

**CYPRESS MARSH RESTORATION OF BAYOU  
BIENVENUE CENTRAL WETLAND UNIT**

**Coastal Impact Assistance Program (CIAP)**

**ENTITY/INDIVIDUAL NOMINATING THE PROJECT**

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**TOTAL CIAP FUNDS REQUESTED**

Requesting \$40,000,000 as per the attached Statement of Probable Cost all as state funds.

**INFRASTRUCTURE FUNDS PROPOSED**

No infrastructure funds are requested at this time.

## **DESCRIPTION AND LOCATION OF PROJECT**

The Sewerage and Water Board of New Orleans and St. Bernard Parish jointly propose a regional wetland restoration project be funded to restore approximately 10,000 acres of critical cypress wetlands using wetland assimilation of wastewater effluent. The wetland restoration project would integrate sustainability with mitigation measures. The enhanced wetlands would protect Orleans and St. Bernard Parishes from future storm vulnerability, while the environmental improvement would protect the local economy and culture which is dependent on productive wetlands.

The Bayou Bienvenue-Central Wetland Unit to be restored is located between the 40-Arpent Levee and the Mississippi River Gulf Outlet (MR-GO) Levee in Orleans and St Bernard Parishes. This area has been determined to be critical for levee protection against storm surge and storm generated waves. Wetland loss in this area began after the construction of MR-GO due to the resulting saltwater intrusion. Hurricane Katrina exacerbated the damage to the once productive cypress swamp. The wetlands now require fresh water and nutrients to restore and maintain the cypress swamps which protect both parishes. Currently nutrient rich effluent from both parishes is discharged to the Mississippi River where it contributes to the hypoxia, or dead zone in the Northern Gulf of Mexico. Rerouting the effluent will allow the nutrients to be used to replenish the wetlands, rather than increasing damage to the coastal environment.

The Sewerage and Water Board of New Orleans, East Bank Sewage Treatment Plant (EBSTP) is located in the lower 9<sup>th</sup> Ward near Bayou Bienvenue. The East Bank Sewage Treatment Plant provides wastewater treatment for the entire east bank of Orleans Parish and treats biosolids for both the east and west banks of Orleans Parish. The treatment facility received approximately \$70 million of damage as a result of the 17-foot storm surge created by Hurricane Katrina. St. Bernard Parish received catastrophic damage to all 7 wastewater treatment plants. To mitigate the damage the St. Bernard Department of Public Works is planning on implementing a consolidation plan that would allow one discharge line to restore the surrounding wetlands. The Sewerage and Water Board of New Orleans and St Bernard Parish are jointly seeking funding to implement a phased project which would begin with distribution of partial flow to wetlands while final design and plant modifications are completed. Phase I would include engineering design, and installation of a distribution line for each plant to the wetlands that could utilize existing effluent pumps. Phase II would extend the distribution line and implement any necessary plant modifications identified in the Phase I design process. Feasibility and design will determine whether additional phases could extend the restoration area beyond 10,000 acres. The funding of Phase I and II would result in the restoration of at least 10,000 acres of cypress swamps, mitigation of future storm damages, and creation of the largest sustainable wastewater infrastructure in the world.

## **PROJECT TYPE**

**(From list of authorized CIAP fund uses)**

1. Conservation, restoration and protection of coastal area, including wetland.

## **PROJECT JUSTIFICATION**

Research has confirmed that the benefits of wetland wastewater treatment include improved surface water quality, increased accretion rates to balance a high relative water level rise due mainly to subsidence, improved plant productivity and habitat quality, protection against storm surge and storm generated waves, and decreased capital outlays for engineering treatment systems. Wetland treatment systems throughout Louisiana have been successfully designed, and operated, to restore deteriorating wetlands.

Wetland wastewater treatment would replace critical infrastructure that was damaged during Hurricane Katrina with sustainable, more economical wastewater treatment. Wetland treatment facility capital is roughly one third the cost of capital as conventional wastewater treatment. Furthermore, wetland discharge permits allow discharge of higher levels of solids to increase accretion rates. For example, re-routing effluent from the Mississippi River to wetlands for the EBSTP would result in an annual operation savings of almost two million dollars. More economic wastewater treatment will allow for the distressed parishes to continue providing sewer service after suffering from severe decreases in revenue.

Wetland assimilation of wastewater effluent would restore destroyed and rapidly disappearing coastal wetlands that, in addition to their ecological value, protect Orleans and St. Bernard Parish from tropical storm events. Many levees including the 40-Arpent Canal Levee did not suffer damages where surrounding wetlands acted as a buffer against storm surge and storm generated waves. More recently it has been determined that the restoration of the swamps adjacent to the EBSTP, the Bayou Bienvenue Central Wetland Unit surrounding the MR-GO, and the wetlands near Lake Borne are essential to protect Orleans and Saint Bernard Parishes from future hurricanes. This project would address restoration of all of these deteriorating wetlands as depicted on the attached map. Furthermore, the Louisiana Department of Environmental Quality (LDEQ) confirmed after Katrina that other municipalities throughout Louisiana that utilized wetland treatment sustained less damage due to the hurricane.

A good recovery engenders a community that is both environmentally and economically sustainable. The joint proposal of the Sewerage and Water Board of New Orleans and St. Bernard Parish to use wetland assimilation to restore 10,000 acres of critical wetlands, integrates sustainability with mitigation measures. The enhanced wetlands would protect Orleans and St. Bernard Parishes from future storm vulnerability, while the environmental improvement would protect the local economy and culture which is substantially dependent on productive wetlands. Furthermore, this project would prevent the extended interruption of service to citizens and businesses that occurred, and continues to occur, following Hurricane Katrina.

## **PROJECT COST SHARE**

No cost sharing is proposed at this time. Alternate and supplementary forms of funding are currently being pursued through other programs. A previous grant application with the Delta Regional Authority (DRA) received eligibility for the feasibility study of this project. The exact amount of funding for feasibility from DRA is still awaiting confirmation. Funding is also being pursued with LDEQ, EPA, Ducks Unlimited, QWPPRA, and Long Term Community Recovery.

## **POINT-BY-POINT RESPONSE TO CRITERIA TO BE USED TO EVALUATE PROPOSED COASTAL RESTORATION AND CONSERVATION PROJECTS**

### **1. Is the proposed project free of issues that may impact timely implementation of the project features?**

The project is supported by many government agencies which will help to facilitate a timely implementation of the proposed project. The government agencies that highly support implementation include Orleans Parish officials, St. Bernard Parish officials, the Sewerage and Water Board of New Orleans, the Lake Ponchartrain Basin Foundation, the Coalition to Restore Coastal Louisiana, the Louisiana Department of Environmental Quality (LDEQ), the Louisiana Department of Natural Resources (LDNR), and the Environmental Protection Agency (EPA) regional and federal departments.

### **2. Is the proposed project linked to a regional strategy for maintaining established landscape features critical to a sustainable ecosystem structure and function?**

The Cypress Marsh Restoration of Bayou Bienvenue Central Wetland Unit project is consistent with evolving plans for the MR-GO area. Furthermore, wetland assimilation would restore ecosystem structure, and function, to the deteriorating wetland. The restoration project supplements the fresh water diversion to reduce saltwater intrusion for the Violet area, and is consistent with Caenarvon Marsh Restoration Project. In addition to buffering saltwater intrusion the benefits of wetland wastewater treatment is the addition of solids. The added solids increase accretion rates and therefore counter subsidence. The improved surface water quality, improved plant productivity, and improved habitat quality, result in a sustainable ecosystem.

### **3. Does the proposed project protect health and safety or infrastructure of national, state, regional or local significance?**

The Cypress Marsh Restoration of Bayou Bienvenue Central Wetland Unit project protects not only the infrastructure of St. Bernard and Orleans parishes, but also the public health and safety. The project implements the Multiple Lines of Defense Strategy as set forth by the Lake Ponchartrain Basin Foundation for

protection of both parishes. The project restores wetlands as a natural line of defense against storm surge, storm waves, and flooding. Therefore the restored wetlands will function as a physical barrier to protect public safety and infrastructure. Wetland loss can also lead to water quality impairment which directly affects broader public health issues. Wetlands process pollution and toxins. Therefore, increased water quality can prevent and remediate pollution. Additionally, wetlands assimilate nutrients to grow thus reducing the nutrient loading which contributes to the dead zone in the northern Gulf of Mexico.

#### **4. How cost effective is the proposed project?**

Wetland assimilation is a more economical form of wastewater treatment. Mandeville was able to decrease capital costs by more than two thirds by implementing wetland treatment versus a conventional treatment system. Long term cost effectiveness is demonstrated by the decrease in operation and maintenance costs. Wetland discharge permits allow increased total suspended solids. The Sewerage and Water Board of New Orleans would save approximately two million dollars annually in solids handling costs for the EBSTP. Furthermore discharging to wetlands would save both capital, and operation and maintenance costs, to meet future total maximum daily load (TMDL) limitations. Finally, this project would prevent expenditures due to future storm damages.

#### **5. What is the certainty of benefits resulting from implementation of the proposed project?**

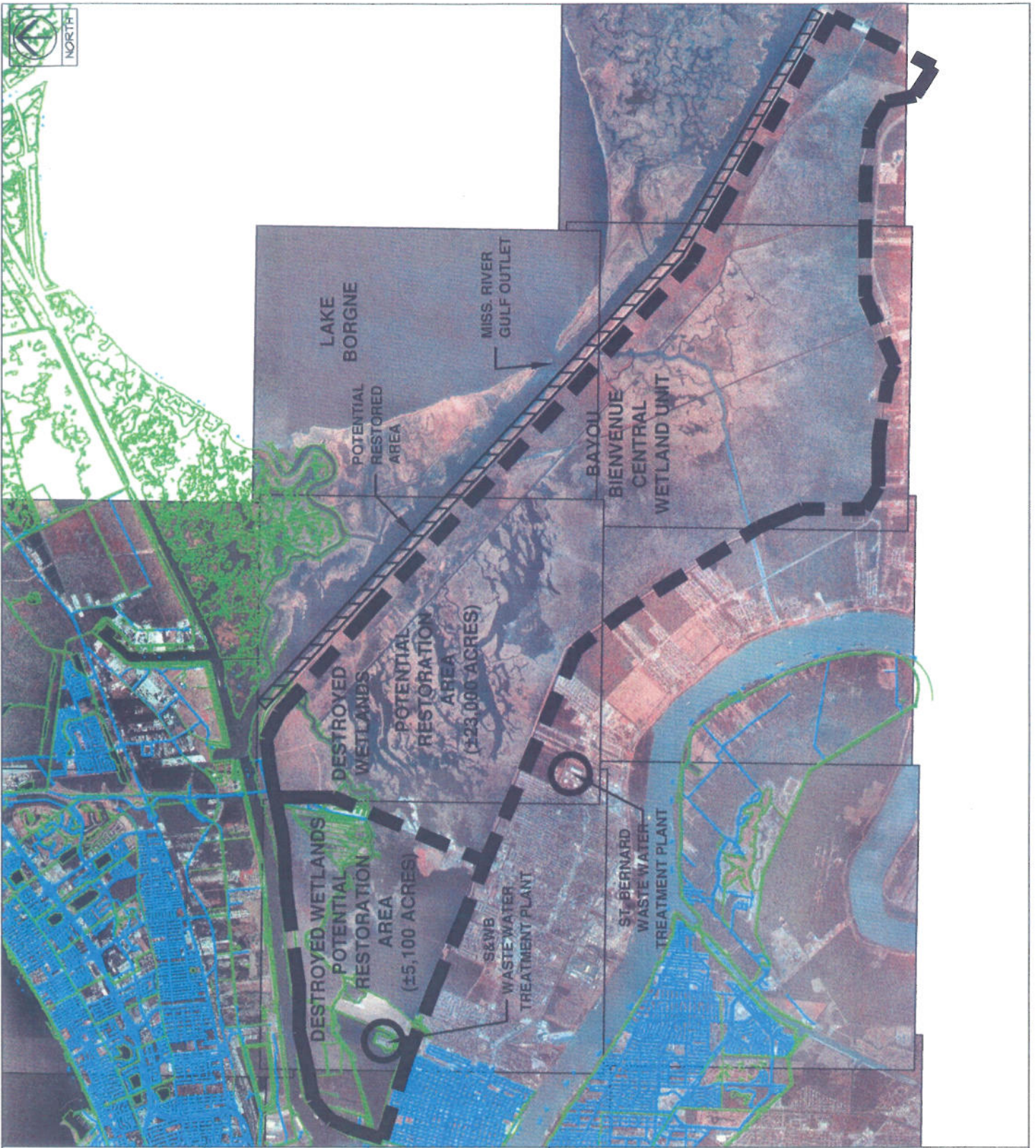
Based on past assimilation projects in Louisiana the certainty of benefits would be 100% from implementing this project. For example, Thibideaux, Amelia, and Breaux Bridge, demonstrated significant accretion rates that not only restored existing wetlands, but created new wetlands.

#### **6. Does the proposed project address an area of critical conservation/restoration need or a high land loss area?**

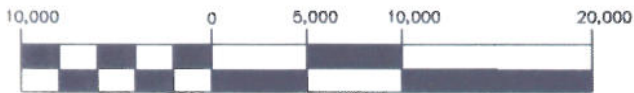
The proposed project area as depicted on the attached map would restore critical wetlands that have suffered, and continue to suffer from severe deterioration and high land loss. Wetland loss in this area began after the construction of MR-GO due to the resulting saltwater intrusion. The marsh continues to deteriorate due to subsidence, and a lack of fresh water and nutrients. Hurricane Katrina exacerbated the previous damage to the once productive cypress swamp. In addition the proposed project area has been confirmed to be critical for levee protection against storm surge and storm generated waves.

#### **7. How sustainable are the benefits of the proposed project?**

The project will be sustainable for the lifetime of the region. Both treatment facilities will produce treated effluent as a constant source of nutrient rich fresh water. The effluent will act to buffer saltwater intrusion, increase accretion rates to balance a high relative water level rise due mainly to subsidence, improve plant productivity and habitat quality, and improve surface water quality.



GRAPHIC SCALE



(IN FEET)

1 inch = 10,000 ft.

**SEWERAGE AND WATER BOARD  
OF NEW ORLEANS**

**CYPRESS RESTORATION OF  
BAYOU BIENVENUE CENTRAL  
WETLAND UNIT**

REFERENCE 2004 DOQQ AERIAL PHOTOGRAPHY

ORLEANS PARISH, LOUISIANA