# Mississippi River, Baton Rouge to the Gulf of Mexico
# Mississippi River-Gulf Outlet, Louisiana,
# New Industrial Canal Lock and Connecting Channels Project

## Supplemental Draft Integrated General Reevaluation Report and Supplemental Environmental Impact Statement



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**US Army Corps of Engineers®**

**U.S. Army Corps of Engineers**
**Mississippi Valley Division**
**New Orleans District**
**May 2025**

# Mississippi River, Baton Rouge to the Gulf of Mexico, Mississippi River-Gulf Outlet, Louisiana, New Industrial Canal Lock and Connecting Channels Project Supplemental Draft Integrated General Reevaluation Report and Supplemental Environmental Impact Statement Orleans Parish, Louisiana

**ABSTRACT.** This 2025 supplemental draft integrated general reevaluation report (GRR) and supplemental environmental impact statement (SEIS) documents the changes in the study area since the 1997 Evaluation Report and environmental impact statement and January 6, 2017, draft GRR/SEIS (hereinafter referred to as the "draft 2017 report"). The recommended plan in the Evaluation Report was the locally preferred plan of the non-Federal sponsor at that time (the Port of New Orleans), which was a new 1200ft.L x 110ft.W x 36ft. deep navigation lock located within the Industrial Canal, also known as the Inner Harbor Navigation Canal or IHNC, between the Claiborne and Florida Avenue Bridges in Orleans Parish. In 2000, the Assistant Secretary of the Army for Civil Works determined in a Supplemental Evaluation Report for the project that a Federal interest existed in the deep draft increment of the cost share project, such that USACE should share in the cost of construction of the deep draft increment as a general cargo navigation feature, in accordance with Section 101 of the Water Resources Development Act (WRDA) of 1986. The Supplemental Evaluation Report identified the Federal and non-Federal cost share obligations for the Authorized Project (consisting of the sum of the costs of the deep and shallow draft increments). Following the 2000 Supplemental Evaluation Report approval, the recommended plan (RP) was no longer considered to contain a locally preferred increment, and the collective elements of the shallow and deep draft increments were thereafter referred to as the Authorized Project. Initial construction activities for the Authorized Project were underway in August 2005 when Hurricane Katrina caused catastrophic impacts within the project area. After Hurricane Katrina, a portion of the Mississippi River-Gulf Outlet (MR-GO) was de-authorized in WRDA 2007 from the Gulf of America to the southern bank of the Gulf Intracoastal Waterway (GIWW). A physical rock barrier was constructed in 2009 in the MR-GO near Bayou La Loutre, effectively eliminating deep draft navigation from the MR-GO into the GIWW and the IHNC.

The draft 2017 report evaluated four shallow draft lock configurations in detail, as well as a no-action alternative. As noted in the draft 2017 report, Chapter 3, 3.8, Plan 3 – 900ft.L x 110ft.W x -22ft. shallow draft lock configuration NAVD88 was determined to be the NED Tentatively Selected Plan. The new lock was proposed to be constructed within the IHNC at a site between the Claiborne Avenue and Florida Avenue Bridges. After the draft 2017 report, USACE revised the proposed plan to include: construction of a 900ft.L x 110ft.W x -22ft. shallow draft cast-in-place concrete lock and associated support structures and facilities; construction of a permanent double leaf bascule bridge north of the existing St. Claude Avenue bridge, which would require acquisition of a small number of residential properties, demolition of the existing St. Claude Ave. bridge; a by-pass channel around the new lock construction site; disposal of dredged material suitable for aquatic disposal into the Mississippi River and disposal of material that is not suitable for aquatic disposal in an approved solid waste landfill site; and extension of the Mississippi River flood risk reduction levees and floodwalls along the banks of the IHNC to the site of the new lock and demolition of existing floodwalls. The revision eliminated the need for a temporary by-pass bridge north of the existing St. Claude Bridge as well as the placement of a light rail on the new permanent bridge and its approaches. Before finalizing a report, USACE determined it would take additional steps to ensure that impacts of the project would be addressed, including updating and reformulating the Community Impact Mitigation Plan, completing a traffic analysis, and developing a Traffic Mitigation Program, and developing a plan to avoid pre-existing contamination at the former Coast Guard facility. While undertaking those efforts, USACE also further refined the lock project design. Due to the extent of the changes since the draft 2017 report, USACE has prepared this 2025 supplemental draft GRR/SEIS to addresses changes since the draft 2017 report.

**Comments:** The official closing date for comments is **July 17, 2025.** Please send comments by mail to the District Engineer at U.S. Army Corps of Engineers, New Orleans District, 7400 Leake Avenue, New Orleans, Louisiana 70118. Comments may also be sent to the District Engineer via email at ihnclockreplacement@usace.army.mil.

## EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers (USACE), New Orleans District (CEMVN) has prepared this supplemental draft integrated General Reevaluation Report (GRR) and Supplemental Environmental Impact Statement (SEIS) for the Mississippi River, Baton Rouge to the Gulf of Mexico [1], Mississippi River-Gulf Outlet, Louisiana, New Industrial Canal Lock and Connecting Channels Project. Throughout the lengthy history of this Project, it has been sometimes referred to as the "Inner Harbor Navigation Canal (Industrial Canal) Lock Replacement Project". The recommended plan (RP) is to replace the existing Industrial Canal Lock, also referred to as the Inner Harbor Navigation Canal or IHNC Lock, with a 900ft.L x 110ft.W x -22ft. North American Vertical Datum (NAVD88) navigation lock (all elevations (EL) in this report are referenced to NAVD88 (epoch 2004.65), unless otherwise noted). The depth of the replacement lock is designed to safely and efficiently accommodate shallow-draft vessels plying the Gulf Intracoastal Waterway (GIWW), along with a limited number of deep-draft vessels currently using the IHNC that would be required to light load in order to safely navigate the new sill depth of 22 feet. Since the project is designed to accommodate shallow-draft, inland navigation, the cost of the project would be allocated between an appropriation of monies to the U.S. Army Corps of Engineers (USACE) from the General Fund of the United States Treasury and an appropriation of monies from the Inland Waterways Trust Fund. In accordance with the requirements of Section 102 of the Water Resources Development Act of 1986 (WRDA 1986), as amended, implementation of the construction of the actual navigation elements portion of the RP does not require the cost-sharing participation of a non-Federal sponsor (NFS). This GRR briefly and concisely presents the results of prior studies as well as additional analysis undertaken to address the feasibility of improving navigation between the Mississippi River in New Orleans, Louisiana, and the eastern segment of the GIWW.

**Figure ES-1. IHNC Lock in 1945.**


**Figure ES-2. Dedication of the IHNC Lock in 1923.**

Significant changes have occurred in the study area since the feasibility study-level Evaluation Report and environmental impact statement (EIS) was prepared in 1997 (hereinafter referred to as the 1997 Evaluation

[1] Hereinafter, where reference is made to the Congressionally authorized Project title, the use of "Gulf of Mexico" is cited per language of the statute authorizing the project. For any non-statutory references to the "Gulf of Mexico", in compliance with E.O. 14172 "Restoring Names That Honor American Greatness", "Gulf of America" is cited as the official geographical title throughout the report.

Report). The RP in the 1997 Evaluation Report was a new 1200ft.L x 110ft.W x -36ft. feet deep navigation lock located within the IHNC between the Claiborne and Florida Avenue Bridges. In the January 6, 2017, draft GRR/SEIS (hereinafter referred to as the "draft 2017 report"), a benefit/cost analysis was conducted to evaluate the economic feasibility of each of the lock replacement plans. Total cost and estimated annual costs for the project plans include the construction costs and operation and maintenance, repair, replacement, and rehabilitation (OMRR&R) costs. Construction costs, along with a schedule of expenditures, were used to determine the interest during construction and total investment costs at the end of construction. In the draft 2017 report, the National Economic Development (NED) Plan is displayed in Table 3-5, which shows the Average Annual Benefits - Cost Summary for all Plans. All plans were justified (value>1.0) at the time of the draft 2017 report. Plan 3, the 900ft.L x 110ft. W x -22ft. shallow draft lock NAVD88, had the highest benefit cost ratio at 4.78:1, and generated the greatest net excess benefits. Plan 3 was identified as both the NED and Recommended Plan in the draft 2017 report. Costs and benefits have been refined for the Recommended Plan subsequent to the draft 2017 report. Updated figures are reported at the end of this Executive Summary and in this 2025 draft report.

Navigation between the Mississippi River and waterways east of the river is via the IHNC and Lock. Construction of the IHNC and Lock was independently completed by the Port of New Orleans in 1923 to provide navigation between the Mississippi River and Lake Pontchartrain and to provide areas away from the Mississippi River for industrial development. The lock is 640ft.L x 75ft.W x -31.5ft. NAVD88 and is located on the left descending bank at Mississippi River Mile 92.6 above Head of Passes. Beginning on April 1, 1944, the USACE leased the Lock and a 2.1-mile reach of the IHNC from the Port of New Orleans and assumed its operation and maintenance (until purchasing the same facility and reach in fee in 1986). The replacement of the existing lock was conditionally authorized by an Act entitled "Mississippi River—Gulf Outlet—Construction Chapter 112—Public Law 455, An Act to authorize construction of the Mississippi River—Gulf Outlet", Public Law 86-455 2nd Session, approved March 29, 1956 (1956 Act). The 1956 Act authorized construction of the Mississippi River-Gulf Outlet (MR-GO), a navigation channel, which was completed in the mid-1960s. Additionally, the 1956 Act authorized replacement of the existing lock, or an additional lock with suitable connections when replacement was found by the Chief Engineer to be economically justified by obsolescence of the existing industrial canal lock, or by increased traffic through the lock. Type, dimensions and cost estimates were to be determined and approved by the Chief of Engineers. Studies were initiated in 1960 for a new lock and connecting channel because at that time it was estimated that the existing lock would become dimensionally obsolete by 1970. Subsequent legislation in the Water Resources Development Act (WRDA) of 1986, Section 844, Mississippi River–Gulf Outlet, modified the 1956 authorization language regarding the location of the new lock to read "…the Mississippi River -Gulf Outlet feature…is modified to provide that the replacement and expansion of the existing industrial canal lock…shall be in the area of the existing lock or at the Violet site…." The Water Resources Development Act of 1996 (WRDA 1996) authorized implementation of the Community Impact Mitigation Plan (CIMP) described in Volume 2 (Appendix A) of the preliminary draft 1995 Evaluation Report, as recommended by the District Engineer for the New Orleans District (1995 Report). At the time of the enactment of WRDA 1996 the 1995 Report had not undergone full review within USACE. The 1997 Evaluation Report, as approved by the Chief of Engineers, recommended the construction of the locally preferred plan, a deep draft lock in the vicinity of the existing lock, with dimensions of 1200ft.L x 110ft.W x -36ft. deep NAVD88, with all cost of the deep draft increment (those costs in excess of the costs allocated to the construction of the shallow draft NED plan) being borne by the Port of New Orleans. In approving the 1997 Evaluation Report, the Chief of Engineers also, within his discretionary authority, approved changes to the CIMP, as originally authorized in WRDA 1996. The 2000 Supplemental Evaluation Report, approved by the Assistant Secretary of the Army for Civil Works (ASA(CW)), determined that a Federal interest existed in the implementation of the deep draft increment (the former locally preferred increment) and established the cost-sharing requirements for the Authorized Project, which was a composite of the deep draft increment and the NED Plan (the shallow draft increment).

Initial construction activities for the RP for the amended 1997 Evaluation Report were underway in August 2005 when Hurricane Katrina caused catastrophic impacts within the project area, considerably altering socioeconomic and environmental conditions. A legal challenge to the 1997 Evaluation Report RP and supporting EIS resulted in a court-ordered injunction on continued construction of the project, pending the preparation of a Supplemental Environmental Impact Statement (SEIS). In 2009, USACE released a SEIS that examined the impacts of Hurricane Katrina on the recommended plan. The recommended plan in the 1997 EIS would construct a new lock north of Claiborne Avenue with a usable draft depth of 36 feet, a length of 1,200 feet and a width of 110 feet. This recommended plan was a larger lock than the plan which maximized the

National Economic Development (NED) benefits. The NED Plan was a lock with a usable draft depth of 22 feet instead of 36 feet, and a length of 900 feet instead of 1,200 feet. However, in the 2009 SEIS it was determined that the deeper lock would accommodate deep-draft vessels which could utilize the Port of New Orleans facilities in the MR-GO and IHNC.

**Figure ES-3. IHNC Lock 2016.**

Additionally, in the 2009 SEIS, a Float-in-place lock construction plan was recommended due to having less construction-related impacts on the community than a Cast-in-place plan. Because the lock module fabrication would take place at an off-site construction area located along the GIWW, noise, traffic and aesthetic impacts from pile driving and lock module construction would be reduced compared to the Cast-in-place plan where lock module construction would occur at the lock replacement site. Based upon an analysis of impacts and costs of the alternative plans at the North of Claiborne IHNC Lock Site, the Float-in-place plan was determined to be the new recommended plan. Although this plan was, for the most part, the same as the plan recommended in the 1997 EIS, additional evaluation led to further refinement of the location and design of the confined disposal facility, the location and size of the off-site construction area, and the method for disposal of contaminated sediments. Following its approval in May 2009, the SEIS was legally challenged. That challenge resulted in a Federal court vacating the SEIS and Record of Decision and enjoining the project until USACE comes into compliance with the National Environmental Policy Act and the Clean Water Act.

In the aftermath of Hurricane Katrina, WRDA 2007 de-authorized a portion of the Mississippi River-Gulf Outlet (MR-GO) from the Gulf of America to Mile 60 at the southern bank of the Gulf Intracoastal Waterway (GIWW). In 2009, the Corps constructed a physical rock barrier across the MR-GO near Bayou La Loutre effectively eliminating deep draft navigation from the MR-GO into the GIWW via the IHNC. Shortly thereafter, the IHNC Lake Borgne Surge Barrier was constructed across the former channel of the MR-GO near the confluence of the GIWW (22 Miles north of the rock barrier on the MR-GO) as part of the Lake Pontchartrain and Vicinity, Louisiana Hurricane and Storm Damage Risk Reduction System project. Since Hurricane Katrina, the New Orleans Metropolitan area has been in recovery to address physical and socio-economic damages to the metropolitan area.

The waterfront industry on the IHNC did not experience an economic recovery commensurate with the post-Katrina recovery of the region. There have not been any additional deep draft facilities constructed on the IHNC or the MR-GO and deep draft users of the IHNC began to relocate to facilities along the Mississippi River. By 2011, the Port of New Orleans had divested itself from deep draft navigation support by dismantling three gantry cranes at the France Road Terminal in the IHNC and installing two additional gantry cranes at the Napoleon Avenue Container Terminal located on the Mississippi River. Coinciding with the removal of the

gantry cranes by the Port of New Orleans, the number of vessels drafting greater than 20 feet through the lock dropped from 53 in 2011 down to 18 in 2014. In addition to changed conditions in deep draft navigation and facility support (or lack thereof) as previously described, the non-federal sponsor withdrew its cost-share support of a deep draft lock replacement and requested consideration of a shallow draft lock replacement alternative be evaluated in its September 2012 letter[2] to the USACE.

The draft 2017 report evaluated four IHNC navigation lock configurations in detail, as well as a no-action plan. For details of the IHNC navigation lock configurations and no-action plan, please refer to Chapter 3, Section 3.4.5 Screening of the Focused Array of Plans. As noted in the draft 2017 report, Chapter 3, 3.8, Plan 3 – 900ft.L x 110ft.W x -22ft. shallow draft lock configuration (NAVD88) was determined to be the Tentatively Selected Plan (TSP). The new lock was proposed to be constructed within the IHNC at a site between the Claiborne Avenue and Florida Avenue Bridges.

After the draft 2017 report, USACE revised the proposed plan to include: construction of a 900ft.L x 110ft.W x -22ft. shallow draft cast-in-place concrete lock and associated support structures and facilities; construction of a permanent double leaf bascule bridge north of the existing St. Claude Avenue bridge, which would require acquisition of a small number of residential properties, demolition of the existing St. Claude Ave. bridge; a by-pass channel around the new lock construction site; disposal of dredged material suitable for aquatic disposal into the Mississippi River and disposal of material that is not suitable for aquatic disposal in an approved solid waste landfill site; and extension of the Mississippi River flood risk reduction levees and floodwalls along the banks of the IHNC to the site of the new lock and demolition of existing floodwalls. The revision eliminated the need for a temporary by-pass bridge north of the existing St. Claude Bridge as well as the placement of a light rail on the new permanent bridge and its approaches.

Before finalizing a report, USACE determined it would take additional steps to ensure that impacts of the project would be addressed, including updating and reformulating the Community Impact Mitigation Plan, completing a traffic analysis and developing a Traffic Mitigation Program, and developing a plan to avoid pre-existing contamination at the former Coast Guard facility. While undertaking those efforts, USACE also further refined the lock project design. Due to the extent of the changes since the draft 2017 report, USACE has prepared this 2025 supplemental draft GRR/SEIS to addresses changes since the draft 2017 report.

In recognition of the potential impacts the construction of the lock replacement project would have on the surrounding neighborhoods, Congress authorized a Community Impact Mitigation Plan (CIMP) in WRDA 1996 Section 326. Due to both existing and anticipated traffic delays associated with bridge crossings of the IHNC, Congress also authorized the development of a Traffic Mitigation Program in WRDA 2007, Section 5083. A CIMP was developed in the 1995 Draft Evaluation Report and then approved in the 1997 Evaluation Report, and some features of the plan were implemented prior to Hurricane Katrina.

The neighborhoods surrounding the IHNC have changed significantly since the original CIMP was developed, and because the Recommended Plan has also evolved, the 1997 CIMP required updating. In 2023, USACE conducted a two-phased stakeholder engagement process focused on refining a Community Opportunities Plan of Action (COPA) for the neighborhoods surrounding the project. The engagements focused on transparency, establishing trust, community needs, and environmental impacts. Over 280 people participated, resulting in more than 500 comments and 90 potential COPA measures. Themes included affordable housing, green infrastructure, and concerns over flooding and climate change. Additionally, USACE collaborated with local agencies to address transportation impacts, and ongoing discussions continue regarding the mitigation plan.

Using data from 2018 – 2023, the IHNC Lock experiences the 2nd longest transit times in the Nation. When comparing processing times, the IHNC Lock ranks 138th, but a comparison of the transit times (delay time plus processing times) shows the IHNC Lock as having the 2nd longest average delay times and the 2nd longest average transit times in the Nation, averaging more than 16 hours per lockage. If the period from 2012 – 2023 is used, the IHNC ranks first in longest average transit times (138th in average processing times and first in

[2] Reference Exhibit 2. BOARD OF COMMISSIONERS OF THE PORT OF NEW ORLEANS letter dated September 26, 2012 to USACE, Colonel Edward R. Fleming.

average delay times). Many times, these delays are between 24 and 36 hours during high Mississippi River stages. These delays are caused by the high volume of traffic relative to the lock's capacity. Navigation delays are also compounded by an increasing frequency of and more costly operation and maintenance repairs that render the lock unusable for lengthy periods of time.

Waterborne traffic through the lock is projected to increase; consequently, average delays will increase unless and until a new lock is constructed. While the number of barges in a tow varies, especially on the Mississippi River, the modal number of barges per tow transiting the IHNC Lock is two (overall the average is 2.25). Nearly 50% of tows consist of liquid (tanker) barges with dimensions of roughly 300 feet long by 54 feet wide. Tows on the GIWW typically are not larger than a two barge per tow configuration and the barges are typically configured end-to-end. This common two barge configuration with the towboat is nearly 700 feet long by 54 feet wide which has to be cut into single barge tows, causing further delays, in order to transit the existing lock. The existing lock will require recurring extraordinary maintenance to continue its present level of service. Delays mean higher transportation costs for the waterborne conveyance of cargo being shipped through the lock, which in turn means higher costs to the general public. Major commodities shipped through the lock include petroleum and petroleum products. The IHNC Lock is the only lock allowing waterborne traffic traveling from the Mississippi River and from the western reach of the GIWW (stretching from Texas to the west bank of New Orleans) to connect to the eastern reach of the GIWW stretching to Mississippi, Alabama and Florida.

The project first cost of the RP is $4.69 Billion, including sunk costs of $172.7 Million ($139.3 million of sunk pre-construction engineering and design (PED) costs, and $33.4 Million of sunk construction costs). The remaining project first cost, excluding sunk PED, is $4.51 Billion. The average annual cost, excluding sunk PED, is $222.5 Million (FY 2025 Price Levels and Discount Rate of 3%), including implementation costs, interest during construction, and incremental OMRR&R costs. The average annual benefits of the RP are $229.1 Million, based on the Reference Case Traffic Forecast, resulting in net benefits of $6.5 Million, and a benefit to cost ratio of 1.03.

Additionally, the existing St. Claude Avenue bridge is nearing the end of its useful life and would normally be replaced by the Port of New Orleans. However, construction of the new lock requires the demolition of the existing lock structure, which includes the St. Claude Ave. bridge as an integral feature of the structure. Because the bridge will instead be replaced sooner as part of the IHNC project (rather than later by the Port of New Orleans), the Recommended Plan receives a benefit (credit) based on the extension of the bridge's service life and the lower maintenance costs associated with a new bridge. This credit is added to the benefits of the IHNC project to offset the cost of the new St. Claude Avenue bridge which is included in the project's first cost.[3]

Cost allocations for the RP described in this document are subject to the provisions of Section 102 and 844 of WRDA 1986, as amended by Sec. 1126 of WRDA 2024 (P.L. 118-272). WRDA 1986, as amended, requires twenty-five percent of the Federal costs for the RP to be appropriated from the Inland Waterways Trust Fund and seventy-five percent to be appropriated from the general fund of the Treasury as a part of the USACE appropriated budget. The first cost of the RP described herein is estimated at $4,687,572,000 which cost would be allocated and derived from Federal appropriations as follows:

| | |
|---|---|
| Inland Waterways Trust Fund: | $1,171,893,000 |
| Corps of Engineers: | $3,515,679,000 |

These costs are in the process of being certified and may be slightly adjusted in the Final Report. After finalization of a Director's Report and if the recommended plan is approved by the Chief of Engineers, the engineering and design phase of the project is expected to begin in Fiscal Year 2029 with the physical construction of the new IHNC Lock and associated features estimated to occur over 14 years, assuming adequate future funding levels (from year 2033 to year 2047).

[3] NED Procedures Manual—Urban Flood Damage, IWR Report 88-R-2 (March 1988): "For many projects, relocations will result in the replacement of existing bridge facilities. Often the expected life of the replacement bridge will be greater than that of the existing structure, thereby extending the life of the bridge service being provided. Since the total cost of the new bridge is included in the first cost of the project, a credit for this extension is needed on the benefit side. A credit is also needed if any reduction in O&M costs will occur during the remaining life of the existing facility."

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# ABBREVIATIONS AND ACRONYMS

ADT – average daily traffic
AFE – Authorizations for Entry
BMP – Best Management Practices
CBMC – Community Based Mitigation Committee
CDF – confined disposal facility
CEMVN – New Orleans District
CFR – Code of Federal Regulations
CAA -- Clean Air Act
CAR -- Coordination Act Report
CFR -- Code of Federal Regulations
CIMP – Community Impact Mitigation Plan
CWA -- Clean Water Act
CO – carbon monoxide
CO2 – carbon dioxide
CoC – contaminants of concern
CPI – Consumer Price Index
cy – cubic yard
dB – decibel
dBA – A-weighted decibel
DMMU – dredged material management unit
DNL – day-night average sound level
DO – dissolved oxygen
DOTD – Louisiana Department of Transportation and Development
EIS – Environmental Impact Statement
EFH -- Essential Fish Habitat
El - Elevation
EMS – emergency medical services
EO – Executive Order
ESA -- Endangered Species Act
EPA – U.S. Environmental Protection Agency
F – fill
FEMA – Federal Emergency Management Agency
FHWA – Federal Highway Administration
FWCA -- Fish and Wildlife Coordination Act
FWOP – Future without Project
GIWW – Gulf Intracoastal Waterway
GNO – Greater New Orleans
GPU – Grant of Particular Use
GRR -- General Reevaluation Report

HSDRRS – (Greater New Orleans) Hurricane and Storm Damage Risk Reduction System
HTRW -- Hazardous Toxic and Radioactive Waste
HUD – U.S. Department of Housing and Urban Development
Hz – Hertz
I-10 – Interstate 10
IWWTF – Inland Waterways Trust Fund
IWUB – Inland Waterways Users Board
IER – Individual Environmental Report
IHNC – Inner Harbor Navigation Canal
ITM – Inland Testing Manual
JRB – Joint Reserve Base
LA – Louisiana Highway
LDEQ – Louisiana Department of Environmental Quality
LDNR – Louisiana Department of Natural Resources
LDWF – Louisiana Department of Wildlife and Fisheries
LOS – level of service
LPV – Lake Pontchartrain and Vicinity Project
LSU – Louisiana State University
MMPA -- Marine Mammal Protection Act
MSA – Metropolitan Statistical Area
MRGO – Mississippi River - Gulf Outlet
MRL – Mississippi River Levee
MVN – New Orleans District
N – native material
NN – non-native surface material
NAVD88 – North American Vertical Datum, 1988
NAAQS – National Ambient Air Quality Standards
NAS – Naval Air Station
NED -- National Economic Development
NO2 – nitrous dioxide
NOx – nitrous oxides
NOAA – National Oceanic Atmospheric Administration
NOPD – New Orleans Police Department
NORM -- Naturally Occurring Radioactive Materials
NOS&WB – New Orleans Sewerage and Water Board
NPDES – National Pollutant Discharge Elimination System
NRCS – Natural Resources Conservation Service
NWG – neighborhood working group
NWLON – National Water Level Observation Network
NWR – National Wildlife Refuge

OMRR&R -- Operation Maintenance Repair Replacement and Rehabilitation
O3 – ozone
OSHA – Occupational Safety and Health Administration
PAH – polynuclear aromatic hydrocarbons
PED – pre-construction, engineering, and design
PCB - polychlorinated biphenyls
Pb - Lead
PK – Pre-kindergarten
PL – Public Law
PLOVER - Pipeline Location Observation & Verification Enterprise Repository
PM-2.5 – particulate matter less than 2.5 microns in size
PM-10 – particulate matter less than 10 microns in size
REP – Real Estate Plan
RP – recommended plan
RECAP – Risk Evaluation/Corrective Action Program
ROW – Right of Way
RSLC – Relative Sea Level Change
RTA – Regional Transit Authority
S&WB – Sewerage and Water Board
SEIS – Supplemental Environmental Impact Statement
SHPO – State Historic Preservation Officer
SLC – Sea Level Change
SWPPP – Stormwater Pollution Prevention Plan
TMP – Transportation Mitigation Program
TOW – Top of Wall
TSP -- Tentatively Selected Plan
U.S. – United States of America
USPS – U.S. Postal Service
USACE – U.S. Army Corps of Engineers
USC – United States Code
USFDA – U.S. Food and Drug Administration
USFWS – U.S. Fish and Wildlife Service
VOC – volatile organic compounds
WBV – West Bank and Vicinity
WRDA – Water Resources Development Act
WVA – Wetland Valuation Assessment

## 1.0 INTRODUCTION

This report reevaluates the IHNC Lock Replacement Project, which has been previously evaluated in earlier studies, using current planning criteria and policies, and in light of changed conditions and current objectives. The current effort may affirm the previous plan; reformulate or modify it, as appropriate; or find that no plan is currently justified.

This report presents a collaboratively-developed plan prepared in accordance with the National Environmental Policy Act (NEPA), the USACE Planning Guidance Notebook (USACE Engineering Regulation 1105-2-100 as updated through ER1105-2-103), DPM CW 2018-05, 03 May 2018, (Director's Policy Memorandum, Subject: Improving Efficiency and Effectiveness in USACE Civil Works Project Delivery), and CECW-P Implementation Guidance for Section 1001 of the Water Resources Reform and Development Act of 2014 (WRRDA 2014) – Vertical Integration and Acceleration of Studies, April 9, 2015. It consists of a main report and appendices and identifies the expected benefits and estimated cost for a recommended plan (RP). The main report provides an overview of the study and summarizes detailed information found in technical appendices.

In recognition of the potential impacts the construction of the lock replacement project would have on the surrounding neighborhoods, Congress authorized implementation of a Community Impact Mitigation Plan (CIMP) in WRDA 1996 Section 326. An updated CIMP was developed and approved in the 1997 Evaluation Report and some features of the plan were implemented prior to Hurricane Katrina. Due to both existing and anticipated traffic delays associated with bridge crossings of the IHNC, Congress also authorized the development of a Traffic Mitigation Program (TMP) in WRDA 2007, Section 5083.

The Corps of Engineers recognizes the continued need for the CIMP and the TMP. Because the neighborhoods surrounding the IHNC have changed significantly since the CIMP was originally developed and because the Recommended Plan is also changed, the 1997 CIMP required updating. In 2021, the New Orleans District of the Corps of Engineers (herein referred to as CEMVN) worked to evaluate the impacts that would be felt by the surrounding four neighborhoods if the RP is implemented. Working with contractors CDM Smith and their local subcontractor, Bright Moments, CEMVN engaged community members in open house style discussions to garner feedback that informed an updated CIMP.

In addition, CEMVN worked with partners at the USACE Engineer Research and Design Center (ERDC) in Vicksburg to conduct a Ship-Simulation, consisting of riverboat pilots navigating through a simulated version of the Inner Harbor Navigation Canal and the proposed lock configuration. This simulation, along with a subsequent tabletop exercise informed the design of the IHNC recommended plan features and provided data that was then used in an overland traffic modeling exercise. The traffic modeling and analysis completed in early 2024 informed a Traffic Mitigation Program. If the Recommended Plan identified in this Supplemental Draft General Reevaluation Report and Supplemental EIS is approved and funded after the Final GRR/SEIS, both the revised CIMP and the Traffic Mitigation Program (TMP) would continue with planning and early implementation during Engineering and Design and full implementation of these plans would be concurrent with project construction. Funding of the Recommended Plan, which includes the CIMP and TMP, for construction depends on both Congressional and administrative action to provide project funds to the Corps of Engineers, and action by the Inland Waterways Users Board to recommend allocation of Federal cost share funds from the Inland Waterways Trust Fund. Based on existing navigation infrastructure demands and priorities within Inland Waterways Users Board (IWUB), there is uncertainty in the timing of allocation of funding to initiate construction, and activities may not occur for several years after completion of the Final GRR/SEIS and Record of Decision. Continued and collaborative planning potentially including some early implementation of CIMP features and coordination of TMP planning will continue after allocation of funding and concurrently with final lock design activities.

## 1.1 Authorization

**Chapter 112, Public Law 455, 84th Congress, 2nd Session, approved 29 March 1956.**

> "Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the existing project for the Mississippi River, Baton Rouge to the Gulf of Mexico[4], is hereby modified to provide for the Mississippi River Gulf Outlet to be prosecuted under the direction of the Secretary of the Army and supervision of the Chief of Engineers, substantially in accordance with the recommendations of the Chief of Engineers contained in the House Document Numbered 245, Eighty-second Congress, at an estimated cost of $88,000,000: Provided that when economically justified by obsolescence of the existing lock or by increased traffic, replacement of the existing lock or an additional lock with suitable connections is hereby approved to be constructed in the vicinity of Meraux, Louisiana, with type, dimensions, and cost estimates to be approved by the Chief of Engineers: Provided further, That the condition of local cooperation specified in House Document Numbered 245, Eighty-second congress, shall likewise apply to the construction of said lock and connecting channels."

**Water Resources Development Act, 1986, Section 844. Mississippi River-Gulf Outlet.**

> "(a) Subject to section 903(a) of this Act, the Mississippi River-Gulf outlet feature of the project for Mississippi River, Baton Rouge to Gulf of Mexico, authorized by the Act of March 29, 1956 (Public Law 455 of the Eighty-fourth Congress, 70 Stat. 65), is modified to provide that the replacement and expansion of the existing industrial canal lock and connecting channels or the construction of an additional lock and connecting channels shall be in the area of the existing lock or at the Violet site, at a total cost of $714,300,000. Before selecting the site under the preceding sentence, the Secretary shall consult with affected local communities. The costs of such modification shall be allocated between general cargo navigation and inland navigation, based on use patterns determined by the Secretary. Of the costs allocated to inland navigation, one-half of the Federal costs shall be paid from the Inland Waterways Trust Fund and one-half of the Federal costs shall be paid from the general fund of the Treasury. With respect to the costs allocated to general cargo navigation, cost sharing provided in section 101 shall apply. (b) The Secretary is directed to make a maximum effort to assure the full participation of members of minority groups, living in the affected areas, in the construction of the replacement or additional lock and connecting channels authorized by subsection (a) of this section, including actions to encourage the use, wherever possible, of minority-owned firms. The Secretary is directed to report on July 1 of each year to the Congress on the implementation of this section, together with recommendations for any legislation that may be needed to assure the fuller and more equitable participation of members of minority groups in this project or others under the direction of the Secretary."

[4] Hereinafter, where reference is made to the Congressionally authorized Project title, the use of "Gulf of Mexico" is cited per language of the statute authorizing the project. For any non-statutory references to the "Gulf of Mexico", in compliance with E.O. 14172 "Restoring Names That Honor American Greatness", "Gulf of America" is cited as the official geographical title throughout the report.

**Water Resources Development Act, 1996, SEC. 326. Mississippi River-Gulf Outlet, Louisiana.**

> "Section 844 of the Water Resources Development Act of 1986 (100 Stat. 4177) is amended by adding at the end the following: "(c) COMMUNITY IMPACT MITIGATION PLAN.—Using funds made available under subsection (a), the Secretary shall implement a comprehensive community impact mitigation plan, as described in the evaluation report of the New Orleans District Engineer dated August 1995, that, to the maximum extent practicable, provides for mitigation or compensation, or both, for the direct and indirect social and cultural impacts that the project described in subsection (a) will have on the affected areas referred to in subsection (b).".""

**Water Resources Development Act, 2007, SEC. 5083. Inner Harbor Navigation Canal Lock Project, Louisiana.**

Not later than July 1, 2008, the Secretary shall—

(1) issue a final environmental impact statement relating to the Inner Harbor Navigation Canal Lock project, Louisiana; and

(2) develop and maintain a transportation mitigation program relating to that project in coordination with—

(A) St. Bernard Parish;

(B) Orleans Parish;

(C) the Old Arabi Neighborhood Association; and

(D) other interested parties.

**Water Resources Development Act, 2007, SEC. 7013. Mississippi River-Gulf Outlet.**

(a) DEAUTHORIZATION.---

(1) IN GENERAL.—Effective beginning on the date of submission of the plan required under paragraph (3), the navigation channel portion of the Mississippi River-Gulf Outlet element of the project for navigation, Mississippi River, Baton Rouge to the Gulf of Mexico, authorized by the Act entitled An Act to authorize construction of the Mississippi River-Gulf outlet, approved March 29, 1956 (70 Stat. 65) and modified by section 844 of the Water Resources Development Act of 1986 (100 Stat. 4177) and section 326 of the Water Resources Development Act of 1996 (110 Stat. 3717), which extends from the Gulf of Mexico to Mile 60 at the southern bank of the Gulf Intracoastal Waterway, is not authorized.

(2) SCOPE.—Nothing in this paragraph modifies or deauthorizes the Inner Harbor navigation canal replacement project authorized by that Act of March 29, 1956.

## 1.2 Description of Recommended Plan

This GRR briefly and concisely presents the results of prior studies as well as additional analysis undertaken to address the feasibility of improving navigation between the Mississippi River in New Orleans, Louisiana, and the GIWW based on conditions as they exist today. The RP will have negligible adverse impacts on ecological resources and would not require implementation of mitigation measures. The project description of the proposed action is to replace the existing Industrial Canal Lock, also referred to as the Inner Harbor Navigation

Canal or IHNC Lock, with a modern, more efficient navigation lock designed to safely and efficiently accommodate shallow-draft vessels that use the Gulf Intracoastal Waterway (GIWW). The RP includes: construction of a 900ft.L x 110ft.W x -22ft. shallow draft cast-in-place concrete lock and associated support structures and facilities; construction of a permanent double leaf bascule bridge north of the existing St. Claude Avenue bridge, which would require acquisition of a small number of residential properties, demolition of the existing St. Claude Ave. bridge; a by-pass channel around the new lock construction site; disposal of dredged material suitable for aquatic disposal into the Mississippi River and disposal of material that is not suitable for aquatic disposal in an approved solid waste landfill site; extension of the Mississippi River flood risk reduction levees and floodwalls along the banks of the IHNC to the site of the new lock and demolition of existing floodwalls; and eliminates the need for a temporary by-pass bridge north of the existing St. Claude Bridge as well as the placement of a light rail on the new permanent bridge and its approaches. Since the project is designed to accommodate shallow-draft, inland navigation, the cost of the project would be cost shared in accordance with Section 102 of WRDA 1986, as amended by Sec. 1126 of WRDA 2024, with 75 percent to be funded by USACE, subject to availability of Federal appropriations and programming of funds and 25 percent to be funded by the Inland Waterways Trust Fund. The project does not have a non-federal sponsor for construction of the lock. However, some non-federal cooperation will be necessary for the implementation of CIMP and TMP features as well as operation and maintenance of the new St. Claude Avenue bridge. Please refer to Chapter 4 for a detailed construction sequence and timeline for the RP.

## 1.3 Prior Studies

Conditional construction authorization for this proposed lock replacement project has been in place since 1956 (see section 1.1 Authorization). There have been numerous studies, reports, and analysis since that 1956 authorization. The following list of prior studies summarizes the conclusions and recommended plans for each respective study. The referenced studies are included, in their entirety, with this report in Appendix F.

### 1.3.1 1975 Site Selection Report

The 1975 Site Selection Report summarizes the results of studies and investigations made by chronological review of available data from February 1960 to late 1972, and by re-analysis of old and additional sites with new parameters. Studies were made of 14 site plans which were comprised of 7 sites. Comparative site plan analysis confirmed the superiority of the Lower Site (or the Violet location) as the best overall location; however, a detailed plan comparison was made with the IHNC Site because it is the existing corridor and because Lower Site opponents propose it as a viable alternative. These two plans included proposals for the ultimate disposition of the old IHNC lock and canal, the utilization of a new barge canal as an extension of the Gulf Intracoastal Waterway (GIWW), comparative bridge studies, and provision of ecological mitigation. This comparison was evaluated on 28 points of the socio-economic-environmental spectrum, resulting in a recommendation of the 1974 Lower Site Plan, which includes the provision of a ship channel and lock just below Violet, Louisiana, a barge canal to connect the lock tail bay with the GIWW, mothballing of the old IHNC Lock and provision of ecological mitigation.

### 1.3.2 1991 Evaluation Report (first Mini-Report)

The purpose of this report was (1) to provide the rationale and documentation for eliminating a location near Violet, Louisiana, from further consideration as an alternative site in the evaluation study of a replacement lock for the existing IHNC Lock in New Orleans, Louisiana, and (2) to present information on how the New Orleans District plans to implement and utilize an open planning process to achieve a consensus on a lock replacement plan at the site of the IHNC Lock. It was concluded that a new lock is needed between the Mississippi River and the Mississippi River-Gulf Outlet/GIWW. The residents of St. Bernard were unalterably opposed to a new lock and connecting channel being located at Violet. The Police Jury, the governing authority of the Parish of St. Bernard was unequivocally opposed to construction of a new lock and connecting channel project at Violet because it would bisect the parish and cause major adverse environmental impacts. Any plan at Violet would

have resulted in the destruction of large areas of wetlands making Violet an unacceptable site for a new lock project. On the basis of cost, a site at Violet would have been more expensive and a site adjacent to the existing IHNC lock would have been more attractive. From the standpoint of operational efficiency and intraport movement, the advantages of the IHNC site were considerable. In addition, environmental impacts for any new lock and connecting channel project at Violet were significant and adverse.

### 1.3.3 1992 Evaluation Report (second Mini-Report)

The purpose of this report was to present the information and rationale supporting selection of the North of Claiborne Avenue location for a replacement lock for the IHNC Lock in New Orleans, Louisiana. The report presents the results of an analysis of alternative locations for replacement of the IHNC Lock near the site of the existing lock in New Orleans, Louisiana. Only alternative locations in the vicinity of the existing lock were considered in this analysis. The IHNC site was selected over an alternative site near Violet, Louisiana, for the replacement lock as the result of a previous analysis. In a CEMVN (at that time: CELMN-PD-FG) report dated January 1991, the Commander, New Orleans District, recommended the IHNC site for the location of a replacement lock. Headquarters, U.S. Army Corps of Engineers, concurred in the recommendation by CECW-PC second endorsement dated June 26, 1991.

Alternative plans for providing a replacement lock for shallow-draft traffic only and for shallow- and deep-draft traffic are being developed in the overall study. For the purposes of this report, all alternatives are evaluated based on a shallow-draft lock. Most of the cost of a replacement lock and the social impacts would accrue to the implementation of the shallow-draft increment of a deep-draft lock.

### 1.3.4 1997 Evaluation Report and EIS and Record of Decision

The information contained in this report included the evaluation of previously investigated and new alternatives, along with a recommended plan that included the construction of the locally preferred plan. The NED plan described in the report was a shallow draft alternative that would have been constructed to a dimension of **110-feet wide by 1200-feet long by 22 feet deep,** in accordance with the cost sharing requirements of Section 102 of WRDA 1986. However, at the request of the Port of New Orleans, USACE agreed to recommend implementation the locally preferred plan for construction of a deep draft lock replacement to a dimension of **110-feet wide by 1200-feet long by 36-feet deep**, subject to the Port of New Orleans being willing to bear all of the cost of construction and of the operation, maintenance, repair, replacement and rehabilitation (OMRR&R) of the deep draft increment of the project. As approved in the 1997 Evaluation Report, the project consisted of a precast, floated-in, deep draft lock to be constructed in four sections at an offsite construction yard located along the GIWW near the Paris Road Bridge in St. Bernard Parish; replacement of the St. Claude Avenue bridge with a new, low-level double bascule bridge and the addition of light rail to the bridge and its approaches (for future streetcar construction by the City of New Orleans; construction of a temporary by-pass bridge at St. Claude Avenue that would provide continuous use of that canal crossing during construction of the new bridge; replacement of the center lift-span and raising of the towers on the Claiborne Avenue bridge by using innovative construction methods that would reduce the closure at that bridge, for both marine and ground traffic, for very short durations (1-4 weeks); provision of by-pass channels around the new lock construction site and the existing lock during its demolition, both of which would provide continuous usage of the existing lock and canal during construction; and extension of the Mississippi River flood damage risk reduction along the canal to the site of the new lock. The Community Impact Mitigation Plan (CIMP) that was authorized in the Water Resources Development Act of 1996 (in accordance with the Draft Evaluation Report of the New Orleans District Commanded, dated August 1995) was modified in the 1997 Evaluation Report through the decision of the Chief of Engineers, who was acting within his discretionary authority under the project authorization. The CIMP, as authorized, provides for the implementation of measures to mitigate, offset and/or compensate for impacts the project will have on four statutorily specified communities situated adjacent to the lock replacement project. The specified communities are the Holy Cross, Bywater, St. Claude and Lower Ninth Ward neighborhoods, as delineated in the 1995 Evaluation Report.

### 1.3.5 2000 Evaluation Report Supplement No. 1

The supplemental report, as approved the ASA(CW), determined that a Federal interest existed in the construction of that portion of the project described as the "deep draft increment" in the 1997 Evaluation Report, thus ending the status of the deep draft lock replacement as being the "locally preferred plan". The report provided the justification and rationale for this determination and provided the appropriate Federal/non-Federal cost sharing requirements for the "Authorized Project" (consisting of the sum of the shallow and deep draft increments) for IHNC Lock Replacement Project.

### 1.3.6 2009 Supplemental EIS and Record of Decision

The purpose of the 2009 Supplemental EIS and Record of Decision (ROD) was to comply with NEPA and a 2006 Court order enjoining further construction of the IHNC lock replacement, as had been recommended in the EIS and Record of Decision associated with the 1997 Evaluation Report. The recommendation of the 2009 Record of Decision was a deep-draft, float-in-place lock construction plan, hydraulic dredging, and disposing of dredged material unsuitable for open water discharge in a confined disposal facility, and for material determined to be suitable for freshwater disposal, disposal in the Mississippi River. In 2011, a federal district court vacated the 2009 SEIS and ROD and again enjoined the lock replacement project until compliance with the National Environmental Policy Act and the Clean Water Act is achieved.

### 1.3.7 2017 Draft Integrated General Reevaluation Report and Supplemental EIS

In 2017, the New Orleans District released a draft integrated re-evaluation report and supplemental environmental impact statement for public review, identifying a shallow draft tentatively selected plan. After the 2017 draft report, USACE determined that additional efforts should be undertaken to update the Community Impact Mitigation Plan, to develop the Traffic Mitigation Program, and to develop a plan that would avoid pre-existing contamination on the former U.S. Coast Guard site.

## 1.4 USACE Civil Works Guidance and Initiatives

USACE planning is grounded in the 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Implementation Studies (Principles and Guidelines). The Principles and Guidelines provide for the formulation of reasonable plans responsive to National, state, and local concerns. Within the framework of the Principles and Guidelines, the USACE seeks to balance economic development and environmental needs as it addresses water resources problems. The Federal objective of water and related land resources planning is to contribute to National Economic Development (NED) consistent with protecting the Nation's environment, in accordance with National environmental laws, Executive Orders and other Federal planning requirements.

The Planning Guidance Notebook (ER 1105-2-100 as updated through ER 1105-2-103) provides the overall direction to formulate, evaluate and select projects for implementation. The study was conducted under the USACE's Civil Works Planning modernization process by utilizing the Specific, Measurable, Attainable, Risk Informed, and Timely (SMART) planning to effectively execute and deliver the study in a timely manner. The study also meets the USACE Campaign Plan goals and the USACE Environmental Operating Principles.

## 1.5 National Environmental Policy Act Compliance Requirements

NEPA is the Nation's charter legislation for protecting of the environment. NEPA ensures that information is made available to public officials and citizens regarding actions proposed by Federal agencies and provides the public the opportunity to voice their concerns to the action agency. USACE NEPA regulations provide for an early and open process to determine the scope of issues to be addressed and identify the significant issues related to a proposed action. 33 CFR 230.12. A Notice of Intent to prepare a SEIS was published in the Federal Register (Volume 80, No. 19) on January 29, 2015. Scoping identified concerns regarding the effects on the

local community due to construction of the new replacement lock within the IHNC. People are concerned about construction times, traffic volume and delays, noise and vibration impacts. The scoping report is available upon request.

This document integrates discussions that normally would appear in an EIS into the general re-evaluation report. Sections in this report include NEPA-related discussions. Table 1 1 lists the EIS-related information and its location in this document.

Recently, the Council on Environmental Quality (CEQ) regulations for implementing NEPA found at Title 40 Code of Federal Regulations (CFR) Parts 1500-1508 were rescinded. Notwithstanding the changes to regulations, compliance with NEPA remains a statutory requirement. See 42 U.S.C. 4321, *et seq.* This document was primarily prepared prior to the recission of the CEQ NEPA regulations in April 2025. In accordance with CEQ Memorandum for Heads of Federal Departments and Agencies dated February 19, 2025, USACE voluntarily relied on the former CEQ regulations at 40 CFR Parts 1500-1508 in preparing the document as well as the NEPA statute, 42 U.S.C. 4321, *et seq.*, and the USACE NEPA regulations at 33 CFR Part 230.

**Table 1-1 NEPA-related information in this report.**

| EIS Requirement | Location in this Document |
|---|---|
| Cover sheet | Abstract |
| Summary | Executive Summary |
| Table of Contents | Table of Contents |
| Affected Environment | Chapter 2 |
| Purpose of and Need for Action | Chapter 3 |
| Alternatives Including Proposed Action | Chapter 3 |
| Environmental Consequences | Chapter 6 |
| List of Agencies, Organizations, and persons to whom copies of the statement were sent | Chapter 8 |
| List of Preparers | Chapter 10 |
| Index | Chapter 11 |
| Appendices | Attached |

## 2.0 AFFECTED ENVIRONMENT

The resources described in this chapter were all previously described in both the March 1997 "Mississippi River-Gulf Outlet, New Lock and Connecting Channels, Louisiana Evaluation Report," accompanied by a signed Record of Decision (ROD) on December 18, 1998 by Major General Russell L. Fuhrman, USACE Director of Civil Works (1997 Evaluation Report), and the March 2009 Final SEIS titled, "Inner Harbor Navigation Canal Lock Replacement Project, Orleans Parish, Louisiana," accompanied by a signed ROD on May 20, 2009 by Brigadier General Michael J. Walsh, USACE, Mississippi Valley Division Commander. These two documents are incorporated herein by reference and are also provided in Appendix F – IHNC Lock Replacement Prior Reports, of this final report.[5] Additionally, this report includes, by reference, Volume 2 (of 8 volumes) of the report of the District Engineer, entitled "Mississippi River-Gulf Outlet, New Lock and Connecting Channels, Draft Evaluation Report, August 1995 (1995 Evaluation Report), which serves as the basis for the Congressional authorization of the Community Impact Mitigation Plan (CIMP) in Section 326 of the Water Resources Development Act of 1996 (WRDA 1996). The 1997 authorized CIMP was revised in 2024 to document changes to both the recommended plan as well as changes that have occurred in the neighborhoods since that time. Both earlier versions of the CIMP are included in Appendix E, including both the 1997 and 1995 CIMP. Topics in this chapter mirror Chapter 6, where the "future without-project" (no-action) and "future with-project" conditions are described for alternatives considered in detail.

Due to the highly developed nature of the project area, farmland and agricultural lands are not present. Prior coordination with the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), confirmed that no prime or unique farmland soils (subject to the provisions of the Farmland Protection Policy Act) are located in the project area. Likewise, there are no National parks, Federal wildlife refuges, state wildlife management areas, or state-designated scenic streams that would be affected by any of the project alternatives being considered in detail. The Bayou Sauvage National Wildlife Refuge is located approximately 10 miles to the northeast of the IHNC, and the state-designated scenic stream portion of Bayou Bienvenue is located about 9 miles to the east of the IHNC. While previously included as part of the recommended alternative in the 1997 Evaluation Report and 2009 SEIS, a confined disposal facility for permanent containment of dredged material deemed unsuitable for aquatic disposal is no longer a project feature associated with this current evaluation. These resources, including important fish and wildlife resources associated with the confined disposal facility, will not be further discussed in this report since they would not be affected by any of the alternatives considered in detail.

There are two National Register Historic Districts (NRHDs), the Holy Cross Historic District and Bywater Historic District, located in the immediate vicinity of the project area, and effects on those neighborhoods are assessed in this GRR/SEIS. Separately, in lieu of a confined disposal facility (which was a feature of the proposed plan in 2009), a landfill disposal option is recommended under the current evaluation. Additional discussion of the reasons for elimination of the confined disposal facility and the recommended landfill disposal option are included in Chapter 3 and Appendix B - Engineering, of this draft report.

ER 1165-2-132 provides guidance regarding investigation, consideration and avoidance or resolution of concerns regarding hazardous, toxic and radioactive wastes for USACE water resources studies and projects. Under the ER, "hazardous, toxic and radioactive waste" (HTRW) includes any material listed as a "hazardous substance" under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9601, *et seq.* (CERCLA).[6]

[5] The 2009 SEIS and ROD were vacated by a federal district court and therefore do not represent completed NEPA nor a USACE decision. They are incorporated by reference to capture prior history of this project and prior USACE plans and analysis/evaluation.

[6] Dredged material and sediments beneath navigable waters proposed for dredging qualify as HTRW only if they are within the boundaries of a site designated by the EPA or a state for a response action (either a removal action or a remedial action) under CERCLA, or if they are a part of a National Priority List (NPL) site under CERCLA. The IHNC is not a designated CERCLA response or NPL site.

At property previously owned by the Port of New Orleans and previously occupied by the U.S. Coast Guard located on the west side of the IHNC, there are two sites that have been identified through prior HTRW environmental site assessment investigations where hydrocarbon contamination is known to exist. Sampling at these two sites indicated that total petroleum hydrocarbons as diesel, total petroleum hydrocarbons as oil, and some polycyclic aromatic hydrocarbons (benz(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, indenol(1,2,3-cd)pyrene, and benzo(a)pyrene) remained at elevated concentrations in both areas (including under a diesel aboveground storage tank, which has since been removed). The property was purchased by USACE for the lock replacement project in 2001. The Louisiana Department of Environmental Quality (LADEQ) has determined that if these sites will be disturbed during project construction, the contamination must be remediated.

While the construction of the new IHNC lock facilities will not disturb these areas, the realignment of the Mississippi River & Tributaries (MR&T) and Lake Pontchartrain and Vicinity (LPV) floodwalls possibly could disturb the sub-surface contaminated material that is situated beneath approximately 900 feet of existing LPV floodwall located west of and adjacent to the previous U.S. Coast Guard (USCG) facility. That section of LPV floodwall would be removed in order to extend the MR&T to tie-in to the southward face of the replacement lock.

CEMVN has performed a preliminary examination of the physical extent of the HTRW sites as they relate to the potential floodwall realignment. In 2019, CEMVN contracted JESCO to perform additional environmental site assessment investigations for the known HTRW sites located at the prior USCG site. On behalf of CEMVN, JESCO submitted an April 2019 Risk Evaluation/Corrective Action Plan (RECAP) Site Investigation and Interim Action Report to the Louisiana Department of Environmental Quality, Remediation Division (LADEQ-RD). The LADEQ-RD responded to CEMVN by letter dated March 20, 2023, acknowledging receipt of the April 2019 RECAP Report, and requested USACE provide a site investigation work plan to delineate the vertical and horizontal extent of the contamination. CEMVN responded to LADEQ-RD by letter dated July 24, 2023, providing the requested work plan as well as committing to provide annual status updates of implementation of the work plan to LADEQ-RD no later than October 30th of each calendar year. CEMVN also advised LADEQ-RD that implementation of the work plan is contingent upon receipt of federal funding (construction funds) after completion of the lock replacement study. In a letter dated November 20, 2023, LADEQ-RD acknowledged completion of their review of the work plan and concurred with continued coordination both annually as well as upon receipt of federal funds and subsequent implementation of the work plan.

During engineering and design, CEMVN will implement the aforementioned work plan in coordination with LADEQ-RD to determine if there is a practicable way to avoid disturbance of the affected section of LPV floodwall. If it is determined that there is no practicable, cost-effective way to avoid disturbance of the affected section of LPV floodwall, then CEMVN would perform additional coordination with LADEQ-RD and a Corrective Action Plan would be prepared for LADEQ-RD approval to determine the appropriate remediation actions. As it would be the lock replacement project that would require alteration of the existing LPV alignment in order to tie-in the MR&T floodwall to the replacement lock, if alteration of the present LPV floodwall in the vicinity of HTRW materials were required, that cost would be borne by the lock replacement project.

## 2.1 General Setting

### 2.1.1 Climate

The climate of Orleans Parish (IHNC Lock project area) and St. Charles Parish (Bonnet Carré Spillway - proposed borrow sites) is humid subtropical. Warm, moist southeasterly winds from the Gulf of Mexico prevail throughout most of the year, with occasional cool, dry fronts dominated by northeast high-pressure systems. The influx of cold air occurs less frequently in autumn and only rarely in summer. Tropical storms and hurricanes are likely to affect the parish three out of every ten years, with severe storm damage approximately once every two or three decades. The majority of these events occur between early June and November. Summer thunderstorms are common, and tornadoes strike occasionally. The largest recent hurricanes were Katrina and Rita in 2005 and Ida in 2021, which caused damage in the project area. Hurricanes Gustav and Ike in 2008, and more recently, Isaac in 2012, caused additional damage across southeast Louisiana. Average annual temperature in the area is 67°F, with monthly temperatures varying generally from high temperatures in the mid-90°'s F in July and August, to lows in the mid-30°'s F in January and February. Average annual precipitation is 57.0 inches, varying from a monthly average of 7.5 inches in July, to an average of 3.5 inches in October.

### 2.1.2 Physical Features

The near-surface geology of the area surrounding the IHNC Lock project area is the result of a subsiding Mississippi River delta lobe that has been drained, diked and filled with various types and vintages of dredged material derived from Lake Pontchartrain and adjacent drainage canals. The deepest formations investigated in the area are Pleistocene deposits, consisting of somewhat hardened fluvial sands, silts and muds at a depth of -40 to -60 feet to depths around -180 feet. These sediments were exposed and weathered during low sea level periods as a result of Pleistocene glaciation, resulting in relatively higher cohesive strengths than would normally be expected. Above the Pleistocene, Holocene deposits are the result of gradual deposition of organic peat mixed with fluvial silt and mud deposited as overbank deposits and interdistributary bay deposits of the Mississippi River in cypress swamps around Lake Pontchartrain (Kolb *et al.* 1975).

Much of the project area was formerly wetlands (*e.g.*, cypress swamps and marshes) interspersed with natural ridges along the Mississippi River and its distributaries dominated by bottomland hardwood forest. As metropolitan New Orleans grew, water was drained from swamps and marshes by canals and pumping, and dredged material, including peat and mud, was used to elevate the area for habitation. Resulting surface soils are classified as dredged material or muck (NRCS 2019). Land continues to subside due to dewatering of peat deposits. For those subsiding lands that are situated inside the projects that were constructed for flood risk reduction and hurricane storm damage risk reduction purposes, the subsidence has resulted in surface elevations below sea level in some areas within the metropolitan area. Water content in soils is generally high. The near-surface groundwater table is connected to the water levels in Lake Pontchartrain and the Mississippi River, hence the need for numerous drainage canals and pumps to remove constant inflow and water from rainfall events.

The Bonnet Carré Spillway (proposed borrow sites) consists of approximately 7,623 acres located on the east side of the Mississippi River in southeastern Louisiana. The lands, characteristic of an alluvial flood plain, vary in elevation from 12 feet near the river to mean sea level near Lake Pontchartrain. The water areas consisting of the Mississippi River, borrow pits, drainage canals and natural bayous form the principal physiographic features of the spillway. Guide levees extend across the floodway from 7,700 feet at the river to 12,400 feet at the lake end. Two miles lake-ward of the river, the swamp land extends about 4 miles towards Lake Pontchartrain, averaging 1 to 2 feet above mean sea level. The spillway area is similar to most deltaic plain environments in that it consists of low elevation, low relief and gentle slopes. There are no obvious significant geologic features within the confines of the spillway. Mineral deposits in the area include petroleum, sand, gravel, and clay similar to most deltaic plain environments in that it consists of low elevation, low relief and gentle slopes. There are no obvious significant geologic features within the confines of the spillway. Mineral deposits in the area include petroleum, sand, gravel, and clay.

Soils within the Bonnet Carré Spillway, specifically between the Upper and Lower Guide Levees, as Cancienne and Carville soils, frequently flooded and somewhat poorly drained. The Upper Guide Levee consists of soils classified as Levees-Borrow pits complex, somewhat poorly drained, and the Lower Guide Levee consists of soils classified as Schriever clay, frequently flooded and poorly drained. Additional areas within the spillway consist of open water and canals, as well as excavated borrow pits that are periodically flooded (NRCS 2019).

### 2.1.3 Land Use and Land Loss

The IHNC Lock project area is located between Lake Pontchartrain and the Mississippi River in a highly urbanized area of Orleans Parish just west of the Orleans/St. Bernard Parish line. The City of New Orleans and Orleans Parish are conterminous. Several large natural water bodies, including Lake Pontchartrain and the Mississippi River, are located in the area, and several large, man-made navigation channels also occur, including the IHNC, Gulf Intercoastal Waterway (GIWW), and the active and de-authorized portions of the MR-GO. The project area, defined as the Holy Cross, Lower Ninth Ward, Bywater, and St. Claude neighborhoods, were heavily impacted by Hurricane Katrina in August of 2005, and recovery in some of these neighborhoods has been slow. Additionally, other areas such as New Orleans East, which are not part of the project area but located in Orleans Parish, also experienced devastating impacts to numerous neighborhoods as a result of Hurricane Katrina. To date, some of these neighborhoods are a mix of vacant lots, damaged and gutted houses, recently renovated homes, and homes in the process of being constructed or renovated. The neighborhoods in the project area vary considerably in the level of their rebuilding efforts, with the Bywater and Holy Cross neighborhoods in relatively good condition due in large part to their higher land elevation associated with being located closest to the Mississippi River.

The devastation of Hurricane Katrina, which made landfall to the south and east of New Orleans, has greatly altered the natural and human environment of the project area. Tropical storms are relatively common occurrences in the Gulf of America. Tropical storms typically produce the highest wind speeds and greatest rainfall events along the Gulf Coast. Category 5 hurricanes, such as Hurricane Camille which made landfall just east of New Orleans on August 17, 1969, generated the highest sustained wind speeds in the region (greater than 155 miles per hour). High winds are typically accompanied by massive storm surge, and in the case of Category 5 storms, storm surge exceeds 18 feet in height (National Hurricane Center 2024). Between 1926 and 2024 a total of 13 hurricanes struck Orleans Parish (National Hurricane Center 2024). The frequency of hurricanes is greatest in August, September, and October; however, hurricane season extends from June through November (National Hurricane Center 2015). Prior to Hurricane Katrina, Hurricane Betsy, on September 9, 1965, was the most damaging tropical storm in metropolitan New Orleans. Hurricane Betsy caused a storm surge of 10 feet, flooding large parts of the city, claiming 81 lives and causing $1 billion (1965 dollars) in damage (NOAA 2007a).

The devastation caused by Hurricane Katrina classified it as one of the largest natural disasters in modern U.S. history. The project area in Orleans Parish was especially devastated by the storm. Hurricane Katrina's storm surge opened seven major breaches in the metropolitan New Orleans area levee network, with four of the seven breaches occurring along the IHNC. Of those four breaches, one occurred on the west side of the channel at France Road, one on the west side of the channel south of France Road, and two on the east side of the channel along the Lower Ninth Ward alignment. The breaches along the east side of the IHNC and the overtopping of the St. Bernard back levee resulted in the flooding of Orleans Parish's Lower Ninth Ward and St. Bernard Parish. Floodwaters covered approximately 22,000 acres of the east bank of Orleans Parish, including most of the Lower Ninth Ward. On September 24, 2005, less than a month after Hurricane Katrina made landfall southeast of New Orleans, Hurricane Rita, a Category 5 storm, passed to the south of the New Orleans area making landfall along the Louisiana – Texas border. While wind damage in New Orleans was minor, temporary levees along the IHNC were overtopped by the storm surge and parts of New Orleans were re-flooded.

The inundation of much of metropolitan New Orleans from these storms forced the displacement and relocation of hundreds of thousands of area residents. In 2005, the New Orleans population was estimated to be upwards of 455,000. Due to the extensive damage to residences and infrastructure, the population declined to 208,000 in 2006, its lowest level since 1880 at around 216,090, with many of these displaced residents having resettled elsewhere within the region, or outside of the New Orleans urbanized area entirely (U.S. Census). It is anticipated that many will never return, and while the population has risen to almost 380,000 as of 2023, it is still reasonably foreseeable that many residents may never return to their former neighborhoods.

Post-Katrina, numerous Federal, state and local agencies and government bodies have invested substantial funds in Orleans Parish for various building and construction permits, transportation infrastructure improvements such as road and bridge projects, flood risk reduction and storm damage reconstruction and overall redevelopment of the area. From 2005 to 2016, the Orleans Parish City Government has issued upwards of 541,000 permits ranging from residential repairs to construction of single- and two-family units and commercial construction including renovations of existing structures, additions, and new buildings (Hurricane Storm Damage Risk Reduction System (HSDRRS) Comprehensive Environmental Document Phase 1, Appendix L; City of New Orleans 2019). The Louisiana Department of Transportation and Development (LADOTD), in cooperation with the Federal Emergency Management Agency, has completed numerous road rehabilitation and reconstruction projects under the submerged roads program. Other improvements include minor widening of I-510 and various new signal lights, fencing and safety upgrades of roadways. The USACE has also completed several internal urban drainage improvements in Algiers and along Dwyer Road as part of the Orleans Southeast Louisiana (SELA) Urban Flood Control Program. Other Orleans SELA projects include Florida Avenue, Jefferson Avenue, Louisiana Avenue, Napoleon Avenue and South Claiborne Avenue Canals' drainage improvement projects to reduce the risk of urban flooding during heavy rain events. As part of the Lake Pontchartrain and Vicinity, Louisiana and West Bank and Vicinity, Louisiana HSDRRS projects, major hurricane storm surge risk reduction features have been constructed throughout Orleans Parish including levee lifts and armoring of levees, construction of higher and stronger floodwalls, construction of the IHNC Surge Barrier, and construction of temporary and permanent pump stations at the mouths of the 17th Street, Orleans, and London Avenue Canals near Lake Pontchartrain.

The Bonnet Carré Spillway (proposed borrow sites) is located approximately 30 miles above New Orleans near Norco in St. Charles Parish, Louisiana. Situated between New Orleans and Baton Rouge and traversed by Interstate 10 (I-10) and Hwy 61, the spillway is a significant landscape feature in southeastern Louisiana. The spillway was constructed to reduce flood damage risk in the New Orleans metropolitan area and other downstream communities, caused by high flood stages along the Mississippi River.

The Bonnet Carré Spillway lands consist of approximately 7,623 acres of land acquired in fee in a corridor stretching from the Mississippi River to Lake Pontchartrain. The only exceptions to fee ownership in the project's boundaries are the location of Hwy 61 and the three railroad rights-of-way, two held by the Canadian National Railway, and one held by the Kansas City Southern Railway. These road and railroad crossings were in existence at the time of spillway authorization in 1928. Rather than fee title, the USACE purchased flowage easements over these rights-of-way, which amounted to approximately 127 acres.

At the time of purchase (circa 1929), land use on spillway lands was typical of the regional landscape. Several sugar plantations existed along the Mississippi River. Additionally, houses and support buildings were concentrated along the river, while agricultural fields stretched from the river to the edge of the swamps (near the present location of Hwy 61). Drainage ditches ran perpendicular to the river's orientation ending at drainage machines (water wheels), which pumped excess rainwater into the swamps. The swamps, which stretched to Lake Pontchartrain, were the scene of extensive logging prior to USACE purchase. Several canals were also cut through the swamps including a canal paralleling the railroad crossing near the lakeshore.

After USACE purchase of the land, all the existing buildings were demolished and the spillway structure along with the Upper and Lower Guide Levees were constructed. Beginning with the flood of 1937, the landscape began to change in dramatic ways. Heavy deposits of sediment during project operations obliterated previous landmarks such as field edges and vegetation corridors. Subsequent spillway openings, land clearing, and sand

hauling activities continued to mold the landscape to its present-day condition. The modern landscape of the spillway shares some aspects of its historic condition but is largely the product of spillway operations and maintenance practices.

Construction of the spillway was authorized by the Flood Control Act of 1928, as amended, and is an integral flood control feature of the Mississippi River and Tributaries project. Construction of the spillway control structure began in 1929 and was completed in 1931. The Bonnet Carré Spillway consists of two basic components: Aa control structure along the east bank of the Mississippi River and a floodway which conveys the diverted floodwaters to the lake. The control structure is a manually operated needle-controlled dam that stretches for 1.5 miles parallel to the river. It is approximately 7,000 feet in length and consists of 350 bays, each 20 feet in length, separated by reinforced concrete piers 2 feet thick, which carry two I-beam and concrete operating bridges. The floodway stretches nearly six miles to Lake Pontchartrain and is confined by Upper and Lower Guide Levees to prevent flooding of neighboring developed areas. The floodway is approximately 7,700 feet wide at the river end and 12,400 feet wide at the lake end. The spillway is designed to function like a valve that can be opened to divert a portion of the river's flow into Lake Pontchartrain, helping to relieve stress on the levees downstream.

## 2.2 Human Environment (Socioeconomics)

### 2.2.1 Waterborne Transportation

Three of the 10 largest ports by tonnage in the U.S. are located on the Mississippi River in southern Louisiana and account for 383 million tons of cargo annually, with the Port of New Orleans handling over 83 million tons annually (Waterborne Commerce Statistic Center, 2022). In Louisiana, the Mississippi River provides for 236 miles of deep-draft navigation from the Gulf of Mexico to Baton Rouge. The GIWW, located along the Gulf Coast of the United States, is a navigable inland waterway running approximately 1,050 miles from Carrabelle, Florida to Brownsville, Texas. Providing a navigable route along its length without many of the hazards of travel on the open sea, it was authorized as an element of the U.S. national defense. Within the jurisdictional boundary of the New Orleans District, the GIWW provides 310 miles of shallow-draft navigation extending from the Mississippi to Texas state lines, including 270 miles to the west and 40 miles to the east of the Mississippi River. Numerous coastal navigation channels also occur. The IHNC and existing lock connects the Mississippi River and Lake Pontchartrain and provides a connection with the GIWW and the remaining authorized portion of the MR-GO (Figure 2-1).

As the only direct link between the Mississippi River and the GIWW east of New Orleans, it serves as a vital corridor for inland and coastal navigation, supporting industries such as **petroleum refining, chemical production, metals manufacturing, and agriculture**. The existing IHNC lock, which is constructed to a depth of 31.5 feet, primarily serves shallow-draft barge traffic; however, a limited number of deep-draft vessels with a maximum draft of about 30 feet and width of about 74 feet are accommodated. However, its current dimensions (75 feet wide by 640 feet long) are undersized for modern towing operations, often requiring vessels to "trip" through in multiple segments, causing significant delays. Additionally, due to its advanced age, the risk of unplanned closures could severely disrupt supply chains and increase transportation costs Table 2-1 displays historic traffic levels and average delays per tow. With average transit time through the lock being nearly 19 hours per lockage for the past 10 years (2015 – 2024), the IHNC lock represents one of the most congested locks in the nation.

| Table 2-1 IHNC Lock Operations (2006 – 2020) | | | | | |
|---|---|---|---|---|---|
| Year | Average Delay Per Tow (Hours) | Total Tons (Millions) | # of Vessels | # of Barges | # of Lockages |
| 2006 | 8.17 | 16.7 | 8,089 | 16,129 | 9,366 |
| 2007 | 7.13 | 17.4 | 13,058 | 16,766 | 11,349 |
| 2008 | 8.44 | 12.8 | 9,486 | 12,512 | 8,190 |
| 2009 | 7.78 | 14.2 | 11,453 | 14,207 | 10,237 |
| 2010 | 10.8 | 16.4 | 12,094 | 16,808 | 10,590 |
| 2011 | 11.93 | 15.1 | 9,607 | 14,873 | 9,212 |
| 2012 | 13.62 | 15.5 | 10,121 | 15,588 | 9,664 |
| 2013 | 12.42 | 15.7 | 8,441 | 14,329 | 8,365 |
| 2014 | 24.41 | 15.8 | 8,500 | 14,540 | 8,431 |
| 2015 | 17.04 | 15.3 | 7,733 | 13,262 | 8,184 |
| 2016 | 16.59 | 9.9 | 4,970 | 8,682 | 5,369 |
| 2017 | 20.38 | 15.1 | 7,641 | 13,477 | 8,154 |
| 2018 | 14.27 | 15.5 | 7,166 | 13,197 | 7,895 |
| 2019 | 32.28 | 14.1 | 7,082 | 11,671 | 7,197 |
| 2020 | 21.94 | 9.9 | 5,929 | 8,806 | 5,669 |
| 2021 | 11.88 | 13.4 | 7,228 | 11,636 | 7,477 |
| 2022 | 11.98 | 15.3 | 7,548 | 12,955 | 7,944 |
| 2023 | 15.31 | 15.3 | 7,081 | 13,200 | 7,987 |
| 2024 | 26.81 | 14.4 | 7,638 | 12,869 | 7,662 |
| Source: Lock Performance Monitoring System (LPMS 2024). | | | | | |

Water levels of the Mississippi River are higher than sea level in the New Orleans area except during very rare combinations of river stage and tidal stage, so any vessels navigating the GIWW and crossing the Mississippi River must use locks on the west and east bank of the river for the crossing. The IHNC Lock is the only lock that provides access to both the eastern and western segments of the GIWW from the Mississippi River. Prior to Hurricane Katrina, vessels could utilize an alternate but substantially longer route that avoided the IHNC Lock to move from the Mississippi River to the eastern leg of the GIWW. This route required navigating the Mississippi River to near Venice, entering Baptiste Collette Bayou which provides navigable passage into Breton Sound, and then crossing Breton Sound until reaching the MR-GO. Vessels could then navigate the MR-GO north to the GIWW without negotiating any locks. As well as being a substantially longer route, it required vessels to enter the less protected waters of Breton Sound, which at times, for some vessels, is impassable due to rough seas.

However, following Hurricane Katrina, CEMVN no longer dredges the MR-GO south of its confluence with the GIWW in response to Congress's partial de-authorization and closure of the MR-GO project. In July 2009, the MR-GO was closed to navigation, except for local small vessel traffic, with the construction of a rock dam placed across the MR-GO at the Bayou La Loutre ridge. With the closure of the MR-GO, the IHNC Lock provides the only viable route of navigation between the Mississippi River and the eastern leg of the GIWW for vessels designed for inland waterways and for small deep draft vessels that can physically fit within the existing lock.

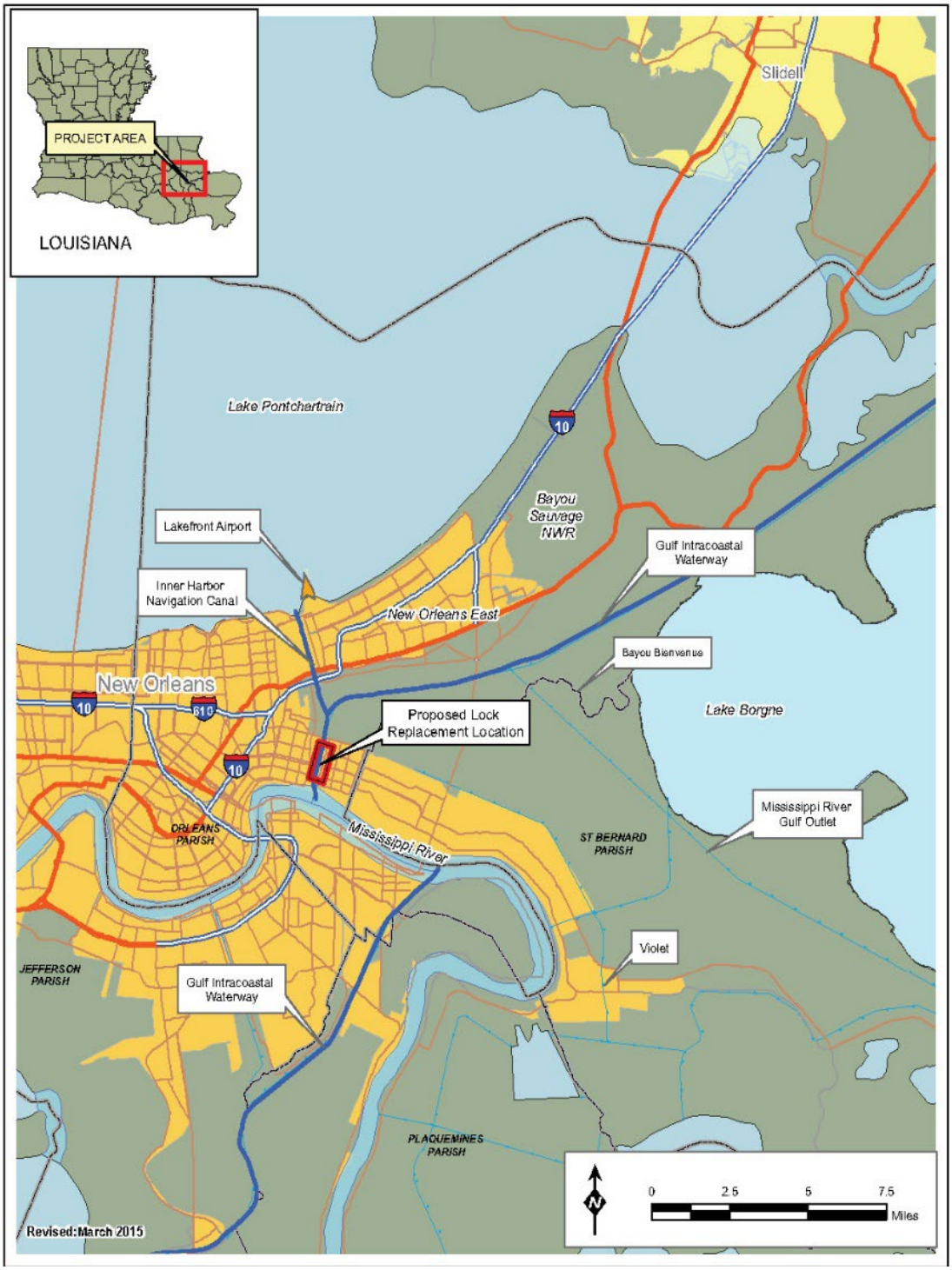



**Figure 2-1 Vicinity Map for the Inner Harbor Navigation Canal Lock Replacement Project**

### 2.2.2 Lake Pontchartrain and Vicinity, (LPV), Mississippi River and Tributaries (MR&T) Flood Risk Reduction and Southeast, Louisiana Projects

The LPV project and the MR&T flood control project, now referred to as a flood risk reduction project, are designed, in part, to provide risk reduction from floods generated by tropical storms and hurricanes (LPV) and from flooding from the Mississippi River (MR&T) to the extent of the authorized levels of risk reduction for each project. In addition, the Southeast Louisiana Urban Flood Control Project, in part provides the local interior storm water drainage systems in Jefferson and Orleans Parishes with additional drainage capacity. This complex series of levees, floodwalls, floodgates, pipes and pump stations is divided into separate polders by the IHNC and the GIWW/MR-GO. Each of these polders has its own system of risk reduction and drainage structures.

The Mississippi River levees in the vicinity of the IHNC provide flood risk reduction to an elevation of 20 feet North American Vertical Datum 88 (NAVD88), and are part of the larger Flood Control, Mississippi River and Tributaries Project. The construction of the surge barrier along Lake Borgne (referred to as the IHNC or Lake Borgne Surge Barrier) and of the Seabrook Gate at the north end of the IHNC provide hurricane and storm damage risk reduction for the 1% exceedance storm surge elevation, reducing the risk of storm surge inside of the IHNC and along the GIWW. The levees and floodwalls along the Inner Harbor Navigation Canal (IHNC) and Orleans Parish outfall canals were removed from frontline or perimeter risk reduction features and became interior risk reduction features by construction of the Seabrook Gate Closure and the IHNC Lake Borgne Surge Barrier and Permanent Canal Closures and Pumps. For these floodwalls, the 1% exceedance elevation is approximately 12.5 to 13.5 feet. These floodwalls were repaired and substantially improved after some of them were damaged by Hurricane Katrina.

Substantial flooding in the project area has occurred twice in the past fifty or so years due to tropical storms - Hurricane Betsy in 1965 and Hurricane Katrina in 2005. Hurricane Betsy caused substantial flooding and damage to the neighborhoods located east of the IHNC, including the Lower Ninth Ward, Holy Cross, New Orleans East and nearly all of St. Bernard Parish, and also some areas on the west side of the IHNC. Hurricane Katrina devastated much of metropolitan New Orleans. Area's west of the IHNC flooded during Hurricane Katrina due to structural failure of floodwalls along the 17th Street and London Avenue canals, while areas east of the IHNC flooded from both damaged floodwalls and overtopping and subsequent structural failure of levees.

In response to Hurricane Katrina, the USACE has completed numerous flood risk reduction projects for the Metropolitan New Orleans area to meet the 1% exceedance storm surge elevation. On the east bank of the Mississippi River, this included improving and replacing levees, floodwalls and floodgates that comprise elements of the LPV project. This primarily included increasing the elevation of existing levees, replacing or modifying damaged I-walls along the 17$^{th}$ street, London Avenue, and Orleans canals to meet new design criteria, replacing floodgates, and constructing new pump stations, and constructing barrier structures.

For the IHNC and adjacent areas, the 1% chance of exceedance for the hurricane and storm damage risk reduction (*referring to a reduced risk from a storm surge that has a 1% chance of occurring or being exceeded in any given year*) was provided by constructing a series of gated structures, levees, and floodwalls under the HSDRRS program throughout the Greater New Orleans area, one storm surge barrier to provide risk reduction from storm surges coming from Lake Borgne, and the Seabrook Floodgate, located at the intersection of the Industrial Canal and Lake Pontchartrain, provides risk reduction from storm surges coming from the lake. The Lake Borgne Surge Barrier is located near the confluence of the GIWW and the MR-GO, east of the Paris Road Bridge, and the Seabrook Storm Surge Barrier is located on the IHNC near the Senator Ted Hickey Bridge at Lake Pontchartrain. In St. Bernard Parish, an LPV floodwall has been constructed on top of 22 miles of levee along the south bank of the MR-GO to meet the 100-year level of hurricane and storm damage risk reduction. Where Bayou Dupre flows into the MR-GO (LPV 144), a sector gate was constructed to an elevation of 32 feet above sea level, which subsequently ties into the LPV 145 and 146 floodwalls.

The West Closure Complex (WCC) provides a surge barrier across the Gulf Intracoastal Waterway (GIWW) and connects the hurricane and storm damage risk reduction system levees and floodwalls on the east side of the waterway with those on the west side. The key component of the complex is a 225-feet-wide by 32-feet-high sector gate that makes the closure across the navigation channel. In addition to the 225-feet-wide navigation channel, there are five 16-feet-high by 16-feet-wide sluice gates, located near the east bank of the GIWW channel, which supplement the sector gate in passing the flow from the ten interior pump stations in Jefferson, Orleans and Plaquemines Parishes that discharge into the Harvey and Algiers Canals.

The most prominent feature of the complex is the 19,140 cubic feet per second (cfs) pump station, designed to pass the interior drainage when the sector and sluice gates are closed. The pump station has eleven 140-inch-diameter, vertical shaft pumps, each driven by a 5,400 HP diesel engine.

Appurtenant features of the complex include levees and floodwalls to connect to the adjacent Hurricane and Storm Risk Reduction System (HSDRRS) project features; re-aligned intake and discharge channels to convey the water to and from the complex; riprap scour protection along the waterways; a rock berm adjacent to the 404c Floodwall to prevent barge impact with the wall; steel pipe pile dolphins and sheet pile cellular dolphins to protect other structures from barge impact; access roads and bridges; fuel storage and delivery systems; commercial and emergency electric power; municipal potable water with on-site well backup; wastewater treatment; a safe house; hard-wired, wireless and satellite communications; fire protection; and site security.

There are three main outfall canals in New Orleans whose parallel floodwalls and levees are part of the HSDRRS. The canals themselves, though not part of a Federal project, serve as drainage conduits for much of the city. The canals run south-to-north near the Orleans Parish lakefront between the Jefferson Parish line and the Inner Harbor Navigation Canal (IHNC).

The 17th Street Canal extends 13,500 feet from Pump Station 6 to Lake Pontchartrain along the Jefferson Parish line. The Orleans Avenue Canal, between the 17th Street Canal and the London Avenue Canal, runs approximately 11,000 feet from Pump Station 7 to Lake Pontchartrain. The London Avenue Canal extends 15,000 feet north from Pump Station 3 to Lake Pontchartrain about halfway between the Orleans Avenue Canal and the IHNC. Pump Stations 6, 7, and 3 are owned and operated by the New Orleans Sewerage and Water Board and move water from interior drains and street inlets into the outfall canals on their southern end then gravity flows north to Lake Pontchartrain.

The Permanent Canal Closures & Pumps (PCCP) is composed of floodwalls, brick façade pump stations, and bypass gates at or near the lakefront on each of the three canals. During normal rain events water pumped into the canals by the New Orleans Sewerage and Water Board stations gravity flow through PCCP's open bypass gates at each canal into Lake Pontchartrain. The PCCP bypass gates are closed during tropical events, removing the outfall canals' parallel floodwalls and levees from the HSDRRS perimeter, and the PCCP pumps move rainwater out of the canals, around the gates and into Lake Pontchartrain. The PCCP stations are equipped with stand-alone emergency power supply capacity to operate independently of any publicly provided utility.

The PCCP at 17th Street consists of six 1,800 cubic feet per second (cfs) pumps and two 900 cfs pumps and has a total pumping capacity of 12,600 cfs; the PCCP at Orleans Avenue consists of three 900 cfs pumps and has a total pumping capacity of 2,700 cfs; the PCCP at London Avenue consists of four 1,800 cfs pumps and two 900 cfs pumps and has a total pumping capacity of 9,000 cfs.

### 2.2.3 Business and Industrial Activity

New Orleans is one of the older urban centers in the U.S., benefiting from its natural waterways, port facilities and services, commercial fisheries, ship building, oil and gas production, NASA space programs, tourism, entertainment, and convention facilities. Despite being ravaged by Hurricane Katrina, the affected environment, which encompasses zip code 70117, including the neighborhoods of Florida, St. Claude, Bywater, Holy Cross and the Upper and Lower Ninth Wards, of which includes the previously defined project area neighborhoods in Section 2.1.3 Land Use and Land Loss, still contains a number of small businesses such as

corner grocery stores, neighborhood bars and restaurants, and gas stations and auto services, with most of these businesses being located west of the IHNC, primarily in the Bywater and St. Claude neighborhoods. Fewer small businesses have reopened east of the IHNC in the Lower Ninth Ward and Holy Cross. There are no major grocery stores in the immediate area, however there are smaller grocery, and convenience stores available for neighborhood residents and some major stores located nearby in St. Bernard Parish. A national-chain drug store opened near Claiborne Avenue and Forstall Street but has since closed. See table 2-2 below for the total number of establishments from 2004-2022.

**Table 2-2 Total Number of Establishments, All Sectors**

| Zip Code | Year | Total Establishments |
|---|---|---|
| 70117 | 2004 | 437 |
| | 2005 | 402 |
| | 2006 | 257 |
| | 2007 | 275 |
| | 2008 | 288 |
| | 2009 | 306 |
| | 2010 | 306 |
| | 2011 | 309 |
| | 2012 | 343 |
| | 2013 | 345 |
| | 2014 | 357 |
| | 2015 | 383 |
| | 2016 | 398 |
| | 2017 | 412 |
| | 2018 | 424 |
| | 2019 | 426 |
| | 2020 | 439 |
| | 2021 | 450 |
| | 2022 | 476 |

Source: U.S. Census Bureau, https://www.census.gov/programs-surveys/cbp/data/tables.html (ZBP Tables)

Current industrial activity along the IHNC includes metal and scrap recycling yards, marine-related businesses, bulk material businesses, and light industries. The Port of New Orleans owns the commercial waterfront properties along the IHNC and Mississippi River in the project area. Along the IHNC, the Port leases much of its waterfront properties to private marine-related industries, some of which maintain active operations.

### 2.2.4 Employment

Impacts of Hurricane Katrina included a decrease in total employment and high unemployment. By 2013 employment had been slowly increasing as population and businesses have returned to the local communities. Employment changes in the study area (zip code 70117) and in the two parishes (Orleans and St. Bernard) are presented in tables 2-3, 2-4, and 2-5 below.

**Table 2-3 Employment Status, Zip Code 70117**

| Year | Total Population 16 years and over | Labor Force Participation Rate | Employment/Population Ratio | Unemployment Rate (%) |
|---|---|---|---|---|
| 2000 | 37,167 | 50.5 | 43.4 | 13.6 |
| 2011 | 16,624 | 54.6 | 46.0 | 15.7 |
| 2012 | 17,077 | 56.0 | 48.7 | 12.9 |
| 2013 | 18,376 | 56.0 | 48.6 | 13.1 |
| 2014 | 19,280 | 57.0 | 49.7 | 12.8 |
| 2015 | 19,623 | 57.3 | 51.6 | 9.8 |
| 2016 | 20,811 | 58.0 | 52.0 | 10.2 |
| 2017 | 22,147 | 57.2 | 51.4 | 10.2 |
| 2018 | 22,395 | 58.1 | 51.4 | 11.5 |
| 2019 | 22,776 | 59.7 | 53.3 | 10.6 |
| 2020 | 22,722 | 60.5 | 52.3 | 13.5 |
| 2021 | 22,478 | 60.1 | 52.6 | 12.1 |
| 2022 | 21,837 | 61.0 | 53.9 | 11.3 |
| 2023 | 21,905 | 63.1 | 56.5 | 10.2 |

Source: U.S. Census Bureau (BOC), American Fact Finder, American Community Survey (ACS),

| Table 2-4 Employment Status, Orleans Parish | | | | |
|---|---|---|---|---|
| Year | Total Population 16 years and over | Labor Force Participation Rate | Employment/Population Ratio | Unemployment Rate (%) |
| 2000 | 370,138 | 57.8 | 51.8 | 9.5 |
| 2010 | 239,677 | 62.9 | 55.1 | 12.0 |
| 2011 | 260,172 | 62.6 | 55.1 | 11.4 |
| 2012 | 276,316 | 62.6 | 55.0 | 11.8 |
| 2013 | 290,180 | 62.6 | 54.8 | 12.0 |
| 2014 | 299,971 | 62.1 | 54.7 | 11.6 |
| 2015 | 307,039 | 62.1 | 55.5 | 10.3 |
| 2016 | 312,357 | 62.1 | 55.8 | 9.8 |
| 2017 | 317,353 | 61.7 | 56.1 | 8.7 |
| 2018 | 318,877 | 61.3 | 55.9 | 8.4 |
| 2019 | 320,201 | 62.0 | 56.8 | 7.9 |
| 2020 | 321,207 | 61.3 | 55.7 | 8.5 |
| 2021 | 310,676 | 59.9 | 53.6 | 9.4 |
| 2022 | 305,537 | 60.6 | 56.0 | 6.8 |
| 2023 | 301,119 | 61.7 | 58.1 | 5.3 |
| Source: U.S. Census Bureau (BOC), American Fact Finder, American Community Survey (ACS), | | | | |

| Table 2-5 Employment Status, St. Bernard Parish | | | | |
|---|---|---|---|---|
| Year | Total Population 16 years and over | Labor Force Participation Rate | Employment/Population Ratio | Unemployment Rate (%) |
| 2000 | 52,363 | 59.7 | 56.0 | 5.8 |
| 2010 | 21,701 | 61.3 | 54.6 | 10.6 |
| 2011 | 25,188 | 62.0 | 54.4 | 11.9 |
| 2012 | 27,741 | 61.7 | 54.0 | 12.1 |
| 2013 | 29,767 | 61.8 | 54.0 | 12.4 |
| 2014 | 31,380 | 62.1 | 54.4 | 12.2 |
| 2015 | 32,620 | 61.2 | 53.6 | 12.2 |
| 2016 | 33,255 | 60.0 | 53.3 | 11.1 |
| 2017 | 33,960 | 60.7 | 54.1 | 10.7 |
| 2018 | 34,568 | 60.8 | 54.5 | 10.3 |
| 2019 | 34,998 | 59.4 | 53.9 | 9.3 |
| 2020 | 35,503 | 60.3 | 54.8 | 9.0 |
| 2021 | 33,395 | 61.6 | 56.3 | 8.5 |
| 2022 | 33,947 | 60.5 | 55.5 | 8.0 |
| 2023 | 33,983 | 59.2 | 54.6 | 7.4 |
| Source: U.S. Census Bureau (BOC), American Fact Finder, American Community Survey (ACS), | | | | |

### 2.2.5 Land Use

Although Hurricane Katrina had tremendous impacts on the population of project area neighborhoods, and either damaged or destroyed most of the businesses and residences, the designated land uses, as specified by local government in the current zoning designations for the properties, have not changed. It should be noted that, although the designated land uses remain, damage to the Lower Ninth Ward neighborhood from Hurricane Katrina was so extensive that many of the residences in this primarily residential neighborhood were destroyed or demolished, and now many properties consist of vacant lots.

The St. Claude neighborhood is primarily residential with a large industrial area along the west side of the IHNC from Claiborne Avenue to Florida Avenue. The Bywater neighborhood is also primarily residential with industrial development and prior government use (Naval Support Facility) along the Mississippi Riverfront and along Press Street near the intersection of the IHNC and the river. The Naval Support Facility was closed in 2011 as part of the Base Realignment and Closure Round, or BRAC. The Department of the Navy officially transferred the vacant site to the City of New Orleans in 2013. The city has since expressed interest in redeveloping the site as a "resilience center," or a hub for disaster and emergency responses. Some warehouse development is located along the western edge of the Bywater neighborhood adjacent to the Faubourg Marigny. The Lower Ninth Ward neighborhood is primarily residential with an industrial area located along the IHNC, and Jackson Barracks, a U.S. Army National Guard facility, located along the eastern boundary of the neighborhood. The Holy Cross neighborhood is primarily residential with a riverfront industrial area, recreational use along the IHNC and government use along the eastern boundary of the neighborhood (Jackson Barracks). The primary commercial corridors for all four neighborhoods are St. Claude and Claiborne Avenues. (Figure 2-2 displays the location of the primary neighborhoods within the project area).


**Figure 2-2 Primary Neighborhoods within IHNC project area.**

### 2.2.6 Property Values

Property values in the project area are affected by a variety of factors, such as trends in employment, income growth experienced by the project area and the metropolitan area as a whole and increased housing prices in other areas of New Orleans. Additionally, the devastation of Hurricane Katrina and the resulting out-migration greatly influenced property values in the years after the hurricane.

The median property value of owner-occupied housing units in the study area, Orleans and St. Bernard Parishes are presented in table 2-6. All have shown an increase over the period of time, 2011-2023 (U.S. Census, American Community Survey).

**Table 2-6 Median Property Value, Orleans and St. Bernard Parish**

| Year | Zip Code 70117 | Orleans | St. Bernard |
|---|---|---|---|
| 2011 | $136,800 | $185,400 | $130,500 |
| 2012 | $132,500 | $178,200 | $127,100 |
| 2013 | $134,500 | $183,100 | $127,200 |
| 2014 | $132,300 | $192,000 | $127,300 |
| 2015 | $154,200 | $216,800 | $130,000 |
| 2016 | $159,600 | $219,700 | $133,400 |
| 2017 | $166,600 | $227,800 | $139,200 |
| 2018 | $172,600 | $242,900 | $142,400 |
| 2019 | $184,500 | $242,900 | $151,300 |
| 2020 | $200,500 | $250,000 | $152,600 |
| 2021 | $216,600 | $279,100 | $159,100 |
| 2022 | $241,700 | $302,700 | $184,000 |
| 2023 | $247,600 | $306,400 | $192,100 |

Source: U.S. Census Bureau (BOC), American Fact Finder, American Community Survey (ACS)

### 2.2.7 Public/Community Facility Services

Public/community facilities and services continue to be redeveloped, and the following description provides the most recent available data for the area.

*Police Protection*

The project area is in the New Orleans Police Department (NOPD) Fifth District. The Fifth District Station house is located at 3900 North Claiborne Avenue about one-half mile west of the IHNC. The station suffered substantial damage from Hurricane Katrina but has since been renovated. When needed, the police force has been supplemented by elements from the Louisiana State Police.

*Fire Protection*

Three fire stations serve the project area. All three stations received substantial damage from Hurricane Katrina but have since been renovated. The Bywater Station at 1040 Poland Avenue is currently housed in its original building. Engine No. 24 operates out of this station. Engine No. 8 operates out of its pre-Katrina location at 3300 Florida Blvd. The Lower Ninth Ward Station has Engine Nos. 22 and 39 and is located at 1616 Caffin Ave.

*Schools*

There are currently 3 public schools in the project area (Homeland Infrastructure Foundation-Level Data). Dr. Martin Luther King Charter School for Science and Technology is in the Lower Ninth Ward, Akili Academy of New Orleans is on N. Galvez St., and Frederick A. Douglass High School is in Bywater. There is only 1 private school in the project area: Light City Christian Academy in the Lower Ninth Ward.

*Health Care*

There is an urgent care center at 3218 Saint Claude Ave. There is also the DePaul Community Health Center at 1030 Lesseps St and the Baptist Community Health Services at 1616 Fats Domino Avenue, 4209 St. Claude Avenue, and 4960 St. Claude Avenue. More serious medical problems that require hospitalization are either sent to facilities located 5 miles southwest of the project area in the Central Business District (CBD) of Orleans Parish, or to the newly constructed St. Bernard Parish Hospital located approximately 2 miles east on 8000 West Judge Perez Drive in Chalmette, Louisiana. However, it should be noted that the only level 1 trauma center is located approximately 7 miles west of the project area at the Norman E. McSwain, Jr, MD, Spirit of Charity Trauma Center in the University Medical Center of New Orleans located on Canal Street in Orleans Parish, Louisiana.

*Recreational Facilities*

Numerous parks and playgrounds, as well as a recreation center, were maintained by the City of New Orleans Recreation Department prior to Hurricane Katrina. All of these recreation facilities received varying degrees of damage from Hurricane Katrina. Several parks and recreational facilities are now being used for other purposes, and most of these facilities need substantial maintenance. A 3-mile long, white-striped bicycle path has recently opened along St. Claude Avenue, extending through the Lower Ninth Ward and ending at the Orleans/St. Bernard Parish line. Additionally, from 2005 to 2008, the Corps provided funding for the renovation of parks and playgrounds in the impact area, including renovations at the Richard Lee, Sam Bonnart, and Micky Markey playgrounds.

*Other Facilities*

The U.S. Postal Service's Bywater Station at 1521 Poland Avenue near Claiborne Avenue was damaged by Hurricane Katrina but reopened for service in 2006.

### 2.2.8 Population

Table 2-7, which is based on U.S. Census data, shows the population change for Orleans and St. Bernard parishes since 2000, and indicates the extreme depopulation of the project area following Hurricane Katrina, and the slow recovery of that population.

**Table 2-7 Population Estimates, Zip Code 70117, Orleans and St. Bernard Parish**

| Year | Zip Code 70117 | Orleans | St. Bernard |
|---|---|---|---|
| 2000 | 51252 | 484,674 | 67,229 |
| 2010 | 23,389 | 295,285 | 27,739 |
| 2011 | 20,716 | 321,409 | 32,347 |
| 2012 | 20,705 | 341,407 | 35,947 |
| 2013 | 21,488 | 357,013 | 38,850 |
| 2014 | 22,639 | 368,417 | 41,114 |
| 2015 | 22,963 | 376,738 | 42,858 |
| 2016 | 24,593 | 382,992 | 44,091 |
| 2017 | 26,468 | 388,182 | 45,067 |
| 2018 | 27,038 | 389,648 | 45,694 |
| 2019 | 27,137 | 390,845 | 46,266 |
| 2020 | 27,404 | 391,249 | 46,694 |
| 2021 | 27,009 | 383,974 | 43,821 |
| 2022 | 25,888 | 380,408 | 44,038 |
| 2023 | 26,250 | 376,035 | 44,172 |

Source: U.S. Census Bureau (BOC), American Fact Finder, American Community Survey (ACS) 5-year Estimates

### 2.2.9 Community and Regional Growth

While total employment and population within the immediate area of the communities adjacent to the project site have declined in recent decades, the size of the larger New Orleans Metropolitan Statistical Area (MSA) has remained fairly constant as adjacent suburban areas have expanded. The New Orleans Metropolitan Statistical Area, designated by the U.S. Census Bureau, encompasses eight parishes including Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John the Baptist, and St. Tammany. The population change in these eight parishes is presented in table 2-8 below. As previously mentioned, however, the effects of Hurricane Katrina have included severe damage to housing and businesses, many of which have still not been restored, influencing community and regional growth.

**Table 2-8 New Orleans MSA Population Levels**

| Parish | 2000 | 2023 |
|---|---|---|
| Orleans | 484,674 | 376,035 |
| St. Tammany | 191,268 | 269,331 |
| St. Charles | 48,072 | 51,863 |
| St. John the Baptist | 43,044 | 41,342 |
| Plaquemines | 26,757 | 23,070 |
| St. Bernard | 67,299 | 44,172 |
| Jefferson | 455,466 | 432,484 |
| St. James | 21,216 | 19,797 |
| Total | 1,337,796 | 1,258,094 |

Source: U.S. Census Bureau

### 2.2.10 Vehicular Transportation

This resource is important for a variety of reasons, among them a transportation network that links waterways, major rail lines, trucking companies and airports to limited access highways and streets and bridges supporting the urban center. Evacuation routes that are needed to respond to hurricanes that pass through the region are a major component of this resource.

The project area is comprised of a street grid that contains several arterial streets and a dense pattern of neighborhood and local streets. The east-west travel corridors of this street grid are bisected by the IHNC. The major east-west arterial routes in the project area include Florida Avenue, North Claiborne Avenue (LA Hwy 39), North Robertson Street, and St. Claude Avenue (LA Hwy 46). See Photograph 2-1 and Figure 2-3. North Robertson Street and North Claiborne Avenue are one-way streets on the west side of the IHNC that merge to cross the IHNC at the four-lane wide, mid-level North Claiborne Avenue Bridge.


**Photograph 2-1 Eastbound view of St. Claude Avenue (LA Hwy 46)**

North Claiborne Avenue continues as a four-lane divided road east of the IHNC. The Florida Avenue Bridge is a two-lane low-level bridge that also includes a railroad crossing. The St. Claude Avenue Bridge is a four-lane, low-level bridge. These three bridges are opened frequently as a result of passing marine traffic on the IHNC. The Port of New Orleans owns and operates both the St. Claude Avenue Bridge and Florida Avenue Bridge, and the Louisiana Department of Transportation owns and operates the Claiborne Avenue Bridge. The North Claiborne Avenue Bridge opens on average 4.6 times per day and the average open time is 7 - 10 minutes. Both the Florida Ave and St Claude bridges open on average 24 times per day and the average open time is 7 – 10 minutes.

Additionally, it should be noted that while the Port of New Orleans owns and operates the St. Claude Avenue Bridge and the Louisiana Department of Transportation owns and operates the Claiborne Avenue Bridge, both bridges are under permit by the U.S. Coast Guard (USCG) and are required to adhere to Title 33 – Navigation and Navigable Waters, Chapter 1 – Coast Guard/Department of Homeland Security, Subchapter J – Bridges, Part 117 – Drawbridge Operation Regulations. With respect to the St. Claude Avenue Bridge and Claiborne Avenue Bridge operations, three specific USCG regulations would be applicable both during and after construction:

- 33 CFR § 117.31 "Drawbridge operations for emergency vehicles and emergency vessels", sub-part a), which states, "Upon receiving notification that an emergency vehicle is responding to an emergency situation, a draw tender must make all reasonable efforts to have the draw span closed at the time the emergency vehicle arrives."

- 33 CFR § 117.33 "Closure of draw for natural disasters or civil disorders", which states, "Drawbridges need not open for the passage of vessels during periods of natural disasters or civil disorders declared by the appropriate authorities unless otherwise provided for in Subpart B or directed to do so by the District Commander."

- 33 CFR § 117.31 "Inner Harbor Navigation Canal, New Orleans," sub-section (a), which states, "The draws of the SR 46 (St. Claude Avenue) bridge, mile 0.5 (GIWW mile 6.2 East of Harvey Lock), the SR 39 (Judge Seeber/Claiborne Avenue) bridge, mile 0.9 (GIWW mile 6.7 East of Harvey Lock), and the Florida Avenue bridge, mile 1.7 (GIWW mile 7.5 East of Harvey Lock), shall open on signal; except that, from 6:30 a.m. to 8:30 a.m. and from 3:30 p.m. to 5:45 p.m., Monday through Friday, except federal holidays, the draws need not open for the passage of vessels. The draws shall open at any time for a vessel in distress."

Table 2-9 provides the 2023 traffic counts for North Claiborne Avenue and St. Claude Avenue at the two bridges across the IHNC, along with previous traffic counts conducted in 1993,2004/2005, 2013, and 2023.

While counts for Florida Avenue at the bridge crossing are not available, counts for Florida Avenue at Elysian Fields also indicate an increase in vehicular traffic from 31,354 in 2008 to 36,890 in 2013 to 34,507 in 2023. Here again, vehicular traffic remains significantly lower than the pre-Katrina counts of 53,383.

**Table 2-9 Comparison of Actual Traffic Counts, 1993 to 2023**

| Roadway | 1993 (vehicle trips/day) | 2004/2005 (vehicle trips/day) | 2013 (vehicle trips/day) | 2023 (vehicle trips/day) | Change 1993 – 2023 |
|---|---|---|---|---|---|
| N. Claiborne Avenue | 40,106 | 37,103 | 31,278 | 39,131 | -975 |
| St. Claude Avenue | 30,190 | 28,653 | 18,483 | 19,720 | -10,470 |
| Total | 70,296 | 65,756 | 49,761 | 58,851 | -11,445 |
| Source: Louisiana Department of Transportation and Development | | | | | |

The major north-south arterial routes include Franklin and Almonaster Avenues, Louisa Street, Piety Street and Poland Avenue on the west side of the IHNC, and Jourdon Avenue, Forstall Avenue, Caffin Street and Tupelo Street on the east side of the IHNC. Although most of these streets are two-lane, two-way or one-way streets, they primarily serve as feeders to the major east-west arterial streets and have more capacity than the present demand, especially following the reduction in local population since Hurricane Katrina.

The St. Claude Avenue Bridge provides access for both pedestrian and bicycle traffic, while the Florida Avenue Bridge provides access for pedestrian, bicycle and handicap across the IHNC. Pedestrian and bicyclist usage of the St. Claude Avenue crossing is well established, while such usage of the Florida Avenue Bridge is likely minimal due to its location when compared to the project area. The North Claiborne Avenue Bridge is not designed to provide pedestrian access.

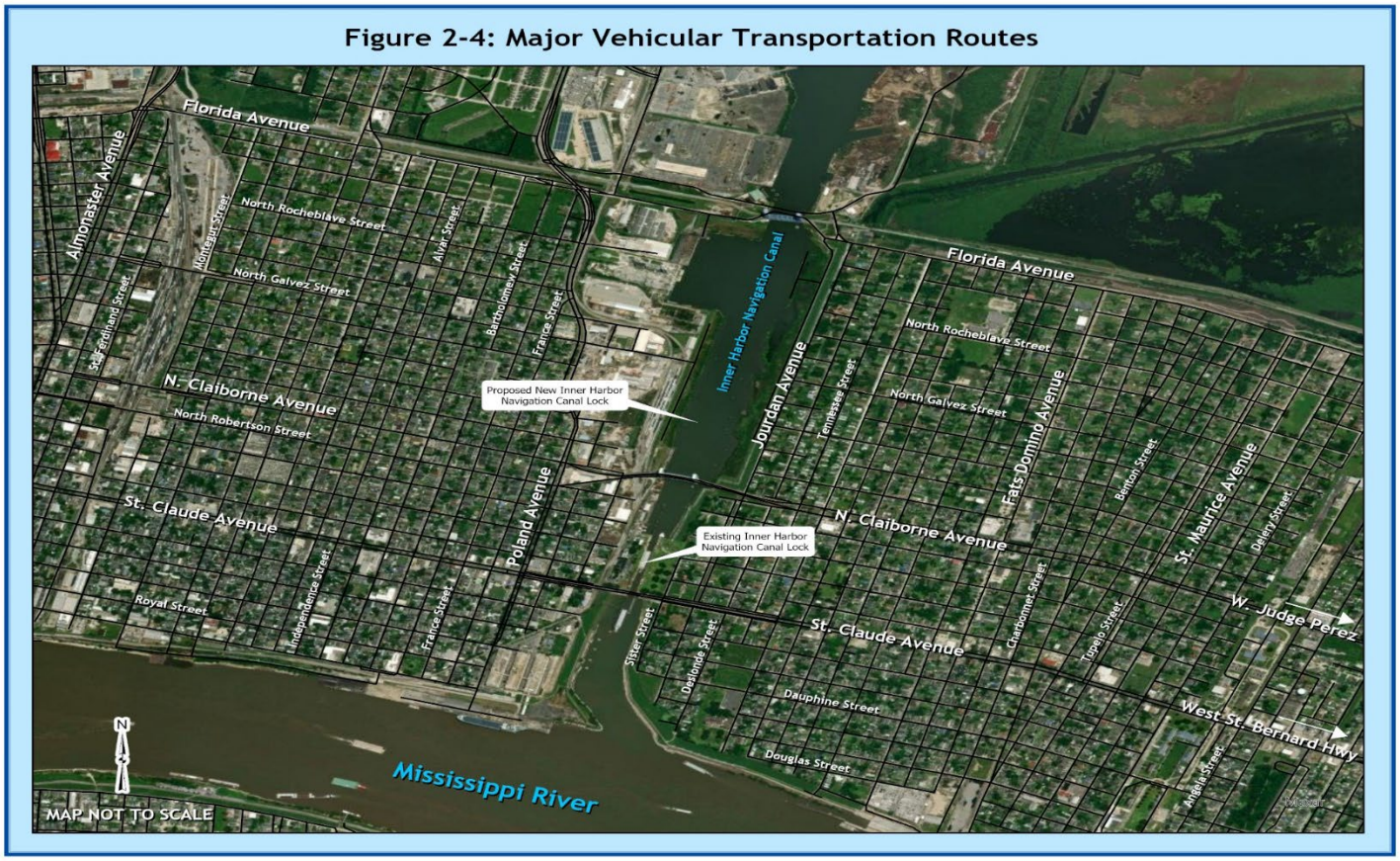



**Figure 2-3 Major Vehicular Transportation Routes**

### 2.2.11 Housing

Hurricane Katrina floodwaters damaged or destroyed between 60 and 80 percent of the housing in the project area. In nearby St. Bernard Parish, nearly 100 percent of all residences were either damaged or destroyed. U.S. Census data shows a decrease in both the number of households and total housing stock after Hurricane Katrina. Both the number of households and the total housing are predicted to make modest returns to pre-Katrina levels by the year 2040 (See tables 2-10 and 2-11). Table 2-12 displays total housing units by zip code 70117.

| Table 2-10 Number of Households, Orleans and St. Bernard Parish | | |
|---|---|---|
| Year | Orleans | St. Bernard |
| 2000 | 189,018 | 25,195 |
| 2005 | 198,225 | 26,483 |
| 2010 | 116,638 | 10,295 |
| 2013 | 148,398 | 13,714 |
| 2016 | 154,844 | 14,732 |
| 2018 | 154,036 | 15,029 |
| 2020 | 154,826 | 15,165 |
| 2023 | 155,060 | 15,803 |
| 2030 | 188,676 | 19,794 |
| 2040 | 200,027 | 21,058 |
| Source: U.S. Census Bureau (BOC); Moody's Analytics (ECCA) Forecast | | |

| Table 2-11 Total Housing Stock, Orleans and St. Bernard Parish | | |
|---|---|---|
| Year | Orleans | St. Bernard |
| 2000 | 214,564 | 25,195 |
| 2005 | 201,722 | 21,870 |
| 2010 | 160,937 | 13,832 |
| 2013 | 190,127 | 16,774 |
| 2016 | 192,358 | 16,871 |
| 2018 | 191,738 | 16,989 |
| 2020 | 192,012 | 17,151 |
| 2023 | 194,758 | 18,004 |
| 2030 | 209,910 | 19,529 |
| 2040 | 218,410 | 20,696 |
| Source: U.S. Census Bureau (BOC); Moody's Analytics (ECCA) Forecast | | |

**Table 2-12 Total Housing Units**

| Zip Code | Year | Total Housing Units |
|---|---|---|
| 70117 | 2011 | 12,395 |
| | 2012 | 12,364 |
| | 2013 | 12,594 |
| | 2014 | 13,236 |
| | 2015 | 13,598 |
| | 2016 | 14,263 |
| | 2017 | 14,979 |
| | 2018 | 15,524 |
| | 2019 | 15,538 |
| | 2020 | 15,353 |
| | 2021 | 15,628 |
| | 2022 | 15,683 |
| | 2023 | 15,821 |

Source: U.S. Census Bureau

### 2.2.12 Community Cohesion

Community cohesion has been described as the force that bonds people together long enough to establish meaningful interactions, common institutions, and agreed ways of behavior. It is a dynamic process, changing as the physical and human environment changes. Conditions brought about by water resources development can impact community cohesion through changing a right-of-way or constructing a feature that can divide a community, cause the dislocations of a significant number of residents, or requiring the relocation of an important local institution, such as a church or community center. The basic objectives of water resources development have been to provide additional security through flood risk reduction, hurricane and storm damage risk reduction, improved navigation, environmental restoration, and recreation through civil works, as needed by the local area, region, and Nation.

The neighborhoods surrounding the IHNC were well-established with many active residents that participated in restoration of abandoned properties, community development associations and school and church groups. However, many residences and businesses adjacent to the project area were destroyed by Hurricane Katrina, causing residents to leave the area and reducing the general level of community cohesion. Furthermore, the Lower Ninth Ward neighborhood was almost entirely destroyed. A number of Federal, state, and local organizations, businesses, school, religious and other non-profit organizations, and other institutions have participated in the recovery of New Orleans following Hurricane Katrina, a reflection of social bond, community cohesion, and National support.

The Industrial Canal has had a divisive effect on the communities within the project area. As early as the 1820s, officials with the city of New Orleans and the Port of New Orleans started planning a way for ships to bypass the windy, scenic Mississippi River route, and create a faster more direct route for ships to enter Lake Pontchartrain and then access the Gulf of America. By 1852, the 9th Ward officially became part of the city of New Orleans. By the early 1900s the area currently referred to as the Lower 9th Ward was comprised of mostly working-class people. The 1910 census indicated that over 5,000 people lived in the Lower 9th Ward and tens of thousands of individuals lived west of the current day Industrial Canal in what was referred to then as the Upper 9th Ward. On June 6, 1918, construction of the Industrial Canal by the Port of New Orleans began and was completed on May 5, 1923, along with the construction of the existing IHNC lock. There has always been strong public opposition to the Industrial Canal project because of its direct physical presence as a barrier between those previously described neighborhoods. The current St. Claude Avenue and Claiborne Avenue movable bridges were constructed in 1919 and 1957, respectively. Construction of movable bridges rather than fixed spans made bicycle and pedestrian movement more difficult and inevitably caused vehicle traffic delays during non-curfew hours, which causes vehicular back-up into residential areas adjacent to the bridge.

The Laurentine Ernst Garden located at 601 Forstall Street in the Lower Ninth Ward and Guerrilla Garden located at 600 Charbonnet Street in the Holy Cross neighborhood are two community gardens maintained by local residents. Both gardens serve as cohesive elements in the neighborhoods where residents can cultivate vegetables and strengthen community ties.

### 2.2.13 Noise

Noise is generally described as unwanted sound, which can be based either on objective effects (*i.e.*, hearing loss, damage to structures, *etc.*) or subjective judgments (*e.g.*, community annoyance). Sound is usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as sound level. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB. Sound levels are typically expressed as A-weighted db (dBA), which describes the relative loudness of sounds as perceived by the human ear.

Noise levels occurring at night generally produce a greater annoyance than do the same levels occurring during the day. It is generally agreed that people perceive intrusive noise at night as being 10 dBA louder than the same level of noise during the day. This perception is largely because background environmental sound levels at night in most areas are also about 10 dBA lower than those during the day.

Acceptable noise levels have been established by the U.S. Department of Housing and Urban Development (HUD) for construction activities in residential areas (HUD 1984):

- Acceptable (not exceeding 65 dBA) – The noise exposure may be of some concern, but common building construction will make the indoor environment acceptable, and the outdoor environment will be reasonably pleasant for recreation and play.

- Normally Unacceptable (above 65 dBA but not greater than 75 dBA) – The noise exposure is significantly more severe; barriers may be necessary between the site and prominent noise sources to make the outdoor environment acceptable; special building constructions may be necessary to ensure that people indoors are sufficiently protected from outdoor noise.

- Unacceptable (greater than 75 dBA) – The noise exposure at the site is so severe that the construction costs to make the indoor noise environment acceptable may be prohibitive and the outdoor environment would still be unacceptable.

Noise levels surrounding the IHNC project corridor are variable depending on the time of day and climatic conditions. As the project corridor is located primarily within an urban area, in July 2000, CEMVN contracted Eustis Engineering Company to perform an analysis on pile driving noise and vibration (CEMVN 2000). Background readings were taken within the existing floodwall and outside the floodwall (CEMVN 2000).

Average background readings before 12:00pm varied from 50 to 67 dBA with peak readings varying from 70 to 90 dBA. After 12:00pm, average background readings varied from 50 to 75 dBA with peak readings varying from 64 to 99 dBA. Train, vessel, vehicular, and air traffic (to a lesser extent) contribute to the background noise levels.

Two spot noise measurements were performed by Wyle Laboratories during a March 13, 2008, site visit to assess the existing noise levels. A Larson-Davis Model 831 Sound Level Meter/Analyzer was used for the measurements. The average A-weighted sound level was measured for the duration of 20 or 40 seconds at the locations when no traffic was present on nearby streets. The general ambient noise levels at Sister Street and Dauphine Street in the Holy Cross neighborhood were 48.1 dBA, and the ambient noise levels at the top of the IHNC levee near the St. Claude Avenue Bridge were 52.9 dBA (Appendix K to the 2009 SEIS).

The project area's exposure to aircraft noise was evaluated for civil and military airports within 15 miles of the site. These included Naval Air Station (NAS) Joint Reserve Base (JRB) New Orleans (located approximately 10 miles southeast in Belle Chasse), New Orleans Lakefront Airport (located 4 miles north), and Louis Armstrong New Orleans International Airport (located 14 miles west in Kenner). Two other small airfields, Southern Seaplane (located 7.5 miles south) and Braithwaite Park (located 10 miles south), conduct only infrequent small aircraft operations, are located far from the site, and provide no significant noise impact or noise level data; consequently, these airfields were not considered in the study. Noise contours for New Orleans Lakefront Airport were obtained for the airport conditions in 1993 and activity forecast for 2015 from the Master Plan Update EIS for the airport (New Orleans Air Reserve Station 2008). Based on these data, it was determined that the aircraft operations at Lakefront Airport also provide no substantial noise impact to the project area.

Currently, roadway traffic is the most prominent noise source in the neighborhoods surrounding the IHNC, especially at the three roadways that cross the IHNC. Average daily traffic volumes ranging from 1993 to 2016 for the major roadways that run through the project area, North Claiborne Avenue bridge and St. Claude Avenue bridge are described in Section 2.2.10 and Table 2-8 (traffic volumes for Florida Avenue at the bridge crossing are not available; however vehicular traffic counts for Florida Avenue at Elysian Fields, are described in Section 2.2.10). As shown in Figure 2-4, the 65 Day-Night Sound Level (DNL) contour due to traffic intersects the first city block on either side of Florida Avenue, North Claiborne Avenue, St. Claude Avenue, France Road, Poland Avenue, and Chartres Street. Vehicle traffic crossing the North Claiborne Avenue Bridge is a substantial noise contributor due to the high traffic volume, large percentage of truck traffic, the height of the bridge, and the open metal grid road deck. Figure 2-4 also includes noise emissions from daily railroad traffic on local railway tracks.

Two railroad lines are located near the IHNC. The New Orleans Public Belt Railroad runs parallel to the west bank of the IHNC. The Norfolk-Southern Railroad runs perpendicular to the IHNC and crosses the IHNC at Florida Avenue. An existing rail yard is located on the west bank of the IHNC adjacent to the proposed lock location but separated by a floodwall. Existing railway traffic data were collected and are listed in Table 2-13.

| Table 2-13 Daily Railway Traffic Data | | | |
|---|---|---|---|
| Railroad | Public Belt | Public Belt | Norfolk Southern |
| Direction | West | East | West |
| Locomotives | 1 to 3 | 1 | 1 |
| Daytime Trips | 14 | 2 | 2 |
| Nighttime Trips | 4 | 2 | 1 |
| Freight cars/train | 57 | 57 | 40 |
| Track | Welded | Welded | Welded |
| Speed (mph) | 10 | 10 | 10 |
| Whistle Stop | At crossings, bridge, Florida Ave | At crossings | At crossings, bridge, Florida Ave |
| Power | Diesel | Diesel | Diesel |
| Grade | None | None | None |

Prior to 2005, there were numerous sensitive receptors in neighborhoods on both sides of the IHNC. In years immediately following Hurricane Katrina there was a substantial drop off of sensitive receptors such as occupied homes, schools and churches, but it should be noted that over the last ten years some of the nearby sensitive receptors have seen a slight increase in the project area.


**Figure 2-4 Existing Conditions – No-Action – Day-Night Sound Level (DNL) Noise Contours**

### 2.2.14 Air Quality

The U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards has set National Ambient Air Quality Standards (NAAQS) for six principal pollutants, called "criteria" pollutants. They are carbon monoxide, nitrogen dioxide, ozone, lead, particulates of 10 microns or less in size (PM-10 and PM-2.5), and sulfur dioxide. NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare. Ozone is the only parameter not directly emitted into the air; it forms in the atmosphere when three atoms of oxygen are combined by a chemical reaction between oxides of nitrogen and volatile organic compounds in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of nitrogen and volatile organic compounds, also known as ozone precursors. Strong sunlight and hot weather can cause ground-level ozone to form in harmful concentrations in the air. The Clean Air Act General Conformity Rule (40 CFR §93.100 *et seq.*, Determining Conformity of Federal Actions to State or Federal Implementation Plans) dictates that a conformity review be performed when a Federal action generates air pollutants in a region that has been designated a non-attainment or maintenance area for one or more NAAQS. A conformity assessment would require quantifying the direct and indirect emissions of criteria pollutants caused by the Federal action to determine whether the proposed action conforms to Clean Air Act requirements and any applicable State Implementation Plan (SIP).

The general conformity rule was designed to ensure that Federal actions do not impede local efforts to control air pollution. It is called a conformity rule because Federal agencies are required to demonstrate that their actions "conform with" (i.e., do not undermine) the approved SIP for their geographic area. The purpose of conformity is to (1) ensure Federal activities do not interfere with the air quality budgets in the SIPs, (2) ensure actions do not cause or contribute to new violations, (3) ensure attainment and maintenance of the NAAQS, and (4) mitigate emissions if *de minimis* thresholds are exceeded. Orleans Parish is currently in attainment of all NAAQS and operating under attainment status (EPA 2022). This classification is the result of area-wide air quality modeling studies.

The IHNC Lock project is located in Orleans Parish. Therefore, the air emissions generated by the proposed project would not trigger a conformity determination even if they exceed *de minimis* levels. However, due to the long-time frame involved in the construction of approximately 10 years, the conformity status in Orleans Parish may change. Therefore, an air emissions analysis is presented in Chapter 6 under Air Quality for a worst-case scenario and for an average construction year.

### 2.2.15 Human Health and Safety

The proposed lock construction area is contained behind 12- and 15-foot-high floodwalls along the IHNC and is relatively inaccessible to the public. The area where the St. Claude Avenue Bridge would be demolished and a new bridge constructed is currently accessible by the public, but the construction area would be made off limits to the public during construction and demolition. No significant quantities of hazardous materials are stored in the project area at USACE facilities, and lock and bridge workers follow Occupational Safety and Health Agency (OSHA) standards for workplace safety. Those neighborhoods surrounding the project area that were not severely damaged by Hurricane Katrina are densely populated and have typical public safety issues found in urban environments. Nearby neighborhoods that were severely damaged by Hurricane Katrina have been cleaned of debris by the Federal government and other entities, and no substantial health and safety concerns remain.

## 2.3 Natural Environment

### 2.3.1 Aquatic Resources

*Aquatic Habitats*

There are two distinct salinity regimes in the project area. Freshwater habitat is associated with the Mississippi River to the south of the lock, while brackish waters occur north of the lock in the IHNC, GIWW, and Lake Pontchartrain. Coastal waters of Louisiana contain a number of diverse habitats and a wide-range of salinities, making the estuary suitable for a wide variety of fish and crustaceans at varying times of the year.

Fish resources in the IHNC, GIWW and Lake Pontchartrain include 85 known species; some common species include bay anchovy (*Anchoa mitchilli*), Atlantic croaker (*Micropogonias undulatus*), Gulf menhaden (*Brevoortia patronus*), and members of the silverside family (Atherinidae) (Stone *et al.* 1980). Fish populations in Lake Pontchartrain also include a number of important gamefish, such as spotted seatrout (*Cynoscion nebulous*), sand seatrout (*Cynoscion arenarius*) and red drum (*Sciaenops ocellata).* The estuarine habitat produces many species of fish that serve as prey for predatory fish. Common prey species include rainwater killifish (*Lucania parva*), naked goby (*Gobiosoma bosci*), Gulf pipefish (*Syngnathus scovelli*), clown goby (*Microgobius gulosus*), pinfish (*Lagodon rhomboides*), bay anchovy, and speckled worm eel (*Myrophis punctatus*) (Duffy and Baltz 1998).

Lake Pontchartrain's substratum constitutes a major nursery ground for commercially valuable species harvested in Louisiana's coastal waters (National Oceanic and Atmospheric Administration Fisheries Service 2014). Post-larval, juvenile, and sub-adult white (*Farfantepenaeus setiferus*), brown shrimp (*Litopenaeus aztecus*), and blue crab (*Callinectes sapidus*) are abundant in Lake Pontchartrain year-round when salinity levels are suitable. These species immigrate into Lake Pontchartrain through the GIWW and 2 natural passes as larvae and post-larvae and then emigrate from the lake and travel to the coastal waters of the Gulf of Mexico after they have grown larger.

The freshwater commercial fishery within the Mississippi River targets channel catfish (*Ictalurus punctatus*), blue catfish (*Ictalurus furcatus*), flathead catfish (*Pylodictis olivaris*), alligator gar (*Atractosteus spatula*), and spotted gar (*Lepisosteus oculatus*). Sport fishermen primarily pursue blue catfish, but also target striped bass (*Morone saxatilis*), largemouth bass (*Micropterus salmoides*), white crappie (*Pomoxis annularus.*), black crappie (*Pomoxis nigromaculatus*) and various species of sunfish (*Lepomis spp.*) in the Mississippi River.

The IHNC's benthic habitats can be categorized into two distinct regimes defined by salinity levels present in the water. The southern portion of the IHNC is freshwater and the benthic invertebrates consist of several species of freshwater and freshwater tolerant chiromomids, oligochaetes, amphipods, and isopods. On the northern side of the existing lock is a brackish aquatic habitat that contains similar organisms tolerant to higher salinities. The IHNC's northern brackish side also contains large benthic organisms such as mollusks and blue crabs. Some species of benthic organisms, such as rangia clams *(Rangia cuneata)*, are tolerant of a range of freshwater and brackish conditions and may be found on both sides of the lock.

*Water Quality*

Major waterbodies in the area consist of the Mississippi River, IHNC, MR-GO, GIWW and Lakes Pontchartrain and Borgne. Smaller hydrologic features include a number of drainage canals, natural bayous, lagoons, and intertidal marshes interspersed with small ponds. The most prominent water body is the Mississippi River, which is North America's longest and largest river and the fifth largest river worldwide. The Mississippi River flows 2,333 miles from Lake Itasca in northern Minnesota to its delta in southeast Louisiana. The IHNC is located at river mile 92.6 above Head of Passes, which is where the river splits into three major distributary passes. The Mississippi River drainage basin is the world's second largest, draining 1.83 million square miles, including tributaries from 32 U.S. states and two Canadian provinces. Lake Pontchartrain is a large, brackish shallow estuary which receives fresh water from various lakes, rivers, bayous, and canals, while receiving salt water from the Gulf of America (Environmental Atlas of the Lake Pontchartrain Basin 2002).

The IHNC provides the aquatic connection between Lake Pontchartrain and the GIWW/MR-GO. Some water from the Mississippi River enters the IHNC during lockages, but the quantity of water discharged during lockages is negligible compared to the tidal flow in the IHNC between Lake Pontchartrain and the GIWW.

Section 303(d) of the Clean Water Act (CWA) requires states to identify waterbodies that do not meet water quality standards and to develop total maximum daily loads for those pollutants suspected of preventing the waterbodies from meeting those standards. Total maximum daily loads are the maximum amount of a given pollutant that can be discharged into a water body from all natural and anthropogenic sources including both point and non-point source discharges. Additionally, Section 305(b) of the CWA requires each state to provide, every two years, to the EPA, revised descriptions of the water quality of all navigable waters in the state, analyses of the status of waters of the state with regard to their support of recreational activities and fish and wildlife propagation, assessments of the state's water pollution control activities toward achieving the CWA goal of having water bodies that support recreational activities and fish and wildlife propagation, estimates of the costs and benefits of implementing the CWA, and descriptions regarding the nature and extent of nonpoint sources of pollution and recommendations for programs to address nonpoint source pollution.

In Louisiana, to comply with Sections 303(d) and 305(b) of the CWA, the Louisiana Department of Environmental Quality's (LDEQ) conducts a surface water monitoring program to measure progress towards achieving water quality goals at state and National levels, to gather baseline data used in establishing and reviewing the state water quality standards, and to provide a database for use in determining the assimilative capacity of the waters of the state. Information is also used to establish permit limits for wastewater discharges. The program provides baseline data on individual waterbodies to monitor long-term trends in water quality. The LDEQ Section 305(b) and 303(d) CWA Water Quality Inventory Integrated Report for 2024 lists five waterbodies (sub-watershed code) that are located both within and adjacent to the project area: Mississippi River (LA070301); IHNC (LA041501); Intracoastal Waterway (LA041601); Bayou Bienvenue (LA041801); Lake Pontchartrain (LA041001). (Table 2-14).

Prior to 2006, sub-watershed IHNC (LA041501) failed to meet designated uses for Primary Contact Recreation, Secondary Contact Recreation, and Fish and Wildlife Propagation. LDEQ suspected the causes of past impairment to the Primary and Secondary Contact Recreation designated uses were fecal coliforms from sanitary sewer overflows during sewerage system failures, and from urban municipal wastes. Low dissolved oxygen levels impaired the quality of water for fish and wildlife propagation. Non-point source pollution from high-density urban areas was the suspected source of oxygen demanding substances. The runoff of oxygen demanding substances, and the failure of sewerage systems are associated with rain events (LDEQ 2024).

| Table 2-14 LDEQ Sub-watersheds Found in the Project Area and Water Quality Attainment Status | | | |
|---|---|---|---|
| Sub-watershed Name & LDEQ ID | Water Quality Attainment Status | Suspected Causes of Impairment | Suspected Sources of Impairment |
| Mississippi River LA070301 | Fully meeting standards | N/A | N/A |
| IHNC LA041501 | Fully meeting standards | N/A | N/A |
| Intracoastal Waterway LA041601 | Fully meeting standards | N/A | N/A |
| Bayou Bienvenue LA041801 | Fully meeting standards | N/A | N/A |
| Lake Pontchartrain LA041001 | Fully meeting standards | N/A | N/A |
| (2024 Section 305(b) and 303(d) CWA Water Quality Inventory Integrated Report) | | | |

The water quality in sub-watershed IHNC (LA041501) has improved over recent years. As of 2006, LDEQ water quality monitoring data indicated that the fecal coliform levels had decreased, and that the waterbody had reached attainment for both Primary and Secondary Contact Recreation. As of 2024, sub-watershed IHNC (LA041501) remains in attainment for all water quality designated uses (LDEQ 2024).

In 2006, the adjacent sub-watershed Lake Pontchartrain (LA041001) was in violation of LDEQ criteria for fecal coliforms. The water body did not support designated uses for Primary Contact Recreation; however, it did meet designated uses for Secondary Contact Recreation and Fish and Wildlife Propagation. The suspected sources of impairment to the water body were overflows of sanitary sewerage systems (LDEQ 2006). Current LDEQ water quality monitoring data (2024) indicates that the fecal coliform levels have decreased and that the water body has reached attainment for both Primary and Secondary Contact Recreation. As of 2024, sub-watershed Lake Pontchartrain (LA041001) remains in attainment for all water quality designated uses (LDEQ 2024).

*Water Quality and Sediment Evaluation*

Results of testing for contaminants of concern found in the 1993 sampling efforts conducted during preparation of the 1997 EIS are incorporated herein by reference. In summary, four locations were sampled in the IHNC and recovered samples were analyzed using Toxic Characteristic Leachate Procedure methods for metals, volatile organics, extractables, herbicides and pesticides in elutriates. Contaminants of concern identified in the 1993 analyses were zinc, lead, chromium and copper.

As part of the soil sampling on the banks of the IHNC for the 1997 EIS, numerous surfaces, near-surface and deep auger samples (-35 feet) were collected and analyzed from locations identified as sites with past activities generating hazardous material. All of the samples collected were analyzed for a wide range of contaminants, including polynuclear aromatic hydrocarbons (PAH), oil and grease, halogenated hydrocarbons, metals, volatile organics, pesticides and herbicides. The results of the soil analysis were described in the 1997 EIS and are incorporated herein by reference; most of the detectable contaminants of concern were found in the surface and near-surface samples, and the deeper (-35 feet) soil samples commonly indicated only background levels of most contaminants. The primary contaminants of concern identified included 7 metals, 21 volatile organics, 21 base/neutral semi volatile organics and 2 pesticides. The Toxic Characteristic Leachate Procedure analyses found only lead present at one site above the regulatory limits.

Spot sampling of surface and shallow subsurface soils at suspected or known hot spots for petroleum hydrocarbons contamination yielded higher concentrations of heavy hydrocarbons, with metals and chlorinated hydrocarbons near engine repair sites. Fuel contamination was localized in soil near fuel tanks and transfer stations. Lead contamination was prevalent at sites containing sandblast materials.

*Water Quality and Sediment Evaluation Implementation*

A more detailed soil and sediment sampling effort started in 2005 but was interrupted by Hurricane Katrina. In 2007, the project was enjoined and additional analysis of impacts based on post-Katrina conditions was determined appropriate. An expanded sampling effort was completed by Weston Solutions, Inc. during the period July 9, 2007, to September 10, 2007. The objective of that investigation was to evaluate the physical, chemical and biological characteristics of material (non-native sediment and fill and native subsurface soil) to be dredged or excavated as part of the IHNC Lock replacement project. The reported information was used to develop an environmentally acceptable and regulatory-compliant management strategy for material generated during dredging to construct the IHNC Lock replacement project and provide scientific evidence to support decisions regarding the placement of excavated and dredged material at the disposal areas being proposed.

Within each of the 10 dredged material management units (DMMUs) established based on required dredging locations (see Figure 2-5), coring and sample target depths were established based on the proposed depth of dredging or disturbance by the proposed project as interpreted from bathymetric data collected in 2003. Cores and samples were collected from submerged locations using an electric vibracore apparatus or a box core device, depending on the type and depth of sample required for each location. Samples on land were collected with a motorized auger unit using a split barrel sampler or a thin-walled tube sampling sleeve.

All cores were advanced to the target depth except for one, which was stopped short due to refusal by subsurface debris. Numerous cores were required at some locations in order to collect the amount of material required for laboratory analysis. All samples were composited, as necessary, at a field processing station prior to separation of aliquots for analysis. A total of 69 stations were sampled, with 4 to 20 cores collected at each station, depending on the amount of sample material needed for testing. A total of 339 cores were successfully recovered.

In addition to samples taken from the proposed project area, reference samples were collected from reference sites located in the Mississippi River and Bayou LaLoutre to provide material as a baseline to compare with samples from the project area. Water was also collected from all sites, including the DMMUs, for water chemistry analysis and to generate elutriates for analysis.

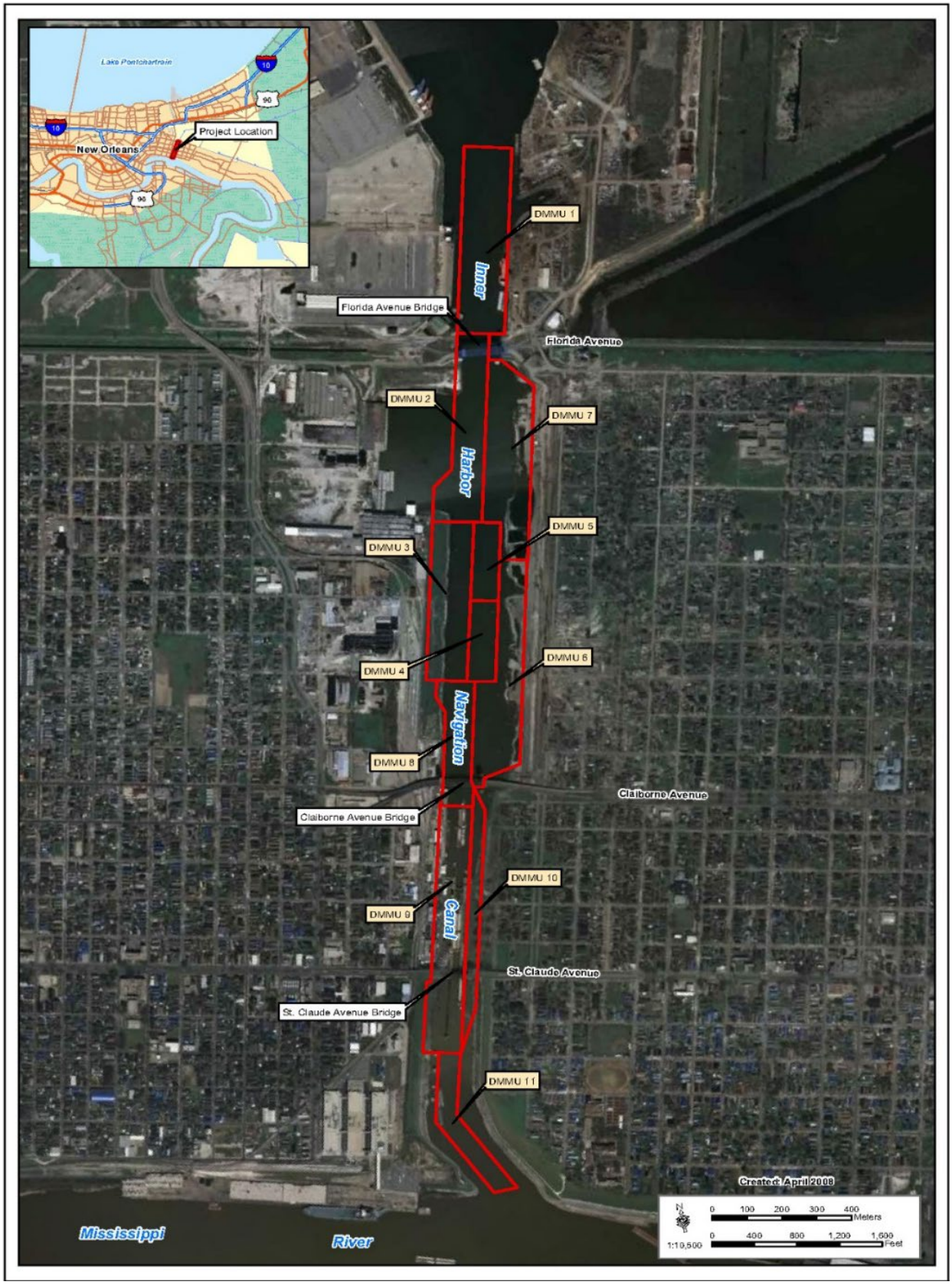



**Figure 2-5 Location of Dredged Material Management Units**

Sampling was conducted at each site using protocols defined by the EPA and the USACE for sample collection at proposed dredge sites. Sampling protocol includes complete chain-of-custody documentation and sample preservation during collection and shipment to off-site laboratories. Laboratories used for analysis and biological testing of the collected samples were:

- U.S. Army Engineer Research and Development Center, Environmental Laboratory, Vicksburg, Mississippi.
- TestAmerica, Pittsburgh, Pennsylvania
- Weston Solutions, Inc., Carlsbad, California
- NewFields Northwest, Port Gamble, Washington
- PACE Laboratories, St. Rose, Louisiana

These laboratories used protocols established by the *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Inland Testing Manual* (ITM; EPA/USACE 1998) to determine suitability for disposal of dredged material in open water. Samples were also analyzed for suitability for upland disposal according to protocols set by the *Evaluation of Dredged Material Proposed for Disposal at Island, Nearshore, or Upland Confined Disposal Facilities – Upland Testing Manual* (USACE 2003b).

Physical analyses included geotechnical analyses, such as grain size distribution, soil classification, Atterberg limits, moisture content, organic content, specific gravity, pH, and hard carbon. Simplified Laboratory Runoff Procedure analysis was performed to determine runoff water content following disposal. Column settling tests were utilized to determine the disposal area needed for sediment settling and water column clarification prior to effluent discharge.

Sediments and soils were analyzed for the quantification of over 170 contaminants of concern, including metals, organotin, PCB, semi-volatiles, total petroleum hydrocarbons, pesticides, herbicides, and volatiles according to methods approved by EPA and the American Society for Testing and Materials, as well as standard operating procedures for the laboratories involved. Physical characterization and chemical inventories were used in the interpretation of biological tests (described below) and to identify sediment properties that may have contributed to observed adverse impacts on water column and benthic test organisms.

The guidance provided by the Inland Testing Manual required that bioaccumulation potential and toxicity testing using appropriate type species be conducted to determine the potential long-term impact of dredged material disposal on biological resources at open water disposal sites. Separate freshwater and estuarine biological evaluations of water column and benthic impacts were conducted.

Sediments and soils were used for the preparation of elutriates used in freshwater and estuarine suspended phase toxicity tests and for conducting freshwater and estuarine solid phase toxicity and bioaccumulation potential tests. An elutriate is an aqueous extract derived from material proposed for dredging, in which the dissolved contaminants are compared to water quality standards with consideration of mixing and used directly in toxicity tests. Elutriates are prepared using water collected at the same site as the proposed dredged material.

Freshwater and estuarine juvenile fish were exposed to elutriates to predict any potential water column toxicity at the Mississippi River and mitigation site, respectively. Note that the "mitigation site" was the proposed area where suitable dredged material from the lock construction project would be used to restore wetlands in a large area of shallow open water. This project feature is no longer part of any of the lock replacement alternatives under consideration since no impacts to fish and wildlife habitats requiring compensatory mitigation would occur. In addition to the toxicity evaluation, the potential for water column impacts were assessed by comparison of measured contaminants of concern concentration in individual samples elutriates to background levels in receiving waters and to water quality standards. Dilution requirements were then determined for each

elutriate contaminant of concern to meet background levels, or site-specific and regulatory water quality standards. Maximum dilution required for each DMMU to meet the above criteria at each disposal area was identified, and mixing zone models were evaluated to determine if sufficient dilution occurred within regulatory mixing zones specified by LDEQ. Further details on the methodology are included in the Water Quality and Sediment Evaluation Report (Appendix C to the 2009 SEIS). Results of the freshwater and estuarine elutriate testing and dredge material management plan are discussed in Chapter 6.

### 2.3.2 Essential Fish Habitat

Specific categories of Essential Fish Habitat, as defined by the Magnuson-Stevens Fishery Conservation and Management Act, occurring in the project area include estuarine emergent wetlands, estuarine water column and estuarine mud substrate (bottom). Estuarine water column and estuarine mud substrate occurs throughout all of the tidally-influenced waters of the project area, including the IHNC, GIWW/MR-GO, Lake Pontchartrain, and numerous bayous, canals, and ponds. Since the water salinity in this area is normally brackish, the wetlands are comprised of species suited to brackish conditions, although there is evidence that the closure structure placed across the MR-GO at Bayou La Loutre and the blockage of the MR-GO by the HSDRRS floodwall near Bayou Bienvenue have caused the area to become considerably fresher due to decreased tidal exchange. The two dominant herbaceous species of the emergent estuarine wetlands are smooth cordgrass (*Spartina alterniflora*) and marsh hay cordgrass or wiregrass (*Spartina patens)*. This habitat is tidally inundated, at least occasionally, and serves as important escape and feeding habitat for a variety of estuarine species, especially the small juveniles of larger species like spotted seatrout and all life stages of smaller species like killifishes (family Cyprinodontidae).

Three Federally-managed estuarine/marine species are commonly to abundantly found in the project area; brown shrimp, white shrimp, and red drum. Brown shrimp occur as post-larvae, juveniles, and sub-adults. The post-larvae show up in large numbers beginning in late March to in early April. The juveniles and sub-adults are abundant and heavily fished in May, June, and July. White shrimp also occur as post-larvae, juveniles, and sub-adults. Post larvae begin to show up in June and July. The peak of white shrimp abundance and harvest is August through November. Both species are brought into the project area as post-larvae from the Gulf of Mexico through tidal action and emigrate from the project area as juveniles and sub-adults, also by tidal action as they make their way to spawning grounds. Red drum of various age classes from small juveniles up to sub-adults also occur in the project area and are occasionally caught by recreational anglers, although the highest abundances and catches of red drum in southeast Louisiana are located in saltier estuarine waters outside of the immediate project area.

The IHNC at the proposed new lock construction site provides poor Essential Fish Habitat due to the industrialized nature of the area and the influence of fresh water through lockages from the Mississippi River. However, the IHNC from its intersection with the MR-GO/GIWW to Lake Pontchartrain and the MR-GO/GIWW are major man-made tidal passes through which the post-larvae of countless brown and white shrimp pass into the lake, and those that survive then later exit the lake as juveniles and sub-adults. Large quantities of brown and white shrimp are harvested in the GIWW/MR-GO usually at night on a falling tide with boats pushing skimmer nets. The intersection of the IHNC and Lake Pontchartrain, locally known as "Seabrook" is a major recreational fishing location, although its popularity has decreased considerably since the previously-mentioned channel closures have been constructed. While spotted seatrout are the predominant sport fish caught at this location, red drum and sand seatrout are also occasionally caught.

It is widely known that much of the coastal wetlands of Louisiana have been lost and continue to convert to open water due to a variety of causes including subsidence of underlying sediments, lack of riverine sediment input, and the construction of thousands of canals for various purposes that have allowed salt water and tidal influence to move far inland from the coast. As a result of this loss of emergent wetlands, major efforts are underway by a variety of governmental agencies to restore the lost wetlands which provide fish and wildlife habitats and storm surge attenuation. The conversion of shallow estuarine open water back to emergent wetlands is considered to produce beneficial effects on the overall environment, and nearly all coastal restoration projects that have been implemented and those envisioned for future construction are designed to

cause wetlands to be restored or provide protection for existing wetlands. Additionally, compensatory mitigation projects for impacts on coastal wetlands usually have similar designs.

### 2.3.3 Threatened and Endangered Species

Several Federally-listed threatened or endangered species, and candidate species are either known to or may occur in the vicinity of the project area. These species are pallid sturgeon (*Scaphirhynchus albus,* endangered), Atlantic sturgeon (*Acipenser oxyrhynchus desotoi*, threatened), West Indian manatee (*Trichechus manatus*, endangered), alligator snapping turtle (*Macrochelys temminckii*, proposed threatened), monarch butterfly (*Danaus plexippus*, proposed threatened), and tricolored bat (*Perimyotis subflavus*, proposed endangered).

The pallid sturgeon only occurs in large rivers within the Mississippi and Missouri River Basins from Montana to Louisiana. This includes the Mississippi River and Atchafalaya River in south Louisiana. The pallid sturgeon tends to select main channel habitats in the Mississippi River. Additional habitat descriptions state that the pallid sturgeon generally inhabits large, turbid, free-flowing riverine type environments with swift moving waters and rocky or sandy substrates (USFWS 1990). The species is long-lived, and spawning is believed to occur between June and August. Larval fish drift downstream from the hatching site and settle in the lower portion of the water column 11 to 17 days after hatching (USFWS 2007). Anthropogenic alterations to the Mississippi River such as bend way cutoffs, tributary impoundments and channel erosion have led to changes in deposition and erosion patterns potentially affecting pallid sturgeon populations (USFWS 2007). Habitat decline for this species has been attributed to channelization of rivers and construction of reservoirs that ultimately reduce the amount of turbidity in the water, which is vital for the pallid sturgeon for not only feeding areas but also spawning habitat.

The Atlantic sturgeon is an anadromous fish that occurs in many rivers, streams, and estuarine waters along the northern Gulf coast between the Mississippi River and the Suwannee River, Florida (USFWS 2003). In Louisiana, the Atlantic sturgeon has been reported at Rigolets Pass, rivers and lakes of the Pontchartrain Basin, and adjacent estuarine areas, including the MR-GO inland reach. Spawning occurs in coastal rivers between late winter and early spring (*i.e.*, March to May). Atlantic sturgeons are more likely to be in the inland reach of the Mississippi River Gulf Outlet during the winter months, (i.e., November 1 through March 31). Atlantic sturgeon less than 2 years old appear to remain in riverine habitats and estuarine areas throughout the year, rather than migrate to marine waters. Habitat alterations and poor water quality, especially in rivers used for spawning, hurricanes, toxic spills and over-fishing, have negatively affected this species.

West Indian manatees can be found in shallow, slow-moving rivers, estuaries, salt-water bays, canals, and coastal areas (LDWF, 2012a). West Indian manatees are typically found in waters with dense submerged aquatic beds or floating vegetation where the species graze on a variety of aquatic plants. This species has been known to occasionally enter Lake Pontchartrain and associated coastal waters from June through September. Manatees have been reported in the Amite, Blind, Tchefuncte, and Tickfaw Rivers, and in canals within the adjacent coastal marshes of Louisiana. They have also been occasionally observed elsewhere along the Louisiana Gulf coast. The manatee has declined in numbers due to collisions with boats and barges, entrapment in flood control structures, poaching, habitat loss, and pollution.

The alligator snapping turtle may be found in large rivers, canals, lakes, oxbows, and swamps adjacent to large rivers. It is most common in freshwater lakes and bayous, but also found in coastal marshes and sometimes in brackish waters near river mouths. Typical habitat is mud-bottomed waterbodies having some aquatic vegetation. Floodplain water bodies near the MRL, including associated borrow areas, are conducive habitat for alligator snapping turtle.

The monarch butterfly lives in a variety of habitats throughout North America but need milkweed for breeding. Recent research has shown dramatic declines in monarchs (~80 percent in 20 years) and their habitats leading conservation groups to petition the USFWS to list the species under the ESA. On June 20, 2014, President Obama signed a Presidential Memorandum, "Creating a Federal Strategy to Promote the Health of Honeybees and Other Pollinators," outlining an expedited agenda to address the devastating declines in honeybees and

native pollinators, including the monarch butterfly. Monarch butterflies could be found in available habitat where flowering plants are present adjacent to the MR.

The tricolored bat was proposed for federal listing under the ESA in 2022 (87 FR 56381). The tricolored bat is a small insectivorous bat that is distinguished by its unique tricolored fur and often appears yellowish to nearly orange. The once common species is wide ranging across the eastern and central United States and portions of southern Canada, Mexico and Central America. During the winter, tricolored bats are often found in caves and abandoned mines, although in the southern United States, where caves are sparse, tricolored bats are often found roosting in road-associated culverts where they exhibit shorter torpor bouts and forage during warm nights. During the spring, summer, and fall, tricolored bats are found in forested habitats where they roost in trees, primarily among leaves of live or recently dead deciduous hardwood trees, but may also be found in Spanish moss, pine trees, and occasionally human structures. Tricolored bats face extinction due primarily to the range wide impacts of white-nose syndrome, a deadly disease affecting cave-dwelling bats across the continent. White-nose syndrome has caused estimated declines of more than 90 percent in affected tricolored bat colonies across the majority of the species range. During summer, tri-colored bats may roost underneath bark, in cavities, or in crevices of both live and dead trees.

Green sea turtles (*Chelonia mydas*, threatened); hawksbill sea turtles (*Eretmochelys imbricate*, endangered); Kemp's ridley sea turtles (*Lepidochelys kempi*, endangered), leatherback sea turtles (*Dermochelys coriacea*, endangered), loggerhead sea turtles(*Caretta*, threatened), and finback whales (*Balaenoptera physalus*, endangered); sei whales (*Balaenoptera borealis*, endangered), blue whales (*Balaenoptera musculus*, endangered), and sperm whales (*Physeter macrocephalus*, endangered) are not expected in the southern end of the IHNC where construction activities would occur from any of the lock replacement alternatives.

The IHNC channel has been heavily impacted by human activities and provide no or low-quality habitat for threatened and endangered species. More detailed information regarding impacts to various threatened or endangered species is provided in Chapter 6.

### 2.3.4 Wildlife

The Lake Pontchartrain Basin provides habitat for a variety of important wildlife species, species occurring within the Bonnet Carré Spillway are most adapted to riparian and sparsely vegetated lands, while species occurring within both wooded lands north of the Lower Ninth Ward neighborhood and Bayou Bienvenue and swamplands east of Paris Road near the GIWW and MR-GO are those most adapted to an urban environment. For both habitats, these include mammals such as nutria (*Myocaster coypus*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), and swamp rabbit (*Sylvilagus aquaticus*), as well as wild boar (*Sus scrofa*) and white-tailed deer (*Odoccoileus virginianus*) which are commonly hunted on the previously described wooded lands near the project area.

Common resident and migratory bird species include house sparrow (*Passer domesticus*), American robin (*Turdus migratorius*), red-shouldered hawk (*Buteo lineatus*), eastern screech-owl (*Otus asio*), red-headed woodpecker (*Melanerpes erythrocephalus*), European starling (*Sturnus vulgaris*), rock dove (*Columba livia*), cattle egret (*Bulbulcus ibis*), common grackle (*Quiscalus quiscula*), and American crow (*Corvus brachyrhynchos*). Reptiles and amphibians likely present along the remaining vegetated banks of the channel include eastern box turtle (*Terrapene carolina*), green anole (*Anolis carolinensis*), five-lined skink (*Eumeces fasciatus*), rat snake (*Elaphe obsolete*), common kingsnake (*Lampropeltis getulus*), common garter snake (*Thamnophis sirtalis*), cottonmouth (*Agkistrodon piscivorus*), green treefrog (*Hyla cinerea*), marbled salamander (*Ambystoma ocapum*), eastern newt (*Notophthalmus viridescens*), and eastern narrow-mouthed toad (*Gastrophryne carolinensis*).

## 2.4 Cultural Environment

### 2.4.1 Aesthetic Values

A significant aesthetic resource of the project area is the Holy Cross levee and batture area, which is a recreational area used for fishing, picnicking, jogging, relaxing, and walking (Photograph 2-2). This area provides a visual amenity for residents of the Holy Cross neighborhood who view the river and watch barges and ships passing and provides views upriver of downtown New Orleans. Prior to Hurricane Katrina, it was estimated that 20 percent of the Holy Cross residents and 5 percent of the Lower Ninth Ward residents, or about 2,000 people, used the levee and batture annually. Another significant aesthetic resource in the IHNC area is the stand of 10 live oaks (*Quercus virginiana*) located north of the St. Claude Bridge on the east bank of the IHNC (Photograph 2-3). This site is owned and maintained by the CEMVN. Although the area is fenced and not available to the public, it provides a visual amenity for residents of the Lower Ninth Ward who live near Jourdan Avenue and for other residents passing over the St. Claude Avenue Bridge.

The Bywater and Holy Cross Historic districts are the two neighborhoods in the IHNC project area listed on the National Register of Historic Places. Within these historic districts, the majority of the buildings have historic and architectural significance which is high in aesthetic value. The Bywater Historic District is a mixed residential/commercial area spanning 120 city blocks. The Holy Cross Historic District is primarily residential, covering a 60-block area. Building types in both historic districts include Creole cottages, shotgun houses, camelback houses, side hall plan houses, and bungalows. Both districts are aesthetically unique due to the diverse style and complementary architectural features present. Most of the residential structures are painted in light pastel colors. Mature trees are present along the streets in both neighborhoods, and they provide shade and a visual softness to the street environment. Many of the residential homes in the Holy Cross neighborhood were severely damaged by Hurricane Katrina, but many have been completely restored. Substantial damage to residences and businesses also occurred in the Bywater Community, although the level of damage was much less than experienced in the Holy Cross neighborhood.

**Photograph 2-2 Holy Cross levee crown along the IHNC**

**Photograph 2-3 Stand of live oaks located along Sister Street**

### 2.4.2 Recreational Opportunities

Prior to Hurricane Katrina, there were 9 parks and playgrounds, two recreation centers and swimming pools operated in the project area by the New Orleans Recreation Department. As part of the implementation of the Community Impact Mitigation Plan during the initial construction phase of the IHNC lock replacement, several of these parks were improved in cooperation with New Orleans Recreation Department (NORD), Friends of NORD, and USACE. All of the NORD recreation areas sustained damage as a result of Hurricane Katrina and have experienced repairs and are operational. Open space is also present in portions of the neighborhoods. The IHNC and Mississippi River levee located south of the St. Claude Bridge within the Holy Cross neighborhood includes a jogging and walking path and is still heavily used post-Hurricane Katrina. While it may be accessible for various uses, the levee crown is not necessarily developed or maintained specifically for recreational uses. There are opportunities for passive recreation, such as viewing the river and downtown New Orleans from the levee and batture. Subsided wetland areas along Bayou Bienvenue north of the railroad tracks adjacent to Florida Avenue provide open space for passive recreation for residents of the Lower Ninth Ward. A wooden staircase and viewing platform were constructed over the levee and floodwall that separates the Lower Ninth Ward from the degraded wetlands area along Bayou Bienvenue (Photograph 2-4).

**Photograph 2-4 Permanent viewing platform in the Lower Ninth Ward**

Table 2-15 lists the parks, playgrounds, and recreation centers and the amenities they provide located within the St. Claude, Bywater, Lower Ninth Ward and Holy Cross neighborhoods.

**Table 2-15 Project Area (Neighborhood) Parks, Playgrounds, and Recreation Centers**

| Neighborhood | Park, Playground, Recreation Center | Amenities Provided |
|---|---|---|
| St. Claude | Bunny Friend Park | Outdoor basketball courts; all-purpose fields; baseball fields; and play equipment. |
| St. Claude | Odile Davis Park | Outdoor basketball courts; baseball field, play equipment, |
| Lower Ninth Ward | Stallings St. Claude Recreation Center | Indoor basketball courts; dance studio; all-purpose fields; fitness center; multi-purpose classrooms; outdoor pool; and recreation center |
| Lower Ninth Ward | Sankofa Wetland Park | Outdoor trails, interpretive signage, and Bayou Bienvenue viewing platform |
| Lower Ninth Ward | Oliver Bush Playground | Covered outdoor basketball courts; all-purpose fields; baseball fields; picnic pavilion; play equipment; tennis courts; and walking path |
| Lower Ninth Ward | Sanchez Multi-purpose Center | Arts and crafts room; indoor basketball courts; computer lab; dance studio; fitness center; game room; music room; indoor pool; reading room; stage; multi-purpose classrooms |
| Lower Ninth Ward | Sam Bonart Playground | Covered basketball courts; all-purpose fields; baseball fields; play equipment; and outdoor pool |
| Lower Ninth Ward | Richard Lee Playground | All-purpose fields; currently undeveloped |
| Lower Ninth Ward | Roffignac Playspot | Play equipment |
| Holy Cross | Delery Playspot | Play equipment |
| Bywater | Mickey Marky Playground | All-purpose fields; walking path; and play equipment |

### 2.4.3 Cultural Resources

Between 1987 and 1992, CEMVN completed studies of archaeological and above-ground resources within the area of potential effect (APE). A comprehensive summary of these studies is presented in the 1997 EIS and is incorporated herein by reference. In 2018-2019, CEMVN completed a re-assessment of the existing data due to the length of time between the 1997 EIS and effects from Hurricane Katrina on historic properties in the vicinity of the project. Subsequently, CEMVN contracted SEARCH, Inc. to provide updated National Register of Historic Places (NRHP) eligibility recommendations within the APE and to identify any gap in the historic property data collection (Theriot and Morsink 2019; Appendix A, Annex 4.8).

CEMVN developed four (4) APEs to aid in analyzing the effects of the project (undertaking). The areas include the Ground Disturbance APE, the Above-Ground Resources APE, the Cumulative APE, and the Borrow APE (See Figure 2-7 and Figure 2-8). CEMVN Secretary of the Interior (SOI) qualified staff utilized the 2019 cultural resources survey report and conducted background and literature review, which included review of the NRHP database, the Louisiana Cultural Resources Map, historic map and aerial research, and a review of previous cultural resources survey reports, to identify historic properties within the APEs. CEMVN has determined that there are 10 NRHP-listed or eligible historic properties including one previously demolished historic structure, as defined in 36 CFR 800.16(l), within the APEs (see Table 2-16, Figure 2-9). Numerous archaeological sites are located in the surrounding areas. The significance of the historic properties is primarily related to the development and occupation of New Orleans from the early-19th-century to mid-20th-century.

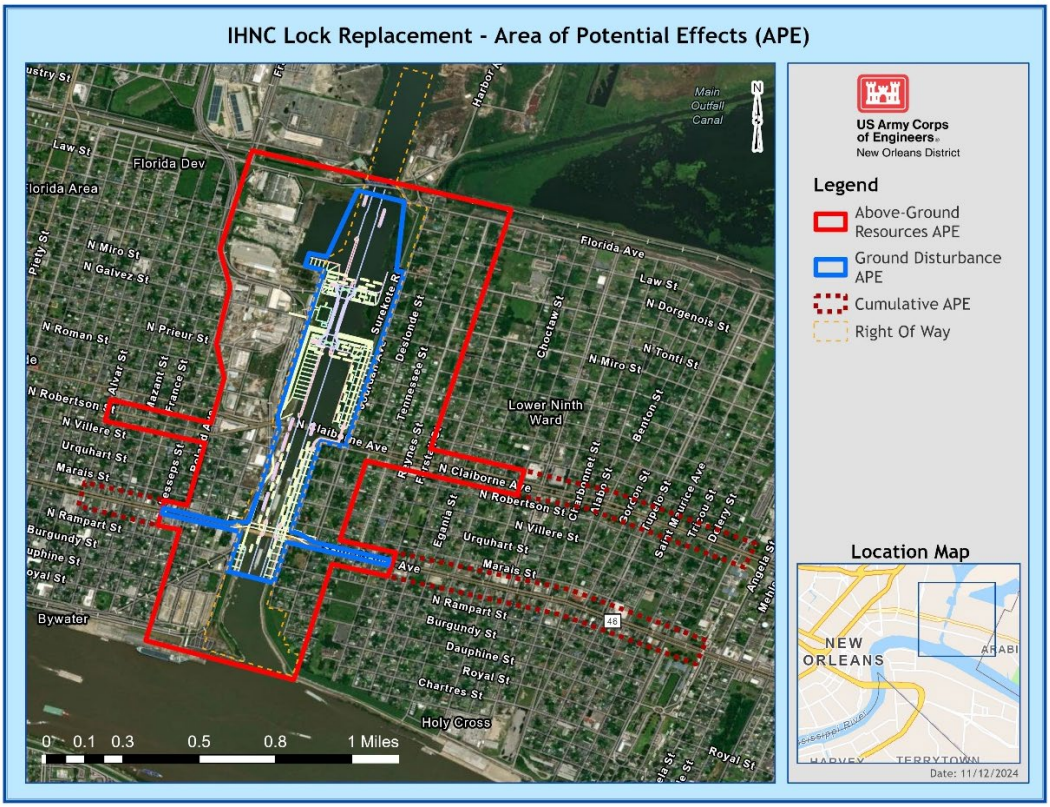



**Figure 2-6 Area of Potential Effects (APE) for the IHNC Lock Replacement Study**

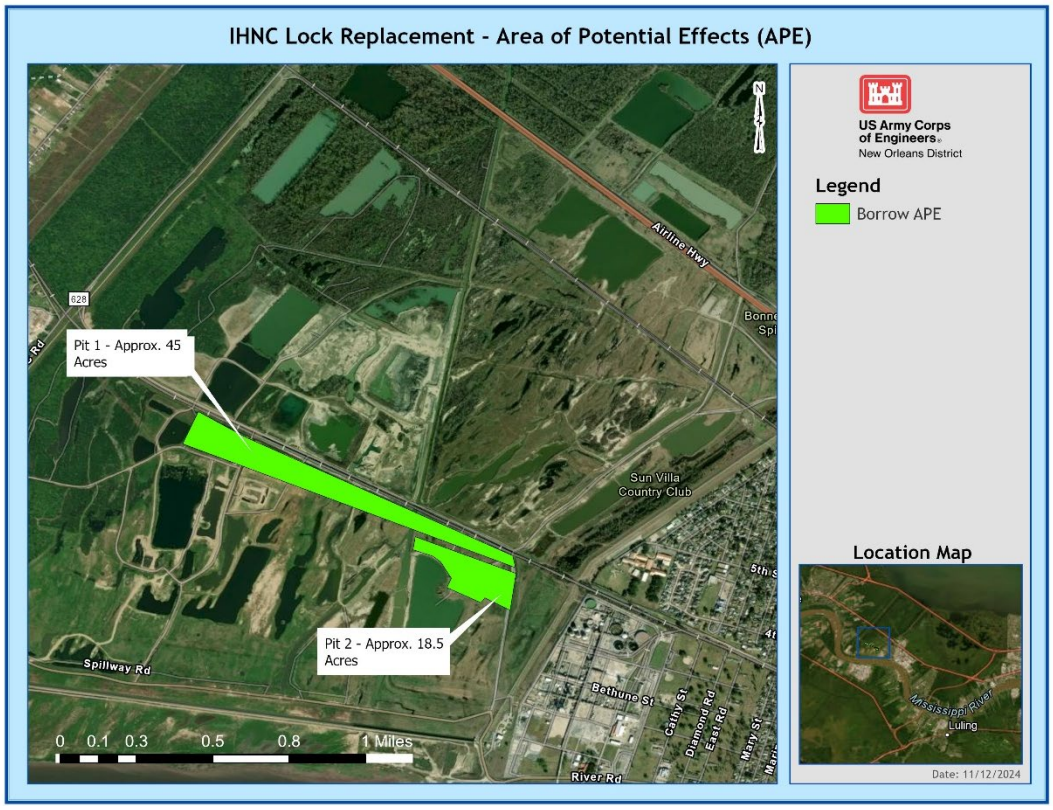



**Figure 2-7 Area of Potential Effects (APE) for the IHNC Lock Replacement Study**

**Table 2-16 Historic Properties within the APE**

| # | Resource Name | Period of Significance | NRHP Status | CEMVN Determination |
|---|---|---|---|---|
| 1 | IHNC Lock | Ca. 1918-1923 | | Eligible (Individually) |
| 2 | St. Claude Avenue Bridge | Ca. 1919 | | Eligible (Individually) |
| 3 | Galvez Street Wharf | Ca. 1922-1929 | | No longer extant |
| 4 | Holy Cross Historic District | Ca. 1880-1936 | Listed (NRHD)[1986] | |
| 5 | Bywater Historic District | Ca. 1807-1935 | Listed (NRHD)[1986] | |
| 6 | SWBNO, Sewerage Pumping Station B | Ca. 1905-1907 | | Eligible (Individually) |
| 7 | Judge Seeber Bridge | Ca. 1957 | | Eligible (Individually) |
| 8 | U.S. Army Supply Base | Ca. 1918-1945 | Listed (NRHD)[2016] | |
| 9 | Jackson Barracks | Ca. 1834-1955 | Listed (NRHD)[1976, 2016] | |

| Table 2-16 Historic Properties within the APE | | | | |
|---|---|---|---|---|
| # | Resource Name | Period of Significance | NRHP Status | CEMVN Determination |
| 10 | McDonogh 19 Elementary School | Ca. 1960-1961 | Listed (Individually)[2016, 2019] | |

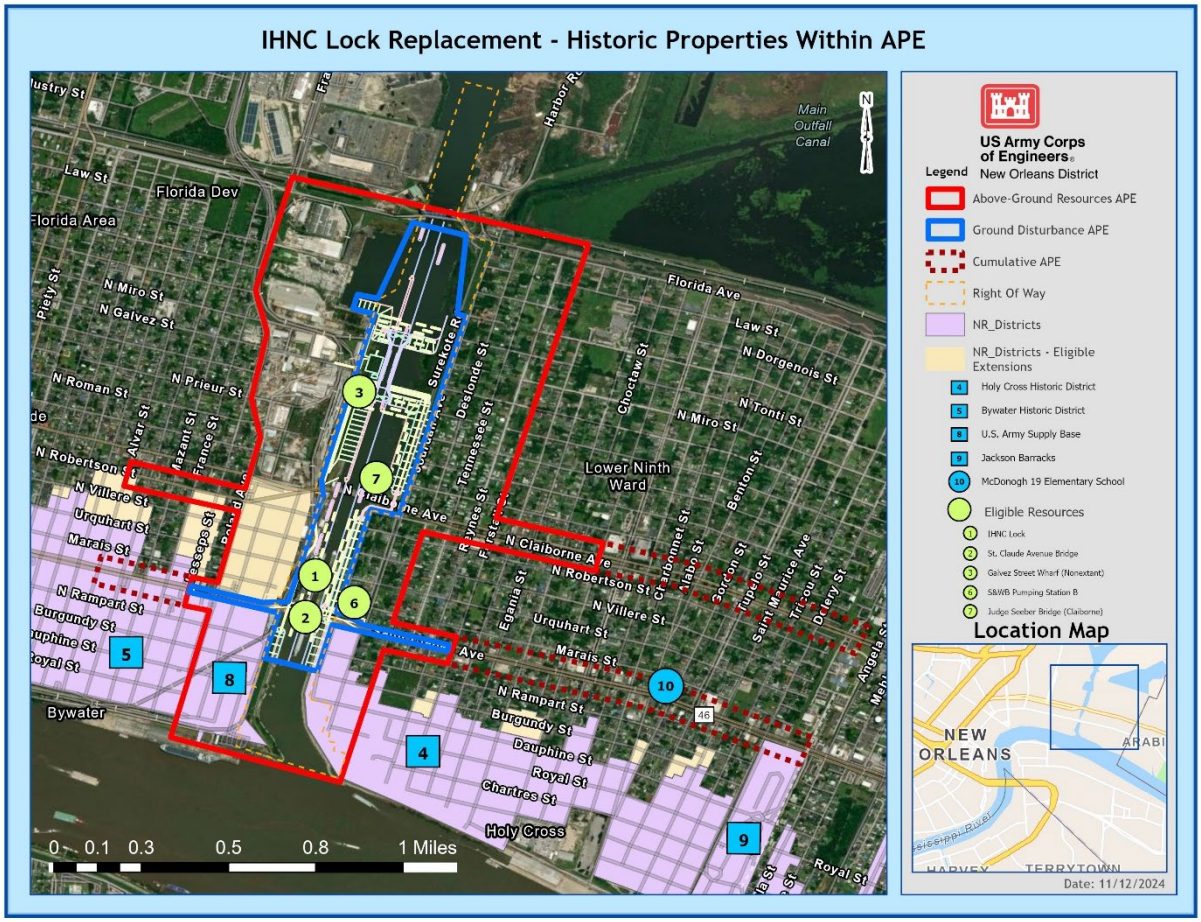



**Figure 2-8 Historic Properties within the APE for the IHNC Lock Replacement Study**

CEMVN determined that the IHNC Lock, completed in 1923 by the Board of Commissioners of the Port of New Orleans, is eligible for listing in the NRHP under Criteria and C. A detailed history and description of the IHNC Lock is presented in a 1987 evaluation report (Appendix A, Annex 4.1) and the 1997 EIS, incorporated herein by reference. CEMVN determined that the St Claude Avenue/LA 46 Bridge, constructed in 1919, is eligible for listing in the NRHP under Criteria A and C for its association with transportation history and bridge design/engineering (Meade and Hunt, Inc. 2015 and Theriot and Morsink 2019). The 137-foot steel-plate girder, Strauss trunnion bascule bridge represents a significant type of engineering structure.

The Galvez Street Wharf was demolished in 2001 as part of the implementation of the IHNC Lock Replacement Project. Originally known as the Claiborne Wharf, the structure was designed by the Board of Commissioners in 1922 and completed ca. 1929. The Galvez Street Wharf was one of the first incidental improvements on the IHNC and therefore significant for its local and regional association with the early period of development of the IHNC.

Two NRHDs are located in the project area: the Holy Cross Historic District to the east of the IHNC and the Bywater Historic District to the west of the IHNC. The Holy Cross Historic District was listed in the NRHP in 1986 under Criterion C for its architecture at the state and Gulf Coast regional level. The district consists predominantly of single and double shotgun houses with Italianate and Eastlake architectural details. The Holy Cross Historic District has a period of significance between ca. 1850 to 1936. The Bywater Historic District was listed in the NRHP in 1986 under Criterion C. for its architecture on the state and Gulf Coast regional levels for the quality and number of buildings constructed between 1807 and 1935. The predominant architectural type within the historic district is the shotgun type, which accounts for 61 percent of the buildings in the district. A detailed discussion of the Holy Cross and Bywater NRHDs is presented in Appendix D of the 1997 EIS and in the Bywater and Holy Cross Historic District conservation plans, completed in 2005 and entitled, *Historic Preservation Plan for Bywater Historic District,* and *Historic Preservation Plan for Holy Cross Historic District.* These three documents are incorporated herein by reference.

Hurricanes Katrina and Rita damaged many historic buildings in New Orleans, including buildings in both the Bywater and Holy Cross NRHDs. As part of the Federal Emergency Management Agency's (FEMA) compliance with Section 106 of the NHPA, FEMA and the SHPO completed surveys of affected New Orleans neighborhoods in order to evaluate the historic integrity of the districts currently listed in the NRHP, confirm the existing boundaries of these NRHDs, and identify other neighborhoods that also may be eligible for listing in the NRHP. As a result of these surveys, FEMA and SHPO concluded that the historic boundaries of both the Bywater and Holy Cross NRHDs have expanded. Additionally, CEMVN evaluated the boundaries of the two historic districts in the project vicinity in 2019 and recommends that the boundary of the Bywater NRHD be considered for expansion in the area bounded by St. Claude Avenue to the south, Poland Avenue to the west, North Claiborne Avenue to the north, and the Industrial Canal to the east as part of developing an AMOA for this project.

Sewerage & Water Board of New Orleans Pumping Station B was built during the first decade of the 20th-century and represents one of the original components of the New Orleans sewerage system. While changes were made to the pump station in the 1930s to increase its capacity, the original 1904 plans were drawn with theses future installations in mind. The pump station was evaluated in 1992 and recommended eligible for listing in the NRHP under Criteria A and C for its association with the establishment of the city's early-20th-century sewerage system, allowing settlement in otherwise marginally habitable areas (Criterion A); important for its Mediterranean architectural style, which is representative of the city's early-20th-century Pubic Works architectural history (Criterion C); and important for its significant engineering, which is represented by the retention of two of the original centrifugal pumps, along with two Wood trash pumps installed ca. 1930 and still in use (Criterion C) (Enzweiler, Susan, et al. 1992). CEMVN determined that Pumping Station B is eligible for listing in the NRHP under Criteria A and C. A detailed description and history of Sewerage Pump Station B is presented in Appendix D of the 1997 EIS and is incorporated herein by reference.

CEMVN determined that the Judge Seeber/LA 39/North Claiborne Avenue Bridge, constructed ca. 1957, is eligible for the NRHP under Criterion C for its association with bridge design and engineering. The bridge is a steel vertical lift span bridge and represents a significant vertical lift bridge subtype: a tower-drive movable bridge. It includes two separate motors powering the two sheaves on each of the bridge's towers (Mead and Hunt, Inc. 2015).

The U.S. Army Supply Base (or New Orleans Quartermaster Depot, F. Edward Hebert Defense Complex or NSA East Bank as it is currently known) was listed in the NRHP in 2016. The district is located just outside of the Bywater Historic District. The district is significant on the local, state, and national level in the areas of military and industry under Criterion A as one of three Army storage facilities built nationwide at the end of World War II (Carleton 2015).

The Jackson Barracks NRHD and McDonogh 19 Elementary School are situated within the Cumulative APE. Jackson Barracks was listed in the NRHP in 1976 for its architectural and military significance (Oalmann 1974). In 2016, the original nomination was amended to address changes to the property that occurred as a result of Hurricane Katrina (Heavrin and Avery 2015). Jackson Barracks is significant at the state and national level

under Criterion A in the area of military history for its role in state and national military affairs from its creation in 1834 to 1955, the year when the property was transferred from the United States Army to the State of Louisiana. Jackson Barracks also is nationally significant under Criterion C in the area of architecture, with a period of significance of 1834-1940, as a rare surviving example of an antebellum garrison and as a remarkably intact Greek Revival style complex, including WPA era architecture. Finally, based on recent archaeological investigations, Jackson Barracks is significant at the state and national level under Criterion D for its potential to yield important information related to the theme of military history and its association with the Trail of Tears (Heavrin and Avery 2015; Oalmann 1974). The McDonogh 19 Elementary School was listed in the NRHP in 2016 under Criterion A for its role in desegregating New Orleans' public schools. E.A. Christy, the school board's architect, designed the school in the Italian Renaissance Revival style. In 2019, the NRHP nomination was updated to include the reclassification of the ca. 1938 cafeteria building as a contributing building (Richardson et al. 2016).

The potential for intact archaeological deposits was evaluated for areas east and west of the IHNC. Given the recent development, its location on the Mississippi River delta plain, which was deposited only a few thousand years ago, and the extensive disturbance resulting from the construction of the existing lock, it is anticipated that any prehistoric sites that may have existed in the construction footprint of the lock have been destroyed. To the west, near the Bywater neighborhood, archaeological investigations indicated that disturbance in the area varied from minor disturbance to total disturbance. Total disturbance was noted for the area along the IHNC and the approach for the Claiborne Avenue Bridge. Another archaeological study was conducted to the east of the IHNC. For this study, computerized mapping and historic archival material were used to predict the locations of historic features. The results of the archaeological investigations confirmed the predictions, and it was noted that the deposits had good integrity and further research potential. In addition to empty lots, occupied residential and commercial lots were also tested. These also yielded cultural deposits and features that had good integrity and, as a result, good research potential. CEMVN recommends developing a specific probability model to guide phased archaeological investigations for proposed project activities, such as the construction of floodwalls, the demolition and reconstruction of the St. Claude Bridge approaches and other ground disturbing activities. Also, this data set would help guide the implementation of any corollary statutory authorities that require ground disturbance, such as new or expanded roadways, or that might affect the fabric of historic buildings, such as the installation of sound-deadening materials on historic homes. These actions will be captured as part of the provisions in the AMOA for this project.

The proposed borrow sites needed for the levee construction are located within the Bonnet Carré Spillway and are approximately 45 acres and 18.5 acres (see Figure 4-5). The Bonnet Carré Spillway contains two known cemeteries, the Kenner Cemetery on Roseland Plantation (16SC50) and the Kugler Cemetery on the Hermitage Plantation (16SC51), which were identified in 1986 by R. Christopher Goodwin & Associates, Inc. under contract to the New Orleans District (Yakubik et al. 1986; 22-1139). Subsequently, in 1987, the two discontiguous, but historically associated cemeteries were listed in the NRHP as the Kenner and Kugler Cemeteries Archeological District (NRHP #87001762). More recently, HDR Engineering conducted an archaeological cemetery investigation within the Spillway for a possible undocumented Civil War-era cemetery based on information from the 1986 report and in consultation with USACE. The potential undocumented Civil War-era cemetery is located outside of the Borrow AP

## 3.0 PLAN REEVALUATION

This section outlines the reevaluation of previously completed studies and previously studied alternatives, using current planning criteria and policies, in light of changed conditions and/or assumptions. The results may affirm the previously selected plan; reformulate and modify it, as appropriate; or find that no plan is currently justified.

### 3.1 Planning Problems and Opportunities (Purpose and Need - NEPA Required)

The existing deep-draft IHNC navigation lock[7] is obsolete and is not efficient. Since the beginning of lock operations in 1923, the types of vessels utilizing the navigation lock has changed and the dimensions of waterborne vessels typically utilizing the lock has increased. As far back as the 1950s, the number of deep-draft vessels was declining. In the 1940s, when the Gulf Intracoastal Waterway (GIWW) was directly connected to the IHNC, the number of shallow-draft vessels (typically inland waterborne commerce) began increasing. As shallow-draft vessel numbers were increasing, the size of shallow-draft vessels was also increasing as industry standards changed. The inefficiency of the lock is related to the inability to "pack" multiple large shallow-draft vessels in the lock chamber in order to move as many vessels as possible during each lockage. The size of the largest shallow-draft (or inland navigation) vessels has essentially reached an industry maximum size of nearly 55-feet wide by 300-feet. While the overall tonnage of commodities passing through the existing lock is expected to slowly increase into the future, the percentage of large shallow-draft vessels locking through the IHNC is also expected to increase. Currently, the percentage of shallow-draft traffic that is greater than 900 feet in length passing through the IHNC is already over 50 percent of all traffic locking through the IHNC; and that proportion is not expected to decline. Furthermore, the age of the lock has led to increased costs associated with the operation and maintenance of the lock, including more and more frequent maintenance events. The purpose of a new lock is to provide a more efficient locking process by increasing lock capacity, to increase the reliability of the lock, as well as to reduce operation and maintenance costs and related delays.

#### 3.1.1 Problem

The existing IHNC navigation lock (see Figure 1) is not efficient. The average transit[8] time for a tow using the existing IHNC navigation lock is more than 18 hours. The processing time for a tow entering and exiting the lock is nearly 32 minutes on average; meaning the wait time for a tow just to enter the lock is more than 17.8 hours. This delay is a result of the existing lock's limited capacity relative to prevailing types of vessel traffic and the size of tows navigating the GIWW and Mississippi River that utilize the lock. Furthermore, since the existing IHNC navigation lock was constructed in 1923, operation and maintenance costs have increased. This is in part due to the increasing frequency of maintenance events that result in additional delays, in addition to delays caused by the limited capacity of the existing navigation lock, and delays caused by complete closures of the lock to waterborne traffic due to failure of the outdated parts and equipment. In January 2014, there was an 11-day closure. In late 2020, a near 60-day closure occurred for a scheduled maintenance and dewatering event. While most recently in the Spring of 2024, a 7-day unplanned closure occurred due to failure of an upper gate hinge and the subsequent time needed to repair that item.

The advanced age of the lock has led to more frequent maintenance events, which in turn have increased the number and duration of outages and delays. For the purposes of the lock analysis model, however, it was assumed that these risks would be mitigated through scheduled, cyclical maintenance. In practice, though, it may prove difficult to mitigate unplanned outages through maintenance alone. For example, the unexpected 7-day outage in Spring 2024 that was caused by a failure and emergency repair of an upper gate hinge, demonstrates how aging infrastructure can lead to more frequent, unplanned disruptions with greater consequences and costs to the navigation industry.

[7] The existing lock is 640ft.L x 75ft.W x -31.5ft. NAVD88.

[8] Transit through a lock includes entering the queue, cutting a tow, if necessary, to lock through the existing lock, locking through the structure and reassemble of a cut tow upon exiting the lock.

According to information from the Gulf Intracoastal Canal Association, when a lock outage forces vessels to reroute, it results in significant increased operating cost and additional time (~10 days) for every tow that is rerouted. Given the deteriorating condition of the infrastructure and the increased likelihood of such unscheduled outages, a comprehensive engineering risk analysis of the existing lock is currently planned. This analysis would provide additional insight into the problems persisting at the existing lock and the need for a proactive solution to mitigate the increasing risks.


**Figure 3-1 Location of Existing Lock and Bridges over the IHNC**

### 3.1.2 Opportunities

- Improve efficiency and reliable passage of waterborne traffic locking through the IHNC;
- Reduce frequency and costs associated with major (i.e., de-watering) operation and maintenance events;
- Construct a modern navigation lock.

## 3.2 Planning Goals, Objectives, and Constraints

### 3.2.1 Goal

1. Reduce transit times of waterborne traffic locking through the IHNC.

### 3.2.2 Objectives

2. Reduce transit times, over a 50-year period of analysis of waterborne traffic locking through the IHNC.

### 3.2.3 Constraints

- Avoid and minimize impacts to local residents and businesses to the maximum extent practicable;
- Locate a replacement lock in the vicinity of the IHNC or a new lock at Violet, LA (in accordance with WRDA 1986, Section 844) or seek Congressional authorization for a different location. The lock and channel must connect the Mississippi River with the GIWW on the river's east bank for use by inland navigation traffic.
- Maintain effectiveness of flood risk reduction systems a replacement lock would tie into.

## 3.3 Project History

### 3.3.1 Introduction

As discussed in Chapter 1, Congress authorized the replacement of the lock in 1956. Since that time, numerous plans, locations and designs have been evaluated. Additionally, the New Orleans metropolitan area and the neighborhoods surrounding the existing lock have changed, most recently as a result of Hurricane Katrina in August 2005. In 2009, the MR-GO deep-draft navigation channel was de-authorized and physically closed, which effectively eliminated deep-draft navigation via the MR-GO into the IHNC/GIWW. In addition, a comprehensive Hurricane and Storm Damage Risk Reduction System was constructed within the study area, including in Orleans and St. Bernard Parishes.

### 3.3.2 Historical Background

As of this report, the IHNC Lock Replacement project, formerly entitled "MR-GO New Lock and Connecting Channels" is the longest ongoing water resource project evaluation effort within the Corps. This sub-section presents a summary of that evaluation history as reported in previous study documents. For reference, those prior reports that form the basis of this historical background narrative are included with this report in Appendix F.

The GIWW and IHNC played a significant role in reducing the number of ships sinkings by German U-boats in the Gulf of America during World War II by allowing ships to travel through the canal and avoid the open waters of the Gulf of America, where German U-boats were lurking. By using the IHNC and the GIWW, ships could travel from the Gulf to the Mississippi River and other inland waterways, reducing their exposure to U-boat attacks. During the period of 1942-43, it has been reported that 53 of the 76 Allied ships attacked in the Gulf and the Florida Straits were sunk.

The use of the IHNC and the GIWW as a safe route for shipping was a deliberate strategy employed by the U.S. Navy and the U.S. Coast Guard to reduce the risk of ship sinkings. By routing ships through the canal and the GIWW, the Allies were able to minimize the number of ships that were vulnerable to U-boat attacks in the open waters of the Gulf.

Additionally, the U.S. military also implemented other measures to protect shipping in the Gulf, including:

3. **Convoys**: Ships were organized into convoys, which were escorted by naval vessels and aircraft to provide additional protection.
4. **Air cover**: Aircraft from the U.S. Navy and the U.S. Army Air Forces provided air cover for ships traveling through the Gulf.
5. **Sonar and radar**: The U.S. Navy and the U.S. Coast Guard used sonar and radar technology to detect and track German U-boats in the Gulf.
6. **Minefields**: The U.S. Navy laid minefields in the Gulf to deter German U-boats from operating in the area.

The combination of these measures, including the use of the IHNC and the GIWW as a safe route for shipping, helped to reduce the number of ships sinkings by German U-boats in the Gulf of America during World War II.

Since 1960, CEMVN had studied numerous options for replacement of the IHNC Lock. The initial public meeting on the IHNC Lock replacement was held in February 1960. Sites in the vicinity of the existing IHNC Lock and in St. Bernard Parish downstream of the existing lock were developed. Efforts were focused on an IHNC replacement site. At the time, geotechnical conditions dictated that a lock could not be located closer than 750 feet from the existing IHNC Lock. This would have resulted in significant impacts to business, industries, and residents. Approximately 4,100 persons would have been relocated. As a result, the local sponsor withdrew support and requested consideration of a site in St. Bernard Parish.

Between 1961 and 1964, CEMVN conducted studies for a replacement lock at either the IHNC or in St. Bernard Parish. CEMVN concluded that only a barge lock was justified as a Corps of Engineers project that meets NED criteria. However, the Chief of Engineers determined that the MR-GO legislation pertained to a ship/barge lock, and that the study should report on a ship/barge lock. After a restudy in 1964, it was determined that historical growth of deep-draft tonnage was being drastically depressed due to the existing lock's inadequate size and the physical congestion in the IHNC, which resulted in ever-increasing delays. Completion of the MR-GO also contributed to this decline in ship usage. Studies were therefore focused on the feasibility of a lock at the IHNC location.

Site selection studies during the late 1960's and early 1970's addressed the IHNC and St. Bernard Parish sites and concluded that one of the St. Bernard Parish sites near Violet, LA was the least costly, directly affected the fewest adjacent residents out of the sites under consideration and was acceptable to navigational interests. The St. Bernard Parish Policy Jury, in May 1969, took a position favoring the location of the "connecting link" in the parish if a bridge across the same was available, but subsequently opposition to a St. Bernard location developed.

Based on the information gathered from public meetings, studies were made of 14 plans at seven separate locations. A detailed plan comparison was made with the IHNC Site. These two plans included proposals for the ultimate disposition of the old IHNC lock and canal, the utilization of a new barge canal as an extension of the GIWW, comparative bridge studies, and provision of environmental mitigation. This comparison resulted in the 1974 recommendation of the Lower Site Plan (the Violet site), containing the provisions of a ship channel and lock just below Violet, Louisiana, a barge canal to connect the lock tailbay with the GIWW, moth-balling of the old IHNC lock, and provisions for environmental mitigation. Detailed information is available in the "New Lock and Connecting Channels - Site Selection Report" dated March 1975, which is included in Appendix F and is incorporated by reference.

In April 1977, subsequent to the submission and approval of the site selection report, President Carter recommended further study of a replacement lock at the existing IHNC Site with emphasis on action to minimize displacement and disruption of residents. In subsequent studies, CEMVN analyzed various groups of plans including lock location(s), lock size(s), number of locks, alternate channels and construction methods.

In 1982 about one-third of the cargo ships in the fleet that calls on US ports were too large to use the existing lock and less than one-fifth of the bulk carriers likewise could use the existing lock.

After extensive comparative analyses, a preliminary draft report was prepared with a TSP of a new lock adjacent to the existing lock at the IHNC site. After higher level review and subsequent preparation of a revised draft report addressing review comments, the CEMVN was verbally instructed to stop working on the report until further notice as a result of pending litigation on another project.

The Water Resources Development Act of 1986 (PL 99-662) Section 844 modified the 1956 River and Harbor Act "to provide that the replacement and expansion of the existing Industrial Canal Lock and connecting channels or the construction of an additional lock and connecting channels shall be in the area of the existing industrial canal lock or at the Violet site. . . . " It also directed the Secretary to "make a maximum effort to assure the full participation of members of minority groups living in the affected areas, in the construction of the replacement or additional lock and connecting channels authorized by subsection (a) of this section, including actions to encourage the use, whenever possible, of minority owned firms."

In the 1997 Evaluation Report and EIS, it was noted that a lock at Violet could provide a navigable connection between the Lower Mississippi River and the GIWW and MR-GO. Figure 3-2 shows the anticipated channel alignment considered at the time.

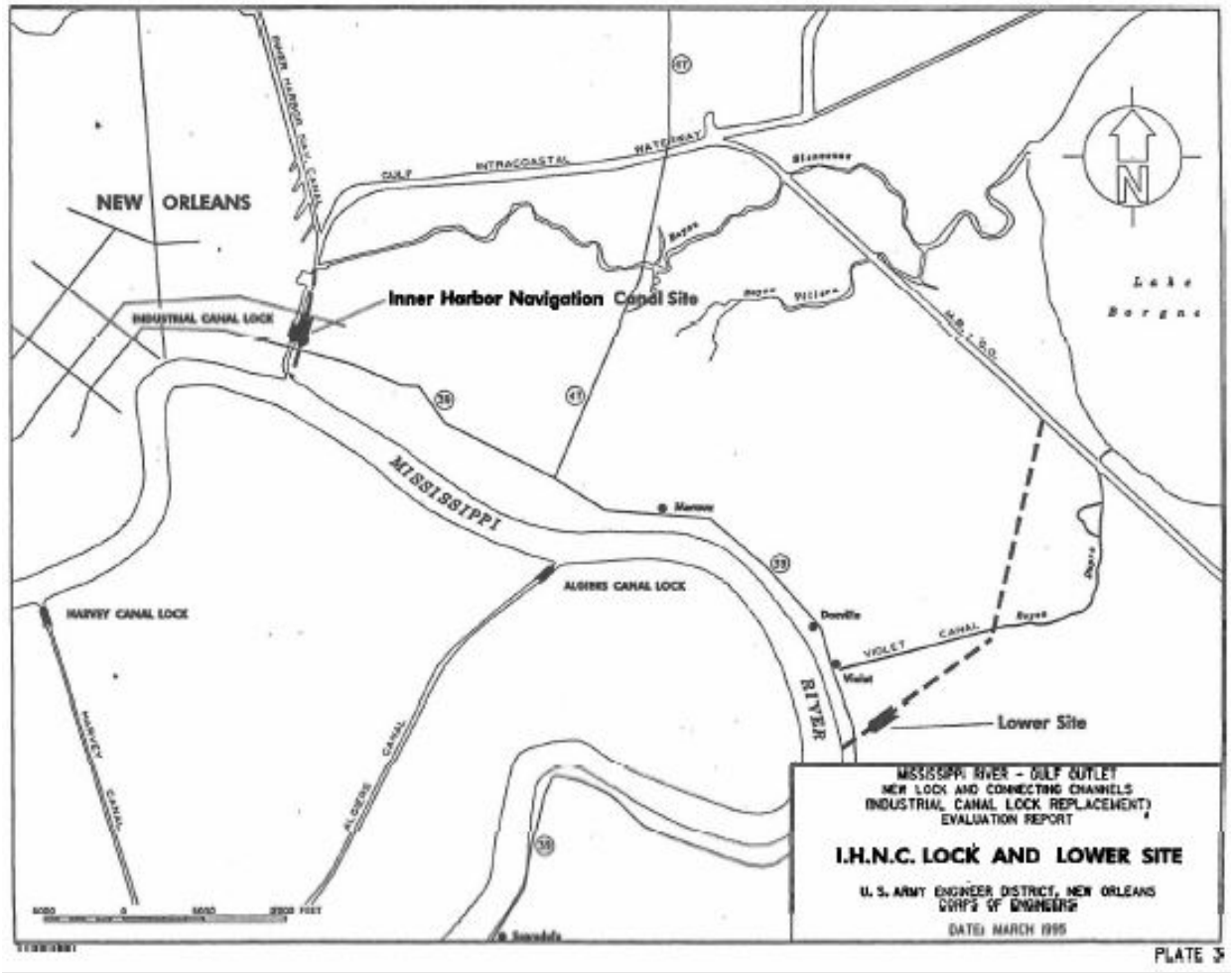



**Figure 3-2 Location of Violet Site (formerly known as the Lower Site plan) - 1997 Evaluation Report**

As noted in the 1997 Evaluation Report, the Violet Site plan's features would consist of a new lock, a new connecting channel between the new lock and the MR-GO with paralleling hurricane protection levees, a new barge channel at the junction of the MR-GO and the GIWW, a four-lane high-rise bridge constructed at Judge Perez Drive and a two-lane high rise bridge constructed at River Road (St. Bernard Highway) to maintain the existing transportation routes which also serve as hurricane evacuation routes, a low-level vertical lift span railroad bridge across the tailbay, and a navigable floodgate at Violet Canal. The total construction period for the new lock, channel, and appurtenant features was estimated to be 9 years. The first cost of the Violet shallow-draft lock plan was estimated at $384.2 million (October 1990 prices).

While the project was expected to result in only minor residential and business relocations, the project would still have directly impacted at least 1,000 acres of valuable wetlands. In addition, approximately 9,800 acres of wetlands would have been indirectly impacted. Virtually all wetland impacts resulting from construction of a new lock and connecting channel at Violet would occur in St. Bernard Parish. In order to compensate for the direct and indirect impacts to numerous wetlands, the least costly plan for marsh and scrub/shrub wetland mitigation was construction of a stone dike in Lakes Pontchartrain and Borgne to protect the eroding shoreline. Grass seeding would have been done as sediment builds up behind the dikes. Additionally, compensatory mitigation for bottomland hardwood forest would involve purchase and reforestation of pasture lands in nearby Plaquemines Parish. Even with this, the mitigation plan would not have totally replaced habitat values or areas of wetlands eliminated by the Violet site plan. The total estimated cost of the mitigation plan was estimated at $10,000,000. Overall, the net impacts of the Violet Site plan upon biological resources would have been considered significantly adverse.

The recommended plan (RP) in the 1997 Evaluation Report was, at that time, the result of all previously investigated measures and alternatives and it was also the locally preferred plan. That RP was a deep-draft navigation lock located between the Claiborne and Florida Avenue Bridges with dimensions of 1,200 feet long by 110 feet wide and 36 feet deep. A 2000 Supplemental Evaluation Report reaffirmed the decision from the 1997 Evaluation Report but determined that there was a Federal interest in the construction of the deep draft increment, such that the deep draft increment could be constructed with a Federal/non-Federal cost share pursuant to Section 101 of the Water Resources Development Act of 1986. Having eliminated the status of the deep draft increment as a "locally preferred plan", the report went on to establish the apportionment of cost-sharing responsibilities between the federal government and the local sponsor for the "Authorized Project" (defined in the report as the cumulative construction of the shallow and deep draft increments). The relative Federal and non-Federal cost share for the "Authorized Project" was determined in accordance with Section 844 of WRDA 1986 by allocating cost to the general cargo (deep draft) increment under Section 101 of the Act and to the inland waterway (shallow draft) increment under Section 102 of the Act.

Throughout the history of the effort to replace the lock, there has been opposition to the various proposed plans, the projected social and environmental impacts associated with those plans, and to the proposed lock replacement project in general. Subsequent to the 1997 Evaluation Report and the 2000 Supplemental Evaluation Report, two critical legal decisions impacted the evaluation process and implementation of the RP for a deep draft navigation lock as presented in the 1997 Evaluation Report.

In 2003, the Holy Cross Neighborhood Association, Gulf Restoration Network, and Louisiana Environmental Action Network filed a legal complaint challenging the 1997 EIS and Record of Decision. In 2006, the U.S. District Court, Eastern District of Louisiana enjoined the Corps from continuing with the project until the Corps complies with NEPA. The Court based the injunction upon its finding that the 1997 EIS "failed to take a 'hard look' at the environmental impacts and consequences of dredging and disposing of the canal's contaminated sediment" and that the Corps should revisit the project in light of the catastrophic changes wrought by Hurricane Katrina. The Court criticized the EIS for failing to consider "the reasonable dredging and disposal alternatives that the Corps had recently adopted for maintenance dredging of the same waters," and for failing to "adequately address the risks of flooding and hurricanes in general." The Court noted that a Supplemental EIS was required to describe changes in existing conditions after Hurricane Katrina and to analyze impacts from the 1997 RP and alternatives on the new existing conditions.

In 2009, the Corps completed a Final Supplemental EIS and a Record of Decision in response to the 2006 Court order. The report recommended a float-in-place lock construction plan, hydraulic dredging, and disposing of dredged material unsuitable for open water discharge in a confined disposal facility, and for material determined to be suitable for freshwater disposal, in the Mississippi River.

In 2010, the Holy Cross Neighborhood Association, Gulf Restoration Network, and Louisiana Environmental Action Network filed suit against the Corps alleging violation of the Court's 2006 order, violation of NEPA, and violation of the Clean Water Act (CWA). In that same year, the Court granted a partial motion to dismiss the (CWA) citizen suit claims without prejudice. In 2011, the Holy Cross Neighborhood Association, Gulf Restoration Network, and Louisiana Environmental Action Network filed an amended complaint, removing their CWA citizens suit claims to reflect the Court's order dismissing these claims, and adding a claim under the Administrative Procedure Act for violation of the EPA's Section 404(b)(1) Guidelines.

In 2011, the U.S. District Court, Eastern District of Louisiana, vacated and remanded the 2009 SEIS[9] and enjoined the Corps (see Exhibit 1) from continuing with the project until the Corps complied with the NEPA and the CWA. The Court found the SEIS failed to sufficiently and properly consider the impact of the closure of the MR-GO to deep-draft traffic upon the IHNC project, particularly the draft of vessels that would use the lock, and how this depth may affect dredging and disposal alternatives.

The closure of the MR-GO resulted from the WRDA 2007 (SEC. 7013. MISSISSIPPI RIVER-GULF OUTLET), which included language de-authorizing the MR-GO from the Gulf of Mexico to Mile 60 at the southern bank of the GIWW. As part of that de-authorization, a physical rock barrier was constructed in 2009 effectively eliminating any deep draft navigation in the de-authorized portion of the MR-GO. Furthermore, the construction of the IHNC Lake Borgne Surge Barrier, a critical component of the Hurricane and Storm Damage Risk Reduction System, across the MR-GO near the confluence of the GIWW was completed in 2012.

### 3.3.3 Chronology of Prior Alternative Plan Formulation and Screening

Table 3-1 Chronology of Prior Alternative Plan Formulation and Screening summarizes the chronological progression of alternative plan development from prior reports. The report is laid out to be read from left to right and then down. For each row an alternative plan is listed in, the row is colored green. When an alternative plan is carried forward the row remains green, but when screened (or no longer carried forward) from further consideration the row is changed to red. Additionally, labeling of each row with a letter is done to provide additional ease of tracking each alternative plan considered. Detailed information of alternative plans listed in this section can be found in their respective documents as listed below and included in Appendix F.

- Mississippi River – Gulf Outlet New Lock and Connecting Channels Site Selection Report, March 1975;
- 1991 Mississippi River-Gulf Outlet New Lock and Connecting Channels, Louisiana Evaluation Study (First Mini-Report);
- 1992 Mississippi River-Gulf Outlet New Lock and Connecting Channels, Louisiana Evaluation Study (Second Mini-Report);
- 1997 Evaluation Report;
- 2009 Supplemental Environmental Impact Statement and Record of Decision.

[9] In light of the Court's 2011 ruling vacating the SEIS, CEMVN references and incorporates the 2009 SEIS and its various appendices and reports as a previously completed Corps study. See 40 CFR §1502.21. This GRR/SEIS does not tier from or rely on the 2009 SEIS as a completed NEPA evaluation.

- 2017 Draft General Reevaluation Report

**Changed Study Area Conditions:**

Planning efforts for the IHNC Lock replacement project began as far back as 1960, and since that time numerous plans have been evaluated and eliminated, as detailed in 3.3.2. Since the Corps began studying the IHNC Lock replacement spanning from as early as 1960 up through the present, there have been numerous natural and man-made alterations to both the natural and human environment of the study area, which encompass areas associated with previously studied alternatives.

Between 1960 and 2016, a total of 6 hurricanes struck Orleans Parish (National Hurricane Center 2015). Prior to Hurricane Katrina in August of 2005, Hurricanes Camille, which made landfall just east of New Orleans on August 17, 1969, and Betsy, making landfall on September 9, 1965, resulted in some of the most devastating changes to both the natural and human environment to the south and east of New Orleans. Urban and suburban areas were flooded by storm surge and coastal wetland vegetation was literally dislodged and washed away, never to naturally return in some areas. In addition, with the landfall of Hurricane Katrina on August 28, 2005, both the study area and St. Bernard Parish as a whole were especially devastated. The inundation of much of Metropolitan New Orleans from these storms forced the displacement and relocation of hundreds of thousands of area residents. Hurricane Katrina has proven to be the costliest and the most devastating natural disaster in U.S. history. Due to the extensive damage to residences and infrastructure, many of these displaced residents have resettled elsewhere within the region or out of the New Orleans urbanized area entirely with many likely never to return.

In response to the devastation of Hurricane Katrina, Congress authorized and funded a $14 billion dollar flood risk management infrastructure investment, whereby a complex series of levees, floodwalls, floodgates, drainage canals, pipes and pump stations were constructed to reduce the risk of loss of life and property as a result of future catastrophic flood events in the New Orleans area. These man-made features modified a series of separate polders, resulting in substantial changes to hydraulic and hydrologic functions of the study area including some of those areas previously evaluated as alternative locations studied for an IHNC Lock replacement project and including the area around Violet in St. Bernard Parish.

## Table 3-1 Chronology of IHNC Lock Replacement Alternative Plan Development.

Chronological Progression of Alternative Plan Development

1973

2016

| | MRGO New Lock and Connecting Channels Site Selection Report, March 1975 | 1975 Site Selection Report-post-Screening | 1975 Site Selection Report-1975 Plan List | 1975 Site Selection Report-1975 Plan List Carried Forward | 1975 Site Selection Report Recommended Plan |
|---|---|---|---|---|---|
| A | 1973-1: The IHNC Existing Lock Site with Baptiste Collette Alternate Route; | **(a) IHNC Site--east of old lock (1973-2);** | **1974-1: The Inner Harbor Navigation Canal Site "A"--(east of the old lock) ((a); 1973-2).** | | |
| B | **1973-2: The IHNC Site--east of old lock;** | **(b) IHNC Site--west of center channel (opposite Galvez St. Wharf) (1973-3);** | **1974-2: The Inner Harbor Navigation Canal Site "B"-(east of channel center--opposite Galvez Street wharf) ((b); 1973-3);** | **1974-2: The Inner Harbor Navigation Canal Site "B"-(east of channel center--opposite Galvez Street wharf) ((b) 1973-3).** | |
| C | **1973-3: IHNC Site center channel;** | | | | |
| D | 1973-4: IHNC Site east of center channel; | | | | |
| E | 1973-5: Saxonholm Site; | | | | |
| F | 1973-6: Upper Site; | **(d) Lower Site (1973-7);** | **1974-3: The Lower Site ((d); 1973-7);** | **1974-3: The Lower Site ((d); 1973-7);** | **1975: The Lower Site [Violet Site] (1974-3; (d); 1973-7);** |
| G | **1973-7: Lower Site;** | | | | |
| H | 1973-8: Lower Site barrier plan; | | | | |
| I | 1973-9: The Caernarvon Site; | | | | |
| J | 1973-10: Scarsdale Site; | | | | |
| K | 1973-11: Bohemia Site; | (c) Lower Site with IHNC land bridge (1973-12); | 1974-4: The Lower Site with an IHNC land bridge ((c); 1973-12). | | |
| L | 1973-12: IHNC land bridge with Lower Site; | | | | |
| M | 1973-13: IHNC land bridge with Caernarvon Site; | | | | |
| N | 1973-14: IHNC land bridge with Scarsdale Site. | | | | |

| | 1991 First Mini-Report: Elimination Rationale of the 'Lower Site' Plan | 1991 First Mini-Report: Plans for Further Evaluation | 1992 Second Mini-Report: Alternative Plans | 1992 Second-Report: Alternative Plans considered in Detail | 1992 Second Mini-Report Recommended Plan |
|---|---|---|---|---|---|
| G | **1975: The Lower Site [Violet Site] (1974-3; (d); 1973-7).** | | | | |
| O | | 400 feet east of the existing lock; | **Plan 1 - 200-Foot East of Existing Lock-Conventional Construction, with mid-level replacement bridges at St. Claude and Claiborne Avenues;** | **Plan 1 - 200-Foot East of Existing Lock-Conventional Construction, with mid-level replacement bridges at St. Claude and Claiborne Avenues** | |
| P | | 200 feet east of the existing lock (conventional construction); | Plan 2 - 200-Foot East of Existing Lock-Steel Float-In Construction, with mid-level replacement bridges at St. Claude and Claiborne Avenues; | | |
| Q | | 200 feet east of the existing lock (floated in w/steel shell); | Plan 3 - 200-Foot West of Existing Lock-Conventional Construction, with mid-level replacement bridges at St. Claude and Claiborne Avenues; | | |
| R | | 200 west of the existing lock (conventional and floated-in w/steel shell); | Plan 4 - In situ Replacement-Relieved Deck Construction, with mid-level replacement bridge at St. Claude and the existing Claiborne Avenue Bridge | | |
| S | | In-situ floated-in lock (concrete); | Plan 5 - North of Claiborne Avenue Location-Steel Float-In Construction, with mid-level replacement bridge at St. Claude and the existing Claiborne Avenue Bridge; | | |
| T | | In-situ floated-in (steel shell); | **Plan 6 - North of Claiborne Avenue Location-Steel Float-In Construction, with low-level replacement bridge at St. Claude and the existing Claiborne Avenue Bridge;** | **Plan 6 - North of Claiborne Avenue Location-Steel Float-In Construction, with low-level replacement bridge at St. Claude and the existing Claiborne Avenue Bridge;** | **Plan 6 - North of Claiborne Avenue Location-Steel Float-In Construction, with low-level replacement bridge at St. Claude and the existing Claiborne Avenue Bridge;** |
| U | | Earth chambered lock with floated-in sector gates. | Plan 7 - North of Claiborne Avenue Location-Steel Float-In Construction, with low-level replacement bridge at St. Claude and a mid-level replacement bridge at Claiborne Avenue; | | |
| V | | | Plan 8 - North of Claiborne Avenue Location-Conventional Construction, with low level replacement bridge at St. Claude and existing Claiborne Avenue Bridge. | | |

| | 1997 Evaluation Report Plans | 1997 Evaluation Report NED Plan | 1997 Evaluation Report Recommended Plan/Locally Preferred Plan | 2009 final Supplemental EIS | Hurr Katrina 2005; MRGO Closure 2009; IHNC Surge Barrier 2012 | 2017 Draft General Reevaluation Report Plans Considered |
|---|---|---|---|---|---|---|
| W | (l) No Action/Continued Operation of the Existing Lock (Future without the project); (2) Construction of a new bridge at St. Claude Avenue (commonly referred to as the Bridge Only Alternative); | | | Plan 1 No-build/Deauthorize Lock Replacement Authorization | | Plan 1 No Action/Continued Operation of the Existing Lock (Future without the project); |
| X | | | | Plan 2 No Action Alternative/Continue to Build the 1,200' x 110' x -36' lock (1997 Evaluation Report Recommended Plan (Alternative Plan Yf)) | | Construct a new lock at the North of Claiborne Avenue site in the IHNC at following dimensions: |
| Y | **(3) Construct new lock at North of Claiborne Avenue site in IHNC. As part of this alternative, lock sizes evaluated at the North of Claiborne Avenue site consisted of various lock dimensions (switch from steel structure to concrete structure):** | | | | | Plan 2 900' x 75' x -22' (NAVD88); |
| Ya | a. 900' x 90' x -22' (NGVD29); | **Yb. 900' x 110' x -22' (NGVD29);** | | Plan 3 Revised, 1,200' x 110' x -36 (NAVD88)', lock Replacement Plan: | | Plan 3 900' x 110' x -22' (NAVD88); |
| **Yb** | **b. 900' x 110' x -22' (NGVD29);** | | | Plan 3a Cast-in-place lock, 1,200' x 110' x -36'(NAVD88); | | Plan 4 1,200 x 75' x -22' (NAVD88); |
| Yc | c. 900' x 110' x -36' (NGVD29); | | | **Plan 3b Float-in-place lock, 1,200' x 110' x -36'(NAVD88); Recommended Plan & LPP.** | | Plan 5 1,200' x 110' x -22' (NAVD88); |
| Yd | d. 1,200' x 90' x -22' (NGVD29); | | | | | Plan 6 1,200' x 110' x -36' (NAVD88) (2009 final SEIS Plan 3b). |
| Ye | e. 1,200' x 110' x -22' (NGVD29); | | | | | |
| **Yf** | **f. 1,200' x 110' x -36' (NGVD29).** | **Yf. 1,200' x 110' x -36' (NGVD29)** | | | | |

Plan Carried Forward:

Plan Screened:

### 3.3.4 Considered but Eliminated Alternatives:

**Violet Site**

The devastating impacts of Hurricane Katrina on southeast Louisiana in 2005 and improvements made after Hurricane Katrina resulted in drastic alterations to the landscape surrounding the Violet site. As shown in figure 3-3, the Lake Pontchartrain and Vicinity (LPV) project improved with construction of Hurricane and Storm Damage Risk Reduction System (HSDRRS) features, which was completed in May 2011. The HSDRRS in St. Bernard Parish, now referred to as the St. Bernard perimeter system, encompasses the populated portion of St. Bernard Parish, as well as the Lower Ninth Ward in Orleans Parish. It is bound by the de-authorized MR-GO (WRDA 2007, SEC. 7013. MISSISSIPPI RIVER-GULF OUTLET; MR-GO Inland Reach (mile 61-47)) to the east, the Mississippi River and the IHNC to the west, the GIWW to the north and the Verret-to-Caernarvon floodwall to the south.

The system, also known locally as the Chalmette Loop, consists of approximately 23 miles of floodwalls, roadway gates and sector gates that extend from the existing Bayou Bienvenue sector gate in the northeast to the Mississippi River in Caernarvon in the southwest. Along three separate stretches – LPV 145, LPV 146 and LPV 148 – floodwalls were constructed on top of existing levees. Along LPV 145 and 146, the floodwalls range in height from 28 feet to 32 feet above sea level, and from 26 feet to 32 feet above sea level along LPV 148, which ties into the Mississippi River levee in Caernarvon (LPV 149) at about 21.5 feet.

In addition to floodwalls, several gates were constructed in St. Bernard Parish. Where Bayou Dupre flows into the MR-GO (LPV 144), a sector gate was constructed to an elevation of 32 feet above sea level. Further south, where Highway 46 crosses the HSDRRS, a vehicle gate was constructed to an elevation of 26 feet above sea level. At the Caernarvon Canal (LPV 149), a sector gate was built to an elevation of 26 feet above sea level. Also in Caernarvon, floodgates were constructed at Highway 39 and the adjacent Norfolk Southern Railroad tracks to an elevation of 26 feet above sea level.


**Figure 3-3 Lake Pontchartrain and Vicinity and Hurricane Storm Damage Risk Reduction**

**St. Bernard System**

As part of the current GRR, the Violet site (formerly the Lower Site plan) plan was re-formulated with a view toward minimizing environmental impacts by utilizing the existing Violet canal and Bayou Dupre connection between the Mississippi River and the de-authorized MR-GO (MR-GO Inland Reach (approximate mile 52)) and GIWW (Figure 3-4). In re-evaluating this alternative lock site, a hard look was taken as to whether or not this site could be considered a practicable alternative under the Clean Water Act, Section 404(b)(1) standards, specifically considering the logistics, costs, and existing technology in light of the overall project purpose (Section 3.1).

**Logistics Analysis**

Under the Violet site alternative re-evaluation, the plan would involve similar construction methods and project features as proposed for the IHNC site, including:

- a new 900ft x 110ft x 22ft. deep (NAVD88) shallow draft lock;
- a connecting channel between the Mississippi River and the new lock and the de-authorized MR-GO; a four-lane high-rise bridge constructed at Judge Perez Drive and a two-lane high-rise bridge constructed at River Road (St. Bernard Highway) to maintain the existing transportation routes and also to serve as hurricane evacuation routes.

**Proposed Lock and Channel Location**

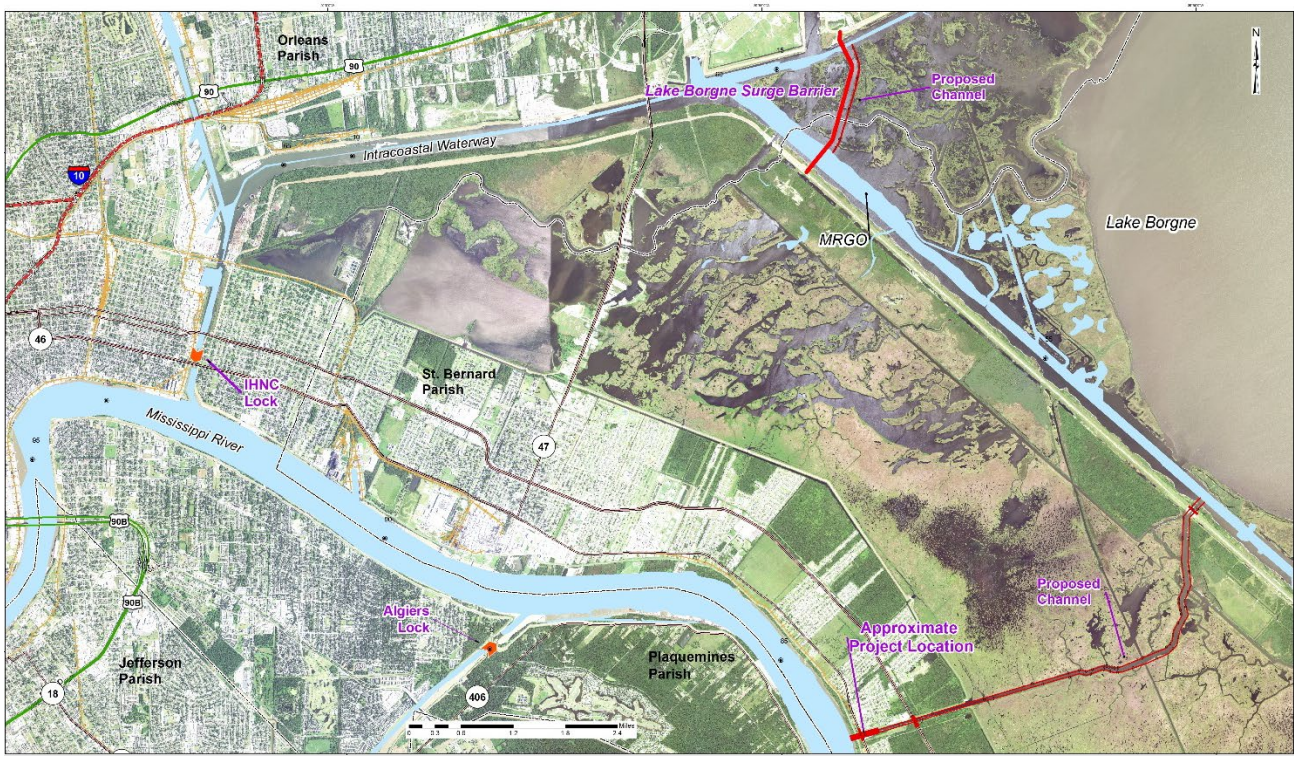



**Figure 3-4 2019 GRR/SEIS Violet Site Plan (formerly Lower Site plan)**

These features are carried forward from the original 1997 Evaluation Report. In order to construct a new lock and connecting channel at the Violet site, the following additional actions would be required in light of the existing HSDRRS St. Bernard perimeter system (See Figures 3-5 and 3-6).

Channel and New Lock Construction:

- Breaching the current Mississippi River levee (MRL) at the Violet Canal, Mississippi River mile 84; with construction of a forebay approximately 2,000ft. built to MRL elevations;
- Excavation of the existing Violet Canal and Bayou Dupre to approximate 125ft. channel width (advanced dredged to El -15.0) (NAVD88);

- Construction of a 900ft x 110ft x 22ft. deep (NAVD88) shallow draft lock configuration to include:

    - construction of a cofferdam around the new lock construction site within the Violet Canal.

    - foundational support jet grouting of the canal bottom sediments for the cofferdam and soil improvements prior to placement of sheetpile on the north, east, west and south sides of the cofferdam; dewatering of the cofferdam with a combination of pumps, sumps, and wells, including pressure relief wells with discharge of water collected within the cofferdam anticipated to be pumped into the Mississippi River assumed several hundred to a thousand foundation pilings driven within the dewatered cofferdam to support the concrete pours of the lock module; establishment of an on-site concrete batch plant, and nearby staging areas for construction materials and construction workers.

    - Concrete pours for the lock modules would begin at the gates and work inward to the chambers; installation of machinery, valves, electrical, and mechanical connections after completion of concrete placement; upon completion of the lock modules, removal of cofferdams and the area would be re-watered.

- Violet Canal/Bayou Dupre connecting channel Bankline protection feature: construction of approximately 180ft. wide levees on the north and the south side of the newly constructed channel between the Mississippi River and edge of non-federal levee interior levee (10ft. crown, 1:4 side slopes); Violet Canal/Bayou Dupre connecting channel Bankline protection feature: construction of approximate 100ft. wide levee on the north and the south side of the newly constructed channel between edge of non-federal interior levee and the Bayou Dupre sector gate complex (10ft crown, 1:4 side slopes);

- Violet Canal/Bayou Dupre connecting channel Bankline protection feature: construction of approximate 100ft. wide stability berm between the new levees and the new channel (assume 50ft on the north side and 50 ft on the south side of newly constructed channel);

- Violet Canal/Bayou Dupre connecting channel Bankline protection feature: construction of an approximate 90ft. wide stability berm with 1:3 side slopes on the north and the south side of newly constructed channel spanning the entire length of the new lock and channel from the edge of the Mississippi River levee and the Bayou Dupre sector gate complex (assume El. 0.0) (NAVD88);

- Construction of an approximately 110ft to 150ft wide new sector gate complex at LPV-149 floodwall existing sector gate (Bayou Dupre connection to MR-GO) and construction of either earthen or floodwall structure tie-ins to the existing LPV-146 HSDRRS floodwall to accommodate barge vessels at de-authorized MR-GO Inland Reach approximate mile 52;

- Excavation of an approximately 1.7-mile-long new navigation channel along the eastern side of the IHNC-Lake Borgne Surge Barrier through existing fragmented marsh wetlands. It is assumed that the channel would have an authorized width of 125ft with advanced dredging to El -15.0 (NAVD88).

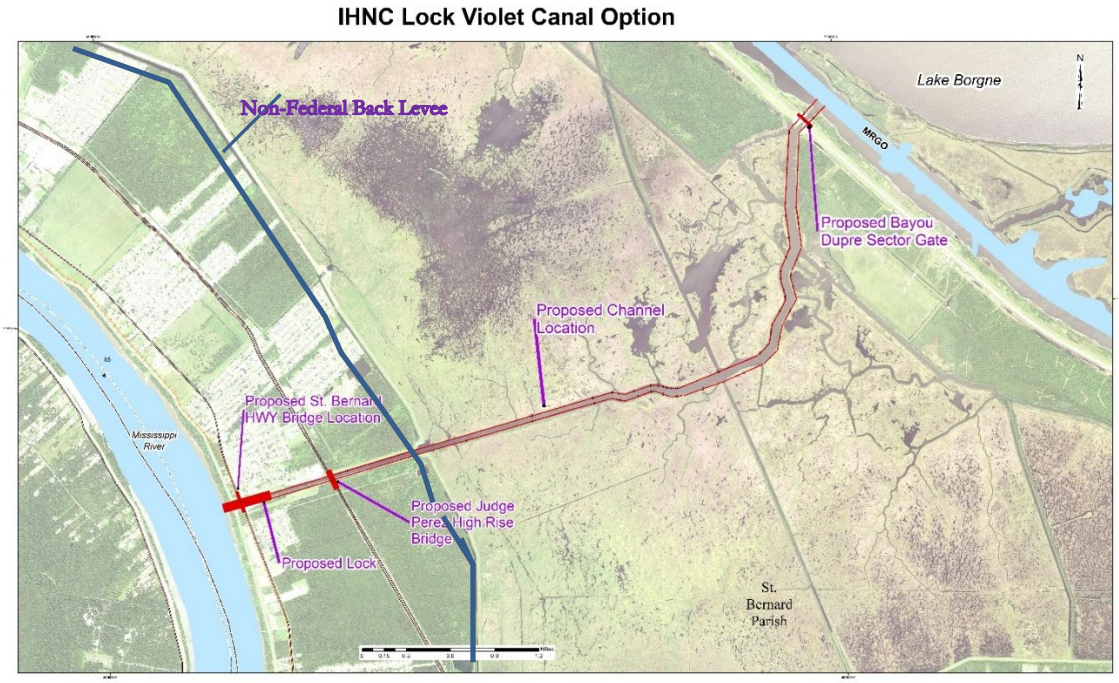



**Figure 3-5 2019 GRR/SEIS Violet Site Plan – Violet Canal alternative alignment**

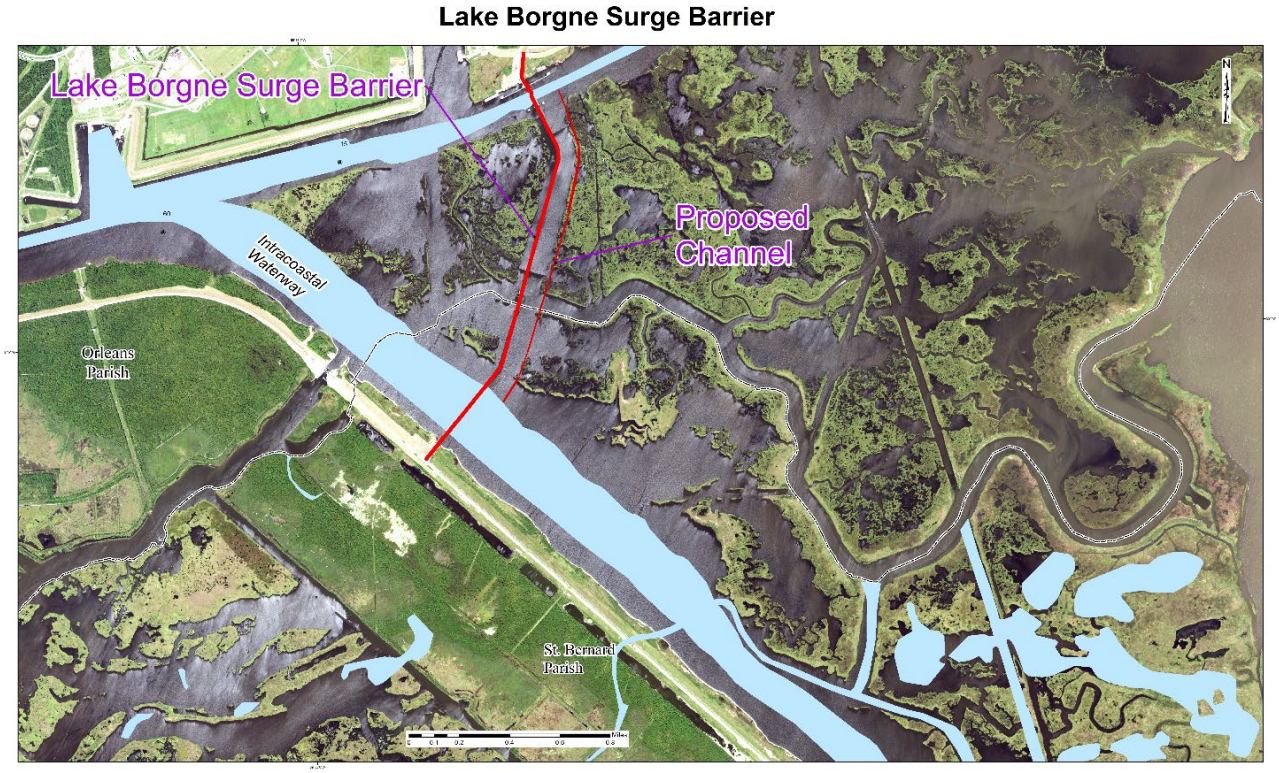



**Figure 3-6 2019 GRR/SEIS Violet Site Plan – shallow draft channel MR-GO (de-authorized) to GIWW**

As WRDA 2007 SEC. 7013. MISSISSIPPI RIVER-GULF OUTLET, officially de-authorized the MR-GO Inland Reach navigation channel, specifically miles 61 to 47, Congressional authorization would be required for several navigation features within the MR-GO. The November 2007 (Revised June 2008) Integrated Final Report to Congress and Legislative Environmental Impact Statement for the Mississippi River-Gulf Outlet Deep-Draft De-authorization study (incorporated herein by reference, and included in Appendix F of this main report) documents these specific MR-GO Inland Reach navigation features which would need re-authorization to include:

- A 36-ft deep x 500-ft bottom width navigation channel, or less as dictated by shallow draft requirements from mile 52 (location of existing sector gate (Bayou Dupre connection to MR-GO)) to mile 58 (upper limit of MR-GO Inland Reach to the crossing of IHNC-Lake Borgne Surge Barrier) (currently de-authorized);
- Maintenance dredging of MR-GO Inland Reach navigation channel, specifically miles 58 to 51 (to allow for safe passage navigation of vessels and adequate turning radius at the Bayou Dupre connection to the MR-GO) (currently de-authorized);
- Dredge disposal sites adjacent to MR-GO Inland Reach navigation channel (currently de-authorized);
- Maintenance/possible improvement of existing bank stabilization/foreshore protection along the MR-GO Inland Reach navigation channel (currently de-authorized);
- Aids to navigation and channel markers (currently removed at the discretion of the U.S. Coast Guard).

In 1970, the State of Louisiana legislature created the Louisiana Natural and Scenic Rivers System. The System was developed for the purpose of preserving, protecting, developing, reclaiming, and enhancing the wilderness qualities, scenic beauties, and ecological regimes of certain free-flowing Louisiana streams. Under the Louisiana Scenic Rivers Act, the State of Louisiana prohibits certain activities which may drastically alter the natural and scenic qualities of rivers in the system. These activities currently include: channelization; channel realignment; clearing and snagging; impoundments; commercial clear-cutting of timber within 100 feet of the low water mark; and use of a motor vehicle or other wheeled or tracked vehicles on a designated scenic stream; While the current Violet site (formerly the Lower Site plan) plan was re-formulated with a view toward minimizing environmental impacts by utilizing the existing Violet canal and Bayou Dupre connection between the Mississippi River and the de-authorized MR-GO (MR-GO Inland Reach (approximate mile 52)) and GIWW, excavation of the existing Violet Canal and Bayou Dupre to an approximate 125ft. channel width would impact five scenic streams included in the Louisiana Scenic Streams system. These streams are:

- **Bashman Bayou -** St. Bernard - From its origin to Bayou Dupre.
- **Bayou Dupre** - St. Bernard - From the Lake Borgne Canal to Terre Beau Bayou.
- **Lake Borgne Canal** - St. Bernard - From the Forty Arpent Canal to Bayou Dupre.
- **Pirogue Bayou** - St. Bernard - From Bayou Dupre to New Canal.
- **Terre Beau Bayou** - St. Bernard - From Bayou Dupre to the New Canal.

The construction of a new channel utilizing the existing Violet Canal and Bayou Dupre corridor would likely jeopardize the scenic nature and designations of these streams.

By utilizing the existing Violet Canal and Bayou Dupre connection between the Mississippi River and MR-GO, it is anticipated that approximately 310 acres of marsh wetlands would be permanently destroyed as result of the connecting channel and new lock construction. Additionally, excavation of an approximately 1.7-mile-long new navigation channel along the eastern side of the IHNC-Lake Borgne Surge Barrier, with an assumed 125ft width, would impact approximately 25 acres marsh wetlands. In total, 335 acres of marsh wetland would be directly adversely impacted as a result of the construction of a new lock at the Violet Site and would require compensatory mitigation.

While the cultural resources impacts associated with the Recommended Plan have been determined to be adverse requiring mitigation, the examination of existing recorded archaeological sites and NRHP-listed or potential eligible properties associated with the Violet Canal and Bayou Dupre also suggests adverse impacts to cultural resources/historic properties. Specifically, this plan would require the demolition of the remnants of the historic Violet locks, the disturbance of portions of the Guichard Sugar mill site, as well as potentially affecting historic fortifications along Bayou Dupre and prehistoric sites at the intersection of Bayou Dupre and the MR-GO. While a significant amount of the area identified in IHNC Violet Canal Option alternative has been surveyed for cultural resources, the additional acreage needed for construction staging and lock construction would require archaeological survey, possibly yielding additional pre-historic archaeological resources needing consideration, with the very real potential for human burials. While the cultural resources in question are different, the anticipated impacts of the project would be the same: adverse.

As of May 2025, the Port of New Orleans is continuing to move forward with plans for construction of a $1.8 billion container terminal in St. Bernard Parish (Figure 3-7). The proposed terminal in Violet, LA, will help the city to compete with regional ports that are better suited to accommodate the industry's increasingly larger vessels. In addition to a recently awarded $73.77 million from the U.S. Department of Transportation through its MEGA Grant program, the Port of New Orleans announced that it has been awarded an additional $226.2 million in federal grant dollars to assist in building the Louisiana International Terminal (LIT) for a total of $300 million. Construction on the project is anticipated to begin in 2025, with the first ship wharf opening in 2028. Although this project still faces legal hurdles due to push back from locals fearing the disruption of their parish, the presence of a new container terminal in St. Bernard Parish would likely increase truck traffic between St. Bernard and New Orleans if constructed. A proposed road dedicated to connecting the interstate system to the new port facility may alleviate some of the traffic.

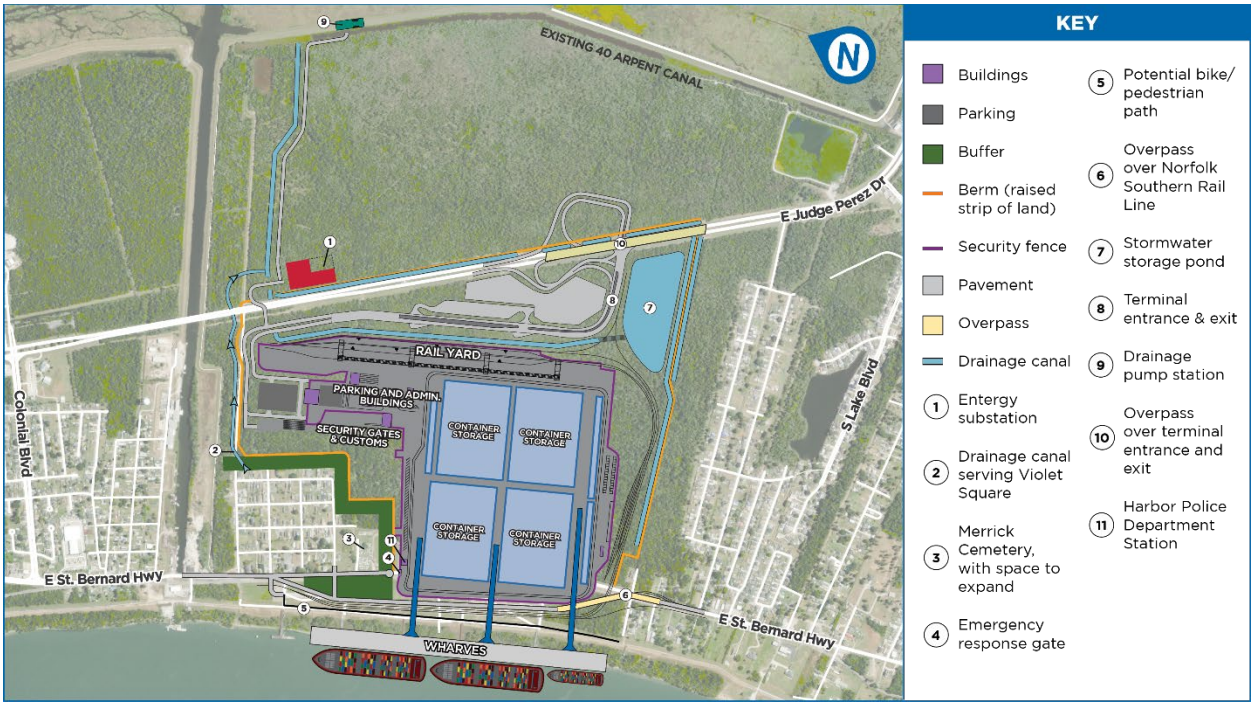



**Figure 3-7 2024 GRR/SEIS Violet Site Plan – Proposed Layout of Louisiana International Terminal, St. Bernard Parish, Louisiana.**

## Cost Analysis

As documented in the 1991 and 1992 - Mississippi River-Gulf Outlet, New Lock and Connecting Channels, Louisiana Evaluation Study Mini-Reports, and incorporated herein by reference, the preliminary first costs for construction of either a shallow or deep draft lock at the Violet site (formerly Lower Site plan) have historically been more expensive than the IHNC north of Claiborne Site (i.e., RP – Plan 3) (See Appendix F). It is important to note that while the RP (Plan 3) has undergone a Cost and Schedule Risk Analysis (CSRA) to help identify risks associated with a low level of detailed design maturity (approximately 20% design), it was determined to be impractical to perform a CSRA on the re-evaluated Violet site plan due to the significant changes in the Violet area since Hurricane Katrina. Examples of some significant changes include but are not limited to scope changes that would be required to navigate through the St. Bernard perimeter system (HSDRRS features); the re-authorization of the MRGO and associated operation and maintenance costs; and additional channel dredging cost for the new navigation channel adjacent to the IHNC-Lake Borgne Surge Barrier. For the RP – Plan 3, the CSRA included an 80% contingency for the project first cost at $2,005,376,000 based on risks identified in CSRA, but the re-evaluated Violet site plan cost does not contain a contingency cost. If the CSRA process were performed for the re-evaluated Violet site plan, it is anticipated that the fully funded cost (including contingency) would likely far exceed or at minimum approach the cost of the IHNC RP (Plan 3).

As previously stated, approximately 335 acres of marsh wetland would be permanently adversely impacted because of the construction of a new lock at Violet and would require compensatory mitigation. The compensatory mitigation would more than likely be accomplished through purchase of mitigation bank credits if appropriate credits were available. Based upon current HSDRRS mitigation costs estimated to average approximately $80,000/acre to construct marsh, it is anticipated that compensatory mitigation costs to compensate for direct impacts to approximately 335 acres of marsh wetlands would be approximately $27 million. Additionally, the Violet site plan alternative would indirectly adversely affect approximately 9,300 acres of marsh by eliminating any tidal exchange between that marsh and the MR-GO; the affected marsh area

would be impounded as a result of the newly constructed banklines along the south shore of the Violet/Bayou Dupre connecting channel, non-federal levees to the southwest, and LPV 146 and 147 floodwalls to the east. This impoundment would inevitably lead to the overall diminishment in habitat quality and ongoing hydrologic fragmentation and would be considered adverse due to the expected decrease in health and productivity of the marsh. These indirect adverse impacts would require additional compensatory mitigation. In order to derive the appropriate acreage and cost of compensatory mitigation, additional coordination with the USFWS would be required. Moreover, USACE would also need to consult with NOAA NMFS Habitat Conservation Division in order to determine the appropriate level of compensatory mitigation costs associated with impacts to essential fish habitat that is located within the 9,300 acres. Separately, engineering measures such as incorporating culverts into LPV 146 and 147 floodwalls could provide some level of compensatory mitigation to the indirectly impacted marsh habitat by allowing continual tidal exchange between the enclosed marsh wetlands and estuarine environment outside the St. Bernard Perimeter System, but additional detailed engineering design would need to be undertaken. As such, indirect impact mitigation costs have not been included in the above cost estimate for overall mitigation.

**Existing Technology Analysis**

There would be no substantive differences in the use of existing technology as a result of construction of a new lock at the re-evaluated Violet site plan.

**Least Environmentally Damaging Practicable Alternatives Analysis Determination**

Section 404 of the Clean Water Act (CWA) governs discharge of dredged or fill material into waters of the U.S. Although the Corps does not process and issue permits for its own activities, the Corps authorizes its own discharges of dredged or fill material by applying all applicable substantive legal requirements, including application of CWA Section 404(b)(1) guidelines. Under those guidelines, no discharge of dredged or fill material will be permitted if there were a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem so long as the alternative does not have other significant adverse environmental consequences. The IHNC site of the RP is a practicable alternative that would have less adverse impact on the aquatic ecosystem, no direct or indirect impacts to wetlands, and would not have other significant adverse environmental consequences. For analysis purposes, construction of a new lock at the Violet would cause significant adverse impacts to wetland marsh habitat, permanently filling 335 acres directly, and indirectly adversely affecting approximately 9,300 acres of marsh by eliminating any tidal exchange with the MR-GO as a result of the newly constructed banklines along the south shore of the Violet/Bayou Dupre connecting channel, non-federal levees to the southwest, and LPV 146 and 147 floodwalls to the east. This impoundment would inevitably lead to the overall diminishment in habitat quality and ongoing hydrologic fragmentation and would be considered significantly adverse due to the expected decrease in health and productivity of the marsh. Marsh north of the new Violet/Dupre connecting channel banklines would continue to experience tidal exchange from the connection of Bayou Bienvenue and the GIWW.

There are other uncertainties that arise when re-evaluating whether or not to construct a new lock at the Violet. WRDA 2007 SEC. 7013 officially de-authorized the MR-GO navigation channel Inland Reach from miles 61 to 47. Consequently, Congressional authorization would be required for the previously noted navigation features in the MR-GO. Public perception of the MR-GO and its role in the flooding caused by Hurricane Katrina may make re-authorization of a portion of it politically unpalatable.

The Inner Harbor Navigation Channel is an existing authorized and suitable navigation channel which can accommodate construction of a new shallow draft lock at the North of Claiborne site within existing right-of-way. The construction would cause no wetland impacts and negligible adverse environmental effects to other natural resources. While three residences would require relocation, the owners would be compensated. Other adverse impacts within the affected neighborhoods would be temporary. Therefore, when considering logistics, cost, and existing technology in light of the project purpose and need, the re-evaluated Violet site plan is not

considered to be the least environmentally damaging practicable alternative. As such, this GRR does not carry the Violet site forward for further analysis.

**Non-Structural Alternatives**

Removal of bridge curfews at St. Claude Avenue to decrease delays to navigation traffic and continued maintenance of existing IHNC lock was considered as a potential non-structural alternative. For all intents and purposes, the application of a non-structural alternative is not practical as it relates to this project. The curfews on the drawbridges that cross the IHNC are in place to minimize delays to vehicular traffic and are codified in 33 CFR § 117.458. This establishes the requirement of operation for the curfews: *"Inner Harbor Navigation Canal, New Orleans," sub-section (a), which states, "The draws of the SR 46 (St. Claude Avenue) bridge, mile 0.5 (GIWW mile 6.2 East of Harvey Lock), the SR 39 (Judge Seeber/Claiborne Avenue) bridge, mile 0.9 (GIWW mile 6.7 East of Harvey Lock), and the Florida Avenue bridge, mile 1.7 (GIWW mile 7.5 East of Harvey Lock), shall open on signal; except that, from 6:30 a.m. to 8:30 a.m. and from 3:30 p.m. to 5:45 p.m., Monday through Friday, except federal holidays, the draws need not open for the passage of vessels. The draws shall open at any time for a vessel in distress."* This plan is therefore not legally compliant, which makes it unacceptable. In addition, it would not be consistent with the project goal of replacing the aging lock infrastructure. There are no other viable alternatives for moving shallow draft/inland navigation to another route that do not involve some significant structural considerations.

### 3.3.5 Initial Array

A public scoping meeting was held on Wednesday, February 4, 2015, at the Dr. Martin Luther King Jr. Charter School for Science and Technology in New Orleans, Louisiana. A mailing list was compiled utilizing an internal CEMVN mailing database and individual letters were mailed to Federal, State and local agencies, Parish and City Council members and other interested parties and stakeholders. A total of 62 individuals signed the attendance records positioned at the main entrance of the meeting hall. These included, but were not limited to, private citizens, industry stakeholders and non-governmental organization representatives. In a handout provided to all attendees, the overall Project Goals/Objectives is to identify a recommended plan to replace the existing Inner Harbor Navigation Canal lock with a new lock. It was noted that the results of a general reevaluation study may affirm the previous 1997 and 2009 plan(s); reformulate and modify it, as appropriate; or find that no plan is currently justified.

In conjunction with this re-evaluation, the CEMVN did not identify any new, previously unstudied alternative lock locations, alternate routes, or other feasible alternatives separate from those previously discussed in Table 3-1. CEMVN did not identify any new information not discussed above that suggests the previously studied alternatives would be any less environmentally damaging, less complicated, or less costly to construct. As such, the range of alternative plans reflects the incorporation of data from the numerous prior Corps studies and the current IHNC project area conditions and conditions at Violet in St. Bernard Parish.

## 3.4 Focused Array of Plans

The range of alternative plans reflects the incorporation of data (to the extent it is still valid) from the numerous prior Corps studies; it also considers the current study area conditions.

The following list represents the focused array of plans considered as part of this GRR:

- Plan 1 - No-Action – continued operation and maintenance of existing lock; 640 feet long by 75 feet wide by 31.5 feet deep, North American Vertical Datum, 1988 (2004.65) (NAVD88);
- Plan 2 - North of Claiborne site; 900 feet long by 75 feet wide by 22 feet deep, NAVD88;
- Plan 3 - North of Claiborne site; 900 feet long by 110 feet wide by 22 feet deep, NAVD88;
- Plan 4 - North of Claiborne site; 1,200 feet long by 75 feet wide by 22 feet deep, NAVD88;
- Plan 5 - North of Claiborne site; 1,200 feet long by 110 feet wide by 22 feet deep, NAVD88;
- Plan 6 – North of Claiborne site; 1,200 feet long by 110 feet wide by 36 feet deep, NAVD88 (as described in the 2009 Supplemental EIS and Record of Decision).

### 3.4.1 Description of Plans

Plan 1 - No-Action – continued operation and maintenance of existing lock; 640 feet long by 75 feet wide by 31.5 feet deep NAVD88.

Plans 2 through 5 differ only in the dimensions of the lock chamber. The following additional information applies to Plans 2 – 5: The construction method used for a concrete navigation lock is cast-in-place and associated support structures and facilities; replacement of the St. Claude Avenue bridge with a new, low-level double bascule bridge; demolition of the a St. Claude Avenue Bridge; provision of by-pass channels around the new lock construction site and the existing lock during its demolition, both of which will provide usage of the existing lock and canal during construction; disposal of dredged material that is not suitable for aquatic disposal in an approved landfill site outside of the study area; extension of the Mississippi River flood protection along the banks of the IHNC to the site of the new lock; implementation of a Community Impact Mitigation Plan to offset and or compensate for impacts the projects would have on four communities located adjacent to the site of the new lock, as specified in Section 326 of WRDA 1996, and implementation of a Traffic Mitigation Program (TMP) as authorized by Sec. 5083 of WRDA 2007.

Plan 6 – North of Claiborne site; 1,200 feet long x 110 feet wide x -36 feet NAVD88 (as described in the 2009 Supplemental EIS and Record of Decision): The lock design and location, and bridge modifications in the Float-in-place Plan, which was the RP in the 2009 SEIS, is very similar to the 1997 EIS Plan. The Float-in-place Plan requires two separate construction locations, the off-site construction area and new lock site. The off-site construction area would allow for lock module construction in dry conditions. Lock modules would be floated to the lock construction site in the IHNC. The plan includes a confined disposal facility for contaminated dredged material, methods for disposal of all dredged material, and an option for disposal of contaminated dredged material in a Type I landfill. A Community Impact Mitigation Plan would provide for actions to avoid, minimize and compensate for adverse impacts on socioeconomic resources in the nearby neighborhoods.

### 3.4.2 Reliability of the Existing IHNC Lock

The No-Action plan (Plan 1 - continued operation and maintenance of existing lock) results in increasing congestion of navigation traffic, lock reliability issues, and high maintenance and repair costs that will persist and increase over time. On page iii of the 1975 Site Selection Report summary (see Appendix F), the following statement is made, "Traffic through the existing antiquated, dimensionally obsolete, and congested ship lock exceeded its practical capacity in 1971." While the preceding statement is referring to the functional capability of the lock, the reliability of the lock as 100 years of operation approaches is a serious condition to consider. While the reliability of the lock has no bearing on the individual selection of lock sizes evaluated, it increases the urgency to reduce navigation disruptions when the lock is not available due to increasing maintenance events or due to a failure of any single or multiple components to operate the facility. For purposes of the lock analysis model, it was assumed that these risks would be managed through cyclical maintenance. In practice, though, it may prove difficult to mitigate unplanned outages through maintenance alone. Waterborne traffic would be forced to take significantly more costly and lengthy, and possibly unsafe, alternate routes or shippers

may need to use altogether different modes of transportation of goods. Based on information provided by Gulf Intracoastal Canal Association when there is a lockage outage, and vessels must take an alternative route, it results in significant increased operating cost and additional time (~10 days) for every tow that is rerouted. The impacts to the local and national economies could be significant. An engineering assessment, not a reliability analysis, was carried out on the existing IHNC lock (see Appendix B, Annex 9).

Additional maintenance issues with the current lock have recently been discovered since the Alternatives Decision milestone (2018 and 2019). These issues include degradation of the lock valves and water infiltration into the lock through the concrete. Investigations have revealed degradation of the concrete through construction joints at the lock floor, leading to water running into the manways and machinery pits of the locks. Repairs continue, but further degradation of the concrete is expected as the 100-year-old structure degrades. Increased repair costs and delays to navigation can be expected to increase as the structure ages. Based on the vast number of documented deficiencies, replacement of the lock is technically merited.

During the revised GRR/SEIS, a Screening Workshop was held in January 2025 that identified any lock components in poor condition and/or with potential reliability issues. Many of these components were deemed necessary to be fixed and were incorporated into a refined Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) Plan for the No-Action Plan. The lock walls and the timber pile foundation were identified as components with a high degree of uncertainty in terms of their condition and potential significant consequences if those components were to fail. As stated in Section 3.6.1, due to the advanced age of the lock, lock outages and delays have been exacerbated due to the increased frequency of lock maintenance events. As seen with the recent unscheduled 7-day outage in Spring 2024 (due to failure and subsequent emergency repair of an upper hinge on one of the gates), these unplanned outages may occur more frequently with aging infrastructure and will have more significant impacts and cost on the navigation industry.

### 3.4.3 Additional Details on Measures Common to Each Plan

Although there are numerous similarities between all plans, there are two significant similarities or dependent measures that have changed since proposed in earlier evaluations. First, the difference in cubic yardage of dredged material to be removed during construction between the deep draft and shallow draft plans. This decrease directly influences the decision on where and how to dispose dredged material that is unsuitable for placement in an aquatic environment and is explained in Section 4.4.2.1. Second, as required by Section 326 of the WRDA of 1996, a comprehensive Community Impact Mitigation Plan (see Appendix E) would be implemented to reduce or offset or both, the direct and indirect social and cultural impacts in four neighborhoods specified by the statute as being affected by the proposed lock replacement.

### 3.4.4 Dredged Material Disposal Plan

The lock replacement alternatives evaluated in prior reports (1997 and 2009) would have required large areas for the disposal of dredged material generated from lock construction. In those reports, large quantities, up to 1,400,000 cubic yards, were to be excavated with hydraulic dredges and pumped as a slurry to confined disposal areas located along the south bank of the GIWW/MR-GO east of the IHNC. This material had been determined unsuitable for open water disposal and therefore required upland confinement. The confined disposal areas varied in size from around 200 to over 500 acres, depending on the lock size and construction method (float-in or cast-in-place). Material determined suitable for aquatic disposal was to be used beneficially to mitigate for effects of the confined disposal areas on wooded wetland habitat. Material to be dredged near the old lock site, late in the construction sequence, was to be hydraulically dredged and disposed in the deep channel of the Mississippi River. The 2009 SEIS evaluated an option for disposal of the contaminated material in a solid waste landfill; however, the time, cost, and logistics of dredging such a large quantity of material necessary to build a deep draft lock with mechanical equipment, and hauling and disposing it in a landfill, made this option impractical, and it was not part of the RP.

A reevaluation of dredged material disposal alternatives was conducted for this report. Surveys performed in 2016 provided the basis for calculating quantities of material from each dredged material management unit (DMMU). DMMUs were established during preparation of the 2009 SEIS to designate dredging areas based on expected levels of contaminants of concern. It was determined that the required dredging quantities for all DMMUs were significantly reduced from the volumes described for all of the alternatives assessed in the 2009 SEIS. For example, the total volume of material requiring dredging for the RP in 2009 was 2,200,000 cubic yards, whereas the total volume estimated for the recommended plan in this report is 719,000 cubic yards, or 32 percent of the previous amount. For material that is not suitable for open water disposal, the quantity decreased from 317,000 cubic yards to 105,000 cubic yards, or 33 percent of the previous amount.

Two cost estimates have been developed for disposing material that is not suitable for open water; one estimate for disposal into a confined disposal area and the second for disposal into a solid waste landfill. Details of these cost estimates are provided in Exhibit 1. The landfill disposal alternative is estimated to cost approximately $9,700,000 less than the confined disposal alternative. The landfill disposal alternative eliminates all project-related environmental impacts to wetlands and fish and wildlife habitats and the need for mitigating any such environmental impacts. The confined disposal alternative would have covered 82 acres of wooded wetlands and required an estimated $2,700,000 in compensatory mitigation costs. It would also have required perpetual maintenance of this isolated site by the Government to assure the site is never altered or disturbed, and seasonal mowing would have been necessary to minimize wildlife usage. The landfill disposal alternative is the environmentally preferred alternative and is also the least costly alternative. It is therefore the alternative included in the RP.

### 3.4.5 Screening the Focused Array of Plans

The No-Action Plan, Plan 1, cannot be screened and is carried forward. Based on previous evaluations of shallow draft navigation lock plans and preliminary benefit cost ratios developed as part of this reevaluation for Plans 2 through 5, the shallow draft navigation lock plans, were expected to have benefits to the nation greater than the costs, so those plans were carried forward as part of this reevaluation. USACE policy requires evaluation of alternatives to identify the alternative that reasonably maxims National Economic Development (NED, but also provides for considerations of other benefits to include Environmental Quality (EQ); Other Social Effects (OSE) and Regional Economic Development (RED).

Plan 6, the deep draft navigation lock plan, is not expected to be justified due to declining traffic utilizing the full depth of the lock. Section 101 of the WRDA of 1986 required a local cost share sponsor for the deep draft component of the project; the Port of New Orleans was that non-Federal sponsor and supported the deep-draft increment as the locally-preferred plan. A federal interest was later found in the deep draft increment and cost shared with the Port of New Orleans. The Port of New Orleans withdrew its support (see Exhibit 2) of the authorized plan and withdrew as the non-federal sponsor in 2012. At that point, the deep-draft increment was not buildable under statutory authority under Section 101 of WRDA 86 as amended.

Since the 1997 evaluation, changes have occurred that have significantly reduced deep-draft activity within the study area. With the closure of the MR-GO in 2009, all the companies along the MR-GO section of the Port of New Orleans that required deep draft vessel support via the MR-GO have moved operations to the Mississippi River section of the Port or to other ports along the Gulf Coast. There are one or two companies that continue to operate along the MR-GO area and use the existing deep-draft IHNC Lock. In 2017, a total of 7 vessels with drafts >20 feet used the IHNC Lock. Consequently, the deep draft activities that supported the deep draft benefits identified in the 1997 Evaluation Study are no longer occurring. While future demand for deep draft lockages through the IHNC lock may arise, a significant reduction of deep draft traffic in the aftermath since the MR-GO's closure has occurred. As noted, the Port of New Orleans, by letter on September 26, 2012 (see Exhibit 2), announced that it no longer has an interest in a deep-draft lock in the IHNC. Current economic analyses demonstrates that no deep draft benefits would be achieved if a deep-draft lock were to be built.

With respect to environmental impacts related to Plan 6, the deep draft lock alternatives evaluated in prior reports (1997 and 2009) would cause much greater adverse impacts to wetland and wildlife habitats than the shallow draft lock replacement alternatives. For example, the deep draft plan recommended in the 1997 report would have placed dredged material into approximately 240 acres of forested wetlands, permanently converting the area into non-wetland forested habitat. It also required development of an off-site construction area to support the float-in construction plan that would have caused the loss of an additional 32 acres of marsh and scrub/shrub wetlands. In the 2009 SEIS, the recommended deep draft plan included a large area for dredged material disposal that would have converted 372 acres of wooded wetlands into upland disposal areas, plus it required conversion of an additional 34 acres of wooded wetlands to an offsite construction area. Deep draft lock replacement alternatives require considerably more dredging of sediments to create a deeper channel and hence create more material to dispose, which if not disposed in a landfill requires disposal/impacts to an area large enough to accommodate that disposal. While material disposed in a landfill may not cause habitat impacts, such disposal does have a cost due to disposal fees. Impacts to wetlands in the disposal and offsite construction areas would require compensatory mitigation through either purchase of mitigation credits or construction of replacement habitat, which itself would be costly.

In contrast, the reduced quantity of dredged material associated with a shallow-draft alternative makes landfill disposal of those sediments determined to be unsuitable for aquatic disposal less costly than placing the material in confined disposal areas. By placing contaminated sediments in a landfill and disposing the rest of the dredged material into the Mississippi River, all impacts to wetlands are avoided with the shallow draft alternatives. Impacts to fishery resources from disposal of material in the Mississippi River would be temporary and minor. This elimination of impacts to wetlands and nearly complete elimination of impacts to fish and wildlife resources makes the shallow draft lock alternatives environmentally preferred, by a large margin, over a deep draft lock alternative.

Plan 6, the deep draft navigation lock, as a part of this reevaluation, is screened from further consideration because, 1) due to the closure of the MR-GO, there is no demand for a deep-draft lock and the economic benefits for the deep draft increment remain significantly below the required 1:1 benefit cost ratio; 2)the cost to construct a deep draft alternative is substantially higher than a shallow draft lock due to increased cost of dredging, disposal, and environmental mitigation; and 3) the adverse environmental impacts (permanent loss of 406 acres of wetlands) are considerably more significant than any shallow draft navigation lock plan (0 acres wetlands impacts). The deep draft lock alternative is not the least environmentally damaging practicable alternative.

## 3.5 Final Array of Plans

The result of screening the focused array of plans is the final array of plans. Those plans are as follows:

- Plan 1 - No-Action – continued operation and maintenance of existing lock; 640 feet long by 75 feet wide by -31.5 feet NAVD88;
- Plan 2 - North of Claiborne site; 900 feet long by 75 feet wide by -22 feet NAVD88;
- Plan 3 - North of Claiborne site; 900 feet long by 110 feet wide by -22 feet NAVD88;
- Plan 4 - North of Claiborne site; 1,200 feet long by 75 feet wide by -22 feet NAVD88;
- Plan 5 - North of Claiborne site; 1,200 feet long by 110 feet wide by -22 feet NAVD88.

## 3.6 Comparison of the Final Array of Plans

Additional detailed analysis was carried out on the final array of plans to determine the most likely outcome of net benefits and identify a TSP. See Appendix D, Economics for more information on detailed analysis.

Information related to No-Action and Plan 3 has been reassessed after feasibility level design and cost estimates were developed. See Addendum 1 to Appendix D for updated results, tables, and related discussions on what has changed between previous effort and the additional analysis completed. The scope of Addendum 1 features re-baselining of previous forecasted traffic, new lock capacity modeling for the No-Action and Plan 3, updating cost characteristics of traffic and lock O&MRR&R, capturing impacts to navigation during construction of the recommended plan, and re-running economic models incorporating these changes and the updated cost estimate.

The selection of Plan 3 as the Recommended Plan is based on the 2017 evaluation and comparison of alternatives, which is documented in the sections below to provide historical context and support for the selection of the plan at that time. Updated economic information for the Recommended Plan is provided later in section 3.8. The cost update was limited to the Recommended Plan. Affected materials include, but are not limited to, fabricated steel, precast concrete piles, reinforcing steel (rebar), rolled steel, structural concrete, and stone or rock. In addition, an updated Cost and Schedule Risk Analysis (CSRA) was conducted, which further informed the revised cost estimates. Supporting data and the pre-2025 economic justification for the Recommended Plan are provided in Appendix D: Economic Appendix.

### 3.6.1 Comparison of Lock Transit Times

Plan 1 – No Action results in far greater congestion that all other plans, as measured by lock transit times. All other plans greatly reduce congestion and transit time. Transit of a tow locking through the IHNC consists of 1) the time the tow enters and waits in the lock queue, which is considered the delay; and 2) the time a tow leaves the queue and/or enters the lock and then exits the lock, which is considered the processing time. In some instances, when a tow with multiple barges has to cut its tow and lock through the IHNC, the emptying and filling time of the lock chamber is part of the processing time as the tow waits for the second cut to lock through. Table 3-2 shows the average transit time for each replacement lock plan. Table 3-3 shows the average processing time per tow for each replacement lock plan.

**Table 3-2 Average Transit Times of Tows in Hours.**

| Proposed Navigation Lock Plans | Average Transit Time (hours) |
|---|---|
| Plan 1 – No Action (existing 640' x 75' x -31.5') | 16 |
| Plan 2 - 900' x 75' x -22' | 5 |
| Plan 3 - 900' x 110' x -22' | 2 |
| Plan 4 - 1200' x 75' x -22' | 3 |
| Plan 5 - 1200' x 110' x -22' | 2 |
| Based on 15 million annual tons | |

**Table 3-3 Average Processing Times of Tows in Minutes.**

| Proposed Navigation Lock Plans | Average Processing Time |
|---|---|
| Plan 1 – No Action (existing 640' x 75' x -31.5') | 43.7 |
| Plan 2 - 900' x 75' x -22' | 43.6 |
| Plan 3 - 900' x 110' x -22' | 45.7 |
| Plan 4 - 1200' x 75' x -22' | 44.8 |
| Plan 5 - 1200' x 110' x -22' | 46.8 |
| Based on 15 million annual tons | |

Delays in the queue for a tow are reduced significantly when comparing the existing lock configuration to the configurations of Plans 2 – 5. Approximate delays in the queue for Plans 2 – 5 are as shown in Table 3-4.

**Table 3-4 Approximate Delays of Tows in Hours.**

| Proposed Navigation Lock Plans | Approximate Delay Time (hours) |
|---|---|
| Plan 1 – No Action (existing 640' x 75' x -31.5') | 15.3 |
| Plan 2 - 900’ x 75' x -22’ | 4.3 |
| Plan 3 - 900’ x 110' x -22’ | 1.2 |
| Plan 4 - 1200' x 75’ x -22’ | 2.3 |
| Plan 5 - 1200’ x 110' x -22’ | 1.2 |
| *Based on 15 million annual tons* | |

The processing times between the existing lock configuration and the proposed lock configuration plans are similar. However, for the existing lock, the processing time reflected in Table 3-3 is applied twice to a tow that consists of two 300 feet long by 54 feet wide liquid or tank barges plus a 100 feet long tow boat, which translates to a tow of approximately 700 feet in total length. That tow has to be broken, requiring two trips through the lock with the aid of an assist tug. The proposed lock could accommodate and process a 700-foot tow in one trip. The processing time difference between the existing lock and the alternative plans is in the total processing time.

The processing time is almost doubled for nearly 50% of existing traffic locking through the IHNC when compared to the proposed lock. This multi-lockage process of multiple tows results in delay time in the queue due to the inefficiency of the existing lock. The advanced age of the lock, with over 100 years of operation, also exacerbates delays due to the increased frequency of lock maintenance events. These outages reduce the capacity to lock traffic or in some cases, result in no lockages while the lock is out of service. Figure 3-8 illustrates the forecasted impact on transit times as a function of the expected maintenance frequency for each lock plan. Figure 3-9 illustrates the forecasted growth in tonnage through the IHNC Lock under the 2017 draft and under the current efforts. As the tonnage increases, combined with the age and maintenance requirements of the existing lock, the delays will only grow from the existing condition without a larger lock in place.

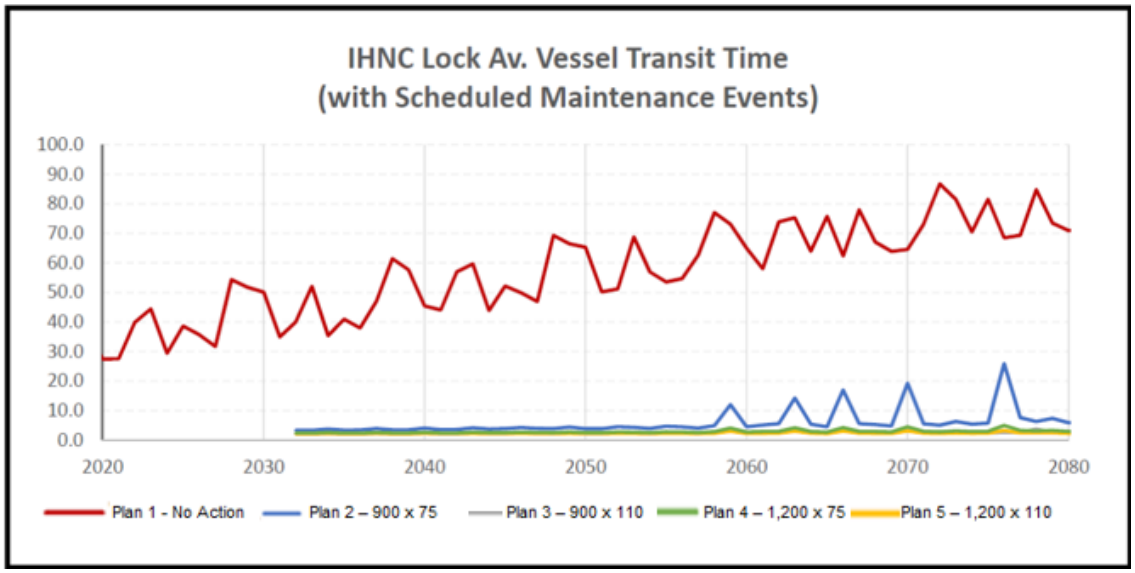



**Figure 3-8 IHNC Lock Average Vessel Transit Time[10]**

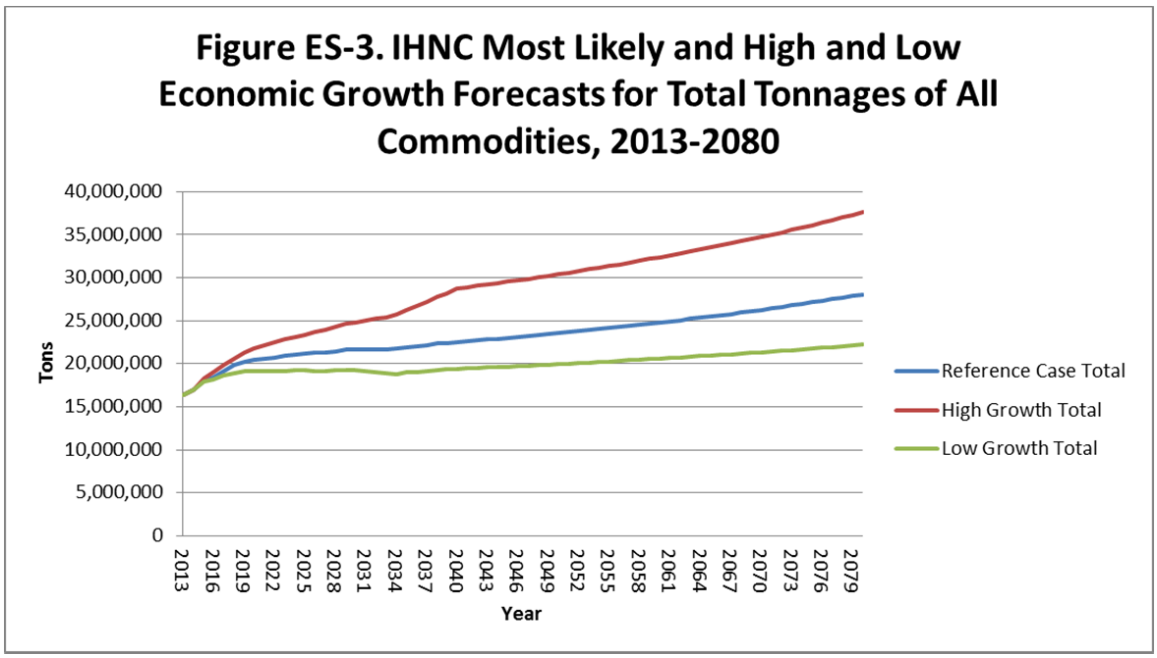
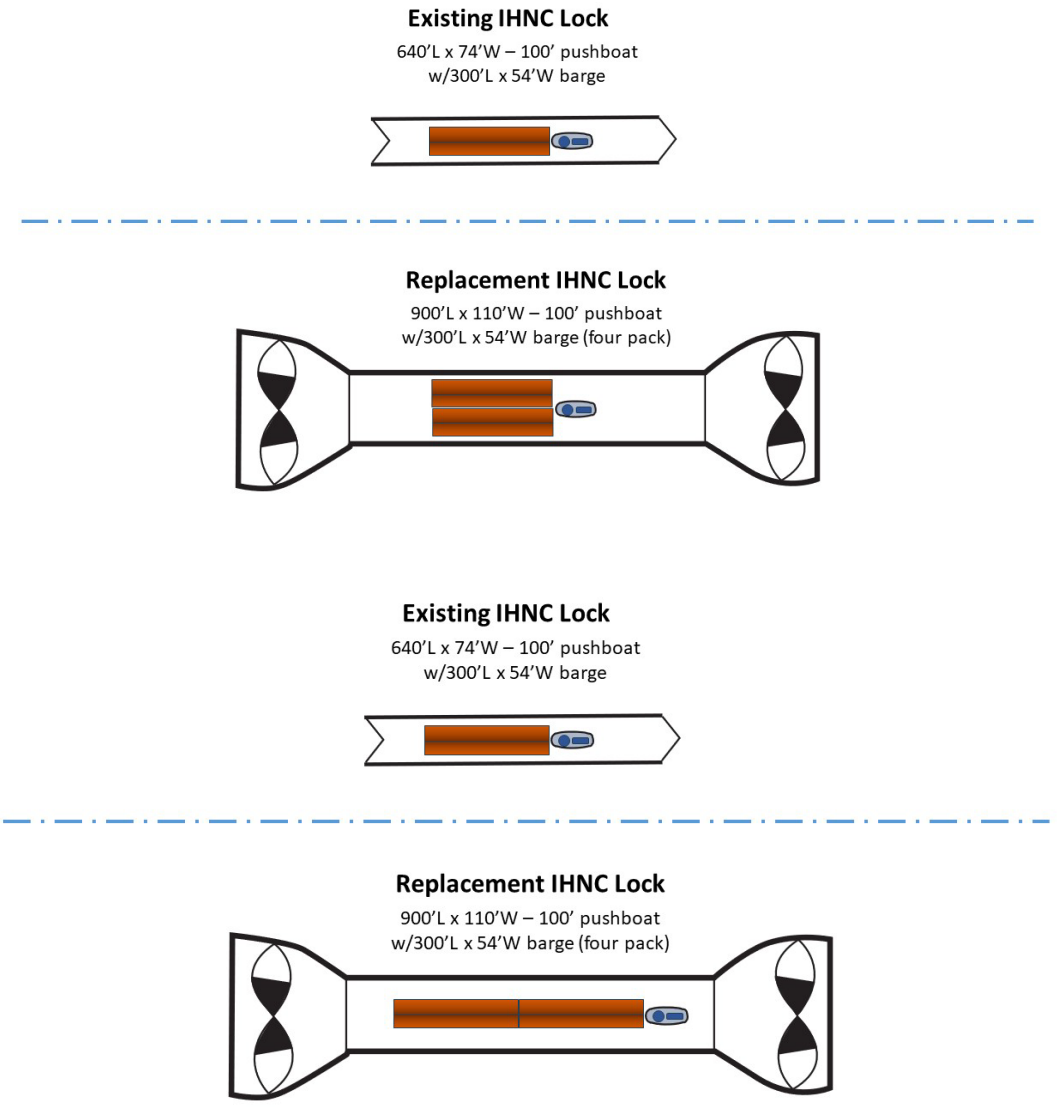


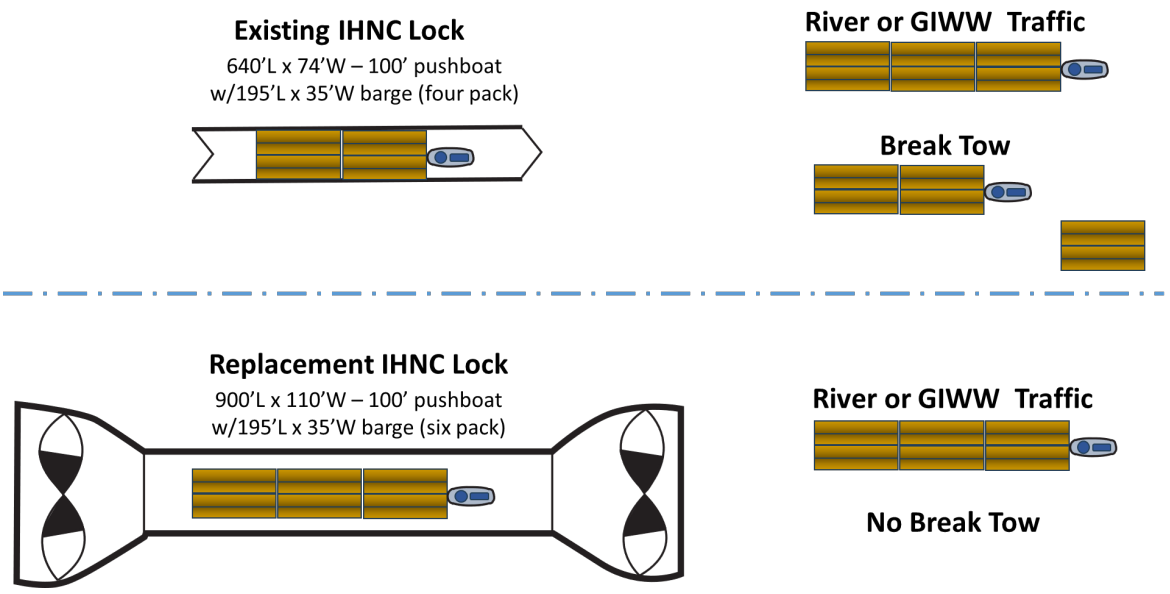

**Figure 3-9 Traffic Demand Forecasts: 2017 GRR**

[10] See Addendum 1 of the Appendix D: Economics for the Mississippi River, Baton Rouge to the Gulf of Mexico Mississippi River-Gulf Outlet, LA, New Industrial Canal Lock and Connecting Channels General Reevaluation Report (GRR) for updated results on the current plan.

### 3.6.2 Comparison of Lock Chamber Packing Capacity

The primary reason that Plans 2 through 5 reduce transit times, congestion, and navigation costs is the ability to fit larger tows with more barges through each lockage. This is visually demonstrated in the following illustrations, which depict the dimensions of Plan 1, the existing lock, and the dimensions of Plans 2 – 5, with the possible combinations to "pack the chamber" with tows. With the increased flexibility of packing more barges into the chamber, there is a decrease in the amount of time spent in the queue (the delay) and by default there is an increase in tonnage that can pass through during any given lockage of tows. The increase in tonnage that can pass through the lock combined with the reduction in queue delays drives the benefits associated with a new, larger lock as a replacement of the existing lock.






Intuitively, it seems the largest lock dimension would provide the greatest reduction in in overall transit times; however, that is not the case, because of prevailing waterborne traffic levels and the typical configuration of tows that lock through the IHNC, which is a large liquid barge tow consisting of two barges, set end to end, with a towboat (as depicted in the figures above). Therefore, the additional costs of constructing the largest lock reduce the overall benefits of that condition.

### 3.6.3 Economic Analysis of the Final Array of Plans

A benefit/cost analysis was conducted to evaluate the economic feasibility of each of the lock replacement plans (done as a prior planning iteration). Expected annual benefits for 2032 and 2082 were converted to an equivalent annual value using the FY16 federal interest rate of 2.875%, and a 50-year period of analysis. Total cost and estimated annual costs for the project plans includes the construction costs and operation and maintenance costs. Construction costs, along with a schedule of expenditures, were used to determine the interest during construction and total investment costs at the end of construction.

Table 3-5 shows Cost Summary and Average Annual Benefits of the final array of plans as presented in the 2017 draft report. All plans are justified (National Economic Development benefits greater than costs). Plan 3, the 900 foot long by 110-foot-wide lock, generated the greatest net excess benefits at $172.3 Million, and was identified as the NED plan. The benefit cost ratio for Plan 3 was 4.78:1.

**Table 3-5 Average Annual Benefit - Cost Summary for all Plans[11].**

| Inner Harbor Navigation Canal<br>Lock Replacement GRR<br>Average Annual Benefit - Cost Summary[1]<br>Elastic Movement-Level Demand[2]<br>(Dollars, Average annual 2.875% discount/amortization rate, 2019-2082 with 2032 base year) | | | | |
|---|---|---|---|---|
| Lock Alternative | Plan 2: 75' x 900' | Plan 3: 110' x 900' | Plan 4: 75' x 1,200' | Plan 5: 110' x 1,200' |
| First Cost of Construction | $937,730,000 | $952,110,000 | $972,850,000 | $1,002,530,000 |
| Interest During Construction | $210,120,000 | $213,910,000 | $218,610,000 | $225,850,000 |
| Total Investment | $1,147,850,000 | $1,166,020,000 | $1,191,460,000 | $1,228,380,000 |
| Average Annual Const. Cost | $43,560,000 | $44,250,000 | $45,210,000 | $46,610,000 |
| Average Annual Increm. O&M | $1,370,000 | $1,350,000 | $1,440,000 | $1,440,000 |
| Total Average Annual Cost | $44,930,000 | $45,600,000 | $46,650,000 | $48,050,000 |
| Total Average Annual Benefits | $214,680,000 | $217,920,000 | $216,790,000 | $218,270,000 |
| Net Excess Benefits | $169,760,000 | $172,310,000 | $170,140,000 | $170,220,000 |
| B/C Ratio | 4.78 | 4.78 | 4.65 | 4.54 |

[1]PCXIN-RED 20-AUG-2016 preliminary draft NIM results.

[2]GEC Reference Traffic Demand Forecasts and Wilson Calcasieu study commodity group elasticities.

[11] Reference Appendix D: Economics for more information.

### 3.6.4 **Risk and Uncertainty**

USACE guidelines, as presented in the Principles and Guidelines and in the Planning Guidance Notebook, ER 1105-2-100, Appendix E-4, have long recognized that risk and uncertainty is inherent in all phases of the analysis of waterway investments. For this GRR, risk is defined as inputs or potential results that can be described probabilistically, while uncertainty is defined as inputs or potential results that cannot be defined with a probability. Inputs that can be defined probabilistically are modeled stochastically and the modeling results are displayed as expected values (often with minimum and maximum results displayed). Uncertain inputs are often modeled through sensitivity testing.

In the IHNC Lock analysis, structural, mechanical, and electrical risk and uncertainty was assumed manageable through cyclical maintenance. In practice, though, it may prove difficult to mitigate unplanned outages through maintenance alone. A more comprehensive evaluation of risk at the existing lock is expected to result in greater performance of Plans 2 through 5 compared to Plan 1 – No Action. The only probabilistic lock service disruption described comes from tropical cyclone events that occur in both the No-Action Plan and the alternative Plans. The service disruption duration and repair costs were similar between the No-Action Plan and the alternative Plans. Regardless, the tropical cyclone events were simulated in Navigation Investment Model at an annual occurrence probability of 20% (see Appendix D, Economics, Attachment 1. Construction and Maintenance Event Data).

In the IHNC Lock analysis, as in most studies, the traffic demand forecast scenarios are not probabilistically defined, and as such are analyzed through sensitivity testing. The Gulf Engineers and Consultants (GEC) "*reference*", or most-likely, traffic demand forecast scenario is used to formulate the RP and then the GEC low and high traffic demand forecast scenarios are analyzed to assess the economic viability of the RP under varying traffic levels (see Appendix D, Economics, Section 3.2.2 - Forecasted Demand). These forecast scenarios were dated to reflect current projections, and a comparison with the 2017 draft report information is provided in Figure 3-10.

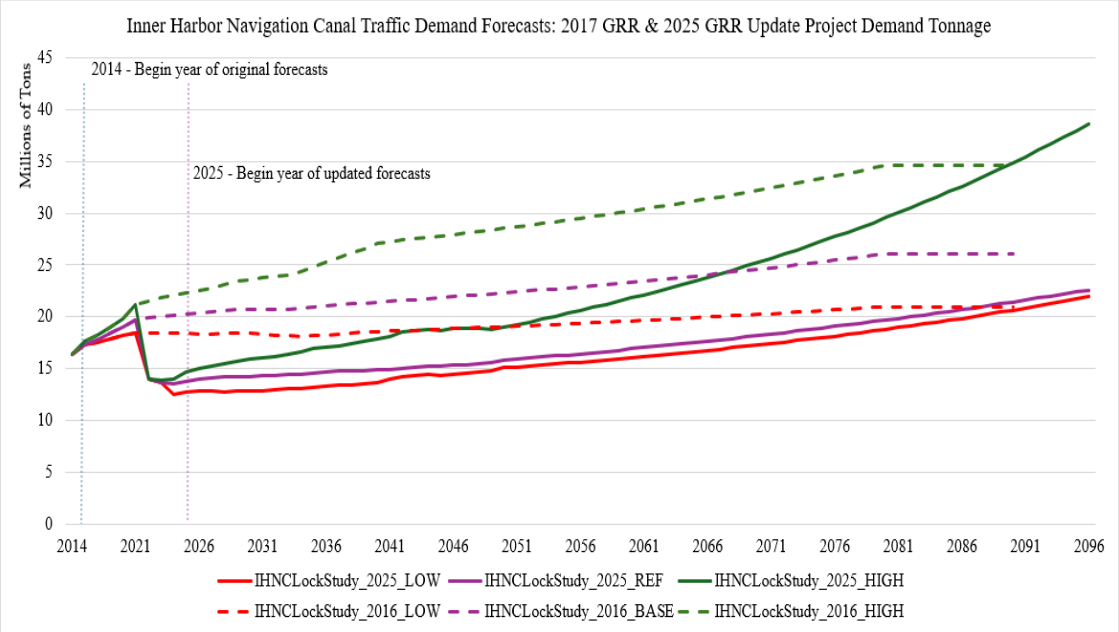



**Figure 3-10 Traffic Demand Forecasts: 2017 GRR and 2025 GRR project demand tonnage**

### 3.6.5 **Four Planning and Guidance Criteria**

Alternative plans, including the NED plan, should be formulated in consideration of four criteria: completeness; effectiveness; efficiency; and acceptability (Table 3-6).

(1) Completeness is the extent to which a given alternative plan provides and accounts for all investments or other actions to ensure the realization of the planned effects. This may require relating the plan to other types of public or private plans if the other plans are crucial to realization of the contributions to the objective.

(2) Effectiveness is the extent to which an alternative plan alleviates the specified problems and achieves the specified opportunities.

(3) Efficiency is the extent to which an alternative is the most cost-effective means of alleviating the specified problems and realizing the specified opportunities, consistent with protecting the Nation's environment.

(4) Acceptability is the workability and viability of the alternative plan with respect to acceptance by State and local entities and the public and compatibility with existing laws, regulations, and public policies.

**Table 3-6 Plan Performance versus the Four Planning Criteria**

| Alternative | Completeness | Effectiveness | Efficiency | Acceptability |
|---|---|---|---|---|
| Plan 1: No-Action | This plan provides no additional benefits beyond the existing condition. | This plan will no alleviate any problems or achieve any opportunities | Although this plan has no cost, existing conditions will continue meaing objectives, goals, problems, and opportunities will not be resolved or met. It is not an efficient plan. | Existing conditions not acceptable to |
| Plan 2: 900' x 75' | This alternative can be implemented and contributes to addressing all of the identified problems or opportunities. | Addresses Problems and Opportunities. Meets goals and objectives by reducing IHNC lock transit delays and increases IHNC lock reliability. | This plan is justified and provides a significant amount of net excess benefits, but not as high as Plan 3. The benefits of this plan in alleviating specific problems and realizing specific opportunities are consistent with protecting the Nation's environment. | Any construction unacceptable to neighborhood groups and commuters. |
| Plan 3: 900' x 110' | This alternative can be implemented and contributes to addressing all of the identified problems or opportunities. | Addresses Problems and Opportunities. Meets goals and objectives by reducing IHNC lock transit delays and increases IHNC lock reliability. | This plan is justified and provides the greatest amount of net excess benefits compared to any other plan. The benefits of this plan in alleviating specific problems and realizing specific opportunities are consistent with protecting the Nation's environment. This plan, Plan 3, is the NED plan. | Any construction unacceptable to neighborhood groups and commuters. |
| Plan 4: 1,200' x 75' | This alternative can be implemented and contributes to addressing all of the identified problems or opportunities. | Addresses Problems and Opportunities. Meets goals and objectives by reducing IHNC lock transit delays and increases IHNC lock reliability. | This plan is justified and provides a significant amount of net excess benefits, but not as high as Plan 3. The benefits of this plan in alleviating specific problems and realizing specific opportunities are consistent with protecting the Nation's environment. | Any construction unacceptable to neighborhood groups and commuters. |
| Plan 5: 1,200' x 110' | This alternative can be implemented and contributes to addressing all of the identified problems or opportunities. | Addresses Problems and Opportunities. Meets goals and objectives by reducing IHNC lock transit delays and increases IHNC lock reliability. | This plan is justified and provides a significant amount of net excess benefits, but not as high as Plan 3. The benefits of this plan in alleviating specific problems and realizing specific opportunities are consistent with protecting the Nation's environment. | Any construction unacceptable to neighborhood groups and commuters. |

## 3.7 Summary of Accounts and Comparison of the NED Plan and the No-Action Plan.

### 3.7.1 Summary of Accounts

To facilitate alternatives evaluation and comparison of the alternatives, the 1983 Principles and Guidelines lay out four Federal Accounts that are used to assess the effects of alternatives. The accounts are National Economic Development (NED), Environmental Quality (EQ), Other Social Effects (OSE), and Regional Economic Development (RED).

- The NED account displays changes in the economic value of the national output of goods and services.
- The 1983 Principles and Guidelines require the identification of an NED plan from among the alternatives.
- The EQ account displays non-monetary effects on significant natural and cultural resources.
- The RED account registers changes in the distribution of economic activity that result from each alternative plan. Evaluations of regional effects are to be carried out using nationally consistent projections of income, employment, output, and population.
- The OSE account registers plan effects from perspectives that are relevant to the planning process but are not reflected in the other three accounts.

### 3.7.2 Comparison of the NED Plan and the No-Action Plan

Plan 1: No-Action: There would be no benefits attributable to the no-action plan. The EQ and OSE accounts would remain unchanged. The NED and RED accounts would be adversely impacted as current transit times of waterborne commerce traffic that utilize the existing lock continue to increase as traffic increases and the frequency of lock maintenance events increase.

Plan 3: 900 feet long by 110 feet wide by 22 feet deep navigation lock and associated support structures and facilities: As of the 2017 Report, this plan provided the greatest net NED benefits with a BCR greater than 1. Impacts to the EQ account would be minimal. OSE has no benefits under the recommended plan and specific adverse impacts can be found in Chapter 6.1, Human Environment and in Appendix A, Environmental. The RED account would benefit because a new and reliable lock would increase efficiency of cargo transiting the IHNC lock and the reliability of the lock would be increased.

## 3.8 Updated Economic Evaluation of Plan 1 and Plan 3

In the 2017 draft report, Plan 3 was determined to be the plan that reasonably maximizes contributions to the National Economic Development (NED) account, consistent with Engineer Regulation 1105-2-100. An updated analysis was carried out for Plan 1 and Plan 3 to determine if Plan 3 remains economically justified based on changes in costs, economic conditions, engineering information and designs that have occurred since the 2017 draft report. These changes reflect feasibility level design and cost estimates, as well as re-baselining of previous forecasted traffic, new lock capacity modeling for the No-Action and Plan 3 alternatives, updated cost characteristics of traffic and lock OMRR&R, capturing impacts to navigation during construction of the new lock, and re-running economic models incorporating these changes. The economic reevaluation is described in detail in Addendum 1 of the Appendix D: Economics. Based on this economic reevaluation, the RP remains economically justified with positive net NED benefits of $6.5 Million, and a benefit to cost ratio of 1.03.

Table 3-7 displays the updated Benefit-to-Cost ratio and Net Benefits of Plan 3 for the Reference Case, as well as two upper and lower bound traffic demand scenarios. The project first cost of Plan 3 at FY 2025 (October

2024) price levels is $4.74 Billion. The project first cost includes sunk costs of $171 Million, including $138 million of sunk pre-construction engineering and design (PED) costs, and $33 Million of sunk construction costs. The project first cost excluding sunk PED is $4.6 Billion. The average annual cost, excluding sunk PED, is $222.5 Million (FY 2025 Price Levels and Discount Rate of 3%), including implementation costs, interest during construction, and OMRR&R costs.

This analysis of the Plan 3 resulted in average annual benefits of $229.1 Million, based on the Reference Case Traffic Forecast, resulting in net benefits of $6.5 Million, and a benefit to cost ratio of 1.03. The Low Traffic Forecast scenario results in average annual benefits of $132.4 Million, net benefits of negative $90.2 Million, and a benefit to cost ratio of 0.6, while the High Traffic Forecast scenario results in average annual benefits of $415.7.4 Million, net benefits of $193.1 Million, and a benefit to cost ratio of 1.9.

Figure 3-11 displays the updated estimates of congestion, as measured by average transit time, at the lock under the No Action and Plan 3. Except for a brief period during the construction, which reflects demolition of the old lock, Plan 3 greatly reduces transit time and congestion at the IHNC.

**Table 3-7 2024 updates for Plan 3 – 110-foot-long x 900-foot-wide lock configuration**

| 110' x 900' New Lock (2025 Update) * Reference Forecast Scenario 3.0 % Discount Rate \| Oct 2024 (FY25) Price Level | | |
|---|---|---|
| First Cost of Construction | $ | 4,740,000,000 |
| Sunk PED | $ | 138,000,000 |
| Sunk Construction | $ | 33,000,000 |
| Total Sunk Costs ** | $ | 171,000,000 |
| Interest During Construction | $ | 1,097,000,000 |
| Total Investment | $ | 5,837,000,000 |
| Average Annual Const. Cost | $ | 220,100,000 |
| | | |
| Annual O&M Savings from Existing Lock | $ | 4,900,000 |
| Annual O&M Costs of New Lock | $ | 2,400,000 |
| Average Annual Increm. O&M*** | $ | (2,500,000) |
| | | |
| Total Average Annual Cost | $ | 222,500,000 |
| Total Average Annual Benefits | $ | 229,100,000 |
| Net Excess Benefits | $ | 6,500,000 |
| B/C Ratio | | 1.03 |
| * Totals may differ slightly as they are calculated pre-rounding<br>** Sunk Costs are Excluded from the Total Annualized Costs according to ER 1105-2-100 Appendix D<br>*** Negative Average Annual Incremental O&M is a Net Savings (Benefit) to the Recommended Plan | | |

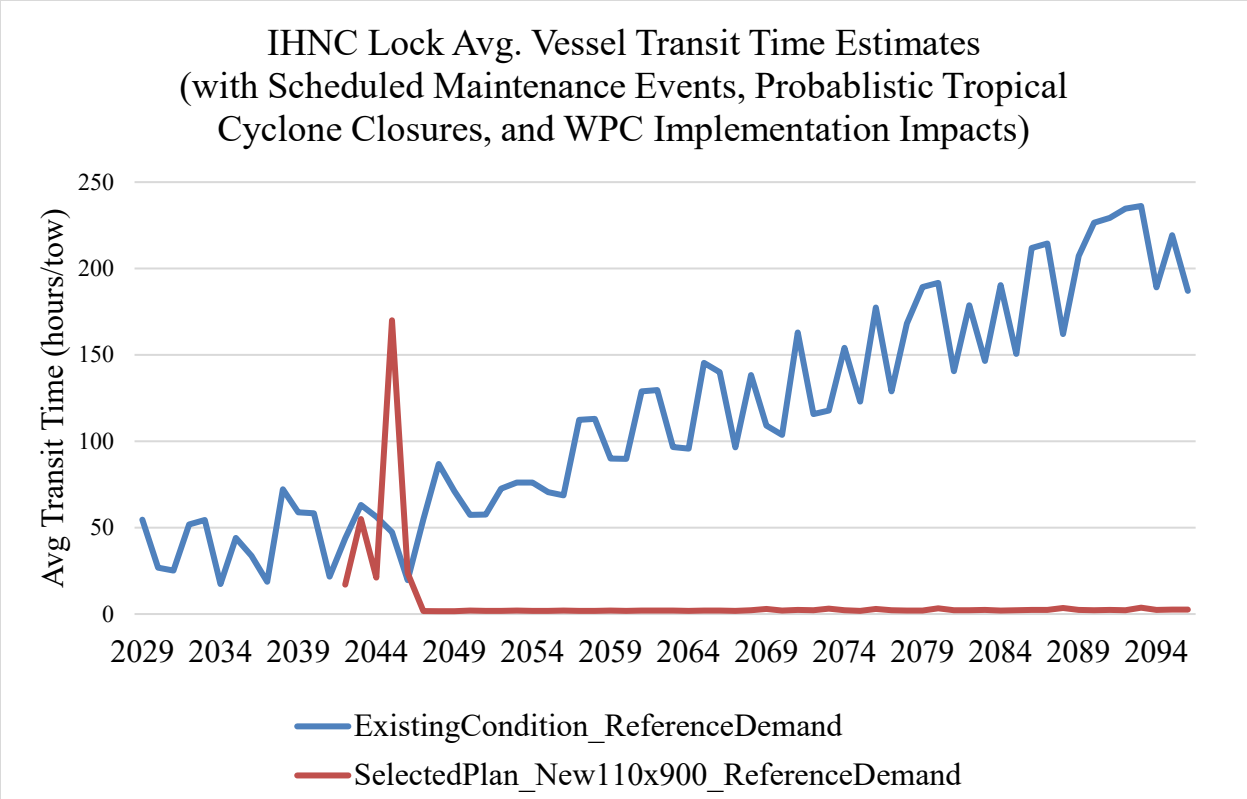



**Figure 3-11 IHNC Lock Average Vessel Transit Time - Updated**

## 3.9 Identification of the Recommended Plan

Following completion of feasibility level design, as of the 2017 Report, Plan 3, the 900 foot long by 110-foot-wide lock configuration resulted in the greatest net excess benefits (over $172.3 million), with the reasonably maximize net benefits cost ratio of 4.78:1 and was identified as the NED plan. All of the plans (except no action) produced high benefit cost ratios and high net excess benefits. However, based on the need for a new modern and reliable lock that can efficiently handle forecasted traffic conditions and after approval by the Major Subordinate Command at the Agency Decision Milestone, Plan 3 is the Recommended Plan.

As of this current 2025 Report, only Plan 1 – No Action and Plan 3, the 900 foot long by 110-foot-wide lock configuration was updated to reflect current costs and economics. For the purpose of this reevaluation, implementation is 19 years, and the construction period is 14 years, from 2033 to 2047. The first year of modeling is set at 2029 and the construction period was set at 2033 (first possible budget year), resulting in a base year of 2047 (due to navigation restrictions until the existing lock are removed), and a final analysis period year of 2096. Plan 3 continues to reasonably maximize net benefits and has a cost ratio of 1.03:1 The table below presents the updates for Plan 3 as of 2024.

The recommended plan, Plan 3, was the only plan in the final array of alternatives to be re-analyzed in terms of outcomes when updating economic information. Specifically, regarding costs, benefits, and justification of the plan. Overall, the project saw an increase to costs. Some of these costs increases came from the price of materials and labor increasing. These materials include, but are not limited to, fabricated steel, precast piles, rebar, rolled steel, structural concrete, and stone/rock. This, along with an updated and a more improved Cost and Schedule Risk Analysis, proved an increased cost that would have been applied throughout all plans. Since,

it has been justified throughout Chapter 3 and the Addendum 1 in Appendix D: Economic Appendix that Plan 3 is remaining the recommended plan with its NED benefits.

Through a qualitative review of total net benefits between final array alternatives and the recommended plan and qualitative presentation of other social effects accounts Plan 3 is justified and is the NED and Recommended Plan. When looking at other options such as using the old lock as a passthrough feature, the dependency of the St. Claude bridge needing to be replaced, and optimal lock sizes that impact costs and capacity, reduces overbuilding, construction impact, emissions, and supporting industry needs and system-wide standardization. The reconfiguration of the new lock would maintain flood risk reduction for the communities and remove the risk at the existing lock. The reconfiguration of the fronting of the new lock facing the Mississippi River will be brought to the appropriate design elevation and will maintain the level of risk reduction pursuant to the MR&T authority level of risk reduction. The LPV levee system will tie into the new lock and maintain the storm risk reduction capability of the LPV project. IHNC construction will not interfere with the ability of the non-Federal sponsors of the LPV and MRL to operate and maintain appropriate levels of risk reduction. Along with the increased elevation of the new lock, the recommended plan also improves safety with fewer anticipated collisions and quicker emergency response, and increases overall efficiency of navigation traffic, with fewer trips and less congestion.

Since completion of the 2017 Report, updates to the cost and economic analyses were performed on Plan 3, the Recommended Plan. These analyses resulted in a project first cost of the recommended plan at FY 2025 (October 2024) price levels, of $4.74 Billion.

The project first cost includes sunk costs of $172.7 million, including $139.3 million of sunk pre-construction engineering and design (PED) costs, and $33.4 Million of sunk construction costs. The project first cost excluding sunk PED is $4.51 Billion. The average annual cost, excluding sunk PED, is $222.5 Million (FY 2025 Price Levels and Discount Rate of 3%), including implementation costs, interest during construction, and incremental OMRR&R costs.

The average annual benefits of the Recommended Plan are $229.1 Million, based on the Reference Case Traffic Forecast, resulting in net benefits of $6.5 Million, and a benefit to cost ratio of 1.03. The Low Traffic Forecast scenario results in average annual benefits of $132.4 Million, net benefits of -$90.2 Million, and a benefit to cost ratio of 0.6, while the High Traffic Forecast scenario results in average annual benefits of $415.7.4 Million, net benefits of -$193.1 Million, and a benefit to cost ratio of 1.9.

# 4.0 RECOMMENDED PLAN

## 4.1 Recommended Plan Description

Plan 3 – North of Claiborne Site – 900 feet long by 110 feet wide by 22 feet deep (NAVD88)

The main feature of the RP is replacement of the existing lock with a new lock having dimensions of 900 feet long by 110 feet wide by 22 feet deep (NAVD88) and associated support structures and facilities. The lock is to be constructed between the banks of the IHNC, north of the Claiborne Avenue Bridge and south of the Florida Avenue Bridge. The RP also calls for demolition and replacement of the existing St. Claude Avenue Bridge. Prior activities and work that have been completed for the previously recommended plan for a deep-draft lock replacement project that was under construction prior to Hurricane Katrina include: Acquisitions of real estate required for deep draft project construction except for temporary construction easements; demolition and removal of the Galvez Street Wharf; demolition and removal of all businesses on the east bank of the IHNC between the existing lock and Florida Avenue; environmental remediation of that area; testing of various pile driving equipment and some features of the Community Impact Mitigation Plan. These activities are compatible with and applicable to this lock replacement plan.

In the current Flood Risk Management system, the existing IHNC Lock, which is over 100 years old, is deficient in elevation and routinely requires USACE to undertake additional flood fighting measures when high river stages are forecast. With the proposed project in place, the new levee and floodwall segments, in conjunction with the new IHNC Lock structure and gates, will provide an upgrade from the current system and will reduce the need for additional flood fighting measures in the area. The length of the existing Flood Risk Management features along the Mississippi River will increase due to the relocation of the IHNC Lock north of Claiborne Avenue with new Mississippi River levees and floodwalls being constructed as part of the project. These risk reduction features will be built using the Mississippi River Levee (MRL) standards. The proposed project features are being designed to accommodate the future hydraulic conditions that are anticipated along the MRL and will account for the likelihood for riverine flood events, and probability of future tropical events driving storm surge up the river.

Construction of the new lock north of Claiborne Avenue would require a complex sequence of tasks. It is anticipated that the entire construction process could take up to 14 years to complete, if adequate funding is provided (project construction would begin in year 2033 and end in year 2047, with Engineering and Design beginning in Fiscal Year 2029. (Figure 4-1).

The Total Project Cost includes the Recommended Plan (RP), as well as a separately authorized Community Impact Mitigation Plan (CIMP) and a Traffic Mitigation Program (TMP).

Table 4-1 outlines the project investment, interest accrued during construction, benefits, and the benefit to cost ratio of the RP. Table 4-2 outlines the breakdown of the Estimated Costs.

**Table 4-1 Benefits and Costs of the RP, Plan 3**

| Plan 3 | |
|---|---|
| Project First Cost* | $4,687,572,000 |
| Project First Cost, excluding sunk PED | $4,514,882,000 |
| Interest During Construction | $1,536,402,000 |
| Total Investment | $6,223,974,000 |
| Average Annual Const. Cost | $242,897,827 |
| Average Annual Incremental O&M | $2,440,000 |
| Total Average Annual Cost | $222,550,000 |
| Total Average Annual Benefits | $229,100,000 |
| Net Excess Benefits | $6,550,000 |
| B/C Ratio | 1.03 |

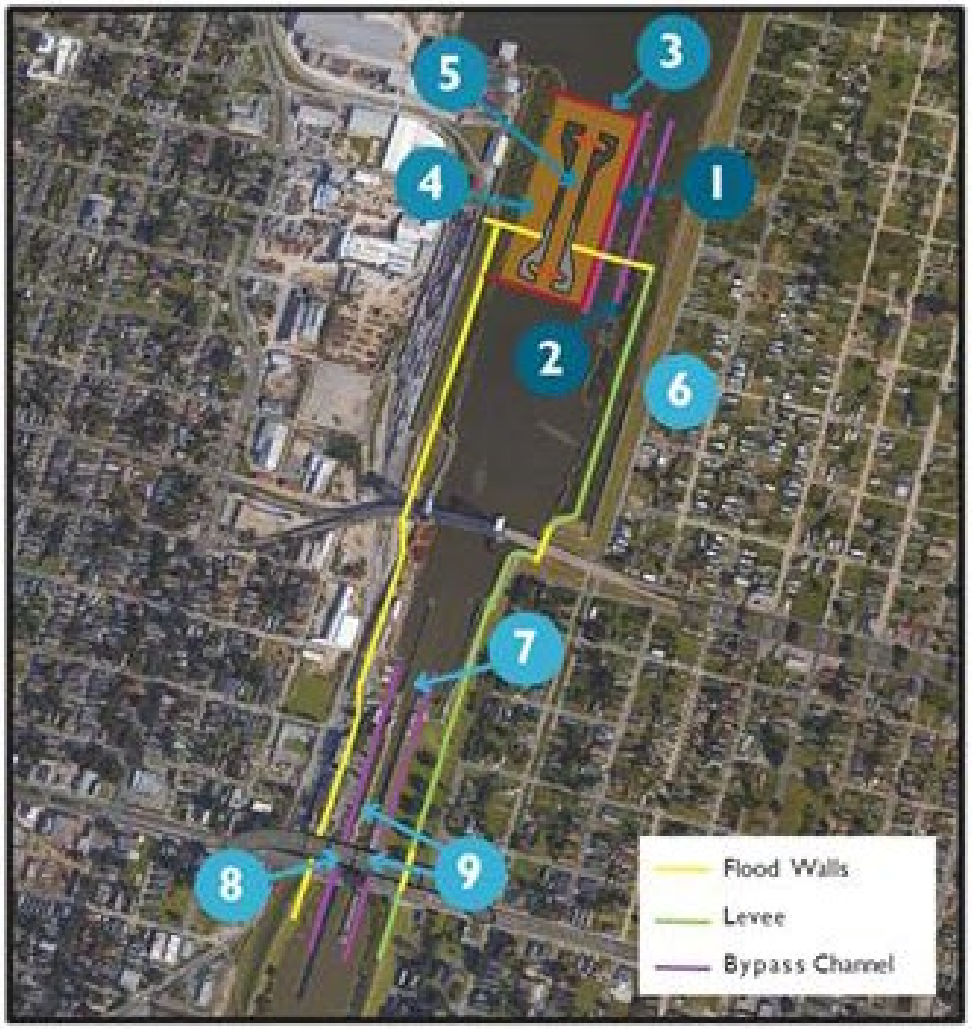
*Estimated Cost includes contingency and are in FY 2025 Dollars. These costs

**Table 4-2 Estimated Cost of the RP, /**

| Estimated Cost Breakdown (FY 2025 Dollars) | |
|---|---|
| PED | $722,680,000 |
| Real Estate | $6,548,000 |
| Utility Facility Relocations | $828,225,000** |
| Construction | $4,114,350,000 |
| S&A | $552,171,000 |
| Sub-total | $5,848,078,000 |
| Mitigation | $375,896,000[12] |
| Total | $6,223,974,000 |

**Costs include the facility relocation of the St. Claude Ave. Bridge Replacement.

[12] For additional cost information, please reference Appendix E - Draft CIMP Section 11, and Draft TMP Section 6.




| | |
|---|---|
| Years 1-2 | 1. Install Outer Wall of Cofferdam New Lock Site<br>2. Dredge Bypass Channel |
| Years 3-9 | 3. Install Remainder of Cofferdam<br>4. Unwater New Lock Site<br>5. Construct New Lock |
| Years 9-14 | 6. Remove Cofferdam and Backfill<br>7. Construct Flood Walls and Levee**<br>8. Construct New St. Claude Avenue Bridge*<br>9. Demolish Existing Lock and Bridge* |

**Figure 4-1 Project Construction Sequence Years 1-14.**

*The new St. Claude Avenue Bridge will be built before demolishing the existing bridge. The St. Claude Avenue Bridge will remain open during construction.

** The Flood Walls and Levees will be constructed throughout the construction duration in segments. The majority of construction will occur in Years 2-7.

Soils and sediments that require excavation for project construction have been thoroughly evaluated under regulations and procedures developed under requirements of the CWA and may be divided into two categories: Approximately 614,000 cubic yards of dredged material that would be excavated from Dredged Material Management Units (DMMUs) 3, 4, 6, 9, and 10 is "suitable for open water discharge" (see Figure for DMMU Map). This material is non-toxic to sensitive benthic organisms, does not contain contaminants at concentrations that would adversely bioaccumulate or bio-magnify in aquatic food webs, and would not violate or exceed regulatory water quality criteria or drinking water standards upon discharge into the proposed Mississippi River open-water disposal site. The dredged material would mix with the river's normal suspended and bedload sediments and be carried downstream. Approximately 105,000 cubic yards of dredged material that would be excavated from DMMUs 5 and 7 is "unsuitable for open water discharge" because it is toxic to sensitive benthic organisms. This material would be excavated with an environmental bucket dredge to minimize on-site loss of material and turbidity and would be hauled to and permanently disposed in a permitted solid waste landfill.

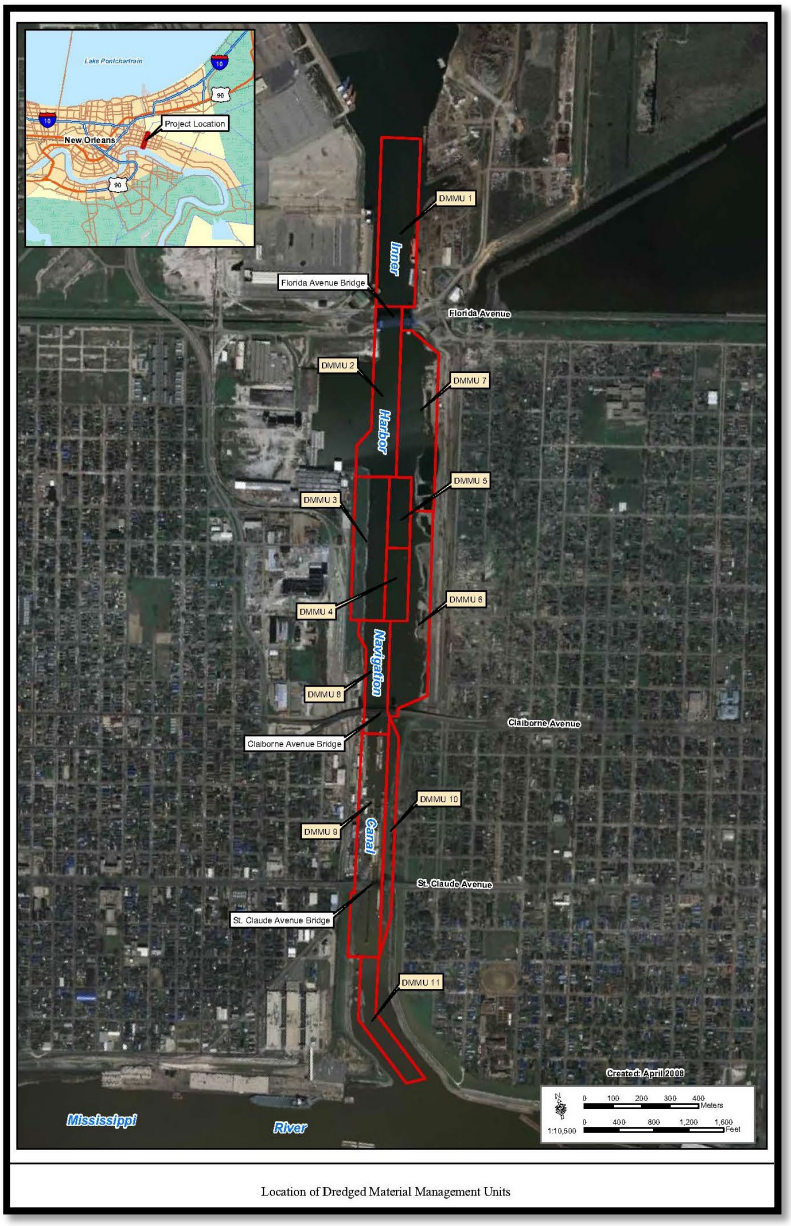



**Figure 4-2 Location of IHNC DMMUs**

- Dredging depths and widths required for this plan do not warrant vertical or lateral subdivision of DMMUs into "native layer" and "fill" categories as for previously-evaluated deep draft lock alternatives. However, results from chemical and biological testing of the material within these DMMUs were utilized in assessing current dredged material disposal alternatives in that contaminant maximums and worst-case toxicity determinations for overlapping units were considered to represent a dredging unit. As an example, testing results from the non-native or fill layer of DMMU 7 which contained higher levels of contaminants than the native layer was used to represent the entire unit, and were not averaged or weighted with native and fill layers.

- DMMUs previously evaluated for deeper lock alternatives that have sufficient depth and would not be dredged as part of this plan are DMMUs 1, 2, 8, and 11 (IHNC Channel).

- Approximately 106,100 cubic yards of sediment would need to be dredged to construct the bypass channel. The majority of this dredged material – approximately 70,000 cubic yards from DMMU 6 – is suitable for open water placement and would be discharged into the Mississippi River. The remaining dredged material, about 36,000 cubic yards from DMMU 7, is not suitable for discharge into the Mississippi River and would be bucket dredged and disposed of in a solid waste landfill.

**CONSTRUCTION YEARS 1-2**

- A cofferdam around the new lock construction site is required so that the site can be un-watered. Foundational support is required for the cofferdam; therefore, jet grouting of the canal bottom sediments utilizing barge-mounted equipment would be performed to strengthen the sediments. The soil improvements would occur prior to placement of sheeting for the cofferdam. The required sheet pile tip elevation for the cofferdam is elevation -90 feet (NAVD 88). The sheet pilings would be placed using a barge-mounted vibratory hammer to form cell walls, and the interior of the cofferdam cells would be filled with sand to an elevation of +3.5 feet (NAVD 88).

- The north-south section (eastern wall) of the cofferdam would be constructed within the IHNC as the first actual construction feature of the project. Construction of this part of the cofferdam in the navigation channel would separate two distinct dredging areas, namely the new lock construction site on the west side and the north bypass channel on the east side. The lock construction site and the bypass channel require excavation to significantly different depths. Although the sill elevation of the lock is -22 feet (NAVD88), the dredging depth required for the new lock site is elevation -33 feet (NAVD 88). The additional 11 feet are needed to allow for placement of base and stabilization slabs. For the north bypass channel, the required elevation is -17 feet (NAVD 88). This depth includes 2 feet for advanced dredging and 1 foot over dredging to eliminate periodic maintenance dredging during construction.

- A temporary bypass channel would be excavated between the north-south cofferdam section and the new Mississippi River levee located along the east bank of the IHNC. Some of the existing east bank of the IHNC may need to be removed. The bypass channel would accommodate vessel traffic around the new lock construction site. To protect the east bank of the IHNC and cofferdam, and the vessels transiting the bypass channel, tugboats would be permanently stationed to assist vessels transiting the area. In addition, protection cells would be placed along the west side of the bypass channel to protect the cofferdam. All vessel traffic would be rerouted through the bypass channel while the new lock is being constructed.

- Once the bypass channel is operational, the new lock site would be dredged by a combination of hydraulic and bucket dredges. Approximately 69,000 cubic yards of dredged material from DMMU 5 is unsuitable for discharge into the aquatic environment and would be bucket dredge and disposed

of in a solid waste landfill. An additional 278,000 cubic yards of dredged material would be removed from the new lock site (DMMUs 3 and 4) by hydraulic dredging. That material is suitable for disposal in the freshwater aquatic environment and would be discharged into the Mississippi River.

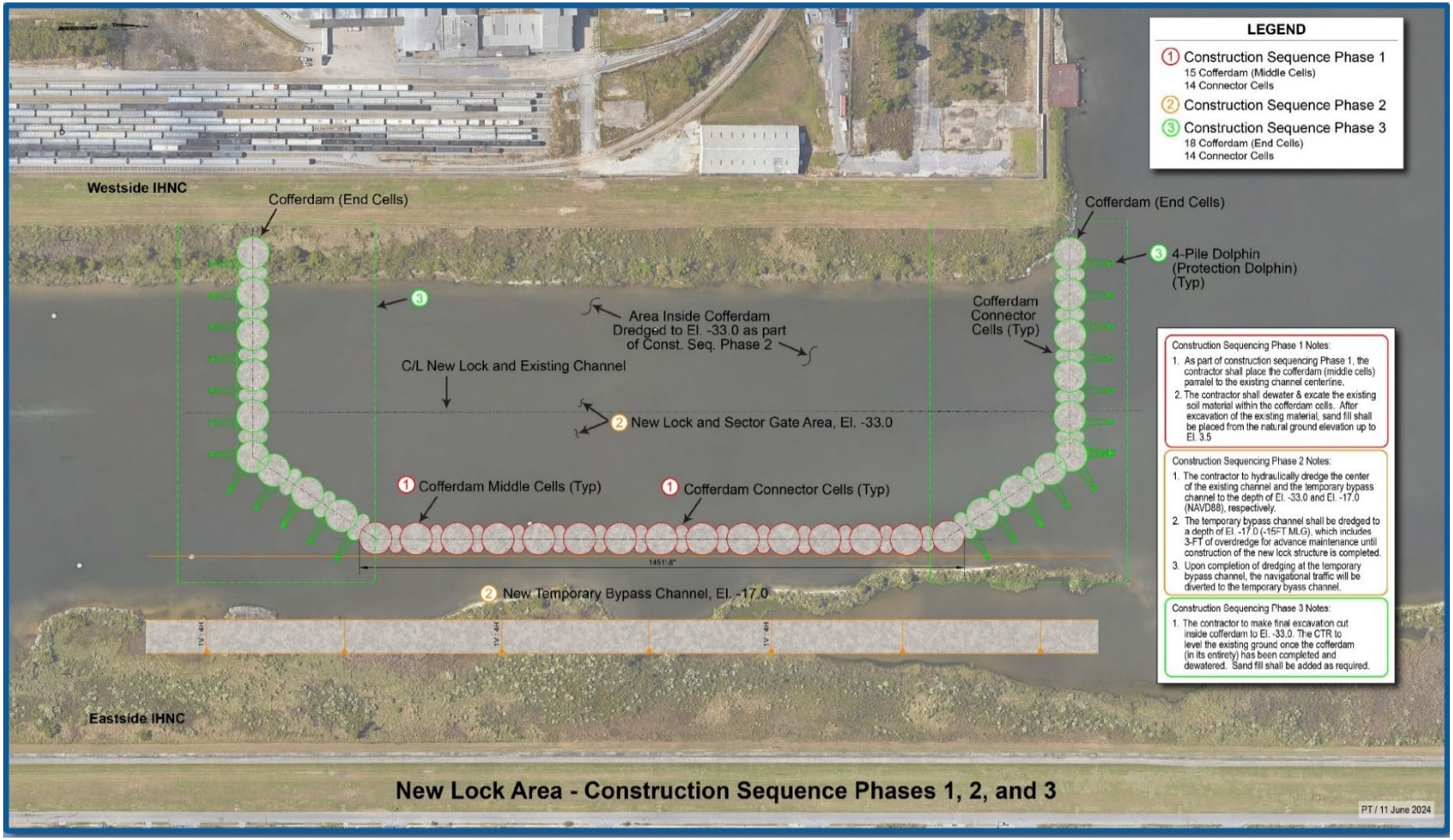



**Figure 4-3 New Lock Construction Sequence Phases 1, 2 (Construction Years 1-2) and 3 (Construction Years 3-4).**

**CONSTRUCTION YEARS 3-9**

- After completing the dredging work at the new lock site, the east-west sections (northern and southern walls) of the cofferdam would be constructed to close the cofferdam for unwatering. Unwatering of the cofferdam would be accomplished with a combination of pumps, sumps, and wells, including pressure relief wells. All water collected within the cofferdam would be pumped into the IHNC.

- Foundation pilings would be driven within the un-watered cofferdam to support the concrete pours of the lock module. Foundation pilings would consist of 24-inch x 24-inch precast, pre-stressed concrete pilings spaced on approximately 10-foot centers with tighter spacing under lock module walls. A total of 1,386 vertical pilings would be driven to a depth of 136 feet below grade. Either a vibratory or impact hammer, or a combination of both, would be used for pile driving. Concrete pours for the lock modules would begin at the location for the gates and work inward to the chambers. Alternate sections of the module would be poured, and some concrete pours may need to occur at night with the use of lighting due to concrete technical restrictions. It is anticipated that lighting within the excavated cofferdam cells during concrete pouring would have no effect on adjacent residents. However, if necessary, avoidance measures can be included in contract specs to require lighting to be positioned to avoid direct line of sight to residential structures during night operations (i.e., not shine above walls). Machinery, valves, electrical, and mechanical connections would all be installed after completion of concrete placement. An on-site concrete batch plant would be necessary, and nearby staging areas for construction materials and parking area for construction workers would be required.

- Floodwall and levee segments outside of the immediate cofferdam location and underneath the St. Claude Avenue Bridge will be constructed throughout the duration with the main efforts falling in years 2-7.

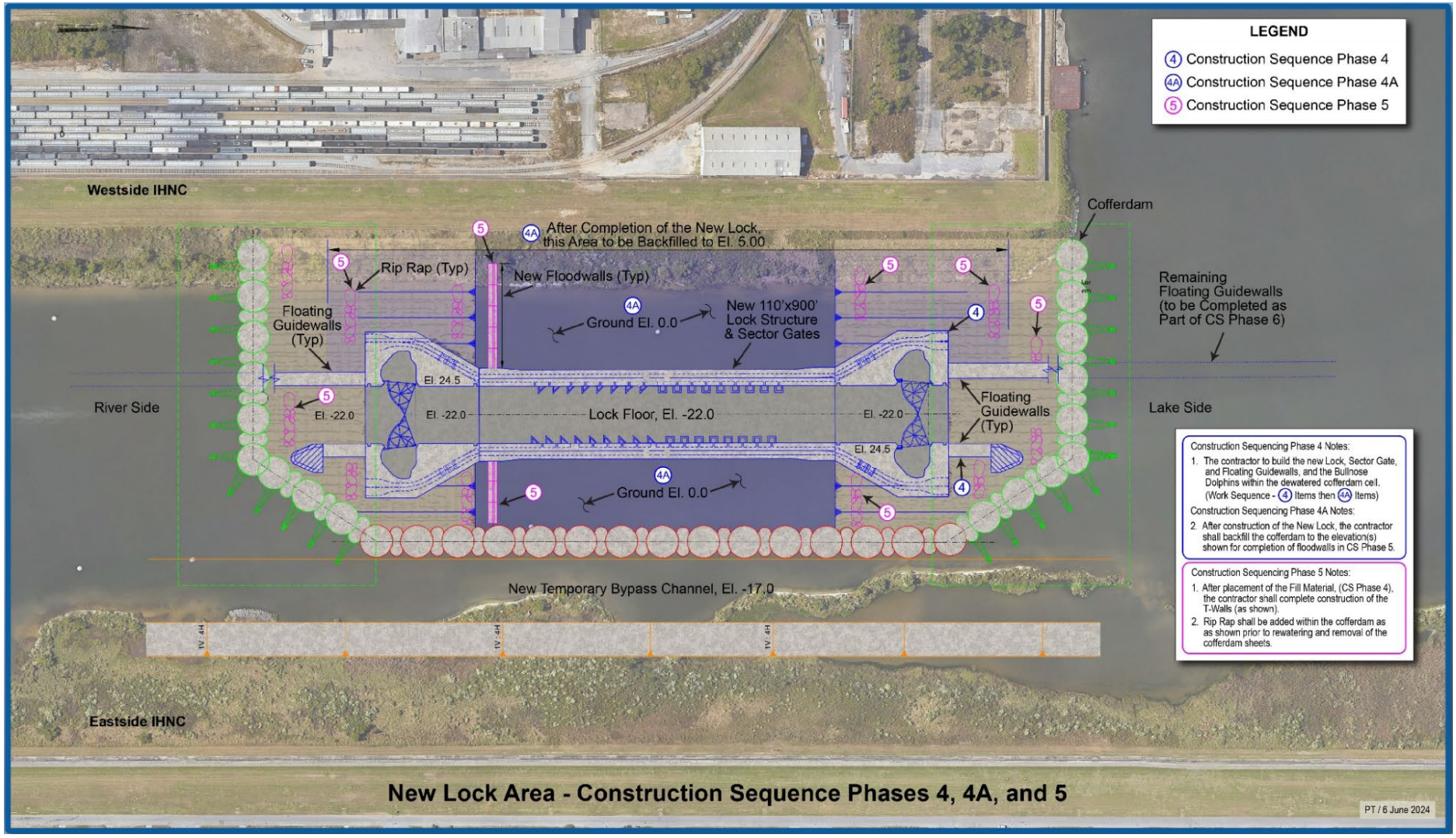



**Figure 4-4 New Lock Construction Sequence Phases 4, 4A, and 5 (Construction Years 3-9).**

**CONSTRUCTION YEARS 9-14**

- Following completion of the lock modules, the cofferdams would be removed and the area re-watered. Areas around the lock modules would be backfilled with excess sand from the cofferdams and earthen fill material. Starting on the southwest side of the project, the new floodwall will tie-in into the existing wall on the west of the existing IHNC Lock. The new floodwall will tie to the new lock on the west side. Starting on the southeast side of the project, the new levee will tie into the existing MRL levee on the east side of the existing IHNC Lock and travel to the new lock tie-in wall on the east side. The new floodwall segments under the St. Claude and North Claiborne Ave bridges will tie to the new levees on the east side. The new levee will consist of 1V:3H slopes, 10-ft crown, reinforcement geotextile, deep material mixing, riprap, and will be constructed to a final elevation of 24.5. Total cubic yards of Embankment, Compacted fill is 515,000 CY. The west side of the lock would be backfilled first, prior to opening the lock, so that the control house, maintenance and administration building, machinery building with emergency generators, paint shed, parking lot, and permanent access roadway can be constructed in that area and to avoid working on the west side of the lock while traffic is passing through the lock. The new lock would be expected to take approximately 8 years to build, years 2034 to 2041. The additional structures and facilities associated with the new lock are required in order to maintain operation and functionality of the lock. In addition, site access roads will be constructed for ingress and egress to these structures. The maintenance and administration building, parking lot, and access roadway is shown in Appendix B, Engineering, Annex 11, Plate Sheet C-103. During future detailed design, USACE will design and layout in further detail the various buildings to be constructed as part of the new lock and determine the logistics and suitable locations for the proposed structures.

- The proposed borrow sites for the levee are located within the Bonnet Carré Spillway and are approximately 45 acres and 18.5 acres, respectively. The sites are located adjacent to the Canadian National Railway (CNR) rail line 1.3-mile bridge that is currently being reconstructed as a concrete bridge to allow Amtrak to run a train between Baton Rouge and New Orleans (Figure 4-5). It is expected that the site would be cleared and grubbed prior to excavation, and then excavated to a pit depth of approximately –15.0 feet NAVD88, with side slopes of 1-foot vertical on 3-feet horizontal on all sides. Excavation activities would be conducted during dry or low water periods as much as practicable. Bulldozers would be utilized to clear the proposed borrow areas of any surface vegetation and earthen material deemed not suitable for the levee enlargement project. The vegetation and unsuitable earthen material removed would all be temporarily stockpiled on-site. Groundwater seeping into the pit would be pumped out into adjacent areas. Excavators (i.e. backhoes) would remove the earthen material deemed suitable for the levee project, which would be processed within the borrow sites to reduce the moisture content within the soil. Moisture content processing will be performed by mechanical methods such as utilizing bulldozers to stockpile materials and disks to further reduce the moisture content of the soil. Once the moisture content has been reduced to acceptable levels, haul trucks would be utilized to transport material to the IHNC Lock site. It is anticipated that primary transportation routes would be utilized such as U.S. Hwy 61, I-310, I-10, I-610, LA Hwy 39 (North Claiborne Avenue), LA Hwy 46 (St. Claude Avenue), and Florida Avenue.

- The new lock would then be opened to navigation traffic in a pass-through mode and the bypass channel backfilled with earthen fill material. Completion of tie-ins to existing levee and floodwalls on both sides of the IHNC would be achieved after construction of the new lock, while the new lock remains in the pass-through mode (all gates open). Throughout this time, the existing lock would continue normal operation.

- The reconfiguration of the new lock would maintain flood risk reduction for the communities and remove the risk at the existing lock. The reconfiguration of the fronting of the new lock facing the

Mississippi River will be brought to the appropriate design elevation and will maintain the level of risk reduction pursuant to the MR&T authority level of risk reduction. The LPV levee system will tie into the new lock and maintain the storm risk reduction capability of the LPV project. IHNC construction will not interfere with the ability of the non-Federal sponsors of the LPV and MRL to operate and maintain appropriate levels of risk reduction.

- Once the new lock becomes operational and all new levees and floodwalls are constructed, the old lock would be put into pass-through mode. The new St. Claude Bridge would be constructed by building the bridge piers and protective dolphins, installing lift bridges and constructing the tie-in into the existing road. The floodwalls underneath the new bridge would be constructed as well.

- The new St. Claude Avenue bridge will be a 70 ft wide with two (2), 12 ft wide eastbound lanes and two (2), 12 ft wide westbound lanes. Four (4) foot shoulders are provided on the outside and minimum one-foot shoulders are provided on the inside. A 6-ft wide pedestrian/bicycle lane is provided on the outside edge of the eastbound lanes, separated by traffic with a concrete barrier. A 7-inch reinforced concrete slab/deck was preliminary sized for the bridge approaches. Based on a proposed 7-ft 3-inch spacing between girders and typical 80-ft span between approach pier bents, an AASHTO Type III precast prestressed concrete girder was selected to support the approach decks. Eighteen-inch steel pipe piles were assumed to support the approach piers. Pile capacity curves used for the floodwalls were utilized for the pile tip selection. Initial design and quantities are based on a similar bascule bridge design constructed in another location. The foundation design will be site adapted for this project (pile design, bridge pier design, etc.). Bascule spans were selected to span the existing/future channel alignment and the demolition bypass channel alignment during demolition of the existing lock.

- Construction of the new St Claude Avenue Bridge will be phased such that thru traffic along the existing St. Claude Avenue Bridge will be maintained, with the exception of any typical bridge closures to pass navigation, for the entire construction duration. In the event that restriction of thru traffic is required for construction of tie-ins; closures will be minimized to nights and weekends during low traffic volume periods. Additional details regarding traffic control will be developed with the Port of New Orleans, Louisiana Department of Transportation and Development (LA-DOTD) and the City of New Orleans during future detailed design. Because it is a low-speed urban street, the design speed along St. Claude Avenue is 35 MPH. The speed limit across the proposed bridge is to remain the same. The new bridge is proposed to be placed north of the existing bridge deck, due to the necessity of keeping the existing bridge open during construction. Therefore, a series of horizontal curves will be needed to tie into the existing approach ramps to the proposed bridge deck. From the AASHTO Green Book, the minimum radius of curve at 35 MPH is 419 ft at the centerline, which is the radius of all four horizontal curves.

- The proposed bridge deck elevation is (+) 39 ft, whereas the existing bridge deck elevation is approximately (+) 20 ft. However, the approach ramps have to tie back to the existing tie-ins along St. Claude Avenue at both Poland Avenue and Reynes Street. The approach ramps are steeper in grade than the existing ramps, but with the addition of longer vertical curves, still suitable for traffic. Three existing homes along the west side will require demolition in order to construct the new St. Claude bridge.

- Construction would begin on the replacement bridge approximately 10 years into the project construction and it would take approximately 36 months to complete. Demolition could take approximately 6 months for 2 lanes, or a total of 1 year to demolish all four lanes.

- The old St. Claude Bridge would then be demolished, and the floodwalls under the footprint of the now demolished bridge would be constructed. It is expected that it will take approximately 18 months to demolish the old lock and associated support structures and facilities, and the structural material hauled away to be salvaged or scrapped. About 181,000 cubic yards of dredged material would then be removed from the lock demolition site (DMMU 9) with hydraulic and or mechanical dredges. This material is suitable for open water discharge into the Mississippi River, and most or all of it would likely be disposed there unless needed elsewhere for backfill. Upon completion, the new lock and connecting channels would be fully functional.

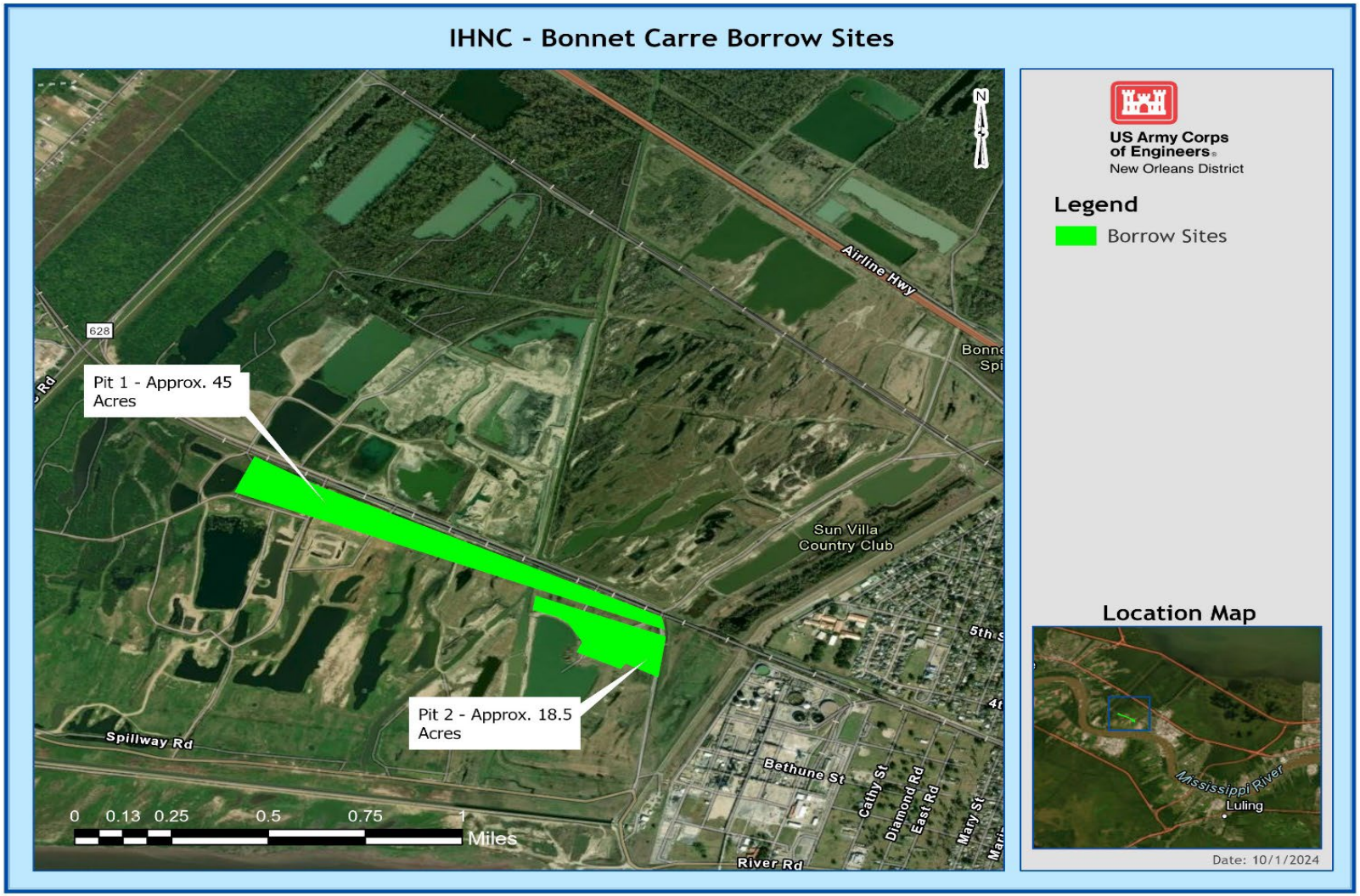



**Figure 4-5 Proposed Bonnet Carré Spillway borrow sites for IHNC Lock Levee Construction.**


**Figure 4-6 Anticipated Transportation Routes from Bonnet Carré Borrow Location to IHNC Project Location**

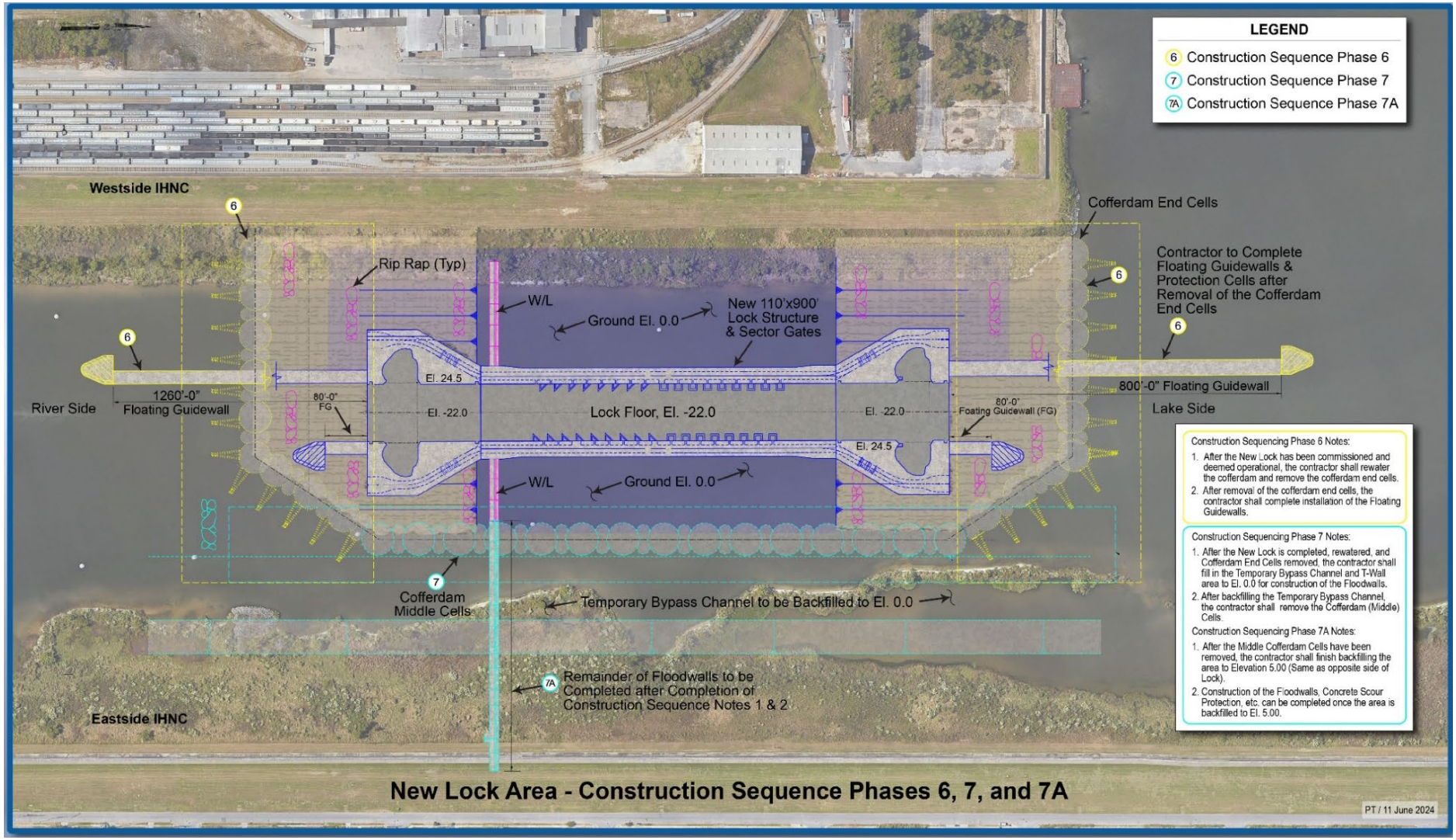



**Figure 4-7 New Lock Construction Sequence Phases 6, 7 and 7A (Construction Years 7-9)**

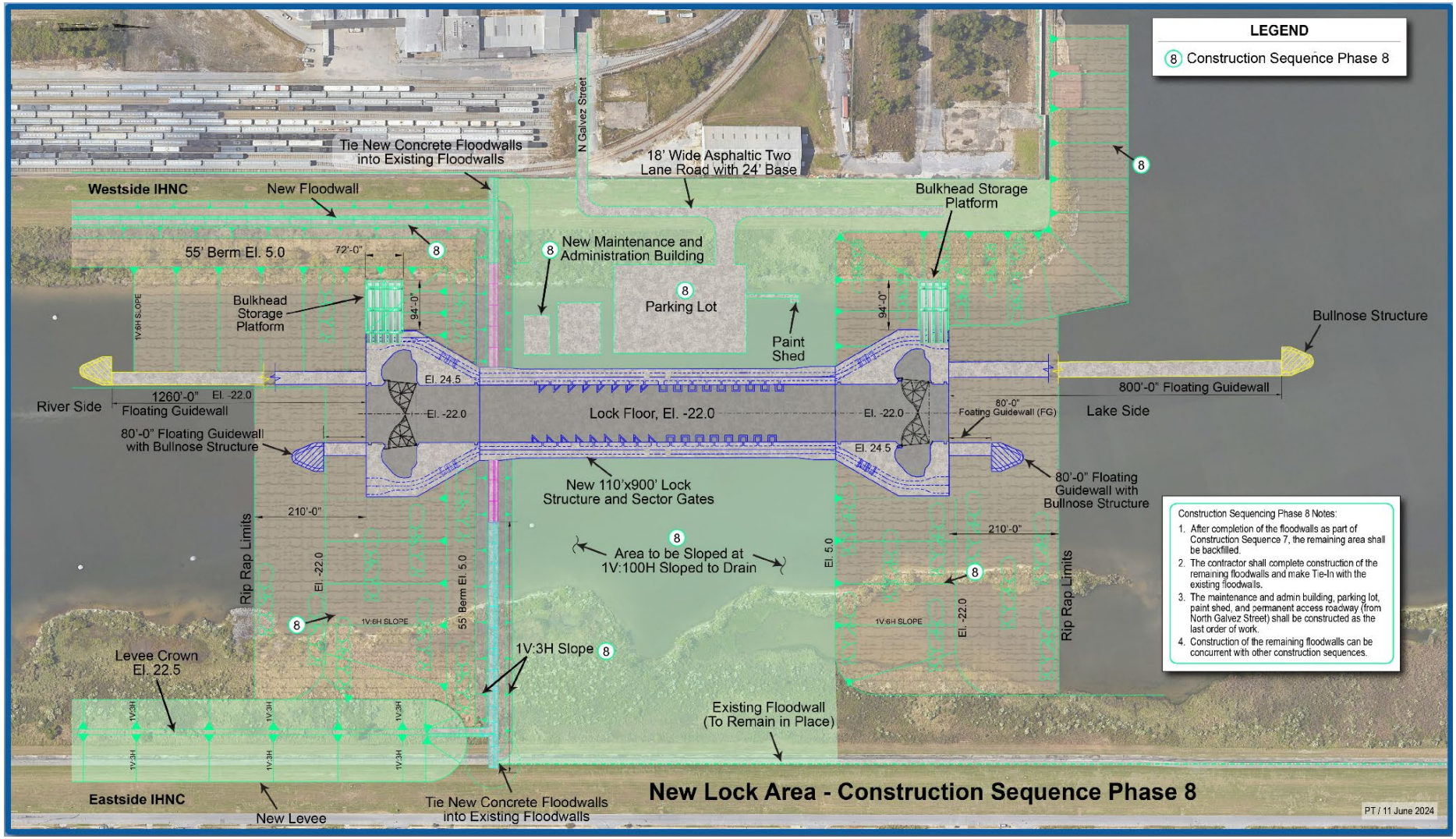



**Figure 4-8 New Lock Construction Sequence Phase 8 (Construction Years 8-9).**

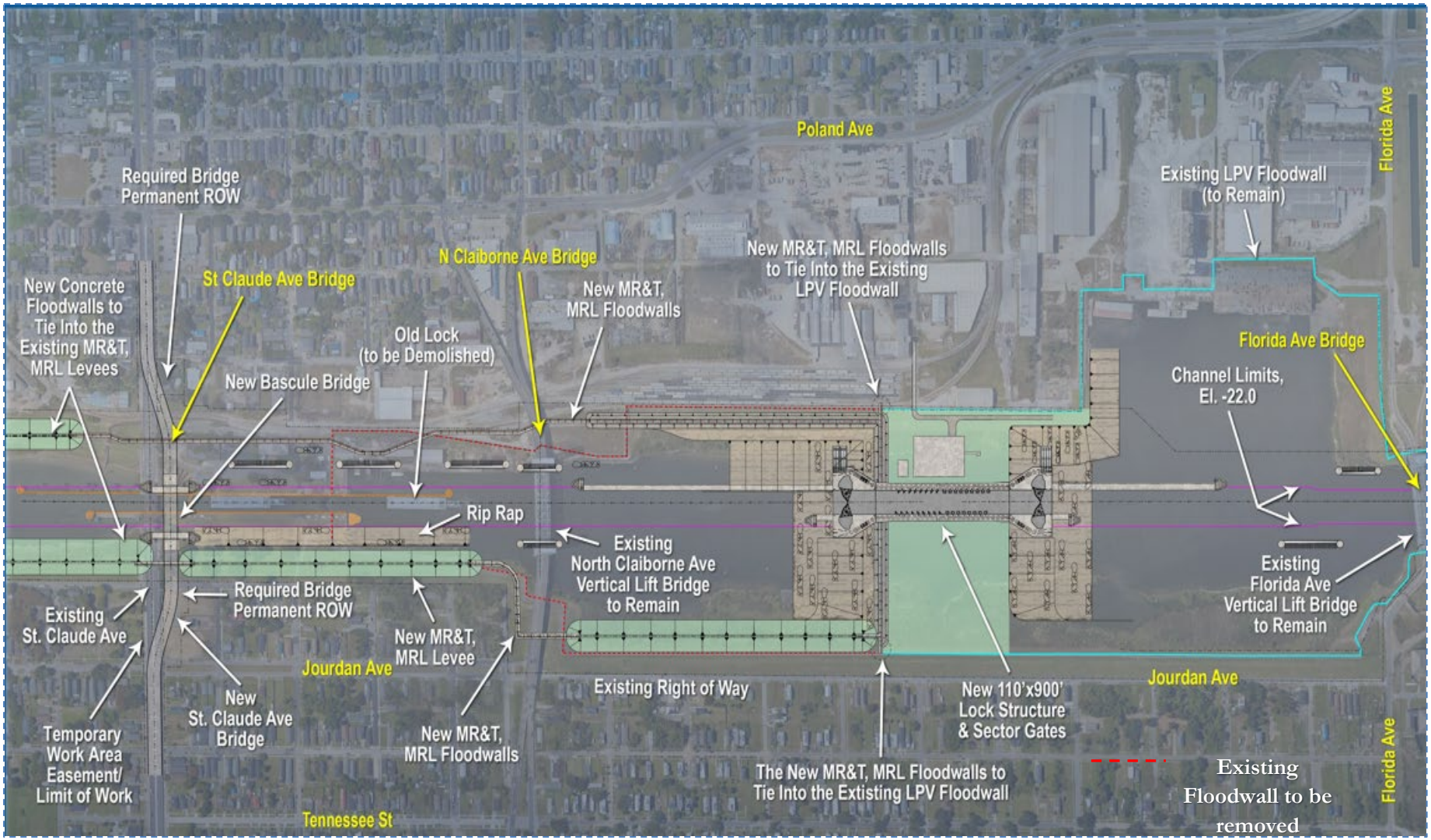



**Figure 4-9 IHNC Lock Construction Project Sequence Complete.**


**Figure 4-10 Conceptual Rendering of IHNC Lock Construction Project Sequence Complete.**

## 4.2 Engineer Regulation 1165-2-132 Hazardous, Toxic, and Radioactive Waste

ER 1165-2-132 provides guidance regarding investigation, consideration and avoidance or resolution of concerns regarding hazardous, toxic and radioactive wastes for USACE water resources studies and projects. Under the ER, "hazardous, toxic and radioactive waste" (HTRW) includes any material listed as a "hazardous substance" under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9601, *et seq.* (CERCLA).[13]

*Plan for pre-existing contamination at former U.S. Coast Guard site*

At property previously owned by the Port of New Orleans and previously occupied by the U.S. Coast Guard located on the west side of the IHNC, there are two sites that have been identified through prior HTRW environmental site assessment investigations where hydrocarbon contamination is known to exist. Sampling at these two sites indicated that total petroleum hydrocarbons as diesel, total petroleum hydrocarbons as oil, and some polycyclic aromatic hydrocarbons (benz(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and benzo(a)pyrene) remained at elevated concentrations in both areas (including under a diesel aboveground storage tank, which has since been removed). The property was purchased by USACE for the lock replacement project in 2001. The Louisiana Department of Environmental Quality (LADEQ) has determined that if these sites will be disturbed during project construction, the contamination must be remediated.

While the construction of the new IHNC lock facilities will not disturb these areas, the realignment of the MR&T and LPV floodwalls possibly could disturb the sub-surface contaminated material that is situated beneath approximately 900 feet of existing LPV floodwall located west of and adjacent to the previous U.S. Coast Guard (USCG) facility. That section of LPV floodwall would be removed in order to extend the MR&T to tie-in to the southward face of the replacement lock.

CEMVN has performed a preliminary examination of the physical extent of the HTRW sites as they relate to the potential floodwall realignment. In 2019, CEMVN contracted JESCO to perform additional environmental site assessment investigations for the known HTRW sites located at the prior USCG site. On behalf of CEMVN, JESCO submitted an April 2019 Risk Evaluation/Corrective Action Plan (RECAP) Site Investigation and Interim Action Report to the Louisiana Department of Environmental Quality, Remediation Division (LADEQ-RD). The LADEQ-RD responded to CEMVN by letter dated March 20, 2023, acknowledging receipt of the April 2019 RECAP Report, and requested USACE provide a site investigation work plan to delineate the vertical and horizontal extent of the contamination. CEMVN responded to LADEQ-RD by letter dated July 24, 2023, providing the requested work plan as well as committing to provide annual status updates of implementation of the work plan to LADEQ-RD no later than October 30th of each calendar year. CEMVN also advised LADEQ-RD that implementation of the work plan is contingent upon receipt of federal funding (construction funds) after completion of the lock replacement study. In a letter dated November 20, 2023, LADEQ-RD acknowledged completion of their review of the work plan and concurred with continued coordination both annually as well as upon receipt of federal funds and subsequent implementation of the work plan.

During future engineering and design prior to construction, CEMVN will implement the aforementioned work plan in coordination with LADEQ-RD to determine if there is a practicable way to avoid disturbance of the

[13] Dredged material and sediments beneath navigable waters proposed for dredging qualify as HTRW only if they are within the boundaries of a site designated by the EPA or a state for a response action (either a removal action or a remedial action) under CERCLA, or if they are a part of a National Priority List (NPL) site under CERCLA. The IHNC is not a designated CERCLA response or NPL site.

affected section of LPV floodwall. If it is determined that there is no practicable, cost-effective way to avoid disturbance of the affected section of LPV floodwall, then CEMVN would perform additional coordination with LADEQ-RD and a Corrective Action Plan would be prepared for LADEQ-RD approval to determine the appropriate remediation actions. As it would be the lock replacement project that would require alteration of the existing LPV alignment in order to tie-in the MR&T floodwall to the replacement lock, if alteration of the present LPV floodwall in the vicinity of HTRW materials were required, that cost would be borne by the lock replacement project.

*Assessment of Sites for Borrow Operations within the Bonnet Carré Spillway*

An ASTM E1527-21 Phase 1 Environmental Site Assessment, HTRW 24-08, dated October 18, 2024, has been prepared for the IHNC Bonnet Carré Spillway Proposed Borrow Sites project area. The project area is not within the boundaries of any site designated by the EPA or State of Louisiana for a response action (either a removal action or a remedial action), under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or part of a National Priority List site under CERCLA. Aerial photographs were also reviewed, and a database search was conducted to identify possible Recognized Environmental Conditions (REC). No RECs were located within the footprints of the proposed borrow sites and no evidence suggesting the presence of HTRW was found. However, one plugged and abandoned (P&A) oil well was identified in the western portion of proposed borrow site #1. A 100-foot radius buffer area is recommended around the P&A well to avoid damaging any existing well piping. Although a P&A well has been identified in the site, there is a low probability of encountering HTRW during construction of the project.

## 4.3 Adaptive management and monitoring

There is no adaptive management and or monitoring component associated with the RP.

## 4.4 USACE Environmental Operating Principles and Language

The United States Army Corps of Engineers Environmental Operating Principles were developed to ensure that Corps of Engineers missions include totally integrated sustainable environmental practices. The Principles provided incorporate direction to ensure the workforce recognized the Corps of Engineers role in, and responsibility for, sustainable use, stewardship, and restoration of natural resources across the Nation and, through the international reach of its support missions. The Environmental Operating Principles relate to the human environment and apply to all aspects of business and operations. Re-committing to these principles and environmental stewardship will lead to more efficient and effective solutions and will enable the Corps of Engineers to further leverage resources through collaboration. This is essential for successful integrated resources management, restoration of the environment and sustainable and energy efficient approaches to all Corps of Engineers mission areas. It is also an essential component of the Corps of Engineers' risk management approach in decision-making, allowing the organization to offset uncertainty by building flexibility into the management and construction of infrastructure. The re-energized Environmental Operating Principles are:

- Foster sustainability as a way of life throughout the organization.
- Proactively consider environmental consequences of all Corps activities and act accordingly.
- Create mutually supporting economic and environmentally sustainable solutions.
- Continue to meet our corporate responsibility and accountability under the law for activities undertaken by the Corps, which may impact human and natural environments.

- Consider the environment in employing a risk management and systems approach throughout the life cycles of projects and programs.
- Leverage scientific, economic, and social knowledge to understand the environmental context and effects of Corps actions in a collaborative manner.
- Employ an open, transparent process that respects views of individuals and groups interested in Corps activities.

The Recommended Plan has been developed using the Environmental Operating Principles to guide and improve the development, formulation, and evaluation of alternatives under this study effort. In coordination with the agencies and other stakeholders, USACE proactively considered the environmental consequences of the proposed lock replacement project. The project would be constructed in compliance with all applicable laws. A risk management assessment has been performed, which included environmental concerns. In addition, USACE coordinated with all stakeholders to gather scientific, economic, and social information. This coordination was conducted in a manner that encouraged all groups to express their views.

## 4.5 Real estate requirements

A Real Estate Plan (REP) describing the real estate requirements and costs for the project can be found in Appendix C. The REP was prepared with estimated right-of-way (ROW) requirements based on available information.

Most of the real estate needed for construction of the IHNC Project (135 +/- acres) is owned in fee by the United States. The existing lock and ancillary buildings, future lock, cofferdam, new flood risk reduction measures, bypass channels, and most right-of-way required for the St. Claude Avenue Bridge are located within this Government fee-owned area. Approximately 64 acres of vacant land is required for the borrow material needed for the levee construction. The ±64 acres required for borrow has been preliminarily identified within the Bonnet Carré Spillway, which is owned in fee by the United States.

Portions of the new and existing bridges, ramps, and staging or construction areas associated with replacement of the St. Claude Avenue Bridge are located within land owned by the City of New Orleans (Department of Public Works Street rights-of-way), the Port of New Orleans, or the Louisiana Department of Transportation and Development. The St. Claude Avenue Bridge is operated and maintained by the Port of New Orleans.

A portion of the ramp and access/staging areas required for the new St. Claude Avenue Bridge falls within privately-owned land resulting in the need to acquire three (3) residential structures. Displaced persons will be entitled to Public Law 91-646, Title II Relocation Assistance. Total Real Estate costs are estimated to be $5,795,000, which includes the acquisition of private property, Public Law 91-646 assistance, securing necessary agreements with City and State agencies, and administrative costs. The estimated cost of the real estate required for this project will be 100% federally funded.

## 4.6 Utility and Facility Relocations

After Agency decision Milestone, the MVN ED Design Services Relocations Team performed an investigation of the existing public utilities and facilities located within the proposed project area, while considering the current design requirements for the RP described in this GRR. The limits within the IHNC corridor were from the Florida Ave. Bridge, extending south to the St. Claude Ave. Bridge where it ties to the existing MR&T MRL features, as shown in Appendix B, Annex 11 Plates.

For the RP, the total estimated construction cost (includes real estate, engineering and design, construction, supervision and administration (construction management), and mitigation) is $6,223,974,000. The estimated cost for utility and facility relocations (including E&D and S&A) is $735,628,495. These relocations represent 11.8 percent of the total estimated cost. For this analysis, we referred to two memorandums: Corps of Engineers, Office of the Chief Counsel CECC-R Bulletin 13-1: Preliminary Attorney's Opinion of Compensability, dated January 14, 2013, and Real Estate Policy Guidance Letter No. 31- Real Estate Support to Civil Works Planning Paradigm (3x3x3), dated January 10, 2019. Since the relocations represent 11.8 percent of the total estimated cost, which is less than 30 percent of the estimated total project costs; the above cited guidance allows the District to defer preparation of an Attorney's Opinion of Compensability until final design is obtained during E&D. In accordance with the cited guidance, a real estate assessment is included in the Appendix C, Real Estate Plan (REP).

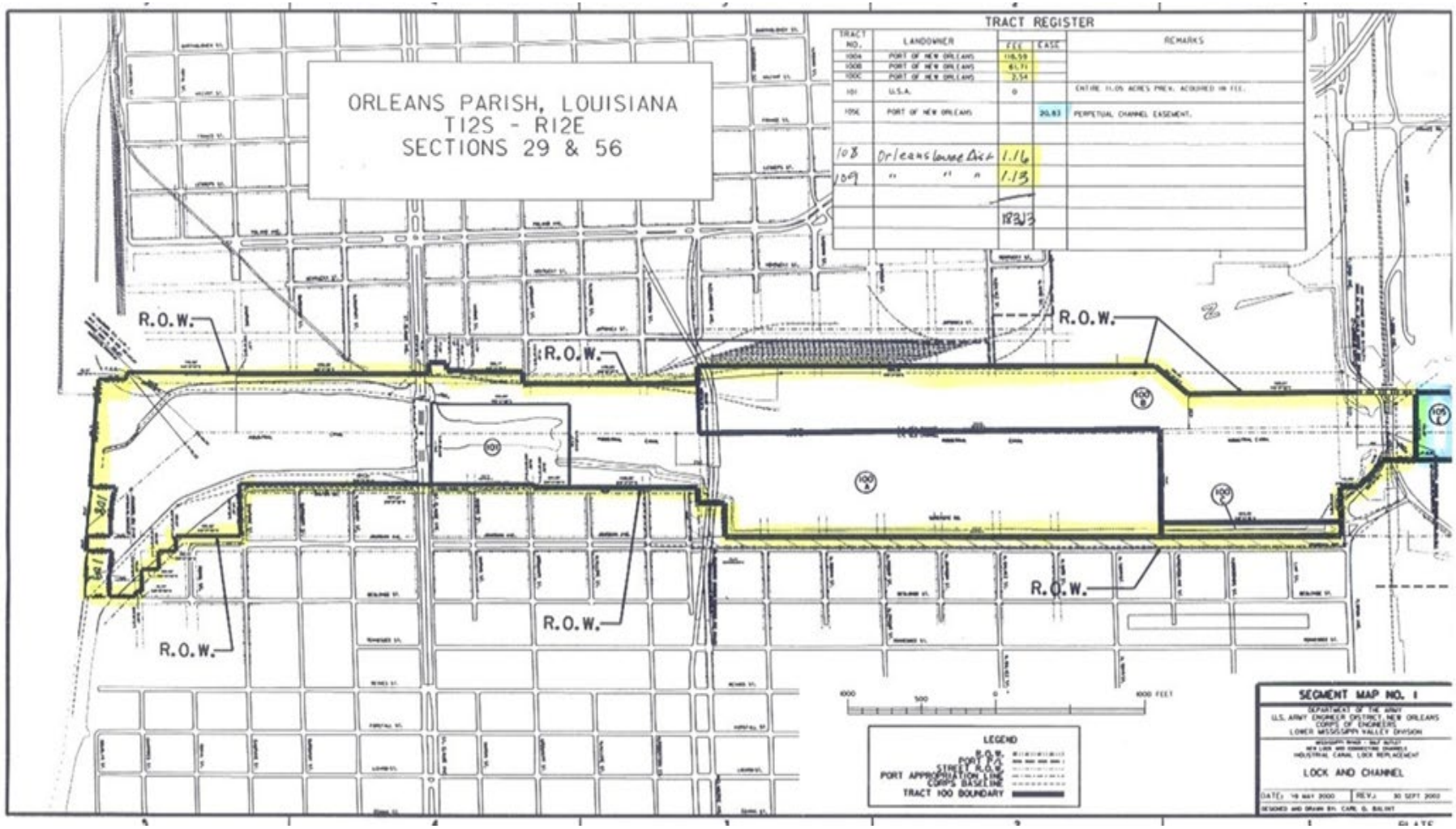



**Figure 4-11 Project areas previously acquired by the United States (yellow indicates fee acquisition and blue is easement acquisition)**

The Relocations Team used U.S. Pipelines and Facilities (IHS, Inc.), Department of Natural Resources (DNR), and National Pipeline Mapping System (NPMS) pipeline databases, along with the USACE's permit tracking system called Pipeline Location Observation & Verification Enterprise Repository (PLOVER), to locate utilities within the proposed project area. The PLOVER system was cross-referenced with the other pipeline databases to provide approximate locations of existing utilities and to reveal any new utilities placed since Hurricane Katrina in 2005. In-house investigations and facility owner notifications were also used to verify the location of current utilities within the IHNC canal.

It was confirmed that several utilities were removed between the North Claiborne Bridge and Florida Ave. Bridge. These utilities were in the batture area along the eastside of the IHNC prior to award of construction projects to rebuild and reinforce the HSDRRS features in the area. These utilities were flushed, cut, and capped before the construction of a new floodwall after Hurricane Katrina. The discarded remaining portion of these utilities may still be located within the channel portion of the IHNC. These utilities are now discontinued and no longer in use.

**Table 4-3 Utilities No Longer in Use**

| Location | Owner | Utility* | Disposition |
|---|---|---|---|
| Florida Avenue Bridge | Utilities located south of Florida Avenue Bridge | | |
| | NOSWB | 6 - inch waterline | Removed |
| | ENTERGY GAS | 3 - inch gas line | Removed |
| | ENTERGY GAS | 6 - inch gas line | Removed |
| | NOSWB | 6 - inch waterline | Removed |
| | ENTERGY GAS | 4 - inch gas line | Removed |
| | ENTERGY GAS | 2 - inch gas line | Removed |
| | ENTERGY GAS | 3 - inch gas line | Removed |
| | NOSWB | 6 - inch waterline | Removed |
| * Utilities removed after Hurricane Katrina | | | |

Facility owners that were identified by the pipeline databases, permits, and construction activities, were contacted by the Relocations Team. The contacted facility owners, New Orleans Sewerage and Water Board (NOSWB), Cox Communications, and Entergy Gas and Entergy Distribution, provided drawings or notations of their utilities crossing the IHNC.

The following utilities were identified but appear not to be impacted by the proposed project. Using utility drawings provided by NOSWB and Google Earth, the NOSWB's utilities (Siphon, 54-inch SMF, 48-inch Waterline, and the 66-inch SFM) confirmed that these utilities located just south of Florida Avenue appear not to be impacted by the proposed lock location and mooring cells. However, there is no conclusive evidence that the two 6-inch conduits on the drawings submitted by Entergy Distribution verify their exact locations. Also, a 5-inch cable from Cox Communications, identified via PLOVER, only gives an approximate location within the vicinity of the Florida Ave. Bridge. Refer to the utility table for current pipelines:

**Table 4-4 Utilities and Facilities Impacted by the RP**

| Location | Owner | Utility | Disposition |
|---|---|---|---|
| Florida Avenue Bridge | Utilities located south of Florida Avenue Bridge | | |
| | NOSWB | Siphon -Florida Ave. Canal | Do Not Disturb |
| | NOSWB | 54 - inch sewerage force main | Do Not Disturb |
| | NOSWB | 48 - inch water main | Do Not Disturb |
| | NOSWB | 66 - inch sewerage force main | Do Not Disturb |
| | COX COMMUNICATIONS | 5 - inch communication cable | To Be Relocated Concurrent with Construction |
| | ENTERGY DISTRIBUTION | Approximately 1,110 ft of two (2) – 6-inch conduits with three (3) - 750al mcm cables in each conduit | To Be Relocated Concurrent with Construction |
| North Claiborne Avenue Bridge | Utilities located south of North Claiborne Avenue Bridge | | |
| | ENTERGY GAS | Entergy Gas two (2) - 16 - inch natural gas pipelines | To Be Relocated Concurrent with Construction |
| St. Claude Avenue Bridge | Utilities located north of St. Claude Avenue Bridge | | |
| | NOSWB | 20 - inch waterline | To Be Relocated Concurrent with Construction |
| | NOSWB | Two (2) - 30 - inch reinforced concrete pipelines | To Be Relocated Concurrent with Construction |
| | NOSWB | 20 - inch C.I. pipeline | To Be Relocated Concurrent with Construction |

| Location | Owner | Utility | Disposition |
|---|---|---|---|
| | ENTERGY DISTRIBUTION | Under existing lock, approximately 400 ft of twelve (12) - 3.5-inch conduits 6 conduits with one (1)- 750al mcm 25kv cables in them | To Be Relocated Concurrent with Construction |
| St. Claude Avenue Bridge | PORT OF NEW ORLEANS | Low level bascule bridge | To Be Relocated Concurrent with Construction |

The proposed relocation for these impacted utilities will be performed by directional drilling. For feasibility level purposes, it is assumed that no new Right of Way will be needed during the directional drilling operations of the utilities; no temporary construction easement will be needed for directional drill purposes.

Note that the area immediately south of the St. Claude Ave. Bridge, where the project ties into the existing levee, does not currently have any utilities in place. Also, the RP design will not impact the New Orleans Public Belt Railroad. The following table shows the cost for each utility:

**Table 4-5 Cost of Relocation for Utilities and Facilities Impacted by the RP**

| Location | Owner | Utility | Relocation Cost * |
|---|---|---|---|
| Florida Avenue Bridge | Utilities located south of Florida Avenue Bridge | | |
| | NOSWB | Siphon -Florida Ave. Canal | ** |
| | NOSWB | 54 - inch sewerage force main | ** |
| | NOSWB | 48 - inch water main | ** |
| | NOSWB | 66 - inch sewerage force main | ** |
| | COX COMMUNICATIONS *** | 5 - inch communication cable | $2,353,500 |
| | COX COMMUNICATIONS *** | Communication cable | $2,353,500 |
| | ENTERGY DISTRIBUTION*** | Approximately 1,110 ft of two (2) - 6" conduits with three (3)- 750al mcm cables in each conduit | $2,574,000 |
| | AT&T | 20” cable | $23,931,000 |
| | AT&T | Fiber | $2,353,500 |

| Location | Owner | Utility | Relocation Cost * |
|---|---|---|---|
| | AT&T | 10" fiber | $7,425,000 |
| North Claiborne Avenue Bridge | Utilities located south of North Claiborne Avenue Bridge | | |
| | ENTERGY GAS | Entergy Gas two (2) - 16 - inch natural gas pipelines | $14,355,000 |
| St. Claude Avenue Bridge | Utilities located north of St. Claude Avenue Bridge | | |
| | NOSWB | 20 - inch waterline | $6,210,000 |
| | NOSWB | Two (2)-30 - inch reinforced concrete pipelines | $27,036,000 |
| | NOSWB | 20 - inch C.I. pipeline | $6,210,000 |
| | ENTERGY DISTRIBUTION | Under existing lock, approximately 400 ft of twelve (12) - 3.5-inch conduits 6 conduits with one (1) - 750al mcm 25kv cables in them | $11,016,000 |
| | ENTERGY | 4-6" conduits | $5,148,000 |
| St. Claude Avenue Bridge | PORT OF NEW ORLEANS | Low level bascule bridge | $487,106,446 |
| SUB-TOTAL | | | $598,071,946 |
| S&A and PE&D (23%) | | | $137,556,549 |
| TOTAL | | | $735,628,95 |

* 2019 Relocation costs shown are based upon directional drill and include project contingency.

** Insufficient data to determine if the utilities are impacted by new lock construction features. This unknown was addressed through the Cost and Schedule Risk Analysis (CSRA) contingency program as a risk/opportunity event.

*** Insufficient data given to verify exact location. Relocation costs are included based on possible impact by new lock location and construction features.

## 4.7 Operation, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R)[14]

Cost and Closure schedules were prepared by the U.S. Army Corps of Engineers, Louisville District (CELRL-ED-D-S) in collaboration with the New Orleans District-Operations Division (MVN-OD). The cost and closure schedules are a series of spreadsheets that detail the anticipated maintenance, and repair demands for all IHNC Lock Replacement Project plans during the fifty-year study period. The schedules were developed based upon key indicators including historical performance at the project, the New Orleans District's current maintenance program, as well as multiple large-scale investment strategies from other USACE inventory of projects. For more detailed information, including the report from Louisville District, refer to the Engineering Appendix B, section 14.

The anticipated maintenance and repair demand for the RP were escalated to 2025 dollars and applied from 2029 up to the last year of period of analysis (Year 2096). Refer to Engineering Appendix B, for OMRR&R costs per year. Assuming that the lock is not replaced (future without project), the OMRR&R was calculated in 2025 dollars, using the same years. The Port of New Orleans will be responsible for all St. Claude Bridge OMRR&R for the existing and new bridge.

Based on this analysis of annual OMRR&R, the total OMRR&R cost over the period of analysis for the RP is $210,422,000. The total OMRR&R cost to maintain the existing IHNC Lock over the period of analysis for a future without project is $302,012,000. The difference between the predicted OMRR&R for the existing lock and the OMRR&R of the new lock is $91,590,000. This provides a conservative estimation of the expected increasing OMRR&R burden associated with continued operation of the existing, and continuously aging, lock.

## 4.8 Sea Level Change

Since 1986, USACE has considered sea-level change (SLC) in planning activities as established in various guidance documents noted below:

- EC 1105-2-186: Planning Guidance on the Incorporation of Sea Level Rise Possibilities in Feasibility Studies (publication year 1989),
- EC 1165-2-211: Incorporating Sea- Level Change Considerations in Civil Works Programs (publication year 2009),
- EC 1165-2-212: Sea-Level Change Considerations for Civil Works Programs (publication year 2012),
- ER 1100-2-8162: Incorporating Sea Level Change in Civil Works Programs (publication year 2013)
- ETL 1100-2-1: Procedures to Evaluate Sea Level Change: Impacts, Response, and Adaption. (publication year 2014)

[14]For purposes of this report, the provisions and definitions of ER 1110-2-401, Section 5.l, 30 September 1994, serve to limit and define the terms "repair", "rehabilitation" and "replacement" as used herein. The regulation provides, in pertinent part as follows:

"…Repair is considered to entail those activities of a routine nature that maintain the project in a well-kept condition. Replacement covers those activities taken when a worn-out element or portion thereof is replaced. Rehabilitation refers to a set of activities as necessary to bring a deteriorated project back to its original condition..."

Guidance as prescribed in ER 1110-2- 8162, Incorporating Sea Level Change in Civil Works Programs, was used to investigate direct and indirect physical effects of projected sea level change over the lifecycle of the IHNC Project to ensure the project will be designed and constructed to be sustainable and resilient over a range of possible future sea level projections for the three SLC scenarios, defined as low, intermediate and high for both with project and without project conditions. The low SLC rate is the based on historic rate. The intermediate rate is derived using the modified National Research Council (NRC) Curve 1, associated equations and with corrections for local rate of vertical land movement. The high rate is derived using the modified NRC Curve III, associated equations and corrections for local rate of vertical land movement.

The three rates are used to examine the sensitivity of the project in terms of calculated risk, cost, and determine design, OMRR&R procedures that should be implemented to ensure the project can sustain future sea level rise predictions during the physical life of the project which is beyond the economic analysis period (50 years) based on three approaches designated as approach 1, 2 and 3 as outlined in ER 1110-2-8162.

The study team adopted approach 1, which selects a single SLC scenario and a preferred alternative for evaluation. The alternative is also evaluated under the other two SLC scenarios. The team selected the intermediate SLC rate along with the RP.

Reference the Engineering Appendix B section 4, for the detailed sea level rise analysis utilizing ER 1110-2-8162 approach 1.

### 4.8.1 Funding

Construction of the RP is dependent on funds made available by Congress. In the case of this RP an inland waterway navigation project, funding is provided from two separate sources. Per WRDA 1986, as amended by Sec. 1126 of WRDA 2024 (P.L. 118-272), inland navigation waterway projects, shall be paid for with 75% from funds appropriated from the general fund of the Treasury and 25% from the amounts appropriated from the Inland Waterways Trust Fund (IWTF), which is comprised of funds that are collected from a per gallon tax levied on fuels purchased by inland waterway users. As established in WRDA 1986 the Inland Waterways Users Board make recommendations to the Secretary regarding construction and rehabilitation priorities and spending levels on the commercial navigational features and components of the inland waterways and inland harbors of the United States. Appropriation of funds from the IWTF is made by Congress based on the recommendations of the Board. To conclude, Treasury funds are made available via the Congressional appropriations process; IWTF funds are also made available via the Congressional appropriations process but is subject to the availability of the balance of funds in the IWTF, unless any deficit in the IWTF is remedied by additional Congressional action. The IHNC lock replacement project also includes an authorized Community Impact Mitigation Plan (CIMP) and Traffic Mitigation Program (TMP). The authorization for these plans directs that the funds for their implementation be taken from the authorized construction funds.

Section 902 of the WRDA of 1986, establishes the maximum authorized cost of project, often referred to as the "902 limit." This limit includes the authorized project cost, and takes into consideration inflation, the purpose is to ensure that projects remain within the original authority. For the IHNC project as authorized, the 902 calculations have been updated for the project construction and implementation of the CIMP and TMP. Once these costs are finalized, if it is determined that the cost exceed the 902 limits, the USACE will need to seek authorization from Congress to revise the authorized total project cost.

## 5.0 POST AUTHORIZATION CHANGES

Appendix G-16 of ER 1105-2-100 suggests a format to identify recommended changes. The status of each section is identified below, containing either a discussion or indication where in the report the discussion takes place.

### 5.1 Description of Authorized Project.

The current description of the authorized project is located in Chapter 1, section 1.3, 1.3.4. The size of vessels needing to be accommodated has changed to shallow draft only, as chronicled in Chapter 3, 3.3.2. Chapter 3 addresses real estate and location aspects of the current project. Chapter 3 addresses the change in local cooperation requirements that arise from the change in the Recommended Plan from a deep draft lock replacement to a shallow draft lock replacement. Under Federal law, the construction of the shallow draft lock replacement, as recommended in this report, results in a federally funded federal project (via appropriations to USACE and contributions from the Inland Waterway Trust Fund). As such, no non-Federal sponsor is required for the construction and OMRR&R of the lock replacement and of the IHNC channel. However, some measures addressed in the 1997 CIMP, to the extent that measure will require continued operation and maintenance after construction is completed, will require a non-federal OMRR&R and an agreement with a non-federal sponsor. Additionally, the Port of New Orleans will be required to own, operate, and maintain the new St. Claude Ave. bridge.

### 5.2 Authorization.

Chapter 1, section 1.1, enumerates the relevant authorizations which comprise the original authorization in Public Law 455, 1956, and additional authorizations in three WRDA bills; 1986, 1996, and 2007.

### 5.3 Funding Since Authorization.

Approximately $115,000,000 has been spent under the construction account for pre-construction engineering and design, the demolition of the Galvez Wharf and for soil remediation actions[15][16]. An additional $3M was provided in FY14 -FY17 to complete the general reevaluation report.

[15] In addition to project sunk pre-construction engineering and design (PED) costs, examples of additional project expenditures include, but are not limited to:
June 2005 - demolition and environmental remediation of the abandoned industrial sites along the east side of the IHNC was completed.
February 2003 - Galvez Street Wharf was fully demolished and USACE purchased right-of-way needed for the lock construction from the Port of New Orleans.
July – September 2007 - Sampling and testing of canal bottom sediments was conducted by Weston Solutions, Inc. to inform development of plans for dredged sediment disposal.

[16] Between 2001 and 2005, over $1 million has been spent on community mitigation projects in the impact area. These mitigation projects included job training programs at Xavier University and Nunez Community College; an Integrated Communications System between IHNC bridge towers and police, fire, and emergency medical services (EMS) units; additional police patrols on the east side of the IHNC; playground improvements, and the Vacant Lot Maintenance Program (CMBC 2008).

## 5.4 Change in Scope of Authorized Project

WRDA 1986 authorized the replacement of the lock or construction of an additional lock in the area of the existing lock or at the Violet site at a total cost of $714,300,000 but did not specify the size of the lock or whether it was deep draft or shallow draft. The lock replacement project, as presented in the 1997 Evaluation Report which became the authorized project, was 1,200 feet long by 110 feet wide by 36 feet deep, deep-draft navigation lock located north of the Claiborne Avenue Bridge. However, for reasons cited in Chapter 3.4.5 of this report, the previous plan for a deep draft lock, as described in the 1997 Evaluation Report and approved by the Chief of Engineers (as amended by the 2000 Supplemental Report), has been eliminated from consideration in this re-evaluation. The scope of the authorized project as conditionally authorized in 1956 and authorized in Sec. 844 of WRDA 1986 (to replace the IHNC lock with a reliable and more efficient modern lock) has not changed. This GRR is intended to reevaluate the authorized plan as modified by the changes outlined in this report to determine whether the plan remains justified and whether it will be recommended for implementation in the Director's Report.

## 5.5 Changes in Project Purpose

None. The project purpose remains to construct a new lock to provide a more efficient locking process by increasing lock capacity, to increase the reliability of the lock, as well as to reduce operation and maintenance costs and related delays.

## 5.6 Changes in Local Cooperation Requirements

Since a deep-draft navigation lock is no longer being considered and shallow-draft navigation locks (all at a sill elevation of - 22 feet NAVD88) of varying lock chamber configurations are being considered, Federal law does not mandate that a non-Federal sponsor share in the cost of the construction and OMRR&R of the lock replacement and associated canal. Pursuant to Section 102 of WRDA 1986, cost of the construction of inland navigation projects are shared between Federal appropriations to USACE and contributions from the Inland Waterway Trust Fund. However, certain features of the authorized Community Impact Mitigation Plan, as approved in the 1997 Evaluation Report, by its terms, will require a non-Federal sponsor who agrees to be responsible for the OMRR&R of any CIMP measure that requires post-construction completion operation and maintenance. Additionally, the Port of New Orleans will be required to continue operating and maintaining the St. Claude bridge after the new structure is completed.

## 5.7 Change in Real Estate Required for Recommended Plan

- The new proposed type of lock is a cast-in-place, shallow-draft lock instead of the 36' deep-draft lock to be prefabricated at a graving site approximately ten miles northeast of the IHNC then floated to the lock site. This eliminates the need for acquiring the graving site located in St. Bernard Parish which consisted of 106 acres (69.3 wet woodlands, 19.7 acres of existing levee easement and 17 acres of existing channel easement).

- The mitigation area consisting of 136.98 acres south of the Main Outfall Canal and north of Florida Avenue is no longer needed. Without a need to mitigate for the deep draft – we no longer need to acquire this in fee from seven owners.

- The current RP does not include modifications to the Claiborne Avenue Bridge. A four lane, mid-level vertical lift span bridge would have necessitated acquiring additional areas on both sides of the IHNC in order to construct the longer ramps needed for the mid-level bridge. This would have meant relocations for several residential and commercial properties, acquiring acreage and interrupting the flow of traffic for businesses in the area.

- The above referenced modifications to the Claiborne Ave. bridge would also have caused a temporary closure for 2 – 3 weeks, necessitating the need for detour roads in St. Bernard and Orleans parishes. This acquisition, which is no longer necessary, would have been for 27.92 acres of perpetual road easement.

- Changes to the approaches to the St. Claude Bridge will require removal of three residential properties (4547, 4563, and 4569 St. Claude Avenue) in the Bywater neighborhood. URA benefits will be offered to the occupants of these structures. Both 4563 and 4569 St. Claude Avenue houses are located within an eligible extension of the Bywater NRHD and are contributing resources to the district. If practicable, permanent relocation will be offered for these two contributing buildings to available vacant lots within the historic district, in accordance with the Amended MOA and the requirements of the URA. Otherwise, 4563 and 4569 St. Claude Avenue will be demolished.

- The current RP no longer includes a CDF disposal site for dredged materials. Disposal of dredged material suitable for aquatic disposal will still be piped into the Mississippi River; the pipeline will run through lands owned by the United States and the City of New Orleans. Acquisition of land for permanent disposal will not be needed. Dredged material not suitable for aquatic disposal will be placed in a solid waste landfill.

## 5.8 Design Changes

The proposed 900 foot long by -22-foot depth by 110-foot-wide replacement lock, as presented within this GRR, has several design changes compared to the replacement lock detailed in the original 1997 Evaluation Report and subsequent studies listed within Appendix B – Chapter entitled, *"References"*. The key design changes for the lock presented within this GRR are as follows:

- Hydraulic Elevation Changes
- Raised Lock Sill Elevation, El. -22.0 (NAVD88) (For Shallow Draft Vessels)
- Cast-In-Place Concrete Construction Methodology
- Sector Gates
- Elimination of Claiborne Ave Bridge Modifications
- Elimination of the temporary St. Claude Avenue Bridge during construction.
- New Alignment and design changes to the St. Claude Avenue Bridge.
- Addition of levees in lieu of floodwalls on portions of the East side of the canal between St. Claude Avenue and the new lock site.
- Elimination of the proposed bypass channel adjacent to the existing lock.

Hydraulic design elevations presented within this GRR have been updated since the original 1997 Evaluation Report. Those design elevations were utilized for this GRR.

The lock detailed in the original 1997 Evaluation Report was designed to accommodate deep draft vessels. As a result of the decrease in navigational traffic requiring deeper draft following Hurricane Katrina, USACE has

determined that there is not sufficient demand for a deep draft lock to justify the additional cost to construct it. Consequently, a sill elevation of 22.0 feet deep was used to develop alternatives considered as part of this re-evaluation and is a feature of the RP. This elevation provides the appropriate level of safety for vessels navigating the lock and allows for acceptable filling and emptying of the chamber. This elevation is compatible with the existing channel and will require minimal excavation and backfill during construction. Additional information on this design feature can be found in Exhibit 4.

A Cast-In-Place design was investigated as part of this GRR for construction of the new lock chamber and sector gate monoliths. Due to various concerns with the Float-In-Place design, as noted within Appendix B, Chapter entitled, *"Cast-In-Place versus Float-In-Construction of the Lock*", the Cast-In-Place option was selected. This recommendation is based on the USACE experiences with Olmsted Locks and Dam and the Harvey Canal Floodgate. It is believed that the cast-in-place design presents less chance for cost escalation and schedule delays due to unforeseen design and construction challenges.

Steel sector gates have been incorporated into the design of the RP in lieu of the miter gates originally proposed within the 1997 Evaluation Report. Sector Gates have been the preferred gate by MVN engineering and operations personnel due to their ability to resist reverse head loading and their ease of operation. For a detailed comparison of the sector vs miter gates, refer to Appendix B, Chapter entitled, *"Sector Gate Versus Miter Gates"*.

Due to the elimination of the deep draft lock, required vessel clearance underneath the Claiborne Avenue Bridge when the bridge is in the open position has decreased. Due to this decreased clearance requirement, no modifications are necessary to the Claiborne Avenue Bridge.

The temporary bridge was removed from the proposed project following the ADM. By eliminating the temporary bridge, there are reductions to the overall construction schedule, reducing the duration of noise and construction impacts to the nearby community. The cost and duration savings comparing the original TSP which consisted of a temporary and permanent St. Claude Avenue Bridge relocation, versus the current RP which consists of a permanent St. Claude Avenue Bridge replacement is approximately $5 million to $20 million in construction cost and approximately 2 years in construction duration.

A new plan was developed for the St. Claude Avenue Bridge design. The existing bridge will be replaced with a new permanent double bascule bridge with an alignment on the north side of the existing bridge. The new bridge will be constructed to align with the existing approaches on both sides of the canal crossing. Construction of the new St Claude Avenue Bridge will be phased such that thru traffic along the existing St. Claude Avenue Bridge will be maintained, with the exception of any typical bridge closures to pass navigation, for the entire construction duration. In the event that restriction of thru traffic is required for construction of tie-ins; closures will be minimized to nights and weekends during low traffic volume periods. Additional details regarding traffic control will be developed with the Port of New Orleans, Louisiana Department of Transportation and Development (LA-DOTD) and the City of New Orleans during future design.

The new levees for this project will be constructed to El 24.5 to match the required top of wall (TOW) for the lock. The new levee will extend mainly on the east side from the MRL Levee north to the new lock tie-in floodwall, except for the portions of floodwall beneath the St. Claude and North Claiborne Ave. bridges. The footprint of the levee will extend roughly 300 feet, with a 10-foot crown and 1 foot vertical to 3 feet horizontal side slopes. The new levee will be constructed in two phases, a temporary levee to El. 17.5, and then the final levee to El. 24.5.

Due to the input from the Navigation Industry and safety concerns raised regarding the proposed bypass channel adjacent to the eastern side of the existing lock, the construction plan and sequencing was ultimately modified to eliminate the need for this temporary bypass channel in lieu of a plan to utilize the existing lock current operations during construction of the new lock and to use it as a pass-through structure during a portion of the existing lock demolition.

## 5.9 Changes in Total Project First Costs

The Recommended Plan from the 1997 Evaluation Report has been screened. Total project first costs for the current RP/NED plan can be found in Chapter 4, section 4.1, Tables 4-1 and 4-2.

## 5.10 Changes in Project Benefits

Project benefits for the current RP are listed in Chapter 4, Section 4.1, Table 4-1.

## 5.11 Benefit-Cost Ratio

The current benefit-cost ratio is listed in Chapter 4, Section 4.1, Table 4-1.

## 5.12 Changes in Cost Allocation

The construction cost of replacing a shallow-draft navigation lock is shared 25/75 at the time of the writing of this report between the Inland Waterways Trust Fund and the USACE, respectively.

## 5.13 Changes in Cost Apportionment

A local sponsor is required for deep draft navigation. Inland (shallow draft) navigation does not require a cost apportionment between Federal and non-Federal sponsors. In accordance with Section 102 of WRDA 1986 as amended, the cost of the construction of an inland navigation project is shared 75 percent from Federal appropriations to USACE and 25 percent from contributions from the Inland Waterway Trust Fund. Therefore, for construction of the replacement lock recommended in the present report, no non-Federal sponsor is required; However, under the provisions of the authorized 1997 CIMP, a non-Federal sponsor will be required for the OMRR&R of any CIMP measure that requires continued operation and maintenance. Additionally, the Port of New Orleans will continue to operate and maintain the St. Claude Ave, bridge after it is replaced.

## 5.14 Environmental Considerations in Recommended Changes

Changed conditions and changes in impacts due to the new RP, are evaluated as part of the analysis of environmental effects of the recommended plan in Chapters 2, 3, 6, and Appendix A.

## 5.15 Public Involvement

Public involvement and coordination regarding the proposed Recommended Plan are discussed in Chapter 8.

## 5.16 History of Lock Replacement Project

Replacement of the IHNC Lock was conditionally authorized in 1956. The historical background of activity to act on that authority goes back to an initial public meeting held in February 1960. Chapter 3, Section 3.3.2 elaborates on the repeated efforts to identify a replacement lock throughout the '60s and '70s. In the late '70s, the District was instructed by President Jimmy Carter not to proceed with the recommended plan which included construction of a new lock just below Violet, LA. WRDA 1996 authorized a Community Impact Mitigation Plan specific to four named neighborhoods located adjacent to the project. A 1997 Evaluation Report was subsequently prepared and approved for construction of a lock replacement and updated CIMP. It was followed by a 2000 Supplemental Evaluation Report that also reaffirmed approval of the project, with a revision in cost-share apportionment between USACE and the non-Federal sponsor, and pre-construction activities began. In 2006, litigation resulted in an injunction of construction until USACE completed a

supplemental EIS. Following completion of a 2009 Final Supplemental EIS and Record of Decision, additional litigation resulted in another injunction in 2011. This reevaluation effort updates the proposed plan[17] based on changed conditions since 1997 and will bring USACE into compliance with the requirements of the 2011 federal district court decision enjoining the lock replacement project until compliance with NEPA and the CWA is achieved. See Chapter 1, Section 1.1 Authorization for a listing of the project authorizations and decision documents.

[17] Per Water Resources Development Act, 2007, SEC. 5083. Inner Harbor Navigation Canal Lock Project, Louisiana, in recognition of the potential impacts the construction of the new lock north of Claiborne Avenue would have on traffic, Congress authorized the development and maintenance of a Transportation Mitigation Program (TMP). The 2025 supplemental draft GRR/SEIS also includes the development of a draft TMP as part of the project – see Appendix E.

# 6.0 ENVIRONMENTAL CONSEQUENCES FOR COMPARATIVE ANALYSIS

This chapter describes the direct, indirect and cumulative environmental consequences of implementing the proposed lock replacement plans and the No-Action plan. The order of discussion on resources mirrors that in Chapter 2. As detailed in Chapter 4, final feasibility-level designs have only been developed for the Recommended Plan (RP) (Plan 3 – North of Claiborne Site; 900 feet long x 110 feet wide x -22 feet North American Vertical Datum (NAVD88) navigation lock (all elevations (EL) in this report are referenced to NAVD88 (epoch 2004.65), unless otherwise noted). If the Recommended Plan changes prior to approval, feasibility-level designs will be developed for that alternative plan.

## 6.1 Human Environment (Socioeconomics)

### 6.1.1 Waterborne Transportation

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

The existing lock has long been considered dimensionally inadequate and obsolete requiring many towboats with their barges to break or cut into smaller configurations in order to physically transit. Therefore, under the no-action plan, barges needing to transit the existing structure would continue to experience transit delays which average just under 19 hours (2015 – 2024). Should traffic increase, as forecasted, delays would necessarily increase accordingly. In addition, since the existing IHNC navigation lock was constructed in 1923 making it one of the oldest locks in the country, operation and maintenance costs will necessarily increase due to the increasing frequency of maintenance events leading to additional delays to waterborne traffic.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

Under this plan, the existing lock would be replaced with a new lock having a longer chamber that will allow a greater percentage of barges with their towboats to transit the lock without having to break or cut into multiple smaller configurations. Compared to the existing lock, this larger structure may also provide a greater opportunity to pack the chamber with multiple vessels, all of which would more effectively reduce the queue of vessels needing to transit. Delays per tow are expected to fall significantly under this plan to about five hours, assuming similar traffic levels as currently experienced with the existing lock.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

Compared to Plan 2, this plan would replace the existing lock with a longer and wider chamber that would allow an even greater percentage of barge tows to transit the lock without having to break or cut into multiple smaller configurations. Compared to Plan 2, this larger structure would also provide a greater opportunity to pack the chamber with multiple vessels, which would more effectively reduce the queue of vessels needing to transit. Delays per tow would be expected to fall significantly under this plan to about two hours, assuming similar traffic levels as currently experienced with the existing lock.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

Compared to Plan 2, this plan would replace the existing lock with a longer chamber that may allow a greater percentage of barge tows to transit the lock without having to break or cut into multiple smaller configurations. Compared to Plan 2, this larger structure would also provide more of an opportunity to pack the chamber with multiple vessels, which would effectively reduce the queue of vessels needing to transit. Delays per tow would be expected to fall significantly to a level similar to Plan 3, with expected delays per tow to be about three hours assuming similar traffic levels as currently experienced with the existing lock.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

Compared to the action alternative plans described above, this plan is the largest in terms of the overall capacity to process traffic. As such it provides the greatest opportunity for barge tows to transit without needing to break into smaller tows and to pack the chamber with multiple vessels. However, expected delays per tow, under this plan, are estimated to be similar to Plan 3 under a moderate, most likely traffic forecast. Only under a higher traffic forecast scenario are the benefits attributable to this size lock more apparent.

### 6.1.2 Lake Pontchartrain and Vicinity, (LPV), Mississippi River and Tributaries Flood Risk Reduction and Southeast, Louisiana Projects

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

Under the no-action plan, CEMVN and the non-Federal sponsors for the LPV project would continue to operate and maintain 1% exceedance storm surge elevation risk reduction projects that are part of the HSDRRS within the project area. Additionally, the Southeast Louisiana Urban Flood Damage Reduction Project (SELA) generally supports Orleans, Jefferson, and St. Tammany parishes' master drainage plans and provides flood risk reduction due to rainfall flooding at various locations throughout the East Bank of Orleans and Jefferson Parishes. The SELA project provides flood risk reduction up to a level associated with a 10-year rainfall event, which is basically a rainstorm that has a 10% annual probability of occurrence and equates to approximately 9 inches of rain over a 24-hour period for our area. Two recently completed SELA projects are located to the northwest of the IHNC project area. These two projects are part of the Florida Avenue Canal Project, which was designed to improve drainage and reduce the risk of flooding from rainfall. SELA 20 – Florida Avenue Canal Phases II and III, enlarged the Florida Avenue Canal starting at Almonaster Avenue and ending at Poland Avenue, as well as constructed lateral subsurface drainage conduits along Deers Street, Eads Street, and Painters Street. SELA-26 – Florida Avenue Canal Phase IV constructed lateral subsurface drainage conduits along Benefit Street, Treasure Street, and Abundance Street. Both SELA 20 and SELA 26 have been completed prior to the start of construction of the IHNC project. The CEMVN would continue to maintain the IHNC project in a manner that does not interfere with the provision of the authorized level of flood risk reduction by the Mississippi River and Tributaries project and in a manner that does not interfere with the ability of USACE and the non-Federal sponsor to provide their respective obligations to OMRR&R the Mississippi River and Tributaries project.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to the LPV and Mississippi River and Tributaries Flood Control projects for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

The reconfiguration of the fronting of the new lock facing the Mississippi River will be brought to the appropriate design elevation pursuant to the MR&T authority level of risk reduction. The LPV levee system will tie into the new lock and maintain the storm risk reduction capability of the LPV project. IHNC construction will not interfere with the ability of the non-Federal sponsors of the LPV and the MRL to operate and maintain appropriate levels of risk reduction (Figure 6-1). In the current Flood Risk Management system, the existing IHNC Lock, which is over 100 years old, is deficient in elevation to the required MR&T elevation and routinely requires additional measures when high river stages are forecast. With the proposed project in place, the new levee and floodwall segments, in conjunction with the new IHNC Lock structure and gates, will provide an upgrade from the current system and will reduce the need for additional flood fighting measures in the area. The length of the existing Flood Risk Management along the Mississippi River will increase due to the relocation of the IHNC Lock north of Claiborne Avenue with new levees and floodwalls being constructed

as part of the project. These risk reduction features will be built using the Mississippi River Levee (MRL) standards. The proposed project features are being designed to accommodate the future hydraulic conditions along the MRL using current USACE design guidance and will account for the risk of both riverine high-water events (the project design flood) and hurricane storm surge stages (to address the risk a hurricane could push storm surge up the Mississippi River). In addition to reducing costs and manpower efforts required to flood fight the existing lock, this will bring the lock up to the required design standards and elevation.

With the proposed construction of Mississippi River Levee (MRL) features (earthen levees and floodwalls) on the east and west bank of the IHNC, residents adjacent to those areas would be subject to MRL high river permitting restrictions pertaining to any subsurface work within 1,500 feet of the MRL during Mississippi River high river events. Typically, when the river elevation reaches +11.0 feet on the Carrollton gage in New Orleans, LA, subsurface work within 1,500 feet of the MRL is not allowed unless a waiver is granted. All subsurface work within 1,500 feet of the MRL is permitted by the Non-Federal Sponsor (Levee Districts). USACE will provide technical assistance and issue letters of no objection (LNOs) to the levee districts to inform the levee district permits. Waivers are considered on a case-by-case basis and are dependent on the surrounding subsurface ground conditions in the vicinity of the project, the distance the project is away from the levee/floodwall and the forecasted river stages. Orleans parish is responsible for informing applicants that a levee district permit is required when residents apply for a parish permit for any proposed work.

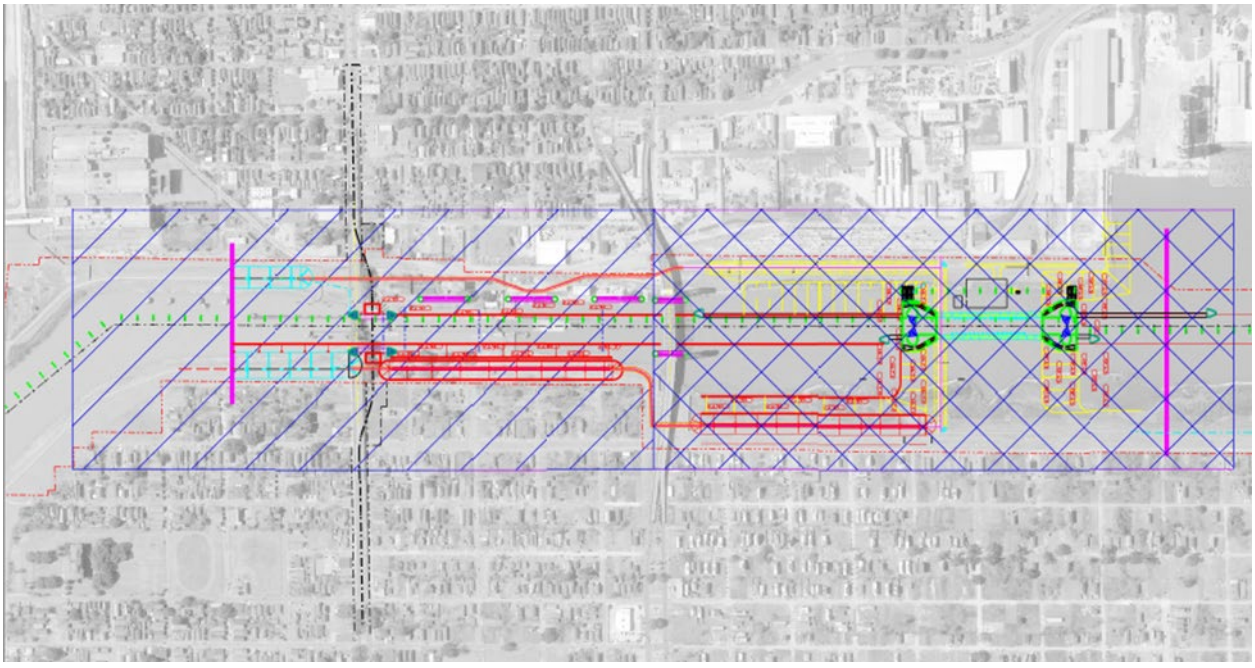


**Figure 6-1 Hatched area is the current 1500-foot area impacted by MRL high water restrictions. Cross-hatched area will be the new 1500-foot area impacted by MRL high water restrictions.**

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to the LPV and Mississippi River and Tributaries Flood Control projects for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The impacts to the LPV and Mississippi River and Tributaries Flood Control projects for this plan are similar to those described in Plan 3.

### 6.1.3 Business and Industrial Activity

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

With the continued use of the existing IHNC Lock and its limitations to navigation, including substantial periodic delays, industrial and commercial redevelopment along the IHNC would be limited. Large areas of previously leased waterfront commercial and industrial property along the IHNC have been vacated. It is anticipated that most remaining marine-related businesses that are not directly tied to local business would eventually reevaluate and choose other locations to conduct business, either in the Metropolitan New Orleans area, or elsewhere, such as Houston, Texas or Mobile, Alabama, where there would be substantially less hindrance to waterborne traffic.

Under the no-action plan, commercial and retail businesses would likely continue to rebuild in the nearby neighborhoods devastated by Hurricane Katrina. Residential redevelopment is key to attracting commercial and retail businesses, and it is anticipated that most of the redevelopment of both residential areas and commercial and retail businesses would continue to occur in the Bywater and Holy Cross neighborhoods in the near future. This is due in part to their strong neighborhood associations and higher elevation along the river; redevelopment would be followed eventually by the St. Claude and Lower Ninth Ward neighborhoods.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to businesses and industrial activities within the project area for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

A new lock constructed in the IHNC north of Claiborne Avenue may have long-term beneficial impacts on marine-related business development along the IHNC. The larger lock size would more easily accommodate modern vessel traffic, and the resulting lack of long delays could encourage some redevelopment of industry along the IHNC. However, the expectation is that redevelopment would not occur to a great extent as most of the vessel traffic using the IHNC lock is from traffic without origins or destinations along the IHNC waterway itself.

Disruptions to neighborhoods near the IHNC from lock construction, as well as increased traffic delays associated with the replacement of the St. Claude Avenue Bridge would negatively impact residential redevelopment in these areas. This temporary, short-term impact on residential redevelopment would also negatively impact nearby neighborhood commercial and retail redevelopment, as fewer local residents would equate to less business activity. Existing businesses located along St. Claude Avenue and North Claiborne Avenue would suffer short-term business losses during detours, as businesses would be less accessible and have reduced exposure.

A temporary increase in regional business activity to support lock construction workers and service and material suppliers would likely occur during construction activities. Activities such as the new lock construction, existing lock demolition, dredged material disposal, and St. Claude Avenue Bridge improvements could potentially generate a substantial increase in construction-related business activity in the region as it would be expected that much of the cost would be spent on local and regional labor and materials.

*Direct Mitigation (Impact Minimization)*

Direct mitigation refers to actions taken by the Corps to minimize adverse direct impacts that remain following the implementation of the normal procedures.

In an effort to minimize direct impacts to local business and industry the following mitigation measures will be deployed:

a. Commercial establishments, school, and landlords that demonstrate a decline in sales, tuition, or rent may receive assistance and/or benefits to avoid, limit, or offset losses.

For additional information on direct mitigation (impact minimization), please refer to Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to businesses and industrial activities within the project area for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The impacts to businesses and industrial activities within the project area for this plan are similar to those described in Plan 3.

### 6.1.4 Employment

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

As the project area slowly recovers from the aftermath of Hurricane Katrina, the number of workers in the labor force and the number employed are increasing. However, within the project area, it is anticipated that there would continue to be limited job growth, and the labor force would be required to commute to other locations within or outside of Orleans Parish for employment.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to employment for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

No adverse long-term impact on the levels of employment is expected from this alternative. Bridge closures during construction could have short term impacts on some of the businesses on both sides of the canal. However, these impacts would depend on the type of business. It is expected that construction activities of the project itself may have the potential to increase the number of jobs available within the project area by providing opportunities for employment locally without the need to commute to other areas within or outside the parish for over a decade.

*Direct Mitigation (Impact Minimization)*

Direct mitigation refers to actions taken by the Corps to minimize adverse direct impacts that remain following the implementation of the normal procedures.

In an effort to minimize direct impacts to local employment the following mitigation measures will be deployed:

a. Contractors will be encouraged to hire locally. However, if locals are not properly trained, they will not be hired. A program to expand the skilled labor workforce within the affected community will be established to meet Water Resources Development Act of 1986 intent that the Government "make a maximum effort to assure minorities the full participation of members of minority groups, living in the affected areas, in the construction of the replacement or additional lock and connecting channels authorized by subsection (a) of this section, including actions to encourage the use, wherever possible, of minority-owned firms."

b. A program will be developed to assist with tuition to train in skills required in project construction at existing vocational/technical or similar type schools for qualified individuals who meet the residency requirement.

For additional information on direct mitigation (impact minimization), please refer to Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to employment for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The impacts to employment for this plan are similar to those described in Plan 3.

### 6.1.5 Land Use

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

With the continued operation of the existing IHNC Lock by CEMVN, no substantial changes in land use are anticipated. Existing vacant lots in nearby neighborhoods are expected to slowly be filled in with residential and small businesses, where zoning allows.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to land use within the project area for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

During lock construction activities, it is anticipated that any residential and commercial redevelopment activities near the IHNC (within approximately 500 feet of the IHNC) would be suppressed due to construction noise and traffic that would be disrupting to nearby areas. In addition, because of the need to replace the St. Claude Ave. Bridge, changes to the approaches to the bridge would require removal of three residential properties (4547, 4563, and 4569 St. Claude Avenue) in the Bywater neighborhood. Over the long-term, improved infrastructure along the IHNC, consisting of a new larger lock, would likely contribute to commercial and industrial development along the GIWW/MR-GO east of the Industrial Canal.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to land use within the project area for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The impacts to land use within the project area for this plan are similar to those described in Plan 3.

### 6.1.6 Property Values

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

Based on historical data, the median values for owner occupied housing units in the project area are likely to increase over time. However, housing values would likely not increase as rapidly as in other areas of the city that were less damaged by Hurricane Katrina in 2005.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to property values within the project area for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

Property values in the immediate vicinity of construction activities could be adversely impacted by this alternative in the short term because of noise impacts and the traffic congestion caused by the replacement of the St. Claude Avenue Bridge. Following the completion of the project, with the likelihood of increased commercial and business activity as described previously, the expectation is that property values will increase over time. The precise effects of this project's impacts on real estate prices are difficult to ascertain. Adverse impacts on real estate values will be most acute during periods of bridge construction where accessibility to various locations within the study area is hindered. Given the numerous factors that may affect real estate values, we cannot expect owners, appraisers, or other real estate professionals to be able to quantify the negative effect that the project may have on the level of proceeds realized from a sale of property.

For additional information on general mitigation, please refer to Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to property values within the project area for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The impacts to property values within the project area for this plan are similar to those described in Plan 3.

### 6.1.7 Public/Community Facility Services

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

Under the no-action plan, it is anticipated that existing community facilities and services would continue to provide the level of service that exists today.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to both public and community facilities for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

The construction of a permanent replacement bridge at St. Claude Avenue would cause short-term disruptions during construction to pedestrian and vehicle traffic, impacting residents' access to the existing public and community facilities. The temporary disruption in vehicle traffic across the IHNC would also increase response times for emergency vehicles traveling across the canal. This is especially true for residents of the Lower Ninth Ward and Holy Cross neighborhoods, who rely upon the IHNC bridges for emergency transportation to emergency medical centers located in New Orleans, west of the IHNC. However, a newly opened hospital in St. Bernard Parish, close to the Orleans Parish line, lessens the critical need to transport cases of medical emergencies to facilities within Orleans Parish. However, that hospital does not presently handle Level 1 trauma care.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to both public and community facilities for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The impacts to both public and community facilities for this plan are similar to those described in Plan 3.

### 6.1.8 Population

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

Population levels in the project area are expected to remain below pre-Katrina levels in the foreseeable future. The level of population reflects broad trends in categories such as migration, employment, income, housing demand and to specific perceptions such as confidence in the improved hurricane and storm damage risk reduction system.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to population of the project area for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

This plan is not expected to have any significant impacts, short or long term, on the population of the area. However, it is possible that inconveniences caused by traffic congestion or increased noise levels could cause some of the residents who do not own their homes to consider relocation and discourage returning residents from rebuilding near the IHNC during lock construction and bridge replacement activities.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to population of the project area for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The impacts to population of the project area for this plan are similar to those described in Plan 3.

### 6.1.9 Community and Regional Growth

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

Future community and regional growth are anticipated to be dependent upon the ability to redevelop adjacent neighborhoods that were devastated by Hurricane Katrina. Community growth requirements include the ability to improve housing conditions, provide local and regional health care, and make available adequate public schools and childcare centers. The future growth of the project area and the New Orleans Metropolitan Statistical Area is at least partially correlated to the perceived risk of damage from future storm events. Additionally, costs associated with flood risk, such as insurance coverage and commuting distance to adequate jobs, also play a role in redevelopment of the project area. Under the no-action plan, there would likely be no measurable effect to the neighboring communities as they would continue to grow at their current pace based on the previously described influencing factors.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to the community and regional growth of the project area for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

Redevelopment of neighborhoods in the project area could be diminished during the construction period due to the disruption from construction activities and increased vehicular traffic. However, it is anticipated that the construction of a new lock would not have any long-term impacts on community and regional growth. The expenditures on lock construction, including the labor and the purchase of supplies and materials, could have a short-term beneficial impact on community and regional growth.

*General Mitigation*

Mitigation for indirect impacts will be actions taken by the Corps or by a local project sponsor in cooperation with local government, community groups, and residents to alleviate those adverse impacts that remain following the implementation of both impact avoidance procedures and the direct impact minimization measures.

The intent of indirect impact compensation is to make the communities whole and resilient to the impacts of construction activity for the duration of those activities. The indirect impact compensation associated with impacts to community and regional growth include:

a. The USACE, New Orleans District will work with the City of New Orleans Regional Planning Commission and will continue engaging with the community. As the project moves into a pre-construction, engineering, and design phase to identify appropriate strategies, the USACE and the city will collectively ensure that this project does not negatively impact community and regional growth in the long term.

For additional information on general mitigation, please refer to Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to the community and regional growth of the project area for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The impacts to the community and regional growth of the project area for this plan are similar to those described in Plan 3.

### 6.1.10 Vehicular Transportation

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

The current transportation system is anticipated to remain relatively unchanged. Forecasts by the New Orleans Regional Planning Commission predicted zero traffic growth on the IHNC bridge crossings. These projections do not account for the traffic volumes on N Claiborne Ave that will be generated by the proposed Louisiana International Terminal (LIT). N Claiborne Ave Bridge is the shortest and most direct truck route from the port entrance on E Judge Perez Dr to/from the local businesses on the west side of the IHNC. Traffic crossing the N Claiborne Ave Bridge may increase by approximately 2-5% in 2040 and 3-7% in 2090. Based on LADOTD Traffic Engineering Process and Report guidelines, volume changes less than ten percent (10%) are considered normal fluctuations and insignificant.

The current Florida Avenue Bridge over the Industrial Canal is owned by the Port of New Orleans. The original bridge was one of four bridges built by the Port of New Orleans in the 1920s to provide railroad access across the IHNC. It is the only bridge that still carries rail in addition to vehicle traffic. In 2000 the original Florida Avenue Bridge was replaced with a wider bridge for both rail and vehicles at grade level at a total project cost of $47 million. The majority of funding was provided by the U.S. Coast Guard under a Truman-Hobbs appropriation. It qualified for this funding because it was identified as a hazard to marine navigation because of its narrow width. Despite its replacement as a wider, vertical lift bridge, the vertical clearance of the bridge in its closed position is less than five feet, on average, over the water. When the bridge is in the open position, its clearance is 156 feet.

In 1989 an act was approved by the Louisiana legislature that established the Transportation Infrastructure Model for Economic Development program, which is a $5.2 billion transportation infrastructure program funded by an additional four cent gasoline tax. The list of sixteen projects identified for funding included a new Florida Avenue Bridge over the Industrial Canal. The rationale for inclusion of a new Florida Bridge included provision of a roadway that would provide an additional evacuation route during hurricane evacuations. Because the current bridge crosses through the flood risk reduction features along the IHNC, flood gates on the existing bridge are closed in advance of storms in anticipation of tidal storm surges; the flood gates block vehicle passage across the bridge. This evacuation route purpose is in addition to the desire to improve general connectivity for the area and to facilitate movement of goods.

In 2007, the Louisiana Department of Transportation and Development (LADOTD) recommended the construction of a fixed span bridge with a vertical clearance of 156 ft. after public review of a draft environmental assessment. The proposed new Florida Avenue corridor would provide connections to Interstate Highway 10 to the west and Paris Road (Louisiana Highway 47) and Interstate Highway 510 to the

east. However, it was decided in 2010 that LADOTD would reevaluate the future designs for a Florida Avenue Bridge due to budget limitations.

By 2013, all but two of the original sixteen transportation projects identified for funding had been funded. A 2013 design study of bridge alternatives for Florida Avenue considered two moveable "mid-rise" bridges and three fixed "high-rise" span alternatives. The mid-rise bridges had 75ft. and 85ft. vertical clearances, and the fixed span alternatives had a 156ft. vertical clearance. The plans for an at-grade roadway and an elevated structure crossing the IHNC were most recently presented to the public in 2016. Following feedback from the 2016 Public Meeting and Community Meeting, the LADOTD has developed some additional concepts for the Florida Avenue bridge replacement.

In July 2013, the TIMED (Transportation Infrastructure Model for Economic Development) Program (established under *Acts 1989, No. 847, 1, eff. Jan. 1, 1990; Acts 2003, No. 1301, 1, approved Oct. 4 2003, eff. Nov. 6, 2003),* Statewide Transportation Plan reported the following regarding the status of the Transportation Trust Fund: "For the next 30 years, revenues from the 4-cent-per-gallon gasoline tax are dedicated to retire the bonds issued." As previously noted, the LADOTD has studied the concept of a Florida Avenue Bridge and corridor since at least the early 2000's, but post hurricane Katrina in 2005, there has been a considerable loss of local and regional population which has made the project less justifiable. However, LADOTD continues to study a Florida Avenue Bridge and corridor project, but it is uncertain if/when the project will be finalized or if/when the project would be selected for construction. The final design of the bridge is also uncertain; instead of a high-rise bridge, LADOTD may choose to construct a bridge that must be raised to allow navigation underneath it.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to vehicular transportation for this plan are expected to be similar to those described in Plan 3, though with 35 ft. less width to this lock there would be more cuts to tows, and thus the effects to vehicular traffic with each tow would be longer wait times.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

In both the 1997 Evaluation Report and the 2017 draft report, it was anticipated that a temporary 4 lane low-level double bascule bridge would have been constructed immediately north of the existing St. Claude Avenue bridge. Once the temporary bridge was in place, vehicular traffic would have been diverted from the existing St. Claude Avenue bridge to the temporary bridge, and the existing St. Claude Avenue bridge would have been demolished. A new permanent 4 lane low-level double bascule bridge would have been constructed within the current St. Claude Avenue alignment, and the temporary replacement bridge would have been demolished. During construction, vehicular access across the IHNC along St. Claude Avenue would have allowed for two lanes in each direction to remain open.

Under the 2025 recommended plan, the project calls for a replacement of the existing low-rise St. Claude Avenue Bridge with a permanent double leaf bascule bridge to be constructed north of the St. Claude Avenue Bridge. With this change from a temporary replacement bridge to a permanent replacement bridge, vehicular access will be reduced to one lane in each direction during construction. The reduction from 4 to 2 lanes during construction of the new permanent bridge is considered to be an adverse impact to vehicular traffic. However, after further design refinement it was determined that if the new permanent bridge was completely built while still allowing a portion of the existing St. Claude Avenue bridge to remain open, the real estate acquisition requirements would be much higher due to the new replacement bridge approaches overlapping with the existing St. Claude Avenue bridge. Therefore, the construction is staggered with new permanent bridge construction and demolition of the existing St. Claude Avenue bridge to maintain traffic at all times and minimize real estate acquisition.

Construction would begin on the replacement bridge approximately ten years into the physical lock construction schedule and would take approximately 36 months to complete the replacement bridge including the spans and ramps. Demolition could take approximately 6 months for 2 lanes, or a total of 1 year to demolish all four lanes. Construction of the permanent replacement bridge will be phased such that thru traffic along the existing St. Claude will be maintained for the entire construction duration. In the event that restriction of thru traffic is required for construction of road tie-ins; closures will be minimized to nights and weekends during low traffic volume periods. Additional details regarding traffic control will be developed with the Port of New Orleans, Louisiana Department of Transportation and Development (LA-DOTD) and the City of New Orleans during future detailed design. Because it is a low-speed urban street, the design speed along St. Claude Avenue is 35 MPH. The speed limit across the proposed bridge is to remain the same. A staging area for bridge construction would be positioned on the west side of the IHNC in a vacant lot made available from the removal of three residential homes adjacent to the project.

The demolition of the St. Claude Avenue Bridge and construction of a replacement bridge would likely cause a shift of some vehicular traffic onto North Claiborne Avenue and the Claiborne Avenue Bridge. However, during construction of the permanent replacement bridge at St. Claude Bridge, the diverted traffic and associated delay impacts on North Claiborne Avenue are not expected to be significant. Minor to moderate delays on North Claiborne Avenue, particularly during peak hours, and moderate congestion in neighborhoods adjacent to Florida Avenue due to traffic rerouting to the Florida Avenue Bridge should be expected while the St. Claude Bridge is under construction.

Post construction, the replacement lock will be located north of the Claiborne Avenue Bridge allowing Mississippi River stages to flow beneath the Claiborne Avenue Bridge. Because the water surface elevation for the river is higher than the current water surface elevation under the Claiborne Avenue Bridge, this will reduce the vertical clearance (4 - 10 ft.) for waterborne traffic causing a greater percentage of traffic to need the bridge to rise. Under existing conditions ~20% of IHNC traffic requires the bridge to rise. With the new lock in place ~50% of IHNC traffic will need the bridge to rise. However, as Table 6-1 shows, the frequency of bridge openings will vary by month depending on river stages. It should also be noted that with a larger replacement lock more than one tow per lockage could occur thereby reducing, to some extent, the frequency of bridge openings after the new lock begins operation. Existing peak-traffic curfews would remain in place for both the St. Claude Avenue Bridge and Claiborne Avenue Bridge both during and after construction of the RP. These curfews are from 6:30 a.m. to 8:30 a.m. and from 3:30 p.m. to 5:45 p.m., Monday through Friday. Updated assessment of changes in bridge raisings as a percentage of traffic is discussed in the new Economic Update document. Existing conditions have not changed but the with-project condition estimates have been re-modeled and assessed against the new expectations for equilibrium traffic.[18]

[18] Equilibrium refers to a state where the distribution of vessel traffic is stable and does not shift to alternative modes of transport (rail or truck).

**Table 6-1 Claiborne Avenue Bridge Raisings**

| | Existing % of IHNC Waterborne Traffic Requesting Raising | With Project % of IHNC Waterborne Traffic Requesting Raising |
|---|---|---|
| January | 19% | 61% |
| February | 20% | 49% |
| March | 20% | 64% |
| April | 23% | 74% |
| May | 20% | 76% |
| June | 21% | 73% |
| July | 17% | 56% |
| August | 21% | 33% |
| September | 17% | 28% |
| October | 20% | 26% |
| November | 22% | 28% |
| December | 17% | 30% |
| Average Annual | 20% | 50% |

Note: Assumes vessels will request raising when <=1 foot of clearance.

Source: River gauge readings (2006 to 2020) and Highest Fixed-Point data (2010 to 2021).

Pursuant to the Water Resources Development Act of 2007, Section 5083, Congress authorized USACE to develop and maintain a Transportation Mitigation Program to address transportation related impacts of the construction and operation of the IHNC lock replacement. In compliance with this authority, USACE contracted Urban Systems Inc (USI) to conduct a comprehensive vehicular traffic analysis "to assess the potential impacts of the proposed replacement of the Inner Harbor Navigational Canal (IHNC) Lock on traffic operations and safety in the surrounding area." This analysis will be used to develop a transportation mitigation program, including mitigation measures, to minimize or avoid vehicular impacts based on current population and traffic patterns.

From March 9, 2023, to March 14, 2023, USI collected video data at 11 locations in the study area. From this data 24-hour roadway counts at 15-minute intervals were acquired. The 11 locations studied were:

- Alvar St.
- Florida Ave Bridge
- France St
- N Claiborne Ave Bridge
- Poland Ave North
- Poland Ave South
- Reynes St North
- Reynes St South
- St Claude Ave Bridge
- Tennessee St North
- Tennessee St South

Results of this study are summarized below. See USI's report in Appendix E for details.

Florida Ave Bridge

- Current bridge closings: 23.7 per day
- New lock bridge closings: 17.0 per day
- Current maximum wait time sitting in traffic: 7 – 10 minutes
- New lock maximum wait time sitting in traffic: 7 – 10 minutes

Claiborne Ave Bridge

- Current bridge closings: 4.6 per day
- New lock bridge closings: 8.1 per day
- Current maximum wait time sitting in traffic: 7 – 10 minutes
- New lock maximum wait time sitting in traffic: 7 – 10 minutes
- New lock bridge closings (Spring, due to higher river): 12.2 per day

St Claude Ave Bridge

- Current bridge closings: 23.7 per day
- New lock bridge closings: 17.0 per day
- Current maximum wait time sitting in traffic: 7 – 10 minutes
- New lock maximum wait time sitting in traffic: 7 – 10 minutes

As shown above, normal maximum wait time sitting in traffic remains 7 – 10 minutes (infrequently some drivers experience 15-to-25-minute delays) for all bridges even with the new lock. For both bridges at Florida Ave and St Claude Ave, the number of bridge closings actually drop by about 6.7 per day with the new lock. The Claiborne Ave bridge, however, will increase daily closings by more than 75% to 8.1 per day because the water levels beneath it will increase when the new lock is constructed north of the bridge. Additionally, the Claiborne Ave bridge will be affected seasonally in the spring when water on the Mississippi River is higher. When seasonal water is high under Claiborne, the bridge will close 12 times per day on average, or an average of 35 minutes per day extra (Florida Ave and St Claude Ave bridge closings will remain unaffected by seasonal water levels).

Due to the increased capacity of the new lock, potential tons processed through the lock could reach 28 million tons by the year 2080. At current traffic levels, there would be approximately 5,700 trips per year through the new lock; future traffic levels in 2080 would likely raise that number to over 8,000 trips per year. In this scenario, Florida Ave and St Claude Ave bridges could be raised as many as 26 times per day and Claiborne bridge raised 12 times per day.

In summary, once the new lock is completed and through 2080, commuters traveling over St. Claude and Florida Ave bridges would see either a reduction or no change to the average time they spend waiting for bridge raises. Commuters traveling over Claiborne Ave bridge would see a minor increase in the average time they spend waiting for bridge raises due to the higher frequency of bridge openings per day. The increase would be less than 1 minute per vehicle during high water, and less during normal water conditions.

If the LADOTD constructs a new, fixed-span high-rise Florida Ave bridge (Florida Bridge) prior to construction of the RP, the improved transportation corridor, if accompanied by appropriate ramps, feeder streets, and signage, could minimize negative vehicle traffic impacts caused by the new lock. A high-rise, fixed span bridge would not need to be raised to allow navigation traffic on the IHNC. In addition, it would allow the passage of emergency vehicles to hospitals in New Orleans even if the other two bridges (Claiborne and St. Claude) were both raised at the same time.

While Florida Ave is a two-lane bridge, it is situated north of the proposed new lock location, and it is highly unlikely that all three bridges (St. Claude Ave bridge, Claiborne Ave bridge, and Florida Ave bridge) would be closed to traffic at the same time under any circumstance with respect to lock operation. Florida Ave could provide vehicle passage over the IHNC, though the volume of traffic that could be accommodated would be significantly less than both the St. Claude Ave bridge and Claiborne Ave bridge. With construction of the new lock, it is acknowledged that the probability of both the St. Claude and Claiborne bridges being raised at the same time is greater because they are on the same side of the new lock location and there is a distance of only 1,900 feet between the two bridges. The potential for both bridges opening would likely increase during off-peak, non-curfew hours.

Additionally, it should be noted that while the Port of New Orleans owns and operates the St. Claude Ave bridge and the Louisiana Department of Transportation owns and operates the Claiborne Ave bridge, both bridges are under permit by the U.S. Coast Guard (USCG) and required to adhere to Title 33 – Navigation and Navigable Waters, Chapter 1 – Coast Guard/Department of Homeland Security, Subchapter J – Bridges, Part 117 – Drawbridge Operation Regulations. With respect to the St. Claude Avenue Bridge and Claiborne Avenue Bridge operations, three specific USCG regulations would be applicable both during and after construction:

- 33 CFR § 117.31 "Drawbridge operations for emergency vehicles and emergency vessels", sub-part a), which states, "Upon receiving notification that an emergency vehicle is responding to an emergency situation, a draw tender must make all reasonable efforts to have the draw span closed at the time the emergency vehicle arrives."

- 33 CFR § 117.33 "Closure of draw for natural disasters or civil disorders", which states, "Drawbridges need not open for the passage of vessels during periods of natural disasters or civil disorders declared by the appropriate authorities unless otherwise provided for in Subpart B or directed to do so by the District Commander."

- 33 CFR § 117.458 "Inner Harbor Navigation Canal, New Orleans," sub-section (a), which states, "The draws of the SR 46 (St. Claude Avenue) bridge, mile 0.5 (GIWW mile 6.2 East of Harvey Lock), the SR 39 (Judge Seeber/Claiborne Avenue) bridge, mile 0.9 (GIWW mile 6.7 East of Harvey Lock), and the Florida Avenue bridge, mile 1.7 (GIWW mile 7.5 East of Harvey Lock), shall open on signal; except that, from 6:30 a.m. to 8:30 a.m. and from 3:30 p.m. to 5:45 p.m., Monday through Friday, except federal holidays, the draws need not open for the passage of vessels. The draws shall open at any time for a vessel in distress."

Modifications to the curfews specified in 33 CFR § 117.458 "Inner Harbor Navigation Canal, New Orleans," sub-section (a) would require USCG amendment of its regulation via the procedural process required under Federal law and regulation.

*Impact Avoidance and Analysis*

Impact avoidance refers to actions taken by the Corps that are designed to avoid adverse construction impacts and which represent prudent and innovative engineering design and construction practice. These actions are incorporated into the construction plan and are required because construction will take place in an urban environment.

**Traffic Congestion**. The following measures identified in the construction plan will reduce traffic congestion:

a. Replacement Bridge: A replacement bridge will be constructed on St. Claude Avenue immediately north of the existing bridge. The new St. Claude Avenue Bridge will be built in phases and the existing bridge will remain open for traffic, except for any typical bridge closures that allow vessels to pass. To keep traffic moving in both directions, traffic will be reduced to one lane in both directions. In addition to maintaining vehicular traffic, at least one pedestrian walkway across the St. Claude Bridge will remain while construction occurs. While the new bridge will have a dedicated 6' pedestrian lane when completed, keeping at least one of the two pedestrian walkways on the current bridge will ensure that those residents without vehicle transportation will have access to both sides of the canal during the bridge construction and tie-in. If restriction of thru traffic is required for construction of tie-ins, closures will be minimized to nights and weekends during low traffic volume periods. Information regarding temporary closures during construction will be coordinated and communicated in advance with local media, the Regional Transit Authority (RTA), Orleans and St. Bernard Parish Emergency Services Dispatchers, and other relevant parties. Additional details regarding traffic control will be developed with the Port of New Orleans, Louisiana Department of Transportation and Development (LA-DOTD), and the City of New Orleans during future detailed design.

b. Bridge Design: The new St. Claude Avenue bridge will be designed to support both bike and pedestrian traffic. It will be 70 feet wide with two 12-foot lanes for eastbound traffic and two 12-foot lanes for westbound traffic. There will be four-foot-wide shoulders on the outside and

minimum one-foot shoulders on the inside. A 6-foot-wide pedestrian/bicycle lane is provided on the outside edge of the eastbound lanes, separated from traffic by a concrete barrier.

c. Construction Site Location: The construction site, located north of Claiborne Avenue, will be set up on the west side of the Industrial Canal, away from residential areas. Specific routes for construction-related traffic will be planned to help reduce congestion in nearby communities.

*Direct Mitigation (Impact Minimization)*

Direct mitigation refers to actions taken by the Corps to minimize those adverse direct impacts which remain following the implementation of the normal procedures that are described in the previous section.

The following mitigation measures are intended to reduce traffic congestion, traffic delays, and impacts resulting from the construction of and use of the new lock and St. Claude Avenue Bridge. These measures would be implemented by or before the beginning of construction on the replacement lock:

a. Traffic Control Plans: During construction, temporary traffic control plans (TCPs) will be implemented to improve safety and minimize delays for road users. TCPs could include signage, detour routes and/or other traffic control measures designed to minimize delays and impacts on the surrounding residents and businesses. Multiple digital message boards will be placed on St. Claude, North Claiborne Avenue, North Robertson, and Florida Avenue to keep commuters informed about detours and construction-related congestion. Upon project completion, permanent message boards displaying real-time bridge opening and closing information should be installed at key locations to provide drivers with timely updates on the status of the three bridges, enabling them to choose the route with the shortest commute time.

b. Traffic Signal Synchronization: Before construction starts, traffic signals could be synchronized to improve traffic flow across the canal. Adaptive Signal Control sensors, which can determine which lights should be red and which should be green will be installed on traffic signals along corridors within the affected project area which will improve the movement of traffic during peak travel times. These sensors can work in conjunction with the real-time traffic monitoring systems.

c. Street Resurfacing and Maintenance: Local streets that will serve construction-related traffic should be assessed for resurfacing before the project begins. Detailed plans for this will be determined during future detailed design when detailed site plans are developed. Maintenance of these streets will be provided throughout the construction period.

d. Parking and Transit for Project Workers: Construction workers will utilize off-site parking and bus into the neighborhood to avoid traffic congestion within the neighborhood.

e. Real-time traffic monitoring: Traffic approaching and crossing the bridges should be monitored in real-time, including vehicle counts, speeds, traffic queues, transit schedules, and emergency vehicles. Permanent Intelligent Transportation System devices would be installed to provide data to the Regional Transportation Management Center (RTMC) located at 10 Veterans Blvd in New Orleans, where it can be monitored and adjustments to systems could be made.

Installations would include the following:

- Fiber communication.
- Wireless communication.
- In-pavement devices such as inductive loop detectors and magnetometers.
- Video and/or radar detection devices installed roadside.
- Advanced and/or Adaptive traffic signal control.
- Pre-emption systems to modify signal operations during bridge openings, emergency vehicles and/or transit.
- Road weather information systems (RWIS), both stationary and mobile, to collect, inform and predict road, weather, and surface conditions.
- Additional technologies as they are developed such as Connected Vehicles, Autonomous Vehicles, and smart devices.

f. Disseminating data in real-time such as:

- General traveler information, including traffic information, transit information (, real-time schedules), incident information and event information.
- Emergency traveler information, including alerts and advisories, and evacuation information.

g. Advanced Traveler Information Systems (ATIS) can assist with trip planning using various modes of surface transportation, route options and route guidance. These can include:

- Permanent and/or temporary changeable message boards.
- Smartphone applications.
- 511 systems.

*General Mitigation*

Mitigation for indirect impacts involves actions taken by the Corps or a local project sponsor in collaboration with local government, community groups, and residents. These actions aim to address any negative effects that remain after implementing both impact avoidance procedures and direct impact reduction measures described above. Some of the measures involve coordination with other agencies and organizations. The measures would be implemented during design, construction, or following construction as needed.

The goal of indirect impact compensation is to make sure the transportation system and the reliant community can handle the effects of construction throughout the project. Traffic congestion and delays will occur because of the construction of the St. Claude Avenue replacement bridge. Additional measures that could reduce the residual impacts felt by residents and businesses as well as those who commute across the canal include:

a. Lane Markings: Keeping lane markings and striping clear is important for guiding drivers. The new lock and bridge are not expected to affect roadway safety or the study intersections. However, the intersection at Poland Ave and N Robertson St/Claiborne Ave is losing visibility and could benefit from the new pavement markings.

b. Traffic Cameras: Installing traffic cameras would enhance safety.

c. Road Repairs: After construction is complete, the roads will be resurfaced and repaired.

d. Traffic Calming Measures: After construction is complete, the roads will be addressed for calming measures including speed humps, chicanes, roundabouts, bulb-outs, narrowed roadways, clear speed limit signage, high-visibility crosswalks, traffic circles, raised crosswalks, bicycle lanes, traffic signal timing adjustments, landscape features, portable speed feedback signs, and community education campaigns.

e. Crossing Guards and Traffic Control: Crossing guards and traffic control officers could be stationed at schools and key intersections. As needed, during crucial periods of construction if there are detour routes then this will be addressed and implemented during this time.

f. Public Transit: Stakeholders (during COPA engagement) have requested more public transit routes with better ADA accessibility. USACE will seek to partner with local transportation authorities to add more transit options, including ADA-accessible options for commuters crossing the canal.

g. Systems Engineering: Before implementing any of these measures, a Systems Engineering exercise is recommended. The "Systems Engineering for Intelligent Transportation Systems" guide from the US Department of Transportation, dated January 2007, outlines the process, and is included in Appendix E of the Traffic Modeling Report (Appendix E). This approach aims to reduce risks of delays and extra costs, and to maximize the benefits to the community. The roadway network, movable bridges, and vessels on the IHNC are managed and maintained by various agencies, including the Louisiana Department of Transportation and Development, Port of New Orleans, City of New Orleans, St. Bernard Parish, New Orleans Regional Transit Authority, and the US Army Corps of Engineers.

For additional information on avoidance and minimization features and general mitigation, please refer to Appendix E, Draft Transportation Mitigation Program (2024). A summary of estimated costs for the Draft Transportation Mitigation Program are also included in Paragraph 6.1 of Appendix E.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to vehicular transportation for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The impacts to vehicular transportation for this plan are similar to those described in Plan 3.

### 6.1.11 Housing

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

The total number of houses in the project area and housing demand in the Lower Ninth Ward and Holy Cross is expected to remain substantially below pre-Katrina levels in the foreseeable future. Housing demand in the Bywater neighborhood is increasing. Uncertainty about the rate of recovery from the aftermath of Hurricane Katrina continues to be one of the main factors affecting the future level of housing inventory and occupied housing. The level of housing reflects broad trends in categories such as migration, employment, income, and more specific perceptions such as confidence in the improved hurricane and storm damage risk reduction system.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to housing for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

During construction activities, as stated in the section 6.1.9 Population, increased levels of traffic congestion and noise levels may have a slight negative effect on rental housing by inducing highly mobile residents to move elsewhere. Construction of the approaches to the St. Claude Bridge would require removal of three residential properties (4547, 4563, and 4569 St. Claude Avenue) in the Bywater neighborhood. Both 4563 and 4569 St. Claude Avenue houses are part of a proposed expansion of the Bywater National Register Historic District. Moreover, both houses are currently occupied, and as such permanent relocation of the current residents will be offered in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (URA). Thus, while the 2017 draft report indicated that no acquisition of residences would be required, acquisition of these residences would likely be required for implementation of this alternative.

Additionally, during construction, housing immediately adjacent to certain construction activities may be impacted by noise levels exceeding acceptable noise levels (>75 dBA) established by the U.S. Department of Housing and Urban Development (HUD) for construction activities in residential areas as detailed in Section 6.1.13 Noise (see 6.1.13 for additional noise impacts evaluation). As noted in the 2017 draft report, residents and businesses on the St. Claude Avenue corridor will not have vehicular access to the street right-of-way in front of their residences/businesses for approximately six months. Vehicular access for residents and businesses with driveways/parking lots with access to a side street will not be affected.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to housing for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The impacts to housing for this plan are similar to those described in Plan 3.

### 6.1.12 Community Cohesion

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

No significant changes in community cohesion would be expected in the absence of Federal action. It is anticipated that some of the individuals that made up the fabric of the community prior to Hurricane Katrina would slowly return to redevelop the neighborhoods as flood risk has now been reduced by construction of the HSDRRS and community services continue to improve.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to community cohesion under this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

Since Hurricane Katrina, the neighborhoods adjacent to the IHNC have been rebuilding at various rates. Recovery efforts within the Bywater Community have been more successful because a smaller portion of the properties were flooded than adjacent neighborhoods. Recovery efforts in the Lower Ninth Ward and Holy Cross neighborhoods have been substantially slower because of the greater damage from flood waters. It is anticipated that implementation of the RP, with increased noise and construction traffic, would cause a short-term deterioration of community cohesion (such as walking in the area, visiting with neighbors, and shopping activities) between the neighborhoods located east of the IHNC and those recovering more quickly on the west side of the IHNC, especially during the project activities associated with replacement of the St. Claude Avenue bridge. The new St. Claude Avenue Bridge would accommodate pedestrians and bicyclists, so adverse long-term effects are not expected. Bridge restrictions and residual noise from construction activities will likely disrupt some of the routine activities of residents, such as shopping, visiting with neighbors, walking in the area, and sitting on the front porch. The residual project impacts indicated above cannot be avoided or mitigated fully and cannot be measured accurately.

*General Mitigation*

Mitigation for indirect impacts will be actions taken by the Corps or by a local project sponsor in cooperation with local government, community groups, and residents to alleviate those adverse impacts that remain following the implementation of both impact avoidance procedures and the direct impact minimization measures.

The intent of indirect impact compensation is to make the communities whole and resilient to the impacts of construction activity for the duration of those activities. The indirect impact compensation associated with impacts to community cohesion include:

a. In cooperation, resources may be provided with partnering entities to establish a business assistance program in the area to serve as a stimulus for local business development. This program may include measures that help create new businesses, help existing businesses expand, provide high-tech educational facilities, create new jobs, preserve old ones, and help revitalize the neighborhoods adjacent to the project in the Ninth Ward. This may be in conjunction with local, state, and federal government and implemented in conjunction with the City of New Orleans and/or one of the local universities.

b. Sponsor programs for educating local residents on maintaining their housing. These programs could be administered by established local agencies neighborhood community development

corporations, or other appropriate agencies. Funding existing programs will help expedite the implementation of this mitigation measure.

c. Utilize a partnership-based initiative to provide assistance to eligible homeowners or tenants in the Lower 9th Ward, Holy Cross, Bywater, and St. Claude neighborhoods. This mitigation measure is intended to help stabilize historically rooted communities, reduce displacement pressures, and offset financial burdens stemming from construction-related disruptions, perceived property value changes, and long-term neighborhood impacts. Assistance may include temporary mortgage payment support, refinancing guidance, or foreclosure prevention services. Implementation would be carried out through formal Partnership Agreements with qualified public or nonprofit housing entities that have the statutory authority, technical capacity, and community trust necessary to administer such programs effectively.

d. Crime is of the utmost importance to residents in the surrounding communities, and increased police presence in these areas has proven to help reduce crime and improve the quality of life.

e. There is similar concern from residents about the availability of and access to emergency medical services. During project construction, the mitigation plan could cooperate with the local law enforcement or private security services and local emergency medical providers so they can continue to provide essential services to these areas. The Transportation Mitigation Program also will provide for enhanced communication between emergency dispatchers and Emergency Medical Service with real time bridge status information.

f. Mitigation measures may include a temporary police or security services or emergency services substation for the eastern side of the IHNC that would address impacts to community cohesion and community growth.

For additional information on general mitigation, please refer to Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to community cohesion under this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The impacts to community cohesion under this plan are similar to those described in Plan 3.

### 6.1.13 Noise

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

No substantial change in noise levels would occur under the no-action alternative. Information collected for the 2009 SEIS indicated that the background frequency had the following range: Average background readings before 12:00 pm varied from 50 to 67 dBA with peak readings varying from 70 to 90 dBA; after 12:00 pm, average background readings varied from 50 to 75 dBA with peak readings varying from 64 to 99 dBA (CEMVN 2000). It is anticipated that residents and business would continue to return to the project area and rebuild infrastructure. Construction noise in neighborhoods would increase during rebuilding activities. The number of sensitive receptors in the project area would increase as more homes become occupied and churches and schools reopened.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The noise impacts for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

The project construction corridor is bounded by developed, urban areas. Previously, in the 1997 EIS, pile driving noise and vibration analysis was recommended to investigate innovative methods for pile driving which would generate less noise and vibration than conventional equipment. Under contract to the CEMVN, Eustis Engineering Company, Inc. prepared a report entitled *U.S. Army Corps of Engineers, Noise and Vibration Monitoring in the Adjacent Neighborhood of the Inner Harbor Navigation Canal Lock Replacement, Pile and Test and Installation Study, New Orleans, Louisiana, Contract No. DACW29-98-D-0003, Task Order No. 37, Dated July 26, 2000*. That report was described and provided in the 2009 SEIS in Volume 1 and Appendices A, B(2) and C, which are incorporated herein by reference.

The Eustis Noise Monitoring Report (CEMVN 2000) included pile load tests and noise and vibration monitoring in the vicinity of the project site and adjacent neighborhoods. Observations were made during different construction activities. The report delineated noise contours throughout the project area for the following four categories: non-pile driving activities (general construction), pile driving activities with a vibratory hammer, pile driving activities with an air impact hammer and pile driving activities with a hydraulic hammer (underwater). In summary, the report indicated that portions of the Lower Ninth Ward neighborhood immediately adjacent to the project corridor may experience pile driving noise emissions greater than 75 dBA (Unacceptable). As noted in the Draft Revised Community Impact Mitigation Plan (2024) (Appendix E), in rare cases, temporary relocation of residents during periods of high noise related activities may be considered when all other mitigation measures have been exhausted or deemed impractical. If offered, this will be optional for residents immediately adjacent to the construction activity, especially adjacent to the St. Claude Avenue bridge approaches. For project areas that will be exposed to noise levels that exceed 65 dBA, but not 75 dBA, additional noise impact avoidance features and general mitigation measures detailed at the end of this section will be included as integral components of the proposed action to reduce impacts of construction-related noise.

*Noise Emission Model*

The SoundPLAN noise prediction software (Braunstien *et al.* 2004) was previously used to model construction and traffic noise impacts (Appendix K of the 2009 SEIS, incorporated herein by reference). All noise sources (*i.e.*, roadway traffic, railway traffic and construction activities) detailed above were previously incorporated in the SoundPLAN model for the entire IHNC Lock construction area. The construction area included all land for 3,000 feet on either side of the IHNC. This would be the area between Caffin Avenue (east of the IHNC) and Independence Street (west of the IHNC). SoundPLAN utilizes a ray-tracing algorithm to calculate the overall day/night sound levels from all noise sources at grid points over the entire project area. A grid noise map was generated for 82-foot grid spacing.

*Noise Modeling Results*

Construction and dredging noise sources in the IHNC Lock construction area were incorporated in the noise model. (Figure 6-2). (Appendix K of the 2009 SEIS, incorporated herein by reference).

*Day/night sound level (DNL) >65 dBA contour.*

Approximate residential boundaries of the DNL >65 dBA contour north of Claiborne Avenue extends as far as Forstall Street and as far as Jourdan Avenue and North Villere Street. Approximate residential boundaries of the DNL >65 dBA contour south of Claiborne Avenue extends as far as Manuel Street to Poland Avenue and Marais Street to Japonica, Kentucky Street to North Rampart Street to the railroad tracks adjacent to the

IHNC, Jourdan Avenue to North Robertson Street and Deslonde Street to the IHNC, Sister Street to Marais Street to Forstall Street, and Sister Street to North Rampart Street to Forstall Street.

*Day/night sound level (DNL) >75 dBA contour.*

Approximate residential boundaries of the DNL >75 dB contour is between Tennessee Street, Jourdan Avenue, North Prieur Street, North Miro Street, and St. Claude Avenue Service Road(s) (north/south sides) from Lesseps Street to Forstall Street.

According to HUD (HUD 1984), DNL >75 dBA is unacceptable and severe to both indoor and outdoor activities. Additionally, it is anticipated that residents and businesses on the St. Claude Avenue corridor would not have vehicular access to the street right-of-way in front of their residences/businesses for approximately six months. Vehicular access for residents and businesses with driveways/parking lots with access to a side street will not be affected. As noted in the Draft Revised Community Impact Mitigation Plan (2024) (Appendix E), temporary relocation of residents during periods of high noise related activities may be considered when all other mitigation measures have been exhausted or deemed impractical. If offered, this will be optional for residents immediately adjacent to the construction activity, especially adjacent to the St. Claude Avenue bridge approaches. To the west of the IHNC, the residential areas are mostly shielded by industrial buildings and the resulting noise levels are no greater than the No-Action Plan, except for the two city blocks of Poland Avenue north of North Claiborne Avenue.

Table 6-2 contains an estimate of the number of sensitive noise receptors located within the DNL 65 dBA and 75 dBA noise contours from the IHNC Lock construction (*i.e.*, pile driving, miscellaneous construction equipment and dredging operations). An updated inventory of sensitive noise receptors was developed using the USACE National Structure Inventory 2022 and ArcMap software. The final inventory contains information relative to an approximate number of residential, public and private structures, and schools and universities that are located within the project impact area.

**Table 6-2 Approximate Number of Sensitive Noise Receptors within the DNL 65 dBA and 75 dBA Noise Contours**

| Type of Noise Receptor | Greater than DNL 75 dBA (number of receptors) | Greater than DNL 65 dBA (number of receptors) |
|---|---|---|
| Single family homes | 60 | 236 |
| Multiple living units | 22 | 94 |
| Churches | 2 | 4 |
| Schools | 0 | 0 |
| Parks | 0 | 0 |

Source: USACE National Structure Inventory (NSI) 2022.


**Figure 6-2 DNL noise contours due to IHNC Construction; installation of permanent bridge at St. Claude Avenue; and traffic detours.**

The noise exposure count includes structures that were standing in 2022. Empty lots were not counted as sensitive noise receptors. Most of the residential homes exposed to noise emissions greater than DNL 75 dBA occurred along St. Claude Avenue. Other areas exposed to noise emissions greater than DNL 75 dBA are located on the east side of the lock construction area. The pile driving activities are the source of the high noise levels in the residential neighborhoods on the east side of the IHNC.

DNL levels would exceed HUD allowable levels (DNL 65 dBA) in several residential areas due to construction of the IHNC lock. In particular, residential areas to the east of the IHNC (Lower Ninth Ward) would be most impacted by construction noise during the lock replacement. Most of the residential homes exposed to noise emissions greater than DNL 65 dBA and 75 dBA occur along St. Claude Avenue where vehicular traffic would travel during construction of the St. Claude Avenue permanent replacement bridge. According to HUD, DNL above 65 dBA is considered normally unacceptable and DNL above 75 dBA is considered unacceptable for residential areas.

*Pile Driving*

Pile driving activities would not expose adjacent neighborhoods to harmful vibrations (CEMVN 2000). Vibration monitoring recorded low range vibrations with average frequencies varied between 15 and 30 Hertz (Hz). These frequencies are within a range of natural frequency associated with residential construction. With measurements taken at the construction easement and beyond, peak particle velocities experienced during all construction activities, including hydraulic hammer, air hammer, and vibratory hammer operations, were minimal. The average maximum peak particle readings were approximately 0.1 inches per second, with maximum readings of 0.15 inches per second. Background peak particle velocities were of equal or greater magnitude as peak particle velocities experienced during all pile driving operations. Based on these results, the pile driving activities for the main lock structure should not adversely impact any structure beyond the floodwalls on each side of the IHNC.

Home occupancy decreased dramatically in the project area after Hurricane Katrina. Population levels in the project area have been recovering; however, recovery in some nearby neighborhoods has been slow. Therefore, these neighborhoods are a mix of vacant lots, recently renovated homes, and homes in the process of being constructed or renovated. Consequently, there are fewer sensitive receptors adjacent to the project corridor that would be impacted by noise emissions from construction activities.

The noise assessment addresses noise and vibration emissions from pile driving operations and other construction activities, as well as railway traffic and vehicular traffic, including vehicular traffic that would be detoured through adjacent neighborhoods. Results from prior vibration measurements of general construction activities and pile driving operations were analyzed and compared to acceptable standards on human-response to vibration (Appendix K of the 2009 SEIS, incorporated herein by reference).

Piles would be driven in several locations throughout the construction area. The piles would form part of the protective cells, guide wall, lock foundation, and coffer dam for the cast-in-place lock. According to the proposed construction timeline, pile driving operations would occur for most of the project duration, although there would be interspersed periods of time when little to no pile driving would occur. Pile driving is the loudest construction noise emission.

Vibratory and impact hammer pile drivers would be used in the construction of the replacement lock. It is typical for vibratory hammers to start the pile and drive it to a specified depth, and then an impact hammer drives the pile to the final depth. Based on prior analyses, it was assumed that the vibratory and impact hammers would be used in this manner. It was assumed that two such systems would be in operation simultaneously on the construction site.

In the Eustis report cited above, vibratory hammers were treated as a continuous noise source, while impact hammers are an impulsive noise source. The noise value is 101 dBA at 50 feet and is equivalent for both pile driver types (CEMVN 2000). The strike of an impact hammer is impulsive in nature. Therefore, previous modeling treated it as a broadband noise source. It was assumed that the vibratory hammer would be in operation 20 percent for every hour during the working day. The impact hammer was assumed to operate at a rate of 900 blows or impulses per hour during the working day. This is a typical rate equivalent to one blow every 4 seconds (Bolt, Beranek and Newman 1977) and supported by CEMVN measurement results during pile driving tests at the proposed replacement lock site (CEMVN 2000).

Additionally, a number of noise mitigation measures detailed at the end of this section would likely be implemented to reduce construction-related noise impacts. Examples include, but are not limited to, placing temporary noise barriers adjacent to construction activities, routing of construction-related traffic to avoid residential areas, using staging areas located away from heavily populated zones, monitoring of noise levels to verify adherence to contract specifications, and limiting pile driving activities to daylight hours.

*Vibration Impacts from Pile Driving*

Vibration impacts from construction activities and pile driving operations were reassessed in the vicinity of the construction site based on the vibration measurement data collected by CEMVN prior to the 2009 SEIS (CEMVN 2000, 2002). In 2008, USACE contracted Wyle Research and Consulting to conduct an updated noise analysis for the proposed IHNC lock replacement in a report titled, "Wyle Report 08-29, Noise Analysis for the Inner Harbor Navigation Canal (IHNC) Lock Replacement Project, New Orleans, Louisiana" (CEMVN 2008), attached in Appendix F. Under the 2008 study, the vibration monitoring data was collected for the background conditions (no construction activities), general construction with no pile driving activities, and pile driving activities with an impact hammer (hydraulic or air hammer) or vibratory hammer. The vibration measurements were conducted at various distances from 100 to 1,000 feet from the center of job site (between flood walls of the canal).

It is estimated that the lower range of vibrations in the surrounding communities would be within the acceptable vibration value and would not be perceptible by people in the community. However, the upper range of vibrations generated by the construction activities and pile driving are expected to exceed the acceptable level, would be perceptible to people and may generate adverse public reactions. The measured vibration levels were also compared to the threshold of structural damage to buildings. The proposed construction activities or pile driving would not adversely impact any structure or building in the vicinity of the construction site outside the floodwalls (Appendix K of the 2009 SEIS, incorporated herein by reference).

*Construction/Demolition*

Construction equipment used during the lock replacement would include vibratory and impact hammer pile drivers, dredging equipment, dump trucks, concrete mixers, and batch plant operations. The construction of the new lock, control house, maintenance and administration building, machinery building with emergency generators, paint shed, parking lot, and permanent access roadway, and removal of the existing lock is expected to last approximately 14 years; however, the location of construction noise, the levels of the noise, and the intensity of the noise would vary considerable over the 14-year construction period. The additional structures and facilities associated with the new lock are required in order to maintain operation and functionality of the lock. In addition, site access roads will be constructed for ingress and egress to these structures. The maintenance and administration building, parking lot, and access roadway is shown in Appendix B, Engineering, Annex 11, Plate Sheet C-103. During future detailed design, USACE will design and layout in further detail the various buildings to be constructed as part of the new lock and determine the logistics and suitable locations for the proposed structures.

As previously stated under Section 6.1.11 Housing, residents and businesses on the St. Claude Avenue corridor will not have vehicular access to the street right-of-way in front of their residences/businesses for approximately six months. Vehicular access for residents and businesses with driveways/parking lots with access to a side street will not be affected. As noted in the Draft Revised Community Impact Mitigation Plan (2024) (Appendix E), temporary relocations of residents may be offered due to lack of access to private properties. Temporary relocation may be made available for residents if temporarily unable to access their properties. The primary area of concern for this is along the approaches to the St. Claude Avenue bridge. If offered, temporary relocations would be performed in accordance with benefits as provided for temporarily displaced persons under the Uniform Relocation Assistance and Real Property Acquisition Policies Act (URA), 1970, as amended.

While those residents located deeper within the neighborhoods would also experience normally unacceptable noise levels (>65 dBA) as a result of construction of levees on the east bank of the IHNC, it was determined that mitigation measures such as sound barriers and best management practices to reduce adverse noise impacts during construction would be acceptable as these homes are already buffered by an existing floodwall located between their homes and the lock construction area, which will remain in place for a majority of the new lock construction. As detailed in Chapter 4, Recommended Plan, for the years involving construction of the new levees on the east bank of the IHNC, please refer to the specific impact avoidance and analysis, direct mitigation (impact minimization) measures, and general mitigation included at the end of this section as well as Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

*Dredging Operations*

It was assumed that most hydraulic and bucket dredging operations would consist of a diesel engine supplying power to the dredging pump located approximately 3 feet above water level on a barge. The diesel engine would be the dominant noise contributor. A barge would move the dredge pump throughout each of the DMMUs over the duration of the dredging process, except for those DMMUs that would be dredged with a bucket dredge and the material hauled to an industrial landfill (DMMUs 5 and 7). To minimize noise impacts to the surrounding project area, dredging activities would only occur during daylight hours. No significant noise impacts would be expected from either hydraulic or bucket dredging operations.

*Concrete Batch Plant*

A temporary concrete batch plant would be constructed to provide concrete for project construction. A batch plant is a temporary or portable concrete production facility typically consisting of stockpiles of sand and gravel, silos for storage of cement and other concrete additives, aggregate loaders, and concrete mixing equipment. Several options may be available for the location of the temporary batch plant including, but not limited to locating it within a temporary construction easement along the west bank of the IHNC between Florida Avenue and the general construction site or locating it on USACE-owned property adjacent to the existing IHNC Lock. According to the USACE Noise and Vibrations Monitoring report (CEMVN 2000), typical concrete mixing operations have a sound power level of 110 dBA at the 500 Hz octave band frequency immediately adjacent to the machinery. For all previously described proposed locations of the concrete batch plant, it is anticipated that 24-hour operation would be considered acceptable as the residents of the St. Claude neighborhood, which would be the closest noise receptors, would be well over approximately 1,000 feet in distance from the concrete batch plant operation. Therefore, residents of the St. Claude neighborhood would not be subject to either normally unacceptable DNL (above 65 dBA but not greater than 75 dBA) or unacceptable DNL (greater than 75 dBA) (HUD 1984).

*Vehicular Traffic*

In both the 1997 Evaluation Report and the 2017 draft report, it was anticipated that a temporary 4 lane low-level double bascule bridge would have been constructed immediately north of the existing St. Claude Avenue bridge. Once the temporary bridge was in place, vehicular traffic would have been diverted from the existing St. Claude Avenue bridge to the temporary bridge, and the existing St. Claude Avenue bridge would have been demolished. A new permanent 4 lane low-level double bascule bridge would have been constructed within the current St. Claude Avenue alignment, and the temporary replacement bridge would have been demolished. During construction, vehicular access across the IHNC along St. Claude Avenue would have allowed for two lanes in each direction to remain open.

Under the 2025 recommended plan, the project calls for a replacement of the existing low-rise St. Claude Avenue Bridge with a permanent double leaf bascule bridge to be constructed north of the St. Claude Avenue Bridge. With this change from a temporary replacement bridge to a permanent replacement bridge, vehicular access will be reduced to one lane in each direction during construction. The reduction from 4 to 2 lanes in each direction during construction of the new permanent bridge is considered to be an adverse impact to vehicular traffic. However, after further design refinement it was determined that if the new permanent bridge was completely built while still allowing a portion of the existing St. Claude Avenue bridge to remain open, the real estate acquisition requirements would be much higher due to the new replacement bridge approaches overlapping with the existing St. Claude Avenue bridge. Therefore, the construction is staggered with new permanent bridge construction and demolition of the existing St. Claude Avenue bridge to maintain traffic at all times and minimize real estate acquisition. Traffic flow is expected to be adversely altered due to the construction of the permanent replacement bridge at St. Claude Avenue. Construction would begin on the replacement bridge approximately ten years into the physical lock construction schedule and would take approximately 36 months to complete the replacement bridge including the spans and ramps. Construction of the permanent replacement bridge will be phased such that thru traffic along the existing St. Claude will be maintained for the entire construction duration. Demolition could take approximately 6 months for 2 lanes, or a total of 1 year to demolish all four lanes. In the event that restriction of thru traffic is required for construction of road tie-ins; closures will be minimized to nights and weekends during low traffic volume periods. A staging area for bridge construction would be positioned on the west side of the IHNC in a vacant lot made available from the removal of three residential homes adjacent to the project. It is anticipated that a majority of traffic is likely to divert to Claiborne Avenue and Florida Avenue during this period of construction.

Noise from the bridge construction will be heaviest during pile driving for the bridge foundation piers near the channel. Noise during the remainder of the construction would be from cranes, trucks, and other typical construction equipment. Demolition of the existing St Claude Bridge will include the use of hydraulic breakers, dump trucks, skid steers, and cranes.

The demolition of the St. Claude Avenue Bridge and construction of a replacement bridge would likely cause a shift of some vehicular traffic onto North Claiborne Avenue and the Claiborne Avenue Bridge. However, during construction of the permanent replacement bridge at St. Claude Bridge, the diverted traffic and associated delay impacts on North Claiborne Avenue are not expected to be significant. Minor to moderate delays on North Claiborne Avenue, particularly during peak hours, and moderate congestion in neighborhoods adjacent to Florida Avenue due to traffic rerouting to the Florida Avenue Bridge should be expected while the St. Claude Bridge is under construction.

Average daily traffic volumes ranging from 1993 to 2023 for the major roadways that run through the project area, North Claiborne Avenue bridge and St. Claude Avenue bridge are described in Section 2.2.10 and Table 2-9 (traffic volumes for Florida Avenue at the bridge crossing are not available; however vehicular traffic counts for Florida Avenue at Elysian Fields, are described in Section 2.2.10). For purposes of determining noise impacts and mitigation measures for unacceptable project related noise levels, no roadway traffic data was

included for residential roads. It was assumed that traffic on the residential roads is minimal and not a significant noise contributor.

*Minor Noise Sources*

Minor noise sources were considered negligible and omitted from the analysis (Appendix K of the 2009 SEIS, incorporated herein by reference). Meteorological effects due to wind or extreme temperatures were not considered in this analysis. Barge movements and tugboat operations within the IHNC and borrow operations within the Bonnet Carré Spillway were all assumed to be negligible noise contributors, such that it does not influence the day/night sound level contours over the total duration of the project.

*Impact Avoidance and Analysis*

Impact avoidance refers to actions taken by the Corps that are designed to avoid adverse construction impacts and which represent prudent and innovative engineering design and construction practice. These actions are incorporated into the construction plan and are required because construction will occur in an urban environment.

The actions to be taken by the Corps and any contractors or subcontractors, that are designed to avoid adverse impacts from noise include:

a. Conduct a pre-construction pile test using a variety of pile drivers at selected locations in order to measure noise levels and delineate the area exposed to a "Normally Unacceptable" level of noise, which is defined as above the 65 dBA contour but not greater than 75 dBA contour, which is classified as "Unacceptable." USACE will conduct additional pile load testing, background noise studies, and noise measurements associated with pile load testing in the future detailed design phase. The updated pile load testing will be performed in conjunction with noise measurements from both vibratory and impact pile driving of steel and concrete piles. Additionally, several locations that vary in proximity from the primary construction area will be established to conduct a 24-hour ambient noise measurement to document up-to-date project area baseline noise conditions. Contract specifications would limit noise to certain levels at specified distances from the construction sites and require monitoring of noise levels by the contractor to verify adherence to the contract specifications. Contract specifications would also require pile-driving equipment designed to minimize noise levels.

b. Include a provision in the contract specifications limiting noise to certain levels at given distances from the construction site. The standard would generally allow no "unacceptable" noise levels attributable to lock or bridge construction to invade residential areas. Concerning the St. Claude Avenue bridge approaches, the standard would limit the exposure to high noise levels (above 65 dBA or equivalent) to those structures adjacent to the construction site if the total elimination of noise is not possible. While the contractor would have discretion in compliance with the standard, the form of compliance would likely include the employment of specialized, quieter equipment, remote deployment or isolation of some equipment, and the placement of baffle walls or other sound absorption devices.

c. Include contract specifications to verify the containment of noise levels. Contractors would be required to use noise monitoring equipment to verify adherence to contract specifications that limit the unacceptable levels of noise at given distances from construction sites.

d. Contract specifications will require the use of a vibratory hammer or other pile-driving equipment that is designed to minimize noise emissions. This depends on the results of the pile tests previously mentioned. Recognizing the adverse impacts associated with pile driving with

standard equipment within an urban environment, the construction industry and construction equipment manufacturers have, in recent years, modified pile driving technology. Specialized pile drivers significantly reduce noise, particularly for jobs that require relatively small piles, as is typically required for constructing floodwalls and bridge approaches.

e. Designate specific routes for construction-related traffic away from residential and commercial areas and designate locations for construction staging areas away from heavily populated areas.

*Direct Mitigation (Impact Minimization)*

Direct mitigation refers to actions taken by the Corps to minimize adverse direct impacts that remain following the implementation of the normal procedures.

In an effort to minimize direct impacts of noise the following mitigation measures will be deployed:

a. Soundproofing measures will be considered for any residential or commercial structures within high noise levels (above 65 dBA). However, soundproofing may not eliminate all high noise levels under normal procedures. Soundproofing measures could include installing insulation, noise-cancelling machines, or sound walls.

b. The hours of pile driving and heavy truck hauling on designated routes will be restricted to at most 10 hours per day and not at night. Pile driving for the new low-rise St. Claude Avenue bridge will be scheduled during the summer to minimize noise impacts on schools.

c. Temporary relocation of residents during periods of high noise related activities may be considered when all other mitigation measures have been exhausted or deemed impractical. If offered, this will be optional for residents immediately adjacent to the construction activity, especially adjacent to the St. Claude Avenue bridge approaches.

*General Mitigation*

Mitigation for indirect impacts will be actions taken by the Corps or by a local project sponsor in cooperation with local government, community groups, and residents to alleviate those adverse impacts that remain following the implementation of both impact avoidance procedures and the direct impact minimization measures described above.

The intent of indirect impact compensation is to make the communities whole and resilient to the impacts of construction activity for the duration of those activities. The indirect impact compensation associated with impacts from noise include:

7. Very high levels of construction-related noise would be limited to residences and businesses adjacent to the St. Claude Avenue Bridge approaches and along Jordan Avenue. Residential structures in the vicinity of the St. Claude Avenue Bridge approach and lock deconstruction and construction zones could still be impacted by high noise levels, even with soundproofing noise abatement. If soundproofing efforts are insufficient, those structure owners and renters could be offered temporary relocation benefits to avoid high levels of noise (75 dBA).

For additional information on impact avoidance and analysis, direct mitigation (impact minimization) measures, and general mitigation, please refer to Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

<u>Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.</u>

The noise impacts for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x -22 feet deep.

The noise impacts for this plan are similar to those described in Plan 3.

### 6.1.14 Air Quality

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

Under the no-action alternative, it is anticipated that the project area would continue to be in attainment for all ambient air quality standards. Traffic flow patterns are anticipated to remain similar to existing conditions, resulting in similar emissions from motor vehicles in the project area.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to air quality for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

Impacts on air quality were described in the 1997 EIS and 2009 SEIS and are incorporated herein by reference. It was previously noted that by year 10 of the construction, air emissions from the project would exceed *de minimis* thresholds. The backfilling of the lock with earthen material and construction of the east side MRL would both likely require numerous transport vehicles to haul in fill materials. Under the currently proposed plan, backfilling the lock and construction of the east side MRL is scheduled to take place in years 9-14 of the proposed 14-year construction schedule. However, as listed in Tables 6-3 through 6-7, a revised CEMVN 2024 Air Emissions Analysis demonstrates a proposed "worst case scenario" of various project construction activities' air emissions for an average construction year (i.e., any given year within the total construction duration of 14 years).

*Construction Activities*

Temporary increases in air pollution would occur from the use of construction equipment (combustible emissions). In the 2009 SEIS, combustible emission calculations were made for standard construction equipment, such as bulldozers, tugboats, excavators, dredgers, pumps, front end loaders, backhoes, cranes, and dump trucks, using emission factors from EPA-approved emission model NONROAD6.2. Analyses were made for the type of equipment, duration of the total number of days each piece of equipment would be used, and the number of hours per day each type of equipment would be used, based on the 2007 IHNC report prepared by Project Time and Cost Inc. 2007, included in Appendix L of the 2009 SEIS, incorporated herein by reference.

Construction workers would temporarily increase the combustible emissions in the air shed during their commute to and from the project area. Delivery trucks transporting supplies to the project area would also contribute to combustible emissions. MOBILE6.2 model was utilized to determine air emissions resulting from the personal motor vehicles commuting to work and delivery trucks transporting supplies to the jobsite (EPA 2005a and EPA 2005b).

Fugitive dust can arise from the mechanical disturbance of surface soils and the manufacture of concrete. Particulate matter (PM-10 and PM-2.5) emissions were calculated using emission factors recommended in EPA's National Emission Inventory (EPA 2001) which were the result of field studies conducted by Midwest Research Institute (1996).

The construction of the lock would require over 200,000 cubic yards of concrete and a concrete batch plant would be required to supply the concrete. Batch plants produce fugitive dust emissions during operation. In order to estimate emissions from the batch plant, AP 42 (EPA 2001) emission factors were utilized to calculate annual emissions.

*Construction Air Emission Analysis*

Project construction is predicted to last approximately 14 years. The new lock construction period is anticipated to take approximately 8 years to complete (year 2034 to year 2041). Some tasks, such as de-mucking and backfilling the cofferdam with earthen fill material and backfilling the channel around the new lock with earthen fill material as well as construction of the east side MRL, would likely require approximately 17 dump trucks per day during certain periods of construction to complete the task. Additionally, several front-end loaders, bulldozers, and roller-compactors would be required to distribute, level and compact fill material. Previous air emissions calculations for a deep draft lock in the 2009 SEIS determined that by year 10 of a 12-year construction schedule, air emissions would have been substantially greater during that year than other years. For the current revised 14-year construction schedule, the previously noted construction activities producing increased air emissions in years 9 through 14 (years 2042 through 2047) of a 14-year construction schedule would likely be substantially greater than other years. While the proposed project construction activities will not violate the current air quality attainment status of Orleans Parish, Tables 6-3 through 6-7 demonstrates a "worst case scenario" of various project construction activities' air emissions for an average construction year (i.e., chance of occurrence within any year of the total construction duration (14 years)).

Several sources contribute to the air emissions analysis of the construction project. The air emission quantities presented in Tables 6-3 through 6-7 include emissions from:

- Combustible engines of construction equipment
- Vehicle emissions from construction workers during commute to and from work
- Vehicle emissions from supply trucks delivering materials for construction
- Fugitive dust emissions from job site ground disturbances
- Emissions from the pumps transporting slurry to containment areas
- Emissions from tugboat and barge
- Emissions from concrete batch factory

**Table 6-3 Calculated Emissions for Construction Project Features**

| Type of Construction Equipment | VOC tons/yr. | NOx tons/yr. | PM tons/yr. | SO2 tons/yr. |
|---|---|---|---|---|
| Diesel Bulldozer | 0.314 | 3.810 | 0.167 | 0.994 |
| Diesel Excavator | 0.343 | 4.156 | 0.182 | 1.085 |
| Diesel Crane | 0.170 | 2.196 | 0.072 | 0.588 |
| Diesel Crane | 0.247 | 6.409 | 0.195 | 1.582 |
| Diesel Crane | 0.189 | 2.450 | 0.081 | 0.655 |
| Diesel Crane | 0.282 | 7.324 | 0.223 | 1.808 |
| Diesel Crane | 0.062 | 0.758 | 0.024 | 0.198 |
| Diesel Pile Drivers | 0.196 | 2.534 | 0.084 | 0.678 |
| Diesel Tractors/Backhoes | 0.155 | 1.985 | 0.076 | 0.452 |
| Diesel Tow Boat | 0.018 | 0.467 | 0.014 | 0.115 |
| Diesel Tow Boat | 0.040 | 1.030 | 0.031 | 0.254 |
| Diesel Front End Loader | 0.054 | 0.697 | 0.023 | 0.186 |
| Diesel Dump Trucks | 4.895 | 63.360 | 2.091 | 16.949 |
| TOTALS | 6.964 | 97.178 | 3.265 | 25.544 |

Emissions Formula: (lbs./hp-hr.) x (hp) x (hr.) x (days) x (# of units)/2000 = Tons/yr.

*Transportation Combustible Emissions in an Average Construction Year (Worst Case Scenario)*

**Table 6-4 Construction Worker Personal Vehicle Commuting to Construction Site**

| Emission Factors | | | Presumptions | | | | Results by Pollutant | | |
|---|---|---|---|---|---|---|---|---|---|
| Pollutant | Passenger Cars g/mile | Pickup Trucks, SUVs g/mile | Miles/day | Days/year | Number of Cars | Number of Trucks | Total Emissions Cars tons/yr. | Total Emissions Trucks tons/yr. | Total tons/yr. |
| VOC | 1.36 | 1.61 | 30 | 240 | 30 | 30 | 0.32 | 0.38 | 0.71 |
| $NO_x$ | 0.95 | 1.22 | 30 | 240 | 30 | 30 | 2.95 | 3.74 | 6.69 |
| PM | 0.0052 | 0.0065 | 30 | 240 | 30 | 30 | 0 | 0 | 0 |

Sources:

1. Time and Cost, Inc. 2007 and several air emission factors models were utilized to determine results. Data and sources are presented in Appendix L of the 2009 SEIS.

2. CEMVN Air Emissions Analysis 2024.

   a. Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010.

   b. USEPA 2005 Emission Facts: Average annual emissions and fuel consumption for gasoline-fueled passenger cars and light trucks EPA 420-F-05-022 August 2005.

**NOTE:** *De Minimis* emissions threshold 100 tons/yr. - not applicable because Orleans Parish is currently in attainment for all NAAQS.

**Table 6 5 Heavy Duty Truck Delivery Supply to Construction Site**

| Emission Factors | | | Presumptions | | | | Results by Pollutant | | |
|---|---|---|---|---|---|---|---|---|---|
| Pollutant | 10,000-19,000 lb. Delivery Truck | 33,000 - 60,000 lb. Semi-Trailer Rig | Miles/day | Days/yr. | Number of 10,000-19,500 lb. Trucks | Number of 33,000-60,000 lb. Trucks | Total Emissions of 10,000-19,000 lb. Trucks | Total Emissions of 33,000-60,000 lb. Trucks | Total tons/yr. |
| VOC | 0.29 | 0.55 | 60 | 240 | 2 | 2 | 0.01 | 0.02 | 0.03 |
| $NO_x$ | 4.97 | 12.60 | 60 | 240 | 2 | 2 | 0.16 | 0.40 | 0.56 |
| PM | 0.12 | 0.33 | 60 | 240 | 2 | 2 | 0.00 | 0.01 | 0.01 |

Sources:

1. Time and Cost, Inc. 2007 and several air emission factors models were utilized to determine results. Data and sources are presented in Appendix L of the 2009 SEIS.

2. CEMVN Air Emissions Analysis 2024.

   a. Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010.

   b. USEPA 2005 Emission Facts: Average annual emissions and fuel consumption for gasoline-fueled passenger cars and light trucks EPA 420-F-05-022 August 2005.

**NOTE:** *De Minimis* emissions threshold 100 tons/yr. - not applicable because Orleans Parish is currently in attainment for all NAAQS.

*Fugitive Dust Emissions in an Average Construction Year (Worst Case Scenario)*

**Table 6-5 Fugitive Dust Emissions at Construction Site**

| Construction site | Emission Factor tons/acre/month | Total Area **Construction Site/month** | Months/yr. | Total PM-10 Emissions tons/yr. | Total PM-2.5 Emissions tons/yr. |
|---|---|---|---|---|---|
| Fugitive Dust Emissions | 0.11 | 10.42 | 12 | 13.75 | 2.75 |

Sources:

1. Time and Cost, Inc. 2007 and several air emission factors models were utilized to determine results. Data and sources are presented in Appendix L of the 2009 SEIS.

2. CEMVN Air Emissions Analysis 2024.

   a. Environmental Protection (EPA) 2001. Procedures Document for National Emission Inventory. Criteria Air Pollutants 1985-1999. EPA-454/R-01-006. Office of Air Quality Planning and Standards Research Triangle Park, NC 27711.

   b. 20% of the total PM-10 emissions are PM-2.5 (EPA 2006).

**NOTE:** *De Minimis* emissions threshold 100 tons/yr. - not applicable because Orleans Parish is currently in attainment for all NAAQS.

**Table 6-6 Recommended Plan Construction Emissions for Criteria Pollutants (tons per year)**

| Emission Source | VOC | NOx | PM-10 | PM-2.5 | $SO_2$ |
|---|---|---|---|---|---|
| Construction Equipment Combustible Emissions | 6.96 | 97.18 | 3.26 | NA | 25.54 |
| Construction Site Fugitive PM-10 & PM-2.5 Emissions | NA | NA | 13.75 | 2.75 | NA |
| Construction Workers Commuter & Trucking | 0.74 | 7.25 | 0.01 | NA | NA |
| Total Emissions | 7.70 | 104.43 | 17.02 | 2.75 | 25.54 |

Sources:

1. Time and Cost, Inc. 2007 and several air emission factors models were utilized to determine results. Data and sources are presented in Appendix L of the 2009 SEIS.

2. CEMVN Air Emissions Analysis 2024.

   a. Environmental Protection (EPA) 2001. Procedures Document for National Emission Inventory. Criteria Air Pollutants 1985-1999. EPA-454/R-01-006. Office of Air Quality Planning and Standards Research Triangle Park, NC 27711.

   b. 20% of the total PM-10 emissions are PM-2.5 (EPA 2006).

**NOTE:** *De Minimis* emissions threshold 100 tons/yr. - not applicable because Orleans Parish is currently in attainment for all NAAQS.

The dump trucks contribute the greatest portion of air pollutants when backfilling the cofferdam and bypass channel. The assumptions, emission factors, and resulting calculations are presented in Appendix L of the 2009 SEIS. While it is anticipated that the average annualized air emissions for construction activities in years 9 through 14 (years 2042 through 2047) of a 14-year project construction schedule would exceed *de minimis* thresholds for NOx, it is important to note that the current NAAQS standards for Orleans Parish are in attainment status. Additionally, current NAAQS standards for St. Charles Parish, specifically proposed borrow areas within the Bonnet Carré Spillway, are in attainment status. As such, no significant impacts to air quality are expected to occur. Furthermore, there would be no violations of air quality standards and no conflicts with the State Implementation Plan as implemented by the Louisiana Department of Environmental Quality promulgated through rules and regulations under 40 CFR Part 51, Subpart W to fulfill requirements of Section 176(c) of the Clean Air Act of 1972, as amended (42 U.S.C. 7401 et seq.).

Additionally, lock construction contracts would require contractors to conduct proper and routine maintenance of all vehicles and other equipment. These actions would ensure that emissions are within the design standards of all construction equipment. Dust suppression methods would be implemented to minimize fugitive dust emissions both at the new lock construction site and proposed borrow areas within the Bonnet Carré Spillway. Some measures may include use of dump truck tarps to cover the load and prevent materials from spilling out during transport as well as truck wash down racks located at both ingress and egress at various project features construction sites.

*Impact Avoidance and Analysis*

Impact avoidance refers to actions taken by the Corps that are designed to avoid adverse construction impacts and which represent prudent and innovative engineering design and construction practice. These actions are incorporated into the construction plan and are required because construction will occur in an urban environment.

The actions to be taken by the Corps and any contractors or subcontractors, that are designed to avoid adverse impacts from air quality include:

Contract specifications will require compliance with Federal and State Air Quality Standards and preservation of air quality within specified levels. The contractor will be required to monitor air quality levels to verify compliance. Measures to preserve air quality may include wetting levees and construction roads, mesh barriers, and other appropriate measures to reduce dust.

For additional information on impact avoidance and analysis, please refer to Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to air quality for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x -22 feet deep.

The impacts to air quality for this plan are similar to those described in Plan 3.

### 6.1.15 Human Health and Safety

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

No changes to human health and safety are anticipated under the no-action alternative. OSHA regulations for workers would continue to be followed for lock and bridge maintenance activities, and the lock would continue to be inaccessible to the public for safety reasons.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to human health and safety for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

All lock construction and demolition activities would occur within the IHNC and public access to these construction areas would be restricted. Additionally, during levee and floodwall reconstruction, fencing and signage would be placed along the perimeter of the construction areas to restrict access to construction sites. All workers would follow applicable OSHA regulations during construction to ensure worker safety at all times. These regulations specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits with respect to workplace stressors. Construction workers at the construction sites would be exposed to safety risks from the inherent dangers of construction sites. Contractors would be required to establish and maintain safety programs at the construction site. The proposed lock construction would not expose members of the general public to increased safety risks because of the site access restrictions. The same would be true for all aspects of this construction project, including replacement of the St. Claude Avenue Bridge. While the new St. Claude Avenue bridge

approaches would remove a large portion of the concrete wall under the existing bridge approaches, thereby replacing the supporting wall with open space beneath the ramps, these new bridge approaches would allow passage for both vehicular traffic and pedestrians beneath their decks and lighting would be provided beneath the ramps to deter vandalism and increase safety.

As part of compliance with Section 402 of the Clean Water Act, a Stormwater Pollution Prevention Plan (SWPPP) would be developed for the project, and the use of Best Management Practices (BMPs) would be implemented as standard operating procedures during all construction activities, including measures for dust suppression and proper handling, storage, and/or disposal of hazardous and/or regulated materials. All non-recyclable hazardous and regulated wastes would be collected, characterized, labeled, stored, transported, and disposed of as regulated by the EPA and managed by the construction contractor, pursuant to compliance with the Resource Conservation and Recovery Act (RCRA) and other applicable laws and regulations.

Solid waste receptacles would be maintained at staging areas. Non-hazardous solid waste (trash and waste construction materials) would be collected and deposited in on-site receptacles. Solid waste would be collected and disposed of properly in accordance with the Solid Waste Disposal Act [PL 89-272, 79 Stat. 997, as amended by RCRA, PL 94- 580, 90 Statute 2795 (1976)].

*Impact Avoidance and Analysis*

Impact avoidance refers to actions taken by the Corps that are designed to avoid adverse construction impacts and which represent prudent and innovative engineering design and construction practice. These actions are incorporated into the construction plan and are required because construction will occur in an urban environment.

Safety will be vital throughout the construction of the project. The following specific measures will be included:

a. Media notices will be a key role in fostering transparency and community involvement, ensuring citizens are well-informed about construction activities.

b. Lighting will be installed at all construction sites, as might be appropriate.

c. Signs, markers, and fences will be erected at construction sites.

d. Contract specifications will require contractors to arrange for barriers and potentially evening security patrols to isolate potential hazards at the construction sites and discourage theft and vandalism.

For additional information on impact avoidance and analysis, please refer to Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to human health and safety for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x -22 feet deep.

The impacts to human health and safety for this plan are similar to those described in Plan 3.

## 6.2 Natural Environment

### 6.2.1 Aquatic Resources

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

There would be no expected changes to water quality under the no-action alternative. A long-term reduction in salinities is anticipated with the 2009 closure of the MR-GO and evidence of a reduction has already occurred. Evidence includes reported increases of freshwater species of fish being caught by recreational fishermen and rafts of water hyacinths (a freshwater floating plant) occurring in nearby waterways. Tate *et al.*, (2002) modeled salinity changes resulting from a partial MR-GO closure with width reduction that occurred before the channel was closed. Modeled changes at Little Woods on Lake Pontchartrain (closest modeled data point to the IHNC) showed that average annual salinities in Lake Pontchartrain were reduced from 6.9 parts per thousand to 4 parts per thousand. As of 2024, utilizing Coastwide Reference Monitoring System data at a site within the GIWW just east of the MR-GO (closest modeled data point to the IHNC), measured an additional reduction in average annual surface salinities to 4.12 parts per thousand in the Lake Pontchartrain estuary (USGS 2024)). One of the major paths for salinity to move up-estuary is through a northerly route stemming from Chandeleur Sound > Mississippi Sound > Lake Borgne > Lake Pontchartrain. The salinity incursions are seasonally moderated by either Pearl River discharge or by discharges from the Mississippi River. Continual salinity reductions also occur with periodic closures of the LPV hurricane and storm damage risk reduction structures which have been constructed in the IHNC at Seabrook and in the GIWW. Reduced long-term salinities due to the MR-GO closure would likely change the aquatic organism use in the project area from primarily an assemblage of salinity-dependent estuarine species to an assemblage containing more freshwater species that are tolerant of low–salinity waters, such as largemouth bass, redear sunfish, and blue catfish.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to aquatic resources for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

Impacts on the aquatic environment would occur from dredging and filling activities, as well as other construction-related activities such as pile driving and construction and dewatering of a large cofferdam. Past detailed studies such as elutriate testing provide estimates of the impacts on aquatic habitats from construction activities (Appendix C of the 2009 SEIS). Disposal of material into the Mississippi River would also impact aquatic habitats. These impacts would be mainly related to increased concentrations of ammonia, copper, manganese and zinc, and increased suspended sediments. The impacts on aquatic habitats would be short-term, and the concentrations of copper and zinc would be similar to those normally experienced under ambient conditions. Only small amounts of material were found to contain high levels of manganese, and these would be dredged in a short time frame. Additionally, all materials that exceed water quality criteria would be dredged with a mechanical bucket and hauled and disposed in a landfill licensed to accept and store such material.

Suspended sediment concentrations would temporarily increase during dredging activities, and dissolved oxygen would decrease in the immediate area of dredging and disposal. Under low current conditions such as occur in the IHNC, elevated levels of suspended sediments would be localized in the vicinity of the dredging activity. This would have short-term impacts on aquatic organisms located in the IHNC, especially during summer months when water temperatures are higher. There would be some loss of less motile aquatic organisms; however, mature finfish would avoid these areas of low DO. The daily sediment load discharge for the Mississippi River ranges from 219,000 tons per day to 436,000 tons per day, with an average of 341,000 tons per day. The total proposed sediment discharge into the Mississippi River over the entire 10-year project construction is estimated at 221,000 tons. As dredging and disposal activities would take place at varying

intervals throughout the project construction, it is expected that the overall total of 221,000 tons would not exceed the average daily sediment load discharge in any given year. No measurable adverse impacts on aquatic life or drinking water supply intakes downstream would be expected.

*Water Column Toxicity Evaluation*

The water column toxicity evaluation is provided in Appendix C of the 2009 SEIS and is incorporated herein by reference. Based on the results of the suspended particulate-phase water column toxicity tests, dredged materials from DMMUs 5 and 7 are predicted as potentially toxic to freshwater water column organisms (Appendix C of the 2009 SEIS). Those dredged materials were further analyzed for their potential to cause impacts on water column organisms at the Mississippi River disposal site according to available dilution across an allowable mixing zone. Potential for dredged material disposal causing adverse impacts on water column organisms at the Mississippi River disposal site was further evaluated by comparing potential for state or Federal water quality standards to be exceeded outside the mixing zone (see following *Elutriate Evaluation*).

*Elutriate Evaluation*

Chemical analysis of over 170 contaminants of concern was performed on dredging elutriates from each DMMU to determine if detected contaminants exceeded regulatory water criteria or non-regulatory screening standards protective of human health and the environment. For those contaminants where exceedances were noted, the degree of dilution required to meet water quality standards was determined and the size of mixing zone required to achieve the dilution calculated using parameters specific to the Mississippi River disposal site. Additionally, toxicity tests were performed on sensitive water column organisms exposed to serial dilutions of the DMMU elutriates. Dilution targets were developed based on the results of the elutriate toxicity tests, and dilution and mixing zone requirements to meet these targets were determined.

Using physical and chemical properties of the receiving water at the Mississippi River disposal site, attainable dilution was calculated for high and low flow receiving water conditions for barge dump and for continuous pipeline discharge. Maximum area required to meet either water quality standards or dilution targets for both flow conditions and discharge scenarios were then compared to allowable mixing zone size established by the Louisiana Department of Environmental Quality (LDEQ).

Based on the modeling conducted for freshwater disposal in the Mississippi River (Appendix C of the 2009 SEIS), a 700-fold dilution could be met within 2,100 feet from the discharge point for low flow conditions, and within 1,000 feet for high flow conditions. This would meet the most stringent dilution requirements based on comparison of elutriate concentrations to water quality criteria and would also satisfy the maximum dilution requirements based on the elutriate toxicity testing. This distance is consistent with the point at which non-detectable concentrations have been observed during disposal operations in the past. Also, the dilutions required to be protective based on toxicity can be met within approximately 1,400 feet for worst case conditions (low flow, pipeline disposal), as the maximum dilution based on toxicity was less than 400-fold. As these mixing zone dimensions appear to be reasonable and consistent with past operations, it appears that none of the materials tested would be excluded from open water disposal on the basis of water column impacts outside of an authorized mixing zone.

Further, evaluation of potential impacts on the closest waterworks intake (for St. Bernard Parish) indicates that dilution required in order to meet drinking water standards would be achieved within no more than 350 feet from the point of disposal for all scenarios. It is not known if the proposed mixing zone for the Mississippi River disposal site would intersect with mixing zones for other permitted discharges. This seems unlikely to be an issue given the long-standing nature of the disposal site, but state criteria require verification that overlap would not result in unacceptable conditions. Without further information regarding mixing zone dimensions for nearby permitted discharges, this remains to be confirmed.

*Benthic Toxicity Evaluation*

Based on the results of the solid-phase toxicity tests, two DMMUs (5 and 7) are predicted to be acutely toxic to freshwater benthic organisms. This material would be excavated with a mechanical bucket and the material hauled to a solid waste landfill. All remaining IHNC DMMUs are not predicted to be acutely toxic to freshwater benthic invertebrates. Based on the results of the solid-phase toxicity tests, dredged material from the five other DMMUs are predicted to be acutely toxic to estuarine benthic invertebrates. This is not a concern for the RP because there will be no discharge into estuarine[19] water habitat. Disposal from these DMMUs will be into the fresh water of the Mississippi River where the material will be quickly diluted. Material from DMMUs 3, 4, 6, 9, and 10 is not predicted to be toxic to freshwater benthic invertebrates based upon the modeling conducted for freshwater disposal in the Mississippi River as detailed above in the *Elutriate Evaluation* section. As such, this material would be excavated with a hydraulic dredge and discharged into the Mississippi River.

*Bioaccumulation Evaluation*

For freshwater open water disposal, tissue concentrations of all contaminants from DMMUs not predicted to be toxic to benthic organisms were either statistically less than United States Food and Drug Administration (USFDA) action levels or there are no USFDA levels for the contaminants. For those DMMUs, tissue concentrations of contaminants of concern in organisms exposed to dredged material statistically exceeded those of organisms exposed to the reference material. However, the IHNC DMMUs evaluated for bioaccumulation potential are not predicted to be toxic to benthic organisms and would not likely have an unacceptable adverse effect on survival, growth or reproduction of aquatic organisms due to bioaccumulation.

*Dredged Material Placement Decisions*

Under the RP, discharge in the Mississippi River is the recommended plan for discharge of dredged material suitable for aquatic disposal. Results from aquatic and benthic toxicity tests, and water column mixing zone analyses were evaluated to determine the suitability of DMMUs for discharge into freshwater. Based upon the sediment evaluation, dredged material suitable for aquatic disposal would be disposed of in the following manner.

Approximately 614,000 cubic yards of dredged material from DMMUs 3, 4, 6, 9, and 10 would be disposed in the Mississippi River. This material is non-toxic to sensitive benthic organisms, does not contain contaminants at concentrations that would adversely bio-accumulate or bio-magnify in aquatic food webs, and would not violate or exceed regulatory water quality criteria or drinking water standards upon discharge into the proposed Mississippi River open-water disposal site. The dredged material would mix with the river's normal suspended and bedload sediments and be carried downstream. The disposal of dredged material suitable for freshwater would occur at varying intervals over the 14-year project. Refer to Chapter 4 for the proposed construction sequence and subsequent years associated with excavation and disposal of DMMUs 3, 4, 6, 9 and 10.

[19] An estuary is a partially enclosed coastal body of brackish water with one or more rivers or streams flowing into it, and with a free connection to the open sea. Estuaries form a transition zone between river environments and maritime environments.

*Borrow Operations within Bonnet Carré Spillway*

For the two proposed borrow areas, it is expected that excavated materials would be taken from previously designated areas that contain deposited sediments from annual rises in the Mississippi River and areas that have been previously utilized for borrow. (see Chapter 4 Recommended Plan). The potential exists for new direct and indirect impacts to fisheries resources via the creation of borrow pits and ponding water resulting from the excavation of clay borrow within the spillway. While the creation of new borrow pits would be expected to directly result in an increase in shallow aquatic habitat via the anticipated infilling of the pits through annual rises in the Mississippi River, it is expected that any newly excavated sites would be designed to ensure hydrological connections to adjoining water bodies, specifically smaller pits, and canals, to avoid the creation of stagnant pits. Best practical techniques such as the placement of trees and vegetative debris along the banklines to provide structure and cover for aquatic organisms would be employed during the construction of the new pits. The potential exists for continued pollutant runoff and non-point discharges into adjacent drainage canals and subsequent adjoining water bodies from borrow construction equipment. Therefore, the potential exists for both beneficial and negative indirect impacts to fisheries resources to occur from newly created borrow pits.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to aquatic resources for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x -22 feet deep.

The impacts to aquatic resources for this plan are similar to those described in Plan 3.

### 6.2.2 Essential Fish Habitat

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

The MR-GO closure structure, across the MR-GO at Bayou La Loutre, is expected to decrease salinity levels upstream in and near the MR-GO, including the project area. Additionally, another closure structure placed across the MR-GO as part of the HSDRRS, just downstream from Bayou Bienvenue, and water control structures placed across Bayou Bienvenue, the GIWW, and the IHNC at its intersection with Lake Pontchartrain as part of the HSDRRS, are likely causing additional lowering of salinities in the project area compared to levels experienced prior to 2008. Accordingly, the abundance of estuarine aquatic species that require higher salinities is expected to decrease in the project area. Conversely, the abundance of species that are tolerant of low salinity levels should increase. Since brown shrimp require a moderate salinity level, the abundance of brown shrimp could decrease in the immediate project area. Conversely, white shrimp are very tolerant of low salinity levels and should not be adversely affected. Their seasonal abundance may actually increase in the project area from the decrease in salinity levels. Red drum are found throughout the estuaries from highly saline areas to areas of very low salinity. The abundance of red drum in the project area, considering the anticipated effects of these projects, is not expected to be changed significantly.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to essential fish habitat for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

Direct impacts to approximately 45 acres of tidally influenced essential fish habitat (EFH), including water column and mud substrate, would occur within the canal at the proposed new IHNC Lock site with the implementation of the RP. Of the 45 acres, EFH impacts would encompass approximately 15 acres which would be occupied by the new navigation lock and associated lock grounds, and 30 acres of freshwater habitat which would be directly connected to the Mississippi River. In addition, approximately 10 acres occupied by the existing lock and associated lock grounds would be converted to freshwater habitat, making the total increase of freshwater habitat approximately 40 acres. The permanent loss of EFH would result from a series of construction activities including excavation of a north bypass channel on the east side of the IHNC, cofferdam construction, pile driving, and backfilling on both sides of the new lock. Additional short-term effects to the estuarine water column within the channel would result from increases in turbidity within the water column and permanent removal of approximately 719,000 cubic yards of dredged material.

The NOAA, National Marine Fisheries Service, Habitat Conservation Division (NMFS HCD), reviewed the 2017 draft report and provided comments to the report by letter dated February 1, 2017 (Appendix A, Annex 8.2). The NMFS HCD comments initially noted an error in the draft 2017 report where CEMVN estimated approximately 30 acres of EFH estuarine habitat would be permanently lost as a result of the TSP. NMFS HCD noted that project implementation would result in the unmitigated permanent loss of approximately 45 acres of EFH tidally influenced habitat. CEMVN has since corrected the approximate impact acreage and EFH habitat classification in this final report. Additionally, NMFS HCD stated they believe it is technically feasible to pump the 600,000 cubic yards of sediment identified as appropriate for open water disposal into the adjacent Bayou Beinvenue open water area. The pumping distance to the potential marsh creation site is similar to, or closer than, the Mississippi River disposal site identified in the draft 2017 report. As such, NMFS HCD believes the beneficial use of sediment should not result in a significant cost increase in the project, and while NMFS HCD is aware of potential land rights issues associated with disposal in the recommended area, NMFS HCD believes those problems could be circumvented. Additionally, NMFS HCD noted that a number of local community groups have previously supported marsh creation in the recommended placement area. NMFS HCD offered the following EFH conservation recommendation, "The NMFS recommends the USACE develop a mitigation plan designed to offset the loss of approximately 45 acres of EFH. Such a plan should be developed in coordination with NMFS and incorporated into the final EIS."

CEMVN responded to NMFS HCD by letter dated March 31, 2017 (Appendix A, Annex 8.2). CEMVN concurred with NMFS HCD's estimation of approximately 45 acres of tidally influenced EFH habitat being permanently impacted. CEMVN noted that of the 45 acres of tidally influenced EFH habitat, permanent impacts would encompass approximately 15 acres occupied by the new navigation lock and associated lock grounds, and 30 acres of freshwater habitat directly connected to the Mississippi River. In addition, approximately 10 acres occupied by the existing lock and associated lock grounds would be converted to freshwater habitat, making the total increase of freshwater habitat approximately 40 acres. Additionally, CEMVN acknowledged NMFS HCD's request to use over 600,000 cubic yards of dredged material that would be excavated for project construction to beneficially to restore tidal marsh in the Bayou Bienvenue area. CEMVN considered NMFS HCD's recommendation of beneficial re-use of dredged material to restore fish and wildlife habitat while considering important factors under the Clean Water Act Section 404(b)(1) practicable alternatives analysis (40 CFR 230; §230.10 (2)), including cost, existing technology, and logistics. CEMVN also considered additional factors during the development of the proposed disposal plan including the suitability of the dredged material for open water disposal into both fresh water and estuarine environments, the amount of material that would be available for wetland development, compliance with Louisiana State Water Quality Criteria, and the concern of nearby residents and neighborhood groups concerning impacts of the project, particularly the potential for exposure to material dredged from the IHNC. The following logistics, existing technology, costs, and previously listed additional factors were noted in CEMVN's letter:

- The least expensive disposal method is utilizing a hydraulic cutterhead dredge with unconfined disposal into open water. A hydraulic cutterhead dredge would be the logical way to dredge material for this project. The basic dredging costs for disposing dredged material into the two possible sites would be similar due to both locations being within normally acceptable pumping distances. Disposal into the Mississippi River would be unconfined, but disposal into the Bayou Bienvenue area would require construction of retaining dikes to achieve adequate elevation of the material for wetland vegetation to colonize. The construction of retention dikes to a sufficient elevation to achieve their purpose could be a problem due to the highly fluid, organic soils commonly found in this area. The inability to build adequate dikes in a reasonable amount of time could cause significant project delays. In addition to the temporary construction easements required for the discharge pipeline, acquisition of real estate easements or purchases of land in fee would be required for disposing material into the Bayou Bienvenue area. Since this project does not have a non-Federal sponsor, the USACE would be responsible for all real estate acquisition. If the Bayou Bienvenue site were to be used for beneficial use of dredged material, USACE would be faced with long-term operation and management issues, including funding. Typically, the USACE turns over long-term management of such lands to non-Federal project sponsors. In short, USACE would have to identify a long-term funding source and would have to create a long-term operations and management plan. There would be a significant amount of coordination and approvals required to address the long-term management of any lands acquired by the project for the beneficial use of dredged material.

- Technology exists to hydraulically pump material to either the Mississippi River or Bayou Bienvenue site. However, the logistics of pumping material to the two sites are substantially different. To pump material to the Mississippi River site, the discharge pipeline could be placed within the IHNC from the site of the new lock construction, under the Claiborne Avenue Bridge, across the USACE-owned property on the east side of the existing lock, under the east approach ramp for the St. Claude Avenue Bridge adjacent to Sister Street, over the existing Mississippi River Levee and then into the Mississippi River. Few relocations and obstacles stand in the way, and the real estate acquisition should not be difficult since the route is through existing lands and easements held by public agencies. To pump material into the Bayou Bienvenue site, the discharge pipeline could be placed in the IHNC up to the vicinity of the Florida Avenue Bridge, and then possibly routed to the east, either north or south of the bridge. To the south of the bridge, the pipeline would have to cross: either over or under the Federal storm-surge risk reduction floodwall, Florida Avenue, an unnamed road connecting Florida Avenue to Harbor Drive, the storm drainage system associated with New Orleans Sewerage and Water Board Pump Station Number 5, a railroad, and the 40-Arpent Levee, before entering the general area where wetland restoration would occur. To the north of the bridge, the discharge line would have to cross: either over or under Harbor Drive, the Federal storm-surge risk reduction floodwall, underneath a high voltage electrical transmission support tower, and across Pump Station Number 5's outfall canals (headwaters of Bayou Bienvenue). Both of these routes would likely cross through properties of multiple landowners and easements. A possible option would be to horizontally directionally drill the discharge pipe from the IHNC to the potential wetland restoration area. Such an endeavor may be possible, although the proximity of the IHNC to the floodwalls and the length of the pilings supporting the floodwall may prevent such an endeavor. Even, if possible, horizontal directional drilling for a discharge pipeline is beyond the scope of typical beneficial use of dredged material projects. During the second phase of dredging, during construction years 7 to 13, dredging would be intermittent. Beneficial use of this material would be very difficult due to pumping distance, from the south end of the IHNC, and the need to maintain the pipeline in place over a period of up to 5 years.

- Sediments and soils in and adjacent to the IHNC have been analyzed for contaminant levels, and voluminous information is contained in Chapters 2 and 6, Aquatic Habitat section. The material that is suitable for open water disposal, including wetland restoration, is suitable only if adequate mixing zones are available to dilute pollutants to concentrations acceptable under Louisiana State Water Quality Criteria. The recommended Bayou Bienvenue area has very limited water exchange and insufficient flow to dilute the volume of dredge material discharge that would be pumped to the area. Any material placed in this area would have to contain essentially zero contaminants to not cause a violation of State Water Quality Criteria for Bayou Bienvenue. The area is essentially the upper, dead-end of Bayou Bienvenue including the bayou and a large triangular-shaped area of shallow water surrounded by a levee, spoil bank, sewage treatment plant, and municipal landfill. Bayou Bienvenue is the only tidal connection, and it is largely silted-in and very shallow. During and following local rainfall, urban stormwater runoff is pumped into the upper end of Bayou Bienvenue by New Orleans Sewerage and Water Board Pump Station Number 5. This flow is sporadic and unpredictable. Based on estimates of dilution requirements for standard elutriates for the subject dredged material, available dilution in Bayou Bienvenue would be insufficient to meet State Water Quality Criteria during dredged material disposal. The upper reach of Bayou Bienvenue and the adjacent triangle area would become close to 100 percent dredged material effluent, and areas downstream in Bayou Bienvenue, including other areas of the Central Wetlands extending to the Mississippi River Gulf Outlet would become turbid with suspending sediment in the effluent from the disposal area. A waiver to exceed state water quality criteria for several constituent elements would certainly be required. To our knowledge, a request to exceed state water quality criteria has never been necessary for a coastal wetlands' restoration project.

- CEMVN acknowledges a number of local community groups have previously supported marsh creation in the recommended placement area. However, local residents and their neighborhood associations, along with state-wide and national environmental organizations previously submitted voluminous comments focused on the canal bank soils and canal bottom sediments that would need to be dredged to construct the lock replacement project. These comments and the lawsuits make it clear that residents and their associations are very concerned about the potential spread of contamination during project construction, including the placement of any dredged material into confined disposal facilities or wetlands. While CEMVN agrees that some groups have supported wetland restoration in this area and there have been a number of restoration projects proposals, there have been no proposals or support for using dredged material from the lock replacement project outside of Federal agencies.

It is Corps' policy to manage the discharge of dredged material from its projects to assure that dredged material disposal occurs in the least costly, environmentally acceptable manner, consistent with engineering requirements established for the project. The least costly alternative, consistent with sound engineering practices and selected through the 404(b)(1) guidelines is disposal into the river for the material that is suitable for such disposal. Consequently, river disposal is designated as part of the RP in accordance with the Federal standard.

CEMVN acknowledged NMFS HCD's EFH conservation recommendation but determined that while the southern end of the IHNC technically contains two categories of EFH (estuarine water column and estuarine mud bottom), the area is nonetheless an operating shipping channel with extensive prior, and some current industrial activity along its banks. Navigation traffic in the canal is frequent. The IHNC Lock has the highest average wait times for any USACE lock in the U.S. The part of the IHNC that would be affected by the project is subjected to freshwater pulses from the Mississippi River each time a vessel lockage occurs, hence this part of the canal is heavily influenced by turbid, fresh water. CEMVN acknowledged that the IHNC, between its intersection with the GIWW and Lake Pontchartrain provides a vital tidal connection for estuarine organisms immigrating into Lake Pontchartrain during their early life stages, and emigrating from the lake later in their

lives, especially brown shrimp, white shrimp, and red drum. However, such is not the case in the southern end of the IHNC where lock replacement would occur and which is essentially considered to be a dead end for any EFH resources, except for pulses of river water entering from the existing lock operations. CEMVN concluded that is not appropriate to provide compensatory mitigation for the loss of this low-quality estuarine habitat, which plays a minimal role in supporting Federally-managed species.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to essential fish habitat for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x -22 feet deep.

The impacts to essential fish habitat for this plan are similar to those described in Plan 3.

### 6.2.3 Threatened and Endangered Species

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

Under the no-action alternative, it is anticipated that existing conditions and operations of the existing lock would not affect threatened or endangered species. There have been no known incidents concerning listed species at or near the existing lock.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to threatened and endangered species for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

Since the IHNC Lock is located in a highly industrialized area of New Orleans and navigation traffic regularly passes through the lock, the canal and nearby area present poor-quality habitat for most fish and wildlife species, including those listed as threatened or endangered, and candidate species. Listed species that could occur in the IHNC, nearby Mississippi River, Lake Pontchartrain, and Bonnet Carré Spillway are pallid sturgeon (endangered), West Indian manatee (endangered), and Atlantic sturgeon (threatened). Proposed and/or candidate species are alligator snapping turtle (proposed threatened), monarch butterfly (candidate), and tricolored bat (proposed endangered).

While the tricolored bat could pass through portions of the study area during spring, summer, and fall migration, habitat qualities conducive to this species are typically found in forested habitats where they roost in trees, primarily among leaves of live or recently dead deciduous hardwood trees. The proposed project area does not contain any of these habitat features, and it is unlikely that this species would occupy any lands associated with the proposed project area. Therefore, the excavation of the two proposed borrow areas would have no effect on this species or its habitat.

Alligator snapping turtles may be found within waterbodies (tributaries) adjacent to the Mississippi River and Bonnet Carré Spillway. For the relatively few snapping turtles that reside in the spillway, direct spillway operation impacts on this species are unlikely because they are a freshwater species, well adapted to turbid water conditions (Harrel et al. 1996). Further, indirect impacts of spillway operations on the alligator snapping turtle's food resources are unlikely given that their diets are extremely broad and opportunistic (Elsey 2006). One possible impact spillway operation may have on this species is through potential negative impacts on nesting success. According to an acoustic telemetry study in northern LA, over the course of a year alligator snapping turtles tend to remain within small home ranges of <1 river km (<0.62 river mi) (Harrel et al. 1996). Presumably,

females also nest within these home ranges. Nesting typically occurs in terrestrial habitats near rivers, lakes, or bayous from late April to early May. Hatchings then emerge from late August through September (Holcomb and Carr 2011). For nest that experience mortality, up to 25% can be attributed to flooding of nest cavities from heavy rains (Holcomb and Carr 2023). If nesting is occurring within the direct vicinity of the spillway project area, operations occurring during the nesting season have the potential to increase flooding-related nest mortality in this small portion of the alligator snapping turtle population. While this is a possible negative impact of spillway operations on the alligator snapping turtle, there has been no measurable evidence that nests in the spillway project area (if they exist) have ever been directly impacted. Furthermore, the occurrence of this species within the project area is relatively rare in comparison with the rest of southeast LA. Likewise, southeast LA is not heavily populated as compared to other regions within the alligator snapping turtle's range. It is unlikely any species would be present within the two proposed borrow areas, as there are no representative habitat qualities that are conducive to this species. Therefore, it is our determination that excavation operations associated with the two proposed borrow areas may affect, but not likely to adversely affect the alligator snapping turtle.

Monarch butterflies could use open fields and forested areas in the immediate vicinity of the study area and within or adjacent to the two proposed borrow areas in the Bonnet Carré Spillway. However, conservation opportunities for monarch butterfly along the MRL (to include the proposed east bank earthen levee) are limited due to USACE guidelines for vegetation management at levees (ETL 11110-2-583 2014). The only acceptable vegetative ground cover within the vegetation-free zone along the levee is perennial grasses with the primary function to reliably protect against erosion. These vegetation-free zones shall, when dry, be mowed to a height of 3–6 in. at any time the grass reaches a height of 12 in. The maximum height of grasses shall be 12 in. There may be some opportunities to encourage nectar producing plants into areas where tree survivability is poor and other locations maintained as open areas (e.g., around parking areas, etc.) at sites proposed by the community impact mitigation planning efforts. For the two proposed borrow areas, it is expected that direct impacts to terrestrial habitat would occur with the excavation of borrow pits. Any species present that may be located within the recently disturbed areas would likely be displaced to suitable surrounding habitat during excavation of the pits. The overall loss of terrestrial habitat would negatively impact wildlife species. However, it is anticipated that best practical techniques such as the placement of trees and vegetative debris along the banklines would be employed to sustain and somewhat enhance the remaining wildlife and fisheries values. USACE anticipates that the proposed action may affect but is not likely to adversely affect the monarch butterfly.

While sea turtles, especially Kemp's Ridleys and loggerheads, are occasionally found in or reported from estuarine waters of Louisiana, no sea turtles would be expected in the IHNC near the lock construction site due to the lack of water flow, heavy vessel traffic, scarcity of prey items, and normally high turbidity levels in the southern end of the canal where the construction project would occur. The RP would have no effect on these species.

Pallid sturgeon, a freshwater fish, is known to occur in the main channel of the Mississippi River from below its confluence with the Missouri River downstream to approximately river mile 96, which is located only about 3 miles upstream from the IHNC. The IHNC is outside of the main current of the Mississippi River and there is no strong current flowing through the canal. Pallid sturgeons are normally found in moving water, so their presence in the IHNC is unlikely. Due to consistent vessel traffic stirring up sediments, it is unlikely that the IHNC channel bottom contains adequate food items for pallid sturgeon to forage. The floor and walls of the lock are/would be composed of concrete and pallid sturgeon are not likely to occur or forage in areas where the natural water bottom has been altered. The intake culverts of the lock are covered with grates and are expected to prevent pallid sturgeon from being pulled into the culverts while a vessel is locking through the structure. For the two proposed borrow areas, the potential exists for indirect impacts to pallid sturgeon that may exist adjacent to the proposed spillway flood control structure as future operation of the flood control structure could result in the potential entrainment of said sturgeon into existing and newly created sand and clay borrow pits/ponds. It is anticipated that the excavation of the two proposed borrow areas may affect but

is not likely to adversely affect the pallid sturgeon. In accordance with Section 7a of the Endangered Species Act, upon completion of any emergency actions (i.e., floodway openings), the Corps routinely prepares a biological assessment to determine the effects of the emergency operation on the above-listed species. As of 2024, USACE prepared a draft Biological Assessment (BA) to provide information required pursuant to the ESA and implementing regulations 50 CFR § 402.14 (Formal Consultation). The BA has been submitted to the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) by the USACE to initiate formal consultation regarding impacts to threatened and endangered species resulting from future operations of the BCS. The BA summarizes the effects of previous BCS openings on listed species and provides an analysis of the potential impacts to threatened and endangered species resulting from future operations.

West Indian manatees occasionally enter Lake Pontchartrain and associated coastal waters from June through September and could pass through the project area or forage on nearby grass beds in Lake Pontchartrain. However, the likelihood of a manatee occurring in the project area is extremely low since the project area is outside of their normal range and no aquatic plants suitable as a food source are located in the construction area. There are no known warm or hot water industrial discharge locations in the vicinity of the IHNC that would serve to attract manatees during cold weather. USACE anticipates that the proposed action may affect but is not likely to adversely affect the West Indian manatee.

Pursuant to Section 7(a)(2) of the Endangered Species Act, CEMVN-PDC-C has determined that the proposed action for the subject project may affect but will not likely adversely affect any threatened or endangered species under the jurisdiction of the U.S. Fish and Wildlife Service or their associated critical habitat. Consultation with the U.S. Fish and Wildlife Service is currently ongoing and will be completed prior to the final report.

Critical habitat for Atlantic sturgeon was designated in 2003. In Louisiana, Atlantic sturgeon have been reported at Rigolets Pass, in rivers and lakes of the Pontchartrain Basin, and adjacent estuarine areas, including the MR-GO inland reach (USFWS 2003). The Atlantic sturgeon critical habitat unit 8 includes the portion of Lake Pontchartrain east of the Causeway, all of Little Lake (Mud Lake), the Rigolets, Lake St. Catherine, Lake Borgne, and Mississippi Sound. No Atlantic sturgeon critical habitat exists within the areas that would be affected by the project. It is anticipated the proposed project would have no effect on Atlantic sturgeon or its designated critical habitat due to the industrialized nature of the IHNC, the hydrodynamics within the IHNC (lack of water flow in the southern end of the canal), likely scarcity of prey items, lack of sandy water bottom for feeding, and the distance of the construction project from designated critical habitat Unit 8.

The CEMVN has determined that the proposed project will have no effect on any threatened or endangered species including Atlantic sturgeon or its designated critical habitat Unit 8 under the purview of the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries), Protected Species Division. Under the January 13, 2017 NMFS Procedural Instruction 02-110-20, the NOAA Fisheries reviewed its consultative responsibilities under Section 7 of the Endangered Species Act (ESA), 16 U.S.C. § 1536, and associated regulations at 50 C.F.R. part 402 and determined it will not provide formal written responses to requests for concurrence with a federal action agency's determination that its actions will not affect any ESA-listed species or designated critical habitat ("no effect" determination) (http://www.nmfs.noaa.gov/op/pds/index.html) (Appendix A). As such, endangered species consultation with NOAA Fisheries is complete.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to threatened and endangered species for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x -22 feet deep.

The impacts to threatened and endangered species for this plan are similar to those described in Plan 3.

6.2.4 **Wildlife**

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

Under the no-action alternative, no project-related impacts on the vegetated banks of the channel would occur from the no-build alternative. Due to their relative isolation, it is anticipated that there would continue to be no direct or indirect impacts to the nearby wooded lands to the northeast of the project area. Hunting activities for small and large game mammals such as white-tailed deer and wild boar would continue unabated on these lands in the future.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to threatened and endangered species for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

Since the IHNC Lock is located in a highly industrialized area of New Orleans and navigation traffic regularly passes through the lock, the canal and nearby area present poor-quality habitat for most fish and wildlife species. Within the IHNC near the lock construction site, the lack of water flow, heavy vessel traffic, scarcity of prey items, and normally high turbidity levels in the southern end of the canal where the construction project would occur would likely disrupt or displace any fish and wildlife species present. Impacts resulting from increased turbidity or burial would likely lead to injury or mortality to sessile and slow-moving aquatic organisms. Temporary impacts to vegetated banks on the east side of the channel would occur through removal of earthen material during dredging operations in order to construct the northern bypass channel. Once the new lock is constructed and the associated floodwalls are completed, this area would be backfilled with earthen material

Due to consistent vessel traffic stirring up sediments, it is unlikely that the IHNC channel bottom contains adequate food items for most fisheries species to forage. The floor and walls of the lock would be composed of concrete thus altering the natural water bottom. Any intake culverts of the lock would be covered with grates and prevent fisheries resources from being pulled into the culverts while a vessel is locking through the structure.

The large majority of temporary impacts (14 years) would be localized to an area that has little wildlife value and it is expected that most wildlife species would move to an area with more favorable conditions and return after construction is completed. After completion of the new lock wildlife conditions would be similar to current conditions.

For the two proposed borrow areas within the Bonnet Carré Spillway, it is expected that excavated materials would be restricted to previously designated areas that contain deposited sediments from annual rises in the Mississippi River and areas that have been identified and previously environmentally cleared for use as borrow, respectively. It is expected that impacts to wildlife due to borrow operations would only be conducted in recently disturbed portions of the spillway. It is expected that direct impacts to wildlife would occur with the excavation of borrow pits. Any wildlife that may be located within the recently disturbed areas would likely be displaced to suitable surrounding habitat during excavation of the pits. The overall loss of terrestrial habitat would negatively impact existing wildlife. However, it is anticipated that best practical techniques such as the placement of trees and vegetative debris along the banklines would be employed to sustain and somewhat enhance the remaining wildlife and fisheries values.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to threatened and endangered species for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x -22 feet deep.

The impacts to threatened and endangered species for this plan are similar to those described in Plan 3.

## 6.3 Cultural Environment

### 6.3.1 Aesthetic Values (Visual Resources)

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

There would be no significant changes to the aesthetic resources of the project area. However, it is anticipated that as renovation and rebuilding of the adjacent neighborhoods continues, aesthetics in the project area would improve. The local news media has reported on initiatives under way to sell abandoned, vacant and often overgrown properties to people and companies that would develop them into viable residential and commercial uses.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to aesthetic values for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

During construction activities, including levee and floodwall construction, new lock construction, demolition of the existing lock and bridge replacement, there would be adverse impacts on aesthetics, as views of the IHNC would include construction equipment and activities. While these construction views would be temporary during construction, permanent earthen levees and floodwalls, part of the Mississippi River Levee system, would be built.

The stand of live oak trees on USACE-owned property between Sister Street and the IHNC lock on the east side and between the railroad tracks and the IHNC lock on the west side would be lost with the construction of new levees and floodwalls. These are mature trees that otherwise would have a substantial life expectancy and permanent loss of these trees would negatively impact the aesthetic value of this area.

The new St. Claude Avenue Bridge would have adverse impacts on the visual environment because the new structure would be higher in the center than the existing structure. The slope of approaches would be slightly steeper and residents that have homes facing the approaches would be most negatively impacted. However, the new bridge approaches would remove a large portion of the concrete wall under the existing bridge approaches replacing the supporting wall with open space beneath the ramps. These new bridge approaches would allow passage for pedestrians beneath their decks and lighting would be provided beneath the ramps to deter vandalism and increase safety; it would also be less restrictive where vehicular traffic is concerned, even if it does not re-connect all of the streets. Although the new bridge deck will be higher than the existing St. Claude Avenue bridge deck, the removal of the steel trusses and counter-balance block atop the existing bridge would lower the angle of visual obstruction.

The CIMP includes a number of features to minimize impacts made to the aesthetics of the project area. Exterior surfaces of the bridge approaches and bridge piers would be finished with textured surfaces and patterns to add visual appeal and deter vandalism. Lighting along existing roads used for detour routes would be improved prior to construction, as appropriate. Lighting would also be provided for any greenspace created by the replacement of the bridge. Public rights-of-way surrounding the levees, floodwalls, and bridge approaches would be landscaped within allowable limits for levee and bridge safety to beautify the area, serve as a natural buffer, and help to reduce noise levels in adjacent areas. There would also be opportunities to

enhance public greenspaces in the neighborhoods affected by the project to offset the removal of the live oaks due to the construction of new levees and floodwalls. It is important to note that the features of the mitigation plan, as described in previous documents, are subject to revision, and will take into consideration local community input that will be obtained during public review of this draft report and subsequent meetings and discussions. A recommended mitigation plan will be included in the final version of this report/SEIS.

*Impact Avoidance and Analysis*

Impact avoidance refers to actions taken by the Corps that are designed to avoid adverse construction impacts and which represent prudent and innovative engineering design and construction practice. These actions are incorporated into the construction plan and are required because construction will occur in an urban environment.

The actions to be taken by the Corps and any contractors or subcontractors, that are designed to avoid adverse impacts from aesthetics include:

a. Improve or add lighting along designated detour routes, including existing and new routes. This lighting will improve nighttime aesthetics and offer added safety and security for adjacent residents.

b. Areas around levees, floodwalls, and bridge approaches will be landscaped as long as the locations comply with the minimum acceptable buffer between vegetation and flood protection structures as specified by USACE. Various species of trees, shrubs, and ground cover will be used. Flowering trees and shrubs will be planted in areas where structural elements such as bridge approaches and floodwalls are to be constructed. Vegetation will soften the visual impacts of these construction elements within the neighborhoods.

c. Textured surfaces will be employed on the exteriors of floodwalls, bridge approaches, and bridge piers. These textured surfaces will enhance not only the visual appeal but also add interest to concrete surfaces viewed by neighborhood residents. Interesting shadow patterns and textured variety will improve aesthetic design quality.

*Direct Mitigation (Impact Minimization)*

Direct mitigation refers to actions taken by the Corps to minimize adverse direct impacts that remain following the implementation of the normal procedures.

In an effort to minimize direct impacts to local aesthetics the following mitigation measures will be deployed:

a. The oak grove adjacent to the existing lock, along Sister Street will be impacted. The mature oak trees located on site will be removed. Due to the age, size, and condition of these trees, transplanting is unlikely to be successful. This decision was made after careful consideration of all options. New plantings will be made to replace the trees removed.

b. Public rights-of-way along existing detour routes will be landscaped. This will not only beautify the area but also serve as a landscaped visual buffer and help dampen noise. The use of flowering trees and shrubs will be used to offer the maximum diversity and aesthetic benefits, enhancing the overall environment.

*General Mitigation*

Mitigation for indirect impacts will be actions taken by the Corps or by a local project sponsor in cooperation with local government, community groups, and residents to alleviate those adverse impacts that remain following the implementation of both impact avoidance procedures and the direct impact minimization measures described above.

The intent of indirect impact compensation is to make the communities whole and resilient to the impacts of construction activity for the duration of those activities. The indirect impact compensation associated with impacts to aesthetics include:

a. The replacement of the single low-rise bascule bridge with a low-rise double-leaf bascule bridge with new approaches on St. Claude Avenue, and the incorporation of new levees in some areas along the IHNC will permanently alter the current aesthetic character and recreational opportunities within the neighborhoods.

b. All project features will consider the appropriate use of textured surfaces, landscaping, appropriate paint selection, pedestrian routes, and public use facilities. However, some members of the adjacent neighborhoods consider changes to the present aesthetic undesirable.

c. The addition of pocket parks, green infrastructure, landscaping, lighting and benches, as well as pedestrian paths along the new levee sections are all possible aesthetic mitigation features. USACE will work with appropriate departments within the City of New Orleans to determine if there is interest in the city acting as a nonfederal sponsor and to ensure there is an operation and maintenance plan in place for aesthetic mitigation features.

For additional information on impact avoidance and analysis, direct mitigation (impact minimization) measures, and general mitigation, please refer to Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to aesthetic values for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x -22 feet deep.

The impacts to aesthetic values for this plan are similar to those described in Plan 3.

### 6.3.2 Recreational Opportunities

Plan 1 - No- Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

Since Hurricane Katrina, outdoor recreational opportunities in the area surrounding the IHNC Lock have been limited primarily to the use of open space areas such as the levee and batture within the Holy Cross neighborhood and the newly constructed Bayou Bienvenue nature and bird watching platform in the Lower Ninth Ward. The New Orleans Recreation Department has reopened some local playgrounds and parks but lacks the resources to substantially improve and maintain the parks, playgrounds and recreational areas within the project area. It is anticipated that recovery of recreational areas would be accomplished through municipal funding, local community organizations and volunteers. One sign of that recovery is the Andrew P. Sanchez and Copelin-Byrd Multi-Purpose Center, which opened in May 2015 and offers a variety of recreational experiences including basketball courts, fitness center, pool, senior center, art and crafts room and more (Photograph 6-1). The 3-mile long, white-striped bicycle path that runs along St. Claude Avenue will continue

to be used as a connector for recreational bicyclists over the bridge, linking the Ninth Ward and Holy Cross Neighborhoods to the Bywater. The pedestrian walkway along the edges of the eastbound and westbound lanes will continue to be utilized as designed and is only accessible via stairs midway on the east and west approaches.

From 2005 to 2008 the Corps invested approximately $208,000 of IHNC Lock project community impact mitigation funds for the renovation of parks and playgrounds in the impact area via agreements with the New Orleans Recreation Department. Pre-Katrina, renovations were implemented in Richard Lee Playground in the Lower Ninth Ward. Post-Katrina, Sam Bonnart and Micky Markey Playgrounds were renovated as part of the ongoing mitigation efforts. Lee playground offers covered basketball courts and multi-purpose fields. Sam Bonnart Park offers covered basketball courts, multi-purposed fields, an outdoor swimming pool and children's play set, while Markey Playground includes a green space and children's fenced play area. Operation and maintenance of the improved parks is the continued responsibility of New Orleans Recreation Department.

The area along the levee and batture in the Holy Cross neighborhood is zoned light industrial; therefore, the possibility exists that the open space could be developed in the future. Currently, the levee and batture is very popular and used recreationally for jogging and walking, though it is not maintained as such. A cruise ship terminal is proposed at the Poland Avenue wharf, located on the Mississippi River at the mouth of the Industrial Canal. Even though the terminal has been discussed for years, the project is in its preliminary phase. As of now, there is no timeline for the project. The Port of New Orleans is currently working on stabilizing the structure at the Poland Avenue Wharf to help secure it and make it safe.

**Photograph 6-1 Andrew P. Sanchez and Copelin-Byrd Multi-Purpose Center**

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to recreation for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

There would likely be temporary impacts during construction to existing pedestrian and bicycle access across the St. Claude Avenue Bridge for residents to reach parks and recreation centers; however, it is anticipated that the new permanent bridge would accommodate pedestrians and bicyclists. The availability of the parks and recreation centers would not be affected by the RP and all parks and recreation centers are outside the >65dBA and >75dBA unacceptable noise level limits. As such, there would be no long-term adverse impacts to recreational opportunities as a result of this project feature.

The new St. Claude Avenue bridge will have a 6-ft wide pedestrian lane provided on the outside edge of the westbound lanes, separated from traffic with a concrete barrier. The approach ramps are steeper in grade than the existing ramps, but with the addition of longer vertical curves, still suitable for bicycle and pedestrian traffic. The new designated pedestrian lane will provide safe and continuous access across the IHNC for recreational users to reach parks and recreation centers.

Currently, fishing along the levees adjacent to the channel are limited to the levees south of the St. Claude Bridge. With the proposed project, earthen levees would replace floodwalls in certain areas along the east side of the channel and provide greater access for fishing opportunities in addition to observing boat activity in the channel. Recreational opportunities would increase in these areas that were previously fenced off due to the proximity to the existing lock structure. The path on top of the levee near the Holy Cross neighborhood could extend continuously to Florida Avenue both atop the levee and along the existing floodwalls.

The Community Impact Mitigation Plan (CIMP), as detailed, includes a number of features to minimize impacts made to the recreational resources of the project area. One of these features includes walking, jogging, and biking paths along the floodwalls and atop the levee crown. There would also be opportunities for observation decks, interpretive graphics, comfort stations, and drinking fountains to be constructed on and along floodwalls and levees. Lighting would be provided for any greenspace created by the replacement of the St. Claude Avenue Bridge. It is important to note that the features of the mitigation plan, as described in previous documents, are subject to revision, and will take into consideration local community input that will be obtained during public review of this draft report and subsequent meetings and discussions. A recommended mitigation plan will be included in the final version of this report/SEIS. For more information on the CIMP, refer to Appendix E.

*Impact Avoidance and Analysis*

Impact avoidance refers to actions taken by the Corps that are designed to avoid adverse construction impacts and which represent prudent and innovative engineering design and construction practice. These actions are incorporated into the construction plan and are required because construction will occur in an urban environment.

The actions to be taken by the Corps and any contractors or subcontractors, that are designed to avoid adverse impacts from recreation include:

a. Keep bike and pedestrian traffic open along St. Claude Avenue as frequently as possible to ensure safety during the construction process.

b. When it is not feasible to enable walkers and bikers to cross St. Claude during construction, ensure an alternative safe route across the canal.

*Direct Mitigation (Impact Minimization)*

Direct mitigation refers to actions taken by the Corps to minimize adverse direct impacts that remain following the implementation of the normal procedures.

In an effort to minimize direct impacts to local recreation the following mitigation measures will be deployed:

a. An all-weather access road on or near the levee and/or the floodwalls will be constructed to preserve and provide recreational opportunities. The existing levee currently enjoys significant use by joggers, walkers, and bicyclists. This path will have an asphalt surface to promote two-way bicycle traffic. Ancillary facilities such as benches, trash receptacles, solar lighting, and water fountains will be installed along the route. This corridor will be safely isolated from vehicular traffic by using bollards or plant materials in areas of possible conflict.

b. One or more observation decks on the flood risk management features will be constructed to preserve current opportunities associated with the levee. These observation decks will be constructed on top of the elevated floodwall. Benches will be installed regularly, allowing users a place to sit or rest while watching waterborne activity, including the lock itself. Lighting will be provided, and green space will be created for any additional vacant areas created by the reconstruction of the St. Claude Avenue Bridge approaches. The lighting will improve nighttime aesthetics and offer improved safety and security to residents.

*General Mitigation*

Mitigation for indirect impacts will be actions taken by the Corps or by a local project sponsor in cooperation with local government, community groups, and residents to alleviate those adverse impacts that remain following the implementation of both impact avoidance procedures and the direct impact minimization measures described above.

The intent of indirect impact compensation is to make the communities whole and resilient to the impacts of construction activity for the duration of those activities. The indirect impact compensation associated with impacts to recreation include:

In cooperation with a non-federal sponsor, community facilities at appropriate locations within each of the neighborhoods, such as playgrounds, community gardens, tot lots, and linear parks, will be provided or rehabilitated in conjunction with existing local programs during the project's construction. In January of 2024, the City of New Orleans released 'The Big Green Easy', a masterplan for citywide park and recreation improvements. The masterplan has already identified parks and greenspaces adjacent to the project area that need improvement for these facilities and programs. Features may also include recreational and educational programming for community members at existing community centers and nonprofits that serve the public Facilities developed in cooperation with a non-federal sponsor as part of this feature may be incorporated into existing programs. The addition of walking paths along accessible floodwalls and atop levees combined with improvements to paths currently atop levees at the southern end of the project will offer greater recreational opportunities for residents in the four neighborhoods around the IHNC.

For additional information on impact avoidance and analysis, direct mitigation (impact minimization) measures, and general mitigation, please refer to Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

<u>Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.</u>

The impacts to recreation for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x -22 feet deep.

The impacts to recreation for this plan are similar to those described in Plan 3.

### 6.3.3 Cultural Resources

Plan 1 - No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

CEMVN has determined that there is one historic property, as defined in 36 CFR 800.16(l), that may be impacted by this alternative: the IHNC Lock. The remaining historic properties identified in Chapter 2 would likely not be impacted.

Under the No-Action alternative, CEMVN would continue to operate and maintain the IHNC Lock, which, likely would require the replacement of the current equipment (gates, valves, and other mechanical and electrical equipment) with functionally equivalent parts. In ca. 2001, the IHNC Lock was documented in accordance with the Historic American Engineering Record (HAER), Level II standards as per Stipulation 2 of the Memorandum of Agreement (MOA) entitled, *Inner Harbor Navigation Canal (IHNC) Lock Replacement* Project, and executed in 2000. This documentation captured the original equipment of the structure in advance of future alterations. In 2016, the IHNC Lock underwent a significant renovation and replacement of mechanical equipment, which included installation of new gate operating machinery at the four main miter gates; installation of four new miter gates, two at the river end of the lock chamber and two at the tail bay end; extensive lock valve refurbishing; and repairs to structural damage along the timber guide wall at the forebay. Under the No Action alternative, the IHNC Lock would undergo similar routine and emergency maintenance that will diminish the integrity of the historic structure.

It is unlikely that the St. Claude Avenue/LA 46 Bridge, the Bywater and Holy Cross NRHDs, Sewerage Pump Station B, or the Judge Seeber Bridge/LA 39/ N. Claiborne Avenue Bridge would be impacted by this alternative, other than through the typical need to maintain these historic properties to the current safety standards. The ordinances of the Historic Districts Landmark Commission (HDLC) and potential Louisiana State Historic Tax Credits would mitigate the long-term alterations to the Bywater and Holy Cross NRHDs.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The impacts to cultural resources for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

CEMVN assessed the effects of the alternative (undertaking) to the 10 historic properties, as defined in 36 CFR 800.16(l), within the APEs. Based on the identification and evaluation presented in Chapter 2, CEMVN has determined that the undertaking would result in an Adverse Effect to six historic properties and No Adverse Effect to four historic properties within the APE (see Table 6-8). Consequently, CEMVN has determined a finding of Adverse Effect to historic properties for the undertaking.

| Table 6-7 Assessment of Adverse Effects (36 CFR 800.5) | | | | | | |
|---|---|---|---|---|---|---|
| # | Resource Name | Period of Significance | NRHP Status | CEMVN Determination | APE* | Effect |
| 1 | IHNC Lock | Ca. 1918-1923 | | Eligible (Individually) | GD | Adverse Effect |
| 2 | St. Claude Avenue Bridge | Ca. 1919 | | Eligible (Individually) | GD/AG | Adverse Effect |
| 3 | Galvez Street Wharf | Ca. 1922-1929 | | No longer extant | GD | Adverse Effect |
| 4 | Holy Cross Historic District | Ca. 1880-1936 | Listed (NRHD) [1986] | | AG | Adverse Effect |
| 5 | Bywater Historic District | Ca. 1807-1935 | Listed (NRHD) [1986] | | AG | Adverse Effect |
| 6 | SWBNO, Sewerage Pumping Station B | Ca. 1905-1907 | | Eligible (Individually) | AG | Adverse Effect |
| 7 | Judge Seeber Bridge | Ca. 1957 | | Eligible (Individually) | AG | No Adverse Effect |
| 8 | U.S. Army Supply Base | Ca. 1918-1945 | Listed (NRHD) [2016] | | AG | No Adverse Effect |
| 9 | Jackson Barracks | Ca. 1834-1955 | Listed (NRHD) [1976, 2016] | | C | No Adverse Effect |
| 10 | McDonogh 19 Elementary School | Ca. 1960-1961 | Listed (Individually) [2016, 2019] | | C | No Adverse Effect |

*Ground Disturbance (GD, Above-Ground (AG), Cumulative (C)

The undertaking would directly and completely alter the IHNC Lock and the St. Claude Avenue Bridge as project activities include the demolition and replacement of both historic properties. The physical destruction and replacement will adversely affect integrity of location, design, setting, materials, workmanship, feeling, and association. Prior activities and work associated with the previously recommended plan included demolition of the Galvez Street Wharf in ca. 2001.

The replacement St. Claude Avenue Bridge is proposed to be located north of the existing bridge deck with a series of horizontal curves required to tie into existing approach ramps. The proposed bridge deck elevation of the replacement St. Claude Avenue Bridge will be approximately 19 ft. higher than the existing bridge deck elevation. Therefore, the approach ramps also will be steeper in grade than the existing ramps. Additionally, the realignment of the replacement St. Claude Avenue Bridge requires permanent ROW along the east and west sides of the IHNC.

The replacement St. Claude Avenue Bridge will create a limited introduction to the viewshed of the Holy Cross NRHD within portions of the district's western boundary, which follows the IHNC. The limited introduction primarily would be visible from areas along Sister Street, St. Claude Avenue, and Jourdan Avenue. Consequently, the limited introduction of the viewshed of the Holy Cross NRHD will adversely affect the district's integrity of setting. Additionally, temporary noise and potential vibratory impacts from construction will adversely affect qualifying characteristics of the Holy Cross NRHD.

The replacement St. Claude Avenue Bridge also will create a limited introduction to the viewshed of the Bywater NRHD within portions of the district's eastern boundary primarily along the existing New Orleans Public Belt (NOPB) City Main Track along the IHNC. Additionally, the northern realignment of the replacement St. Claude Avenue Bridge requires permanent ROW and the demolition or relocation of two contributing resources to the potential extension of the Bywater NRHD situated on St. Claude Avenue Service Road between Japonica Street and the NOPB railroad. Temporary noise and potential vibratory impacts from construction will adversely affect qualifying characteristics of the Bywater NRHD.

The existing S&WB Pumping Station B will remain; however, the northern realignment of the replacement St. Claude Avenue Bridge requires permanent ROW on the property. The approach ramps of the replacement bridge will alter the existing St. Claude Avenue Service Road. The physical encroachment and new introduction to the viewshed of the historic property would alter the resource's integrity of setting and feeling.

The existing Judge Seeber Bridge will remain, but project activities include a replacement bridge fender. The IHNC Lock replacement also will result in a new visual introduction to the viewshed. Consequently, the undertaking will have an effect to the historic vertical lift bridge. However, the bridge will continue to maintain its current function, the replacement bridge fender will be in-kind, and the new visual introduction to the viewshed will not adversely affect any of the characteristics that make the property eligible for inclusion in the NRHP.

The replacement St. Claude Avenue Bridge will create a limited introduction to the viewshed of the U.S. Army Supply Base (or Naval Support Activity (NSA) East Bank); however, the new introduction will not adversely affect qualifying characteristics. The Jackson Barracks NRHD and McDonogh 19 Elementary School will have no direct lines of sight to the undertaking. The potential temporary traffic-related impacts from construction will not adversely affect qualifying characteristics to the Jackson Barracks NRHD and McDonogh 19 Elementary School.

The proposed borrow sites needed for the levee construction are located within the Bonnet Carré Spillway. The approximately 45 acres and 18.5 acres borrow locations will not impact the Kenner and Kugler Cemeteries Archeological District (NRHP #87001762) or the potential undocumented Civil War-era cemetery located north of the Kenner Cemetery and near the Illinois Central Railroad (ICRR).

The CIMP includes several direct mitigation measures to minimize adverse direct impacts that remain following Impact Avoidance and Analysis. These efforts as detailed in the CIMP include salvage of one or more components of the lock and/or bridge, historical marker(s), an educational brochure, and interpretative display. Please refer to Appendix E, Draft Revised Community Impact Mitigation Plan (2024).

Presently, CEMVN has an executed MOA from 2000 and is in the process of negotiating and developing an AMOA. In May 2024, CEMVN re-initiated Section 106 of the National Historic Preservation Act (NHPA) consultation, which is still ongoing as of the release of the 2025 draft integrated re-evaluation report. Please refer to Chapter 7 7.1.11 National Historic Preservation Act of 1966 and Appendix A, Annex 4 for further NHPA compliance details. The AMOA will include stipulations to mitigate for the adverse effects to historic properties and will govern other aspects of the undertaking. Eventual execution of the AMOA, and compliance with its terms, is required as part of CEMVN's environmental commitments and will be obtained prior to and be reflected in the ROD.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The impacts to cultural resources for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x -22 feet deep.

The impacts to cultural resources for this plan are similar to those described in Plan 3.

## 6.4 CUMULATIVE IMPACTS

Cumulative impacts are the "the impact on the environment which results 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.

A six-step process was followed to assess cumulative effects on resources affected by the RP. The first step was to identify which resources to consider in this analysis. All impacts on affected resources can be called cumulative. However, according to CEQ guidance, "the role of the analyst is to narrow the focus of the cumulative effects analysis to important issues of national, regional, or local significance" (CEQ, 1997, p. 12).

The temporal boundaries for the assessment were established as follows:

- Past: Construction of the IHNC and Lock completed by the Port of New Orleans in 1923 to provide navigation between the Mississippi River and Lake Pontchartrain and to provide areas away from the Mississippi River for industrial development. The Flood Control Act of 1928, when flood control projects of the Mississippi River and its tributaries were first authorized. Since that time, levees and floodwalls, floodways, channel stabilization features and floodplain improvements have altered the hydrology of the project area. Lake Pontchartrain and Vicinity project, authorized by Section 204 of the Flood Control Act of 1965 (PL 89-298 as amended), which provides for improvements to the locally constructed hurricane and storm damage risk reduction levees, floodwalls, and other structures on the east bank of the Mississippi River in Orleans, Jefferson, St. Charles, and St. Bernard Parishes. The Southeast Louisiana (SELA) Orleans Parish project was authorized by the Fiscal Year 1996 Appropriations Act, Public Law 104-46 (Section 108) and the Water Resources Development Act of 1996, Public Law 104-303 (Section 533). In addition, a comprehensive flood control plan for Orleans Parish was investigated in a 1992 reconnaissance report. In response to the May 1995, floods, Congress and the President passed the Energy and Water Development Appropriations Act of 1996, which included language instructing the USACE to proceed with engineering, design, and construction of portions of a comprehensive flood control plan in Orleans, Jefferson, and St. Tammany Parishes, Louisiana. The Mississippi River Ship Channel, Gulf to Baton Rouge, Louisiana Project, has been authorized and amended, with a variety of names, in a number of enactments by Congress, commencing with the River and Harbor Act of 1925 in accordance with the Report of the Chief of Engineers in H.D. 105, 69th Congress; as amended by the River and Harbor Act of 1937, in accordance with the Report of the Chief of Engineers, HD 597, 75th Congress; as amended by Section 2 of the Rivers and Harbors Act of 1945, (Public Law 79-14), which combined several existing deep-draft projects on the Mississippi River and modified them to provide new navigation channel dimensions; and as amended by the River and Harbor Act of 1962 in accordance with the Report of the Chief of Engineers, SD 36, 87th Congress. A 1981 Feasibility Study entitled "Deep-Draft Access to the Ports of New Orleans and Baton Rouge, Louisiana", which included an Environmental Impact Statement (EIS), recommended deepening the Mississippi River's navigation channel to a 55-foot depth from Baton Rouge to the Gulf of Mexico. A Chief of Engineers Report was completed in April 1983, and a Record of Decision

was signed on December 23, 1986. The Mississippi River Ship Channel, Gulf to Baton Rouge, Louisiana project was authorized for construction by Section 101 of the 1985 Supplemental Appropriations Act (Public Law 99-88) and reauthorized and amended by the Water Resources Development Act of 1986 (Public Law 99-662), as amended.

- Present: May 2025, draft report available for 45-day public comment and review.
- Future: Physical construction of the lock and associated features could take up to 14 years to complete if adequate funding is provided. Annual appropriations would be tied to construction features that have a logistical begin and end milestones within the fiscal year budget provided. Assuming funding is provided by 2029, the construction of project features is expected to be completed in 2047, the fifty-year period of analysis would extend through 2097.

The next steps of the cumulative effects analysis included:

- Defining the study area for each resource.
- Describing the historical context and existing condition of each resource. Descriptions of affected resources are summarized in more detail in Chapter 2.0 of this report.
- Summarizing the direct and indirect effects of the plans on each identified resource. Environmental effects of the plans are presented in more detail in sections 6.1 to 6.3 of this report.
- Identifying the accumulated effects on each resource from the plans and other past, present, and reasonably foreseeable future actions.
- Summarizing the magnitude of the cumulative effects of the projects and actions on the affected resources.

### 6.4.1 Study Area

The study area is defined in the Executive Summary and Section 2.1 of this report.

### 6.4.2 Past, Present, and Reasonably Foreseeable Future Actions

Descriptions of the accumulated effects on each resource and past, present, and reasonably foreseeable future actions related to the study area are described within the individual plans listed below.

Plan 1. No-Action (continued operation and maintenance of existing lock; 640 feet long x 75 feet wide x 31.5 feet deep).

Past actions regarding related projects within the study area and the current project and their associated effects were all previously described in Section 1.3 of this report and both the March 1997 Evaluation Report and 2009 SEIS, the latter two of which are incorporated herein by reference.

In 2005, Hurricane Katrina damaged substantial portions of the Federally-constructed Lake Pontchartrain and Vicinity (LPV) project and flooded most of the project area. The LPV project is one of several projects sometimes unofficially referred to as the Hurricane and Storm Damage Risk Reduction System or HSDRRS. The West Bank and Vicinity and New Orleans to Venice projects' alignments are not located within, nor do they affect, the project area. The LPV project was authorized by Section 204 of the Flood Control Act of 1965 (PL 89-298 as amended) and provides for improvements to the locally-constructed hurricane and

storm damage risk reduction levees, floodwalls, and other structures on the east bank of the Mississippi River in Orleans, Jefferson, St. Charles, and St. Bernard Parishes. Impacts of Hurricane Betsy on New Orleans in September 1965 (81 deaths and billions of dollars in property damage) prompted Congress to authorize the LPV project to protect areas in the vicinity of Lake Pontchartrain and surrounding parishes from storm surges. Various features that make up the LPV project include 125 miles of levees, concrete floodwalls, navigable flood gates, and other structures. The LPV project has provided increasing levels of hurricane and storm damage risk reduction for the New Orleans area as funding for various component projects have been approved during the past 40 years. Additionally, The Southeast Louisiana Urban Flood Damage Reduction Project (SELA) reduces the risk of flood damages due to rainfall flooding in Orleans, Jefferson and St. Tammany parishes. The improvements generally support the parishes' master drainage plans and provide flood risk reduction up to a level associated with a 10-year rainfall event. A 10-year event is basically a rainstorm that has a 10% annual probability of occurrence and equates to approximately 9 inches of rain over a 24-hour period for our area. The project includes a total of over $2 billion dollars of improvements in Jefferson and Orleans parishes. As previously stated in this chapter, there are two recently completed SELA projects located to the northwest of the IHNC project area. These two projects are part of the Florida Avenue Canal Project, which was designed to improve drainage and reduce the risk of flooding from rainfall. SELA 20 – Florida Avenue Canal Phases II and III, enlarged the Florida Avenue Canal starting at Almonaster Avenue and ending at Poland Avenue, and constructed lateral subsurface drainage conduits along Deers Street, Eads Street, and Painters Street. SELA-26 – Florida Avenue Canal Phase IV constructed lateral subsurface drainage conduits along Benefit Street, Treasure Street, and Abundance Street. Both SELA 20 and SELA 26 were completed prior to the start of construction of the IHNC project.

Damage from Hurricane Katrina was quickly repaired through Task Force Guardian, whose mission was to restore pre-Katrina levels of risk reduction by June 1, 2006. All construction efforts for Task Force Guardian were completed by the end of November 2006 and included 1.3 miles of new floodwall and 6.8 miles of scour repair along the IHNC. Following Hurricane Katrina, it was recognized that portions of the levees and floodwalls that comprise the LPV project were never constructed to authorized elevations or had not been maintained to keep previously constructed structures at the authorized elevation. Emergency Supplemental Appropriations (PL 109-148, PL 109-234, and PL 110-028) appropriated funds to accelerate the completion of the previously authorized Lake Pontchartrain and Vicinity, Louisiana Project, to restore and repair the project at full expense, and to raise the levee heights where necessary, reinforce and replace floodwalls, and otherwise enhance the project to provide the levels of protection necessary to achieve the certification required for participation in the National Flood Insurance Program. The most obvious and notable improvements to the LPV project are a surge barrier near the intersection of the MR-GO and the GIWW, with navigable floodgates on the GIWW and Bayou Bienvenue, along with another navigable floodgate at the intersection of the IHNC with Lake Pontchartrain. These structures combine to prevent hurricane storm surge from entering the IHNC and adjacent section of the GIWW. Other notable improvements are permanent pump stations, located at the mouths of three major drainage canals for New Orleans and Jefferson Parish. These massive pump stations, located on the 17th Street, Orleans Avenue, and London Avenue Canals work in conjunction with existing non-Federally owned and maintained pump stations located near the heads of the canals to evacuate local rainfall from developed areas. The LPV project provides a 1% chance of exceedance, which means that it provides risk reduction for storms with a 1 percent chance of occurring each year. The areas for which the LPV project reduction of risk from hurricane storm surge damage include, but are not limited to, the neighborhoods on both sides of the IHNC. Improvements to levees, floodwalls, and other related structures throughout the LPV project have impacted fish and wildlife habitats, requiring a substantial amount of mitigation. Impacts from these component projects have been addressed in separate Individual Environmental Reports (IERs). IERs were prepared pursuant to NEPA Emergency Alternative Arrangements that were approved post-Katrina by the Council on Environmental Quality (CEQ). Compensatory mitigation has been accomplished through the purchase of credits in mitigation banks and several specific mitigation projects are under construction. The impacts of most of the component projects that improved the LPV post-Katrina have been collectively addressed in a Comprehensive Environmental Document, Phase 1. A Phase II Comprehensive Environmental Document, Greater New Orleans Hurricane

and Storm Damage Risk Reduction System report was completed in December 2021 and addressed the remaining component projects and completed the cumulative impacts analysis for the HSDRRS.

Pursuant to Congressional directive which de-authorized a portion of the MR-GO channel, CEMVN placed a rock closure across the MR-GO at the Bayou LaLoutre ridge in 2009. This closure prevents the entrance from the Gulf of Mexico of all vessel traffic into the de-authorized portion of the channel. The closure structure, along with the surge barrier constructed across the MR-GO under the LPV project, effectively prevents use of the MR-GO channel as a method of access between the GIWW and the Gulf of Mexico. As a result of the de-authorization of the MR-GO between the GIWW and Gulf of Mexico, the USACE no longer maintains the de-authorized section of the channel to its previously constructed and maintained depth. The USACE investigated large-scale habitat restoration of areas impacted by the MR-GO, including coastal marshes, bayous and upland ridges between the GIWW and Breton Sound. A November 2007 study (Revised June 2008) entitled "Integrated Final Report to Congress and Legislative Environmental Impact Statement for the Mississippi River-Gulf Outlet Deep-Draft De-authorization study" (incorporated herein by reference, and included in Appendix F of this main report) was prepared, but progress was halted when the Assistant Secretary of the Army for Civil Works was not able to identify a non-Federal sponsor willing to bear the obligations of the non-Federal sponsor for construction and OMRR&R of the project and the State declined to partner on the project.

All of the container cargo operations formerly located at the France Road Terminal, north of the IHNC Lock, have been shifted to the Port of New Orleans' facilities along the Mississippi Riverfront at the Napoleon Avenue Wharf. Some privately owned maritime and industrial facilities are still present along the IHNC; however, many privately-owned facilities relocated to the Mississippi River or out of state immediately following Hurricane Katrina. Much of the leasable property along the IHNC and GIWW that is owned by the Port of New Orleans is vacant.

In the Bywater neighborhood, the Naval Support Facility located along the Mississippi Riverfront on Press Street near the intersection of the IHNC and the river was closed in 2011 as part of the Base Realignment and Closure Round, or BRAC. The Department of the Navy officially transferred the vacant site to the City of New Orleans in 2013. The city previously expressed interest in redeveloping the site as a "resilience center," or a hub for disaster and emergency responses. However, in mid-2024, The Louisiana Housing Corporation awarded a $20 million federally funded grant for the proposed "NSA East Bank Apartments" project. The funds are part of a $230 million federal Community Development Block Grant — Disaster Relief funds aimed at improving affordable housing in Louisiana after hurricanes Laura, Delta and Ida. In March 2025, Finance New Orleans, formerly known as Finance Authority of New Orleans, and HUD approved payment and a key loan guarantee to secure the needed $166 million financing package for the project, respectively. It is anticipated that the first phase of the project would convert the largest building in the complex into a total of 294 apartments, all of which would be designated as affordable or workforce housing for people earning from 50% to 120% of the area median income. Rents would be no more than 30% of income. The project also calls for 38,000-square-feet of ground floor retail space and more than 1,000 parking spaces. It is anticipated that start of construction would begin by summer 2025.

Nearby Jackson Barracks, the 100-acre headquarters for the Louisiana National Guard, recently underwent $200 million worth of restoration. Community services such as fire and police stations, a health center, and a Veterans Administration outreach program were added to the area. Below-ground utilities were installed, and armories and headquarters buildings have been constructed. A total of 16 buildings were completed in 2010.

Bicycle lanes are proposed for many of the streets in New Orleans, and bicycle lanes have been added to St. Claude Avenue. The new bicycle lanes extend from the St. Bernard/Orleans Parish line, westerly across the IHNC along the St. Claude Avenue Bridge, to Elysian Fields Boulevard.

In October 2017, New Orleans announced seven developments that will take place in the 3.2 miles stretch of the riverfront between the Spanish Plaza and Crescent Park, which would include:

- $7.5 million renovation for the Spanish Plaza
- $400 million Four Seasons hotel
- A new $37 million Canal Street Ferry Terminal
- $6 million in Woldenberg Riverfront Park improvements
- $3 million in Moonwalk Park renovations
- A $15 million conversion of the Esplanade and Governor Nicholls Street Wharves
- And $31.2 million renovations at Crescent Park

As of 2019, Crescent Park has been developed to include a 1.4-mile, 20-acre urban linear park that connects the French Market to the Bywater neighborhood along the riverfront. The public space currently provides breathtaking views of New Orleans, native landscaping, bike paths, a dog run and multi-use pavilions (https://crescentparknola.org/visit/).

The Disaster Relief Supplemental Appropriations Act (DRSAA) (Public Law 117-43) was enacted on September 30, 2021, to provide funding to address emergency situations at the Corps of Engineers projects, and to construct, and rehabilitate and repair damages to Corps of Engineers projects, caused by natural disasters. In 2022, the Corps was appropriated $108M in funding from the DRSAA to perform levee enlargements on 16+ miles of MRL spread over 19 work items (currently 16) located from New Orleans to north of Baton Rouge, Louisiana. Of the current 16 work items, the MRL IHNC Lock Forebay Levee Enlargement project (river mile 92.6L) was included to address raising a 3.2 mile stretch of levee an average of 2 feet, along with a landside shift of the centerline. As of 2025, this work item is still undergoing surveys and design, and there is no anticipated construction start date.

As of early 2024, the Port of New Orleans is continuing to move forward with plans for construction of a $1.8 billion container terminal in St. Bernard Parish. The proposed terminal in Violet, LA, will help the city to compete with regional ports that are better suited to accommodate the industry's increasingly larger vessels. In addition to a recently awarded $73.77 million from the U.S. Department of Transportation through its MEGA Grant program, the Port of New Orleans announced that it has been awarded an additional $226.2 million in federal grant dollars to assist in building the Louisiana International Terminal (LIT) for a total of $300 million. Construction on the project is anticipated to begin in 2025, with the first ship wharf opening in 2028. Although this project still faces legal hurdles due to push back from locals fearing the disruption of their parish, the presence of a new container terminal in St. Bernard Parish would likely increase truck traffic between St. Bernard and New Orleans if constructed. A proposed road dedicated to connecting the interstate system to the new port facility may alleviate some of the traffic.

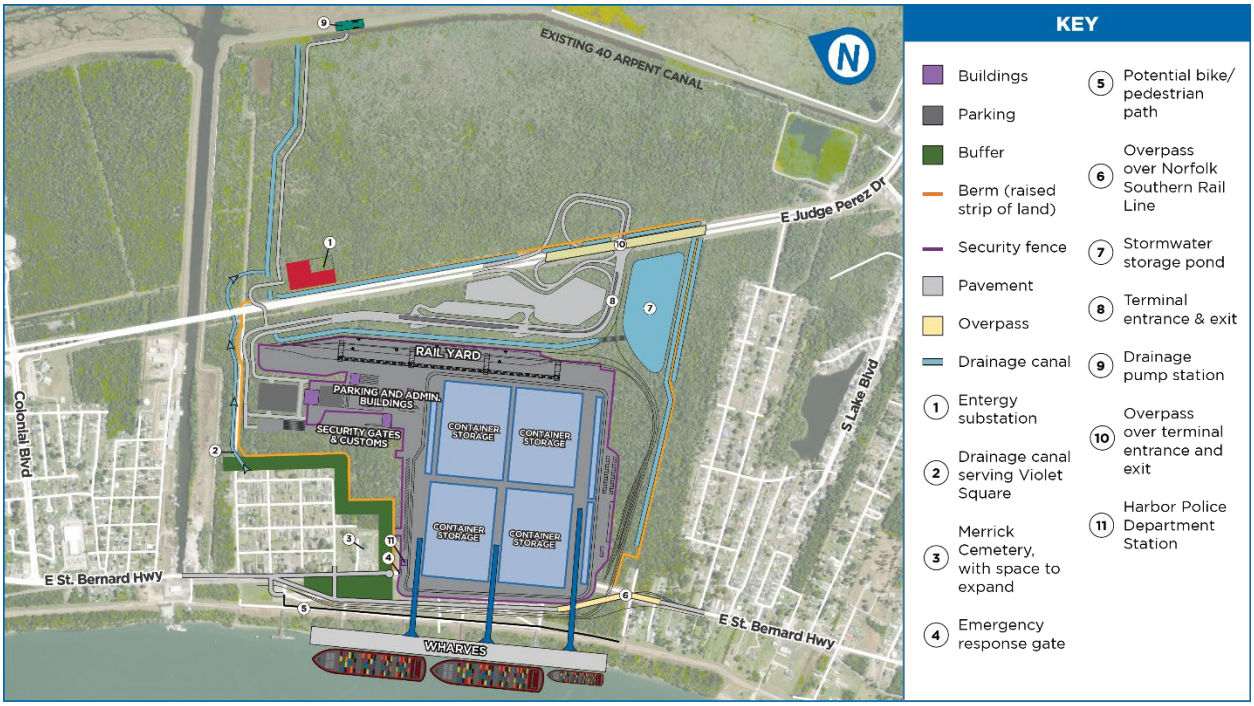



**Figure 6-3 Proposed Layout of Louisiana International Terminal, St. Bernard Parish, Louisiana.**

In the Lower 9th Ward, maritime commerce has been active at what is now the Alabo Street Terminal since 1921 (Figure 6-4). The Board of Commissioners of the Port of New Orleans (Port NOLA) purchased the property in the 1970s and construction on the shed and wharf began utilizing the facility in 1982. The Alabo Street Wharf, as it's currently known, has routinely conducted operations operation in both securing and moving a wide range of cargo. As of 2024, the facility has been used to move cargo like lumber, copper, and sugar. In partnership with Sunrise Foods International and Norfolk Southern, Port NOLA will soon begin revitalizing the Alabo Street Wharf Facility (Figure 6-5). It is anticipated that the facility will be a grain-handling facility where grain will be transported via barge (bulk vessels) to the existing warehouse and then loaded into rail cars. Facility upgrades for the project are anticipated to begin mid-October and Sunrise Foods International is anticipating receiving grain in June of 2025.

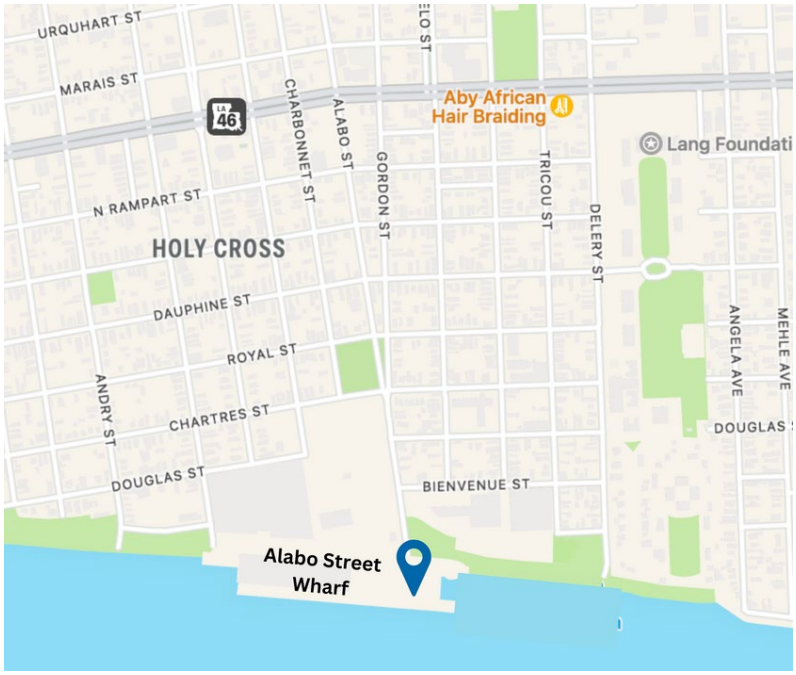



**Figure 6-4 Alabo Street Wharf location map, Lower 9th Ward (Port NOLA info sheet).**

**Figure 6-5 Phase 1 Conceptual Rendering – Alabo Street Wharf Facility (Port NOLA info sheet).**

The proposed project features and timeline for operation are listed below:

**Project Overview:**

- Bulk Organic Grain
- Transportation between Vessel/Barge and Rail
- $13M+ Phase 1 Investment ($28M Total)
- 15-Year Primary Lease Term with two 5-year extension options
- Dust Control / Mitigation Plan
- Neighborhood Improvements

**Key Milestones:**

• Sunrise Phase I Groundbreaking (Warehouse Improvements) - Fall 2024

• Alabo Street Rail Improvements Begin October 2024 (approximately 6 weeks)

• Monday - Friday Daily Norfolk Southern Alabo Street Rail Service beginning Summer 2025

As currently proposed, Sunrise Foods International anticipates use of existing rail lines to transport their products from the facility along existing Norfolk Southern rail lines. Norfolk Southern anticipates servicing the facility up to twice daily, Monday – Friday, to start with a maximum of 10 rail cars per service. The majority of rail track leading to the Alabo Street Wharf is owned by Norfolk Southern, who is in the process of rehabilitating and will be responsible for maintaining those tracks. The Port of New Orleans owns a very small portion of track that connects directly into the Alabo facility. A New Orleans Public Belt-certified track inspector will conduct quarterly inspections of that segment of track and the NOPB will maintain that segment in accordance with the U.S. Department of Transportation's Federal Rail Administration maintenance and safety standards.

CEMVN has also been involved in other regional risk reduction and coastal restoration planning efforts over the last two decades. Louisiana coastal protection and restoration efforts involve comprehensive planning for protection and restoration for all of coastal Louisiana. CEMVN and other Federal agencies participate in coastal restoration projects through the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) which authorizes implementation of specific prioritized restoration projects implemented coast-wide by a lead Federal agency (chosen by the CWPPRA Task Force from among five designated Federal agencies who, by statute, sit on the Task Force) in cooperation with the non-Federal sponsor, the Coastal Protection and Restoration Authority Board of Louisiana (CPRAB). Within the Lake Pontchartrain Basin there are 14 projects proposed or constructed under CWPPRA, which are designed to restore, enhance or build marsh habitat and prevent erosion of marsh habitat. Projects involve numerous protection and restoration methods, including rock armored shoreline protection breakwaters, dredge material marsh construction, marsh terracing and planting, fresh water and sediment diversion projects, and modification or management of existing structures. Several projects have been proposed by a variety of entities to restore a former 400-acre cypress swamp located immediately east of the IHNC, north of Florida Avenue, and south of Bayou Bienvenue. Proposed project features have included deposition of material dredged from the Mississippi River into the area, construction of terraces with material dredged from the water bottom, plantings of cypress and other species, and the beneficial use of disinfected, secondarily-treated sewage from the adjacent New Orleans Sewerage and Water Board's treatment plant. At this time, none of these projects are active and moving forward towards construction due mainly to the logistical issues with bringing new sediment into the area. University of Colorado students and

others have built a viewing platform accessible from Florida Avenue that overlooks this area. The viewing platform includes steps providing access over the Sewerage and Water Board's levee and sheetpile flood wall.

LPV, WBV, SELA and NOV repairs, restorations and improvements were fully funded at approximately $14.6 billion, with approximately $13.3 billion expended as of January 2018. These improvements were substantially complete by June 2011. The socioeconomic impacts of this volume of construction work in the New Orleans Metropolitan Statistical Area is difficult to quantify; however, the increased spending, demand on natural resources (*e.g.*, fuel), need for housing for construction workers, and purchase of equipment and materials for the HSDRRS improvements has had secondary cumulative socioeconomic impacts region-wide. Long-term beneficial cumulative impacts on socioeconomics of the region are anticipated as a result of the 1% chance of exceedance for risk reduction projects and reduced risk from flooding due to large storm events.

Additionally, the Mississippi River Ship Channel (MRSC), Gulf to Baton Rouge, Louisiana Project was recently authorized under the Water Resources Reform and Development Act of 2014, which amended the Water Resources and Development Act of 1986, to increase the Federal threshold for full Federal channel maintenance responsibilities from 45 feet to 50 feet deep. In August 2018, a final GRR/SEIS and Record of Decision for the MRSC was approved by the USACE Director of Civil Works, wherein it was recommended that the MRSC project would improve deep draft navigation needs on the Mississippi River beyond the current 45-foot depth to a depth of 50 feet extending from Port of Baton Rouge, Louisiana, beginning at River Mile (RM) 233.8 Above Head of Passes (AHP) extending to the Gulf of Mexico RM 22 Below Head of Passes (BHP).

As part of phase 3 of the Mississippi River Port of New Orleans Deepening, New Orleans, Louisiana Project, a study was recently authorized under the Water Resources Reform and Development Act of 2016. The project evaluated a range of possible depths of the access channel to the Port of New Orleans from -45ft Low Water Reference Plain (LWRP) to -50ft LWRP over the entire authorized area (River Mile (RM) 98.3 to RM 100.6) and will be a phased implementation to -50ft LWRP. The study began in February 2019 and was completed in February 2022. In February 2022, the project was converted to CAP for implementation due to the total cost. Construction was completed in 2024.

Plan 2 - North of Claiborne site; 900 feet long x 75 feet wide x 22 feet deep.

The cumulative impacts for this plan are similar to those described in Plan 3.

Plan 3 (RP) - North of Claiborne site; 900 feet long x 110 feet wide x 22 feet deep.

Past actions regarding related projects within the study area and the current project and their associated effects were all previously described in Section 1.3 of this report and both the March 1997 Evaluation Report and 2009 SEIS, the latter two of which are incorporated herein by reference.

Much of the project area is defined by the IHNC, and many residents still feel that construction of the IHNC and IHNC Lock by local interests in the 1920s was a great injustice to the community and that the community has suffered because the canal essentially divides their communities and separates the Lower Ninth Ward from the main part of New Orleans.

Presently, the areas that would be affected by the proposed lock replacement project are almost entirely composed of man-made waterways devoted to navigation, businesses and industries along the banks of the IHNC that are reliant upon navigation, and nearby residential neighborhoods interspersed with retail and light commercial businesses. For practical purposes, there would be no cumulative loss of fish and wildlife habitats associated with lock construction since such natural environments that support important fish and wildlife resources have long been eliminated from areas affected by the proposed action.

The lock replacement would increase the efficiency of navigation traffic traveling on the GIWW and Mississippi River via the IHNC. It is also expected that there would be a decrease in navigation delays (i.e. wait times for passing through the lock), which would lead to transportation cost savings over the long term. There is a potential for a number of businesses and industries along the IHNC and GIWW to increase in response to the convenience and predictability of the new lock. Furthermore, the potential exists for a considerable increase in the number of tows on the Mississippi River north of the IHNC and in the GIWW east of the IHNC with the implementation of a new efficient shallow draft lock as compared to the no-action condition. The number of tows using the GIWW west of the IHNC would likely also increase in later years.

If a Florida Expressway and a new fixed, high-rise bridge were constructed, it would be expected to divert significant traffic flow from Claiborne and St. Claude avenues, which would reduce traffic volumes on those streets. However, construction of the Florida Avenue features likely also would have negative noise and traffic effects on the surrounding neighborhoods. It should be noted that due to funding issues, the construction of a new high-elevation, four-lane vehicular bridge at Florida Avenue has been placed on an indeterminate hold. A replacement low-rise bridge was completed in 2005, primarily with funding from the U.S. Coast Guard. Additional proposed traffic improvement projects, such as the Almonaster Bridge replacement project and the I-10 Bridge widening project, would inevitably provide cumulative beneficial impacts on the long-term traffic movement in the project area. Furthermore, it is likely that the traffic demands on the corridor in the future will be only marginally greater than they are at present, providing adequate capacity for local residents and commuters. At this time, whether any of these improvements will be constructed is uncertain and the timing of such construction is likewise uncertain.

Short-term cumulative impacts on residents from construction and traffic noise would also include ongoing residential and commercial redevelopment construction activities. The renovation of existing structures and new construction in now vacant lots would add to the overall noise levels during the IHNC Lock construction.

Expenditures in the project area and regionally for redevelopment and risk reduction projects, in combination with expenditures for the IHNC Lock replacement would have temporarily minor cumulative socioeconomic benefits. While these expenditures would temporarily contribute to a modest sales tax revenue for Orleans Parish and provide local and regional employment opportunities for both skilled and un-skilled labor, it is expected there would be no long-term gains in overall tax revenues and property values. Greater employment opportunities also temporarily increase housing needs, which in the short term can lead to increased rental costs regionally, but it is unlikely there would be a noticeable increase in home ownership rates in the region. Large construction projects, such as the IHNC Lock replacement project, temporarily reduce the livability of nearby neighborhoods, reduce aesthetics and interrupt linear recreational opportunities. These are cumulative short-term adverse socioeconomic impacts. In the reasonably foreseeable future, maintenance events for the new replacement lock would be expected to occur at varying intervals between 2047 to 2097. These actions would likely result in reasonably foreseeable disruptions to navigation traffic and result in impacts similar to those previously described under the no-action plan for all resources in Section 6.1.

Plan 4 - North of Claiborne site; 1,200 feet long x 75 feet wide x 22 feet deep.

The cumulative impacts for this plan are similar to those described in Plan 3.

Plan 5 - North of Claiborne site; 1,200 feet long x 110 feet wide x 22 feet deep.

The cumulative impacts for this plan are similar to those described in Plan 3.

# 7.0 APPLICABLE LAWS AND EXECUTIVE ORDERS

There are many Federal and state laws pertaining to the enhancement, management and protection of the environment. Federal projects must comply with various environmental laws, regulations, policies, rules and guidance as discussed below. Corps personnel have coordinated with Federal and state resource agencies during planning and will continue to coordinate until compliance is achieved. See Appendix A for environmental coordination documentation.

## 7.1 Federal laws

### 7.1.1 Clean Air Act of 1972 (Air Quality)

The Clean Air Act (CAA) sets goals and standards for the quality and purity of air. It requires the Environmental Protection Agency to set National Ambient Air Quality Standards (NAAQS) for certain pollutants considered harmful to public health and the environment and where air quality does not meet applicable standards requires federal agencies to act in conformity with an applicable State Implementation Plan (SIP). The project area is in Orleans Parish, which is currently in attainment of NAAQS. A general conformity determination is not required for construction activities, including the proposed project, within Orleans Parish.

### 7.1.2 Clean Water Act of 1972 – Section 401 (Water Quality)

The Clean Water Act (CWA) sets and maintains goals and standards for water quality and purity. Section 401 requires a Water Quality Certification from the Louisiana Department of Environmental Quality (LDEQ) that a proposed project does not violate established effluent limitations and water quality standards. A Section 401 Water Quality Certificate (WQC 170209-01/AI 161278/CER 20170001) was issued for the proposed project by the LDEQ by letter dated April 4, 2017. The LDEQ Section 401 WQC is included in Appendix A of this report. An amended WQC (CER 20170001) is currently being coordinated with LDEQ and will be included in Appendix A in the Final Report.

### 7.1.3 Clean Water Act of 1972 – Section 404(b)(1) (Specification of Disposal Sites for Dredged or Fill Material)

Section 404 of the CWA governs discharge of dredged or fill material into waters of the U.S. Although the Corps does not process and issue permits for its own activities, the Corps authorizes its own discharges of dredged or fill material by applying all applicable substantive legal requirements, including application of CWA Section 404(b)(1) guidelines. Regulations under Section 404(b)(1) of the CWA establish guidelines applicable to the discharge of dredged and fill material into waters of the U.S. Potential project-induced impacts subject to these regulations were evaluated under the guidelines; results are contained in Appendix A. An amended CWA Section 404(b)(1) public notice has been prepared by the CEMVN and will be circulated for 30-day public review concurrent with the 45-day public review for the Draft Report. CEMVN will prepare a Section 404(b)(1) evaluation that will be included with the Final Report.

### 7.1.4 Coastal Zone Management Act of 1972 (Coastal Zone Development)

The Coastal Zone Management Act establishes a partnership structure allowing states and the Federal government to work together for the protection of U.S. coastal zones from environmentally harmful over-development. Potential project-induced impacts were evaluated during feasibility level design and were described in a Consistency Determination submitted to the Louisiana Department of Natural Resources to review for consistency with the Louisiana Coastal Resource Program. The Louisiana Department of Natural Resources (LDNR), Office of Coastal Management, in a letter dated March 29, 2017, determined that the proposed project was consistent with the Louisiana Coastal Resources Program in accordance with Section 307 (c) of the Coastal Zone Management Act of 1972, as amended (Coastal Zone Consistency C20170002). The

2017 LDNR coastal consistency letter is included in Appendix A of this report. An amended Coastal Zone Consistency Determination (C20170002 Mod 01) is currently being coordinated with LDNR and will be included in Appendix A in the Final Report.

### 7.1.5 Endangered Species Act of 1973 (Threatened and Endangered Species)

The Endangered Species Act (ESA) is designed to protect and recover threatened and endangered (T&E) species of fish, wildlife and plants. The CEMVN is coordinating with the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) to ensure the protection of those T&E species under their respective jurisdictions. The USFWS has previously identified several threatened or endangered, or candidate species that are either known to or may possibly occur in the project area; West Indian manatee, pallid sturgeon, Atlantic sturgeon, and Sprague's pipit. Additionally, the NMFS has designated critical habitat for Atlantic sturgeon in the Lake Pontchartrain, Lake Borgne and other waters located east of the project area. No plants were identified as being threatened or endangered in the project area.

Pursuant to Section 7(a)(2) of the Endangered Species Act, the CEMVN consulted with the USFWS by letter dated January 23, 2017, and determined that the proposed project would not likely adversely affect any threatened or endangered species under the purview of the USFWS (West Indian manatee, pallid sturgeon) and would have no effect on Atlantic sturgeon and Sprague's pipit. The USFWS concurred with CEMVN's not likely to adversely affect determination and returned a copy of CEMVN's letter with their official stamp of concurrence dated March 6, 2017. The CEMVN has determined that the revised RP may affect but is not likely to adversely affect any threatened or endangered species or their associated critical habitat. Consultation with the USFWS is currently ongoing and will be included in Appendix A in the Final Report.

The CEMVN has determined that the proposed project will not affect any threatened or endangered species or critical habitat under the purview of the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries), Protected Species Division (Atlantic sturgeon and its critical habitat). Under the January 13, 2017 NMFS Procedural Instruction 02-110-20, the NOAA Fisheries reviewed its consultative responsibilities under Section 7 of the Endangered Species Act (ESA), 16 U.S.C. § 1536, and associated regulations at 50 C.F.R. part 402 and determined it will not provide formal written responses to requests for concurrence with a federal action agency's determination that its actions will not affect any ESA-listed species or designated critical habitat ("no effect" determination) (http://www.nmfs.noaa.gov/op/pds/index.html). As such, endangered species consultation with NOAA Fisheries is complete.

All USFWS and NOAA Fisheries Section 7(a)(2) of the Endangered Species Act coordination documents are included in Appendix A of this report. Updated ESA consultation documentation will be included in the Final Report.

## 7.2 Bald and Golden Eagle Protection Act of 1940 (Bald Eagles)

The Bald and Golden Eagle Protection Act protects two eagle species. Bald eagles are not known to nest in the project area, although they may be found foraging in nearby un-developed areas. Golden eagles do not occur in the area. Based on review of existing data and preliminary field surveys, the CEMVN finds that implementation of the RP would have no effect on bald or golden eagles.

### 7.2.1 Fish and Wildlife Coordination Act of 1934 (Fish & Wildlife)

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 the same consideration as 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 (CAR) that details existing fish and wildlife resources in the project area, potential impacts due to the proposed project and recommendations for the project. The USFWS submitted a draft CAR by letter dated December 9, 2016. The draft CAR includes the USFWS positions and recommendations, which were addressed by the CEMVN in Chapter 8 of the draft report. The USFWS submitted a final CAR by letter dated March 7, 2019, which reiterated the USFWS positions and recommendations from the draft CAR. The USFWS submitted a revised draft CAR by letter dated May 1, 2025. CEMVN's responses to the revised draft CAR conservation recommendations are included in Chapter 8. A copy of the USFWS' 2017 draft CAR, 2019 final CAR, and 2025 revised draft CAR are included in Appendix A of this report. The Final CAR will be included in the Final Report.

### 7.2.2 Magnuson-Stevens Fishery Conservation and Management Act of 1976 and The Magnuson-Stevens Act Reauthorization of 2006 (Essential Fish Habitat)

The law and its reauthorization govern marine fisheries management in the U.S. Specific categories of Essential Fish Habitat (EFH) occurring in the project area include estuarine emergent wetlands, estuarine water column and estuarine mud substrate (bottom). These habitats provide EFH to three Federally-managed estuarine/marine species that are commonly to abundantly found in the project area; brown shrimp, white shrimp, and red drum. Waterbodies and wetlands provide nursery and foraging habitats for a variety of fish species, some of which may serve as prey for other fish species designated as EFH species (e.g., mackerel, snapper, and grouper) and highly migratory fishes (e.g., billfish and sharks).

The NOAA, National Marine Fisheries Service, Habitat Conservation Division (NMFS HCD), reviewed the 2017 draft report and provided comments to the report by letter dated February 1, 2017 (Appendix A, Annex 8.2). NMFS HCD offered the following EFH conservation recommendation, "The NMFS recommends the USACE develop a mitigation plan designed to offset the loss of approximately 45 acres of EFH. Such a plan should be developed in coordination with NMFS and incorporated into the final EIS."

CEMVN responded to NMFS HCD by letter dated March 31, 2017 (Appendix A, Annex 8.2). CEMVN concurred with NMFS HCD's estimation of approximately 45 acres of tidally influenced EFH habitat being permanently impacted. CEMVN noted that of the 45 acres of tidally influenced EFH habitat, permanent impacts would encompass approximately 15 acres occupied by the new navigation lock and associated lock grounds, and 30 acres of freshwater habitat directly connected to the Mississippi River. In addition, approximately 10 acres occupied by the existing lock and associated lock grounds would be converted to freshwater habitat, making the total increase of freshwater habitat approximately 40 acres. Additionally, CEMVN acknowledged NMFS HCD's request to use over 600,000 cubic yards of dredged material that would be excavated for project construction to beneficially to restore tidal marsh in the Bayou Bienvenue area. CEMVN considered NMFS HCD's beneficial re-use of dredged material to restore fish and wildlife habitat while considering important factors under the Clean Water Act Section 404(b)(1) practicable alternatives analysis (40 CFR 230; §230.10 (2)), including cost, existing technology, and logistics. CEMVN also considered additional factors during the development of the proposed disposal plan including the suitability of the dredged material for open water disposal into both fresh water and estuarine environments, the amount of material that would be available for wetland development, compliance with Louisiana State Water Quality Criteria, and the concern of nearby residents and neighborhood groups concerning impacts of the project, particularly the potential for exposure to material dredged from the IHNC (For detailed supporting information please refer to Chapter 6, Section 6.2.2 Essential Fish Habitat).

When taking into consideration cost, existing technology and logistics in light of the project purpose, and the other factors discussed above, the current proposal to dispose all dredged material suitable for open water disposal into the Mississippi River is the least environmentally damaging practicable alternative, as required by the Clean Water Act. It is Corps policy to assure that disposal of dredged material from its projects occurs in the least costly, environmentally acceptable manner consistent with engineering requirements established for

the project. The least costly alternative, consistent with sound engineering practices and selected through the 404(b)(1) guidelines is designated the Federal standard for the project. Due to cost, aquatic disposal in the river is the Federal standard. As dredged material disposal for this project is not authorized for beneficial use, disposal in accordance with the Federal standard is mandatory.

CEMVN acknowledged NMFS HCD's EFH conservation recommendation but determined that while the southern end of the IHNC technically contains two categories of EFH (estuarine water column and estuarine mud bottom), the area is nonetheless an operating shipping channel with extensive prior, and some current industrial activity along its banks. Industrial activity prior to the Clean Water Act and other environmental laws and regulations has resulted in the canal bottom sediments containing various industrial pollutants. CEMVN acknowledges concerns raised by the public about the nature of the canal bottom sediments and the disposal of dredged sediments under the dredged material disposal plan. During the re-evaluation effort of shallow draft plans and based on 2016 surveys, the total volume of dredged material anticipated to be dredged from the canal is substantially reduced. As such, the dredged material disposal plan was revised in the Draft 2017 report. Under the current recommended plan, any dredged material that is not suitable for open water disposal will be disposed in a licensed solid waste landfill. No impacts to public health are anticipated due to disposal of canal sediments. Navigation traffic in the canal is frequent. The IHNC Lock has the highest average wait times for any USACE lock in the U.S. It is important to note that the part of the IHNC that would be affected by the project is subjected to freshwater pulses from the Mississippi River each time a vessel lockage occurs, hence this part of the canal is heavily influenced by turbid, fresh water. CEMVN acknowledged that the IHNC, between its intersection with the GIWW and Lake Pontchartrain provides a vital tidal connection for estuarine organisms immigrating into Lake Pontchartrain during their early life stages, and emigrating from the lake later in their lives, especially brown shrimp, white shrimp, and red drum. However, such is not the case in the southern end of the IHNC where lock replacement would occur and is essentially considered to be a dead end for any EFH resources, except for pulses of river water entering from the existing lock operations. CEMVN previously concluded that is not appropriate to provide compensatory mitigation for the loss of this low-quality estuarine habitat, which plays a negligible role in supporting Federally-managed species.

CEMVN is re-evaluating EFH coordination as part of its 2025 study efforts. Any updates will be included in the final report.

### 7.2.3 Marine Mammal Protection Act of 1972 (Marine Mammals)

The Marine Mammal Protection Act (MMPA) protects whales, dolphins, sea lions, seals, manatees and other species of marine mammals. Whales, sea lions, and seals do not occur in the project area. Dolphins do not occur within the main IHNC due to its industrialized nature (i.e., from Florida Avenue to Mississippi River). They are more commonly found further east of the project area in the GIWW, Lake Borgne, and rarely in Lake Pontchartrain. Manatees may occasionally be found near the project area at the confluence of the IHNC and GIWW/MR-GO. To avoid "takings" of the West Indian manatee and ensure compliance with the MMPA, the CEMVN commits that all construction personnel working where manatees may occur will be educated about the MMPA, the ESA and the West Indian manatee, and commits to implementation of appropriate best management practices and manatee protection measures to avoid or minimize potential entrapment or adverse impacts to manatees during construction. (Appendix A.)

### 7.2.4 Migratory Bird Treaty Act of 1918 and Migratory Bird Conservation Act of 1929 (Migratory Birds)

The Migratory Bird Treaty Act (MBTA) and the Migratory Bird Conservation Act (MBCA) protect migratory birds and their habitat. Relatively little suitable habitat exists within the project area for migratory bird shelter, nesting, feeding and roosting activities due to the urban and industrialized nature of the area.

The USFWS has previously indicated that vegetated portions of land located in the IHNC on the east and west banks may support colonial-nesting water birds (e.g., herons, egrets, ibis, night-herons, anhinga, and roseate spoonbills). The CEMVN would conduct preconstruction surveys for colonial nesting birds, and if colonies are found, would adjust the timing of construction activities so that impacts to the nesting birds are avoided.

## 7.3 National Historic Preservation Act of 1966 (Cultural and Historic Resources)

USACE, as a Federal agency, is required to assume responsibility for the preservation of historic properties or resources that are owned or controlled by the agency and that such properties are maintained and managed in a way that considers the preservation of the historic, archeological, architectural, and cultural values pursuant to Executive Order 13175, NEPA, as amended (42 U.S.C. Sections 4321 et seq), Section 106 of the National Historic Preservation Act (NHPA), as amended, (54 U.S.C. Section 306108) and its implementing regulations, (38 CFR Part 800) and Section 110 of the NHPA.

The Section 106 of the NHPA process, implemented by regulations of the ACHP, 36 CFR Part 800, requires federal agencies to define a project's APE, identify historic properties that may be directly or indirectly affected by the project, assess the potential for adverse effects, resolve those adverse effects, and provide the ACHP a reasonable opportunity to comment on the undertaking.

The impacts to cultural resources under the RP have increased since those described in the 1997 EIS; however, the effect determination remains the same: Adverse Effect (See Chapter 6, Section 6.3.3 for the specific impacts discussion). At this time, CEMVN has an executed Memorandum of Agreement (MOA) from 2000 and is in the process of developing an Amended Memorandum of Agreement (AMOA). The current MOA executed in 2000 is entitled, *Memorandum of Agreement, Inner Harbor Navigation Canal (IHNC) Lock Replacement Project*. It was executed based on the Recommended Plan in the 1997 Evaluation Report and associated EIS. Demolition of the Galvez Street Wharf and other businesses adjacent to the channel, in preparation for construction, began in 2000 as did completing some of the provisions of the existing MOA, such as the development of Historic Preservation Plans for the Holy Cross and Bywater NRHDs. In 2006, IHNC Lock construction activity was halted until CEMVN complied with NEPA and the CWA. Since then, the confined dredge material disposal areas were determined unnecessary (GRR/DSEIS 2017), the deep draft lock was removed (GRR/DSEIS 2017), and the alignment of the St. Claude Avenue Bridge has been altered to eliminate the need to construct a temporary bridge (2024). Some of these changes to the proposed plan impact historic properties. Additionally, the ACHP regulations (36 CFR 800) have been revised and updated, changing both the requirement to consult with federally recognized Tribes and the content of MOAs.

In 2019, CEMVN initiated Section 106 of the NHPA consultation to amend the MOA executed in 2000 among the Advisory Council for Historic Preservation (ACHP), CEMVN, Louisiana State Historic Preservation Officer (LA SHPO), and the Port of New Orleans for the IHNC Lock Replacement Study. On February 25, 2019, CEMVN distributed a determination of Historic Properties Adversely Affected to the LA SHPO, ACHP, and Federally-recognized Tribes. LA SHPO concurred with CEMVN's eligibility and adverse effects determination via letter dated December 10, 2019. Further, CEMVN invited various additional consulting parties and hosted three Section 106 consultation meetings on March 22, 2019, April 9, 2019, and April 24, 2019.

In May 2024, CEMVN re-initiated Section 106 of the NHPA consultation to develop an AMOA for the RP, which includes several design changes to key features of the IHNC Lock Replacement Project since it was presented in 2019. CEMVN re-initiated consultation with the LA SHPO, the ACHP, Federally-recognized Tribes, and various other consulting parties. In July 2024, the NHPA Public Notice was posted to the project website: http://www.mvn.usace.army.mil/About/Projects/IHNC-Lock-Replacement. [see **Important Links - NHPA Public Notice July 2024**] CEMVN held a Section 106 of the NHPA re-initiation consultation meeting on July 16, 2024, to discuss consultation efforts completed to-date and the RP. A total of 14 consulting parties attended the re-initiation meeting. Subsequent Section 106 of the NHPA consultation meetings were

held on August 22, 2024, September 27, 2024, November 14, 2024, March 14, 2025, May 16, 2025, and additional meetings are planned after the release of the draft integrated re-evaluation report.

Section 106 of the NHPA consultation is still ongoing as of the release of the 2025 draft integrated re-evaluation report. CEMVN intends to carry forward the previous treatment measures in the MOA, executed in 2000, as much as practicable and address the new impacts due to design changes. The AMOA will include stipulations to mitigate for the adverse effects to historic properties and govern other aspects of the undertaking. The AMOA will replace and supersede the MOA in full. Eventual execution of the AMOA, and compliance with its terms, is required as part of CEMVN's environmental commitments and will be reflected in the ROD. CEMVN's Section 106 of the NHPA responsibilities for the lock replacement will be satisfied upon completion of the specified treatment measures outlined in the AMOA.

Once finalized, the executed AMOA will be included in Appendix A, Annex 4. The AMOA will be executed prior to the ROD.

### 7.3.1 Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984 (Hazardous, Toxic, and Radioactive Waste)

Under ER 1165-2-132, a Phase I Environmental Site Assessment is required for all of the USACE Civil Works Projects, to facilitate early identification and appropriate consideration of potential Hazardous, Toxic, and Radioactive Waste (HTRW) problems. The ER states that HTRW includes any material listed as a "Hazardous Substance" under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Other regulated contaminants include those substances that are not included under CERCLA but pose a potential health or safety hazard. Examples include, but are not limited to, many industrial wastes, naturally occurring radioactive materials (NORM), many products and wastes associated with the oil and gas industry, herbicides, and pesticides. Engineer Regulation ER 1165-2-132 and Division Regulation DIVR 1165-2-9 established policies for conducting HTRW review for USACE Civil Works Projects.

The project area is contained behind 12- and 15-foot-high floodwalls and is relatively inaccessible to the public. No hazardous materials are currently stored in the project area, and lock and bridge workers follow Occupational Safety and Health Agency standards for workplace safety. Those neighborhoods surrounding the project area that were not severely damaged by Hurricane Katrina are densely populated and have typical public safety issues found in urban environments. Nearby neighborhoods that were severely damaged by Hurricane Katrina have been cleaned of debris by the Federal government and no substantial health and safety concerns remain.

At property previously owned by the Port of New Orleans and previously occupied by the U.S. Coast Guard located on the west side of the IHNC, there are two sites that have been identified through prior HTRW environmental site assessment investigations where hydrocarbon contamination is known to exist. Sampling at these two sites indicated that total petroleum hydrocarbons as diesel, total petroleum hydrocarbons as oil, and some polycyclic aromatic hydrocarbons (benz(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and benzo(a)pyrene) remained at elevated concentrations in both areas (including under a diesel aboveground storage tank, which has since been removed). The property was purchased in fee by USACE for the lock replacement project in 2001. The Louisiana Department of Environmental Quality (LADEQ) has determined that if these sites will be disturbed during project construction, the contamination must be remediated.

While the actual construction of the new IHNC lock replacement facilities will not disturb these areas, the realignment of the MR&T and LPV floodwalls possibly could disturb the sub-surface contaminated material that is situated beneath approximately 900 feet of existing LPV floodwall located west of and adjacent to the previous U.S. Coast Guard (USCG) facility. That section of LPV floodwall would be removed in order to extend the MR&T to tie-in to the southward face of the replacement lock.

CEMVN has performed a preliminary examination of the physical extent of the HTRW sites as they relate to the potential floodwall realignment. In 2019, CEMVN contracted JESCO to perform additional environmental site assessment investigations for the known HTRW sites located at the prior USCG site. On behalf of CEMVN, JESCO submitted an April 2019 Risk Evaluation/Corrective Action Plan (RECAP) Site Investigation and Interim Action Report to the Louisiana Department of Environmental Quality, Remediation Division (LADEQ-RD). The LADEQ-RD responded to CEMVN by letter dated March 20, 2023, acknowledging receipt of the April 2019 RECAP Report, and requested USACE provide a site investigation work plan to delineate the vertical and horizontal extent of the contamination. CEMVN responded to LADEQ-RD by letter dated July 24, 2023, providing the requested work plan as well as committing to provide annual status updates of implementation of the work plan to LADEQ-RD no later than October 30th of each calendar year. CEMVN also advised LADEQ-RD that implementation of the work plan is contingent upon receipt of federal funding (construction funds) after completion of the lock replacement study. In a letter dated November 20, 2023, LADEQ-RD acknowledged completion of their review of the work plan and concurred with continued coordination both annually as well as upon receipt of federal funds and subsequent implementation of the work plan.

During PED, CEMVN will implement the aforementioned work plan in coordination with LADEQ-RD to determine if there is a practicable way to avoid disturbance of the affected section of LPV floodwall. If it is determined that there is no practicable, cost-effective way to avoid disturbance of the affected section of LPV floodwall, then CEMVN would perform additional coordination with LADEQ-RD and a Corrective Action Plan would be prepared for LADEQ-RD approval to determine the appropriate remediation actions. As it would be the lock replacement project that would require alteration of the existing LPV alignment in order to tie-in the MR&T floodwall to the replacement lock, if alteration of the present LPV floodwall in the vicinity of HTRW materials were required, that cost would be borne by the lock replacement project.

*Assessment of Sites for Borrow Operations within the Bonnet Carré Spillway*

An ASTM E1527-21 Phase 1 Environmental Site Assessment, HTRW 24-08, dated October 18, 2024, has been prepared for the IHNC Bonnet Carré Spillway Proposed Borrow Sites project area. The project area is not within the boundaries of any site designated by the EPA or State of Louisiana for a response action (either a removal action or a remedial action), under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or part of a National Priority List site under CERCLA. Aerial photographs were also reviewed, and a database search was conducted to identify possible Recognized Environmental Conditions (REC). No RECs were located within the footprints of the proposed borrow sites and no evidence suggesting the presence of HTRW was found. However, one plugged and abandoned (P&A) oil well was identified in the western portion of proposed borrow site #1. A 100-foot radius buffer area is recommended around the P&A well to avoid damaging any existing well piping. Although a P&A well has been identified in the site, there is a low probability of encountering HTRW during construction of the project.

## 7.4 State laws

### 7.4.1 Louisiana State Threatened and Endangered Species and Rare and Unique Habitat

The Louisiana Department of Wildlife and Fisheries (LDWF) Louisiana Natural Heritage Program (LNHP) lists T&E species, and rare, unique and imperiled habitats in the State of Louisiana. Based on review of the LNHP online database, rare animal species that may be found in the project area include paddlefish, manatees, pallid sturgeon, Atlantic sturgeon, Cooper's hawk, and glossy ibis. The RP is not anticipated to adversely affect any of these species. No rare or unique plant species are known to exist within the project area.

### 7.4.2 Scenic Rivers

The Wild and Scenic Rivers Act establishes a National Wild and Scenic Rivers System. The Louisiana Scenic Rivers Act similarly aims to preserve, protect and enhance the wilderness qualities, scenic beauties and ecological regimes of State-designated rivers and streams. Any construction within 100 feet of a State-designated scenic stream requires a scenic streams permit. The state-designated scenic stream portion of Bayou Bienvenue is located approximately 9 miles to the east of the IHNC. There will be no effect to Bayou Bienvenue with implementation of the RP.

## 7.5 Executive Orders

### 7.5.1 Executive Order 13175 - Consultation and Coordination with Indian Tribal Governments (Tribal Interests)

In partial fulfillment of Executive Order (EO) 13175, in addition to NEPA and Section 106 of the NHPA, the CEMVN consulted with the Tunica-Biloxi Tribe of Louisiana, Seminole Tribe of Florida, The Seminole Nation of Oklahoma, The Muscogee (Creek) Nation, the Mississippi Band of Choctaw Indians (MBCI), the Jena Band of Choctaw Indians, the Coushatta Tribe of Louisiana, the Choctaw Nation of Oklahoma, the Chitimacha Tribe of Louisiana, the Alabama-Coushatta Tribe of Texas, and the Louisiana State Historic Preservation Officer (LA SHPO) on February 25, 2019 regarding its finding of Historic Properties Adversely Affected. The MBCI contacted the CEMVN via phone on February 27, 2019, to indicate the tribe's interest to consult on this particular undertaking. The MBCI shared that their area of interest extends from the Mississippi River to just north of St. Claude Ave. Additionally, MBCI was clear that the previous MOA was not developed in consultation with Tribes and should be amended or discontinued.

In May 2024, CEMVN re-initiated Section 106 of the NHPA consultation with Federally-recognized Tribes to develop an AMOA for the RP. Please refer to Chapter 7 7.1.11 National Historic Preservation Act of 1966 and Appendix A, Annex 4 for further NHPA and EO 13175 compliance details. The AMOA will contain discovery provisions to account for unforeseen effects and unanticipated discoveries of archaeological deposits and human remains. Should there be a discovery of pre-contact artifacts, or any human remains, all the Tribes previously consulted will be re-engaged.

### 7.5.2 Executive Order 11988, Floodplain Management

EO 11988 directs agencies to avoid development in floodplains to the maximum extent feasible. All alternatives considered, including alternatives eliminated from detailed consideration, would be located within the base floodplain. No non-floodplain alternatives exist. The floodplain in the area of the proposed action is completely developed for residential, commercial and industrial purposes. Levee and floodwall systems and gated structures in the area provide risk reduction from hurricane and Mississippi River flooding, and all areas within the levee system are managed through forced drainage by pumping to remove excess rainwater. The RP is not expected to alter base flood elevations and complies with EO 11988.

### 7.5.3 Executive Order 11990, Protection of Wetlands

EO 11990 directs Federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands, and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Mitigation planning was integrated into the planning by considering, individually and collectively, each of the CWA mitigation actions of avoiding, minimizing, reducing and rectifying potential adverse impacts to wetlands to the extent practicable. The RP would avoid significant impacts to wetlands and complies with EO 11990.

### 7.5.4 Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds

EO 13186 directs Federal agencies to take actions to further implement the MBTA. The RP has been evaluated for potential effects on migratory birds, with emphasis on species of concern. Relatively little suitable habitat exists within the project area for migratory bird shelter, nesting, feeding and roosting activities and the RP is not anticipated to affect migratory birds.

### 7.5.5 Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, as amended by EO 13229 and EO 13296.

These EOs require each Federal agency to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. No disproportionate environmental health risks or safety risks to children, as defined in EO 13045, are expected from implementation of the RP.

# 8.0 PUBLIC INVOLVEMENT

## 8.1 Public meetings and other coordination efforts

A Notice of Intent to prepare a draft supplemental EIS was published in the Federal register on January 29, 2015 (Vol. 80, No. 19, pp 4911-12). A public scoping meeting was held at the beginning of the formal scoping process on February 4, 2015, at Dr. Martin Luther King Jr. Charter School for Science and Technology, 1617 Caffin Avenue, Orleans Parish, Louisiana. A scoping report which summarizes comments received at the meeting and by other methods of transmittal is provided in Appendix A. A scoping meeting public notice fact sheet was mailed to various Federal, State and local agencies and officials, Parish and city government representatives, non-governmental organizations, and individual stakeholders and members of the public. The fact sheet provided an overview of the meeting purpose, date, address and time as well as sufficient project background, study alternatives, the purpose and need and issues/resources to be addressed. At the scoping meeting, local residents and communities' concerns centered on construction times, noise and vibration impacts, while industry and maritime representatives stressed the need for a replacement lock at the existing IHNC site.

On December 30, 2016, the draft report and associated appendices were uploaded to the Environmental Protection Agency NEPA Electronic Filing System. On January 4, 2017, approximately 530 letters were mailed to various Federal, state, and local agencies, Federally recognized Tribal Nations, State recognized Tribal Nations, non-governmental organizations, and prior commenters on the draft 2009 SEIS notifying them of the upcoming release of the draft report. The letters provided a web link where individuals could download the report and all appendices http://www.mvn.usace.army.mil/About/Projects/IHNC-Lock-Replacement. Additionally, physical copies of the draft report were made available upon written request from any recipient. Shortly thereafter, On January 6, 2017, a Notice of Availability for release of the draft report was published in the Federal Register (Vol. 82, No. 4, page 1733) signifying the start of the 45-day public review and comment period (January 6, 2017, to February 20, 2017).

Beginning on February 1, 2017, an informational briefing was held at the USACE, CEMVN District Headquarters building for various local government representatives. Also on February 1, 2017, the CEMVN published an ad in the Times Picayune notifying the public of a February 7, 2017, public meeting to be held at the Andrew "Pete" Sanchez and Copelin-Byrd Multipurpose Center in Orleans Parish. Additional correspondence notifying all draft report recipients of the February 7, 2017, public meeting was either mailed via U.S. Postal Mail or directly via electronic mail. However, due to a severe weather event occurring on February 7, 2017, that affected a majority of Orleans Parish, the public meeting was cancelled for public safety. As a result of the delay to the initial public meeting, on February 7, 2017, USACE CEMVN District Commander Colonel Michael N. Clancy notified draft report recipients via U.S. Postal Mail and electronic mail that the official draft report comment period would be extended until March 1, 2017. By letter dated February 17, 2017, the USACE CEMVN District Commander Colonel Michael N. Clancy notified draft report recipients of two upcoming public meetings on February 23, 2017, in St. Bernard Parish and the other on March 14, 2017, in Orleans Parish. In addition, the letter also officially extended the public comment period a second time, to end on Tuesday, March 14, 2017.

The CEMVN hosted a public meeting on February 23, 2017, at the St. Bernard Parish Government Complex (Council Chambers) at 8201 West Judge Perez Drive, Chalmette, Louisiana 70043. Some of the issues raised by the public consisted of whether morning and nighttime bridge curfews on St. Claude Avenue and Claiborne Avenue bridges would remain in effect, would both bridges be open at the same time during lock-throughs for maritime traffic upon completion of the new lock, and whether the residents of St. Bernard Parish would be included in the traffic analysis and impact study.

The previously cancelled February 7, 2017, Orleans Parish public meeting was re-scheduled to March 7, 2017, to be hosted at the Andrew "Pete" Sanchez and Copelin-Byrd Multipurpose Center 1616 Caffin Avenue, New Orleans, Louisiana 70117. However, due to last minute unexpected issues arising with the use of the proposed facility, the public meeting was held across the street at the Dr. Martin Luther King Jr. Charter School for Science and Technology, 1617 Caffin Avenue, Orleans Parish, Louisiana. Primary topics of concern raised by the public consisted of: Noise - 13-year construction sequence and noise impacts to surrounding communities and vibration impacts from pile driving - structural damages to homes; Traffic – increase in construction vehicle traffic on main streets; and Historic/Cultural - consideration of demolition of historic structures - St. Claude Avenue Bridge and existing IHNC Lock.

At the request of the public, on March 23, 2017, the USACE CEMVN District Commander Colonel Michael N. Clancy again extended the public comment and review period to April 7, 2017. All draft report recipients and prior public meeting attendees were notified via U.S. Postal Mail and electronic mail that a third public meeting would be held on March 30, 2017, at St. Mary of the Angels auditorium, 3501 North Miro Street, New Orleans, Louisiana, 70117. Primary topics of concern raised by the public included previous noise, traffic, and historic/cultural concerns as well as: Socioeconomics - cost to taxpayers too high, new lock not economically viable at proposed location, economic justification regarding cost/benefits do not account for all impacts to community (mental health and stress), and environmental racism due to project being located in primarily minority communities; Natural Resources - project heavily favors navigation over ecosystem, and potential risk for damages to surrounding neighborhoods from removal of toxic sediments; Safety - increase in river levels within the channel since lock is set back further into canal and levees and floodwalls subject to river level stresses could result in failure, and access to emergency medical, police and fire services during construction period.

In 2019, CEMVN initiated Section 106 of the NHPA consultation to amend the MOA executed in 2000 among the ACHP, CEMVN, LA SHPO, and the Port of New Orleans for the IHNC Lock Replacement Study. On February 25, 2019, CEMVN distributed a determination of Historic Properties Adversely Affected to the LA SHPO, ACHP, and Federally-recognized Tribes. LA SHPO concurred with CEMVN's eligibility and adverse effects determination via letter dated December 10, 2019. Further, CEMVN invited various additional consulting parties and hosted three Section 106 consultation meetings on March 22, 2019, April 9, 2019, and April 24, 2019.

In May 2024, CEMVN re-initiated Section 106 of the NHPA consultation with the LA SHPO, the ACHP, Federally-recognized Tribes, and various other consulting parties to develop an AMOA for the project to mitigate for the adverse effects to historic properties. The NHPA Public Notice seeking public comment for the NHPA evaluation of the IHNC Lock Replacement Project was posted to the project website http://www.mvn.usace.army.mil/About/Projects/IHNC-Lock-Replacement. [see **Important Links - NHPA Public Notice July 2024**] on July 10, 2024.

CEMVN held a Section 106 of the NHPA re-initiation consultation meeting on July 16, 2024, to discuss consultation efforts completed to-date and the Recommended Plan. A total of 14 consulting parties attended the re-initiation meeting. Subsequent Section 106 of the NHPA consultation meetings were held on August 22, 2024, September 27, 2024, November 14, 2024, March 14, 2025, May 16, 2025, and planned meetings after the release of the draft integrated re-evaluation report in May 2025. Section 106 of the NHPA consultation is still ongoing as of the release of the 2025 draft integrated re-evaluation report. For additional information on CEMVN and compliance with Section 106 of the NHPA, please refer to Chapter 2, Affected Environment, Chapter 6. Environmental Consequences for Comparative Analysis, and Chapter 7, Applicable Laws and Executive Orders.

Between July and December 2023, USACE, along with its consultant team (CDM Smith and Bright Moments), conducted a two-phased approach to stakeholder and environmental justice engagement as part of its effort to

develop and refine a comprehensive, community-centered Community Opportunities Plan of Action (COPA) for the surrounding IHNC neighborhoods. The objective of the two-phased approach was focused on receiving feedback from community stewards on previously proposed mitigation measures from the 1995 CIMP and 1997 New Lock and Connecting Channels Evaluation Report, particularly understanding indirect mitigation measures and community needs.

Phase 1 engagements, which occurred in August 2023, included more than 20 community stewards representing the four neighborhoods who provided input on their needs and vision for their communities. Major themes from the conversations included concerns regarding transparency and lack of trust in USACE, the need to understand more project details, the desire to be self-sustaining communities, and concerns regarding climate change and flooding impacts. Participants also suggested several COPA measure ideas, including ideas for a splash pad, job training, business assistance, green infrastructure, affordable housing, a police substation, and a health clinic. Phase 1 allowed the team to understand the community's vision early in the engagement process.

Phase 2 engagements, which occurred in December 2023, were designed to continue the conversation by demonstrating what USACE heard from the four communities during Phase 1 and how USACE took that feedback to revise and augment the proposed COPA measures. USACE solicited additional public feedback on the proposed COPA measures to understand if the project team heard the communities' concerns correctly and if there were any additional community opportunities that should be considered. Understanding the communities' desires for increased transparency and an understanding of the lock replacement project itself, materials were developed to explain the purpose, potential phasing, and potential impacts of the proposed lock replacement. At the meetings, the project team also met one-on-one with residents and answered overarching questions related to the project and its potential impacts to the four neighborhoods. Materials were designed to address misunderstandings and concerns brought up during Phase 1, such as providing a preliminary construction schedule and soliciting participants feedback on COPA measures. More than 400 community ideas were documented and then aggregated. Major themes were similar to Phase 1 and included the need for transparency; improved transit, bike, and pedestrian facilities; improved parks and greenspace; affordable housing; and green infrastructure, as well as concerns with flooding and climate change and the desire for business assistance.

This two-phased engagement process successfully engaged over 280 people, which resulted in more than 500 formal comments, informal comments, and mapped input points. The project team aggregated this input, resulting in approximately 90 potential COPA measures. The potential COPA measures are categorized by topic: noise, transportation, quality of life, economic, and cultural resources. All ideas are documented in Potential Community Opportunity Plan of Action Measures, which is included in Appendix E.

In July 2024, the USACE team met with officials from the St. Bernard Parish Transportation Department staff and members of the Regional Planning Commission to discuss the Transportation Mitigation Program (TMP). The team outlined the potential impacts to rail and roadway transportation as was provided by the Urban Systems (USI) modeling report. The study also notes that based on data available at the time of the study, changes in traffic levels that might occur as a result of the proposed Louisiana International Terminal (LIT) in St. Bernard Parish were considered to have an insignificant effect on traffic at IHNC. The TMP document identifies the potential transportation impacts as a result of the lock replacement project and provides the framework for mitigating those impacts during the time of construction to completion. Some of these features include roadway improvements, digital Advanced Traveler Information Systems (ATIS), incident management plans, and traffic calming measures. Note that engagements are still ongoing as of the release of the 2025 draft report. USACE also acknowledges that during the period between the 2023 traffic modeling and the release of the 2025 draft report, the Port of New Orleans signed a lease with Sunrise Foods International to operate a grain handling facility at the Alabo Street Terminal. The rehabilitation and potential utilization of pre-existing rail tracks along Alabo Street and St. Claude Avenue to service this facility is of concern to local residents.

Over March 2023 and November 2023, the USACE coordinated with the Louisiana Department of Environmental Quality regarding two known HTRW sites located at property previously owned by the Port of New Orleans and previously occupied by the U.S. Coast Guard located on the west side of the IHNC. For additional information on USACE and LDEQ HTRW correspondence, please refer to Chapter 2, Affected Environment and Chapter 7, Applicable Laws and Executive Orders.

On December 13, 2024, the USACE team released the draft mitigation plans and design updates related to the ongoing Inner Harbor Navigation Canal Lock replacement general reevaluation report. The draft documents released addressed: the Community Impact Mitigation Plan (CIMP) (Community Opportunities Plan of Action); the Transportation Mitigation Plan (TMP); and Design Updates. The USACE sought public participation in the development of the draft mitigation plans from the public, interested parties, and stakeholders. Inclusion of mitigation plans for community and traffic impacts are unique to the authorization for the IHNC Lock replacement as each are authorized by congress for inclusion in the final report. As such, the draft CIMP, TMP and Design Updates documents were released to provide a timely update to the community on report progress and to allow the public to see the updated designs and features being incorporated into the 2025 supplemental draft report.

**The public review and comment period for this 2025 Supplemental Draft report is scheduled for:**

- **MAY 30, 2025 – JULY 17, 2025.**

A public meeting will be held on **Saturday, June 28, 2025**, at the **Andrew P. Sanchez & Copelin-Byrd Multi-Service Center, 1616 Fats Domino Ave, New Orleans, LA 70117**. The public meeting will run from **9:00 a.m. to 5:00 p.m.**

## 8.2 List of Agencies, Organizations, and persons to whom electronic copies of the statement were sent.

In May 2025, notices of availability letters with an embedded weblink to electronic copies of this 2025 supplemental draft report were sent to Federal, state, and local agencies, Federally recognized Tribal Nations, State recognized Tribal Nations, prior commenters on the draft 2009 SEIS, various interested parties, and non-governmental organizations. The distribution list was generated from a NEPA compliance database maintained by the CEMVN. An electronic file of the complete distribution list is available by request.

## 8.3 Federal Agencies

U.S. Advisory Council on Historic Preservation

U.S. Environmental Protection Agency, Region VI

U.S. Department of Energy, Office of Environmental Compliance

U.S. Department of the Interior, Office of Environmental Policy and Compliance

U.S. Department of the Interior, Fish and Wildlife Service

U.S. Department of the Interior, National Park Service

U.S. Department of Commerce, National Marine Fisheries Service, Habitat Conservation Division

U.S. Department of Agriculture, Natural Resources Conservation Service

U.S. Department of Agriculture, Forest Service

U.S. Department of Homeland Security, Federal Emergency Management Agency

U.S. Department of Transportation, Federal Aviation Administration

U.S. Coast Guard, 8th District

### 8.3.1 State Agencies

Governor's Executive Assistant for Coastal Activities

Governor's Office of Indian Affairs

Louisiana Department of Culture, Recreation & Tourism

Louisiana Department of Wildlife and Fisheries

Louisiana Department of Natural Resources, Coastal Management Division

Louisiana Department of Natural Resources, Coastal Restoration Division

Louisiana Department of Environmental Quality, Office of the Secretary (OESC)

Louisiana Department of Transportation and Development

Louisiana Department of Agriculture and Forestry

Louisiana Department of Public Works

State Library of Louisiana

Port of New Orleans

Louisiana Division of Administration

Louisiana State Attorney General's Office

Louisiana State Board of Commerce and Industry, Research Division

Louisiana State Historic Preservation Officer

### 8.3.2 Louisiana Parish Governments

Orleans Parish Government

St. Bernard Parish Government

Plaquemines Parish Government

### 8.3.3 Federally Recognized Tribal Nations

Chitimacha Tribe of Louisiana

Alabama-Coushatta Tribe of Texas

Coushatta Tribe of Louisiana

Mississippi Band of Choctaw Indians

Tunica-Biloxi Indians of Louisiana

Caddo Nation of Oklahoma

Chickasaw Nation

Choctaw Nation of Oklahoma

Jena Band of Choctaw Indians

Quapaw Tribe of Oklahoma

Seminole Nation of Oklahoma

Seminole Tribe of Florida

### 8.3.4 State Recognized Tribal Nations

United Houma Nation

Inter-Tribal Council of Louisiana, Inc.

### 8.3.5 2009 SEIS Commenters (does not include entities previously listed above)

Kenneth Ducote

Holy Cross Neighborhood Association

Community Based Mitigation Committee

Citizens Against Widening the Industrial Canal

Corps Reform Network

Port of New Orleans

Lafayette College

Marna David

J.W. Tatum

Michael Vega

Dean Reynolds

Robert N. Stearns

University of Wisconsin-Madison

Lake Pontchartrain Basin Foundation

Louisiana Wildlife Federation

Coalition to Restore Coastal Louisiana

Tulane Environmental Law Clinic

Alexander S. Kolker

Barry Kohl

Barry Sulkin

Old Arabi Neighborhood Association

## 8.4 Regional Planning Commission (Metropolitan Planning Organization) Views of the Public

Please refer to Section 8.1 for a description of all public meetings and primary topics of concern raised by the public during the public review period of the 2017 Draft (January 6, 2017, to April 7, 2017). Approximately 1,100 pages of comments were received in response to the draft report. Court reporters were also present at all public meetings and transcripts were provided to CEMVN.

Comments provided on this Draft in the public meetings and during the public comment period will be addressed in the Final report. Previous public comments on the 2017 Draft will also be addressed in the Final report. The official closing date for comments on this report is **July 17, 2025**. Please send comments by mail to the District Engineer at U.S. Army Corps of Engineers, New Orleans District, 7400 Leake Avenue, New Orleans, Louisiana 70118. Comments may also be sent to the District Engineer via electronic mail at ihnclockreplacement@usace.army.mil.

## 8.5 Fish and Wildlife Coordination Act

The USFWS provided a Draft Coordination Act Report (CAR) dated December 9, 2016, which is contained in Appendix A. USFWS coordinated their draft CAR with the NMFS and Louisiana Department of Wildlife and Fisheries (LDWF) and incorporated those agencies' comments into the draft CAR. The draft CAR contained specific recommendations for minimizing adverse effects on the natural environment. These recommendations were addressed by CEMVN in the 2017 draft report. The USFWS submitted a final CAR by letter dated March 7, 2019, which reiterated the USFWS positions and recommendations from the draft CAR. The USFWS

submitted a revised draft CAR by letter dated May 1, 2025. CEMVN's responses to the USFWS (hereinafter referred to as "The Service") revised draft CAR recommendations are as follows:

> The Service and NMFS strongly support the additional project feature of constructing a siphon or concrete channel around the lock to divert water from the river to the head of Bayou Bienvenue.

Response: While CEMVN acknowledges the potential value of the USFWS's and NMFS's proposed diversion feature to restore the degraded marsh area in the wetlands immediately east of the channel, based on the feasibility, likely added costs with no perceptible benefits added to the project, and challenging logistics of adding a permanent diversion structure in a relatively narrow navigation channel, it is not recommended that this feature be carried forward for further analysis under this current study.

> The Service strongly supports using all clean dredged material to create brackish marsh that will improve fish and wildlife habitat in the project area.

Response: CEMVN fully supports, wherever feasible and practicable, the beneficial re-use of dredged material to restore fish and wildlife habitat. However, material suitable for wetland restoration or creation that would need to be excavated for the alternatives evaluated in detail, coupled with the difficult logistics of bringing the material to areas where marsh could be restored or created, makes beneficial use of the dredged material impracticable. The RP proposes to dispose all dredged material suitable for aquatic disposal into the Mississippi River.

> The Service recommends the use of silt curtains while dredging material at the IHNC to minimize siltation and the spread of contaminated materials.

Response: CEMVN will use silt curtains in open water areas of the IHNC during the dredging of material to minimize siltation and increased turbidity where practicable. The practicality of silt curtains would need to be determined on a site-specific basis. Generally, deep water such as what is present in most of the IHNC, precludes the use of silt curtains.

> If contaminated material is used for backfilling at the new lock, that material must be contained so that it is not open to, or redistributed in, the IHNC.

Response: The RP no longer includes the use of a CDF for containment of contaminated dredged material, and no contaminated dredged material will be re-used for backfilling at the new lock. All material that is not suitable for aquatic disposal would be disposed by the USACE's contractor in a type 1 solid waste landfill.

> The Service and NMFS shall be provided an opportunity to review and submit recommendations on future detailed planning reports (e.g., Design Document Report, Engineering Document Report, etc.) and the draft plans and specifications on the Inner Harbor Navigation Canal Lock Replacement Project addressed in this report.

Response: CEMVN will provide USFWS and NMFS the opportunity to review and submit recommendations on future detailed planning reports and draft plans and specifications for the IHNC Lock Replacement project.

> Part of Bayou Bienvenue is a Louisiana designated Natural and Scenic River. LDWF has reviewed the project and determined that Bayou Bienvenue will not be adversely impacted by the project; therefore, no Scenic Stream Permit will be required. If any project features should change the USACE should reinitiate consultation with the LDWF, Scenic Rivers Program prior to conducting any activities within or adjacent to the banks of that bayou. Scenic Rivers Coordinator Chris Davis can be contacted at (225) 765-2642.

Response: Bayou Bienvenue is designated as a Natural and Scenic River by the Louisiana Natural and Scenic River Act only between Bayou Villere and Lake Borgne in St. Bernard Parish; this designated segment is located approximately 9 miles east of the project area. No impacts on this segment of Bayou Bienvenue are anticipated. USACE will coordinate with LDWF should any of the project features change.

> Coordination should continue with the Service and NMFS on detailed contract specifications to avoid and minimize potential impacts to manatees, Gulf sturgeon, and pallid sturgeon. Incorporation of protective conservation measures presented in this report should be included in applicable plans and specifications.

Response: CEMVN will ensure that the conservation measures described in the Final SEIS and in the informal consultation will be included in contract specifications.

> The Service recommends that the USACE contact the Service for additional consultation if: 1) the scope or location of the proposed project is changed significantly; 2) new information reveals that the action may affect listed species or designated critical habitat; 3) the action is modified in a manner that causes effects to listed species or designated critical habitat; or 4) a new species is listed or critical habitat designated. Additional consultation as a result of any of the above conditions or for changes not covered in this consultation should occur before changes are made or finalized.

Response: CEMVN commits to re-initiating Endangered Species Act consultation with the Service based on the recommendations listed.

> Should the landfill option for disposal of contaminated dredged material change or not be used, the Service, National Marine Fisheries Service (NMFS), and Louisiana Department of Wildlife and Fisheries (LDWF) should be consulted regarding the adequacy of any proposed alternative.

Response: CEMVN will continue to coordinate with The Service, NMFS, and LDWF regarding any project feature changes, including but not limited to the proposed plan for disposal of dredged material.

In the May 2025 draft Coordination Act Report, the Service stated: "Provided that the above recommendations are included in the feasibility report and related authorizing documents, the Service will support further planning and implementation of the recommended plan." A copy of the USFWS' 2017 draft CAR, 2019 final CAR, and 2025 revised draft CAR are included in Appendix A, Annex 2 of this report. The Final CAR will be included in the Final Report.

## 9.0 RECOMMENDATIONS

Information found in this document is subject to change and further development during the final stage of the re-evaluation study (prior to the Final report) and during the Pre-construction Engineering and Design phase, to include refinement of relocation and real estate requirements, as well as changes resulting from review and resolution of comments received from both the public and other agencies; the Agency Technical Review (ATR); and Independent External Peer Review (IEPR). The information provided in this chapter is based on the RP, as currently defined, and may be refined and/or changed as a result of additional reviews, including ATR, during Pre-construction Engineering and Design and prior to implementation.

### 9.1 Recommended Plan

The RP is Plan 3. The main feature of the RP is replacement of the existing lock with a new lock having usable dimensions of 900 feet long by 110 feet wide by 22 feet deep (NAVD88) lock to be constructed between the banks of the IHNC, north of the Claiborne Avenue Bridge and south of the Florida Avenue Bridge The RP includes construction of a cast-in-place concrete navigation lock and associated support structures and facilities; construction of a permanent replacement low-level double bascule bridge north of the existing St. Claude Avenue Bridge and subsequent demolition of the existing bridge; provision of a temporary by-pass channel around the new lock construction site; phased demolition of the existing lock, including a temporary construction channel to pass navigation traffic during demolition; disposal of dredged material that is not suitable for aquatic disposal in an approved landfill site outside of the study area; extension of the Mississippi River flood risk reduction levees and floodwalls along the banks of the IHNC to the site of the new lock and demolition of existing floodwalls; excavation and transportation of approximately 515,000 cubic yards of earthen borrow material for the new MRL from two proposed borrow sites, 45 acres and 18.5 acres, located within the Bonnet Carré Spillway in St. Charles Parish; and implementation of a Community Impact Mitigation Plan (CIMP)and a Traffic Mitigation Program (TMP) to offset and or compensate for impacts the project will have on the surrounding communities.

The Corps of Engineers recognizes the continued need for the CIMP and the Traffic Mitigation Program. Because the neighborhoods surrounding the IHNC are much changed since the CIMP was originally developed and because the Recommended Plan is also changed, the 1997 CIMP required updates. If the Recommended Plan identified in this General Reevaluation Report and Supplemental EIS is approved and funded, both the CIMP and the Traffic Mitigation Program would be refined contemporaneously with final lock design actions and would be implemented concurrent with project construction. Funding of the Recommended Plan depends on both Congressional and administrative action to provide project funds to the Corps of Engineers, and action by the Inland Waterways Users Board to allocate matching Federal funds from the Inland Waterways Trust Fund. Based on existing navigation infrastructure demands and priorities and uncertainties, allocation of funding may occur years after the final approval of the GRR/SEIS. Adjusting features of the CIMP and Traffic Mitigation Program after allocation of funding and concurrently with final lock design activities ensures that decisions regarding those plans would take into accurate account the existing conditions regarding existing and project-related traffic patterns/volumes and the current CIMP-related needs/conditions in the statutorily-designated CIMP neighborhoods closer to the time of construction.

The Total Project Cost of the RP is estimated to be $6,223,974,000. The total average annual cost is estimated at $222,500,000, with the average annual benefits estimated to be $229,100,000. The net excess benefits are estimated to be $6,550,000. The benefit-to-cost ratio is 1.03 to 1. The future detailed design phase of the project is expected to begin in year 2029 with the physical construction of the new IHNC lock and associated features estimated to be up to 14 years, assuming adequate future funding levels (year 2033 to year 2047).

## 9.2 Plan Implementation

The following describes the division of plan responsibilities.

### 9.2.1 Federal and Non-Federal Cost-Sharing

According to Section 102 and 844 of WRDA 1986, as amended by Sec. 1126 of WRDA 2024 (P.L. 118-272), cost allocations require twenty-five percent of the Federal costs for the RP to be appropriated from the Inland Waterways Trust Fund and seventy-five percent to be appropriated from the general fund of the Treasury as a part of the USACE appropriated budget. Project First Construction Cost will be shared as follows:

US Army Corps of Engineers: $3,515,679,000
Inland Waterway Trust Fund: $1,171,893,000

These costs are in the process of being certified and may be slightly adjusted in the Final Report.

### 9.2.2 Federal Responsibilities

The federal government will be responsible for construction of the project and for 100 percent of OMRR&R upon completion of the replacement lock. However, under the provisions of the approved 1997 CIMP and as anticipated in the 2025 CIMP, a non-Federal sponsor will be required for the OMRR&R of any CIMP measure that requires operation and maintenance at the point at which construction of the CIMP measure is completed.

### 9.2.3 Non-Federal Responsibilities

Unless otherwise specified, a NFS is not required for federal inland navigation waterway projects. There are no NFS responsibilities for the navigation and lock features of the RP. Costs for OMRR&R of existing hurricane and storm damage risk reduction measures that are modified due to construction of the new lock will remain the responsibility of the Louisiana Coastal Protection and Restoration Authority Board. The Orleans Levee District will remain responsible for the minor maintenance of the modified features of the MRL resulting from replacement of the lock. Under the provisions of the CIMP, a non-Federal sponsor or sponsors will be required to agree to operate and maintain any CIMP measure that requires operation and maintenance at the point at which construction of the CIMP measure is completed. Similarly, a non-Federal sponsor or sponsors would also be required for TMP measures that require on-going operation and maintenance after construction is complete. Additionally, because the Port of New Orleans currently operates and maintains the St. Claude Ave. bridge, that obligation will continue with regards to the new St. Clause Ave. bridge.

## 10.0 LIST OF PREPARERS

Primary individuals responsible for preparation of the 2025 Supplemental Draft Integrated GRR/SEIS.

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| Ms. Danielle Washington | Engineering (Hydraulics) | Lead Hydraulics Engineer oversight for preparation of GRR | 13 years, Lead Engineer (Hydraulics), Corps of Engineers, New Orleans District | 2017 |
| Ms. Jennifer McAlpin | Engineering (Ship Simulation) | ERDC, Research Hydraulic Engineer focused on hydrodynamic numerical modeling for use in ship simulation | 23 years, Research Hydraulic Engineer, River and Estuarine Engineering, Coastal and Hydraulics Lab, Engineer Research and Development Center - numerical modeling and analysis | 2025 |
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| Mr. Mark Lahare | Environmental | Primary Author of Draft Integrated Report - GRR/SEIS, Environmental and NEPA Lead | 21 years, Environmental Protection Specialist, Corps of Engineers, New Orleans District; NEPA and biological research-related experience | 2017 and 2025 |
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| Ms. Rory Escobedo | Plan Formulation | Lead Plan Formulator, coordinator for draft/final report preparation and plan evaluation | 2 years, Lead Planner Corps of Engineers, New Orleans District Masters Tulane University Earth and Environmental Science, Bachelors LSU Geology | 2025 |
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