FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT MISSISSIPPI RIVER & TRIBUTARIES- MORGANZA, LOUISIANA TO THE GULF OF MEXICO HURRICANE PROTECTION

Lead Agency: U.S. Army Corps of Engineers, New Orleans District

Cooperating Agency: Louisiana Department of Transportation and Development

ABSTRACT

The proposed action would consist of: upgrading many existing forced drainage system levees in southern Terrebonne and Lafourche Parishes, constructing some new levees and water control structures, and operating the water control structures and floodgates in a coordinated manner during tropical storm or hurricane tidal surges. Floodgates and water control structures would normally remain open for navigation and tidal ingress and egress. Losses in specific habitat types would be mitigated by restoration of those habitat types. A similar protection plan has been proposed and a permit applied for by the Terrebonne Levee and Conservation District (formerly South Terrebonne Tidewater Management and Conservation District). Because the underlying purposes of the two plans are the same, one final programmatic Environmental Impact Statement (FPEIS) was prepared rather than two. Several alternatives were analyzed before selection of a preferred plan. The FPEIS is designed to fulfill other environmental requirements and directives, including the Endangered Species Act, Fish and Wildlife Coordination Act, National Historic Preservation Act, Executive Order 11988, Executive Order 11990, etc. A mitigation plan is included as part of the project proposed action to offset losses in particular habitat types. As each segment of the levee alignment undergoes detail design, a supplemental NEPA document will be produced.

Comments:

Please send your comments or questions on the Environmental Impact Statement to the U.S. Army Corps of Engineers, New Orleans District, Attention: Mr. Bob Martinson or Mr. Nathan Dayan, P.O. Box 60267, New Orleans, LA 70160. Telephone: (504) 862-2582.

Comments due date:

NOTE: Information, displays, maps, etc., discussed in the draft Feasibility Report (DFR) are incorporated by reference in the FPEIS.

SUMMARY

A reconnaissance study (Mississippi River and Tributaries Morganza, Louisiana to the Gulf of Mexico) was authorized by a resolution adopted April 30, 1992, by the Committee of Public Works and Transportation of the U.S. House of Representatives. The Energy and Water Development Appropriation Act of 1995 (Public Law 103-316) authorized the Morganza, Louisiana to the Gulf of Mexico feasibility study. It directed the Corps of Engineers (Corps) to give particular attention to the interrelationships of the various ongoing studies in the area, and consider improvements for the Houma

Navigation Canal (HNC). The Water Resources Development Act (WRDA) of 1996 authorized the Corps to conduct an independent study of a lock to be located in the HNC. In 1998, Congress authorized the Corps to initiate detailed design of a multipurpose lock in the HNC.

The study area is located in southern Louisiana in Terrebonne and Lafourche Parishes. It extends north to the City of Thibodaux between just west of Bayou Lafourche in the east, Bayou Copasaw on the west, and south to the saline marshes bordering the Gulf of Mexico (figure S-1).

The National Environmental Protection Act (NEPA) process began in response to a permit application-SW (Terrebonne Parish Wetlands) 1013 to the Corps by the Terrebonne Levee and Conservation District (formerly South Terrebonne Tidewater Management and Conservation District, STTMCD) for a comprehensive hurricane protection system in Terrebonne Parish. A Notice of Intent to prepare an Environmental Impact Statement (DEIS) for the Terrebonne Levee and Conservation District (TLCD) plan appeared in the Federal Register on April 7, 1993. A decision was made by the Corps Mississippi Valley Division (MVD) office (formerly Lower Mississippi Valley Division, LMVD) in October 1994 to combine the NEPA efforts for regulatory compliance and feasibility study if the Corps entered into a feasibility study. In June 1995, the Corps began a feasibility study. Another Notice of Intent disclosing the new circumstances appeared in the Federal Register on September 8, 1995.

As the study progressed, the magnitude and complexity of the undertaking became evident. No "open" hurricane protection system of such size had been undertaken before. The hydraulic modeling of hurricane events took longer than first planned. It became obvious that the Corps would have great difficulty determining all the details of the system during the feasibility study. Therefore, it was determined to approach the DEIS from a programmatic perspective. A Notice of Intent concerning the change to a programmatic DEIS was issued in the Federal Register on October 22, 1999. Thus, impacts of an overall hurricane protection system for this area and a mitigation plan would be presented with as much detail as possible. However, additional NEPA and other environmental documentation would be needed to fully disclose exact details of the various components and impacts when designs become finalized. These additional NEPA documents would be tiered from the Programmatic DEIS. A decision would need to be made concerning the Corps pursuing a hurricane protection project of this type before attempting detailed design of the many possible components. If a decision is made to pursue one of the action alternatives, Section 404(b)(1) evaluations and coastal consistency determinations would be completed for the components of the selected plan.

This document discloses as much detail as possible concerning what a hurricane protection system would entail, but information that is more detailed and plans would be generated and evaluated if the concept meets approval. For example, if a system is authorized and a lock on the HNC would be part of that system, a reanalysis of the lock impacts would be conducted and a supplemental NEPA document prepared after all of the details of lock design and operation are developed.

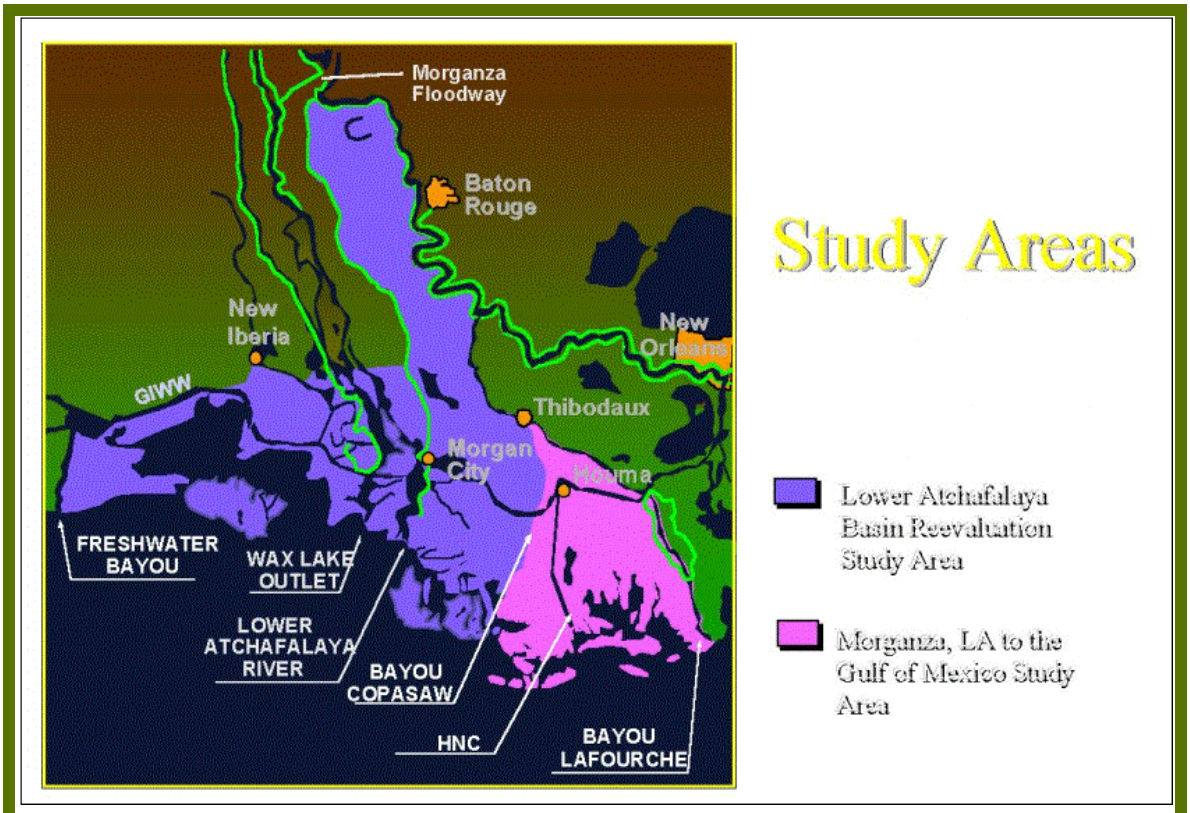

FIGURE S-1 Morganza to the Gulf of Mexico Study and Lower Atchafalaya Basin Reevaluation Study, Vicinity Map

PURPOSE AND NEED FOR ACTION AND OBJECTIVES OF STUDY

The primary purpose of the proposed action is to reduce flood damages from tropical storm and hurricane induced tidal flooding along Bayou du Large, Bayou Grand Caillou, Bayou Petit Caillou, Bayou Terrebonne, Bayou St. Jean Charles and Bayou Pointe au Chien. The primary objective of this plan is to reduce flood damages in all the areas predicted to be impacted by storms up to the 100-year recurrent frequency storm event, as depicted on Federal Emergency Management Agency (FEMA) maps. The secondary objective of this plan is the reduction of coastal wetlands loss and preservation of the fragile ecosystem from damaging tidal surges resulting from tropical storms and hurricanes. Features to help achieve this purpose were incorporated into potential alternatives and made a critical part of the alternatives.

During the aftermath of Hurricane Andrew in 1992, Terrebonne Parish residents qualified for more than $23 million in damages from FEMA claims. Hurricane Andrew destroyed over 360 homes and damaged approximately 2,900 homes in Terrebonne Parish. An estimated 184 million fish were killed and 25 percent of the state's public oyster breeding grounds were destroyed that year in the central coastal area, a majority of which falls in Terrebonne Parish (East 1995). Overall, Hurricane Andrew caused an estimated $55 million of losses in Terrebonne Parish. The American Red Cross provided over $400,000 of emergency vouchers.

Hurricane Andrew also eroded coastal wetlands and barrier islands. The coastal wetlands serve as a zone of defense against hurricanes by attenuating tidal surges

before they hit populated areas. Without coastal wetlands, hurricanes would cause greater losses to inhabited areas.

In 1985, Hurricane Juan caused the flooding of over 800 homes in Terrebonne Parish. Although, no separate statistics were available for Terrebonne Parish, Hurricane Juan caused approximately $554 million in damages and 12 fatalities in the southeast Parishes of Louisiana.

From 1978 to 1991 over $20 million in FEMA flood claims were paid in Terrebonne Parish. A majority of these damages can be attributed to the hurricanes impacting the Gulf Coast.

In 1974, Hurricane Carmen made landfall in St. Mary Parish, but inundated approximately 742,300 acres of land in Terrebonne Parish (Corps 1975). Hurricane Carmen caused close to $3,247 million (1974 dollars) in damages. This hurricane was responsible for reducing the sugarcane yield by 30 percent.

Hurricane Betsy caused over $1.2 billion (1965 dollars) in damages and 58 fatalities. A majority of these damages were in southeast Louisiana, specifically Terrebonne and Lafourche Parishes.

ALTERNATIVES

Several alternatives were examined that would provide increased hurricane protection and offer wetlands protection. Alternatives were generated by the public, the Corps and other public agencies. An initial qualitative screening reduced the number of action alternatives to five. A further screening that accounted for construction cost and environmental mitigation costs versus flood protection benefits reduced the number to two action alternatives considered in detail. Those alternatives are called the Highway 57 (original and modified) and the Reconnaissance. The No Action alternative always remained a possible plan.

Other alternatives and non-structural alternatives were also investigated. In a limited amount of areas, raising structures or moving individuals could be acceptable, but application of these alternatives to the entire study area would not be practicable.

No Action

The TLCD would continue to operate the forced drainage and partial hurricane protection system that currently exists. Figure S-2 shows the portion of the forced drainage system already built (see also plate 2). The existing system contains segments and components that have been built to be individually self-sufficient. This partial system would consist of levees built to provide protection up to the 10-year storm event. Developing protection for the 100-year event would be unlikely. Any forced drainage levees already permitted, but not constructed, such as the one along the west side of Bayou du Large, would be built by local entities. Additional permits could be issued for other self-contained forced drainage systems, but the overall protection system would not be constructed.

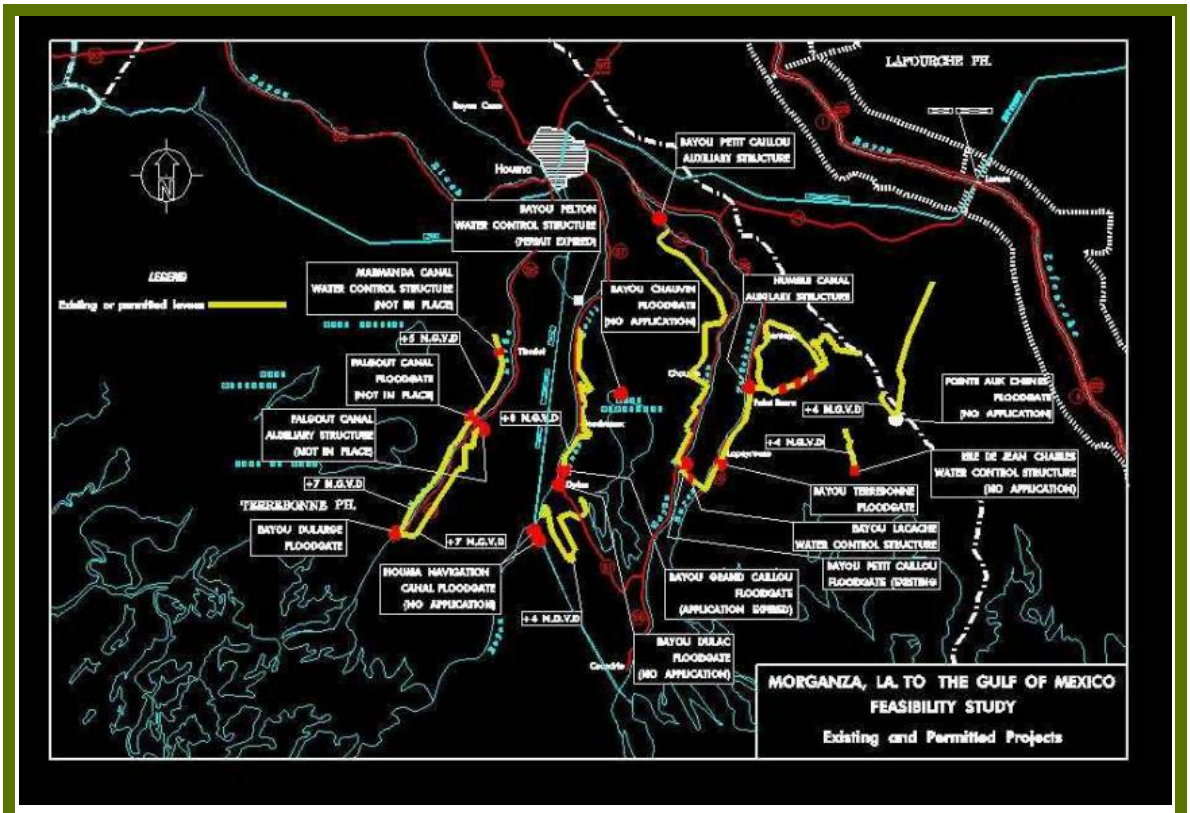

Figure S-2 Map of Existing Features of the TLCD Forced-Drainage System

Highway 57

This alternative would consist of a system of levees and floodgates to provide protection from the 100-year storm event (figure S-3; plate 5). As originally formulated, it consisted of some 87 miles of levees, 11 floodgates, a lock, 12 fish and wildlife structures, and several drainage structures. The modified alternative has about 72 miles of levees and the same number of structures. At least three of the fish and wildlife structures would be replacements of existing structures. Four of the floodgates already exist. Levee widths would vary from 54-200 feet and adjacent borrow areas, where feasible, would range from 118-210 feet in width.

The strategy for an overall hurricane protection system in Terrebonne Parish was to provide flood control and wetlands protection at the same time. The plan envisions as its primary feature, a levee/flood wall, from the western side of Terrebonne Parish, traversing the southern portion of the parish and connecting with the south Lafourche hurricane protection system at Larose.

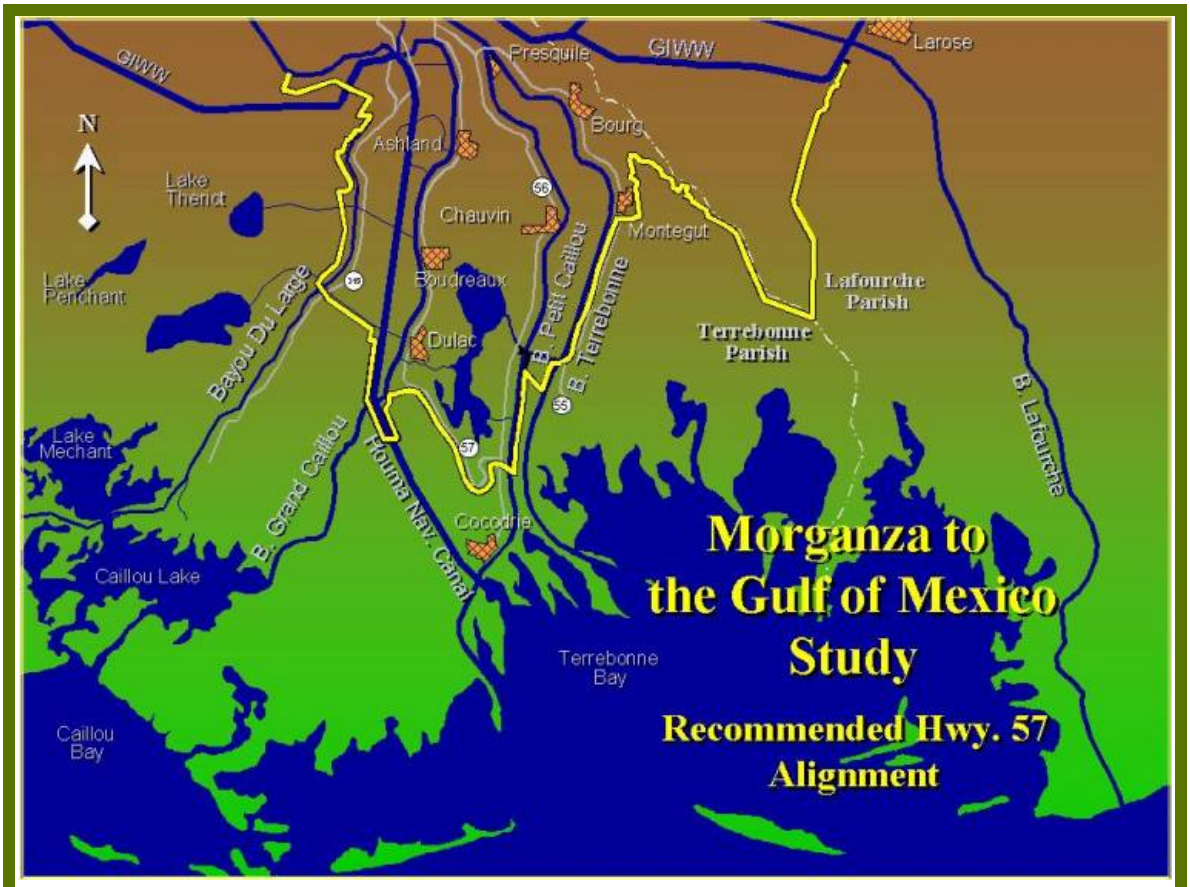

FIGURE S-3 Modified Highway 57 Alternative

Reconnaissance

This alternative has approximately 52 miles of earthen levee, 8 floodgates, 7 fish and wildlife structures, and several drainage structures (figure S-4; plate 7). East of Bayou Petit Caillou, the Reconnaissance Alternative is identical to the Highway 57 Alternative. At Bayou Petit Caillou the Reconnaissance Alternative turns north, crosses the bayou and continues north along the west side of the bayou. Two of the floodgates already exist. At least two of the fish and wildlife structures would be replacements of existing structures. Levee widths would vary from 40-300 feet and adjacent borrow areas, where feasible, would range from 41-354 feet in width.

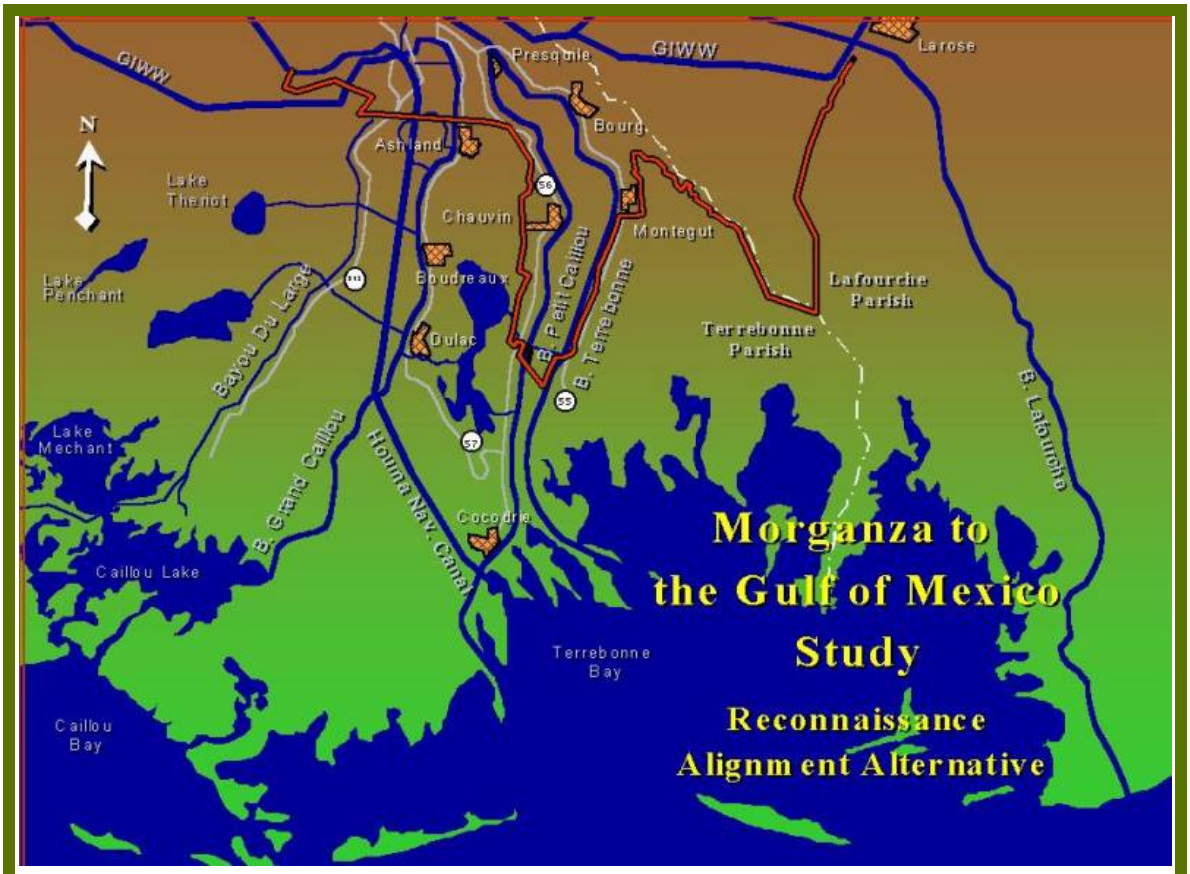

FIGURE S-4 Reconnaissance Alternative Map

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Affected Environment

The study area is located mostly in Terrebonne Parish (southeast Louisiana at the northern edge of the Gulf of Mexico). It contains a variety of communities including the City of Houma, several smaller towns, and many rural developments. There are several habitat types represented such as swamp, bayou, brackish marsh, ponds, and embayments. A total of 550,990 acres, mostly marshlands and associated water bodies south of Houma, were analyzed for habitat characteristics. A portion of Lafourche Parish between Bayou Lafourche and Bayou Pointe au Chien is also included in the study area. The study area is approximately 40 miles wide from east to west and 32 miles from the north to south boundaries.

The study area lies within the Barataria-Terrebonne estuary. This estuary extends from the west bank levee of the Mississippi River (north and east), to the East Guide Levee of the Atchafalaya River (west), to the Gulf of Mexico (south), and to the town of Morganza (north). The Terrebonne Basin covers an area of about 2,063,500 acres. The study area lies within the southern end of the Terrebonne Basin and contains a complex of habitat types, including natural levees, lakes, swamps, marshes, and bayous formed from sediments of abandoned Mississippi River deltas. Elevations in the study area vary. Near Houma, the largest city in the area, the elevation is about 10 feet National Geodetic Vertical Datum (NGVD). The elevation along the bayou

ridges is 4-5 feet NGVD and it is less than 1 foot NGVD along the southern portion near the Gulf of Mexico.

Within the study area natural hydrology has been altered by canals, pipelines, hydrocarbon removal, roads, railroads, navigation channels, levees, and marsh management structures. The entire area is subsiding, which results in a large-scale land loss. From 1978-1990, the loss rate was 1.2 percent per year. This equals nearly 11 square miles per year.

Environmental Consequences

No Action Alternative

The TLCD would continue to operate forced drainage systems in the area, but no comprehensive hurricane protection system would be built because of cost limitations. Nearly 35 percent of the remaining vegetated wetlands in a ½ million-acre evaluation area would be lost over the next 50 years because of subsidence and erosion. The area would remain vulnerable to flooding from hurricanes. The 24,769 residences and 880 commercial structures in the study area would not receive any additional hurricane protection, nor would the 7,643 residences predicted to be built over the project life of 50 years.

Highway 57 Alternative

The TLCD would operate a flood control system including a hurricane protection system for up to a category 3 hurricane. It could have up to 3,743 acres of direct impact to emergent wetlands. However, land loss rates would be reduced slightly and habitat quality of protected wetlands would be improved over the project life.

The alignment for the most part builds on natural ridges, roadbeds, or existing levees that have been built for other purposes such as forced drainage or marsh management. Of the estimated 72 miles of levee proposed in the current alignment, approximately 15 miles would cross part of the estuaries that are currently open to estuarine exchange. Thus, levee would follow existing hydrologic barriers and would cause few indirect impacts on estuarine hydrology. The proposed project includes numerous environmental water control structures in the levees to allow hydrologic exchange through the protection levees. Existing wetlands on the ‘inside’ would still be tidal wetlands.

Reconnaissance Alternative

The TLCD would operate a flood control system, including a partial hurricane protection system for up to a category 3 hurricane. Hurricane protection would not be provided for communities along Bayou du Large and Bayou Grand Caillou. It could result in up to 1,332 acres of direct impact to emergent wetlands. However, land loss rates would be reduced slightly in protected areas and habitat quality of protected wetlands would be improved over the project life.

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