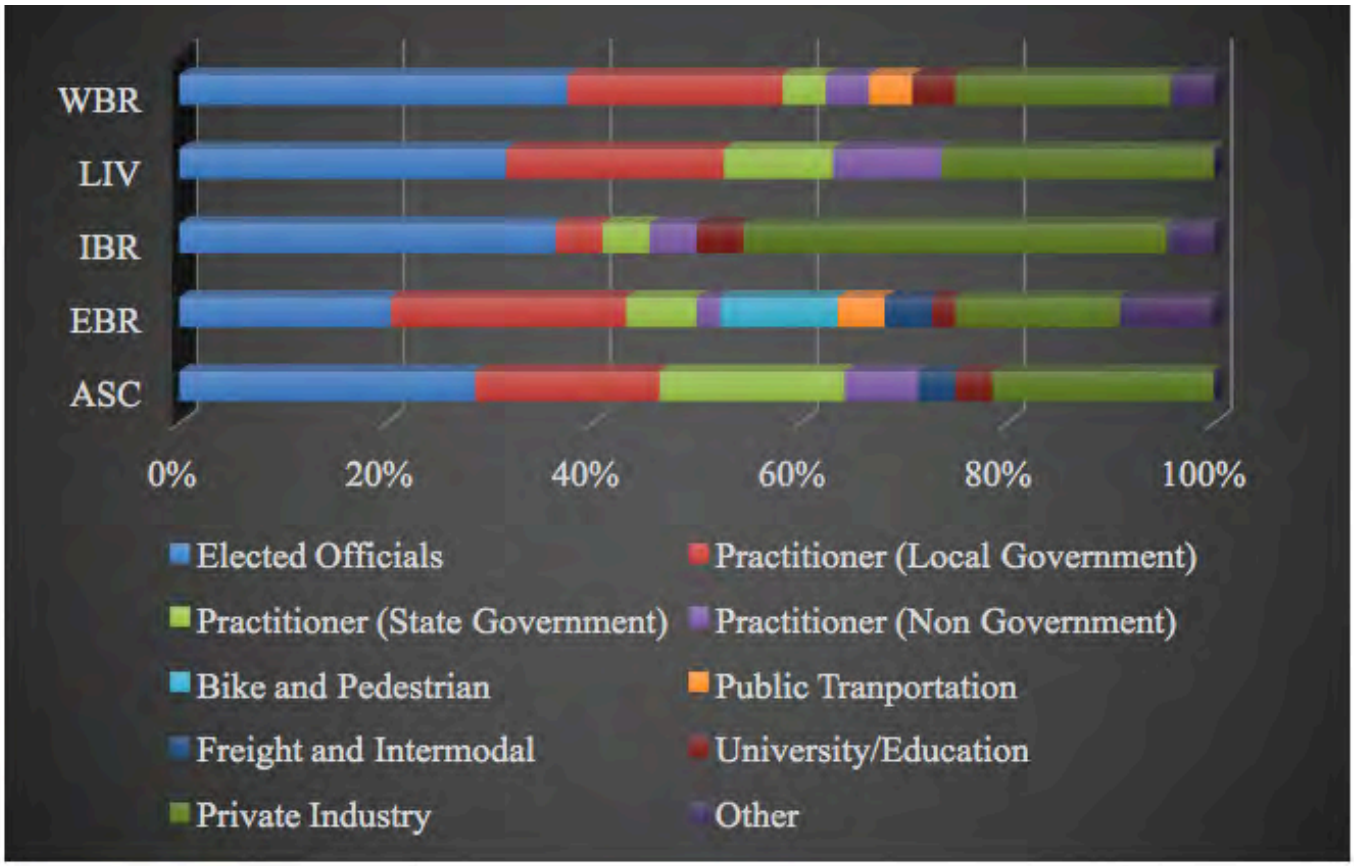


Figure 2-1: Participant Breakdown by Stakeholder Group

Figure 2-2: Collage of Photos from Stakeholder Meetings

Coordination Activities

In addition to consulting stakeholders throughout the development of the MTP, the MPO and the consultant team (Neel-Schaffer, Inc. and Marmillion/Gray Media) coordinated with stakeholder groups to obtain relevant data (e.g., inventories of natural, historic, and community resources) and to review existing plans, maps, and other information for consistency with the MTP. This data was obtained at five meetings held throughout the study area, with one meeting held in each parish. A total of 201 stakeholders participated in these meetings. Figure 2-1 shows the breakdown of participants by stakeholder group in each parish. Figure 2-2 shows the collage of photos from stakeholder meetings.

At these meetings, the stakeholders were introduced to the MTP framework and its role and the planning process. Using instant polling, the stakeholders were asked which stakeholder group they identified as being part of. This ensured that an adequate representation of stakeholder groups throughout the process, with groups that were under represented at the meetings contacted at a later date. This also allowed for further analysis of the polling responses and stated transportation challenges and opportunities to be reviewed by the various stakeholder groups. An in-depth description of the stakeholder meeting activities can be found in the Public Outreach Report which is an appendix to this document can be found at: http://crpcla.org/move2042/.

During the meetings, the stakeholders were provided with a map of their respective Parish and asked to provide input on where new growth in population or employment was likely to occur. These maps were marked up with anticipated growth, specific values of growth where known, and the different categories of land use that would be expected in the future. The maps were used to identify specific areas of change for the forecast data, as well as the intensity of that change. Figure 2-3 displays the results of the exercise.

The stakeholders were also guided through a mapping exercise similar to the one conducted with the land use map. Stakeholders were asked to identify transportation projects that would soon be coming to the study area or that could be tested during the MTP project to alleviate congestion or address other concerns. The results of the mapping exercise are shown in Figure 2-4.

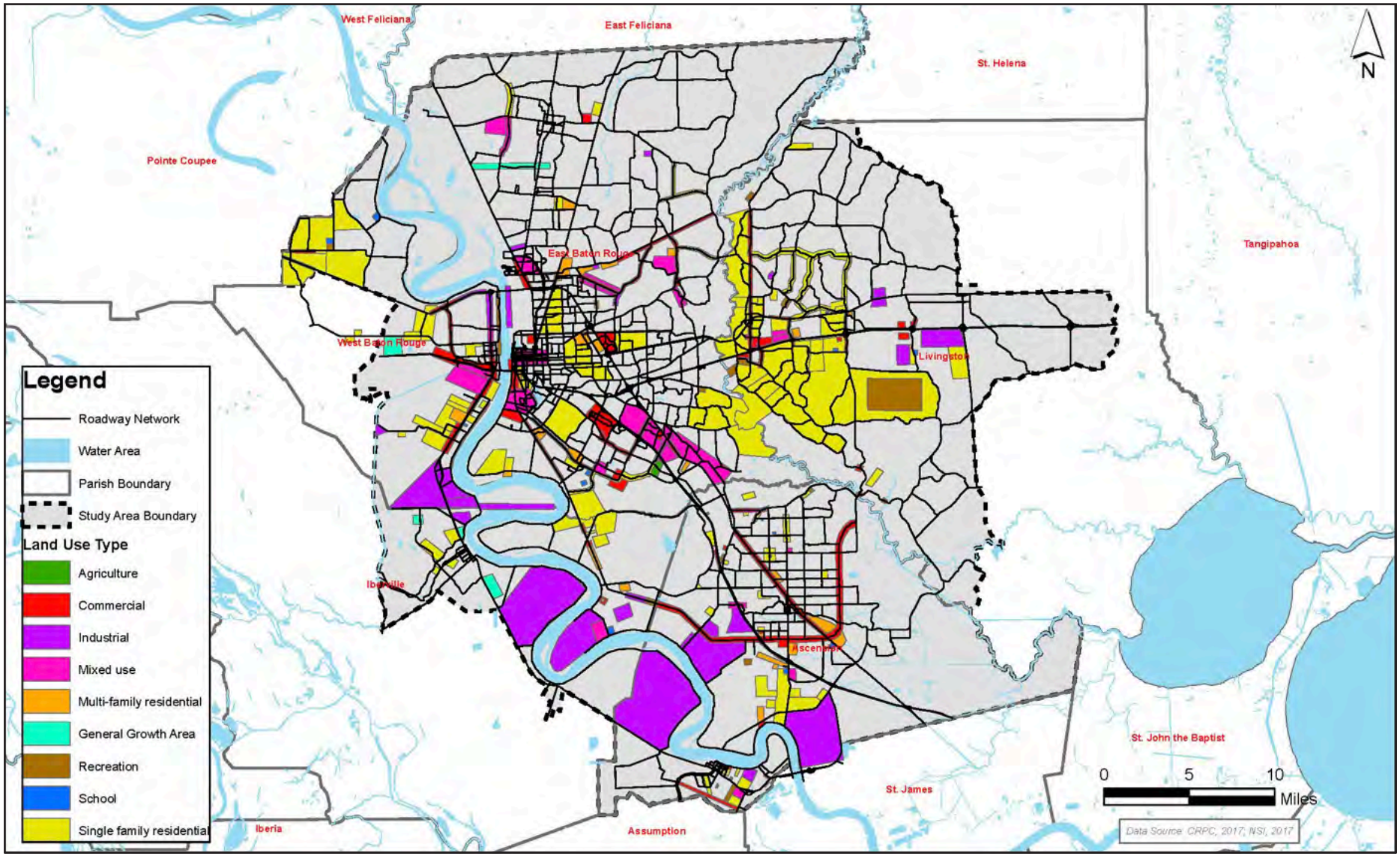


Figure 2-3: Stakeholder Meetings Identified Land Use Changes

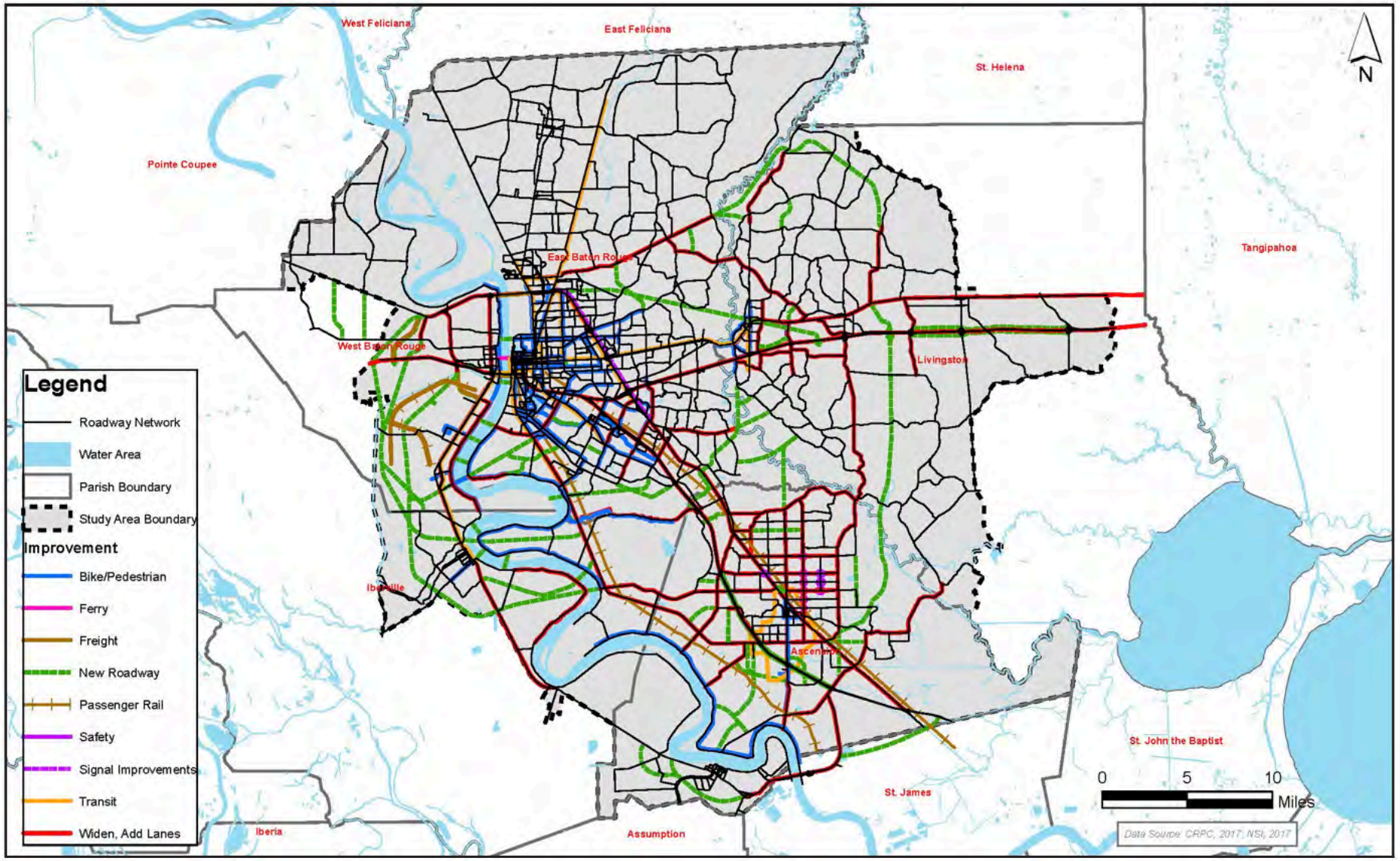


Figure 2-4: Stakeholder Meetings Identified Transportation Improvements

2.4 | Scenario Planning

Three growth scenarios were developed and presented to the stakeholders and general public to get their feedback and also to identify the preferred scenario.

Scenario 1 Urban Focus	Recent demand for walkable communities continues to grow and eventually new development will be mostly walkable and in urban areas
Scenario 2 Urban/Suburban Balance	Recent demand for walkable communities continues but new development will be a balanced mixture of walkable urban communities and drive-able suburban communities
Scenario 3 Suburban Focus	The recent demand for walkable communities will be short-lived and new development will return to being mostly drive-able suburban communities

Each of these scenarios used different weighting factors that define each of the specific growth types, such as, proximity to utilities, ease of land assembly, affordability of home ownership, flood zones, etc. The weighting factors were used to develop suitability scores, which reflect the likelihood of growth in each of the given scenarios.

Scenario Development:

Scenario development began at the Parish level, with development of control totals at Parish level, using robust stakeholder and public involvement process. This data was then broken down into smaller areas based on a grid system, known as the Attractiveness Grid, with smaller grids (10 acres) used in urbanized areas and larger grids (40 acres) in rural areas. The grid system, housed in a GIS layer, stored all of the pertinent data for scenario planning such as suitability scores, maximum potential growth, and existing socioeconomic data, except for a Parish GIS layer which stores the data for Parish control totals.

Land's suitability score reflected its overall desirability, with less desirable areas receiving a lower suitability score, while more desirable areas that receiving a higher score. Desirability is affected by the previously mentioned criteria from the scenario weighting factors, as well as other data. The suitability scores of each grid in the Attractiveness Grid were determined using the CommunityViz software and scores were generated for each of the three scenario types as well as scores for residential living, commercial employment and industrial employment subcategories.

In addition to the development of the suitability scores, future land use plans from the local jurisdictions within the study area were used to develop placetype categories for each of the grids in the Attractiveness Grid. These placetypes were used to develop the densities, land use efficiency, and specifics of how the land can be used in the build-out phase of CommunityViz. The density data used the "CONNECT Our Future" plan developed for the 14 county CONNECT region in North and South Carolina (https://ui.uncc.edu/data/partner/connect/about as a "seed" dataset for the build-out phase to determine the area's theoretical maximum capacity for dwelling units and employment. The "seed" dataset values used to calculate the dwelling units were then adjusted by calculating densities from the built-out areas of Baton Rouge with similar placetype designation (http://www.connectourfuture.org/wp-content/uploads/2015/01/CONNECT-BP-Regional-Scenario-Planning-Initiative-Summary-Document.pdf). Following the development of maximum dwelling units from the build-out phase, the maximum household population for each grid was calculated based on the average population per household by Parish in 2016.

The maximum employment in each grid was calculated using the provided business square footage, the employment type and rates from "CONNECT Our Future" seed data. Due to the lack of localized employment density data, no further adjustments were made to the employment factors.

In the next step, the calculated grid level maximum population and employment data were adjusted to account for areas that are already fully or partially built-out. After the development of the grid level adjusted maximum data for the population and employment by type, the CommunityViz Allocator Wizard was used to apply growth over the five Parish area based upon the adjusted maximum capacity for growth without exceeding the parish level control totals. This resulted in the total growth in each grid from 2010 through 2042.

Adjusting the Scenarios:

The initial scenarios were presented to the stakeholders, whose input was sought on control totals, growth areas and which scenario might realistically happen within their parishes. After reviewing the data obtained from these meetings, adjustments were made to the control totals used in the scenario allocation, placetype categories based upon identified land use. Areas with identified specific growth were allocated guaranteed growth as necessary. After making the changes, the "Build-Out Wizard" and "Allocator Wizards" were run again to get an updated growth for population and the two employment categories. This data was then analyzed by CRPC staff to look for areas that would need adjustment due to local influence, impact on growth from other developments, or other factors that would change where the growth would occur. This resulted in the final developed scenario alternatives.

2.5 | Public Involvement Activities

Public involvement activities were conducted to develop a transportation plan that effectively meets the needs of the public and is consistent with local values. Members of the general public participated by:

- ✓ Identifying their priorities for their transportation system;
- ✓ Expressing their opinions on expected growth in the region;
- ✓ Communicating their biggest areas of concern and needs;
- ✓ Identifying future transportation projects to be evaluated in the MTP;
- ✓ Providing feedback on draft versions of the MTP during the public comment period.

Various outreach methods were used to inform the public about the planning process and to update them on opportunities to participate in public involvement activities. After building a database of stakeholders, local elected officials and, community organizations, outreach methods included the following:

- ✓ Communication with approximately 300 stakeholders providing information and invitation to be emailed to their members and constituents asking them to participate;
- ✓ Constant Contact email campaigns to the database, with follow-up individual phone calls and personal emails to encourage participation;
- ✓ Personal calls and emails to transportation partners, state and federal agencies, and elected officials to encourage participation and sharing information on process;
- ✓ Contact with groups representing special needs populations to encourage input, including AARP and Councils on Aging in each parish;
- ✓ Distribution of flyers to public libraries, community centers, public buildings, and other popular establishments throughout the five parishes inviting citizens to attend public meetings;
- ✓ Provided social media posts to stakeholder database with request to share on social media networks, public websites, and Facebook pages;
- ✓ Outreach to community organizations and neighborhood Facebook pages to share public meeting invitations
- ✓ Issued press releases to Capital Region news media outlets;
- ✓ Arranged interviews for the CRPC Executive Director on radio and television programs and newspapers to provide advance explanation of the importance of public participation;
- ✓ Personal call to African-American newspaper to secure advance coverage of public meetings schedule;
- ✓ Personal calls and emails to minority community leaders and faith leaders asking them to share flyers and social media posts with their networks.

Additional outreach was conducted for the MetroQuest public involvement survey:

- Post card distribution to public libraries, community meetings and gathering spots, community centers, public buildings, churches;
- Table tents for East Baton Rouge libraries' public computer stations;
- Social media outreach through LSU and Southern University campus communication networks;
- Social media post promoting survey distributed through stakeholders, transportation and planning partners including Baton Rouge Health District, Capital Area Transit System (CATS), Center for Planning Excellence, and others;

Figure 2-5 shows the collage of few photos from public meetings.

Figure 2-5: Collage of Photos from Public Meetings

Sections 2.6 and 2.7 provide a quick summary of the public meetings and the responses received during the outreach process. An in-depth description of the public outreach activities can be found in the Public Outreach Report which is an appendix to this document can be found at: http://crpcla.org/move2042/.

2.6 | First Round of Public Meetings

To gather public input for the development of the MTP, the MPO held five open-house style public meetings at the beginning of the plan update process. These meetings were intended to increase insight into the public's desired future of transportation in the Baton Rouge MPA. At the meetings, stakeholders and members of the general public shared their concerns, ideas, values, and visions regarding the state of both the current transportation system and future transportation needs for the region, as well as other input gathered in the form of MetroQuest surveys hosted online. A total of 211 individuals participated in these meetings and 2,577 survey responses were received in the first round of public outreach.

During these meetings, the attendees were invited to partake in the same land use and transportation mapping exercises as described above for the stakeholder meetings. The results of this exercise are included in Figures 2-6 and 2-7.

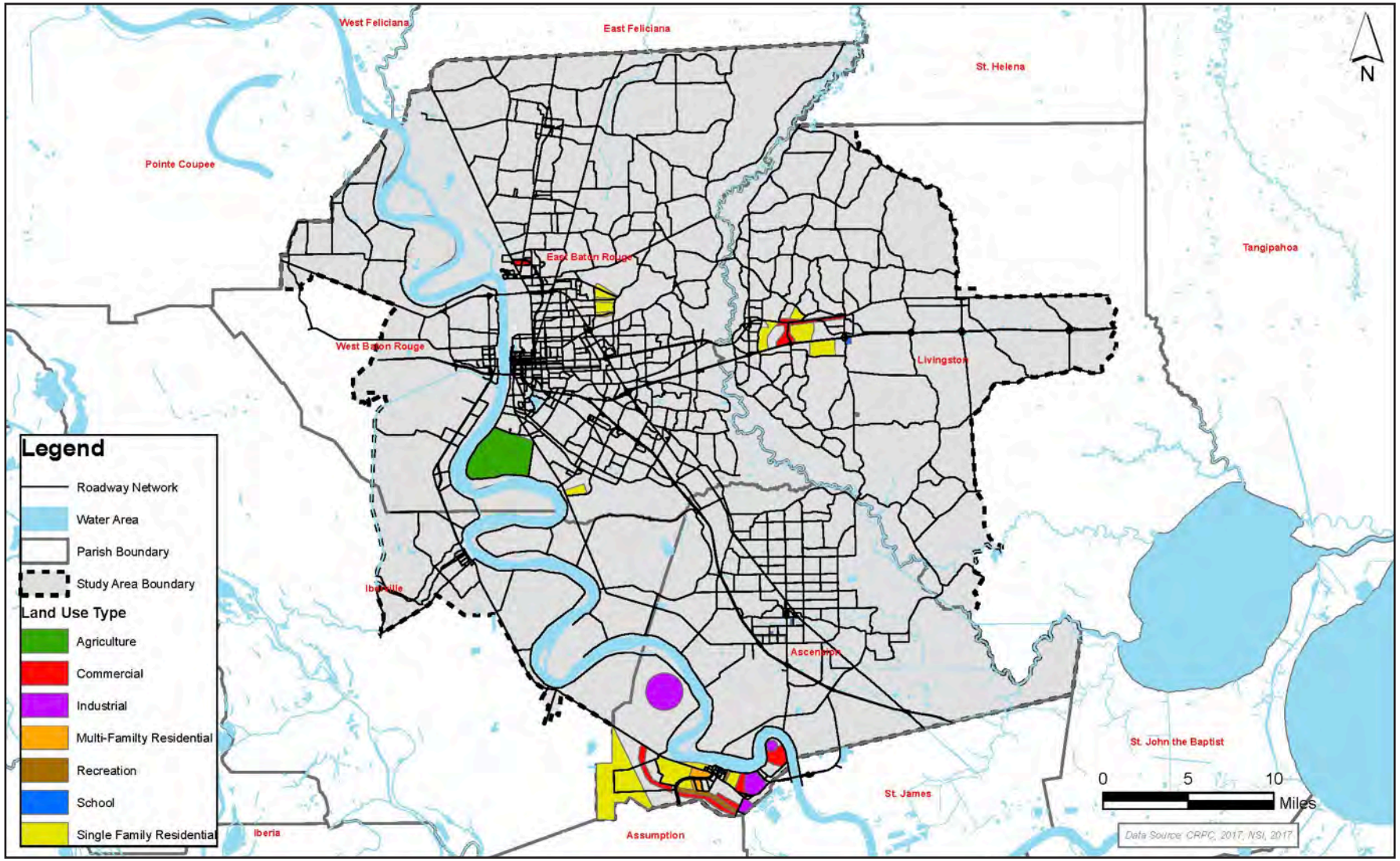


Figure 2-6: Public Meetings Identified Land Use Changes

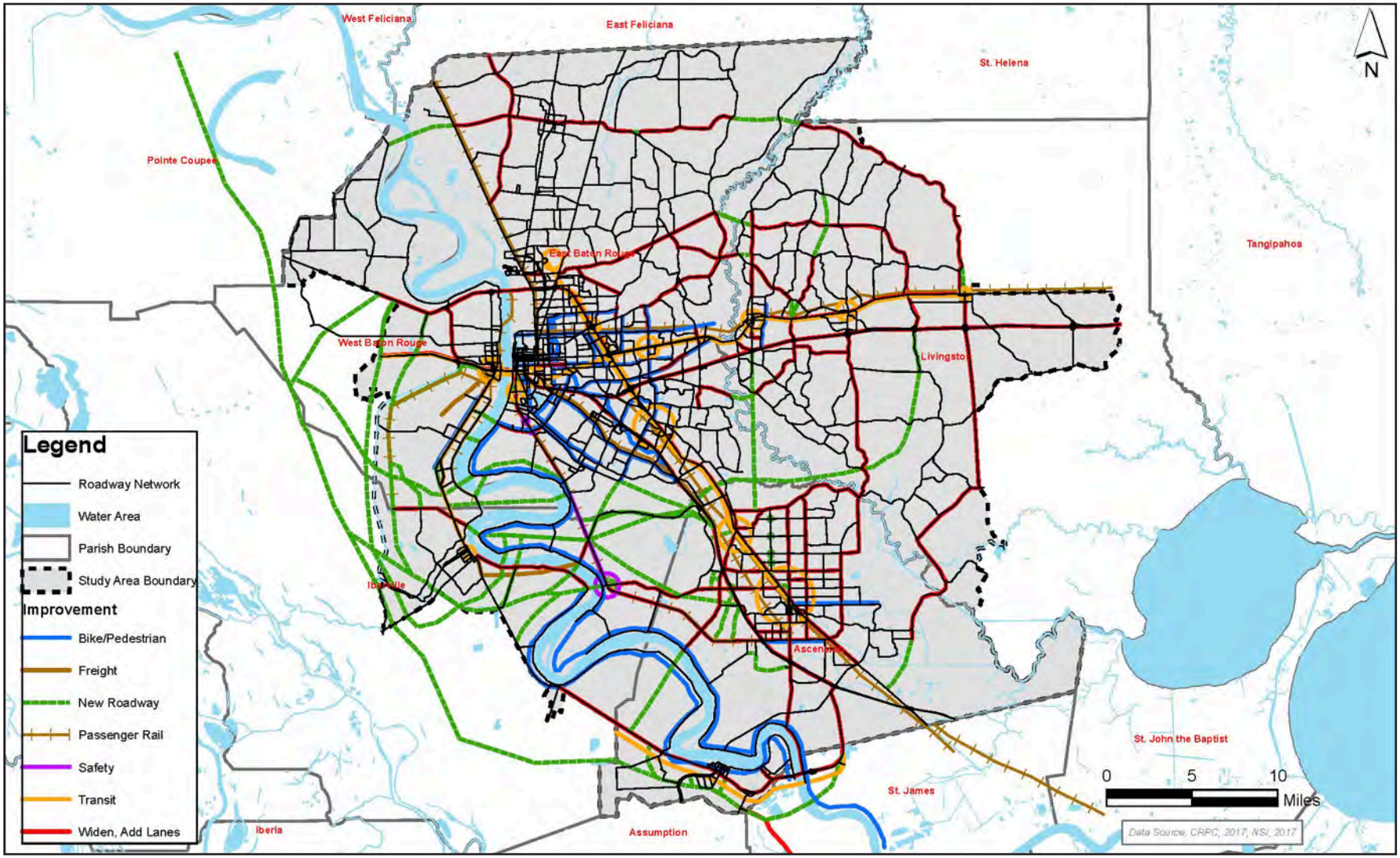


Figure 2-7: Public Meetings Identified Transportation Improvements

Responses from round one of the MetroQuest survey were used to identify priority issues, determine the publics' preferred growth pattern for the region and to gather input on existing transportation issues throughout the region. The input from the first round was used to: develop a vision statement, identify regional goals and priorities, develop project ranking criteria, and ensure existing transportation issues are identified.

Transportation Goals and Priorities

Survey respondents were asked to rank their transportation goals and priorities. Responses during the first survey round overwhelmingly identified reducing congestion as the region's highest transportation priority. Improving roadway safety and maintaining existing transportation system followed the ranks after congestion.

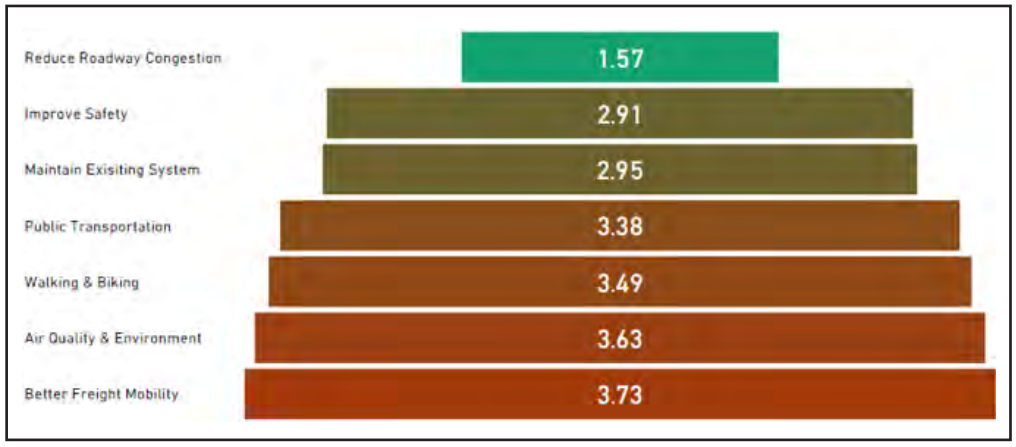


Figure 2-8: Survey Ranking of Transportation Goals

Growth Scenarios

Survey respondents were asked to rank anticipated growth patterns over the next 25 years and identify their preferred development pattern. The scenarios aligned with the growth projections described in Section 2.4 and were Urban; Suburban; Urban/Suburban Mix. The majority of respondents identified the Urban/Suburban Mix as the preferred growth pattern for the region.

Map Markers

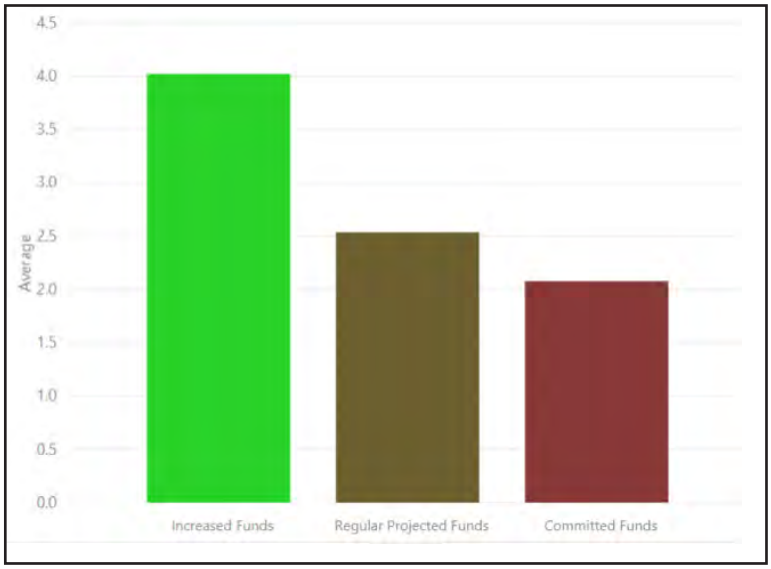


Figure 2-9: Survey Ranking of Growth Scenarios

The final exercise in the first survey was for respondents to identify various transportation issues on a map by dropping pins and leaving comments. The categories were: congestion, safety, walking and biking, public transit, maintenance and freight. A total of 9,911 map markers or "pins" were dropped onto the map. CRPC evaluated this information and presented it back to the public as part of the gap analysis in the second round of public meetings.

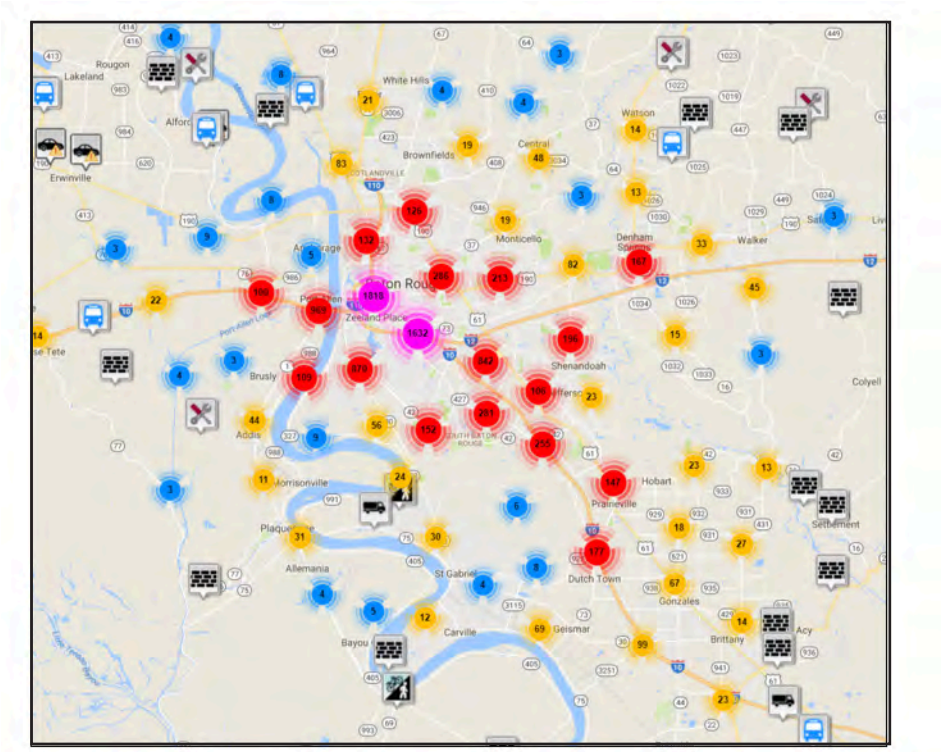


Figure 2-10: Snapshot of Map Markers

2.7 | Second Round of Public Meetings

In order to ensure that the MTP process is meeting the needs of the public, a second round of public meetings was conducted in order to display the progress that has been made, as well as to receive any additional feedback. A total of 91 people participated in the second round of public meetings and 605 survey responses were recorded. These meetings were intended to provide further insight into the public's view of the future of transportation and were open to all stakeholders and members of the general public.

During the second round of public engagement results from the first round were presented along with a needs analysis across all transportation modes. Preliminary results from the Travel Demand Model and adjusted forecast socio-economic data were also presented.

A second survey was deployed to seek feedback on three items related to project funding priorities: 1) allocating the transportation budget across all modes and needs; 2) rating level of transportation investment given three budgetary scenarios (based on the forecast roadway and economic conditions); and, 3) gathering feedback on various ways to raise additional transportation dollars to meet future needs. Results from the second round of public meeting surveys are summarized below.

Budget Allocation

Respondents were asked to give input into how they would like to see their transportation dollars allocated across the many network needs. The responses mirrored the top three transportation priorities from round 1 – congestion reduction, maintenance of our existing system and safety. All of the categories received some allocation of funds showing that the region believes that investment in all modes of transportation is important.

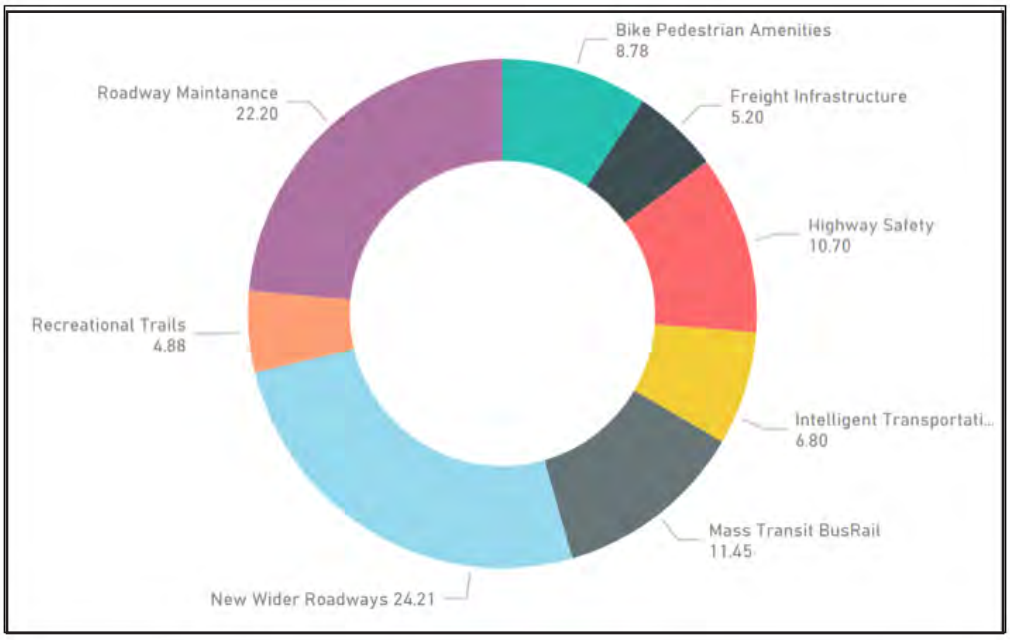


Figure 2-11: Budget Allocation by Transportation Mode

Funding Scenarios:

The public was also asked to respond to various funding scenarios which depicted a mix of projects given various levels of funding. This scenario showed that without an increase in available funds for transportation project's the ability to increase the level of system capacity was very limited. The public overwhelmingly expressed a desire for increased funds.

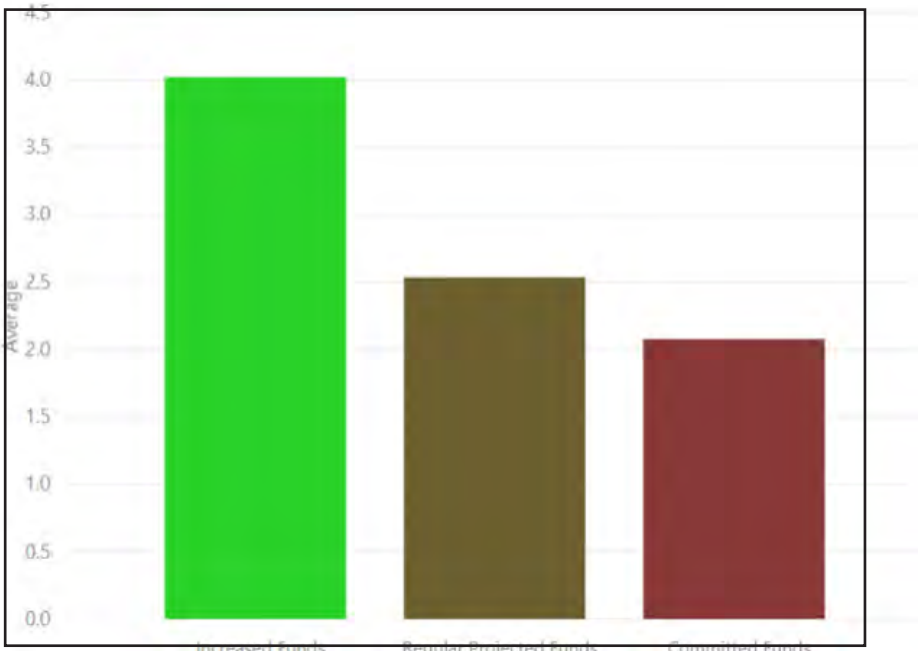


Figure 2-12: Ranking of Funding Scenarios

Raising Additional Funds:

The final survey question asked the public to indicate ways that they would support raising additional funds. The most acceptable revenue raising option was development of tolls, while the least acceptable option was property tax increases.

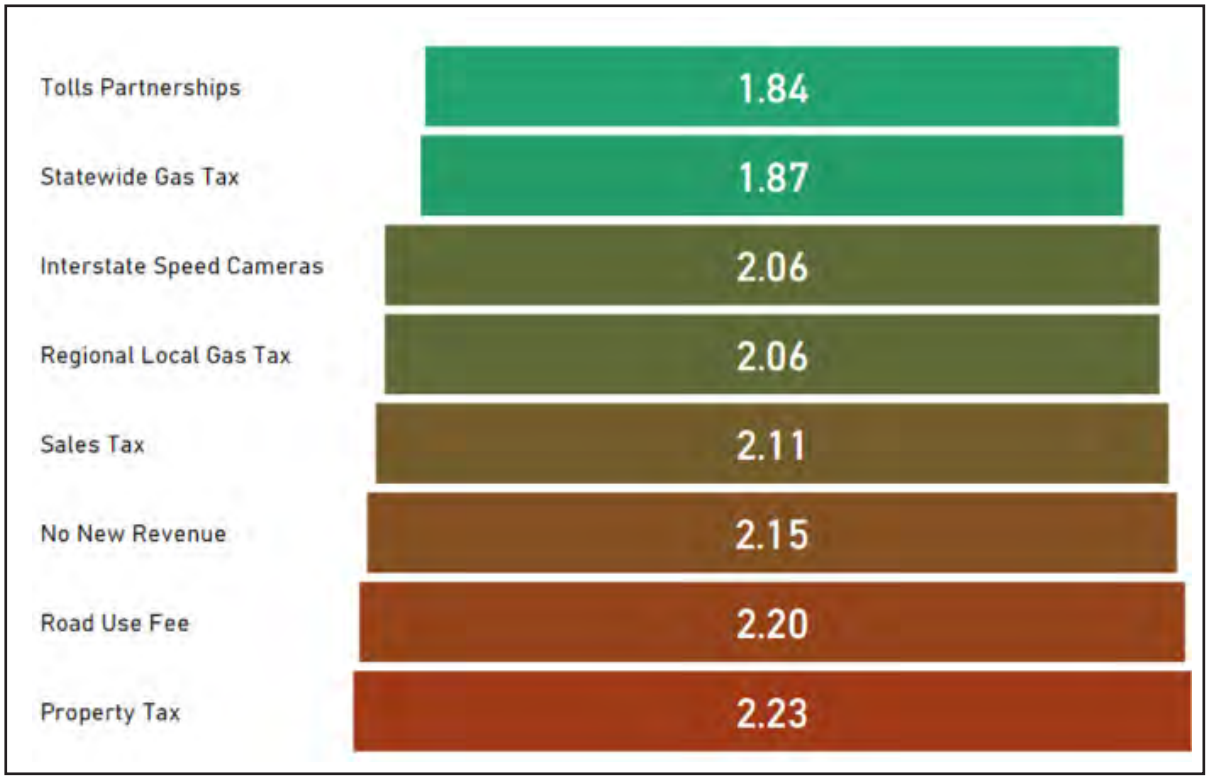


Figure 2-13: Ranking of Additional Funding Priorities

2.8 | Additional Comments and Reporting to Transportation Policy Committee (TPC)

Throughout the public outreach period, stakeholders and members of the general public were asked to provide any additional comments or suggestions they had concerning the material displayed, the planning process, and the future of the transportation system. These comments were noted and addressed by CRPC.

During key junctures in the planning process, the TPC was briefed on the inputs received through the public process. The public comments were also used to assign project selection weighting criteria as project mix scenarios were developed.

All public comments received on the draft plan will be incorporated in the final plan document.

Summary

Throughout the development of MOVE 2042, engaging the public in the transportation planning process was a foremost goal of the CRPC MPO. The use of the MetroQuest survey tool, along with holding public meetings in each of the five MPO parishes, greatly improved the public input over previous plan development processes. The public input garnered through the MOVE 2042 process was more than 150 times the input received for the previous 2037 transportation plan.

The engagement process made it clear that the public is concerned with the region's ever increasing traffic congestion. However, it was also clear that, while critical capacity projects are needed, the public wants more from the existing transportation network. Strongly voiced desires included improved bicycle and pedestrian facilities and improved and expanded transit service. While the public recognizes the limitations of our region's funding realities, finding creative alternatives to raise revenue was seen as an imperative to improving quality of life and the region's economic vitality.

Comments received at the stakeholder and public meetings were used to develop the transportation vision and goals for the Capital Region. The vision and goals are presented in detail in Chapter 3.

3 | Goals, Objectives, Strategies, Performance Measures, and Targets

Move 2042 has been developed in a multi-layered process. The first step was creating a broad, overarching and shared vision for transportation in the Capital Region. The vision statement was then broken down into eight goals and objectives that cover all aspects of the regional transportation system, from alleviating rush hour traffic on interstate highways, to supporting and promoting cycling and improving pedestrian safety. The strategies described in this chapter serve as a work plan and building blocks for implementing these goals.

Guidance provided by the Federal Highway Administration (FHWA) suggests that ideal regional objectives should follow the "SMART" formula:

- Specific
- Measurable
- Agreed Upon
- Realistic
- Time-Bound

3.1 | Move 2042 Vision Statement

In 2042, the Capital Region will be a place where all residents have efficient, well-maintained, safe, convenient, and affordable choices for traveling from place to place. Our transportation system will:

- ✓ Move people and goods in a manner that supports the region's quality of life, natural beauty, and economic vitality;
- ✓ Support land use policies that encourage development at appropriate densities and reduce the expansion of urban sprawl;
- ✓ Promote energy conservation, economic sustainability, and resiliency from both natural disasters and changes in climate patterns.

3.2 | Goals & Objectives

The Move 2042 Vision has been broken down into eight goals and objectives: Congestion, Safety and Security; Livability; Equity; Economic Competitiveness; Clean and Green Communities; and, Education. These goals will guide future planning efforts and implementation of the plan, through effective project selection.

3.3 | Strategies

The CRPC-MPO worked with stakeholders and regional partners to devise a variety of strategies to advance the objectives specific to each goal. Whether it is prioritizing funding for sustainable transportation projects, educating the public on transportation topics, or implementing traffic management solutions, these strategies constitute the bulk of the day-to-day work to improve the transportation system across the region.

3.4 | Measures and Targets

The Federal Highway Administration, LA-DOTD and the MPOs work together to establish performance metrics and specific performance targets to implement and measure the effectiveness of transportation strategies. These targets will also gauge our progress toward meeting the goals and achieving the regional vision. Establishing measures and performance targets is an ongoing process. Some have already been agreed upon and adopted, while others are still in development. As indicated by the table below, the State of Louisiana DOTD has adopted its Highway Safety Improvement Plan, (HSIP) and Safety Performance Measures (August 2017). The CRPC-MPO has until February 27, 2018 to adopt its own performance measures and targets for HSIP and Safety. DOTD has until May 20, 2018 to adopt the remaining performance measures. From that day, the MPO has 180 days to draft its own measures.

CRPC-MPO measures are "adopted" once they are incorporated into the MTP and TIP, and voted upon by the regional Transportation Policy Committee (TPC).

Table 3-1: Transportation Performance Measure Time Frame

TPM Timeframe			
Performance Measure	**FHWA Effective Date**	**State Required Date**	**MPO Date**
HSIP	4/14/16	4/14/17 (8/31/17, actual adoption date)	10/11/17 (2/27/18)
Safety Performance Management	4/14/16	4/14/17 (8/31/17, actual adoption date)	10/11/17 (2/27/18)
Pavement Condition	5/20/17	5/20/18	11/16/18
Bridge Condition	5/20/17	5/20/18	11/16/18
Freight	5/20/17	5/20/18	11/16/18
CMAQ	5/20/17	5/20/18	11/16/18
System Performance	5/20/17	5/20/18	11/16/18

More information on the Performance Measures timeline can be found at (www.fhwa.dot.gov/tpm/rule/timeline.pdf)

Goal 1: Congestion

Objective: Allow people to travel throughout the region conveniently, predictably, and with minimal delay.

Strategies:

- Promote and implement Travel Demand Management (TDM) strategies such as carpooling, vanpooling, park and ride, and flexible work schedules;
- Establish mode share commuter goals;
- Utilize Intelligent Transportation Systems (ITS) to manage congestion;
- Re-activate the CRPC-MPO ITS advisory group to set policy and guide initiatives;
- Foster a regional dialogue about the role of emerging technologies, such as autonomous and connected vehicles;
- Support and plan for Baton Rouge to New Orleans rail;
- Enhance Mississippi River Crossings;
- Decrease incident clearance time;
- Act on IBM Smarter Cities recommendations;
- Increase roadway capacity where other measures are inadequate.

How will we measure success?

- Total peak hour excessive delay in person hours on NHS roads; *
- Percentage of non-single occupancy vehicle commuters; *
- Percent person miles traveled on the interstate that are reliable; **
- Percent person miles traveled on non-interstate NHS that are reliable; **
- Incident clearance time.

Targets

- Pending LA DOTD target setting

*FHWA established CMAQ performance measure.

** FHWA established System Reliability Performance Measure.

Goal 2: Safety & Security

Objective: Improve the safety and security of the regional transportation system for all users.

Strategies:

- Reduce the number of fatalities and serious injuries;
- Reduce the number of fatalities and serious injuries of non-motorized users;
- Assist transit agencies in reducing preventable transit accidents;
- Support and staff the Capital Region Safety Coalition; and, implement 'Destination Zero Deaths" (DZD);
- Identify known single points of failure for all transportation modes.
- Identify known single points of failure in the system that have experienced repetitive flooding;
- Identify single points of failure of interdependency infrastructure.

How will we measure success?

- Number of fatalities during a calendar year in the study area;
- Rate of fatalities per 100 million VMT during a calendar year in the study area; *
- Number of serious injuries during a calendar year.
- Rate of serious injuries per 100 million VMT during a calendar year in the study area; *
- Number of non-motorized fatalities and serious injuries during a calendar year; *
- Number of preventable transit vehicle accidents;
- Security Measures Map.

Targets:

- 1% reduction in fatalities from a 2016 baseline of 148 to a target of 132 in 2018;
- 1% reduction in serious injuries from a 2016 baseline of 252 to a target of 269 in 2018;
- 1% reduction in fatality rate from a 2016 baseline of 1.80 to a target of 1.74 in 2018;
- 1% reduction in serious injury rate from a 2016 baseline of 3.67 to a target of 3.54 in 2018;
- 1% reduction in non-motorized fatalities and serious injuries from a 2016 baseline of 49 to a target of 48 in 2018.

*FHWA established safety and security metric.

Goal 3: Livability

Objective: Create a transportation system which promotes accessibility, quality of life, and healthy living.

Strategies:

- Develop a regional, non-motorized transportation plan which emphasizes Complete Streets and connectivity;
- Support the development and adoption of local bicycle and pedestrian plans;
- Support and fund the implementation of pedestrian and bicycle infrastructure projects;
- Support and fund bikeshare projects;
- Work with transit agencies to provide residents with greater access to quality transit service;
- Help municipalities better understand the relationship between land use and transportation, and assist them in the selection of context-sensitive transportation solutions for their communities.

How will we measure success?

- Miles of ADA-compliant sidewalk completed;
- Miles of protected bike lanes completed;
- Miles of recreational trails completed;
- Percent of population within ¼ mile of a transit route with 30-minute or better headways;
- Housing and Transportation Index Scores;
- Percent of planned projects implemented.

Goal 4: State of Good Repair

Objective: Maintain and protect existing transportation investments.

Strategies

- Prioritize low-cost / high benefit maintenance using a deterioration curve and Life Cycle Cost Analysis (LCCA);
- Develop life cycle cost estimates for adding new lane miles of pavement;
- Educate decision makers on the benefits of low-cost and preventive maintenance;
- Develop a protocol for regular data collection on pavement conditions of non-state roads.

How will we measure success?

- Percent of NHS bridges in good condition using National Bridge Inventory (NBI) methodology; *
- Percent of NHS bridges in poor condition using National Bridge Inventory (NBI) methodology; *
- Percent of pavements of the Interstate in good condition using Highway Performance Monitoring System (HPMS); **
- Percent of pavements of the Interstate in poor condition using HPMS; **
- Percent of pavements of non-Interstate NHS in good condition using HPMS; **
- Percent of pavements of non-Interstate NHS in poor condition using HPMS. **

Targets

Pending LA DOTD target setting

*FHWA established bridge condition performance metric.

** FHWA established pavement condition performance metric.

Goal 5: Equity

Objective: Ensure that minority, low income, and aging populations have access to reliable and convenient transportation.

Strategies:

- Map planned transportation projects to minority and low-income neighborhoods;
- Prioritize projects which improve mobility and job access in minority and low-income neighborhoods;
- Prioritize projects which serve elderly and disabled residents;
- Provide targeted outreach to communities about projects relevant to them and their neighborhoods.

How will we measure success?

- Engagement of minority residents in the planning process.

Goal 6: Economic Competitiveness

Objective: Ensure the transportation system provides a strong foundation for economic vitality by improving freight movement.

Strategies:

- Evaluate the feasibility of truck-only lanes on the interstate;
- Support major infrastructure projects such as a loop/bypass;
- Maximize rail and waterways for freight movement;
- Continue collaboration with the Louisiana Supply Chain and Transportation Council to address supply chain issues;
- Identify public/private partnerships which could provide funding for key capacity projects;
- Support an increase in transportation funding for all modes at the federal and state level.

How will we measure success?

- Travel time reliability will be measured by the Truck Travel Time Reliability (TTTR) index for five weekly peak periods; *
- Percentage of TIP projects completed on time;
- Percent increase in state and federal funding for regional transportation projects.

Targets

Pending LA DOTD target setting

Goal 7: Clean & Green Communities

Objective: Create an environmentally friendly transportation system.

Strategies:

- Reduce emissions from single occupancy vehicles;
- Assist transit agencies and other fleets in transitioning their vehicles to alternative fuels;
- Coordinate with stakeholders to improve alternative fuel infrastructure along key corridors;
- Use project level screening, best practices, and planning tools to assess direct, indirect, and cumulative effects of proposed alternatives;
- Consider public health in transportation during project planning stages;
- Continue to sustain regional air quality maintenance status and avoid falling into non-attainment, to prevent potential sanctions and limits on development.

How will we measure success?

- Total reduction of on-road mobile source emissions; *
- Percent change in CO2 emissions compared to calendar year 2017 on the NHS; **
- Utilize DOT and CDC Transportation Health tools to measure regional improvement in implementing active transportation projects.

Targets

- Pending LA DOTD target setting

*FHWA established CMAQ metric

** FHWA established system performance metric

Goal 8: Education and Outreach

Objective: Help residents, business owners, and elected officials better understand, and more effectively engage with, the transportation planning process and increase awareness of transportation safety initiatives.

Strategies:

- Provide guidance on regional transportation planning, including cost feasibility and fiscally constrained options;
- Target minority, low income, and elderly populations to ensure they are included in the planning process;
- Maintain an engaging online presence through the world wide web and social media.

How will we measure success?

- Number of participants in educational opportunities;
- Number of website hits and increase in social media followers.

3.5 | Federal Planning Factors

The FAST Act, (CFR 450.306), requires metropolitan plans to consider ten planning factors. The table below illustrates the relationship of Move 2042's planning goals with the Federal requirements.

Table 3-2: FAST Act & Goals

FAST ACT		MOVE 2042
1	Support the economic vitality of the metropolitan area, especially enabling global competitiveness, productivity, and efficiency	Goal 6
2	Increase the safety of the transportation system for motorized and non-motorized users	Goal 2
3	Increase the security of the transportation system for motorized and non-motorized users	Goal 2
4	Increase accessibility and mobility of people and freight	Goals 1, 3
5	Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns	Goals 3, 7
6	Enhance integration and connectivity of the transportation system, across and between modes, for people and freight	Goals 3, 6
7	Promote efficient system management and operation.	Goals 4, 6
8	Emphasize preservation of the existing transportation system	Goal 4
9	Improve the resilience and reliability of the transportation system and reduce or mitigate storm water impacts of surface transportation	Goals 1, 2
10	Enhance travel and tourism	Goals 1, 3

4 | Environmental Considerations

Federal law and regulations require the Metropolitan Transportation Plan (MTP) to consider environmental impacts on natural and human made environments, health and welfare. This aligns with Federal Highway Administration (FHWA) requirements that, before an individual project can move forward to construction, it must be reviewed for compliance with the National Environmental Policy Act (NEPA) and other laws covering social, economic, and environmental concerns.

4.1 | Environmental Screening

Environmental review has been identified as a source of delays and frustration in transportation planning and implementation to move projects forward. The FAST Act, passed in December 2015, codifies ongoing efforts to streamline the environmental review process. This includes allowing use of actions and reviews conducted at the planning stage to satisfy requirements at the environmental review stage. FAST also limits the need to consider project alternatives during environmental review, if those alternatives have previously been considered during the planning process. Waiving or expediting regulatory requirements of NEPA and other federal regulations for repair or construction of a bridge, road, highway, railway, or transit facility damaged by an emergency are also allowed under FAST.

Direct Effects are caused by the action and occur at same time and place.

Indirect effects are caused by the action and occur later in time or further removed by distance, but are still reasonably foreseeable. In addition to direct impacts, these may include growth inducing effects and other effects related to induced changes in patterns of land use, population, density or growth rate and related effects on air and water and other natural systems, including ecosystems.

Cumulative effects are incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions.

MAP-21 (2012) created a performance-based surface transportation program to accelerate project delivery through increased use of Categorical Exclusions (CEs), programmatic approaches, and planning and environmental linkages. The Department of Transportation submitted its progress report to Congress, titled Modernization of the Environmental Review Process, in December 2016.

FAST continues the streamlining process, with provisions to expedite environmental review and thus accelerate project delivery, by developing and using technology, such as searchable data bases and GIS mapping tools and integrating fiscal management systems. The joint Council of Environmental Quality (CEQ) and Office of Management and Budget (OMB) publication Guidance Establishing Metrics for Permitting and Environmental Review of Infrastructure Projects, issued in September 2015, requires posting projects on an online permitting and review dashboard developed with significant DOT engagement. Intended to increase transparency and accessibility, the dashboard will also provide consistent data for analysis to assess progress of reforms and identify external drivers and trends. As the dashboard matures, it is expected to provide a vehicle for sharing data across agencies with roles in transportation. The DOT Red Book, reissued in 2015, guides coordination with regulatory reviews and permits by other agencies, such as the U.S Army Corps of Engineers (USACOE) and the U.S Coast Guard (USCG).

An array of best-practice streamlining innovations have emerged from several rounds of hands-on “Every Day Counts” (EDC) initiatives implemented by DOT in partnership with the American Association of State Highway and Transportation Officials (AASHTO). The EDC model identifies and rapidly deploys proven but previously underutilized innovations to expedite project delivery and address challenges with limited budgets. Innovations include tiered NEPA review, with Tier 1 addressing broad corridor-level issues and impacts and Tier 2 emphasizing more detailed site-specific analysis and action, including Environmental Impact Statements (EIS), Environmental Assessments (EA) or Categorical Exclusions (CE), depending on the degree of impact. User-friendly, standardized, and automated project tracking models can help advance “Implementing Quality Environmental Documentation” (IQED) initiatives focused on telling the story, keeping the document brief, and ensuring legal sufficiency.

FAST changes rulemaking to include new authorities and provide resources and guidance for use of planning information in NEPA environmental review. Planning and Environmental Linkages (PEL), a collaborative and integrated approach to transportation decision-making, considers environmental, community, and economic goals early in the planning process. In addition, FAST further expands CEs for many additional actions. FAST also codifies the practice, first authorized under MAP-21, of allowing combined Final Environmental Impact Statement (FEIS)/Record of Decision (ROD) to the maximum extent practicable and often as standard operating procedure.

FAST continues the **Strategic Highway Research Program Solutions (SHRP 2**), which offers a collection of products to address the most pressing problems facing the national highway system.

- PlanWorks: A web resource that supports collaborative decision making in transportation planning and project development and uses key decision points to suggest when and how to engage cross-disciplinary partners and stakeholder groups to help build consensus;
- Implementing Eco-Logical (C06): A systematic, step-wise, method for addressing natural resource identification, avoidance, minimization, and mitigation into early project planning and development, that can lead to recurring best-practice programmatic approaches at the project level;
- Landscape-Scale Mitigation: Expanding innovative mitigation approaches to help facilitate mitigation planning, provide consistent and transparent standards for applying the strategies, and advance mitigation and use of in-lieu fee programs and mitigation banks;
- Liaison Agreements: Resource or regulatory agency personnel funded by FHWA or State DOTs help facilitate environmental and permitting review. FAST provided additional authority to expand the liaison program (49 USC, Section 307);
- Environmental Staffing and Training: For transit programs, with services provided at FTA regional offices;
- Standard Operating Procedures: Again for transit programs, based in FTA SOP guidance issued in 2012 to improve consistency among regional offices by outlining staff roles and responsibilities in managing environmental review. SOPs were revised in 2014 to reflect MAP-21 changes and recently revised to reflect FAST changes. There are now 20 SOPs, available on the FTA public website.

4.2 | Regional Context

The environmental chapter of the MOVE 2042 document focused primarily on Environmental Mitigation Analysis, in line with NEPA requirements. These include possible impacts on wetlands; threatened and endangered species; national register of historic places; section 4(f) properties; environmental justice; navigable waterways; air quality conformity; and community impacts.
FAST Act and the previous MAP-21 Act both called for a more proactive approach to incorporating environmental considerations into regional transportation planning.

Climate, Topography, Soils, and Vegetation

Baton Rouge and the other CRPC-MPO parishes are located on both banks of the Mississippi River in southeastern Louisiana. The CRPC-MPO area has a humid, subtropical, climate, with moderate to heavy rainfall. Yearly average temperature is 67.5 degrees Fahrenheit (19.7 degrees C). Average temperature for January is 51.21 degrees Fahrenheit and for August is 80.54 degrees F. The area is subject to possible damaging winds and tornadoes throughout the year. Proximity to the Gulf of Mexico makes the study area prone to hurricanes. Annual precipitation averages 55.55 inches (1,411 mm) of rain. Baton Rouge, the primary city, is fifth on the list of the country's wettest cities.

Soils in the CRPC-MPO are as described in the LSU Ag Center Update of the Field Guide to Louisiana Soil Classification. David C. Weindorf. LSU AgCenter. The region has a combination of soils, including alluvium, terraces (Pleistocene), Citronelle and Willis Formations (Pleistocene) and Southern Mississippi River Valley Loess.

Land Cover

Land cover throughout the study area includes cropland and grassland, forested areas, urban development (public and private), water (public and private) and other (public and private). A portion of the CRPC-MPO is within the Amite Watershed as defined by the U.S. Geological Survey's 8 digit Hydraulic Unit Code (HUC-8) 08070202. A comparison of land cover between 2001 and 2011 in the Amite Watershed found that, over 10 years, developed land increased by 7.7% (15.98 square miles). According to FEMA's Louisiana Watershed Resiliency Study the increase in developed landcover corresponds with an increase in impervious surface area (surfaces that block rainfall from infiltrating the ground and naturally draining). This can increase surface water runoff which can carry a wider variety and greater amounts of pollutants into streams and lakes. Additionally, storm water runoff carried via drainage systems can exacerbate flooding reaching waterbodies faster than the natural drainage rate. More information about the Amite Basin study can be found at: (https://fema.maps.arcgis.com/apps/MapAndAppGallery/index.html?appid=95f5b656eaff4a83a66ff5d9d99f980f)and (https://data.femadata.com/Region6/mitigation/riskmap/lawrs/reports/)

Table 4-1: Regional Land Cover

Land Cover Class	Acreage (Sq mi)	% of Land Cover
Barren	8.19	0.59
Developed, Intensity	197.53	14.28
Forest	94.95	6.86
Herbaceous	24.8	1.79
Developed, Open Space	124.7	9.01
Planted/Cultivated	296.24	21.41
Shrubland	128.4	9.28
Water	59.27	4.28
Wetlands	449.58	32.49
Grand Total	1383.66	100.00

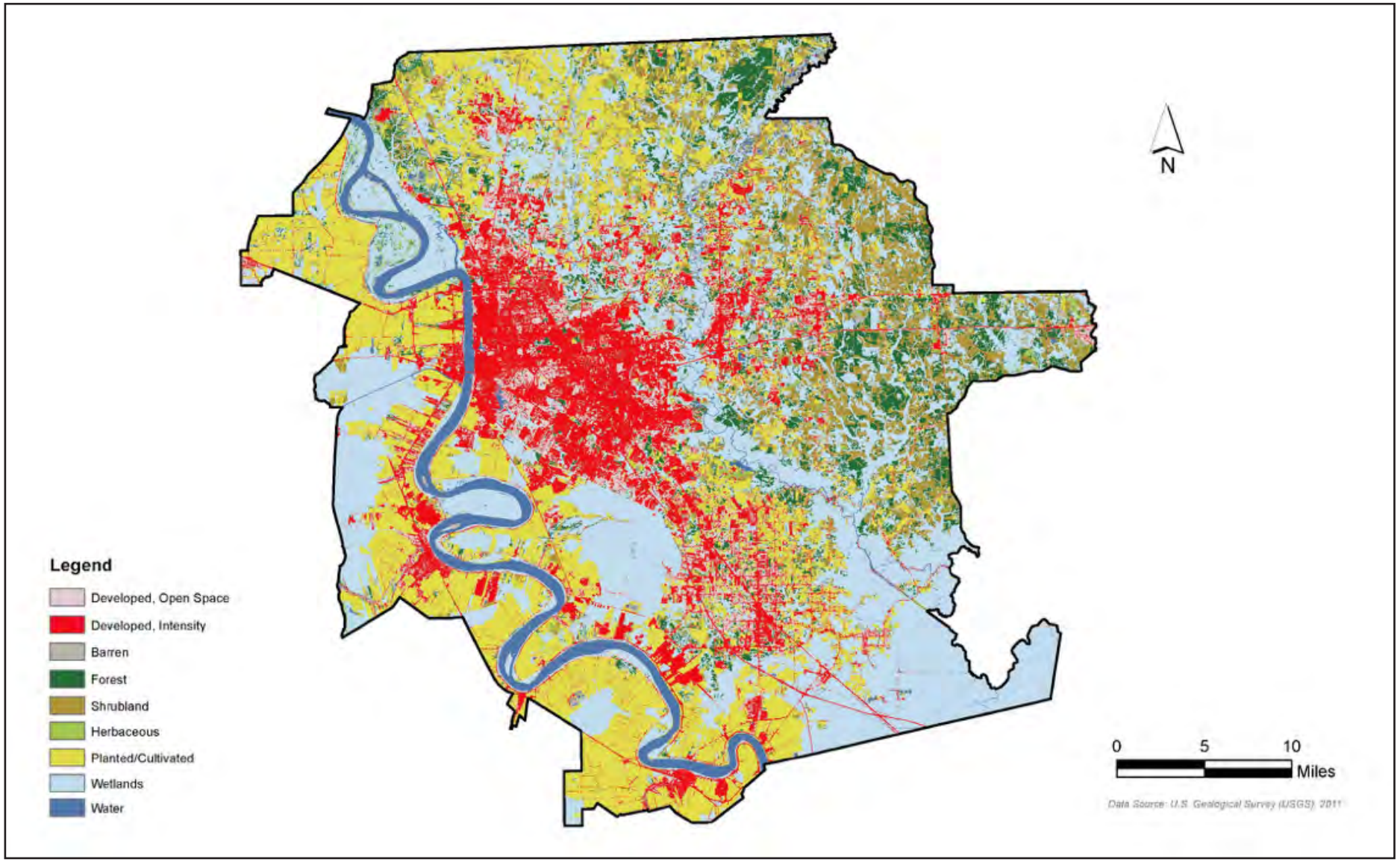


Figure 4-1: Regional Land Cover

Historical and Urban Development

Baton Rouge owes its historical importance to its strategic location on the Istrouma Bluff, the first natural bluff upriver from the Mississippi River Delta. A levee system stretches from the bluff southward to protect the riverfront and low-lying agricultural areas. With annual rainfall totals higher than those in much of the rest of the country, the CRPC-MPO area is subject to periodic high-water events and localized flooding. Extreme localized flooding events had significant impacts on the CRPC-MPO region during the spring and summer of 2016.
The area is culturally diverse, with the population representing primarily European and African origins. The area has, during its history, been ruled by seven different nations: France, Britain, Spain in the colonial era and West Floridian, the United States, the Confederacy, and the United States again.

4.3 | Air Quality and Climate Change

Air Quality and Transportation

Air Quality planning for transportation projects/activities requires conformity with the Clean Air Act (CAA) and subsequent amendments. Ozone, rather than a direct release, is formed by the combination of nitrogen oxide (NOx) and volatile organic compounds (VOCs) in the presence of sunlight. The Baton Rouge MSA, with abundant summer sunlight, significant congestion, and resulting high levels of NOx releases, has previously been a designated nonattainment area for ground-level ozone. The MSA is currently in maintenance status for ground-level ozone. Community stakeholders have come together in the regional Clean Air Coalition to address this issue. The group has a long history of effectively coordinating public and private sector efforts to achieve and subsequently maintain compliance.

Air Quality attainment or non-attainment is determined by reference to national ambient air quality standards (NAAQS) set by the Environmental Protection Agency. Regional compliance efforts align with the LDEQ's State Implementation Plan (SIP) for air quality compliance. The SIP provides emissions inventories and motor vehicle emissions budgets and identifies control strategies and potential sanctions if standards are not achieved. Transportation conformity process is overseen by EPA, US DOT, FHWA and FTA, in conjunction with Louisiana DEQ. The conformity analysis document can be found with the MOVE 2042 appendices on CRPC website at (http://crpcla.org/move2042/).

As an ozone maintenance area, the CRPC-MPO study area is eligible for Congestion Mitigation and Air Quality Improvement (CMAQ) funding. These funds can be used for projects and programs that help reduce ozone precursor emissions. Possible projects may include transit improvements, high-occupancy vehicle (HOV) lanes, traffic flow improvements, demand management strategies, pedestrian and bicycle programs, intelligent management programs, and shared ride services. CMAQ funds can also be used for projects and programs to address mobile source air toxics (MSATS) that relate to road proximity, concentrations and health effects.

Recognizing the constraints to economic development in the Baton Rouge area due to a dearth of available offsets for new projects, stakeholders of the Baton Rouge Clean Air Coalition (BRCAC) (including the Capital Region Planning Commission (CRPC), the Baton Rouge Area Chamber (BRAC), and LDEQ) formulated a strategy designed to generate more emission reduction credits (ERCs) that would be available at lower costs. The rule, AQ365S, became final in May of 2017.

An ERC information resource center and website have been developed to serve those seeking information about the Louisiana Department of Environmental Quality's (LDEQ) Emission Reduction Credits (ERC) banking program for the Baton Rouge area. This is a joint effort of the Capital Region Planning Commission (CRPC), the Baton Rouge Clean Air Coalition (BRCAC), and the Baton Rouge Area Chamber (BRAC) to facilitate air quality and transportation improvements as well as expand economic development in the Baton Rouge area. To learn more about the ERC program, please visit the IRC website at (http://www.laerc.com/).

Climate Change

Strategies for managing energy/greenhouse gas emissions include land use planning that helps reduce emissions through more compact development and multimodal strategies, as well as changing travel behaviors to reduce vehicle trips, increase use of alternate modes such as transit, rail, ride-sharing, and teleworking. Other reduction strategies involve use of more fuel-efficient vehicles, low-carbon fuels, reducing vehicle miles traveled (VMTs), speed management, congestion relief, incident management, traffic smoothing, traveler information services and other logistical improvements. At the project level, best-practice construction, maintenance and operations strategies include upgrading construction equipment, using different paving practices and mixes, and managing work zones to help reduce emissions. At the operational level, energy efficient practices for traffic lighting, mowing and roadside vegetation management can aid emission reduction. Regulatory instruments and pricing strategies like congestion pricing, pay-as-you-drive insurance, mileage-based user fees, and tolls have the potential to more closely reflect air quality impacts.

The FAST Act made some changes to the CMAQ program, such as expanding the diesel retrofit program to include port-related equipment and vehicles. FAST allows use of CMAQ funds not only to attain NAAQS standards, but to maintain standards in an area that has achieved maintenance status.

4.4 | Public Health

Transportation-Related Health Statistics in the Region

Transportation facilities and planning are key economic and social factors that influence people's individual health, as well as the health of communities and of the nation as a whole. However, despite heavy health costs associated with traffic crashes, air pollution, noise, and physical inactivity, significant integration of the health impacts of transportation policy and planning is a fairly recent development (How does transportation impact health? Health Policy Snapshots. Issue Brief October 2012. Robert Wood Johnson Foundation).

The existing U.S. transportation system is a web of highways, bridges, roads, sidewalks, bike paths, trains and buses that transport goods and connect people to each other and to places where they work, learn, play, shop and obtain medical care. The continued domination of motorized transportation is clear in the allocation of federal funding, with 80% going to construction of highways and improvement of road infrastructure.

The emphasis on motorized transportation limits opportunities for active, healthier transportation options like public transit, walking and biking. However, opportunities abound to increase alternative transportation options that support walking and cycling. Studies and experience have shown that the physical environment can either encourage or discourage walking and biking. Investments in sidewalks, bike lanes, trails, public transit, and other infrastructure have been found to support physical activity which can help lead to improvements in individual health and decreased health care costs.

National Health Facts related to Transportation

- Over 80% of workers drive or ride in a car to work;
- 40% of trips are two miles or less, with 74% traveled by car;
- In 2008, the average American drove 10,000 miles, with dispersed sprawl (as in the CRPC-MPO) requiring longer commutes;
- 40,000 traffic-related deaths annually.
- Air pollution: some 35 million people live within 300 feet of a major roadway, placing them at high risk for asthma and other respiratory illnesses, cardiovascular disease, pre-term births, premature death.
- Physical inactivity: each additional hour spent in a car per day is associated with 6% increase in likelihood of obesity, while each kilometer walked per day is associated with nearly 5% reduction in obesity risk. Regular physical activity promotes health and lowers risk for obesity and premature death.

Robert Wood Johnson Health Policy Snapshots. Issue Brief Oct. 2012

Transportation and Physical Activity

Rather than treating public health as an afterthought, transportation planning increasingly recognizes close links among active and multi-modal transportation, physical activity, stress reduction and potential for obesity and related health impacts like diabetes and heart disease. This approach to transportation planning is coupled, as noted previously, with growing public awareness of health risks from air pollution as a factor in asthma, other lung diseases, and heart disease. Nationwide, 25% of people live in locations where air quality does not meet National Ambient Air Quality Standards (NAAQS). Walking, biking or jogging, can actually amplify risks from air pollution in high-emissions areas. The region is diligently working to achieve and maintain air quality attainment, with encouraging active lifestyles as one of the strategies.

Transportation and Health Tool Measures

- Commute Mode Share: percent of population traveling to work via active transportation modes;
- Person Miles Traveled by Mode;
- VMT per capita;
- Physical Activity from Transportation: at least 10 minutes;
- Land Use Mix, indicating diversity within walking distance;
- Use of Federal Funds for Bicycle and Pedestrian Efforts;
- Complete Streets Policies to accommodate users of all modes;
- Public transportation trips per capita;
- How transportation environment affects safety, active transportation, air quality, and connectivity.

Source: US DOT and CDC (https://www.transportation.gov/transportation-health-tool)

Transportation planning that integrates health factors recognizes human impacts as part of the environment. Obesity, inactivity, and suburban sprawl have been linked to health risks. Nearly 65% of adults in the United States are considered overweight and 30% are obese. Transit-friendly, walkable, communities can reduce reliance on motor vehicles, shorten work commutes, reduce harmful emissions from vehicle exhaust systems and promote higher levels of physical activity. Community design plays a major role in promoting more active lifestyles through use of alternate travel modes.

The U.S. Department of Transportation has joined with the Centers for Disease Control and Prevention to create resources for Active Transportation. These include the Transportation and Health Tool (THT), which provides a set of indicators/ performance measures for active living.

U.S. DOT and the US Departments of Education and Health and Human Services have cooperated in developing the National Prevention Strategy and Action Plan to encourage development of more livable, walkable communities, with healthy transportation options. The various federal agencies are beginning to test and implement various aspects of the plan. Key elements relevant to transportation planning include:

- **Physical Activity and Pollution Reduction:** Businesses and employers can adopt practices to encourage their workforces to increase physical activity and reduce pollution generation (work time flexibility, rideshare and vanpooling, park-and-ride incentives, travel demand management, telecommuting options);
- **Health Impact Assessments** can help policy makers understand the link between health impacts and improved transportation decision making to improve laws, policies, programs and projects. Studies have revealed, for example, that people will walk to places that are nearby and if they feel safe. About 40% of people will walk to shops, work, school and other destinations when the trips are within one mile;
- **Environmental Design** helps promote active living and prevent or reduce crime that discourages outside activities. Incorporating safety and security considerations into project design is especially important in environmental justice/ low-income communities, which unfortunately are often subject to high incidence of crime. Such considerations are also very important to vulnerable aging and disabled populations.

Transportation and Physical Activity—Statewide and Local Programs

The American Planning Association (APA) Plan4Health initiative offers guidance on improving policies, governing systems, and environments to expand opportunities for active living and helping people reframe the way they make travel decisions

to increase active commuting. Model business and workplace policies and amenities can support bicycle commuting, with incentives like free bike-share memberships and bike parking, showers and locker rooms to address common barriers to commuting by bike. The Louisiana APA Chapter is developing its own Planners4Health Task Force, with plans to create a Planning/Health Assessment Tool/Survey Framework and convene a roundtable to share ideas.

Baton Rouge has implemented its own Healthy Baton Rouge (HBR) program, which aligns with best practices like Plan4Health. The HBRE website enables community-based communication, with a calendar of featured events for groups like runners and farmers' market to improve access to healthy food. The website (www.healthybr.com) emphasizes key factors:

- "Be Active:" Biking, Running, Outdoor, Indoor;
- "Be Nourished:" Recipes, Food Access, Local Gardens.
- "Be Smart:" Baton Rouge's ranking as a healthy city, including research, data, evaluations;
- "Be Well:" Access medical help, health screenings, and treatment resources, with health screenings, a hotline and a directory;
- "Be Involved:" Be part of the movement that is Healthy BR.

In the Baton Rouge MPO area, the Capital Region Mobility Strategy (September 2017), developed by the Capital Region Industry for Sustainable Infrastructure Solutions (CRISIS) coalition, noted that increasing congestion effects regional livability and competitiveness. Congestion also increases driver stress. Limited access to transit and other alternate means of transportation affect personal freedom, choice and mobility, individual and community health, economic prosperity, and ability to protect communities and the natural environment.

Aging and Disabled Populations

Equitable access for aging and disabled populations, who typically contend with transportation and access challenges, is another key factor in linking transportation planning to health impacts. Enhanced access also has potential to generate cost savings on public health treatment and interventions.

Traffic Calming

Traffic speed is a key factor in encouraging or impeding active living. The FHWA's Plan4Health program focuses on issues like high-speed traffic and car-centric neighborhoods. Since permanent changes require policy changes, some communities have reimagined street design by creating temporary pop-up traffic calming demonstrations. "Reframing" of shared spaces verifies possibilities for accommodating pedestrians, bicyclists, and vehicles. Pop-up projects also create opportunities to engage community stakeholders and decision makers with firsthand experience of real-world, community benefits of traffic calming.

4.5 | Green Infrastructure

Green infrastructure is composed of a patchwork of natural areas that provide habitat, flood protection, cleaner air, and cleaner water. At the neighborhood level, such systems mimic nature and soaks up and stores water. Unlike single-purpose, "gray" storm water infrastructure designed to move urban storm water away from the built environment, green infrastructure reduces and treats storm water at its source while delivering environmental, social and economic benefits.

Elements of Green Infrastructure are described below. It should be noted that most effective green infrastructure features must be designed to be context sensitive to the specific region, area and site where the features will be located. For example, in the CRPC MPO study area, features must be designed to accommodate annual rainfall higher than much of the rest of the country and periodic high-water and flooding events.

1. Downspout Disconnection: Reroutes rooftop drainage pipes from draining into storm sewer to drain into rain barrels, cisterns, permeable areas or the soil:
2. Rainwater Harvesting: Stores for later and is used to slow and reduce runoff. This strategy is valuable in arid regions;

3. Rain Gardens: Also known as bioretention or bioinfiltration, can be installed in almost any unpaved space. Shallow, vegetated, basins collect and absorb runoff from rooftops, sidewalks and streets. This strategy mimics natural hydrology by infiltrating and evaporating and evapotranspiring storm water runoff;
4. Planter Boxes: Urban rain gardens with vertical walls and either open or closed bottoms collect and absorb runoff from sidewalks, parking lots, and streets. This strategy is ideal for space-limited sites in dense urban areas or as streetscaping;
5. Bioswales: Vegetated, mulched, or xeriscaped channels move storm water from one place to another to slow, infiltrate and filter storm water flows. The linear features are well suited for use along streets and parking lots;
6. Permeable Pavements: Pervious concrete, porous asphalt or permeable interlocking pavers allow infiltration, treatment and/or storage of rainwater where it falls. This strategy is cost effective where land values are high and flooding or icing is a problem;
7. Green Streets and Alleys: Created to integrate green infrastructure elements into design to store, infiltrate, and evapotranspire storm water. Permeable pavement, bioswales, planter boxes, and trees are among elements that can be woven into street or alley design;
8. Green Parking: Such elements can be integrated into parking lot designs, with permeable pavements in sections of lots, rain gardens and bioswales in medians and along lot perimeters. This strategy can also help mitigate urban heat island and create more walkable built environment;
9. Green Roofs: Covering with growing media and vegetation enable rainfall infiltration and evapotranspiration of stored water. This strategy is effective in dense urban areas where land values are high and on large industrial or office buildings where storm water management costs are often high;
10. Urban Tree Canopy: Trees reduce and slow storm water runoff by intercepting precipitation in leaves and branches. Homeowners, businesses and community groups can participate in planting and maintaining trees in the urban environment;
11. Land Conservation: Protecting open spaces and sensitive natural area aids water quality and reduces flooding impacts, while also providing recreational opportunities. This strategy can be used in riparian areas, wetlands, and on steep hillsides. {*Community Solutions for Stormwater Management: A Guide for Voluntary Long-Term Planning.* Draft. EPA Office of Water. Oct. 2016 (www.epa.gov/npdes/stormwater-planning).

4.6 | Resilient Infrastructure

Resilient infrastructure refers to post-industrial solutions modeled on multi-functional, closed-loop, exchanges characteristic of natural ecosystems. The term refers both to the physical infrastructure, as well as to its planning and design. By serving more than one function, resilient infrastructure can reduce costs, use fewer resources, and generally cause less disruption during construction.

A variation is “coupling” or co-locating projects to take advantage of spatial proximity to allow one system to make use of the productive or distribution functions of the neighboring system. This may also minimize resources leaving the overall system.

This approach represents a shift from resistance to resilience by learning to live with water and mimicking other natural systems. Highly fortified, single-purpose, structures like levees are extremely costly, may not be feasible in many areas, and may only shunt surging water to other locations. “Soft” buffers like wetlands, reefs, other ecologically appropriate materials, as well as construction of swales and rain gardens adjacent to road beds and porous pavement of parking lots can help detain water temporarily. Drainage capacity can also be optimized by reconfiguring and redirecting parts of drainage systems and incorporate existing and new water bodies to form parts of drainage systems.

Resilient infrastructure can help optimize site use and productivity to reduce pressure on undeveloped sites. There is also ongoing potential for significant environmental, economic and community/civic advantages and benefits.

- **Environmental:** reduced emissions, noise and visual pollution, as well as enhanced urban landscapes;
- **Economic:** capital and operational savings, material resource conservation, and job creation;
- **Community/Civic:** development of multi-functional public amenities, such as recreational facilities like greenways, as well as related tax revenue generation.

A long-term advantage is enhanced capability to adapt planning and decision-making to prepare for an uncertain future, while also supporting inter-departmental planning and redundancy to reduce potential for cross-sectoral cascading failures. Better integration of land use and infrastructure planning provide for restricting land use in areas identified as at risk and optimizing flood control and land values by establishing compatible uses that can apply under various conditions. Soft-path approaches to water collection, storage, treatment, and use allow for distributed, nonstructural, integrated mechanisms that augment centralized storm- and wastewater treatment facilities and may even reduce future need to expand them. A "No Regrets" perspective allows for adaptations that can offer genuine economic, environmental, and social benefits even if anticipated scenarios do not develop as expected. (Next Generation Infrastructure: Principles for Post-Industrial Public Works. Hillary Brown. Island Press. c2014).

The question of whether funding for resilient infrastructure projects can be leveraged through existing or retooled transportation financing structures has yet to be answered. It seems likely that what has been described as the "heroic era" of federally led and funded transportation projects may soon be behind us. It has been suggested that new or enhanced policy instruments, and instruments like Revolving Loan Funds (RLFs) and Public-Private Partnerships, will likely be needed to address funding gaps. These mechanisms also reflect awareness that other levels of government, closer to local needs and conditions, may be better poised to make the most effective funding decisions.

4.7 | Project Development Considerations

The American Association of State Highway Transportation Officials (AASHTO), through its Center for Environmental Excellence, has developed guidelines for integrating environmental considerations into project development. The discussions below incorporate elements of these guidelines.

Wetlands, Waterways and Flooding

The federal Clean Water Act, as amended in 1977, addresses water pollution related to point sources and non-point sources. Over the past two decades, there has been a shift from a program-by-program, source-by-source, pollutant-by-pollutant, focus, to more regional and watershed-based strategies. Emphasis is now on both protecting healthy waters and restoring impaired waters. Management of watershed-based pollutants focuses on objectives and limits, such as total maximum daily load (TMDL) of fecal coliform. Municipal Separate Storm Sewer Systems (MS4s) require NPDES permits. Construction activities require Storm Water Discharge permits. NPDES also covers compliance with effluent standards related to TMDLs and other effluent discharge standards, as required by LDEQ.

Other factors relate to crossing navigable waterways. Three projects proposed in the financially constrained Staged Improvement Program meet this criterion.

1. Widening LA 1 across the Intracoastal Waterway in West Baton Rouge Parish;
2. Extending LA 415 with new bridge across Gulf Intracoastal Waterway (GIWW) in West Baton Rouge Parish;
3. U.S. 61 Exit 8C toward U.S. 61 toward Natchez.

The Clean Water Act, Section 404, also regulates discharge of dredged and fill materials into U.S. waters, including wetlands. This applies to fill used for development purposes, water resource projects such as dams and levees, infrastructure development such as highways and airports, and conversion of wetlands to uplands for farming and forestry. No dredge or fill is permitted if a practicable alternative exists that is less damaging.

The U.S. Fish and Wildlife Service (USFWS) is responsible for conducting assessments of potential wetlands habitats. The National Wetlands Inventory geographic database does not include any portion of the CRPC MPO area.

4.8 | Flood Zones and Elevation

As can be seen on the following maps and tables, land elevations in the CRPC-MPO area range from a high of 142 feet in northern East Baton Rouge Parish to a low of less than one foot in southern parts of West Baton Rouge, Livingston, Iberville and Ascension Parishes. Land elevations become of vital concern in times of flooding, such as affected extensive portions of the MPO area in August 2016.

Information below shows the Federal Emergency Management Agency (FEMA) flood zone designations in the CRPC-MPO study area. FEMA defines geographic areas based on varying levels of flood risk. These zones are depicted on a community's Flood Insurance Rate Map (FIRM) or Flood Hazard Boundary Map. Each zone reflects the severity of types of flooding in the area. In communities that participate in the National Flood Insurance Program (NFIP), flood insurance is available to all property owners and renters in these zones.

FEMA Flood Zone Designations

Flood Zones are ranked based on degrees of risk, with elevations shown on FIRM Maps.

Moderate Risk Areas include

- **B and X Zones:** Flood hazard between 100-year and 500-year flood limits; areas protected by levees from 100-year flood; shallow flooding less than one foot;
- **C and X Zones:** Minimal flood hazard above 500-year flood limits; may have ponding and local drainage problems; X Zones outside 500-year flood limits and protected by levees from 100-year flood.

High Risk Areas include:

- **A Zones:** 1% annual chance of flooding and 26% of flooding over 30-year mortgage. Maps provide no detailed analysis of base flood elevations;
- **AE Zones:** Base flood plain where maps provide base flood elevations;
- **A1-30 Zones:** Numbered Zones where maps show base flood elevations;
- **AH Zones:** 1% annual chance of shallow flooding, usually 1 to 3 feet of ponding; 26% chance of flooding over 30-year mortgage. Maps show base flood elevations at selected intervals;
- **AO Zones**: River or stream flood hazard; 1% annual chance of shallow flooding, usually as sheet flow of 1 to 3 feet; 26% chance of flooding over 30-year mortgage. Average flood depths shown;
- **AR Zones:** Temporary increase of flood risk due to building or restoration of flood control system;
- **A99 Zones:** 1% annual chance of flooding with protecting by a Federal flood control system to specified legal requirements. Maps show no depths or base flood elevations.

High Risk Coastal Areas

In communities that participate in the National Flood Insurance Program (NFIP), mandatory flood insurance purchase is required in the following zones.

- **V Zones:** 1% or greater chance of flooding and additional hazard from storm waves; 26% chance of flooding over a 30-year mortgage. Maps show no base flood elevations;
- **VE, V1-30 Zones:** 1% or greater chance of flooding and additional hazard from storm waves; 26% chance of flooding over a 30-year mortgage. Maps show base flood elevations at selected intervals.

Undetermined Risk

- **D Zones:** Possible but undetermined flood hazard; no analysis conducted. Flood insurance rates commensurate with uncertainty of flood risk.

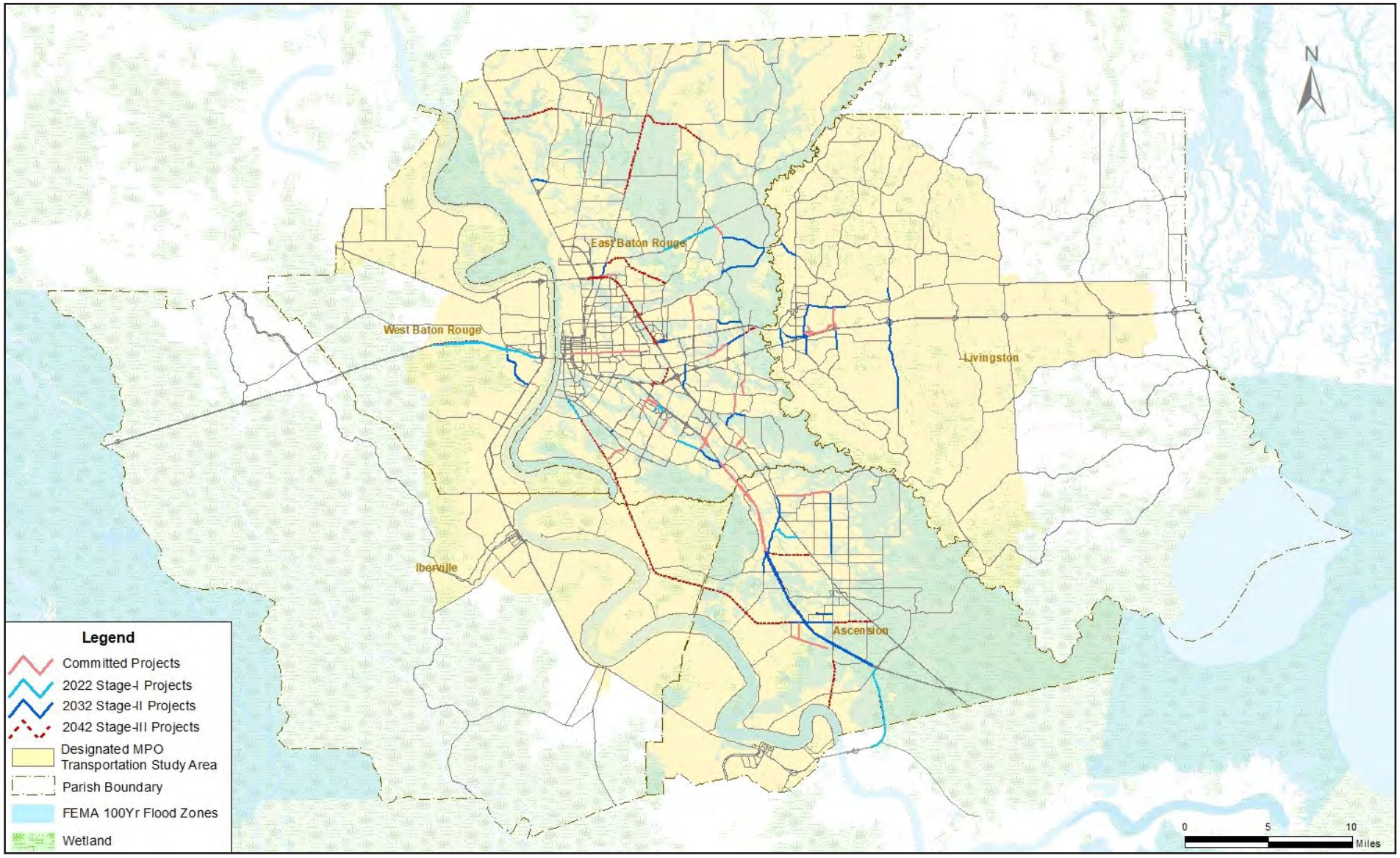


Figure 4-2: Wetlands in the Region

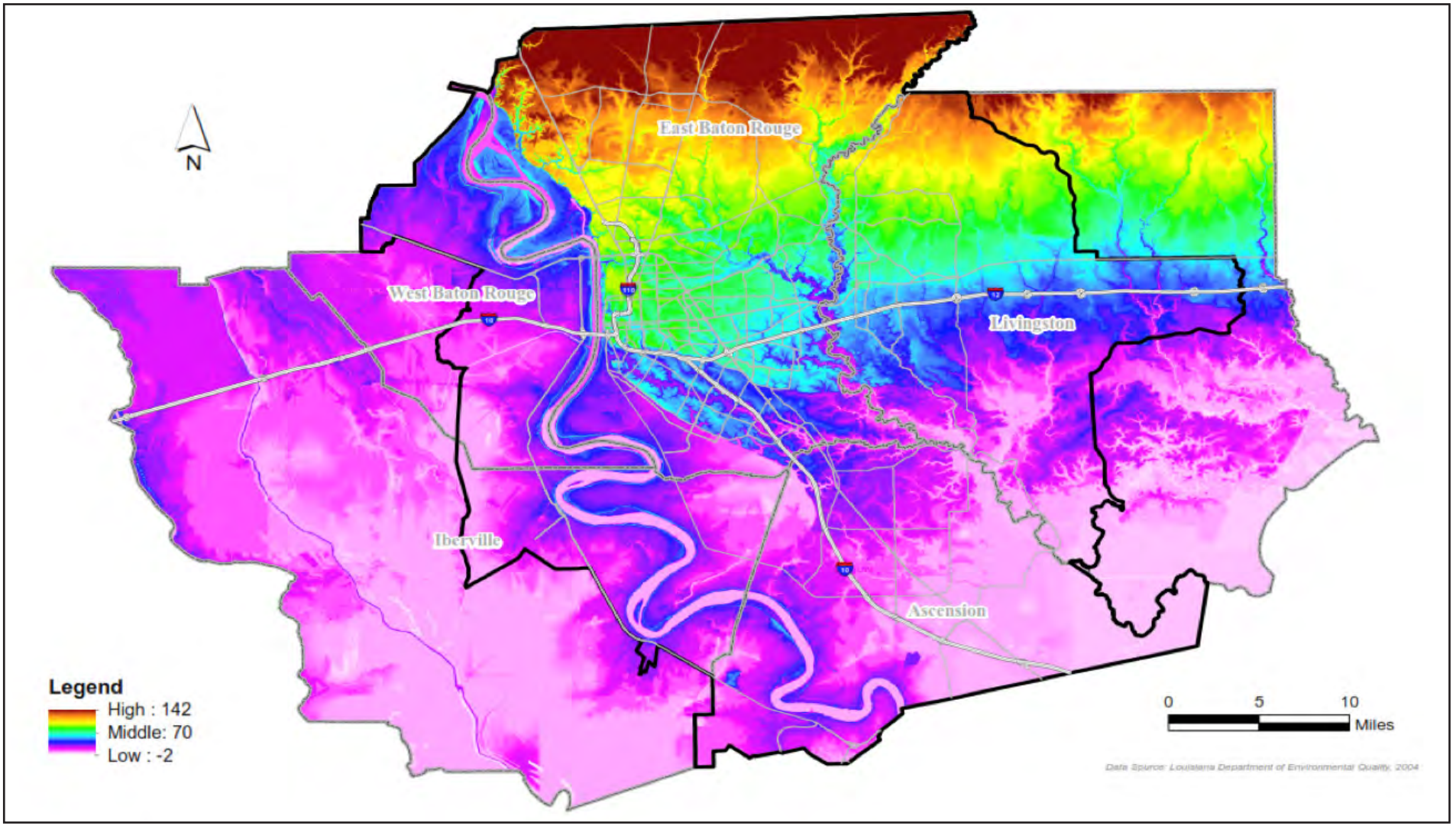
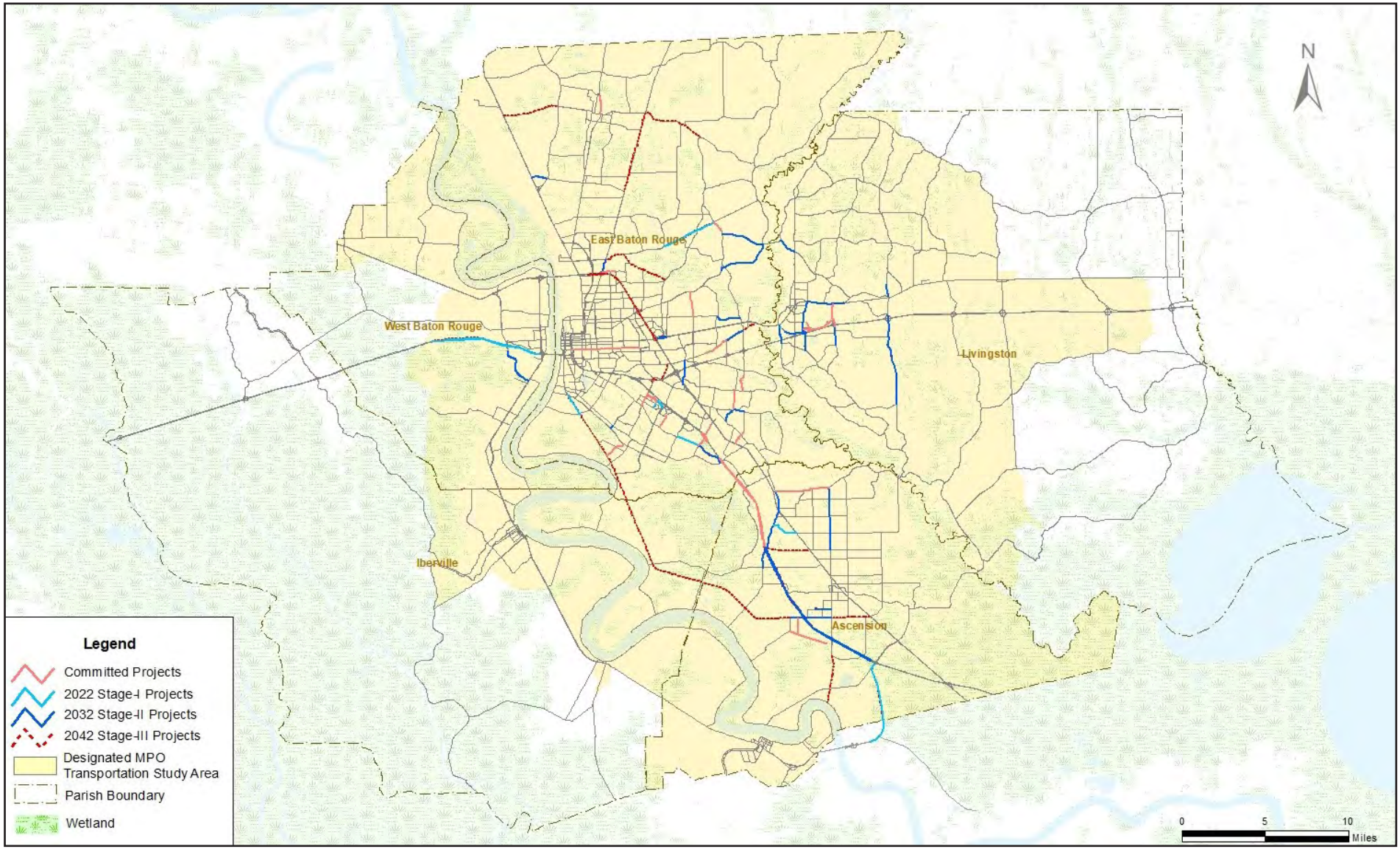


Figure 4-3: Elevations in the Region



Data Source: Federal Emergency Management Agency (FEMA), 2016

Figure 4-4: Flood Zones

Table 4-1 includes only the MPO area, rather than the entirety of the parishes that are not completely within the study area.

Table 4-2: Flood Zones by Parish

Flood Zones	East Baton Rouge (sq mi)	Ascension (sq mi)	Iberville (sq mi)	Livingston (sq mi)	West Baton Rouge (sq mi)	Total for Each Zone (sq mi)
A	38.6	39.9	40	81.1	10.1	**209.7**
AE	153.3	143.2	75.9	133.6	43.5	**549.6**
AE(FLOODWAY)	17.9	0	0	11.7	0	**29.6**
X	177.2	0	0	99.7	0	**276.9**
X500	82.9	118.3	159.1	4.8	87.9	**452.9**

Source: FEMA; Capital Region Planning Commission. 2016.

4.9 | Wildlife

The MTP is required to address impacts to endangered and threatened animal or plant species and consider resource plans and inventories as required by the Endangered Species Act. In transportation terms, reducing wildlife mortality and increased motorist safety are closely related. The act also covers invasive vegetative species and management. Sustainable management of roadsides includes promotion of native plants and wildflowers, and control of invasive species in transportation corridors.

Under law, US Fish and Wildlife Service (USFWS) takes responsibility for birds, terrestrial and freshwater species, while the National Marine Fisheries Service (NMFS) takes responsibility for non-bird marine species. Responsibilities include identifying threatened or endangered species, identifying critical habitats for listed species, implementing research and recovery efforts, and consulting with other federal agencies on measures to avoid harm.

4.10 | Historic and Recreational Resources

The National Historic Preservation Act (NHPA), which covers National Register historic properties, is implemented in consultation with the State Historic Preservation Officer (SHPO). Along with Section 106 of NHPA, the legal framework includes Section 4(f) of the US Department of Transportation Act, NEPA, the Archeological Resources Protection Act (ARPA) of 1979, and the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990.

Since the DOT Act of 1966, and subsequent amendments, Section 4(f) properties have been defined as historic sites, publicly owned parks, and public recreation areas. The intention is to balance historic preservation and development and to avoid use of such properties when possible, to minimize if use cannot be avoided, and to mitigate if using the property is the only feasible option.

4.11 | Context Sensitive Solutions

Context Sensitive Solutions (CSS) advance collaboration on transportation programs and projects and using models that fit into the community and environment. Decisions during long-range planning affect design choices made during project development. Linking design decisions and construction, operations and maintenance activities critical at all phases of program delivery. These include long-range planning, programming, environmental studies, design, right-of-way, construction, operations, and maintenance. Involving all stakeholders ensures that transportation facilities fit the setting. This enables preserving and enhancing scenic, aesthetic, historic, community and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.

The CSS Process recognizes that group decisions are generally better than individual decisions and more likely to be accepted and generally satisfactory when made by those who have to live with them. This also helps build support from the public and regulators and saves time and money by shortening the project development process, expediting permit approvals, eliminating obstacles and minimizing litigation and need for redesign.

Other benefits include solving the right problem by broadening the definition and achieving consensus before starting the design process. This facilitates and helps streamline the NEPA compliance process, while also helping prioritize and allocate scarce transportation resources in a cost-effective way. With needs increasingly exceed resources, the latter is especially important.

Connecting Brownfields With Transportation Projects

Brownfields are defined by EPA as real property where redevelopment and reuse may be complicated by the presence, potential presence, or perception of a hazardous substance, pollutant, or contaminant. Supporting assessment of possible risks, cleanup when necessary, and infill redevelopment of brownfields for industrial and freight-related land uses, can foster freight-intensive activity in suitable locations within the urban core and retrofitting existing infrastructure. Infill development is less costly than greenfield development and can reduces truck VMTs and resulting road congestion and emissions.

Baton Rouge's Government Street Mixed-Use project is an example of urban redevelopment and reuse. The 100-acre property, to be redeveloped under the oversight of the Baton Rouge Redevelopment Authority, was formerly the site of an Entergy facility. Plans call for mixed residential and commercial reuse. The project has already had a halo effect, attracting surrounding development, as well as businesses interested in relocating to Government Street.

In August 2016, the Baton Rouge Metro Council approved allocation of $250,000 to fund design of a train station on Government Street. The facility would add another asset to support Government Street redevelopment. If built, it could serve as a hub for the hoped for $260 million commuter rail service between Baton Rouge and New Orleans. While there was concern that the commuter rail service might never materialize, the council's action is in line with previous action by the City of Gonzales. In 2015, the smaller municipality invested $350,000 to purchase a property that contains an unused building, a parking lot, and an open field, as the likely site for a train station on the long-discussed commuter rail service.

4.12 | Environmental Justice

The U.S. Department of Transportation describes safety and mobility as its top priorities, with environmental justice another undeniable part of the mission. Environmental Justice requirements were established under Executive Order 12898. The goal is to avoid disproportionately high and adverse human health and environmental impacts, including interrelated social and economic effects, from programs, policies, and activities on minority populations and low-income populations.

While the Executive Order was intended to improve the internal management of the executive branch and not to create legal rights by any party against the United States, federal agencies are required to implement its provisions consistent with, and to the extent permitted by existing law (Sections 6-608 and 6-609, 59 Fed. Reg. At 7632-33).

In 1971, the Council of Environmental Quality acknowledged that racial discrimination adversely affects the environment of the urban poor. The executive order covers federal actions to address environmental justice effecting minority and low-income populations. NEPA requires consideration of human health, economic, and social effects on minority populations through Environmental Assessments (EAs), Environmental Impact Statements (EISs), and resulting Records of Decision (RODs).

The legal framework includes Title VI of the Civil Rights Act of 1964, which prohibits discrimination based on race, color, and national origin. Other key statutes include NEPA of 1969, Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and 23 USC Section 109(h).

Community Impact Analysis (CIA) provides a framework for assessing whether a proposed action or plan causes impacts to any populations or communities in the project area. In addition to minority and low-income populations, this encompasses other traditionally underserved populations effected by age discrimination, sexual discrimination, and/or handicapped discrimination.

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) work with state departments of transportations, MPOs, transit providers, and other local agencies to identify effective practices, potential models, and other technical assistance resources to promote the integration of environmental justice into all planning, development, and implementation activities.

Goals

- Avoid, minimize or mitigate disproportionately high and adverse impacts;
- Ensure full and fair participation by all potentially affected communities;
- Prevent denial, reduction or significant delay in receipt of benefits by minority and low-income communities.

In Louisiana, the state DOTD is at the heart of planning, design, operations and maintenance across all transportation modes. DOTD allocates resources to integrate environmental justice into its activities, while developing the technical capability to assess benefits and adverse effects of transportation activities among different population groups. This enables development and support of appropriate procedures, goals and performance measures in all aspects of the environmental justice mission.

At the regional level, the CRPC-MPO maintains a Title VI document which addresses the needs of all Environmental Justice communities. This document is updated annually and meets the standards of both the LA DOTD, FHWA and FTA.

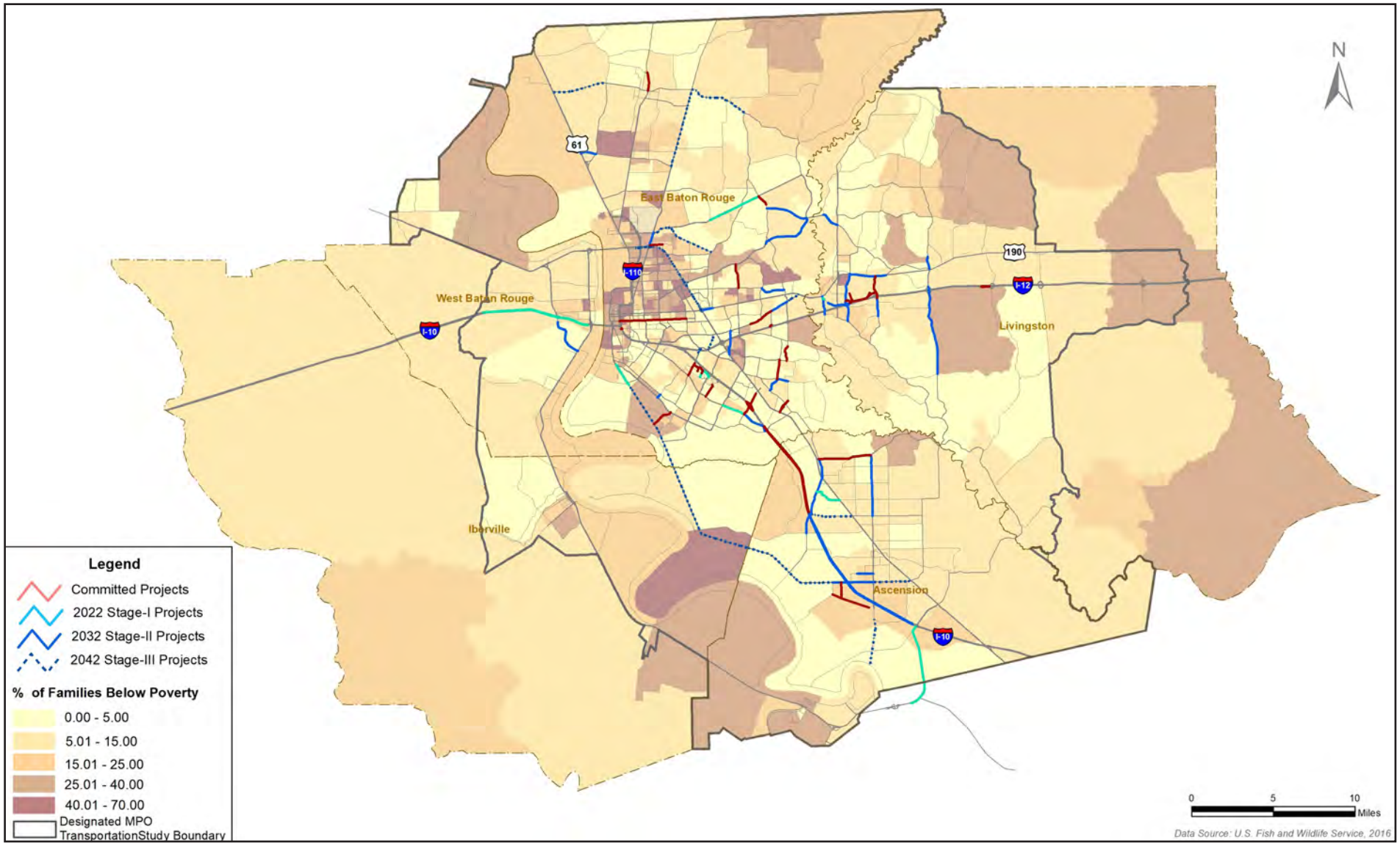


Figure 4-5: Environmental Justice

Chapter 5 | Current Demographics, Land Use, and Travel Patterns

Chapter 5 provides a broad overview of the Capital Region, beginning with a look at basic demographics, such as population, employment, and economic data. The chapter identifies land use development and commute patterns across the region, and explores their interrelatedness. Particular attention is placed upon how transportation can support or undermine the region's economic vitality. Finally, Chapter 5 looks at the relationship between transportation and housing affordability, through the lens of the Housing and Transportation Affordability (H + T) Index.

5.1 | Current Population Trends in the Capital Region

Table 5-1 shows the current 2015 population by Parish. East Baton Rouge Parish is the largest Parish with a population of close to 450,000. The five-parish region grew by about 100,000 population between 2000 and 2010. During this time, the region grew 10 times the state average at an annual growth rate of 1.52%. The region's highest growth rate has occurred in the suburbs, particularly in Ascension and Livingston Parishes. Table 5-2 shows the population growth rates between 2000 and 2010, and between 2010 and 2015. Even though the population growth seems to have slowed down after 2010, Capital Region is still growing faster than the state average. Regional growth continued to occur more in the suburban parishes than the urban core.

Table 5-1: Population, 2015

Ascension Parish	East Baton Rouge Parish	Iberville Parish	Livingston Parish	West Baton Rouge Parish	Louisiana
119,455	446,753	33,095	137,788	25,490	4,670,724

Source: U.S. Census Quick Facts, 2015; Wikipedia.

Table 5-2: Growth 2000-2010; 2010-2015

	Ascension Parish	East Baton Rouge Parish	Iberville Parish	Livingston Parish	West Baton Rouge Parish	Louisiana
Annual Growth Rate 2010-2015	2.15%	0.27%	-0.16%	1.41%	1.29%	0.55%
Annual Growth Rate 2000-2010	3.95%	0.67%	0.01%	3.91%	1.11%	0.16%

Source: US Census Community Facts 2010 and 2000.

5.2 | Special Populations and Mobility Needs

Transit-Dependent Populations

Elderly and disabled populations in all locations often cannot drive, may not be able to drive significant distances and/or do not own or have access to personal vehicles. Both groups thus face major transportation challenges. This is especially true in communities that lie outside of city centers. Transportation services for elderly populations are provided by parish Councils on Aging (COAs). Some COA's provide rural transit for the general public across the entire parish. Other parishes in the planning area provide limited transportation services for the elderly and disabled only.

The U.S. Census only provides age group figures, such as population over 65 group and median age of that group, for the more urbanized parishes of East Baton Rouge, Livingston and Ascension.

Table 5-3: Population Over 65

Parish	Total Population	Population 65 and over	Percent of Population	Median Age 65 and over
Ascension	112,308	10,669	9.50%	71.9
East Baton Rouge	443,598	51,901	11.70%	73.2
Iberville	33,375	4,272	12.80%	-
Livingston	132,160	14,273	10.80%	72.2
West Baton Rouge	24,347	2,824	11.60%	-

Source: US Census American Community Survey; American Fact Finder. 2014 5-Year Estimates.

Table 5-4: Disabled Population

Parish	Total Population	Physical Disability	Est. % of Total Pop
Ascension	111,467	13,151	11.80%
East Baton Rouge	440,358	55,274	12.55%
Iberville	29,619	5,047	17.04%
Livingston	131,253	19,409	14.79%
West Baton Rouge	23,715	3,368	14.20%

Source: US Census American Community Survey; 2014 5-Year Estimates
Universe: Civilian noninstitutionalized population

As we move into the future, consideration of mobility needs must include these groups to ensure that we provide opportunities for employment, access to needed services, and to maintain and improve community cohesion.

School Age Population

Schools are significant traffic generators. School buses stop and start with resulting morning and afternoon travel delays and traffic congestion. Many younger students who do not ride the bus are dropped off before school and picked up after school in personal vehicles. This can cause significant traffic congestion and potential for traffic incidents and conflicts with waiting vehicles parked along the sides of streets and roads.

Around high schools, young and inexperienced drivers in their own vehicles can increase the incidence of traffic conflicts and crashes.

As shown on the table below, the CRPC MPO has 199 public and 61 private K12 schools. The area also has 2 public colleges, 4 public technical colleges and two public community colleges. Enrollment in pre-school, elementary, middle, and high schools together has an enrollment of over 130,000 students. Table 5-5 shows the enrollment in technical, community and public colleges in the CRPC MPO region. Total school and college enrollment in the Capital Region is close to 190K.

Table 5-5: Capital Region MPO School Enrollment 2015

Parish	Enrollment	#Public Schools	#Private Schools
Ascension	21,055	27	4
East Baton Rouge	76,256	113	51
Iberville	4,836	8	1
Livingston	24,710	41	2
West Baton Rouge	4,357	10	3
Total	**131,214**	**199**	**61**

Source: CRPC-MPO Travel Demand Model, 2017

Table 5-6: Capital Region College Enrollment 2015

Parish	College Enrollment
Ascension	2,916
East Baton Rouge	53,820
Iberville	0
Livingston	0
West Baton Rouge	0
Total	**56,736**

Source: CRPC-MPO Travel Demand Model, 2017

Limited English Proficiency (LEP) Populations

This term refers to individuals with limited English proficiency (LEP), defined as not speaking English as their primary language and having limited ability to read, write, speak or understand English. In the CRPC MPO study area, such individuals are primarily Spanish speakers, with a limited number of older Vietnamese speakers.

Depending on their size and locations, linguistically isolated populations can trigger the requirement to provide translation services to reduce language barriers that could exclude them from participating in or benefitting from any program or activity that receives Federal financial assistance. As a recipient of federal assistance, the MPO is required to take reasonable steps to ensure meaningful access and input by LEP persons.

The table below shows percentages of households in CRPC MPO parishes that use a language other than English at home and self-report as speaking English "Not Well" or "Not at All".

Table 5-7: Percent LEP Households

Parish	Language Other than English	Speak English "Not Well" or Not at All"
Ascension	7.1%	1.01%
East Baton Rouge	7.9%	1.26%
Iberville	3.7%	0.61%
Livingston	4.4%	0.51%
West Baton Rouge	4.2%	0.80%

Source: U.S. Census. American Community Survey. 2014 5-Year Estimates

Universe: Population over 5 years of age

The CRPC MPO maintains a Title VI plan which adheres to the federal requirements for accommodation of Limited English Proficiency (LEP) individuals. The Title VI plan is updated annually. CRPC MPO has followed U.S. Department of Justice guidance using a "four-factor analysis" process to determine the number and proportion of LEP individuals in the region and how to cost effectively provide information services to these individuals. The guidance also offers a safe harbor of 5% of the effected population or 1,000 people in the effected neighborhood, with only document translation required.

Ethnicity

The MPO Study area is home to a large minority population. Iberville Parish and the City of Baton Rouge are both have large Black-African American populations, while Ascension Parish has significant percentage of Mexican, Cuban, and other Hispanic nationalities.

Table 5-8: Ethnicity

Parish	Total Pop	White	Black-African American	American Indian	Asian	Hispanic
East Baton Rouge	443,598	48.8%	45.5%	0.2%	3.1%	3.8%
West Baton Rouge	24,347	59.8%	37.3%	0.3%	0.5%	2.6%
Livingston	132,160	91.4%	5.9%	0.4%	0.4%	3.2%
Ascension	112,308	74.4%	22.4%	0.2%	1.1%	4.9%
Iberville	33,375	49.2%	48.7%	0.1%	0.1%	2.3%

Source: US Census American Community Survey; American Fact Finder. 2014.

Income and Poverty

The following table illustrates median income for parishes within the study area. Poverty is a significant concern, particularly in the City of Baton Rouge, where some areas report over 40% of residents living in poverty. Poverty typically limits transportation options, which can limit access to jobs, medical services, and shopping for food and other basic needs.

Baton Rouge also has the highest concentration of carless households in the region, making many residents dependent on public transit. Transit services are discussed in more detail in Chapter 8. (Note: concentrations of low income residents in Baton Rouge near universities are often transitional/temporary students, rather than full-time residents.)

Table 5-9: Median Income and Poverty

Parish	Median Household Income	Percent Below Poverty
Ascension	$48,535	12.8%
East Baton Rouge	$49,202	19.3%
Iberville	$57,478	19.6%
Livingston	$70,207	13.7%
West Baton Rouge	$45,692	18.9%
Louisiana	$44,991	19.6%

Source: U.S. Census. American Community Survey. 2014 5-Yr Estimates

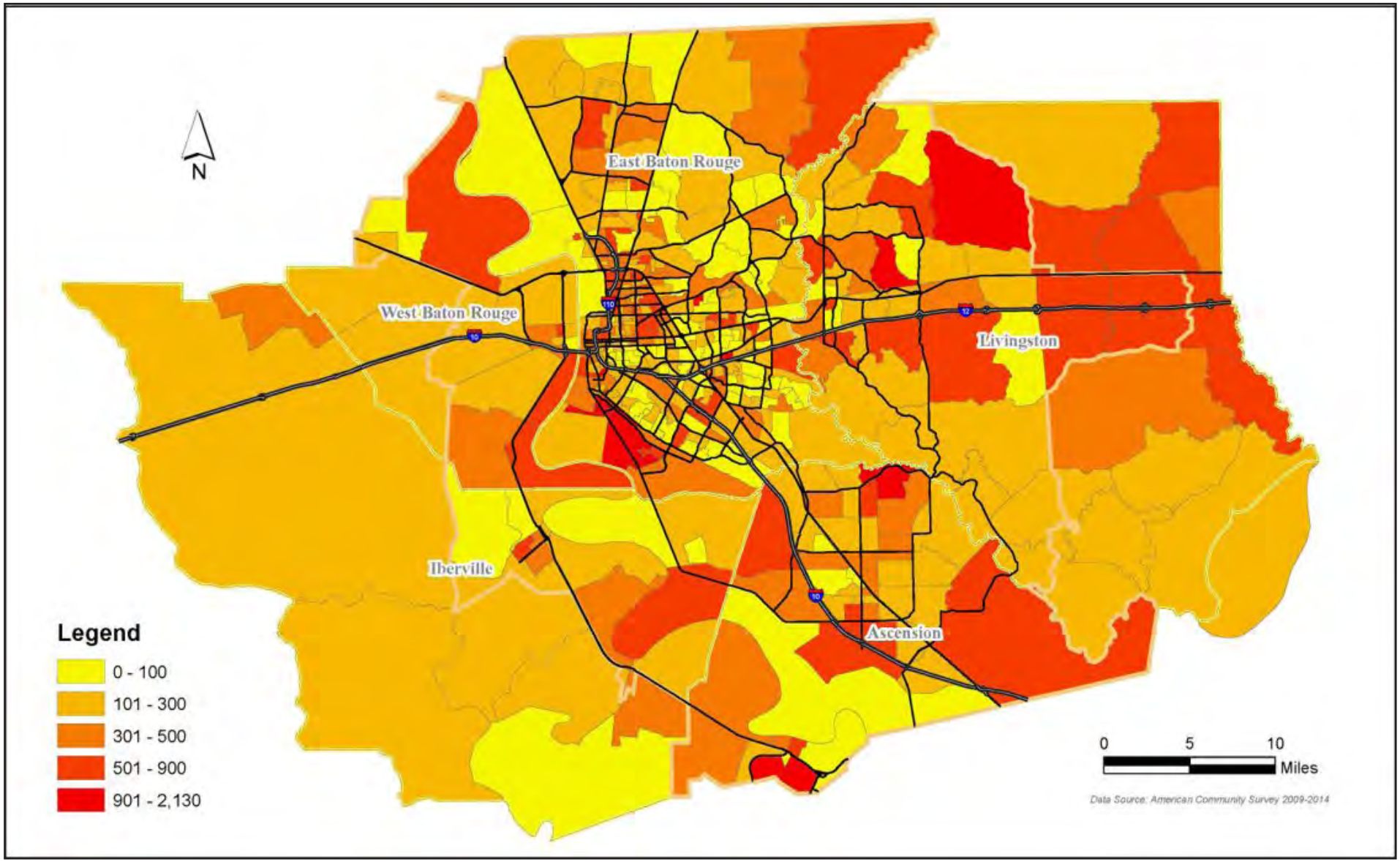


Figure 5-1: Population below Poverty Level

5.3 | Economy and Employment

The CRPC-MPO has a strong and varied economic base. Although the region houses only 14% of the state's population, it employs approximately 19% of its workforce. Louisiana State University (LSU), located in the heart of Baton Rouge, is the state's flagship university and the region's largest employer. Other major private sector employers include Exxon Mobile, CB&I, and Our Lady of the Lake Regional Medical Center.

As the state capital city, Baton Rouge workforce also includes many state workers and civil servants. Some of the largest public sector employers include the Louisiana Departments of Revenue, Education, and Transportation and Development, and the State Police.

Table 5-10: Employment Classifications

Parish	Total Employment	Retail Employment	Agriculture, Mining, and Construction Employment	Manufacturing, Transportation/ Communications/ Utilities, & Wholesale Trade	Government, Office, and Services	Other Employment
Ascension	50,048	10,868	4,005	12,910	22,180	84
East Baton Rouge	291,766	57,246	18,126	30,928	184,392	1,073
Iberville	13,270	1,913	588	4,612	6,102	55
Livingston	26,447	8,155	1,858	2,302	14,051	81
West Baton Rouge	14,389	2,801	2,068	4,582	4,834	105
Grand Total	395,920	80,983	26,645	55,335	231,558	1,398

Source: CRPC MPO Travel Demand Model 2017

A complete list of major, regional employers can be found in the Existing Conditions documents with the appendices on CRPC website at (http://crpcla.org/move2042/).

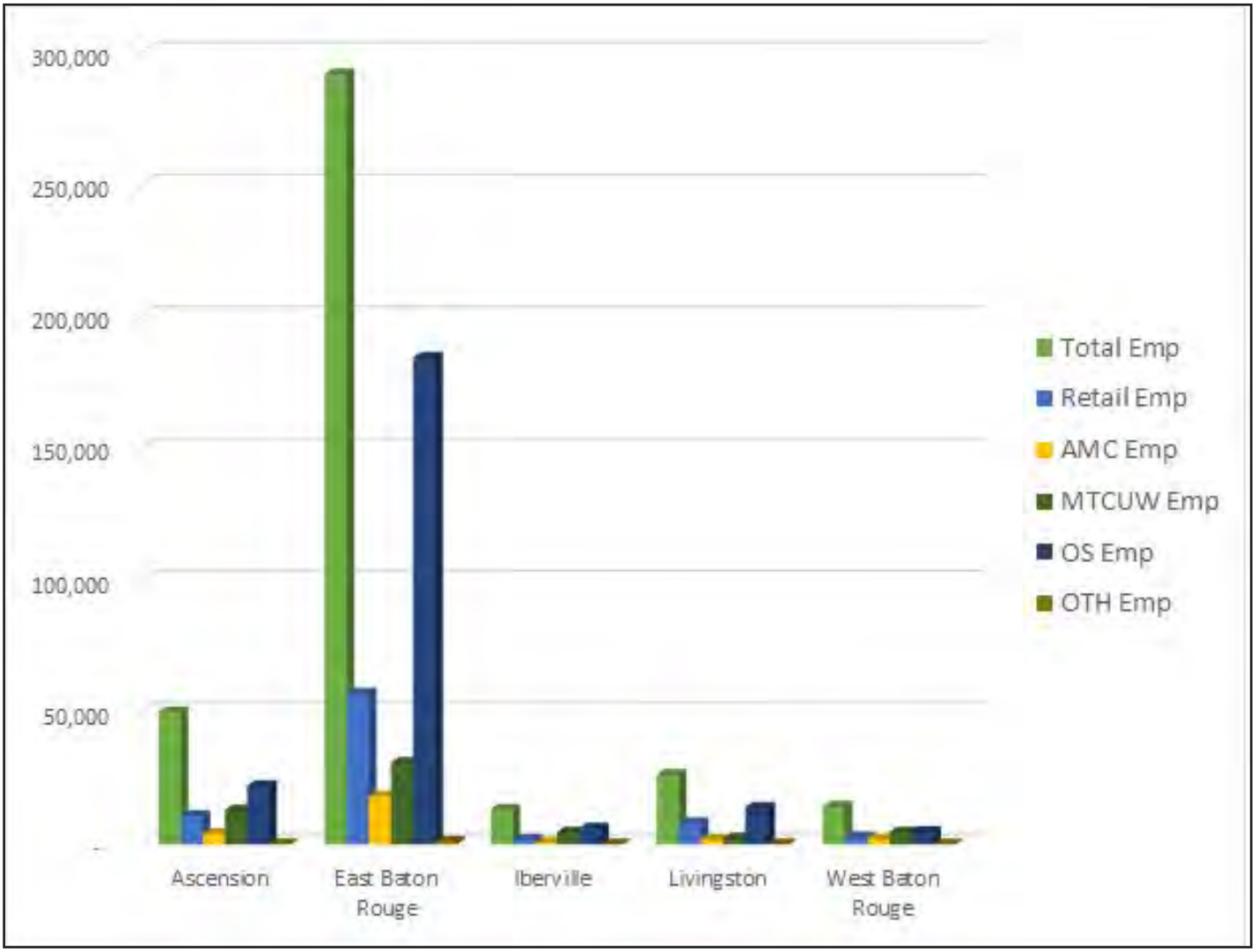


Figure 5-2: Employment by Parish

5.4 | Employment Density

Clustering of employment centers significantly impact commute patterns, which in turn affect regional traffic volumes, peak- hour travel times, and overall congestion. As shown below, employment in the CRPC-MPO area concentrates in East Baton Rouge Parish, and, to a lesser but growing extent in Livingston and Ascension Parishes. Employment tends to concentrate along the Mississippi River and major road and highway corridors.

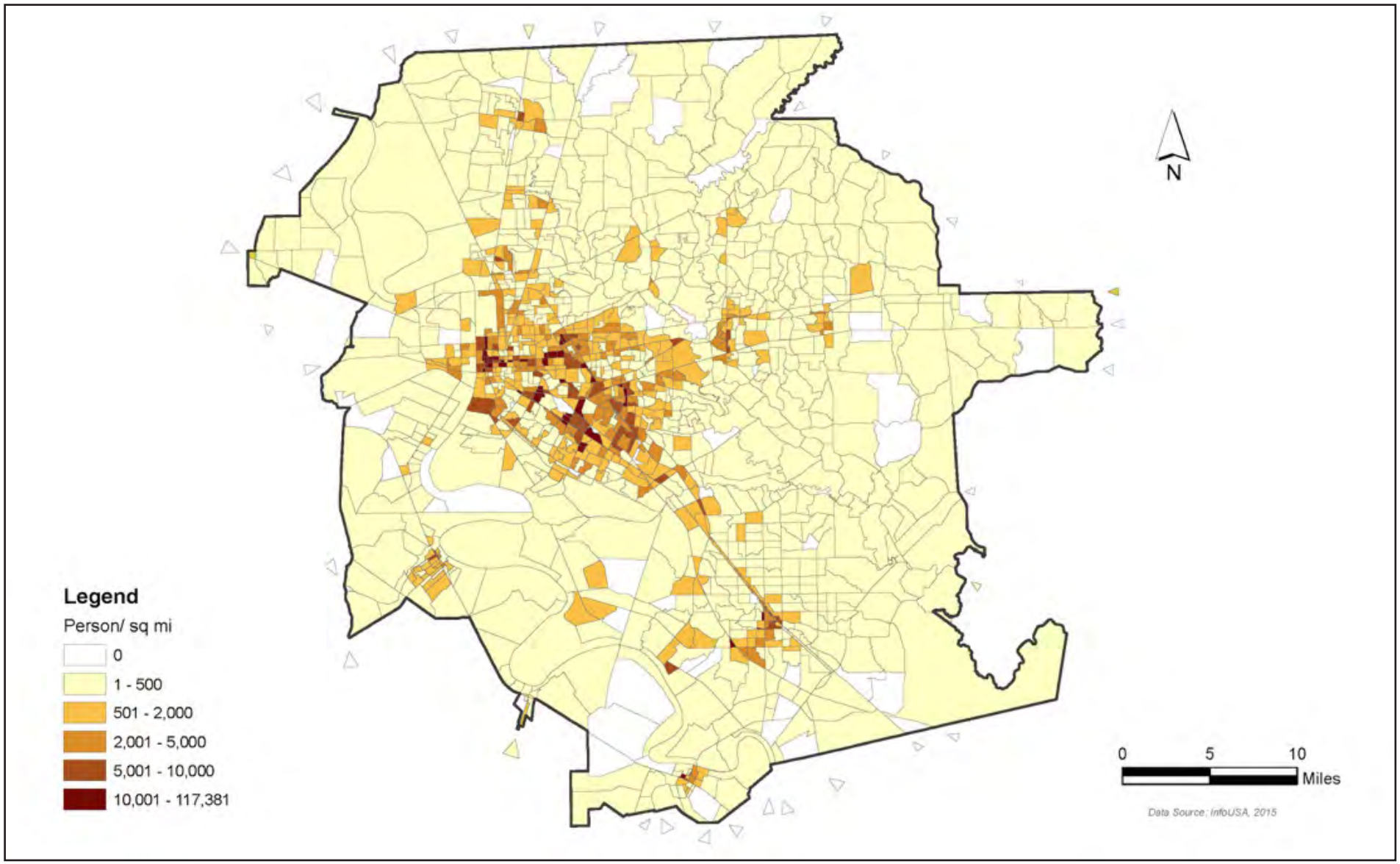
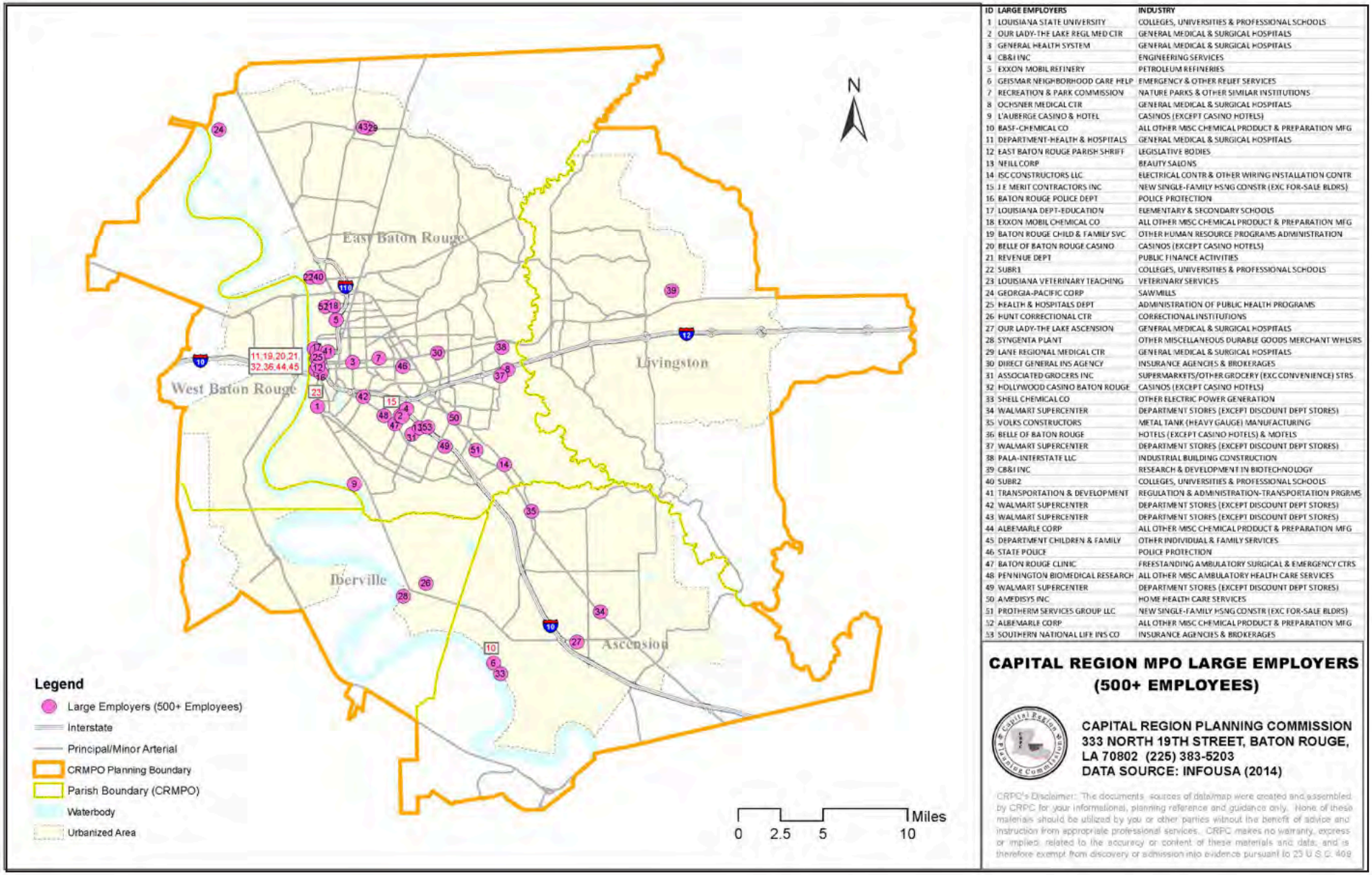


Figure 5-3: Regional Employment Density



ID	LARGE EMPLOYERS	INDUSTRY
1	LOUISIANA STATE UNIVERSITY	COLLEGES, UNIVERSITIES & PROFESSIONAL SCHOOLS
2	OUR LADY-THE LAKE REGL MED CTR	GENERAL MEDICAL & SURGICAL HOSPITALS
3	GENERAL HEALTH SYSTEM	GENERAL MEDICAL & SURGICAL HOSPITALS
4	CB&I INC	ENGINEERING SERVICES
5	EXXON MOBIL REFINERY	PETROLEUM REFINERIES
6	GEISMAR NEIGHBORHOOD CARE HELP	EMERGENCY & OTHER RELIEF SERVICES
7	RECREATION & PARK COMMISSION	NATURE PARKS & OTHER SIMILAR INSTITUTIONS
8	OCHSNER MEDICAL CTR	GENERAL MEDICAL & SURGICAL HOSPITALS
9	L'AUBERGE CASINO & HOTEL	CASINOS (EXCEPT CASINO HOTELS)
10	BASF-CHEMICAL CO	ALL OTHER MISC CHEMICAL PRODUCT & PREPARATION MFG
11	DEPARTMENT-HEALTH & HOSPITALS	GENERAL MEDICAL & SURGICAL HOSPITALS
12	EAST BATON ROUGE PARISH SHRIFF	LEGISLATIVE BODIES
13	NEILL CORP	BEAUTY SALONS
14	ISC CONSTRUCTORS LLC	ELECTRICAL CONTR & OTHER WIRING INSTALLATION CONTR
15	J E MERIT CONTRACTORS INC	NEW SINGLE-FAMILY HSNG CONSTR (EXC FOR-SALE BLDRS)
16	BATON ROUGE POLICE DEPT	POLICE PROTECTION
17	LOUISIANA DEPT-EDUCATION	ELEMENTARY & SECONDARY SCHOOLS
18	EXXON MOBIL CHEMICAL CO	ALL OTHER MISC CHEMICAL PRODUCT & PREPARATION MFG
19	BATON ROUGE CHILD & FAMILY SVC	OTHER HUMAN RESOURCE PROGRAMS ADMINISTRATION
20	BELLE OF BATON ROUGE CASINO	CASINOS (EXCEPT CASINO HOTELS)
21	REVENUE DEPT	PUBLIC FINANCE ACTIVITIES
22	SUBR1	COLLEGES, UNIVERSITIES & PROFESSIONAL SCHOOLS
23	LOUISIANA VETERINARY TEACHING	VETERINARY SERVICES
24	GEORGIA-PACIFIC CORP	SAWMILLS
25	HEALTH & HOSPITALS DEPT	ADMINISTRATION OF PUBLIC HEALTH PROGRAMS
26	HUNT CORRECTIONAL CTR	CORRECTIONAL INSTITUTIONS
27	OUR LADY-THE LAKE ASCENSION	GENERAL MEDICAL & SURGICAL HOSPITALS
28	SYNGENTA PLANT	OTHER MISCELLANEOUS DURABLE GOODS MERCHANT WHLSRS
29	LANE REGIONAL MEDICAL CTR	GENERAL MEDICAL & SURGICAL HOSPITALS
30	DIRECT GENERAL INS AGENCY	INSURANCE AGENCIES & BROKERAGES
31	ASSOCIATED GROCERS INC	SUPERMARKETS/OTHER GROCERY (EXC CONVENIENCE) STRS
32	HOLLYWOOD CASINO BATON ROUGE	CASINOS (EXCEPT CASINO HOTELS)
33	SHELL CHEMICAL CO	OTHER ELECTRIC POWER GENERATION
34	WALMART SUPERCENTER	DEPARTMENT STORES (EXCEPT DISCOUNT DEPT STORES)
35	VOLKS CONSTRUCTORS	METAL TANK (HEAVY GAUGE) MANUFACTURING
36	BELLE OF BATON ROUGE	HOTELS (EXCEPT CASINO HOTELS) & MOTELS
37	WALMART SUPERCENTER	DEPARTMENT STORES (EXCEPT DISCOUNT DEPT STORES)
38	PALA-INTERSTATE LLC	INDUSTRIAL BUILDING CONSTRUCTION
39	CB&I INC	RESEARCH & DEVELOPMENT IN BIOTECHNOLOGY
40	SUBR2	COLLEGES, UNIVERSITIES & PROFESSIONAL SCHOOLS
41	TRANSPORTATION & DEVELOPMENT	REGULATION & ADMINISTRATION-TRANSPORTATION PRGRMS
42	WALMART SUPERCENTER	DEPARTMENT STORES (EXCEPT DISCOUNT DEPT STORES)
43	WALMART SUPERCENTER	DEPARTMENT STORES (EXCEPT DISCOUNT DEPT STORES)
44	ALBEMARLE CORP	ALL OTHER MISC CHEMICAL PRODUCT & PREPARATION MFG
45	DEPARTMENT CHILDREN & FAMILY	OTHER INDIVIDUAL & FAMILY SERVICES
46	STATE POLICE	POLICE PROTECTION
47	BATON ROUGE CLINIC	FREESTANDING AMBULATORY SURGICAL & EMERGENCY CTRS
48	PENNINGTON BIOMEDICAL RESEARCH	ALL OTHER MISC AMBULATORY HEALTH CARE SERVICES
49	WALMART SUPERCENTER	DEPARTMENT STORES (EXCEPT DISCOUNT DEPT STORES)
50	AMEDISYS INC	HOME HEALTH CARE SERVICES
51	PROTHERM SERVICES GROUP LLC	NEW SINGLE-FAMILY HSNG CONSTR (EXC FOR-SALE BLDRS)
52	ALBEMARLE CORP	ALL OTHER MISC CHEMICAL PRODUCT & PREPARATION MFG
53	SOUTHERN NATIONAL LIFE INS CO	INSURANCE AGENCIES & BROKERAGES

CAPITAL REGION MPO LARGE EMPLOYERS
(500+ EMPLOYEES)

CAPITAL REGION PLANNING COMMISSION
333 NORTH 19TH STREET, BATON ROUGE,
LA 70802 (225) 383-5203
DATA SOURCE: INFOUSA (2014)

CRPC's Disclaimer: The documents, sources of data/map were created and assembled by CRPC for your informational, planning reference and guidance only. None of these materials should be utilized by you or other parties without the benefit of advice and instruction from appropriate professional services. CRPC makes no warranty, express or implied, related to the accuracy or content of these materials and data, and is therefore exempt from discovery or admission into evidence pursuant to 23 U.S.C. 409

Figure 5-4: Regional Large Employers

5.5 | Mobility, Economic Competitiveness, and the CRISIS Coalition

As the Capital Region grows, the ability of the transportation system to adequately handle the resulting increased traffic volumes has become of significant concern regarding quality of life and economic vitality. In 2015, the Baton Rouge Chamber of Commerce found that 76% of local business leaders considered transportation and traffic issues to be the region's top obstacle to staying economically competitive.

Business and industry have responded to these concerns by joining in the Capital Region Industry for Sustainable Infrastructure Solutions (CRISIS) coalition. The group's Capital Region Mobility Strategy, developed in tandem with CRPC's Long-Range Transportation Plan update, aims to align short- and long-term transportation strategies with broader goals for regional mobility, safety, and economic vitality. The initiative is funded by the Louisiana Office of Community Development and the U.S. Department of Housing and Urban Development, and coordinated by Kimley-Horn, a national leader in transportation planning.

Capital Region Mobility Strategy

CRISIS's initial State of the Region briefing, issued in October 2016, recognized five key factors that affect transportation in the Capital Region.

On October 7, 2016, the CRISIS team conducted a forum to gather input for the plan from regional elected officials, practitioners, and private industry. Participating stakeholders uniformly ranked regional infrastructure performance and travel options as poor, while they had mixed opinions on land use, regional competitiveness, resiliency and preparedness.

State of the Region Key Factors:

- ✓ Infrastructure Performance
- ✓ Land Use and Urban Form
- ✓ Regional Competitiveness
- ✓ Resiliency and Preparedness
- ✓ Travel Options

The CRISIS briefing emphasized the relationship between land use and transportation, and identified the Capital Region's dispersed land use and growth patterns as a major stressor on the transportation network. In 2014, 21% of area workers commuted 50 miles or more each day. The CRISIS group issued its final regional mobility strategy report in September 2017. The report recognized many key transportation issues in the CRPC-MPO study area, such as:

- Stagnant transportation funding levels
- Shifting demographics, with significant regional population growth and dispersed settlement patterns that extend commuting distances
- Growing economy
- Rising expectations
- Natural uncertainty, with aging infrastructure and weather events that affect regional resiliency

Recommendations from the CRISIS report included: (1) improve capacity and efficiency, with enhanced river crossings, improvements to regional arterials and use of new transportation technology; (2) expand travel choice and management, offering active transportation alternatives, travel demand management, ride share, and transit services; (3) develop strong 'complete and safe streets' policies, implement smart growth initiatives, and develop strong regional leadership on transportation issues.

For more information on CRISIS and their work, visit (http://trafficcrisis.com/crms/).

5.6 | Land Use

Although East Baton Rouge Parish has the highest concentrations of jobs and population, increased growth rates continue to move to the east and south and, to a slightly lesser extent, to the north. This growth trend has resulted in increasing numbers of people who must commute longer distances for work. Furthermore, since these outer suburbs are not served by transit, commuters must drive longer distances, often in single occupant vehicles. While efforts are underway in Baton Rouge to encourage infill development, particularly in north Baton Rouge, such development will take time. Meanwhile, population growth continues to move away from the city center.

A low-density, American suburb. Single-family subdivisions across the Capital Region such as these generate significant vehicular traffic, especially at one-way entry and exit points and utilize municipal infrastructure inefficiently.

Land use us has a direct impact on traffic volumes and congestion, especially within the CRPC MPO area. As growth extends outward from Baton Rouge in a lower density sprawl pattern, the cost to local governments' for delivering municipal services increases. Volumes and intensity of commuter traffic will increase as well, especially at peak morning and evening times. Ascension and Livingston Parish have seen extensive construction of new, single family subdivisions since 2010. The CRISIS Mobility Strategy Repot (2017) identified several strategies that should be implemented across the region that focus on the importance of local land use policies and codes. These strategies focus on smart growth initiatives and tools to help local jurisdictions re-think their land use patterns. The report also highlights regional initiatives such as access management and multimodal corridor planning which would help move the regional dialogue toward a discussion that better links land use decisions and transportation impacts.

Regional malls with ample free parking, such as the Tanger Outlet Mall in Gonzales, generate an enormous amount of automobile trips.

5.7 | Commuting in the Capital Region

By far, the most common mode of travel to work in the CRPC-MPO area is the single occupancy vehicle. In 2011, over 85% of regional commuters drove alone to work each day.

Although transit, cycling and walking are options for some commuters, low density development and inadequate infrastructure make these modes unsafe, inconvenient, and/or overly time consuming for most workers.

The Texas A&M University Transportation Institute (TTI) named Baton Rouge the nation's third most congested medium-sized city, based on hours of yearly delay, wasted fuel, and total cost to consumers. They calculated a peak-period planning time index for Baton Rouge of 2.8, reflects unpredictable traffic conditions. It takes approximately 28 minutes to complete a trip that should normally take 10 minutes. Wages well above the state average and competition for available jobs contribute to lengthening of commutes and resulting congestion, with many workers willing to drive farther in exchange for community assets in more dispersed locations.

As shown by this graphic a significant majority of workers in Baton Rouge drive to work alone when compared to New Orleans, the state and nation. With the exception of carpooling the percentage of commuters in Baton Rouge that choose a mode other than a single occupant vehicle (SOV) are below the national averages. Similarly, as shown in Table 5.6 fewer than 10% of commuters in the region carpool (except East Baton Rouge). This is factor contributes to regional congestion, especially at peak travel times.

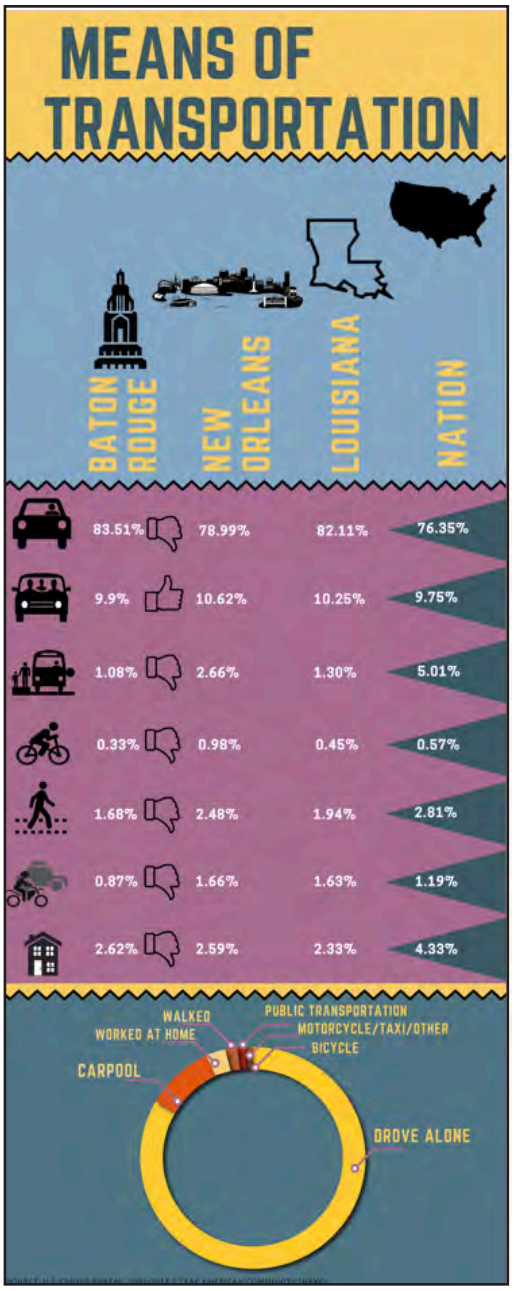


Figure 5-5: Means of Transportation

Inter-Regional Commuting

The New Orleans Data Center tracks work commute patterns across the Southeast Louisiana Super Region, which links the metropolitan areas of New Orleans, Baton Roughe and Houma-Thibodaux. The three locales are closely linked, with the oil & gas industry served by Houma-Thibodaux's Port Fourchon, the Louisiana Offshore Oil Port (LOOP), and numerous pipelines providing the raw materials for petrochemical manufacturing sectors in Baton Rouge and New Orleans.

Table 5-11: Commute by Mode

Parish	Drove Alone	Carpooled	Public Transport	Walked	Other Means	Mean Travel Time to Work (minutes)
East Baton Rouge	82.0%	10.4%	1.7%	2.1%	1.2%	23.1
West Baton Rouge	85.9%	9.4%	0.3%	0.8%	2.6%	24.5
Livingston	86.1%	9.1%	0.2%	0.8%	1.0%	34.3
Ascension	86.7%	8.4%	0.1%	0.9%	0.9%	29.1
Iberville	85.2%	9.4%	0.5%	2.0%	1.6%	24.2

Source: U.S. Census. American Community Survey. American Fact Finder. 2014.

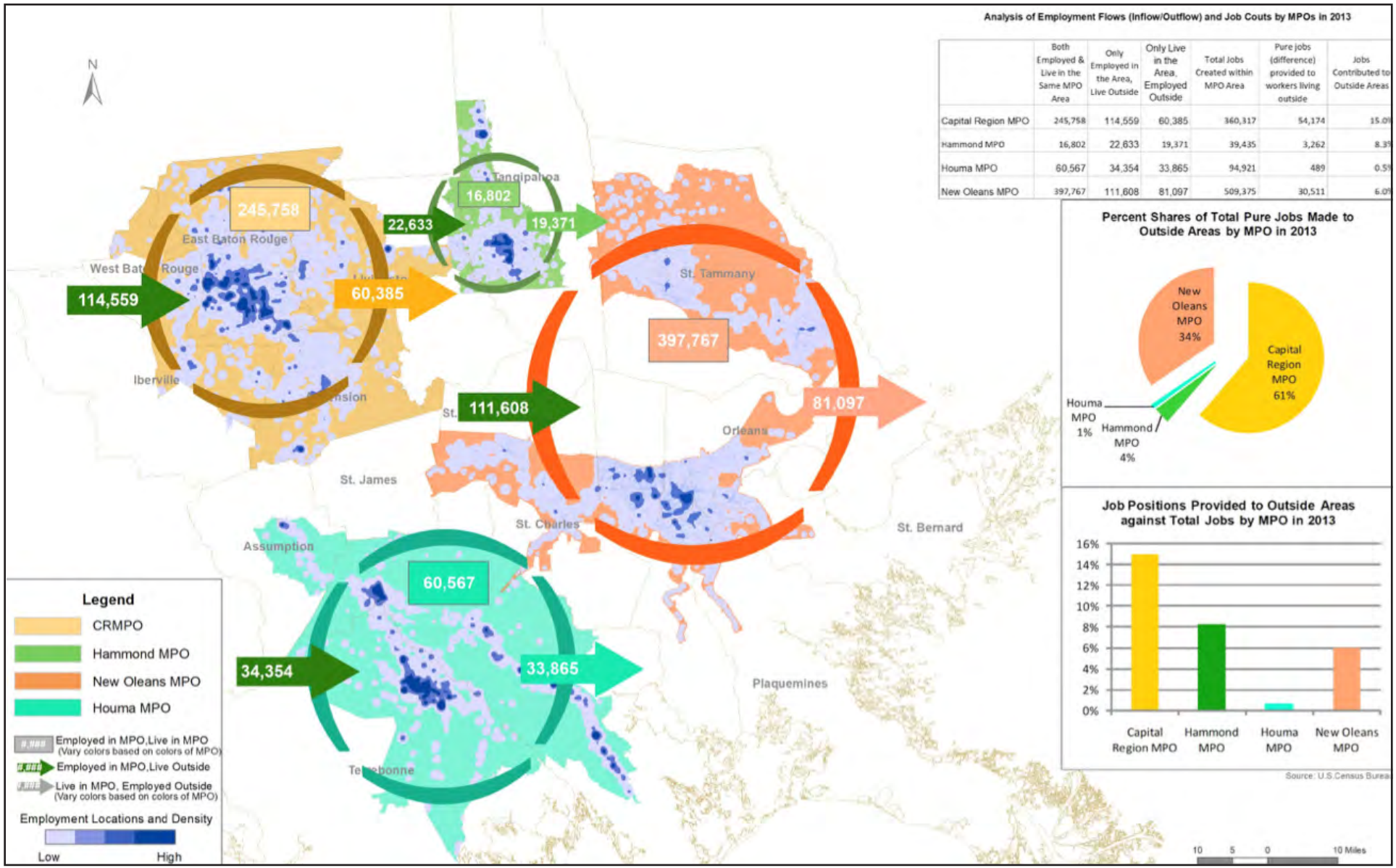


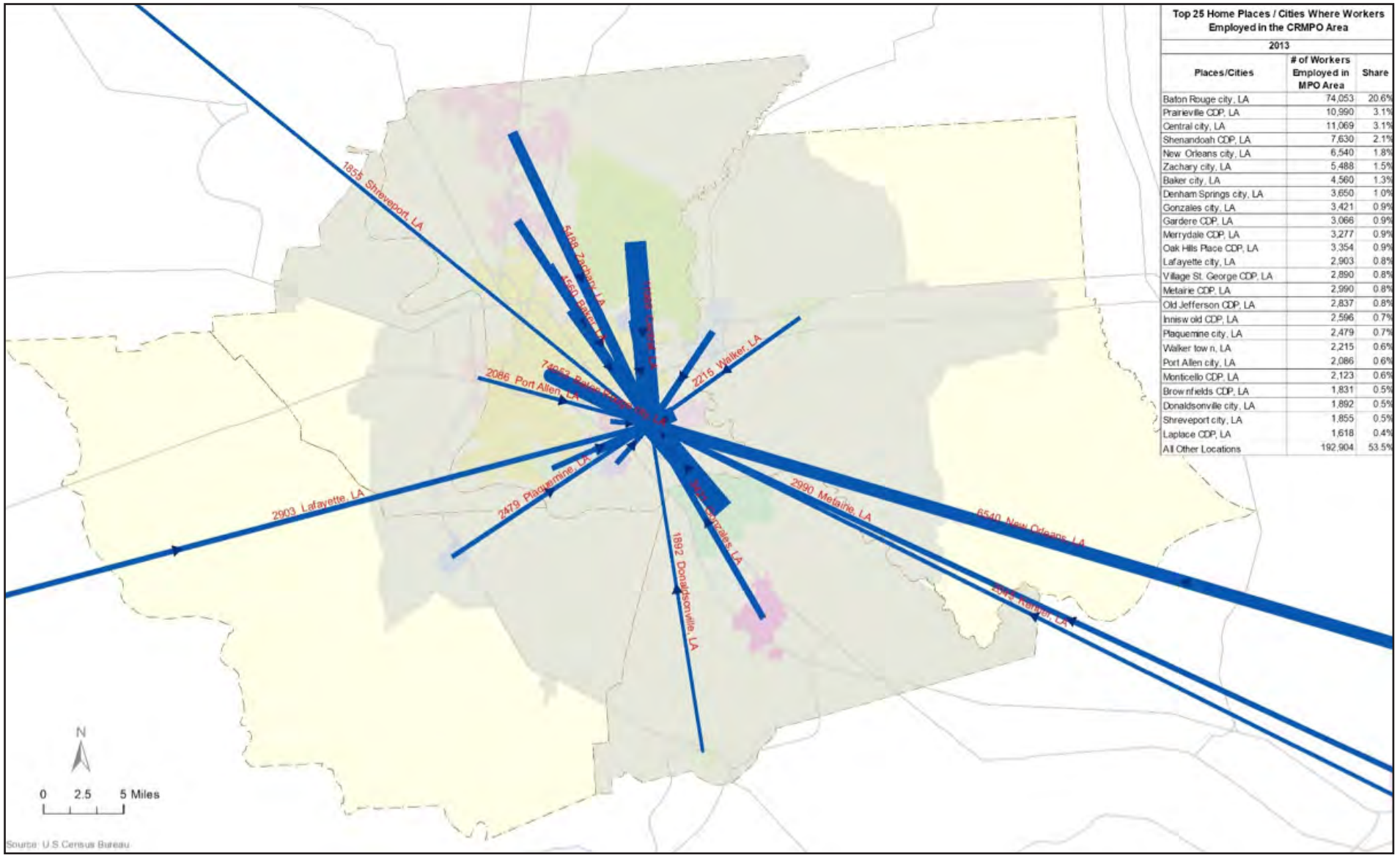
Figure 5-6: Job Flows and Counts Analysis by MPOs in South East Louisiana

A key indicator of regional economic integration is the commute patterns across the Super Region. These reflect the number of commuters who live in one region, but work in another. The data shows a 26% overall increase in cross-metro commuters between 2004 and 2014. With current lower oil prices and resulting reduced activity in the energy industry, current data does not indicate significant commuting between Baton Rouge and Houma-Thibodaux. However, as shown in the map of commute patterns, some limited traffic between the two areas does continue.

Leaders in the three metro regions have joined in the Southeast Super Region Committee to work on regional development plans, with emphasis on productivity, innovation, new business formation, and enhancing global competitiveness. Recommendations recognize the importance of transportation, and especially improved public transit services, to more efficiently move workers and students around the Super Region to support integrated development plans based on strengthening private/public education, and increasing workforce skills.

Commuting Between Baton Rouge and New Orleans

The Data Center of New Orleans found a 24.4% of growth in commuting from Baton Rouge to New Orleans from 2004 to 2010 and an additional 1.7% growth from 2010 to 2014. That puts nearly 30,000 vehicles on MPO region roads every day. While commuting from New Orleans to Baton Rouge dropped 10.1% from 2004 to 2010, it increased by 13.9% by 2014. Commute distances in general have been increasing. Twenty-one percent of workers drove 50 miles or more to work each day, in 2014.



Top 25 Home Places / Cities Where Workers Employed in the CRMPO Area

2013

Places/Cities	# of Workers Employed in MPO Area	Share
Baton Rouge city, LA	74,053	20.6%
Prairieville CDP, LA	10,990	3.1%
Central city, LA	11,069	3.1%
Shenandoah CDP, LA	7,630	2.1%
New Orleans city, LA	6,540	1.8%
Zachary city, LA	5,488	1.5%
Baker city, LA	4,560	1.3%
Denham Springs city, LA	3,650	1.0%
Gonzales city, LA	3,421	0.9%
Gardere CDP, LA	3,066	0.9%
Merrydale CDP, LA	3,277	0.9%
Oak Hills Place CDP, LA	3,354	0.9%
Lafayette city, LA	2,903	0.8%
Village St. George CDP, LA	2,890	0.8%
Metairie CDP, LA	2,990	0.8%
Old Jefferson CDP, LA	2,837	0.8%
Inniswold CDP, LA	2,596	0.7%
Plaquemine city, LA	2,479	0.7%
Walker town, LA	2,215	0.6%
Port Allen city, LA	2,086	0.6%
Monticello CDP, LA	2,123	0.6%
Brownfields CDP, LA	1,831	0.5%
Donaldsonville city, LA	1,892	0.5%
Shreveport city, LA	1,855	0.5%
Laplace CDP, LA	1,618	0.4%
All Other Locations	192,904	53.5%

Figure 5-7: Top 20 Home Locations Commuters Drive from to Work in Baton Rouge

5.8 | Housing and Transportation Affordability Index

The relationship between transportation and land use extends far beyond traffic congestion. As the cost of living in a city center rises, lower income individuals are often forced into lower density, less expensive suburbs, where the need to purchase and maintain an automobile adds significantly to a household's expenditures. Traditional affordability measures use a benchmark of no more than 30% of median household income expended for housing costs. With that formula, slightly more than half (55%) of U.S. neighborhoods can be considered affordable.

In the early 2000s, growing recognition that the traditional formula omits travel costs led the Center for Neighborhood Technology and the Brookings Institution to partner in developing the Housing + Transportation Affordability Index (H + T). Based on experience with a community-level pilot program in Minneapolis, the partners set a combined H + T affordability benchmark of 45% of median household income. Under this metric, only 26% of neighborhoods in the U.S. can be considered affordable.

The H + T reflects the close interaction of jobs, transportation, affordable housing, land use, and other regional social factors. Lack of affordable housing impacts the supply of low-cost labor, while also increasing demand on the transportation system. When affordable options are limited, many people try to find less expensive housing in outlying communities. The resulting longer commutes create higher transportation costs that wipe out any savings on housing, as workers travel longer distances between jobs and housing they can afford. In addition to work trips, dispersed development requires traveling longer distances to shop for groceries, to take children to and pick them up from school, and for other activities like medical appointments. This is especially challenging for households in rural areas that have no access to vehicles or whose vehicles are not consistently dependable.

Table 5-12: Regional H+T Data

	East Baton Rouge	West Baton Rouge	Livingston	Ascension	Iberville
Housing	**27%**	**26%**	**26%**	**29%**	**22%**
Transportation	24%	27%	27%	27%	28%
Average	51%	53%	54%	56%	50%
Range	32%-118%	41%-65%	43%-65%	40%-75%	38%-60%
Transport Costs	$12,491	$13,819	$14,100	$13,818	$14,446
Av. Household VMT	22,731	26,924	26,974	26,060	27,349
Autos/Household	1.77	1.88	1.95	1.93	2.01
Compact Neighborhoods	2.8	1.7	2.1	2.3	1.3
Loc. Efficient Neighborhoods	0%	0%	0%	0%	0%
Job Access	6.7 [High]	7.4 [High]	2.9 [Low]	4.8 [Moderate]	4.6 [Moderate]

Source: www.hatindex.cnt.org/

The H + T community affordability ratio is calculated based on neighborhood and household characteristics. At the neighborhood level these characteristics include:

- **Gross Population Density;**
- **Block Density;**
- **Transit Access;**
- **Regional Household Intensity ;**
- **Employment Mix;**
- **Transit Access to Jobs;**
- **Fraction of Single-Family Detached Households;**
- **Transit Connections;**
- **Average Available Transit Trips per Week.**

What is an affordable neighborhood? Such areas are described as compact, indicating higher-density development, with a mix of land uses located so that residents and workers are within walking distance of many destinations. With relative ease of access to jobs, services, transit and amenities, such areas tend to have lower transportation costs, which are calculated based on costs of auto ownership, auto usage and public transit usage. The dispersed development patterns that predominate in the CRPC MPO area tend to produce neighborhoods that are less compact and walkable and require automobiles for most trips to jobs, services, and amenities. This results in higher transportation costs.

The following chapters will build upon the established land use and employment patterns with the development of various growth scenarios. These scenarios were presented to the public and stakeholders throughout the process. And, ultimately were used in the development of the transportation model.

6 | Forecasting Growth and Future Travel Demand

Chapter 5 provided a snapshot of the current demographic, land use, and travel patterns in the CRPC MPO region. This chapter provides details on how the population and employment in the region could grow over the next 25 years and how this will affect the region's transportation network. Determining future transportation needs in the Baton Rouge MPO planning area requires accurately forecasting travel demand based on estimates of future population and employment. The objective of the transportation planning process is to provide the necessary information to support decision making regarding when and where transportation system improvements should be made to meet the forecasted travel demand. For this purpose, a travel demand model capable of testing various roadway improvements with various land use growth scenarios was developed.

6.1 | Generalized Travel Demand Forecast Process

This section summarizes the travel demand model development process. The detailed step- by- step process can be found in model development report with the MOVE 2042 appendices on CRPC website at http://crpcla.org/move2042/. The CRPC MPO travel demand model is based upon the conventional, trip-based four-step modeling approach. Broadly, the main components fall into the following four 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.
- **Modal Choice** - The process of estimating the number of trips using a particular mode for each TAZ pair. Because of the low frequency of transit, pedestrian, and bicycle trips in the modeling area, this step was not performed.
- **Trip Assignment** - The process of assigning auto and truck trips to specific highway facilities in the region.

The following trip purposes were used in developing the Capital Region MPO model. Table 6-1 summarizes daily study area trips by trip purpose.

Internal Trip Purposes (Trips that begin and end within the study area)

- Home-Based Work (HBW)
- Home-Based Other (HBO)
- Non- Home-Based Work (NHBW)
- Non- Home-Based Other (NHBO)
- Commercial Vehicle (CMVEH)
- Home-Based School (HBSCH)

External Trip Purposes (Trips that have at least one end of the trip outside the study area)

- External-Internal Auto Trips (EIAUTO)
- External-Internal Truck Trips (EITRK)
- External-External (Through) Auto Trips (EEAUTO)
- External-External (Through) Truck Trips (EETRK)

Model development included a truck trip purpose using the procedures outlined in "Quick Response Freight Manual II, U.S. Department of Transportation". The model also incorporates Multi-Modal Multi-Class Assignment (MMA) procedure, which allows analysis of truck only lanes.

Table 6-1: Daily Study Area Trips by Trip Purpose

Trip Purpose	Trips	Type
HBW	444,692	Person Trips
HBO	891,038	Person Trips
NHBW	214,590	Person Trips
NHBO	316,675	Person Trips
HBSCH	218,911	Vehicle Trips
CMVEH	147,251	Vehicle Trips
TRK	7,126	Vehicle Trips
Internal Trips Total	**2,240,283**	
EI AUTO	216,322	Vehicle Trips
EI TRUCK	49,058	Vehicle Trips
EE AUTO	9,945	Vehicle Trips
EE TRUCK	2,215	Vehicle Trips
External Trips Total	**277,540**	
Total Daily Trips	**2,517,823**	

A gravity model was used to distribute trips between Origin-Destination (O-D) pairs to develop a region wide O-D matrix to use in trip assignment. The traffic assignment models are used to estimate the traffic flows on a network. TransCAD's MMA, with User Equilibrium (UE) as the assignment type, and the Bureau of Public Roads (BPR) Volume-Delay function was used for the model. The MMA model is a generalized cost assignment that simultaneously assigns trips by individual modes or user classes to the network. Each mode or class can have different network exclusions, congestion impacts (passenger car equivalent values), values of time, and toll costs.

A travel demand model must be validated to ensure it is performing within the limits that define an acceptable range of deviation from observed "real-world" values. Validation of the Travel Demand Model was assessed first at the area-wide scale, then by roadway classification, and finally, by Average Daily Traffic (ADT) range. In the final stage of the validation process, the model's accuracy, with respect to specific routes and roadway groups was analyzed. At each level, an appropriate degree of accuracy was defined in terms of the maximum tolerable deviation from base-year vehicular volumes (i.e., estimated annual average daily traffic and Root Mean Square Error (RMSE)).

Overall, the cumulative model volume for all network links associated with LADOTD traffic count locations (9,735,767 vehicles) differed from total model estimated ADT (10,271,960 vehicles) by 5.5 percent compared to an allowable error limit of five percent. Model estimated volumes are slightly higher than the observed traffic counts on Interstate routes, while model volumes on all non-interstate routes match observed counts well below acceptable deviations. An analysis of historical traffic counts along Interstates indicated a high degree of fluctuation, and for this reason, the model estimated volumes on Interstates are considered to be valid.

Validation results by ADT group and by functional class are shown in Table 6-2 and Table 6-3 respectively. The base year (2015) link Volume/Capacity (VOC) maps are shown in Figure 6-1. The validation effort concluded that the Capital Region MPO study area travel demand forecasting model performs well within the established limits of acceptable deviation from base-year estimated volumes.

[1] PERSON TRIP - A person trip is a trip by one person in any mode of transportation. If more than one person is on the trip, each person is considered as making one-person trip. For example, four persons traveling together in one auto account for four-person trips.

[2] VEHICLE TRIP - Trips by a single vehicle regardless of the number of persons in the vehicle.

Table 6-2: Validation of Base-Year Model by ADT Group

ADT Range	Total Count[1]	Total Model Volume[2]	% Dev Limit[3]	% Dev	% RMSE Limit4	% RMSE
ADT < 5000	288,840	277,295	+/- 50.0	-4.0	100.0	70.1
5,000<= ADT < 10,000	605,406	647,634	+/- 25.0	7.0	45.0	46.9
10,000<= ADT < 15,000	760,447	772,327	+/- 20.0	1.6	35.0	31.4
15,000<= ADT < 20,000	819,243	833,224	+/- 20.0	1.7	30.0	24.0
20,000<= ADT < 30,000	1,846,921	1,951,064	+/- 15.0	5.6	27.0	25.6
30,000 <= ADT <40,000	619,813	726,762	+/- 15.0	17.3	25.0	34.1
ADT >= 40,000	4,795,097	5,063,655	+/- 15.0	5.6	25.0	16.1
Total	9,735,767	10,271,960	+/- 5.0	5.5	40.0	27.7

Table 6-3: Validation of Base-Year Model by Roadway Functional Class

Functional Class	Total Count[1]	Total Model Volume[2]	% Dev Limit[3]	% Dev
INTERSTATES	4,030,418	4,216,372	+/- 7.0	4.6
PRINCIPAL ARTERIALS	4,060,059	4,460,538	+/- 15.0	9.6
MINOR ARTERIALS	1,084,557	1,126,542	+/- 15.0	3.9
COLLECTORS/LOCAL	551,733	468,508	+/- 25.0	-15.1
Total	9,735,767	10,271,960	+/- 5.0	5.5

(1) Total Count represents the sum of average daily traffic estimates for all LADOTD count locations (area wide), all count locations on principal arterials, all locations on minor arterials, and all on major/minor collectors.

(2) Total Model Volume is the sum of model-generated traffic volumes for all network links associated with LADOTD count locations (area wide), all links associated with count locations on principal arterials, all links associated with locations on minor arterials, and all links associated with count locations on collectors.

(3) % Dev Limit is the maximum acceptable plus/minus percentage deviation from estimated base-year (2010) average daily traffic (ADT) based on counts conducted by LADOTD.

(4) % RMSE Limit is the maximum acceptable magnitude of the error relative to that of the counts conducted by the LADOTD.

6.2 | Forecasting Population and Employment Growth

Projections of demographic variables are required to create a travel demand model that can adequately forecast future traffic and transportation needs. This section explains the methodology used to develop the control totals for both population and employment that were used in the Metropolitan Transportation Plan's (MTP) travel demand model to forecast future traffic within the study area. These control totals were developed using various population and employment forecast sources, input from the stakeholder groups, and historical trends observed within the study area.

Control Totals

The data sources that to determine the population and employment control totals for MOVE 2042 are listed below:

- The Baton Rouge MTP 2037;
- 2015 Louisiana Statewide Transportation Plan Update;
- Woods and Poole (https://www.woodsandpoole.com/);
- A stepdown of national projections from the Bureau of Economic Analysis;
- Analysis of long-term (1990-2015) and post-recession (2010-2015) trends using the data from the Census Bureau.

Further data was obtained from the stakeholder meetings, one held in each parishes of the study area. At each meeting the stakeholders reviewed source data, provided feedback and made recommendations regarding anticipated future growth in their respective parishes.

The datasets listed above were used to develop initial alternate estimates of control totals to be used in the MOVE 2042 MTP. Stakeholders were presented with these alternatives and asked to select their preferred alternative or provide their own estimate using instant polling. Tables 6-4 and 6-5 display the population and employment control total alternatives presented at stakeholder meetings, using Ascension Parish as an example. Figures 6-4 and 6-5 show the raw instant poll responses by stakeholders in the Parish. Similar data was presented and collected at all the other Parish stakeholder meetings.

Table 6-4: Ascension Parish Population Control Total Alternatives

Ascension	Population					Poll No.
	2015	2042	Abs. Change	% Change	Annual GR	
2037 Plan	126,087	235,352	109,266	87%	2.3%	A
LADOTD Statewide Plan (2015)	118,955	208,487	89,532	75%	2.1%	B
Woods and Poole (2016)	119,470	204,615	85,145	71%	2.0%	C
National Projection Stepdown (2014/15)	119,455	182,106	62,651	52%	1.6%	D
Long-Term Trend (1990-2015)	122,437	250,761	128,324	105%	2.7%	E
Post-Recession Trend (2010-2015)	119,455	207,456	88,001	74%	2.1%	F

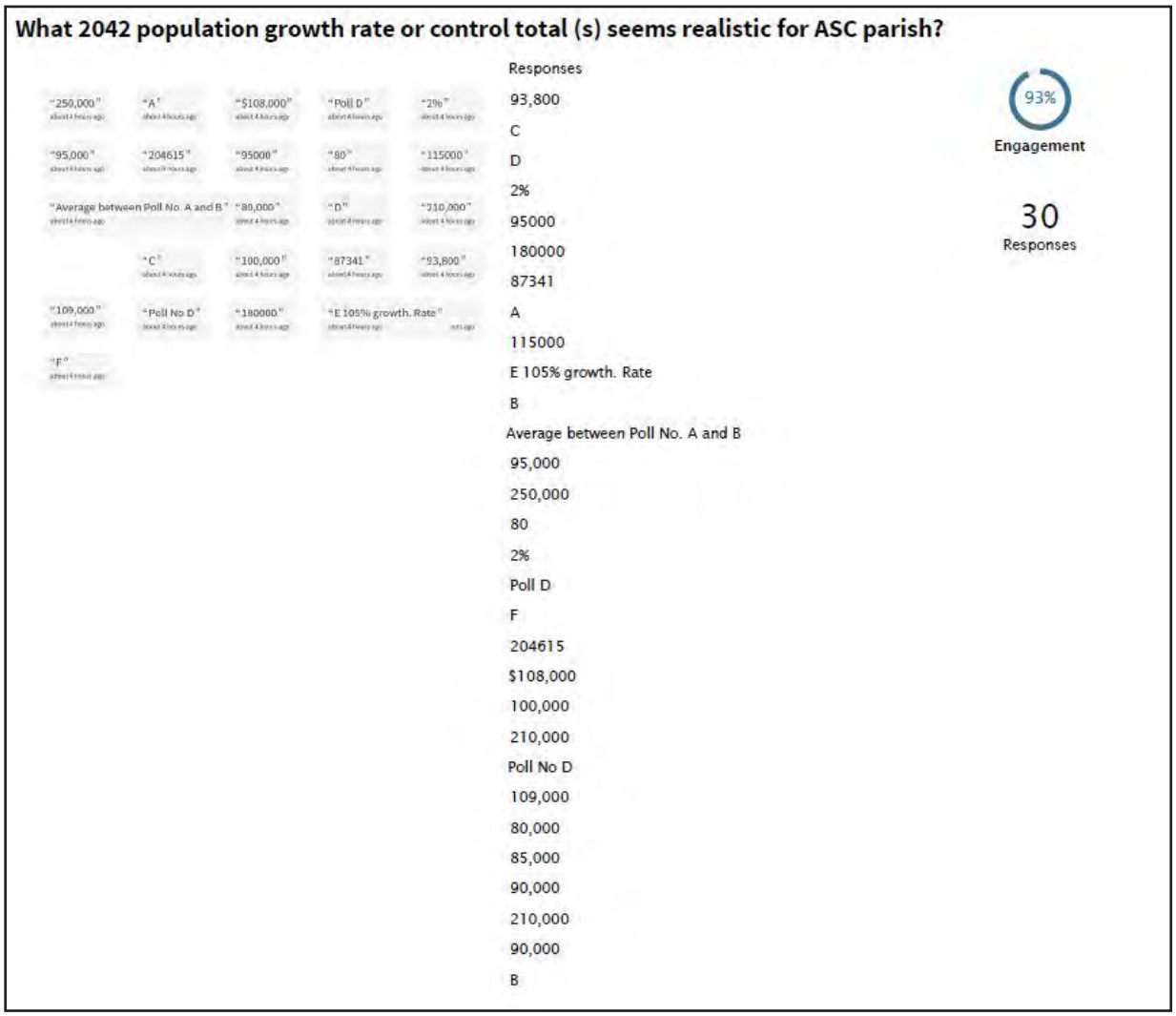


Figure 6-1: Population Growth Instant Poll Responses Stakeholders in Ascension Parish

Table 6-5: Ascension Parish Employment Control Total Alternatives

Ascension	Employment					Poll No.
	2015	2042	Abs. Change	% Change	Annual GR	
2037 Plan	92,331	180,820	88,489	96%	2.5%	A
Woods and Poole (2016)	92,800	168,379	75,579	81%	2.2%	B
Long-Term Trend (1990-2015)	93,143	210,032	116,889	125%	3.1%	C
Post-Recession Trend (2010-2015)	94,086	278,441	184,356	196%	4.1%	D

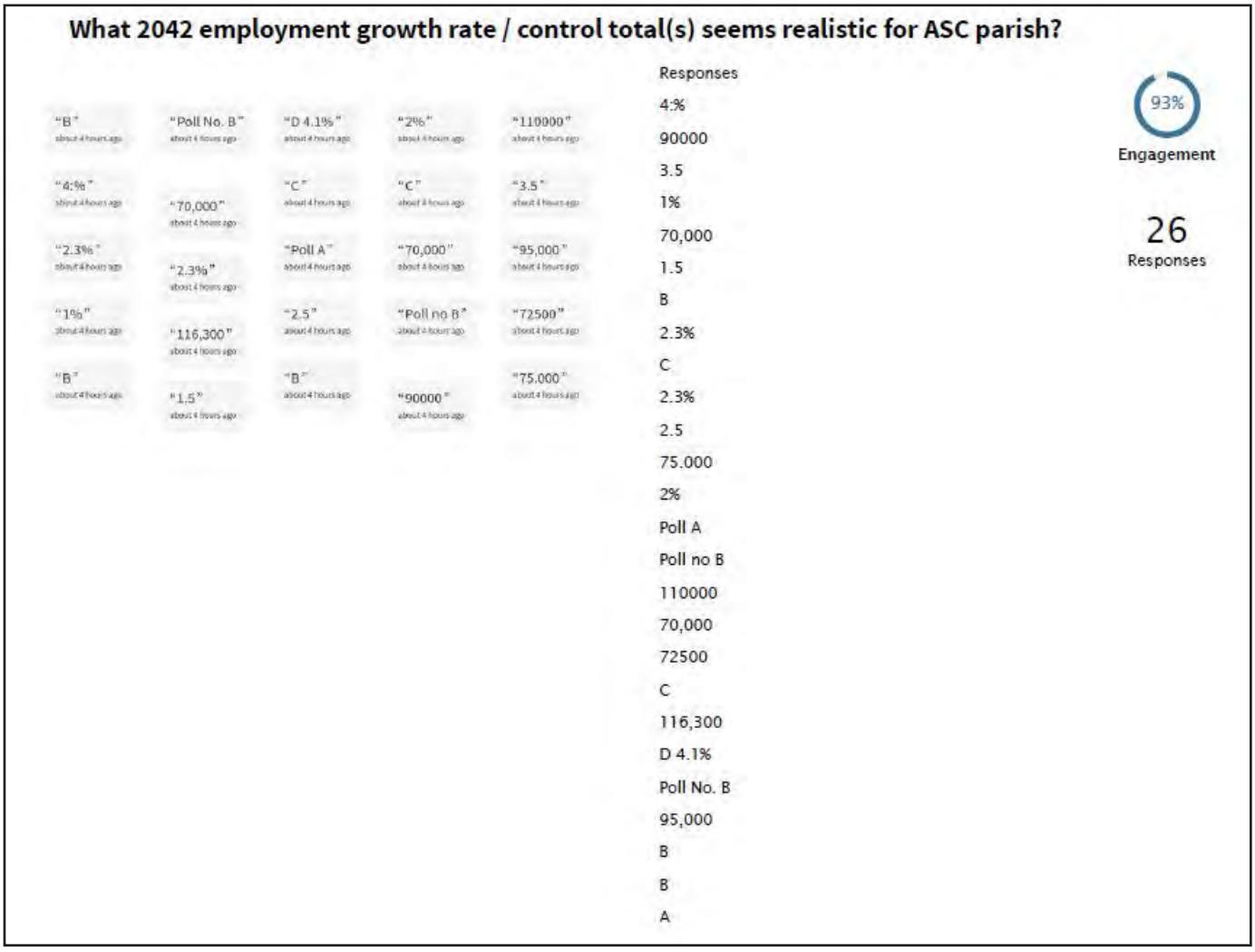


Figure 6-2: Employment Growth Instant Poll Responses Stakeholders in Ascension Parish

The responses were analyzed and erroneous inputs were removed. The analysis revealed that the responses included annual growth rates, total growth or simply the change in growth between 2015 and 2042. All responses were converted to show change in population and employment between 2015 and 2042.

After the initial analysis, the mean, median, mode, maximum, and minimum of the responses were calculated. The mode, maximum, and minimum were used to find and remove any anomalous data or outliers which would affect the results of control total development. It was determined that the mean and median values obtained would best represent the expected growth, as it would ensure all stakeholders who responded were considered. Using these values also reduced risk of assigning too much weight to one particular individual or stakeholder groups' response.

Tables 6-6 shows the analysis of the population and employment projections based on instant poll responses received during the Ascension Parish stakeholder meeting. All the recommended population and employment growth projections are highlighted in yellow. Using the parish level 2015 values for population and employment and adding the growth from the previous steps, a 2042 control total for each parish was determined. A compound annual growth rate was calculated using these 2042 control totals.

Table 6-6: Ascension Parish Population Growth Instant Poll Response Analysis

	Population		Employment	
	Avg Change	Avg Annual GR	Avg Change	Avg Annual GR
	99,057	2.23%	91,407	2.50%
	Median Change	Median Annual GR	Median Change	Median Annual GR
	89,766	**2.10%**	**78,917**	**2.30%**
Stakeholder Summary	Mode Change	Mode Annual GR	Mode Change	Mode Annual GR
	85,145	2.00%	75,579	2.20%
	Min Change	Min Annual GR	Min Change	Min Annual GR
	62,615	1.60%	28,691	1.00%
	Max Change	Max Annual GR	Max Change	Max Annual GR
	210,000	3.80%	184,356	4.10%
2037 Plan	109,266	2.30%	88,489	2.50%
LADOTD Statewide Plan (2015)	89,532	2.10%	N/A	N/A
Woods and Poole (2016)	85,145	2.00%	75,579	2.20%
National Projection Stepdown (2014/15)	62,651	1.60%	N/A	N/A
Long-Term Trend (1990-2015)	128,324	2.70%	116,889	3.10%
Post Recession Trend (2010-2015)	88,001	2.10%	184,356	4.10%
Average	93,820	2.13%	116,328	2.98%

To obtain additional feedback, the analysis results and recommendations were presented to the public and stakeholders at the regular MPO Technical Advisory Committee (TAC), Transportation Policy Committee (TPC), and at the second round of public meetings. The comments from stakeholders and public were utilized to further refine the parish level control total projections.

Figure 6-6 shows the study/planning area boundary for the Capital Region MPO. The area consists of the entire parishes of Ascension and East Baton Rouge, and only the urbanized portions of Iberville, Livingston, and West Baton Rouge Parishes. To use the future growth projections determined in the previous steps to update the travel demand model, the parish level population and employment control totals were brought to the study area level. Study area population and employment projections for the MPO portions of each parish were estimated by applying the Census 2010 ratio of the study area population and employment with corresponding parish level data.

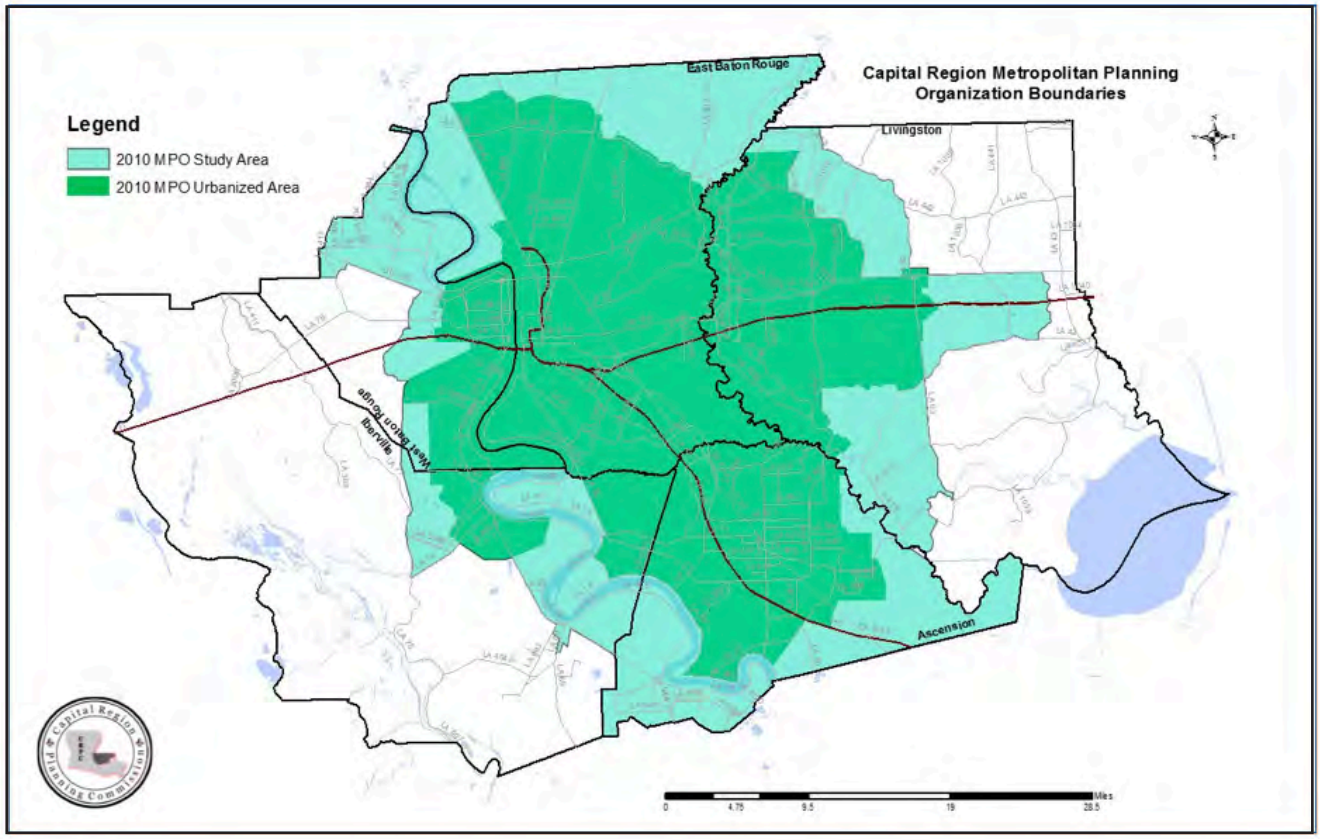


Figure 6-3: Capital Region MPO Study/Planning Area

Figure 6-7 provides an illustration of projected population growth in the Capital Region MPA by 2042. Table 6-7 shows the same data in tabular format. Population in the Capital Region MPA is expected to grow by 36% from 2015 and 2042. This amounts to an annual compound growth rate of 1.21. The total population in 2042 is projected to cross the one million mark, which will catapult the Capital Region into the large metro category. In 2042, the Baton Rouge urbanized area will be comparable in size to Austin, TX, Memphis, TN, Charlotte, NC and Jacksonville, FL today.

Table 6-7: Capital Region MPA Projected Population Growth (2015 – 2042)

Parish	POP 2015	POP 2042	POP Growth	Annual GR	MPO Share 2015	MPO Share 2042
Ascension	115,537	203,051	87,514	2.19	15.7%	20.2%
East Baton Rouge	459,334	530,980	71,646	0.56	62.5%	52.8%
Iberville (Partial)	25,455	30,100	4,645	0.65	3.5%	3.0%
Livingston (Partial)	109,398	202,083	92,685	2.39	14.9%	20.1%
West Baton Rouge (Partial)	24,983	38483	13,500	1.68	3.4%	3.8%
	734,707	**1,004,697**	**269,990**	**1.21**	**100%**	**100%**

Ascension and Livingston Parishes are expected to continue to experience growth rates they had between 2000 and 2010 and are projected to almost double in population by 2042. East Baton Rouge (EBR) Parish will still hold a major share of MPO's population, though its share of regional population is expected to drop by 10 percentage points. Figure 6-8 provides an illustration of projected employment growth in the Capital Region MPA by 2042. Table 6-8 shows the same data in tabular format.

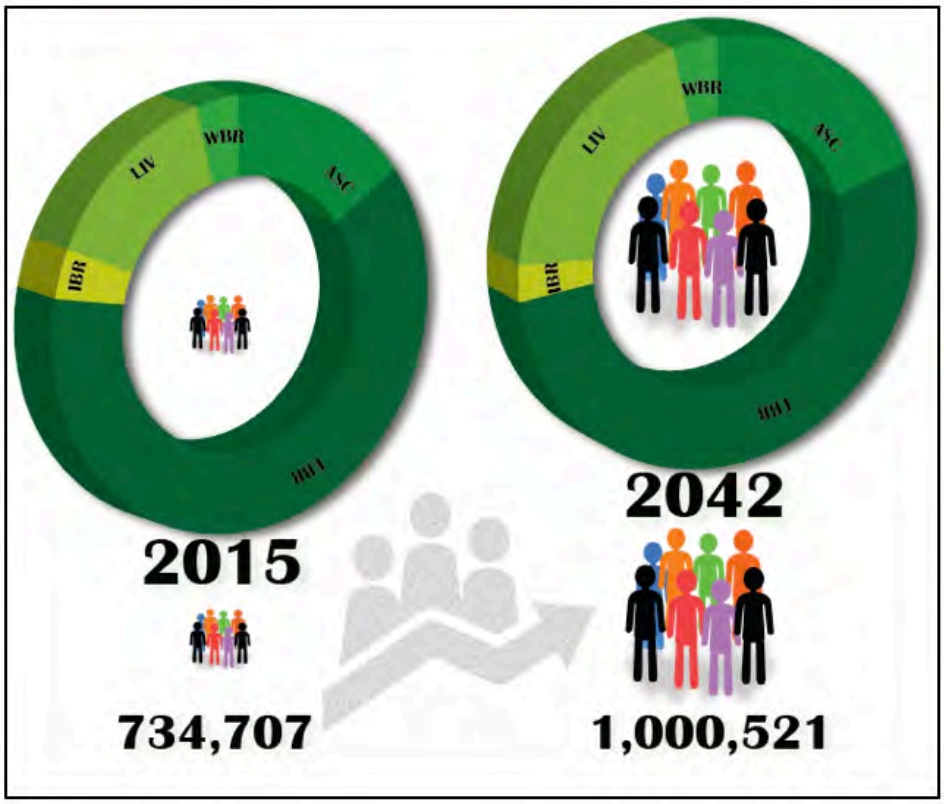


Figure 6-4: Capital Region MPA Projected Population Growth (2015 – 2042)

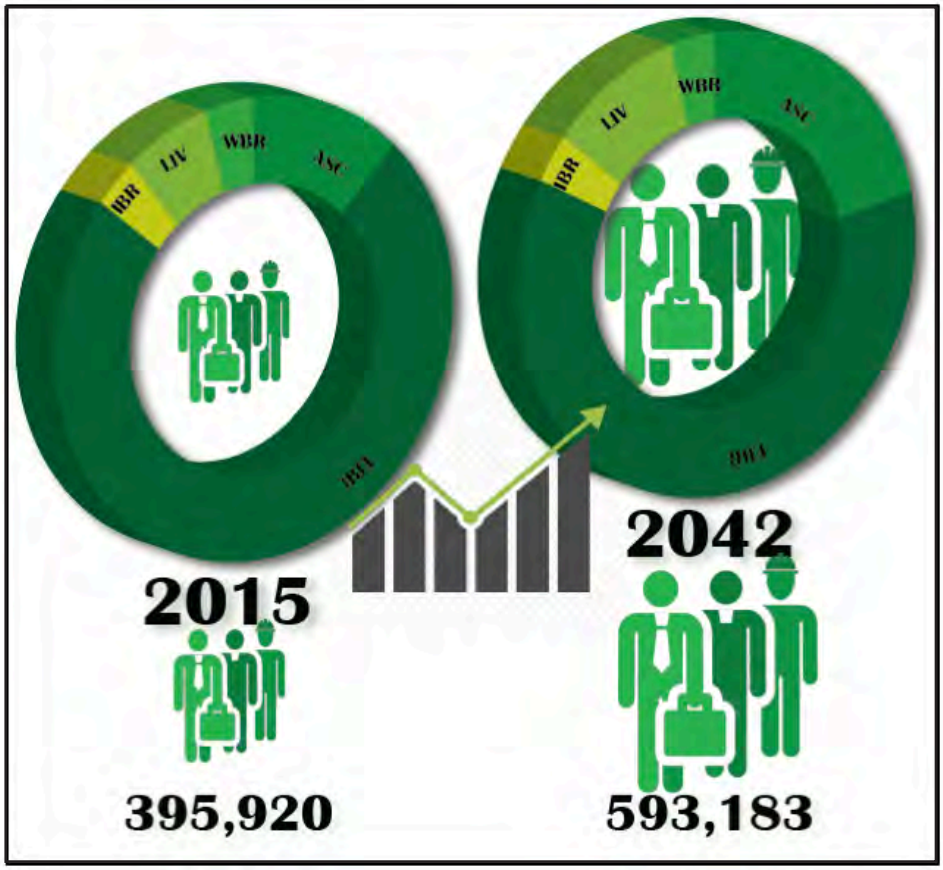


Figure 6-5: Capital Region MPA Projected Employment Growth (2015 – 2042)

As illustrated in Figure 6-8, employment in the Capital Region is projected to increase by approximately 50% over the next 25 years. Regional employment overall is expected to experience a compound annual growth rate of 1.57. Ascension Parish is projected to continue rapid employment growth, with a compound annual growth rate of 3.77. Its share of MPO employment contribution is projected to increase by 10 percentage points. East Baton Rouge Parish is projected to add an additional 70,000 jobs by 2042

Table 6-8: Capital Region MPA Projected Employment Growth (2015 – 2042)

Parish	EMP 2015	EMP 2042	Emp Growth	Annual GR	MPO Share 2015	MPO Share 2042
Ascension	50,048	131,094	81,046	3.77	12.6%	22.1%
East Baton Rouge	291,766	360,639	68,873	0.82	73.7%	60.8%
Iberville (Partial)	13,270	19,774	6,504	1.55	3.4%	3.3%
Livingston (Partial)	26,447	60,655	34,208	3.24	6.7%	10.2%
West Baton Rouge (Partial)	14,389	20,941	6,552	1.45	3.6%	3.5%
	395,920	**593,103**	**197,183**	**1.57**	**100%**	**100%**

Scenario Planning and Preferred Growth Scenario

Once the population and employment control totals for 2042 were established, the next step was to realistically allocate this growth spatially. As described in Chapter 2, scenario planning was used to determine where the growth will occur.

The Alternate Scenario Development process focused on creating three land use development alternatives based on different types of growth the Capital Region MPA could experience. The scenarios developed are:

- Urban - A focus on growth in the urban core, infill development, and maintaining the existing infrastructure;
- Suburban - A focus on low density growth that expands far from the city center, currently the historical trend for the Baton Rouge region;
- Balanced - A scenario that focuses on both urban and suburban development.

Each of these scenarios used different weighting factors that define each of the specific growth types. These include proximity to utilities, ease of land assembly, affordability of home ownership, flood zones, etc. The weighting factors were used to develop suitability scores, which reflect the likelihood of growth in each of the given scenarios.

The three scenarios were presented at all first round MOVE 2042 stakeholder and public meetings. Participants were surveyed regarding the most preferred/possible scenario likely to occur in the Capital Region. The “Balanced” growth scenario was the most preferred option by the majority of stakeholders and the general public.

Growth Allocation and Timing

The 2042 population and employment controls totals established above were broken down into smaller areas based on a grid system, known as Attractiveness Grid. Smaller grids (10 acres) were used in the urbanized area and larger grids (40 acres) in the rural areas using the “Balanced” growth scenario.

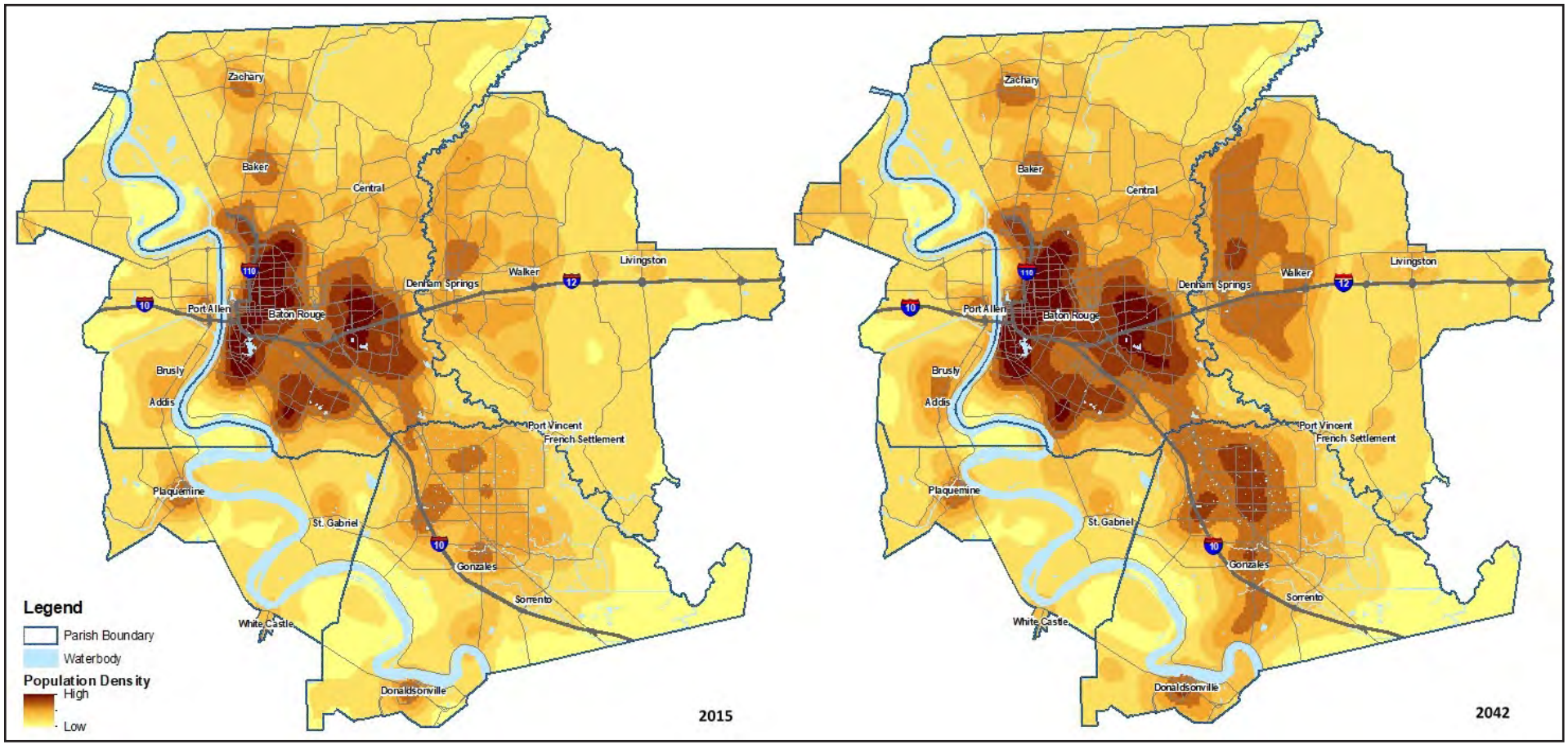


Figure 6-6: Capital Region MPO Population Density (2015 to 2042)

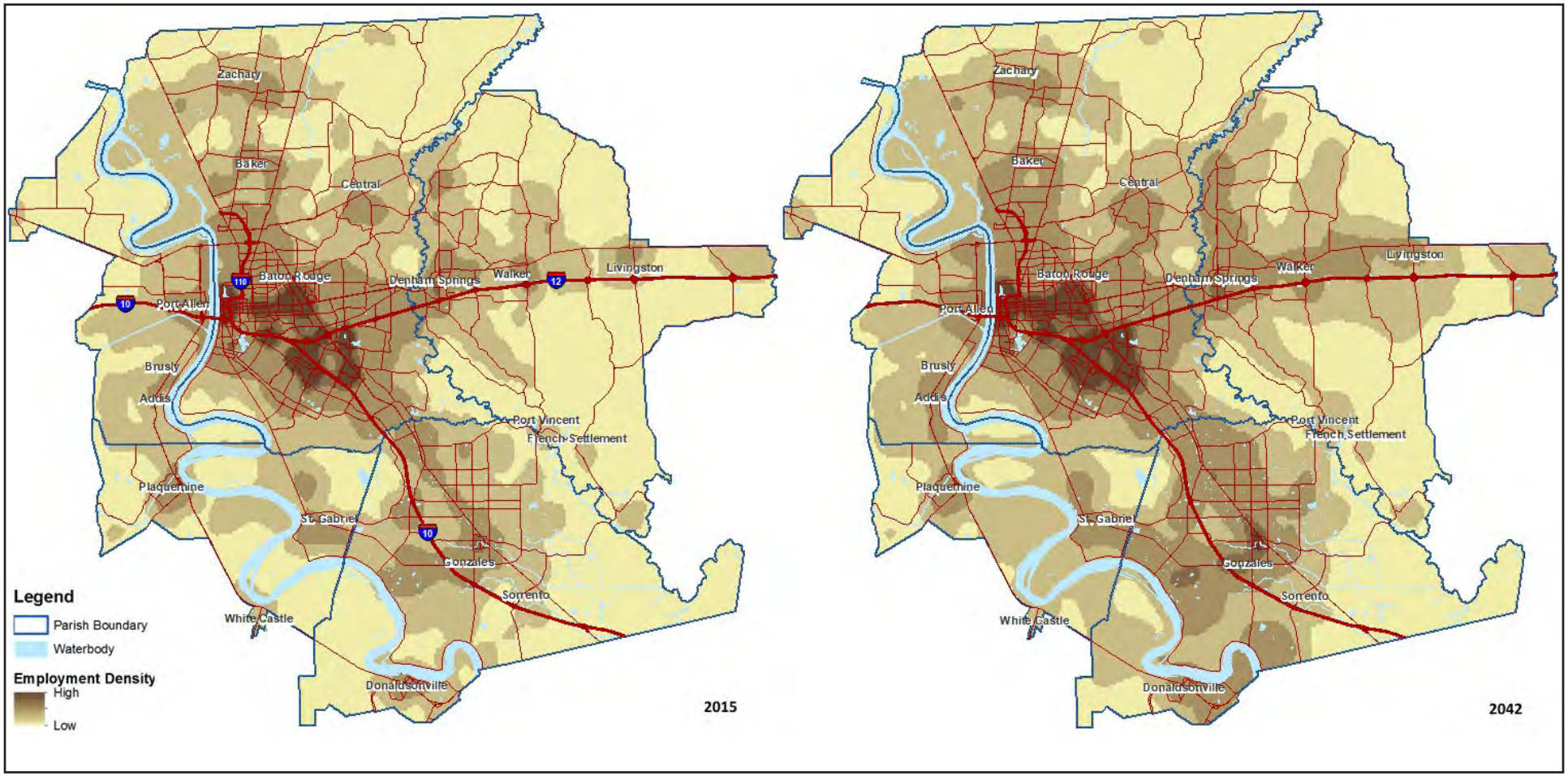


Figure 6-7: Capital Region MPO Employment Density (2015 to 2042)

The grid level data was then aggregated in to Traffic Analysis Zones (TAZ). Local comprehensive plans and stakeholder input were used to fine tune the theoretical spatial distribution and to determine the timing of the change in demographic data for the interim years of 2022 and 2032. Each TAZ was allocated to one of five time periods shown in Table 6-9.

Table 6-9: Interim Year TAZ Growth Percentages

	% of Total Growth (2015 – 2042)		
Time Period	**2015-2022**	**2023-2032**	**2033-2042**
Early	80%	10%	10%
Early/Middle	50%	40%	10%
Middle/Late	10%	40%	50%
Late	10%	10%	80%
Steady	25%	35%	40%
Average	30%	38%	32%

Table 6-10: Study Area Population Forecast Data by Year

Description	2015	2022	2032	2042
Total Population in Study Area	734,707	813,247	906,918	1,004,697
Household Population in Study Area	714,254	790,398	884,069	981,848
Non-LSU School Enrollment	158,867	180,986	199,340	219,259
Total Group Quarters Population in Study Area	20,453	22,849	22,849	22,849
Dorm Group Quarters Population in Study Area	8,142	10,538	22,849	10,538
Occupied Dwelling Units	275,364	304,223	339,496	375,976
Households with 1-person	64,788	70,796	77,908	85,179
Households with 2-persons	86,118	94,958	105,791	116,945
Households with 3-persons	51,445	56,958	63,842	70,995
Households with 4-or-more persons	73,014	81,510	91,955	102,857
Households with 0-workers	40,728	44,875	49,980	55,324
Households with 1-worker	110,409	121,461	134,793	148,335
Households with 2-or-more workers	124,227	137,886	154,724	172,317
Households with 0-cars	19,592	21,479	23,663	25,938
Households with 1-car	95,971	105,534	117,021	128,580
Households with 2-cars	116,591	129,254	144,993	161,380
Households with 3-or-more cars	43,210	47,956	53,818	60,079
Households with 1-person and 0-school age* person	64,642	70,637	77,734	84,992
Households with 1-person and 1-school age* person				
Households with 2-persons and 0-school age* person	78,047	86,089	95,943	106,083
Households with 2-persons and 1-school age* person	8,011	8,807	9,782	10,794
Households with 2-persons and 2-school age* persons				
Households with 3-persons and 0-school age* person	27,025	29,856	33,385	37,048
Households with 3-persons and 1-school age* person	19,176	21,346	24,062	26,875

Table 6-10: Study Area Population Forecast Data by Year continued

Description	2015	2022	2032	2042
Households with 3-persons and 2-school age* persons	5,245	5,757	6,396	7,073
Households with 3-persons and 3-school age* persons				
Households with 4-or-more persons and 0-school age* person	11,807	13,167	14,847	16,638
Households with 4-or-more persons and 1-school age* person	19,520	21,694	24,357	27,138
Households with 4-or-more persons and 2-school age* persons	26,876	30,113	34,096	38,233
Households with 4-or-more persons and 3-school age* persons	14,867	16,595	18,718	20,912
Households with 0-worker and 0-vehicle	7,447	8,153	8,986	9,873
Households with 0-worker and 1-vehicle	20,563	22,651	25,223	27,877
Households with 0-worker and 2-vehicles	10,480	11,627	13,070	14,599
Households with 0-worker and 3 or more-vehicles	2,223	2,428	2,682	2,954
Households with 1-worker and 0-vehicle	8,689	9,519	10,466	11,433
Households with 1-worker and 1-vehicle	59,146	37,794	71,582	78,226
Households with 1-worker and 2-vehicles	34,212	64,837	42,254	46,923
Households with 1-worker and 3 or more-vehicles	8,331	9,279	10,454	11,712
Households with 2-workers and 0-vehicle	3,455	3,807	4,211	4,631
Households with 2-workers and 1-vehicle	16,261	18,046	20,216	22,476
Households with 2-workers and 2-vehicles	71,898	79,833	89,669	99,857
Households with 2-workers and 3 or more-vehicles	32,657	36,250	40,682	45,413

*School age persons are persons between and including 5 and 17 years of age.

Table 6-11: Study Area Employment Forecast Data by Year

Description	2015	2022	2032	2042
Total Employment	395,920	446,078	515,938	593,103
CBD Retail Employment	80,983	91,387	105,573	120,900
Agriculture, Mining and Construction Employment	26,645	31,351	37,436	44,123
Manufacturing, Transportation/Communications/ Utilities and Wholesale Trade Employment	55,335	67,349	84,915	104,834
Government, Office and Services Employment	231,558	254,148	285,593	319,589

6.3 | Future Travel Demand

Projections detailed in section 6-2 shoe growth of 36% and 50% for population and employment respectively from 2015 to 2042. This will significantly increase the vehicle miles traveled and worsen traffic conditions on roadways. A well calibrated and validated Travel Demand Model, described in section 6.1, will help predict the future travel demand and identify network deficiencies. This can be achieved by assigning future year trips to the Existing Plus Committed (E+C) roadway network.

Table 6-12: Move 2042 - Existing Plus Committed (E+C) Projects

S.No	Parish	Project Name	Project Desc	Project Location
1	EBR	I-12	New WB On Ramp	Millerville Rd
2	EBR	Jones Creek Rd	Widen to 5 Lanes	Tigerbend Rd to Coursey Blvd
3	EBR	LA 3064 (Essen Ln)	Widen to 6 Lanes	Perkins Rd to Essen Park Ave.
4	EBR	O'Neal Ln	Widen to 4 Lanes	S. Harrell's Ferry Rd - George O'Neal Rd
5	ASC	LA 42	Widen to 4 Lanes	US 61 to LA 44
6	EBR	Sullivan Rd	Widen to 4 Lanes	Wax Rd - Hooper Rd (Central Woods to Hooper Rd)
7	EBR	Antioch Extension	New 4 Lane Extension	Old Jefferson Hwy - Airline Hwy
8	EBR	Dijon Extension	New 2 Lane Road and local connectors	Essen Ln - Midway
9	ASC	Edenborne Pkwy	New 2 Lane Road	Emerson Pkwy - St. Landry
10	ASC	Edenborne Pkwy	New 2 Lane Road	Ashland Rd - St. Landry
11	ASC	St. Landry	Reconstruct 2 Lanes	LA 30 to Edenbourne Pkwy
12	ASC	I-10	Widen to 6 Lanes	Highland Rd to LA 73
13	EBR	LA 73	Reduce 4 Lane undivided to 3 Lane	East Blvd - Lobdell Ave
14	LIV	I-12	Widen to 6 Lanes	.5 mi W Satsuma - Satsuma Ramp
15	EBR	Glen Oaks Dr	Reconstruction Center Turn Lane	Plank Rd to McClelland Dr
16	EBR	N Sherwood Forest Blvd	Widen to 5 Lanes	Choctaw Dr to Greenwell Springs Rd
17	EBR	Pecue Ln	Widen to 4 Lanes	Perkins Rd to Airline Hwy
18	EBR	Pecue Ln	New Interchange	I-10
19	EBR	Picardy-Perkins Rd connector	New 4 Lane roadway	Perkins Rd to Picardy Ave
20	EBR	I-110	Improve Safety on I-10 Near I-10/I-110 Interchange	Terrace Ave
21	LIV	Cook Rd	New 4 Lane Roadway	Pete's Hwy to Juban Rd
22	EBR	Staring Ln/Gardere Ln	New 4 Lane/ Widen to 4 Lanes	Burbank Dr to Nicholson Dr
23	LIV	LA 1026 (Juban Rd)	Widen to 5 Lanes	I-12 to Florida Ave

Existing and Committed projects are improvements for which: construction has been completed or begun since the base year (2015), a contract for construction has been awarded, or funding has been dedicated (through Legislative approval of the Proposed Construction Program, for example). The committed projects for the Baton Rouge MPO study area are listed in Table 6-12 and shown in Figure 6-12.

6.4 | Travel Demand Model Outputs

Following the E+C network development, study area traffic volumes and volume-over-capacity (VOC) ratios for the years 2015 and 2042 were developed for all network links using the travel demand model and forecast planning data. It is recommended that those facilities which show a projected VOC ratio of greater than 1.0 (indicates demand exceeds the capacity of the roadway); or, in terms of Level of Service (LOS), any facilities which have a LOS of E and higher, be considered deficient. Table 6-13 and Figure 8-11, shows the degree in which the Capital Regions' road network performance deteriorates between 2015 and 2042 if no new projects are implemented. The regional travel demand model predicts that in 2042 commuters in the Captial Region will experience three times the delay they do today.

Table 6-13: Capital Region Roadway Network Performance (2015 to 2042)

Network Performance	2015	2042	Growth	Percent Increase
Daily Vehicle Miles Traveled (VMT)	21,825,739	33,812,260	11,986,522	54.9%
Daily Vehicle Hours Traveled (VHT)	593,541	1,073,875	480,334	80.9%
Daily Vehicle Hours of Delay (VHD)	113,846	325,375	211,529	185.8%

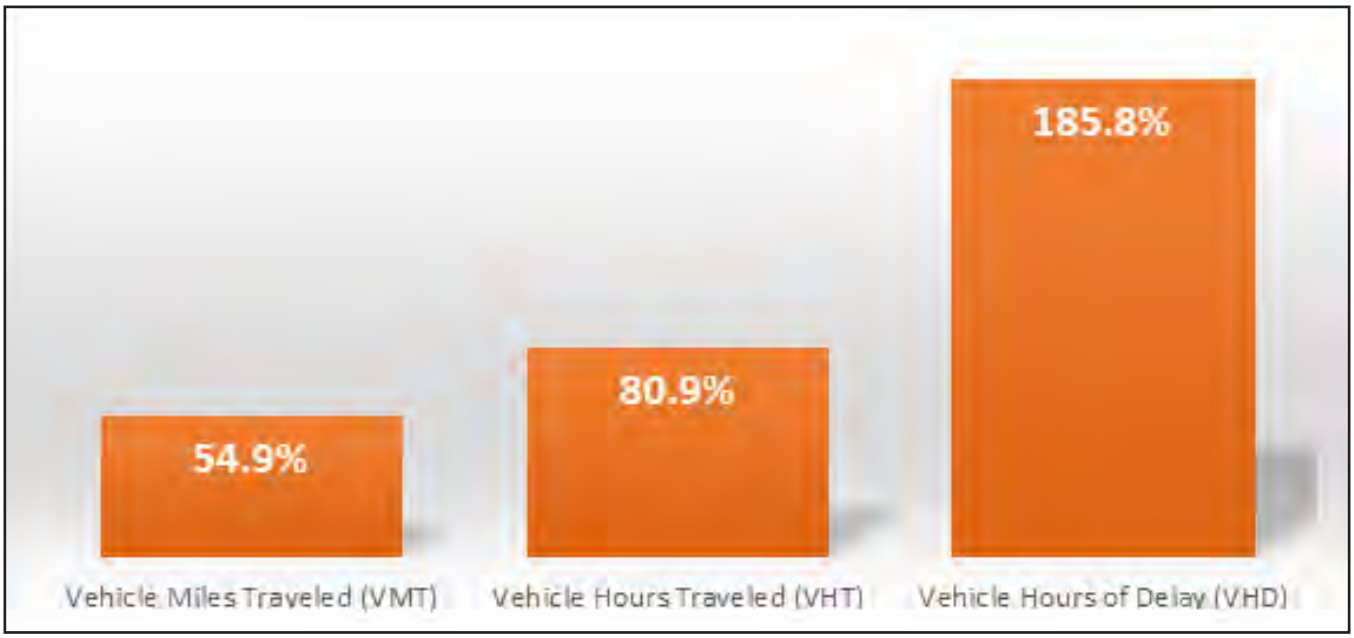


Figure 6-8: Capital Region's Roadway Netowrk Performance Deterioration (2015 to 2042)

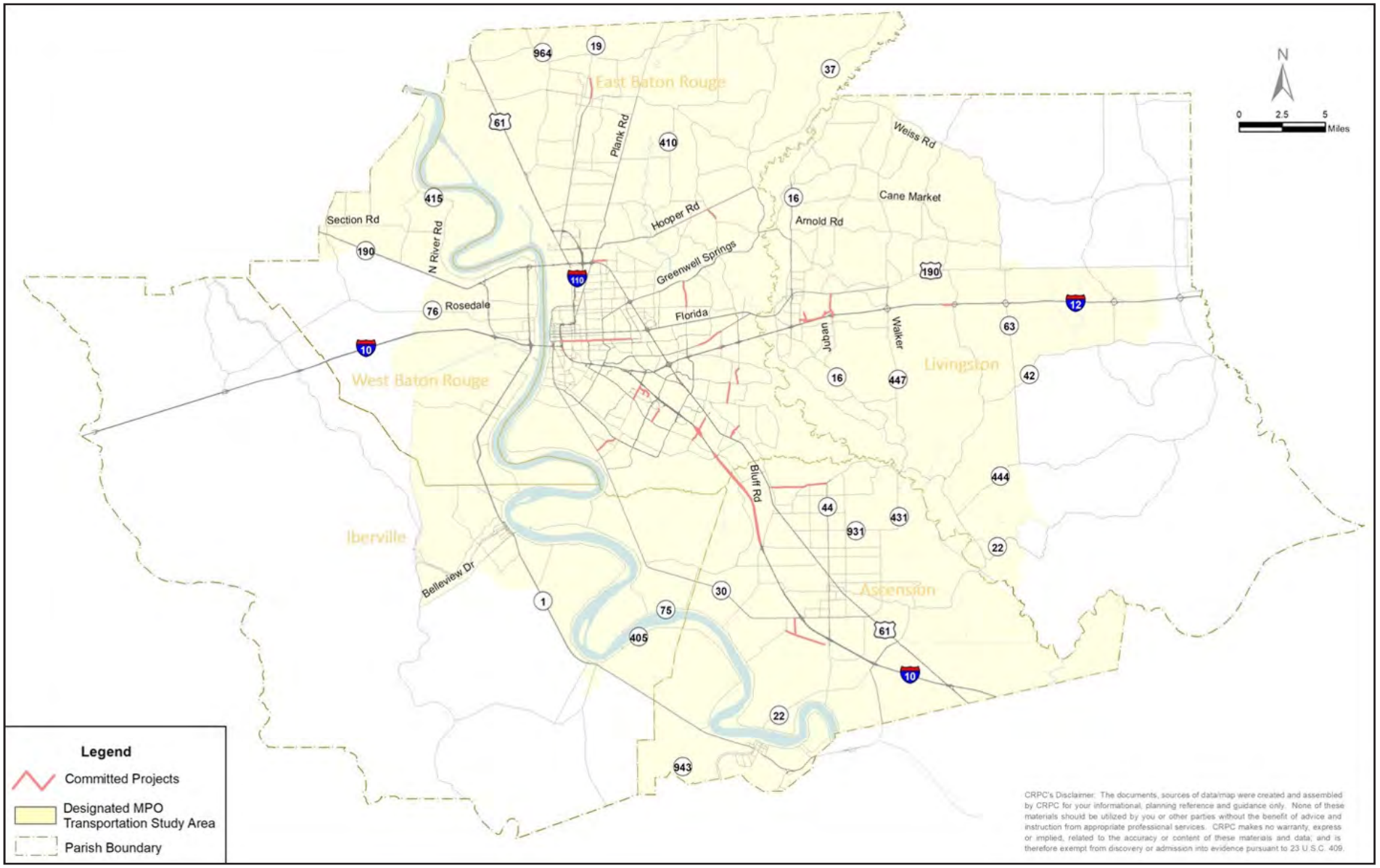


Figure 6-9: Map of E+C Projects

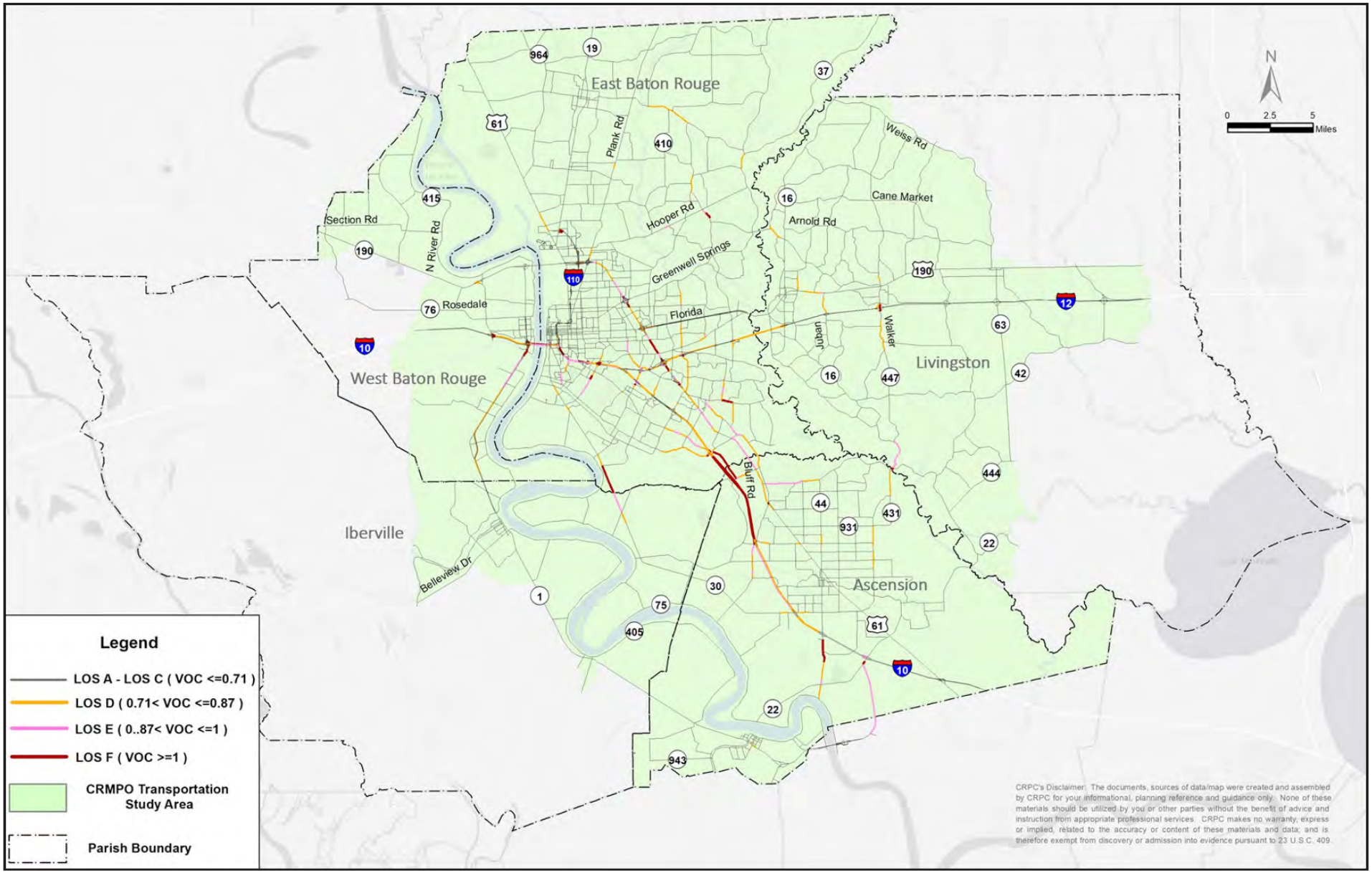


Figure 6-10: 2015 Volume to Capacity (V/C) Ratio Map

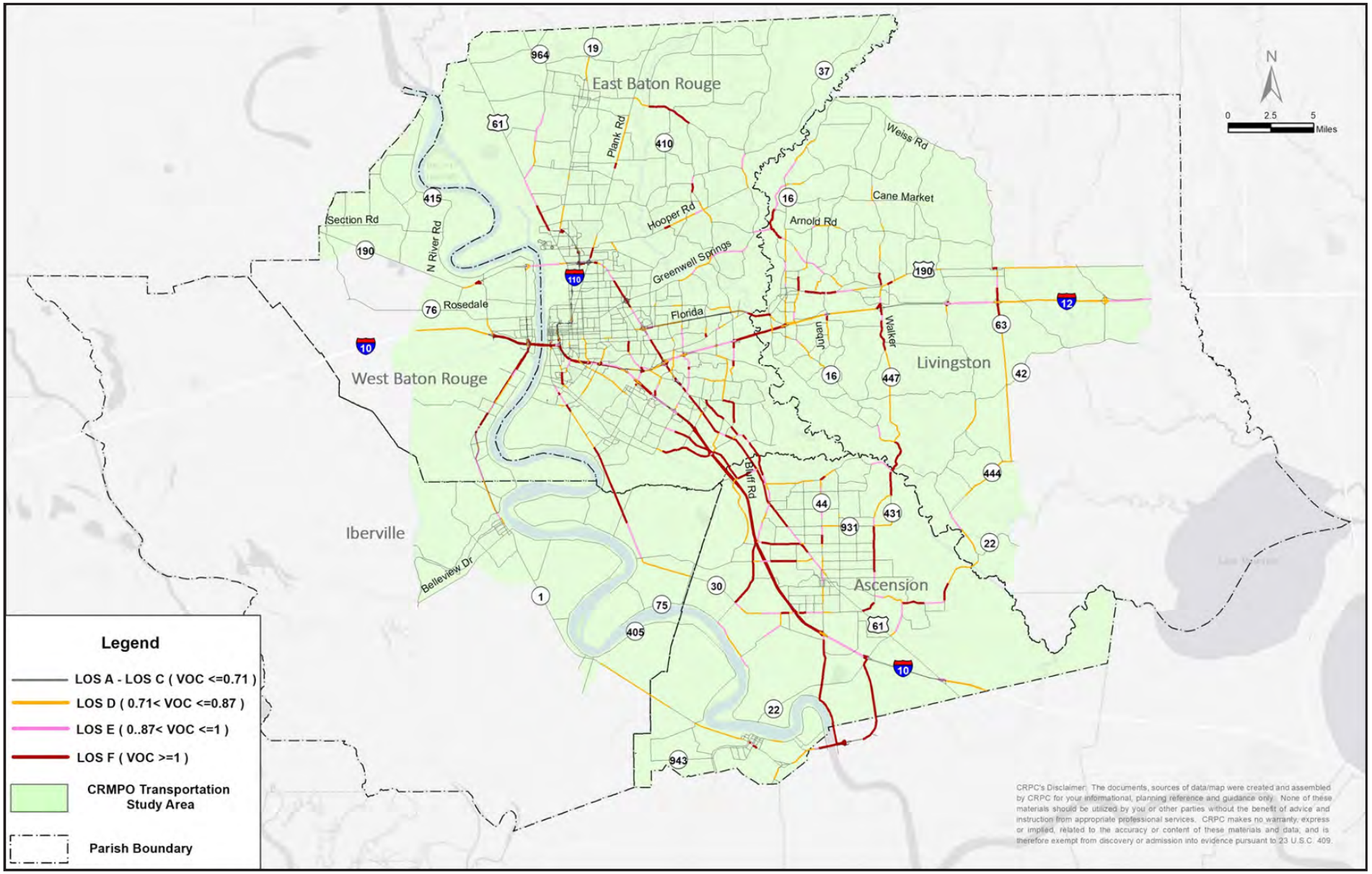


Figure 6-11: V/C Map of 2042.

7 | Roadways and Bridges

Based on the forecasts and projections in Chapter 6, the CRPC MPO region is expected to experience significant growth in population, employment, and travel demand over the next 25 years. Reliable transportation infrastructure in good condition is necessary to enable efficient movement of people and goods. Roadways and bridges are crucial to the smooth flow of traffic, the growth and vitality of the regional economy, and the quality of life for all residents. This chapter provides an overview of existing conditions of roadways and bridges, strategies to address current issues and future needs, available funding, project development and selection, fiscal constraint, and unfunded vision projects.

7.1 | Existing Conditions in the Capital Region

Improving the transportation system begins with understanding current conditions and projecting future needs to keep our region moving in a positive direction. Unfortunately, over the past two decades, transportation infrastructure has not kept pace with growth in population, employment, and vehicle miles travelled. This is true for the nation as a whole, for the state, and for the Baton Rouge Capital Region.

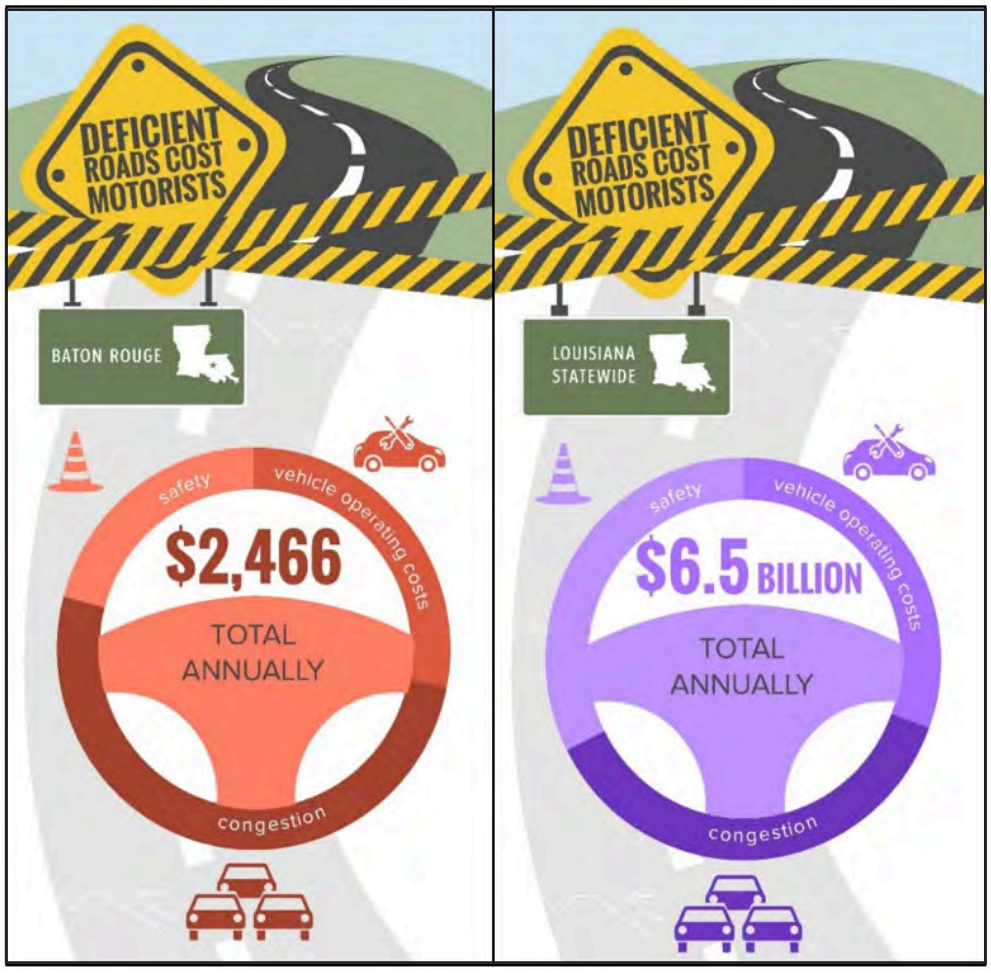


Figure 7-1: Motorists Costs Caused by Deficient Roads
Source: The Road Information Project (TRIP)

Figure 7-1 shows that safety issues, vehicle operation, and congestion currently cost Capital Region commuters, on average, an additional $2,466 annually. Aggregating annual costs for all Louisiana commuters, we are currently spending an extra $6.5 billion due to deficient roads.

This section identifies characteristics and conditions of the existing transportation system in the Capital Region.

The Roadway Network - Functional Classifications

Most travel occurs through a network of interdependent roadways, with each road segment moving traffic through progressively smaller network elements as drivers approach their destinations. The functional classification concept defines the role played by a particular roadway segment in moving traffic through the network. Roadways are assigned to one of several possible functional classifications within a hierarchy based on the character of travel service each road provides. The hierarchy is very helpful to properly channel transportation movement through the network efficiently and cost effectively.

Interstates: Divided highways with full control of access and grade separations at all intersections. Controlled access allows for high-lane capacities, three times greater than the individual lane capacities of urban arterial streets.

Expressways: Provide for movement of large volumes of traffic at relatively high speed. They are primarily intended to serve long trips. Expressways have some grade separated intersections, while the majority of intersections are widely spaced and signalized.

Arterials: Are important components of the overall transportation system, serving both as feeders to interstates and expressways, and as principal travel ways between major land use concentrations. Arterials are typically divided facilities (undivided where right-of-way limitations exist) with relatively high traffic volumes and traffic signals at major intersections. Their primary function is to move traffic and they are the main means of local travel. A secondary function is providing land access.

Collectors: Serve both land access and traffic movement functions. Collectors serve as intermediate feeders between arterials and local streets and primarily accommodate short distance trips. Since collector streets are not intended to accommodate long through trips, they are often not continuous for any significant length.

Local Streets: The sole function of these facilities is to provide access to immediately adjacent land. Within the local street classification, three subclasses indicate the type of area served: residential, industrial, or commercial.

Figure 7-2 illustrates the functional classification of the Capital Region MPA's roadways and Table 7-1 summarizes this information by functional class and parish. The study area has approximately 1,836.7 miles of roadway functionally classified as collectors and above. Local roads constitute about 66% of the total roadway miles in the Capital Region MPA.

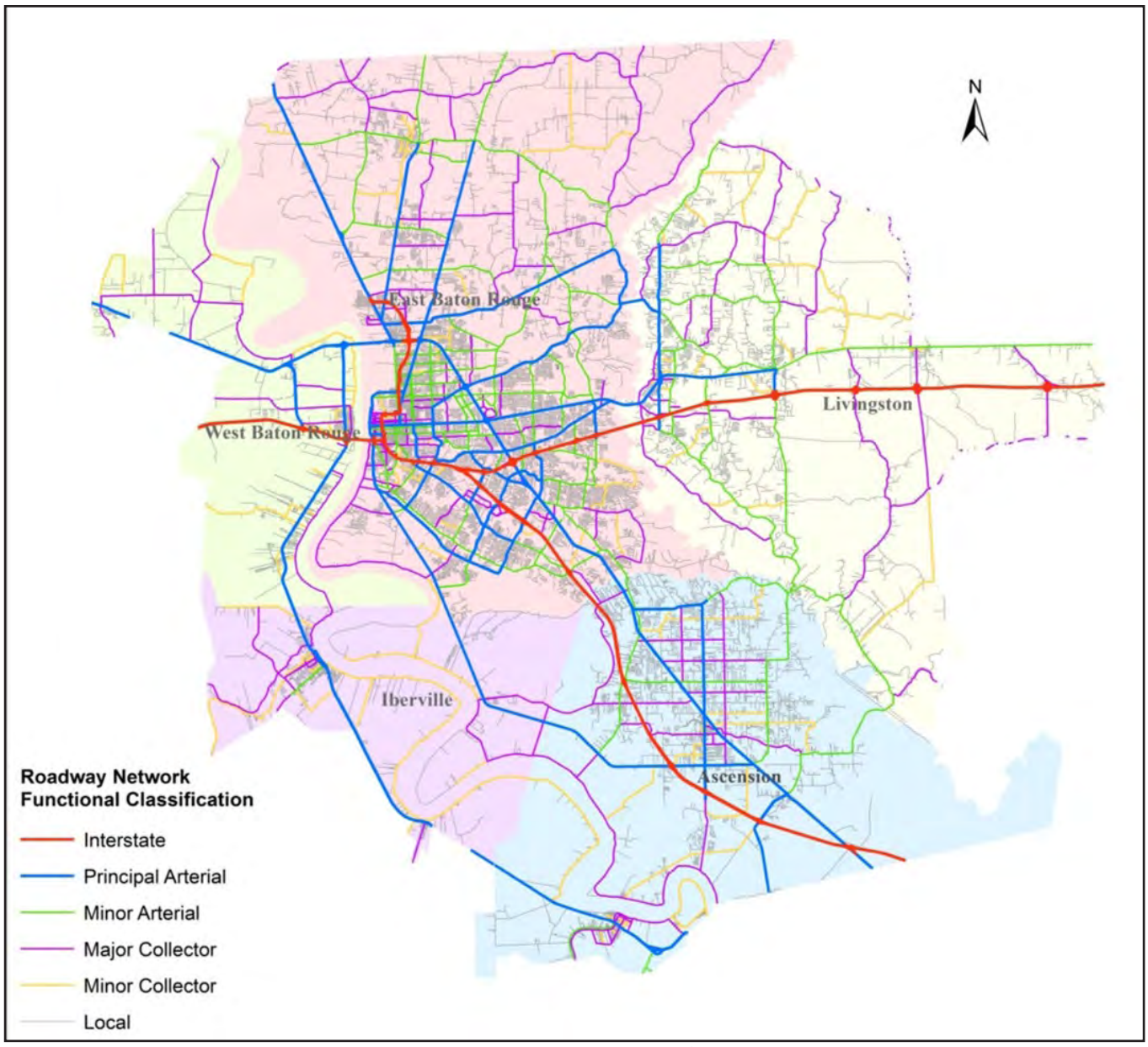


Figure 7-2: Capital Region Functional Classification Map

Table 7-1: Capital Region MPA Functional Classification Mileage by Parish

Roadway Functional Classification	Ascension (Miles)	East Baton Rouge (Miles)	Iberville (Miles)	Livingston (Miles)	West Baton Rouge (Miles)	MPO Region Total (Miles)
Interstate	52.15	105.11	0.00	55.09	21.64	233.98
Principal Arterial	99.14	251.60	34.06	27.53	58.60	470.93
Minor Arterial	49.67	219.93	4.47	86.72	0.00	360.79
Major Collector	87.93	208.38	35.42	101.58	52.25	485.56
Minor Collector	60.85	65.45	60.30	51.10	47.74	285.45
Local	677.85	1888.12	183.37	615.06	178.11	3542.52
Total	1027.59	2738.59	317.62	937.09	358.34	5379.23

Figure 7-3 compares the MPA's functionally classified roadway mileage to FHWA VMT and mileage guidelines. Most of the CRPC MPO parishes are underrepresented for arterial roads and overrepresented for collector roads.

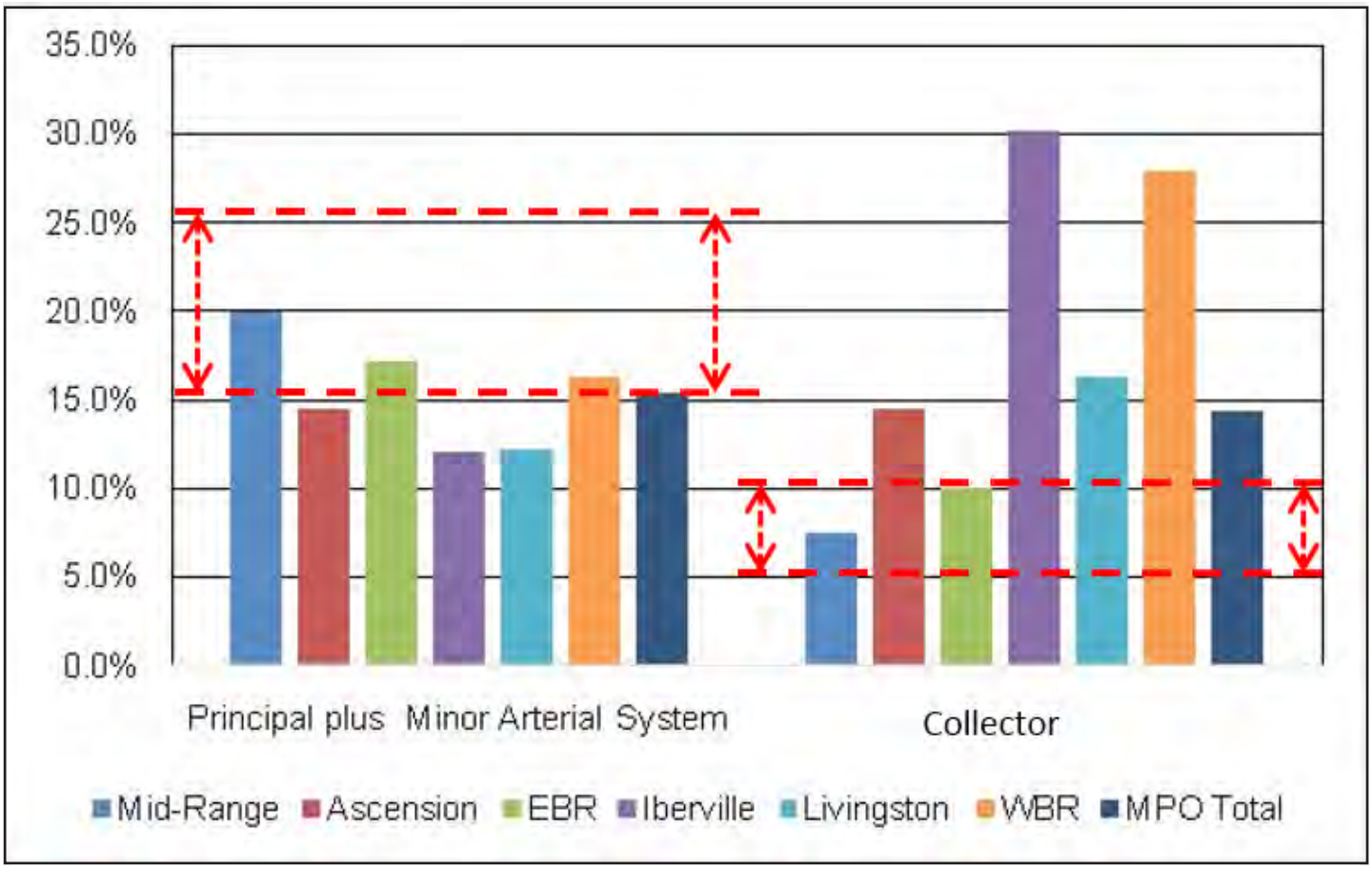


Figure 7-3: Comparison of CRPC MPO Functional Classification Mileage with FHWA Guidelines

The inadequacy of the arterial road network in the Capital Region has caused:

- Use of the Interstate system as the main commuter route for all day to day needs;
- Roadways designed as collectors handling capacities meant for arterials, causing significant increase in congestion and deterioration of the transportation system infrastructure throughout the region;
- Lack of alternate routes favailable during interstate closure due to a major incident or natural disaster.

Traffic, Congestion, and Reliability

According to the "2015 Urban Mobility Scorecard" released by Texas Transportation Institute (TTI), among medium-sized urban areas, the Baton Rouge Capital Region ranked 23rd for annual hours of delay, 11th for excess fuel wasted, and 12th for congestion cost per auto commuter.

Figure 7-4 illustrates trends in congestion for the CRPC MPO area from 1995 to 2014. While the Baton Rouge region has grown by more than 50% over the last two decades, it has seen an even greater increase in commuting and traffic congestion.

- Number of commuters and daily vehicle miles traveled (VMT) increased 1.5 times population growth;
- Cost of congestion is approximately twice population growth;
- Annual delay in hours and excess fuel consumed grew more than four times population growth;

Daily vehicle miles traveled (VMT) on interstates and major roadways grew by 70% between 1995 and 2014. VMT grew more on interstates than on major roadways.

Figure 7-5 shows trends in rankings of various key congestion metrics in the Capital Region from 1995 to 2014. There was little to no change in rakings from 1995 to 2005. However, after 2005, the Baton Rouge urbanized area moved up the ranks in almost every congestion related metric.

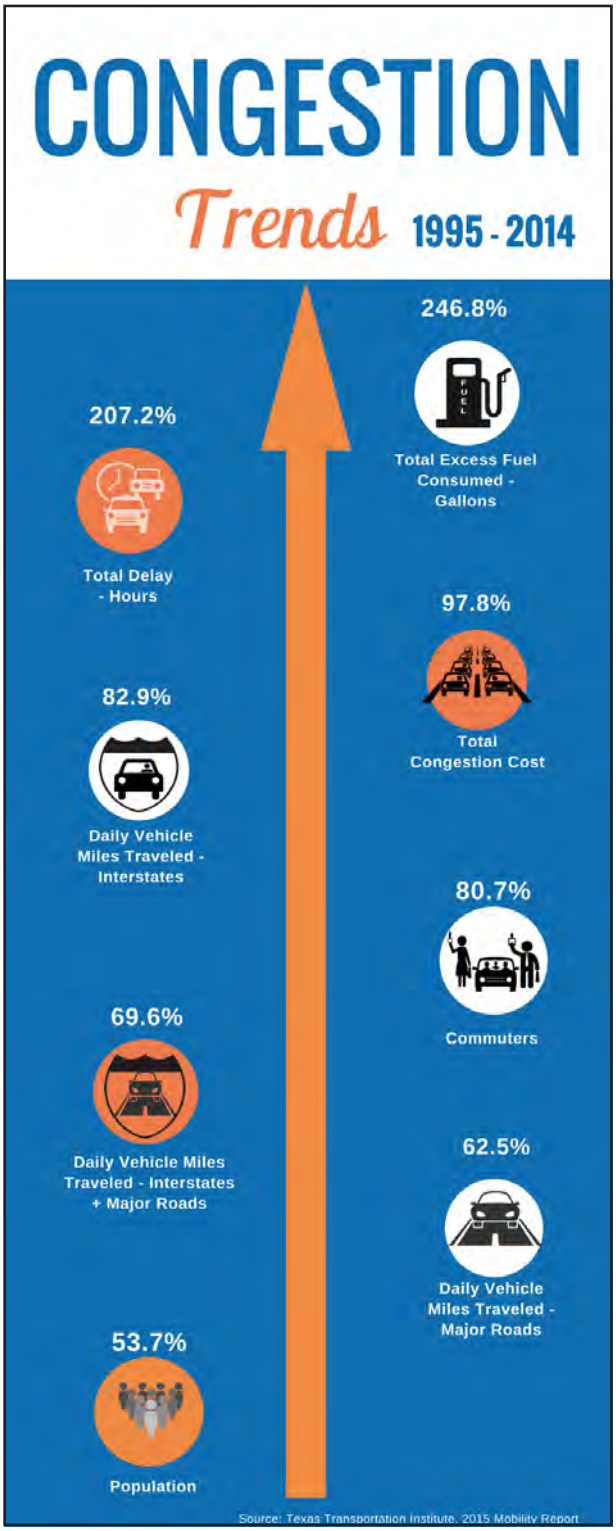


Figure 7-4: Congestion Metrics Trends (1995 – 2014)

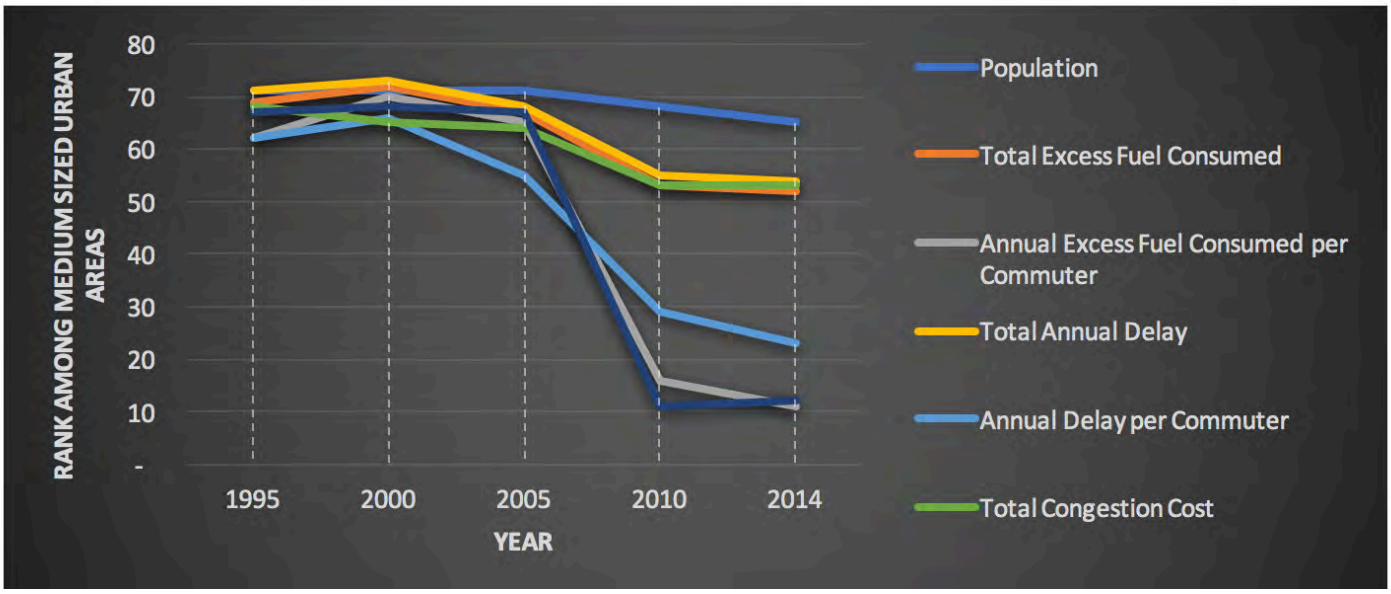


Figure 7-5: Congestion Metric Rankings (1995 – 2014)

Since 2005, the Baton Rouge region has moved up 5 places in population size rakings among medium sized urban areas. However, during the same time period, the region:

- Moved up by about 10 places in rankings for total excess fuel consumed, total annual delay, and total congestion cost;
- Moved up by 22 places in rankings for annual delay per commuter;
- Moved up by 55 places in rankings for annual congestion cost and annual excess fuel consumer per commute.

In 2014, a commuter in the Baton Rouge region spent, on average, an extra $1,262 due to congestion. This includes the cost of excess fuel, as well as the value of extra time spent on the roadways.

As an urban area, the total peak hour congestion cost was $623 million dollars. More than one third of total congestion cost was attributed to cost of commercial goods being transported by truck during peak hours.

Travel Time Reliability is another important metric. Most travelers in urban areas are aware of congestion during peak hours and prepared for it. They are less tolerant of unexpected delays caused by incidents or by any other factor. In 2014, the Baton Rouge capital region was ranked 18th among medium sized cities for travel time reliability.

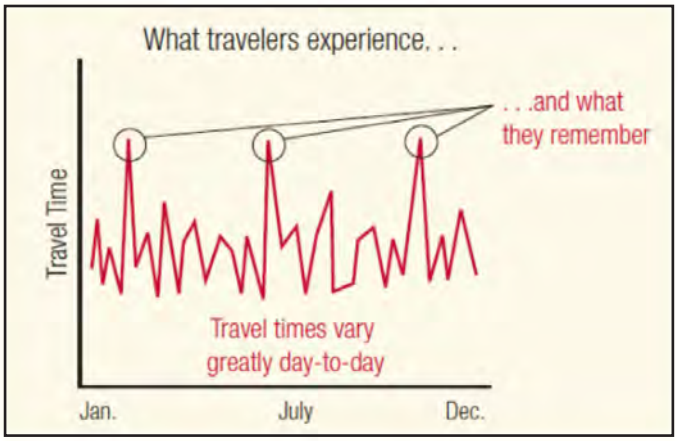


Figure 7-6: Travel Time Reliability

Pavement and Bridge Conditions

Since 1995, LADOTD has been collecting pavement condition data once every 2 years on a variety of types of pavement distress on Interstates and State-owned roads. The CRPC MPO collaborated with LADOTD and the local governments between 2013 and 2016 to collect similar data on non-state routes in Ascension, East Baton Rouge, Livingston, and West Baton Rouge Parishes. In Iberville Parish, pavement condition data was collected only for the city of Plaquemine. Collectively, pavement condition has been collected for approximately 7,500 directional route miles, 2,000 state-owned and 5,500 non-state owned, in the Capital Region.

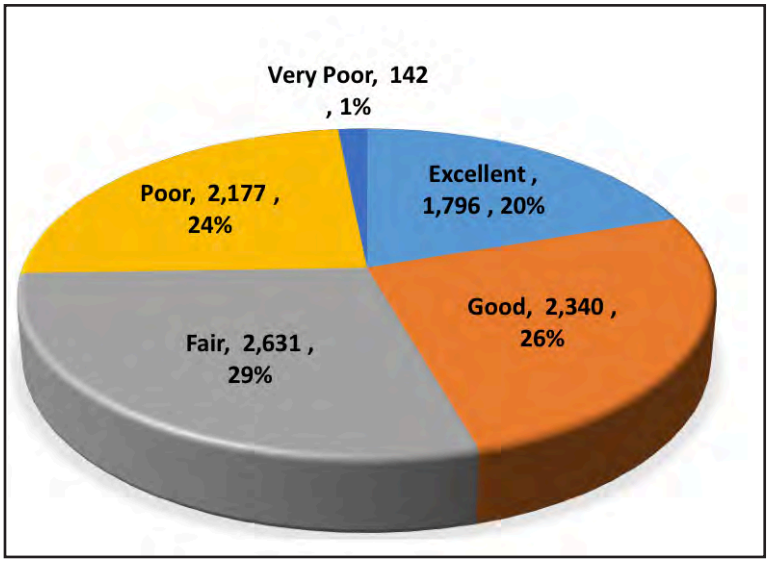


Figure 7-7: Pavement Conditions in CRPC MPO Region

Primary metric for pavement condition is "Pavement Condition Index" (PCI). PCI is an indicator of how long a highway will have acceptable functional capacity. An acceptable driving condition is a function of smoothness and safety, as determined by the amount of pavement cracking and depth of rutting. Unacceptable pavement condition does not mean the road is impassable. It means that drivers must reduce speeds to compensate for less than desirable driving conditions, navigate around potholes, or endure rough rides. Figure 7-7 shows the breakdown of pavement conditions in the Capital Region. Approximately 60% of the all roadways are in poor or fair condition.

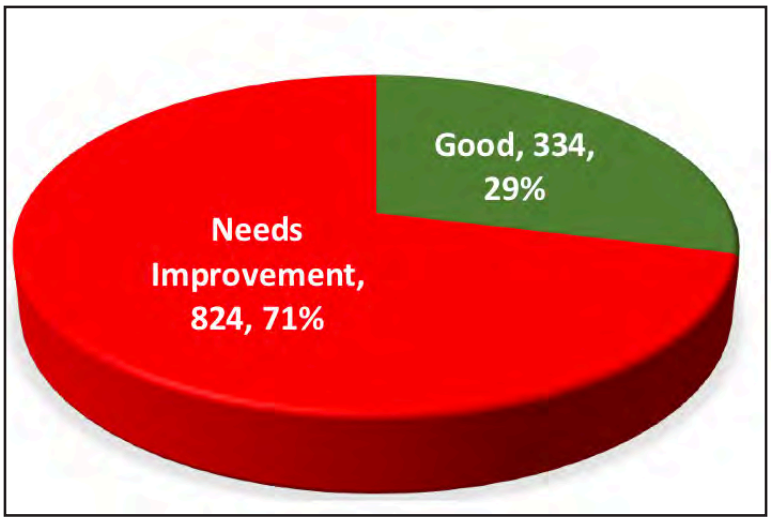


Figure 7-8: Bridges by Condition in the CRPC MPO region

Louisiana ranks fourth in the nation in bridge surface area, with more than 15.4 million square feet of bridge deck. However, the Federal Highway Administration and LADOTD have classified almost 29% of the state's 13,361 bridges as either structurally deficient or functionally obsolete. The state ranks in the bottom third in federal funding for bridge maintenance, repair and replacement. The FHWA requires inspections at least once every 24 months of all publicly owned bridges and culverts on public roads that measure longer than 20 feet by 2 feet.

Based on data obtained from LADOTD, the five-parish CRPC MPO region has a total of 1,158 publicly owned bridges. Only 334 of the 1,158 bridges are in good condition and do not require any repair. The remaining bridges are classified as Qualified for Replacement or Rehabilitation, Structurally Deficient, or Functionally Obsolete and in need of varying levels

7.2 | Strategies to Address Roadway Needs

The current roadway infrastructure conditions in the Capital Region can be summarized as follows:

- CRPC MPO region has an inadequate number of arterial roadway miles when compared the FHWA standards;
- Peak hour congestion increased four times faster than population growth from 1995 and 2014. An average, acommuter spends an extra $2,466 annually in safety, vehicle operation, and congestion costs;
- 54% of roadway pavement and 71% of bridges need improvement.

Projected 25-year growth detailed in Chapter 6 will further exacerbate congestion, safety, and deterioration issues. It is important to identify and implement strategies in a timely manner to reduce further deterioration of transportation infrastructure. Section 7.2 discusses various strategies that could be used to improve infrastructure performance and condition.

Management and Operations (M&O)

Historical infrastructure investments have lagged behind need. This trend will continue unless major policy decisions are made to substantially increase transportation funding. Transportation Systems Management and Operations (TSMO) strategies are cost-effective alternatives to high dollar capacity improvements. TSMO strategies optimize the performance of existing infrastructure. The improvement in system performance is achieved through the implementation of multimodal and intermodal, cross-jurisdictional systems, services, and projects designed to preserve capacity while improving the security, safety, and reliability of the transportation system. Following are few of the TSMO strategies:

Travel Demand Management (TDM)

Transportation demand management (TDM) refers to strategies which reduce the demand for roadway travel, particularly in single occupancy vehicles. These strategies address a wide range of externalities associated with driving, including congestion, poor air quality, less livable communities, reduced public health, dependence on oil, reduced environmental health, climate change, and GHG emissions. Some TDM strategies reduce total travel demand, while others reduce peak period demand and may disproportionately contribute to these externalities. Following are few TDM strategies:

Increasing the number of high-occupancy vehicle (HOV) trips by promoting carpooling, vanpooling, shuttle buses to major employment centers, etc.;

- Promoting flex-time work schedules with employers to reduce congestion at peak times;
- Promoting efforts to allow employees to telecommute when possible;
- Establishing Park-and-Ride facilities and high efficiency ferries;
- Providing a community education program on the costs and benefits of high-occupancy trips and options available to the public;
- Promoting and implementing strategies to encourage alternative transportation modes such as public transit, biking, and walking. Chapters 9 and 10 provide an in-depth review of transit, and pedestrian and bicycle facilities in the regional plan.

CRPC in coordination with LADOTD initiated a three-year TDM project branded as “Commuter Krewe of Louisiana” to implement all the above congestion reduction strategies. The details about this project can be found at (www.commuterkrewe.la).

Congestion/Road Pricing

Economic theory suggests that driving is underpriced, and that current costs do not cover its significant externalities and it is thus "overconsumed." Road pricing is a market-based strategy that internalizes the costs of these externalities and facilitates reductions in total VMT or driving during peak congestion periods. Following are few of the congestion pricing mechanisms:

Toll Roads: Drivers pay to enter the toll roads which have less/no congestion;

High-Occupancy Toll (HOT) Lanes: Single Occupancy Vehicle (SOV) drivers can pay to enter High-Occupancy Vehicle (HOV) lanes;

Cordon Tolls: Drivers pay to enter a fixed area, such as the CBD; and

Distance-Based Pricing: Drivers pay by the mile driven.

Traffic Operational Improvements

Traffic operational improvements increase efficiencies within the roadway network; it is anticipated these will include:

- Signal Improvements (including new traffic signals), Signal Synchronization, and Signal Interconnect;
- Access Management (driveway consolidation, driveway spacing/design, left-turn restrictions, elimination of on-street parking, intersection/signal spacing, frontage roads, turn lanes, roadway modification [geometry, medians, sight distance]);
- One-way/Reversible Streets (streets that are modified from two-way to one-way, which modifies roadway capacity during peak hours by changing a non-peak direction to a peak direction to increase the number of lanes in the peak direction);
- Intersection Improvements;
- Improvements to Traffic Control (regulatory signs, warning signs, informational signs to limit driver confusion);
- Turn Prohibitions (limit conflicting movements in peak hours; make pedestrian crossings safer).

Intelligent Transportation System (ITS)

ITS improves transportation safety and mobility, and enhances productivity through the use of advanced information and communications technologies. ITS encompasses a broad range of wireless and wired communications-based information and electronics technologies. When integrated into the transportation system's infrastructure and vehicles themselves, these technologies relieve congestion, improve safety and enhance American productivity. The regional ITS Architecture found at (http://crpcla.org/s/CRMPO_ITSArch_Final_March2015_sm.pdf) provides guidance on efficient integration of ITS systems in the Capital Region. Intelligent infrastructure and vehicles are two components of ITS. Following are a some of the intelligent infrastructure applications:

Freeway Management: Ramp Metering, Reversible Flow Lanes, HOV/HOT facilities are some of the applications that could be used for effective management of free facilities in a manner that provides users with a safe, efficient, and reliable trip. A detailed list of arterial management applications can be (http://www.itsoverview.its.dot.gov/AM.asp).

Arterial Management: Adaptive Signal Control, Advanced Signal Systems, Variable Speed Limits are some of the applications that could be used for effective management of arterial facilities in a manner that provides users with a safe, efficient, and reliable trip. A detailed list of arterial management applications can be (http://www.itsoverview.its.dot.gov/FM.asp).

Advanced Traveler Information System (ATIS): ATIS is designed to provide transportation system users with the information they need to choose the safest and most efficient mode and route of travel.

Traffic Incident Management (TIM): Incident management is defined as verifying, responding to, and clearing traffic incidents in a manner that provides transportation system users with the least disruption.

Other intelligent infrastructure applications include, Crash Prevention & Safety, Road Weather Management, Transit Management, Electronic Payment & Pricing, Commercial, and Vehicle Operations etc.

Intelligent Vehicles is an emerging and transformational component of ITS. Applications such as Collison Avoidance, Driver Assistance, and Collision Notification have been in existence for over a decade. Connected & Autonomous Vehicle (CAV) technology is transforming the automobile industry. Automakers are becoming mobility service providers as consumers are moving away from vehicle ownership. Electric vehicles are set to become the norm and autonomous vehicles are already racking up test miles.

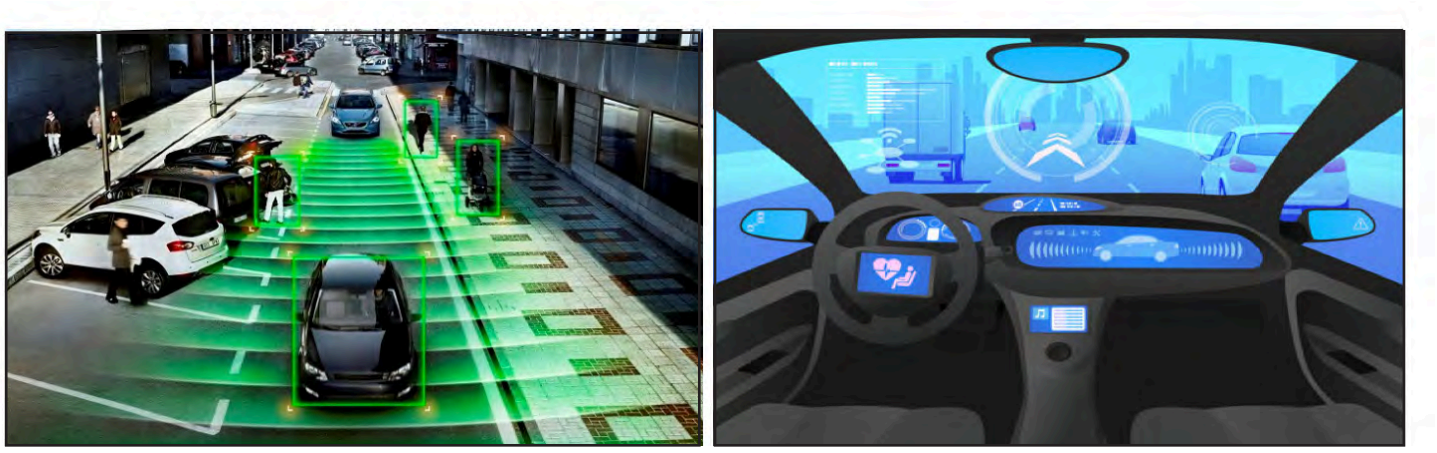


Figure 7-9: Autonomous Vehicles Illustration

This represents both an important challenge and opportunity for cities and metro areas. AV technology promises many benefits which include reduction in traffic deaths, increased mobility for the disabled and seniors, reduced congestion, and enhanced connectivity for all citizens. Cities have a unique opportunity to be proactive and engage in smart planning for AVs, while shaping the policy around AVs to ensure benefits are fully realized. Such planning includes sensitive issues like privacy, cyber security, land use, enforcement, regulation, technology requirements, and municipal capacities in future infrastructure planning.

Congestion Management Process

A congestion management process (CMP) is a systematic and regionally-accepted approach for managing congestion that provides accurate, up-to-date information on transportation system performance. The process also assesses the effectiveness of deploying the alternative strategies described above for congestion management to meet State and local needs. CRPC MPO developed a CMP in 2010 which was later modified in 2013. CRPC is in the process of updating the CMP. Figure 7-10 shows the elements involved in development of CMP. Since the last update in 2013, CRPC has procured GPS based speed data and analysis tools to accurately identify congestion hot spots and monitor performance of the Capital Region roadways. The basic functionalities of the analysis tool are also available to the at (CRPC website at http://crpcla.org/move2042/).

CRPC utilized input from the stakeholder and public meetings conducted as part of the MOVE 2042 planning process to develop regional congestion objectives, goals, and performance measures. These are described in Chapter 3 of this plan. Recurring and non-recurring congestion analysis has been completed utilizing to 2014 and 2015, 15-minute interval speed data. The analysis results can be viewed with the MOVE 2042 appendices on CRPC website at (http://crpcla.org/move2042/).

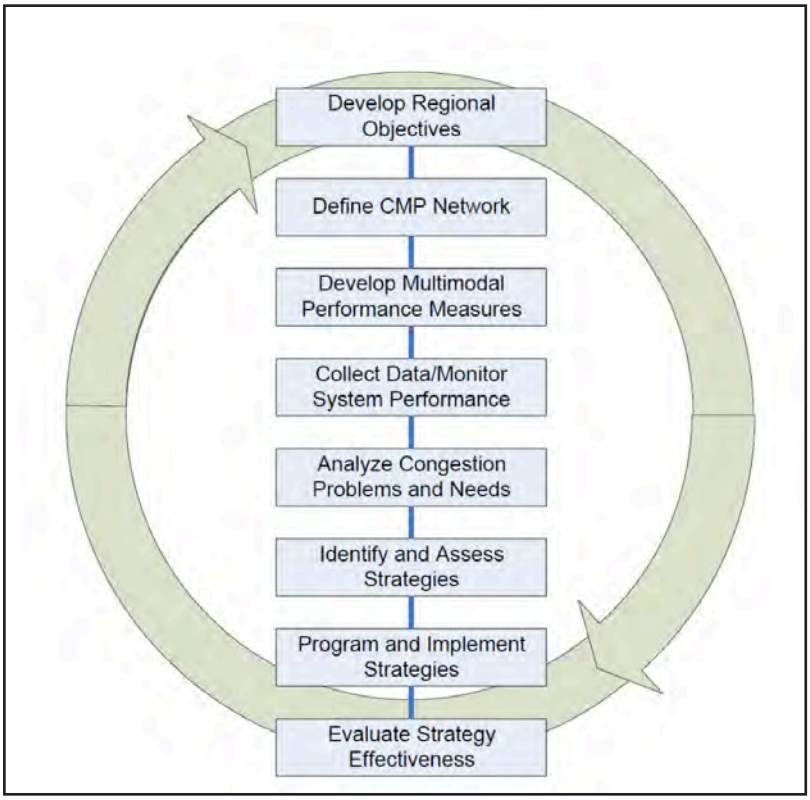


Figure 7-10: Elements of Congestion Management Process

CRPC will be concluding the regional traffic counting project during early 2018 which will provide traffic volume and vehicle classification data on various functionally classified roadways in the Capital Region. The congestion analysis will further be refined utilizing this data.

CRPC will work with a sub-committee the MPO TAC to review the congestion analysis results and develop strategies to effectively address regional congestion issues.

Roadway and Bridge Preservation and Rehabilitation

The following is essential to maintain an effective pavement and asset management system for improving quality of the road network in the Capital Region.

Inspection and Data Collection

The frequency of pavement inspections depends upon available resources and the condition of existing pavement. The LADOTD currently collects pavement data annually for National Highway System (NHS) and biannually for State Highway System (SHS). Similar or comparable schedule should be in place for local roads, which means that the frequency of collecting local road network data should be every 3-4 years. An accurate pavement inventory data will help officials program limited funding effectively.

Data Driven Needs Analysis

Spending $1 today on pavement maintenance can avoid the need to spend $2 in five years, or almost $4 in ten years. Costs escalate rapidly because pavement quickly deteriorats if not maintained on a regular basis. Using a data driven analysis to program timely and appropriate cost-effective treatments will help improve the quality of the infrastructure and avoid incurring unnecessary costs in the future.

Inspection Reports

Inspection reports provided by the districts or municipalities are essential sources of information on pavement condition. All reports should be collected and included within the pavement or the asset management database to be utilized in the funding prioritization and decision-making process.

Life Cycle Cost Analysis (LCCA)

LCCA helps identify the best ways to use a limited transportation and maintenance budget. An asset's true cost is more than just the initial purchase price. With LCCA, agencies can understand how much an asset really costs to own and operate. It factors all of the additional costs to reveal the optimal maintenance needs to minimize investment, maximize profitability and limit an asset's total cost of ownership.

Funding and Programming

Transportation Asset and Pavement Management Programs (TAMP) will only work effectively if appropriate financial resources are allocated to the program. Having adequate, dedicated, and reliable federal, state, and local funds will help implement cost effective and timely preventive maintenance measures. MOVE 2042 gives funding priority to system preservation and allocates a sizeable portion of available revenues towards preventive maintenance.

Roadway Capacity Improvements

Roadway capacity improvements were identified based on forecasted capacity deficiencies in the year 2042. These projects are classified in two ways: committed projects (see section 5.2) for which funding has been allocated due to inclusion in the fiscal years 2018 to 2022 TIP; and recommended long-range roadway capacity improvement projects. This section describes the process used to develop, analyze, and prioritize a list of potential capacity improvement projects for inclusion in the financially constrained plan.

Identifying Test Projects

Transportation needs identified at stakeholder and public meetings were used to generate an initial list of capacity projects. Most projects identified were in line with suggestions and recommendations from past plans. Figure 7-11 illustrates projects identified at the stakeholder and public meetings.

The next step was to develop cost estimates for all the identified test projects. The typical construction cost estimates are shown in Table 7-2.

Table 7-2: Typical Project Cost by Improvement Type (2015 Dollars)

Improvement Type	Avg. Cost (Millions)	Unit
Interstate Widening	$9.2	Per Lane Per Mile
New 4 Lane Arterial	$2.45	Per Lane Per Mile
New 2 Lane Arterial	$1.63	Per lane Per Mile
Arterial Widening	$2.49	Per Lane Per Mile
Center Turn Lane	$4.68	Mile
Reconstruction 2 Lane	$0.86	Per Lane Per Mile
Reconstruction 4 Lane	$0.99	Per Lane Per Mile
Overlay	$0.61	Mile
New Interchange	$24.61	Each
Interchange Improvement	$2.21	Each
Intersection Improvement	$1.13	Each

Source: LADOTD Historic Project Lettings 1996-2015, CRPC 2015

The initial list consisted of over 200 unique projects, with a total cost of about $8 billion. Based on the funding projections in section 7.3, total anticipated funding for all projects is $2.22 billion. Setting aside portions of the projected funding for non-capacity improvements, such as safety, intersection, bicycle/pedestrian, preventive maintenance, operations etc., further reduces funding available for capacity projects. In fact, capacity enhancement project needs identified by stakeholders and at public meetings would cost 5 to 6 times the funding expected for the duration of this plan. Large capacity (mega) projects, such as a new Mississippi River Bridge, north/south bypass, and Baton Rouge Urban Mobility Project (BUMP) would cost close to $1 billion dollars individually and each would use a significant amount of the total projected funds for the 25 years of the MOVE 2042 plan. While there is great need for such projects, implementing them with limited regular recurring funds is not recommended, as this would leave little or no funding for non-capacity improvements such as safety, intersection, pavement and bridge maintenance, operations, and non-motorized projects.

A cursory review, (considering factors such as constructability, regional impact, and project costs), was conducted to trim the list of capacity projects. The projects were further categorized into three scenarios: "3C Process", "DOTD Input", and "Comprehensive" for ease of comparison.

3C Process: The Federal-Aid Act requires that the planning process used to develop long range plans must be **cooperative, continuing** and **comprehensive (3C Process)**. The projects identified in this scenario represent a continuation of the previous, MTP 2037, planning process. Some of the major projects in this scenario are:

- I-10 Rehab/Widening – Iberville Parish Line to LA 1
- I-10 Widening – LA 73 to LA 22
- LA 1 – LA 415 Connector,
- Hooper Rd. Extension
- Airline Hwy Widening – North of Florida to I -110 and South of Cedar Crest to LA 44
- Juban Road, 4H Club, LA 447 (Walker Rd South), Hooper Road Widening etc.

DOTD Input: CRPC staff had a series of consultations with DOTD on the vision for the Capital Region. The mix of projects in this scenario reflected input from DOTD. Major projects in this scenario include:

- I-10 Widening/Rehab – Iberville Parish Line to I-10/I-12 Split
- I-10 Widening – LA 73 to LA 22
- LA 30 Widening Burbank/Gourrier in East Baton Rouge Parish to Airline Hwy in Ascension Parish
- Juban, 4H Club, LA 447 (Walker Rd South), Hooper, LA 1, LA 22/LA 70, Wax Rd Widening etc.

Comprehensive: It is important to consider changing regional needs and priorities as part of the planning process. This scenario combines elements of the first two scenarios while incorporating the new regional priorities expressed at stakeholder and public meetings. I-10 Rehab/Widening – Iberville Parish Line to LA 1

- I-10 Widening – LA 73 to LA 22
- LA 1 – LA 415 Connector
- Airline Hwy Widening – North of Florida to I -110,
- LA 30 Widening Burbank/Gourrier in East Baton Rouge Parish to Airline Hwy in Ascension Parish
- Juban Road, 4H Club, LA 447 (Walker Rd South), Hooper, LA 22/LA 70, Wax Road Widening etc.

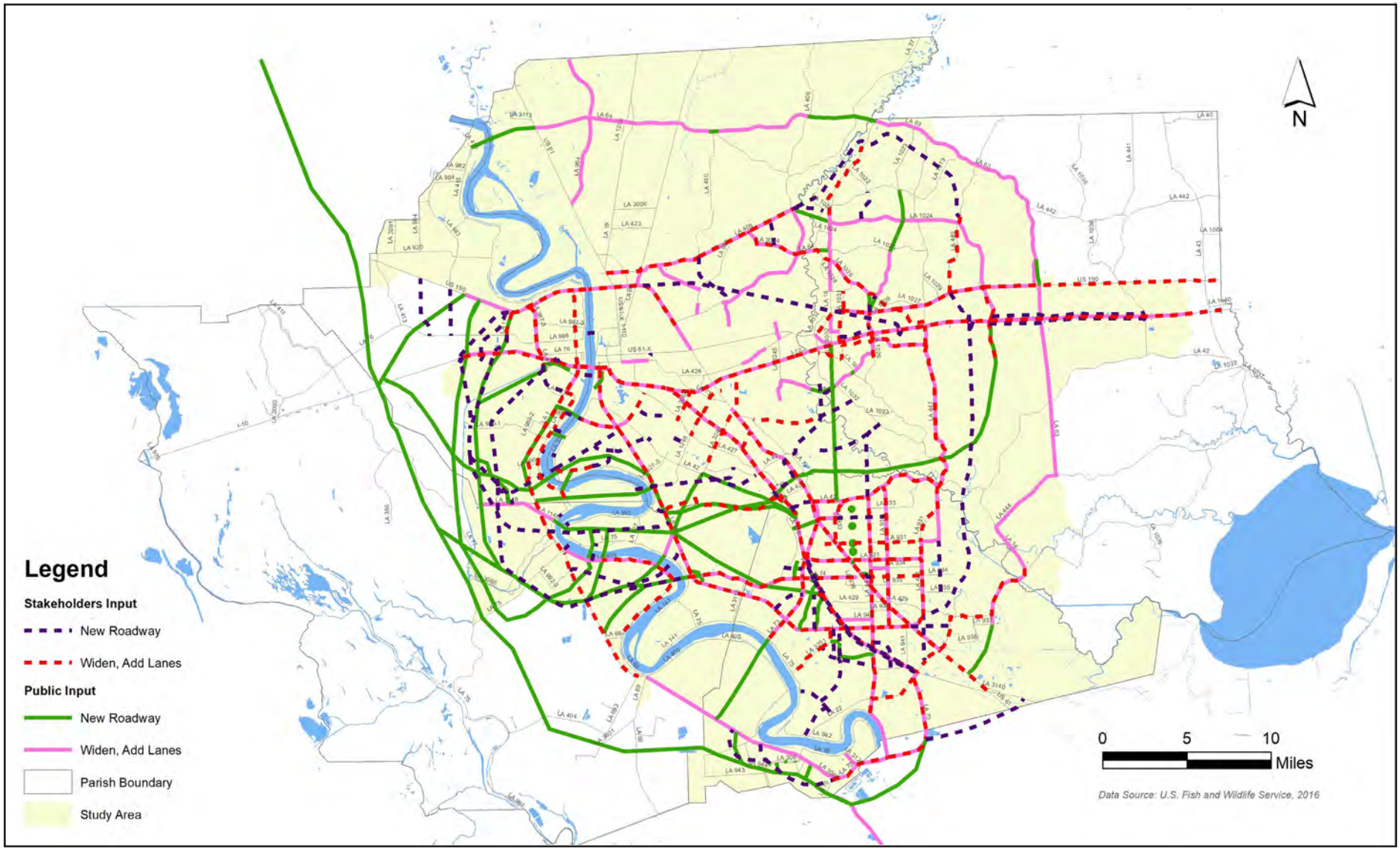


Figure 7-11: Map of Capacity Project Needs Identified at Stakeholder and Public Meetings

Project Prioritization Methodology

Project merit is used to prioritize projects. The following methodology is used to prioritize and further eliminate projects from each of the three scenarios to achieve fiscal constraint. The result the final project list scenarios which were presented to the TPC for their review.

Figure 7-12 gives a breakdown of project scoring criteria and weight. The criteria was derived from public input.

Congestion Reduction (Benefit Vs. Cost): This criterion prioritizes projects with travel time benefits exceeding construction costs. Projects with higher annual dollars totals in reduced delay relative to project cost received higher points. Maximum points are awarded if a project is included in the MPO's Congestion Management Plan (CMP).

Improve Safety: This criterion prioritizes projects built at or near high crash locations and other unsafe areas. Qualitative assessment are utilized based on crash data, bridge conditions, and engineering analysis.

Figure 7-12: Breakdown of Project Scoring Criteria

Walking and Biking: This criterion prioritizes projects which improve bicycle and pedestrian conditions.

Better Freight Mobility: This criterion encourages projects that benefit movement of both people and goods. Type of roadway (functional classification) and estimated reduction in truck delay determine the points received by a project.

Air Quality and Environment: This criterion discourages projects that have negative and costly environmental impacts. Projects in proximity to community or natural resources, such as historic sites, recreational areas, churches, cemeteries, preserves, etc. were given lower scores.

Plan Consistency: This criterion encourages projects that have been vetted in locally-adopted plans or existing studies or plans.

Potential Impact to Minority and Low-income Population: This criterion emphasizes avoiding projects that disproportionately and adversely impact Environmental Justice (EJ) groups. Projects that cross through EJ areas and are supported by the affected community received maximum points. Projects are scored based on percentage of EJ population along the project route. The higher the percentage, the lower the points awarded.

7.3 | Financial Analysis

Federal regulations require that the adopted MTP must be "fiscally constrained," meaning that the cost of projects included in the MTP cannot exceed the anticipated funding for the region. This section presents a financial analysis of funding resources that Capital Region expects to receive to fund the highway projects in the plan.

Implementation of a financially constrained plan involves several sources of funding the local, state, and federal levels. Since many improvement projects are located on the state and Federal Highway System, substantial financial assistance can be obtained through funding programs of the LADOTD and the FHWA.

The following section describes state and federal funding sources as well as several local programs that can be used to fund transportation projects.

Potential Federal and State Funding Sources

The primary source of federal and state transportation funding is the gasoline tax. In the state of Louisiana, every driver pays 38.4 cents on every gallon at the pump. Figure 7-13 shows the breakdown of gas tax between federal and state transportation trust funds. Federal transportation trust funds are appropriated to the state through federal laws.

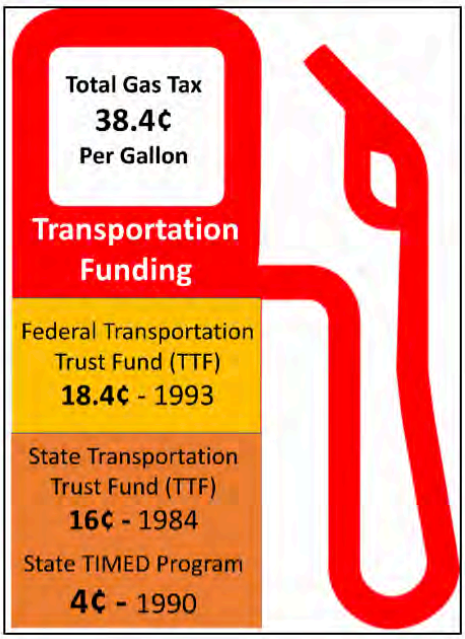


Figure 7-13: Gas Tax Illustration

The Fixing America's Surface Transportation (FAST) Act is the current funding and authorization bill that governs federal surface transportation spending. FAST authorizes the Federal Surface Transportation Programs for highways, highway safety, and transit for the five-year period 2016-2020. FAST builds on the firm foundation of previous landmark bills that brought surface transportation into the 21stcentury – the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the Transportation Equity Act for the 21st Century (TEA 21), the Safe, Accountable, Flexible, Efficient Transportation Equity Act – Legacy for Users(SAFETEA-LU), and Moving Ahead for Progress in the 21st Century (MAP-21). FAST provides total highway funding of $207 billion nationally, for the five- year period. During this five-year period, the state is expected to receive about $3.7 billion. The legislation includes several categories of funding. These categories are:

Flexible, Efficient Transportation Equity Act – Legacy for Users(SAFETEA-LU), and Moving Ahead for Progress in the 21st Century (MAP-21). FAST provides total highway funding of $207 billion nationally, for the five- year period. During this

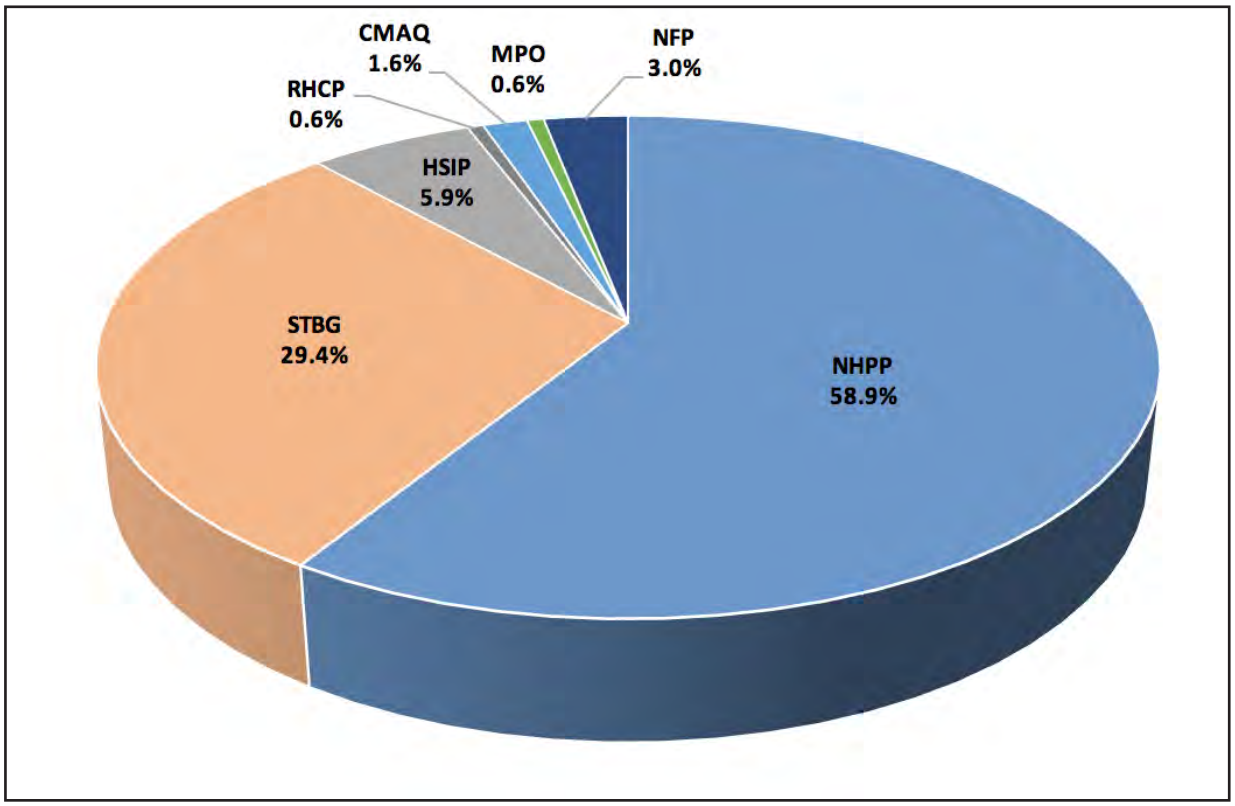


Figure 7-14: FAST Act Funding Breakdown by Source Type

National Highway Performance Program (NHPP)

The NHPP provides support to maintain the condition and performance of the National Highway System (NHS). This includes construction of new facilities on the NHS, and ensuring that investments of Federal-aid funds in highway construction are directed to support progress toward achievement of performance targets established in a State's asset management plan for the NHS. The FAST Act continues all prior NHPP eligibilities, and adds four new eligible categories:

- Installation of vehicle-to-infrastructure communication equipment;
- Reconstruction, resurfacing, restoration, rehabilitation, or preservation of a bridge on a non-NHS Federal-aid highway (if Interstate System and NHS Bridge Condition provision requirements are satisfied);
- A project to reduce risk of failure of critical NHS infrastructure (defined to mean a facility, the incapacity or failure of which would have a debilitating impact in certain specified areas); and
- At a State's request, the U.S. DOT may use the State's STBG funding to pay the subsidy and administrative costs for TIFIA credit assistance for an eligible NHPP project or group of projects.

Surface Transportation Block Grant Program (STBG)

The FAST Act converts the long-standing Surface Transportation Program (STP) into the STBG Block Grant Program, acknowledging that this program has the most flexible eligibility requirements of all Federal-aid highway programs. The STBG promotes flexibility in State and local transportation decisions to provide funding to best address State and local needs. These funds can be used for any road, including the NHS, which is not functionally classified as a local road or rural minor collector.

Set-asides

The following are to be set aside from a State's STBG apportionment:

- Funding for Transportation Alternatives (TA). Projects such as the bicycle and pedestrian facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to storm water and habitat connectivity are eligible projects;
- 2% for State Planning and Research (SPR);
- Funding for bridges not on Federal-aid highways also known as off-system bridges;

Sub-allocation

A percentage of a State's STBG apportionment (after set-asides) is to be sub-allocated into the following categories, based on their relative shares of State's population.

- Urbanized areas with population greater than 200,000 (STBG>200K);
- Areas with population between 5000 and 200,000 (STBG<200K);
- Areas with population 5000 or less (STBG <5K);

Congestion Mitigation and Air Quality (CMAQ)

CMAQ funding is available to reduce congestion and improve air quality in areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now in compliance (maintenance areas).

Highway Safety Improvement Program (HSIP)

The purpose of HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands. The HSIP requires a data-driven, strategic approach that focuses on performance to improving highway safety on all public roads.

Railway-Highway Crossings Program (RHCP)

This program provides funds for safety improvements to reduce the number of fatalities, injuries, and crashes at public railway-highway grade crossings

Metropolitan Planning (MPO)

This program is to develops a cooperative, continuous, and comprehensive framework for making transportation investment decisions in metropolitan areas. Program oversight is a joint Federal Highway Administration/Federal Transit Administration responsibility.

Potential Local Funding Sources

Any costs not covered by federal and state programs is the responsibility of the local governmental jurisdictions. Local funding can come from a variety of sources including property taxes, sales taxes, user fees, special assessments, and impact fees.

Property Taxes

Property taxation has historically been the primary source of revenue for local governments in the United States, and accounts for over 80 percent of all local tax revenues. Property is not subject to Federal government taxation, and state governments have, in recent years, shown an increasing willingness to leave this important source of funding to local jurisdictions.

General Sales Taxes

The general sales tax is also an important revenue source for local governments. The most commonly known form of general sales tax is the retail sales tax. The retail sales tax is imposed on a wide range of commodities, and is usually a uniform percentage of the selling price.

User Fees

User fees are collected from those who utilize a service or facility. Fees are collected to pay for the cost of a facility, finance the cost of operations, and/or generate revenue for other uses. User fees are commonly charged for public parks, water and sewer services, transit systems, and solid waste facilities. The theory behind the user fee is that those who directly benefit from these public services pay for the costs.

Special Assessments

Special assessment is a method of generating funds for public improvements, whereby the cost of a public improvement is collected from those who directly benefit from the improvement. In many instances, new streets are financed by special assessment. The owners of property located adjacent to the new streets are assessed a portion of the cost of the new streets, based on the amount of frontage they own along the new streets.

Special assessments have also been used to generate funds for general improvements within special districts, such as central business districts. In some cases, these assessments may be paid over a period of time, rather than as a lump sum payment.

Impact Fees

Since new developments create increased traffic volumes on the streets around them, development impact fees attempt to place a portion of the burden of funding improvements on developers who are creating or adding to the need for improvements.

Bond Issues

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

Historical Funding for Street and Highway Projects

An analysis of historical funding was conducted in order to determine the financial feasibility of implementing a program of projects in the MTP. A database of project lettings in the Capital Region from 1996 through 2015 was obtained from the LADOTD. This contained all sources of state and federal funding and both recurring and non-recurring funds. To estimate expected future revenues, non-recurring funds were excluded from each year's total historical revenue.

The projects were then grouped by year. To estimate the cost of historical projects in 2015 dollars, an average annual Consumer Price Index (CPI) factor was calculated, using the historical South Urban areas CPI factors shown in Table 7-3.

Table 7-3: Historical State and Federal Funding (1996 – 2015) for Highway Projects

Year	Real Dollars	CPI Factor	2015 Dollars
1996	18,244,677	1.498	27,336,964
1997	46,540,504	1.467	68,267,415
1998	25,795,370	1.448	37,361,403
1999	57,530,764	1.421	81,731,684
2000	64,053,453	1.376	88,168,123
2001	48,045,943	1.345	64,626,708
2002	43,228,017	1.328	57,407,953
2003	92,302,055	1.298	119,814,107
2004	52,939,128	1.266	67,017,500
2005	46,104,346	1.222	56,350,382
2006	89,775,308	1.182	106,119,763
2007	79,105,574	1.149	90,865,541
2008	49,282,596	1.103	54,352,057
2009	62,296,989	1.107	68,981,525
2010	49,741,613	1.089	54,168,598
2011	100,460,138	1.053	105,757,986
2012	128,609,134	1.031	132,587,086
2013	94,976,341	1.015	96,420,467
2014	59,517,921	0.998	59,413,368
2015	95,580,837	1.000	95,580,837
Total	**1,304,130,709**		**1,532,329,468**

Forecasting Revenues

In the last 20 years, contracts totaling an average of $76 million per year in 2015 dollars have been let for construction and maintenance of the transportation infrastructure in the Capital Region. An inflation factor of 1 percent per year was then applied to the $76 million to forecast annual availability of funds through 2042. Total available state and Federal funds forecast over the life of the Financially Constrained Plan will be approximately $2.22 billion.

The annual amounts were then aggregated to the three MTP time periods, resulting in the following levels (Table 7-4) of state and federal funding available at each Stage.

Table 7-4: MOVE 2042 Highway Funding Projection

Stage I (2018-2022)	$401,207,534
Stage II (2023-2032)	$864,855,869
Stage III (2033-2042)	$955,338,928
Total	**$2,221,402,331**

7.4 | Staged Improvement Program

The next step was to develop a staged improvement program of fiscally constrained projects. . The five MPO parishes in the Capital Region are classified as maintenance areas, based on the 2008 8-hour ozone standard. This status triggers the requirement that the fiscally constrained staged improvement program also meet the air quality requirements set forward by the Clean Air Act.

Applying Fiscal Constraint

The three scenarios for staged improvement projects described in section 7.2.3 were each evaluated based on the project development criteria described earlier. For projects included in Stage II and Stage III of the Plan, typical cost for each project calculated in section 7.2 was augmented by an annual rate of 1.0 percent to account for inflation. Since it is not possible to predict exactly which year a project will be constructed, the inflation value is calculated at the mid-point of the stage used, with a rate of 1.13 for Stage II, and a rate of 1.25 for Stage III. An estimate of probable cost for each project was calculated by multiplying the cost in 2015 dollars with the stage specific inflation values. Projects were eliminated until each scenario was reasonably fiscally constrained.

Table 7-5: Financial Constraint Test Summary

Comprehensive Scenario**	Number of Projects		Plan Project Costs (Millions)		Financial Constraint Budget (Millions)			Financial Constraint Test			
Plan_Stage	Federally Funded	Locally/RT Funded	Capacity Projs	Line Items	Capacity	Line Items	Total	Capacity Cost Vs. Capacity Budget	Capacity Cost Vs. Total Budget	Line Item Cost Vs Total Budget	Line Item Cost Vs Line Item Budget
I	10	7	261.37	139.84	242.59	158.62	401.21	107.7%	65.1%	34.9%	88.2%
II	26	4	617.28	247.57	522.93	341.92	864.86	118.0%	71.4%	28.6%	72.4%
III	16	1	504.24	451.10	577.64	377.70	955.34	87.3%	52.8%	47.2%	119.4%
Grand Total	**52**	**12**	**1,382.90**	**838.50**	**1,343.17**	**878.24**	**2,221.40**	**103.0%**	**62.3%**	**37.7%**	**95.5%**

*** Received the most support at the November 16th Joint TAC/TPC meeting to move forward for air quality conformity analysis*

DOTD Input Scenario	Number of Projects		Plan Project Costs (Millions)		Financial Constraint Budget (Millions)			Financial Constraint Test			
Plan_Stage	Federally Funded	Locally/RT Funded	Capacity Projs	Line Items	Capacity	Line Items	Total	Capacity Cost Vs. Capacity Budget	Capacity Cost Vs. Total Budget	Line Item Cost Vs Total Budget	Line Item Cost Vs Line Item Budget
I	9	7	235.17	166.04	242.59	158.62	401.21	96.9%	58.6%	41.4%	104.7%
II	1	3	847.50	17.36	522.93	341.92	864.86	162.1%	98.0%	2.0%	5.1%
III	10	-	623.00	332.33	577.64	377.70	955.34	107.9%	65.2%	34.8%	88.0%
Grand Total	**20**	**10**	**1,705.68**	**515.73**	**1,343.17**	**878.24**	**2,221.40**	**127.0%**	**76.8%**	**23.2%**	**58.7%**

3C Process Scenario	Number of Projects		Plan Project Costs (Millions)		Financial Constraint Budget (Millions)			Financial Constraint Test			
Plan_Stage	Federally Funded	Locally/RT Funded	Capacity Projs	Line Items	Capacity	Line Items	Total	Capacity Cost Vs. Capacity Budget	Capacity Cost Vs. Total Budget	Line Item Cost Vs Total Budget	Line Item Cost Vs Line Item Budget
I	9	8	226.70	174.50	242.59	158.62	401.21	93.5%	56.5%	43.5%	110.0%
II	28	2	531.23	333.62	522.93	341.92	864.86	101.6%	61.4%	38.6%	97.6%
III	20	-	626.41	328.92	577.64	377.70	955.34	108.4%	65.6%	34.4%	87.1%
Grand Total	**57**	**10**	**1,384.35**	**837.05**	**1,343.17**	**878.24**	**2,221.40**	**103.1%**	**62.3%**	**37.7%**	**95.3%**

Effectiveness of Fically-Constrained Projects

The next step was to model the three scenarios and compare the benefits of each. The three scenarios of projects were modeled and compared against a no-build scenario in the year 2042 to estimate the benefits of each project mix.

The three scenarios of projects and their respective benefits were presented at the Joint TAC/TPC meeting on Thursday, November 16, 2017. Committee members were asked to review the scenario exhibits and identify their preferred scenario for running air quality emissions analysis. The Comprehensive scenario was the one most preferred and recommended to proceed to air quality conformity analysis.

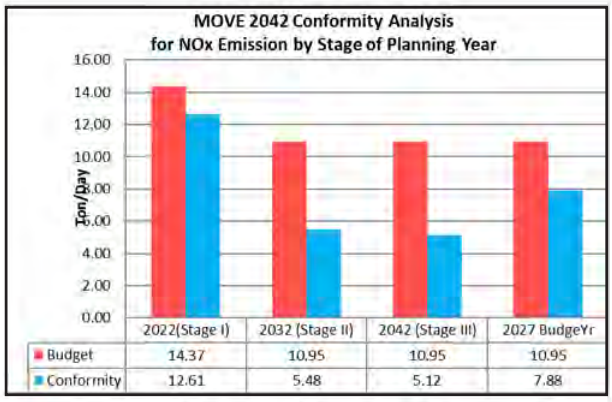
Table 7-6: Comparison of the benefits of three project scenarios

Results and Benefits	Test Scenarios			
	No Build	3C Process	DOTD Input	Comprehensive
Daily Vehicle Miles Traveled (Miles)	33,238,073	33,228,946	33,405,741	33,363,843
Daily Vehicle Hours Traveled (Miles)	1,053,048	996,833	1,021,451	1,007,038
Daily Vehicle Hours of Delay (Hours)	320,237	268,161	288,902	275,470
Average Speed (MPH)	31.6	33.3	32.7	33.1
Annual Reduction in Delay (Hours)		13,539,607	8,146,944	11,639,331
Total Cost (Millions)		$1,384	$1,706	$1,383
Annual Hours Saved Per Million Dollars Spent		9,780	4,776	8,417
Financially Constrained Budget (Millions) - Capacity Projects		$1,343	$1,343	$1,343
Financially Constrained Budget (Millions) - Total		$2,221	$2,221	$2,221
Financially Constrained Test		103%	127%	103%
Funds Available for Line Item Projects (Millions)		$837	$516	$839

Figure 7-15: TAC/TPC Members Reviewing the Project Scenarios Exhibits

Applying Air Quality Conformity Test

The preferred scenario staged improvement projects (2022, 2032, and 2042) were tested for air quality conformity. Analysis was also performed for 2027, the year the Motor Vehicle Emission Budget (MVEB) was determined in attainment in Louisiana's State Implementation Plan (SIP). Details of the air quality analysis process can be found in the appendices on (http://crpc.ms2cloud.com/tdms.ui/ttds/dashboard/index?loc=Crpc)wwwww). The results from the conformity analysis are shown in Figure 7-16.



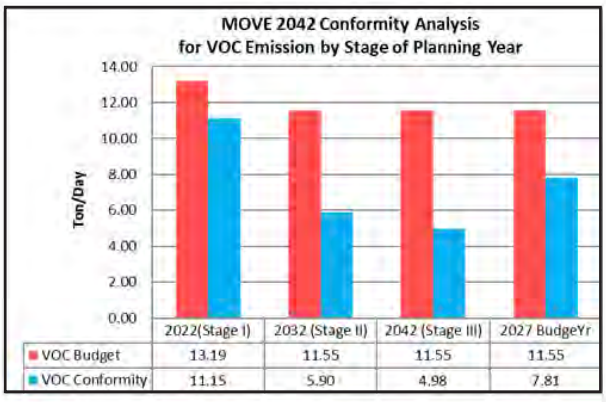


Figure 7-16: Air Quality Conformity Analysis Results for Comprehensive Scenario

The comprehensive scenario staged improvement projects met both fiscally constraint and air quality constraint tests.

Staged Improvement Projects

This section displays the final highway projects and maps by MOVE 2042 stages listed below:

- STAGE I (2018 - 2022)
- STAGE II (2023 – 2032)
- STAGE III (2033 -2042)

Table 7-7 lists all the planned capacity projects by MOVE 2042 stage and Figure 7-17 shows the map of all the projects listed in table 7-7.

Stage I (2018 – 2022)

Stage I includes planned improvement in the years 2018 to 2022. The planned improvements in Stage I are projected to cost **$581 million** and will be funded with local, state, and federal funds. Of the total Stage I cost, about $180 million represents non-recurring state and local funds. The remaining $401 million is recurring federal and state funds of which $261 million is allocated for capacity projects. $140 million is set aside for line item projects which consists of intersection improvements, bridge replacements, roundabouts, roadway preservation, enhancements, ITS, and safety projects. Figure 7-18 shows the level of service of Capital Region roadways in 2022 after the committed and Stage I projects are implemented.

Stage II (2023 – 2032)

Stage II includes improvement in the years 2023 to 2032. The planned improvements in Stage II are projected to cost **$912 million** and will be funded with local, state, and federal funds. Of the total Stage II cost, about **$47 million** involves non-recurring state and local funds. The remaining $865 million is recurring federal and state funds of which $617 million is allocated for capacity projects. $248 million is set aside for line item projects which consists of intersection improvements, bridge replacements, roundabouts, roadway preservation, enhancements, ITS, and safety projects. Figure 7-19 shows the level of service of Capital Region roadways in 2032 after the committed and Stage I and Stage II projects are implemented.

Stage III (2033 – 2042)

Stage III includes improvement in the years 2033 to 2042. The planned improvements in Stage III are projected to cost **$980 million** and will be funded with local, state, and federal funds. Of the total Stage III cost, about **$24 million** involves non-recurring state and local funds. The remaining $956 million is recurring federal and state funds of which $504 million is allocated for capacity projects. $452 million is set aside for line item projects which consists of intersection improvements, bridge replacements, roundabouts, roadway preservation, enhancements, ITS, and safety projects. Figure 7-20 shows the level of service of Capital Region roadways in 2042 after the committed and Stage I through Stage III projects are implemented.

Table 7-7: List of MOVE 2042 Planned Capacity Projects by Stage Years

No.	Map ID	Parish	Project Name	Project Description	Project Location	Plan Stage	Project Cost (Millions)
1	7	EBR	Glen Oaks Dr*	Reconstruction Center Turn Lane	Plank Rd to McClelland Dr	I	10.0
2	4	EBR	N Sherwood Forest Blvd	Widen to 5 Lanes	Choctaw Dr to Greenwell Springs Rd	I	18.5
3	27	EBR	Pecue Ln*	Widen to 4 Lanes	Perkins Rd to Airline Hwy	I	55.0
4	18	EBR	Pecue Ln*	New Interchange	I-10	I	42.6
5	8	EBR	Picardy-Perkins Rd connector*	New 4 Lane roadway	Perkins Rd to Picardy Ave	I	37.0
6	26	EBR	I-110	Improve Safety on I-10 Near I-10/I-110 Interchange	Terrace Ave	I	8.7
7	9	LIV	Cook Rd*	New 4 Lane Roadway	Pete's Hwy to Juban Rd	I	11.5
8	6	EBR	Staring Ln/Gardere Ln	New 4 Lane/ Widen to 4 Lanes	Burbank Dr to Nicholson Dr	II**	12.7
9	11	LIV	LA 1026 (Juban Rd)	Widen to 5 Lanes	I-12 to Florida Ave	I	7.5
10	465	EBR	LA 30 (Nicholson Dr)	Widen to 5 Lanes	Brightside Dr to Gourrier Ave	I	21.0
11	460	EBR	LA 408 (Hooper Rd)	Widen to 4 Lanes	Blackwater Rd to Sullivan Rd	II**	49.1
12	12	EBR	LA 426 (Old Hammond Hwy)*	Widen to 4 Lanes	Boulevard de Province to Milleville	I	16.0
13	471	EBR	LA 427 (Perkins Rd)	Widen to 4 Lanes	Siegen Ln to Pecue Ln	II**	26.2
14	883	WBR	I-10	Grade Raising and Widening to 6 Lanes	Iberville P/L - W End Miss River Br	II**	80.0
15	553	EBR	Dijon Extension Phase II*	New Road	Midway to LA 1248	I	8.0
16	801	ASC	LA 22/LA 70 (Crawford LeBlanc)	Widen to 4 Lanes	Study Area Boundary to I-10	II**	34.7
17	432	ASC	Duplessis Road Safety Widening	Improve roadway safety along Duplessis Rd	US 61 - LA 73	I	3.1
18	459	EBR	Highland-Burbank Connector*	New 3 Lane roadway	Highland Rd to Burbank Dr	II**	9.7
19	462	EBR	Jones Creek Rd Ext*	New 4 Lane roadway	Jefferson Hwy to Tiger Bend Rd	II**	29.4
20	20	EBR	LA 19*	Widening of LA 19	LA 64 - Sunset Blvd	II**	8.2
21	612	EBR	Cedarcrest Ave	Widen to 4 Lanes	Airline Hwy to Old Hammond Hwy	II	10.9
22	628	EBR	Groom Rd Ext	New 2 Lane Roadway	Old Scenic Hwy to Samuels Rd	II	4.4
23	502	ASC	I-10	Widen to 6 Lanes	LA 73 to LA 22	II**	169.2
24	642	LIV	I-12	Interchange Improvements	Pete's Hwy / Range Ave	II	22.6
25	634	LIV	LA 1026 (Juban Rd)	Widen to 5 Lanes	Wax Rd to I-12	II	8.8
26	641	LIV	LA 1032 (4-H Club Rd)	Widen to 4 Lanes	Florida Ave to Vincent Rd	II	8.2
27	637	LIV	LA 16 (Pete's Hwy)	Widen to 4 Lanes	Centerville St to Vincent Rd	II	21.9
28	604	ASC	LA 30 (Nicholson Dr)	Widen to 5 Lanes	Ashland Rd to Burnside Ave	II**	27.5
29	636	LIV	LA 3003 (Rushing Rd)	Widen to 4 Lanes	0.5 mi West of S Range Ave to Pete's Hwy	II	8.8
30	627	EBR	LA 37 (Greenwell Springs Rd)	Widen to 5 Lanes	Sullivan Rd to Magnolia Bridge Rd	II	20.8

Table 7-7: continued

No.	Map ID	Parish	Project Name	Project Description	Project Location	Plan Stage	Project Cost (Millions)
31	611	EBR	LA 427 (Perkins Rd)	Widen to 5 Lanes	Pecue Ln to Highland Rd	II	12.8
32	638	LIV	LA 447 (Walker Rd)	Widen to 4 Lanes	Duff Rd to Burgess Ave	II	5.6
33	633	LIV	LA 64 (Magnolia Beach Rd)	Widen to 4 Lanes	Amite River to N Range Ave	II	8.3
34	619	EBR	LA 67 (Plank Rd)	Widen to 6 Lanes	Airline Hwy to Hooper Rd / Harding Blvd	II	5.5
35	601	ASC	LA 73 (Old Jefferson Hwy)	Widen to 5 Lanes	I-10 to Airline Hwy	II	25.2
36	602	ASC	LA 73 (Old Jefferson Hwy)	Widen to 5 Lanes	LA 74 to I-10	II	11.5
37	606	ASC	LA 940 (Orice Roth Rd)	Widen to 4 Lanes	E Ascension School Rd to Burnside Ave	II	7.2
38	609	EBR	S Choctaw Rd	Widen to 4 Lanes	Flannery Rd to Central Thwy	II	10.5
39	629	EBR	Tiger Bend Rd*	Widen to 5 Lanes	Jones Creek Rd to Antioch Rd	II	7.6
40	631	EBR	US 190 (Florida Ave)	Widen to 4 Lanes	Pete's Hwy to Burgess Ave	II	16.4
41	617	EBR	US 190 (Florida Blvd)	Widen to 8 Lanes	Airline Hwy to Monterey Blvd	II	6.4
42	714	WBR	LA 1/I-10 Connector (LA415)	New 2 Lane Roadway	Lobdell Hwy to LA 1	II	65.4
43	701	ASC	LA 44 (N Burnside Ave)	Widen to 4 Lanes	Cante Rd to LA 42	II	27.4
44	713	LIV	LA 447 (Walker Rd)	Widen to 4 Lanes	I-12 to Hood Rd	II	40.1
45	704	ASC	LA 73 (Old Jefferson Hwy)	Widen to 4 Lanes	Airline Hwy to LA 42	II	7.4
46	400	EBR	LA 3034 (Wax Rd/Magnolia Bridge)	Widen to 5 Lanes	Sullivan Rd to Greenwell Springs Rd	II	42.9
47	645	EBR	LA 426 (Old Hammond Hwy)	Widen to 5 Lanes	Millerville Rd to O'Neal Ln	II**	21.4
48	464	EBR	LA 64 (Mt Pleasant-Zachary Rd)	Widen to 4 Lanes	US 61 to LA 964	III	27.0
49	623	EBR	I-12	New WB Exit Ramp	Essen Ln	III	17.5
50	613	EBR	LA 1068 (Drusilla Ln)	Widen to 4 Lanes	Jefferson Hwy to Old Hammond Hwy	III	8.4
51	625	EBR	LA 408 (Hooper Rd)	Widen to 6 Lanes	Plank Rd to Mickens Rd	III	9.4
52	621	EBR	LA 426 (Old Hammond Hwy)	Widen to 4 Lanes	O'Neal Ln to Florida Blvd	III	6.9
53	614	EBR	US 61 (Airline Hwy) Phase 1-C	Widen to 6 Lanes	Florida Blvd to Florline Blvd	III	2.0
54	615	EBR	US 61 (Airline Hwy) Phase 2-B	Widen to 6 Lanes	Greenwell Springs Rd to I-110	III	29.6
55	616	EBR	US 61 (Airline Hwy) Phase 3	Widen to 6 Lanes	Florline Blvd to Greenwell Springs Rd	III	13.6
56	702	ASC	LA 621	Widen to 4 Lanes	Old Jefferson Hwy to Airline Hwy	III	20.0
57	707	EBR	LA 64 (Greenwell Springs-Port	Widen to 4 Lanes	Plank Rd to Joor Rd	III	30.7
58	709	EBR	LA 67 (Plank Rd)	Widen to 4 Lanes	Groom Rd to Main St	III	40.2
59	710	EBR	Mickens Rd*	Widen to 4 Lanes	Hooper Rd to Joor Rd	III	24.3
60	809	ASC	LA 30 (Nicholson Dr)	Widen to 5 Lanes	IBR/ASC Parish Line to Ashland Rd	III	71.6

Table 7-7: continued

No.	Map ID	Parish	Project Name	Project Description	Project Location	Plan Stage	Project Cost (Millions)
61	810	ASC	LA 30 (Nicholson Dr)	Widen to 5 Lanes	Burnside Ave to Airline Hwy	III	28.2
62	818	EBR	LA 30 (Nicholson Dr)	Widen to 5 Lanes	Brightside to EBR/IBR Parish Line	III	78.0
63	847	IBR	LA 30 (Nicholson Dr)	Widen to 5 Lanes	EBR/IBR Parish Line to IBR/ASC Parish Line	III	98.1
64	431	ASC	LA 44 (N Burnside Ave)	Widen to 4 Lanes	Loosemoore Rd to River Rd	III	23.0
*Projects funded with local, road transfer, or earmarked funds					Total Cost - All Capacity Projects		1,642.2
					Total Cost - Federally Funded Capacity Projects		**1382.9**

Line Items Funding Breakdown

Line items are low cost non-capacity projects such that are not regionally significant. Table 7.8 shows the high-level line items categories and breakdown of the funds by MOVE 2042 stage.

Table 7-8: MOVE 2042 Line Item Project Categories

Line Item Category	Line Item Description	Stage I (Millions)	Stage II (Millions)	Stage III (Millions)	Total (Millions)
Enhancement	Bike Paths, Sidewalks, Recreational Trails etc.	10	17	31	**58**
Safety	Safety Improvement Projects	21	37	68	**126**
Bridge	Bridge Inspections, Rehabilitation, Repairs etc.	34	60	108	**202**
Preventive Maintenance	Road Maintenance and Rehabilitation	50	90	162	**302**
Operations	Intelligent Transportation System, Access Management, Signal Improvements etc.	18	32	59	**109**
Miscellaneous	Other type of Projects	7	12	23	**42**
Total		**140**	**248**	**451**	**839**

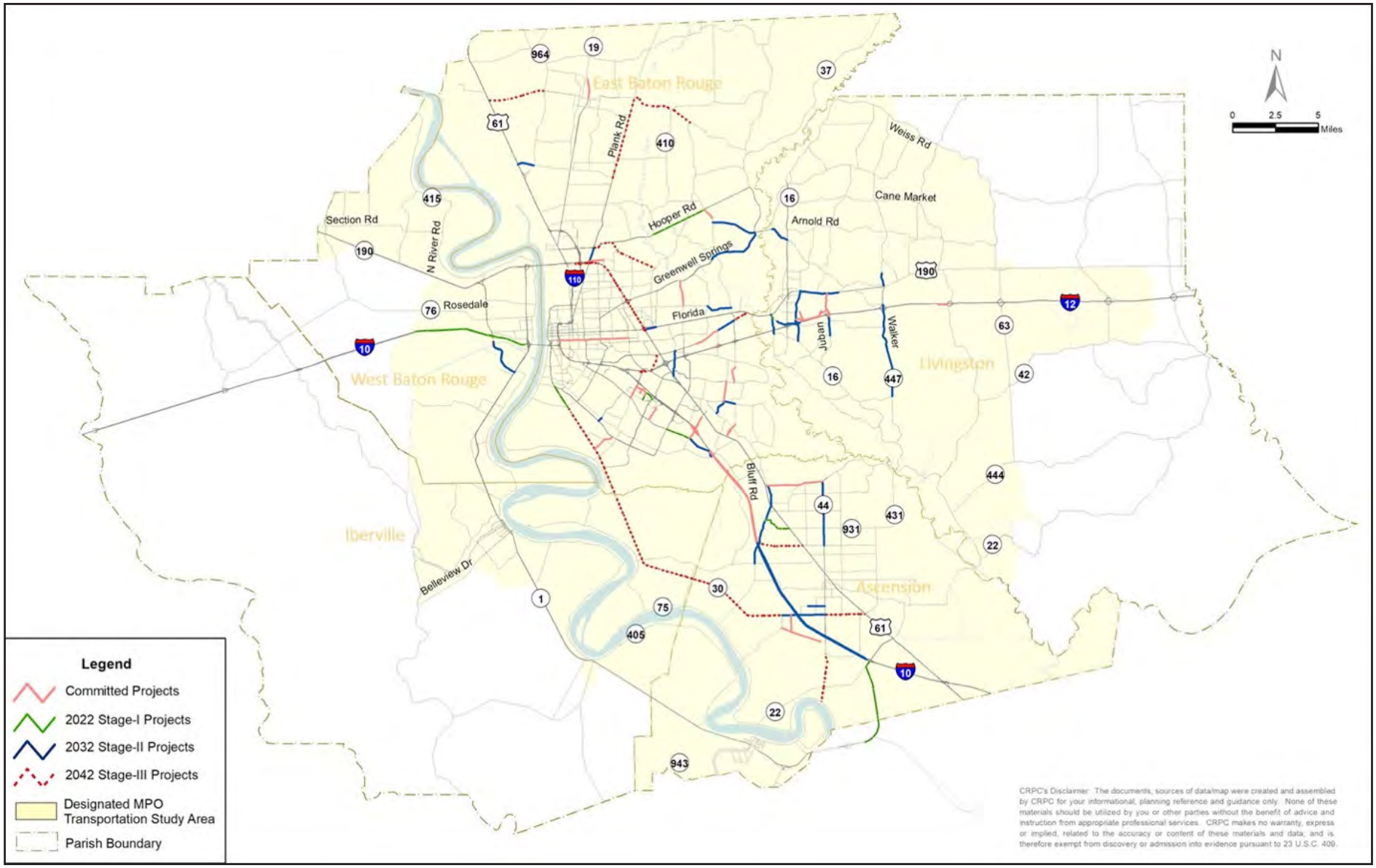


Figure 7-17: Map of the MOVE 2042 Planned Capacity Projects by Stage

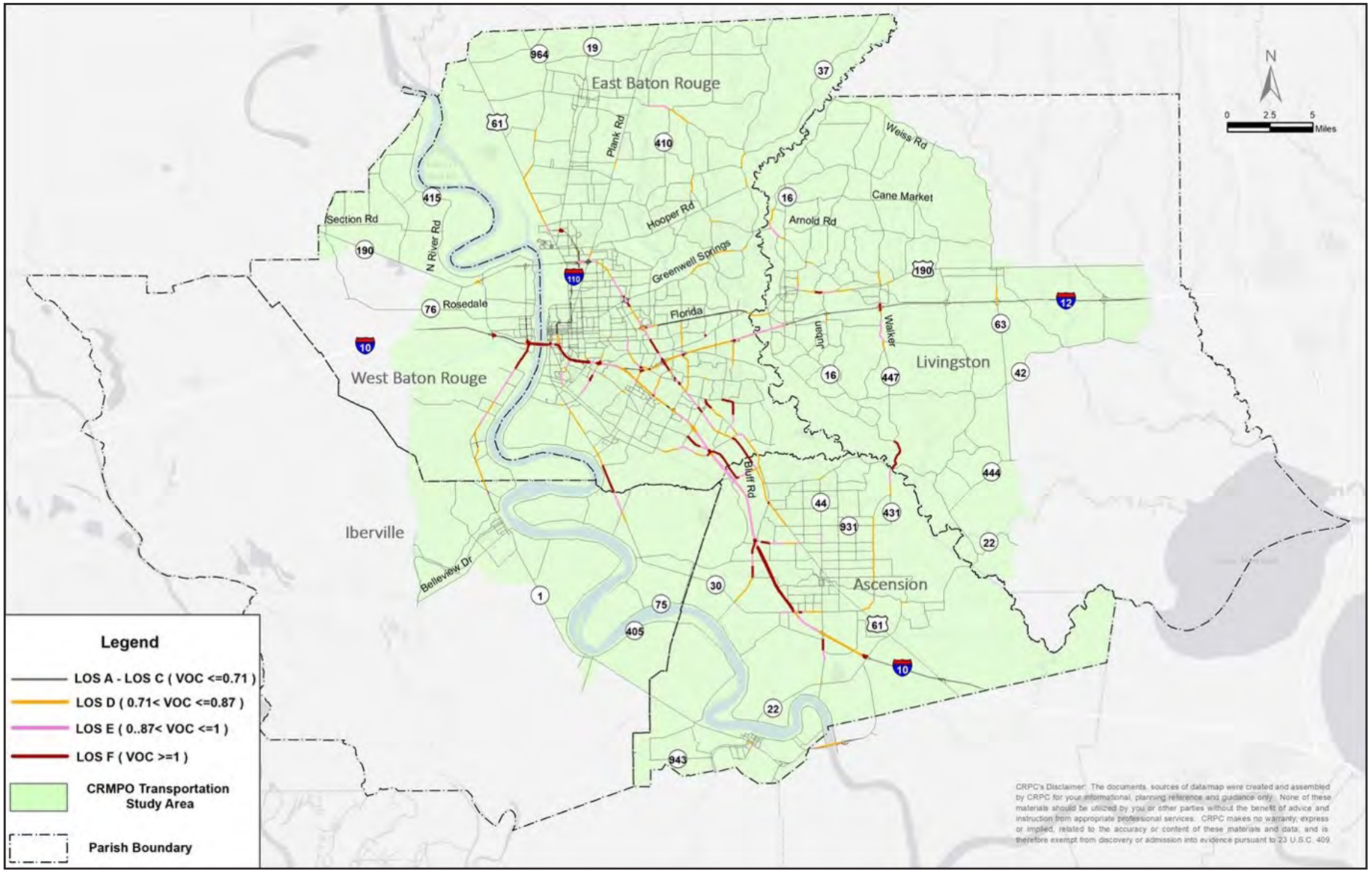


Figure 7-18: Level of Service Map 2022

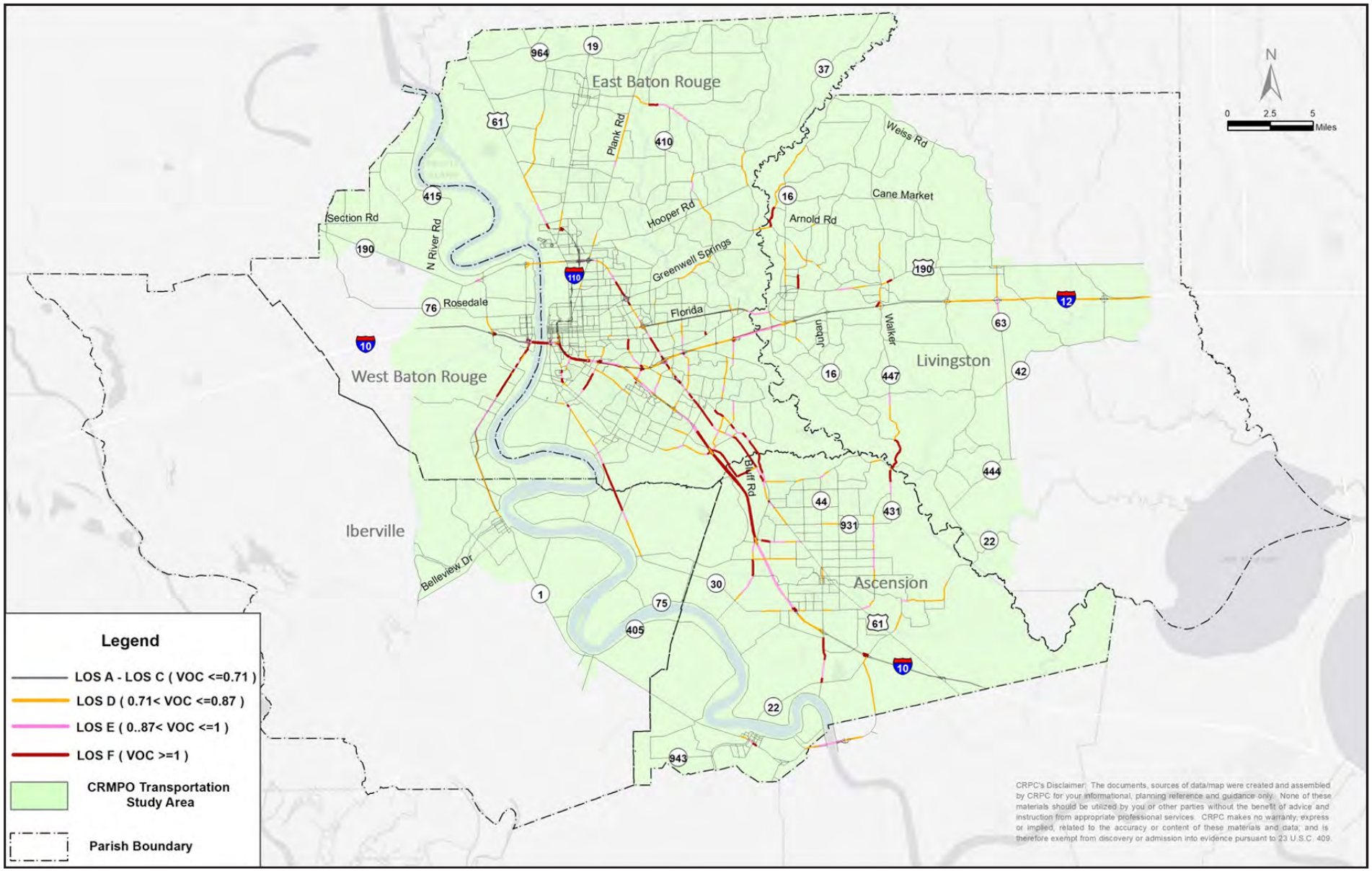


Figure 7-19: Level of Service Map 2032

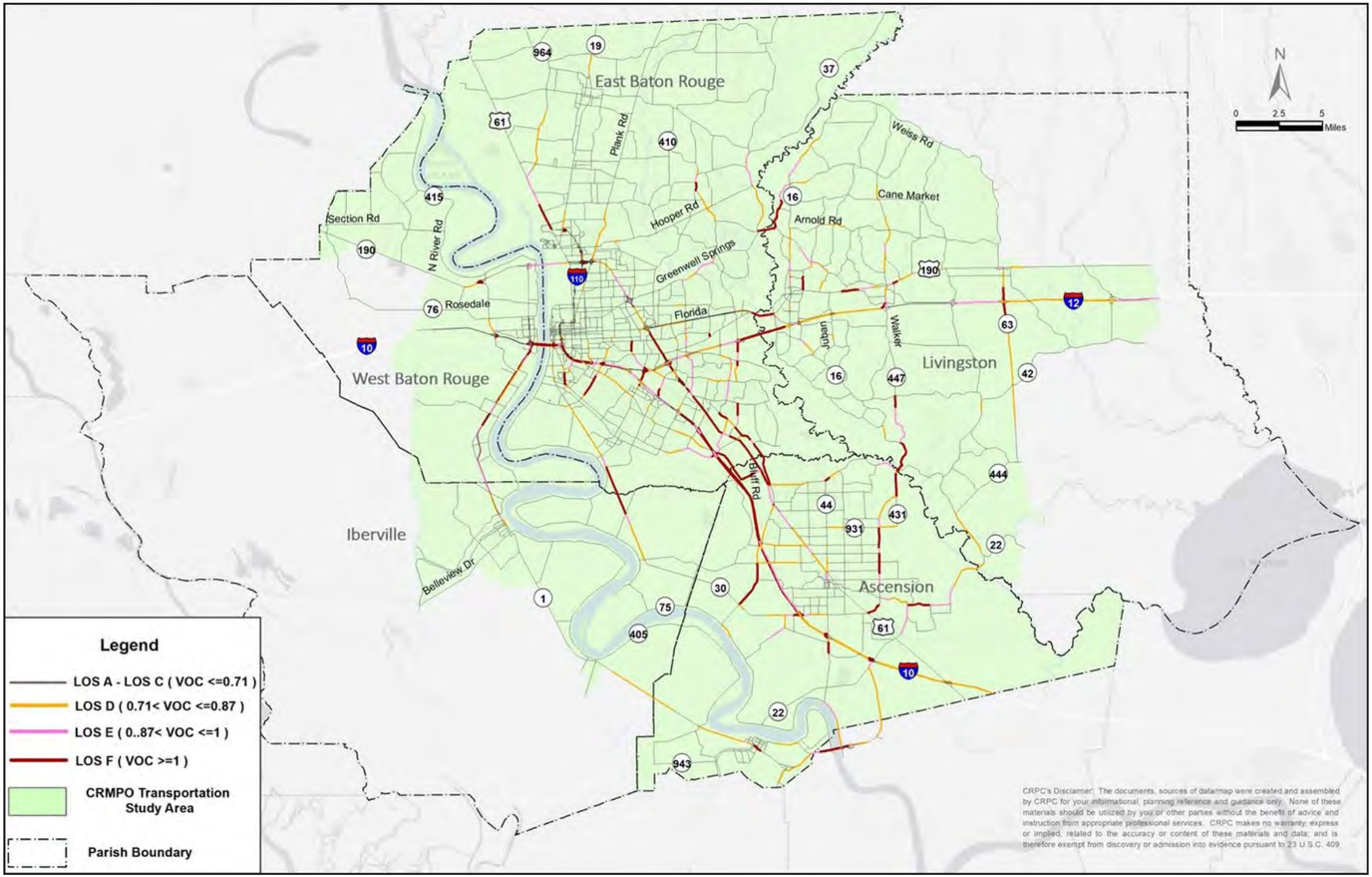


Figure 7-20: Level of Service Map 2042

7.5 | Vision Plan and Strategies

The previous sections have addressed Stages I, II, and III's transportation improvements with identified funding sources. However, many other improvements are needed to solve transportation issues in the Capital Region. The Vision Plan identifies needed albeit unfunded transportation improvements.

The funded improvements represent the best combination of projects within limited available funding to address existing transportation deficiencies. The remaining unfunded transportation improvements are no less important or effective, they simply cannot be accommodated within the financially constrained budget. The estimated cost, in 2015 dollars, to implement these additional projects is $6.7 billion.

Unfunded Projects

Delayed funding for a transportation improvement project may be due to the project's size, cost, design complexity, acquisition difficulties, jurisdictional concerns, and/or environmental concerns. A project may be delayed because its efficiency is contingent upon other projects being completed. The remaining unfunded transportation improvements are included in the Vision Plan to keep a record of future needs.

These improvements are reviewed annually to determine if adjustments are needed. A list of unfunded capacity projects is shown in Table 7-8. Funding and implementing the Vision Plan would have a tremendous impact on the transportation network of the region.

Table 7-9: Unfunded Capacity Project Needs

Project Name	Project Description	Project Location
Antonio Ln to Quarter Horse Ln	New 2 Lane Roadway	Antonio Ln to Quarter Horse Ln
Ardenwood - Lobdell Connector (BRCC)	Connector Rd	Ardenwood to Lobdell Connector
ASC - LIV Pkwy	New 4 Ln Expressway W/Interchange at I-12	Airline Hwy to I-12
Baker Blvd	Widen to 4 Lanes	Main St to McHugh Rd
Bluff - LA 73 Connector	New 2 Ln Roadway	Bluff Rd to LA 73
Brightside Dr	Widen to 5 Lanes	Nicholson Dr to River Rd
Buddy Ellis Rd	Widen to 4 Lanes	Juban Rd to Walker South Rd
BUMP		
Burgess Rd	Widen to 4 Lanes	Lockhart Rd to Arnold Rd
Cannon Rd	Widening to 4 Lanes	LA 44 - LA 431
Cannon Rd Extension	New 4 Lane Roadway	N. Burnside Ave - Airline Hwy
College Dr	Widen to 6 Lanes	Perkins Rd to I-10
College Dr	Widen to 6 Lanes	I-10 to Foster Dr
Commercial Dr Ext	New 2 Lane Roadway	Lobdell Hwy to Rosedale Rd
Coursey Blvd	Widen to 6 Lanes	Airline Hwy to O'Neal Ln
Dalrymple Dr	Widen to 4 Lanes	Highland Rd to I-10
Donaldsonville Bypass	New 2 Ln Roadway	Donaldsonville Bypass
Florida Blvd	Widening to 4 Lanes	Juban - LIV P/L
Florida Blvd Couplet		N. 19th St - Foster
Florida Blvd Expressway		I-12 to Airline Hwy
Forest Delatte Rd	Widen to 4 Lanes and Realignment	Pete's Hwy to Juban Rd
Frenchtown	Capacity Improvements	Central Thruway to Greenwell Springs
Frost Rd	Widening to 4 Lanes	Florida Blvd - LA 444
Gourrier Ave	Widen to 4 Lanes	Nicholson Dr to River Rd
Harding Rd	Widening to 6 Lanes	Scenic Hwy - I-110
Henry/West Rd Ext	New 2 Ln Roadway	Tillotson/Alkens Rd - Joe Sevario Rd
Highland Rd	Widen to 4 Lanes	Perkins Rd to Seigen Ln

Table 7-9: continued

Project Name	Project Description	Project Location
Highland Rd	Widen to 4 Lanes	Seigen Ln to Staring Ln
Highland Rd	Widen to 4 Lanes	Staring Ln to Lee Ave
Highland Rd	Widen to 4 Lanes	Lee Ave to Chimes St
Hoo Shoo Too Rd	Capacity Improvements	Jefferson to Montrachet Dr
I - 10 and I-12 Connector	New roadway	Pecue to Juban Via Tiger Bend Ext
I-10	Widen to 8 Lanes	Mississippi River Bridge to I-10 / I-12 Split
I-10	Widen to 8 Lanes	LA 1 to I-110 (Mississippi River Bridge)
I-10	Widen to 6 Lanes	Study Area Boundary to LA 1
I-10 - LA 70 Connector	New 2 Ln Roadway W/Interchange	LA 70 10 I-10
I-10 Frontage Roads	New Frontage Rd along I-10`	LA 73 to LA 22
I-10 to US 190 (WBR)	New 4 Lane Roadway and Interchange	I-10 to US 190
I-12	Widen to 6 Lanes	Satsuma to LA 63
I-12 Frontage Rd (LIV)	New 2 Lane Roadway	Juban Rd to Walker South Rd
Industrial Access Corridor	New 4 Lane Roadway	LA 30 to LA 942
Joe Severio Rd	Widening	LA 42 - LA 30
Juban Rd Ext	New 4 Lane Roadway	Florida Ave to Lockhart Rd
Kenilworth Pkwy Ext North	New 2 Lane with RR underpass	Perkins Rd to Hennessy Blvd
LA 1	Widen to 6 Lanes	Lukeville Ln to I-10
LA 1	Widen to 6 Lanes	Lukeville Ln to Study Area Boundary
LA 1	Widening to 4 Lanes	US 190 - I-10
LA 1	Widening to 4 Lanes	White Castle - Donaldsonvile
LA 1	Widening to 4 Lanes	IBER P/L - LA 69
LA 1024 - LA 1019 Connector	New 2 Ln Roadway	LA 1024 to LA 19
LA 1025	Widening to 4 Lanes	N Range - Walker Rd N
LA 1026 (Lockhart Rd)	Widen to 4 Lanes	Range Ave to Burgess Ave
LA 1032 (4-H Club Rd)	New Interchange	I-12
LA 1032 (4-H Club Rd)	Widen to 4 Lanes	I-12 to Hillon Hood Rd

Table 7-9: continued

Project Name	Project Description	Project Location
LA 1032 (4-H Club Rd)	Widen to 4 Lanes	Hillon Hood Rd to LA 16
LA 1148	Widening to 4 Lanes	P/L - LA 1
LA 1248 (Bluebonnet Blvd)	Widen to 6 Lanes	Highland Rd to Airline Hwy
LA 16	Widen to 4 Lanes	LA 444 to LA 42
LA 16	Widen to 4 Lanes	4-H Club Rd to LA 42 (Port Vincent)
LA 16	Widen to 4 Lanes	LA 42 (Port Vincent) to LA 42
LA 16	Widen to 4 Lanes	LA 1019 to LA 63
LA 22	Widen to 4 Lanes	Weber City Rd to LA 16
LA 3089	Widening to 4 Lanes	Donaldsonville - 6th Ave
LA 3120	Widening to 4 Lanes	LA 18 - LA 70
LA 3120	Widening to 4 Lanes	LA 70 - ASC P/L
LA 3246 (Siegen Ln)	Widen to 6 Lanes	Perkins Rd to I-10
LA 327 (River Rd)	Widen to 4 Lanes	Brightside Ln to South Blvd
LA 37 (Greenwell Springs Rd)	Widen to 6 Lanes	Airline Hwy to Joor Rd
LA 37 (Greenwell Springs Rd)	Widen to 6 Lanes	Joor Rd to Sherwood Forest Blvd
LA 37 (Greenwell Springs Rd)	Widen to 6 Lanes	Sherwood Forest Blvd to Sullivan Rd
LA 405	Widening to 4 Lanes	Belleview Rd - End?
LA 408 (Hooper Rd)	Widen to 4 Lanes	Devall Rd to Greenwell Springs Rd
LA 408 Ext (Hooper Rd)	New 4 Lane Roadway / Bridge	Greenwell Springs Rd to LA 16
LA 42	Widen to 4 Lanes	N Burnside Ave to LA 431
LA 42 (Burbank Dr)	Widen to 6 Lanes	Nicholson Dr to 0.8 mi east
LA 427 (Acadian Thwy) / Stanfo	Widen to 6 Lanes	Bawell St to W Lake Shore Dr
LA 427 (Perkins Rd)	Widen to 6 Lanes	Acadian Thwy to Essen Ln
LA 429 (Cornerview) Extension/Connector	New 2 Ln Roadway	LA 429 to LA 30
LA 431	Widen to 4 Lanes	Brittany-Port Vincent Hwy to Oak Grove-Port Vincent Hwy
LA 431 - Churchpoint Connector	New 2 Ln Roadway	LA 431 to Churpoint Rd
LA 431 (Brittany-Port Vincent	Widen to 4 Lanes	Airline Hwy to Germany Rd

Table 7-9: continued

Project Name	Project Description	Project Location
LA 444	Widening to 4 Lanes	Frost Rd - French Settlement
LA 447 (Walker South Rd)	Widen to 4 Lanes	Hood Rd to LA 16
LA 449 Ext	New 2 Lane Roadway with Interchange	Florida Ave to I-12
LA 621 (Cante Rd)	Widen to 4 Lanes	Airline Hwy to LA 431
LA 64 Bypass	New 2 Lane Roadway	Main St to LA 19 (Zachary)
LA 73 (Jefferson Hwy)	Widen to 6 Lanes	Lobdell Ave to Bluebonnet Blvd
LA 74	New Interchange	I-10
LA 74	Widening to 6 Lanes	ASC P/L - US 61
LA 76 (Rosedale Rd) - US 190 Connector	New 2 Ln Roadway	US 190 - LA 76
LA 929 (Hornsby Rd) Ext	New 2 Lane Roadway with Bridge	Oak Grove-Port Vincent Hwy to 4-H Club Rd
LA 930	Widening to 4 Lanes	LA 42 - Henry Rd
LA 931	Widening to 4 Lanes	US 61 - LA 431
LA 988	Widening to 4 Lanes	Phillips Ln - IBR P/L
Lee Dr	Widen to 4 Lanes	Highland Rd to Perkins Rd
Lee Dr - kenilworth connector	New 2 Ln Roadway with Median	Lee Dr to Kenilworth
Linder Rd	Widen to 4 Lanes	Lockhart Rd to Arnold Rd
Lobdell Hwy	Widening to 6 Lanes	US 190 - I-10
Lockhard Rd	Widening to 4 Lanes	LA 16 - Eden Church Rd
LA 74	New Interchange	I-10
LA 74	Widening to 6 Lanes	ASC P/L - US 61
LA 76 (Rosedale Rd) - US 190 Connector	New 2 Ln Roadway	US 190 - LA 76
LA 929 (Hornsby Rd) Ext	New 2 Lane Roadway with Bridge	Oak Grove-Port Vincent Hwy to 4-H Club Rd
LA 930	Widening to 4 Lanes	LA 42 - Henry Rd
LA 931	Widening to 4 Lanes	US 61 - LA 431
LA 988	Widening to 4 Lanes	Phillips Ln - IBR P/L

Table 7-9: continued

Project Name	Project Description	Project Location
Lee Dr	Widen to 4 Lanes	Highland Rd to Perkins Rd
Lee Dr - kenilworth connector	New 2 Ln Roadway with Median	Lee Dr to Kenilworth
Old Scenic Hwy	Widening to 4 Lanes	Scenic Hwy - EBR P/L
Pendarvis Ln	Widening to 4 Lanes	Florida St - Walker S
Pendarvis Ln Realignment	New 2 Lane Roadway	Pendarvis Ln to Florida Ave
River Rd	Widening to 4 Lanes	Ben Hur - ?
S Flannery Rd	Widen to 4 Lanes / Realign with Millerville Rd	Old Hammond Hwy to Florida Blvd
S Sherwood Forest Blvd	Widen to 4 Lanes	Old Hammond Hwy to Florida Blvd
S Sherwood Forest Blvd	Widen to 6 Lanes	Airline Hwy to Old Hammond Hwy
Satsuma Rd	Widen to 4 Lanes	I-12 to Florida Ave
Satsuma Rd Ext	New 2 Lane Roadway	Florida Ave to Cane Market Rd
Sharp Rd	Widen to 4 Lanes	Florida Blvd to Old Hammond Hwy
Sherwood Forest Dr	Widening to 4 Lanes	Airline Hwy - S Harrells Ferry
South Bypass		
St. Landry Ext	New 2 Ln Roadway	Edenborne Connector to River Rd
Sunshine Bridge	Widening	
US 190 (Florida Ave)	Widen to 4 Lanes	Burgess Ave to Walker Rd
US 190 (Florida Ave)	Widen to 4 Lanes	Walker Rd to Satsuma Rd
US 190 (Florida Ave)	Widen to 4 Lanes	Satsuma Rd to Study Area Boundary
US 190 (Florida Blvd)	Widen to 8 Lanes	Monterey Blvd to Sherwood Forest Blvd
US 190 (Florida Blvd)	Widen to 6 Lanes	Sherwood Forest Blvd to O'Neal Ln
US 190 (Florida Blvd)	Widen to 6 Lanes	O'Neal Ln to 4-H Club Rd
US 61	Widening to 6 Lanes	LA 22 - I-10
US 61 (Airline Hwy)	Widen to 8 Lanes	Jefferson Hwy to Perkins Rd
US 61 (Airline Hwy)	Widen to 6 Lanes	Perkins Rd to Highland Rd
US 61 (Airline Hwy)	Widen to 6 Lanes	Jefferson Hwy to Cedarcrest Ave

Table 7-9: continued

Project Name	Project Description	Project Location
US 61 (Airline Hwy)	Widen to 6 Lanes	Jefferson Hwy to Cedarcrest Ave
US 61 (Airline Hwy)	Widen to 8 Lanes	N Burnside Ave to Jefferson Hwy
US 61 (Airline Hwy)	Widen to 6 Lanes	Highland Rd to Jefferson Hwy
US 61 (Airline Hwy)	Widen to 8 Lanes	Cedarcrest Ave to Florida Blvd
US 61 (Scenic Hwy/Samuels Rd)	Widen to 6 Lanes	I-110 to LA 964
US 61 (Scenic Hwy/Samuels Rd)	Widen to 6 Lanes	LA 964 to Irene Rd
Weiss Rd	Widening to 4 Lanes	P/L - I-12
Westbank Expy	New 4 Lane Roadway	Main St to I-10 Connector

Vision Strategies

Developing a federally mandated, financially constrained plan is required to enable the flow of regular federal funding for transportation investments. This plan does not solve all of the region's transportation problems, but it helps mitigate the most critical needs. The real work begins after the plan is completed. It is vital to build partnerships with key stakeholders such as local governments, industry, and non-profit organizations, and to foster regional collaboration and achieve consensus on multi-faceted strategies to solve transportation issues that improve the quality of life in the Capital Region. The Capital Region Industry for Sustainable Infrastructure Solutions (CRISIS) is a key group of stakeholders helping to guide conversations at local, regional, and state level regarding regional transportation issues. In 2016, CRISIS launched the grant-funded Capital Region Mobility Strategy (CRMS), which identified three categories of strategies listed below. Figure 7-21 shows the high-level l tactics under each category.

- Those that enhance the capacity and efficiency of the transportation system;
- Those that provide increased travel choice options and management;
- Those that improve transportation performance through strategic policy and partnerships.

Figure 7-21: Key Strategies Identified in CRMS

Transformational Projects and Additional Air Quality Analysis

Enhancing the arterial network and implementing alternative transportation projects will help improve the efficiency of the regional transportation system. Key transformational projects, such as a new Mississippi River crossing, I-10 Widening between the Mississippi River and I-10/I-12 Split, on North Bypass/BUMP would enhance the region's ability to accommodate population growth and travel demand. These projects would also increase the region's economic competitiveness and resiliency. There is consensus among the public, stakeholders, and elected officials that these transformational projects are critical to the social and economic health of Capital Region. However, funding these projects is a monumental task. State legislative efforts in the Spring 2017 to raise the state gas tax, if passed, would have helped implement these projects. The efforts unfortunately failed and likely it will not be considered again in the near future.

Various innovative funding solutions have been utilized across the country and should be considered for our region's problems. Figure 7-22 illustrates the outcome of the online survey which gauged the public's interest in increasing transportation revenue, and in identifying types of innovative funding options they would support. Citizens of the Capital Region were supportive of increasing transportation revenue. Tolling was the most preferred alternative, followed by a gas tax. Local leaders, the public, and private transportation stakeholders, and industry should work together to build public support to increase transportation funding through such innovative solutions.

CRPC staff will conduct additional air quality analyses on these transformational projects to be pre-approved by the Air Quality Interagency partners. This will help quickly move projects forward should additional transportation funding become available.

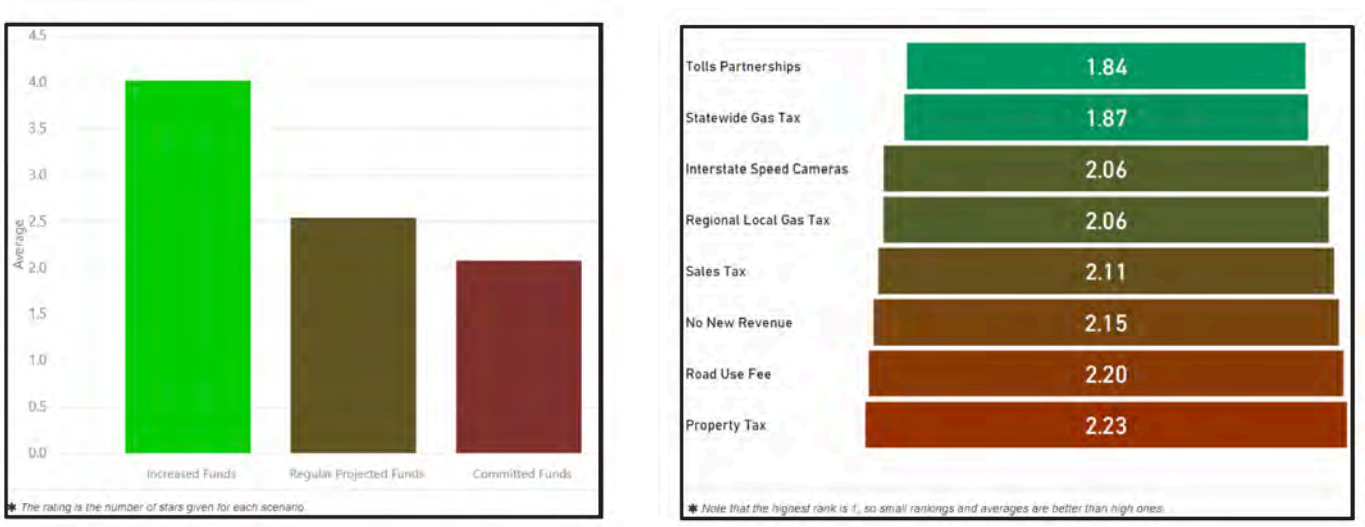


Figure 7-22: Public Survey Results for Innovative Funding Measures

8 | Safety and Security

According to the National Highway Traffic Safety Administration (NHTSA), from 2014 to 2016, 97,034 fatal crashes occurred on roadways in the United States. Transportation planning in the state of Louisiana has traditionally emphasized roadway safety for our citizens. Every crash, regardless of severity, costs state and local governments and tax payers' money and time in damages, emergency services, delays, and lost productivity. Safety is ranked as a high priority in the Capital Region Metropolitan Planning Area and a key goal of this plan is to reduce the risk of crashes on roadways.

The FAST Act, enacted December 4th, 2015, continues the Highway Safety Improvement Program (HSIP)work to further reduce traffic fatalities and serious injuries on all public roads. The HSIP requires a data-driven, strategic approache to improving highway safety. In this region, hurricanes and flooding are special issues of concern incorporated under the "safety and security" planning factor of the FAST Act.

This chapter begins with an overview of the Louisiana Strategic Highway Safety Plan (SHSP), Capital Region Safety Coalition coordination at the regional level, and ongoing work on the Regional Highway Safety Plan. Analysis of in-depth crash data provides a basis for recommendations of possible improvements. The chapter concludes with a discussion of regional safety issue

8.1 | LA Strategic Highway Safety Plan

Traffic safety programs are relatively uniform from state to state in their approach to improving highway system safety for roadway users. Typical programs combine several features from the Safety Management System (SMS) all states were mandated to adopt and implement under ISTEA (1991).

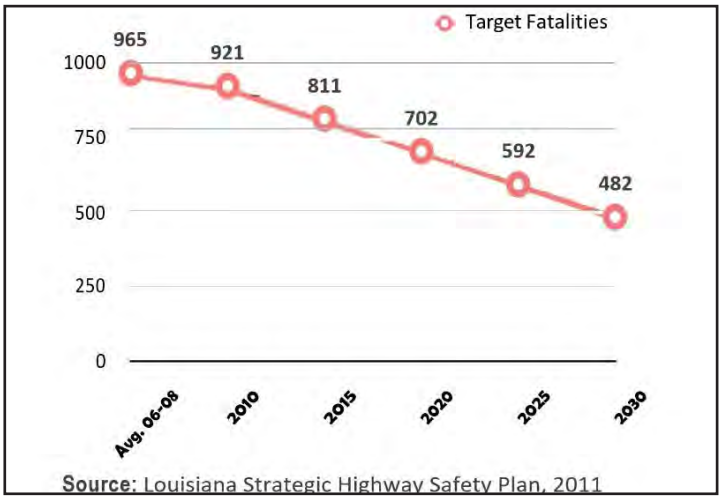
The Louisiana Department of Transportation and Development (DOTD) developed the State's original Strategic Highway Safety Plan (SHSP) in 2006. This initiative was the state's response to SAFETEA-LU requirements, which specifically established HSIP as a core Federal program. The State Highway Safety Program (SHSP) is a data-driven, five-year, comprehensive plan that establishes statewide goals, objectives, key emphasis areas, and proven strategies to reduce traffic fatalities and serious injuries.

MAP-21 doubled funding for the HSIP program, thus signaling increased focus on roadway safety and emphasis on performance measures to monitor progress. The emphasis on safety continues with the most recent transportation legislation, the Fixing America's Surface Transportation (FAST) Act of 2015, which maintains highway-related programs and continues efforts to streamline and expedite project delivery.

Since many factors contribute to crashes, the SHSP was developed using the 4E approach, which encompasses engineering, education, enforcement, and emergency medical services.

LADOTD updated the original SHSP in 2011, and again in 2017, to identify leading factors that contribute to roadway fatalities in the state. Based on data analysis and other considerations, LADOTD, the Louisiana State Police (LSP), and the Louisiana Highway Safety Commission (LHSC) recommended focusing attention, energy, and resources on four key factors: 1) Impaired Driving; 2) Occupant Protection; 3) Infrastructure and Operations and 4) Young Drivers. The Capital Region MPO has taken account of regional factors and added 5) Bike and Pedestrian; and 6) Distracted Driving.

To address the emphasis factors, the SHSP puts forth several strategies to reduce fatal and injury crashes with the intent of reaching the new state goal: cutting fatalities in half by 2030. Benchmarks for achieving this goal are shown in Figure 8.1.



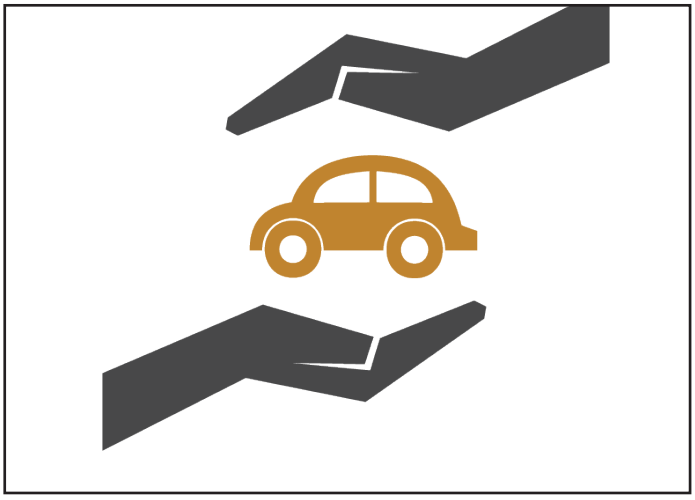


Figure 8-1: Benchmarks to Achieve 50% Reduction in Fatalities by 2030 in Louisiana

The Louisiana SHSP's goal is to reach "Destination Zero Deaths" on Louisiana roadways. The mission is to achieve the goal by implementing widespread collaboration and using the integrated 4E approach to reduce the human and economic toll of traffic crashes on Louisiana's surface transportation system. Although the goal will not change from year to year, the annual reduction rate needed to reach it should vary based on progress made each year.

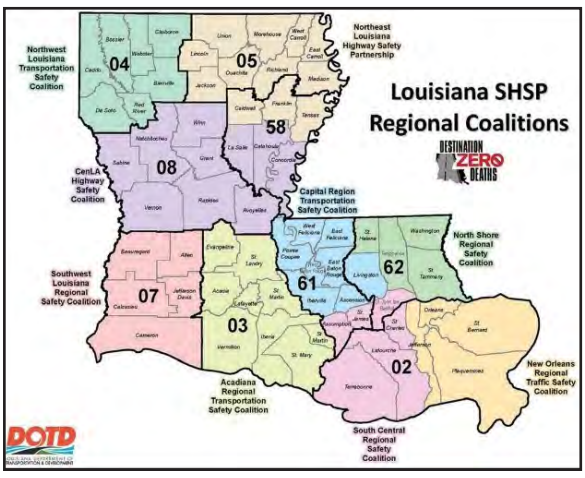
8.2 | Capital Region Transportation Safety Coalition

At the local level, LADOTD has divided the state into ten regions corresponding to the LADOTD districts and the Louisiana State Police Troop Commands. Each region is charged with forming a Safety Coalition comprised of representatives relevant to the 4E's and engaging them in developing a safety action plan linked with the SHSP. In some regions, the MPO leads the coalition, while in other regions, a safety council, DOTD, State Police, or local law enforcement have taken the lead. Funding is provided by the FHWA, DOTD, and the Louisiana Highway Safety Commission.

In the Capital Region, the Safety Coalition is staffed by the Capital Region Planning Commission (CRPC). The coalition is supported by the parish and municipal jurisdictions in the following parishes: Ascension, East Baton Rouge, East Feliciana, Iberville, Livingston, Pointe Coupee, West Baton Rouge, and West Feliciana parishes. The five parishes within the CRPC MPO are included within the safety coalition.

The Safety Coalition consists of stakeholders from the following related agencies, including but not limited to:

- Department of Transportation and Development (DOTD) districts;
- Louisiana State Police (LSP) troop commands;
- Local law enforcement;
- Metropolitan Planning Organizations (MPO's);
- Emergency response agencies;
- Parish engineers;
- Educators;
- Louisiana Highway Safety Commission (LHSC) grantees.



Source: Louisiana DOTD

Figure 8-2: Regional Coalition and DOTD District Boundaries by 2030 in Louisiana

The Capital Region's locally-developed Regional Strategic Highway Safety Plan (RSHSP) is intended to provide a transparent, structured framework for project and investment decision making that helps reduce the human and economic toll from accidents on the region's surface transportation system. The initial plan used a baseline of the average number of fatalities from 2009-2013 to calculate the rate of decline necessary to achieve the goal of reducing fatalities by half by 2030.

The local plan aligns with "Destination Zero Deaths." At the regional level, implementation of the 4E's is advanced through use of a systemic approach and consistent collaboration among federal, state, and local partners. A combination of infrastructure and non-infrastructure measures are undertaken to advance the regional Destination Zero Deaths goal. Identified coalition team leaders oversee planning and action steps to achieve goals set for each emphasis initiative.

Regional Strategies

This section of the MTP includes current action plans for the Capital Region's RSHSP. Detailed information about the Capital Region Transportation Safety Coalition can be found at, (http://crpcla.org/safety-coalition/). Statewide leaders identified four emphasis areas to address traffic fatalities, and the Capital Region MPO has added Bike and Pedestrian Safety and Distracted Driving emphasis areas.

- Infrastructure & Operations;
- Occupant Protection;
- Impaired Driving;
- Young Drivers;
- Bike & Pedestrian Safety;
- Distracted Driving.

Action plans for each emphasis area list objectives, strategies, and action steps to achieve the RSHSP goal. Summaries of key strategies under each emphasis area are outlined below, with the exception of distracted driving.

✓ Infrastructure and Operations

The infrastructure and operations of roadways play an important role in the transportation system. The FHWA "Guidance Memorandum on Promoting the Implementation of Proven Safety Counter-Measures" (2012), lists safety features, such as rumble strips, roundabouts, back plates with retro reflective borders, pedestrian hybrid beacons, roadway configuration, and other counter-measures. These measures have been shown to reduce fatalities and serious injuries. In the Capital Region, data indicate that roadway departure and intersection fatalities accounted for approximately 79 percent of roadway fatalities in 2016. A roadway departure crash is defined as one which occurs after a vehicle crosses an edge line, a center line, or otherwise leaves the traveled way.

Strategy 1: Obtain and analyze data on intersection and roadway departure crashes and fatalities;

Strategy 2: Educate elected officials and roadway users on the contributing facts in roadway departure and intersection crashes and general traffic safety challenges;

Strategy 3: Reduce the number and severity of roadway departure and intersection crashes;

Strategy 4: Use a systemic approach to identify infrastructure problems throughout the region.

✓ Impaired Driving

Every day, 28 people in the United States die in motor vehicle crashes that involve an alcohol impaired driver. This amounts to one death every 51 minutes. Nationwide, the annual cost of alcohol related crashes totals more than $44 billion. Thankfully, there are effective measures that can help prevent injuries and deaths from alcohol-impaired

driving. In 2015, The Centers for Disease Control and Prevention reported 10,265 deaths due to alcohol impaired driving crashes. In the Capital Region, Louisiana Highway Safety Research Group indicates that alcohol is a contributing factor in 48 percent of fatalities. More than 50% of such incidents involve young drivers.

In an effort to reduce the toll of preventable devastation, the Capital Region Transportation Safety Coalition has linked its efforts to the statewide fatality reduction goal by setting regional targets and establishing objectives and strategies to achieve the goal.

Strategy 1: Increase awareness among all road users of the dangers of impaired driving;

Strategy 2: Review and stay educated on legislation related to impaired driving;

Strategy 3: Increase enforcement of impaired driving offenses;

Strategy 4: Improve prosecution/adjudication of impaired driving offenses.

✓ Occupant Protection

According to the Centers for Disease Control and Prevention, motor vehicle crashes are the leading cause of death among people aged 1-54 in the United States. Seatbelt usage is the most effective way to save lives and reduce injuries in crashes, yet many adults, and children do not buckle up. In the Capital Region, 2012-2016 data shows 370 roadway fatalities and 284 serious and moderate injuries due to occupants not being restrained.

Seatbelt and child restraint safety are major components of the regional transportation safety plan. The goal is to reduce crashes with non-restrained occupants from the current average of 41 per year to 31 per year by 2020. This metric links to the statewide goal of reducing fatalities by half by 2030.

Strategy 1: Increase enforcement of occupant protection violations;

Strategy 2: Educate the public on the benefits of occupant protection for all ages on every trip;

Strategy 3: Continue and enhance child passenger safety programs;

Strategy 4: Review and provide education related to occupant protections laws.

✓ Young Drivers

According to the National Highway Traffic Safety Administration (NHTSA), teenage drivers are twice as likely as adult drivers to be in a fatal crash. Immaturity and inexperience are primary contributing factors that lead to high-risk behavior behind the wheel. These include driving at night, driving after drinking any amount of alcohol, and driving distracted by teenage passengers and electronic devices. A goal of the Regional Strategic Highway Safety Plan is to reduce the number of crashes involving young drivers. This metric links to the statewide goal of reducing fatalities by half by 2030.

Strategy 1: Conduct education programs that improve young driver safety;

Strategy 2: Education on laws and regulations to reduce traffic safety incidents and crashes involving young drivers;

Strategy 3: Improve enforcement and education on young driver laws.

✓ Bike and Pedestrian Safety

When a collision occurs between a motor vehicle and a bicycle, the cyclist is most likely to be injured. Bicyclists accounted for 2 percent of all traffic deaths and 2 percent of all crash-related injuries in 2014. Bicyclist deaths occurred most often between 6 p.m. and 9 p.m. (20%) and in urban areas (71%). The vast majority of bicyclists killed were male (88%) and the largest number of males injured were between 20 and 24 years old.

About one in five bicyclists (21%) killed in crashes had blood alcohol concentrations (BACs) of .08 grams per deciliter (g/dL) or higher, the blood alcohol level in all States. A large percentage of such crashes can be avoided if motorists and cyclists follow the rules of the road and watch out for each other.

At some point in the day, everyone is a pedestrian. Unfortunately, pedestrians experienced increased fatalities in the United States in 2015, with a total 5,376 deaths. National Highway Traffic Safety Administration (NHTSA) raises awareness of the dangers to pedestrians, and provides leadership, expertise, and resources to communities across America to reduce deaths and injuries in these crashes.

The City of Baton Rouge has been deemed by the Federal Highway Administration as a focus city due to the high number of fatal bike and pedestrian crashes. In 2015, there were 107 crashes involving the serious/moderate injury or fatality of a bicyclists/pedestrians in the Capital Region. Strategies to combat these statistics include improving infrastructure, marketing campaigns to educate all users on pedestrian and bicycle laws, improving crash data reporting, offering design and education workshops, and utilizing Complete Streets approaches to design.

Strategy 1: Develop a comprehensive approach to improving roadway infrastructure and the roadway environment to promote pedestrian and bicycle safety;

Strategy 2: Obtain and analyze data on the locations and the factors contributing to pedestrian and bicycle crashes, fatalities, and serious injuries in the Capital Region;

Strategy 3: Train and educate local jurisdictions on policies that promote pedestrian and bicycle safety;

Strategy 4: Enforce laws that ensure bicycle and pedestrian safety;

Strategy 5: Conduct education and public awareness programs to increase pedestrian and bicycle safety.

Implementation to Address Concerns

In the Capital Region, we are taking the necessary steps address concerns in each of the emphasis areas.

Infrastructure & Operations:

- ✓ Systematic approach to problem identification and location selection;
- ✓ Incorporate safety counter measures in Stage 0 and project design, such as roundabouts, rumble-strips, pedestrian flashing beacons, etc;
- ✓ Road Safety Assessment in locations with high potential to make safety improvements at locations identified by DOTD with significant elevated rates of crashes than state averages with similar roadway conditions.

Impaired Driving:

- ✓ Use check points, saturation patrols, and No Refusal to enforce and monitor;
- ✓ Participate in national and statewide impaired driving campaigns, such as, “Drive Sober or Get Pulled Over.”

Occupant Protection:

- ✓ Increase access to Child Seat Check and Certified Child Passenger Safety Technicians. The Capital Region currently has six child seat fitting stations;
- ✓ Regularly participate and promote national and statewide occupant protection campaigns, such as “Click It or Ticket” and “Buckle Up in Your Truck.”

Young Driver:

- ✓ The Sudden Impact Program, Ready Set Drive, and state police education outreach are the three most influential education programs used in the Capital Region.

Bicycle and Pedestrian

- ✓ Collaborate with Southern University and BREC to conduct Bike/Ped Safety Courses in North Baton Rouge.
- ✓ Collaborate with Bike Baton Rouge to conduct bike counts (manual and electronic) in areas with high incidence of collisions in Baton Rouge.
- ✓ Conduct Road Safety Audit on Florida Boulevard.
- ✓ Coordinate with City of Baton Rouge Master Bike-Ped plan.

For more information on the various actions toward implementation, please refer to the Capital Region Transportation Safety plan located (http://crpcla.org/safety-coalition/).

8.3 | Safety Data Analysis

While fatal and serious traffic accidents occur throughout the Louisiana Capital Region, some streets and intersections have been found to have higher than average death and injury accident rates in traffic crashes.

As required by the 2012 Moving Ahead for Progress in the 21st Century Act (MAP-21) and continued in the current FAST Act (2015), the metropolitan transportation planning process must include consideration of multiple factors. "Safety of the Transportation System" for motorized and non-motorized users is among the transportation planning factors ranked most important at the national level. Other factors include economic vitality, increased accessibility and mobility, and enhanced integration and connectivity of the transportation system.

The CRPC MPO transportation safety analysis titled "MOVE2042 Transportation Safety Report" documents the incidence of traffic accidents for a six-year study period. The full report is attached as an appendix to MOVE 2042, (http://crpcla.org/move2042/). The analysis is based on data collected by the Louisiana Department of Transportation (DOTD) in calendar years 2009 through 2014. The study boundary covers the Capital Region MPO study area.

Analysis indicates that about 60% of all traffic crashes in the study area occurred at roadway intersections. The high incidence of crashes at the identified intersections resulted in the highest cost of property damage and personal injury in the five-parish MPO study area.

Historical crash data also shows that the five CRPC-MPO Parishes each have fatal crash rates (per 100 million vehicle-miles) higher than Louisiana's statewide fatal crash rate. Four of the five MPO parishes (excluding Iberville) have overall traffic crash rates (per million vehicle-miles) which are higher than the Louisiana statewide crash rate. Both traffic crash rates (per million vehicle-miles) and fatality rates (per 100 million vehicle-miles) for all municipalities within the MPO have been evaluated.

CRPC staff has identified the top 10 most dangerous intersections (hot-spots) within each municipality by Parish, based on crash frequency from 2009 through 2014. These findings provide valuable information decision makers can use to prioritize intersection improvements and congestion mitigation projects. A detailed analysis and results can be found in the transportation safety analysis, "MOVE2042 Transportation Safety Report."

Table 8-1 Traffic Crash Data in the Parishes of CRPC MPO (2009 – 2014)

CRPC MPO Area Total Crashes

Parish	Severity	2009	2010	2011	2012	2013	2014	Total
Total (5-Parish)	Fatal	115	83	96	111	100	111	616
	Severe Injury	252	237	205	198	196	204	1,292
	Moderate Injury	1,779	1,771	1,792	1,690	1,685	1,733	10,450
	Possible Injury	5,996	5,846	5,603	6,137	5,926	6,473	35,981
	PDO	19,140	21,166	21,635	22,161	22,641	23,258	130,001
Total Crashes		27,282	29,103	29,331	30,297	30,548	31,779	178,340
Ascension	Fatal	17	16	15	17	23	21	109
	Severe Injury	24	31	24	26	32	26	163
	Moderate Injury	228	215	266	214	237	228	1,388
	Possible Injury	885	831	847	953	985	998	5,499
	PDO	2,388	2,366	2,451	2,716	2,995	3,081	15,997
Sub-Total		3,542	3,459	3,603	3,926	4,272	4,354	23,156
E Baton Rouge	Fatal	47	41	46	51	39	47	271
	Severe Injury	169	142	119	112	117	103	762
	Moderate Injury	1,080	1,136	1,069	1,009	1,000	1,023	6,317
	Possible Injury	3,900	3,746	3,525	3,907	3,709	4,177	22,964
	PDO	13,444	15,058	15,512	15,762	15,665	16,326	91,767
Sub-Total		18,640	20,123	20,271	20,841	20,530	21,676	122,081
Iberville	Fatal	15	13	9	9	6	12	64
	Severe Injury	18	10	19	10	8	17	82
	Moderate Injury	85	62	95	78	96	124	540
	Possible Injury	161	226	209	235	207	220	1,258
	PDO	402	431	458	435	541	520	2,787
Sub-Total		681	742	790	767	858	893	4,731
Livingston	Fatal	21	10	22	24	23	21	121
	Severe Injury	30	41	32	39	34	45	221
	Moderate Injury	290	252	276	298	279	277	1,672
	Possible Injury	757	780	741	754	745	790	4,567
	PDO	2,219	2,550	2,503	2,517	2,592	2,375	14,756
Sub-Total		3,317	3,633	3,574	3,632	3,673	3,508	21,337
W Baton Rouge	Fatal	15	3	4	10	9	10	51
	Severe Injury	11	13	11	11	5	13	64
	Moderate Injury	96	106	86	91	73	81	533
	Possible Injury	293	263	281	288	280	288	1,693
	PDO	687	761	711	731	848	956	4,694
Sub-Total		1,102	1,146	1,093	1,131	1,215	1,348	7,035

During calendar years 2009 through 2014, a total of 178,340 traffic crashes were reported in the Capital Region's five MPO parishes. Among reported traffic crashes, 23,156 crashes occurred within Ascension Parish, 122,081 in East Baton Rouge, 4,731 in Iberville, 21,337 in Livingston and 7,035 occurred in West Baton Rouge Parishes. Table 1 shows the region has a total of 616 fatal crashes, 11,742 injury crashes, 35,981 possible injury and 130,001property damage only (PDO) crashes in the studied six-year period. Figure 8-3 shows locations of traffic crashes in the MPO study area and identified crash hot-spots in the study area, based on the six-year crash data.

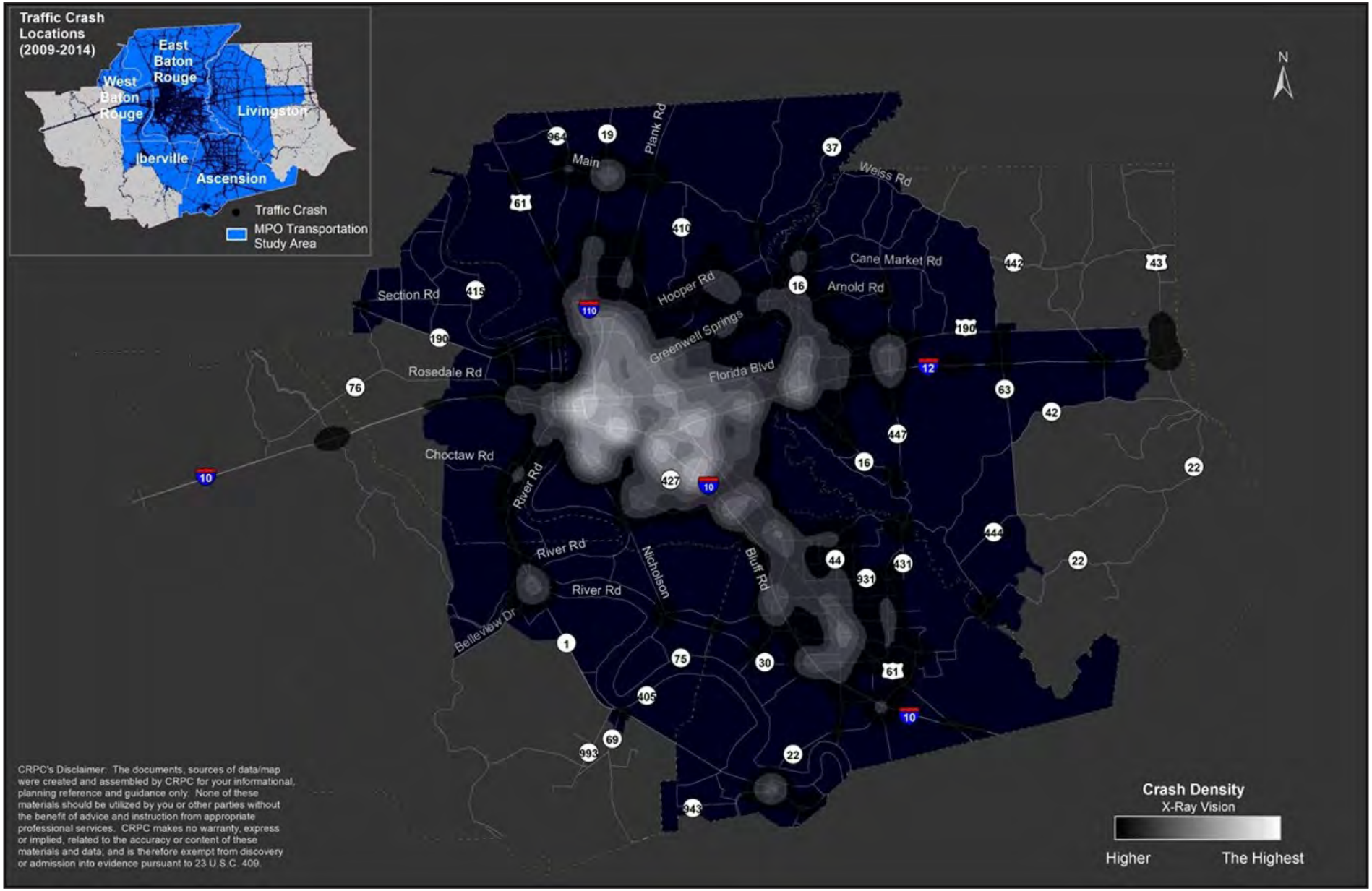


Figure 8-3 Traffic Crash Locations and Crash Hot-Spots in Study Area

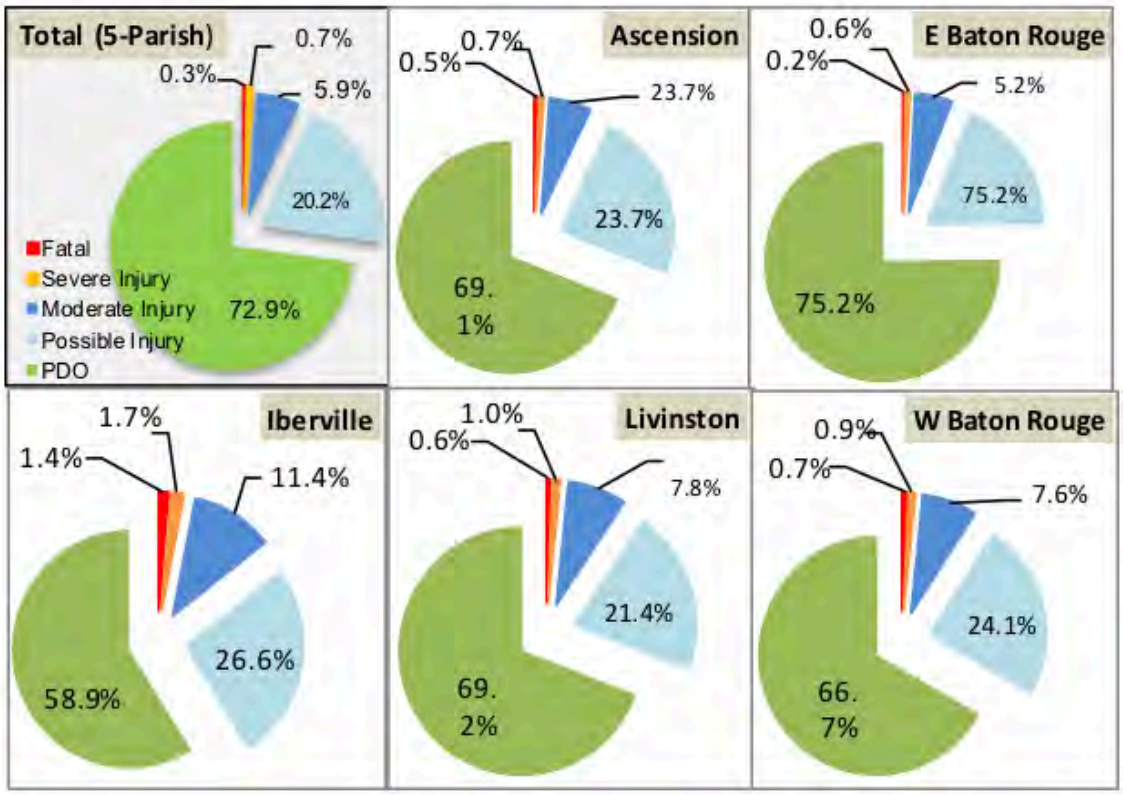


Figure 8-4: CRPC MPO Area Crashes by Severity Type

From 2009 through 2014, fatal accidents accounted for a small portion of total crashes (0.3%) in the CRPC MPO area and/or each of MPO related Parishes. For the individual MPO parishes, the percentage of fatal crashes was 1.4% for Iberville, 0.7% for West Baton Rouge, 0.6% for Livingston, 0.5% for Ascension and 0.2% for East Baton Rouge correspondingly.

Property damage only (PDO) crashes make up the majority. Figure 8-4 shows the percentage distribution of all crash types by severity by Parish.

Intersections and Streets with High Accident Frequencies in Region

Based on the six-year DOTD traffic crash data (2009-2014), of the overall 178,269 crashes, a total of 106,660 occurred at or within 150 feet of signalized and non-signalized intersections, whereas the other 71,609 crashes occurred in non-intersection locations.

CRPC staff has used GIS analysis to identify high traffic accident locations (hot-spots) within the study area. To help identify the locations of potential intersection improvements for local communities, CRPC Staff can pinpoint which intersections have a disproportionally high frequency of accidents.

Figure 8-5 shows a comparison of the number of accidents that occurred at intersections versus the number of crashes that were not intersection related in the six-year period by Parishes.

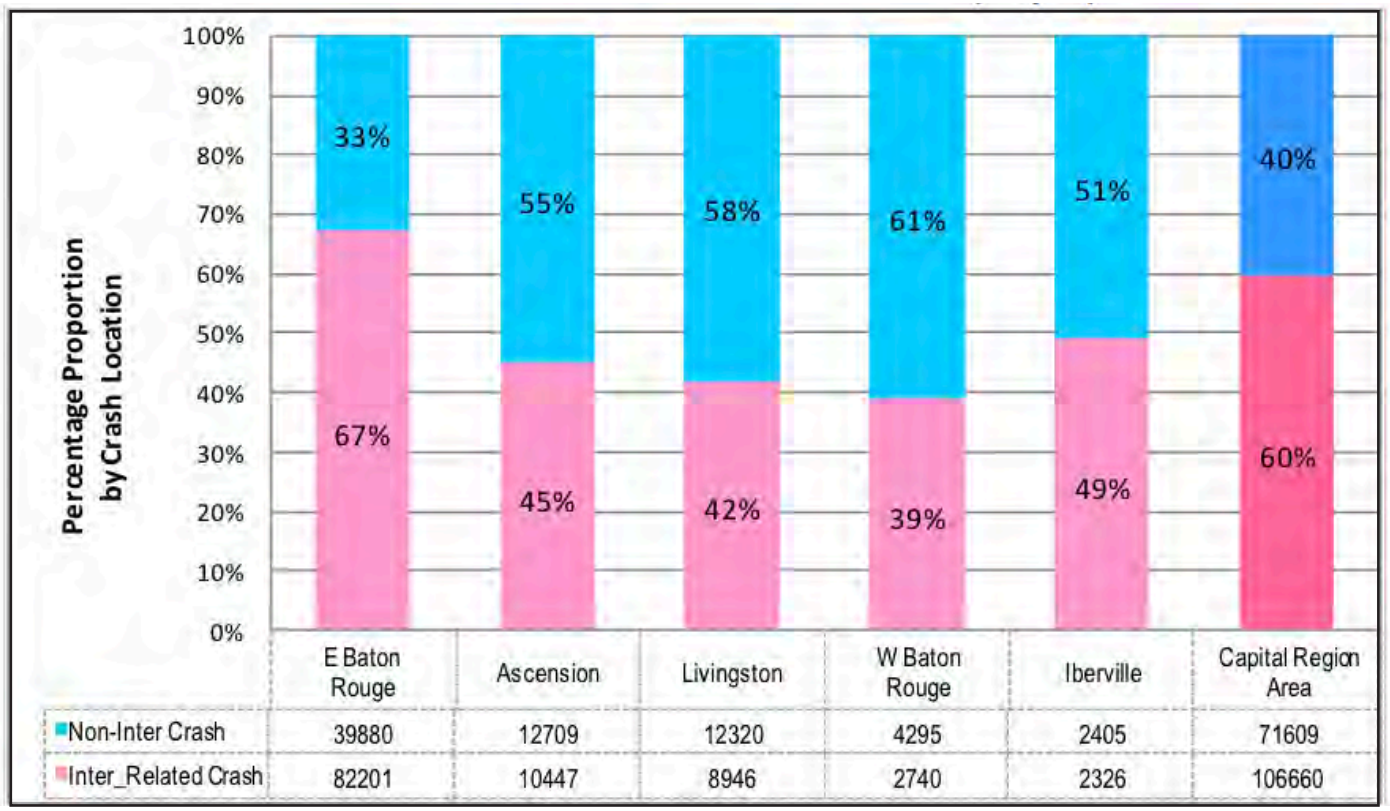


Figure 8-5: CRPC MPO Area Intersection vs. Non-Intersection Crashes (Six-year)

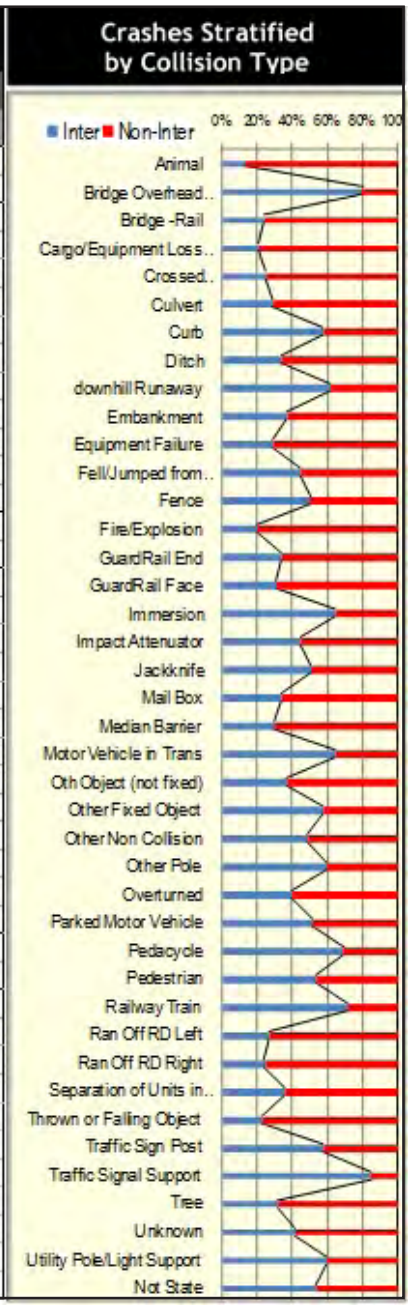
To ensure the list of identified high crash intersections in the table covers all studied parishes, Table 4 (located in the appendix), shows the top 140 intersections identified with the highest number of accidents.

Crashes by Collision Type

Table 8-2 details the number of crashes by collision type. Crashes are further divided into those that occurred at intersections and at non-intersection locations. This distinction helps to identify which collision types result in more crashes at intersections versus non-intersection areas within the region.

Table 8-2: CRPC MPO Area All Crashes by Collision Type

Collision Type	Traffic Crashes Stratified by Collision Type (2009-2014)													
	Intersection Crashes							Non-Intersection Crashes						
	2009	2010	2011	2012	2013	2014	Total	2009	2010	2011	2012	2013	2014	Total
Animal	71	20	23	28	25	31	198	133	241	230	224	230	256	1314
Bridge Overhead Structure	49	15	4	5	6	9	88	4	6	3	5	1	4	23
Bridge -Rail	16	11	9	10	15	21	82	32	41	45	46	37	56	257
Cargo/Equipment Loss or Shift	19	3	1	4	9	7	43	14	33	32	27	26	34	166
Crossed Median/Centerline	230	97	94	93	131	90	735	223	436	434	451	337	381	2262
Culvert	6	7	10	13	4	7	47	23	13	18	26	26	12	118
Curb	16	28	24	44	50	40	202	11	24	21	30	32	32	150
Ditch	69	54	73	99	82	82	459	109	171	170	157	147	137	891
downhill Runaway	2	2		2	2		8	1	1	1	1	1		5
Embankment	4	5	2	1	4	6	22	6	2	8	8	6	8	38
Equipment Failure	50	26	17	17	22	17	149	50	69	59	53	64	70	365
Fell/Jumped from Motor Vehicle	18	8	4	8	4	6	48	20	17	4	4	8	7	60
Fence	2	2	15	22	18	16	75	9	10	11	22	9	14	75
Fire/Explosion						2	2		4	2	1	1		8
GuardRail End	4	1	3	2	6	7	23	1	8	10	4	10	12	45
GuardRail Face	10	6	15	15	12	16	74	15	23	36	31	29	30	164
Immersion	21	13	2	2	1	2	41	9	4	1	3	5	1	23
Impact Attenuator	4		6	4	4	10	28	1	6	12	7	4	5	35
Jackknife	14	11	4	2	2	5	38	8	11	6	3	6	3	37
Mail Box	13	15	13	20	15	16	92	22	30	31	42	31	24	180
Median Barrier	7	10	23	35	33	31	139	9	31	62	59	78	88	327
Motor Vehicle in Trans	17070	15576	15760	16210	16466	16702	97784	6261	9141	9230	9477	9490	10306	53905
Oth Object (not fixed)	27	17	17	29	27	21	138	26	28	37	47	52	51	241
Other Fixed Object	13	21	29	37	32	38	170	5	19	35	21	25	23	128
Other Non Collision	98	110	106	120	139	118	691	88	132	114	113	123	161	731
Other Pole	2	17	25	30	34	32	140	7	15	23	18	12	20	95
Overturned	34	45	20	23	25	29	176	53	41	42	37	45	46	264
Parked Motor Vehicle	147	162	129	133	147	141	859	109	151	130	134	138	155	817
Pedacycle	19	13	20	26	32	26	136	5	14	10	10	5	18	62
Pedestrian	49	70	61	77	66	70	393	31	58	63	69	62	65	348
Railway Train	21	13	8	5	4	8	59	5	10	1	4	3	1	24
Ran Off RD Left	260	93	84	91	109	97	734	251	338	309	320	390	356	1964
Ran Off RD Right	557	203	198	219	220	270	1667	529	962	924	891	921	958	5185
Separation of Units in Transp	7	6	7	11	7	7	45	7	10	17	10	23	13	80
Thrown or Falling Object	5	2		4	3	3	17	10	15	8	11	8	6	58
Traffic Sign Post	11	16	19	28	18	30	122	15	9	15	19	15	18	91
Traffic Signal Support	2	2	5	1	6	6	22		1		1	1	1	4
Tree	10	15	22	30	24	26	127	30	38	46	53	54	55	276
Unknown	69	39	50	55	52	43	308	44	68	69	96	73	79	429
Utility Pole/Light Support	13	41	77	85	61	87	364	19	29	43	59	56	44	250
Not State	38	30	22	29	21	20	160	30	18	18	34	26	14	140

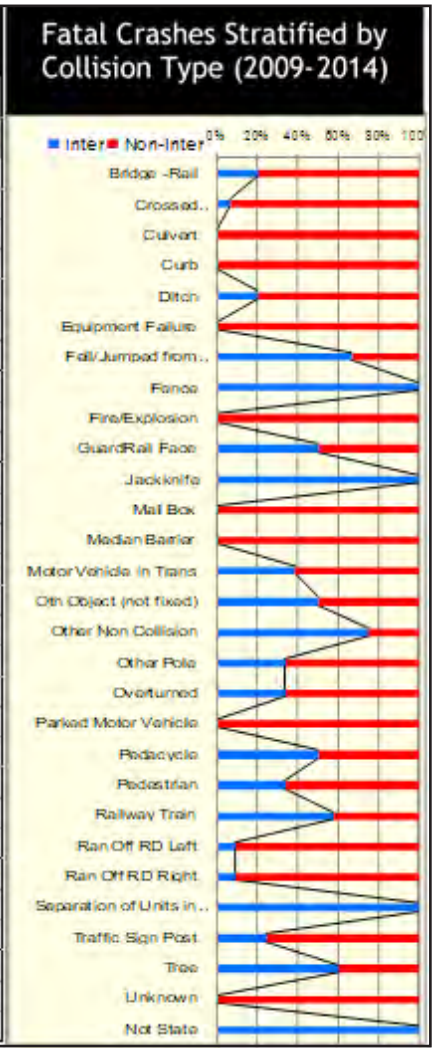


Fatal Crashes by Collision Type

The types of collision that result in fatal crashes at intersections or non-intersection areas are listed in Table 8-3. The Table also shows the percentage distribution of fatal crashes between intersection and non-intersection areas by collision type. This helps to identify relationships between collision type, fatal crashes, and intersections or non-intersection locations within the CRPC MPO study area.

Table 8-3: CRPC MPO Area Fatal Crashes by Collision Type

Collision Type	Fatal Crashes Stratified by Collision Typ (2009-2014)													
	Intersection Crashes							Non-Intersection Crashes						
	2009	2010	2011	2012	2013	2014	Total	2009	2010	2011	2012	2013	2014	Total
Bridge -Rail	1						1		2	1			1	4
Crossed Median/Centerline	3		1				4	14	8	11	11	11	8	63
Culvert							0	1						1
Curb							0			1		1		2
Ditch		1					1		1	1		1	1	4
Equipment Failure							0	1	1				1	3
Fell/Jumped from Motor Vehicle		1				1	2					1		1
Fence						1	1							0
Fire/Explosion							0		1					1
GuardRail Face			1				1			1				1
Jackknife	1						1							0
Mail Box							0				1	1		2
Median Barrier							0	1					1	2
Motor Vehicle in Trans	14	12	13	14	18	14	85	27	18	25	18	24	23	135
Oth Object (not fixed)				1			1						1	1
Other Non Collision	1	1	2			2	6				1	1		2
Other Pole			1				1		1		1			2
Overturned						1	1		1				1	2
Parked Motor Vehicle							0		1					1
Pedacycle	1	1		1	1		4	1	1	1	1			4
Pedestrian	4	4	5	9	4	3	29	6	9	10	14	9	9	57
Railway Train		1	1	1		1	4		2	1				3
Ran Off RD Left				3		1	4	11	5	3	7	7	8	41
Ran Off RD Right	5	1		1	2	2	11	20	10	14	22	17	30	113
Separation of Units in Transp	1			1			2							0
Traffic Sign Post				1			1	1		1	1			3
Tree				1	1	1	3	1		1				2
Unknown							0				1	1		2
Not State			1				1							0



Crashes by Roadway Surface Condition

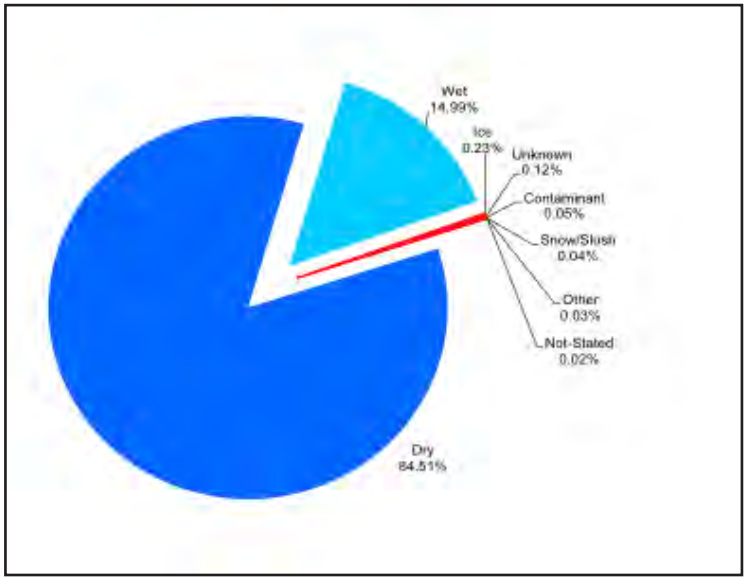


Figure 8-6: Crashes by Roadway Surface Condition

The condition of the road surface plays an important role in motor vehicle crashes. Slick road conditions are generally more hazardous than dry conditions, but drivers tend to compensate for this by being more cautious.

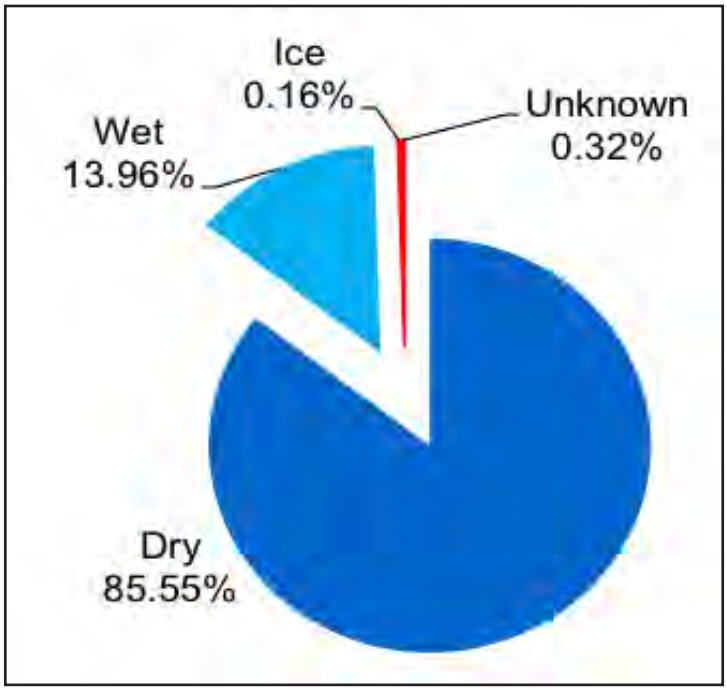


Figure 8-7: Fatal Crashes by Roadway Surface Condition

Fewer fatal crashes occurred under slick road surface conditions than under dry road conditions. However, the crash data indicates there was a high percentage of both traffic crashes and fatal crashes under wet road conditions in December, January, February and July during the studied period from 2009 to 2014. Except for January, there were no crashes under icy road conditions in the region.

Table 8-4: CRPC MPO Area Crashes by Severity and Roadway Surface Condition

Road Condition	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Dry	76%	79%	85%	91%	87%	88%	81%	86%	86%	90%	87%	76%	85%
Wet	21%	20%	14%	9%	12%	12%	19%	14%	14%	9%	13%	23%	15%
Ice	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Contaminant	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Snow/Slush	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Not-Stated	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Tables 8-4 and 8-5 provide a break-down of crashes by roadway surface condition and

Table 8-5: CRPC MPO Area Fatal Crashes by Year and Roadway Surface Condition

Road Condition	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Dry	65%	86%	86%	87%	92%	90%	92%	90%	80%	96%	88%	75%	86%
Wet	33%	12%	14%	13%	8%	10%	8%	10%	18%	4%	13%	25%	14%
Ice	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Unknown	2%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

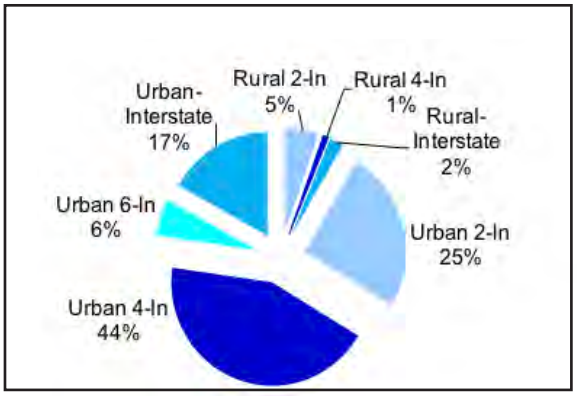


Figure 8-8: CRPC MPO Area Crashes by Roadway Type

The percentage of fatal crashes that occurred on the rural interstate, rural state highways and urban two-lane roads is larger than the percentage of all crashes that occur on the interstate and state highways in urban area. These crashes tend to occur at higher speeds, accounting for the increased severity of the accidents.

Crashes by Type of Roadway

All crashes andfatal crashes by roadway type, are shown in Figures 8-8 and 8-9.

The actual number of crashes and fatalities by roadway type is listed in Table 8-6 and 8-7; and Figure 8-10 details the distribution of all accidents by cause and roadway type.

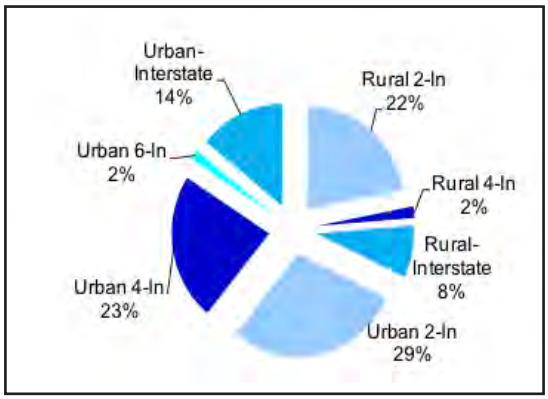


Figure 8-9: CRPC MPO Area Fatal Crashes by Roadway Type

Table 8-6: CRPC MPO Area Crashes by Severity and Roadway Type

Road Type	Fatal Crash	Injury Crash	PDO Crash	Total
Rural 2-In	109	910	5826	6845
Rural 4-In	9	132	849	990
Rural Interstate	41	247	2520	2808
Urban 2-In	144	2170	29161	31475
Urban 4-In	115	3428	51042	54585
Urban 6-In	8	299	6867	7174
Urban Interstate	71	1106	20117	21294
Others	119	3450	49600	53169
Total	616	11742	165982	178340

Table 8-7: CRPC MPO Area Fatal Crashes by Cause and Roadway Type

Road Type	Cut Corner on Left Turn	Disregarded Traffic Control	Driving Left of Center	Exceeding Safe Speed Limit	Exceeding Stated Speed Limit	Failure to Signal	Follow Too Close	Improper Starting	Total
Rural 2-In	1			16	70	1	17	4	109
Rural 4-In					6	1	1	1	9
Rural Interstate			1	10	24	1	4	1	41
Urban 2-In		1		17	90	2	19	15	144
Urban 4-In	0	0	0	9	73	0	7	26	115
Urban 6-In				1	5	1		1	8
Urban Interstate	0	0	1	10	43	1	13	3	71
Others	1	0	0	12	70	1	15	20	119
Total	2	1	2	75	381	8	76	71	616

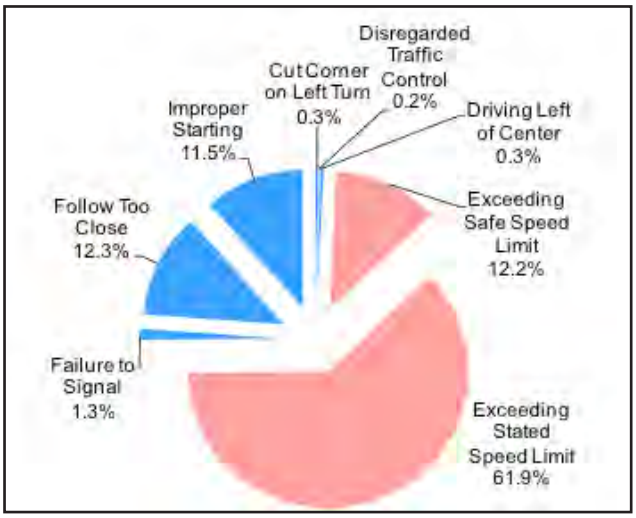


Figure 8-10: CRPC MPO Area Fatal Crashes by Cause

Crashes by Day of the Week

Crashes tend to be more frequent on certain days of the week and at certain times of the day. Crash analysis for the five-parishes shows that crash frequency throughout the day follows the ebb and flow of daily activity cycles.

In theCapital Region, the weekday with the highest accident rate during the study period was Friday, when 18% of all crashes occurred. Fatal crashes occur at a higher rate on Saturday, Sunday and Friday, when many crashes are alcohol-related. Overall, Sunday has the lowest frequency of traffic crashes, but an over-representation of fatal crashes, 6% higher than the overall total crash rate. . A breakdown of accidents by weekday and by accident severity, as well as by daytime periods, is provided in Tables 8-8 and 8-9 and in Figures 8-4 and 8-12.

Table 8-8: CRPC MPO Area Crashes by Severity and Weekday

Weekday	Fatal	Injury	PDO	Total	Fatal	Injury	PDO	Total
Sun	92	1452	14902	**16446**	0.6%	8.8%	90.6%	**100%**
Mon	79	1608	24539	**26226**	0.3%	6.1%	93.6%	**100%**
Tue	70	1640	25286	**26996**	0.3%	6.1%	93.7%	**100%**
Wed	78	1571	25364	**27013**	0.3%	5.8%	93.9%	**100%**
Thu	83	1682	25584	**27349**	0.3%	6.2%	93.5%	**100%**
Fri	109	1979	30332	**32420**	0.3%	6.1%	93.6%	**100%**
Sat	105	1810	19975	**21890**	0.5%	8.3%	91.3%	**100%**
Total	**616**	**11742**	**165982**	**178340**	**0.3%**	**6.6%**	**93.1%**	**100%**

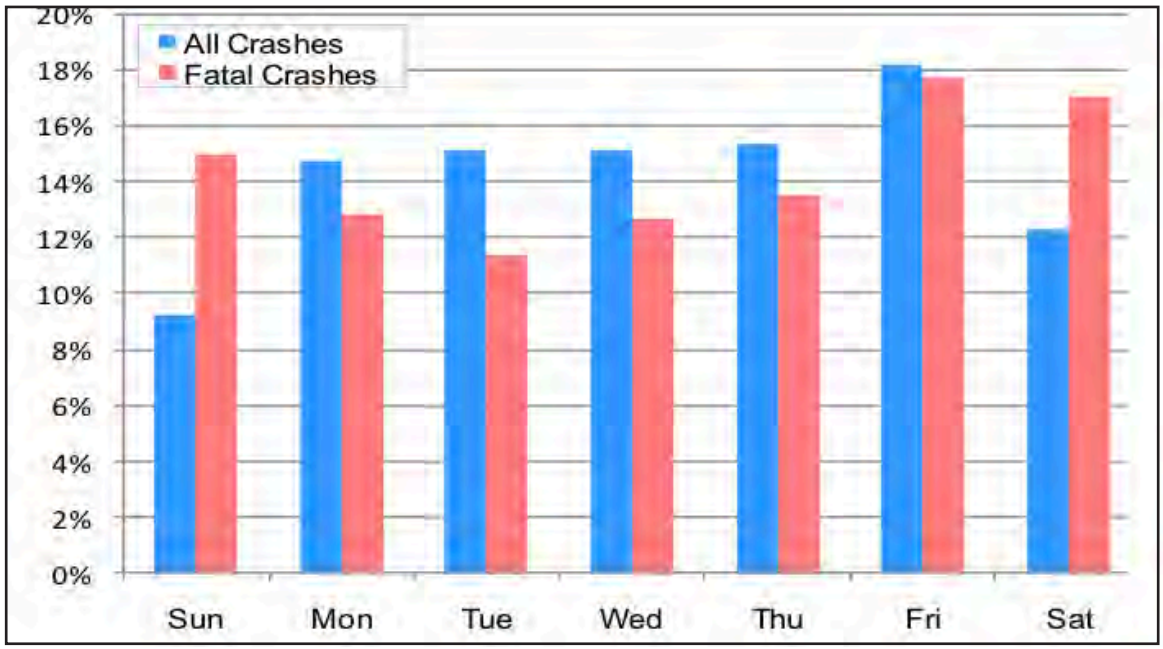


Figure 8-11: CRPC MPO Area Total Crashes vs. Fatal Crashes by Weekday

Table 8-9: CRPC MPO Area Crashes by Daytime Periods and Weekday

	CRASH					FATAL				
Weekday	12a - 7a	7a - 9a	9a - 4p	4p - 6p	6p - 12p	12a - 7a	7a - 9a	9a - 4p	4p - 6p	6p - 12p
Sun	21%	5%	42%	14%	19%	40%	0%	23%	9%	28%
Mon	15%	10%	46%	17%	11%	34%	6%	23%	8%	29%
Tue	15%	10%	45%	18%	11%	26%	7%	30%	11%	26%
Wed	16%	10%	44%	18%	12%	29%	4%	24%	9%	33%
Thu	15%	10%	44%	18%	13%	28%	4%	22%	19%	28%
Fri	13%	8%	49%	15%	15%	28%	6%	19%	10%	37%
Sat	16%	6%	45%	12%	20%	33%	1%	19%	13%	33%
Total	**16%**	**9%**	**46%**	**16%**	**14%**	**31%**	**4%**	**22%**	**11%**	**31%**

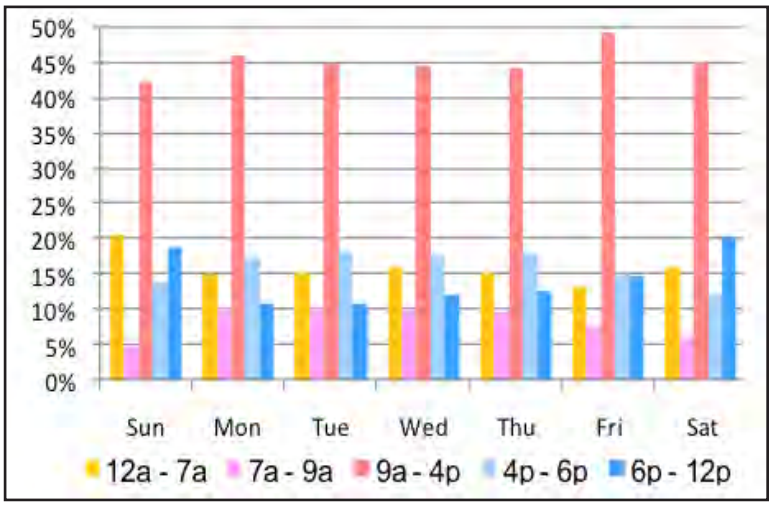


Figure 8-12: CRPC MPO Area the Daily Period with the Most Crashes

Crashes by Month

The monthly cycles of all crashes and fatal crashes are illustrated in Figures 8-13 and 8-14. The accident data analysis indicates that a higher than average number of crashes occur in March and October. Overall, crash frequency is at its lowest in January, followed by an increase in February and March and a decrease in April, June, and July. The crash frequency then increases again from July through October and decreases steadily after October to hit the overall low as winter weather conditions worsen.

Figure 8-13: CRPC MPO Area Crashes by Month

Fatal crashes usually decrease during bad weather conditions, as motorists adjust difficult driving conditions.

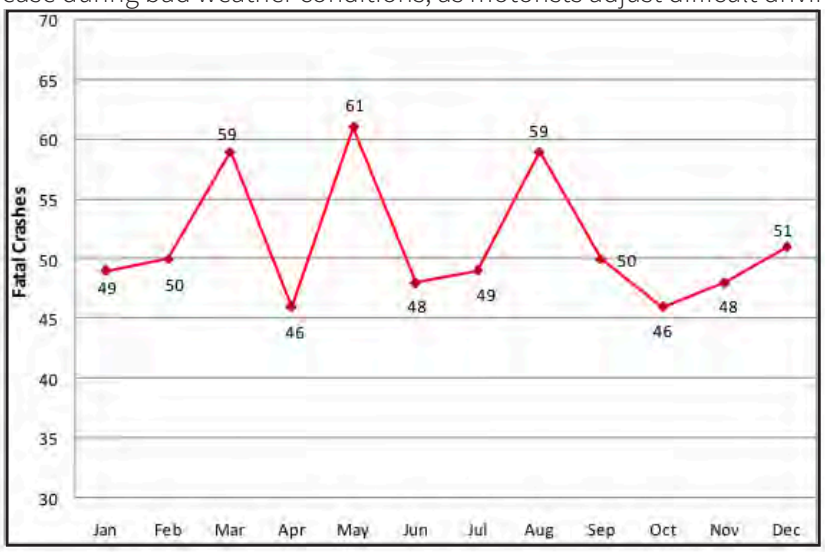


Figure 8-14: CRPC MPO Area Fatal Crashes by Month

Crashes with Alcohol and Drug Involvement

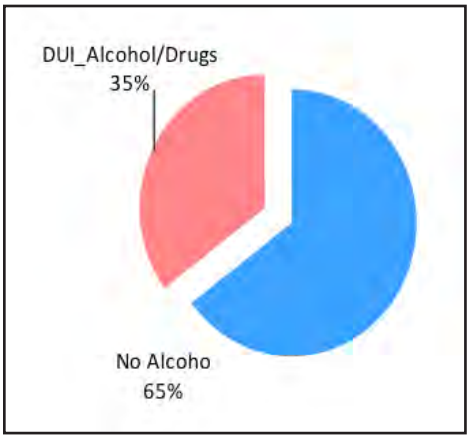


Figure 8-15: CRPC MPO Area Fatal DUI Crashes

Figures 8-15, 8-16, and 8-17 show the relationship between alcohol and drug involvement and crash severity. As alcohol involvement and drug use increases, so does crash severity.

Since alcohol testing is only required in fatal crashes, the alcohol involvement and drug use in injury and PDO crashes is potentially understated.

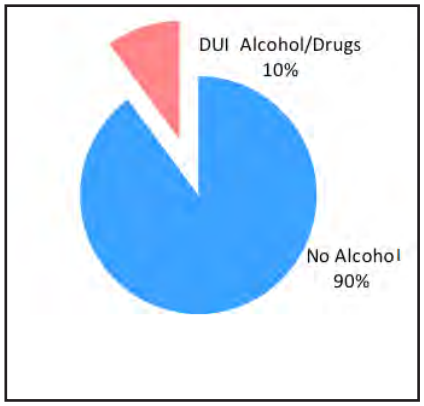


Figure 8-16: CRPC MPO Area Injury DUI Crashes

For the Year 2013, the National Highway Traffic Safety Administration reports that, on the national level, 31% of fatal crashes involve alcohol or drugs. Figure 18 indicates that the alcohol related fatal crashes in five-parish area were higher than the national level.

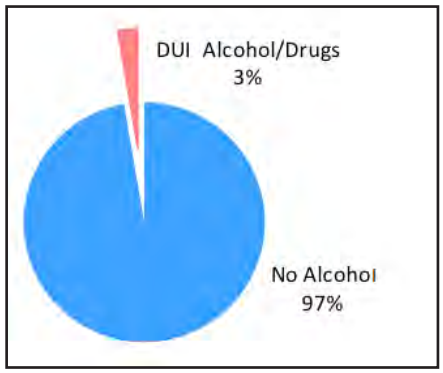


Figure 8-17: CRPC MPO Area PDO DUI Crashes

In 2014, 62 % of all fatal crashes in the five-parish area involved alcohol or drug use. This represents a significant increase from the 26% in 2012, and 47% in 2013.

The number of alcohol- and drug-related fatal crashes in the five-parish area is compared to all fatal crashes by year, as listed in Table 8-10.

Table 8-10: CRPC MPO Area Fatal Crashes by Alcohol and Drug Involvement

Alcohol Involvement	2009	2010	2011	2012	2013	2014	Total	2009	2010	2011	2012	2013	2014	Total
Non Alcohol	12	13	11	12	5	2	55	71%	81%	73%	71%	22%	10%	50%
DUI-Alcohol/drugs	5	3	4	5	18	19	54	29%	19%	27%	29%	78%	90%	50%
Ascension	17	16	15	17	23	21	**109**	100%	100%	100%	100%	100%	100%	100%
Non Alcohol	29	32	36	38	27	26	188	62%	78%	78%	75%	69%	55%	69%
DUI-Alcohol/drugs	18	9	10	13	12	21	83	38%	22%	22%	25%	31%	45%	31%
E Baton Rouge	47	41	46	51	39	47	**271**	100%	100%	100%	100%	100%	100%	100%
Non Alcohol	12	10	6	7	5	5	45	80%	77%	67%	78%	83%	42%	70%
DUI-Alcohol/drugs	3	3	3	2	1	7	19	20%	23%	33%	22%	17%	58%	30%
Iberville	15	13	9	9	6	12	**64**	100%	100%	100%	100%	100%	100%	100%
Non Alcohol	17	7	18	17	10	4	73	81%	70%	82%	71%	43%	19%	60%
DUI-Alcohol/drugs	4	3	4	7	13	17	48	19%	30%	18%	29%	57%	81%	40%
Livingston	21	10	22	24	23	21	**121**	100%	100%	100%	100%	100%	100%	100%
Non Alcohol	12	3	4	8	6	5	38	80%	100%	100%	80%	67%	50%	75%
DUI-Alcohol/drugs	3			2	3	5	13	20%	0%	0%	20%	33%	50%	25%
W Baton Rouge	15	3	4	10	9	10	**51**	100%	100%	100%	100%	100%	100%	100%

Figure 8-18 shows the overall percentage of alcohol/drug involvement in the various types of crashes throughout the studied period in the five-parish area.

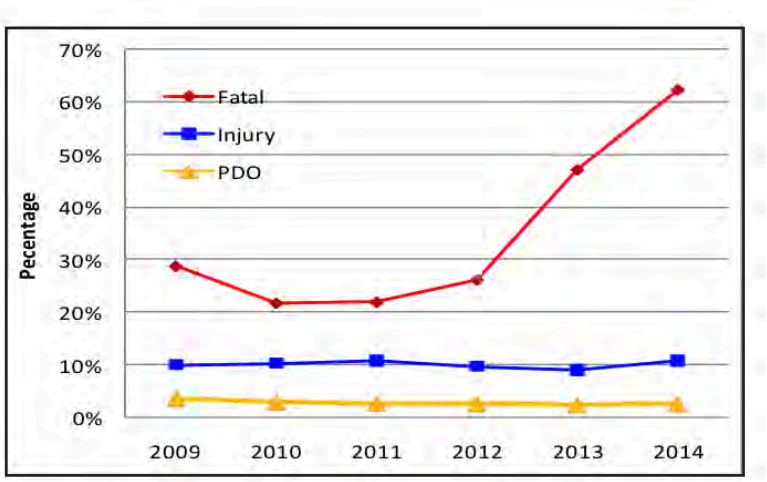


Figure 8-18: CRPC MPO Area Alcohol and Drug-related Crashes by Severity

Crashes Involving Pedestrians and Bicycles

Figures 8-16 and 8-17 present the number of crashes during the study period, where a collision with a pedestrian or bicycle was the first harmful event.

The number of crashes involving pedestrians increased sharply from 82 in year 2009 to 128 in year 2010, then dropped (2010 to 2011) from 128 to 124. The number rose again, from 124 to 145 in 2011 to 2012), then decreased again from 145 to 128 in 2012 to 2013), and then rose again from 128 to 134 in 2013 to 2014). The number of crashes involving bicycles

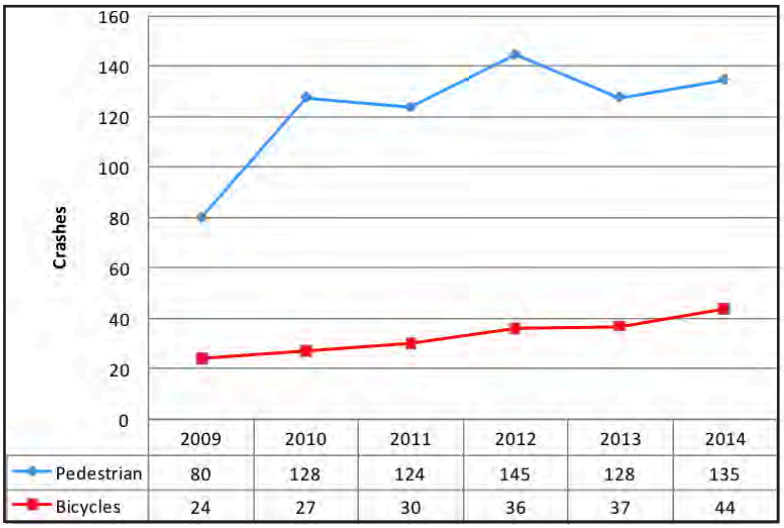


Figure 8-19: CRPC MPO Area Crashes involving Pedestrians or Bicycles

showed a slow increase, with minimal fluctuation throughout the study period.

Crashes Involving Trains

Figure 8-20 shows the number of motor vehicle/train crashes throughout the study period. The number of railroad crashes is marked by a steady decrease in crashes through the year 2013. Thereafter, the number of accidents involving in trains

Figure 8-18: CRPC MPO Area Crashes involving Trains

has remained at nine.

8.4 | Regional Security

Safety concerns typically arise from random, unintentional events, and are often associated with vehicle crashes. As such, they may be caused by driver error or impairment, adverse weather, a temporary hazard in the right-of-way, infrastructure in poor condition, or other factors related to transportation infrastructure, operator performance, or vehicle design.

Hurricanes are a special concern to South Louisiana, and other portions of the state. Our communities are vulnerable to storm surge inundations. At such times, evacuation is the only prudent response to impending storm conditions. The

Baton Rouge area typically receives increased traffic due to evacuations from communities farther south, with contra flow policy allowing traffic on regional Interstate highways to move in only one direction. These events do not

imply security threats within the context of post-September 11 concern, but they do pose a substantial risk to the security of the affected region.

In contrast to safety concerns, security threats always connote intention, whether committed by an individual or a group. Transportation infrastructure has always had associated underlying security risks. Prior to 9/11, these risks were typically related to vandalism. Since then, the country has been forced to assess its vulnerability and prepare for different and targeted threats.

The State of Louisiana's Emergency Operations Plan (EOP) was developed by the Governor's Office of Emergency Preparedness and Homeland Security (GOHSEP). The EOP includes guidance for preparedness for the full range of natural, technological, terroristic, and attack-related emergencies and disasters. The plan conforms to Federal law and regulations and the Louisiana Homeland Security and Emergency Assistance and Disaster Act, as amended.

The CRPC-MPO's long-term transportation plan, MOVE 2042, provides a general framework for state agencies, parish agencies, volunteer groups, and private organizations to prepare for and respond to terrorist attacks, emergencies, and disasters. Although the plan does not identify a specific role for Metropolitan Planning Organizations, it is recommended that MPOs coordinate with local and state government agencies and community organizations to support the work envisioned within the plan framework.

The Baton Rouge MPO region has a high concentration of infrastructure critical to the national economy. This includes:

- Roadway infrastructure that provides for quick access of both people and goods throughout the study area, and across the nation. US highways within the study area include Interstate-10, Interstate-110, Interstate-12, US 190, and US 61. The MPO area also includes two crossings of the Mississippi River, at Interstate-10 and US 190. The US 190 crossing provides for both road and rail movements;
- Rail infrastructure that provides direct access to the Mississippi River energy, oil and gas industries, as well as associated petrochemical refining facilities. The region is served directly by the Canadian National Railway (CN), the Kansas City Southern Railway (KCS) and the Union Pacific Railroad (UP);
- The Port of Greater Baton Rouge jurisdiction includes Ascension, East Baton Rouge, Iberville and West Baton Rouge Parishes. The port's jurisdiction falls within Mississippi River mile 168.5 AHP (Above Head of Passes) to the south (Sunshine Bridge) and Mile 253 AHP to the north (ExxonMobil Refinery), a total of 85 miles, on both the east and west banks of the River. The port is the head of deep water navigation on the Mississippi River. Like the railroads, the port serves the Mississippi River energy, oil and gas industries, as well as associated petrochemical refining facilities;
- The Mississippi River Industrial Complex includes a historic concentration of industries located throughout the MPO region. Baton Rouge's largest industry is petrochemical production and manufacturing. The ExxonMobil facility in Baton Rouge is the second-largest oil refinery in the country and among the world's ten largest;
- The Baton Rouge Metropolitan Airport provides non-stop service to Atlanta, Charlotte, Dallas, Houston, and Memphis.

Although this infrastructure presents numerous potential terrorist targets, the Baton Rouge MPO does not envision itself as having a direct role in response to terrorist threats. The MPO could help facilitate coordination among various concerned organization in assessment of potential threats and in development of a plan to address those threats.

Hurricane Evacuation

Within South Louisiana, the threat of a hurricane is exacerbated by the large population of residents and tourists in the low-lying coastal areas susceptible to storm surge inundation and freshwater flooding. Inland urban population centers like Baton Rouge are also susceptible to flooding and the effects of hurricane force winds.

Figure 8-21 was extracted from the Louisiana Citizens Awareness and Disaster Evacuation Guide - Southwest (Governor's Office of Homeland Security and Emergency Preparedness 2008). In the state's phased evacuation plan, emergency traffic management will be initiated in the red area 50 hours before the predicted onset of tropical storm winds. Emergency traffic management will begin in the orange areas 40 hours before the predicted onset, and in the yellow areas, 30 hours before onset.

Every hurricane produces a unique evacuation event. Evacuees are influenced by the amount of notice provided in advance of the storm's landfall, as well as the projected storm path and intensity. The Baton Rouge MPO area is affected both by the burden of sheltering evacuees and by the flow of evacuees passing through the region.

The Baton Rouge MPO supports investment in Intelligent Transportation System (ITS) technologies. The MPO endorses a study of how this technology can be used to assist evacuees in their decision making and expedite their progress during evacuation events. Also, as MPO projects are refined within the context of the LADOTD delivery

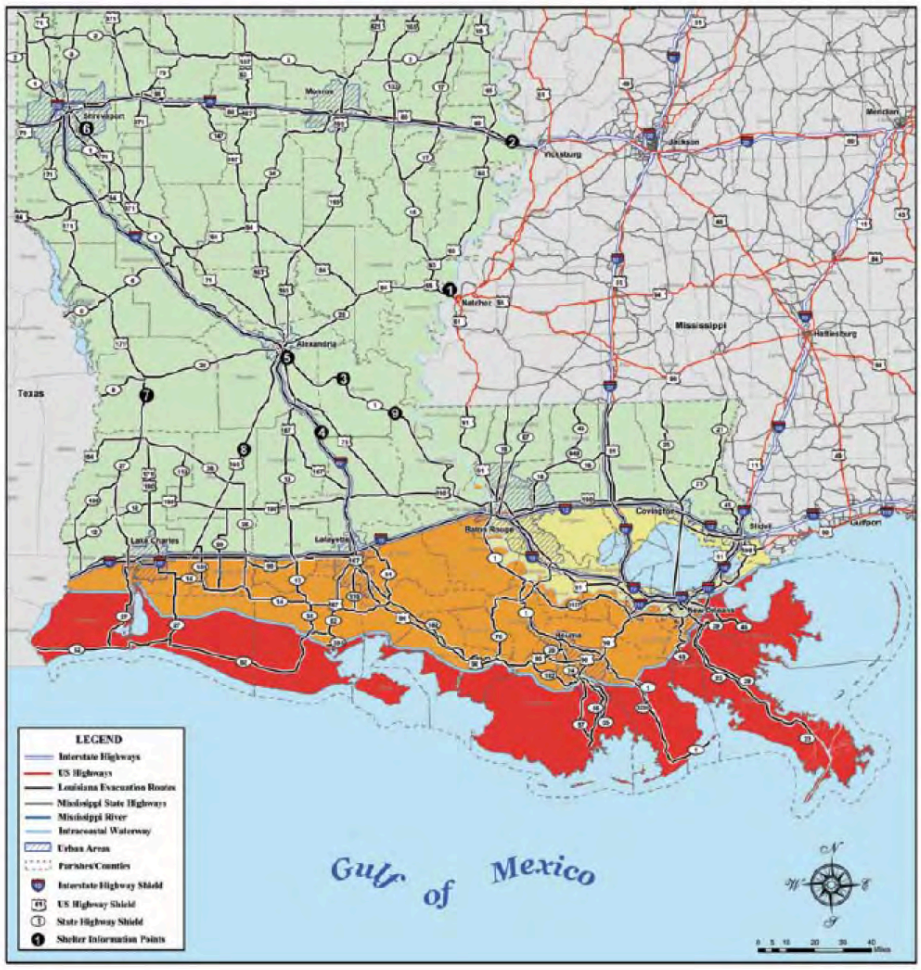


Figure 8-21 Hurricane Evacuation Routes

9 | Public Transit

9.1 | Mass Transit

Louisiana's Capital Region has a variety of public transportation options. These include urban-fixed route bus service, demand- response services, ADA (Americans with Disabilities Act) para- transit, and specialized transportation for elderly and disabled residents.

Fixed-route public bus service, available only in East Baton Rouge Parish, provides two significant benefits within the City and other areas served:

Mobility: Public bus service is critical to enabling those who do not, or cannot, drive an automobile or other motorized vehicle to participate in the regional economy. This group includes the very young, the elderly, disabled, and a segment of low-income populations. Many others simply dislike driving. Providing non-drivers with accessible public transportation is both a social service, and expands the potential for individual, family, and regional prosperity.

More Efficient Use of Roadway Capacity: Traffic congestion and gridlock can make travel on urban roadways unsafe and uncomfortable. Such conditions can impose a cap on a city's economic growth. The extent that public transportation modes can safely and effectively substitute for a percentage of private vehicles can help reduce or keep congestion relatively constant, while improving the region's capacity for continued economic growth.

Urban Fixed-Route

Fixed route transit service in the Capital Region is provided by two agencies, Capital Area Transit System, and LSU Tiger Trails. At present, service is available only in East Baton Rouge Parish.

CAPITAL AREA TRANSIT SYSTEM

In 1970, the City of Baton Rouge formed The Capital Transportation Corporation (CTC), a non-profit, municipal agency to operate the urban mass transit system. The CTC was reamed Capital Area Transit System (CATS) in 2004.

CATS provides service within the City of Baton Rouge and to the Town of Baker. ADA complimentary paratransit service is provided by Reliant, a private subcontractor, and is offered within a ¾ mile of all CATS routes.

In addition to regular daily service, CATS provides special transit service, such as Touchdown Express, for football games and major community events. CATS also plays a key role in response to and recovery from natural disaster events. A major function is transporting residents to safety following catastrophic flooding, such as occurred in August 2016.

Table 9-1: CATS Ridership

2014	2015	2016
2,531,768	2,588,060	2,688,344

*Does not include Touchdown Express or other special services

According to the U.S. Census Bureau's 2015 American Community Survey (ACS), approximately 1.7% of East Baton Rouge residents relied upon transit for their daily commute to work. This is compared to 0.6% in Lafayette Parish, 7.8% in Orleans Parish, and 5.1% nationally.

While there is no doubt the Baton Rouge area has a strong "car culture," there are other factors that likely contribute to the relatively low levels of transit ridership. These include the city's lack of safe pedestrian infrastructure, and the region's low-density development patterns which strongly favor the automobile. The route map for CATS can be found at (www.brcats.com)and is shown on the following page.

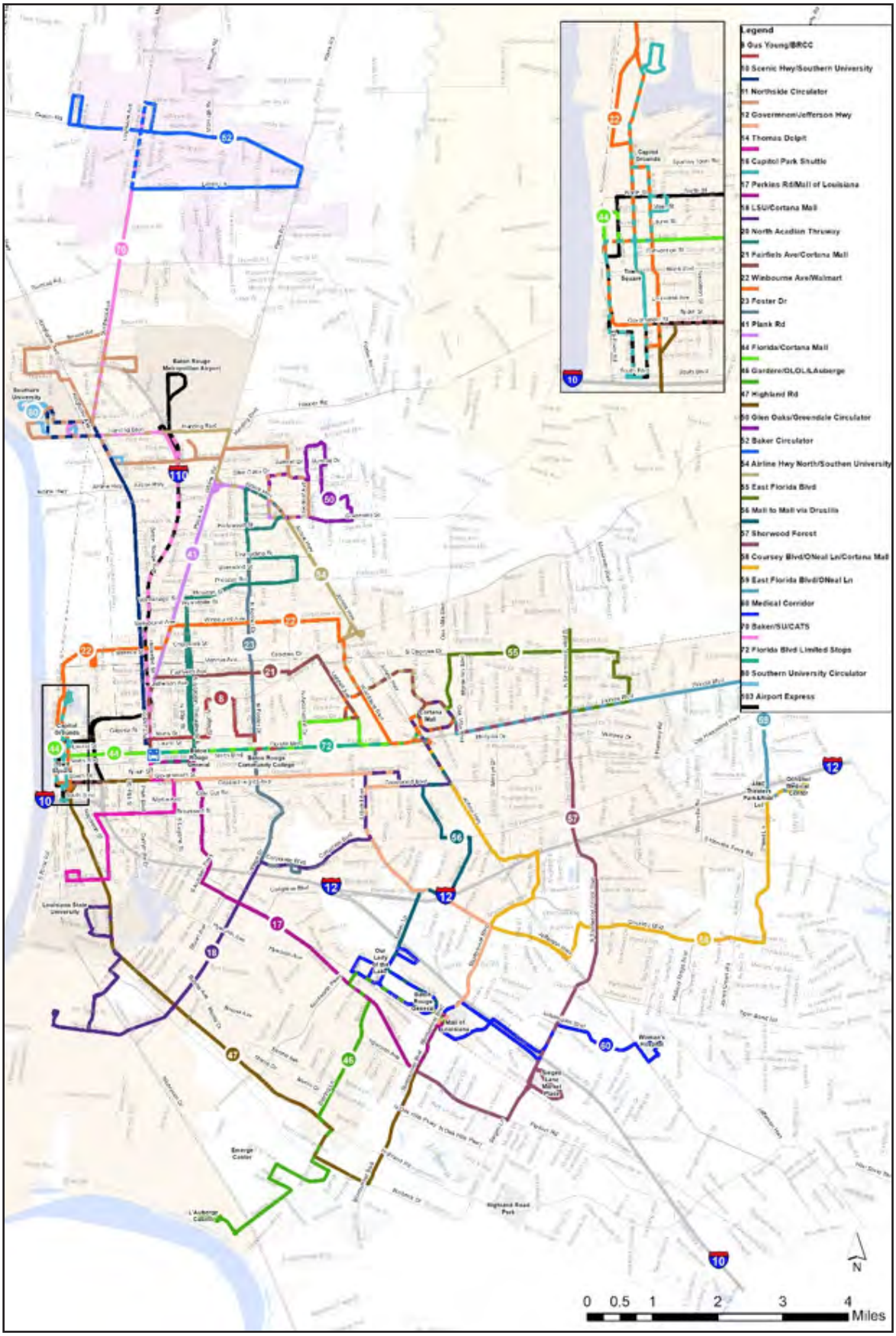


Figure 9-1: CATS System Map

TIGER TRAILS

Tiger Trails, operated by Ohio-based private company First Transit, is the campus transit service for Louisiana State University (LSU). Tiger Trails is a free service, whether or not a rider is affiliated with LSU.

Tiger Trails provides students with a robust intra-campus transportation option. It also offers service into surrounding Baton Rouge neighborhoods, including the Garden District and Downtown. Special services transport students to Tiger Stadium and to the New Orleans Louis Armstrong airport. They also return students safely back to campus from the nightlife in Tigerland.

https://sites01.lsu.edu/wp/tigertrails/campus-transit/

Figure 9-2: Tiger Trails System Map

Table 9-2 Tiger Trails Ridership

2014	2015	2016
1,348,827	1,247,719	1,101,286

Rural Public Transit

Much of Louisiana's Capital Region is sparsely populated and rural. Although traditional fixed route transit is effective along densely populated urban corridors, such service lacks the flexibility to efficiently serve carless individuals living far from a city center. The Rural Transit Assistance Program (49 U.S.C. 5311(b)(3)) is the Federal Transit Administration's primary funding mechanism that provides transit services outside urbanized areas.

The 5311 formula grants program provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations under 50,000. Many residents in such isolated areas often rely on public transit to reach key destinations. Demand response, or "dial a ride," transit services are often most effective in rural areas where origins and destinations are widely dispersed. The program also provides funding for state and national training and technical assistance through the Rural Transportation Assistance Program. Each Louisiana Parish is allowed one 5311 grant recipient. Only two parishes in the Capital region utilize the 5311 funding, Livingston and Iberville.

Iberville Parish Public transit provides demand response service to the general public, on a Monday through Friday schedule. In 2015, the agency provided riders with 9,170 trips.

Although the Livingston Council on Aging (LCOA) primarily serves its target senior citizen clientele, the agency's transportation division also utilizes 5311 grant funding to provide demand- response transportation to the general public in the Parish. In 2015, the LCOA provided riders with 35,992 trips in 2015.

Louisiana's rural transit providers provide an important life- line for the hundreds of passengers they serve each day.

Elderly and Disabled 5310

The retirement of America's "Baby Boom" generation has created growing demand for services tailored to the needs of senior citizens at the national, state, and local level. This trend is expected to continue.

The Enhanced Mobility of Seniors and Individuals with Disabilities (49 U.S.C. Section 5310) is the Federal Transit Administration's (FTA) primary funding mechanism for providing transit services to seniors and those living with disabilities. Social service agencies rely upon this funds to provide their most vulnerable community members with transportation to medical appointments, social activities, and other important services.

The following Capital Region agencies rely upon the 5310 grant program to provide specialized transportation to the elderly and the disabled:

- The ARC Iberville;
- Ascension Council on Aging;
- The Center Baton Rouge;
- Community Opportunities of East Ascension;
- Donaldson Area ARC Foundation Industries;
- Franciscan PACE:
- Gulf Coast Teaching Family Services;
- Greater King David Baptist Church;
- Iberville Council on Aging;
- Livingston Activity Center;
- West Baton Rouge Council on Aging.

Ride Hailing

Ride hailing services, like Uber and Lyft, are relatively new transportation options which allow users to request rides through a smart phone app. Although the cost of these services fluctuates based on supply of drivers and demand for rides at a given time, users often find that the fare is comparable to a traditional taxi.

Several transit agencies across the country have formed successful partnerships with Uber. Such arrangements rely upon the ride hailing service to address first mile / last mile challenges, or to provide later evening service where ridership may not warrant a fixed route bus.

Newer, more experimental services, such as Uber Pool and Bridj, allow multiple riders to share one vehicle and split the fare among them. To date, however, such services have not been introduced in the Capital Region. The ways in which services like Uber Pool and Bridj may compliment or disrupt traditional public transit in the future are the subject of much speculation and debate.

Traditional taxi companies in the Capital also serve the surrounding region. These include Fighting Tiger Taxi, Tammy's Taxi and Bayou Taxi & Airport Cab.

www.uber.com/cities/batonrouge

www.lyft.com/cities/baton-rouge-la

www.bridj.com

Impact of Transportation Technology on Transit

Driverless cars and buses were once relegated to the realm of science fiction, but this technology is now being tested and refined in cities across the world. Companies like Google, Uber, and Mercedes are dedicating considerable resources toward perfecting autonomous vehicles (or AVs). Able to drive themselves anywhere, at any time, and with no human intervention, they have been labeled "Level 4 Vehicles" by the National Highway Traffic Safety Administration. Some predict that, in less than a decade, these Level 4 vehicles may be a part of the average American's daily experience. Because MOVE2042 is a 25-year transportation plan, and with technology evolving at a rapid pace, it is important to begin considering how autonomous vehicles may impact our roadways, transit usage, development patterns, and overall mobility.

Transportation planners and researchers who study the potential impacts of emerging AV technology on the transportation network have only agreed upon one thing: that forecasting the magnitude and rate of technological change is speculative, at best. However, as we move into unknown territory, a few possible trends may be helpful to keep in mind:

First Mile / Last Mile: Improvements in transportation technology have the potential to improve first and last mile transit challenges. Providing service in areas of low and moderate population density that are located between major transit corridors is typically an inefficient use of resources. Technology which facilitates ride sharing, short- term car rental, and even autonomous transit vehicles could increase mobility in such areas.

Autonomous Buses: Labor costs and fringe benefits for bus operators make up approximately 40% of transit operating costs. Technology which de-couples this expense from the service could be transformative. Most importantly, such technologies would allow transit agencies to invest the savings in expanded hours of service. Additionally, the technologies may allow agencies to use smaller vehicles where appropriate. The primary rationale for using large vehicles is to maximize the passenger revenue miles per operator. Automated transit vehicles would allow transit providers more flexibility to assign appropriately sized vehicles, such as during off-peak times. This could also have the added benefit of making transit more attractive to a broader range of users.

Regional Coordination: A major barrier to seamless travel across the region are the unique fare collection media and reservation systems used by various transit agencies that serve the area. Transit technology is well positioned to

overcome these challenges by making transit options clearer to even only occasional transit user. Technology which can conveniently illustrate the range of transit options available and help the rider connect to the appropriate service may alleviate the need to standardize transit services, fare media, and other related practices across the region.

Intercity

GREYHOUND

Greyhound Bus provides intercity travel from its terminal at 1253 Florida Boulevard Baton Rouge, to destinations across North America. Several trips per day are offered from Baton Rouge to New Orleans, Lafayette, and other nearby cities.

A round trip, economy, ticket between Baton Rouge and New Orleans Union Passenger Terminal is approximately $28 with tax and fees.

www.greyhound.com

LA SWIFT

The LA Swift, an intercity bus traveling between Baton Rouge and New Orleans following Hurricane Katrina, was discontinued by the State of Louisiana due to funding constraints in June 2013. The fare was $5 per one-way trip.

The LA Swift provided a service similar to the proposed commuter rail service between New Orleans and Baton Rouge. Like LA Swift, the proposed commuter rail system would provide frequent, affordable, and convenient service between Louisiana's two largest cities. The rail line would, of course, have the added benefit of a dedicated right-of-way which would prevent traffic delays.

In the years immediately following Katrina, the LA Swift had a ridership of over 200,000 annually which declined to about 140,000 by 2012. The popularity of LA Swift supports the need for an affordable and convenient intercity service.

MEGABUS

Megabus, an intercity bus service of Coach USA, began offering low cost bus service from New Orleans to Houston, Texas in June 2012. Service to Baton Rouge was added in September 2013.

Megabus departs from the rear of the CATS Terminal on Convention Street at 22nd Street. Megabus travels from Baton Rouge to New Orleans, Houston, and San Antonio.

One-way fares range from $14 - $35.

www.us.megabus.com

Coordinated Human Services

Beginning in 2005, SAFETEA-LU (Safe Accountable Flexible and Efficient Transportation Equity Act – A Legacy for Users) required the development and continual updating of a Coordinated Human Services Transportation Plan for projects funded under 5310, 5317, and 5316 programs. Development of such a plan continues to be required, with some modifications, under the most recent transportation legislation, the FAST Act. The FAST Act legislation requires that only Section 5310 Elderly and Disabled funded projects be included in a coordinated human services transportation plan, although it is strongly encouraged that projects/services funded with Rural Transit Assistance Program be included in the plan as well.

In 2010, the Capital Region adopted its most recent locally developed Coordinated Human Services Transportation Plan (CHSTP), with input from elected officials, community organizations, planning professionals, advocacy organizations, and other stakeholders. The plan identified transportation challenges for elderly and low-income residents across the region, and outlined goals and action items to address them. The overarching objective is to coordinate the region's many transportation services, including CATS urban transit, into a seamless mobility network which all residents can access.

The regional Coordinated Human Services Transportation Committee meets quarterly at various locations throughout the region to discuss opportunities and concerns, work through implementation of the Coordinated Human Services Transportation Plan (CHSTP), and keep the plan up to date. Although CHSTP efforts help address some transportation challenges, existing legislation limits ability to achieve the stated goal of a seamless, coordinated, and integrated transportation system.

By focusing only on elderly and disabled transportation providers, significant resources utilized by other agencies across the state, such as Health and Human Services and Veterans Affairs, remain unaccounted for in the CHSTP. Planning professionals charged with the task of facilitating transit coordination do not have access to important data, such as the quantity and location of transit vehicles in their regions. Geographic restrictions of the various grant programs (i.e. urban, rural, etc.) further stymy coordination efforts.

In 2015, Louisiana transportation professionals assisted in drafting legislation to address the shortcomings of the current CHSTP process. The "Human Services Transportation Data Coordination Act" aimed to implement a central state transportation database which would improve coordination and communication across state agencies while avoiding duplication of services. Louisiana House Bill 260 of the 2016 regular legislative session however, did not emerge from committee for debate. Bringing all state agencies that provide transportation services under the "coordination" umbrella will help reduce the fragmentation of Louisiana's human services transportation system.

www.crpcla.org/publications

https://legiscan.com/LA/bill/HB260/2016

Safety & Security

Frequently cited benefits of public transit include reduction of overall family/household transportation costs compared to owning an automobile, or the ability to read and browse social media during one's commute. Safety on the other hand, is an important but less often discussed benefit. In fact, transit riders have 1/10th the crash rates of automobile riders. Data also indicates that cities with higher transit ridership experience fewer traffic fatalities than their more auto-dependent counterparts.

The risk of security and transit crime is a concern of many residents. Such risks may include assault, theft, or vandalism against a transit rider or employee. Other residents express concerns that new transit routes or stops will increase crime in their neighborhoods by increasing access by low- income residents. Data from FTA suggests that transit crime decreased from 2000 to 2010, while ridership increased. Although passengers are most likely to be victims of a crime when walking or cycling alone to a transit stop, transit crimes represent a very small portion of overall crime in a region.

Measures which can improve the safety and security of transit riders include high quality transit service, good walking and cycling conditions, lower traffic speeds, improved lighting, and reduced parking supply or parking fees.

(Source: Safer Than You Think – Revising the Transit Safety Narrative. Victoria Transport Policy Institute. 2016.)

9.2 | Urban Transit Peer Comparison

Peer comparison can help residents and stakeholders gain a clearer understanding of how well their urban transit system is performing in comparison to transit systems operating in similar geographic locations.

For such a comparison to be meaningful, it is important to compare CATS to transit systems of a similar size, and which have similar budget, and operating areas. Comparing CATS to the New York City Metro would not be likely to tell us much. However, comparing CATS to other small and mid-sized systems can be illustrative.

Selection Criteria

The Urban Integrated National Transit Database (iNTD) uses data from the National Transit Database (NTD) and the 2014 American Community Survey, to identify urban transit systems across the United States which are most like one another. Criteria used to identify peer systems are:

- The presence of rail, presence of heavy rail;
- urban area population;
- total revenue miles;
- total operating budget;
- population density;
- state capital;
- percent college students;
- population growth rate;
- percent low income;
- annual delay (hours) per traveler, freeway lane miles per capita;
- percent of service that is demand response.

Peer Comparison

Based upon the above criteria, the three U.S. urban transit systems identified as most like CATS are:

Birmingham-Jefferson County Transit Authority, Birmingham, Alabama Central Oklahoma Transportation and Parking Authority, Oklahoma City, Oklahoma Central Arkansas Transit Authority, North Little Rock, Arkansas

Using 2015 data from the National Transit Database, CATS was compared against its three peer systems on the criterion in the table:

According to several important metrics, such as passenger trips per capita and operating expense per trip, CATS provides effective and cost-efficient transit service to East Baton Rouge Parish residents when compared to peer systems.

Table 9-3: CATS Peer Comparison

2015 (National Transit Database)				
	CATS	Birmingham Jefferson County Transit	Central Oklahoma Transportation and Parking Authority	Central Arkansas Transit Authority
General Performance Indicators				
Service Area Population	388,542	442,804	650,221	164,972
Passenger Trips	3,990,011	3,149,944	3,085,663	2,669,158
Revenue Miles	3,312,831	2,680,226	2,684,935	2,541,607
Total Employees FTEs	273.2	225.0	196.8	158.8
Administrative Employees FTEs	42.0	30.5	22.6	13.4
Vehicles Operated in Max Service	59.0	68.0	48.0	52.0
Effectiveness Measures				
Vehicle Miles Per Capita	9.1	6.7	4.2	16.3
Passenger Trips Per Capita	10.3	7.1	4.8	16.2
Passenger Trips per Revenue Hour	15.2	14.4	17.6	13.4
Average Age of Fleet	8.1	6.8	6.8	6.1
Number of Vehicle System Failures	1,061.0	1,368.0	273.0	356.0
Weekday Span of Service (hours)	19.5	18.5	19.5	15.8
Route Miles per Square Miles of Service Area	1.4	5.0	1.9	4.3
Efficiency Measures				
Operating Expense per Passenger Trip	$5.74	$7.38	$6.55	$5.62
Operating Expense per Revenue Hour	$87.51	$105.96	$115.60	$75.44
Farebox Recovery %	8.07	8.39	11.85	13.01
Average Fare	$0.46	$0.68	$0.84	$0.75

9.3 | Regional Transit Demand Analysis

Transit Supportive Index

For public transit to be viable, it must provide service between locations with significant population density and the kinds of places/destination people want to go. Identifying locations where such clustering occurs is a critical step in the regional transit planning process.

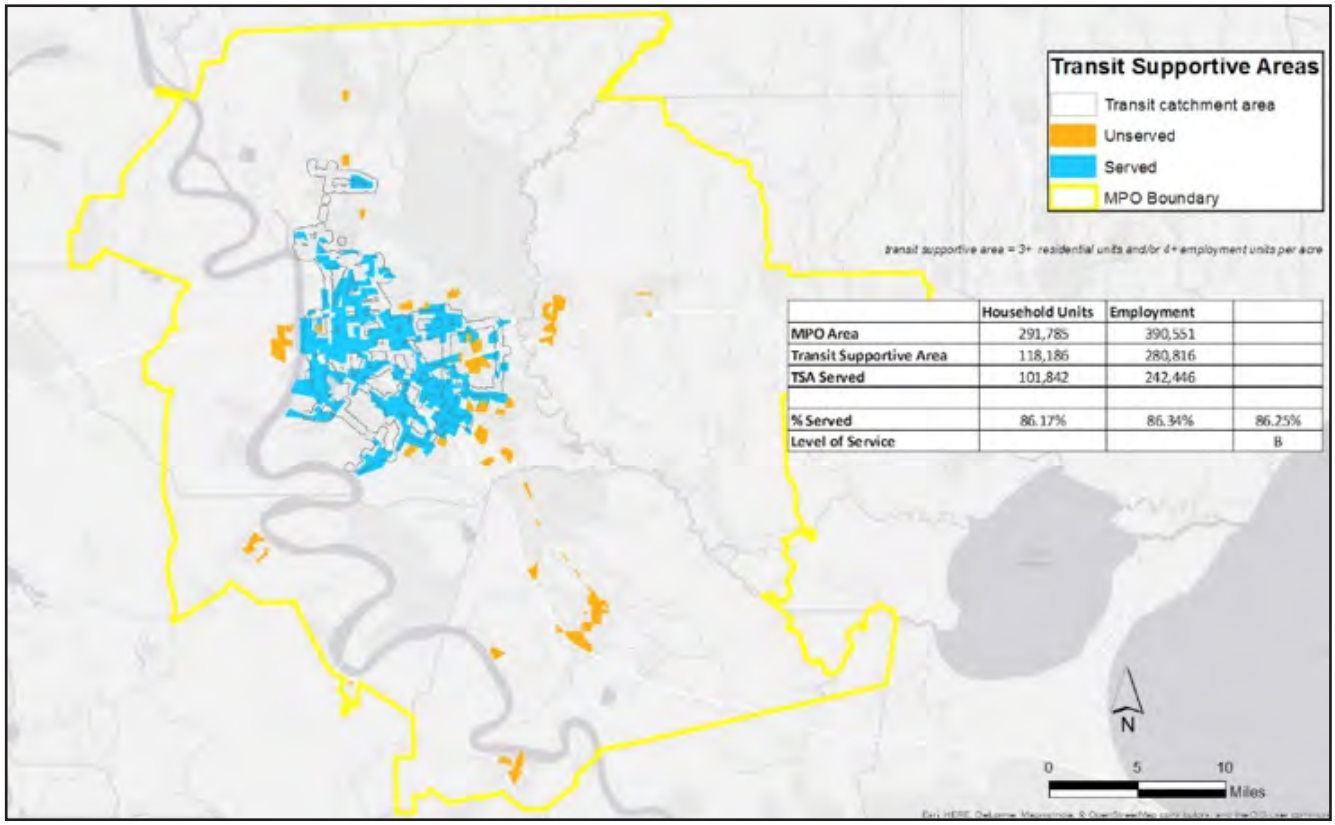
Identifying places and corridors where transit may be needed where it does not currently exist typically relies upon some combination of data and educated guesswork. There are a variety of effective methods for identifying where new transit service may be most effective, ranging from highly scientific analysis to common sense "windshield" observation.

For Move 2042, the following professionally developed method was selected to identify transit supportive clustering within the Capital Region:

On the map below, Traffic Analysis Zones (TAZ's) which contained either three or more residential units per acre or four or more employment units per acre were deemed to have enough clustering to warrant fixed route transit service. These TAZ's were shaded orange.

The current transit catchment area of fixed route service was overlaid on top of this – all orange TAZ's within the service catchment area were changed to blue.

Therefore, the TAZs which remained shaded orange contained transit supportive clustering, but are not currently served by fixed route service.



	Household Units	Employment	
MPO Area	291,785	390,551	
Transit Supportive Area	118,186	280,816	
TSA Served	101,842	242,446	
% Served	86.17%	86.34%	86.25%
Level of Service			B

Figure 9-3: Transit Supportive Areas

Within the MPO area, approximately 86% of household units and 86% of jobs are served by CATS.

According to this preliminary analysis, Gonzales, Livingston, and Port Allen appear to be the municipalities within the Capital Region which could most benefit from the provision of new, fixed route transit service.

Urban System Service

When regular/work week, Saturday, Sunday, and evening services are all considered across both systems, Baton Rouge residents have access to some form of transit from as early as 4:45 AM until as late as 3 AM.

The following table illustrates the fare structure in Baton Rouge:

Table 9-4: Fare Structure

Fare Type	Price
Adult	$1.75
Children under 5	Free w/ paying adult
Senior Citizens	$0.35
Students	$0.35
Medicare Cardholders	$0.35
On-Demand	$1.75
All-Day Pass	$4.00
7-Day Pass	$19.00
15-Ride Pass	$24.50
31-Day Pass	$56.00
SU Shuttle	Free
Tiger Trails	Free

System Coverage

A GIS-based approach was used to identify which parts of the region are currently served by transit for all types of service – weekday, Saturday, Sunday, and evening. The analysis was accomplished by generating a quarter-mile buffer around each transit route and then using Census data to determine the total population captured by the buffer area. A quarter-mile distance is generally accepted as the distance most individuals are willing to walk to reach local, fixed-route, rubber-tired, vehicle stops.

Population figures were taken from the 2015 5-year American Community Survey (ACS) Census block groups - the smallest geographic unit for which Census data is available.

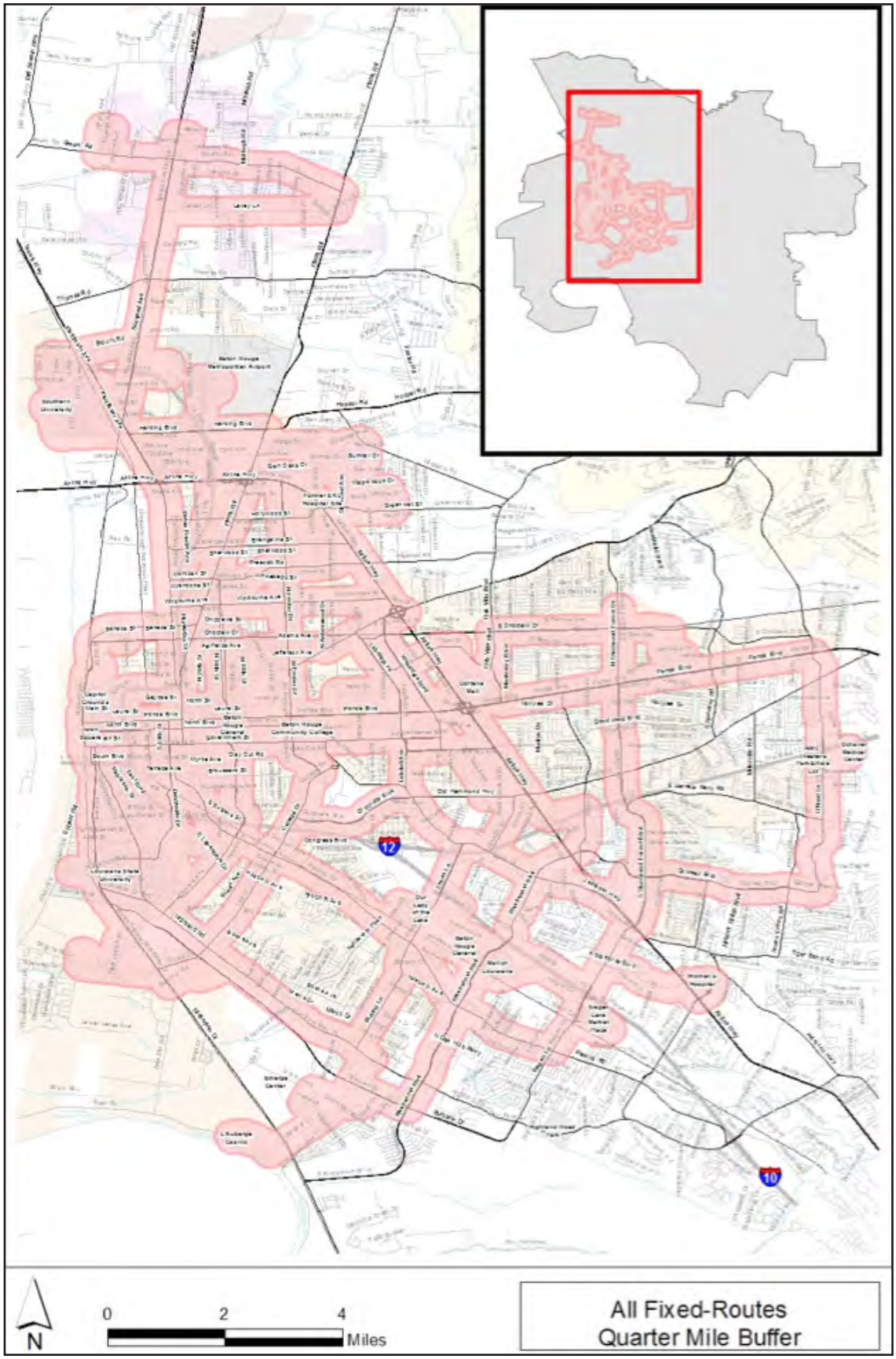


Figure 9-4: System Coverage

This map illustrates a quarter-mile buffer around all fixed route service – or "system coverage."

Table 9-3: Population Served

Service Type	Population	# covered	% covered
All Routes	444,690	205,980	46.32
Weekday		205,980	46.32
Saturday		198,698	44.7
Sunday		186,382	42
Night		157,201	35.35

Because CATS and LSU operate transit service at various levels throughout the week, different parts of the region have access to different levels and quality of service. Some areas have access seven days a week, including night service, while others only have access to transit during one or two service periods.

CATS Paratransit Service

CATS also operates CATS on Demand, a paratransit service providing door-to-door public transportation for individuals with disabilities who are unable to ride regular CATS service vehicles. To be eligible for CATS on Demand, Individuals must meet the following criteria to be eligible for CATS on Demand:

- Persons with a disability and needing additional assistance – those who would not be able to utilize the regular bus system even with assistance from the bus operator. May include those with mental or visual impairments;
- Environment – This includes individuals who can independently board the regular bus system, but the interaction of the individual's disability and environment prevents the individual from reaching the boarding or destination location. Additionally, those who must use a wheelchair and cannot reach a bus stop due to lack of curb cuts or sidewalks are also including in this category.

CATS on Demand is available within ¾ mile from all CATS routes. LSU Tiger Trails does not provide a similar service.

9.4 | Future Needs

Existing Plans

FUTURE BR

Future EBR identified the following neighborhoods with redevelopment potential and growth interest to capitalize on transit options:

- Mid-City;
- Downtown;
- LSU, Old South Baton Rouge, Nicholson, and Northgate;
- Southern University, Scotlandville, Zion City, Airport area;
- South Medical District;
- Broadmoor shopping district.

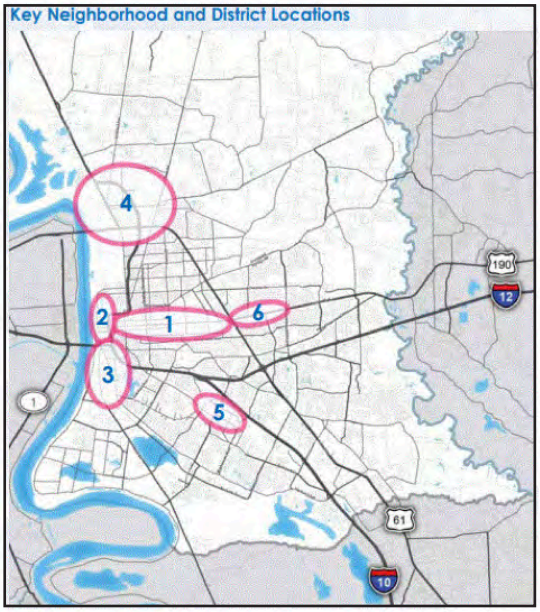


Figure 9-5: Future BR

Future BR identifies Florida Boulevard, Plank Road, Airline, and Nicholson as concentrated population and employment centers that can support expanded transit services. Additionally, the plan stresses the need for passenger rail service linking Baton Rouge with New Orleans to significantly expand business opportunities.

GONZALES COMPREHENSIVE PLAN

Currently, the only transit service in Gonzales is a demand response system for elderly and disabled residents. The Gonzales Comprehensive Plan identifies an opportunity for new transit options, particularly services which could link the industrial south side of the city with housing on the north.

Transportation Goal 11.2 of their plan, is to "Provide a wide range of transportation options for getting around the city." Action items under this goal include planning for bus, shuttle and other transit options as development increases, as well as a "shopper shuttle" serving retail centers.

TRAMLINK BR

A 3.2-mile long light rail line connecting downtown Baton Rouge with the LSU campus is currently under consideration. The project, titled TramLink BR, received federal approval to move forward in 2016 after it found to have no environmental impact.

East Baton Rouge Parish Council and Administration have delayed until at least 2018 a request for $67.5 million in local funding to continue work on the project.

Service is planned to begin in mid-2021.

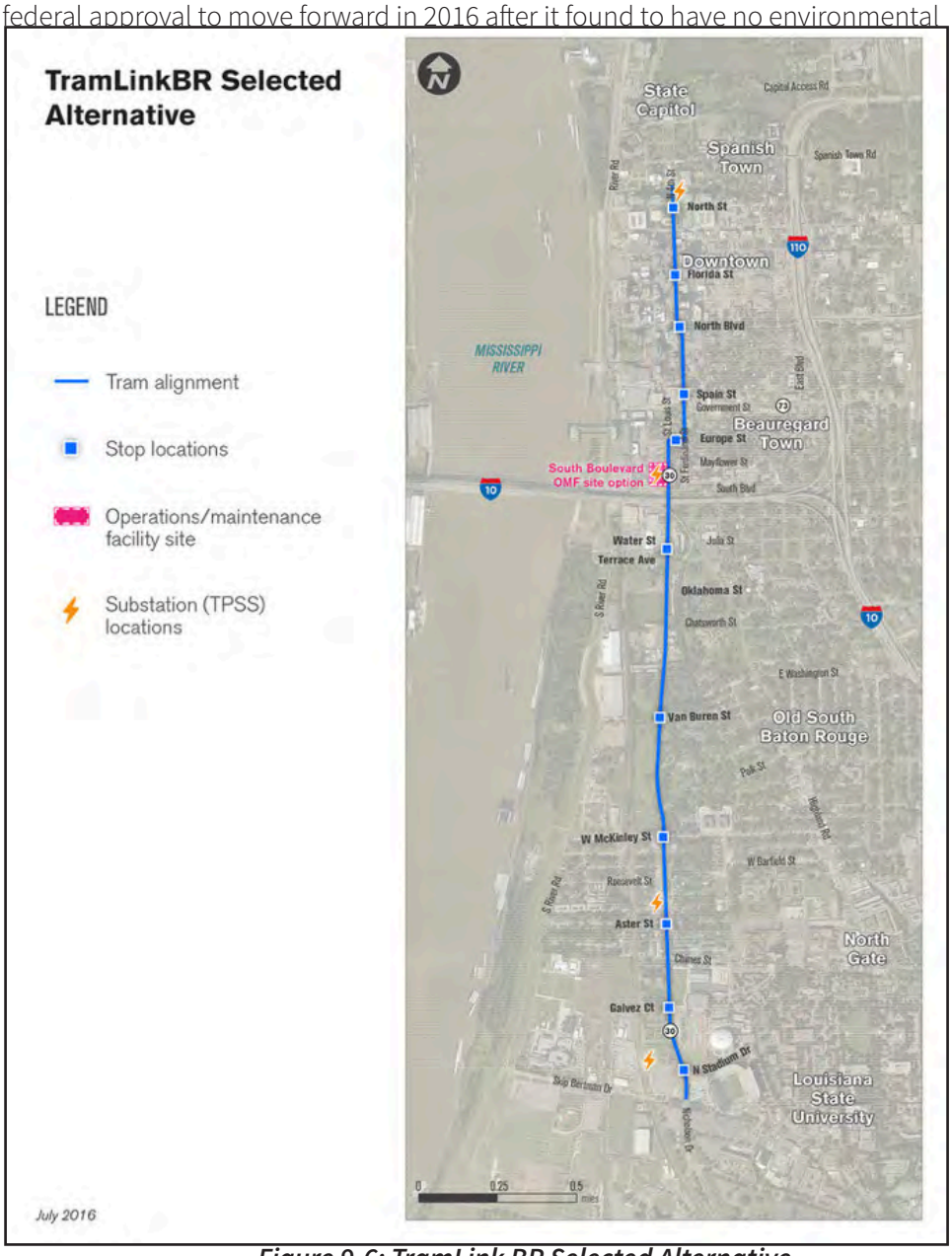


Figure 9-6: TramLink BR Selected Alternative

www.tramlinkbr.com

BATON ROUGE NEW ORLEANS COMMUTER RAIL

Many plans have been produced for a passenger rail service which would connect Louisiana's largest cities. While such a project has received broad support from stakeholders, funding required to upgrade the rail infrastructure and provide an operating subsidy has remained elusive.

The Baton Rouge-New Orleans Intercity Rail Feasibility Study envisions a service connecting downtown Baton Rouge to MSY, downtown New Orleans, and several suburbs in between. The proposed service would operate 4 trips per day, 365 days per year with an estimated ridership of 210, 240.

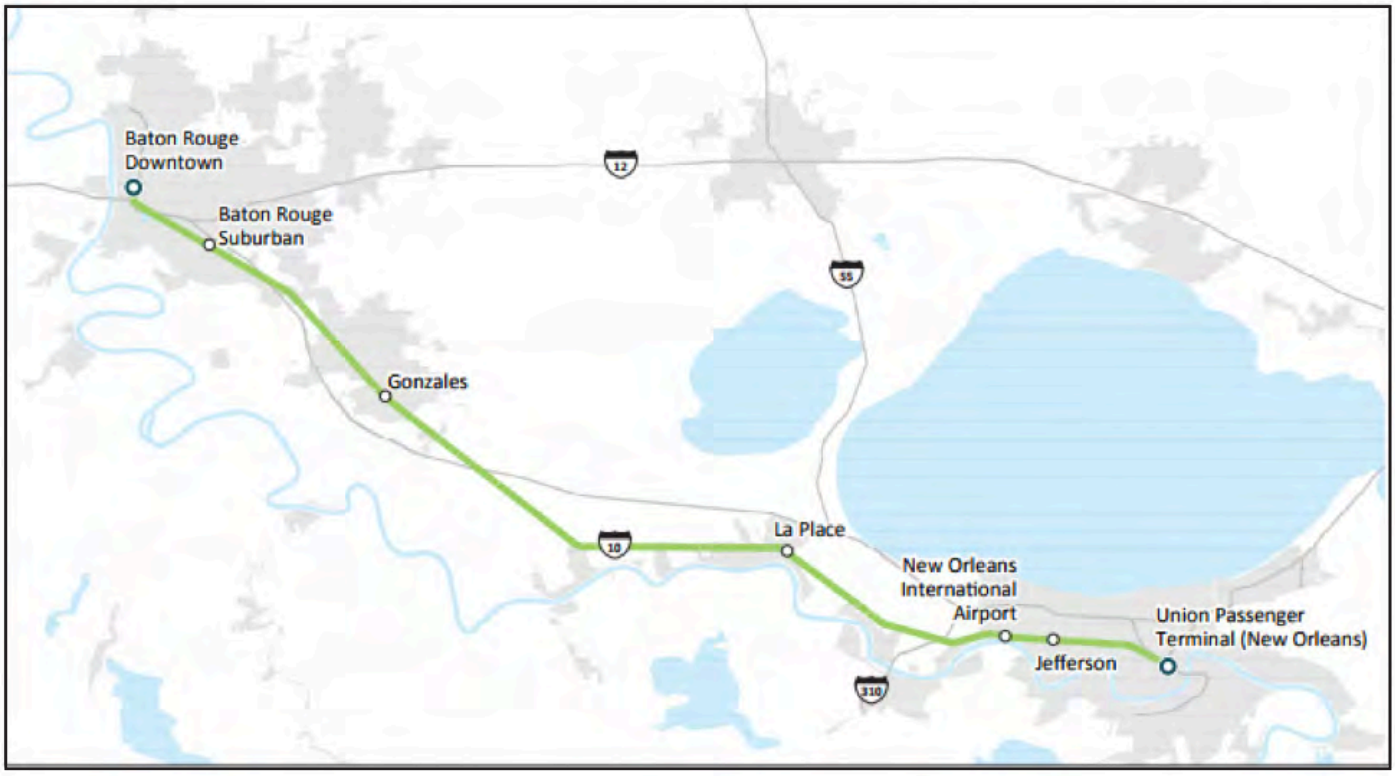


Figure 9-7: Proposed Baton Rouge - New Orleans Rail Corridor and Station Locations

Public Stakeholder Input

As part of the Move2042 public outreach process, CRPC planning staff created surveys and conducted several rounds of meetings in each of the MPO Parishes. This resulted in a wealth of feedback, helping develop better understanding of the public's concerns with regards to public transit.

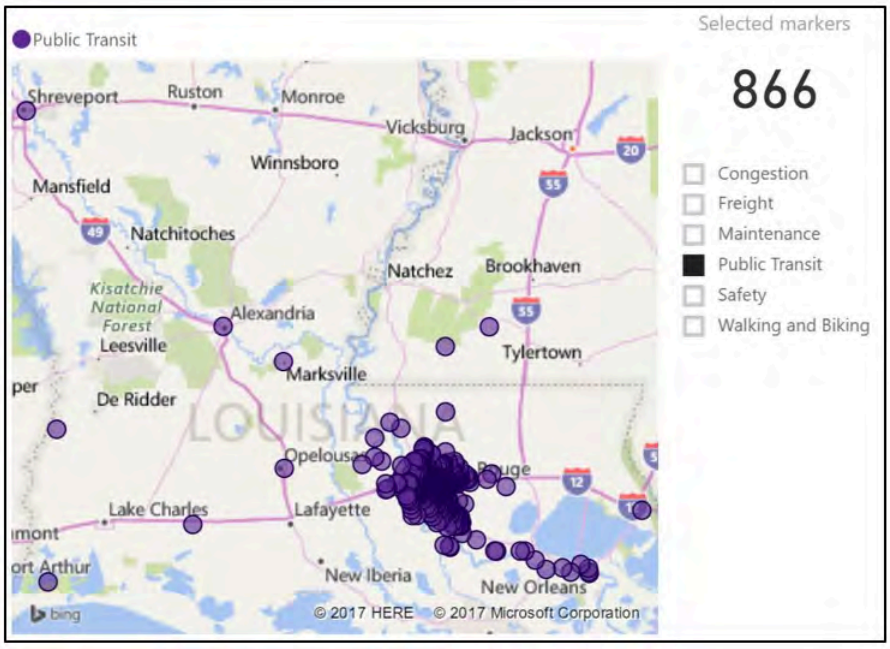


Figure 9-8: Location of Stakeholder Transit Comments

Round 1

Our first round of public meetings focused on gaining a better understanding of residents' transportation concerns. Respondents to our first survey provided 542 comments and dropped 866 map markers specifically related to mass transit. Transit was ranked as the region's 4th most important transportation priority, behind reducing roadway congestion, improving safety, and maintaining the existing system.

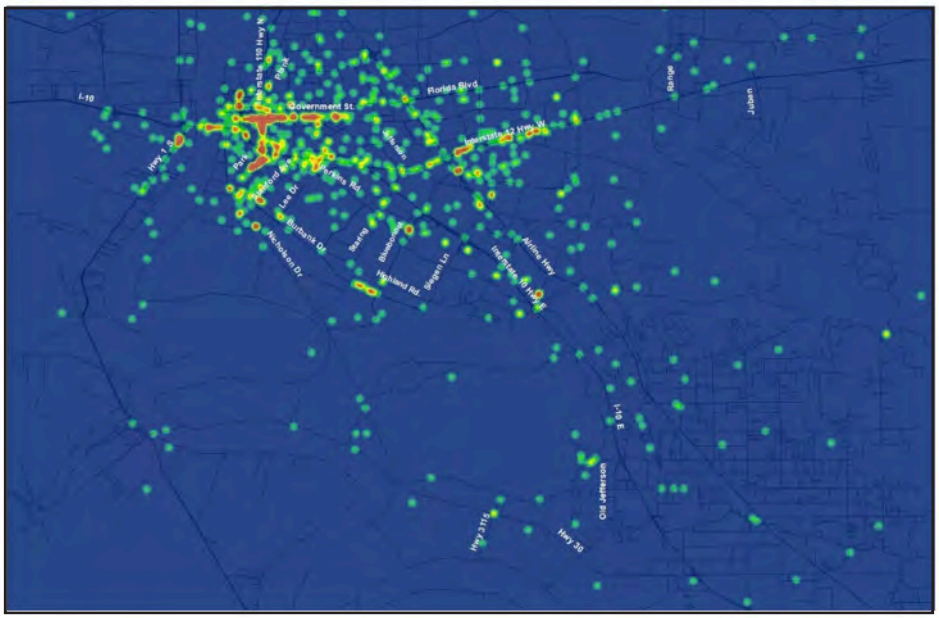


Figure 9-9: Transit Comments Heatmap

Better regional connectivity and improved frequency of transit within East Baton Rouge Parish were among residents most common suggestions. Also, many respondents mentioned the need for interregional connectivity, specifically commuter rail service between New Orleans and Baton Rouge.

Other comments spanned a range of transit concerns, including improved reliability and on-time performance, HOV lanes, park and rides, and more transit shelters.

Round 2

Whereas the first round of public meetings focused on understanding regional problems, round two was geared toward identifying solutions and priorities for funding projects across all modes. Public transit was allotted 12.15% of funding resources, making it the third priority behind roadway maintenance, and new or wider roadways.

When asked to rank potential additional revenue generating sources to fund transportation projects, respondents ranked a "statewide gas tax" the second most popular response behind tolls or public-private partnerships. Such a gas tax could provide funding for transit mega projects like commuter rail.

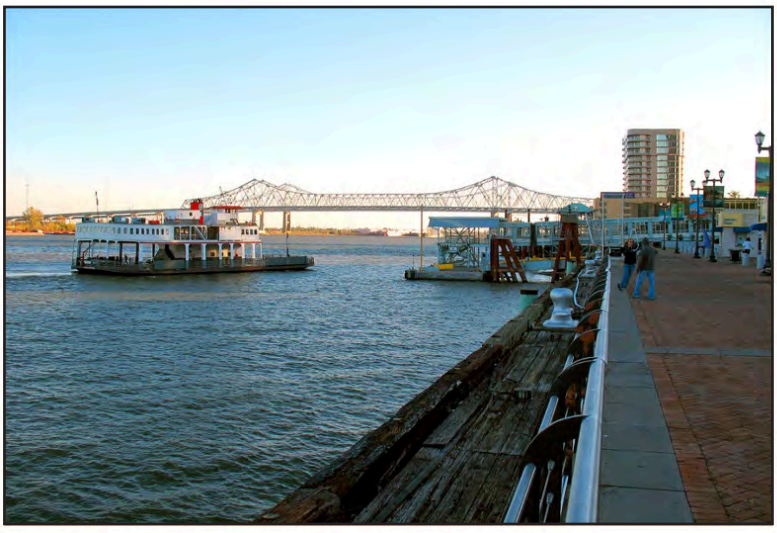
Future Growth Areas

The Capital Region is projected to experience significant growth over the twenty-five-year period covered by MOVE 2042. As the population grows, the existing transit network may lack the capacity to meet the expanding needs of the larger population and development footprint.

Areas expected to experience the highest growth in the region include Gonzales and Donaldsonville in Ascension Parish, along with parts of Livingston Parish. This projected growth creates opportunities to create convenient and expanded transit service. Port Allen and the smaller communities across the river from Baton Rouge also continue to grow and have expressed interest in the improved mobility and connectivity which transit can provide. Finally, as discussed earlier in this chapter, expanding transit service into rural communities experiencing lower growth rates could provide lifelines to many residents with limited transportation options in such smaller communities. Furthermore, connecting the region with a transit network would provide travel choices beyond personal vehicles thereby increasing the transit commute mode share and decreasing peak hour congestion.

Expanding Transit Service

Rapidly growing communities, such as in Livingston and Ascension parishes, could benefit from well-designed, fixed-route service. Types of service requested by the public during MOVE2042 outreach efforts ranged from shopping circulators in Gonzales, to extending high frequency bus routes along Florida Boulevard into Livingston Parish. Many West Baton Rouge Parish residents believe reinstating ferry service between Port Allen and Baton Rouge would alleviate traffic pressure on the Mississippi River Bridge and increase access to jobs.



Port Allen residents believe a ferry, like the Algiers Ferry in New Orleans pictured here, would improve mobility between East and West Baton Rouge.

Preliminary analysis conducted for this plan indicates that these communities possess at least the minimum level of employment and residential density to support a basic level of transit service.

Although the opportunity may exist, a significant challenge in providing new transit service is often the cost to the municipality or "local match" that is required, even after fare revenue and Federal assistance are taken into consideration. Grants provided by the FTA cover up to 85% of transit vehicle purchases and 50% of operating costs. However, the substantial local match required can make it difficult to make new transit service a reality.

Administrative and logistical challenges exist, as well. Who would be the operator of a new service? Would CATS expand outside the current service area and what would that process entail? Does a local municipality have the capacity to administer transit grants, insure transit vehicles, and train drivers? A private provider may streamline the process; but, at what additional cost?

A final hurdle to the provision of effective mass transit in the Capital Region is the prevailing low-density land use and development patterns. It is geometrically difficult for transit to effectively serve the types suburban development which characterizes much of the new and existing growth in the Capital Region. By dispersing trip origins and destinations at significant distances, residents must rely upon motorized vehicles for nearly all trips. At present, the existing alternative is to subsidize transit services with poor passenger to service mile ratios. In the future, planning communities to accommodate and support transit services can improve mobility and reduce transportation costs for everyone. The first and critically important step in provision of a new transit service - whether it be a "dial-a-ride" van, or a commuter rail mega project – is proper coordination of land use and planning. Beyond that, the next vital step to ensure success is building broad support from residents, community stakeholders, and elected officials.

9.5 | Performance Measures

SAFETY

CRPC is required to establish safety targets in coordination with regional stakeholders, transit agencies and LADOTD. Safety performance targets are required under the Highway Safety Improvement Program (HSIP) and should be set for the following high-level categories: Number of Fatalities, Rate of Fatalities, Number of Serious Injuries, Rate of Serious Injuries, and Number of non-motorized fatalities and non-motorized serious injuries.

MPOs must agree to plan and program projects to ensure they contribute to the accomplishment of State DOT HSIP targets or must develop their own quantifiable HSIP targets for their metropolitan planning areas. As part of this plan, the MPO will collaborate with regional transit agencies to set measurable targets for transit safety (see, Chapter 2).

TRANSIT ASSET MANAGEMENT

In 2012, MAP-21 mandated that the FTA develop a rule establishing a strategic and systematic process for operating, maintaining, and improving capital assets of transit systems effectively throughout their life cycles.

MPOs are required to establish Transit Asset Management (TAM) performance targets to maintain a State of Good Repair (SGR) for the region's transit assets. This has a significant impact on transit safety and reliability. To establish regional performance targets, CRPC must coordinate with LADOTD, CATS and other transit agencies. Coordination is integral to successfully managing a state of good repair for transit in Louisiana.

CATS is currently preparing its TAM plan, with delivery required in October, 2018. After the adoption of this plan, the MPO then has 180 days to establish its own performance measures targets, and adopt them into the MTP and TIP.

As an example, TAM performance measures may include:

Maintain state of good repair (SGR) for transit assets (coordinate with DOTD and CATS)

- Number of vehicles at/above their Useful Life Benchmark (ULB);
- Average age of fleet;
- Average revenue miles per vehicle type;
- Number of reported failures;
- Number of maintenance inspections.

The state of Louisiana has already set its performance measures and targets for 5310 recipients.

Table 9-6: LA DOTD Group Plan – Asset Class Performance Targets

Asset Class	State of Good Repair Performance Measure	Performance Target
Rolling Stock All revenue vehicles	Age - %of revenue vehicles within an asset class that are below the ULB (i.e. in a State of Good Repair)	93% of Cutaway Bus and Minivan assets in a State of Good Repair Cutaway Bus – Replace 26 vehicles per year for 4 years (91% of assets in state of good repair after 4 years) Minivan – Replace 14 vehicles per year for 4 years (100% of assets in state of good repair after 4 years) Van – No target set; vehicles being retired
Equipment Non-revenue vehicles	Age - %of vehicles that are below their ULB	No target set; DOTD does not own or have direct capital responsibility for any equipment
Facilities All buildings or structures	Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM-Lite) Scale	No target set; all DOTD facilities currently in good or excellent condition

9.6 | Financial Analysis

Maintaining and revitalizing public transportation is crucial to regionwide enhancement of both mobility and accessibility, which contribute towards a robust regional economy. Due to the high cost of transportation operation and maintenance, multiple levels of funding are utilized to provide adequate service to the public. The following section analyzes federal, state, local, and other funding sources available for transit providers within the CRPC-MPO planning area. These sources have been analyzed regarding recent/current funding and potential funding sources moving forward. Future funding estimates have been projected in short, medium, and long-term time horizons for specific transit providers/services within the CRPC-MPO.

Existing Funding Resources

Transit services in the CRPC planning area currently receive funding primarily from federal grant programs focused on urban areas and rural/dependent populations, as well as revenue generated by the region's most prominent transit agency, Capital Area Transit System (CATS).

FTA Chapter 53

The CRPC planning region has various types of public transportation service providers, which generate funding from each of the FTA Chapter 53 grant programs. The Federal Transit Administration's (FTA) Chapter 53, most recently amended by the FAST Act, provides funding to support public transportation. Chapter 53 further outlines objectives that aim to:

- Enhance the development/delivery of capital projects;
- Establish standards for the state of transportation infrastructure and fleets;
- Promote comprehensive transportation planning;
- Establish technical assistance programs for providers under the chapter;
- Bolster Federal support for all individuals that use public transportation, including those with disabilities, seniors, and other transit dependent populations;
- Support research, development, and implementation of public transportation projects;
- Influence the development of the public transportation workforce.

While funding amounts and origins vary, trends regarding capital versus operating funds are generally consistent. Transit providers within the CRPC planning area receive consistent maintenance funding and inconsistent capital funding. This can be attributed to the fact that fleet expenses and needs typically vary in time and cost compared to annual operation and maintenance costs. Existing capital and operating funding via FTA Chapter 53 grant programs includes Sections 5311, 5310 and 5307, which are shown below. More detailed descriptions are included in the Potential Funding Sources Section.

FTA 5311 Capital and Operating

Rural area formula grants are currently provided to Livingston and Iberville Parishes. . Table 9-5 demonstrates 5311 funding from fiscal year 2013 to fiscal year (FY) 2017 for the two areas.

Table 9-7: Funding Fiscal Year 2013 - 2017

Livingston	FY '13	FY '14	FY '15	FY '16	FY '17	Change
Operating	$249,044	$255,970	$236,162	$284,500	$295,135	$46,091
Capital	N/A	N/A	N/A	$54,918	$274,590	$219,672
Iberville	Started 3/27/13					
Operating	$124,583	$124,583	$206,900	$249,463	$196,482	$71,899
Capital	$59,536	N/A	$96,546	N/A	N/A	$37,010

Source: LADOTD

FTA 5310 Capital

CRPC planning area Section 5310 capital funding allocated among private non-profit transportation providers is displayed below in Table 9-6. Operating funds for this program were not available for analysis. Accordingly, only two providers saw changes in funding over the time horizon, with Ascension Parish COA the only entity to see an increase in capital funds by FY 16-17 ($99,378).

Table 9-8: 5310 CRPC Area Providers Capital Funding

Capital Projects	FY '12-13	FY 13-14	FY '14-15	FY '15-16	FY '16-17	Change
Association for Retarded Citizens-Iberville	37,097					-
Franciscan PACE, Inc.					209,406	-
Foundation Industries, Inc.				46,680		-
Gulf Coast Teaching Services						-
The ARC of East Ascension		87,713				-
The Center, Inc.		148,780			54,263	(94,517)
West Baton Rouge COA, Inc.						-
Ascension COA		46,680		50,916	146,058	99,378

Source: LADOTD

FTA 5307 Funds

Baton Rouge's Capital Area Transit System (CATS) is the lone provider eligible for Section 5307 funding in the CRPC-MPO. Table 9-7 details all available funding source information from FY 2011 to FY 2018. The list consists of MAP-21 apportionments (5307 Funding) to CATS and the amount requested by the MPO/State. The table illustrates consistent levels of MAP-21 funding and increasing funds provided by the region/state ($1.7-million increase).

Table 9-9: 5307 Baton Rouge (CATS) Historical Apportionments

Fiscal Year	MAP-21/FAST Act* Apportionments	MPO/State Request Amt
FY '11	4,825,155	5,890,000
FY '12	4,921,658	5,740,000
FY '13	5,043,909	5,196,000
FY '14	5,144,787	5,596,000
FY '15	3,377,884	5,071,000
FY '16	5,352,637	8,038,000
FY '17	5,620,269	7,000,000
FY '18	5,352,637	7,600,000
Change	527,482	1,710,000

Source: LADOTD

Note: MAP-21 transitioned to FAST Act in late 2015.

CATS Funding

CATS also provides the region with funding resources, namely from operating revenues, governmental revenues, and tax revenues. Each category contains several sub-categories, which are explained in greater detail below.

Operating Revenues

Operating revenue refers to any revenue generated from an agency's typical business activities; in this case, revenues created by providing transit services to the Baton Rouge area. The following lists all sources of operating revenue generated by CATS since 2015:

- Fare Revenue (Customer): revenue derived from transit fare/ticket sales;
- Contract Revenue (Customer): revenue generated by CATS to provide contracted services;
- Special Events (Customer): revenue created from events/fundraisers hosted by the agency;
- Medicaid (Customer): revenue generated through providing transportation services for Medicaid recipients;
- ADA (Customer): revenue generated through providing ADA services;
- Advertising Revenue: revenue generated through contracted advertising, utilizing agency infrastructure to market local/regional business through procurement processes;
- Chartered Transportation Revenue: revenue generated from chartered services outside of the normal scope of service for the agency;
- Interest Income: earnings from accounts receivable, or nonoperating revenues;
- Miscellaneous Revenue: funds generated from the remainder of an agency's operating revenue.

Governmental Revenues

Governmental Revenue refers to funding received by an agency directly from government programs/resources. These federal operating subsidies aim to assist with operating expenses to ensure the commodity/services provided by the agency remain affordable and competitive. The following details governmental revenues provided to CATS since 2015:

- Congestion Mitigation and Air Quality (CMAQ): funding provided by the FHWA for operations which mitigate traffic congestion and aim to improve air quality;
- ADA: Funds received to provide ADA service;
- Project Administration: Funds received to carry out day to day operations;
- Planning: Funds received to complete transit planning activities;
- JARC: Funds provided by formula to address transportation challenges of low income workers (program is expired);
- New Freedom: FTA formula grant program providing funds based upon population of persons with disabilities (program is expired);
- Preventive Maintenance: federal funding allocated towards projects which aim to improve or sustain an agency's current transportation facility conditions.

Tax Revenues

Tax revenues refer to revenues generated from taxes placed on profits, goods, property, and services. The following lists and defines all sources of tax revenue used by CATS from 2015:

- Hotel/Motel Tax: state level tax applied to anyone providing sleeping room services;
- Parish Transportation Fund: state transportation fund generated by tax revenue which is allocated on a per capita basis based on population categories;
- City-Parish General Fund: local funding available that is not allocated to a special purpose fund;
- Property Tax Revenue: revenue generated from local/regional property taxes;

CATS Funding (2015-2017)

Table 9-8 displays CATS revenue streams by category from 2015 to 2017. Governmental revenues are substantially larger than operating revenues. In 2017, governmental revenues made up roughly 91% of CATS' total revenue from all funding sources. While overall revenue increased by roughly $3-million from 2015 to 2017, the agency experienced a $4-million decrease in funding from 2016 to 2017.

Table 9-10: CATS Revenue Summary

Capital Area Transit System Revenues (2015-2017)			
	2015	**2016**	**2017**
Operating Revenues ($)			
Customer Revenue - Fares	1,654,693	1,629,671	1,244,759
Customer Revenue - Contract	282,918	298,900	247,281
Customer Revenue - Special Events	62,859	88	5,591
Customer Revenue - Medicaid	357,240	18,953	-
Customer Revenue - ADA	100,462	117,578	74,512
Advertising Revenue	228,968	398,902	438,012
Chartered Transportation Revenue	10,765	2,873	5,600
Miscellaneous Revenue (Expense)	53,392	36,267	52,038
Interest Income	9,592	15,630	17,517
Total Operating Revenues	**2,760,889**	**2,518,862**	**2,085,310**
Governmental Revenues ($)			
CMAQ	3,344,438	2,849,982	1,723,797
ADA	503,314	-	-
Project Administration	41,382	32,925	88,362
JARC/New Freedom	332,078	427,251	165,625
Planning	4,792	198,598	105,007
Other	-	30,826	-
Preventive Maintenance	2,960,199	3,211,735	1,500,829
	-	-	-
Hotel/Motel Tax	1,200,000	1,200,000	900,000
Parish Transportation Fund	550,000	550,000	412,500
City-Parish General Fund	-	-	-
Property Tax Revenue	15,970,306	16,462,426	16,043,643
Total Governmental Revenues	**17,720,306**	**24,963,743**	**20,939,763**
Total (All Funding Sources)	**20,481,195**	**27,482,605**	**23,025,073**

Source: Capital Area Transit System (CATS)

Potential Funding Sources

Primary Federal Sources

Aside from local funding, the Federal Transit Administration (FTA) administers the primary funding programs utilized by transit providers in the CRPC study area. Of these programs, the Section 5307 Urbanized Area Formula program offers the largest source of potential future funding. Other FTA funding programs are more limited in nature

Section 5307 (Urbanized Area Formula Program)

This formula-based program (49 U.S.C. 5307) provides capital, operating, and planning funding to urbanized areas (population greater than 50,000), as designated by the U.S. Department of Commerce, Bureau of the Census. However, operating costs of an area with a population greater than 200,000 are not covered under this program. For populations greater than 200,000, the formula is based on a combination of bus revenue vehicle miles, bus passenger miles, fixed guideway revenue vehicle miles, and fixed guideway route miles, as well as population and population density, and number of low-income citizens.

Section 5311 (Formula Grants for Rural Areas)

The formula-based program (49 U.S.C. 5311) provides states and tribal governments with funding for administration, capital, planning, and operating assistance to support public transportation in rural areas, defined as areas with populations less than 50,000. There are set-asides within this program for the Intercity Bus Program, the Rural Transit Assistance Program (RTAP), Public Transportation on Indian Reservations, and the Appalachian Development Public Transportation Program.

Section 5310 (Enhanced Mobility of Seniors and Individuals with Disabilities)

The Enhanced Mobility program provides formula funding to assist in meeting the transportation needs of the elderly and disabled when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs. The purpose of this program is to enhance mobility for seniors and persons with disabilities by providing funds for programs to serve the special needs of transit-dependent populations beyond traditional public transportation services and paratransit services.

Funds from Section 5310 may be used for both capital improvements and operating expenses. However, at least 55% of program funds must be used on capital projects that are public transportation projects planned, designed, and carried out to meet the special needs of seniors and individuals with disabilities when public transportation is lacking. The remaining 45% of program funds may be used for:

- Public transportation projects that exceed requirements of the Americans with Disabilities Act (ADA);
- Public transportation projects that improve access to fixed-route service and decrease reliance by individuals with Alternatives to public transportation that assist seniors and individuals with disabilities.

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

Other Federal Sources

Several other FTA grant programs also provide funding to transit agencies. The majority of these grant programs relate to fixed guideway systems or temporary assistance.

Section 5339 (FTA Buses and Bus Facilities Program)

This formula based program provides capital funding to states and designated transit agencies to replace, rehabilitate, and purchase fleet vehicles/related equipment, as well as to construct bus facilities. This includes technological changes or innovations to modify low or no emission vehicles/facilities.

Section 5309 (FTA Capital Investment Grants)

This grant program provides funding for large transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and bus rapid transit (BRT). Unlike other programs, Capital Investment Grants by law require all projects seeking funds to complete a series of steps over several years to become eligible for program funding. Unallocated funds go towards Bus Livability Discretionary Grants, awarded to projects which fulfill all six livability principles of the Interagency Partnership for Sustainable Communities, which is administered by the Environmental Protection Agency (EPA), Department of Transportation (DOT), and Housing and Urban Development (HUD). Funds aim to improve transportation options, increase housing and job accessibility, and stimulate economic development. Capital costs may be funding through this program, ranging from intermodal facilities to active transportation infrastructure.

Section 5339c (FTA Low or No Emission Vehicle Program)

This program allocates funding to transit agencies to incorporate low or no emission fleet vehicles and related equipment into service, or to lease, construct, or rehabilitate facilities which support similar vehicles.

Section 5312 (FTA Mobility on Demand (MOD) Sandbox Demonstration Program

A program designed to fund projects which promote innovative business models to deliver high quality, seamless, and equitable mobility options for all users.

Section 5312 (FTA Public Transportation Innovation)

Provides funds to create innovative products and services assisting transit agencies in better meeting the needs of their customers.

State Funding

FTA/Federal Government provides majority of the state of Louisiana's transit funding. However, FHWA funds are available to transfer (or flex) for local transportation needs administered by the state. Funding made available by the National Highway Performance Program (NHPP), Surface Transportation Program (STP), and Transportation Alternatives Program (TAP) can all utilize funds for transit projects. Eligibility restrictions are dependent upon funding source. The Parish Transportation Fund provides direct state funding towards regional and local transit needs. The state also uses funding from the Transportation Trust Fund (TTF), the excess revenue gained from state fuel taxes, for capital acquisition for the transit providers operating under 49 U.S.C. 5310 and 5311.

Local Funding

Local funding is crucial to cover any transit costs left uncovered by federal and state funding sources. Accordingly, any leftover cost is the responsibility of the local governmental jurisdictions. Local funding comes in several forms, ranging from tax revenues to implementation of user fees. The following will further explain the different components of local funding options for transit.

Taxes

- Property Taxes: Property taxes typically generate the largest amount of revenue for localities (accounting for roughly 80% of all local tax revenues);
- General Sales Taxes: The general sales tax is a percentage paid to the local government from the sales of goods and services. The most common form is the retail sales tax, due to its wide range of commodities. Retail sales tax rates are typically a fixed percentage of a good/service's retail price.

Land Value Capture

Land value capture refers to a jurisdiction's ability to collect revenue from specific geographic locations that benefit from transit improvements, with these funds used to aid ongoing operations and capital improvements. These mechanisms allow transit agencies to capitalize on the increased property values associated with improved transit in areas where service is provided.

- Transportation User Fees: User fees are established to collect a specified payment amount from those who utilize the services provided by a public facility. These fees generate funds to cover costs of facilities, finance the cost of operations, and/or generate revenue for other uses. User fees are commonly implemented for public parks, water and sewage services, roadway infrastructure, transit systems, and solid waste facilities;
- Transportation Impact Fees: Transportation impact fees are revenues collected from new commercial/residential development, in which developers pay fees to offset any increased demand their new development may place on existing transportation infrastructure. Accordingly, fee revenue may be allocated to improve transit services located in the area;
- Transit Access/Utility Fee: Transit access fees are monthly payments required from commercial and residential properties within the service area. These fees generate continuous revenue for transit agencies;
- Special Assessments: Also known as a benefit assessment district, special assessment districts place costs of capital improvements on landowners who directly benefit from transit operation/implementation. The location of a new transit facility generates costs assessed on adjacent owners based on the amount of frontage owned along the new facility. These assessments may be paid over a period of time, or in a lump sum.

Bond Issues

Municipal bonds are securities issued by a local government or other authorized entity to pay for capital projects. A bond issue is a ballot measure asking citizens for approval of further capital spending, and must be paid to investors throughout the duration of the security. It is common for localities to pay off bonds with property and sales tax revenues.

Sponsorship

- Sponsorships provide an opportunity for agencies to raise capital while also creating long- term funding sources for operations and maintenance;
- Advertising: Transit facilities inherently provide advertising opportunity. Bus and bus stop advertising offers exposure to local commuters, drivers, and pedestrians. These billboards are typically seen on bus exteriors, presented in a variety of sizes to reach local audiences, ranging from panels to bus wraps. Fleet vehicle interiors also provide opportunities for advertising, in turn creating more opportunities to generate revenues. A popular form of advertising, known as “station domination”, allows one brand to occupy all advertising space in a transit station. This allows local business/establishments to gain exposure while ensuring no vacant ad space on transit lines or in transit stations;
- Naming Rights: Selling naming rights present another funding opportunity through sponsorship. Large transfer stations/hubs offer space for a large number of daily viewings of a business sponsor’s or personal sponsor’s name. As this is more common in large metropolitan areas, it is important to assess high ridership areas most appropriate for naming rights.

Partnerships

- Public/Private Partnerships: Transit agencies across the United States have partnered with private sector firms to implement transit projects. These partnerships take many forms, and are most beneficial when done with businesses that assist with funding capital investments or joint developments. For example, proximity to a large employer may create investment interest if the business receives benefits for its contributions;
- Institutional Partnerships: Relationships with public institutions, such as local universities, schools, and public agencies can increase ridership and revenues through additional and expanded contract agreements. Coordination between regional transportation agencies also provides opportunities to fund transfers between disparate service providers. Collaborative partnerships allow agencies to expand upon recently awarded grants.

Parking Benefit Districts

A parking benefit district takes a proportion of revenue raised from parking fees in a specific geographic area and reallocates the revenue towards transit improvements. Jurisdictions can designate a certain percentage of existing parking fee revenues in an area or raise parking costs to create new revenue for transit improvements.

Crowdfunding

Crowd funding has become increasingly common, allowing individuals to donate money to collectively fund public

projects. Crowdfunding should be used to fund small scale improvements, such as transit stop amenities. In addition to raising money for infrastructure improvements, this strategy also helps increase community awareness of transit needs. In theory, this attracts more donors and support for future investments.

Forecasting Revenue

Historical Funding for Transit

Historical data regarding transit funding for providers in the CRPC study area was gathered from LADOTD, NTD and CATS. CATS data from 2015 to 2017 was analyzed. This included both operating and governmental sources of revenue. These were compared to estimates provided through the National Transit Database. NTD data covering the period from 2000 and 2015, provided a more robust sample to determine the average funding levels, as compared to the r CATS data. NTD Data was also used to help prepare the estimated revenue projections. LADOTD provided funding data for the years 2013 – 2017, for both Iberville and Livingston Parishes Section 5311 operating and capital costs. CATS historical operating and capital revenues from each revenue source are shown by year in tables 9-10 and 9-11.

Table 9-11: Historical CATS Capital Funds

Year	CATS Historical Funding Analysis - Capital Funds					
	Federal	State	Local	Other	Total Current (Actual Dollars)	Total Current (2015 Dollars)
2000	$ 175,904	$ -	$ 62,612	$ -	$ 238,516	$ 328,312
2001	$ 921,200	$ -	$ 230,300	$ -	$ 1,151,500	$ 1,548,885
2002	$ 520,182	$ -	$ 127,879	$ -	$ 648,061	$ 860,642
2003	$ 1,141,447	$ 70,013	$ -	$ -	$ 1,211,460	$ 1,572,554
2004	$ 727,615	$ -	$ 227,763	$ -	$ 955,378	$ 1,209,447
2005	$ 1,324,497	$ -	$ 118,795	$ -	$ 1,443,292	$ 1,764,043
2006	$ 8,028,643	$ -	$ -	$ 8,689	$ 8,037,332	$ 9,500,605
2007	$ 1,018,499	$ -	$ -	$ -	$ 1,018,499	$ 1,169,911
2008	$ 1,037,103	$ -	$ -	$ -	$ 1,037,103	$ 1,143,785
2009	$ 1,507,099	$ 66,817	$ 279,494	$ -	$ 1,853,410	$ 2,052,283
2010	$ 1,358,585	$ -	$ 360,754	$ -	$ 1,719,339	$ 1,872,360
2011	$ 3,700,280	$ -	$ 243,317	$ -	$ 3,943,597	$ 4,151,566
2012	$ 2,436,666	$ -	$ 163,332	$ -	$ 2,599,998	$ 2,680,417
2013	$ 2,830,310	$ -	$ 374,103	$ -	$ 3,204,413	$ 3,253,136
2014	$ 5,446,936	$ -	$ 1,276,745	$ -	$ 6,723,681	$ 6,711,870
2015	$ 2,422,298	$ -	$ 605,575	$ 775,810	$ 3,803,683	$ 3,803,683
Annual Average	$2,162,329	$ 8,552	$ 254,417	$ 49,031	$ 2,474,329	$ 2,726,469

Table 9-12: Historical CATS Operating Funds

Year	CATS Historical Funding Analysis - Operating Funds (2015 Dollars)					
	Fares	Other	Total (Fares + Other)	Federal	State	Local
2000	$ 5,037,918	$ 262,548	$ 5,300,466	$ 7,020,183	$ 985,299	[illegible]
2001	$ 5,258,858	$ 314,520	$ 5,573,377	$ 6,975,325	$ 1,146,129	[illegible]
2002	$ 4,900,281	$ 265,595	$ 5,165,876	$ 5,858,405	$ 1,072,462	[illegible]
2003	$ 4,877,578	$ 319,763	$ 5,197,341	$ 5,358,363	$ 1,133,088	[illegible]
2004	$ 4,332,958	$ 715,418	$ 5,048,376	$ 5,073,936	$ 1,129,123	[illegible]
2005	$ 4,425,322	$ 424,567	$ 4,849,889	$ 6,313,035	$ 1,094,781	[illegible]
2006	$ 5,442,478	$ 421,040	$ 5,863,518	[illegible]	$ 1,305,980	[illegible]
2007	$ 5,198,258	$ 530,824	$ 5,729,082	$ 4,383,288	$ 1,389,827	[illegible]
2008	$ 5,426,073	$ 44,363	$ 5,470,436	$ 5,209,254	$ 1,375,493	[illegible]
2009	$ 3,573,142	$ 174,983	$ 3,748,126	$ 5,206,046	$ 895,709	[illegible]
2010	$ 2,335,115	$ 541,328	$ 2,876,442	$ 6,258,824	$ 823,640	[illegible]
2011	$ 2,186,909	$ 530,664	$ 2,717,573	$ 4,835,127	$ 652,708	[illegible]
2012	$ 1,948,637	$ 283,075	$ 2,231,712	$ 4,219,593	$ 579,610	[illegible]
2013	$ 1,990,023	$ 308,436	$ 2,298,459	$ 4,649,938	$ -	[illegible]
2014	$ 1,923,299	$ 386,806	$ 2,310,106	$ 4,621,114	$ -	$ 15,627,082
2015	$ 926,756	$ 459,932	$ 1,386,688	$ 7,218,806	$ 352,208	$ 16,983,390
Annual Average	**$ 3,736,475**	**$ 373,991**	**$ 4,110,467**	**$ 5,546,749**	**$ 995,433**	**$ 16,305,236**

Source: National Transit Database (NTD) – Note. "Operating" as defined by NTD includes recurring capital expenses from federal programs (i.e. 5307)

Transit Revenue Forecast

After compiling historical funding totals, annual averages were calculated for each revenue source, generating "current" funding levels in 2015 dollars. Anomalies or changes listed below in historical revenue streams have been excluded from the annual average estimations.

- Spike in 2006 federal operating funds after Hurricane Katrina;
- Passage of dedicated local property tax in 2012. This helped CATS to generate more local revenue annually than the historical years between 2000 and 2012. 2013 was excluded as the property tax revenue was significantly lower than 2015 and 2016.

For the following "current" funding calculations, a 1% inflation rate was utilized to generate Stage I (2018 - 2022), Stage II (2023 – 2032), and Stage III (2033 – 2042) funding forecasts for CATS (Table 9-12), and Livingston/Iberville operating revenue streams (Table 9-11). The total projected revenue that would be available for all typical transit improvements (Operating and Capital) from all the sources for the next 25 years between 2018 and 2042 is approximately $864 million.

Table 9-13: CATS Funding Forecast (2018 – 2042)

MOVE 2042 Stage	Federal and State Funding/ Grants	Local Funds	Fares and Other Revenues	Capital Funding	Total
Stage I (2018 - 2022)	$ 34,382,898	$ 85,693,319	$ 21,602,848	$ 14,329,149	$ 156,008,213
Stage II (2023 - 2032)	$ 74,116,881	$ 184,723,276	$ 46,567,794	$ 30,888,374	$ 336,296,325
Stage III (2033 - 2042)	$ 81,871,147	$ 204,049,418	$ 51,439,815	$ 34,119,981	$ 371,480,361
Total (2018 - 2042)	**$ 190,370,926**	**$ 474,466,013**	**$ 119,610,456**	**$ 79,337,504**	**$ 863,784,899**

Data provided by LADOTD generated current operating funding levels amounting to $264,000 and $180,000 for Livingston and Iberville Parishes, respectively. After incorporating the 1% inflation rate, long term forecasts project funding for the period of 2018-2042 to reach approximately $7,535,394 and $5,146,087 for Livingston and Iberville respectively.

Table 9-14: Livingston/Iberville Section 5311 Operating Revenue Forecast (2018 – 2042)

Livingston Operating Revenue	
MOVE 2042 Stage	**Operating Revenues**
Stage I (2018 - 2022)	$ 1,360,968
Stage II (2023 - 2032)	$ 2,933,746
Stage III (2033 - 2042)	$ 3,240,680
Total (2018 - 2042)	**$ 7,535,394**

Iberville Operating Revenue	
MOVE 2042 Stage	**Operating Revenues**
Stage I (2018 - 2022)	$ 929,435
Stage II (2023 - 2032)	$ 2,003,520
Stage III (2033 - 2042)	$ 2,213,132
Total (2018 - 2042)	**$ 5,146,087**

9.7 | Project Development

Financially Constrained Projects

Financial constraint is only applicable to federal funding sources. Preventive Maintenance, Transit Operations, Rolling Stock, Transit Planning, Safety & Security, Transit Amenities, and para transit are expenditures which are required annually. Because the cost of these regular annual projects greatly exceeds available state and Federal funding, the balance is comprised of local contributions.

Transit Vision Projects/Needs

Projects listed in Table 9-13, however, represent an unconstrained "wish list" of transit projects and services. Many of the projects here, as requested by stakeholders and the public, would require significant investments in infrastructure and expanded regional service. As such, new funding sources would be required beyond what is currently available to operate the existing system.

Stakeholders and members of the public who participated in MOVE 2042 outreach meetings, identified the following projects as transit requests:

Table 9-15: Requested Transit Improvements:

Improved Transit Service Corridors	**Parish**
Downtown Baton Rouge – West Baton Rouge via bridge or waterway	East Baton Rouge / West Baton Rouge
Port Allen – Eliza via LA- 1	West Baton Rouge
LSU – Livingston via Florida Blvd	East Baton Rouge
Baton Rouge Airport – Gonzales via Airline Hwy	East Baton Rouge / Ascension
BRT along Florida, Plank, other key corridors	East Baton Rouge
Improved Transit Service Nodes	**Parish**
Gonzales	Ascension
Prairieville	Ascension
Port Aleen	West Baton Rouge
Baton Rouge Metropolitan Airport	East Baton Rouge
Denham Springs	Livingston
Walker	Livingston
Livingston	Livingston
Plaquemine	Iberville
New Rail Service	**Parish**
Mount Pleasant to Gonzales via LA 61 and Perkins Rd.	Caldwell / East Baton Rouge / Ascension
Downtown Baton Rouge to Livingston via Choctaw Drive	East Baton Rouge / Livingston
Downtown Baton Rouge to Denham Springs via Florida Blvd	East Baton Rouge / Livingston
Downtown Baton Rouge to New Orleans	East Baton Rouge / Ascension / St. James / St. John the Baptist / St. Charles / Jefferson / Orleans
Downtown Baton Rouge to Gonzales via Nicholson Drive	East Baton Rouge / Ascension
Port Allen to Eliza	West Baton Rouge
Reroute freight rail to allow for transit rail	West Baton Rouge

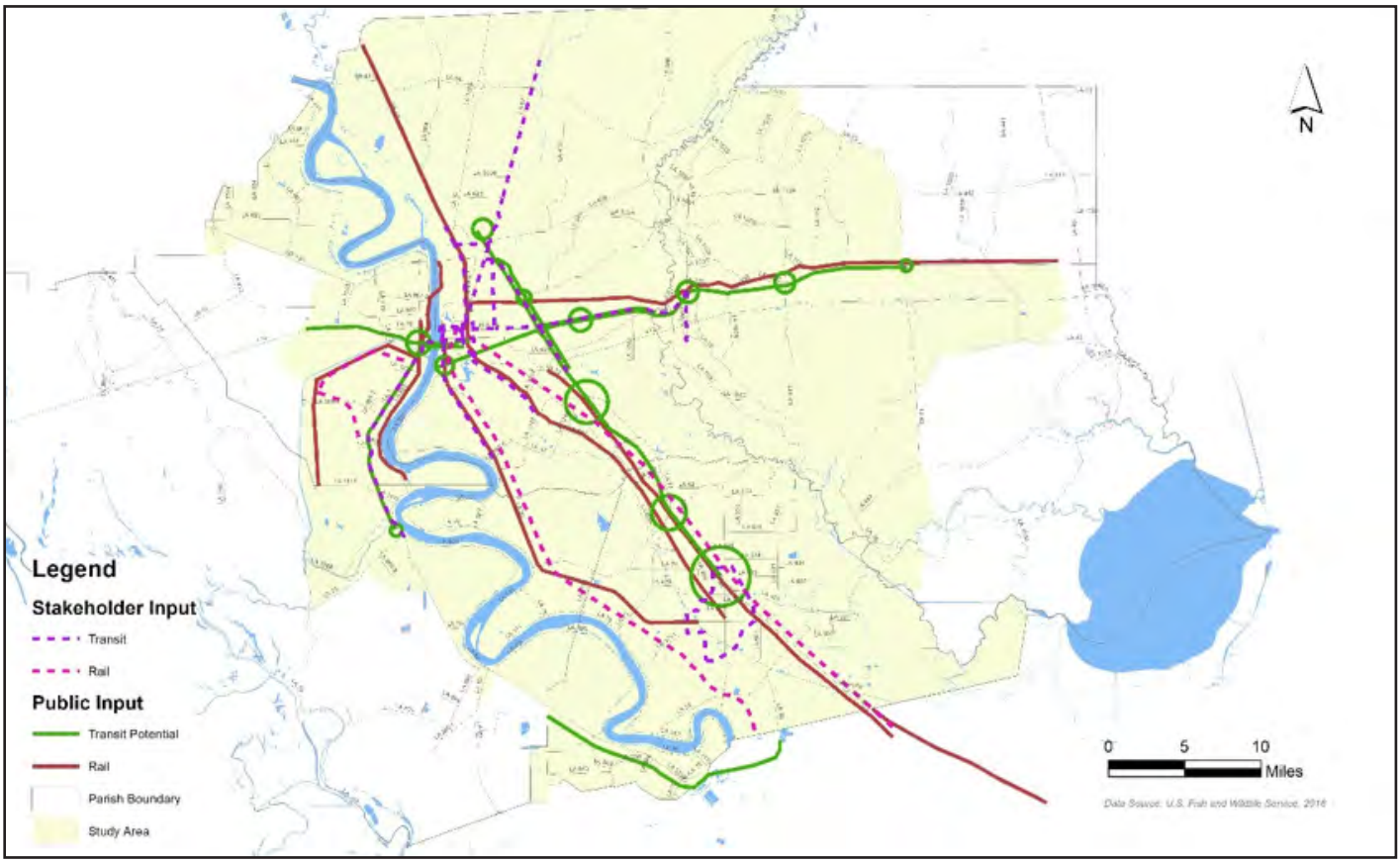


Figure 9-10: Requested Transit Improvements

10 | Bicycle and Pedestrian

As discussed in Chapter 4 (Environment), encouraging active transportation translates into health benefits for the regions' residents and workers. In addition to health benefits, providing protected bike lanes and sidewalks improves safety and reduces potential for serious and fatal bicycle and pedestrian crashes. While adding bike lanes and sidewalks does increase project costs, such improvements add multiple economic and environmental benefits, (*Making the Case for Designing Active Cities*, Technical Report, June 2014 [Rev. Feb. 2015], Active Living Research). Increasing opportunities for biking and walking creates more connected communities allowing residents more travel choices to reach their destinations. The following chapter reviews existing data on bike and pedestrian facilities in the region, identifies future needs and outlines fiscal considerations.

10.1 | Existing Conditions and Travel Patterns

As with motorized transportation, an effective and efficient non-motorized system takes account of users of all abilities within the context of a built environment that it is continuous, connects desirable destinations, and considers public safety. Users of non-motorized transportation are distinguished from motorized users by the fact that they bypass their personally owned vehicle, car, bus, or any other form of motorized transport in favor of walking, biking, or jogging.

Safety

Bicycle and Pedestrian safety is a major concern in the CRPC-MPO study area and is addressed in more detail in Chapter 8 (Safety and Security) of this document. According to Centers for Disease Control and Prevention figures Louisiana ranks:

- 3rd highest in in child pedestrian fatalities in the country;
- 5th highest in pedestrian fatalities when combining all ages;
- 4th in the nation in childhood obesity.

In 2015 Louisiana had:

- 863 crashes involving pedestrians, with 106 resulting in fatalities;
- 338 bicycle crashes, with 33 fatal.

In the Capital Region alone there were:

- 155 crashes in which a pedestrian was involved, with 13 resulting in fatalities;
- 43 bicycle crashes, with 8 resulting in fatalities.

Due to the high incidence of crashes involving bicyclists and pedestrians, the FHWA has designated the city of Baton Rouge as a focus city for bicycle and pedestrian safety. The focus city approach is a component of a program that emphasizes a more focused approach to safety. It specifically targets the top 20 U. S. cities with the largest number of bicycle and pedestrian fatalities, as well as any city with a fatality rate per population higher than the average of the top 50 cities. This designation makes the city of Baton Rouge eligible to receive free technical assistance from FHWA to assist with the local strategic Highway Safety Plan to improve bicycle and pedestrian safety.

Capital Region Transportation Safety Coalition

The regional coalition is one of nine regional Safety Coalitions in Louisiana working towards this goal. Each coalition has emphasis areas focused on all aspects of road safety. For the Capital Region, bicycle and pedestrian safety is a major emphasis area. As noted above, the city of Baton Rouge has one the highest rates of bicycle and pedestrian crashes in the country. CRPC staff works on initiatives to promote bicycle and pedestrian education through marketing campaigns which emphasize safety on our roadways, purchase of bicycle and pedestrian safety equipment, and certification of additional bicycle and pedestrian safety instructors.

CRPC has collaborated with local stakeholders, BREC (Baton Rouge Recreation and Parks Commission) and Southern University, to conduct bicycle and pedestrian safety courses in high risk areas of the city. Other work will focus on additional data collection, from bicycle and pedestrian counts conducted in correlation with future projects.

10.2 | Bicycle and Pedestrian Demand Analysis

Communications, Coalition Building and Data Collection

Communication, networking to build support, and data-based education are crucial in promoting active living. Bringing together public health and planning groups can help build broad community support and identify champions for implementing programs and policy changes.

Robust data collection and analysis of quantitative and qualitative data can help measure facilities' bikeability and walkability. In addition to mapping potential trip origins and destinations, data can identify stressful or broken connections, and support development of guidance for complete streets retrofits. Public meetings and events create opportunities for residents to offer input on potential routes and crossing options.

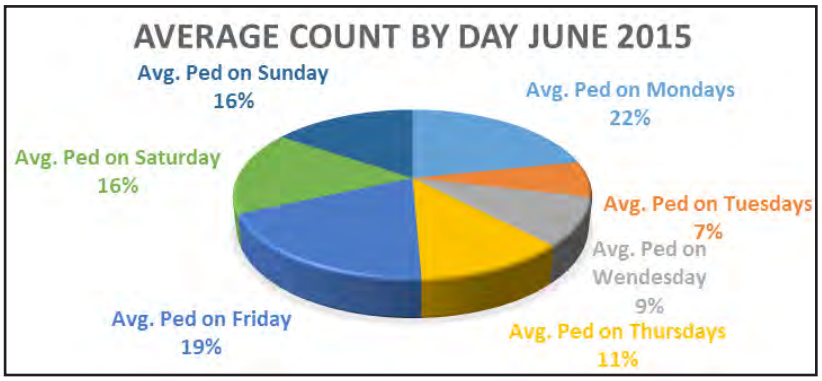
The planning process is designed to foster relationships between public health organizations, advocates and transportation professionals, through CRPC-MPO's Complete Streets and Bicycle and Pedestrian Advisory Committees. At the local/regional level, East Baton Rouge Parish's complete streets policy emphasizes improving travel times; paying attention to the special needs of non-drivers; providing safe alternative options for drivers and those walking and biking; and improving access to employment and education opportunities.

The CRPC-MPO has been proactive in working with Baton Rouge city-parish governments to track bicycle and pedestrian usage on current and future projects. Bicycle and Pedestrian demand is usually gauged using data from The American Community Survey. According to the most recent ACS data, 3,935 individuals indicated that they commuted to work on foot. Another 6,256 Baton Rouge residents make their daily commute via bicycle. It should be noted that the ACS primarily includes trips to work. The data therefore does not include children who walk to school, senior citizens who no longer work, and people who work from home.

Although it reports on only a portion of all commuters, the ACS does offer a small snapshot of daily commutes by both walking and bicycling. An additional limitation of ACS data is that only one response to the commute question is allowed. Thus, of all the individuals responding, the ACS only counts those who bike and walk to work every day. This means that those who sometimes walk or bike to work, but not every day, are under reported. To offset under reporting at the local level, CRPC has partnered with organizations involved in implementing local bicycling and walking projects. An example is the new trailhead established by the Downtown Development District near the intersection of Florida Boulevard and River Road. Following groundbreaking for the project in spring of 2015, CRPC conducted pedestrian counts throughout the spring and summer to capture pedestrian use in the vicinity.

CRPC staff has coordinated demand analyses with representatives of the Baton Rouge-East Baton Rouge City Parish government's Office of Traffic and Engineering, the Baton Rouge Area Foundation, and the Downtown Development District of Baton Rouge. Various Bike/Ped counts have been taken throughout the proposed routes along the Downtown Greenway, LSU Lakes, and at the beginning stage of construction for Phase III of the levee top trail. An example of the summary data is provided in Figure 10-1.

A number of groups in the Baton Rouge MPO area are active in promoting expansion and greater use of bicycle and pedestrian facilities. These groups include: Capital Region Bicycle/Pedestrian Advisory Committee, the Baton Rouge Bicycle Club, Baton Rouge Advocates for Safe Streets and the parish and local governments of the parishes in the MPO study area. The Capital Region Bicycle/Pedestrian Advisory Committee provides a forum for all of these groups to meet and discuss engineering, education, enforcement and encouragement issues related to the two non-motorized transportation modes.



Average Pedestrian Counts by day for the month of June 2015 for the Downtown Development District at the intersection of Florida Blvd. and River Rd.

Figure 10-1: Bicycle Pedestrian Counts Example

In addition to conducting Bicycle and Pedestrian counts, CRPC staff has worked with the East Baton Rouge Parish Sustainable Transportation Action Committee (STAC) to conduct Bicycle and Pedestrian Audits throughout the parish. The East Baton Rouge Parish government has also adopted a Road Beautification program as a continuation of the city-parish Greenlight Plan.

10.3 | Planning for Bicycle Use

CRPC's existing bicycle-Pedestrian plan, Non-Motorized Transportation Plan, 2009, established guidelines for local communities, developers and transportation agencies to use in the development of nonmotorized facilities throughout the region, (http://crpcla.org/s/Non-Motorized-Plan.pdf).

The Plan identifies the transportation system's existing nonmotorized facilities, establishes a future conceptual network with a map and list of improvements, and identifies resources to help fund future additions to the non-motorized transportation network.

The plan recognizes benefits of Non-Motorized Transportation, including:

- Cost savings;
- Reduce congestion;
- Support transit;
- Provide transportation options;
- Improve Air Quality;
- Promote Economic Vitality;
- Improve Health.

The Capital Region Planning Commission is committed to encouraging the use of non-motorized modes of transportation. CRPC encourages the inclusion of bicycle and pedestrian facilities in reconstruction, resurfacing, and capacity expansion projects, to the extent deemed safe and feasible. To this end, CRPC has been proactive in implementing planning and construction efforts aimed at providing a safe and enjoyable environment for non-motorized transportation activities. As a policy, CRPC has and will continue to implement state and federal regulations, as required, and will continue to work with various stakeholders to implement these important projects.

One challenge for transportation planners, highway engineers and bicycle and pedestrian user groups is to balance competing interests within a limited amount of right-of-way, and to develop transportation infrastructure that provides access to all, a real choice of modes, and safety in equal measure for each mode of travel.

The State of Louisiana and East Baton Rouge Parish City-Parish governments have integrated cycling and walking into the transportation and recreational planning processes for the Baton Rouge Urbanized Area. Bicycle and pedestrian plans have been developed to assess the feasibility of facilities to support these activities.

The Louisiana Bicycle and Pedestrian Master Plan establishes new policies for the Louisiana Department of Transportation and Development that encourage a complete and multi-modal transportation system for the state. The Plan is intended to ensure that bicycling and walking are fully integrated into the state's transportation system. The plan is guided by a vision statement: "to enable people to regularly walk and bike safely and comfortably along and across Louisiana's roads to access schools, jobs social services, shopping, and transit and health and recreation. The state plan provides a detailed policy and action plan to guide the Department's actions to help achieve this vision. The following are high-level goals established for the plan:

- Social Equity—Plan, design and fund a transportation system that enables mobility and access for all residents, whether or not these individuals have access to a motor vehicle;

- Personal Safety—Increase the safety of the walking and bicycling environment and reduce injuries and fatalities by providing a high level of care and consideration for these modes;
- Economic Development—Support Louisiana's economic development by planning and maintaining a transportation system that supports walkable and bike-able local shopping districts, offers diversified travel options to visitors, and supports increased tourism and recreational opportunities;
- Public Health—Improve the health of Louisiana residents by increasing opportunities for combining physical activity with transportation and recreation.

Bicycle and Pedestrian Suitability Map

Over the last several years, CRPC has coordinated with both state and local officials to develop a Bicycle and Pedestrian Map based upon level of service and ease of use. As recently as 2014, the state coordinated with STRAVA (Swedish for strive) smart phone app to update the bicycle suitability map. The application tracks user data through GPS locations to monitor where people are walking, biking, or running.

At the local level, The East Baton Rouge City Parish Planning Commission has updated the Bicycle and Pedestrian Map to make it easier to use. As with the state planning efforts, public input to categorize existing corridors was gathered from local stakeholders. The information was extrapolated through STRAVA data, based upon level of use. The results were uploaded into the Online Bike BR Tool, which categorizes existing facilities in East Baton Rouge Parish. These facilities listed include Bike Lanes, Shared use paths (or "sharrows,"), Bike Racks, BREC Parks, Bike Shops, Coffee Shops, Drug Stores, Golf Courses, Grocery Stores, hospitals, libraries, police stations, schools, bus routes, retail centers, and tourist attractions. In total, the East Baton Rouge City-Parish system consists of 82 miles of bicycle pathways and 17,721 miles of pedestrian pathways.

Bicycle and Pedestrian Policies

The Louisiana Department of Transportation has developed Policies to ensure plan implementation (http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Multimodal/Highway_Safety/Bicycle_Ped/Misc%20Documents/BikePed_Final09282009.pdf).

Policy 1: Pedestrian and Bicycle Accommodation Policy: To varying extents, bicyclists and pedestrians are present on all highways and transportation facilities in Louisiana where they are permitted. Encouraging increased levels of bicycling and walking supports the Department's goals of increasing mobility, reducing congestion and improving the environment. Therefore, the Department will plan and design roadways that fully accommodate walking and bicycling. The Department will consider the needs of pedestrians and bicycle riders at appropriate stages throughout all project development phases and will use current nationally recognized planning and design guidelines, manuals and best practices to ensure facilities are built to appropriate standards.

Policy 2: Pedestrian and Bicycle Safety Policy: The Department will provide for the safety and comfort of pedestrians and bicyclists and make every effort to reduce crashes and injuries associated with these modes. All projects shall consider the impact that improvements will have on pedestrian and bicycle safety and make all reasonable attempts to mitigate negative impacts on these modes. Restricting bicycle and pedestrian access shall not be considered as an appropriate strategy, with the exception of those limited access facilities where pedestrians and bicycles are prohibited.

Policy 3: Pedestrian Facility Policy: The Department will plan, fund and design sidewalks on all roadway projects that serve adjacent areas with existing or future development including: residences, apartment buildings, public transit facilities, schools, universities, shopping and employment centers, recreational facilities, community centers and public and governmental buildings.

Policy 4: Bicycle Facility Policy: The Department will provide bikeways and bicycle accommodations on all projects wheref easible and appropriate. Bike lanes are the preferred facility on urban and suburban arterials and collectors. Paved shoulders are preferred on rural arterial collector roadways.

LADOTD Complete Streets Policy

In 2009, The Louisiana Department of Transportation and Development convened a working group in compliance with a mandate laid out by the Louisiana State legislature. This led to the development of a complete streets policy for DOTD and a report that outlined the working groups' recommendations for future implementation. The next step was development of the states Complete Streets Advisory Council. A core goal of the advisory council is to ensure that the state's policy is up to date, while taking into account the needs and demands of all users of all modes through the development of performance measures.

Local planning efforts

Baton Rouge Bike Master Plan

The Baton Rouge Area Foundation is developing a scope of work for a comprehensive Bicycle and Pedestrian master plan for East Baton Rouge Parishis underway in coordination with DOTD. The goal is to continuously promote healthy lifestyles, alternative modes of transportation, and improved quality of life in the parish and surrounding communities. The plan will build upon existing bicycle and pedestrian planning efforts currently ongoing in the parish. The scope of the project emphasizes, but is not limited to development of safe on-street bicycle routes that will be coordinated with off road multi-use paths. This includes development of a Greenway System of off-road, multi-use paths that connect major facilities and destinations. The project will also develop guidelines that emphasize using data to create a methodology for prioritizing development of projects and selecting projects for implementation.

BREC-Capital Area Pathways Project

The East Baton Rouge Parish Recreation and Parks Commission (BREC) is in the process of implementing a system to identify routes that increase connectivity throughout the parish and the surrounding areas. The proposed system that will encompass 155 miles in total and is designed to increase the number of recreational trails, greenways, and multi-use paths in East Baton Rouge and the surrounding areas.

Figure 10-2: Capital Area Pathways Projects

Complete Streets

Complete streets, designed to accommodate all types of users and travel modes, can both save lives and also provide the multimodal connections that the community wants.

Complete Streets is a community design model most commonly used to promote active lifestyles. In 2014, the City-Parish of Baton Rouge-East Baton Rouge Parish developed a complete streets vision and policy statement titled The Road Forward for East Baton Rouge Parish. The plan considers mobility needs of all possible users and views streets as shared community spaces, rather than just means of getting from one place to another. This represents a fundamental change in previous practice, which emphasized maximizing automobile throughput.

What does/would a complete street look like? One size does not fit all. Typical features may include sidewalks, bike lanes (or wide paved shoulders), special bus lanes, comfortable and accessible transit stops, frequent and well-maintained crossing opportunities, median islands, accessible pedestrian signals, and curb extensions. The goal is to balance safety and convenience for all users. Components vary depending on whether the location is rural, suburban, or urban. Going beyond "routine accommodation" conveys the message that streets are only complete when they are safe for all users. When the needs of all possible users are considered, streets can be made safe for children to walk to school and neighborhood parks, for adults to bike and walk to work and for residents of all ages and physical abilities to safely navigate sidewalks, public transit, bike lanes, and roadways as they make their way around the community.

The Complete Streets model has been recognized as having almost unlimited capacity for improving community livability. Reaching that goal requires changes in perspective and policy and a strong information base. Studies of intersections help identify design options and educate the community. Analyses can pinpoint traffic stress points and availability of direct routes between trip origins and destinations. Walk Safety Audits can highlight the presence or absence of sidewalks, which both promote pedestrian safety and help promote transit usage.

The proposed system that will encompass 155 miles in total and is designed to increase the number of recreational trails, greenways, and multi-use paths in East Baton Rouge and the surrounding areas.

West Baton Rouge Parish Transportation Plan

In 2013, representatives of West Baton Rouge Parish began to convene a committee of stakeholders to advise parish government in matters that pertain to alternative modes of transportation. This group, named the West Baton Rouge Alternative Transportation Stakeholder Committee, identified local needs and concerns and identified key locations with the greatest potential for project implementation. With emphasis on bicycle facilities, public transportation, and enhanced mobility, the group also developed a project prioritization form to help identify key funding sources for implementing projects.

LSU Lakes Masterplan

In 2014, a master plan for rehabilitation and improvement of the lakes surrounding LSU's campus was developed based upon an initial U.S. Army Corps of Engineers study regarding design of a dredging plan. The intent of the plan, which also includes additional linked parks, is to both preserve and enhance the lakes by providing bicycle and pedestrian amenities to the surrounding areas. (http://www.batonrougelakes.org/)

Bike Share

In 2015, through the Environmental Protection Agency's (EPA) Building Blocks for Sustainable Communities program, the city of Baton Rouge received a technical assistance grant to assess the feasibility of implementing a bike share program in the city. That summer and fall, a series of workshops was conducted to gather input from local stakeholders to gauge public interest. Following the meetings, a thorough analysis of existing economic conditions, demographics, and geographic locations was conducted and presented in a report to participating stakeholders. Highlights from the report included:

- ✓ The population growth and the redevelopment of areas in and around the downtown area increases the demand for Bike Share.
- ✓ Bike Share can be used as a mobility tool that has potential to increase connectivity to different parts of the city.
- ✓ The connection between the downtown area and LSU provides a key link between the major commercial center and a segment of the population that has historically been major users of bicycles. .
- ✓ The landscape of Baton Rouge is generally flat, the weather is warm most of the year, and the local environment thus presents opportunities to bike on a year- round basis.

After receiving the report, key stakeholder representatives identified cities with profiles similar to Baton Rouge and arranged a site visit to Birmingham, AL. Following that visit, the Baton Rouge Area Foundation hired a consultant to oversee implementation of a Bike Share system in the city. Funding has been secured and the implementation process is scheduled to begin in the spring of 2018.

Bicycle and Pedestrian Masterplans for Baker and Denham Springs

Cities of Baker and Denham Springs were devastated by flooding in August 2016. Baker is predominantly low-income, with roughly 25 percent of the population living below the poverty line. Residents thus fall into the category of being bicycle riders of necessity rather than choice. With many individuals living on very limited incomes, private citizens are considering different transportation options beyond the single occupancy vehicle.

In an environment where a significant number of people cannot afford an automobile, bicycle usage can be a viable transportation

CASE STUDY - NOLA

The City of New Orleans provides a nearby example of a confluence of post-disaster forces that spurred planning and development of transportation facilities for bicycle users. In 2004, as reported by the New Orleans Data Center, the city had only 10.7 miles of bike lanes and pathways. Since 2007, the city has used about $100 million in federal recovery funds to asphalt 56 miles of 55 heavily used streets. The city also invested $7 million in federal aid to turn a 3-mile stretch of abandoned railroad easement into a greenway that extends from the French Quarter to City Park. Physical development has resulted in an exponential increase in ridership. In 2010, New Orleans was ranked 12th in the number of bicycle commuters among American cities. **U.S. Census Bureau data show that this represents an 84% increase since 2005.**

option. With municipal resources limited, the city lacks the capacity to develop a transportation network that promotes healthy, active, and safe mobility. The city is currently engaged in a post-disaster long-term recovery planning process. This includes a strong community engagement effort, which has encouraged community residents and stakeholders to voice concerns. Demand for more bike-able, walkable, and pedestrian friendly community is one of the desires most frequently heard.

In response to public demand, the city has begun to coordinate with the Capital Region Planning Commission to secure funding to develop a comprehensive bicycle and pedestrian plan. The city has outlined a proposed scope of work:

- A preliminary cost estimate and identification of projects to improve access to public transit by bridging the gap between the first mile and last mile;
- Developing a project prioritization process that promotes bicycle and pedestrian usage;
- Serving as the basis for the City's commitment to creating a healthier, safer, and more resilient community.

The City of Denham Springs has also begun to explore the potential for developing a bicycle and pedestrian master plan. Facing similar issues, but with a slightly higher income population, Denham Springs has also begun the process of developing a Bicycle and Pedestrian Master Plan in coordination with the Capitol Region Planning Commission.

Prior to the flood, most regional interest in developing bicycle and pedestrian transportation facilities focused on the southern part of East Baton Rouge Parish. The Baker and Denham Springs projects highlight the need to develop a more active transportation network in rural and low- income areas. The intent, with this process, is that the region will develop a model that will be replicable throughout the MPO area and lead to increased development of more bicycle and pedestrian infrastructure region wide.

10.4 | Connectivity

Connectivity is defined as the extent to which components of a network are connected to one another and the ease and speed with which they can link with each other. With transportation systems and modes, the term applies to the level of ease of movement for users. Connectivity is a key factor in promoting active movement. Connected trail systems and greenways help increase the number of people using trails for transportation, commuting to work and recreation. Building out from specific locales like parks and trails allows for a more connected regional network. Best-practice models can improve access to trails, ensure their connectivity to job centers and neighborhoods, and offer trail-based programming at all age levels.

Enhanced connectivity for both motor vehicles and for pedestrians and bicycle riders are primary goals identified by residents and stakeholders who participated in public hearings and online surveys to contribute to developing this plan. Improving pedestrian and bicycle connections is challenging in areas already developed without such facilities. It is important that planning for new developments incorporates such facilities from the beginning.

According to available data, the bulk of connectivity between existing facilities lies inside the boundary of the MPO's urban core in East Baton Rouge Parish. However, within that area, there are still locations that currently lack bicycle and pedestrian facilities. These locations are mainly in the northern part of the parish. Current plans in East Baton Rouge Parish call for projects to integrate complete streets features when developing new projects. East Baton Rouge Parish is currently working with stakeholders at the state, city, and federal levels, as well as private citizens, to develop a Bicycle and Pedestrian Master Plan. CRPC staff will continue to work with state and local officials to ensure future projects include consideration for all users of all transportation modes.

The maps on the following pages show locations of existing sidewalks and bike paths in the region. This data provides the foundation for building a nonmotorized network. One options for prioritizing nonmotorized projects is to identify locations of network gaps.

10.5 | Public and Stakeholder Input

In the spring and fall of 2017, CRPC staff held meetings with both the general public and local stakeholders to gather input for the update to the CRPC-MPO's long-range transportation plan. The intent of these meetings was to inform both

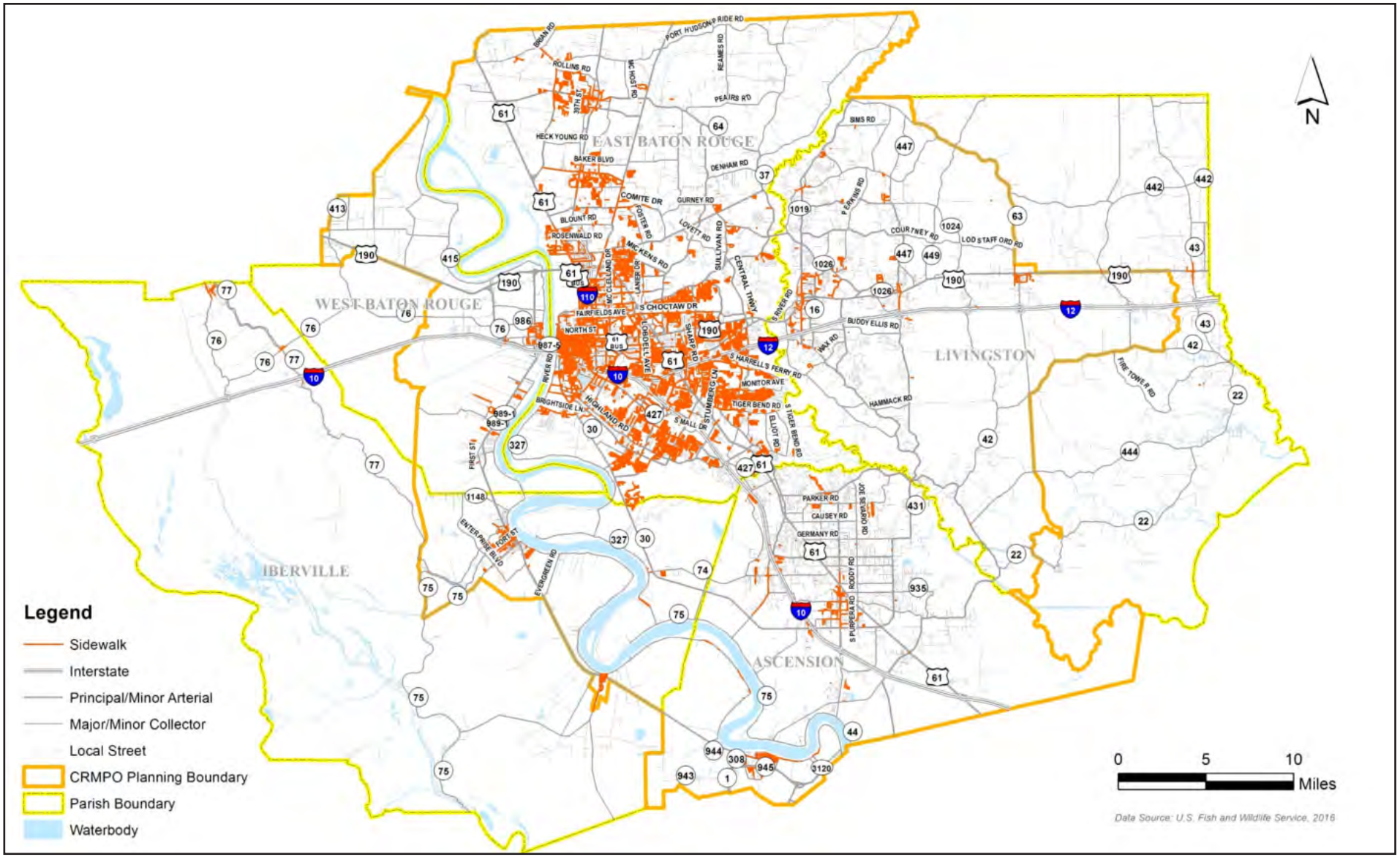


Figure 10-3: Regional Pedestrian Network

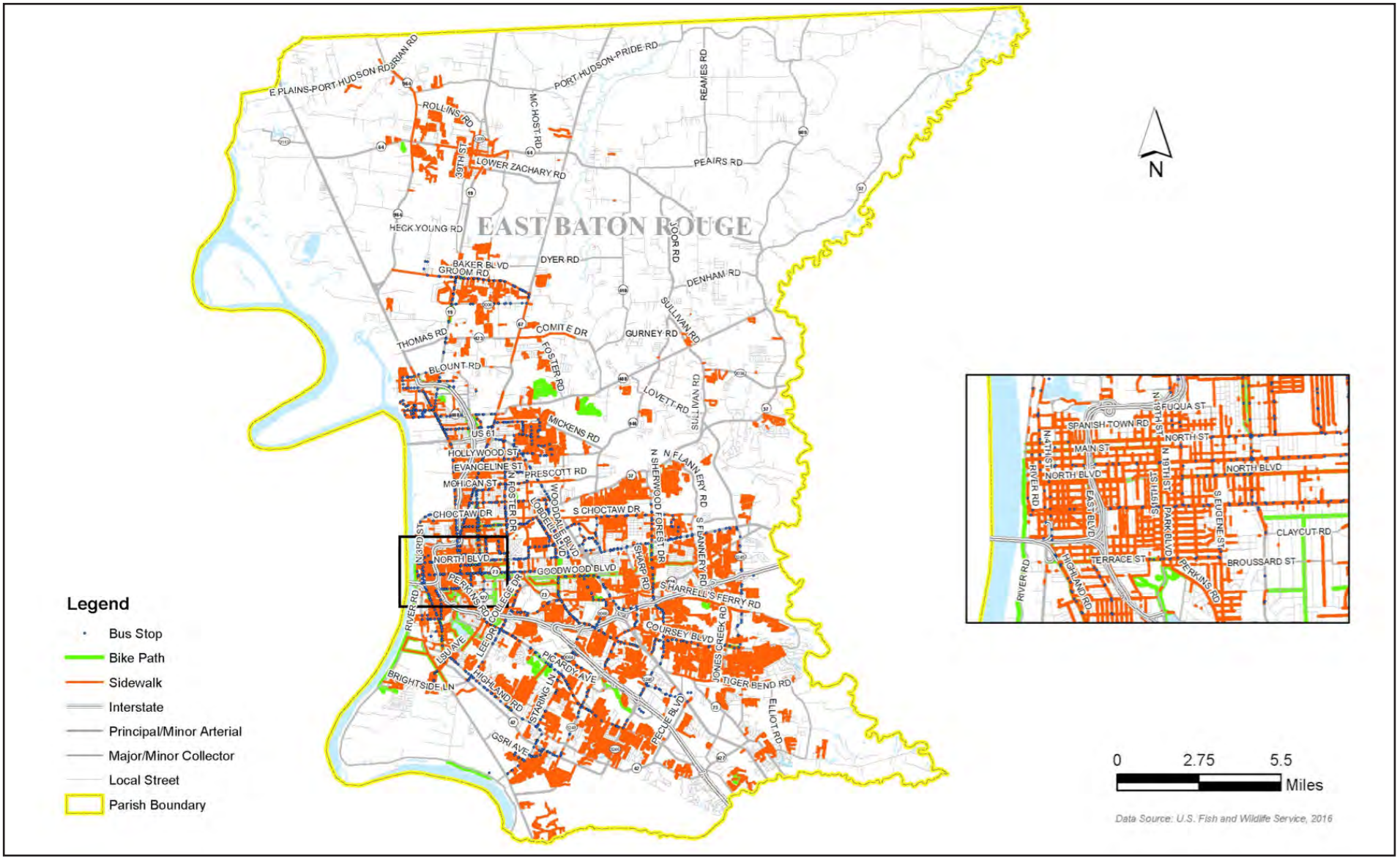


Figure 10-4: East Baton Rouge Pedestrian Network

public officials and private citizens on the planning process and elicit input on how we can better plan for the future. The process was not limited to a single transportation mode or a single type of transportation system user. From a bicycle and pedestrian perspective, the general consensus, was that, although there is plenty of demand for bicycle and pedestrian facilities, the current transportation network lacks the infrastructure to match demand. Based upon the input received from individuals in both the public and private sectors, the following recommendations would create an environment more amenable to biking and walking in the MPO area:

- More sidewalks
- More dedicated bike lanes
- More connectivity between current infrastructure
- Repair current sidewalks
- Repair current bike paths
- Maintain existing facilities
- More Bike Paths
- More Multiuse paths
- More Bike Paths along Greenbelts, rail lines, and bodies of water
- Connect East Baton Rouge Parish to Ascension Parish
- More lighting on existing facilities
- Increase the number of Greenways
- Increased enforcement of rules of the road for both cyclists and motorists.

Broadly speaking, the public expressed a desire for construction of thoughtfully planned bicycle and pedestrian connections. At the regional level, there is a desire to find ways to connect communities and provide nonmotorized recreational opportunities.

10.6 | Demand for Nonmotorized Projects

Typical generators of bicycle and pedestrian traffic are the central business districts in the City of Baton Rouge and in smaller surrounding communities. The areas around LSU, local and private schools, public libraries and recreational parks are also key generators. Some nonmotorized facilities in those areas are shared by cyclists and pedestrians, while some are designed solely for pedestrians and others are provided just for bicycle use.
Non-Motorized transportation projects include a broad range of options. The following list was developed from pending and phased projects as well as input from the stakeholder and public meetings. According to input between stakeholders in both the public and private sector there is a great demand for sidewalks and multiuse path throughout the East Baton Rouge parish. Several of these projects are part of the Capital Areas Pathways Project (CAPP Trail), as well as the Baton Rouge medical loop. Some of these projects are scheduled to be implemented in various phases. In addition, the trail atop the Mississippi River levee is scheduled to be extended to the parish line. This will result in increased connectivity between East Baton Rouge and neighboring parishes within the MPA. Both the map and project lists show an increasing demand for more bicycle and pedestrian facilities in all of the MPO parishes.

10.7 | Options for Nonmotorized Project Prioritization

To develop bicycle and pedestrian projects that fit and align with their own transportation needs, local parish, jurisdiction, or municipality, typically develop criteria on project prioritization, development, and methodology. Location is another key factor and projects should be identified in areas where they will contribute to providing transportation equity, enhance benefits from mode shift, and in some cases both. Where future growth is anticipated, bicycle and pedestrian projects should be included and implemented along with roadway improvements. In addition to future growth patterns, projects should be identified based upon existing socioeconomic data. The MPO should work with stakeholders to conduct road safety assessments to appropriately analyze the conditions of the roadway in areas with high incidence of collisions with bicyclists and pedestrians. Thorough analysis of assessment results, will be key to identifying appropriate projects.
Some other states have legal requirements that, in order for funding to be considered for any project, it must be included in an adopted bicycle and pedestrian plan.

Table 10-1: Requested Nonmotorized Transportation Projects

East Baton Rouge	
Windborne Ave to Brightside Lane via Foster Dr., College Ave, and Lee Dr.	Windborne Ave. to Highland Rd. via Acadian Thruway, and Stanford Ave.
Prescott and Airline to Joor Rd. in Baton Rouge	Brightside Lane to Jefferson Hwy via Lee Dr., College Dr. and Jefferson Hwy.
Gourier Ave to Nicholson Dr	Gourier Ave to Burbank Dr.
Government St to Goodwood Blvd. Via Lobdell Blvd	Government St. to Jefferson Hwy. via Lobdell Ave
Government St. to Essen via Jefferson Hwy.	Jefferson Hwy to Old Hammond Hwy.
Burbank to Siegen	Burbank to Perkins via Siegen
Perkins to Burbank; Perkins to Essen; Perkins to Siegen	Highland Rd. to Bluebonnet. Blvd.
Highland Rd. to Coursey Blvd. via Bluebonnet Blvd.	Siegen Lane to Greenwell Springs Rd. via Sherwood Forrest Blvd.
From Downtown to GSRI Ave via Nicholson Dr.	From Government St to Lee Dr. Via Dalrymple, East Lakeshore, Stanford Ave., and Hyancith
From Government St. to Highland and Perkins Rd.; From Government St. to Lee Dr. via Dalrymple to Perkins; From Government St. to Bluebonnet via Dalrymple and Perkins; From Government St. to Essen/ Starring Lane via Dalrymple and Perkins; From Government St. to Siegen Lane via Dalrymple and Perkins;	**From River Rd. to Highland and Perkins via Jefferson Hwy.;** From River Rd. to Old Hammond Hwy. via Government St. and Jefferson Hwy; From Government St. to Essen Lane via Jefferson Hwy.; From River Rd. to Bluebonnet via Government St. via Jefferson Hwy.; From River Rd. to Siegen Lane via Government St. to Jefferson Hwy;
From Downtown Baton Rouge to North Baton Rouge via River Rd. to North 3rd St., From River Rd. to Chippewa Ave. via North 3rd St. ; From Downtown BR. to Choctaw via River Rd. and North 3rd St.;	**From Government St. to Greenwell Springs Rd**. via Foster Dr.; From Government St. to Windborne Ave. via Foster Dr.; From Government St. to Glen Oaks Dr. via Foster Dr.
From Brightside Lane at LSU to the East Baton Rouge Livingston Parish line	From River Rd. to Highland and Perkins Rd. via Nicholson Dr. to Burbank Dr to Highland Rd.
From River Rd. to Goodwood via Government St;	Nicholson Dr. Extd/ LA 30 and Manchac Rd. to LA 3115
West Baton Rouge	
Choctaw Rd. to East St. Francis St	LA -1 Corridor from Beaulieu Lane in Port Allen to 1st St. in Addis, LA
River RD. Corridor in West Baton Rouge, LA	Levee top trail in West Baton Rouge to the Iberville Parish Line
Iberville Parish	
Belleview DR. Corridor to River Rd. at the Sunshine Ferry landing	River Rd from the Iberville Parish line to the Ascension Parish line
Ascension Parish	
From Burnside Ave and Airline Hwy. to River Rd. in Ascension Parish	From North Burnside Ave and East Riverview St . to Churchpoint Rd. to Stringer Bridge Rd
From I-10 exit at la 30 TO Brittany Tower Dr.	Extension of the Mississippi Levee Trail from the East Baton Rouge Parish Line through Ascension Parish
Livingston Parish	
Range Ave. at Cockerham Rd. to I-12	River Rd. at Range Ave. to Florida Blvd
Petes Hwy. at Hatchell Lane to Cokerham Rd.	Florida Blvd to Juban Rd.

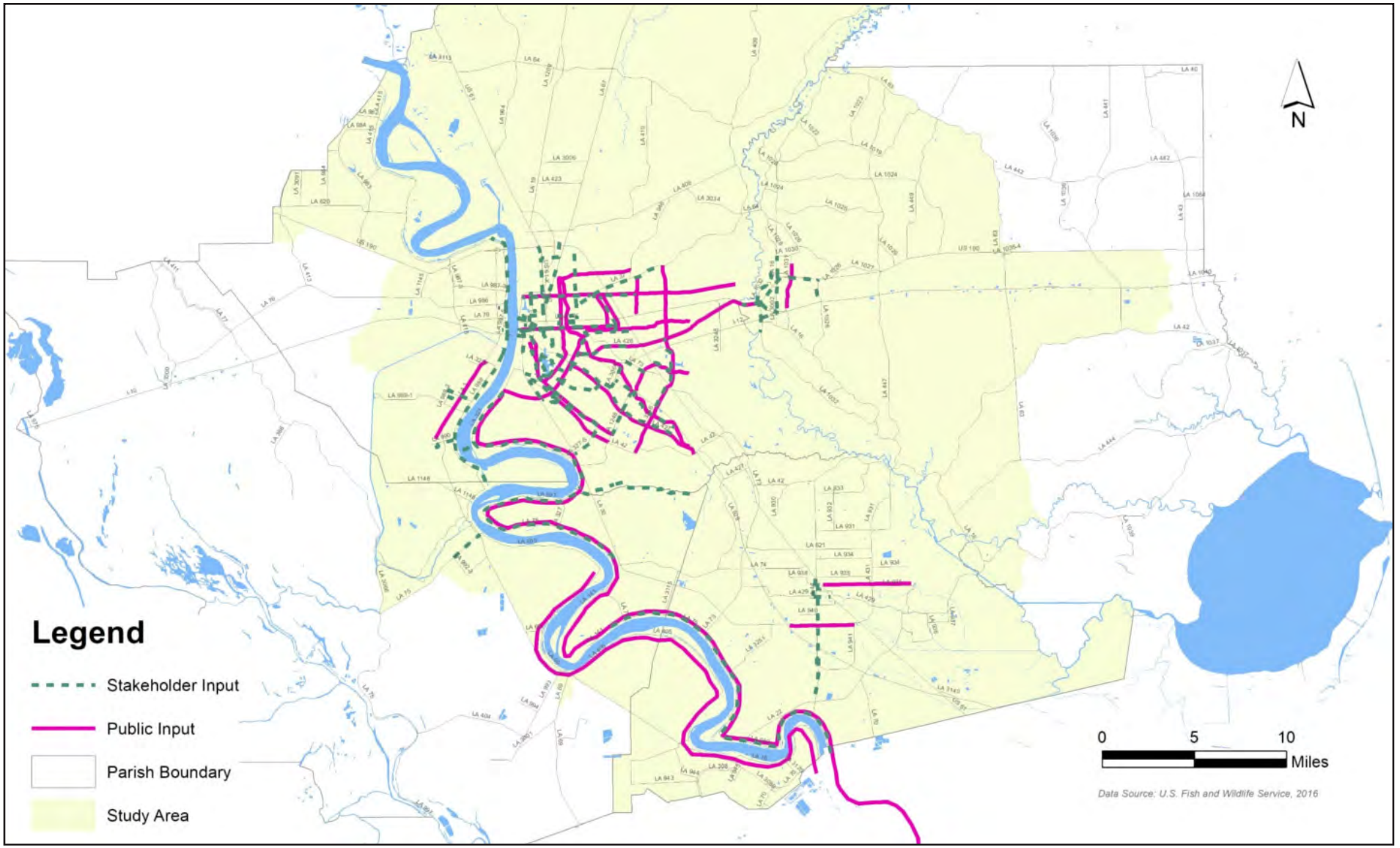


Figure 10-5: Regional Nonmotorized Needs

Data related factors that should be considered in developing projects include Average Daily Traffic (ADT's), speed limits, population, employment, and crash data. Metrics include percentage of streets within two miles of schools that accommodate all users of all modes, changes in modal split, and the linear extent of interconnected pedestrian and bicycle facilities within the community.

Table 10-2: Nonmotorized Project Ranking Criteria

Criteria	Proposed Weight
Safety	15%
Cost	10%
Population	10%
ADT	5%
Current Facilities	10%

An example of prioritization criteria for nonmotorized facilities is listed below.

As more nonmotorized plans are developed in the region, the CRPC-MPO will advance the dialogue around setting project selection criteria for bicycle and pedestrian projects.

10.8 | Typical bicycle and pedestrian project types

Shared Lane Markings

Shared Lane Markings (sometimes known as "Sharrows ") are road markings used to indicate a shared lane environment for bicycles and automobiles. The markings encourage bicyclists to position themselves safely in lanes too narrow for a motor vehicle and a bicycle to travel side by side in a safe and secure manner.

Dedicated Bike Lanes

A portion of a roadway is designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists. Dedicated Bike lanes are implemented in areas with high demand for bicycle access and reasonable traffic volumes. Markings are used to notify both drivers and bicyclists that these lanes are for bicycle use only.

Sidewalks

Facilities which are adjacent to the roadway, or separated from the travel lane by green space, parking, or a utility and street furniture zone. Most sidewalks are included as part of the street right- of- way.

Multi-Use Paths

Shared use paths are facilities dedicated to both bicyclists and pedestrians. Such paths are located parallel to and separate from roadways. These paths can be used for commuting, if the path provides access to major commercial centers or residential areas, as well as for recreational and exercise purposes. . These facilities are often constructed as part of new developments, commercial centers, universities, and near bodies of water in rural areas.

10.9 | Project Cost Estimates

Bike and Pedestrian Cost by Improvements

Project costs for Bicycle and Pedestrian infrastructure improvements can vary. It is important to select the appropriate counter measure based upon the roadway context. The following information is designed to serve as a guidepost when selecting the most appropriate and cost-effective solution that will improve Bicycle and Pedestrian safety.

Bicycle Parking

The Capital Region Planning Commission has worked with officials in both state and local government, as well as local advocates, to improve Bicycle and Pedestrian parking in the MPO area. In East Baton Rouge Parish, CRPC has coordinated with the local Downtown Development District, as well as Universities, to add more Bicycle Parking in the downtown area

and at Southern University in northern Baton Rouge. The price for construction and installation can vary based upon the type of rack as well as the location.

The additional Bike Racks were paid for through a grant obtained through the Congestion Mitigation and Air Quality (CMAQ) Program.

Table 10-3: Bicycle Parking Typical Cost

Description	Qty.	Cost	Total
Stainless Steel-Ring Rack Core Drill Installation	71	$300	$21,300
Galvanized steel Ring Racks Bolt Down Installation	71	$250	$17,750
Cost for Bolt Down Installation		$45	$3,195

Bikeways

A bikeway contains, bicycle lanes, bike paths, and designated bicycle routes. These are separate facilities designed for bicycles, whereas bicycle lanes are designated travel lanes on the existing roadways. Separated bikeway projects can range anywhere between $500, 000 to $4,000,000. Costs vary depending upon site conditions, path width, and materials used.

Table 10-4: Bikeway Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Bikeway	Bike Lane	$89,470	$133,170	$5,360	$536,680
Bikeway	Signed Bicycle Route	$27,240	$25,070	$5,360	$64,330
Bikeway	Signed Bike Routes With Improvements	$241,230	$239,440	$5,360	$536,070

Chicanes

Chicanes are concrete islands that offset traffic and create a horizontal diversion of traffic. They are used to reduce traffic speed. An added benefit of chicanes is increasing the amount of green landscaping on the street.

Table 10-5: Chicanes Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Chicanes	Chicane	$8,050	$9,960	$2,140	$25,730

Curb Extensions

An extension of the sidewalk or curb line out into the parking lane results in a reduction in overall street width by extending the curb out into the street. This can be done by overcompensating with an extension on one side or by extending both sides out into the center.

Table 10-6: Curb Extension Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Curb Extension	Curb Extension/ Choker/ Bulb-out	$10,150	$ 13,000	$1,070	$41,170

Diverter

A diverter is an island built at a residential street intersection that prevents direct access through the intersection. An additional effect of a diverter is limited turning movements. The four main types of diverters are: diagonal, star, forced turn, and truncated. A diagonal diverter breaks up cut through movements and forces right or left turns in certain directions. A star diverter consists of a star shaped island placed at the intersection, which allows right turns from each approach. A forced diverter is an island that forces drivers to turn in only one direction.

Table 10-7:Diverter Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Diverter	Diverter	$22,790	$26,040	$10,000	$51,460
Diverter	Diverter/ Partial or Semi	$15,000	$15,060	$5,000	$35,000

Islands

Crossing Islands also known as center islands, refuge islands, pedestrian islands, or medians are raised sections in the middle of the street to help protect pedestrians from motor vehicles. An added benefit of an island is allowing pedestrians to deal with only one section of traffic at a time, by giving people a safe destination halfway across the street. .

Table 10-8: Island Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Island	Median Island	$10,460	$13,520	$2,140	$ 41,170

Raised Crossings

A raised pedestrian crossing is similar to a raised intersection, with the difference that the crossing is the width of a sidewalk, between 10 feet to 15 feet. Raised intersections and crosswalks encourage motorists to yield to pedestrians, because the raised crosswalk increases pedestrian visibility and forces motorists to slow down before crossing the intersection. Costs will vary based upon the length or the width of the roadway.

Table 10-9: Raised Crossing Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Raised Crossing	Raised Crosswalk	$7,110	$8,170	$1,290	$30,880
Raised Crossing	Raised Intersection	$59,160	$50,540	$12,500	$114,150

Roundabouts/Traffic Circles

Roundabouts are circular intersections that can calm traffic by forcing motorists to turn right. Roundabouts reduce speed, improve safety at intersections by eliminating side crashes, and improve traffic flow. Variation in costs relate to the size of the roundabout, condition of the roadway, and whether right of way acquisition is needed.

Table 10-10: Roudabout/Traffic Circle Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Roundabout/ Traffic Circle	Roundabout/ Traffic Circle	$ 27,190	$85,370	$5,000	$523,080

Speed Reductions

Multiple countermeasures can be implemented to reduce speed on roadways. Speed humps are vertical traffic control measures that are 3 to 4 inches high at the center and span the whole width of the street. A speed table describes a flat-topped speed hump where a pedestrian crossing is provided in the flat portion of the speed table. Speed tables can be used in conjunction with curb extensions where parking exists.

Pedestrian accommodations are designed to enhance the pedestrian environment in a way that improves pedestrian safety, mobility, and access.

Table 10-11: Speed Bump, Hump or Table Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Speed bump/hump/ Table	Speed Hump	$2,130	$2,640	$690	$6,860
Speed bump/hump/ Table	Speed Bump	$1,670	$1,550	$540	$2,300
Speed bump/hump/ Table	Speed Table	$2,090	$2,400	$2,000	$4,180

Bollards

Traffic Bollards are posts embedded in the ground. Bollards are used to enhance pedestrian safety, by slowing vehicle speeds and separating pedestrians and motor vehicles ether for a short period of time or on a permanent basis. Different types of bollards that are available for use include fixed, rising, security, removable, breakaway, and flexible.

Table 10-12: Bollard Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Bollard	Bollard	$650	$730	$62	$4,130

Curb Ramps

Curb ramps provide access between the sidewalk and road for people using wheelchairs, strollers, walkers, crutches, bicycles, or who have mobility impediments that make it problematic to utilize standard curbs. Downtown locations are generally given priority over other locations where traffic is less heavy. Other appropriate locations may include schools, parks, medical facilities, shopping malls, and residences where people use wheelchairs.

Table 10-13: Curb Ramp Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Curb Ramp	Truncated Dome/ Detectable Warning	$37	$ 42	$6.18	$260
Curb Ramp	Wheelchair Ramp	$740	$810	$89	$3,600
Curb Ramp	Wheelchair Ramp	$12	$12	$3.37	$76

Fences/Gates

Fencing or gating helps to separate pedestrians and cyclists from roadways, as well as railroad tracks. They can also be used in the construction of pedestrian and bicycle paths, bridges, and overpasses. The cost differentials reflect the varying location, type, design, material, and overall height.

Table 10-14: Fence/Gate Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Fence/Gate	Fence	$120	$130	$17	$370
Fence/Gate	Gate	$510	$910	$330	$1,710

Lighting

Lighting improves the safety of all roadway users. The costs can vary, depending on the type of fixture and service agreement with local utility. Additional costs may also be dependent upon whether or not other projects are implemented in conjunction with lighting installation on the roadway or multiuse path. The wide range of cost for in-pavement lighting is based upon a wide variety of factors that include, but are not limited to, differences between the

manufacturers, width of the roadway, and additional factors.

Table 10-15: Lighting Typical Cost

Infrastructure	Description	Median	Average	Minimum	Maximum
Lighting	In – Pavement Lighting	$18,250	$17,620	$6,480	$40,000
Lighting	Streetlight	$3,600	$4,880	$310	$13,900

Historical Revenues

Over the course of the last 15 years, the capital region has seen an increase in bicycle and pedestrian infrastructure. In total, there have been 55 projects that focused on improved bicycle and pedestrian safety, at a total cost of $ 24, 951,948. Total projects and costs, from 1996 to 2015, are shown in Figure 10-6.

As can be seen, between 1996 and 2000 there was no investment in Bicycle and Pedestrian infrastructure. In 2015, activity peaked, with 7 projects, at a total cost of $4,841,834. The bulk of projects over the 15 years were implemented in East Baton Rouge Parish (27), with11 in Livingston, 7 in Ascension, and 4 in West Baton Rouge Parishes. This indicates increasing regional commitment to support for biking and walking.

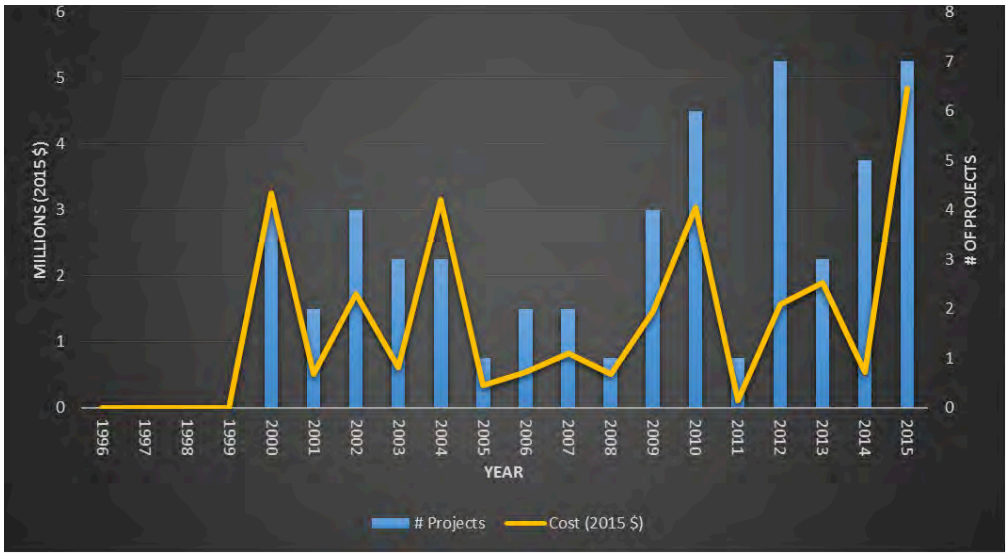


Figure 10-6: Historical Nonmotorized Project Funding

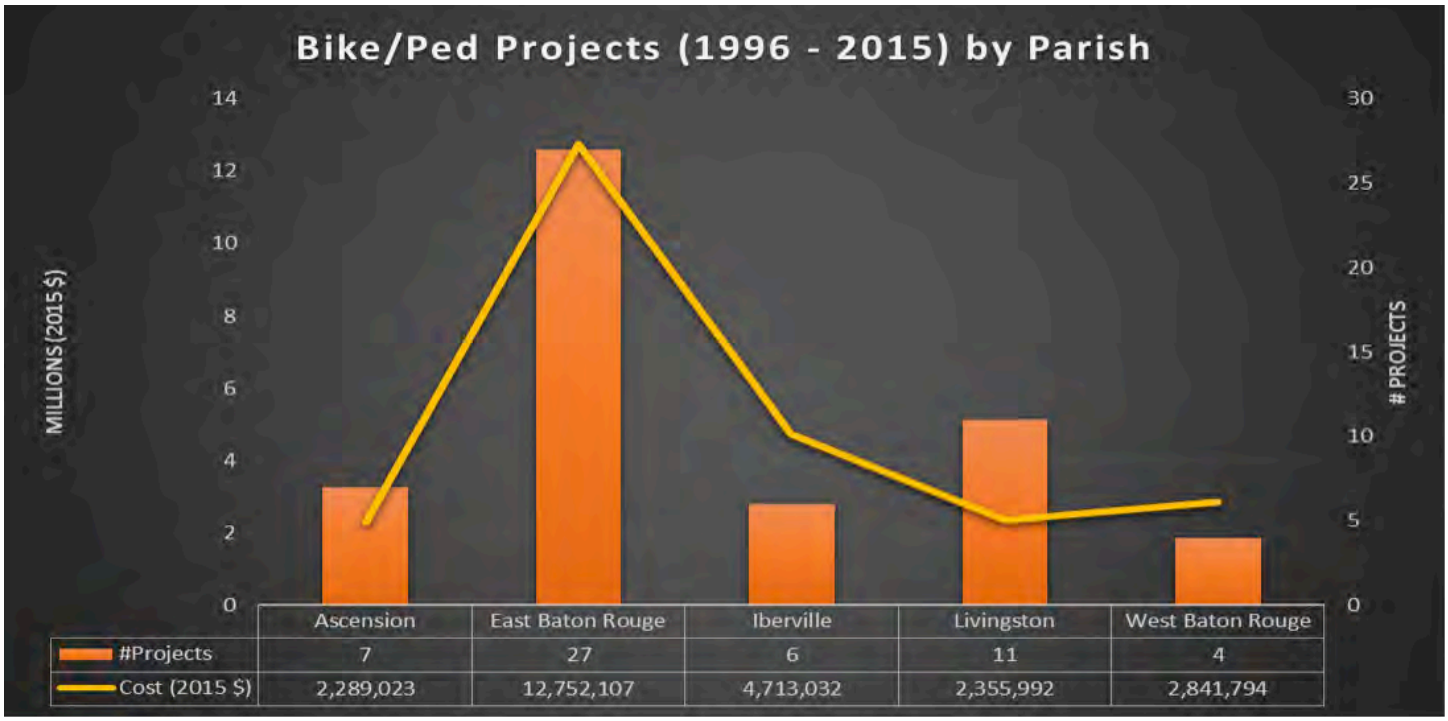


Figure 10-7: Historical Nonmotorized Project Funding by Parish

Across the region, funding for nonmotorized facilities began increasing since 2010 after the LA DOTD adopted their complete streets policy. Funding projections assume an upward trend for bicycle and pedestrian infrastructure. By 2042 the amount spent on nonmotorized facilities in the region is projected to be $58,218,795.

Funding Sources for Nonmotorized Facilities

Safe Routes to Public Places Program (SRTPP)

The SRTPPP is part of the overall Highway Safety Improvement Program (HSIP) and falls under the purview of the Louisiana Strategic Highway Safety Plan (SHSP). The vision for the SHSP is to reduce the number of fatalities and collisions throughout the state. To this end, projects eligible for HSIP funds are designed to improve safety for pedestrians and bicyclists on all public roads, both state and local. Funds allocated under this program can cover 100% of project costs, with no local match. Any public agency is eligible to submit a project application. All applicants may apply to fund development and implementation of projects that facilitate safety improvements for pedestrians, bicyclists, and transit users of all ages and abilities. Eligible projects include improving access to schools, libraries, government buildings, transit facilities, public parks, and other public places.

Transportation Alternatives Program (TAP)

The Transportation Alternatives Program is a federal program that is adminstered through the LADOTD. The objective is to develop a more balanced transportation system, which takes account of the needs of pedestrians, bicyclists, and motorists. Eligible projects include bicycle and pedestrian facilities, safe routes for non-drivers, conversion of abandoned railway corridors to trails, scenic turnouts, overlooks and viewing areas, archaeological activities, storm water mitigation, wildlife management, and community relation activities. Examples of eligible projects include outdoor advertising management, historic preservation, rehabilitation of historic transportation facilities, and vegetation management. Funding requirements stipulate that the recipient will be responsible for securing a 20% cost share for the project.

Surface Transportation Block Grant (STBG)

Under the jurisdiction of The Fixing Americas Transportation Act (Fast) Act, the Surface Transportation Program has been rolled into the Surface Transportation Block Grant (STBG) Program. These funds are made available to each state as a portion of the STBG. Each state's STBG allocation is pre- calculated based upon a pre-determined percentage. As a sub- allocation of the STBG program, urbanized areas with populations that exceed 200, 000 receive a portion of this funding generally based on their population. Bicycle and pedestrian improvement projects are eligible under this funding program.

Congestion Mitigation and Air Quality Program (CMAQ)

The FAST Act continued the CMAQ program to provide funding sources to state and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. The objective with this program is to reduce traffic congestion and thus improve air quality in areas not in compliance with National Ambient Air Quality (NAAQ) standards or that that are in maintenance status under the standards. Project applicants are required to secure 20% of the local funding to match an 80% federal share.

11 | Regional Freight

Freight is a vital part of how our nation's infrastructure grows. Our roadway networks, railways, airways, and waterways should be able to support reliable transport of people and goods safely, effectively, and efficiently.

11.1 | Freight Planning Framework

National Freight Goals and Federal Requirements

National freight goals were initially established under the Moving Ahead for Progress in the 21st Century (MAP-21) Act of 2012, which included, for the first time, an explicit policy to improve the condition and performance of the national freight network. This reflected recognition of freight movement as the foundation for the United States' competitiveness in the global economy, and the ability to achieve goals related to economic competitiveness and efficiency.

MAP-21 required the Department of Transportation (DOT) to establish a national freight network to assist States in strategically directing resources toward the improved movement of freight on highways. MAP-21 also required the establishment of the national freight strategic plan, which was developed in consultation with States and other stakeholders. The national freight plan is on a five-year update cycle. The goals and requirements of the national freight plan are continued in the Fixing America's Surface Transportation (FAST) Act of 2015.

Local MPO Designation of Regional Freight Network

The CRPC-MPO, as an urbanized area with a population over 200,000, is eligible to be designated as a Transportation Management Area (TMA) by the Secretary of Transportation. As described in 49 U.S.C. 5303(k), this designation recognizes the greater complexity of transportation issues in large urban areas. The TMA designation gives the CRPC-MPO a stronger voice in designating the freight network within the study area, setting priorities for implementing projects listed in the Transportation Improvement Program (TIP), and responsibility for additional planning products. The planning processes for MPOs in designated TMAs must be certified by the Secretary of Transportation as being in compliance with federal requirements.

Louisiana Statewide Freight Goals

Coordinated strategic goals and objectives provide the framework for implementing the State's Freight Mobility Plan in a consistent and complementary way. These goals have been coordinated with other relevant statewide plans to promote positive outcomes in interactions with the State's transportation and non-transportation systems, and ensure consistency with federal and state planning and investment initiatives. The FAST Act continues MAP-21's focus on advancing a national freight movement and economic vitality by improving the national freight network, strengthening the ability of rural communities to access national and international trade markets, and supporting regional economic development. The law required USDOT to develop a National Freight Policy, with the following goals:

- **Economic Competitiveness** – Invest in infrastructure improvements and implement operational improvements that strengthen the contribution of the national freight network to the economic competitiveness of the U.S.; reduce congestion; and increase productivity, particularly for domestic industries and businesses that create high-value jobs;
- **Safety, Security, Resiliency** – Improve the safety, security, and resilience of freight transportation;
- **State of Good Repair –** Improve the state of good repair of the national freight network;
- **Advanced Technology** – Use advanced technology to improve the safety and efficiency of the national freight network;
- **Performance and Accountability** – Incorporate concepts of performance, innovation, competition, and accountability into the operation and maintenance of the national freight network;
- **Economic Efficiency** – Improve the economic efficiency of the national freight network;
- **Environmental** – Reduce the environmental impacts of freight movement on the national freight network.

The FAST Act also encourages states to develop freight plans by increasing the federal funding match eligibility on projects included in these plans. To receive the increased match, projects must make a demonstrable improvement in freight movement efficiency and be identified in the state's freight plan. State freight plans are now mandatory under the FAST Act.

MTP Freight-Related Goals

The CRPC-MPO's freight-related goals are as follows:

- **Provide choices**- Use different routes, travel modes, or lanes, with tolls for high-speed and reliable service. The Capital Region Industry for Sustainable Infrastructure (CRISIS) report noted regional issues with limited alternate freight routes in case of road and lane closures caused by accidents or natural disasters;
- **Diversify development patterns**- A more dense development with a mix of jobs, shops, and homes would enable more people to walk, bike, or take transit to more, and closer, destinations. The Housing + Transportation (H+T) Affordability Index, discussed in the Existing Conditions addendum to this document, emphasizes the advantages of compact, walkable neighborhoods with high degrees of connectivity. The CRPC-MPO area's dispersed development pattern is already established. Adding connectivity through walking and/or bike paths and trails has the potential to change the established patterns while enhancing community health;
- **Realistic expectations**- Large urban areas will invariably be congested, but it is important to understand that congestion is not an all-day occurrence. Flexibility and the willingness to adjust work schedules, such as flex time and other travel demand management strategies, can help reduce congestion. Similar adjustments by employers and workers have been helpful in responding to Ozone Action Days when emissions have risen above critical levels.

CRPC-MPO as Part of Louisiana State Highway Freight Network Planning

Despite the FAST Act's expanded multimodal focus, roads and highways continue to be the primary focus in freight transportation planning. This reflects the importance of trucks in "first and last mile" freight movement and the fact that roadways are where most people and communities interact with the freight system. As part of the Louisiana State Transportation Plan process, highway freight corridors of statewide significance were identified for description and analysis regarding the types of long-distance movements of freight critical to shippers' mobility needs. In line with MAP-21, the Louisiana Department of Transportation and Development (LADOTD) identified three network tiers or levels of transportation facilities that carry freight:

- **Tier 1-** National Primary Freight Network
- **Tier 2-** Remainder of Interstates
- **Tier 3-** Critical Freight Corridors

Freight Performance Monitoring

In the National Freight Strategic Plan draft, issued for public comment in early 2016, the USDOT recognized the challenges of maintaining national economic competitiveness when transportation infrastructure is both aging and chronically underfunded to address freight-specific needs. The issues identified in the plan are all highly relevant to the CRPC-MPO study area: growing population, growth in freight tonnage, just-in-time supply chains, and other changes in commodity and movement patterns.

The USDOT, through the FHWA, has only established one performance measure for freight, which is the Truck Travel Time Reliability (TTTR) Index on the Interstate system. The FHWA states that the TTTR Index is calculated by:

> "Freight movement will be assessed by the TTTR Index. Reporting is divided into five periods: morning peak (6-10 a.m.), midday (10 a.m.-4 p.m.) and afternoon peak (4-8 p.m.) Mondays through Fridays; weekends (6 a.m.-8 p.m.); and overnights for all days (8 p.m.-6 a.m.). The TTTR ratio will be generated by dividing the 95th percentile time by the normal time (50th percentile) for each segment. The TTTR Index will be generated by multiplying each segment's largest ratio of the five periods by its length, then dividing the sum of all length-weighted segments by the total length of Interstate."

The TTTR Index can be developed for reporting years from data obtained from the FHWA National Performance Management Research Dataset. For future years, the TTTR Index can be developed from the truck trip purpose in the Travel Demand Model. The states are required to set their freight performance measure targets by May 20, 2018 and report them to the FHWA by October 1, 2018 and every 4 years afterwards in the Baseline Performance Period Report. Each state is required to establish 2-year and 4-year targets for the freight performance measure. Currently, targets for this performance measure haven't been set by the LADOTD. The CRPC-MPO may either support the targets established by the LADOTD or establish their own, and will have 180 days from the adoption of the state targets to meet this requirement. The CRPC-MPO is only required to establish 4-year targets for the freight TTTR Index measure.

11.2 | Metropolitan Freight Demand

Specialized Freight Generating Industries

The Baton Rouge MPA, which is bisected by the Mississippi River, is home to a large number of freight-generating establishments that have located in the MPA due to its proximity to major transportation facilities, a skilled workforce, and a large market of consumers. This is also, in part, due to the numerous oil and petrochemical companies that are based along the Mississippi River. In order to better understand the magnitude of certain freight-generating industries within the study area, it is necessary to compare the relative size of freight-generating industries within the MPA to that of the State of Louisiana on the whole, and the United States as well.

Of particular interest for freight planning are the mining, construction, manufacturing, wholesale trade, retail trade, transportation and warehousing, and accommodation and food services industries. This section will focus on these industries and the subsectors within them.

In order to identify the freight-generating industries in which the MPA specializes, location quotients were calculated for the entire study area. These indicators are ratios that compare an industry's percentage of total employment in one area, in this case the MPA, to that same industry's percentage of total employment in a larger, more all-encompassing area, such as a state or country. In this manner, location quotients highlight specialized industries by pointing out which industries employ a disproportionately higher number of people as compared to the state or country as a whole. Typically, a location quotient of 1.2 or higher indicates a specialized industry.

Location quotients for broadly defined freight-generating industries are provided in Table 11.1. The location quotients were developed using the Bureau of Economic Analysis' (BEA) Local Area Personal Income and Employment, which is the most complete, publicly available, data source for employment.

The data indicates that the Baton Rouge MPA is specialized in the construction industry when compared to the state, and in the mining and construction industries when compared to the nation. Aside from these two industries, the study area does not appear to be specialized in any other broadly defined freight-generating industry. The BEA data does not have any employment data available for transportation and warehousing, which is not shown to avoid the disclosure of confidential information.

Figure 11.1 displays the density of the study area employers within these specialized sectors as well as their proximity to schools, hospitals, and other public areas of concern.

Table 11-1: Location Quotient for Freight-Generating Industries

Industry	Employment	Percent of Total Employment	Baton Rouge-Louisiana Location Quotient	Baton Rouge-National Location Quotient	Louisiana Location Quotient	National Location Quotient
Mining	3,182	1.6%	0.33	1.14	0.33	1.14
Construction	60,632	30.6%	1.95	2.98	1.95	2.98
Manufacturing	31,107	15.7%	1.00	0.77	1.00	0.77
Wholesale trade	15,120	7.6%	0.97	0.78	0.97	0.78
Retail trade	52,119	26.3%	1.03	1.02	1.03	1.02
Transportation and warehousing	N/A	N/A	0.00	0.00	0.00	0.00
Accommodation and food services	35,728	18.1%	0.83	0.73	0.83	0.73

Source: BEA Local Area Personal Income and Employment

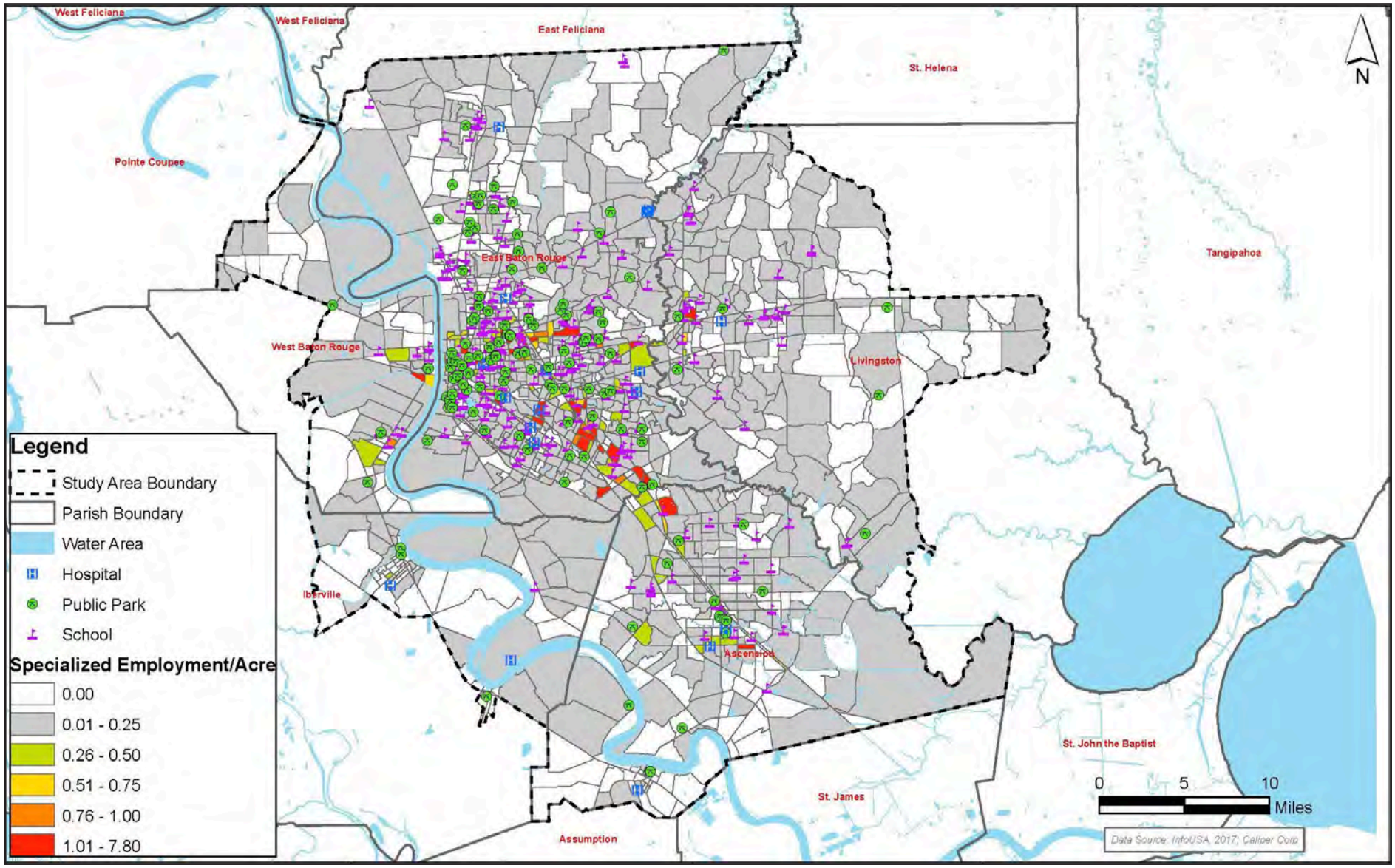


Figure 11-1: Public Locations Near Specialized Freight Employers

Major Commodities Transported

Commodity flows for the Baton Rouge area were obtained from the FHWA's Freight Analysis Framework (FAF). The FAF data provides freight flows by mode of transportation, commodity type, tonnage, and location (origin, destination, or intra-area) for 2015. Table 11.2 displays the freight tonnage in the Baton Rouge MPA by commodity.

Approximately 17 percent of the freight volume by weight transported in the MPA is destined for the MPA. However, the MPA is very dependent on outside freight to meet its need for goods and commodities. The three commodities that have the highest tonnage within the study area are gasoline, coal, and basic chemicals.

Table 11-2: Freight Tonnage Transported Within Study Area by Commodity

Commodity	Out-bound Tonnage (000)	Inbound Tonnage (000)	Intra-Area Tonnage (000)	Total Ton-nage (000)	Outbound %	Inbound %	Intra-Ar-ea %
Alcoholic beverages	149	176	129	454	32.8%	38.8%	28.4%
Animal feed	1,254	1,001	49	2,305	54.4%	43.4%	2.1%
Articles-base metal	757	458	63	1,279	59.2%	35.8%	5.0%
Base metals	864	668	144	1,676	51.6%	39.8%	8.6%
Basic chemicals	35,462	19,075	8,752	63,289	56.0%	30.1%	13.8%
Building stone	26	24	24	75	35.4%	32.4%	32.3%
Cereal grains	6,932	4,022	2,366	13,320	52.0%	30.2%	17.8%
Chemical prods.	1,387	555	298	2,239	61.9%	24.8%	13.3%
Coal	11	7,347	1	7,360	0.2%	99.8%	0.0%
Coal-n.e.c.	9,140	36,829	2,046	48,015	19.0%	76.7%	4.3%
Crude petroleum	7,992	26,078	2,860	36,929	21.6%	70.6%	7.7%
Electronics	113	132	65	311	36.4%	42.6%	21.0%
Fertilizers	10,490	3,659	1,148	15,297	68.6%	23.9%	7.5%
Fuel oils	9,179	22,805	8,434	40,418	22.7%	56.4%	20.9%
Furniture	159	196	137	492	32.4%	39.9%	27.8%
Gasoline	27,131	38,711	23,957	89,799	30.2%	43.1%	26.7%
Gravel	5,157	5,387	4,014	14,558	35.4%	37.0%	27.6%
Live animals/fish	121	7	2	130	93.1%	5.7%	1.2%
Logs	908	936	894	2,738	33.2%	34.2%	32.6%
Machinery	252	336	175	763	33.0%	44.0%	23.0%
Meat/seafood	38	157	15	210	17.9%	74.7%	7.4%
Metallic ores	611	137	11	759	80.5%	18.1%	1.5%

Source: FAF, 2015

Table 11-2: Continued

Commodity	Outbound Tonnage (000)	Inbound Tonnage (000)	Intra-Area Tonnage (000)	Total Tonnage (000)	Outbound %	Inbound %	Intra-Area %
Milled grain prods.	429	279	142	850	50.5%	32.9%	16.7%
Misc. mfg. prods.	96	136	18	249	38.3%	54.6%	7.1%
Mixed freight	1,259	1,245	354	2,859	44.1%	43.6%	12.4%
Motorized vehicles	21	194	8	222	9.3%	87.3%	3.4%
Natural sands	2,750	2,446	2,409	7,606	36.2%	32.2%	31.7%
Newsprint/paper	1,171	108	76	1,355	86.4%	8.0%	5.6%
Nonmetal min. prods.	5,298	4,423	3,808	13,529	39.2%	32.7%	28.1%
Nonmetallic minerals	1,538	1,324	253	3,115	49.4%	42.5%	8.1%
Other ag prods.	1,943	2,597	785	5,325	36.5%	48.8%	14.7%
Other foodstuffs	2,029	953	508	3,491	58.1%	27.3%	14.5%
Paper articles	23	66	7	97	23.9%	68.7%	7.4%
Pharmaceuticals	4	39	2	45	9.3%	86.9%	3.8%
Plastics/rubber	7,313	1,622	1,015	9,951	73.5%	16.3%	10.2%
Precision instruments	16	16	7	39	41.9%	41.2%	17.0%
Printed prods.	24	89	18	131	18.6%	68.0%	13.4%
Textiles/leather	18	88	11	116	15.4%	75.3%	9.3%
Tobacco prods.	33	11	10	53	61.5%	20.4%	18.1%
Transport equip.	335	311	230	876	38.2%	35.6%	26.2%
Waste/scrap	1,583	1,276	1,193	4,053	39.1%	31.5%	29.4%
Wood prods.	493	1,315	234	2,042	24.1%	64.4%	11.5%
Total	144,511	187,237	66,669	398,418	36.3%	47.0%	16.7%

Source: FAF, 2015

Concentration of Major Freight Generators in MPO

Freight is often thought of as goods that are moved through trucking on the nation's roadways. But, freight is also moved by railways, airports, and water ports. Due to the location of the Baton Rouge MPA along the Mississippi River, its ports play a major role in the area's freight movement. Port related freight is further increased by the numerous oil and gas industries that have built their facilities along the river The Port of Greater Baton Rouge is a major freight location in the MPA and ranked 8th in the nation and 65th in the world in annual total tonnage.

In addition to the oil and gas industries along the river, there are many industrial, wholesale trade, commercial, and retail establishments in the MPA that generate freight truck trips. Figure 11.2 displays the daily number of freight trips generated in each TAZ based on the MOVE 2042 Travel Demand Model.

The figure also displays areas of relatively high freight demand in the study area. These areas include the industrial park near Siegen Lane, the industrial area north of South Choctaw Drive, the distribution centers at O'Neal Lane and I-12, and the petrochemical plants south of LA 30 in Ascension Parish. Additional areas of freight demand include several smaller businesses (such as restaurants, malls, drug stores, etc) that when grouped together receive a significant amount of truck trips.

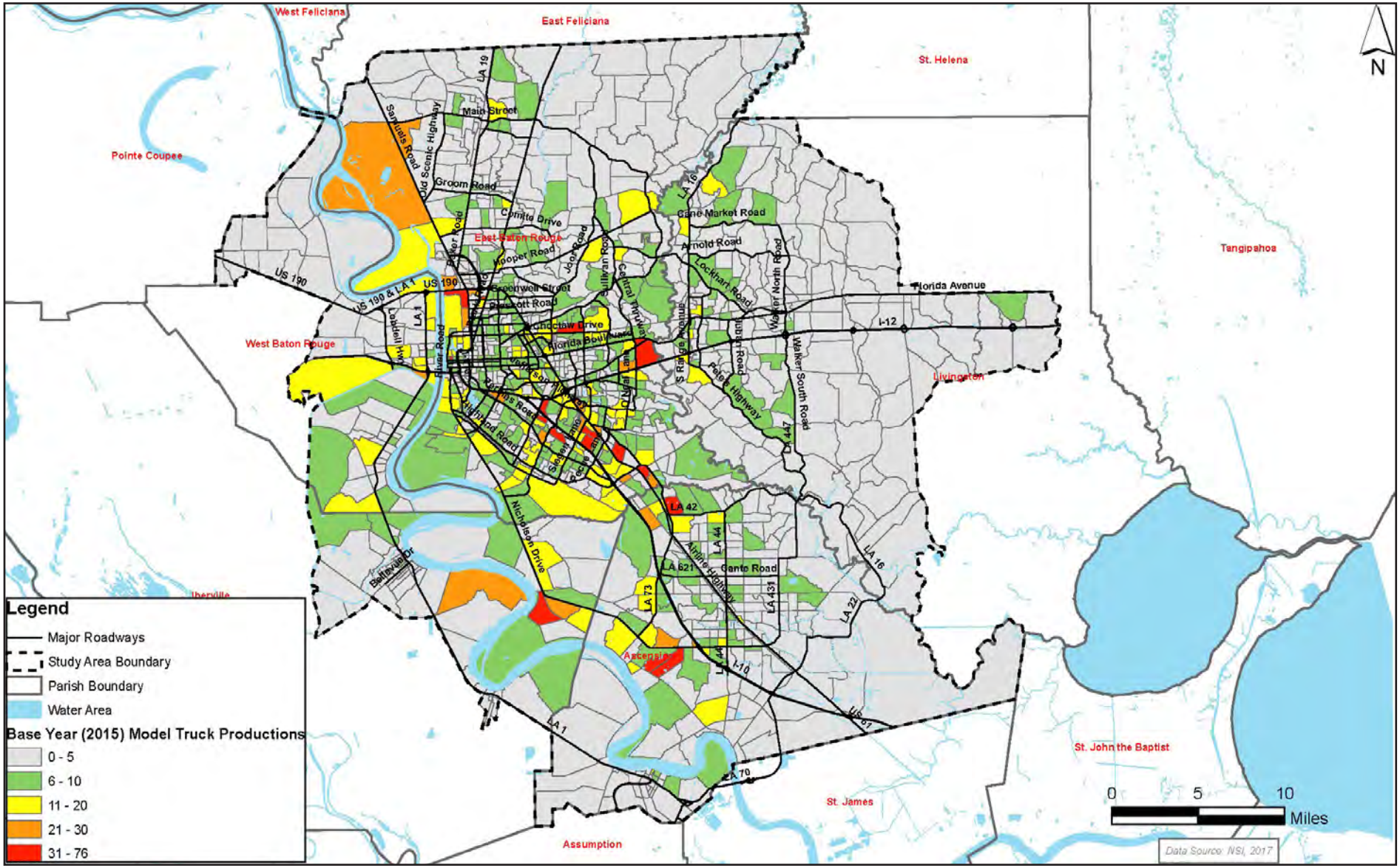


Figure 11-2: Daily Truck Trips by TAZ

11.3 | Existing Freight Conditions

Freight Movement

The Baton Rouge MPA is a large hub for freight generation in Louisiana due to its strategic position along the Mississippi River and handles a large amount of tonnage and value for commodities transported. Using data obtained from the Freight Analysis Framework (FAF), general trends in freight movement can be observed. Table 11.3 shows the 2015 freight movement by various modes of transportation within the Baton Rouge MPA.

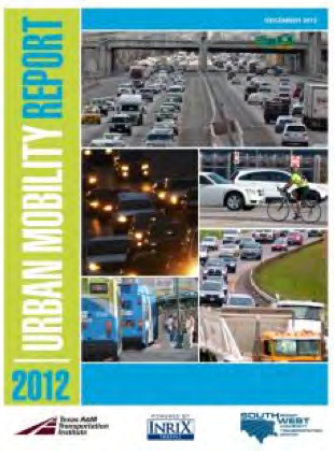
Table 11-3: Freight Transportation by Mode

Mode	Outbound Tonnage (000)	Inbound Tonnage (000)	Intra-Area Tonnage (000)	Total Tonnage (000)	% by Mode
Air (include truck-air)	6.0	6.5	0.0	12.5	0.0%
Multiple modes & mail	2,566.8	656.0	244.8	3,467.6	0.9%
No domestic mode	2,504.5	2,504.5	2,504.5	7,513.4	1.9%
Other and unknown	22.0	0.7	0.1	22.9	0.0%
Pipeline	39,446.9	111,954.7	33,640.0	185,041.5	46.4%
Rail	24,427.9	11,375.2	1,535.9	37,338.9	9.4%
Truck	42,891.0	34,218.4	18,203.7	95,313.0	23.9%
Water	32,646.2	26,521.4	10,540.4	69,708.1	17.5%
Total	**144,511.3**	**187,237.3**	**66,669.4**	**398,417.9**	**100.0%**

Table 11-3 shows that in Baton Rouge the pipeline mode accounts for almost half of the tonnage of freight transported in the area. This is likely due to the large presence of petrochemical businesses and refineries in the MPA, which receive oil and natural gas feedstocks for their production processes via pipeline. Trucking accounts for nearly 25 percent of the freight moved through the MPA, and the MPA's waterways are used for about 18 percent of the freight movement.

Freight Congestion on Highways

As national policy shifts towards a multimodal focus, intense highway congestion continues to affect the movement of trucks carrying freight. The Texas A & M Transportation Institute's (TRIP) 2012 Urban Mobility Report noted that trucks are a key component of just-in-time manufacturing and require reliable delivery times. If scheduled times are missed, production lines can be stopped at high cost to all parties involved. Urban and rural corridors, ports, intermodal terminals, warehouse districts and manufacturing plants are all locations prone to truck congestion.



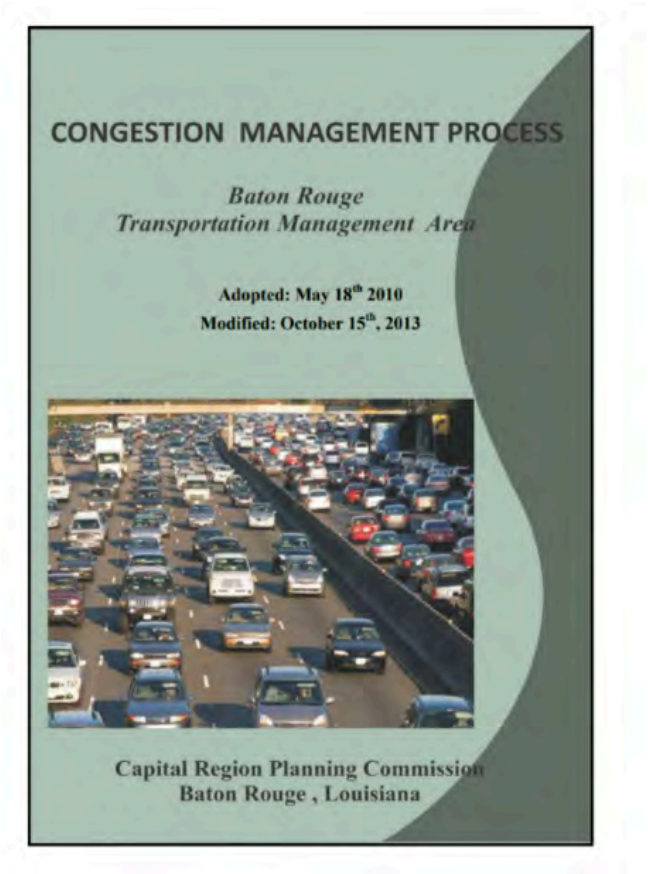
Congestion Management Plan

The CRPC-MPO's Congestion Management Plan (CMP) is an integral part of the regional transportation planning process. The goal of the CMP is to improve mobility, connectivity, accessibility, reliability, travel time, and safety; and to provide a variety of modal travel options.

The CRPC-MPO's Congestion Management Plan (CMP) is an integral part of the regional transportation planning process. The goal of the CMP is to improve mobility, connectivity, accessibility, reliability, travel time, and safety; and to provide a variety of modal travel options.

The CMP is a cooperatively developed and implemented metro-wide strategy that considers new and existing regional transportation facilities that are eligible for funding under title 49 USC Chapter 53. The CMP also considers the potential of travel-demand management (TDM) and operational management strategies to reduce congestion.

A well-focused CMP creates a credible, defendable planning process that creates effective congestion management projects. The process is intended to build capacity to integrate previously separate elements into a coherent planning process. CMP planning can also have positive impacts on regional air quality by reducing delay and stop-and-go traffic, thus reducing fuel waste and exhaust emissions due to idling. Coupled with transit service improvements, CMP planning can help reduce or defer the need to add new capacity on congested corridors, and facilitate efficient management of any new capacity that may be added in the future.



From a freight perspective, along with new roads, new lanes on existing roads, and new rail lines, additional capacity may include dedicated truck lanes and adding lanes and docking facilities at warehouses and distribution centers. Questions regarding how such improvements will be funded within the fiscally-constrained transportation planning framework have yet to be answered.

Other possible strategies, suggested by the Texas A & M Transportation Institute, may involve regulatory changes or changes in operating hours of freight facilities, delivery schedules, or manufacturing plants;

- **Get as much service as possible from existing facilities**- Low-cost improvements include rapidly removing crashed vehicles from roadways, re-timing traffic signals, and improving road and intersection designs. The CRPC-MPO is pursuing improvements at high crash frequency (a.k.a. "hot spot") intersections;
- **Add capacity on critical corridors-** More roadway lanes, new streets and highways, new or expanded public transportation, and larger bus and rail fleets. The CRISIS report, discussed in more detail below, analyzed 18 possible projects and identified the combination with the highest potential benefits in reducing congestion;
- **Change usage patterns-** Avoiding travel during traditional rush hours by allowing flexible work schedules. The federal Department of Transportation report Beyond Traffic 2045: Trends and Choices discusses possible flexible work pattern solutions.

Trucking Network and Facilities

Network

The Baton Rouge MTP Study Area has no active intermodal terminal facilities or roadways designated as intermodal connectors. There are two roadways designated as part of the draft National Primary Freight Network (NPFN) including:

1. Interstate 10 is part of the Tier I Lake Charles-Baton Rouge-New Orleans corridor
2. Interstate 12 is part of the Tier I Baton Rouge-Hammond-Slidell Corridor

In addition to the above roadways, I-110 from I-10 to US 61 is a key connector for the Baton Rouge Regional Airport; and LA 1 south of I-10 connects to the Greater Baton Rouge Port.

Facilities

There are no active intermodal terminal facilities listed by the Bureau of Transportation Statistics in the Baton Rouge MTP Study Area.

Beyond intermodal terminal facilities, there are many trucking establishments within the MPA. These establishments provide both local and long distance trucking services. Figure 11.3 shows the location of the major trucking establishments (those with 25 or more employees) within the MPA as well as the state's freight network.

The Louisiana Supply Chain Council

The Louisiana floods of 2016 highlighted critical failure points across the state in all modes of transportation. During the 2017 Louisiana legislative session a Senate Concurrent Resolution authorized the creation of a Louisiana Supply Chain Transportation Council "to study and make recommendations regarding increasing resilience in various modes of transportation through increased communication, collaboration, development of geographic information technologies, and new innovations in transportation." Stakeholders from the private sector, Louisiana universities, and state and federal government are represented on the council. The Capital Region Planning Commission is supporting the mission of the Supply Chain Transportation Council by providing a Co-Chair of the Council and all administrative activities. The council will release a report of critical points of failure in Louisiana's supply chain with recommendations to address these failure points to make Louisiana's infrastructure and economy more resilient. Once completed, the study will be provided to the Legislature, Secretary of LADOTD, Secretary of Louisiana Economic Development, Executive Director of Office of Community Development, and the Director of the Governor's Office of Homeland Security and Emergency Preparedness.

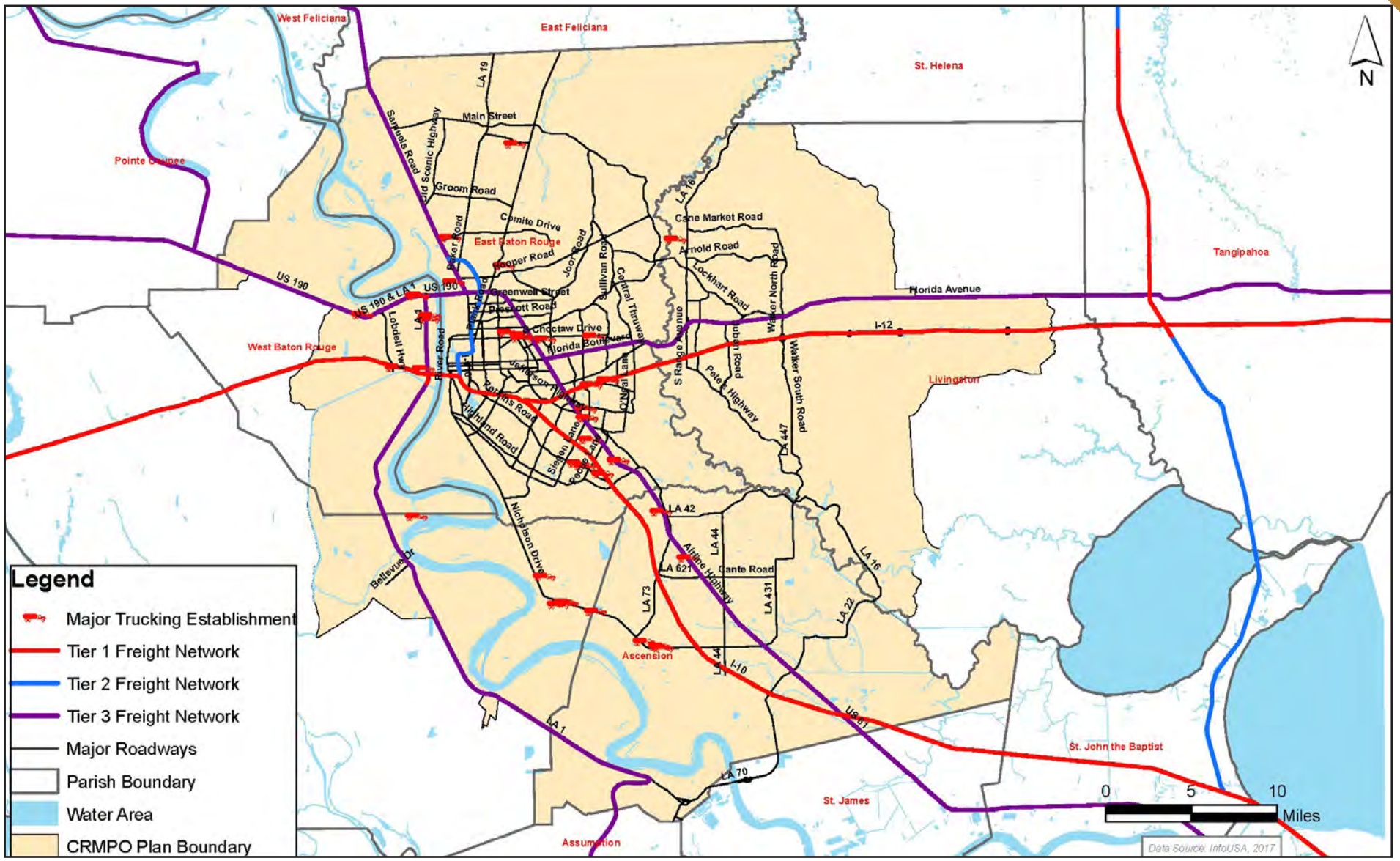


Figure 11-3: Major Trucking Establishments

Traffic

The CRPC-MPO Travel Demand Model provides the estimated daily freight truck volumes on the study area's roadways. The estimated volumes for the base year (2015) are displayed in Figure 11.4.

The estimated freight truck volumes suggest the following trends:

- Freight truck traffic is greatest on I-10 west of the I-10/I-12 split
- Freight traffic continues to be heavy on:
  - I-10 and I-12 east of the split
  - I-210
  - US 190
  - US 61
  - LA 1
  - LA 19
  - LA 44
  - LA 70
  - LA 415
  - Portions of Choctaw Dr, Florida Blvd, and Airline Hwy
- Freight truck traffic is also relatively high on:
  - LA 16
  - LA 30
  - LA 444
  - Hooper Rd
  - Greenwell Springs Rd

Figure 11-4: Modeled MPO Freight Truck Traffic- Base Year (2015)

Rail Network and Facilities

Network

There are three Class 1 rail lines that serve the Baton Rouge MTP Area:

- Canadian National (CN)
- Kansas City Southern (KCS)
- Union Pacific (UP)

Facilities

There are no active intermodal terminal facilities listed by the Bureau of Transportation Statistics in the MOVE 2042 study area. However, each of the rail companies within the study area operates a traditional carload switching yard within the MPA.

Traffic

Railway data for the individual companies is not readily available from the private rail service providers that operate in the area. However, as shown in Table 11.3, the railway mode of freight movement in the MPA accounted for just over 37 million tons of freight moved in 2015. This was equal to a share of 9.4 percent of the MPA's freight movement, most of which is exported from the area. The rail lines that operate within the MTP study area are shown in Figure 11.5.

Airports

Facilities

While only a small amount of freight is typically shipped by air, these commodities tend to be high in value. Additionally, the area around airports tends to serve as a distribution and manufacturing hub.

The only public-use airport in the MPA is the Baton Rouge Metropolitan Airport, which is shown in Figure 11.5.

Traffic

As with the railroads, neither the airport nor the private airlines that make use of it have readily available freight data. The FAF data shows that the Baton Rouge area had a total of approximately 13 thousand tons pass through the MPA via airports. This tonnage includes freight transported by private airports as well.

Water Ports

Facilities

The only water port in the MPA is the Greater Baton Rouge Port, which is located in West Baton Rouge Parish. This port sits at the intersection of the Mississippi River and the Gulf Intracoastal Waterway and is linked to several other major ports within the nation. Jurisdiction of the Port of Greater Baton Rouge falls within river mile 168.5 AHP to the south (Sunshine Bridge) and 253 AHP to the north (ExxonMobil Refinery) on both sides of the Mississippi River and spans a length of 85 miles. It also provides accessibility for freight to multiple modes of transportation.

Facilities at the port include:

- General Cargo Docks
- Grain Elevator
- Flour Mill
- Sugar Storage and Distribution Complex
- Liquid Bulk Storage Facilities
- Inland Rivers Marine Terminal
- Midstream Transfer Buoys
- Dry Bulk Terminal

Traffic

While it is known that the Greater Baton Rouge Port is ranked as 8th in the nation and 65th in the world in annual total tonnage, the exact values of the tonnage are not readily available. The 2015 FAF data shows that the port mode of travel for freight within the study area handled approximately 70 million tons and is responsible for almost 18 percent of the area's freight, the vast bulk of which would have been handled by the Greater Baton Rouge Port.

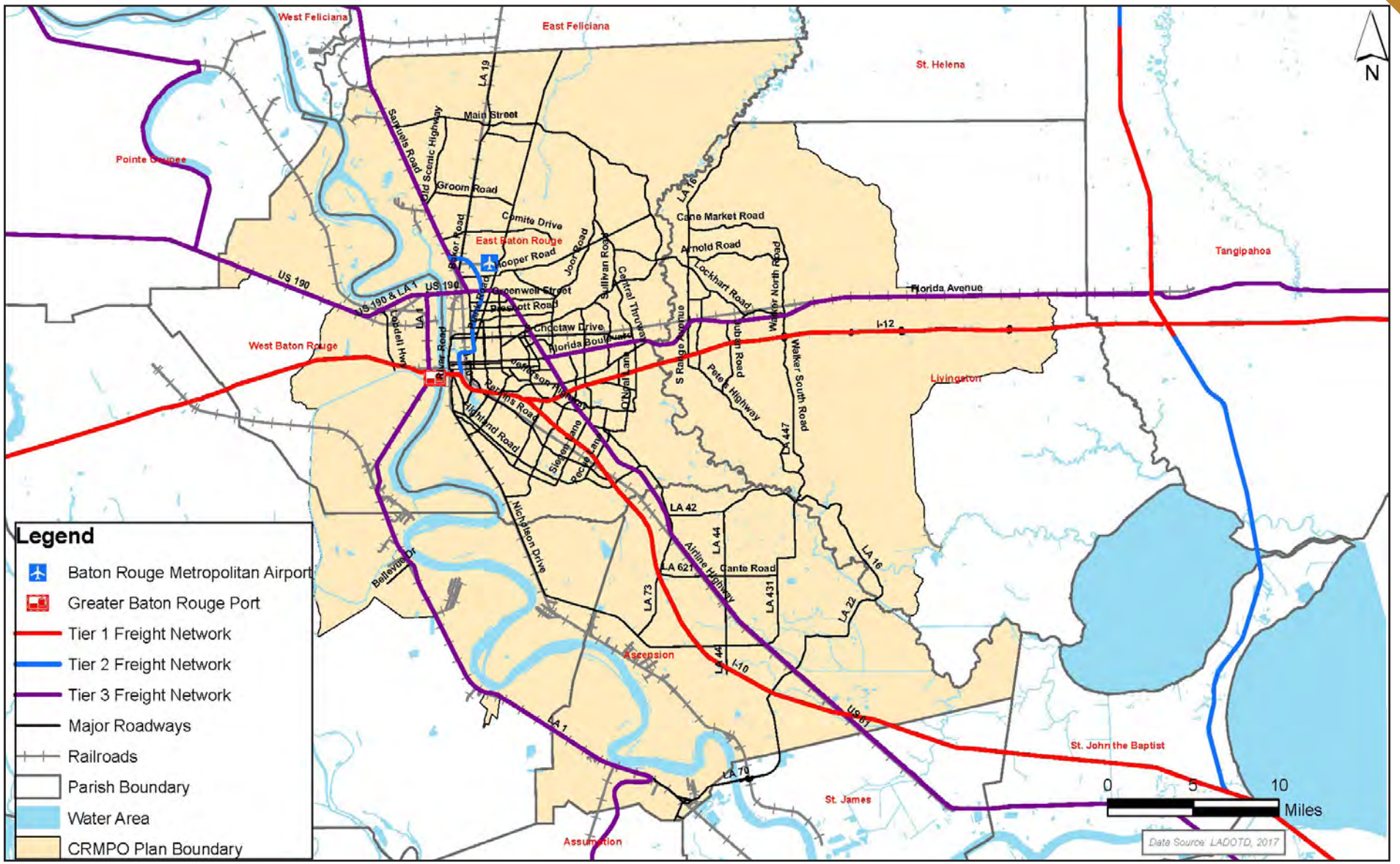


Figure 11-5: Study Area Freight Facilities

Truck to Barge Transfer

The U.S. Department of Transportation's Maritime Administration (MARAD) has awarded a grant of $1,758,595 to the Ports of Baton Rouge and New Orleans to fund a regularly-scheduled container on barge service to support exports moving from the Baton Rouge area to the Port of New Orleans, where the containers are loaded onto container vessels.

The new service is designed to collect empty containers in Memphis, TN and transport them to Baton Rouge to meet customer demand for chemical industry exports. This service will provide exporters with new and more efficient transportation options. It also offers a waterway alternative to re-position empty equipment that would otherwise have to be moved by truck, contributing to regional congestion.

In announcing the grant, the Secretary of Transportation stressed the importance of investing in integrated, multi-modal transportation systems that capitalize on the country's extensive network of inland waterways and domestic seaports to provide opportunities to stimulate economic growth while reducing congestion on the national freight transportation system.

11.4 | Future Freight Need

Trucking Need

1. Tier 1: The National Primary Freight Network(PFN), of which the FHWA identified approximately 603 miles of highways in Louisiana as being a part of. The LADOTD is seeking to add another 47.5 miles to this total in order to close identified gaps in the Tier 1 network segments. The factors that will be considered include:

a. Origins and destinations of freight movement; total freight tonnage and value moved; percentage of average annual daily traffic (AADT) on principal arterials; land and maritime ports of entry; access to energy exploration/production areas; population centers; network connectivity

b. Under the FAST Act, LADOTD added all Class I railroads; airports, waterways and port terminals that meet freight value and/or weight criteria

2. Tier 2: Remainder of the Interstates not identified in the PFN, as well as railroads, airports, waterways, and port terminals that meet freight value and/or weight criteria

3. Tier 3: Critical Freight Corridors important to the movement of freight in Louisiana that accommodate significant truck traffic and provide access to energy exploration/production areas. Corridors may connect with PFN (Tier 1) or Interstate System (Tier 2) and meet truck traffic, unit and weight criteria. These include rural principal arteries, active railroads, waterways and airports with commercial service not in Tier 1 and 2 that meet weight and value criteria.

4. Tier 4: Freight Connectors that are intermodal and roadway facilities that connect urban areas necessary for moving freight in urban settings. With this tier, criteria are more qualitative to identify critical links between facilities that may not have a large amount of freight, but have a large impact on system connectivity. This encompasses corridors that serve several freight-related businesses, but that are not in Tier 1, 2, or 3, as well as links between the freight system and connectors to corridors that serve primary freight generators.

Figure 11.6 displays the anticipated daily freight volumes on the study area's roadway network in 2042.

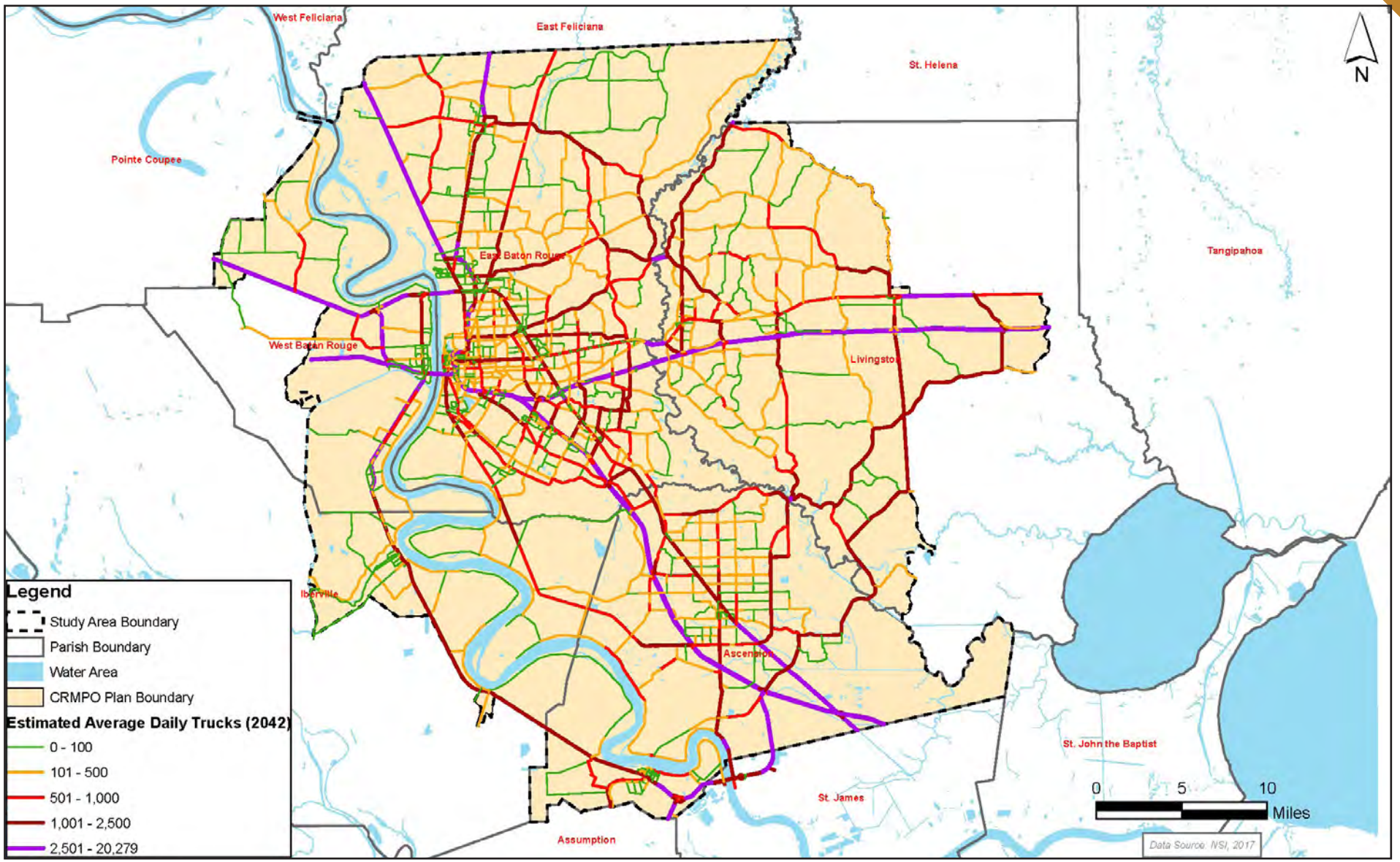


Figure 11-6: Modeled MPO Freight Truck Traffic- Horizon Year

11.5 | Improvement Plan

Statewide Freight Plan Recommendations

The State of Louisiana maintains its own freight plan, as required by the FAST Act, the Louisiana Freight Mobility Plan. This plan has identified several needs for the state's freight infrastructure which can also be applied to the Baton Rouge study area, including:

Trucking:

- Improved permitting and registration
- Monitoring truck size and weight limits as well as safety
- Improved incident management
- Increased truck parking and rest areas
- Monitoring the condition and design of roadways used by the trucking industry
- Increased intermodal connectivity
- Additional funding for the roadway network

Rail:

- Increase in terminal capacities
- Creation of a state rail program

Airports:

- Increased intermodal connectivity

Ports and Waterways:

- Deepening the Mississippi River
- Increased dredging for channels and coastal waterways
- Increased intermodal connectivity
- Streamlining of coordination between the ports and other agencies
- Increased infrastructure for anticipated increased demand
- Concerns over climate change and sea-level change

Fiscally-Constrained Roadway Projects with Major Freight Benefits

The purpose of the MTP is to produce a transportation plan that improves travel conditions for all roadway users within the MPA. Freight movement, which relies on the quick transportation of goods, is heavily impacted by congested roadway conditions. Roadway projects that increase safety, reduce congestion, and provide alternative means of transporting freight will increase the economic vitality of the MPA. These projects will also increase the reliability of freight. Projects that are located on the state's freight network will provide additional capacity and reduce the congestion on roadways, allowing freight to reach its destination quicker. The following projects identified in the MOVE 2042 Staged Improvement Program are located on the State of Louisiana's freight network:

- The widening of I-10 to six lanes from the Iberville Parish line to the Mississippi River
- The widening of I-10 to six lanes from LA 73 to LA 22
- The widening of US 61 (Airline Highway) to six lanes from Florida Boulevard to Florline Boulevard
- The widening of US 61 (Airline Highway) to six lanes from Greenwell Springs Road to I-110
- The widening of US 61 (Airline Highway) to six lanes from Florline Boulevard to Greenwell Springs Road
- The widening of US 190 (Florida Boulevard) to eight lanes from US 61 (Airline Highway) to Monterey Boulevard
- The widening of US 190 (Florida Avenue) to four lanes from Pete's Highway to LA 1026 (Burgess Avenue)

The MOVE 2042 Travel Demand Model was used to determine the impact that the roadway test projects would have on the MPA's network. One of the outputs of this model was the daily Truck Vehicle Hours of Delay (TVHD.) The following projects identified in the MOVE 2042 Staged Improvement Program are not located on the State of Louisiana's freight network, but provide a significant reduction (greater than 25 hours) in TVHD:

- The widening of LA 22/LA 70 to four lanes from the Study Area Boundary to I-10
- The widening of LA 30 (Nicholson Drive) to five lanes from the East Baton Rouge Parish/Iberville Parish line to the Iberville Parish/Ascension Parish line
- The widening of LA 44 (Burnside Avenue) to four lanes from LA 621 to LA 42
- The new 2-lane roadway, the LA 1/I-10 Connector, from Lobdell Highway to LA 1
- The widening of LA 64 (Greenwell Springs-Port Hudson Road) to four lanes from LA 67 (Plank Road) to Joor Road
- The widening of LA 427 (Perkins Road) to five lanes from Pecue Lane to Highland Road
- The widening of LA 447 (Walker South Road) to four lanes from I-12 to Hood Road
- The widening of LA 67 (Plank Road) to four lanes from Groom Road to Main St
- The widening of LA 30 (Nicholson Drive) to five lanes from Brightside Lane to the East Baton Rouge Parish/Iberville Parish line
- The widening of LA 37 (Greenwell Springs Road) to five lanes from Sullivan Road to LA 64 (Magnolia Bridge Road)
- The widening of LA 30 (Nicholson Drive) to five lanes from the Iberville Parish/Ascension Parish line to Ashland Drive
- The widening of LA 427 (Perkins Road) to four lanes from Siegen Lane to Pecue Lane
- The widening of LA 62 (Magnolia Beach Rd) to four lanes from LA 1019 to LA 16 (North Range Avenue)
- The widening of South Choctaw Dr from North Flannery Rd to Central Throughway

Other Strategies (Programs, Policies, and Actions)

Shifting to a Multimodal Perspective

Freight occupies a unique position in the transportation system because it operates between the public and private sectors and requires major investments by both, as private sector trucks travel on public highways. Freight railroad facilities, rolling stock, and services are almost entirely private. Air cargo services are also private, but operate in public airways and at public airports. Private ships use public waterways as well as public and private port facilities. Pipelines are typically privately owned, but operate under public oversight and regulations.

In addition to the mix of public-private ownership, freight projects are very costly, with no dedicated sources of public funding. Port and airport projects are often partially funded with a mix of federal and state funds and frequently use revenue bonds issued by regional port and airport authorities. The projects are also very complex and typically cross not only transportation modes, but also jurisdictional and stakeholder boundaries. This often creates fragmented, sometimes conflicting, and even contentious goals, lines of responsibility, authority, and decision-making.

Legal Framework for Freight Planning

MAP-21 was the first federal legislation to establish a legal framework for freight policy and mandated the identification of a national freight highway network. The FAST Act represents a significant expansion in scope, providing a legal basis for establishing a multimodal freight policy and network (MFN) that also encompasses local roads, railways, navigable waterways, pipelines, key sea and river ports, airports, and the intermodal facilities necessary to enable efficient and safe movement of freight. Such a multimodal perspective on freight represents an important step in national freight policy and in addressing critical challenges to efficient freight movement.

Issues of national economic competitiveness, aging transportation infrastructure, and chronic underfunding for freight-specific purposes were recognized in the National Freight Strategic Plan. All of these issues are highly relevant to the MPA, as well as:

- Growing population
- Growth in freight tonnage
- Just-in-time supply chains
- Other changes in commodity and movement patterns

Freight and Land Use

The FHWA Freight and Land Use Handbook [2006] describes positive benefits of freight movement, including jobs, increased tax revenues, and support of "just-in-time" consumer markets. If well planned, freight activity can be a good neighbor in terms of land use, transportation, and environmental considerations. When not properly planned, freight movement and related land uses can have a range of negative impacts on surrounding neighborhoods. This is especially true for residential areas near freight uses. These impacts include light and noise pollution, unwanted odors and vibrations, safety concerns, and environmental impacts on regional air and water quality.

The impacts can be mitigated, but only if freight and land use planning and decision-making are well integrated, by balancing economic activity and the external impacts, to make freight movement a "good neighbor" within the community context. Recognizing and responding to the close interaction of public and private sector benefits can create opportunities for reduced congestion, improved air quality and safety, enhanced community livability, improved operational efficiency, reduced transportation costs, and greater access to facilities and markets.

The FHWA Handbook identifies critical success factors in best-practice strategies, developed by agencies of all sizes. These strategies reflect freight and community needs in a range of urban, rural and suburban areas.

1. Appropriate and Coordinated Land Use Policies include regional visioning and planning, local zoning and transportation policies, and site-specific policies and practices that address context-sensitive design and access to industrial and freight transportation facilities. Strategies involve:

a. Incentives, such as tax credits, to reinvest in existing industrial space.
b Creating buffers around freight zones to provide safe means for residents to traverse freight facilities.
c. Use of zoning tools to preserve industry and limit freight impacts.
d. Promote context sensitive solution (CSS) site and building design features.

2. Effective Transportation Systems and Services include developing and maintaining transportation systems that can effectively, efficiently, and safely accommodate freight and passenger traffic that can help freight systems be better neighbors in a community or region. Strategies involve:

a. Freight-exclusive facilities, such as truck lanes, to reduce noise and vibration, light, aesthetic, and local air quality impacts on neighboring land uses.
b. Effective truck route networks that ensure trucks avoid sensitive areas and link with truck routes in neighboring jurisdictions.

3. Effective Operations and Maintenance Policies include systems to reduce peak-period demand and, therefore, reduce congestion, in ways that produce fewer negative impacts to quality of life and the environment. Strategies involve:

a. Offering incentives for off-peak delivery helps spread truck traffic times across a wider timeframe.
b. It also increases efficiency because of decreased road congestion.

4. Education and Outreach includes ways state and regional agencies educate themselves, provide technical assistance to local jurisdictions and other agencies and authorities, and effectively engage private stakeholders and residents in developing effective land use and transportation policies. Strategies involve:

a. Technical Assistance to Local Jurisdictions ensures that local land use policy-makers are informed on freight needs and can help codify integration of freight and land use policy and best practices. Strategies involve:

i. MPOs recognize the importance of linking freight transportation and land use planning and develop methods for guiding local jurisdictions without infringing on their sovereignty.
ii. Strategies and tools focused at the regional level can help guide location of major freight-generating uses, such as manufacturing and distribution centers.
iii.Gaining regional planning consensus can be advanced by use of strategies and tools implemented by regional agencies, including scenario planning, preferential zoning, and tax relief programs.

Preferential Zoning

Specialized zoning can help reduce conflict between freight and sensitive community land uses such as neighborhoods, schools, playgrounds, or near other areas where freight movement may have a negative impact. Special zoning may be applied in the vicinities of airports, rail/truck terminals, and seaports, all of which typically generate or receive large volumes of freight. This approach can include creating buffers or separation between industrial and/or freight uses and other land uses to help minimize the interference of freight with community quality of life. Separation may also be achieved through construction of physical barriers, intermediate zones (often office of commercial uses), and freight routing.

Freight and Land Uses

In many communities, redevelopment of former industrial sites for residential and/or commercial land uses has pushed freight development to the fringes. Local and regional planning agencies sometimes facilitate such development because residential, commercial, and tourism uses are viewed as preferred or "highest and best uses" in Euclidian Zoning terms. The "freight sprawl" created by these policies results in increased truck vehicle miles traveled (VMTs), which impacts air quality, congestion, safety, and roadway pavement condition.

On the other hand, regional strategies that integrate freight planning and land use recognize that preserving industrial and freight-related uses contributes to economic vitality and recognizes public benefits in jobs created or retained, reduced congestion, fuel consumption, and emissions.

The dedication and preservation of space for manufacturing and industrial land uses also supports the development of freight-generating land uses can be achieve through the Context Sensitive Solution (CSS) approach, which continuously involves stakeholders in establishing context, documenting problems and issues, identifying and evaluating alternatives, and selecting a solution. The use of CSS and public participation also make it easier to build appropriate infrastructure to support freight uses. CSS applied to building and site design features may include the following:

- Orient loading facilities to minimize aesthetic, noise, and pollution impacts on residents
- Consider creating a buffer around all freight generating land use
- Establish staging areas for freight delivery
- Reduce light spillage from freight facilities
- Employ "green port" technologies, such as electric gantry cranes, modern generator sets which consume less fuel, and electric plug-ins at ship berths

Additionally, good neighbor land use policies related to freight development include:

- Freight-Exclusive Facilities help mitigate potential adverse effects of freight, as previously described;
- Replacing At-Grade Rail Crossings reduce safety issues for pedestrians, bicyclists, and motorists crossing the tracks;
- Promote Anti-Idling Technologies for Trucks such as engine control modules, automatic shut-down/turn-on systems, direct-fired heaters, auxiliary power units, generator sets, and electric parking places for trucks.

Examples of Freight-Oriented Development

Cargo Oriented Development (COD)

The Center for Planning Excellence (CPEX), which is based in Baton Rouge, has worked with the Center for Neighborhood Technology (CNT) on community efforts to reinstate passenger rail service in the Baton Rouge area. In January 2015, CNT issued its report titled New Orleans-Baton Rouge: Capturing the Value of the Economic Boom and the Freight that Supports It. The report, and CNT's later presentation at the 2016 Institute for Trade and Transportation Studies (ITTS) conference in New Orleans, featured the concept of Cargo-Oriented Development (COD), defined as co-locating freight, logistics, and manufacturing with a ready workforce.

Such convergence, which once occurred more or less naturally has, over the past 30 years, become more separated and less connected. Freight carriers and logistics are increasingly distant from population centers and even from manufacturing. Dispersed jobs and populations require long auto commutes, which drive up household transportation costs. Including passenger rail in the plan creates potential to ensure local residents will have access to employment even though jobs are on the river and coast and people live in urbanized areas.

Making COD part of planning helps reconnect activities to promote development that integrates freight system efficiency with the development of manufacturing and logistics businesses in ways that benefit local economies, the environment, and public safety. CNT views the COD concept, even though it is still under development, as a counterpart to previously described TOD (Transit-Oriented Development) and CNT's H + T (Housing + Transportation) Affordability Index. The next steps of COD call for additional research and development, and engaging multiple stakeholders to support the formulation of a robust, unified metric for multi-criteria analysis. Public sector stakeholders include local governments, planning agencies, ports, and development authorities. Private sector stakeholders include freight carriers, industrial developers, manufacturers, and their consultants.

Another Model for Planning Urban Freight Mobility

The Atlanta Regional Commission (ARC) also made a presentation at the 2016 ITTS conference which recognized the need for robust planning tools to integrate freight and land use. With 2.4 million in population growth expected over the next 25 years, Atlanta faces a larger-scale version of traffic and freight challenges than those confronting Baton Rouge. In addition to expanding demands for supportive transportation infrastructure, these include increased need to consider multi-jurisdictional and corridor freight impacts and consideration of freight needs in regional land use and transportation planning.

ARC's model, called Livable Centers Initiative (LCI) will invest $172 million in design, right-of-way, and the construction of 105 projects in 63 communities. The LCI combines integration of information on market conditions, land use and zoning, urban design, multi-modal transportation networks, and freight mobility. Like COD, this approach emphasizes supporting livability in freight areas, and showing that state-of-the-art freight terminals can make good neighbors, even to nearby natural areas. The LCI also calls for improving travel through wayfinding and improved signage. Lessons learned to date include:

- Goods movement is too often treated as an afterthought in site design
- Effective economic development requires institutionalizing consideration of efficient goods movement into local government zoning and site plan reviews
- Supportive programs are needed to encourage incorporating freight considerations into discussions of community livability

"The preparation of this report has been financed in part through grant[s] from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation."

We especially acknowledge the contriburions of the many people of the Capital Region who took time to participate in the public meetings to give us insight into the needs of the traveling public.

STATE PROJECT NO. H.972200.1

FEDERAL AID PROJECT NO. H972200