



# St. Bernard Parish Council

8201 West Judge Perez Drive Chalmette, Louisiana, 70043  
(504) 278-4228 Fax (504) 278-4209  
[www.sbpgr.net](http://www.sbpgr.net)

**#15**

**Kerri Callais**  
*Councilmember  
at Large*

**Richard 'Richie' Lewis**  
*Councilmember  
at Large*

**Gillis McCloskey**  
*Councilmember  
District A*

**Nathan Gorbaty**  
*Councilmember  
District B*

**Howard Luna**  
*Councilmember  
District C*

**Wanda Alcon**  
*Councilmember  
District D*

**Manuel "Monty" Montelongo III**  
*Councilmember  
District E*

**Roxanne Adams**  
*Clerk of Council*

EXTRACT OF THE OFFICIAL PROCEEDINGS OF THE COUNCIL OF THE PARISH OF ST. BERNARD, STATE OF LOUISIANA, TAKEN AT A REGULAR MEETING HELD IN THE COUNCIL CHAMBERS OF THE ST. BERNARD PARISH GOVERNMENT COMPLEX, 8201 WEST JUDGE PEREZ DRIVE, CHALMETTE, LOUISIANA ON TUESDAY, NOVEMBER 6, 2018 AT SEVEN O'CLOCK P.M.

On motion of Mr. Montelongo, seconded by Mr. Lewis, it was moved to adopt the following resolution:

## RESOLUTION SBPC #1889-11-18

A RESOLUTION TO AMEND THE ADOPTED ST. BERNARD PARISH GOVERNMENT 2018 COASTAL STRATEGY DOCUMENT TO ADD THE BARRIER ISLAND CREATION STUDY AS A TIER 1 PRIORITY.

WHEREAS, St. Bernard Parish Council does hereby add the Barrier Island Creation Study to the St. Bernard Parish Government 2018 Coastal Strategy Document as attached in Exhibit "A".

NOW THEREFORE, BE IT RESOLVED, that the St. Bernard Parish Council, the governing authority of St. Bernard Parish, does hereby add the Barrier Island Creation Study to the St. Bernard Parish Government 2018 Coastal Strategy Document as attached.

The above and foregoing having been submitted to a vote, the vote thereupon resulted as follows:

**YEAS:** McCloskey, Gorbaty, Luna, Alcon, Montelongo, Lewis

**NAYS:** None

**ABSENT:** None

The Council Chair, Ms. Callais, cast her vote as **YEA**.

And the motion was declared **adopted** on the 6<sup>th</sup> day of November, 2018.



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Extract #15 continued  
November 6, 2018

**Richard ‘Richie’ Lewis**  
*Councilmember  
at Large*

**Gillis McCloskey**  
*Councilmember  
District A*

**Nathan Gorbaty**  
*Councilmember  
District B*

**Howard Luna**  
*Councilmember  
District C*

**Wanda Alcon**  
*Councilmember  
District D*

**Manuel ‘Monty’  
Montelongo III**  
*Councilmember  
District E*

**Roxanne Adams**  
*Clerk of Council*

## CERTIFICATE

I HEREBY CERTIFY that the above and foregoing is a true and correct copy of a motion adopted at a Regular Meeting of the Council of the Parish of St. Bernard, held at Chalmette, Louisiana, on Tuesday, November 6, 2018.

Witness my hand and the seal  
of the Parish of St. Bernard on  
this 6<sup>th</sup> day of November, 2018.

*Jennifer L. Imbraguglio*  
JENNIFER L. IMBRAGUGLIO  
DEPUTY CLERK OF COUNCIL

ST. BERNARD PARISH COASTAL PROJECT

**BARRIER ISLAND CREATION &  
RESTORATION;  
FEASIBILITY STUDY  
SCOPE & COST PROPOSAL**



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Metairie, LA 70001  
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638 Village Lane North  
Mandeville, LA 70471  
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4421 Zenith Street  
Metairie, LA 7001  
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Fax: (504) 887-7088

October 8, 2018

Mr. Guy McInnis, President  
St. Bernard Parish Government  
8201 W. Judge Perez Drive  
Chalmette, LA 70043

**SUBJECT: ST. BERNARD PARISH COASTAL PROJECT:  
BARRIER ISLAND CREATION & RESTORATION;  
FEASIBILITY STUDY SCOPE & COST PROPOSAL**

Mr. McInnis:

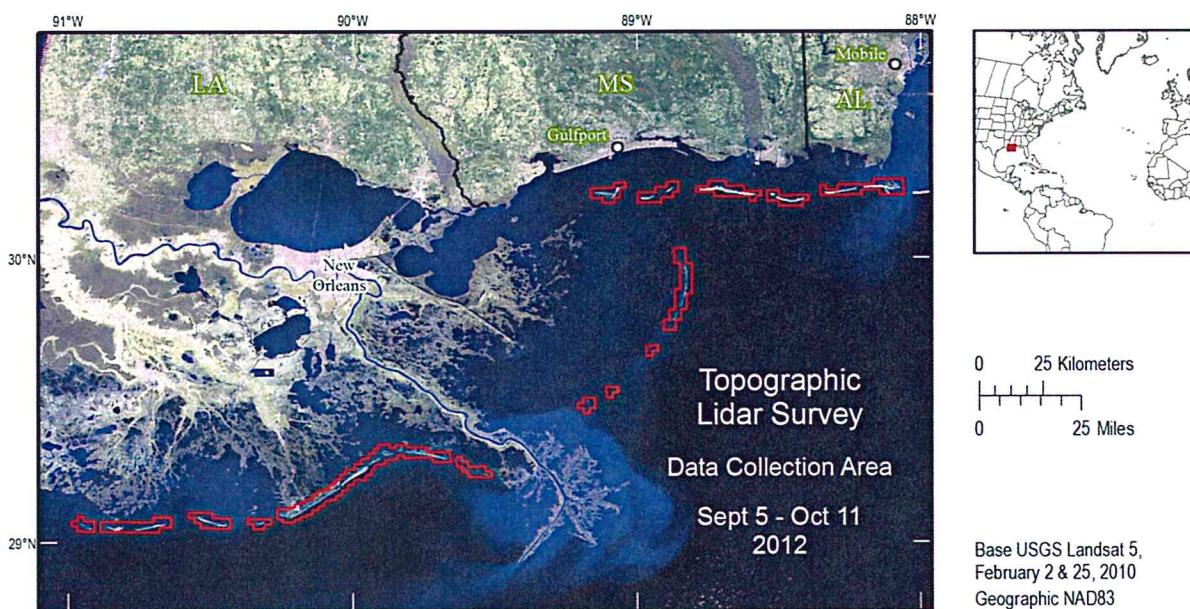
The following is a summary and proposal relative to the construction of barrier island type land masses along the coast of St. Bernard Parish. Over the past months, this team has investigated the current situation in the Parish with regards to coastal protection projects, and there appears to be an absence of any coastal land mass protection being considered along the exterior coastal marshes. Realizing this, Aim Group in association with Kyle Associates has developed this narrative and proposal to investigate the feasibility of this infrastructure.

### **Background:**

Since the Coastal Protection and Restoration Authority, CPRA, was established in 2005, extensive research and analysis has been performed in an effort to determine what actions should be taken to protect the Louisiana coast and to restore the hundreds of square miles that have been lost over the past 50 years. It is apparent that a multitude of infrastructure types must occur to achieve this goal, and a consensus on which of these remedies has generated heated debate. In the broadest sense, the two most prevalent infrastructure activities involve diverting water and sediment from the Mississippi River, which mimics the historic creation of the coastal marshes prior to the construction of the levee system; and second, the construction of land masses to act as physical barriers to the ravages of the Gulf of Mexico on the coastal environment, especially

during storm events. Both have merit, but also both have dramatic variations in how each affect the coastal environment.

Land masses historically have been the first line of defense against major storm events, both wave attenuation as well as storm surge. The Gulf Coast is lined with barrier islands starting with Dauphin Island in Alabama; Petit Bois, Horn, Ship, and Cat Island in Mississippi, and the Chandeleur Islands off the coast of southeast Louisiana. The line continues west of the mouth of the Mississippi River, starting with Grand Isle, an occupied barrier island, and continuing into the Timbalier Island chain in Terrebonne Parish. These islands are the first line of defense against storm surge and wave action during storm events. In Mississippi and Alabama, there is a significant stretch of shallow open water between the islands and the mainland. In Louisiana, the geography is unique in that historically there has been significant coastal marshland between the barrier islands and the more substantial inland land masses. The lone exception is the Chandeleur chain, which lies approximately 20 miles from the exterior marshes of St. Bernard Parish.



*Barrier Islands, Alabama to Louisiana*

A significant portion of the coastal restoration effort is addressing the loss of the coastal marshes behind the barrier islands, and rightfully so. For every mile of coastal marsh, storm surge is reduced by 1 foot at the inhabited mainland. The value of these areas is indisputable. However, the preservation of these marshes relies on creating a sustainable system for marsh recreation and preservation, but also in the initial line of defense: the land masses that serve as barrier islands. It can be argued, in the broadest sense, that without this initial line of defense, the marsh preservation program will still be susceptible to rapid erosion due to storm activity.

Currently, the CPRA is in the process of implementing Mississippi River diversions on both sides of the River. These diversions are to transmit sediment into the coastal environment to rebuild marshland. Concurrently, the CPRA is working on projects involving construction of land bridges which serve as interior land mass barriers, as well as means to other projects for marsh recreation. The amount of sediment, thus land creation, is under debate; however, what is not debatable is that massive amounts of fresh river water will be inserted into the existing estuarine systems by the diversions. This fresh water has a dramatic impact on the ecosystem, drastically lowering the water salinity and altering the marine life in this area. This has a significant and direct impact on the natural resources of St. Bernard parish, primarily the oyster industry.

The CPRA recently announced that an engineering firm has been selected to design the Breton Sound diversion, a massive structure that will divert an immense amount of fresh water into the coastal areas of St. Bernard Parish. There is no argument that this infrastructure will drastically alter the coastal fisheries in St. Bernard Parish. For this reason, St. Bernard Parish and other environmental groups are emphatically opposed to this diversion as a means to curtail coastal land loss and/or rebuild land already lost, primarily due to the resulting drastic change in environmental conditions. The negative impact on the commercial fishing industry in the parish is significant, as is the effect on other related industries. However, to date there has not been a viable alternative analyzed.

As has been stated, the diversions have not been proven to markedly build new land, and the introduction of mass amounts of fresh water into the St. Bernard estuary system will cause dramatic changes to the commercial fisheries industry, primarily the oyster grounds. Another negative affect of diversions is the nutrient load that comes along with river water, causing algae blooms and potential dead zones in the fragile estuarine system. It seems however that the massive state effort has focused primarily on diversions, along with some interior land bridges....but nothing to serve as an immediate first line of defense against the destruction caused by storm surge and wave action.

The residents and organizations that oppose diversions have been very vocal in their position on this form of coastal restoration. The “dredge don’t divert” cry has been loudly pronounced for many years, and much louder recently. But this position has not been countered with a viable alternative. The dredging option basically centers around the barrier islands, the first line of defense against storm surge, wave action, and more recently curtailment of environmental disasters such as the BP oil spill, yet it hasn’t been aggressively pursued. St. Bernard Parish now realizes that the plea against large scale diversions must include an alternative option. The contrary to diversions is construction of land masses to act as barrier islands, land bridges, and storm surge deterrent systems. It is currently not being studied east of the river at this point, but at various levels has been implemented on the west side of the river with great results.

## **The Alternative:**

In order for St. Bernard Parish to have their voice and opinions heard, it must come with a viable alternative to diversions. The alternative must be supported with scientific facts and analysis. The execution of a feasibility analysis on the effects of a near shore system of manmade barrier islands off the coast of St. Bernard Parish is the first step. As previously stated, barrier islands are a part of the natural coastal protection system. With minimal investigation, it became apparent that ample evidence exists to justify research into this alternative. The initial task therefore is to perform a feasibility study for land masses near the existing St. Bernard coastline. This study must include the land mass's effect on wave attenuation, storm surge, and water salinity. Also, it must also look at variations of manmade barrier islands such as proximity to existing shorelines, height of the islands, and the lengths and/or breaks in the islands. This information will provide scientific evidence whether or not barrier island construction will perform as anticipated.

## **The Proposal:**

Pursuant to our recent discussions, **AIMS Group Inc. (AIMS)** is pleased to submit the following scope of work and cost proposal for a study that addresses the feasibility of the use of barrier island type systems on the outer fringes of the marsh of St. Bernard Parish. AIMS Group, Inc. will serve as Prime Consultant for this study. Included on the team will be **Kyle Associates, LLC** (civil/structural/environmental engineering) and **Freese & Nichols, Inc.** (wave attenuation modeling). This group of professional engineering firms provides solid experience in coastal projects, local knowledge of coastal St. Bernard Parish, and specific expertise in wave action analysis – one of the primary benefits of the barrier island concept.

Of particular note, also included on the team will be the **Water Institute of the Gulf**, which in conjunction with Freese and Nichols, will perform all modeling tasks of the Feasibility Study. The Water Institute is a not-for-profit, independent applied research and technical services institution with a mission to help coastal and deltaic communities. Through an integrated and inter-disciplinary approach, the Institute's work helps to create more resilient communities, thriving economies, and a healthy environment.

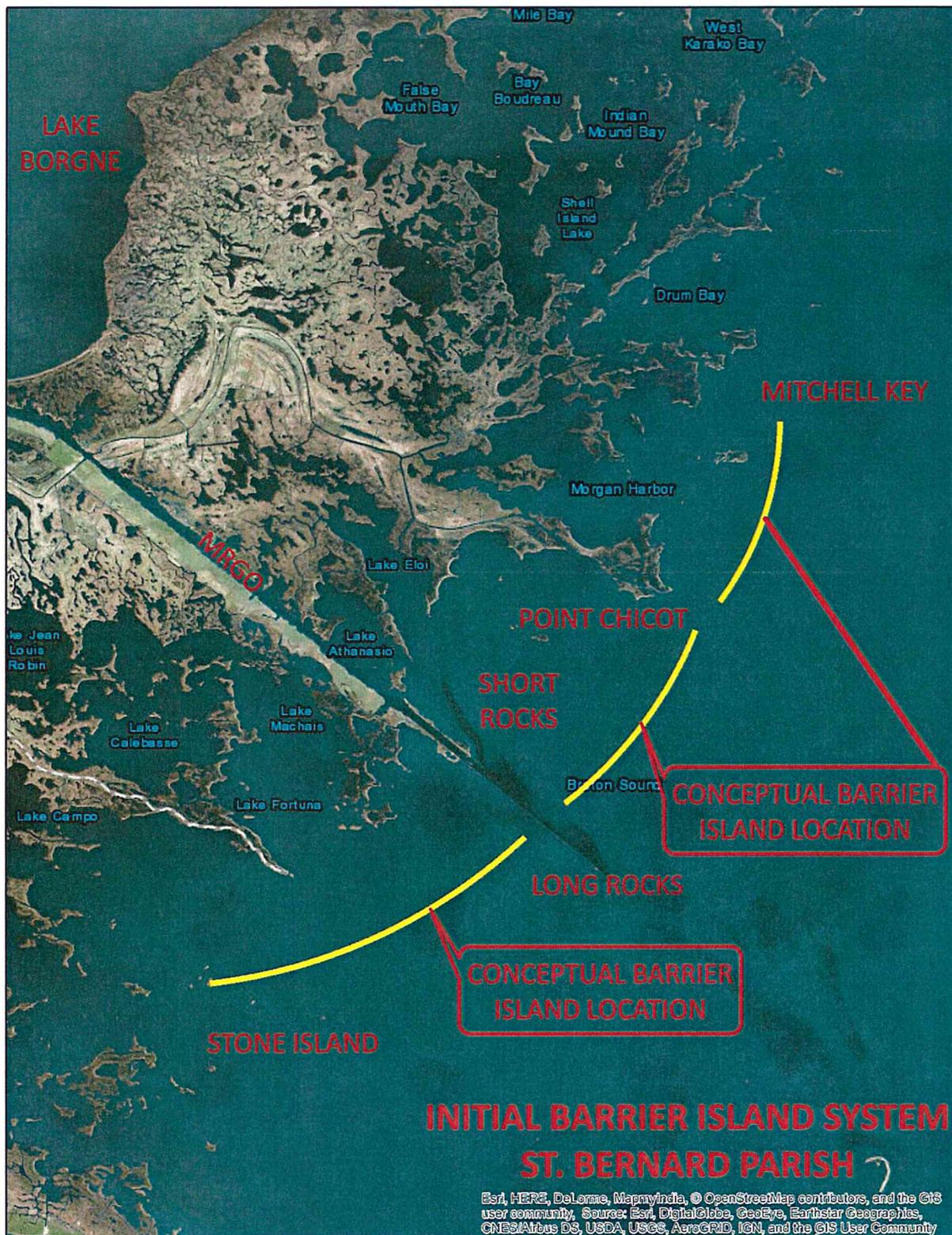
Consideration will be given to coordinate this project with current St. Bernard Coastal Master Plan Projects as well as current Louisiana State (CPRA) Master Plan Projects. The following scope of services to assist in achieving the program goals was developed:

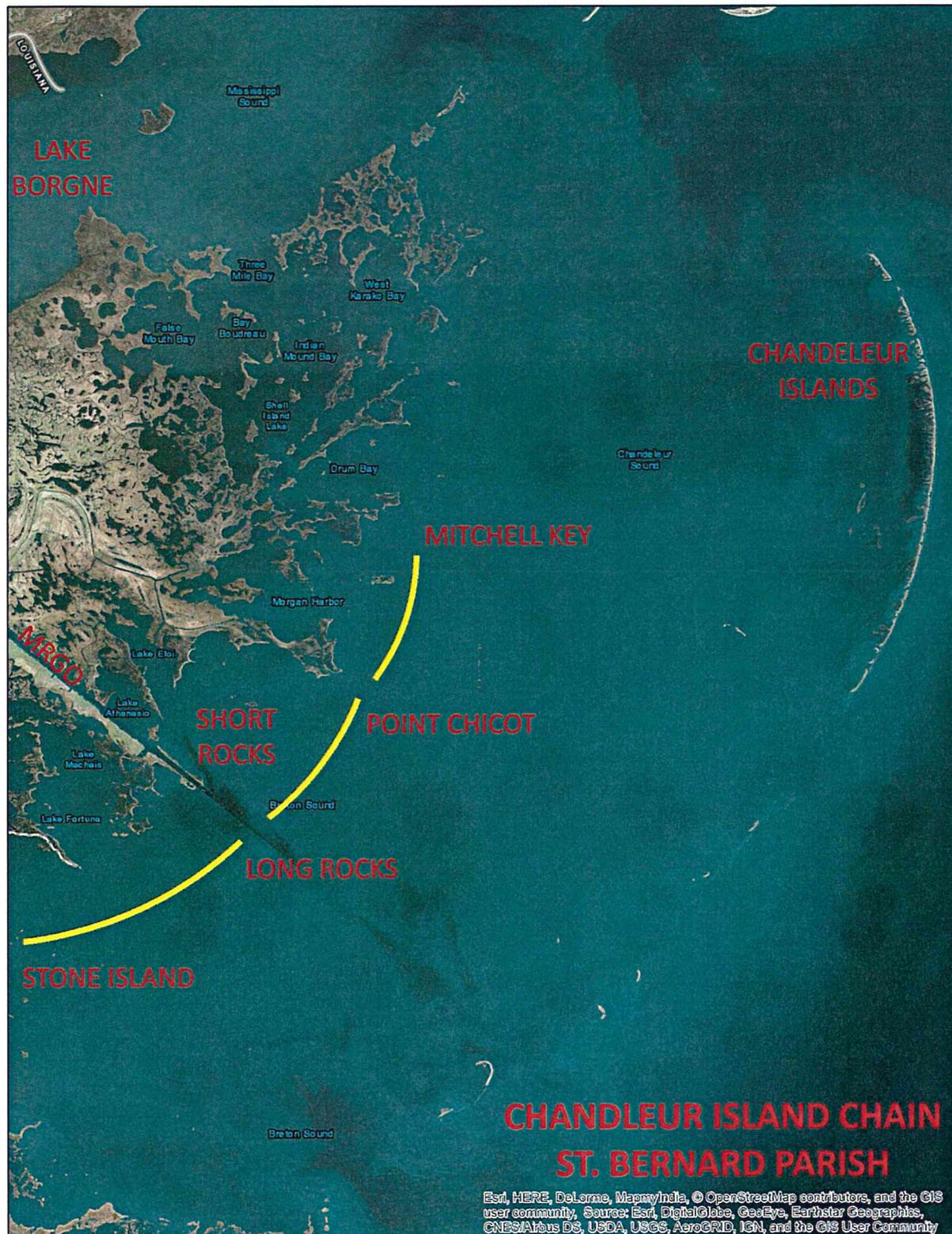
## **PROJECT OVERVIEW**

St. Bernard Parish has an interest in determining the feasibility of creating barrier islands, or similar type land masses, to replicate historical islands that once provided wave and storm surge attenuation in Breton and Chandeleur Sound. The preliminary conceptual location of these barriers islands is shown on the following two pages, and consists at this point of three islands. The southernmost island generally extends from Stone Island/Black Bay easterly to the long rocks at the MRGO; the central island from the short rocks northeasterly to the historic location of Point Chicot; and the third from Point Chicot northward towards Mitchell Island.

Please note that the focus of this feasibility study will specifically be on the first island listed above, from Stone Island to the long rocks, across Black Bay. This section was selected because of the concentration of coastal projects slated for the area northwest of Black Bay. This is certainly not to discount or replace these coastal projects. The premise of this study is that barrier islands are a necessary first line of defense, but that other techniques for land creation should continue to be employed for land reclamation in the interior marshes. Additionally, much of the effort related to the study and modeling of this first island will be applicable to the next two barrier islands proposed.

The study will look closely at wave and storm surge attenuation, as well as salinity levels in a variety of conditions, both with no coastal projects constructed and with full Master Plan implementation. Additionally, the islands may potentially provide an added benefit of trapping sediment on the leeward side of the islands to assist in the redevelopment of marsh. Generally, this feasibility study will clearly list the environmental affects, benefits and shortfalls of this type of coastal infrastructure.





## **SCOPE OF SERVICES**

### **FEASIBILITY STUDY**

The intent of this feasibility study is to determine what affects the construction of land masses on the outer limits of the St. Bernard Parish coastal marsh might have on storm surge, the protection of existing marshes, and the creation of new coastal land masses to counter land loss. The Tasks listed below will enable St. Bernard Parish Government, as well as other State and Federal Agencies, to make an educated decision on the benefits of this type of infrastructure. In the event that the findings are positive, it is likely that more evaluation will be required. However, this is the initial step to determine this concept's feasibility.

The tasks listed below represent what is required to make an initial assessment of the feasibility to construct barrier islands along the St. Bernard southern and eastern coastline. It is suggested that construction of these barriers will assist in wave and storm surge attenuation as well as possibly capture sediment. Optimal horizontal geometry in addition to island elevation is part of this study. Also, proposed openings (breaches) within the island footprint will be evaluated for considerations to navigation and tidal flow. Lastly, optional sources of material for construction of this infrastructure will be considered. Both excavation of existing nearby material or utilizing other planned projects that will use a sediment pipeline from the Mississippi River will be considered. Also, the BUDMAT program as a source for dredge material will be considered.

### **FEASIBILITY STUDY TASKS:**

#### **1. Design Development for Barrier Geometry Options**

The study will investigate and determine optimal horizontal geometry of land masses as well as island elevation. It will investigate whether openings (breaches) within the island footprint are desirable for both the intent of the land masses and service to navigation. If determined to be necessary or beneficial, the optimal location and sizes of these openings will be determined. The historical footprint of the area including location and geometry of marsh and island features will be compiled and analyzed. Lastly, a review of existing and proposed coastal protection and restoration projects and baseline environmental conditions within St. Bernard Parish and vicinity will be reviewed. This will assist in formulating up to four preliminary alternative project plans within Breton Sound that may consist of barrier islands and/or vegetative ridges with variations in alignments and openings. The formulated alternative project plans will be evaluated to examine the effects of each alternative to salinity, inundation, and sedimentation within the project area.

## **2. Design Development for Barrier Materials Types & Research into Borrow Sources**

This task will investigate the possible material type and source for the land masses. Potential sources are excavation of existing material nearby, or the use a sediment pipeline from the Mississippi River if other such coastal projects are planned in this vicinity – even if further extension of that pipeline would be required to reach the project site. This task also includes an investigation into the most desirable material types. A desktop analysis is proposed to review existing and available borrow source areas. It will consist of identifying sediment borrow areas within the lower Mississippi River as well as direct dredging of water bottoms near the project site. Available quantities of material within each borrow area and conceptual material conveyance methods to the project location will be investigated. In addition, hydrodynamic modeling, permit considerations, and requirements to harvest sediments at these locations will be determined and reported.

## **3. Constructability & Sequencing and Design Development of Construction Details**

Although a project of this magnitude would likely be developed in phases, an analysis into the constructability and sequencing of the construction phases will be performed. This would be from a practical implementation standpoint as well as funding availability. Considerations will include the ability of contractors to access the site and to mobilize the necessary equipment needed for construction. Also, maintaining commercial and recreational marine traffic will be investigated as it related to certain physical conveyance systems.

## **4. Agency and Jurisdictional Coordination**

A project of this type affects a wide range of stakeholders, including residents, commercial and recreational fisheries, local government, and state and federal agencies - which will also have review/approval/permitting authority as well. This task will ensure that communication between all of these stakeholders occurs at the proper time and sequence, and in an ongoing and detailed manner.

## **5. Wave & Storm Surge Modeling**

The Integrated Compartment Model (ICM) is proposed to analyze the subject project. ICM was developed for modeling the Louisiana 2017 Coastal Master Plan and was built from several individual models that had been previously used within coastal Louisiana. The ICM consists of a link-node hydrologic model (ICM-Hydro) that simulates daily water surface elevations, flow rates, salinity, suspended sediment concentration, and water quality nutrient constituent concentrations. The simulated hydrologic conditions then drive a gridded vegetation dynamics model (ICM-LAVegMod) that simulates relative species coverage density of dozens of vegetation species that are common to the Louisiana coastal zone. Both hydrologic and vegetation conditions are passed into a wetland morphology model (ICM-Morph) which models long-term landscape evolution as a function of pre-dominant vegetation types, sediment deposition rates, subsidence rates, and inundation and salinity stressors on the marsh surface.

ICM provides the ability to perform a screening-level assessment of variations to the proposed project. Once the base land mass model is constructed, different values for certain environmental conditions (e.g. sea level rise rates, subsidence rates, precipitation, point source freshwater introduction/diversions) will be inserted into model runs to determine the outcome on changes to salinity and sedimentation. Concurrently, the effects of Coastal Master Plan projects will be inserted as a variable where data is available. This will allow an extensive look into a wide range of conditions that will assist in determining the land mass solution that provides the greatest benefit.

It is proposed that ICM simulations be performed for four configurations of the subject project across baseline and four future scenarios:

- 1 – Low relative sea level rise conditions
- 2 – Moderate relative sea level rise conditions
- 3 – Low relative sea level rise with full Master Plan implementation\*
- 4 – Moderate relative sea level rise with full Master Plan implementation\*

*\*includes Lower Breton Sound Diversion as a variable*

Outputs to be analyzed in this phase will include project impacts upon water levels, bed and marsh surface elevations, salinity patterns, vegetation cover, and land/water definitions. Additional model output that can be analyzed include habitat suitability indices for a variety of modeled fish, shellfish, waterfowl, and wildlife species that are of importance to coastal Louisiana.

## **6. Quantities & Estimate**

Development of estimates of probable construction costs for each of the different options. This includes the calculation of estimated quantities of material, equipment and associated costs of construction by a licensed contractor experienced in this type of work.

## **7. Report Development**

Development of a report of all findings of each of the above listed tasks, as well as a summary statement and opinion of the viability of the construction of barrier island type land masses and the affects they would have on the natural environment. Draft copies will be distributed for review as directed by St. Bernard Parish government, coastal division. Also included will be exhibits/tables of findings, maps that graphically portray information developed by applicable tasks, and preliminary construction drawings that clearly exhibit the infrastructure being proposed.

DELIVERABLES:

- 15% of Feasibility Study consisting of outline of items to be studied and analyzed.
- 60% of Feasibility Study consisting of a “Draft” of the Study developed to approximately 60% of the anticipated total effort.
- 95% of Feasibility Study consisting of a substantially completed Study which includes the incorporation of any comments provided on the 60% Feasibility Study submittal.
- Final Feasibility Study which includes the incorporation of any comments provided on the 95% Feasibility Study submittal.

SCHEDULE:

- 15% of Feasibility Study - 2 months after receipt of Notice to Proceed
- 60% of Feasibility Study - 3 months after receipt of comments for the 15% submittal
- 95% of Feasibility Study - 3 months after receipt of comments for the 60% submittal
- Final Feasibility Study - 1 months after receipt of comments for the 95% submittal

## COMPENSATION

Estimating the time, personnel costs and other necessary non-labor costs required to complete the proposed Scope of Services, compensation for the project as defined herein is to be a Lump Sum amount of \$639,650.00. The Cost Proposal, by Task, is included below. Invoices will be submitted monthly for Lump Sum payments in accordance with the Tasks listed above, based on a percentage of work completed for the respective Tasks for the preceding month.

<b>TASKS</b>	<b>COST</b>
<b>Design Development for Barrier Geometry Options</b>	<b>\$147,600.00</b>
<b>Design Development for Barrier Materials Types</b>	<b>\$ 69,400.00</b>
<b>Research into Borrow Sources</b>	<b>\$ 29,400.00</b>
<b>Constructability &amp; Sequencing</b>	<b>\$ 44,600.00</b>
<b>Design Development of Construction Details</b>	<b>\$ 69,400.00</b>
<b>Agency Coordination</b>	<b>\$ 41,600.00</b>
<b>Wave &amp; Storm Surge Modeling</b>	<b>\$ 88,680.00</b>
<b>Wave &amp; Storm Surge Attenuation Analysis</b>	<b>\$ 53,800.00</b>
<b>Quantities &amp; Estimate</b>	<b>\$ 53,000.00</b>
<b>Report Development</b>	<b>\$ 24,800.00</b>
<b>Non-Labor Costs (Materials, Reproduction, Travel, Marine Site Access/Investigation, etc.)</b>	<b>\$ 17,370.00</b>
<b>Total Fee</b>	<b>\$639,650.00</b>

## APPROVAL/ACCEPTANCE

Acceptance of terms of this Scope and Cost Proposal is acknowledged by the following signatures of the authorized representatives of the parties to the “Agreement”. This Agreement consists of this document and any supplemental pages attached and referenced hereto. It is understood that St. Bernard Parish may require a more detailed agreement for this project prior to the issuance of a Notice to Proceed, but still in keeping with the information contained herein.

### WITNESS

[Print Name]

[Print Name]

[Print Name]

[Print Name]

### ST. BERNARD PARISH

By: \_\_\_\_\_  
Guy McInnis  
Parish President

Date: \_\_\_\_\_

### AIMS GROUP, INC.

By: \_\_\_\_\_  
Thomas R. L'Hoste, P.E.  
President

Date: \_\_\_\_\_

cc: St. Bernard Parish Council