DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
7400 LEAKE AVE
NEW ORLEANS LA 70118-3651

REPLY TO ATTENTION OF

Regional Planning and Environment
Division South
Environmental Planning Branch

DRAFT
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT #583a
MISSISSIPPI RIVER AND TRIBUTARIES MORGANZA TO THE GULF OF MEXICO, LOUISIANA
MITIGATION FOR THE HUMBLE CANAL GATE SITE PREPARATION AND INITIAL LEVEE PRELOAD, TERREBONNE PARISH, LOUISIANA

Description of the Proposed Action:

The U.S. Army Corps of Engineers (USACE), Mississippi River Valley Division (MVD), Regional Planning and Environmental Division South (RPEDS), has prepared this Supplemental Environmental Assessment (SEA) #583a for New Orleans District (CEMVN) to clarify an incorrect statement made in EA#583, which stated that fresh marsh and brackish marsh mitigation credits would be purchased in the Terrebonne Basin, rather than in the Deltaic Plain. The anticipated impacts from the construction of the Humble Canal preload levee project were assessed in the Final Environmental Assessment (EA #583) titled "Mississippi River and Tributaries Morganza to the Gulf of Mexico, Louisiana (MRT- MTG) Humble Canal Gate Site Preparation and Initial Levee Preload, Terrebonne Parish, Louisiana". The Finding of No Significant Impact (FONSI) for EA #583 was approved by the CEMVN Commander on 3 April 2022 and is incorporated herein by reference as "EA #583".

This SEA #583a has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's (CEQ) Regulations (40 Code of Federal Regulations [CFR] 1500-1508), as reflected in the USACE Engineering Regulation (ER) 200-2-2. This SEA #583a provides sufficient information on the potential adverse and beneficial environmental effects of the project to allow the District Commander to make an informed decision on the appropriateness of preparing an Environmental Impact Statement (EIS) or approving a FONSI.

The proposed action of this SEA is to purchase fresh and brackish marsh mitigation credits from a USACE-approved mitigation bank within the Deltaic Plain in order to satisfy compensatory mitigation requirements that would be incurred by construction of the MRT-MTG Humble Canal gate site preload levee. Tidal marsh mitigation banks in Louisiana have a service area of either

the Chenier or Deltaic Plain, not individual basins within the plains. As the Humble Canal gate site is located within the Deltaic Plain, mitigation credits would be purchased from a bank in the plain with a primary service area that includes the area impacted by construction.

The purpose of the proposed action is to clarify an incorrect statement made in EA#583, which stated that fresh marsh and brackish marsh mitigation credits would be purchased in the Terrebonne Basin, rather than in the Deltaic Plain. When unavoidable impacts occur, the CEMVN is required to offset those impacts through compensatory mitigation by replacing the lost habitat's functions and services equally and in-kind. Compensatory mitigation is required by the Water Resources Development Act (WRDA) of 1986, Section 906, as amended and by the Clean Water Act Section 404(b)(1) Guidelines and is required to be consistent with the policies set forth in 33 CFR 320.4(r), 325 and 332 (REGS), the CEQ implementing regulations for the NEPA, the February 6, 1990, Memorandum of Agreement between the USACE and the Environmental Protection Agency (MOA) and WRDA 2007 §2036(a).

Purchasing mitigation bank credits within the Deltaic Plain is necessary in order to fully satisfy the requirement to mitigate for project impacts concurrently with construction of the Humble Canal preload levee. Anticipated impacts to relevant resources resulting from the initial levee construction are described in EA #583.

Authority for the Proposed Action:

The MRT-MTG project was originally authorized for Federal construction by Section 1001(24) of the Water Resources Development Act (WRDA) of 2007, Public Law 110-114, in accordance with the Reports of the Chief of Engineers dated August 23, 2002, and July 22, 2003.
In accordance with the Post Authorization Change Report of the Chief of Engineers dated July 8, 2013, MRT-MTG was then re-authorized by Section 7002(3)5 of the Water Resources Reform and Development Act (WRRDA) 2014, Public Law (P.L.) 113-121, as follows:

> *"SEC. 7002(3)5. AUTHORIZATION OF FINAL FEASIBILITY STUDIES. The following final feasibility studies for water resources development and conservation and other purposes are authorized to be carried out by the Secretary substantially in accordance with the plan, and subject to the conditions, described in the respective reports designated in this section: (3) HURRICANE AND STORM DAMAGE RISK REDUCTION.— "*

A. ***State***	***B.*** ***Name***	***C.*** ***Date of Report of Chief of Engineers***	***D.*** ***Estimated Initial Costs and Estimated Renourishment Costs***
5. LA	*Morganza to the Gulf*	*July 8, 2013*	*Federal: $6,695,400,000* *Non-Federal: $3,604,600,000* *Total: $10,300,000,000*

Factors Considered in Determination:

In accordance with the National Environmental Policy Act (NEPA) and other applicable laws and regulations, the U.S. Army Corps of Engineers, New Orleans District (CEMVN) has assessed the

impacts of the No Action alternative and the Proposed Action alternatives on important resources, including but not limited to navigation, wetlands, wildlife, aquatic resources/fisheries, essential fish habitat, threatened and endangered species, water and sediment quality, noise and vibration, air quality, cultural, tribal, recreational, and visual resources, environmental justice and socioeconomics. The proposed action would have no direct, indirect, or cumulative significant impacts to these relevant resources. All reasonable means of avoiding and minimizing adverse environmental effects have been adopted. EA #583 disclosed that unavoidable impacts to the approximately 2.42 average annual habitat units (AAHUs) of fresh marsh and 0.58 AAHUs of brackish marsh that will require compensatory mitigation as in-kind mitigation bank credits from a Corps-approved mitigation bank within the Deltaic Plain.

Coastal Zone Management Act of 1972

The Coastal Zone Management Act requires that "each federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs." Coordination with the Louisiana Department of Natural Resources (LDNR) on a modified coastal zone consistency for the proposed action is ongoing and will be included in the final draft of SEA #583a and FONSI.

Any bank credits purchased would be in-kind and from a USACE-approved mitigation bank that is consistent with the Louisiana Coastal Resources Program.

Fish and Wildlife Coordination Act of 1934

The Fish and Wildlife Coordination Act (“FWCA”) provides authority for the USFWS involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It requires Federal agencies that construct, license, or permit water resource development projects to first consult with the USFWS, NMFS and state resource agencies regarding the impacts on fish and wildlife resources and measures to mitigate these impacts. Section 2(b) requires the USFWS to produce a Coordination Act Report (“FWCAR”) that details existing fish and wildlife resources in a project area, potential impacts due to a proposed project and recommendations for a project. Coordination with USFWS is ongoing and will be included in the final draft of SEA #583a and FONSI.

National Historic Preservation Act of 1966

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. For the action described in this SEA #583a and as defined by 36 CFR Part 800.3(a)(1), the Federal Action has no potential to cause effect to historic properties.

Decision:

CEMVN has assessed the environmental impacts of the proposed action on relevant resources in SEA #583a and has determined that the proposed action would have no significant impact on the human and natural environment. It would complete the mitigation required to fully offset the fresh and brackish marsh impacts from levee construction of the MRT-MTG project.

Implementing the proposed action would consist of the purchase of mitigation bank credits that would offset the loss of 2.42 AHHUs of fresh marsh and 0.58 AAHUs of brackish marsh impacts within the Deltaic Plain.

I have reviewed the SEA #583a and have considered public and agency comments and recommendations. I have determined that the recommended plan would have no significant impact on the human environment.

Date

DRAFT
CULLEN A. JONES, P.E., PMP
COL, EN
Commanding

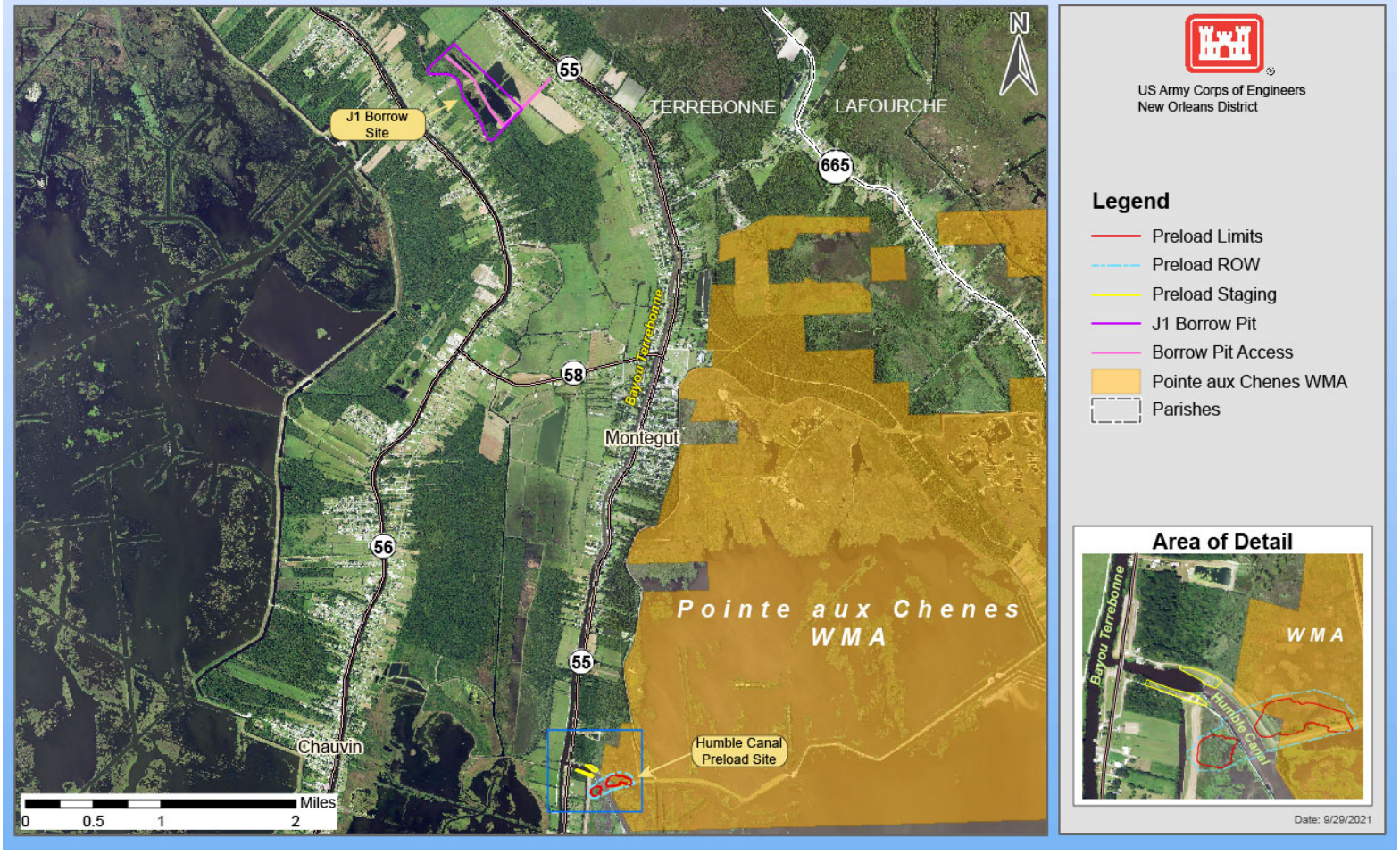
DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT #583a

Mississippi River and Tributaries

Morganza to the Gulf of Mexico, Louisiana (MRT-MTG)

Mitigation for the Humble Canal Gate Site Preparation and Initial Levee Preload

Terrebonne Parish, Louisiana



U.S. Army Corps of Engineers
Mississippi Valley Division
Regional Planning and Environment Division South
New Orleans District

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1 Introduction

The U.S. Army Corps of Engineers (USACE), Mississippi River Valley Division (MVD), Regional Planning and Environmental Division South (RPEDS), has prepared this Supplemental Environmental Assessment (SEA) #583a for New Orleans District (CEMVN) to clarify an incorrect statement made in EA#583, which stated that fresh marsh and brackish marsh mitigation credits would be purchased in the Terrebonne Basin, rather than in the Deltaic Plain.[1] The anticipated impacts from the construction of the Humble Canal preload levee project were assessed in the Final Environmental Assessment (EA #583) titled "Mississippi River and Tributaries Morganza to the Gulf of Mexico, Louisiana (MRT- MTG) Humble Canal Gate Site Preparation and Initial Levee Preload, Terrebonne Parish, Louisiana". The Finding of No Significant Impact (FONSI) for EA #583 was approved by the CEMVN Commander on 3 April 2022 and is incorporated herein by reference as "EA #583".

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[1] A copy of EA #583 can be accessed online at: https://www.mvn.usace.army.mil/Missions/Environmental/NEPA-Compliance-Documents/Project-Pages/Mississippi-River-and-Tributaries/

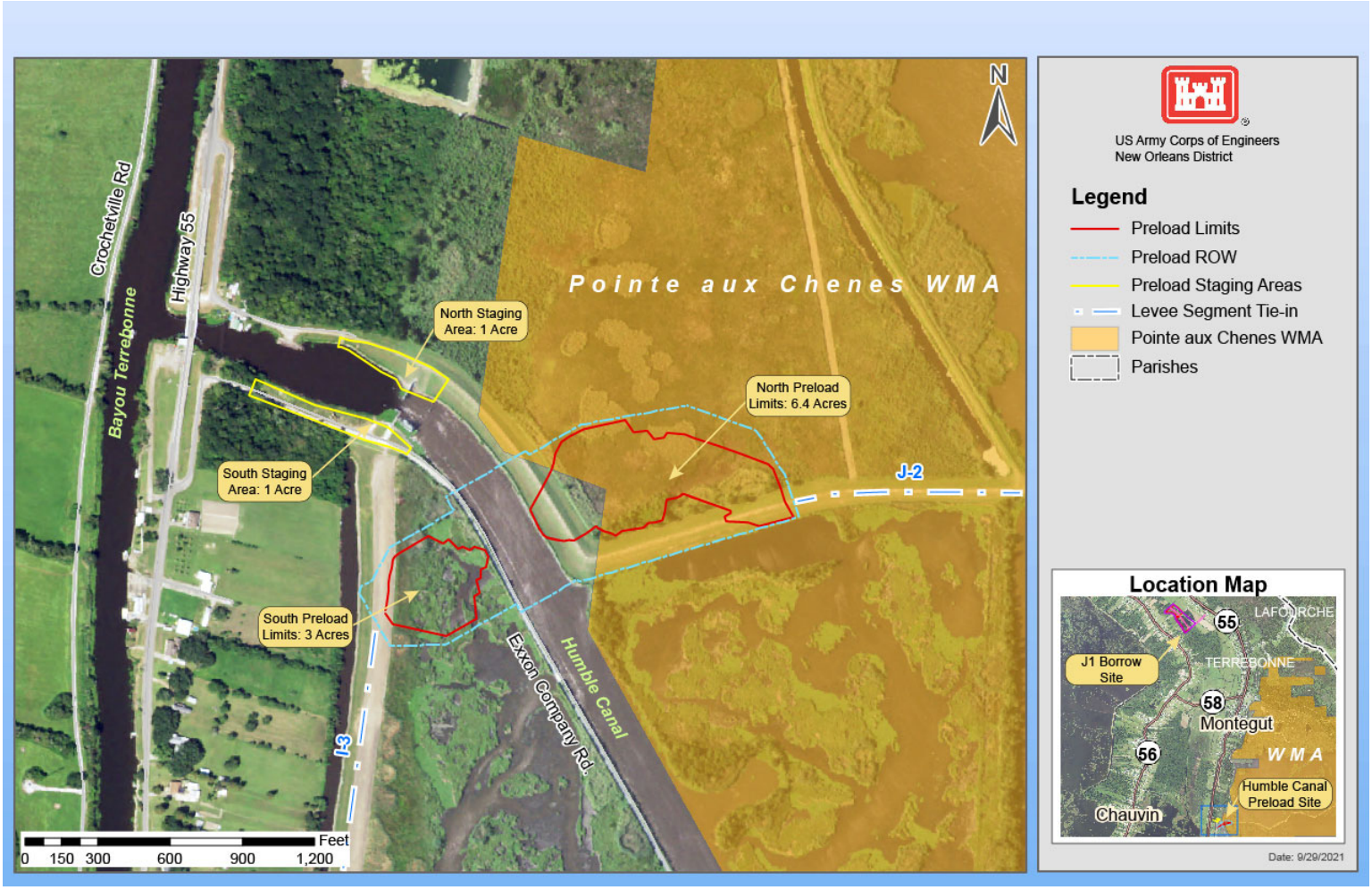

Figure 1: MRT-MTG Humble Canal Preload Project Location

1.1 Authority

The MRT-MTG project was originally authorized for Federal construction by Section 1001(24) of the Water Resources Development Act (WRDA) of 2007, Public Law 110-114, in accordance with the Reports of the Chief of Engineers dated August 23, 2002, and July 22, 2003.
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A MRT-MTG project history timeline of authorizations, studies, and tropical storm events from 1985 through 2012 is provided in Appendix B of EA #583.

1.2 Purpose and Need for the Proposed Action

The purpose of the proposed action is to clarify an incorrect statement made in EA#583, which stated that fresh marsh and brackish marsh mitigation credits would be purchased in the Terrebonne Basin, rather than in the Deltaic Plain. When unavoidable impacts occur, the CEMVN is required to offset those impacts through compensatory mitigation by replacing the lost habitat's functions and services equally and in-kind. Compensatory mitigation is required by the Water Resources Development Act (WRDA) of 1986, Section 906, as amended and by the Clean Water Act Section 404(b)(1) Guidelines and is required to be consistent with the policies set forth in 33 CFR 320.4(r), 325 and 332 (REGS), the CEQ implementing regulations for the NEPA, the February 6, 1990, Memorandum of Agreement between the USACE and the Environmental Protection Agency (MOA) and WRDA 2007 §2036(a).

Purchasing mitigation bank credits within the Deltaic Plain is necessary in order to fully satisfy the requirement to mitigate for project impacts concurrently with construction of the Humble Canal preload levee. Anticipated impacts to relevant resources resulting from the initial levee construction are described in EA #583.

1.3 Data Gaps and Uncertainties

ER1105-2-100: Planning Guidance Notebook (PGN) Appendix C Chapter C-4 states that the policy of the Army Civil Works program is that mitigation planning will be accomplished in a watershed context and will be concurrent with construction of other project features. EA #583 mistakenly defined the watershed for the Humble Canal preload levee to be the Terrebonne Basin even though tidal marsh mitigation banks have a service area of either the Deltaic Plain or Chenier Plain. As the MRT-MTG Humble Canal preload site is located within the Deltaic Plain, this is the appropriate watershed. The purchase of marsh mitigation bank credits within the Terrebonne Basin is not implementable, as there are no banks within the Terrebonne Basin with the necessary mitigation bank credits.

This action is supported by WRDA 2016 Section 1040, which states that the service area of the mitigation bank must include the watershed in which the impacts to water resources occur, that the bank must be capable of providing complete fulfillment of compensation required at the time of construction, and that mitigation acquisition cannot be completed over time as credits become available. To maintain compliance with ER 1105-2-100 and WRDA 2016, this SEA provides an assessment of the Deltaic Plain, the appropriate watershed for this action, which does include the MRT-MTG Humble Canal preload site.

2 Wetland Value Assessment

The effects of alternatives to fish and wildlife resources were evaluated using the Wetland Value Assessment (WVA) methodology as part of EA #583. See Appendix C of EA #583 for the WVA model results and summary of assumptions. The final U.S. Fish and Wildlife Coordination Act Report (FWCAR) dated October 24, 2021 (EA #583, Appendix D) also offers information about the WVA process. See **Error! Reference source not found.** below for a summary of impacts by acres and AAHUs accounting for the revised preload construction described in EA #583.

Table 1: Wetland Impacts of Humble Canal Gate Site Initial Preload Levee Construction

Wetland Habitat Type	Approximate Acres Impacted	AAHUs Impacted
Fresh marsh (impounded)	6.0	2.42
Brackish marsh (not impounded)	4.6	0.58
Total:	10.6	3

3 Alternatives Including the Proposed Action

The following are alternatives that were considered to enable CEMVN to fully satisfy the mitigation requirement that would be incurred through construction of the Humble Canal preload levee, as approved in EA #583. The proposed action of SEA #583a would correct an error in EA #583, which mistakenly committed that fresh and brackish marsh mitigation credits would be purchased from a mitigation bank located within the Terrebonne Basin rather than the Deltaic Plain.

3.1 No-Action Alternative

NEPA requires that in analyzing alternatives to a proposed action, a Federal agency must consider an alternative of “No Action.” The No-Action alternative evaluates the impacts associated with not implementing the proposed action and represents the Future without Project (FWOP)

condition against which alternatives considered in detail are compared. The FWOP provides a baseline essential for impact assessment and alternative analysis.

The No-Action Alternative would be to implement the approved action of EA #583, which is to fulfil the mitigation requirement through the purchase of mitigation bank credits within the Terrebonne Basin. This alternative is not implementable because there are no mitigation banks located within the Terrebonne Basin that have fresh and brackish marsh credits available for purchase; Because the fresh and brackish marsh habitats that would be impacted by construction are tidal, the appropriate watershed to consider for the purchase of mitigation bank credits is the Deltaic Plain, where these type credits are available. As such, implementation of the No-Action Alternative would not be legally compliant with applicable laws and regulations, as compensatory mitigation could not occur. Specifically, the No-Action Alternative would result in the permanent loss of 6.0 acres (2.42 AAHUs) of fresh marsh and 4.6 acres (0.58 AAHUs) of brackish marsh.

3.2 Proposed Action

The proposed action of this SEA is to purchase fresh and brackish marsh mitigation credits from a USACE-approved mitigation bank within the Deltaic Plain in order to satisfy compensatory mitigation requirements that would be incurred by construction of the MRT-MTG Humble Canal gate site preload levee. As discussed in Section 1.3, tidal marsh mitigation banks in Louisiana have a service area of either the Chenier or Deltaic Plain, not individual basins within the plains. As the Humble Canal gate site is located within the Deltaic Plain, mitigation credits would be purchased from a bank in the plain with a primary service area that includes the area impacted by construction.

4 Affected Environment

This section describes the natural and human environment as well as the relevant resources of the project area. A description of the affected environment of the complete Humble Canal Gate Site and Initial Preload Levee project area is presented in EA #583.

4.1 Description of the Watershed

The Deltaic Plain in coastal Louisiana covers approximately 13,490,155 acres of land. It includes all of St. Martin Parish, Iberia, St. Mary, Assumption, Terrebonne, Lafourche, St. Charles, Jefferson, Plaquemines, St. Bernard, Orleans, St, John the Baptist, Ascension, Livingston, St. Helena, and Tangipahoa; it also includes parts of Rapides Parish, Avoyelles, Evangeline, St. Landry, Pointe Coupe, Iberville, Lafayette, East Baton Rouge, East Feliciana, Washington, and St. Tammany, Amite County, and Pike County. The Deltaic Plain includes parts of the Atchafalaya, Barataria, Lake Pontchartrain, Mississippi River, Terrebonne, and Vermillion-Teche Basins. With the exception of the Mississippi River Delta, which is an active deltaic lobe, these basins are abandoned delta complexes and are characterized by a thick section of unconsolidated sediments that are undergoing dewatering and compaction, contributing to high subsidence, and a network of old distributary ridges extending southward to the Gulf of Mexico (CWPPRA 2021).

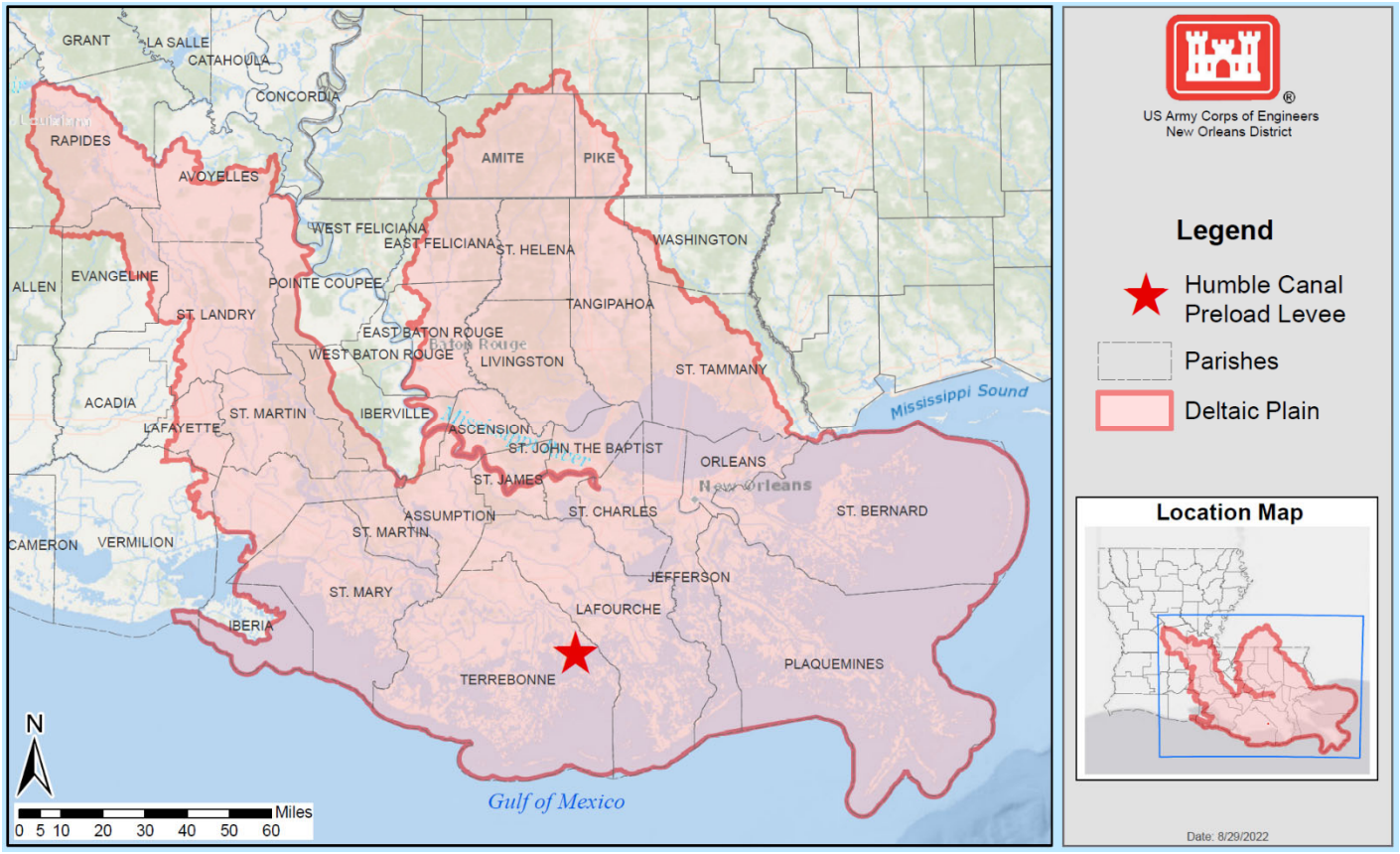

Figure 2: Deltaic Plain Watershed Location Map

4.1.1 Geomorphic and Physiographic Setting

The soils of the natural levees in the Deltaic Plain were formed by alluvial sediment deposits between 700 and 7,400 years ago by former channels of the Mississippi River and its distributaries on the Atchafalaya, Lafourche, Plaquemines, St. Bernard, and Teche Delta Complexes (McDaniel & Trahan 2007). The Natural Resources Conservation Service (NRCS) classifies soils within the watershed as typically loam, silt, and clays mixed with organic matter. The soil composition is subject to change as floodwaters and storm surges deposit new sediments. These soils are classified as continuously flooded deep, poorly drained and permeable mineral clays and mucky clays. Marsh and swamp deposits are found in the vicinity of the river from New Orleans to the Heads of Passes at the Gulf of Mexico. Marsh deposits are primarily organic, consisting of 60 percent or more by volume of peat and other organic material with the remainder being a composition of various types of clays. Total organic thickness is normally 10 feet, with variances less than one foot. Inland swamp deposits are composed of approximately 70 percent clay and 30 percent peat and organic materials. The percentage of sand and sandy silts increases with proximity to the open waters of the Gulf of Mexico.

Natural levees, silty uplands, and flatwoods are used mainly for cropland, urban, and industrial purposes, with some areas being pasture and woodland. The clayey soils on the lowest parts of the landscape are subject to occasional or frequent flooding. These are used mainly for timber production, pasture, recreation, and wildlife. Some narrow, loamy, natural levee ridges extending

into the Gulf Coast Marsh are subject to occasional flooding during tropical storms and are used mainly for camps, home sites, and activities associated with the seafood industry (USACE 1974).

4.2 Relevant Resources

This section contains a description of relevant resources that could be impacted by the proposed project. The important resources described are those recognized by laws, executive orders (EO's), regulations, and other standards of National, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the public. Table 2 lists relevant resources and designates whether the resource would be impacted by the proposed action. Table 1 in Appendix A provides summary information of the institutional, technical, and public importance of these resources.

The only relevant resource discussed in this report is socioeconomics. Final EA #583 found that construction of the Humble Canal preload levee would not have significant impacts to any of the relevant resources. Refer to EA #583 for that analysis. The resources listed below in Table 2 would not be impacted by the purchase of fresh marsh and brackish marsh credits from a USACE-approved mitigation bank in the Deltaic Plain, therefore no further analysis of impacts from the current proposed action is necessary. See Section 7.0 for information regarding compliance with environmental laws and regulations.

Table 2: Relevant Resource Impacts for the Proposed Action

Relevant Resource	Impacted	Not Impacted
Navigation		X
Wetlands		X
Aquatic Resources/Fisheries		X
Wildlife		X
Essential Fish Habitat		X
Threatened, Endangered, and Protected Species		X
Water and Sediment Quality		X
Air Quality		X
Cultural Resources[1]		X
Tribal Resources		X
Recreational Resources		X
Aesthetics (Visual Resources)		X
Environmental Justice		X
Noise and Vibration		X
Socioeconomics		X
Hazardous, Toxic, and Radioactive Waste (HTRW)		X

[1]Although not impacted, cultural resources are addressed in Section 7 to comply with the National Historic Preservation Act.

4.2.1 Socioeconomics

The Humble Canal preload levee project construction impacts would be mitigated in the Deltaic Plain. Socioeconomic resources are institutionally significant because of the NEPA of 1969 and the River and Harbor Flood Control Act of 1970. Of particular relevance is the degree to which the proposed action affects public health, safety, and economic well-being and the quality of the human environment. These resources are technically significant because the social and economic welfare of the communities of the southeast Louisiana coast may be positively or adversely impacted by the proposed action. These resources are publicly significant because of the public's concern for economic and social well-being from water resources projects.

The region of influence (ROI) includes all counties/parishes in the Deltaic Plain: Allen Parish, Ascension Parish, Assumption Parish, Avoyelles Parish, East Baton Rouge Parish, East Feliciana Parish, Evangeline Parish, Franklin Parish, Iberia Parish, Iberville Parish, Jefferson Parish, Lafayette Parish, Lafourche Parish, Livingston Parish, Orleans Parish, Plaquemines Parish, Pointe Coupee Parish, Rapides Parish, St. Bernard Parish, St. Charles Parish, St. Helena Parish, St. James Parish, St. John the Baptist Parish, St. Landry Parish, St. Martin Parish, St. Mary Parish, St. Tammany Parish, Tangipahoa Parish, Terrebonne Parish, Vermilion Parish and Washington Parish in Louisiana. Additionally, the ROI includes Amite County, Lincoln County, Pike County, Wilkinson County in Mississippi.

4.2.1.1 Population and Housing

Population

Population and household characteristics in the region of influence determine consumption patterns, land use activities, and future development patterns. Table A-2 in Appendix A represents the populations for 35 parishes/counties within the ROI. The vast majority of the areas did not experience an increase or decrease of more than 20% in a 10-year period between the decennial censuses. Four parishes within Louisiana have distinguished growth over time – those are Ascension Parish, Lafayette Parish, Livingston Parish, and St. Tammany Parish. The Ascension Parish experienced a growth rate of 36% in the 1970s, 1990s, and 2000s. Lafayette Parish had a growth rate of 36% in the 1970s. Livingston Parish had a growth rate of 63% in the 1970s and 35% in the 1990s and 2000s. The St. Tammany Parish population increased by 76% in the 1970s, 29% in the 1980s, and 35% in the 1990s, but it has since continued to grow at a slower rate. These growth rates are affected by individuals moving from the city to the suburbs over time which include these parishes as well as better infrastructure to commute, such as the 24-mile bridge stretching from New Orleans to St. Tammany Parish. During the 2000s, there is a decrease in population in the Orleans (-29%), Plaquemines (-14%), and St. Bernard (-46%) Parishes in which all were hit heavily by Hurricane Katrina. The changes are then reflected by growth in Ascension Parish (36%), Livingston Parish (35%), St. Tammany Parish (20%), and Tangipahoa Parish (20%) since these were the areas where individuals fled. Post-Katrina population in the ROI continued to increase at steady incremental rate; these trends are expected to continue from 2020 - 2040.

Households

Table A-3 in Appendix A shows the number of households in the ROI from the year 1970 to the year 2040. The number of households in the ROI increased for all parishes/counties between 1970 and 1980 with the most notable being St. Tammany Parish (51%), Livingston Parish (44%), and Lafayette (40%). These increases closely mirror the population increases during this time as described in Figure 1. In between 2000 and 2010, there were significant decreases in housing for Orleans Parish and St. Bernard Parish. This represents the effect of Hurricane Katrina on the affected areas during this time. Because of this, we see an increase of 29% for households in the Livingston and Ascension parishes. After 2010, the number of households remained consistent for a vast number of the parishes in the ROI and are projected to remain steadily increasing.

4.2.1.2 Labor and Employment

Labor Force

Labor and employment numbers illustrate the level the economic activity in the ROI, which is an integral part of the social and economic environment. The labor force includes all citizens over the age of 16 employed or actively seeking employment in the ROI.

Table A-4 in Appendix A displays the total labor force for each county/parish in the ROI from 1990-2040. Labor force participation has been volatile for the ROI. In between 1990 and 2000 we see a general increase in the labor force. The largest increases were in the following parishes: Ascension (41%), St. Tammany (41%), Livingston (34%), and Tangipahoa (28%). The labor force is closely related to the employment industry which experienced growth in the professional and business services, leisure and hospitality, education and health services industries at a rate of 53%, 49%, and 40%, respectively. From 2010 and 2020, we see a large decrease in the overall labor force in the ROI. Since oil prices fluctuated heavily during this time and the ROI is sensitive to changes in the oil and gas market, we see individuals leaving the labor force.

Moody's Analytics predicts that the labor force will flatten out between 2020 and 2040. As concerns over climate change increase there is pressure to move away from a dependence on fossil fuels. The year 2020 saw another collapse in the price of oil, but as oil prices recover and consumers and producers look for energy efficient solutions, there will likely be changes in the employment market.

Unemployment Rate

The unemployment rate is the percentage of people that are unemployed out of the total labor force. The unemployment rate is another proxy for the overall health of the economy. Table A-5 in Appendix A shows the unemployment rate for the ROI.

Overall, unemployment trends are similar for all parishes/counties in the ROI. Unemployment rates were at its lowest for the ROI in 2000 and then increased over the next two decades. Overall,

the unemployment rate in the ROI is relatively low. As mentioned previously, historically, employment in the ROI sensitive to the price of oil and gas though the unemployment rate is much more sensitive to changes to the market than the labor force because people only drop out of the labor force when economic conditions are so bad that they stop seeking employment altogether. The spikes in unemployment correspond with an overall decline in the price of oil. There are significant decreases in the price of oil in 2001, 2008, 2015, 2016, and 2020. Moody's Analytics projects that unemployment levels will decrease steadily over the next two decades.

Employment by Industry

The type of employment in the ROI gives us an idea of what industries are important to the ROI. Table A-6 in Appendix A shows the employment by industry for the entire ROI. The biggest industry in the ROI is the trade, transportation, and utilities industry. Despite the trade, transportation, and utilities industry being the largest component of employment, the ROI does have a diverse employment portfolio. There are large number of individuals employed by the Government and Education & Health Services sectors. The Education & Health services sector has increased at a high rate and is now the second leading sector for employment of the ROI, surpassing the Governmental sector. This is due to the increase in medical facilities that are in operation in the ROI. The natural resource and mining industry pays the highest wages in ROI. Moody's Analytics predicts that trade, transportation, and utilities will remain the most popular industry in the ROI followed by Education & Health Services and Government.

Income Per Capita

Income per capita serves as a proxy for regional and community economic growth. Table A-7 in Appendix A shows the income per capita for the ROI for the years 1970, 1980, 1990, 2000, 2010, 2020, 2030 and 2040. St. Tammany's income per capita has increased and is projected to continue increasing at a higher rate than other parishes in the ROI. Income per capita in the ROI increased throughout the past 50 years in response to economic growth and inflation.

5 Environmental Consequences

This section provides the environmental impacts of the alternatives, including the No-Action and the Proposed Action. For each alternative, the analysis includes an assessment of both adverse and beneficial direct, indirect and cumulative impacts as well as the magnitude and duration of the impact.

Direct Impacts: Those caused as a direct result of the action. These impacts occur at the same time and in the same place as the proposed action. This includes both adverse and beneficial impacts as well as permanent and temporary impacts.

Indirect Impacts: Those caused by the proposed action and occurring later in time or further in distance from the proposed action. These impacts don't occur immediately, but they can be reasonably foreseen as a result of the action. (Example: If 500,000 cubic yards of material are deposited in Site A, Site B, which is downstream, may experience a decrease in water quality during construction of the proposed action due to suspended sediments in the water column. This

action could occur weeks or months after the initial placement of material due to the time needed for the sediments to travel to Site B)

Cumulative Impacts: Those impacts which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (Example: The proposed action may cause a minor disruption in the water column during construction activities, but when coupled with 15 other earth moving projects in the vicinity, the disruption to water quality and the aquatic resources in the area becomes more significant)

5.1 Socioeconomics

Future Conditions with No-Action

Direct Impacts and Indirect Impacts

Under the No-Action alternative, mitigation credits would not be purchased in the Deltaic Plain. Employment, income, housing, social connectedness, and all other measures of socioeconomics would be the same as the existing conditions.

Future Conditions with the Proposed Action

Direct Impacts and Indirect Impacts

With the proposed action in place, in-kind mitigation bank credits would be purchased in the Deltaic Plain. Mitigation banks within the Deltaic Plain are private enterprises that are a part of the existing conditions, as they are already established on the landscape and are available for mitigation transactions such as the proposed action.

The proposed action would not result in changes to population, housing, labor, or employment. There is no population or housing within the boundaries of mitigation banks because these areas are already reserved for restoration of aquatic resources and no new land would be taken out of private use for the proposed action. As banks are already established as part of existing conditions, the proposed action would not impact labor or employment. While there would be a reduction in the total number of credits available for purchase within the Deltaic Plain, mitigation bank credits must be purchased in order for banks to complete the restoration of aquatic resources; There are ample mitigation bank credits in the plain to satisfy the compensatory mitigation requirement of the proposed action and any private actions in the future. Therefore, there would be no impacts to socioeconomics resulting from implementation of this proposed action.

5.2 Cumulative Impacts Analysis

The Proposed Action purchases mitigation credits from existing approved mitigation banks. As such, no new cumulative impacts to relevant resources, specifically socioeconomics, would be incurred from the purchase of these credits for the Humble Canal Preload and Initial Levee mitigation. The purchase of credits from a permitted bank with a service area that includes the Humble Canal Preload Levee site (the Deltaic Plain) offsets the loss of existing habitats. The

replacement of lost habitats provided by the Proposed Action would prevent additional habitat losses from occurring within the Deltaic Plain.

6 Coordination and Public Involvement

A Public Notice for this draft SEA and draft FONSI is being published on CEMVN website at https://www.mvn.usace.army.mil/Missions/Environmental/NEPA-Compliance-Documents/Project-Pages/Mississippi-River-and-Tributaries/ for a 15-day public review and comment.

The draft SEA and draft FONSI are being coordinated with appropriate Congressional, Federal, state, and local interests, as well as environmental groups and other interested parties. The following agencies, as well as other interested parties, received copies of the draft SEA and draft FONSI:

- Louisiana Department of Environmental Quality, Water Permits Division
- Louisiana Department of Natural Resources, Office of Coastal Management
- Louisiana Office of Cultural Development, Louisiana State Historic Preservation Officer
- U.S. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Region
- U.S. Fish and Wildlife Service, Louisiana Ecological Services Field Office
- U.S. Environmental Protection Agency, Region VI
- U.S. Federal Emergency Management Agency, Region VI
- U.S. Natural Resources Conservation Service, State Conservationist

7 Compliance with Environmental Laws and Regulations

Environmental Compliance is achieved through coordination with appropriate agencies and organizations, and release of the draft SEA and draft FONSI to the public for its review and comment. LDNR concurrence with the determination that the proposed action is consistent, to the maximum extent practicable, with the Louisiana Coastal Resources Program would be the final step to achieve environmental compliance.

If the purchase of mitigation bank credits were determined not appropriate, not cost effective, or for other reasons not feasible, then CEMVN would prepare another supplemental document exploring other options to fully satisfy the Humble Canal Gate Site Initial Preload Levee (EA #583) fresh and brackish marsh mitigation requirement in compliance with all relevant laws and policies.

7.1 Coastal Zone Management Act of 1972

The Coastal Zone Management Act requires that "each federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs." Coordination with the Louisiana Department of Natural Resources (LDNR) on a modified coastal zone consistency for the proposed action is ongoing and will be included in the final draft of SEA #583a and FONSI.

Any bank credits purchased would be in-kind and from a USACE-approved mitigation bank that is consistent with the Louisiana Coastal Resources Program.

7.2 Fish and Wildlife Coordination Act of 1934

The Fish and Wildlife Coordination Act ("FWCA") provides authority for the USFWS involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It requires Federal agencies that construct, license or permit water resource development projects to first consult with the USFWS, NMFS and state resource agencies regarding the impacts on fish and wildlife resources and measures to mitigate these impacts. Section 2(b) requires the USFWS to produce a Coordination Act Report ("FWCAR") that details existing fish and wildlife resources in a project area, potential impacts due to a proposed project and recommendations for a project. Coordination with USFWS is ongoing and will be included in the final draft of SEA #583a and FONSI.

7.3 National Historic Preservation Act of 1966

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. For the action described in this SEA #583a and as defined by 36 CFR Part 800.3(a)(1), the Federal Action has no potential to cause effect to historic properties.

8 Conclusion

CEMVN has assessed the environmental impacts of the proposed action on relevant resources in SEA #583a. The proposed action would have no significant direct, indirect, or cumulative impacts to relevant resources in the watershed. It would complete the mitigation required to fully offset the fresh and brackish marsh impacts from construction of the MRT-MTG Humble Canal gate site preload levee. The proposed action would replace the marsh damaged by construction of the Humble Canal preload levee within the Deltaic Plain, which is environmentally preferable to allowing the permanent loss of those habitats. All practical means to avoid and minimize environmental harm have been adopted.

Implementation of the proposed action would consist of the purchase of mitigation bank credits that would offset the loss of 2.42 AAHUs of fresh marsh and 0.58 AAHUs of brackish marsh impacts in the Deltaic Plain.

9 Prepared By

Draft SEA #583a and the associated draft FONSI were prepared by Shelby Barrett with relevant sections reviewed and conducted by the following:

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10 References

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APPENDIX A: TABLES

Table A-1: Relevant Resources and Their Institutional, Technical, and Public Importance

Resource	Institutionally Important	Technically Important	Publicly Important
Aesthetics (Visual Resources)	USACE ER 1105-2-100, and National Environmental Policy Act of 1969, the Coastal Barrier Resources Act of 1990, Louisiana's National and Scenic Rivers Act of 1988, and the National and Local Scenic Byway Program.	Visual accessibility to unique combinations of geological, botanical, and cultural features that may be an asset to a watershed. State and Federal agencies recognize the value of beaches and shore dunes.	Environmental organizations and the public support the preservation of natural pleasing vistas.
Air Quality	Clean Air Act of 1963, Louisiana Environmental Quality Act of 1983.	State and Federal agencies recognize the status of ambient air quality in relation to the NAAQS.	Virtually all citizens express a desire for clean air.
Aquatic Resources/ Fisheries	Fish and Wildlife Coordination Act of 1958, as amended; Clean Water Act of 1977, as amended; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968.	They are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of the various freshwater and marine habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.
Cultural and Historic Resources	National Historic Preservation Act (NHPA), as amended, and Section 106 and 110 of the NHPA; the Native American Graves Protection and Repatriation Act of 1990; the Archeological Resources Protection Act of 1979; and USACE's Tribal Consultation Policy (2012).National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979	Federal, State, and Tribal stakeholders document and protect cultural resources including archaeological sites, districts, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and/or sites of religious and cultural significance based on their association or linkage to past events, to historically important persons, to design and construction values, and for their ability to yield important information about prehistory and history. State and Federal agencies document and protect sites, their association or linkage to past events, to historically important persons, and to design and construction values, and their ability to yield important information about prehistory and history.	Preservation groups and private individuals support protection and enhancement of historical resources.

Resource	Institutionally Important	Technically Important	Publicly Important
Environ-mental Justice	Executive Order 12898 of 1994 (E.O. 12898) and the Department of Defense's Strategy on Environmental Justice of 1995	State and Federal agencies recognize social and economic welfare of minority and low-income populations	Public concerns about the fair and equitable treatment (fair treatment and meaningful involvement) of all people with respect to environmental and human health consequences of Federal laws, regulations, policies, and actions.
Essential Fish Habitat (EFH)	Magnuson-Stevens Fishery Conservation and Management Act of 1996, Public Law 104-297	Federal and state agencies recognize the value of EFH. The Act states, EFH is "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity."	Public places a high value on seafood and the recreational and commercial opportunities EFH provides.
Navigation	Rivers and Harbors Act of 1899 and River and Harbor Flood Control Act of 1970 (PL 91-611).	The Corps provides safe, reliable, efficient, and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation.	Navigation concerns affect area economy and are of significant interest to community.
Noise and Vibration	USACE ER 1105-2-100, and National Environmental Policy Act of 1969, Noise Control Act of 1972, Quiet Communities Act of 1978USACE ER 1105-2-100 and National Environmental Policy Act of 1969	Unwanted noise has an adverse effect on human beings and their environment, including land, structures, and domestic animals and can also disturb natural wildlife and ecological systems.	The EPA must promote an environment for all Americans free from noise that jeopardizes their health and welfare.
Recreation Resources	Federal Water Project Recreation Act of 1965 as amended, and Land and Water Conservation Fund Act of 1965 as amended	Provide high economic value of the local, state, and national economies.	Public makes high demands on recreational areas. There is a high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana.
Socio-Economic Resources	USACE ER 1105-2-100, and National Environmental Policy Act of 1969River and Harbor Flood Control Act of 1970 (PL 91-611).	When an environmental document is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental document will discuss all of these effects on the human environment.	Social concerns and items affecting area economy are of significant interest to community.

Resource	Institutionally Important	Technically Important	Publicly Important
Threatened, and Endangered, and Protected Species	The Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940.	USACE, USFWS, NMFS, NRCS, EPA, LDWF, and LDNR cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem.	The public supports the preservation of rare or declining species and their habitats.
Water Quality	Clean Water Act of 1977, Fish and Wildlife Coordination Act, Coastal Zone Mgt Act of 1972, and Louisiana State & Local Coastal Resources Act of 1978.	USACE, USFWS, NMFS, NRCS, EPA, and State DNR and wildlife/fishery offices recognize value of fisheries and good water quality and the national and state standards established to assess water quality.	Environmental organizations and the public support the preservation of water quality and fishery resources and the desire for clean drinking water.
Wetlands	Clean Water Act of 1977, as amended; EO 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968., EO 11988, and Fish and Wildlife Coordination Act.	They provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities.	The high value the public places on the functions and values that wetlands provide. Environmental organizations and the public support the preservation of marshes.
Wildlife	Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918	They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.

Table A-2 – Total Population 1970 - 2040

Humble Canal Population, (Ths.)								
Parish/County	**1970**	**1980**	**1990**	**2000**	**2010**	**2020**	**2030**	**2040**
Allen Parish (LA)	20.83	21.42	21.23	25.40	25.74	22.75	25.93	26.07
Amite County (MS)	13.79	13.36	13.26	13.55	13.11	12.72	11.83	11.70
Ascension Parish (LA)	37.14	50.48	58.41	79.21	107.85	126.50	144.11	156.46
Assumption Parish (LA)	19.68	22.24	22.70	23.19	23.35	21.04	22.17	21.85
Avoyelles Parish (LA)	37.81	41.47	39.12	41.27	42.09	39.69	40.43	40.07
East Baton Rouge Parish (LA)	285.60	368.58	381.20	411.67	440.73	456.78	435.40	422.16
East Feliciana Parish (LA)	17.68	19.06	19.19	20.98	20.17	19.54	17.49	16.39
Evangeline Parish (LA)	31.98	33.53	33.29	35.15	33.96	32.35	32.86	32.68
Franklin Parish (LA)	23.98	24.20	22.35	21.07	20.82	19.77	19.77	19.48
Iberia Parish (LA)	57.48	64.32	68.25	72.99	73.25	69.93	68.99	65.05
Iberville Parish (LA)	30.79	32.23	31.04	33.33	33.36	30.24	30.14	28.27
Jefferson Parish (LA)	338.75	456.62	448.57	453.15	432.75	440.78	466.71	478.88
Lafayette Parish (LA)	111.81	151.60	165.27	191.73	222.15	241.75	269.60	282.52
Lafourche Parish (LA)	69.05	83.47	85.81	90.11	96.68	97.56	99.22	99.50
Lincoln County (MS)	7.98	10.15	11.11	12.56	13.31	34.91	14.62	15.20
Livingston Parish (LA)	36.57	59.45	70.76	95.60	128.71	142.28	154.99	162.82
Orleans Parish (LA)	594.38	558.43	495.74	487.36	347.90	384.00	416.80	427.67
Pike County (MS)	31.87	36.30	36.83	38.99	40.44	40.32	40.63	41.00
Plaquemines Parish (LA)	25.26	26.13	25.53	27.03	23.12	23.52	25.13	25.79
Pointe Coupee Parish (LA)	22.04	24.10	22.48	22.57	22.76	20.76	20.53	19.35
Rapides Parish (LA)	118.26	135.56	131.49	126.21	131.79	130.02	133.25	133.62
St. Bernard Parish (LA)	51.26	64.51	66.72	68.03	36.81	43.76	48.58	49.84
St. Charles Parish (LA)	29.60	37.52	42.47	48.46	52.84	52.55	56.50	57.97
St. Helena Parish (LA)	9.95	9.82	9.88	10.52	11.17	10.92	9.39	8.85
St. James Parish (LA)	19.76	21.57	20.84	21.29	22.01	20.19	23.07	23.67
St. John the Baptist Parish (LA)	23.85	32.30	40.06	43.58	45.62	42.48	46.67	47.89
St. Landry Parish (LA)	80.49	84.45	80.19	86.42	83.49	82.54	82.55	82.23
St. Martin Parish (LA)	32.50	40.52	44.12	48.97	52.26	51.77	53.29	52.23
St. Mary Parish (LA)	60.84	64.55	57.99	53.04	54.54	49.41	51.57	50.84
St. Tammany Parish (LA)	63.68	112.15	145.07	195.62	234.57	264.57	267.54	274.51
Tangipahoa Parish (LA)	65.98	81.10	85.75	101.66	121.49	133.16	133.06	134.68
Terrebonne Parish (LA)	76.17	95.09	97.04	105.26	111.55	109.58	115.31	115.88
Vermilion Parish (LA)	43.14	48.74	50.01	54.22	58.09	57.36	59.55	58.48
Washington Parish (LA)	42.05	44.31	43.16	43.99	47.10	45.46	47.96	48.86
Wilkinson County (MS)	11.12	10.03	9.71	10.31	9.86	8.59	8.10	7.87
Source: U.S. Census (BOC); Moody's Analytics (ECCA) Forecast								

Table A-3 – Number of Households 1970 - 2040

Humble Canal Households, (Ths.)								
Parish/County	**1970**	**1980**	**1990**	**2000**	**2010**	**2020**	**2030**	**2040**
Allen Parish (LA)	6.12	7.28	7.08	8.11	8.52	8.14	9.49	9.92
Amite County (MS)	3.88	4.36	4.81	5.26	5.35	5.416	5.16	5.22
Ascension Parish (LA)	10.04	15.62	19.40	27.00	38.05	44.03	55.85	62.96
Assumption Parish (LA)	4.97	6.53	7.38	8.23	8.72	8.94	9.06	9.24
Avoyelles Parish (LA)	11.09	13.57	13.47	14.76	15.45	15.22	16.26	16.71
East Baton Rouge Parish (LA)	81.50	125.17	139.02	156.74	172.44	164.64	185.54	186.18
East Feliciana Parish (LA)	3.79	5.09	5.58	6.69	7.00	7.01	6.67	6.50
Evangeline Parish (LA)	9.57	11.31	11.80	12.76	12.83	12.39	13.57	13.97
Franklin Parish (LA)	6.83	8.10	7.76	7.77	7.93	7.50	8.23	8.39
Iberia Parish (LA)	15.62	20.10	22.83	25.40	26.81	26.78	27.61	26.95
Iberville Parish (LA)	8.15	9.66	9.87	10.70	11.08	11.11	11.05	10.78
Jefferson Parish (LA)	95.75	156.40	166.50	176.41	169.89	170.40	201.34	213.79
Lafayette Parish (LA)	30.51	50.87	60.60	72.53	87.34	92.48	115.20	124.69
Lafourche Parish (LA)	18.01	25.70	28.82	32.05	35.65	36.65	40.03	41.52
Lincoln County (MS)	7.98	10.15	11.11	12.56	13.31	13.13	14.62	15.20
Livingston Parish (LA)	10.37	18.67	23.89	33.00	46.30	48.69	61.14	66.65
Orleans Parish (LA)	191.46	206.80	187.79	189.02	143.98	154.83	188.68	200.03
Pike County (MS)	9.74	12.39	13.39	14.84	15.40	14.56	16.63	17.18
Plaquemines Parish (LA)	6.54	7.78	8.20	9.04	8.11	8.60	9.79	10.44
Pointe Coupee Parish (LA)	5.85	7.72	7.72	8.41	9.07	90.56	8.90	8.68
Rapides Parish (LA)	33.85	44.86	45.92	47.26	50.52	49.08	55.38	57.48
St. Bernard Parish (LA)	13.72	20.73	23.19	25.20	13.57	15.17	19.79	21.06
St. Charles Parish (LA)	7.59	11.57	14.35	16.47	18.60	19.31	22.08	23.52
St. Helena Parish (LA)	2.56	3.07	3.33	3.89	4.32	3.89	3.96	3.87
St. James Parish (LA)	4.63	6.07	6.42	7.00	7.69	7.91	8.96	9.55
St. John the Baptist Parish (LA)	5.77	9.42	12.73	14.38	15.88	15.25	18.05	19.24
St. Landry Parish (LA)	21.90	26.93	27.43	32.29	31.93	30.50	34.47	35.54
St. Martin Parish (LA)	8.44	12.27	14.68	17.20	19.27	19.66	21.47	21.78
St. Mary Parish (LA)	16.10	20.13	19.42	19.31	20.44	19.63	21.13	21.58
St. Tammany Parish (LA)	17.84	36.11	50.54	69.71	87.92	95.05	110.66	117.67
Tangipahoa Parish (LA)	18.49	26.10	29.68	36.68	45.33	48.55	54.15	56.75
Terrebonne Parish (LA)	19.60	29.50	31.86	36.16	40.02	40.37	45.37	47.19
Vermilion Parish (LA)	12.76	16.27	17.75	19.98	21.95	22.18	24.53	24.91
Washington Parish (LA)	12.94	15.44	15.47	16.51	18.10	17.79	20.12	21.21
Wilkinson County (MS)	3.07	3.19	3.36	3.58	3.45	3.35	3.07	3.06
Source: U.S. Census (BOC); Moody's Analytics (ECCA) Forecast								

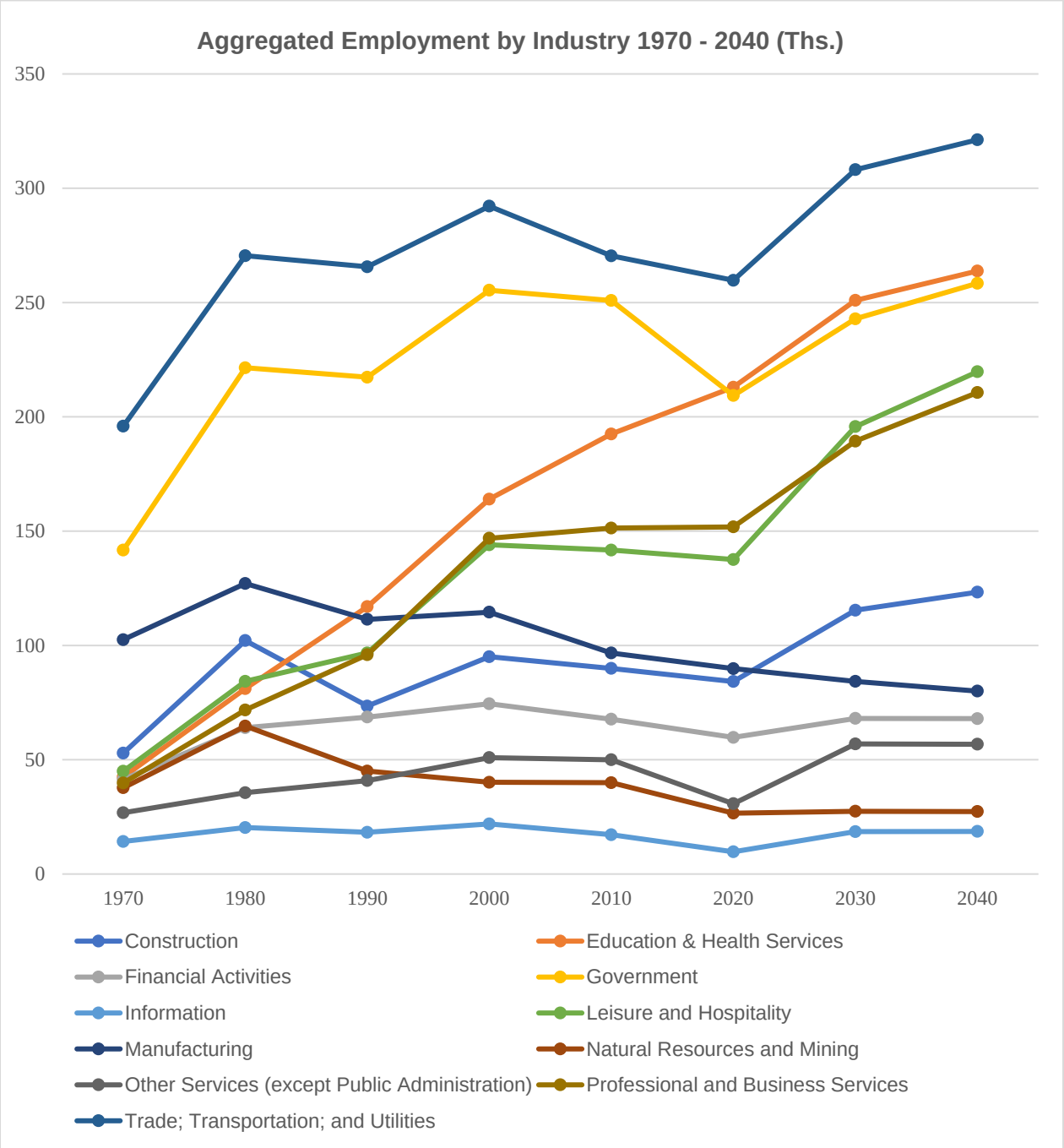
Table A-4 – Labor Force 1990 - 2040

Humble Canal Labor Force, (Ths)						
Parish/County	**1990**	**2000**	**2010**	**2020**	**2030**	**2040**
Allen Parish (LA)	7.54	8.74	9.40	8.39	9.04	9.30
Amite County (MS)	5.03	5.57	4.98	4.28	4.32	4.39
Ascension Parish (LA)	27.20	38.47	53.39	64.28	73.80	82.88
Assumption Parish (LA)	9.32	10.01	10.07	8.77	9.50	9.58
Avoyelles Parish (LA)	14.50	15.74	16.87	14.93	15.79	16.01
East Baton Rouge Parish (LA)	195.74	207.37	221.98	225.97	234.94	235.64
East Feliciana Parish (LA)	7.21	8.29	8.10	7.57	7.60	7.37
Evangeline Parish (LA)	11.42	12.16	13.14	11.94	12.67	12.89
Franklin Parish (LA)	8.84	8.22	8.33	7.32	7.30	7.35
Iberia Parish (LA)	28.96	30.53	32.24	27.49	28.81	28.21
Iberville Parish (LA)	12.73	12.64	14.03	13.64	13.62	13.21
Jefferson Parish (LA)	227.90	232.24	216.26	209.46	235.32	249.85
Lafayette Parish (LA)	82.77	97.49	113.57	114.14	126.35	137.49
Lafourche Parish (LA)	36.71	41.14	45.07	41.15	43.74	44.15
Lincoln County (MS)	13.13	14.78	14.46	14.29	14.78	15.42
Livingston Parish (LA)	33.46	44.86	61.28	68.73	77.10	83.78
Orleans Parish (LA)	206.74	211.30	162.59	179.77	192.44	204.31
Pike County (MS)	15.11	16.14	15.61	7.46	15.04	15.58
Plaquemines Parish (LA)	10.16	11.04	10.03	9.53	11.08	11.76
Pointe Coupee Parish (LA)	9.02	9.77	10.00	9.45	9.74	9.50
Rapides Parish (LA)	55.98	55.79	58.82	54.68	58.72	60.77
St. Bernard Parish (LA)	31.34	32.27	15.95	20.00	20.70	21.98
St. Charles Parish (LA)	19.68	23.96	25.48	24.36	27.48	29.17
St. Helena Parish (LA)	3.64	4.06	4.72	4.24	4.15	4.04
St. James Parish (LA)	8.88	8.86	10.13	8.84	10.50	11.15
St. John the Baptist Parish (LA)	17.97	20.06	21.53	19.18	21.90	23.25
St. Landry Parish (LA)	29.80	32.79	34.31	32.18	33.41	34.05
St. Martin Parish (LA)	19.01	21.38	24.05	21.77	22.84	23.24
St. Mary Parish (LA)	24.69	22.53	25.18	19.38	23.12	23.32
St. Tammany Parish (LA)	68.35	96.61	108.76	116.65	124.06	131.72
Tangipahoa Parish (LA)	35.32	45.25	53.66	56.13	56.00	58.46
Terrebonne Parish (LA)	40.52	45.88	50.91	45.66	49.80	50.37
Vermilion Parish (LA)	20.19	23.35	25.64	23.58	24.69	25.18
Washington Parish (LA)	15.93	16.81	17.11	16.61	17.77	18.51
Wilkinson County (MS)	3.45	3.54	3.44	2.72	2.62	2.62
Source: Bureau of Labor Statistics (BLS); Moody's Analytics (ECCA) Forecast						

Table A-5 – Unemployment Rate 1990 – 2040

Humble Canal Unemployment Rate (%)						
Parish/County	**1990**	**2000**	**2010**	**2020**	**2030**	**2040**
Allen Parish (LA)	9.83	6.74	9.84	9.70	6.50	6.20
Amite County (MS)	6.12	5.29	11.91	8.20	8.33	8.43
Ascension Parish (LA)	6.45	5.29	7.45	7.10	6.20	5.99
Assumption Parish (LA)	6.56	6.43	11.57	10.70	8.01	7.64
Avoyelles Parish (LA)	9.71	6.39	8.39	8.50	6.93	6.61
East Baton Rouge Parish (LA)	4.84	4.62	7.60	8.30	6.47	6.25
East Feliciana Parish (LA)	6.00	5.74	8.35	7.20	7.11	6.87
Evangeline Parish (LA)	7.32	5.96	8.57	8.30	7.26	6.92
Franklin Parish (LA)	8.06	7.35	11.09	8.70	8.93	8.51
Iberia Parish (LA)	4.66	5.80	8.61	10.10	9.57	9.06
Iberville Parish (LA)	7.85	7.07	10.04	10.50	8.51	8.22
Jefferson Parish (LA)	5.60	4.60	7.38	9.70	6.82	6.39
Lafayette Parish (LA)	4.14	4.10	6.24	7.50	6.40	6.06
Lafourche Parish (LA)	4.09	4.49	6.14	6.90	6.50	6.42
Lincoln County (MS)	7.64	5.38	10.50	7.20	6.50	6.57
Livingston Parish (LA)	7.02	5.65	7.52	6.80	6.38	6.16
Orleans Parish (LA)	7.07	5.45	8.69	12.50	7.58	7.10
Pike County (MS)	7.92	6.29	11.61	8.80	7.68	7.76
Plaquemines Parish (LA)	6.14	5.82	6.06	7.50	6.87	6.44
Pointe Coupee Parish (LA)	9.41	6.31	8.67	8.40	8.08	7.80
Rapides Parish (LA)	5.93	5.42	7.60	6.70	7.20	6.93
St. Bernard Parish (LA)	7.78	5.46	8.34	10.50	7.90	7.40
St. Charles Parish (LA)	6.07	5.58	7.41	8.20	6.83	6.39
St. Helena Parish (LA)	6.57	5.77	13.12	12.20	9.58	9.26
St. James Parish (LA)	7.87	8.59	11.66	10.40	9.64	9.02
St. John the Baptist Parish (LA)	7.95	6.79	10.60	11.70	8.78	8.22
St. Landry Parish (LA)	8.34	6.51	9.60	9.20	7.90	7.53
St. Martin Parish (LA)	5.62	5.56	7.95	8.70	8.03	7.60
St. Mary Parish (LA)	6.28	7.39	9.41	9.70	8.90	8.49
St. Tammany Parish (LA)	5.91	4.33	6.30	7.10	6.47	6.06
Tangipahoa Parish (LA)	9.29	6.47	9.71	10.10	7.60	7.13
Terrebonne Parish (LA)	4.36	4.65	6.47	8.20	7.17	7.08
Vermilion Parish (LA)	5.47	5.32	7.28	7.90	7.83	7.42
Washington Parish (LA)	8.26	6.22	9.61	8.70	7.04	6.71
Wilkinson County (MS)	8.99	8.40	13.80	12.80	11.30	11.43
Source: Bureau of Labor Statistics (BLS); Moody's Analytics (ECCA) Forecast						

Table A-6 – Employment by Industry 1970 – 2040



Source: Bureau of Labor Statistics: Census of Employment & Wages; Moody's Analytics (ECCA) Forecast.

Table A-7 – Income Per Capita 1970 – 2040

Humble Canal Income Per Capita (USD)								
Parish/County	**1970**	**1980**	**1990**	**2000**	**2010**	**2020**	**2030**	**2040**
Allen Parish (LA)	2,406	6,284	10,055	16,410	26,196	37,054	45,731	62,632
Amite County (MS)	2,008	5,420	9,533	17,923	25,620	37,692	48,933	65,335
Ascension Parish (LA)	2,837	8,639	14,977	24,052	39,416	54,395	70,172	98,014
Assumption Parish (LA)	2,356	7,789	12,052	19,613	32,771	51,585	65,012	93,710
Avoyelles Parish (LA)	2,083	5,769	10,606	17,568	29,761	41,977	54,113	75,078
East Baton Rouge Parish (LA)	3,714	10,407	18,006	27,228	39,651	56,484	68,922	91,605
East Feliciana Parish (LA)	2,196	6,958	12,740	20,049	33,122	44,787	63,699	90,851
Evangeline Parish (LA)	2,069	6,662	10,931	16,422	31,438	37,820	56,065	77,870
Franklin Parish (LA)	2,108	5,066	10,631	17,654	27,129	37,754	50,613	71,423
Iberia Parish (LA)	2,653	8,863	13,517	20,423	34,986	44,242	60,068	83,442
Iberville Parish (LA)	2,564	7,742	13,220	18,681	32,342	46,461	58,906	81,283
Jefferson Parish (LA)	3,962	10,427	18,086	28,376	42,033	55,373	75,451	111,512
Lafayette Parish (LA)	3,116	11,085	17,091	27,807	43,379	52,507	86,298	129,201
Lafourche Parish (LA)	2,829	9,200	13,239	23,485	40,391	48,741	65,374	86,354
Lincoln County (MS)	2,488	6,430	12,248	20,257	30,468	42,121	50,723	64,677
Livingston Parish (LA)	2,748	7,765	13,170	21,521	32,621	45,620	60,836	87,144
Orleans Parish (LA)	3,774	9,553	17,500	26,386	41,769	57,421	76,039	112,316
Pike County (MS)	2,460	6,437	11,378	18,784	26,870	34,718	45,305	59,056
Plaquemines Parish (LA)	3,189	9,659	15,589	21,536	42,074	51,456	74,587	109,724
Pointe Coupee Parish (LA)	2,351	6,969	12,629	21,701	34,894	52,332	67,352	95,361
Rapides Parish (LA)	3,055	7,845	15,139	23,850	36,021	50,226	70,025	97,864
St. Bernard Parish (LA)	3,411	9,229	14,164	22,345	30,112	36,093	41,711	59,669
St. Charles Parish (LA)	3,188	10,462	16,908	24,634	39,557	53,148	77,117	117,900
St. Helena Parish (LA)	1,938	5,391	10,059	16,821	34,136	48,743	65,482	93,737
St. James Parish (LA)	2,761	8,378	13,920	18,722	38,421	56,880	73,418	111,557
St. John the Baptist Parish (LA)	2,597	7,692	14,470	20,002	33,894	45,927	70,793	110,131
St. Landry Parish (LA)	2,034	6,872	11,916	17,718	32,982	46,131	65,257	94,492
St. Martin Parish (LA)	2,142	6,966	10,829	17,912	32,060	42,203	70,747	110,861
St. Mary Parish (LA)	2,919	8,740	12,716	21,602	35,400	45,760	59,886	82,423
St. Tammany Parish (LA)	3,440	10,045	18,197	29,945	46,995	70,190	128,443	233,156
Tangipahoa Parish (LA)	2,326	6,717	11,975	19,557	32,725	41,792	59,381	84,497
Terrebonne Parish (LA)	2,953	9,571	13,307	20,821	38,788	45,942	71,469	103,019
Vermilion Parish (LA)	2,412	7,808	12,404	19,226	33,391	42,526	65,439	96,302
Washington Parish (LA)	2,702	6,866	11,636	18,081	28,022	38,515	48,458	65,476
Wilkinson County (MS)	2,018	5,955	9,513	14,667	24,322	34,759	44,778	60,079
Source: U.S. Census (BOC); Moody's Analytics (ECCA) Forecast								

APPENDIX B: LIST OF ACROYNMS

LIST OF ABBREVIATIONS, ACRONYMS, AND GLOSSARY OF COMMON TERMS

AAHUs	Average Annual Habitat Units
CEMVN	US Army Corps of Engineers, Mississippi Valley Division New Orleans District
CFR	Code of Federal Regulations
CWPPRA	Coastal Wetlands Planning, Protection, and Restoration Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
ER	Engineering Regulation
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
FWCAR	Fish and Wildlife Coordination Act Report
FWOP	Future without Project
HTRW	Hazardous, toxic and radioactive waste
LA	Louisiana
LDNR	Louisiana Department of Natural Resources
MRT-MTG	Mississippi River and Tributaries Morganza to the Gulf of Mexico
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NMFS	NOAA National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
PL	Public Law
ROD	Record of Decision
U.S.	United States
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau
USFWS	U.S. Fish and Wildlife Service
WRDA	Water Resources Development Act
WRRDA	Water Resources Reform and Development Act
WVA	Wetland Value Assessment