





PREPARED FOR GULF REGIONAL PLANNING COMMISSION AND MISSISSIPPI DEPARTMENT OF TRANSPORTATION

Mississippi Gulf Coast 2040 Metropolitan Transportation Plan

The latest iteration of the Mississippi Gulf Coast Area Transportation Study, initiated by Gulf Regional Planning Commission 40 years ago, extends the long-range transportation plan for the area encompassing Hancock, Harrison and Jackson counties to the year 2040.



The 2040 Metropolitan Transportation Plan resulted from a year-long planning process that included consultation with local elected officials and representatives of local, state and federal government agencies; outreach to transportation industry interests and stakeholder groups; and interaction with interested citizens and other potentially affected individuals through an extensive public involvement process.

It will serve as a blueprint for the development of transportation improvement projects and programs for the next five years. Regulations promulgated by the U.S. Department of Transportation require the long-range plan to look at least 20 years into the future; they also require that it be updated every five years.

The content of the plan was ultimately determined by the collective vision of elected officials, stakeholders and concerned citizens from three counties and a dozen municipalities acting in concert as the Mississippi Gulf Coast Metropolitan Planning Organization.

That vision calls for an integrated multimodal transportation system capable of connecting people of diverse circumstances and abilities to their desired destinations safely, conveniently and efficiently.

Moreover, it seeks to bring about a transportation system that will promote the sustainability of the Mississippi Gulf Coast region while enriching the overall quality of life for its residents and helping to ensure a memorably enjoyable experience for visitors to the area.



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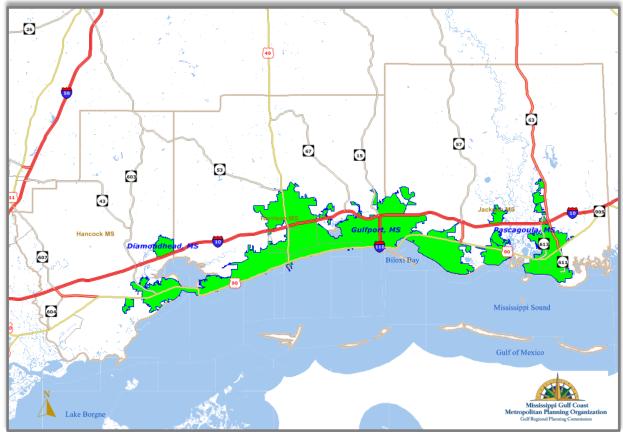
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INTRODUCTION - THE MISSISSIPPI GULF COAST AREA

This summary report encapsulates the 2040 Metropolitan Transportation Plan for the Mississippi Gulf Coast Area spanning three counties that contain 12 municipalities: Waveland, Diamondhead and Bay Saint Louis in Hancock County; Pass Christian, Long Beach, Gulfport, Biloxi and D'Iberville in Harrison County; and Ocean Springs, Gautier, Pascagoula and Moss Point in Jackson County. There are two distinct urbanized areas designated by the U. S. Census Bureau within the metropolitan planning area (MPA): the Gulfport Urbanized Area (UZA) which stretches from Bay Saint Louis to Ocean Springs and includes portions of all three coastal counties; and the Pascagoula UZA located in the eastern half of Jackson County. The Gulfport UZA encompasses the cities of Bay Saint Louis and Waveland in Hancock County; all five municipalities in Harrison County; and Ocean Springs in Jackson County; as well as adjacent unincorporated portions of all three counties. The Pascagoula UZA encompasses the cities of Pascagoula and Moss Point, most of Gautier and adjacent unincorporated portions of Jackson County. The newer northern portion of the last-named city was designated a separate entity, the Gautier Urban Cluster (UC), by the Census Bureau. The newly incorporated City of Diamondhead in Hancock County was designated an urban cluster separate from the Gulfport UZA.



Mississippi Gulf Coast Counties and Designated Urban Areas

LEGISLATIVE AUTHORITY FOR METROPOLITAN PLANNING

Beginning with the *Federal-Aid Highway Act* adopted by the U. S Congress in 1962, Federal legislation establishing or renewing highway and transit funding programs has required metropolitan transportation planning. The existence of a current long-range transportation plan is a condition for the receipt of surface

transportation funds appropriated for urban areas with a population of at least 50,000. Development of the long-range plan must be carried out through a continuing, cooperative, and comprehensive planning process based on the most current information available; reflecting regional needs and priorities consistent with those of the state; and taking account all modal alternatives. Transportation planning must be cognizant of similar initiatives in other fields—especially those relating to land use and economic development—in order to achieve a level of complementarity conducing to the success of all planning efforts.



Interstate 10 twin bridges spanning the Pascagoula River

Adoption of the metropolitan transportation plan (MTP) is the first step towards implementation of any regionally significant transportation project, whether with Federal assistance or funding from other sources. Following formal adoption of the plan, a project can be programmed for design, right-of-way acquisition or construction in the Transportation Improvement Program (TIP). The metropolitan planning organization (MPO) responsible for development of the MTP must proceed in accordance with requirements set forth in Federal law and regulatory guidance. U. S. Department of Transportation (USDOT) guidelines require that the MTP have a planning horizon of at least 20 years; that it foster mobility and access for both people and goods; facilitate the efficient performance of the transportation system and support its preservation; and seek to better the quality of life enjoyed by people living and working in the area. It must also provide for consideration of the following planning objectives:

Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency; ¶ Increase the safety and security of the transportation system for motorized and nonmotorized users; ¶ Increase the accessibility and mobility options available to people and for freight; ¶ Protect and enhance the environment, promote energy conservation, and improve quality of life; ¶ Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight; ¶ Promote efficient system management and operation; and ¶ Emphasize the preservation of the existing transportation system.

THE METROPOLITAN PLANNING ORGANIZATION (MPO)

The MPO is a legislatively mandated policy-making body made up of representatives from local government and transportation agencies with collective responsibility for the coordination of transportation planning and programming in the metropolitan planning area (MPA). The Federal-Aid

Highway Act (Public Law 87-866), adopted by Congress in 1962, made metropolitan transportation planning a condition for receipt of Federal funds for transportation projects in urban areas with a population of 50,000 or more. Gulf Regional Planning Commission (GRPC) was



designated by the governor of Mississippi to serve as the Mississippi Gulf Coast MPO on December 20, 1973. GRPC performs the principal planning and programming functions of the MPO under the direction of a Transportation Policy Committee (TPC) advised by a Technical Coordinating Committee (TCC). The TPC holds the ultimate responsibility for making decisions regarding the regional transportation system in accordance with Federal legislation. The TCC provides technical input to the decision-making process.

THE TRANSPORTATION POLICY COMMITTEE

The TPC has ultimate responsibility for making decisions regarding the planning and funding of improvements to the regional transportation system. TPC members for the Mississippi Gulf Coast MPO include the president of the board of supervisors for each of the three counties in the metropolitan planning area (MPA); the mayor or city manager for each of the 12 municipalities; the chairman of the GRPC Board of Commissioners; the chairman of Coast Transit Authority; the executive director of the Mississippi Department of Transportation; the executive director of the Gulfport International Airport Authority; and the port directors for each of the three maritime port operators in the MPA: Hancock County Development Commission (Port Bienville), Mississippi State Port Authority (Mississippi State Port at Gulfport) and Jackson County Development Commission (Port of Pascagoula). Non-voting members of



the TPC include the president of the Mississippi Trucking Association; a designated representative of the Heritage Trails Partnership; the Federal Transit Authority Region IV administrator; the Federal Highway Administration Mississippi Division administrator; and the Mississippi Gulf Coast Business Council president. The TPC is responsible for the periodic adoption of a Unified Planning Work Program (UPWP) and

Transportation Improvement Program (TIP), and for the establishment of policies and procedures in compliance with federal regulations. The TPC is guided by recommendations developed and put forth by the TCC. The TCC consists of individuals whose skills, training and professional status qualify them to take an active role in helping to shape and to oversee the transportation planning program for the region.

THE METROPOLITAN TRANSPORTATION PLAN (MTP)

Beginning with the *Federal-Aid Highway Act* adopted by the U. S Congress in 1962, Federal legislation establishing or renewing highway and transit funding programs has required metropolitan transportation planning. The existence of a current long-range transportation plan, produced and adopted as a result of the ongoing metropolitan planning process, is a condition for the receipt of surface transportation funds appropriated for urban areas with a population of at least 50,000.

THE METROPOLITAN TRANSPORTATION PLANNING PROCESS

The metropolitan transportation planning process, as outlined in the Federal Highway Administration (FHWA) publication, *Transportation Planning Process: Key Issues* (FHWA, no date: page 3), requires completion of the following tasks: *Monitoring existing conditions* ¶ *Forecasting future population and employment growth, including assessing projected land uses in the region and identifying major growth corridors* ¶ *Identifying current and projected future transportation problems and needs and analyzing, through detailed planning studies, various transportation improvement strategies to address those needs* ¶ *Developing long-range plans and short-range programs of alternative capital improvement and operational strategies for moving people and goods* ¶ *Estimating the impact of recommended future improvements to the transportation system on environmental features, including air quality* ¶ *Developing a financial plan for securing sufficient revenues to cover the costs of implementing strategies.*

METROPOLITAN TRANSPORTATION PLANNING REQUIREMENTS

Requirements set forth in Federal law (23 USC §134) and regulations adopted pursuant thereto (23 CFR §450.322) stipulate that the MTP must have a planning horizon of at least 20 years; foster mobility and access for both people and goods; facilitate the efficient performance of the transportation system and support its preservation; and seek to better the quality of life enjoyed by people living and working in the area. In addition the MTP must provide for consideration and implementation of projects, strategies and services that will address the following planning factors originally enumerated in the *Transportation Equity Act for the 21st Century* (Public Law 105-178):

Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency ¶ Increase the safety and security of the transportation system for motorized and nonmotorized users ¶ Increase the accessibility and mobility options available to people and for freight ¶ Protect and enhance the environment, promote energy conservation, and improve quality of life ¶ Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight ¶ Promote efficient system management and operation ¶ Emphasize the preservation of the existing transportation system.

CURRENT TRENDS AFFECTING TRANSPORTATION

Social and demographic trends affecting travel demand on a national level are having a predictable impact on transportation in the Mississippi Gulf Coast metropolitan planning area (MPA). The U. S. Census Bureau projects that population growth will slow over the next 30 years due to lower fertility rates among U. S. women and decreasing rates of immigration. While in-migration is seen as slowing, most of the growth in population predicted over the next 25 years is expected to come from immigrants and their children. At the same time, longer lifespans are raising the average age of the population and increasing the number of elderly persons less likely to travel, especially as drivers of personal vehicles. The American workforce is changing in ways that mirror broader demographic changes. The overall labor force participation rate, already falling, will continue to go down as the percentage of people too old to work grows. The growing impact of robotics and other technological influences will also serve to depress the size of the active workforce. Since commuter work-trips are the principal cause of peak-period congestion, these structural trends affecting travel demand will have a major impact on transportation systems.

IMPACT OF TECHNOLOGICAL INNOVATION

The impact of technological innovation on transportation is understandably difficult to predict, but increased telecommuting made possible by the internet is likely, as is the use of *intelligent transportation systems* (ITS) applications that enhance the effective capacity of existing facilities and networks. *Bikesharing* and *carsharing* initiatives that apply rapidly evolving new technologies are already affecting travel demand, especially in urban areas where they make car-ownership less essential. The phenomenal growth in electronic commerce has had a significant impact on travel demand, as internet sales reduce the number of trips made for shopping, entertainment and other purposes. This trend has been tracking steadily upward since the Census Bureau began monitoring e-commerce activity at the beginning of 2006, and so far it shows no signs of leveling off.

DECLINING TRAVEL DEMAND AND TRANSPORTATION REVENUES

According to the Federal Highway Administration (FHWA), total vehicle-miles traveled (VMT) in the United State topped three trillion in 2007 and went up again in 2008 as had been the case in every year since 1981. However, in 2009 VMT fell back below the three-trillion-mile mark and has remained below that level since, an unprecedented flattening of the historical curve. While the end of the long-term trend has had its positive effects—reduced traffic congestion, pollutant emissions and vehicular collisions—it also has its more problematical side. Both state and Federal transportation revenues are largely dependent on the consumption of motor fuels. Reduced travel, coupled with improved fuel economy, has resulted in less revenue that can be used for building and maintaining highways and other transportation facilities, or for equipping and operating public transit systems. Federal fuel tax revenues declined by 18 percent from 1999 to 2013; fuel tax revenues in Mississippi peaked at \$469 million in 2004. The result is a looming crisis in funding for transportation programs in the years ahead.

METROPOLITAN TRANSPORTATION PLAN DEVELOPMENT

The metropolitan transportation planning process consists of the following principal components:

Monitoring existing conditions - This applies to the transportation system as a whole and includes consideration of all available modes. ¶ Forecasting future population and employment growth – The resulting forecast seeks to provide a realistic projection of how population and employment will be distributed across the metropolitan area in the future based on an assessment of projected land use in the region and the identification of major growth corridors and nodes. ¶ Identifying current and projected problems and needs – In addition to the identification of existing and anticipated transportation system deficiencies, this component involves analyzing, through detailed planning studies, strategies for addressing those needs. ¶ Developing long-range alternatives and short-range programs – In addition to providing for the long-term future transportation requirements of the region, the plan seeks to identify the near-term measures necessary to address immediate needs for capital improvements and operational strategies. ¶ Assessing the potential environmental effects of proposed improvements – This component is particularly concerned with the likely air quality and environmental justice implications of recommended projects. ¶ Developing a financial plan for funding needed transportation improvements – In order to produce a fiscally responsible plan it is necessary to undertake a realistic analysis of present and projected future resources, identifying shortfalls and suggesting means for securing sufficient revenues to cover costs which exceed the anticipated availability of funds.

PUBLIC INVOLVEMENT PROCESS

As part of its ongoing transportation planning process, Gulf Regional Planning Commission (GRPC) coordinated a public engagement program in accordance with the U.S. Department of Transportation (USDOT) metropolitan planning regulations. Both the general public and potentially interested stakeholders were informed of the long-range plan update process and afforded numerous opportunities to participate. Public participation activities were coordinated with the Mississippi Department of Transportation (MDOT) statewide plan update. Outreach messages and timelines were aligned to provide a consistent look for public display and coordinated opportunities for community input. GRPC also participated with MDOT in a statewide online outreach initiative. The MindMixer website afforded people who were unable or unwilling to attend scheduled public meetings an opportunity to review materials and provide feedback. In addition to posting information for public viewing, the site allowed participants to enter questions, make comments and share their project suggestions with planning staff. Planners also solicited feedback by means of a statewide telephone survey. The information collected contributed to the initial drafting of long-range goals and objectives which were then made available for public comment. The top priority identified by respondents in both urban and rural areas, as well as statewide, was the need to maintain the existing transportation system. Improving safety and reducing traffic congestion also ranked high in the Mississippi Gulf Coast area and in other metropolitan areas across the state.

PUBLIC INVOLVEMENT IN THE PLANNING PROCESS

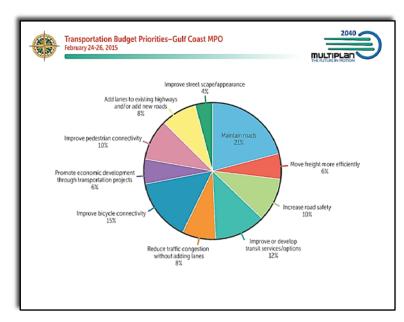


Public meetings provided attendees with a comprehensive overview of the planning process as well as opportunities to be actively involved in the plan development process. Informational materials were produced, presented and displayed by both MPO and MDOT planning staff at each public meeting. Separate meetings were held at locations in each of the three study area counties in February 2015 shortly after the planning process got underway and in mid-November 2015 during the 45-day public review period for the draft plan.

Bay Saint Louis Community Hall Public Meeting

Feedback collection activities were provided for visitors during the public meetings in an attempt to facilitate their involvement in evaluating current conditions and identifying needs. Large maps were laid out for individuals to mark, indicating where they would like to see improvements made. There were also two surveys: The first asked attendees to rate the performance of the existing transportation system by mode; the second asked participants how they would spend limited financial resources available for transportation improvements. The modal response with respect to the expenditure of funds (21 percent) supported the use of scarce resources to maintain existing streets and highways. The second highest level of support (15 percent) favored using available funds to improve the connectivity of designated bicycle

paths. The third most popular use (12 percent) called for improving existing transit service and public transportation options or developing new ones where needed. With regard to the condition and performance of existing modal facilities and services, the biggest response came from those dissatisfied with the status of bicycle paths and lanes. Sidewalks and crosswalks were also rated "poor" by a significant number of respondents. Responses relating to the condition and performance of roads and bridges, and the roadway network as a whole, were largely favorable.



REGIONAL GOALS AND OBJECTIVES

The passage of the *Moving Ahead for Progress in the 21st Century Act* (MAP-21) in 2012 brought new focus to bear on the use of performance measures by state departments of transportation (DOTs) and metropolitan planning organizations (MPOs). Performance measures provide a basis for evaluating progress over time toward the realization of goals and objectives. They are also useful for comparing alternative improvement strategies under consideration in the present. The U.S. Department of Transportation (USDOT) adopted national performance measures relating to the following areas of concern: Safety; Infrastructure Condition; Congestion Reduction; System Reliability; Freight Movement and Economic Vitality; Environmental Sustainability; and Reduced Project Delivery Delays.

THE METROPOLITAN PLANNING VISION

Building on input elicited through public outreach activities and consultation with stakeholders, the MPO Transportation Policy Committee (TPC) adopted the following goals and objectives to guide the long-range planning process for the Mississippi Gulf Coast:

Goal 1.0: Strategically enhance corridors

Objectives: Maximize transportation system efficiency by promoting alternatives to adding general-purpose traffic lanes. ¶ Reduce roadway congestion. ¶ Improve the mobility of freight trucks. Enhance mobility by improving the connectivity of the existing transportation network. ¶ Improve the form and function of transportation corridors in order to contribute to the sense of place. ¶ Improve economic vitality of the region with transportation decisions.

Goal 2.0: Improve and expand transportation choices

Objectives: Make public transportation a choice mode of transportation on the Mississippi Gulf Coast. ¶ Improve marketing and promotion of transportation options to increase awareness on the Mississippi Gulf Coast. ¶ Promote rail transportation opportunities.

Goal 3.0: Increase safe transportation

Objectives: Make all Mississippi Gulf Coast urban area roadways suitable for bicycles, pedestrians and transit. ¶ Improve safety at intersections. ¶ Promote safety through public education, enforcement and engineering.

Goal 4.0: Manage the relationship between transportation, community and environment

Objectives: Promote land use patterns and development policies that support transportation mobility. ¶
Consider climate variability when making transportation project decisions. ¶ Coordinate transportation decisions to preserve existing communities. ¶ Evaluate potentially disparate impacts of transportation projects on environmental justice target areas. ¶ Provide public involvement processes to engage the general public, minority and low-income populations in transportation decision-making. ¶ Promote the development of a transportation system and programs that maintain or improve air quality and reduce greenhouse gases, ozone, particulate matter and other pollutants.

LAND USE AND DEMOGRAPHICS

The Mississippi Gulf Coast is located on the northern shore of the Gulf of Mexico approximately 88.40 to 89.70 degrees west of the prime meridian and roughly 30.17 to 30.74 degrees north of the equator. The metropolitan planning area (MPA) defined for long-range planning purposes is the Gulfport-Biloxi-Pascagoula Metropolitan Statistical Area (MSA). The Gulfport-Biloxi-Pascagoula MSA includes the three southernmost counties in Mississippi: Hancock, Harrison and Jackson.

LAND USE

Land-use and transportation are inextricably linked. Land uses generate vehicle-trips; land-use locations determine trip-lengths; and land-use character influences mode selection. The predominantly rural character of the study area as a whole is reflected in the fact that 45 percent of all acreage in the three counties is vacant and 25 percent is parkland or open space. Single-family residential developments occupy 20 percent of all land. That means less than 10 percent of the 1,466,661 acres in the three-county area are being used for all other categories: Agriculture, multi-family residential, schools and other institutions, offices, retail and service outlets, industrial activities, utilities, transportation facilities, parking lots and garages.

POPULATION AND HOUSING

The MSA had a population of 370,702 in 2010, according to the decennial census. The U. S. Census Bureau estimate for 2014 showed an increase of more than four percent to 386,144. Over the 70 years from 1940 to 2010 the population of the Mississippi Gulf Coast grew at an annual rate in excess of two percent. If that rate (2.17 percent) were to be sustained for another decade there would be very nearly half a million people living in the area by 2026. While population in the area more than quadrupled from 1940 to 2010, housing increased sevenfold. This reflects the fact that a significant amount of the housing in Hancock County and the western part of Harrison County is occupied on a part-time basis by people from south Louisiana who have weekend or summer homes on the Mississippi Gulf Coast.

EMPLOYMENT

The number of people employed by establishments in the Mississippi Gulf Coast study area has increased by a little more than 30 percent in a little less than 25 years, according to the Mississippi Department of Employment Security. However, all of that growth occurred during the decade of the 1990s when casino gambling was legalized and new gaming establishments were opened in Hancock and Harrison counties. Establishment-based employment peaked at more than 164,000 in 2000 but has since fallen off to approximately 154,000. The drop-off in the number of people employed in the area actually occurred in the five-year period immediately prior to Hurricane Katrina. Surprisingly, estimated employment in 2010 was exactly the same as it had been in 2005 before the storm and was only slightly lower in 2014. This probably says as much about continuing weakness in the national economy as it does about local economic conditions.

EXISTING TRANSPORTATION SYSTEM-ROADS AND BRIDGES

Planning for the future transportation system begins with an evaluation of existing facilities and services, including roadways and bridges, bicycle and pedestrian facilities, public transit, freight transportation, aviation safety and security. The region's roadways and bridges are used by almost everyone: Travel by motor vehicle is the primary means of transportation. The importance of a region's roadways and bridges can hardly be overestimated.

Interstate highways in the area include Interstate 10 (I-10) and Interstate 110 (I-110). The total centerline length of the interstate system within the study area is 81.62 miles; mainline lane capacity includes 377.73 lane-miles. While carrying the heaviest volume of traffic, the interstate system represents only a little more than three percent of total major roadway mileage in the metropolitan area. Major roadways include all interstate routes, principal arterials, minor arterials and collectors.

Principal arterials carry the highest volumes, and typically the longest trips, after the interstates. They extend approximately 211 miles in total length, accounting for slightly less than eight percent of all major roadway mileage in the area. This class includes important travel routes like US Highway 90 (US 90) and US Highway 49 (US 49).

Minor arterials collectively account for about 246 route-miles or just over nine percent of total mileage in the major roadway network. The numerous routes classified as minor arterials include portions of US 90, Mississippi 43 (MS 43) and MS 53 in Hancock County; MS 15, MS 53, State Route 605 (SR 605) and a sizable number of city and county streets in Harrison County; and MS 57, a portion of SR 613 and numerous city and county streets in Jackson County.

Collectors carry the lowest volumes of traffic among the functionally classified major streets. Their primary purpose is to provide a connection between local streets and the arterial network, facilitating access to one or the other, depending on the direction of travel. There are more than 700 miles of collector roads in each of the three Mississippi Gulf Coast area counties. Collectively they account for 2,127 route-miles or very nearly 80 percent of the overall total. In all, there are 2,666.5 miles of major roads in the study area.

A majority of roadway mileage in the study area (about 55 percent) is actually to be found in local streets that provide direct access to homes, places of work or recreation, grocery stores, small shops and many other places of origin or destination. There are more than 3,300 miles of local streets in the study area. Adding those to the major roadway total of 2,666 yields an overall total for all streets and highways of 5,968.8 miles. Thus the interstate system represents a mere 1.4 percent of the systemwide total, the principal arterial share is only 3.5 percent, the minor arterial share 4.1 and the collector share 35.6 percent.

ROADWAY MAINTENANCE AND TRAFFIC CONDITIONS

As all local streets, the vast majority of collectors, and a significant number of arterial routes fall under the jurisdiction of local government, city and county authorities have maintenance responsibility for well over 90 percent of all street and highway mileage in the region. Nevertheless, the State of Mississippi bears responsibility for maintaining most of the more heavily traveled routes, such as I-10, I-110, US 90, US 49 and all of the roadways on the state highway system. In a 2013 report on *Mississippi's Transportation Infrastructure*, the Mississippi Department of Transportation (MDOT) assessed the anticipated maintenance needs for roads and bridges over the next 20 years on a county-by-county basis. The report identified more than \$53 million in maintenance needs in Hancock County and over \$107 million in rehabilitation costs for Harrison County roads and bridges. The total cost for maintenance in Jackson County fell between the figures for the other two counties: \$88,340,062.

DAILY TRAFFIC AND ROADWAY CONGESTION

The total number of trips made daily within the metropolitan planning area (MPA) exceeds 1.5 million; about 60 percent have one end at the trip-maker's place of residence. An estimated 8.3 percent of all trips are made by truck or other commercial vehicle; about nine percent of the total have an origin and/or destination outside the metropolitan area. While the interstate system accounts for only 3.1 percent of all centerline route-mileage on the major street and highway network, it carries nearly 37 percent of all traffic on the network, registering more than 4.5 million vehicle-miles daily of the estimated 12.3 million traveled in the study area. Principal arterials account for another 4.1 million or more than 33 percent. The remaining 30 percent is split between minor arterials (13 percent) and collectors (17 percent).

Vehicle delay is the difference between the actual time required to make a trip and the time that would be required if one were able to travel at free-flow speed. Output from the regional travel demand forecasting model indicated more than 55,000 hours of delay result each day from the suppressed operating speeds associated with traffic congestion. That represents 18 percent of all time spent travelling. One common measure of congestion is the ratio of traffic volume to roadway capacity. A ratio in excess of 1.00 indicates a roadway is carrying a higher volume of traffic than it is designed to support. The actual capacity of a given roadway depends on a number of factors, including the number of travel lanes, type of access, operating speed, lane width and so forth. The regional travel demand model generates a statistic representing the maximum *volume/capacity* (VOC) for each link in the network. Maximum VOC is the higher ratio when directional values are compared for a two-way street or highway. The base-year model calibrated to current conditions in 2013 yielded VOC as high as 1.20 on US 49 between the Crossroads Mall and Prime Outlets respectively north and south of I-10 in Gulfport. However, the highest ratios were registered for Promenade Parkway (1.26) and Indian River Road (1.25), two short routes which provide access to the Promenade Mall and Lakeview Village shopping district, respectively located immediately northwest and northeast of the I-10/I-110 interchange in D'Iberville.

ALTERNATIVE MODES - BICYCLE, PEDESTRIAN, TRANSIT

The availability of quality bicycle and pedestrian facilities is an important indicator of how well an area provides for the mobility of residents and visitors. Within the Mississippi Gulf Coast Metropolitan Planning Area (MPA) there are approximately 48 miles of designated shared-use roadways (i.e., signed bike routes), four times the number of signed miles (12) in 2010. There are 20 miles of shared-use (multiuse) pathways, more than doubling the number (8.5) available in 2010. There are 36 miles of bike lanes, up slightly from the 2010 total (33). Local communities around the region are embracing opportunities to expand their bicycle networks. Coast Transit Authority (CTA) has also done its part to make cycling a realistic travel option through the transit operator's highly successful Bike 'n Bus Program. The installation of front-mounted bicycle racks on CTA vehicles enables an individual to make a trip by combining alternative modes.

Sidewalks are currently not prevalent outside the downtown districts and older residential neighborhoods in the incorporated municipalities, although they are increasingly included in newer developments. Nevertheless, efforts to upgrade bicycle and pedestrian facilities in the area are steadily gaining momentum. The MPO Complete Streets Policy will encourage local jurisdictions to include sidewalks in their plans for new streets or roadway improvements. Today central business districts reconstructed after Hurricane Katrina in Bay Saint Louis, Pass Christian, Gulfport, Biloxi, Ocean Springs, Gautier and Moss Point feature wide sidewalks and pedestrian amenities such as benches, crosswalks and signals enabling those on foot to cross streets safely. The beachfront boardwalk in Harrison County was also rebuilt following the storm.

PUBLIC TRANSIT

CTA currently operates buses on nine regularly scheduled routes and provides demand-response paratransit service for qualified individuals who live in the area. The agency also sponsors a highly successful commuter vanpool service for Mississippi Gulf Coast workers who live outside the metropolitan area. The CTA offices, bus storage and maintenance facilities are centrally located on DeBuys Road in Gulfport immediately west of the Biloxi city limit. Transit centers in Gulfport and Biloxi provide parking and passenger accommodations and serve as the principal transfer points for routes radiating outward from those centrally located facilities. A third transit center built in D'Iberville opened for business early in 2015, and Edgewater Mall in Biloxi continues to operate as a major transfer point. CTA scheduled operations extend into all three Mississippi Gulf Coast counties and five different cities: Gulfport, Biloxi and D'Iberville in Harrison County; Ocean Springs in Jackson County; and Bay Saint Louis in Hancock County. CTA experienced phenomenal growth in the years following Hurricane Katrina with total ridership exceeding one million in 2011 and each of the succeeding three years. However, ridership began to decline in FY 2014 and then fell off drastically in FY 2015 as the price of gasoline collapsed. Over the past two years the loss in total ridership exceeded 260,000 passengers, falling to fewer than 875,000 riders.

FREIGHT ~ AVIATION ~ SAFETY

The safe, reliable and efficient movement of freight, both within and through the metropolitan area, is essential for the maintenance and growth of the regional economy. Highways, railroads, airports and maritime ports are all vital components of the Mississippi Gulf Coast freight transportation system. There are two major freight corridors in the Mississippi Gulf Coast Metropolitan Planning Area (MPA) for shipping goods by truck, Interstate 10 and US 49. There are four railroads for moving goods by rail; three airports that accommodate both airborne shipping and passenger air travel; three maritime ports providing access to the Gulf of Mexico; and a waterway for movement between the gulf and inland industrial facilities. There four railroads include the CSX Transportation (CSXT) line, Kansas City Southern Railway (KCS), Mississippi Export Railroad (MSE) and Port Bienville Railroad (PBVR). CSXT and KCS are Class I railroads; MSE and PBVR are Class III shortline railroads. The CSXT line runs east and west along the Mississippi coast, connecting New Orleans and Mobile. KCS operates on a north-south rail line that has its southern terminus in the Mississippi State Port at Gulfport. MSE is a 42-mile railway between the Port of Pascagoula and Evanston in George County where it connects to the Canadian National Railways line between Hattiesburg and Mobile. Port Bienville Railroad is a 7.5-mile shortline providing service between the port and the CSXT mainline rail junction in the vicinity of Ansley.

AVIATION

There are three publicly owned commercial and general aviation airports in the Mississippi Gulf Coast MPA, one in each of the three counties. The principal location for commercial airline service is Gulfport-Biloxi International Airport in Harrison County. Stennis International Airport in Hancock County provides general aviation facilities and services in proximity to the National Aeronautics and Space Administration's Stennis Space Center. Trent Lott International Airport provides the same services in Jackson County for the benefit of the general public and corporations engaged in heavy industry in and around Pascagoula.

SAFETY

Safety Analysis Management System (SAMS) data, provided by the Mississippi Department of Transportation (MDOT), were used to georeference crash reports for the period from 2011 through 2013. The crash records included the time and location of the accident, its severity, and local conditions at the time of the collision. A total of 27,592 crashes occurred within the study area: 154 resulted in fatalities, and 8,475 involved injuries. There were in excess of 9,000 crashes in each of the three years, and in each year more than half of all crashes occurred in Harrison County. Approximately 75 percent of all crashes occurred between 8 a.m. and 8 p.m. Rear-end collisions were far and away the most frequently recorded type of crash (37.2 percent). Pedestrians were involved in 246 traffic accidents, 22 of which resulted in fatalities. Bicyclists were involved in 98 crashes, including two fatal accidents.

FUTURE TRAVEL FORECAST

The updated Mississippi Gulf Coast Area Regional Travel Demand Forecasting Model developed for the 2040 Metropolitan Transportation Plan (MTP) is driven by a land-use and demographic database assembled by Gulf Regional Planning Commission (GRPC). Input data include base-year population, housing, employment, hotel and motel occupants, school attendance, and casino gaming area and positions. These data were used to calibrate the model to actual traffic conditions in 2013 by first estimating the number of trips produced and attracted within each of the 798 traffic analysis zones in the study area. GRPC also developed a long-range data forecast used to generate trips for the short-term (2020), intermediate (2030) and long-range (2040) planning years. Projected future travel was then assigned to the existing network, expanded to include committed improvements already programmed for implementation, in order to identify potential deficiencies likely to occur absent additional improvements.

LAND-USE AND DEMOGRAPHIC FORECAST

The land-use and demographic data forecast projected total population in the Mississippi Gulf Coast Metropolitan Planning Area (MPA) would increase by a little less than 22 percent between 2013 and 2040, growing by 80,000 to more than 450,000. The largest absolute increase (50,000) was forecast to occur in Harrison County, the largest relative increase (33 percent) in Hancock County. Establishment-based employment was projected to increase by nearly 27 percent from a little more than 196,000 to more than 249,000 employees. As with population, projected employment growth was concentrated largely in Harrison County (more than two-thirds of the 52,000 new employees) with Hancock County again showing the largest relative gain (44 percent).

FUTURE SYSTEM PERFORMANCE

The travel demand model was calibrated to actual traffic in the base year using a street and highway network that included all major roads as well as some local streets required for continuity. The Existing-Plus-Committed (E+C) network, incorporating changes made since the base year and improvements already programmed, was subsequently developed to represent the baseline case for testing alternatives. Model output data for the E+C network assignment generated with 2040 input data were compared with the 2013 base-year model results to derive an overall picture of how system performance would likely be affected if no additional improvements were made. The comparison indicated that a projected population increase exceeding 21 percent would result in 25 percent more trips, adding about eight-tenths of a mile and two minutes to the average trip. This would lead to increases in vehicle miles traveled (36 percent), vehicle hours traveled (45 percent) and vehicle hours of delay (90 percent). The delay share of total travel time would expand from less than 15 percent to almost 20. The added traffic congestion associated with increased delay would reduce the average operating speed by more than 1.5 miles per hour. This potential decline in system performance is what the long-range transportation plan seeks to avert by recommending measures needed to prevent or mitigate deteriorating conditions.

FUTURE TRAVEL NEEDS - ROADS AND BRIDGES

The transportation system of the future will need to provide for increased travel demand and an increasing diversity of needs arising from evolving patterns of land use and development, economic activity and social interaction. It is expected that in 25 years, with nearly 80,000 additional residents making almost 400,000 trips daily, the number of vehicle miles traveled (VMT) on the Existing-plus-Committed (E+C) network would exceed VMT on the 2013 base-year network by approximately 4.45 million or 36 percent. The resulting increase in vehicle hours traveled (VHT) would be approximately 132,000 or 43 percent. That additional time spent traveling would include about 52,000 more vehicle hours of delay (VHD), a 93 percent increase over 2013. In the absence of any additional improvements to the transportation system, beyond those already funded, the added travel demand resulting from fairly moderate population growth would result in significantly greater traffic congestion and reduced operating speeds. The portion of overall travel time attributable to delay caused by congested conditions would increase from 18 percent in 2013 to almost 25 percent in 2040, and the average operating speed would decrease by about two miles per hour across the system.

CAPACITY AND CONDITION OF ROADS AND BRIDGES

The base-year network assignment showed a fairly limited number of generally short street or highway segments with volume/capacity (VOC) greater than 1.00, but the number is expected to triple (to 21) by 2040 if improvements other than those already committed are not made. Some of these anticipated roadway capacity deficiencies may need to be addressed by widening existing roadways; others may not be soluble except by providing new route alternatives. Nevertheless, it is important to note that in some cases it may be more appropriate to apply Intelligent Transportation Systems (ITS) solutions such as interconnected traffic signals or reversible travel lanes; or the situation may call for employing Transportation Demand Management (TDM) strategies and/or improved bicycle, pedestrian and transit facilities and services to encourage the use of alternative means of transportation.

In a 2013 report entitled *Mississippi's Transportation Infrastructure*, the Mississippi Department of Transportation (MDOT) presented a county-by-county assessment of projected needs related to state-maintained roads and bridges. Based on a two-year program of inspections that rated bridge and pavement condition in accordance with state and federal standards, the report identified long-range rehabilitation-related costs in the three Mississippi Gulf Coast counties totaling \$76.79 million for pavement on highways, \$92.36 million for bridges on the statewide system maintained by MDOT, and \$79.88 million for county bridges under the jurisdiction of the Office of State-Aid Road Construction (OSARC). Total needs for the individual counties amounted to \$53.38 million in Hancock County, \$107.32 million in Harrison County, and \$88.33 million in Jackson County. The grand total for the area as a whole was \$249.04 million.

FREIGHT TRANSPORT - BICYCLE AND PEDESTRIAN NEEDS

The principal Mississippi Gulf Coast highway freight corridor is Interstate 10 (I-10) from the Louisiana line on the west to the Alabama border on the east. The principal north-south routes intersecting I-10 are US 49 in Gulfport and MS 63 in Pascagoula. The three coastal counties intersected by the I-10 corridor account for 13 percent of both population and employment in Mississippi. Ingalls Shipbuilding, the state's largest employer with over 13,000 employees, is located in the I-10 freight corridor. Within the metropolitan area the corridor serves three major maritime ports located on the Gulf of Mexico, including deep-water ports in Gulfport and Pascagoula. Truck freight is the dominant mode of goods transport in the area, and it is expected to grow from 61 percent of total freight in 2011 to 65 percent in 2040.

The Hancock County Port and Harbor Commission is pursuing plans to install approximately 24 miles of new track to connect the existing Port Bienville Railroad (PBVR) to the Norfolk Southern (NS) mainline at Nichols. This long-contemplated addition to the shortline railroad will make it possible to ship incoming freight north on the NS line, as well as east and west on the CSX Transportation (CSXT) railroad, which has long been the only option. Another notable freight railroad initiative moved a step closer to implementation when Kansas City Southern (KCS) entered into an agreement with the Mississippi State Port Authority (MSPA) in 2015 to upgrade the line leading north from the Mississippi State Port at Gulfport to Hattiesburg. Pending improvements will render the KCS rail line capable of carrying standard 286,000-pound cars and double-stack trains, an enhancement of the regional freight transportation network that has long been considered an essential element of plans for improving access to the state's principal seaport.

BICYCLE AND PEDESTRIAN NEEDS

While significant progress has been made in the development of bicycle and pedestrian facilities in the metropolitan area, the demand for non-motorized travel continues to grow, spurring efforts to provide sidewalks, bike paths, safe routes for cycling and multiuse pathways for both pedestrians and those riding bicycles. In addition to the local improvements designed to meet mobility needs within residential, commercial and recreational areas, there is a larger need for development of a regional network, serving longer trips between different sections of a city or even between cities. GRPC planners have sketched a network of separated paths, radiating from a spine defined by the Highway 90 corridor. Developed over time, the separated-path network will improve bicycle mobility and increase connectivity throughout the Mississippi Gulf Coast area. North-south routes would radiate inland from the coast along major roadways such as Beatline Road and County Farm Road, Highway 49, Popp's Ferry Road, Highway 609 and the Gautier-Vancleave Road. Some segments of these routes would not be suitable for the installation of separated paths but could be adapted to accommodate bicycle travel safely.

PUBLIC TRANSPORTATION NEEDS

The overarching issue with respect to public transportation on the Mississippi Gulf Coast is the lack of a stable source of local funding adequate to match Federal funds available for transit operating and capital expenditures. Local funding is appropriated annually by participating cities and counties from their general funds, forcing Coast Transit Authority (CTA) to compete year after year with other community services seeking public support. As a result, CTA has had to rely more heavily than most transit agencies on its ability to generate revenues from fares and other sources. During the period from 2010 through 2013, the share of CTA fixed-route transit operating expenses covered by fare revenues increased steadily, topping out at a little less than 19 percent. However, while data for 2014 are not yet available from the National Transit Database (NTD) it is apparent that since 2013 ridership and fare revenues have been adversely affected by the collapse of oil prices and resulting low cost of gasoline to the consumer. CTA data indicate ridership on regularly scheduled routes was down by more than 85,000 passengers from 2013 to 2014 and fell another 140,000 in the 2015 operating year. The aggregate local contribution to transit operations has declined in absolute terms in recent years, forcing cutbacks that have adversely affected ridership. Moreover, as noted in the 2010 Transit Development Plan (TDP), the local percentage share of operating funds has been decreasing since 2001. Thus, the impressive expansion of ridership in the years following Hurricane Katrina was achieved in spite of contracting local support for the system.

MAINTAINING THE EXISTING SYSTEM

The immediate challenge confronting CTA is to maintain the existing system, consolidating the gains made following Katrina, in order to provide a stable platform for future growth and expansion. Two modifications proposed for implementation during the initial five-year planning period from 2016 to 2020 could significantly improve fixed-route transit operations. The first would eliminate so-called "hail stops" made when someone wishing to board flags down a bus at a non-designated location. The second would eliminate non-essential route deviations made to provide front-door pickups where curbside stops would suffice and save valuable time.

Another needed important involves reducing the time between scheduled trips in order to increase the frequency of service. Headways presently range from 45 to 90 minutes. CTA proposes to reduce 45-minute headways to 30 minutes wherever possible and to cut 90-minute trip intervals to 60 minutes. These measures might require additional equipment and operating funds, but they are essential if the transit system is to build a solid base of support among riders who consider bus service to be a convenient and reliable alternative to private-vehicle travel. Additional measures, such as reducing travel distance by shortening or redirecting routes, can also contribute to lessening the time between scheduled trips. Proper maintenance of rolling stock and replacement of aging vehicles are also necessary measures if the transit system is to be kept in a state of good repair and service is to remain safe and reliable.

TRANSIT FACILITIES AND OPERATIONS

Coast Transit Authority (CTA) currently has on order seven new low-floor hybrid-electric buses with reclining seats, overhead luggage racks, wireless internet and electrical outlets. These vehicles will have a major impact on the public perception of transit as an alternative to driving. The implementation of new technology will also serve to pique interest in enhanced transit service: The *RouteShout* mobile app launched in 2015 allows riders to find out where a bus is located and when it will arrive at a specified stop.

Parallel paratransit service will necessarily grow as the fixed-route system expands, and the ADA Paratransit Plus operation will eventually provide transportation for qualified individuals throughout all three Mississippi Gulf Coast counties. CTA also remains committed to its highly successful commuter ridesharing program, operated under contract by vRide, and will continue its outreach to large employers and efforts to provide parking and associated facilities needed to new patrons. In addition, the Bike-n-Bus program has been extremely successful in attracting riders from among the cycling population.

UPGRADING FACILITIES

CTA is in the process of finalizing plans for expansion of the Gulfport Transit Center into the adjacent structure which served as the Gulfport Main Library for many years prior to Hurricane Katrina. The structure, gutted by the storm and abandoned by the Harrison County Library System, will be rehabilitated and reconfigured to serve as a multimodal transportation center. An elevated pedestrian bridge and tramway, spanning Highway 90, will facilitate direct access to Jones Park and the Mississippi Sound waterfront. CTA also plans to locate transit super-stops and park-and-ride facilities at new hubs located at key transfer-points for travel in the region: the Interstate 10 (I-10) interchange with US 49; the I-10 interchange with I-110; and in the proposed Coliseum Hotel and Convention District at the intersection of US Highway 90 (US 90) and extended Popp's Ferry Road. In order to optimize planned express bus service in the Highway 90 corridor, CTA will pursue the installation of *transit signal priority* equipment on traffic lights and buses to facilitate the movement of transit vehicles approaching congested intersections.

EXPANSION OF THE EXISTING SYSTEM

In addition to improving existing service, CTA intends to expand the fixed-route transit network to areas where latent demand is presently unmet. A key objective relates to the need for more service connecting east-west routes in the older urban areas located along the Mississippi Sound to the areas that have been annexed or incorporated in the years since the City of D'Iberville achieved municipal status in 1988. Gulfport, Biloxi and Gautier have all annexed large areas lying north of their old city limits, and more recently, residents of the Diamondhead community in Hancock County voted to incorporate. There are now a dozen incorporated municipalities in the region and only half of them enjoy transit service.

FINANCIAL ANALYSIS

In forecasting how much funding can reasonably be expected from Federal, state and local sources, the financial analysis proceeded under the assumption that expenditures over the next 15 years will be consistent with spending during the past 15 years. The Mississippi Department of Transportation (MDOT) facilitated this approach by providing a database listing all transportation expenditures in Hancock, Harrison and Jackson counties during the 15-year period from 1999 through 2013. Total spending for transportation improvements during that period amounted to more than \$1.493 billion in actual dollars. Adjusting for inflation yielded a total of over \$1.748 billion in 2013 dollars. Of that total more than 83 percent went to construction projects, and 62 percent of all construction funds were expended on new bridges, almost all of it on replacement of the two U.S. Highway 90 bridges destroyed by Hurricane Katrina. Roadway construction costs accounted for roughly 28 percent of the construction total, leaving 10 percent for new interchanges, roadway widening and overlay projects, bicycle and pedestrian facilities and intersection improvements. Road and bridge maintenance accounted for nearly 12 percent of all money spent on transportation. The balance of five percent or so was expended for facilities and equipment – street lighting and safety improvements, traffic signals, and roadside or right-of-way enhancements such as rest stops, visitor centers and landscaping – as well as non-roadway-related projects.

PROJECTED FUTURE FUNDING

In order to establish a basis for projecting the amounts that would be available for use in each of the three plan stages (2016-2020, 2021-2030, 2031-2040) the categorized costs were annualized. This yielded an average annual overall expenditure of \$116.58 million for the period from 1999 through 2013 after adjusting for inflation. Of that total more than \$97 million related to construction projects, including \$60 million for bridges and \$28 million for roads. The huge expenditures required to replace the Highway 90 bridges represented a one-time emergency infusion of funds that cannot be expected to recur on a regular basis. Therefore those costs were eliminated from further consideration in the analysis. In forecasting short-term funding for local projects, the historical data were set aside in favor of amounts included in the current fiscally constrained Statewide Transportation Improvement Program (STIP). Federal regulations contain an explicit requirement that project costs be expressed not in real dollars but in "year of expenditure dollars." Therefore, the average annual expenditure amounts previously developed for the base year (2013) were first updated to 2015 dollars, assuming an annual inflation rate of one percent. The same rate was then applied to all succeeding years from 2016 through 2040 in order to calculate the projected availability of funds for all categories and sub-categories of transportation improvements, yielding the following projected total amounts:

- 2016-2020 \$ 256,811,419
- 2021-2035 \$ 553,590,961
- 2031-2040 \$ 611,508,825

PROJECT DEVELOPMENT AND EVALUATION

Proposed improvements were evaluated based on goals and objectives adopted by the Metropolitan Planning Organization (MPO) Transportation Policy Committee (TPC). To the extent possible, the anticipated benefits of a project were quantified and monetized. Travel time-savings likely to result from an improvement that would reduce traffic congestion or provide a faster alternative route were particularly amenable to this approach. The regional travel demand forecasting model was used to generate traffic assignments with and without a proposed improvement, and the difference in vehicle hours traveled (VHT) was used to quantify potential time-savings. The analysis separated time-savings attributable to trucks from those accruing from improved passenger-vehicle travel and assigned appropriate monetary values to each. The value of time that would be saved by making the improvement was then compared to the cost that would be incurred in its implementation in order to derive a benefit/cost ratio with which to measure its effectiveness relative to other actions under consideration. Safety benefits related to reduced accidents, injuries and deaths were subjected to similar analysis.

CONGESTION MANAGEMENT AND QUALITY OF LIFE

In connection with development of the 2040 Metropolitan Transportation Plan (MTP), the Gulf Regional Planning Commission (GRPC) Congestion Management Program (CMP) and travel demand forecasting model were updated. These important tools help planners identify areas of current and potential future congestion and to quantify the associated travel delay. Results generated by these tools were used in evaluating and prioritizing proposed transportation projects based on anticipated benefits. While increasing traffic is often advantageous for retail business establishments, residential neighborhoods can be adversely affected by higher volumes and vehicle speeds. They may bring noise, safety and air quality impacts or undermine community cohesion. Measures may be required to mitigate such effects, or it may be necessary to alter or forego a project likely to have excessive adverse impacts such as these. The analysis also sought to account for the benefits accruing from the diversion or slowing of traffic passing through residential areas.

Other potential benefits taken into consideration in evaluating proposed projects included those resulting from enhanced system connectivity; those attributable to the safer and more expeditious movement of freight within the urban area; those related to the facilitation of better transit operations; and those contributing to the economic well-being of the area. Connectivity benefits play an important part in maintaining and expanding the functionality of the transportation system. Freight-related benefits enhance the overall performance of the transportation system by supporting the efficient interaction of different modes and reducing conflicts between passenger-vehicle and truck traffic. Projects that improve the efficiency of transit benefit the entire area by helping to reduce the overall volume of traffic on arterial routes, and those that enhance the area's ability to attract new business strengthen the economic sustainability of the region for years to come.

FISCALLY CONSTRAINED LONG-RANGE PLAN

The Staged Improvement Program presents a fiscally constrained plan for meeting the projected future needs of people traveling in the Mississippi Gulf Coast Metropolitan Planning Area (MPA) by auto, truck, bicycle, or on foot; for work, shopping, personal business, recreation or any other purpose. Future funding amounts were projected for four categories: *Alternative transportation improvements* such as sidewalks, bicycle paths and facilities supporting access to transit; *Road improvements* such as adding lanes, reconstructing existing routes, building new roads or modifying intersection geometry; *Safety improvements* such as roadway lighting, signage, signalization or railroad crossing protection devices; and *Interstate and interchange* improvements such as adding lanes, modifying existing interchanges or constructing new ramps to enhance access to the interstate system. The analysis yielded a projected total amount available for transportation improvements over the next 25 years of \$999 million or just under \$40 million per year.

In accordance with FHWA regulatory guidance, funds projected to be available are expressed in *future dollars* based on the assumption that the real value of the currency will decline over time. The Bureau of Labor Statistics *Consumer Price Index (CPI) Inflation Calculator* indicates that the purchasing power of the dollar has decreased by less than one percent per annum in each of the last two years, and the overall decline over the past seven years has been less than 10 percent. In the absence of any reason to expect a significant deviation from the current trend, the assumption was made that inflation would continue at or near its present rate for the foreseeable future. The projected total funding amount of \$999 million over 25 years is based on an assumed annual inflation rate of one percent. The total amount projected to be available includes \$29 million for alternative transportation improvements, \$75 million for safety enhancements, \$780 million for road improvements and \$115 million for interstate highway improvements. The amount programmed for local improvement projects is \$196 million. Funding for projects to be sponsored by the state (or others) amounts to \$803 million or 80 percent of the total.

CONTENT OF THE PROGRAM

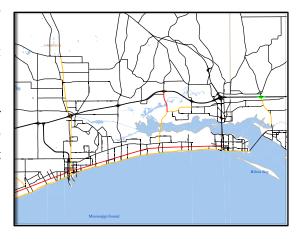
Approximately half of the projects listed in the Stage 1 (2016-2020) short-term program component are included in the *Statewide Transportation Improvement Program: Fiscal Years 2015-2019*. The Stage 2 (2021-2030) component addresses the projected mid-term transportation needs of the region; the Stage 3 (2031-2040) component focuses on long-range requirements of the Mississippi Gulf Coast multimodal transportation system. The program includes interstate highway improvements, roadway construction, safety measures, intersection projects, bicycle and pedestrian facilities, and transit enhancements. The program also identifies projects which would benefit the region but do not fit into the fiscally constrained long-range budget at this time. In the absence of additional resources, these *unfunded projects* will not be implemented due to the lack of adequate state or local funds to match federal grants.

PROJECTED EFFECTIVENESS OF PLANNED IMPROVEMENTS

In order to assess the probable effectiveness of roadway capacity projects included in the Staged Improvement Program, travel demand model assignments were generated for each of the program components (2020, 2030 and 2040) and compared to the base-year (2013) assignment for the existing network and the long-range (2040) assignment for the Existing-plus-Committed (E+C) network. The results suggested that aggregate vehicle hours of delay (VHD) would increase by a little more than two-thirds, due to the greater volume of traffic, even if all projects in the Staged Improvement Program were implemented. However, in the absence of additional improvements beyond those included in the E+C network, the increase in VHD would likely exceed 82 percent. Under current conditions, more than 15 percent of the time spent traveling is attributable to delay. In the absence of additional improvements, VHD would expand to account for almost 20 percent of total travel time. The implementation of all roadway capacity enhancements in the Staged Improvement Program would hold the projected VHD share of total travel time to approximately 18.4 percent.

Average operating speed for all vehicles on the current roadway network is roughly 35.9 miles per hour (mph). Increasing congestion over the next 25 years is projected to reduce average operating speed to 34.1 mph without additional improvements beyond those already programmed. Implementation of the Staged Improvement Program would result in a lesser decrease to 34.8 mph. The probable effectiveness of the program was also analyzed in terms of its impact on projected volume-over-capacity (V/C) ratios

expected to exceed 1.00 at some point between the base year (2013) and the long-range planning horizon (2040). Seven roadways are already carrying volumes that exceed theoretical capacity. In the absence of additional improvements, that number would likely increase to 11 by 2040. However, model output indicated the number could be reduced to three by making all of the improvements included in the Staged Improvement Program.



STAGED IMPROVEMENT PROGRAM

The Staged Improvement Program is summarized in tabular form on the following four pages. This summary presentation is followed by four sets of figures, one for each stage, locating each proposed project in relation to the regional network of streets and highways. There are 15 figures in all, five of which serve to illustrate the numerous unfunded projects included in the plan for informational purposes. It should be noted, however, that any project included in the long-range plan can be advanced for implementation via the Transportation Improvement Program, assuming there are sufficient funds available at that time for its implementation.

STAGED IMPROVEMENT PROGRAM - STAGE 1 IMPROVEMENTS (2016-2020)

						PROJECTED COST			
LOCATION	ROUTE	FROM	то	CATEGORY	IMPROVEMENT	Local Projects	State Projects		
STAGE 1 (2016 - 2020) ESTIMATED AMOUNT AVAILABLE		•			\$ 49,180,820	\$ 132,420,906		
Bay Saint Louis	Old Spanish Trail	Main Street	Waveland city limit	Alternative Transportation	Pedestrian pathway lighting	\$ 800,800	\$ -		
Biloxi	Popp's Ferry Road	Cedar Lake Road	D'Iberville city limit	Road Improvements	Widen to 4-lane divided	\$ 4,006,003	\$ -		
Biloxi	Popp's Ferry Road	Pass Road	Beach Boulevard	Road Improvements	New 4-lane divided construction	\$ 2,704,000	\$ -		
D'Iberville	D'Iberville Blvd/Big Ridge Rd	I-10	I-110	Road Improvements	Widen to 4-lane divided	\$ 3,672,472	\$ -		
Gulfport	Dedeaux Road	Three Rivers Road	Highway 605	Road Improvements	Widen to 4-lane divided	\$ 3,750,000	\$ -		
Gulfport	Courthouse Road	Pass Road	US 90	Road Improvements	Add median, sidewalks, lighting	\$ 3,354,415	\$ -		
Harrison County	Lorraine Road	Biloxi River Bridge		Road Improvements	Bridge replacement	\$ 1,513,996	\$ -		
Pascagoula	Hospital Road	Old Mobile Highway	US 90	Road Improvements	Reconstruction	\$ 2,866,522	\$ -		
Moss Point	Main Street	Ely Street	Jefferson Street	Alternative Transportation	Construct sidewalks	\$ 555,000	\$ -		
Gautier	MS 57	Brown Road	[Intersection]	Road Improvements	New signal	\$ 125,000	\$ -		
Gautier	Martin Bluff Road	Gautier-Vancleave Rd	I-10 Frontage Road	Road Improvements	Reconstruction	\$ 3,328,004	\$ -		
Jackson County	LeMoyne Boulevard	Brittany Avenue	[Intersection]	Road Improvements	Signal, signage, striping	\$ 385,000	\$ -		
Jackson County	Highway 609	Old Fort Bayou Road	[Intersection]	Road Improvements	Realign, reconstruct intersection	\$ 1,867,050	\$ -		
Regional	Grouped Projects			Alternative Transportation		\$ 2,225,750	\$ -		
Regional	Grouped Projects			Safety Improvements		\$ 2,375,000	\$ -		
Regional	Grouped Projects			Safety Improvements		\$ -	\$ 9,734,129		
Jackson County	I-10 Connector	Daisy Vestry Road	Seaman Road	Road Improvements	New construction	\$ -	\$ 12,305,000		
Jackson County	Interstate 10	Highway 609	Gautier-Vancleave Rd	Interstate/Interchange	Widen to 6 lanes	\$ -	\$ 35,100,000		
Gulfport	Three Rivers Road	Crossroads Parkway	Seaway Road	Road Improvements	Widen to 4-lane divided	\$ 424,530	\$ -		
Gulfport	Landon Road	Hwy 49	34th Street	Road Improvements	Widen to 4-lane divided	\$ 2,492,000	\$ -		
Gulfport	Airport Road	Existing 4-lane	Washington Avenue	Road Improvements	Widen to 4-lane	\$ 687,500	\$ -		
Harrison	I-10	Lorrraine Road		Interstate/Interchange	Interchange improvements	\$ -	\$ 11,845,500		
Gulfport	Hwy 605	Magnolia Street	Pass Road	Road Improvements	Reconstruction	\$ -	\$ 1,224,300		
Jackson	Beachview Drive	Old Spanish Trail	Point Aux Chenes Rd	Road Improvements	Reconstruction	\$ 8,362,463	\$ -		
Gulfport	US 49	Dedeaux Road	[Intersection]	Safety Improvements	Intersection improvements	\$ -	\$ 636,000		
Gulfport	US 49	Creosote Road	[Intersection]	Safety Improvements	Intersection improvements	\$ -	\$ 636,000		
Pass Christian	North Street	High School	Pass Estates	Alternative Transportation	Sidewalks	\$ 566,000	\$ -		
Long Beach	Pineville Road	Railroad Street	Beatline Road	Alternative Transportation	Construct Separated Path PH 1	\$ 1,020,000	\$ -		
D'Iberville	Popp's Ferry Road	Gay Road	D'Iberville Boulevard	Alternative Transportation	Construct Separated Path PH 1	\$ 1,313,250	\$ -		
Ocean Springs	Border to Border - US 90			Alternative Transportation	Construct Separated Path PH 1-3	\$ -	\$ 10,123,500		
Gautier	Border to Border - US 90			Alternative Transportation	Construct Separated Path PH 1-3	\$ -	\$ 7,790,250		
Bay St Louis	Border to Border - US 90			Alternative Transportation	Construct Separated Path PH 1-3	\$ -	\$ 5,087,250		
Subtotal for Stage 1 P	Projects	Overall Total	\$ 142,876,684	4	Local/State Projects Total	\$ 48,394,755	\$ 94,481,929		
Balance Available for	Stage 2 Projects	Overall Balance	\$ 38,725,043	3	Local/State Projects Balance	\$ 786,066	\$ 37,938,977		

Note: Local Projects Amount Available includes \$14,901,320 in Surface Transportation Program (STP) carryover funds; \$2,500,000 in STP funds programmed for unspecified MPO uses; and \$555,000 in STP Non-Urban funds made available by the Mississippi Department of Transportation for local use.

Source: Gulf Regional Planning Commission; Mississippi Department of Transportation: Statewide Transportation Improvement Program: FY 2015-2019 for local project funding availability.

STAGED IMPROVEMENT PROGRAM - STAGE 2 IMPROVEMENTS (2021-2030)

						PROJECTI	ED COST	
LOCATION	ROUTE	FROM	то	CATEGORY	IMPROVEMENT		Local Projects	State Project
STAGE 1 (2016 - 2021) PF	ROJECTED CARRYOVER AMOUN	Т				\$	786,066	\$ 37,938,977
STAGE 2 (2021 - 2030) FS	TIMATED BASE AMOUNT AVAIL	ARIF				Ś	69,770,168	\$ 318,910,764
STAGE 2 (2021 - 2030) ESTIMATED BASE AMOUNT AVAILABLE								
	STIMATED TOTAL AMOUNT AVA		Indicate at Chata Bank	10	Ic	\$	10,000,000	\$ 356,849,741
Gulfport	Highway 601	Interstate 10	Mississippi State Port	Road Improvements	Construct new expressway	\$	-	\$ 59,902,400
Hancock County	MS 43	Kiln Bypass		Road Improvements	New construction	\$	-	\$ 60,523,200
Jackson County	MS 57	Interstate 10	Vancleave	Road Improvements	Realign and add 2 lanes	\$	-	\$ 87,200,000
Ocean Springs-Gautier	US 90	Hwy 609	Dolphin Drive	Road Improvements	Add 2 lanes	\$		\$ 37,571,700
Gulfport	Landon Road	US 49	34th Avenue	Road Improvements	Widen to 4-lane divided road	\$	2,783,030	\$
Biloxi	Pine Street	Back Bay Boulevard	US 90	Road Improvements	Construct 4-lane divided road	\$	2 766 075	\$ 14,769,000
Long Beach	Beatline Road Extension	Railroad Street	US 90	Road Improvements	New 4-lane construction	\$		\$ -
Gulfport	Dedeaux Road	Stewart Road	Hwy 605	Road Improvements	Road Improvements	\$,,	\$ -
Ocean Springs	Ocean Springs Road	Reilly Road	US 90	Road Improvements	Widen to 3-lane road	\$	9,973,500	<u>\$</u>
Biloxi	Popp's Ferry Road	Back Bay	Pass Road	Road Improvements	Widen to 4-lane divided road	\$	3,820,770	<u>\$</u>
Biloxi	Popp's Ferry Road	Riverview Drive	Back Bay of Biloxi	Road Improvements	Reconstruct as 4-lane road	\$	4,761,945	<u>\$</u>
Gulfport	Three Rivers Road	Angela Drive	Crossroads Parkway	Road Improvements	Reconstruct as 4-lane road	\$	1,551,840	<u>\$</u>
Biloxi	Division Street	Caillavet Street	Forrest Ave-Keesler AFB	Road Improvements	Widen to 4-lane divided road	\$	3,160,390	Ş -
Gulfport	Washington Avenue	Airport Road	54th Street	Road Improvements	Widen to 3-lane road	\$	1,950,780	<u>\$</u>
Gulfport	Hwy 605	Dedeaux Road	I-10	Road Improvements	Widen to 4-lane divided road	\$	-	\$ 1,252,390
Diamondhead	Gex Drive	Aloha Drive	Diamondhead Drive S	Road Improvements	Widen to 4-lane divided road	\$	2,393,580	\$ -
Harrison	I-10	County Farm Road	[Interchange]	Interstate/Interchange	Interchange Improvements	\$	-	\$ 11,175,000
Harrison	I-10	Hwy 609	[Intechange]	Interstate/Interchange	Interchange Improvements	\$	-	\$ 11,175,000
Biloxi	US 90	I-110	Keller Avenue	Road Improvements	Reconstruction	\$	-	\$ 4,197,600
Biloxi	US 90	Azalea Drive	I-110	Road Improvements	Reconstruction	\$	-	\$ 2,516,250
Gulfport	Pass Road	Cowan Road	Washington Avenue	Road Improvements	Reconstruction	\$	6,996,000	\$
Pascagoula	US 90	Hospital Road	Veterans Boulevard	Road Improvements	Reconstruction	\$	-	\$ 4,496,250
Hancock	Kiln-Delisle Road	Hwy 603	[Intersection]	Safety Improvements	Intersection Improvements	\$	738,000	\$
Gulfport	US 90	US 49	[Intersection]	Road Improvements	Intersection Improvements	\$	-	\$ 2,050,000
Jackson	US 90	Gautier-Vancleave Rd	[Intersection]	Safety Improvements	Intersection Improvements	\$	-	\$ 738,000
Gulfport	US 49	Landon Road	[Intersection]	Safety Improvements	Intersection Improvements	\$	-	\$ 738,000
Gulfport	US 49	O'Neal Road	[Intersection]	Safety Improvements	Intersection Improvements	\$	-	\$ 738,000
Gulfport	US 49	MS 53	[Intersection]	Safety Improvements	Intersection Improvements	\$	-	\$ 738,000
Ocean Springs	US 90	Hwy 609	[Intersection]	Safety Improvements	Intersection Improvements	\$	-	\$ 738,000
Jackson	MS 63	Hwy 614	[Intersection]	Safety Improvements	Intersection Improvements	\$	-	\$ 738,000
Gulfport	Pass Road	Cowan Road	[Intersection]	Safety Improvements	Intersection Improvements	\$	738,000	\$.
Gulfport	US 49	Community Road	[Intersection]	Safety Improvements	Intersection Improvements	Ś	-	\$ 738,000
Biloxi	US 90	White Avenue	[Intersection]	Safety Improvements	Intersection Improvements	\$	-	\$ 738,000
Jackson County	Hwy 609	Lemoyne Boulevard	[Intersection]	Safety Improvements	Intersection Improvements	Ś	-	\$ 738,000
Moss Point	MS 63	Grierson Street	[Intersection]	Safety Improvements	Intersection Improvements	\$	-	\$ 738,000
Bay St Louis	US 90	MS 43	[Intersection]	Safety Improvements	Intersection Improvements	Ś	-	\$ 738.000
Jackson	Hwy 613	MS 63	[Intersection]	Safety Improvements	Intersection Improvements	\$	-	\$ 738,000
Jackson	MS 63	Saracennia Road	[Intersection]	Safety Improvements	Intersection Improvements	\$	-	\$ 738,000
Ocean Springs	US 90	MS 57	[Intersection]	Safety Improvements	Intersection Improvements	\$	_	\$ 738,000
Gulfport	US 90	30th Avenue	[Intersection]	Safety Improvements	Intersection Improvements	\$	_	\$ 738,000
Bay St Louis	US 90	Blue Meadow Road	[Intersection]	Safety Improvements	Intersection Improvements	\$	-	\$ 738,000
Biloxi	Cedar Lake Road	Popps Ferry Road	[Intersection]	Safety Improvements	Intersection Improvements	Ś	738,000	<u>\$</u>
Biloxi	Cedar Lake Road	I-10	Popps Ferry Road	Road Improvements	Reconstruction	Ś	1,442,925	Ś
Regional	Grouped Projects	1		Alternative Transportation		Ś	2,458,610	\$
Regional	Grouped Projects			Safety Improvements		Ś	2,623,475	\$ 10,752,534
Subtotal for Stage 2 Proje		Overall Total	\$ 379,850,899		Local/State Projects Total	5	201,574,042	\$ 1,033,088,806
Balance Available for Sta		Overall Balance	\$ 47,555,075		Local/State Projects Balance	\$		\$ 676,239,065

Source: Gulf Regional Planning Commission.

STAGED IMPROVEMENT PROGRAM - STAGE 3 IMPROVEMENTS (2031-2040)

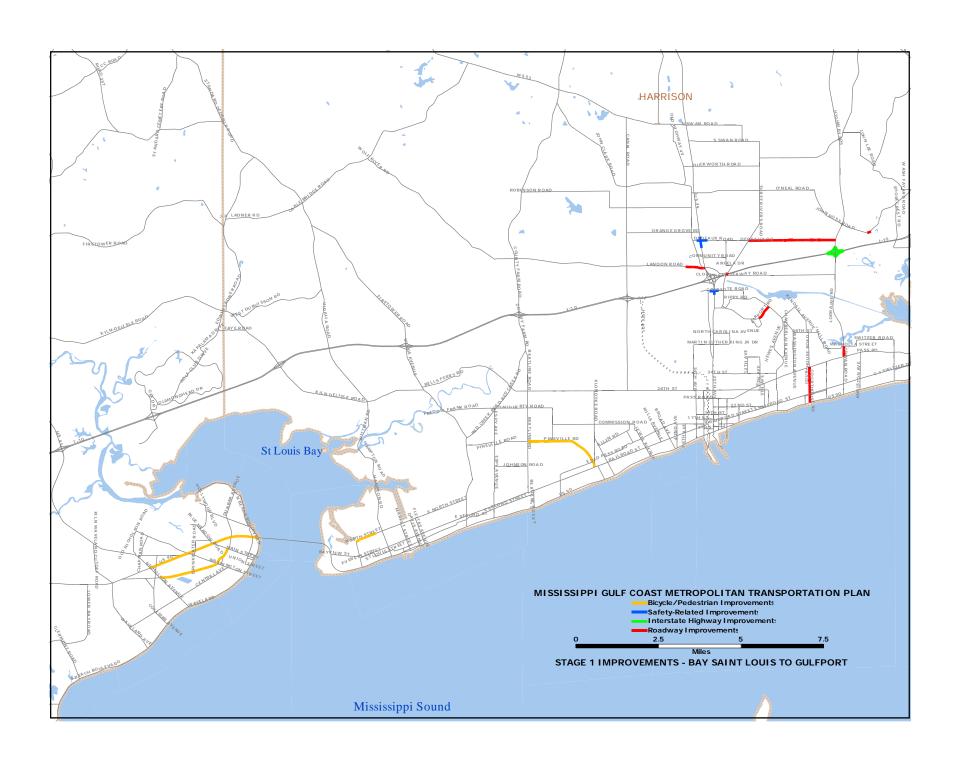
							PROJECT	ED (OST
LOCATION	ROUTE	FROM	то	CATEGORY	IMPROVEMENT		Local Projects		State Projects
STAGE 2 (2021 - 2030) PROJECTED CARRYOVER AMOUNT							10,094,659	\$	37,460,417
STAGE 3 (2031 - 2040) ESTIMATED BASE AMOUNT AVAILABLE							77,069,720	\$	352,275,836
STAGE 3 (2031 - 2040) ESTIMATED TOTAL AMOUNT AVAILABLE							81,432,575	\$	389,736,253
Gulfport	US 49	School Road	O'Neal Road	Road Improvements	Widen to 6-lane divided road	\$	-	\$	24,811,500
Harrison County	I-10	Diamondhead	Wolf River	Interstate/Interchange	Add lane each way	\$	-	\$	62,765,050
Gulfport	Canal Road	I-10	28th Street	Road Improvements	Widen to 4-lane road	\$	14,230,125	\$	_
Harrison County	County Farm Road	I-10	Red Creek Road	Road Improvements	Widen to 4-lane divided road	\$	5,637,705	\$	_
Jackson County	Ocean Springs Road	Reilly Road	Hwy 57	Road Improvements	Widen to 3-lane road	\$	10,705,500	\$	_
Jackson County	Old Fort Bayou Road	Washington Avenue	Yellow Jacket Road	Road Improvements	Widen to 3-lane road	\$	8,418,000	\$	_
Biloxi	Popp's Ferry Road	North Shore Back Bay	South Shore Back Bay	Road Improvements	Construct new 4-lane bridge	\$	=	\$	90,600,000
Jackson County	Seaman Road	I-10 Connector Road	Jordan Road	Road Improvements	Widen to 4-lane divided road	\$	7,992,848	\$	_
Gulfport	MS 53	US 49	County Farm Road	Road Improvements	Widen to 4-lane road	\$	=	\$	17,438,940
Hancock	I-10	Diamondhead Drive	[Interchange]	Interstate/Interchange	Interchange Improvements	\$	=	\$	16,762,500
Biloxi	Pass Road	DeBuys Road	Stennis Drive	Road Improvements	Reconstruction	\$	5,378,175	\$	-
Moss Point	Main Street	Dantzler Street	[Intersection]	Road Improvements	Intersection Improvements	\$	815,210	\$	-
Gulfport	US 49	Airport Road	[Intersection]	Safety Improvements	Intersection improvements	\$	-	\$	815,210
Regional	Grouped Projects			Alternative Transportation		\$	2,715,835	\$	-
Regional	Grouped Projects			Safety Improvements		\$	2,897,950	\$	-
Regional	Grouped Projects			Safety Improvements		\$	-	\$	11,877,490
Sub-Total for Stage 3 Projects Overall Total \$ 283,862,038 Local/State Projects Total					\$	58,791,348	\$	225,070,690	
Balance Available for Unfunded Projects		Overall Balance	\$ 187,306,790		Local/State Projects Balance	\$	22,641,228	\$	164,665,563

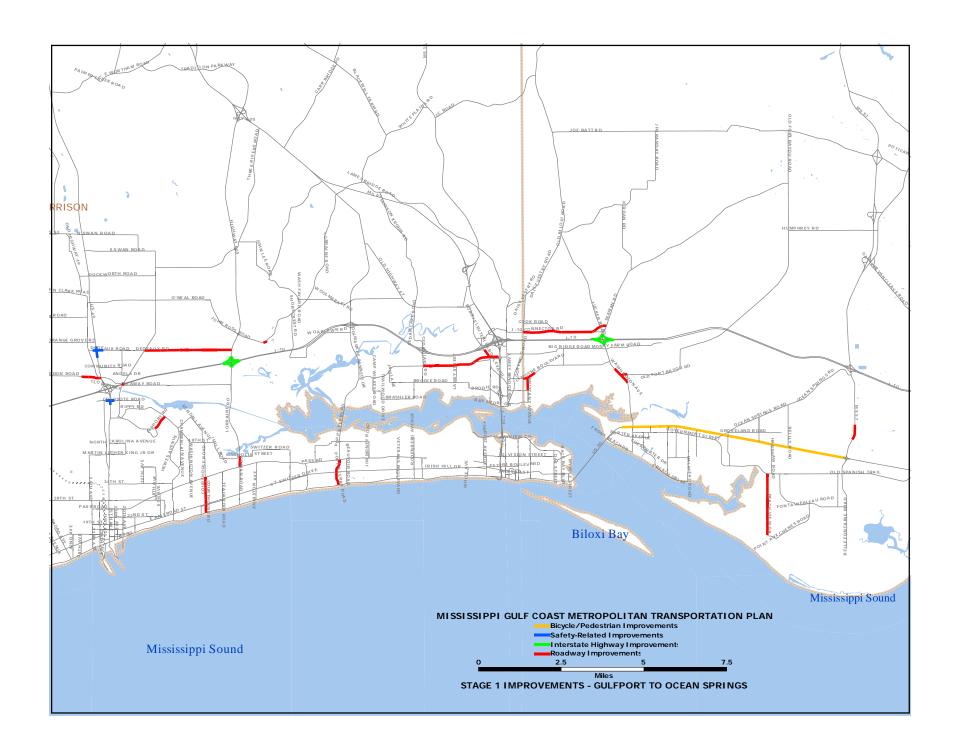
Source: Gulf Regional Planning Commission.

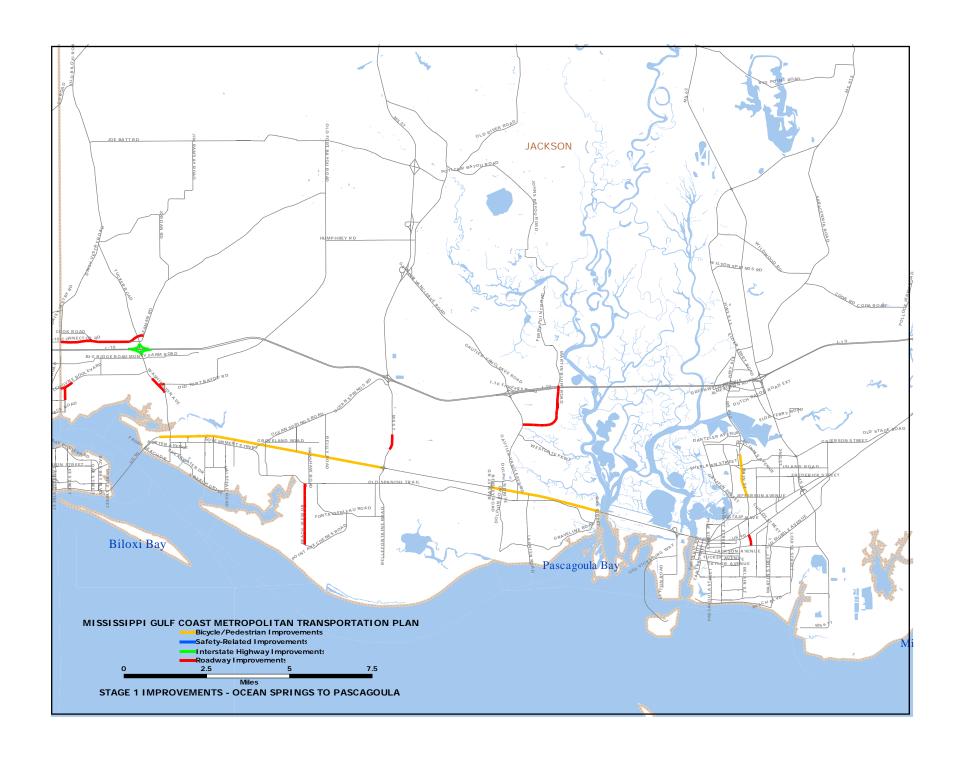
STAGED IMPROVEMENT PROGRAM - UNFUNDED IMPROVEMENTS

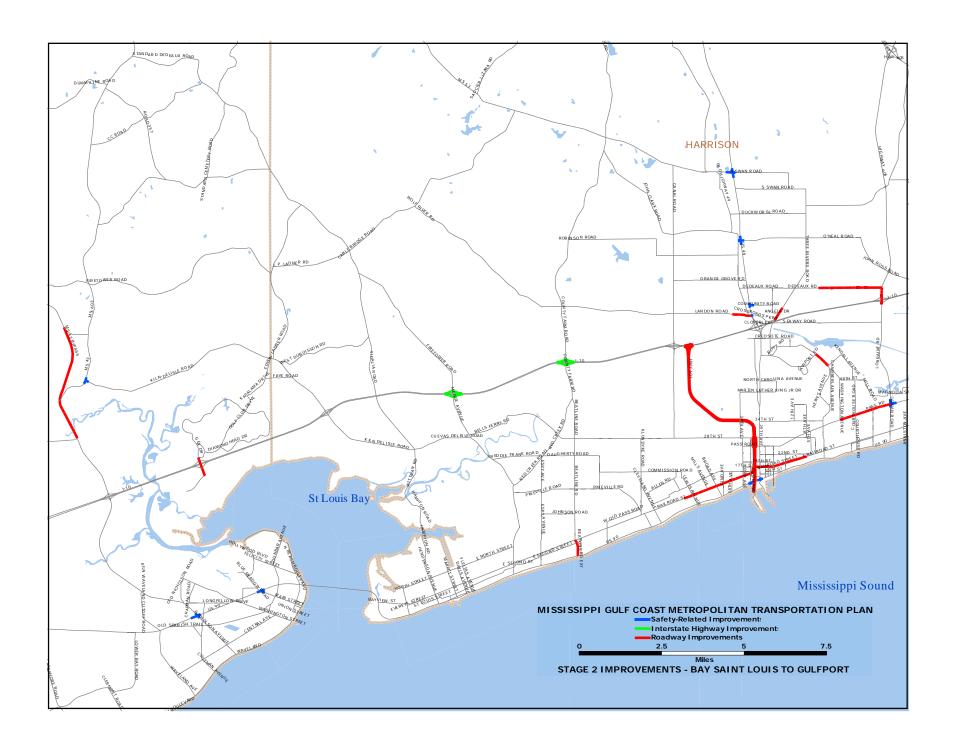
	ROUTE	FROM	то	CATEGORY	IMPROVEMENT		PROJECTE	D COST
LOCATION							Local Projects	State Projects
STAGE 3 (2021 - 2030) PROJECTED CARRYOVER AMOUNT						\$	22,641,228	164,665,563
Gulfport	East-West Corridor	US 49	Hwy 605	Road Improvements	Construct 4-lane roadway	\$	_ (56,067,500
Gulfport	East-West Corridor	Hwy 605	Popps Ferry Road	Road Improvements	Construct 4-lane roadway	\$	_ (41,298,500
Biloxi	East-West Corridor	Popps' Ferry Road	I-110	Road Improvements	Construct 4-lane roadway	\$	- 5	70,016,000
Gulfport/Long Beach	East-West Corridor	Jeff Davis Avenue	US 49	Road Improvements	Construct 4-lane roadway	\$	- 5	53,059,000
Long Beach	East-West Corridor	Beatline Road	Jeff Davis Avenue	Road Improvements	Construct 4-lane roadway	\$	- 5	30,768,750
Pass Christian	East-West Corridor	Henderson Point	Beatline Road	Road Improvements	Construct 4-lane roadway	\$	- 5	86,699,500
Biloxi	Woolmarket Connector	I-10	Popp's Ferry@Riverview	Road Improvements	Construct 4-lane roadway	\$	- 5	102,475,000
Hancock	I-10	Hwy 603	[Interchange]	Interstate/Interchange	Interchange Improvements	\$	- 5	16,762,500
Gautier	I-10	Hwy 57	[Interchange]	Interstate/Interchange	Interchange Improvements	\$	- 9	16,762,500
Ocean Springs	I-10	Menge Avenue		Interstate/Interchange	Interchange improvements	\$	- 5	11,845,500
Hancock County	I-10	Louisiana state line	MS 43	Interstate/Interchange	Add lane each way	\$	- 9	132,341,812
Biloxi	Border to Border - US 90			Alternative Transportation	Construct Separated Path PH 1-3	\$	- 9	7,535,250
Gulfport	Border to Border - US 90			Alternative Transportation	Construct Separated Path PH 1-3	\$	- 9	5,450,625
Long Beach	Border to Border - US 90			Alternative Transportation	Construct Separated Path PH 1-3	\$	- 5	4,806,750
Pascagoula	Border to Border - US 90			Alternative Transportation	Construct Separated Path PH 1-3	\$	- 9	10,123,500
Pass Christian	Border to Border - US 90			Alternative Transportation	Construct Separated Path PH 1-3	\$	- 5	6,706,500
Waveland	Border to Border - US 90			Alternative Transportation	Construct Separated Path PH 1-3	\$	- 5	2,907,000
Moss Point	Martin Luther King Blvd	Magnolia Street	Kreole Avenue	Alternative Transportation	Construct Separated Path PH 1-3	\$	3,812,250	-
Jackson County	Hwy 609	Fort Bayou Bridge	I-10	Alternative Transportation	Construct Separated Path PH 1-3	\$	- 5	3,391,500
Gulfport	US 49	Hwy 53	US 90	Alternative Transportation	Construct Separated Path PH 1-6	\$	- 3	11,985,000
Biloxi	Popp's Ferry Road	Cedar Lake Road	Pass Road	Alternative Transportation	Construct Separated Path PH 1-3	Ś	5,865,000	-
Long Beach	Pineville Road	Railroad Street	Beatline Road	Alternative Transportation	Construct Separated Path PH 2-3	\$	2,040,000	-
Long Beach	County Farm Rd-Beatline Rd	I-10	Railroad Street	Alternative Transportation	Construct Separated Path PH 2-3	\$	4,420,000	
Waveland	Central Avenue	Waveland Avenue	City Limits	Alternative Transportation	Construct Separated Path PH 1-2	\$	2,805,000	-
Bay St Louis	Central Avenue	City Limits	Washington St	Alternative Transportation	Construct Separated Path	\$	1,530,000	-
Total for Unfunded Proje	ects	Overall Total	\$ 691,474,937	1	Local/State Projects Total	\$	20,472,250	671,002,687
Balance of Funds Availa	ble (Lacking)	Overall Balance	\$ 504,168,146	5	Local/State Projects Balance	\$	(2,168,978)	506,337,124

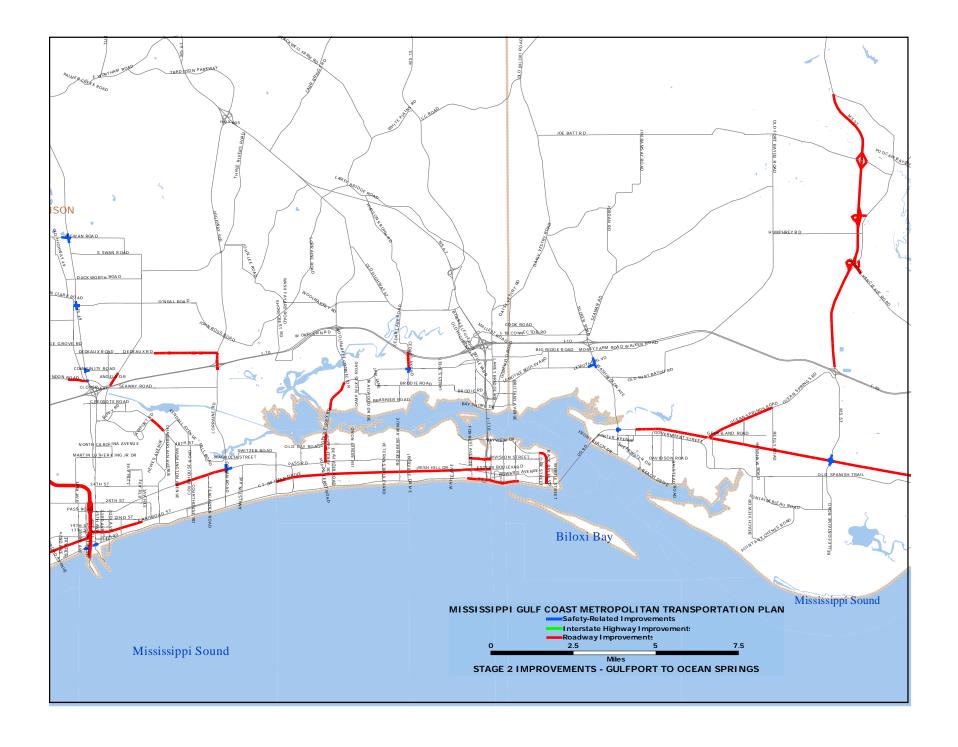
Source: Gulf Regional Planning Commission.

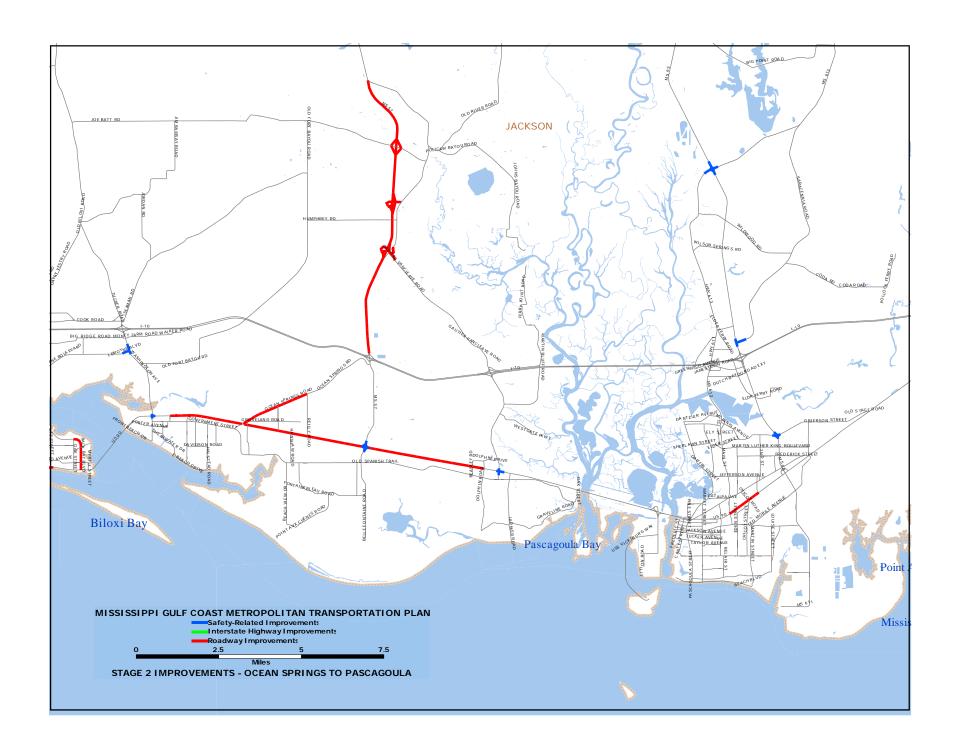


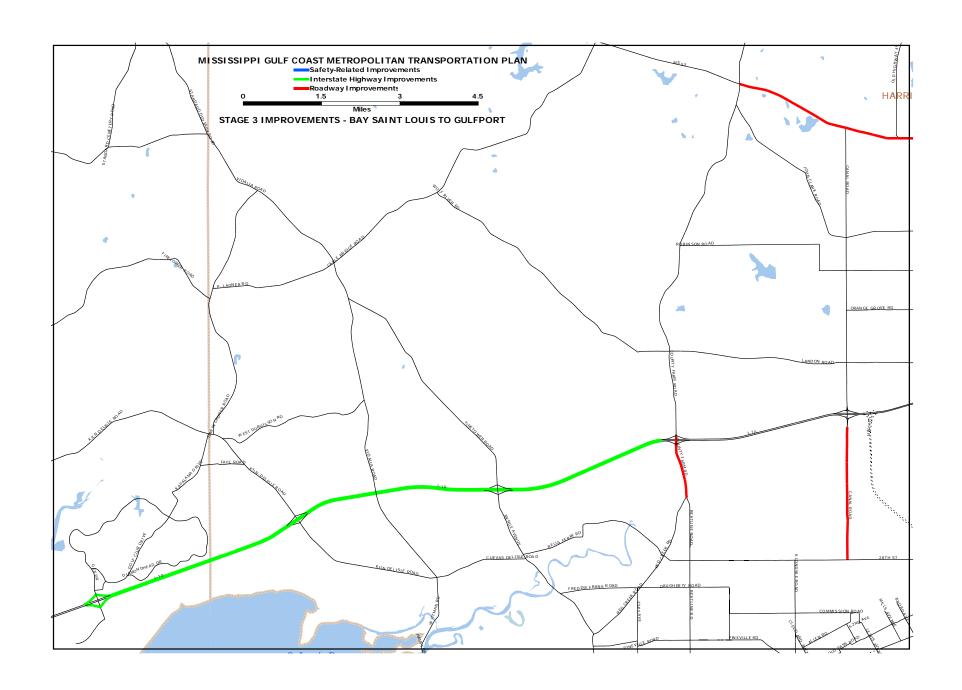


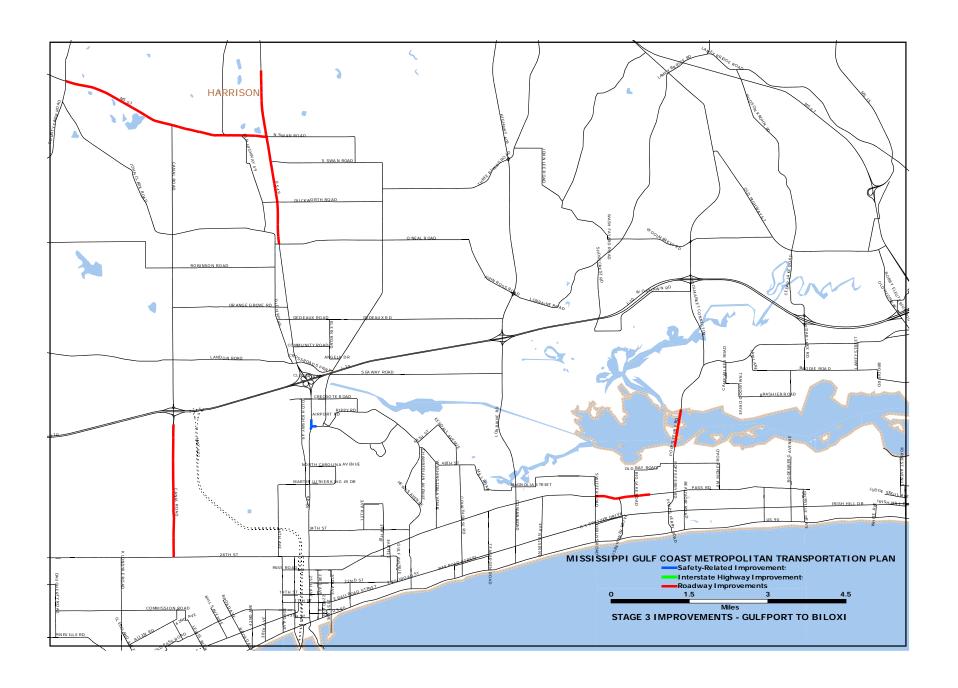


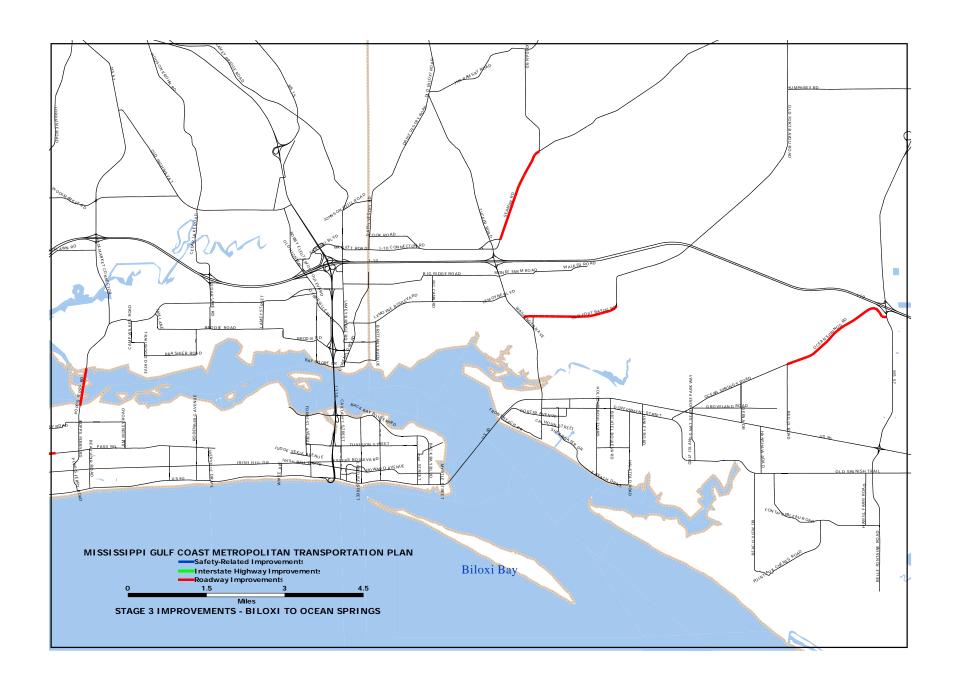


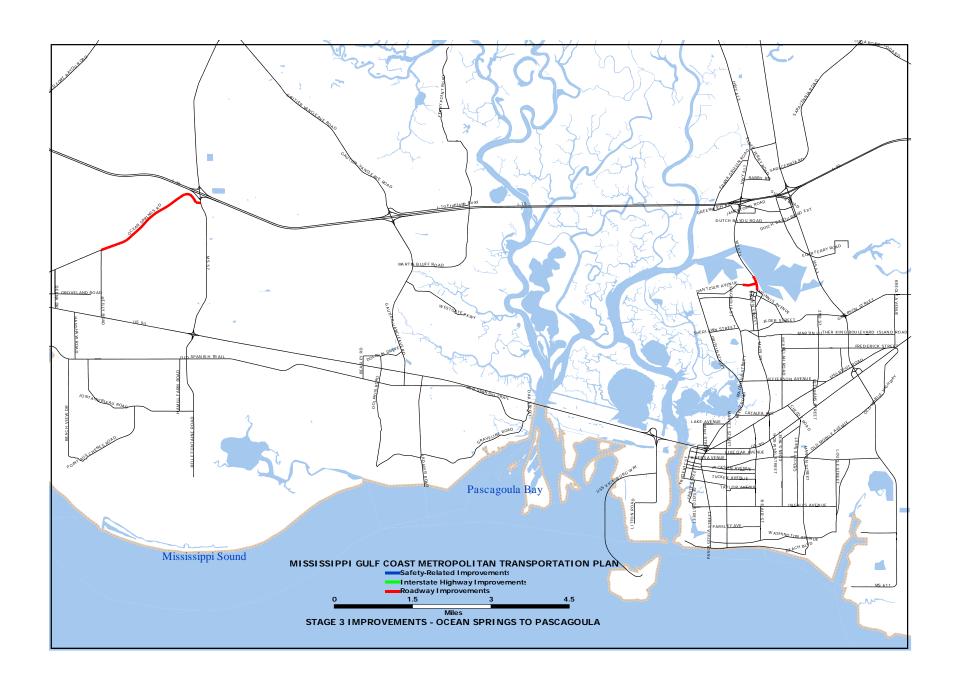


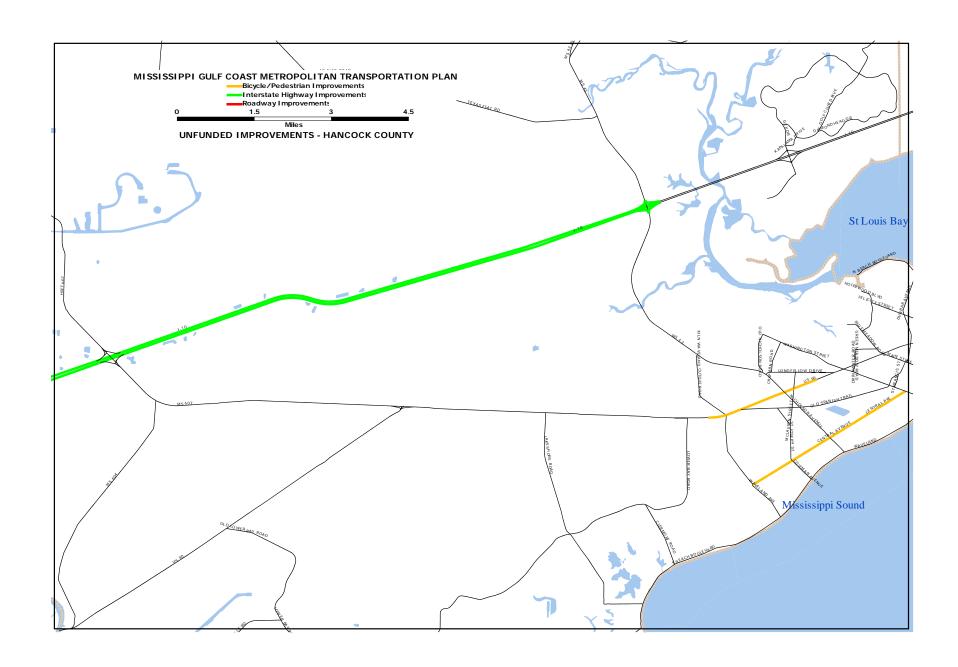


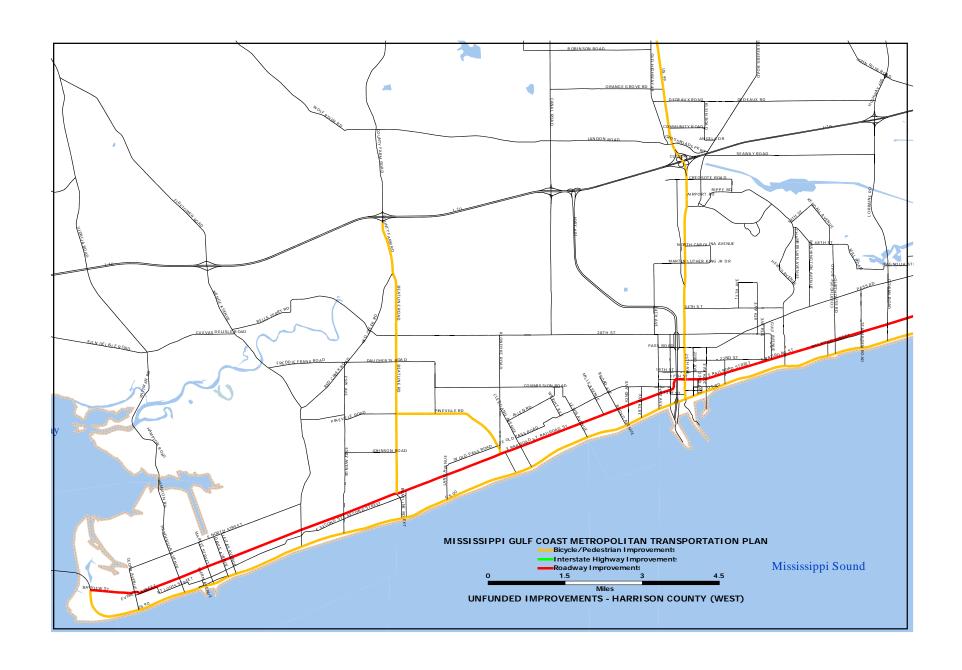


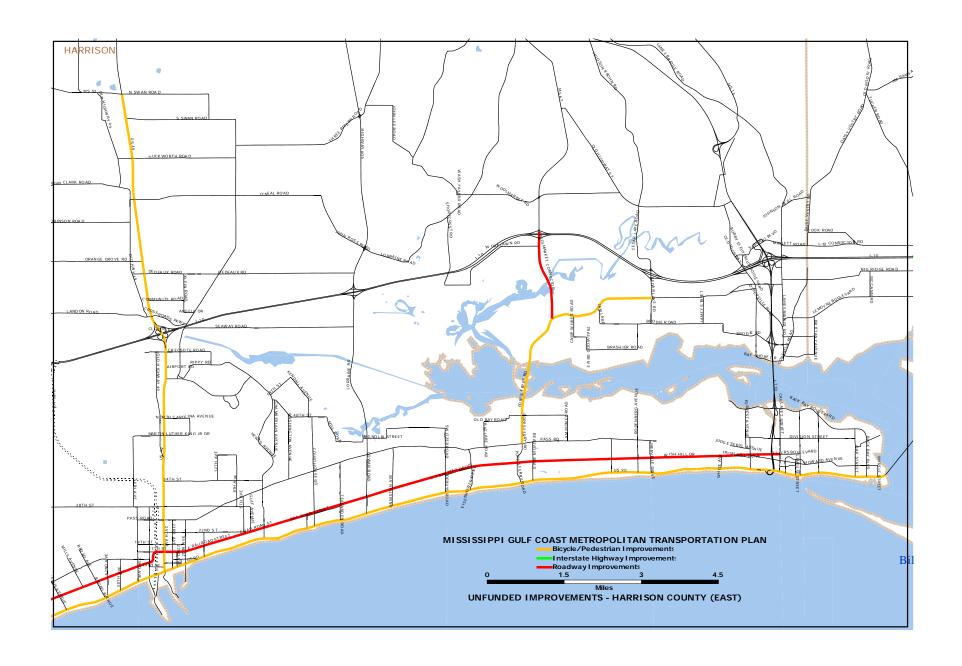


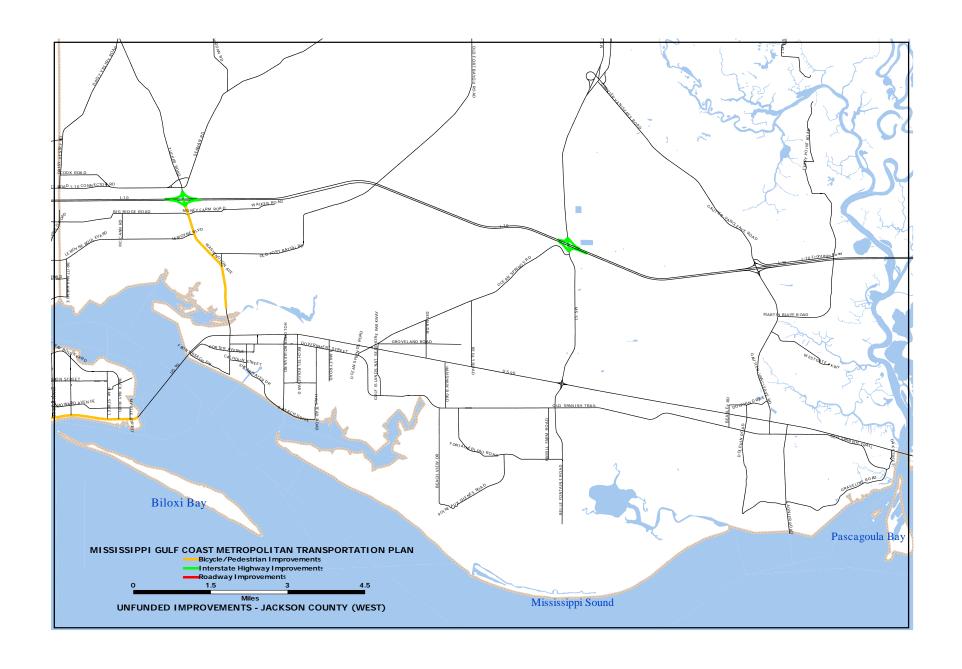


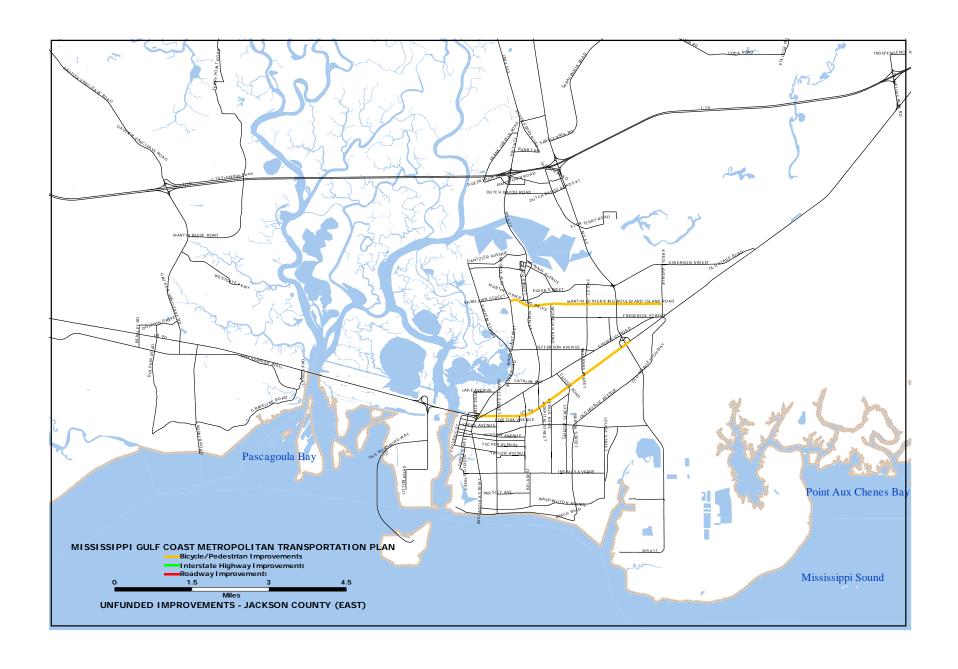












Mississippi Gulf Coast Area Transportation Study: 2040 Metropolitan Transportation Plan

The 2040 Metropolitan Transportation Plan for the Mississippi Gulf Coast Area was formally adopted by the Transportation Policy Committee on December 7, 2015.

The summary document presented herein represents a condensation of information contained in the 2040 Metropolitan Transportation Plan.

The unabridged version of the adopted plan is available online at www.grpc.com.

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Transportation Policy Committee and Technical Coordinating Committee

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Prepared by Neel-Schaffer, Inc. in association Cambridge Systematics, SOL Engineering Services, LLC and Marr/Arnold Planning

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