# MISSISSIPPI GULF COAST OZONE ADVANCE PROGRAM PATH FORWARD PLAN

Presented by



## **Gulf Regional Planning Commission**

and



MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

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## Introduction

Participants in the national Ozone Advance Program are tasked with developing a path forward plan for preserving and improving local air quality. This Path Forward plan meets this requirement by providing regionally relevant guidance for reducing ozone creation on the Mississippi Gulf Coast. The Ozone Advance Program, an effort undertaken as part of the Coast Clean Air Corps body of work, has the potential to benefit our region in many ways, including;

- Reducing air pollution in terms of ozone and other pollutants
- Ensuring continued healthy ozone levels
- Maintaining compliance with National Ambient Air Quality Standards (NAAQS)
- Help avoid NAAQS violations that could lead to non-attainment designation
- Increases public awareness about ground level ozone as an air pollutant, and
- Targets limited resources toward actions which will address ozone problems the most effectively and efficiently

Our immediate program goal is to reduce ozone creation in the near term, and the ultimate goal is to effect changes that will protect community well-being long into the future. This path forward plan outlines several regionally-relevant strategies to obtain this vision. It recommends measures that we, as a community, can implement to protect air quality across our region.

The Ozone Advance Program (OAP) is a proactive and collaborative effort between the US Environmental Protection Agency (EPA), Mississippi Department of Environmental Quality (MDEQ) and the Gulf Regional Planning Commission including its partners and the governments it serves, collectively referred to as GRPC. It educates and encourages participation in emission reduction activities that decrease the formation of ground level ozone. Efforts of program participants will reduce air pollution and may provide a buffer against future air quality violations.

Our region came close to non-compliance with the NAQQS in 2008. In 2009, they reduced the ozone emission standard (also called the design value) from 84 parts per billion (ppb) to 75 ppb and they are currently in the process of reducing the standard to between 60ppb and 70ppb. *The new standard is expected to be published in the fall of 2016.* In light of these conformity concerns, we are bolstering local air quality improvement efforts to reduce emissions now.

A coordinated partnership of the public and private sectors is a key component of program success. In addition to the non-attainment risk, ozone pollution results in increased economic costs, hospitalizations and days lost from work and school. Despite where the new air quality standard is set, our community will be benefit from implementing ozone reduction measures.

In this Path Forward Plan we acknowledge the work currently underway and seek to expand or increase current ozone reduction programs while anticipating new ones. These programs are based on policies of reducing travel demand by promoting alternative modes of transportation, promoting higher-density development, improving traffic flow through implementation of congestion management planning, encouraging anti-idling policies through education, and reducing emissions through the use of fuel-efficient and emission-limiting technology. The process by which the plan was developed involved input by both stakeholders and planning staff.

The Mississippi Gulf Coast Ozone Advance Program Path Forward Plan presented herein will be treated as a living document. That is, it will be updated as necessary to reflect increased knowledge, new opportunities for funding, and revisions in strategies as they come to light.

## The Nature of Ozone

The ozone molecule is composed of three oxygen atoms as opposed to the two atoms that make up the oxygen molecules we breathe. It is a powerful, oxidizing agent which reacts with mucus and respiratory tissues, in both humans and animals. Ozone also damages plant tissue. In the upper atmosphere, ozone has protective properties. It filters harmful ultraviolet light waves which can burn the skin and alter tissue which may cause cancer. This screening process allows us to live on Earth.

At ground level, ozone is produced by the interaction of volatile organic compounds (VOC) with nitrogen oxides (NOx) in the presence of sunlight. VOC + NOx + Sunlight = Ozone.

VOC and NOx come in two forms, biogenic (natural) which is produced by vegetation, and anthropogenic (mad-made) which is created by humans, primarily in industrial processes, and by modern transportation modes, particularly diesel and gas-driven motor vehicles. Ozone exposure can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground level ozone can reduce lung function and inflame the lining of the lungs. Repeated exposure may permanently scar lung tissue. Particularly vulnerable individuals include the young, elderly, those with allergies and those who are otherwise immune-compromised.

The Mississippi Gulf Coast is affected by sea breezes which cause higher ozone levels to occur in the afternoons. Ozone in the region is also impacted by our large amount of lush vegetation, long hot summers and extended growing seasons. As a result, local VOC is primarily biogenic. In other words, our ability to significantly reduce VOC creation is greatly hindered by natural occurrences. NOx, however, is primarily manmade; therefore a successful local strategy to reduce the creation of ground level ozone must focus primarily on NOx reduction.



Source: Environmental Protection Agency 2011 National Emissions Inventory



Source: Environmental Protection Agency 2011 National Emissions Inventory

# **Regional Profile**

The Mississippi Gulf Coast region is linear and encompasses three counties stretching between the Louisiana and Alabama borders. It is the most populous urbanized area of the state, outside of the city of Jackson. Each county is unique and diverse in its characteristics. Population projections done for the transportation model for the coastal counties in the 2035 Long-Range Transportation Plan for the region show the following pattern of slow but steady growth:

Year	Population	Jobs	
2008	350,393	180,717	
2015	384,246	203,917	
2025	410,296	228,220	
2035	459,189	256,122	

Source: Gulf Regional Planning Commission2035 Long Range Plan

Hancock County lies at the western end of the region, it is the least populated and most rural of the counties, yet is the home of the Stennis Space Center where rocket engines are tested, and of Port Bienville, a shallowdraft port that serves the space center and an adjacent industrial park. Hancock has a number of residents who work in the New Orleans metro area as well as in adjacent counties. More residents commute to work outside of the county than commute in to work. There is a large freight weighing station just inside the state line and a number of truck drivers rest overnight in the parking area there. The majority of NOx emissions in

Hancock comes from mobile sources, especially on-road heavy duty diesel vehicles.



Source: Environmental Protection Agency 2011 National Emissions Inventory

In the center of the region lies Harrison County, the economic engine of the coast with major military installations, the Gulfport-Biloxi International Airport, the Mississippi State Port, which has been labeled the Port of the Future as it expands to accommodate anticipated increased traffic from the Panama Canal expansion. Currently, the port is a major importer of tropical fruit and the third largest container port on the Gulf of Mexico. The military bases, Keesler Air Force Base and the Naval Construction Battalion Center, are major employers on the coast, as are the gaming casinos. Harrison County is the only coastal county with more residents commuting in than out for work. It has the largest traffic counts in the region and houses major transportation crossroads including; east-west bound I-10 and Hwy 90 and north-south bound Hwy 49, Hwy 605, Hwy 57 and I-110. The region's electricity utility is Mississippi Power, whose Plant Watson burns both coal and gas, and is the largest emitter of NOx in the county, followed by light duty gasoline-powered vehicles, then by diesel trucks.



Source: Environmental Protection Agency 2011 National Emissions Inventory

Finally, Jackson County is on the eastern end of the region. It is the second most populous county, and the most industrialized. It is home to some mighty industries, the most famous being Huntington-Ingalls Shipbuilding, and many others including a Chevron oil refinery, and several chemical companies in the Bayou Cassotte industrial park. The largest port in the state and the twentieth busiest in the nation, the Port of Pascagoula, is located in Jackson County. This is a deep-water industrial port with quick access to major

shipping lanes in the Gulf of Mexico. Mississippi Power operates Plant Daniel here, which burns both coal and gas. Electricity generation by coal is the largest source of NOx in Jackson, followed by petroleum refining, then commercial marine vehicles. A number of the workers in Jackson County commute in from Harrison County and from Mobile County, Alabama, yet the net-commuting pattern is one of out-commuting to work.



Source: Environmental Protection Agency 2011 National Emissions Inventory

# History of Ozone Emissions in the Region

There is an MDEQ air quality monitoring station in each county; Hancock = Waveland; Harrison = Gulfport; and Jackson = Pascagoula.



## **Mississippi Air Quality Monitoring Sites**

pollutants are monitored on the coast, but we are well within those EPA standards so we will not be addressing them in any significant way as part of this air quality program. It is also important to note that we are in conformity with the current ozone standard as well. This program is meant to ensure that we stay that we continue to protect and improve our air quality and they we, as a region, have a plan in place to respond effectively should the standard be lowered in the future.

The next couple of pages explain how the ozone design values are calculated.

Step 1: Identify the fourth highest ozone day, which represents an 8-hour average, for the current year and the previous two years (For example, if the 6 highest days were 72, 72, 70, 68, 67, 61; you'd scratch out the top three readings and record the fourth highest as that year's ozone high.)

Step 2: Average the 4<sup>th</sup> highest scoring days from all three years to get this year's design value. (For example, 74+66+75/3 = 71.666) which makes the design value 71.

Annual 8-hou	r parts per	billion	(ppb)	averages
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County	2011	2012	2013	2014	3-Year Average 2011 – 2013	3-Year Average 2012 – 2014*
Hancock	68	67	63	69	66	66
Harrison	74	73	62	73	69	69
Jackson	72	74	66	75	70	71

# 2014 8-hour design values

- Uses the years: 2012, 2013 and 2014
- 4<sup>th</sup> highest days averaged over 3 year period
- The current EPA ozone standard is 75ppb



NOTE: The Hancock County monitor at Port Bienville was destroyed by Hurricane Katrina and was replaced in 2010 by a new monitor in Waveland, thus the interruption in the Hancock County trend line on the graph as shown below.



Source: Mississippi Department of Environmental Quality

# Strategies to Reduce Ozone

The major ozone sources from the three-county region, as shown in the pie charts above, fall into these major sectors as identified by the Environmental Protection Agency:

- Fuel Combustion-Power Generation (MS Power)
- Industrial Processes (Chevron, all other local industry)
- Heavy Diesel Mobile On-Road Vehicles (heavy duty diesel commercial cargo-carrier trucks)
- Gasoline Mobile On-Road Vehicles (cars and light trucks)
- Commercial Marine Vessels (steamships and other commercial craft)

Strategies to combat ozone through NOx reduction will focus on these sectors and, in the case of motor vehicles, on the infrastructure that supports them, and on demand reduction. These strategies include:

- Community education on air protection practices & air pollution's harmful effects
- Develop and implement ozone action day voluntary plans
- Retrofit technology, including diesel retrofits, automatic tire inflation & engine shut off
- Develop an anti-idling program and implement idling reduction strategies
- Incorporate cleaner/alternative fuels for fleet vehicles, other vehicles and equipment
- Support the increased usage of alternative modes of transportation

- Reduce congestion by implementing traffic flow improvements
- Support land-use strategies like transit/transportation oriented development (TOD)

These strategies will reduce the creation NOx as well as the release of other pollutants, including particulate matter and carbon monoxide, into our air.

#### Education

In 2011, in conjunction with MDEQ, MDOT, CTA and others, Gulf Regional Planning Commission, the MS Gulf Coast Metropolitan Planning Organization, sponsored a kickoff event at Harper McCaughan Elementary School in Long Beach, where Captain Clear Air was adopted as a mascot of the **Coast Clean Air Corps (CCAC)**. The Corps focuses on engaging the community in efforts to improve local air quality, especially on ozone action days. Program membership is free and voluntary and includes support for schools and students, industry representatives, local governments, group and organizations as well as individuals.

Harper McCaughan Elementary became the first school in Mississippi to adopt an air quality flag program. They were also the first school to conduct the CCAC Anti-Idling Program which resulted in the development and adoption of district-wide idling reduction policies including anti-idling messaging along parent drop-off and pick-up lines, AQ messaging for parents at the start of the school year, bus driver education and idling policy reinforcement. Companies making regular deliveries to the schools are also prohibited from idling. An additional benefit of these school programs is due to the media publicity that they receive. The Sun-Herald published a story and WLOX-TV broadcast a report on these events which enabled the general public as well as the school population to be enlightened about pollution prevention.

Due to the success of the CCAC kick-off activities, EPA selected GRPC and the MS Gulf Coast as the location for a national event to launch the Spanish translated version of their Air Quality awareness book *"The Magic School Bus Gets Cleaned Up"*. The book launch acted as the hub with which a larger event was designed. In March, we hosted the MS Gulf Coast Children's Fair which brought attention to a wide variety of air quality topics including ozone awareness, alternative fuels, alternative transportation, lung health, energy and water conservation and new technologies for clean air.



GRPC photos include, from left to right, 1. Bike and pedestrian safety class at the Children's Fair; 2. Mrs. Holt's 5<sup>th</sup> graders who conducted the Harper McCaughan anti-idling project; 3. Former EPA Region 4 Administrator, Gwendolyn Keyes Fleming, helping 3<sup>rd</sup> grade Spanish speaking students from across the region be the first to experience the book.

In the future, we will seek to continue and expand upon these educational programs and create new ones. We will work to identify program champions, including corporate sponsors, to provide leadership to CCAC members. We will be seeking both monetary and in-kind support to sustain the CCAC outreach and education efforts.

#### Industry/Power Generation

Comparison of 2008 and 2011 ozone precursor emissions inventories (Appendix B) reveals much progress has been made by utilities and heavy industries in the Gulf Coast region. Still more can be expected with more stringent EPA standards anticipated by these industries in the next few years. The primary NOx point source is Mississippi Power's electricity generating plants in Harrison and Jackson counties. Both of these facilities burn coal as well as natural gas. At this time, the future of coal burning is not known. The installation of mitigation technology in both of these plants resulted in dramatic NOx reduction in these counties between 2008 and 2011. Mississippi Power is awaiting **the release of a new Mercury and Air Toxics standard for power plants in 2015** before investing in further improvements. They will have to be compliant with a new standard by 2019.

Another major NOX emitter that showed dramatic improvement between 2008 and 2011 is the Chevron Oil refinery in Pascagoula. This is also due to **improved NOx technology.** There are several other industrial plants in Jackson, but none is a major producer of NOx.

Stennis Space Center in Hancock County operates under a Title V permit and is currently updating its emission controls, as required.

As a part of the Coast Clean Air Corps and its participation in the Ozone Advance Program, GRPC staff is working with organizations, especially those identified as major NOx emitters, to develop voluntary action plans. These plans outline specific operational actions and changes that will go into effect on forecasted ozone action days.

#### Land Use

There is a close **connection between land-use and transportation.** According to *Building Better Budgets,* a study by Smart Growth America, infrastructure costs including road costs are reduced by one-third when smart growth practices are followed. Servicing of tighter development patterns costs up to 10% less through reduction of vehicle miles traveled. These more tightly-developed areas also produce more tax revenue per acre, thus providing more local revenues for further improvements.

GRPC and its partners in city and county administration will seek to reduce VMT and thus emissions through **encouraging and incentivizing development patterns that support transportation alternatives**. Efforts will be made to amend zoning ordinances to allow for a mix of housing types near infrastructure, transportation and employment centers, and other facilities. An effort with also be made to **incentivize amenities for transit, bikes, and pedestrians** will be required when issuing building permits. The adoption of **Complete Streets** policies will be sought. These efforts will be incorporated in the FY2015-2016 work program. Attempts have been made to identify potential transit-oriented development locations to serve as hubs for the development of transit services. Focus areas include existing high-use nodes such as downtowns, retail centers and mixed-use corridors and proposed new development nodes documented as part of the future land use plan. These areas will be incorporated into the upcoming transit operations and infrastructure plan. In addition to the



TOD areas, adjacent transportation supportive areas of medium to high intensity mixed-use development oriented to specific transportation corridors will extend the coverage of the transportation alternatives system to a greater segment of the total population using sidewalks, crosswalks, bike paths, and transit stops and routes. Because there are many moving parts in this land use strategy, it should be expected that implementation will take place over a long period of time.

#### **Transportation-Cars and Trucks**

Mobile sources of emissions are the second largest source of ozone precursors in the region. The emission inventories comparison shows a significant decrease in emissions from cars and light trucks between 2008 and 2011, but must be interpreted in light of the economic turndown in that period on the coast. As the economy recovers we must expect auto and light truck emissions to increase, even with the fleet turnover that may occur. There has been a continuation of the increase in emissions from heavy duty diesel on-road vehicles, which will continue due to increased trucking and port activity. Therefore it is important to focus heavily on intermodal transportation as well as automobile usage. To achieve these goals, a number of strategies in the areas of idle reduction, traffic flow improvements, alternative transportation, and alternative fuels will be utilized.

#### **Idle-Reduction**

Several anti-idling strategies have been identified to lower emissions, particularly in regard to heavy trucks.

National freight volume is growing at about 2-3% per year. About 70% of all freight is carried by trucks. State law requires commercial trucks over 10,000 pounds carrying freight to be weighed. Traditionally, trucks have had to come to a full stop at weigh stations, often queued up and idling as they waited their turn. *Weigh-in-motion* scales allow tractor- trailers to avoid a full stop by rolling at a lower speed across truck scales, reducing emissions that result from idling at weigh stations. MDOT has built a new weigh station in Hancock County that employs weigh-in-motion technology. The Jackson County weigh station has weigh-in-motion in the eastbound direction. MDOT is also beginning to install weigh-in- motion sensors in the travel lanes themselves, allowing trucks to bypass

the weigh station altogether. MDOT recently installed sensors at the Harrison/Jackson county line and about one mile east of the Escatawpa River. They hope to be installing more in-lane sensors as funds permit. Some trucks will always be required to stop for random safety checks, but using weighin-motion technology greatly reduces large truck idling.

**PrePass** is a system developed through a public/private partnership that combines vehicle identification by transponder-equipped trucks with weigh-in-motion. The PrePass system allows commercial trucks who subscribe to PrePass and whose trucks are equipped with transponders (which can be rented from PrePass) to bypass the weigh station. An overhead arm across the travel lane is equipped with sensors that read the ID and weight of the truck which is then signaled back to the station with a red or green light to indicate permission to bypass or not. Both eastbound weigh stations in Hancock and Jackson counties are equipped with PrePass sensors, the one in Hancock having an arm that extends over the interstate, allowing truckers to proceed at speed. Trucks that subscribe to the PrePass system can remain on the interstate and simply roll under the PrePass arm that extends over the right lanes. The Jackson County weigh station has PrePass in both directions. PrePass is a system that will continue to grow over the coming years reducing the number of stops required, also reducing emissions caused from idling.

Truckers are limited by federal law in the number of hours they can drive without resting. The hours of rest are also regulated and logged electronically and they must rest at least ten hours before an 11-hour haul. To operate air conditioners and heaters in the cab while resting requires idling the truck engine. One hour of idling burns one gallon of diesel fuel. In order to avoid this fuel wastage and cut out the resulting pollution, truck stop electrification technology has been introduced. This allows trucks resting at commercial at truck stops to plug into the local electrical grid to run their climate control systems and even to log onto the Internet. EPA's Diesel Emission Reduction Act grants



An Electrified Truck Stop in Carneys Point, New Jersey Source: Alternative Fuels Data Center, US Department of Energy

can be used for truck stop electrification projects. A major element in the Gulf Coast region's Ozone Advance Path Forward is to encourage owners and managers of overnight parking facilities to consider making this investment. This may include state, city and county managed rest areas, port operators, large industry parking and queue areas, train yards and other similar locations.

In January 2014, the MS State Port in Gulfport was recognized as a Green Marine facility. As such, the port is committed to reducing idling through existing policy and is also researching additional opportunities to expand antiidling and emission control technologies. Keesler AFB, which employs thousands of workers, has done street and gate improvements to reduce idling by lessening the queue time of commuters and service vehicles entering the base.

#### **Diesel Retrofits**

**Diesel Emission Reduction Act grants** have been utilized to retrofit diesel powered school buses in nine school districts on the coast. DERA and other funding opportunities available to schools, cities and other entities are forwarded out to GRPC's community partners as we become aware of them.

#### **Traffic Flow Improvements**

Because motor vehicle emissions are the second largest source of NOx in the Gulf Coast Region solutions are being sought that will mitigate traffic congestion. There are several **congestion mitigation projects** currently under way or under consideration on Interstate10 and US Highways 49 and 90. Traffic-monitoring cameras have been installed on I-10 and at traffic lights on US 90 across the region. Signal control is housed at the MDOT Traffic Management Center in Harrison County. Motorists on I-10 will be alerted via emails, signboards, or text messages to avoid known traffic backups. US 90 will be widened between Gautier (Dolphin Drive) and Ocean Springs (Vermont Street) in Jackson County from 4 to 6 lanes. "Scoot system" traffic lights will be installed which will "count" vehicles and change signals lights accordingly. These projects will mitigate congestion in Ocean Springs and allow vehicles to avoid delays when there is a traffic accident on the I-10/Pascagoula River Bridge by creating a sufficient alternate route. Another **intelligent transportation** project being considered in this area is the placement of a real-time weather station which will monitor fog conditions. This area experiences severe seasonal fog that contributes to accidents and resulting traffic congestion.

Projects recently completed across the coast, that directly improved traffic congestion include; D'Iberville Popps Ferry Road widening, Gulfport's Creosote Rd widening and intersection improvements at Hwy 49, The roundabout being installed at Airport Road and Three Rivers in Gulfport, the road work and restriping of Howard Ave in Biloxi, Ocean Springs intersection improvements at Government Street Intersections, the Pascagoula Hospital road capacity project, and many more. MDOT will be finishing the reconstruction of three major overpasses in D'Iberville resulting in several new access points to the interstate, free flow turn lanes and intelligent signalization.

Upcoming projects include Biloxi's widening of their portion of Popps Ferry Road and improvements to the Popps Ferry Bridge, Adding lanes to Seaway Road and making intersection improvements in Gulfport, Gautier is improving Martin Bluff Rd and signalization improvemetnsat 16 Pass Road Intersections in Gulfport. We expect Hwy 49, Hwy 90, Hwy 607, Hwy 15, Hwy 63 and other major thoroughfares to receive additional capacity enhancements over the next 5-10 years.

NOTE: One of the interchanges being constructed by MDOT is the first Diverging Diamond style in our state. It is a proven safety measure that offers interstate traffic continuous flow options to enter and exit I-10. This significantly reduces idling time at the traffic lights. A major influx of development is expected to begin soon after project completion so the interchanges have been designed for long-range capacity needs.

A long-desired transportation improvement is the establishment of an **east-west corridor** through Harrison County, which would provide an alternative route to US 90, Pass Road and I-10 for local traffic. This would require acquisition of CSX rail road right-of-way. Of necessity this will occur in prioritized phases. Alternative transportation options is a core feature of this project. Bus Rapid Transit, bike lanes, pedestrian facilities and other features will be made available. Coast Transit Authority is spearheading the development of this project with support of GRPC, state and federal agencies.

**Roundabouts** are another important feature of plans for smoothing traffic flow. The first major roundabout is set for construction in 2015 at the Three Rivers Road and Airport Road intersection. It is currently a very busy, unsignalized intersection used by shoppers, other commuters, large trucks and military vehicles accessing the airport facilities, Bayou Bernard Industrial District and to the Crossroads Shopping Mall. Success in alleviating congestion at this location it is hoped will lead to more roundabout construction. GRPC hosted a two part training series on roundabout installation. 8 additional locations were reviewed as potential candidates for a roundabout and 5 of them are possible with several being strongly recommended to alleviate current and projected congestion issues.

A complete list of the MPO's allocated TIP projects and projects already obligated to be constructed on the coast can be viewed online at www.grpc.com or requested by phone at 228-864-1167.

#### **Alternative Fuels**

A few organizations in the area use fuels that are **alternatives to diesel and gasoline**. One of the largest such program is to be found at Keesler Air Force Base. There the government fleet, but not aircraft or emergency vehicles, is powered by **biodiesel**. Biodiesel has the advantage of being usable in unconverted diesel engines when mixed with regular diesel at 20% or less concentrations. Future plans at the base include purchasing hybrid and flex-fuel vehicles when **E-85** and funding are available.

Coast Transit Authority currently operates **propane**-fueled buses and plans to purchase more as they replace aging vehicles and expand their fleet. They have a propane fueling station at their facility. Coast Transit has also invested in several hybrid vehicles.

In discussing alternative fuel buses with school districts it was stated that a difficulty of using alternative fuels is that they do not possess alternative fuel filling stations at or near the schools. Currently, there are seven public fueling stations for propane gas on the coast. The company which owns them is looking at establishing additional stations along major corridors using technology which will allow the driver to fuel the vehicle, rather than an attendant. At this time, propane conversions are concentrated in fleets of gasoline-powered delivery vans, utility trucks, buses, etc. owned by companies like UPS.

#### **Alternative Modes**

In 2012, the MS Gulf Coast Metropolitan Planning Organization (MPO), for which GRPC serves as the staff, made a policy decision to dedicate 10% of its annual allocation of Surface Transportation Planning funds (about \$500,000 per year) to projects which support enhanced facilities to walk, bike and/or utilize transit services. The second set aside provides funds to conduct studies for potential new projects and programs, and the third set aside provides funds for safety enhancement projects benefitting all road users.

GRPC is also partnering with Coast Transit Authority GRPC to develop **an improved transit program** that aims to attract new customers by decreasing headways on selected routes using prioritized funding. Supporting these routes will be sidewalks, crosswalks and bicycle paths which will extend the reach of transit services into neighborhoods. High-use bus stops will be identified and furnished with extra amenities for comfort and access. (About 30 were installed in FY 2014-2015 and another 60 are expected in FY 2015-2016.) ADA passengers will be dropped off at CTA hubs to access the fixed-route system. Dedicated bus lanes will be used on mobility corridors such as US 90 between White Avenue and Main Street in Biloxi. Traffic signal preemption will be implemented on these corridors. As funds permit, park and ride lots will be installed at all I-10 interchanges that are connected to destination corridors. The MPO travel demand model will be updated to include transit. CTA has also purchased a new express commuter bus that will link the downtown Biloxi and Gulfport transit hubs. The "Sunshine Express" is expected to be a fully functioning service in late 2015, early 2016.



Bike Racks on a CTA Bus Source: Gulf Regional Planning Commission

CTA contracts with V-Ride to operate a commuter **vanpool service**. V-Ride transports commuters to four major employers: Ingalls Shipbuilding, Keesler AFB, Stennis Space Center, and Biloxi VA Medical Center. The Department of Defense offers a Mass Transportation Benefit Program that provides

service personnel a financial subsidy for this eligible commute service. In 2012, there were 500 riders and 47 vans running. In spring of 2015, those numbers had reduced to 458 commuters in 44 vehicles. This is due to exceptionally strict new policies being imposed on Navy personnel working at Stennis who wish to utilize the service. Effort is being undertaken to make the policy more realistic for riders, but any change will take time to be implemented.

There are several projects in the works to **make commuting safer and easier for bicyclists and pedestrians**. Gautier is planning a shared-use path from busy US 90 to the Gautier town center. In Hancock County the Sand Beach shared-use path will be extended all the way to Buccaneer State Park, and as funding permits all the way to Bayou Caddy. Sidewalks and lighting will be installed along the Old Spanish Trail in Bay St. Louis from the western city limits to Main Street in downtown. Gaps in sidewalks along Dunbar Avenue will also be filled in and lighting provided. In Moss Point, sidewalks will be extended from Main Street to the southern city limits, making it possible to walk safely all the way from the edge of town to downtown. Long Beach has recently added signage to its designated bike route. Sidewalks will be included in the widening project on Popps Ferry Road in Biloxi that extends to the D'Iberville city limit. Pascagoula is anticipating a major boardwalk project along Beach Boulevard as funds become available. An environmental trail along the Pascagoula riverfront and boardwalks along the beachfront is also in the works. Gulfport is installing a multiuse pathway along Seaway Road and Biloxi just added bike lane to the west portion of Howard Ave.

There are currently several **Safe Routes to School** projects planned which will make it easier for children to walk or bike to school. One is in Bay St. Louis at the complex that houses Bay- Waveland Middle, North Bay Elementary, and Bay High Schools. Sidewalks are also being added in Gautier around College Park Elementary. Finally, there are signage and striping projects around Beach, Jackson, and Lake Elementary Schools in Pascagoula.

## **Transportation-Marine**

All three counties of the Gulf Coast have marine ports. Ships berthed for loading and unloading must burn diesel fuel to provide electricity to run facilities onboard the ship. With the growth of trade, emissions from ships will continue to grow unless measures are taken. Currently none of the ports employs onshore access to electricity for ships in port or those waiting to dock. This is relatively new technology in the United States. California, which has several very large ports, made it mandatory that this technology be in use by 2014. This is an expensive technology to implement not only due to costs of the electrical units but also because ships have to be fitted to plug in to the units. Because it would take years to implement this technology locally; we are increasing awareness of the issue and recommending less costly initiatives like idling reduction policies for waiting vessels and emission mitigation strategies for ground equipment serving the ships with the port authorities. The Port of Gulfport is already in the process of replacing its diesel cranes with clean energy electric rail mounted gantry cranes and is looking at supplementing its electricity with solar and wind generated options.

The Gulf Coast also has several commercial and private marinas. In the past few years, MDEQ worked with three commercial charter companies to fit their diesel engines with emission controls. Only one

company was able to qualify to the funding program and has since retrofit its engines. More of this kind of work will happen as funds come available. Any more done now?

## Transportation-Aircraft

While each county has an airport, only Gulfport-Biloxi International Airport in Gulfport is even a moderate emitter of NOx, but it is to be expected that future growth will occur in both passenger and cargo flights. The airport has made progress with reducing NOX since 2008 and is currently working on an ozone plan with Gresham, Smith and Partners. At this time the results of this planning consultation have not been announced. Follow-up on this – get a copy if possible.

## APPENDIX A: GULF COAST CLEAN AIR CAMPAIGN STAKEHOLDERS

American Lung Association **American Red Cross** Balch and Bingham LLP Bureau of Ocean Energy Management, Regulation, and Enforcement **Butler Snow Chevron Pascagoula Refinery Coast Electric Coast Transit Authority** Dupont Entergy **Environmental Compliance Services Future Pipe Industries** Gresham, Smith and Partners **Gulf Coast Heritage Trails Gulf Regional Planning Commission Gulfport-Biloxi International Airport** Harrison County Beautification Committee Harrison County Development Commission Huntington Ingalls Shipbuilding Jackson County Development Foundation **Keesler Air Force Base** Mississippi Department of Environmental Quality Mississippi Center for Justice Mississippi Department of Health Mississippi Department of Marine Resources

Mississippi Department of Transportation Mississippi Development Authority Mississippi Fire Council Mississippi Forestry Commission Mississippi Gulf Coast Business Council Mississippi State Port Authority Mississippi State University Center for Advanced Vehicular Systems NASA - Infinity Science Center NASA – Stennis Space Center SAIC Senator Thad Cochran Senator Roger Wicker Signal International Southern Company **Thompson Engineering Trinity Yachts** United Way US Department of Transportation – Federal **Highway Administration US Environmental Protection Agency** US Fish and Wildlife **US Forest Service** US Navy Woodmont Company

# APPENDIX B. COMPARISON OF 2008 AND 2011 NOx EMISSIONS FROM GULF COAST SOURCES

County	Pollutant Category Secto		2008 NOX	2011 NOX	Gain	Loss
			Amount	Amount		
			(tons)	(tons)		
Hancock	Fuel Combustion-Electric	Point	n/a	n/a		
	Generation-Coal					
Harrison	Fuel Combustion-Electric	Point	12384	5558		-6826
la alva a u	Generation-Coal	Deint	11070	2505		0105
Jackson	Fuel Compustion-Electric	Point	11670	3505		-8165
Hancock	Evel Compustion Electric	Doint	n/a	n/a		
HAILOCK	Generation-Natural Gas	POIN	ii/a	11/ d		
Harrison	Fuel Compustion-Electric	Point	1/	22	8	
Tharmson	Generation-Natural Gas	1 Onic	14		0	
Jackson	Fuel Combustion-Electric	Point	1532	1840	308	
	Generation-Natural Gas					
Hancock	Fuel Comb - Industrial Boilers, ICEs -	Point	699	127		-572
	Natural Gas					
Harrison	Fuel Comb - Industrial Boilers, ICEs -	Point	18	22	4	
	Natural Gas					
Jackson	Fuel Comb - Industrial Boilers, ICEs -	Point	49	66	17	
	Natural Gas					
Hancock	Fuel Comb - Industrial Boilers, ICEs -	Point	113	73		-40
	Oil					
Harrison	Fuel Comb - Industrial Boilers, ICEs -	Point	6	20	14	
	Oil					_
Jackson	Fuel Comb - Industrial Boilers, ICEs -	Point	10	7		-3
		<b>.</b>	224	222		
Напсоск	Industrial Processes-Chemical	Point	231	230		-1
Harrison	Industrial Processos Chamical	Doint	69	120	71	
Harrison	Manufacturing	Point	08	139	/1	
Jackson	Industrial Processes-Chemical	Point	117	63	-54	
Jackson	Manufacturing	rome	11/	05	-54	
Hancock	Industrial Processes-NEC	Point	0	2	2	
Harrison	Industrial Processes-NEC	Point	14	11	-	-3
Jackson	Industrial Processes-NEC	Point	106	285	179	
Hancock	Industrial Processes-Petroleum	Point	n/a	n/a		
	Refineries		,	,		
Harrison	Industrial Processes-Petroleum	Point	n/a	n/a		
	Refineries					
Jackson	Industrial Processes-Petroleum	Point	3603	2090	1	-1513
	Refineries					
Hancock	Mobile Non-road Equipment Diesel	Non-	162	144		-18
		road				

Harrison	Mobile Non-road Equipment Diesel	Non-	829	746		
		road				
Jackson	Mobile Non-road Equipment Diesel	Non-	512	464		-48
		road				
Hancock	Mobile Non-road Equipment	Non-	59	71	12	
	Gasoline	road				
Harrison	Mobile Non-road Equipment	Non-	247	287	40	
	Gasoline	road				
Jackson	Mobile Non-road Equipment	Non-	195	226	31	
	Gasoline	road				
Hancock	Mobile Non-road Equipment Other	Non-	10	6		-4
		road				
Harrison	Mobile Non-road Equipment Other	Non-	55	34		-21
		road				
Jackson	Mobile Non-road Equipment Other	Non-	182	104		-78
		road				

Source: 2008 and 20011 National Emissions Inventories, United States Environmental Protection Agency