

Draft Programmatic Environmental Assessment  
New Orleans Sewerage and Water Board  
Facilities and Carrollton Water Treatment Plant  
Hazard Mitigation Proposals

Orleans Parish, Louisiana  
HMGP Multiple Projects

FEMA-1603-DR-LA

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## LIST OF ACRONYMS

ABFE	Advisory Base Flood Elevation
ACM	Asbestos Containing Materials
APE	Area of Potential Effect
AST	Aboveground Storage Tank
BFE	Base Flood Elevation
BLH	Bottomland Hardwood
BMP	Best Management Practices
CAA	Clean Air Act
CBRA	Coastal Barrier Resource Act
CBRS	Coastal Barrier Resources System
CED	Comprehensive Environmental Document
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CEMVN	U.S. Army Corps of Engineers Mississippi Valley Division
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CUP	Coastal Use Permit
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dBA	decibels A
dB	decibels
DB	design build
DC	direct current
DFIRM	Digital Flood Insurance Rate Map
DNL	Day/Night Noise Level
DPS	Drainage Pump Station; Drainage Pump System
EA	Environmental Assessment
EIS	Environmental Impact Statement
EL	Elevation
EO	Executive Order
ESA	Endangered Species Act; Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GNO	Greater New Orleans
GOHSEP	Louisiana Governor's Office of Homeland Security and Emergency Preparedness
HANO	Housing Authority of New Orleans
HEAG	Highest Existing Adjacent Grade
HMGP	Hazard Mitigation Grant Program
HSDRRS	Hurricane and Storm Drainage Risk Reduction System
HSW	habitat supporting wildlife
Hz	hertz
I&C	Instrumentation and Control
IPaC	Information, Planning, and Conservation
IER	Individual Environmental Reports
LAC	Louisiana Administrative Code
LA HMGP PA	Louisiana Hazard Mitigation Grant Program Programmatic Agreement of 2011
LADOTD	Louisiana Department of Transportation and Development

LCRP	Louisiana Coastal Resources Program
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LDWF	Louisiana Department of Wildlife and Fisheries
LGS	Louisiana Geological Survey
LPDES	Louisiana Pollutant Discharge Elimination System
LPV	Lake Pontchartrain and Vicinity
MBTA	Migratory Bird Treaty Act
MG	million gallons
Mgd	million gallons a day
Mph	miles per hour
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NAVD88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NESHAPs	National Emissions Standards for Hazardous Pollutants
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NO <sub>2</sub>	Nitrogen Dioxide
NOV	New Orleans to Venice
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Services
NWI	National Wetlands Inventory
O <sub>3</sub>	Ozone
OCM	Office of Coastal Management
OHSA	Occupational Safety and Health Administration
OPA	Otherwise Protected Area
ORP	Other Regional Projects
PA	Public Assistance
PACM	Possible Asbestos Containing Materials
Pb	Lead
PCBs	polychlorinated biphenyls
PEA	Programmatic Environmental Assessment
PL	Public Law
PLC	Programmable Logic Controller
PW	Project Worksheet
RCRA	Resource Conservation and Recovery Act
RHA	Rivers and Harbors Act
RODs	Record of Decisions
RS	Revised Statues
SELA	Southeast Louisiana
SFHA	Special Flood Hazard Area
SIP	State Implementation Plan
SO <sub>2</sub>	Sulphur Dioxide
SHPO	State Historic Preservation Office/Officer
Statewide PA	Louisiana Programmatic Agreement of 2009
SWBNO	Sewerage and Water Board of New Orleans
SWPPP	Stormwater Pollution Prevention Plan
TMDLs	Total Maximum Daily Loads

TSCA	Toxic Substance Control Act
TSMMPA	Tentatively Selected Mitigation Plan Alternative
UFW	Unaccountable for Water
USC	United States Code
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USDA	United States Department of Agriculture
WBV	West Bank and Vicinity
WTP	Water Treatment Plant
V	Volt
VAC	Volts Alternating Current
VFD	Variable Frequency Drive

## **1.0 INTRODUCTION**

### **1.1 Project Authority**

Hurricane Katrina, a Category 4 hurricane with a storm surge above normal high tide levels, moved across the Louisiana, Mississippi, and Alabama gulf coasts on August 29, 2005. Maximum sustained winds at landfall were estimated at 140 miles per hour (mph). President George W. Bush signed a disaster declaration (FEMA-1603-DR-LA) for the state of Louisiana on August 29, 2005, authorizing the Department of Homeland Security's Federal Emergency Management Agency (FEMA) to provide federal assistance in designated areas of Louisiana. FEMA is administering this disaster assistance pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), PL 93-288, as amended. Section 404 of the Stafford Act authorizes FEMA's Hazard Mitigation Grant Program (HMGP) to provide funds to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Section 406 of the Stafford Act authorizes FEMA's Public Assistance (PA) Program to repair, restore, and replace state and local government and certain private nonprofit facilities damaged as a result of the declared event.

The Council on Environmental Quality (CEQ) regulations at Title 40, Code of Federal Regulations (40 CFR), §§ 1500.4(i), 1502.4 and 1502.20 encourage the development of program-level National Environmental Policy Act (NEPA) environmental documents and tiering for eliminating repetitive discussions and to focus on the issues specific to the subsequent action. FEMA has developed this Programmatic Environmental Assessment (PEA) under this CEQ authority.

This PEA will also facilitate FEMA's compliance with other environmental and historic preservation requirements by providing a framework to address the impacts of construction actions under FEMA's HMGP and PA programs. FEMA coordinates and integrates to the maximum extent possible the review and compliance process required under similar requirements such as the Section 106 of the National Historic Preservation Act (NHPA), Section 7 of the Endangered Species Act (ESA), the eight-step process of the Executive Order 11988 and 11990, and others. This PEA provides a framework on how FEMA integrates these requirements with NEPA.

Finally, this PEA is designed to inform decision-makers of potential environmental impacts associated with proposed actions as these decisions are made in the coming years. The PEA provides the public and decision-makers with the information required to understand and evaluate the potential environmental consequences of these hazard mitigation or public assistance actions. This PEA meets the NEPA goals of impact identification and disclosure and addresses the need to streamline the NEPA review process.

Due to the scale of this action, all of the specific locations where changes will occur have not been decided. When actions are proposed that are not evaluated or assessed in this document, FEMA will tier subsequent NEPA documents – if appropriate. CEQ encourages agencies to use a tiering process, working from broad, general NEPA environmental impact analysis documents to more site-specific ones in decision-making (40 CFR 1502.20). Tiering allows agencies “to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe” (40 CFR 1508.28).

In accordance with 44 CFR for FEMA, Subpart B – Agency Implementing Procedures, Section 10.9, an environmental assessment (EA) was prepared pursuant to Section 102 of the National Environmental Policy Act of 1969 (NEPA), as implemented by the regulations promulgated by the President's Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508). This EA evaluates and assesses the impacts to the human and natural environment of the proposed power plant retrofit of the Sewerage & Water Board of New Orleans (SWBNO) Carrollton Water Treatment Plant (WTP), the no action alternative, the repair the facility and components to predisaster design alternative, and the preferred alternative to repair

with mitigation improvements in Orleans Parish, Louisiana. The results of this EA will be used to make a decision whether to initiate preparation of an Environmental Impact Statement (EIS) or to prepare a Finding of No Significant Impact (FONSI).

## **1.2 Project Location**

Orleans Parish, which is comprised of the city of New Orleans, is located in southeast Louisiana. It is approximately 350 square miles, of which approximately 169 square miles (approximately 48.3 percent) is land, the remainder, 181 square miles, is open water. Orleans Parish is bordered to the east by Lake Borgne, St. Bernard Parish, and Plaquemines Parish, to the south by the Mississippi River, Plaquemines Parish, and Jefferson Parish, to the west by Jefferson Parish, and to the north by Lake Pontchartrain and St. Tammany Parish. Orleans Parish has approximately 343,829 residents according to 2010 census figures. Major transportation routes within Orleans Parish include Interstate Highways 10, and 59; and U.S. Highways 90, 61, and 11.

The largest industry in Orleans Parish is comprised of educational services, and health care and social assistance. Other important contributors to the Parish economy are arts, entertainment, and recreation. The Parish is also home to the Port of New Orleans, which is the 5th-largest port in the United States based on volume of cargo handled, and the 12th-largest in the U.S. based on value of cargo.

New Orleans is located approximately 70 miles southeast of Baton Rouge, the state capitol of Louisiana, and approximately 105 miles north-northwest from the Gulf of Mexico. This project is located in New Orleans, Louisiana and one site specific location is at the Carrollton WTP, at 8800 South Claiborne Avenue, New Orleans, LA 70118. The specific locations of the facilities associated with the Carrollton WTP site are provided in Table 1 and are depicted in Figures 1 and 2.

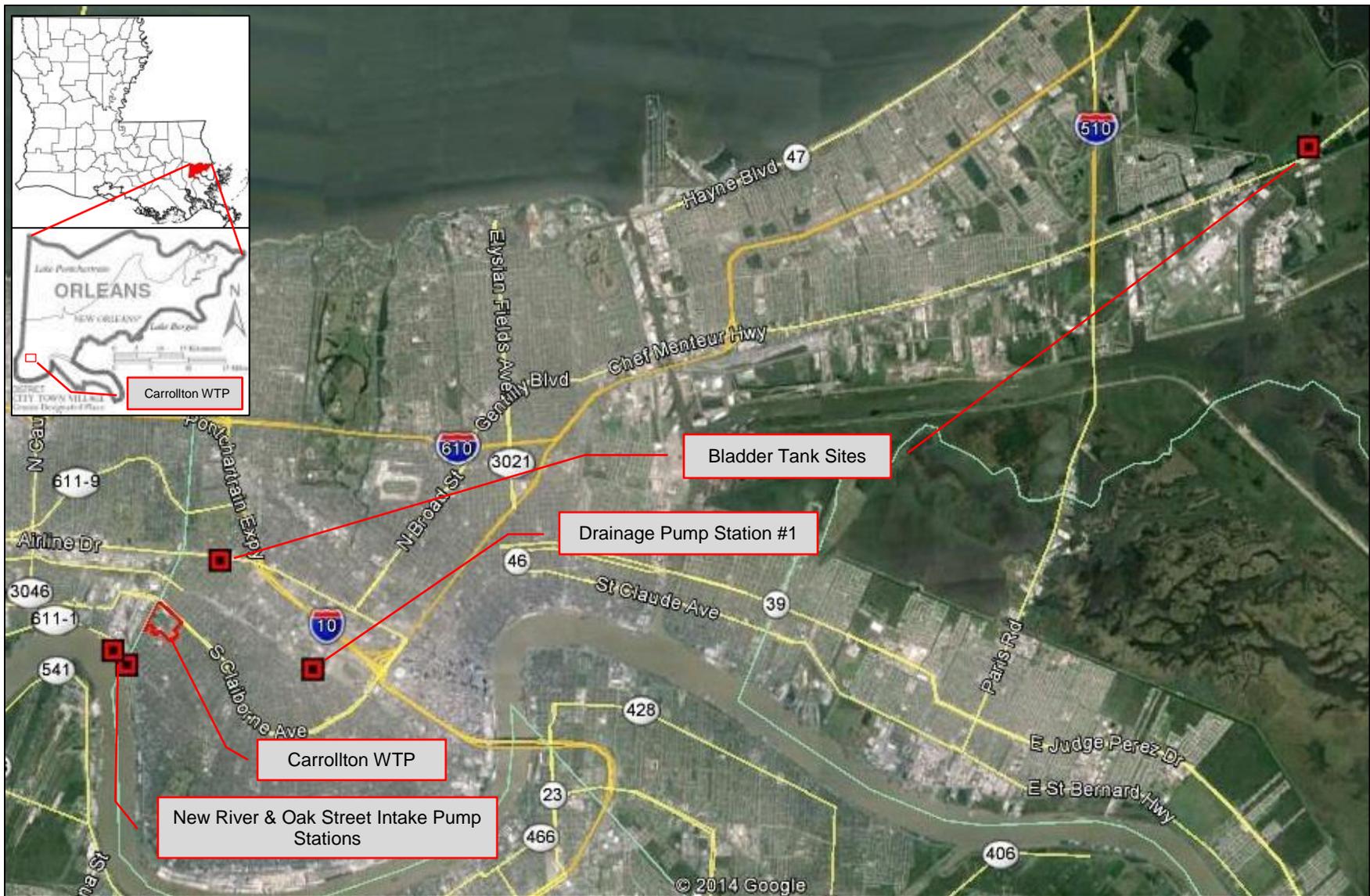


Figure 1. Project Locator Map

## 2.0 PURPOSE AND NEED

Section 404 (HMGP) and Section 406 (hazard mitigation funding) of the Robert T. Stafford Relief and Emergency Assistance Act, 42 U.S.C. § 5121 et seq., authorizes FEMA to provide funding to eligible grant applicants for cost effective activities that have the purpose of reducing or eliminating risks to life and property from hazards and their effects. Mitigation grant program regulations and guidance that implement these authorities identify various types of hazard mitigation projects or activities that meet this purpose and may be eligible for funding. These projects represent a range of activities that repair, replace, or protect structures, the contents within those structures, and/or the lives of their occupants.

The objective of the PA Program is to provide assistance to State, Tribal, and local governments, and certain types of Private Nonprofit Organizations so that communities can quickly respond to and recover from major disasters or emergencies.

The SWBNO was established in 1899 to prevent disease by providing safe drinking water and eliminating the health hazards associated with open sewer ditches in the city of New Orleans. Today, the SWBNO provides water and sewer services to New Orleans as mandated by state law in accordance with Louisiana Revised Statutes (R.S.) 33:4096 and R.S. 33:4121, respectively. The SWBNO operating units consist of four departments: 1) water purification, 2) sewage treatment, 3) water pumping and power, and 4) drainage and sewage pumping. In particular, the Carrollton WTP provides purified drinking water for Orleans Parish east of the Mississippi River (east bank). The facility normally yields approximately 135 million gallons per day of finished water for the east bank. Power to the Carrollton WTP is provided by the co-located Carrollton WTP power plant, which consists of power generators (local utility feeds) located within a group of connected buildings that serve as a building complex. The building complex includes the power house, low lift building (houses low lift pumps), high lift building (houses high lift pumps), boiler room (including boiler room basement), and the A/B pump room (Figure 2).

A series of Drainage Pump Station (DPS), the Oak Street Intake Pump Station, the New River Intake Pump Station, and the Carrollton WTP are located throughout the east bank area. The DPS collect storm water runoff that gathers in the drainage canal network and discharge the storm water into adjacent water bodies including Lake Pontchartrain, the Mississippi River, the Intracoastal Waterway, and the Mississippi River Gulf Outlet. Electric and diesel-powered pumps move storm water at each pump station. Personnel at each DPS operate and monitor the pumps and intakes, and engage or disengage pumps depending on rainfall amounts to remove storm water efficiently.

In addition to the DPS, the SWBNO water distribution network consists of eight (8) distribution pumps located in three (3) buildings at the Carrollton WTP. Like the DPS pumps the Carrollton WTP pumps close and open abruptly when these pumps are cycled on and off as part of the plant's normal operations, or when the pumps lose power. This creates a transient pressure wave, commonly referred to as "water hammer," which travels through the water distribution system, and causes damages to the network.

During Hurricane Katrina, the SWBNO system which includes the Carrollton WTP and appurtenant power and distribution facilities were severely damaged disrupting the operation of the SWBNO and the Carrollton WTP. This disrupted the delivery of potable water supply to the east bank area, as well as the transport and treatment of raw sewage and storm water. Because much of Orleans Parish is below sea level it relies upon forced drainage to remove excess water during storm events. At the time of the storm, a total of approximately 484,674 residents (based on 2000 census figures) were without service. Prior to Hurricane Katrina, the SWBNO had approximately 60 million gallons a day (MGD) of Unaccountable for Water (UFW). This is water loss within the distribution system due to leaks and breaks. Post-disaster the level of UFW rose to approximately 90 MGD. To date, tens of thousands of

point repairs have been made and the operating pressure has returned to nearly pre-storm levels, but the level of UFW has not been significantly reduced.

The primary purpose of this project is to allow the SWBNO to provide efficient and sustainable power independently from the local energy provider, maintain reliable operations of the Carrollton WTP, sustain water distribution, and prevent further damage to pressure transient damage to water mains throughout Orleans Parish during and after significant storm events.

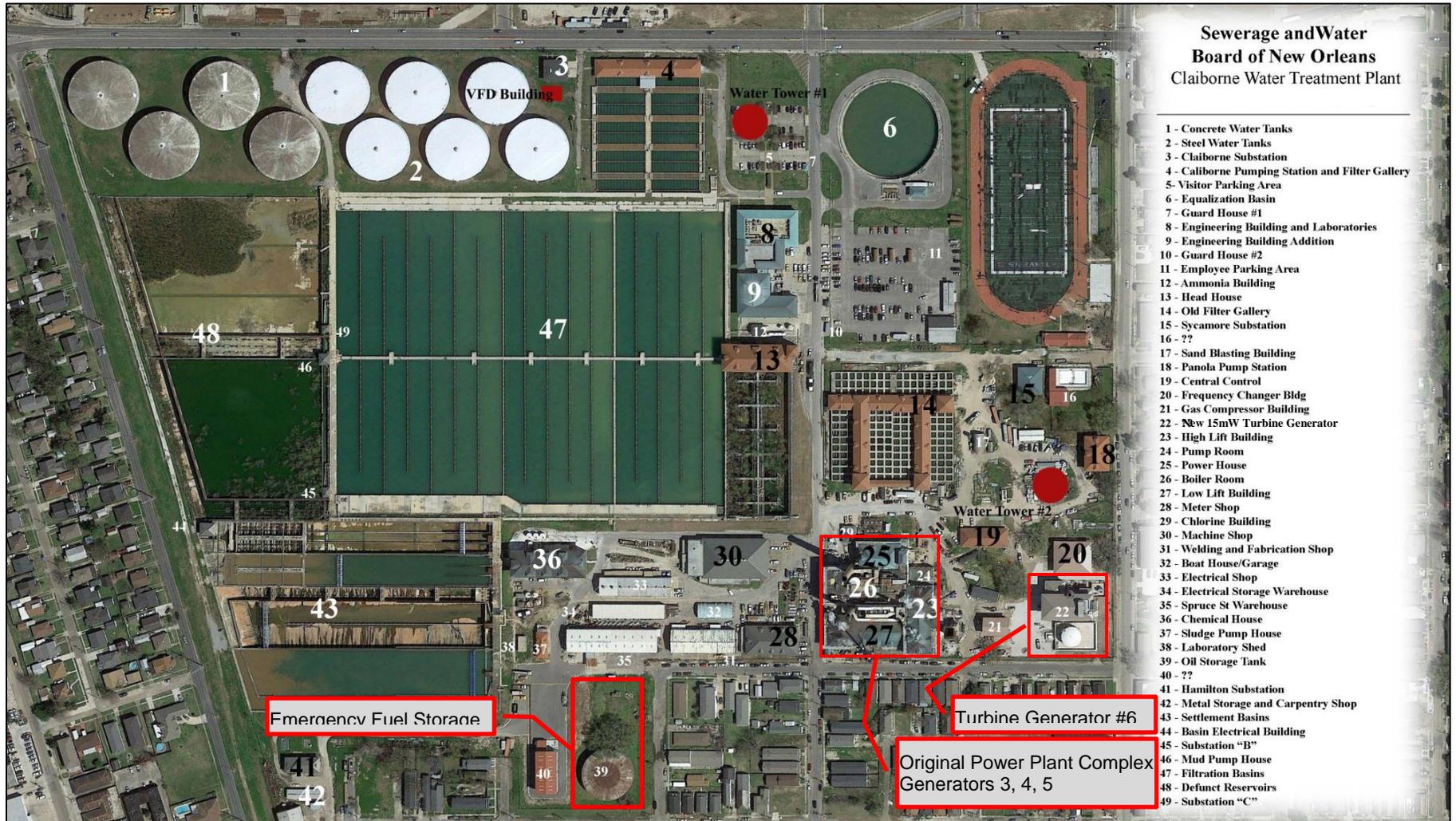


Figure 2. Carrollton WTP Layout Map

### 3.0 ALTERNATIVES

#### 3.1 Alternative 1 - No Action

Under this alternative, the SWBNO would not engage in facility repairs and improvements at the Carrollton WTP or the SWBNO system. Consequently, the Carrollton WTP and the SWNOB system, which has components built below the base flood elevation, would continue to be susceptible to flooding from heavy rains as well as the overtopping of levees. The inability of the Carrollton WTP to perform water treatment operations would cause health and safety problems to the city of New Orleans population and environment on the east bank of the Mississippi River (East Bank) as raw, untreated sewage would back up throughout the waste water collection network. Sewage pump stations that are out of service, even for a short period of time, would shut down system waste water processing and pressure transient waves resulting from the cycling of pump stations on and off due to power shut-downs would subject the overall water distribution network to the same water hammer effects.

#### 3.2 Alternative 2 - Repair to Pre-disaster Condition

Under this alternative, the SWBNO would conduct repairs to pre-disaster condition on the damaged facilities at the Carrollton WTP. While this action would return the SWBNO water processing functions to the East Bank, it would leave the Carrollton WTP at risk of similar future damages from flooding. In addition, the cycling of pump stations on and off due to power shut-downs, would subject the overall water distribution network to the same water hammer effects.

#### 3.3 Alternative 3 - Repair with Mitigation Improvements (Proposed Action)

The proposed scope of work for this alternative includes systemic retrofits and hardening of the Carrollton WTP power generation facilities, installation of improved water pumping/distribution components and controls, installation of new emergency fuel storage, and installation of water pressure regulating redundant water storage facilities within Orleans Parish. The proposed project scopes of work are detailed below, including site locations listed in Table 1, and shown in Figures 2 and 3.

<b>Site</b>	<b>Description</b>	<b>Latitude</b>	<b>Longitude</b>
CP-1368	Oak Street Pump Station Retrofit	29.952625	-90.136728
CP-1369	Emergency Fuel Storage	29.958322	-90.1309
CP-1370	Power House Boiler and Auxiliary Equipment/Electrical and I&C Upgrade	29.957881	-90.128914
CP-1371	Power House Structural Hardening	29.957881	-90.128914
CP-1372	Turbine Generator 5 Refurbishment	29.957881	-90.128914
CP-1373	Turbine Generator 3 Refurbishment	29.957881	-90.128914
CP-6247	Turbine Generator 4 Retrofit		
CP-6248	Turbine Generator 6 Feeders	29.956936	-90.127956
CP-6250	Mobile Generator Load Bank	29.957783	-90.127756
DPS #1	Drainage Pump Station #1	29.951853	-90.098703
Panola St. Tank	Water Hammer Hazard Mitigation, 2.0 M Gallon Water Surge Tanks	29.960583	-90.127275
Claiborne St. Tank		29.957447	-90.127456
Tank 1	Water Hammer Hazard Mitigation, 1000 Gallon Bladder Tanks	30.04405	-89.894947
Tank 2		29.971133	-90.117675
VFR Building	Variable Frequency Drive Systems Control Building	29.961383	-90.128081

**Table 1. List of Project Sites and Locations**



Figure 3. New River / Oak Street Intake Pump Stations (Google Earth 2014)

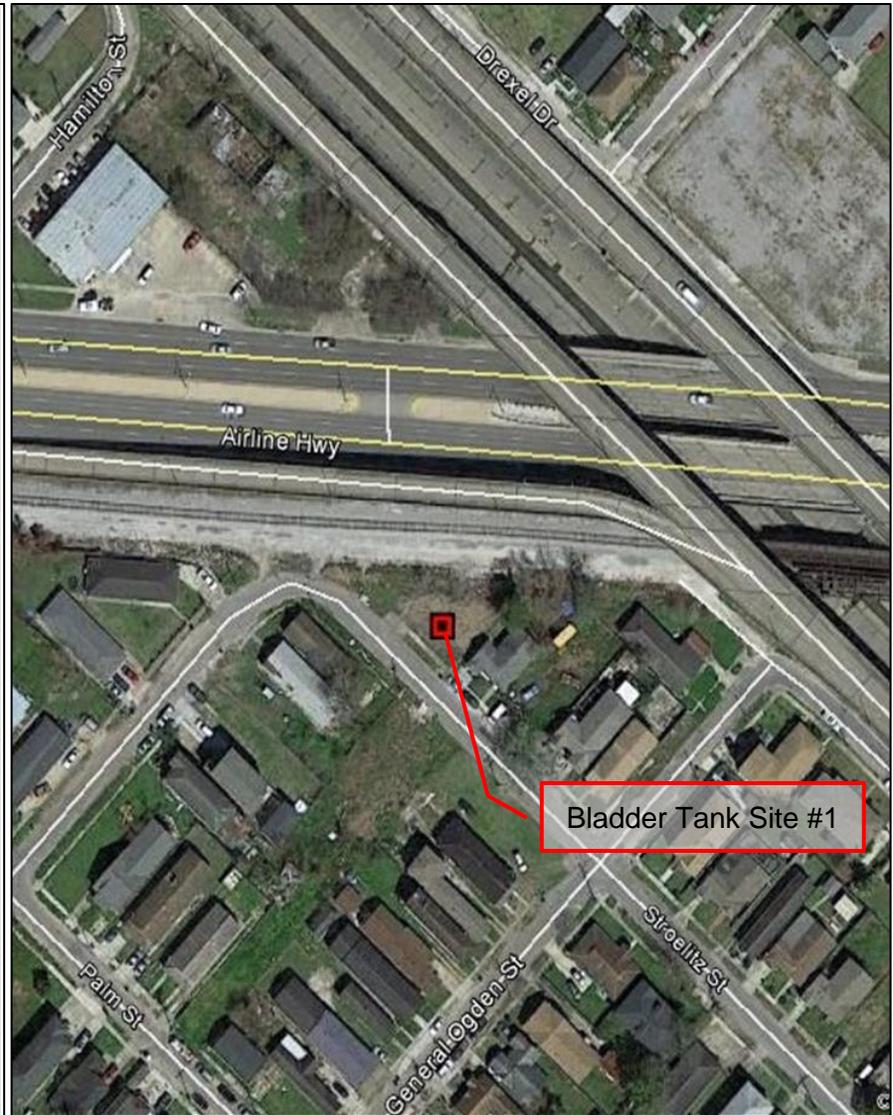


Figure 4. Bladder Tank Site #1 (Google Earth 2014)

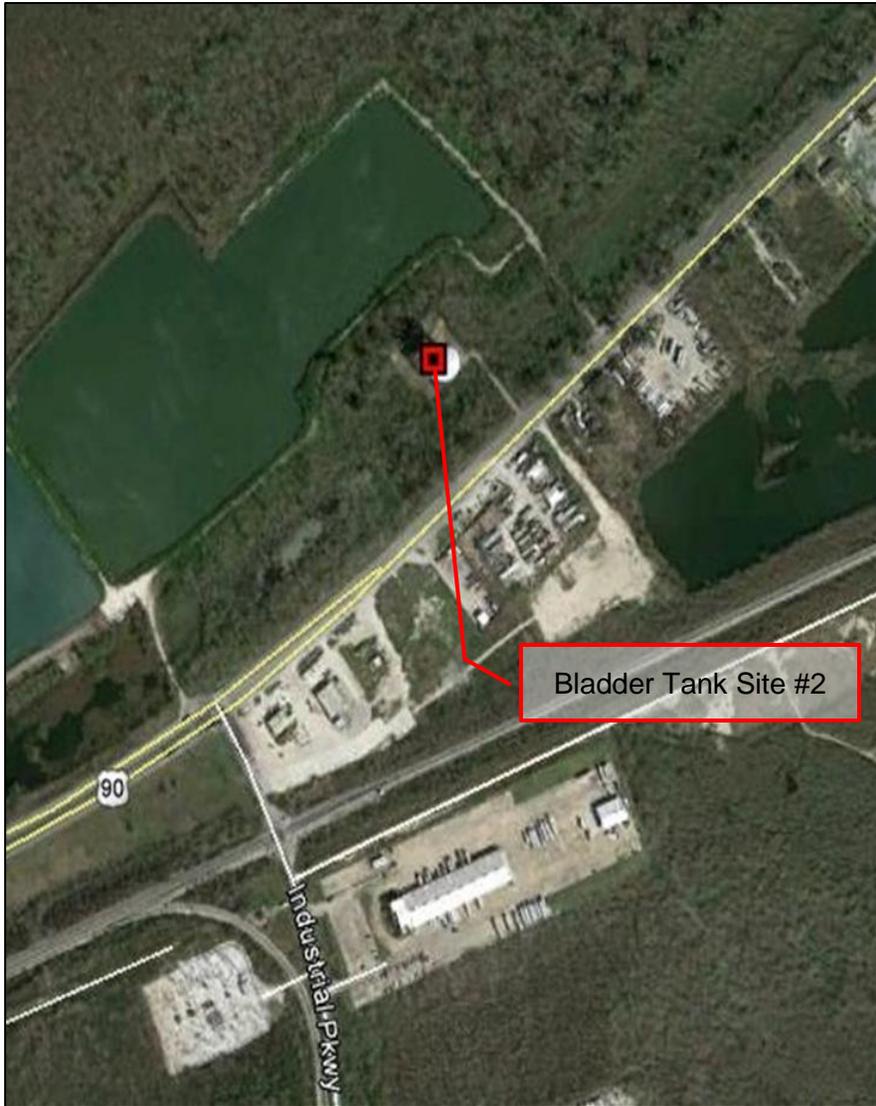


Figure 5. Bladder Tank Site #2 (Google Earth 2014)

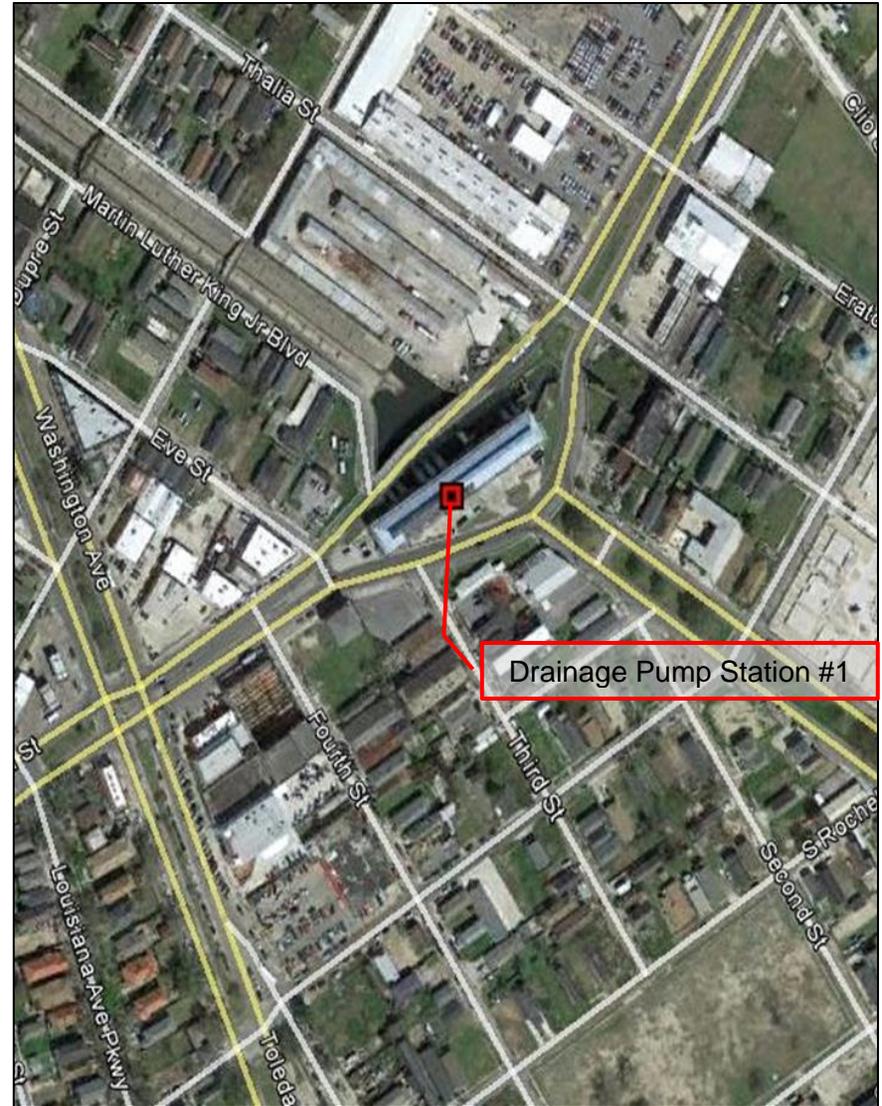


Figure 6. Drainage Pump Station #1 (Google Earth 2014)

### **3.3.1 Scope of Work for CP-1368 Oak Street Pump Station Retrofit**

The proposed scope of work for CP 1368 is the retrofit of the Oak Street Pump Station located on the east bank of the Mississippi River inside the protected levee, adjacent to River Mile Marker 104. In addition to the upgrades to the three (3) power line feeders (Revised Statutes [RS]-T6, RS-C and RS-E) from Turbine 6 at the Carrollton WTP to the Oak Street and New River Pump Stations (CP 6249), the scope of work includes the following at the Oak Street Pump Station: 1) upgrades to the Pumps A, B and C switchgear, pump drives and motors; 2) retrofit of Pumps A, B and C; and 3) refurbishment of Pumps A, B and C suction and discharge side piping and valves.

### **3.3.2 Scope of Work for CP-1369 Emergency Fuel Storage**

The proposed scope of work for CP-1369 Emergency Fuel Storage is to harden the existing fuel storage and delivery system for the Carrollton WTP. The existing storage consists of a single above-grade steel tank with a storage capacity limited to approximately 540,000 gallons. The existing delivery system consists of fuel transfer pumps located near the fuel storage tank, an underground railcar day tank, fuel pumps located in the boiler room basement, and piping and valves associated with these elements. The fuel storage system would be hardened with construction of multiple smaller new tanks that provide redundancy to each other and that improve the aged fuel storage system to current code requirements. Piping, valves, and the day tank would be upgraded as necessary during 30% design.

The recommended location for the proposed emergency fuel storage tanks is the site currently used for the existing fuel storage tank, at the southern end of the Carrollton Water Treatment Plant, near the intersection of General Ogden Street and Cohn Street. This would allow for continued use of the emergency fuel storage pump and piping network. Furthermore, this location provides the most adequate space on the Carrollton WTP for the proposed tanks and ancillary equipment. This location would require demolition of the existing tank.

Two (2) tanks are proposed to be constructed to store emergency fuel. The tanks, associated piping and equipment would be arranged parallel with one another. The arrangement would be one (1) plus one (1) duty tank, where each tank provides half of the volume needed. The purpose of splitting the volume into two (2) tanks is to provide redundant equipment so that if any one (1) item fails, there is a backup to provide continued service. The quantity of fuel to be stored is 1,044,000 gallons, which results in two (2) tanks each approximately 30 feet tall and 56 feet in diameter. The tanks would include ancillary systems such as the foam fire suppression system and fuel polishing. Containment would be constructed for each tank.

### **3.3.3 Scope of Work for CP-1370 Power House Boiler and Auxiliary Equipment/Electrical and I&C Upgrade**

The proposed scope of work for CP 1370 is upgrades to the civil and structural, electrical, instrumentation and control, mechanical and piping in the Power Plant at the Carrollton WTP. These upgrades would include but not be limited to the following: 1) grading for a new equipment pad area for miscellaneous equipment foundations and miscellaneous steel supports for piping and electrical runs; and 2) electrical upgrades for the power house include conversion of existing 3300-volt (V)/25-hertz (Hz) fan motors to 480V/60Hz, a new 480V motor control center, a new 4160V switchgear (to provide full use of Turbine 6), and installation of new auxiliary transformer for 480V motor control center. Instrumentation and Control (I&C) upgrades would allow increased steam production reliability, efficiency, quality and capacity to supply the power house steam turbine generators and steam driven pumps. Mechanical upgrades would include refurbishment and upgrade of the major mechanical systems and equipment, excluding the steam turbine generators and gas/combustion turbine generators. Mechanical upgrades for the power house include retrofitting Boilers 1, 3, 4, 5, and 6 with new burners; refurbishment of boiler auxiliary

equipment; refurbishment of boiler feed water pumps 5, 6, and 7 and improvement of boiler blow down systems. Piping upgrades would include refurbishment and upgrade of the major piping systems, excluding the steam turbine generators and gas/combustion turbine generators. The power house piping upgrades would include retrofit of main steam, boiler feed water, and condensate piping, along with pipe supports, and upgrades to the steam vents and drain piping, and boiler drain piping.

### **3.3.4 Scope of Work for CP-1371 Power House Structural Hardening**

The proposed scope of work for CP 1371 is the structural upgrades to the power plant and would provide structural hardening of existing water-damaged structural steel, and structural concrete and life safety upgrades. These tasks are described as follows: 1) Structural - hardening water damaged structural steel with cover plates and encapsulate column anchor bolts and base plates with epoxy grout, epoxy grout injection of cracked structural concrete pilasters/piers, demolition of coal chute and concrete rail support beams and replacement with structural steel beams, replacement of water damaged brine support beams and grating on the upper level; and 2) Life Safety - provide miscellaneous new handrail, toe plate, grating, raised pattern steel checkered floor plate and stair landing and manufactured steel stair treads.

### **3.3.5 Scope of Work for CP-1372 Turbine Generator 5 Refurbishment**

The proposed scope of work for CP 1372 is the retrofit of Turbine Generator 5 at the power plant at the Carrollton WTP and would include, but is not limited to the following: 1) upgrades to the steam turbine; 2) upgrade to the generator; 3) upgrade to auxiliary electrical systems; 4) upgrade to turbine and auxiliary mechanical systems; and 5) upgrade to turbine-generator control system.

### **3.3.6 Scope of Work for CP-1373 Turbine Generator 3 Refurbishment**

The proposed scope of work for CP 1373 is the retrofit of Turbine Generator 3 in the power plant at the Carrollton WTP and would include, but is not limited to the following: 1) upgrades to the steam turbine; 2) upgrade to the generator; 3) upgrade to auxiliary electrical systems; 4) upgrade to turbine and auxiliary mechanical systems; and 5) upgrade to turbine-generator control system.

### **3.3.7 Scope of Work for CP-6247 Turbine Generator 4 Retrofit HMGP Phase II**

The proposed scope of work for CP 6247 is the refurbishment of Generator 4, a 20-megawatt (MW), 25-Hz unit located in the high lift building in the Power Plant at the Carrollton WTP. The work to retrofit Generator 4 would include, but is not limited to the following: 1) rewinding rotor; 2) rewinding and restacking stator; 3) upgrading the heat exchanger; 4) upgrading direct current (DC) generator exciter with brushless exciter; and 5) performing miscellaneous mechanical, electrical, and I&C work.

### **3.3.8 Scope of Work for CP-6248 Turbine Generator 6 Feeders**

The proposed scope of work for CP-6248 consists of installing two 60-Hz electrical feeders from the new 15 MW Turbine Generator #6 at the Carrollton WTP to Drainage Pump Station 1. These feeders would use a combination of existing and newly installed duct banks within existing rights-of-way between the two (2) facilities.

### **3.3.9 Scope of Work for CP-6249 Harden Power Distribution Network**

The proposed scope of work for CP 6249 is to upgrade ten (10) power distribution feeders located throughout SWBNO power distribution network, including Feeders RS-T6, RS-C and RS-E which provides for hardening of the power distribution network between Turbine Generator 6 at the Carrollton WTP and the Oak Street and New River Pump Stations. The SWBNO received legislative authority to

utilize the design build (DB) project delivery method to design and construct projects necessary to harden the power distribution network.

### **3.3.10 Scope of Work for CP-6250 Generator Load Bank**

The proposed scope of work for CP 6250 provides mobile load bank equipment and all required electrical equipment and installation for testing of Generator 4 to 20 MW, 6600 volts alternating current (VAC), three phase 25-Hz. The Load Bank would also be used with FEMA PA Project Worksheet (PW)#6947 Turbine 4 repairs; therefore, funding may be cost shared with FEMA PA. The Board has selected the least cost alternative of purchasing the Load Bank versus leasing the equipment three times for testing of Turbine Generators 3, 4 & 5. The Load Bank equipment is specifically for 25-Hz and would have to be built by the vendor as 25-Hz load banks do not exist.

### **3.3.11 Scope of Work for Water Hammer Hazard Mitigation**

The proposed scope of work for the water hammer hazard mitigation would include the following: 1) installation of automatic ball check valves with battery back-up power to control pressure transients when pumps shut down due to power outage; 2) rebuilding of pumps at the Panola and Claiborne stations to improve reliability of operations due to extended duty cycles since Katrina; 3) construction of 2.0 million gallon (MG) elevated storage tanks each at the Panola and Claiborne stations to mitigate pressure surges and provide storage until pump operation is restored when power is interrupted; 4) installation of two (2) - 1,000 gallon hydro-pneumatic bladder tanks each at a location near the intersection of Airline Highway and Palmetto Street, and just northwest of the intersection of U.S. Highway 90 and Industrial Parkway; 5) installation of variable frequency drives (VFDs), or soft-start motor controllers with programmable logic controller (PLC) systems to control motor start-up speed to control transients; and 6) rewinding of two (2) pump motors and replacement of two (2) others at the Claiborne station, and rewinding of two (2) 25Hz motors at Panola.

## **4.0 AFFECTED ENVIRONMENT AND IMPACTS**

### **4.1 Geology and Soils**

#### **4.1.1 Regulatory Setting**

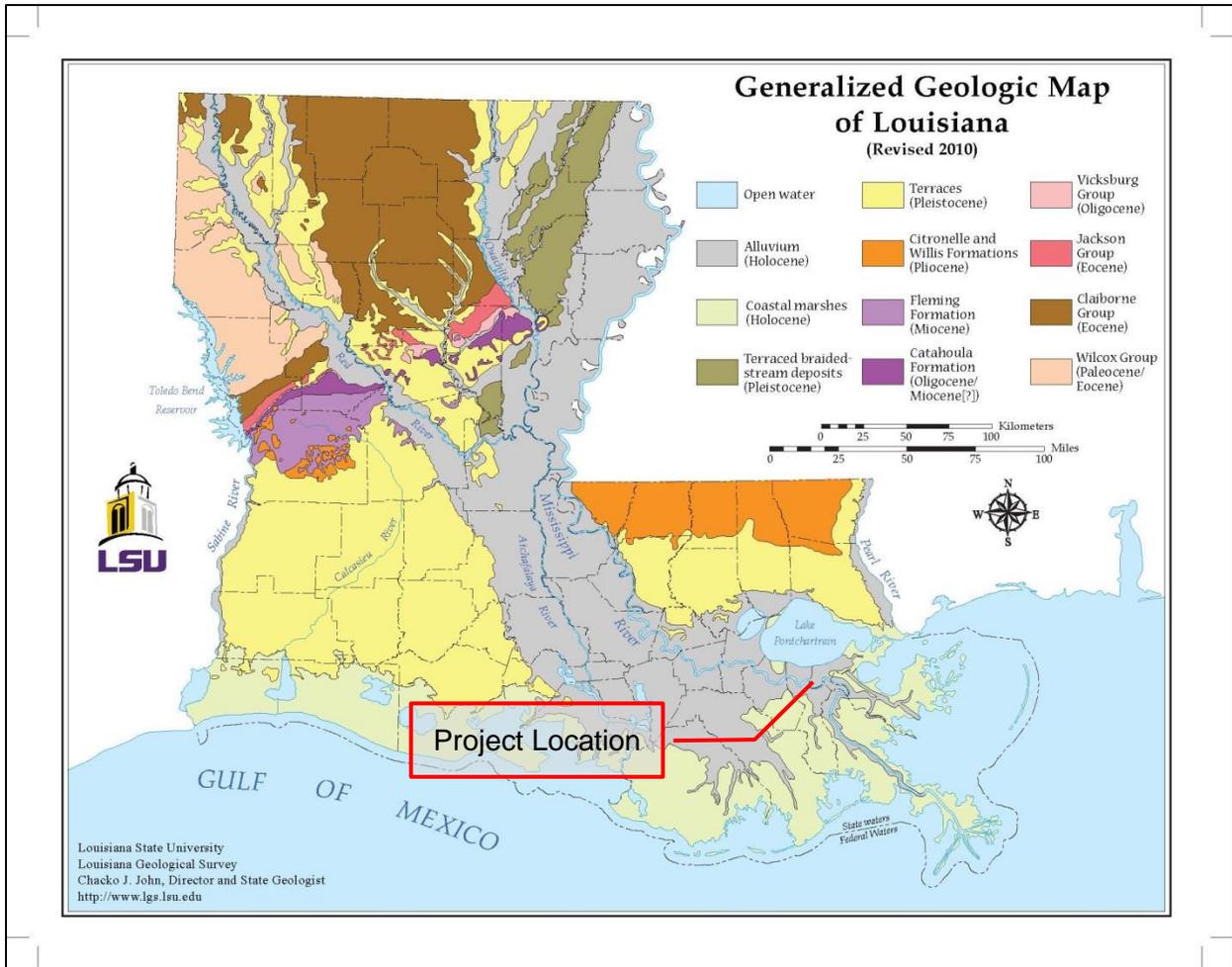
The Farmland Protection Policy Act (FPPA: Public Law [P.L.] 97-98, Sections 1539-1549; 7 United States Code [U.S.C.] 4201, et seq.) was enacted in 1981 and is intended to minimize the impact federal actions may have on the unnecessary and irreversible conversion of farmland to non-agricultural uses. It assures that, to the extent possible, federal programs and policies are administered to be compatible with state and local farmland protection policies and programs. To implement the FPPA, federal agencies are required to develop and review their policies and procedures every two years. The FPPA does not authorize the federal government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners.

The Natural Resources Conservation Service (NRCS) is responsible for protecting significant agricultural lands from irreversible conversions that result in the loss of essential food or environment sources. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Prime farmland is characterized as land with the best physical and chemical characteristics for production of food, feed, forage, fiber and oilseed crops (USDA 2013). Farmland subject to FPPA requirements does not have to be currently used for cropland; it can be forest land, pastureland, cropland, or other land, but not water or built-up land.

### **4.1.2 Existing Conditions**

According to the Louisiana Geological Survey (LGS), the geology in the vicinity of the site is predominantly Holocene Alluvium (11,800 years to present), sedimentary deposits composed mainly of sands, silts and clays, and deposits of the deltaic plain of the St. Bernard delta lobe, Mississippi River (LGS 2010). Figure 7 shows the generalized geology for the State of Louisiana, with the location of the proposed project in Orleans Parish identified. Figures 8 and 9 show the generalized geology for the project sites in Orleans Parish. The project sites are within the natural levee complex of the Mississippi River. This area consists of deposits comprising the natural levees flanking the Mississippi River, and soils are typically sandy silt, silt, clayey silt, silty clay, and clay.

The soils in Orleans Parish vary in their potential for major land uses and urban development. According to the United States Department of Agriculture (USDA), NRCS Web Soil Survey, the soils in the proposed sites include Cancienne silt loam, Cancienne silty clay loam, Harahan clay, Schriever clay, and Schriever silty clay loam (Figures 10-15). These soils are considered hydric, with drainage classifications of either somewhat poorly or poorly drained (NRCS 2014). Additionally, all of the soils are rated as prime farmland. However, since all of these sites are currently developed urban sites, they are not subject to the FPPA prime farmland evaluation, per 7 CFR 658.2(a) (NRCS 2014).



**Figure 7. Generalized Geologic Map of Louisiana (LSU 2010)**

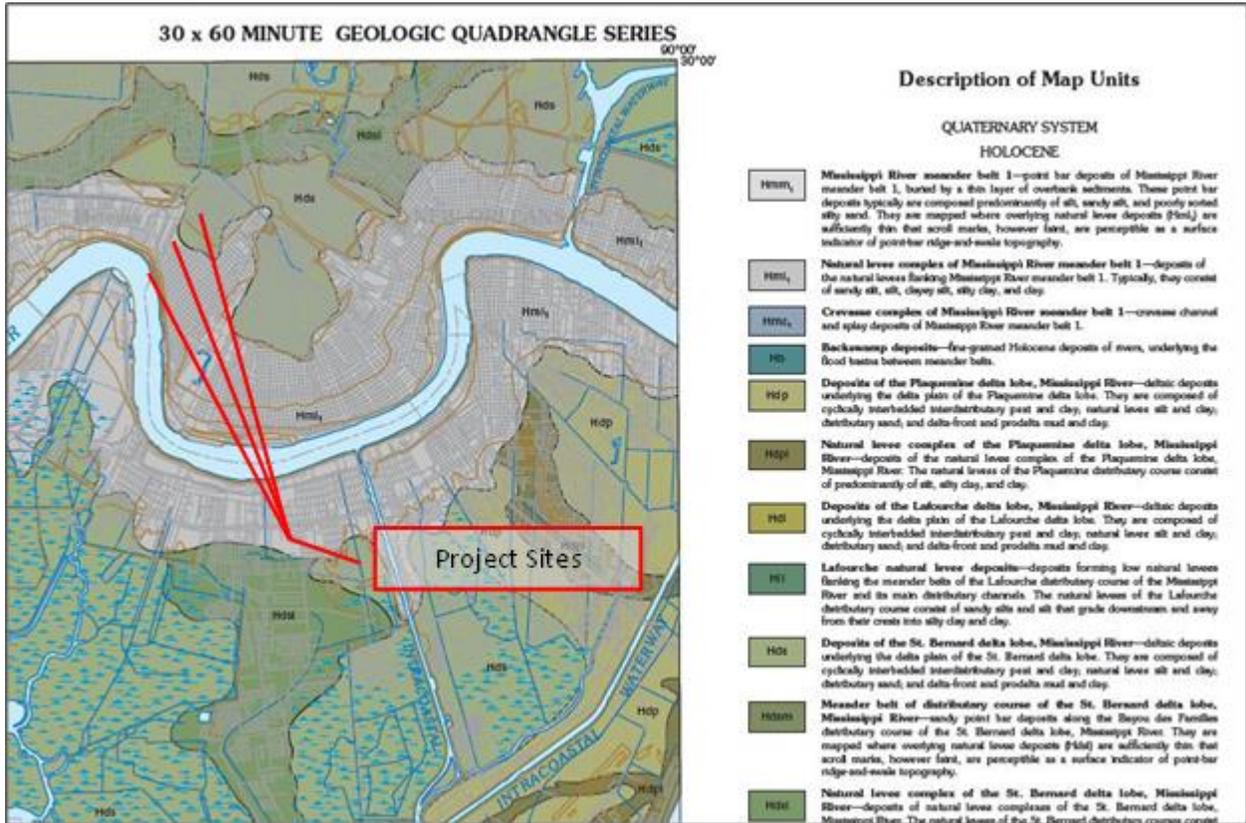


Figure 8. Geologic Map of Carrollton WTP and Vicinity Project Sites (LSU 2011)

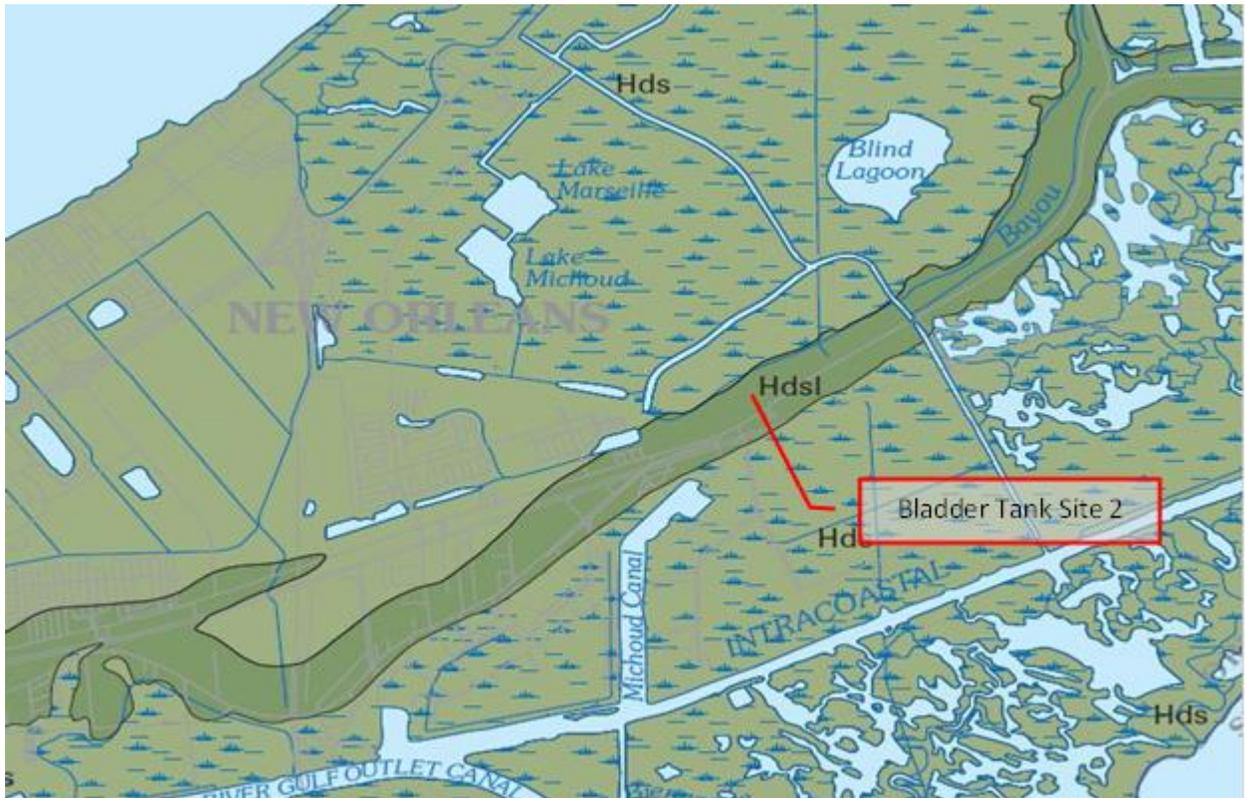


Figure 9. Geologic Map of Bladder Tank Site 2 (LSU 2004)



Figure 10. NRCS Web Soil Survey Map for the Carrollton WTP and Vicinity (2014)

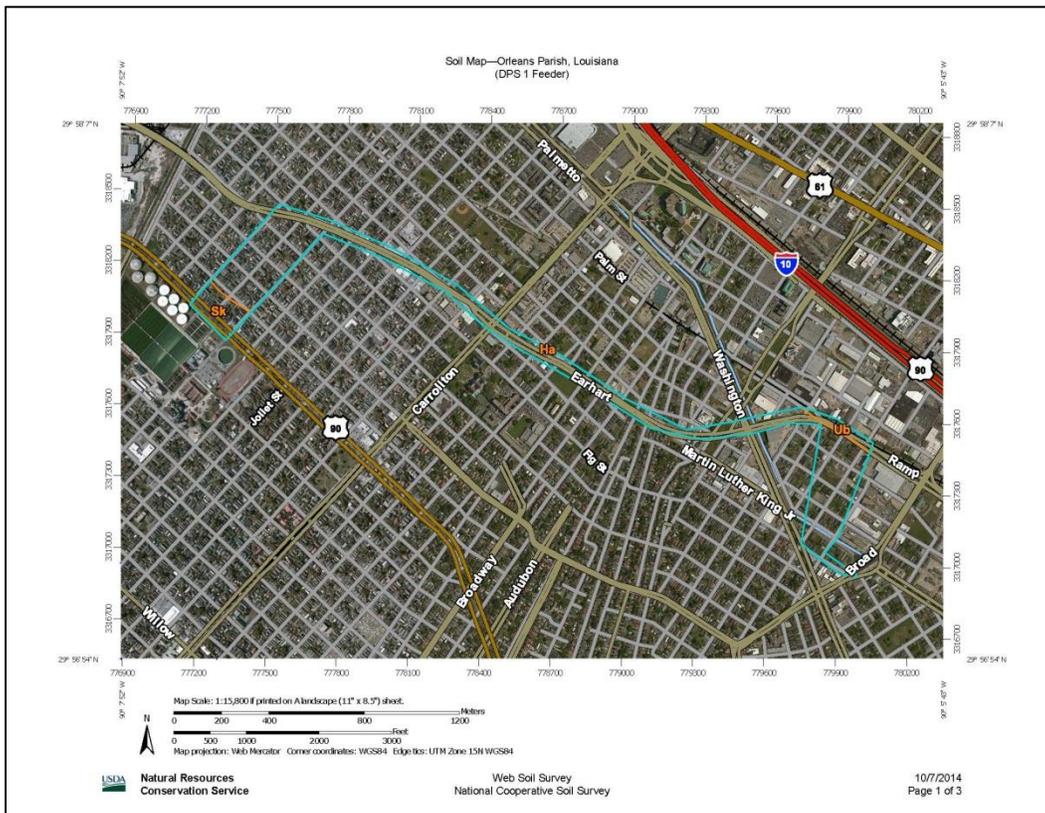


Figure 11. NRCS Web Soil Survey Map for DPS 1 Feeder (2014)



Figure 12. NRCS Web Soil Survey Map for the Bladder Tank Site 1 (2014)



Figure 13. NRCS Web Soil Survey Map for the Bladder Tank Site 2 (2014)

MAP LEGEND		MAP INFORMATION
<b>Area of Interest (AOI)</b>	<ul style="list-style-type: none"> <li> Area of Interest (AOI)</li> </ul>	<p>The soil surveys that comprise your AOI were mapped at 1:24,000.</p> <p><b>Warning:</b> Soil Map may not be valid at this scale.</p> <p>Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.</p>
<b>Soils</b>	<ul style="list-style-type: none"> <li> Soil Map Unit Polygons</li> <li> Soil Map Unit Lines</li> <li> Soil Map Unit Points</li> </ul>	
<b>Special Point Features</b>	<ul style="list-style-type: none"> <li> Blowout</li> <li> Borrow Pit</li> <li> Clay Spot</li> <li> Closed Depression</li> <li> Gravel Pit</li> <li> Gravelly Spot</li> <li> Landfill</li> <li> Lava Flow</li> <li> Marsh or swamp</li> <li> Mine or Quarry</li> <li> Miscellaneous Water</li> <li> Perennial Water</li> <li> Rock Outcrop</li> <li> Saline Spot</li> <li> Sandy Spot</li> <li> Severely Eroded Spot</li> <li> Sinkhole</li> <li> Slide or Slip</li> <li> Sodic Spot</li> </ul>	
<b>Water Features</b>	<ul style="list-style-type: none"> <li> Streams and Canals</li> </ul>	<p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service                  Web Soil Survey URL: <a href="http://websol survey.nrcs.usda.gov">http://websol survey.nrcs.usda.gov</a>                  Coordinate System: Web Mercator (EPSG:3857)</p> <p>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: Jefferson Parish, Louisiana                  Survey Area Data: Version 8, Dec 9, 2013</p> <p>Soil Survey Area: Orleans Parish, Louisiana                  Survey Area Data: Version 8, Dec 9, 2013</p> <p>Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Jan 22, 2010—Jan 3, 2011</p> <p>The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.</p>
<b>Transportation</b>	<ul style="list-style-type: none"> <li> Rails</li> <li> Interstate Highways</li> <li> US Routes</li> <li> Major Roads</li> <li> Local Roads</li> </ul>	
<b>Background</b>	<ul style="list-style-type: none"> <li> Aerial Photography</li> </ul>	

Figure 14. NRCS Web Soil Survey Map Legend (2014)

### Map Unit Legend

Jefferson Parish, Louisiana (LA051)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cm	Cancienne silt loam, 0 to 1 percent slopes	2.0	1.3%
CS	Cancienne and Schriever soils, frequently flooded	0.5	0.3%
LV	Levees-Borrow pits complex, 0 to 25 percent slopes	1.6	1.0%
Subtotals for Soil Survey Area		4.1	2.7%
Totals for Area of Interest		153.7	100.0%

} Carrollton WTP and Vicinity

Orleans Parish, Louisiana (LA071)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ha	Harahan clay	80.7	88.8%
Sk	Schriever clay, 0 to 1 percent slopes	7.3	8.0%
Ub	Urban land	2.9	3.2%
Totals for Area of Interest		90.9	100.0%

} DPS 1 Feeder

Orleans Parish, Louisiana (LA071)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Sk	Schriever clay, 0 to 1 percent slopes	7.3	100.0%
Totals for Area of Interest		7.3	100.0%

} Bladder Tank Site 1

Orleans Parish, Louisiana (LA071)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Sh	Schriever silty clay loam	0.9	100.0%
Totals for Area of Interest		0.9	100.0%

} Bladder Tank Site 2

Figure 15. NRCS Web Soil Survey Classification Summary for Project Sites (2014)

### **4.1.3 Environmental Consequences**

#### Alternative 1 – No Action

Implementation of the No Action Alternative would include no undertaking and, therefore, would not impact the soils or geologic processes known for the area.

#### Alternative 2 – Repair to Pre-disaster Condition

This action alternative would temporarily impact soils, primarily as part of site preparation and building construction. Soils at the project site may be exposed during grading and trenching for utilities or other code upgrades. Additionally, installation of the proposed structure may result in compaction of all underlying soil, and the removal of other soil. However, this alternative would only include construction in areas that have already been disturbed, graded, and developed, and would not cause significant disturbance of geology or soils as part of the site preparation and building construction. Furthermore, the project will also not result in the conversion of any Prime, or State-wide and locally important farmlands.

#### Alternative 3 - Repair with Mitigation Improvements (Proposed Action)

The Proposed Action Alternative would temporarily impact soils, primarily as part of site preparation and building construction. Soils at the project site may be exposed during grading and trenching for utilities or other code upgrades. Additionally, installation of the proposed addition may result in compaction of all underlying soil, and the removal of other soil. However, this alternative would only include construction in areas that have already been disturbed, graded, and developed, and would not cause significant disturbance of geology or soils as part of the site preparation and building construction. Furthermore, the project will also not result in the conversion of any Prime, or State-wide and locally important farmlands.

## **4.2 Waters of the United States and Wetlands**

### **4.2.1 Regulatory Setting**

The United States Army Corps Engineers (USACE) regulates the discharge of dredged or fill material into waters of the U.S., including wetlands, pursuant to Sections 401 and 404 of the Clean Water Act (CWA). Wetlands are identified as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, or that under normal hydrologic conditions do or would support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The USACE also regulates the building of structures in waters of the U.S. pursuant to Section 10 of the Rivers and Harbors Act (RHA). Executive Order (EO) 11990, Protection of Wetlands, directs federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the values of wetlands for federally funded projects. FEMA regulations for complying with EO 11990 are found at 44 CFR Part 9, Floodplain Management and Protection of Wetlands.

The U.S. Environmental Protection Agency (USEPA) regulates discharges to waters of the United States through permits issued under Section 402 of the CWA, entitled the National Pollutant Discharge Elimination System (NPDES), which authorizes and sets forth standards for state administered permitting programs regulating the discharge of pollutants into navigable waters within each state's jurisdiction. On August 27, 1996, USEPA Region VI delegated the authority to administer the NPDES program for matters within the jurisdiction of the State of Louisiana. Having assumed NPDES responsibilities, Louisiana directly issues NPDES permits and has primary enforcement responsibility for facilities located

within the State, with certain exceptions such as Indian Country Lands. Louisiana administers the NPDES Program and surface water discharge permitting system under the Louisiana Pollutant Discharge Elimination System (LPDES) program.

The LPDES requires permits for the discharge of pollutants/wastewater from any point source into waters of the State. The term “point source” is defined as “any discernible, confined, and discrete conveyance such as a pipe or a ditch.” Prior to assumption of the program, permittees were required to hold both a valid state and federal permit. Today, all point source discharges of pollutants to waters in the state of Louisiana are subject to a LPDES permit issued by the Louisiana Department of Environmental Quality (LDEQ). Additionally, the LDEQ requires a Stormwater Pollution Prevention Plan (SWPPP) for land disturbing activities greater than 1 acre. For land disturbing activities greater than 5 acres the LDEQ requires: 1) a SWPPP 2) a Notice of Intent and 3) a Notice of Completion.

Section 303(d) of the CWA requires states to develop a list of impaired waters. Water is considered impaired if the current quality does not meet the numeric or narrative criteria in a water quality standard, or the designated use described by that state is not achieved. Section 303(d)(2) requires that states submit and USEPA approve or disapprove lists of waters for which existing technology-based pollution controls are not stringent enough to attain or maintain state water quality standards, and for which total maximum daily loads (TMDLs) must be prepared (40 CFR 130.7). Total maximum daily loads are pollution budgets designed to identify necessary reductions of pollutant loads to the impaired waters so that the appropriate water quality standards are met, including designated uses like fishing or swimming and water quality criteria for parameters such as dissolved oxygen and water clarity. The regulations require states to identify water quality limited waters still requiring TMDLs every two years. The lists of waters still needing TMDLs must also include priority rankings and must identify the waters targeted for TMDL development during the next two years (40 CFR 130.7). Types of impairments may include, for example, impaired primary contact use (e.g., swimming, water skiing), mercury and polychlorinated biphenyls (PCBs) in fish tissue, impaired fish consumption use, low dissolved oxygen, copper, phosphorus, manganese, excessive siltation, physical-habitat alterations, and total suspended solids which impair aquatic life use.

#### **4.2.2 Existing Conditions**

Orleans Parish contains approximately 181 square miles of surface water (U.S. Census Bureau, 2014). Within the Parish, the main sources of surface water are Lake Pontchartrain and the Mississippi River. However, since Lake Pontchartrain is heavily influenced by the saline waters of the Gulf of Mexico, the primary source of fresh water for the parish is the Mississippi River (Prakken *et al.*, 2014).

The project sites are located within U.S. Geological Survey (USGS) hydrologic sub-watersheds 080902030103 (Metairie Canal - Canal No. 2) and 080902030202 (Irish Bayou Canal - Bayou Sauvage). These sub-watersheds are identified by LDEQ sub-segments 041302 (Lake Pontchartrain Drainage Canals in Jefferson and Orleans Parish) and 041401 (New Orleans East Leveed Water Bodies), respectively. According to the 2012 LDEQ Water Quality Inventory Integrated Report [Section 305(b) and 303(d) Reports], these watershed areas fully support the designated use of secondary contact recreation (boating), but do not fully support the designated uses of primary contact recreation (swimming) and fish and wildlife propagation. Low dissolved oxygen and fecal coliform due to sanitary sewer overflows and runoff from urbanized high density areas are the suspected causes of impairment.

According to the U.S. Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI) map, the proposed project sites are located adjacent to designated wetlands (Figures 16 and 17). The identified wetlands at the Carrollton WTP are associated with the current primary settling ponds, as well as two old

settling ponds that are no longer being utilized. During a site visit, conducted on July 18, 2014, FEMA Environmental Specialists did not observe additional wetland areas at the proposed project sites.

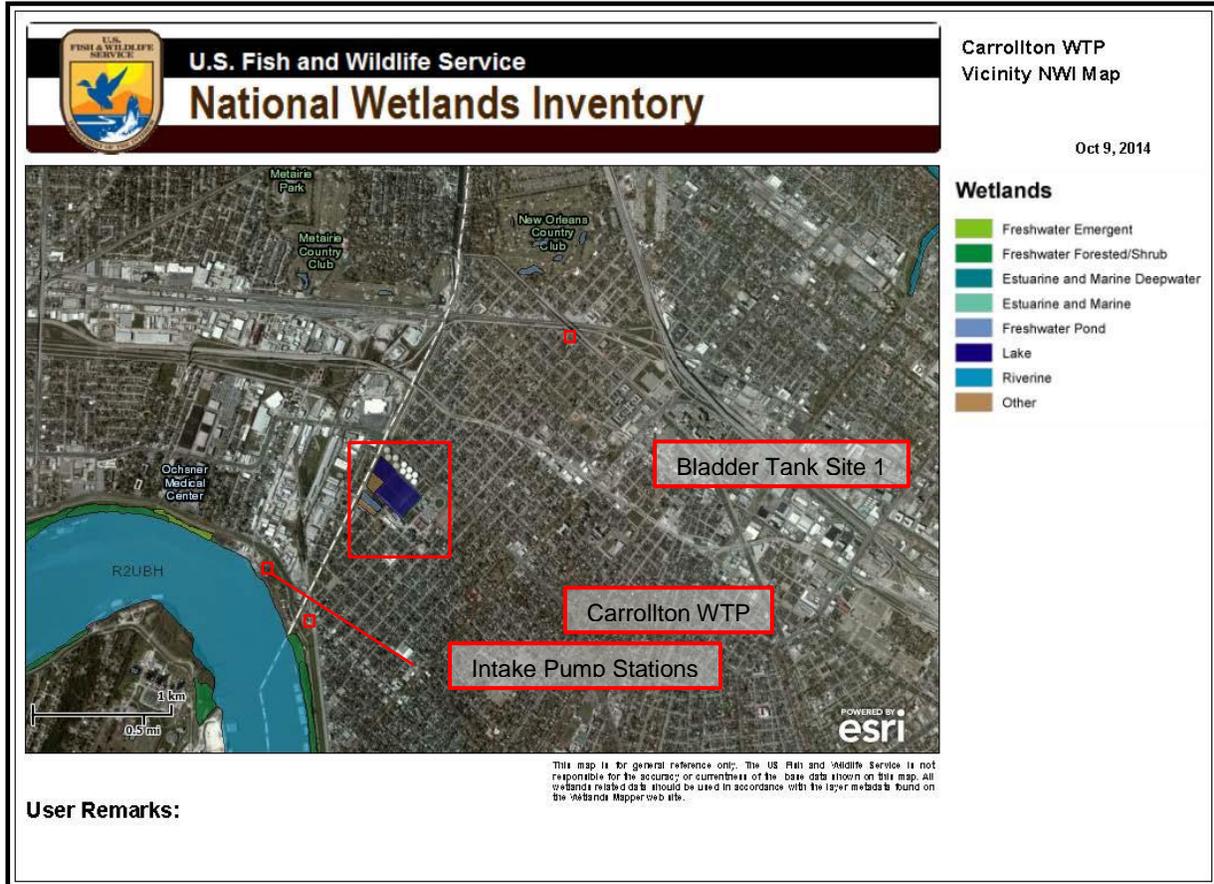


Figure 16. USFWS National Wetland Inventory Map of Carrollton WTP and Vicinity

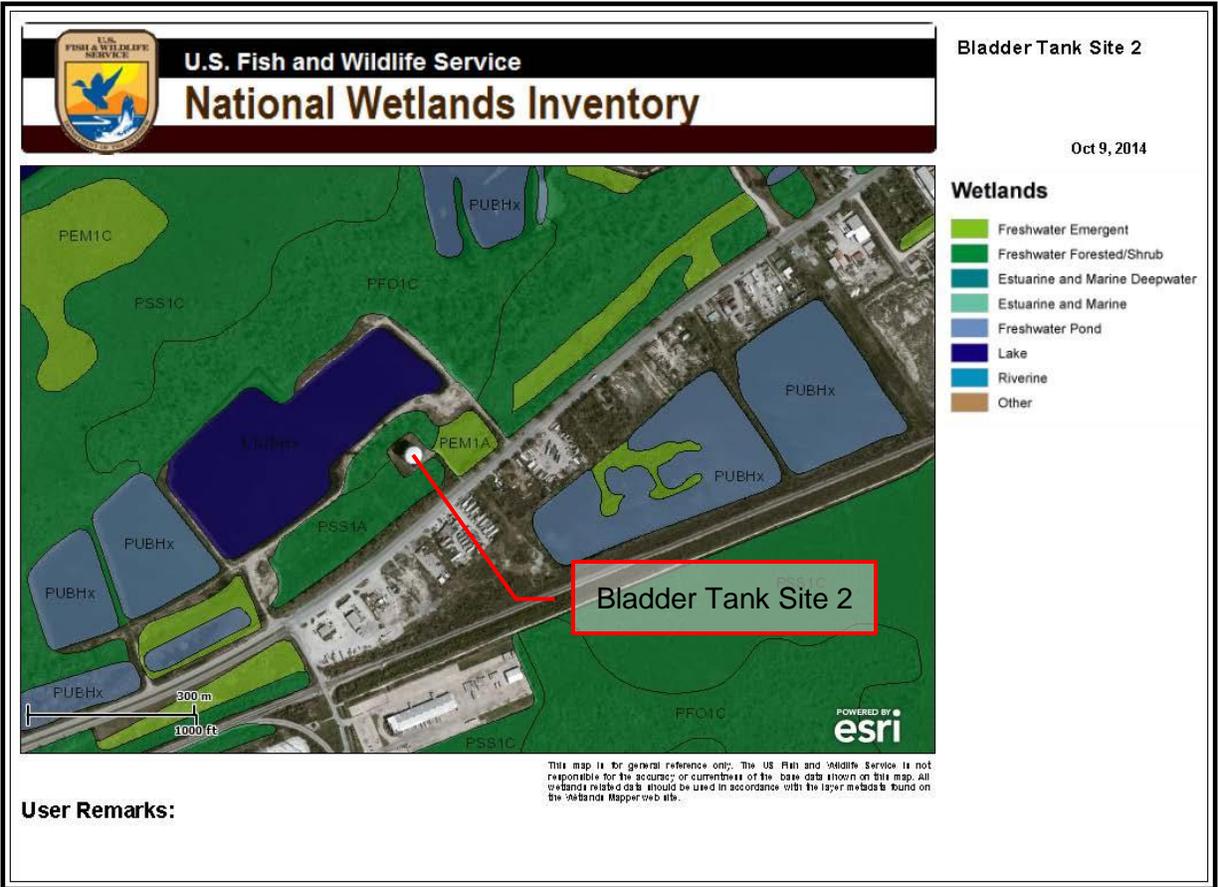


Figure 17. USFWS National Wetland Inventory Map of Bladder Tank Site 2

### **4.2.3 Environmental Consequences**

#### Alternative 1 – No Action

Implementation of this alternative would have no effect on wetlands or other waters of the U.S., and would not require permits under Section 404 of the CWA or Section 10 of the RHA.

#### Alternative 2 – Repair to Pre-disaster Condition

This alternative would not significantly impact wetlands or other waters of the United States. Work would be conducted within urban, previously disturbed sites. During reconstruction there would be the potential to impact surface waters through minor erosion and runoff, and or through accidental spills of fluids used in construction equipment. Storm water runoff could carry sediment offsite into the receiving ditches/culverts, and adjacent drainage canals.

In order to minimize indirect impacts (erosion, sedimentation, dust and other construction-related disturbances) to the nearby waters of the United States and well defined drainage areas surrounding the site, the contractor should implement Best Management Practices (BMPs) that meet the LDEQ's permitting specifications for storm water discharge regulated under §§ 401 and 402 of the CWA, and include the following into the daily operations of the construction activities: silt screens, barriers (e.g., hay bales), berms/dikes, and/or fences to be placed where and as needed. Fencing will be placed for marking staging areas to store construction equipment and supplies as well as conduct maintenance/repair operations.

#### Alternative 3 - Repair with Mitigation Improvements (Proposed Action)

The Proposed Action Alternative would have no direct impact on wetlands or other waters of the United States. FEMA has determined that the project locations are urban, previously disturbed sites, and not wetlands subject to EO11990. This alternative would not require permits under Section 10 of the RHA. Correspondence from the USEPA, dated October 2, 2014, states that jurisdictional waters of the United States will not be impacted as long as the proposed work remains within the footprint of previous site disturbance. Correspondence from the USACE, dated February 24, April 4, April 7, and April 15, 2014 state that the site is not a wetland subject to USACE jurisdiction, and that a Department of the Army (DA) permit under Section 404 of the CWA will not be required for the deposition or redistribution of dredged or fill material on this site (Appendix A).

If the project results in a discharge to waters of the State, a LPDES permit may be required in accordance with the CWA and the Louisiana Clean Water Code. If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater. In order to minimize indirect impacts (erosion, sedimentation, dust and other construction-related disturbances) to the nearby waters of the United States and well defined drainage areas surrounding the site, the contractor should ensure compliance with all local, state, and federal requirements related to sediment control, disposal of solid waste, control and containment of spills, and discharge of surface runoff and stormwater from the site. Accordingly, the contractor should implement BMPs that meet the LDEQ permitting specifications for stormwater discharge regulated under Sections 401 and 402 of the CWA, and include the following into the daily operations of the construction activities: silt screens, barriers (e.g., hay bales), berms/dikes, and/or fences placed where and as needed. Fencing should be placed for marking staging areas to store construction equipment and supplies as well as conduct maintenance/repair operations. Hazardous materials associated with construction equipment should be handled according to local, state, and federal

regulations in order to minimize the risk of spills and leaks and subsequent impacts to surface and groundwater resources.

### **4.3 Hydrology and Floodplains**

#### **4.3.1 Regulatory Setting**

Executive Order 11988, Floodplain Management, requires federal agencies to avoid direct or indirect support or development within or affecting the 1% annual chance special flood hazard area (SFHA) (i.e., 100-year floodplain) whenever there is a practicable alternative (for “Critical Actions”, within the 0.2% annual chance SFHA, i.e., the 500-year floodplain). FEMA used the National Flood Insurance Program (NFIP) Preliminary Flood Insurance Rate Maps (FIRM) to determine the flood hazard zone for the proposed project location. FEMA’s regulations for complying with EO 11988 are found in 44 CFR Part 9, Floodplain Management and Protection of Wetlands.

Section 9.6, 44 CFR, details an eight-step process that decision-makers must use when considering projects either located within the floodplain or with the potential to affect the floodplain. The 8-step process: assesses the action with regard to human susceptibility to flood harm and impacts to wetlands; analyzes principle flood problems, risks from flooding, history of flood loss, and existing flood protection measures; and includes public notice and opportunity for the public to have early and meaningful participation in decision-making and alternative selection. In conjunction with the EA development, the 8-step process formulates and describes considered alternatives and determines their practicability as required by FEMA regulations. If impacts cannot be avoided, the 8-step process includes requirements to incorporate measures to minimize and mitigate potential risks from flooding and impacts to wetlands as appropriate.

No project should be built to a floodplain management standard that is less protective than what the community has adopted in local ordinances through their participation in the NFIP. FEMA PA and HMGP funded projects carried out in the floodplain must be coordinated with the local floodplain administrator for a floodplain development permit prior to the undertaking, and the action must be carried out in compliance with relevant, applicable, and required local codes and standards and thereby, will reduce the risk of future flood loss, minimize the impacts of floods on safety, health, and welfare, and preserve and possibly restore beneficial floodplain values as required by EO 11988.

#### **4.3.2 Existing Conditions**

Orleans Parish has always been vulnerable to flooding during any season of the year (FEMA 2012). The principal sources of flooding are rainfall ponding and hurricane or tropical storm surges. Drainage of flood waters in Orleans Parish is accomplished by a system of structures and canals which flow to pumping stations. Orleans Parish is protected from the Mississippi River by man-made levees. On the east bank of Orleans Parish, the Lake Pontchartrain and Vicinity Hurricane Protection Levee was designed to prevent flooding from hurricane storm surges from Lake Pontchartrain and Lake Borgne. Post-Hurricane Katrina, the levees in Orleans Parish, with the exception of the Mississippi River levees, although physically still in place, were compromised to the point that they were not considered sound enough to adequately protect against the 1-percent annual chance storm event (FEMA 2012). In July 2005, FEMA began to collect data using state-of-the-art technology to increase the quality, reliability, and availability of flood hazard maps for many of the Louisiana coastal parishes. This was a part of the Flood Map Modernization effort through FEMA’s NFIP. These efforts were necessary because the flood hazard and risk information shown on many FIRMs was developed during the 1970s, and the physical terrain had changed significantly since that time, to include the major wetland loss in some areas. After Hurricanes Katrina and Rita, FEMA expanded the scope of this work to include all of coastal Louisiana. The

magnitude of the impacts of Hurricanes Katrina and Rita reinforced the urgency to obtain additional flood recovery data for the coastal zones of Louisiana. More detailed analysis was possible because new data obtained after the hurricanes included information on levees and levee systems, new high-water marks, and new hurricane parameters (FEMA 2014).

During an initial post-hurricane analysis, FEMA determined that the “100-Year” or 1-percent annual chance storm flood elevations, referred to as Base Flood Elevations (BFEs), on FIRMs for many Louisiana communities, were too low. FEMA created recovery maps showing the extent and magnitude of Hurricanes Katrina’s and Rita’s surge, as well as information on other storms over the past 25 years (FEMA 2014a). The 2006 advisory flood data shown on the recovery maps for the Louisiana-declared disaster areas show high-water marks surveyed after the storm; flood limits developed from these surveyed points; and Advisory Base Flood Elevations, or ABFEs. The recovery maps and other advisory data were developed to assist parish officials, homeowners, business owners, and other affected citizens with their recovery and rebuilding efforts (FEMA 2014a).

Following an intensive five-year mapping initiative, FEMA provided updated preliminary flood hazard maps, known as Preliminary Digital Flood Insurance Rate Maps (DFIRMs), to all of Louisiana’s coastal parish communities. Released in 2008, these maps are based on the most technically advanced studies ever and were subjected to multiple levels of review. The DFIRMs provided communities with a more scientific approach to economic development, hazard mitigation planning, emergency response, and post-flood recovery (FEMA 2014a).

The USACE is currently near completion of the Hurricane and Storm Damage Risk Reduction System (HSDRRS) for the Greater New Orleans (GNO) area. This 350-mile system of levees, floodwalls, surge barriers, and pump stations reduces the flood risk associated with a storm event. A perimeter levee system protects the area from the coastal surge and the Mississippi River flooding. Pump stations are located along the perimeter levee to discharge local runoff into the exterior lakes or the Mississippi River. Local pump stations perform the same function along interior levees and discharge to marshy areas designated to collect flood water from developed areas. Two major closure complexes, the West Closure Structure Complex and the Inner Harbor Navigation Canal Complex keep the surge from entering the major canals and navigation channels within the New Orleans area. The HSDRRS is designed to protect the GNO area from the 1-percent annual chance flood.

FEMA specifies that all levees must have a minimum freeboard of three (3) feet against 1-percent annual chance flooding to be considered a safe flood protection structure. The HSDRRS meets the FEMA freeboard requirement. In September of 2011, the USACE provided FEMA with assurances that the HSDRRS is capable of defending against a storm surge with a 1-percent annual chance event of occurring in any given year (Miller 2011).

Accordingly, in 2012 FEMA revised the preliminary DFIRMS for areas within the HSDRRS to incorporate the reduced flood risk associated with the system improvements. The 2012 Revised Preliminary DFIRMS are currently viewed as the best available flood risk data for the five GNO parishes. In many areas, the flood risk has been significantly reduced due to heightened protection. Areas protected by the HSDRRS include portions of St. Bernard, St. Charles, Jefferson, Orleans, and Plaquemines parishes (includes the entire area of the proposed action).

Orleans Parish enrolled in the NFIP on August 3, 1970. Orleans Parish ABFEs were issued in June 2006 (FEMA 2006). The project sites are located within ABFE Panels LA-CC29, LA-CC30, LA-DD30, and LA-FF37, dated 06/05/2006, elevation (EL) 0 feet, 0.5 feet, or 1.5 feet above North American Vertical Datum of 1988 (NAVD88), or 3 feet above the Highest Existing Adjacent Grade (HEAG) (Figures 18 - 21). Per Revised Preliminary Flood Insurance Rate Map Panel Numbers 22071C0142F, 22071C00209F,

22071C0226F and 22071C0228F, dated 11/9/2012, the sites are located within shaded Zone X (areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood), and Zones AE, EL -2 feet, -1 feet, and 0 feet above the NAVD88 (areas of 1% annual chance flood within a SFHA, BFE determined) (Figures 22 - 25).

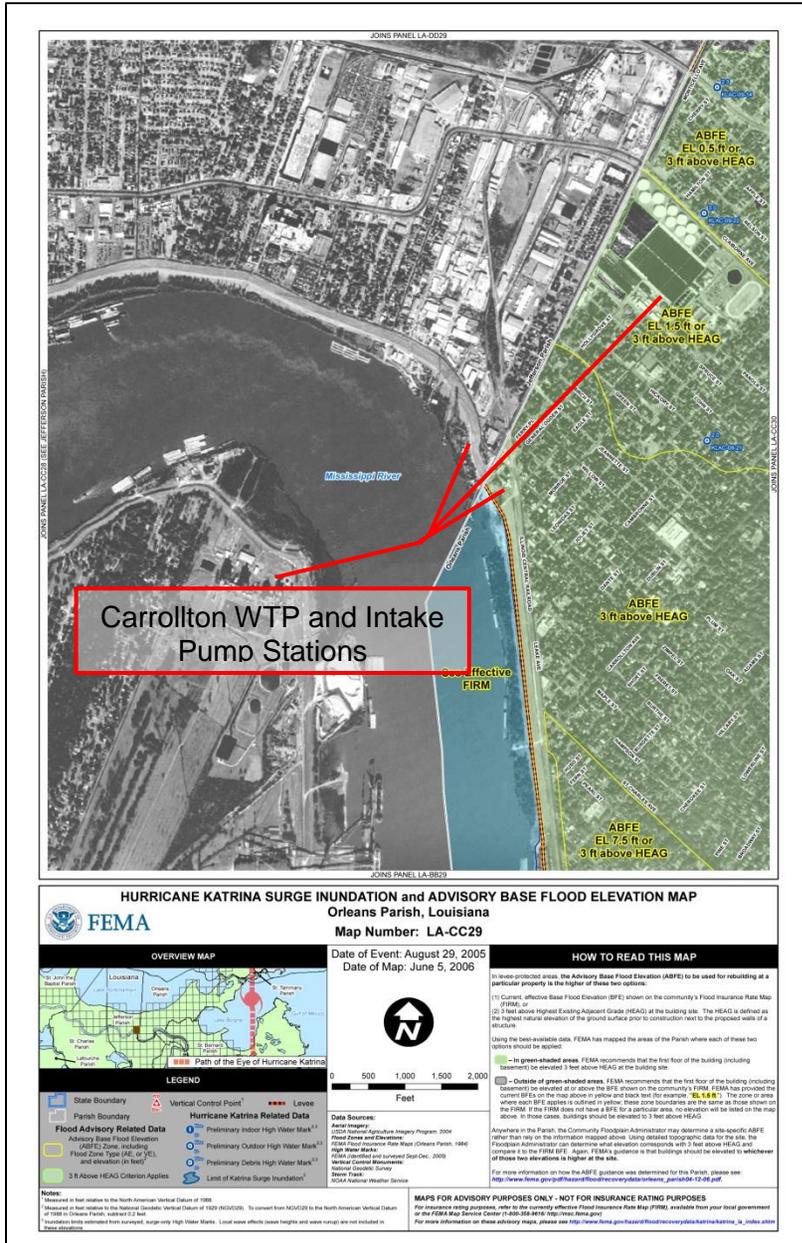


Figure 18. ABFE Map LA-CC29 (FEMA 2006)

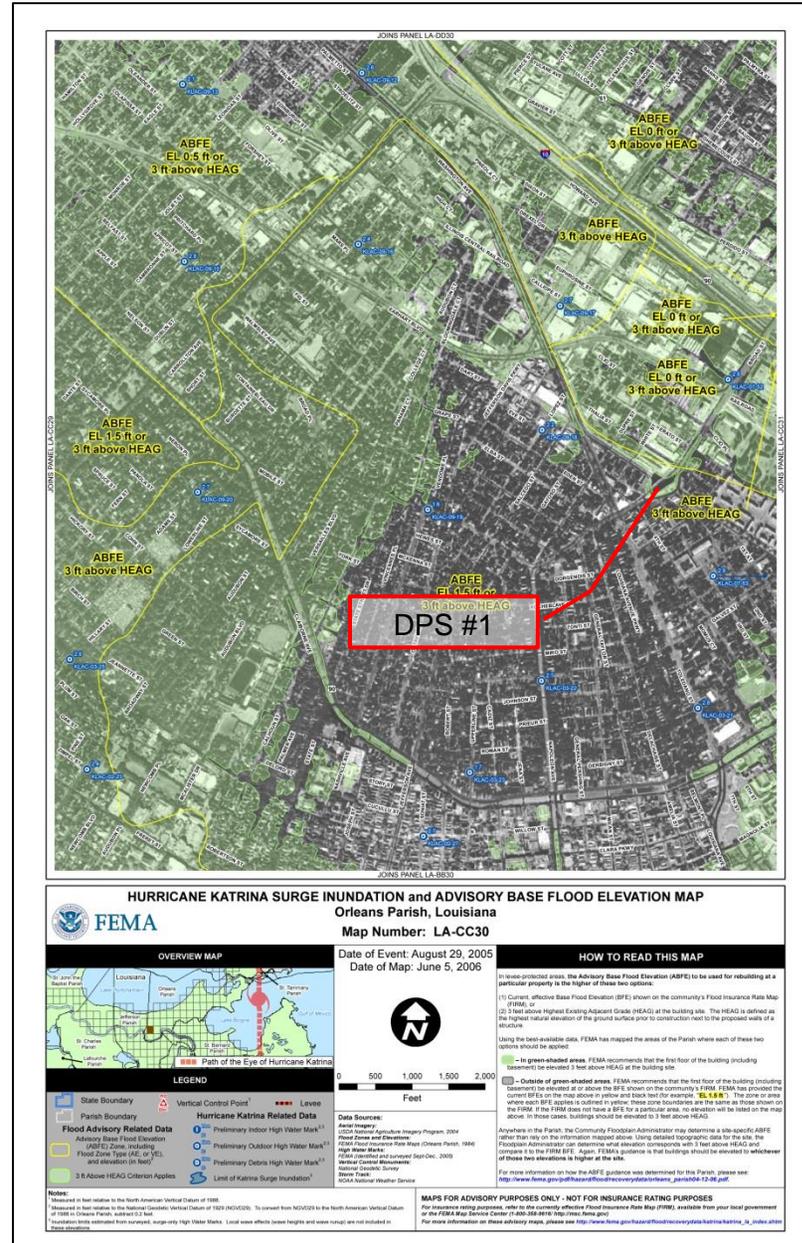


Figure 19. ABFE Map LA-CC30 (FEMA 2006)

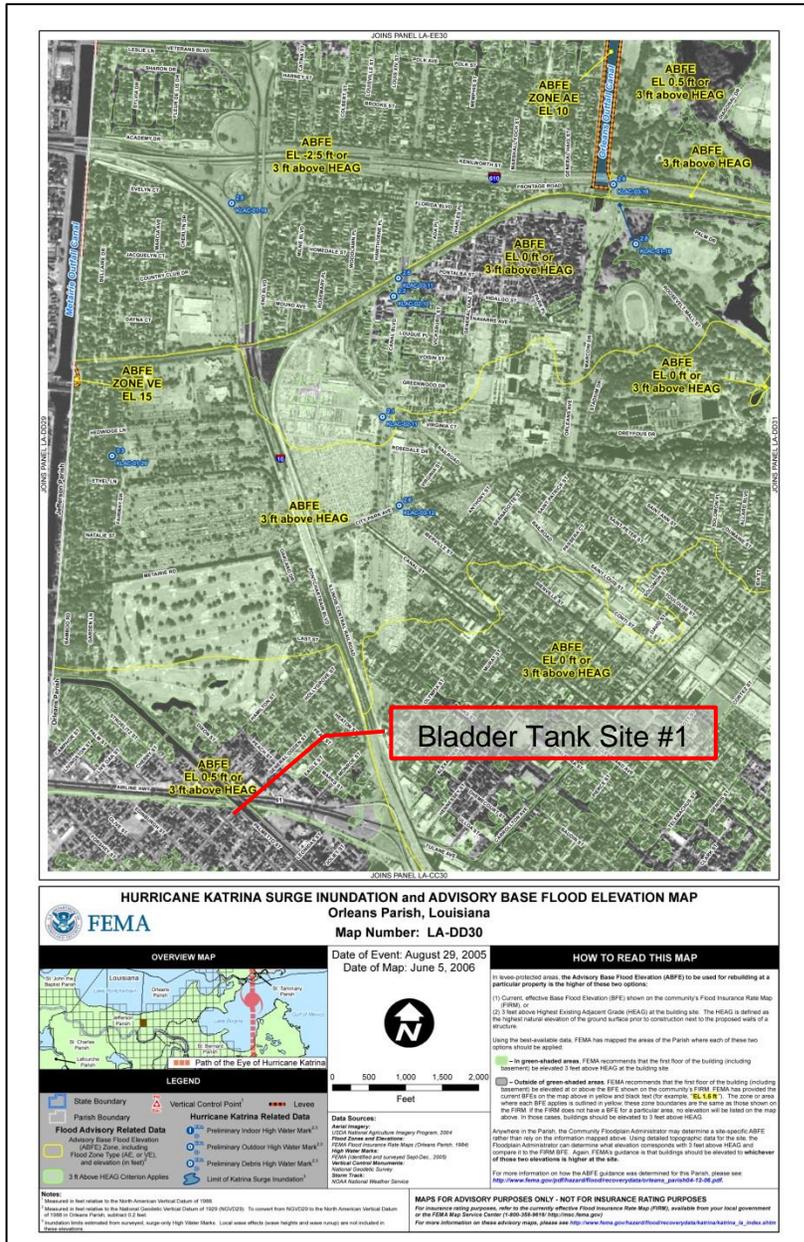


Figure 20. ABFE Map LA-DD30 (FEMA 2006)

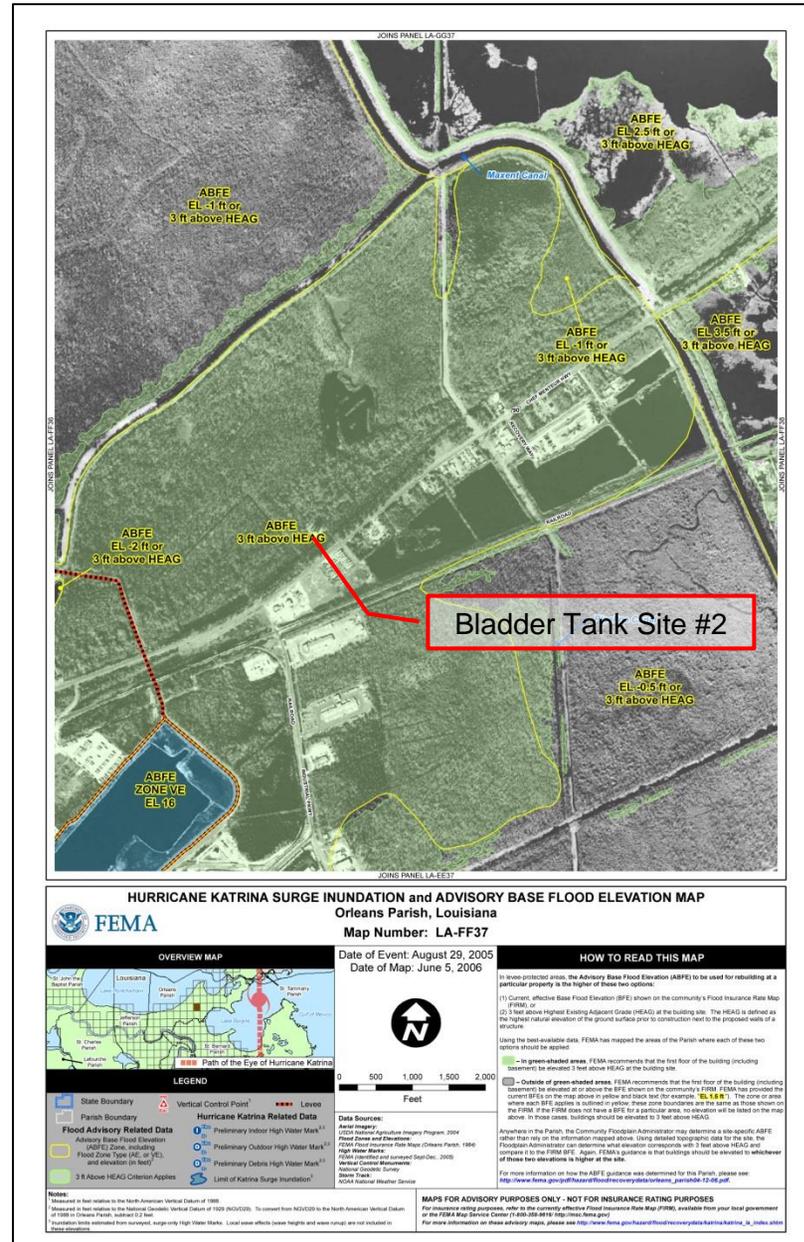


Figure 21. ABFE Map LA-FF37 (FEMA 2006)







Figure 24. Revised Preliminary Flood Insurance Rate Map 22071C0226F (FEMA 1212)

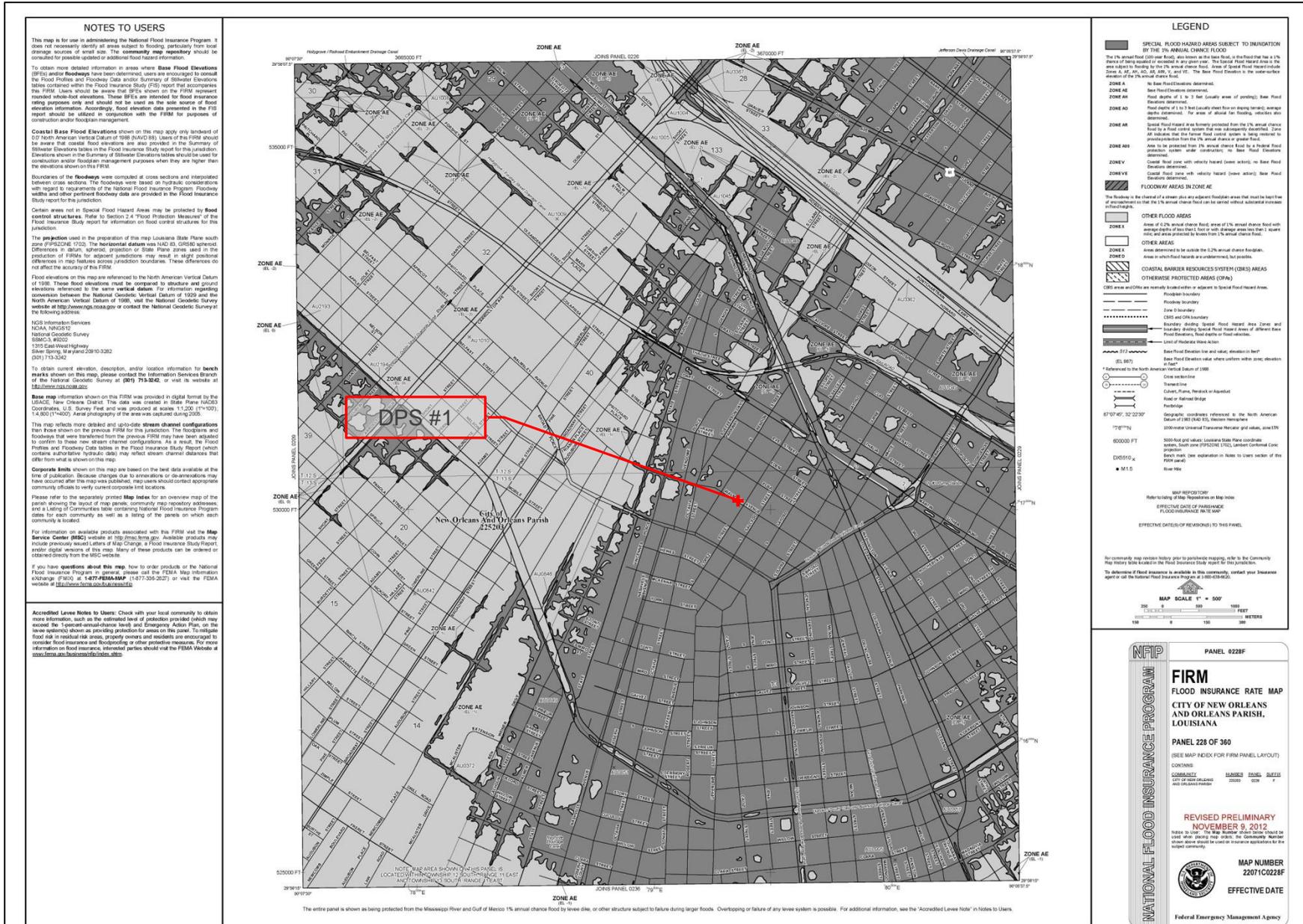


Figure 25. Revised Preliminary Flood Insurance Rate Map 22071C0228F (FEMA 2012)

Sewerage and Water Board Facilities of New Orleans, Carrollton Water Treatment Plant Hazard Mitigation 33 Draft Environmental Assessment (March 2015)

### **4.3.3 Environmental Consequences**

#### **Alternative 1 – No Action**

The No Action Alternative would involve no undertaking and would not result in any adverse impacts to the base floodplain.

#### **Alternative 2 – Repair to Pre-disaster Condition**

Repairing the damaged SWBNO facilities to their original condition and function would restore the water treatment and distribution capabilities to the East Bank. The repair would accommodate the existing uses of the floodplain and reinforce existing land use patterns which have developed without reflection on hazard and risk minimization. Repairs would maintain a significant investment in the base floodplain and expose facilities to flood hazards. However, repairs and reconstruction will also increase the useful life of the facilities. The costs associated with floodplain development mitigation and minimization requirements, and compliance with floodplain codes and standards would be increased.

New construction must be compliant with current codes and standards. Per 44 C.F.R. § 9.11(d)(6), no project should be built to a floodplain management standard that is less protective than what the community has adopted in local ordinances through their participation in the NFIP. The applicant is required to coordinate with the local floodplain administrator regarding floodplain permit(s) prior to the start of any activities. Coordination pertaining to these activities and applicant compliance with any conditions should be documented and copies forwarded to the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) and FEMA for inclusion in the permanent project files. The replacement of building contents, materials and equipment (mechanical and electrical) should be, where possible, wet or dry-proofed, elevated, or relocated to or above the BFE.

#### **Alternative 3 - Repair with Mitigation Improvements (Proposed Action)**

The Proposed Action Alternative would incorporate structural and material improvements to facilities located in the base floodplain. Per 44 CFR 9.11(d)(3), there shall be no new construction or substantial improvement of structures unless the lowest floor of the structures (including basement) is at or above the level of the base flood. Furthermore, per 44 CFR 9.11(d)(6), no project should be built to a floodplain management standard that is less protective than what the community has adopted in local ordinances through their participation in the NFIP. The Applicant is required to coordinate with the local floodplain administrator regarding floodplain permit(s) prior to the start of any activities. All documentation pertaining to these activities and Applicant compliance with any conditions should be forwarded to the GOHSEP and FEMA for inclusion in the permanent project files. Per 44 CFR 9.11(d)(9), for the replacement of building contents, materials and equipment, where possible, disaster-proofing of the building and/or elimination of such future losses should occur by relocation of those building contents, materials and equipment outside or above the base floodplain. In compliance with EO 11988, an 8-step process was completed, is attached and on file (Appendix B).

## **4.4 Coastal Resources**

### **4.4.1 Regulatory Setting**

The Coastal Zone Management Act (CZMA) of 1972 encourages the management of coastal zone areas and provides grants to be used in maintaining coastal zone areas (NOAA 2014). It requires that federal agencies be consistent in enforcing the policies of state coastal zone management programs when conducting or supporting activities that affect a coastal zone. It is intended to ensure that federal activities

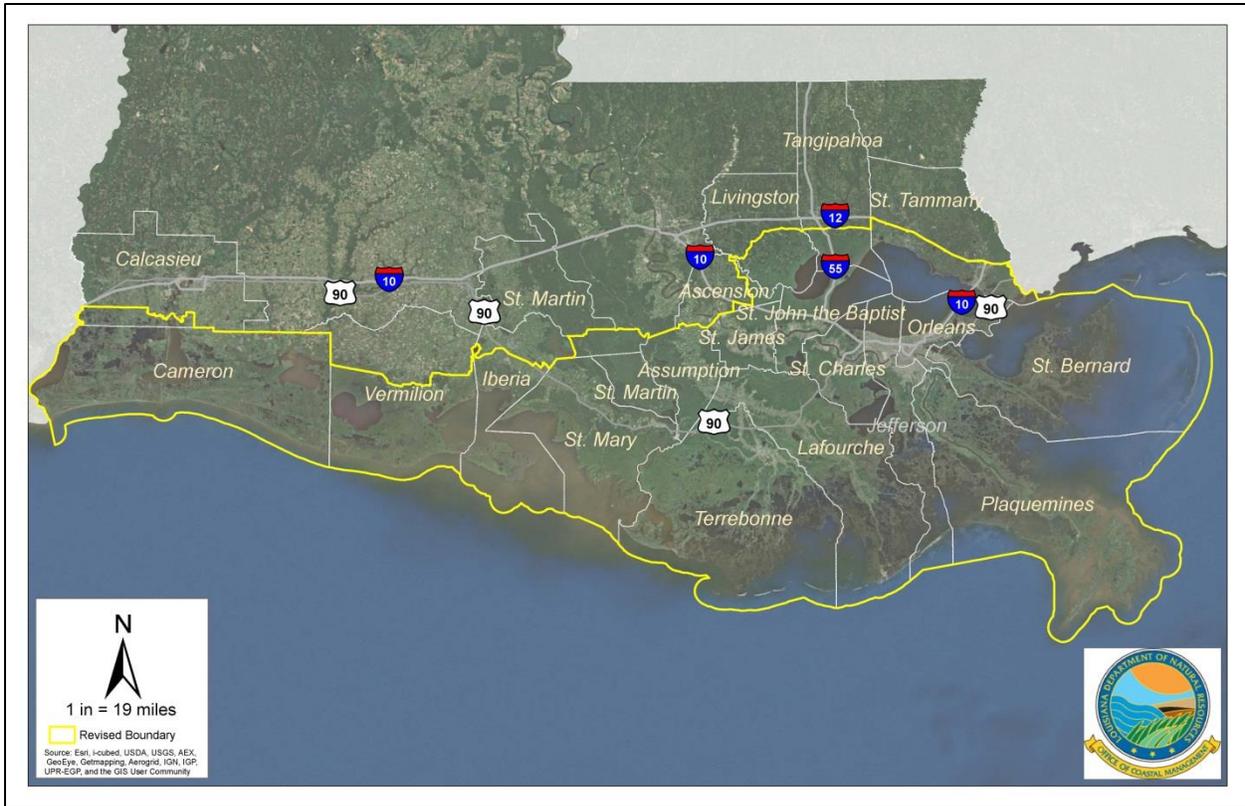
are consistent with state programs for the protection and, where, possible, enhancement of the nation's coastal zones.

The CZMA's definition of a coastal zone includes coastal waters extending to the outer limit of state submerged land title and ownership, adjacent shorelines, and land extending inward to the extent necessary to control shorelines. A coastal zone includes islands, beaches, transitional and intertidal areas, and salt marshes. The CZMA requires that states develop a State Coastal Zone Management Plan or program and that any federal agency conducting or supporting activities affecting the coastal zone conduct or support those activities in a manner consistent with the approved state plan or program. The Louisiana Department of Natural Resources (LDNR) regulates development in Louisiana's designated coastal zone under the authority of the Louisiana State and Local Coastal Resources Management Act of 1978, as amended (Act 361, La. R.S. 49:214.21 *et seq.*). The Office of Coastal Management of the Louisiana Department of Natural Resources is the state authority responsible for implementing the Louisiana Coastal Resources Program (LCRP).

The USFWS regulates federal funding in Coastal Barrier Resource System (CBRS) units under the Coastal Barrier Resources Act (CBRA). This Act protects undeveloped coastal barriers and related areas (*i.e.*, Otherwise Protected Areas [OPAs]) by prohibiting direct or indirect Federal funding of projects that support development in these areas. The Act promotes appropriate use and conservation of coastal barriers along the Gulf of Mexico.

#### **4.4.2 Existing Conditions**

The proposed project site is in Orleans Parish. By letter dated October 3, 2014, LDNR's Office of Coastal Management (OCM) advised FEMA that the proposed project is located within the Louisiana Coastal Zone (Appendix A, Agency Correspondence). The proposed project site is not located within a regulated CBRS.



**Figure 26. LA Coastal Management Zone Boundary Map (LDNR 2012)**

### 4.4.3 Environmental Consequences

#### Alternative 1 – No Action

Under the No Action alternative, there would be no impacts to the Coastal Zone or to a CBRS Unit; therefore, no review is required.

#### Alternative 2 – Repair to Pre-disaster Condition

Repair to the Carrollton WTP and associated system components within the same footprint would involve construction activities within the Louisiana Coastal Management Zone. In a letter dated October 3, 2014, LDNR-OCM advised that OCM requires a complete Coastal Use Permit (CUP) packet be submitted to their office for review and approval prior to construction. The applicant is responsible for coordinating with and obtaining any required CUPs or other authorizations from LDNR-OCM’s Permits and Mitigation Division prior to initiating work. The original site is not within a CBRS unit; therefore, it does not trigger the CBRA.

#### Alternative 3 - Repair with Mitigation Improvements (Proposed Action)

The proposed action alternative would involve construction activities within the Louisiana Coastal Management Zone. In a letter dated October 3, 2014, LDNR-OCM advised that OCM requires a complete CUP packet be submitted to their office for review and approval prior to construction. The Applicant is responsible for coordinating with and obtaining any required CUPs or other authorizations from LDNR-OCM’s Permits and Mitigation Division prior to initiating work. The proposed site is not within a CBRS unit; therefore, the Proposed Action Alternative does not trigger the CBRA.

## 4.5 Federally Protected Species and Critical Habitat

### 4.5.1 Regulatory Setting

This resource is regulated by the Endangered Species Act of 1973 (ESA), as amended; the Marine Mammal Protection Act of 1972; the Bald Eagle Protection Act of 1940; the Fish and Wildlife Coordination Act of 1958, as amended; and the Migratory Bird Treaty Act of 1918 (MBTA). Endangered or threatened species are technically important because the status of such species provides an indication of the overall health of an ecosystem. These species are publicly important because of the desire of the public to protect them and their habitats.

### 4.5.2 Existing Conditions

According to the USFWS, Information, Planning, and Conservation (IPaC) online system, accessed on October 1, 2014, one mammal species, the West Indian Manatee, and two fish species, the Gulf Sturgeon and Pallid Sturgeon, are federally listed by the USFWS as endangered or threatened and are known to occur in select waterways of Orleans Parish. Listed and candidate bird species that may occur in Orleans Parish include the Piping Plover, Red Knot, and Sprague's Pipit. Additionally, the Green, Hawksbill, Kemp's Ridley, and Leatherback sea turtles have potential habitat within coastal areas of Orleans Parish (Table 2). A site visit conducted on July 18, 2014 confirmed that the proposed project site is located within a previously disturbed urban area. Neither listed species nor suitable habitat was identified at the project sites. The proposed project site is located within the Louisiana Flyway (USFWS 2014).

Common Name	Scientific Name	Federal Status	Critical Habitat	Habitat Requirements	Impact*/Rationale
Piping Plover	Charadrius melodus	Threatened	Yes <sup>1</sup>	Shorebird that winters primarily on intertidal beaches with sand and/or mud flats with no or very sparse vegetation.	None / There are no habitat areas that are close or hydrologically connected to potential habitat.
Red Knot	Calidris canutus rufa	Proposed Threatened	No	Shorebird that winters and migrates on large, sandy tidal flats and coastlines near inlets of bays and estuaries that have remained undeveloped.	None / There are no habitat areas that are close or hydrologically connected to potential habitat.
Sprague's Pipit	Anthus spragueii	Candidate	No	Grassland bird that overwinters during its nonbreeding season from western Louisiana to Mexico and southwestern states	None / Project area is outside the suggested overwintering range of this species.
Atlantic sturgeon (Gulf subspecies)	Acipenser oxyrinchus desotoi	Threatened	Yes, Lake Pontchartrain and Lake Borgne.	Anadromous fish species that spends most of its life in freshwater habitats and spawns in estuarine bays. Found in a variety of substrate areas based on age class of species.	None / Less than significant impact could occur from storm runoff without proper BMPs in place at storm drain locations.

Common Name	Scientific Name	Federal Status	Critical Habitat	Habitat Requirements	Impact*/Rationale
Pallid sturgeon	Scaphirhynchus albus	Endangered	No	Freshwater species that prefers large, free-flowing turbid rivers. No information exists on preferred spawning habitat.	None / Less than significant impact could occur from storm runoff without proper BMPs in place at storm drain locations.
West Indian Manatee	Trichechus manatus	Endangered	Yes <sup>1</sup>	Found in marine, estuarine, and freshwater environments with a strong preference for warm and well vegetated waters.	None / There are no habitat areas that are close or hydrologically connected to potential habitat.
Green sea turtle	Chelonia mydas	Threatened	Yes <sup>1</sup>	Prefer fairly shallow waters (except when migrating) inside reefs, bays, and inlets with an abundance of marine grass and algae. Nesting occurs on open beaches with a sloping platform and minimal disturbance.	None / There are no habitat areas that are close or hydrologically connected to potential habitat.
Hawksbill sea turtle	Eretmochelys imbricate	Endangered	Yes <sup>1</sup>	Uses different habitats at different stages of their life cycle, but are most commonly associated with healthy coral reefs.	None / There are no habitat areas that are close or hydrologically connected to potential habitat.
Kemp's Ridley sea turtle	Lepidochelys kempii	Endangered	No	Typically occupy nearshore and inshore waters that contain muddy or sandy bottoms.	None / There are no habitat areas that are close or hydrologically connected to potential habitat.
Leatherback sea turtle	Demochelys coriacea	Endangered	Yes <sup>1</sup>	Primarily an open-water species. Adult females require sandy nesting beaches backed with vegetation and sloped sufficiently so the distance to dry sand is limited. Beaches will have proximity to deep water and generally rough seas.	None / There are no habitat areas that are close or hydrologically connected to potential habitat.
Loggerhead sea turtle	Caretta caretta	Threatened	Yes <sup>1</sup>	Can be found in open waters, as well as in inshore areas such as bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers. Nesting occurs mainly on open beaches or along narrow bays having suitable sand.	None / There are no habitat areas that are close or hydrologically connected to potential habitat.

Common Name	Scientific Name	Federal Status	Critical Habitat	Habitat Requirements	Impact*/Rationale
* - Considers potential impacts of Alternatives 1-3 <sup>1</sup> - Critical habitat is not designated in Louisiana					

**Table 2. Federally Listed or Candidate Species - Orleans Parish (USFWS 2014)**

### 4.5.3 Environmental Consequences

#### Alternative 1 – No Action

Under the No Action Alternative, no adverse effects to threatened or endangered species or critical habitat would be anticipated because there would be no construction or change in condition within the project area.

#### Alternative 2 – Repair to Pre-disaster Condition

The USFWS has interpreted Section 7(p) of the ESA to mean that restoring any infrastructure damaged or lost due to the hurricane back to its original footprint does not require ESA consultation per USFWS letter of September 15, 2005. Repair of the Carrollton WTP and appurtenant facilities would have no impact on species federally listed as threatened or endangered, migratory birds or federally listed critical habitats.

#### Alternative 3 - Repair with Mitigation Improvements (Proposed Action)

Since the Proposed Action would occur on previously disturbed areas, the majority of which are paved, gravel, or consist of maintained lawn and turf grasses, no unique or rare habitats would be disturbed. Implementation of the Proposed Action would result in minimal to no effect to the natural environment; therefore, there would be no adverse effect on protected species.

All proposed activities are land based and therefore would have no effect on marine species. Per the direction of the USFWS, Louisiana Ecological Services office, the Proposed Action was evaluated via the ESA and MBTA project screening website ([www.fws.gov/lafayette/pdc/](http://www.fws.gov/lafayette/pdc/)) on October 1, 2014. As a result of this review, FEMA concludes that the Proposed Action will not affect any threatened or endangered species or their critical habitat (USFWS ESA Technical Assistance Form, October 1, 2014). A copy of this form is included in Appendix B.

## 4.6 Air Quality

### 4.6.1 Regulatory Setting

The Clean Air Act (CAA) requires that USEPA establish primary and secondary National Ambient Air Quality Standards (NAAQS) for air pollutants that are considered harmful to the public and environment. The pollutants for which USEPA has established ambient concentration standards are called criteria pollutants and include ozone (O<sub>3</sub>), respirable particulates that have diameters of 10 micrometers or less (PM<sub>10</sub>), fine particles with diameters less than 2.5 micrometers, (PM<sub>2.5</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and lead (Pb).

The CAA also requires USEPA to designate each area of the United States regarding compliance with the NAAQS. USEPA categorizes the level of compliance or noncompliance as follows: attainment (area currently meets the NAAQS), maintenance (area currently meets the NAAQS but has previously been out of compliance), and nonattainment (area currently does not meet the NAAQS).

The State of Louisiana air quality standards are identical to the Federal standards and are codified in Louisiana Administrative Code (LAC) 33:III.711. USEPA has delegated its CAA enforcement authority to the LDEQ. The LDEQ also has fugitive dust emission control requirements and related BMPs in its regulation, which pertain to all activities that emit particulate matter (DEQ 2006).

#### **4.6.2 Existing Conditions**

Ascension, East Baton Rouge, Iberville, Livingston, and West Baton Rouge Parishes are the only nonattainment areas for ozone in Louisiana. All parishes in Louisiana are classified as attainment for all other criteria pollutants.

To address ozone in nonattainment areas, the Louisiana State Implementation Plan (SIP) mandates that a new project must not result in an increase in volatile organic compounds or NO<sub>2</sub> emissions when compared to the No Action Alternative in both the long and short terms. The proposed action must not result in any new violations or increases of Federal or State ambient air quality standards.

With the significant change in commercial activities and population since Hurricanes Katrina and Rita, the nonattainment designations may no longer be valid. Therefore, the baseline existing conditions for air quality used for analysis are the pre-disaster conditions.

### **4.6.3 Environmental Consequences**

#### Alternative 1 – No Action

No air quality impacts are likely with this alternative.

#### Alternative 2 – Repair to Pre-disaster Condition

Construction activities associated with facility repairs may generate temporary increases in equipment exhaust emissions and fugitive dust. However, the temporary increase in equipment exhaust is expected to be negligible as long as the equipment is well maintained and idling is minimized. The periodic watering of active construction areas, particularly areas close to any sensitive receptors (*e.g.*, hospitals, senior citizen homes, schools), will lessen impacts from fugitive dust. Overall, impacts on air quality are anticipated to be negligible.

#### Alternative 3 - Repair with Mitigation Improvements (Proposed Action)

Construction activities associated with facility improvements and hazard mitigation measures may generate temporary increases in equipment exhaust emissions and fugitive dust. However, the temporary increase in equipment exhaust is expected to be negligible as long as the equipment is well maintained and idling is minimized. The periodic watering of active construction areas, particularly areas close to any sensitive receptors (*e.g.*, hospitals, senior citizen homes, schools), will lessen impacts from fugitive dust. Overall, impacts on air quality are anticipated to be negligible.

## **4.7 Noise**

### **4.7.1 Regulatory Setting**

Noise is commonly defined as unwanted or unwelcome sound, and most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sounds that the human ear can hear. The Day-Night Average Sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses. Sound is federally regulated by the Noise Control Act of 1972, which charges the USEPA with preparing guidelines for acceptable ambient noise levels. USEPA guidelines, and those of many other federal agencies, state that outdoor sound levels in excess of 55 dB DNL are “normally unacceptable” for noise-sensitive land uses including residences, schools, or hospitals (USEPA, 1974). The Noise Control Act, however, only charges implementation of noise standards to those federal agencies that operate noise-producing facilities or equipment. FEMA, by nature of its mission, does not have statutes defining noise.

### **4.7.2 Existing Conditions**

Orleans Parish has made it unlawful to exceed maximum permissible sound limits in residential and noise-sensitive areas of public spaces (*see* New Orleans, Louisiana Code of Ordinances, § 66-202). The Ordinance places restrictions on any machinery, equipment or device that makes or causes a noise that exceeds 60 decibels between 7:00 a.m. and 10:00 p.m., and a noise that exceeds 55 dB between 10:00 p.m. and 7:00 a.m., as monitored from the exterior of the property where the source of the sound is located (Table 3). Repairs performed by public agencies or utility companies are exempted from this restriction.

<u>Receiving Land Use Category</u>	<u>Time</u>	<u>Sound Level Limit</u>	
		<u>L 10 (dBA)</u>	<u>L max (dBA)</u>
Resident	7:00 A.M. - 10:00 P.M.	60	70
	10:00 P.M. - 7:00 A.M.	55	60
Commercial	7:00 A.M. - 10:00 P.M.	65	75
	10:00 P.M. - 7:00 A.M.	60	65
Industrial	At all times	75	85

Source: Chap 66 Article IV Orleans Municipal Code  
L10 = sound pressure level that is exceeded ten percent of the time in any measurement period

**Table 3. Maximum Permissible Sound Levels by Receiving Land Use Category in Orleans Parish**

### **4.7.3 Environmental Consequences**

#### Alternative 1 – No Action

The No Action Alternative would produce no additional noise, and therefore have no impact on the project area.

#### Alternative 2 – Repair to Pre-disaster Condition

Site construction would result in an increase in noise at each site. The increase would be temporary and would not affect any sensitive receptors. Orleans Parish has specific ordinances regarding construction noise, which are presented in Appendix D. To comply with the ordinance, construction activities should be limited to a 7 A.M. to 10 P.M. construction schedule on all workdays.

#### Alternative 3 - Repair with Mitigation Improvements (Proposed Action)

Construction and structure improvements would result in an increase in noise at each site. The increase would be temporary and would not affect any sensitive receptors. Orleans Parish has specific ordinances regarding construction noise, which are presented in Appendix D. To comply with the ordinance, construction activities should be limited to a 7 A.M. to 10 P.M. construction schedule on all workdays.

## **4.8 Traffic and Transportation**

### **4.8.1 Regulatory Setting**

The Louisiana Department of Transportation and Development (LADOTD) is responsible for maintaining public transportation state highways, interstate highways under state jurisdiction, and bridges located within the State of Louisiana. These duties include the planning, design, and building of new highways in addition to the maintenance and upgrading of current highways. As a part of the transportation planning process, the LADOTD has assigned a functional classification to various roadways. The concept of functional classification defines the character of traffic service that a particular roadway segment plays in serving the flow of traffic through the transportation network (USDOT 2013). Roadways are assigned to one of three functional classifications within a hierarchy according to the character of travel service each roadway provides: arterial, collector, and local roads (Table 4).

<b>Functional System</b>	<b>Services Provided</b>
Arterial	Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.
Collector	Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.
Local	Consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement.

**Table 4. Roadway Functional Classification Systems (USDOT 2013)**

Local roads usually fall under the jurisdiction of and are maintained by applicable local government entities. However, the LADOTD is responsible for assuring all local Federal-aid projects comply with all applicable federal and state requirements (LADOTD 2007).

### **4.8.2 Existing Conditions**

The proposed project sites are bounded by roads that typically consist of either two or four 10-12' lanes with minimal to no shoulder. The roadway functional classifications for roads bounding the proposed project sites are described in Table 5.

<b>Project Site</b>	<b>Bounding Roadway(s)</b>	<b>Functional Classification</b>
New River and Oak Street Pump Stations	River Road Various Local Residential Streets	Minor Urban Arterial Local
Carrollton WTP	South Claiborne Avenue (State Highway 90) Leonidas Street Various Local Residential Streets	Principal Urban Arterial Major Urban Collector Local
Bladder Tank Site #1	Airline Highway (State Highway 61) Palmetto Street Various Local Residential Streets	Principal Urban Arterial Major Urban Collector Local
DPS #1	Broad Street Earhart Boulevard Various Local Residential Streets	Minor Urban Arterial Principal Urban Arterial Local
Bladder Tank Site #2	Chef Menteur Highway (State Highway 90)	Minor Rural Arterial

**Table 5. Functional Classifications of Roads Bounding Project Sites (LADOTD 2014)**

### **4.8.3 Environmental Consequences**

#### **Alternative 1 – No Action**

Implementation of the No Action Alternative would not adversely affect the site traffic patterns as no construction would occur.

#### **Alternative 2 – Repair to Pre-disaster Condition**

Under this action alternative, a temporary increase in construction related traffic during facility repairs is anticipated. During construction the contractor would take all reasonable precautions to control site access. All activities would be conducted in a safe manner in accordance with Occupational Safety and Health Administration (OSHA) work zone traffic safety requirements. The contractor would post appropriate signage and fencing to minimize foreseeable potential public safety concerns. Appropriate signage and barriers would be in place prior to construction activities in order to alert pedestrians and motorists of project activities and traffic pattern changes (detours/lanes dedicated for construction

equipment egress). Upon completion of the proposed action, there would be minimal long-term effect on the current traffic patterns.

#### Alternative 3 - Repair with Mitigation Improvements (Proposed Action)

Under the Proposed Action Alternative, a temporary increase in construction related traffic is anticipated during building of the facilities. During construction the contractor would take all reasonable precautions to control site access. All activities would be conducted in a safe manner in accordance with OSHA work zone traffic safety requirements. The contractor would post appropriate signage and fencing to minimize foreseeable potential public safety concerns. Appropriate signage and barriers would be in place prior to construction activities in order to alert pedestrians and motorists of project activities and traffic pattern changes (detours/lanes dedicated for construction equipment egress). Upon completion of the proposed action, there would be minimal long-term effect on the current traffic patterns.

### **4.9 Environmental Justice**

#### **4.9.1 Regulatory Setting**

Executive Order 12898, entitled “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” was signed on February 11, 1994. The EO directs federal agencies to make achieving environmental justice part of their missions by identifying and addressing, as appropriate, disproportionately high adverse human health, environmental, economic, and social effects of its programs, policies and activities on minority or low-income populations.

#### **4.9.2 Existing Conditions**

Socioeconomic and demographic data for the project area was reviewed to determine if the proposed action would have a disproportionate adverse impact on minority or low-income persons. According to the 2010 U.S. Census, the population within a 3-mile radius of the Carrollton WTP is: 60.12% White; 33.71% Black or African American; 7.47% Hispanic; 1.67% Asian; 0.29% American Indian; and 4.2% Other/Multiracial. According to the 2008-2012 American Community Survey 5-Year Estimates, the average median household income for zip codes 70118, 70121, and 70125 is \$40,700, and an average of 17.4% of families earn below the poverty level. The median household income for the City of New Orleans is \$36,681, and 21.8% of families earn below the poverty level.

#### **4.9.3 Environmental Consequences**

##### Alternative 1 – No Action

Under the No Action Alternative no construction activities would occur and there would be no disproportionately high or adverse impacts on minority or low-income populations.

##### Alternative 2 – Repair to Pre-disaster Condition

This action alternative would have no disproportionate adverse human health, economic, or social effects on minority or low-income populations. The project would restore the Applicant’s pre-Katrina water treatment and distribution capabilities. Consequently, the proposed action would benefit the local population as a whole as the work would restore services available to all without regard to race, color, national origin, or socioeconomic status.

### Alternative 3 - Repair with Mitigation Improvements (Proposed Action)

The Proposed Action Alternative would have no disproportionate adverse human health, economic, or social effects on minority or low-income populations. The project would restore and increase the resiliency of the Applicant's pre-Katrina water treatment and distribution capabilities. Consequently, the proposed action would benefit the local population as a whole as the system improvements would provide continued reliable services available to all without regard to race, color, national origin, or socioeconomic status.

#### **4.10 Hazardous Materials**

##### **4.10.1 Regulatory Setting**

Hazardous materials and wastes are regulated in the United States under a variety of Federal and State laws. Federal laws and implementing regulations governing the management, storage, and disposal of hazardous materials and wastes include the Resource Conservation and Recovery Act (RCRA) the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Toxic Substances Control Act (TSCA), and the CAA. The purpose of these laws and regulations is to protect human health and the environment.

The RCRA is the Federal law that regulates the management of hazardous waste. While USEPA is the agency responsible for implementing this law, this responsibility is often delegated to the states, which is the case in Louisiana. The RCRA also sets forth a framework for the management of non-hazardous wastes, including the environmental problems that can result from improperly disposed nonhazardous solid wastes and leaking underground tanks that store petroleum and hazardous substances. The law focuses only on active and proposed facilities and does not address abandoned or historical sites.

The CERCLA governs the process of identifying and prioritizing the cleanup of abandoned sites contaminated by the release of hazardous materials. The US EPA was given power to seek out those parties responsible for any release and ensure their cooperation in the cleanup. For contaminated sites that do not meet the definition of a Superfund site, many states, including Louisiana, have developed laws and regulations that require investigation and cleanup. The LDEQ Brownfields Initiative and Voluntary Remediation Program spells out these requirements.

The TSCA provides the authority to the USEPA to administer programs covering the production, importation, use, and disposal of specific chemicals including PCBs, asbestos, radon and lead-based paint. The provisions of TSCA that are likely to be applicable to the actions described in this PEA concern materials or items that may contain asbestos (building materials) or PCBs (older transformers and capacitors, for example).

Section 112 of the CAA requires the USEPA to develop National Emission Standards For Hazardous Air Pollutants (NESHAPs). Because air emissions from lead and asbestos (potentially present in older paint and building materials) present a human health risk they are considered hazardous air pollutants. Asbestos and lead-based paint management is regulated by the LDEQ.

##### **4.10.2 Existing Conditions**

Louisiana has one-hundred-seventy-five (175) Superfund sites, of which eleven (11) are on the CERCLA's National Priorities List (NPL) and three (3) have been proposed for NPL. Fifteen (15) Superfund sites were affected by Hurricane Katrina and two (2) were affected by Hurricane Rita. In

addition, the State of Louisiana has almost eighty (80) sites in its Brownfields Initiative and Voluntary Remediation Program.

The flood events in Louisiana resulting from the levee breaches caused by Hurricanes Katrina and Rita left behind sediments ranging in depth from less than an inch to several feet throughout various areas in Orleans, Plaquemines, and St. Bernard Parishes. USEPA conducted environmental testing and assessment of the sediment material. The results of those tests, which can be found at <http://www.epa.gov/katrina/testresults/sediments/summary.htm>, are incorporated by reference into this PEA.

Other environmental areas of concern were various oil spills, including damage to a storage tank caused by Hurricane Katrina at the Meraux Refinery in St. Bernard Parish (Murphy Oil). The damage resulted in the release of approximately 1 million gallons of crude oil and affected approximately 1,700 homes in the adjacent residential neighborhood. Hurricanes Katrina and Rita also caused the release of petroleum products and the deposition of other hazardous materials throughout various flooded areas.

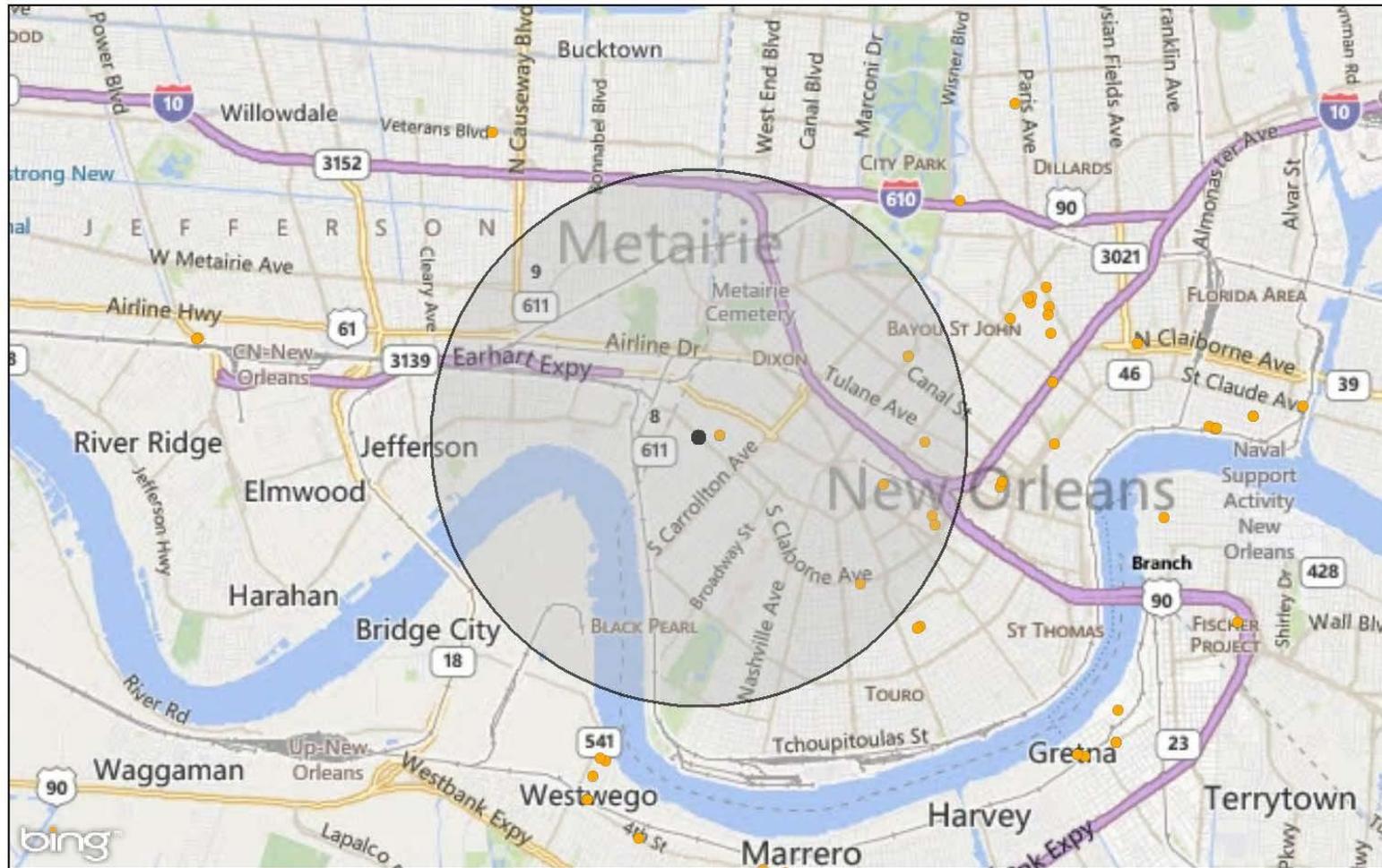
Building demolition and debris removal may release hazardous materials into the environment. Potential contaminants include lead from paint, mercury from fluorescent lighting, heating fuel from underground storage tanks, Freon from refrigerators, household hazardous wastes, and asbestos from building materials (EPA, 2006b). Asbestos materials will be present in the majority of homes built prior to the 1970s, when the ban on the use of asbestos was put into place (EPA, 2006c).

Removal of asbestos can only be performed by individuals who have received training and are certified for asbestos removal (EPA, 2006c; *see also* Louisiana DEQ regulations). Asbestos disposal is regulated under the Louisiana solid waste program.

A review of multiple data sources (*e.g.* USEPA EnviroMapper and the LDEQ Electronic Document Management System™) revealed that the proposed project site is not identified on a federal and/or state agency's list concerning voluntary remediation, brownfield, underground storage tank decommission, waste/debris disposal facilities, or oil/gas wells sites. Additionally, there are no obvious sites of concern in the vicinity of proposed project area. A total of fourteen (14) brownfields are located within a 3-mile radius of the Carrollton WTP, but none are less than 1/5 of a mile from any proposed construction site (Figure 27).

Earth Tech, Inc. (Earth Tech), under contract to the USACE, New Orleans District, completed a Phase I Environmental Site Assessment (ESA) for Pump Stations Stormproofing Activities, Orleans Parish, Louisiana, dated July 2008. The Phase I ESA report included 22 drainage pump stations, the Oak Street and New River intake stations, the Carrollton WTP, and one frequency changer station, for a total of 26 locations. The results of this assessment found several minor issues associated with diesel and/or oil stained ground in the vicinity of an above ground storage tank (AST). The cause of the staining was likely due to equipment leaks and incidental spills during fueling operations. Additionally, six power transformers located just north of the Power House Building had visible stains on their casing, which may be due to transfer spills (USACE 2009).

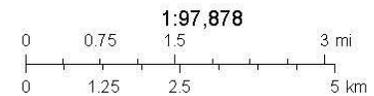
## Carrollton WTP Brownfields 3-Mile



November 24, 2014

■ Address Radius

● Address Point



US EPA  
© 2014 Nokia © AND © 2014 Microsoft Corporation

Generated from: Cleanups in My Community: Date above is the date map was printed.  
Identification of brownfields within 3 miles of the Carrollton WTP

**Figure 27. Carrollton WTP Brownfields Within a 3-Mile Radius**

### **4.10.3 Environmental Consequences**

#### Alternative 1 – No Action

Implementation of the No Action Alternative would not disturb any hazardous materials or create potential hazards to human health related to hazardous material because no construction would occur.

#### Alternative 2 – Repair to Pre-disaster Condition

This action alternative would not disturb any subsurface hazardous materials or increase potential hazards to human health. The proposed site is not adjacent to hazardous or solid waste facilities. If hazardous materials are unexpectedly encountered in the project area during the construction activities, appropriate measures for the proper assessment, remediation, management and disposal of the contamination must be initiated in accordance with applicable federal, state, and local regulations. The contractor is required to take appropriate actions to prevent, minimize, and control the spill of hazardous materials at the proposed site.

#### Alternative 3 - Repair with Mitigation Improvements (Proposed Action)

Under the Proposed Action Alternative, the proposed facility improvements and new construction at the project sites would not disturb any subsurface hazardous materials or increase potential hazards to human health. The sites are not adjacent to hazardous or solid waste facilities. If hazardous materials are unexpectedly encountered in the project area during the construction activities, appropriate measures for the proper assessment, remediation, management and disposal of the contamination must be initiated in accordance with applicable federal, state, and local regulations. The contractor is required to take appropriate actions to prevent, minimize, and control the spill of hazardous materials at the proposed site. See conditions.

## **4.11 Cultural Resources**

### **4.11.1 Regulatory Setting**

The consideration of impacts to historic and cultural resources is mandated under Section 101(b) 4 of the NEPA as implemented by 40 CFR Part 1501-1508. Section 106 of the NHPA requires Federal agencies to take into account their effects on historic properties (i.e. historic and cultural resources) and allow the Advisory Council on Historic Preservation an opportunity to comment. FEMA has chosen to address potential impacts to historic properties through the “Section 106 consultation process” of NHPA as implemented through 36 CFR Part 800.

In order to fulfill its Section 106 responsibilities, FEMA is conducting Section 106 consultation utilizing one of two programmatic agreements, one for projects funded under the PA program and one for projects funded under the HMGP. HMGP projects are reviewed in accordance with the *Louisiana State-Specific Programmatic Agreement (LA HMGP PA)* dated January 21, 2011, between the *Louisiana Governor’s Office of Homeland Security and Emergency Preparedness (GOHSEP)*, the *Louisiana State Historic Preservation Officer (SHPO)*, the *Alabama-Coushatta Tribe of Texas*, the *Caddo Nation*, the *Chitimacha Tribe of Louisiana*, the *Choctaw Nation of Oklahoma*, the *Jena Band of Choctaw Indians*, the *Mississippi Band of Choctaw Indians*, the *Seminole Tribe of Florida*, and the *Advisory Council on Historic Preservation Regarding FEMA’s Hazard Mitigation Grant Program* ([http://www.fema.gov/pdf/hazard/hurricane/2005katrina/LA\\_HMGP%20PA.pdf](http://www.fema.gov/pdf/hazard/hurricane/2005katrina/LA_HMGP%20PA.pdf)). The LA HMGP PA was created to streamline the Section 106 review process for all FEMA HMGP projects in Louisiana resulting from Hurricanes Katrina and Rita. The majority of projects in the Alternative 3 - Repair with

Mitigation Improvements is funded through HMGP and utilizes the LA HMGP PA for Section 106 reviews.

FEMA has initiated Section 106 consultation for projects that are funded through the FEMA PA program, including the Hazard Mitigation Program, in accordance with the *Statewide Programmatic Agreement* (PA) dated August 17, 2009, and amended on July 22, 2011, between SHPO, GOHSEP, the Alabama-Coushatta Tribe of Texas, the Caddo Nation, the Chitimacha Tribe of Louisiana, the Choctaw Nation of Oklahoma, the Coushatta Tribe of Louisiana, the Jena Band of Choctaw Indians, the Mississippi Band of Choctaw Indians, the Quapaw Tribe of Oklahoma, the Seminole Nation of Oklahoma, the Seminole Tribe of Florida, the Tunica-Biloxi Tribe of Louisiana, and the Advisory Council on Historic Preservation (<http://www.fema.gov/new-orleans-metropolitan-area-infrastructure-projects-2#2>). The programmatic agreement was created to streamline the Section 106 review process for all FEMA projects. The Water Hammer Hazard Mitigation project, under Alternative 3 – Repair with Mitigation Improvements is funded through FEMA PA

The “Section 106 process” outlined in the LA HMGP PA and the Statewide PA requires the identification of historic properties that may be affected by the proposed action or alternatives within the project’s area of potential effects (APE). Historic properties, defined in Section 101(a)(1)(A) of NHPA, include districts, sites (archaeological and religious/cultural), buildings, structures, and objects that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP). Historic properties are identified by qualified agency representatives in consultation with interested parties.

#### **4.11.2 Existing Conditions**

The growth of the City of New Orleans since its founding is inseparable from the development of a large-scale drainage system, unique in the United States, and its corresponding sanitary sewer and water systems. These three innovative and distinctive engineering systems developed along with the city and underwent their most intensive advances during the first quarter of the 20<sup>th</sup> century. This water system is administered by the SWBNO, authorized by the Louisiana Legislature in 1899 and merged with the New Orleans Drainage Commission in 1903 to provide consolidated oversight of New Orleans’ water systems – water, sewerage and drainage. The Louisiana Engineering Society selected the water, drainage, and sewerage systems of New Orleans as among the ten most outstanding engineering achievements in the State of Louisiana and the American Society of Mechanical Engineers designated the A. B. Wood screw pump (built in 1914) as a Historic Mechanical Engineering Landmark as the most advanced low-lift drainage pump in use in the early 20th century, later used worldwide.

Integral to these systems is the Carrollton WTP which is the City of New Orleans’ primary water treatment plant for the East Bank of the Mississippi River and generates power for its water and drainage distribution system. It is located in the Carrollton neighborhood of New Orleans along the border of Orleans Parish and approximately half a mile from the Mississippi River and completely within the Carrollton National Register Historic District. There is a smaller water treatment plant that serves the West Bank portion of the City of New Orleans in the Algiers neighborhood.

The Carrollton WTP (initially built between 1905-1909 and in continuous use to present), was originally designed with uniformly designed Mediterranean style buildings in a park-like setting, resembling a university campus more than an industrial plant when it was first completed. The Carrollton WTP is an example of the City Beautiful movement, a nation-wide trend popular in the early twentieth century. Although, as the heart of a functioning utility, the Carrollton WTP has lost much of its park-like character from changes over the years, through its architecture and setting it retains its integrity as a City Beautiful assemblage.

### *Carrollton Water Treatment Plant Site – Standing Structures*

The Carrollton Water Treatment Plant is identified as a “Landmark” in the Carrollton Historic District NRHP nomination. The district was listed under Criterion C at the state level on November 2, 1987. The NRHP nomination describes the “New Orleans Waterworks” as “a complex of ten concrete [*sic*; in actuality the buildings are stucco-coated brick masonry], industrial type buildings with broad hip roofs, great round arches, and pronounced eaves. The styling is a kind of latter day Italianate mainly reminiscent of the early Italian Renaissance.” Some of the existing and utilized mechanical and other engineering equipment also has the potential to be eligible for listing on the NRHP.

Previous significant Section 106 Consultations for projects involving the Carrollton WTP and utilizing federal funding that does not include FEMA Hazard Mitigation Grant Program are as follows:

FEMA previously consulted with SHPO and Tribes on undertakings that include the Carrollton WTP repairs using FEMA PA funding with no adverse effect to historic properties, and submitted determinations of eligibility for individual properties within the plant on December 7, 2007 and August 12, 2011.

In 2009, the USACE prepared an EA in connection with a proposal for system-wide storm-proofing measures. In connection with these storm-proofing measures, USACE consulted with SHPO (December 3, 2008).

### *Carrollton Water Treatment Plant Site - Archaeological Resources*

Based on FEMA’s review of existing documentation, data on existing archaeological sites provided by SHPO and historic maps and site visits; FEMA determined, in consultation with SHPO and Tribes (September 8, 2014), that the Carrollton WTP property is unlikely to contain NRHP eligible archaeological resources. Given the depth and plant-wide nature of the disturbance on the site, FEMA has determined that no further archaeological identification efforts are necessary within the Carrollton WTP.

At the Carrollton WTP, soils are comprised of poorly drained Schriever clay formed in former backswamp. Previously identified archaeological sites are predominately the location of late 19<sup>th</sup>- and 20<sup>th</sup>-century residences and commercial lots and retained varying degrees of integrity. Development in the Carrollton neighborhood was largely confined to areas closer to the river and did not extend to any great extent in the Carrollton WTP. The first map depicting the Carrollton WTP is Saucier’s 1749 map showing the ‘Chapitoulas’ settlement. While this early settlement was located within the vicinity of the project area, the map indicates that the settlement was located further up river, with no development within the Carrollton WTP. The Carrollton WTP was not included in the Sanborn Fire Insurance Maps from 1885 or 1895. Construction of the Carrollton WTP began in 1905, and the area appears for the first time on the Sanborn maps in 1908. While the new construction of the plant is indicated, one dwelling, noted as abandoned, with a number of outbuildings, is also shown on Spruce St. By 1937, the updated Sanborn Maps show an expanded S&WB campus and the Panola Pumping Station on Leonidas St.

SWBNO records and site conditions indicate wide scale ground disturbance at the Carrollton WTP. Initial construction of the Carrollton WTP took place from 1905-1909, and subsequent improvements and expansions have occurred at the plant on a continuous basis. Construction for the filtration and settlement basins required excavations to depths of 10-15 feet or more in some locations and pipes with diameters of 4.5 feet run throughout the facility between the settlement and filtration basins and the chemical buildings and pump houses.

### **4.11.3 Environmental Consequences**

#### **4.11.3.1 Alternative 1 – No Action**

Implementation of the No Action Alternative would not affect any historic properties because no construction would occur.

#### **4.11.3.2 Alternative 2 – Repair to Pre-disaster Condition**

Under this alternative, the SWBNO would conduct repairs to pre-disaster condition on the damaged facilities at the Carrollton WTP. While this action would return the SWBNO water processing functions to the East Bank, it would leave the Carrollton WTP at risk of similar future damages from flooding. In addition, the cycling of pump stations on and off due to power shut-downs, would subject the overall water distribution network to the same water hammer effects. As this action has some potential to adversely affect historic properties, FEMA will follow its Section 106 review procedures, described in Regulatory Setting 4.11.1, as each of the projects are submitted to FEMA for consideration. Additionally, the applicant must comply with the NHPA conditions described in this document.

#### **4.11.3.3 Alternative 3 - Repair with Mitigation Improvements (Proposed Action)**

Under the Proposed Action Alternative, the proposed facility improvements and new construction at the project sites has some potential to adversely affect historic properties at the Carrollton WTP, FEMA will follow its Section 106 review procedures, described in Regulatory Setting 4.11.1, as each of the proposed actions are submitted to FEMA for funding consideration. Additionally, the applicant must comply with the NHPA conditions described in this document and any additional conditions arrived at through consultation with the Louisiana SHPO and federally recognized Tribes.

##### **4.11.3.3.1 CP-1368 Oak Street Pump Station Retrofit**

The CP 1368 is the retrofit of the Oak Street Pump Station located on the east bank of the Mississippi River inside the protected levee, adjacent to River Mile Marker 104. In addition to the upgrades to the three existing power line feeders (RS-T6, RS-C and RS-E) from Turbine 6 at the Carrollton WTP to the Oak Street and New River Pump Stations (CP 6249), the scope of work includes the following at the Oak Street Pump Station: 1) upgrades to the Pumps and switchgear, pump drives and motors; 2) retrofit of Pumps A, B and C; and 3) refurbishment of Pumps A, B and C suction and discharge side piping and valves.

FEMA will follow its Section 106 review procedures, described in Regulatory Setting 4.11.1, as this proposed action is submitted to FEMA for funding consideration.

##### **4.11.3.3.2 CP-1369 Emergency Fuel Storage**

The CP-1369 Emergency Fuel Storage is the hardening of the existing fuel storage and delivery system for the Carrollton WTP.

FEMA will follow its Section 106 review procedures, described in Regulatory Setting 4.11.1, as this proposed action is submitted to FEMA for funding consideration.

#### **4.11.3.3.3 CP-1370 Power House Boiler and Auxiliary Equipment/Electrical and I&C Upgrade**

The CP 1370 is upgrades to the civil and structural, electrical, instrumentation and control, mechanical and piping in the Power Plant at the Carrollton WTP.

FEMA will follow its Section 106 review procedures, described in Regulatory Setting 4.11.1, as this proposed action is submitted to FEMA for funding consideration.

#### **4.11.3.3.4 CP-1371 Power House Structural Hardening**

The CP 1371 is the structural upgrades to the power plant and provides for structural hardening of existing water damaged structural steel and structural concrete and provide life safety upgrades.

FEMA will follow its Section 106 review procedures, described in Regulatory Setting 4.11.1, as this proposed action is submitted to FEMA for funding consideration.

#### **4.11.3.3.5 CP-1372 Turbine Generator 5 Refurbishment**

The CP 1372 is the retrofit of Turbine Generator 5 at the power plant at the Carrollton WTP and includes, but is not limited to the following: 1) upgrades to the steam turbine; 2) upgrade to the generator; 3) upgrade to auxiliary electrical systems; 4) upgrade to turbine and auxiliary mechanical systems; and 5) upgrade to turbine-generator control system.

FEMA will follow its Section 106 review procedures, described in Regulatory Setting 4.11.1, as this proposed action is submitted to FEMA for funding consideration.

#### **4.11.3.3.6 CP-1373 Turbine Generator 3 Refurbishment**

The CP 1373 is the retrofit of Turbine Generator 3 in the power plant at the Carrollton WTP and includes, but is not limited to the following: 1) upgrades to the steam turbine; 2) upgrade to the generator; 3) upgrade to auxiliary electrical systems; 4) upgrade to turbine and auxiliary mechanical systems; and 5) upgrade to turbine-generator control system.

FEMA will follow its Section 106 review procedures, described in Regulatory Setting 4.11.1, as this proposed action is submitted to FEMA for funding consideration.

#### **4.11.3.3.7 CP-6247 Turbine Generator 4 Retrofit HMGP Phase 1**

The CP 6247 is the refurbishment of Generator 4, a 20- MW, 25- Hz unit located in the high lift building in the Power Plant at the Carrollton WTP.

FEMA reviewed this project in June of 2012 using the LA HMGP PA and determined that scope of work for Generator Number 4 repairs meets the criteria in the 2011 LA HMGP PA, Appendix C: Programmatic Allowances, Items II.B.1 & 4, II.G.3, II.H, V.D, & VII.A,B,C,&D, completing NHPA Section 106 review.

#### **4.11.3.3.8 CP-6248 Turbine Generator 6 Feeders**

The CP-6248 consists of installing two 60-Hz electrical feeders from the new 15 MW Turbine Generator #6 at the Carrollton WTP to Drainage Pump Station 1. These feeders will use a combination of existing and newly installed duct banks within existing rights-of-way between the two facilities.

FEMA reviewed this project using the LA HMGP PA and determined that there are No Adverse Effects to Historic Properties as a result of the installation of feeder lines/ductbank from the Power Plant to Drainage Pump Station 1. SHPO concurred with this determination in a letter dated July, 6, 2012. FEMA also consulted with the Alabama Coushatta Tribe of Texas, the Choctaw Nation of Oklahoma, the Jena Band of Choctaw Indians, the Mississippi Band of Choctaw Indians, and the Muscogee Creek Nation per Stipulation IV.A of the LA HMGP PA and FEMA received no objections.

#### **4.11.3.3.9 CP-6249 Harden Power Distribution Network**

The CP 6249 is the upgrading of 10 power distribution feeders located throughout SWBNO power distribution network, including Feeders RS-T6, RS-C and RS-E which provides for hardening of the power distribution network between Turbine Generator 6 at the Carrollton WTP and the Oak Street and New River Pump Stations.

#### **4.11.3.3.10 CP-6250 Generator Load Bank**

The CP 6250 provides mobile load bank equipment and all required electrical equipment and installation for testing of Generator 4 to 20 MW, 6600 VAC, three phase 25 hertz.

FEMA reviewed this project in June of 2014 using the LA HMGP PA and determined that scope of work for the Generator Load Bank met the criteria in the 2011 LA HMGP PA, Appendix C: Programmatic Allowances, Items VII.B, completing NHPA Section 106 review.

#### **4.11.3.3.11 Water Hammer Hazard Mitigation**

The scope of work for the water hammer hazard mitigation includes various improvements to the Carrollton Water Treatment Plant and water distribution network throughout the City of New Orleans to reduce the occurrence of sudden low pressure, or the “water hammer” effect.

As of February 2015, FEMA is developing a Memorandum of Agreement (MOA) to resolve adverse effect to the Carrollton National Register Historic District resulting from the planned construction of two elevated water storage tanks funded by FEMA per 36 CFR Part 800.6. This project is funded through FEMA PA Hazard Mitigation Program. FEMA determined (September 8, 2014), in consultation with SHPO and Tribes, that all properties over 50 years at the Carrollton WTP are treated as eligible for the NRHP for the purposes of the consultation. Consulting parties include SHPO, GOHSEP, the Preservation Resource Center of New Orleans and the Carrollton-Riverbend Neighborhood Association (*de facto* at present). This consultation will arrive at an MOA that resolves that adverse effects to the Carrollton National Register Historic District. The Sewerage and Water Board will comply with the stipulations and conditions detailed in this MOA to ensure FEMA-funding for the project. When the MOA is executed a copy of this MOA will be attached to this Programmatic Environmental Assessment, projected in spring of 2015.

## **5.0 CUMULATIVE IMPACTS**

The CEQ regulations define cumulative impacts as 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 (40 C.F.R. § 1508.7).

The CEQ's comprehensive guidance on cumulative impacts analysis performed pursuant to NEPA notes: "[t]he range of actions that must be considered includes not only the project proposal, but all connected and similar actions that could contribute to cumulative effects" (CEQ, 1997). The term "similar actions" may be defined as "reasonably foreseeable or proposed agency actions [with] similarities that provide a basis for evaluating the environmental consequences together, such as common timing or geography." 40 C.F.R. § 1508.25(a)(3); *see also* 40 C.R.R. §§ 1508.25(a)(2) and (c).

Not all potential issues identified during cumulative effects scoping need be included in an EA. Because some effects may be irrelevant or inconsequential to decisions about the proposed action and alternatives, the focus of the cumulative effects analysis should be narrowed to important issues of national, regional, or local significance. To assist agencies in this narrowing process, CEQ lists seven (7) basic questions, including: (1) is the proposed action one of several similar past, present, or future actions in the same geographic area; (2) do other activities (governmental or private) in the region have environmental effects similar to those of the proposed action; (3) have any recent or ongoing NEPA analyses of similar actions or nearby actions identified important adverse or beneficial cumulative effect issues; and, (4) has the impact been historically significant, such that the importance of the resource is defined by past loss, past gain, or investments to restore resources (CEQ, 1997).

It is normally insufficient when analyzing the contribution of a proposed action to cumulative effects to merely analyze effects within the immediate area of the proposed action (CEQ, 1997, pg. 12). Geographic boundaries should be expanded for cumulative effects analysis, and conducted on the scale of human communities, landscapes, watersheds, or airsheds. Temporal frames should be extended to encompass additional effects on the resources, ecosystems, and human communities of concern. A useful concept in determining appropriate geographic boundaries for a cumulative effects analysis is the project impact zone; *i.e.*, the area (and resources within that area) that could be affected by the proposed action. The area appropriate for analysis of cumulative effects will, in most instances, be a larger geographic area occupied by resources outside of the project impact zone.

The proposed project sites include the Carrollton WTP, DPS 1, Bladder Tank Sites 1 and 2, and the New River and Oak Street Intake Pump Stations. FEMA has determined that the area within a 0.5 mile radius of the site constitutes an appropriate project impact zone, and the larger geographic area consisting within a 1.0 mile radius of the site is an appropriate geographic boundary, for a cumulative impact analysis of the proposed action and alternatives (Figures 28 and 29).

In accordance with NEPA, and to the extent reasonable and practicable, this draft PEA considered the combined effects of the Proposed Action Alternative and other actions undertaken by FEMA and other public and private entities that affect environmental resources the proposed action would affect, and that occur within the considered geographic area and temporal frame(s).

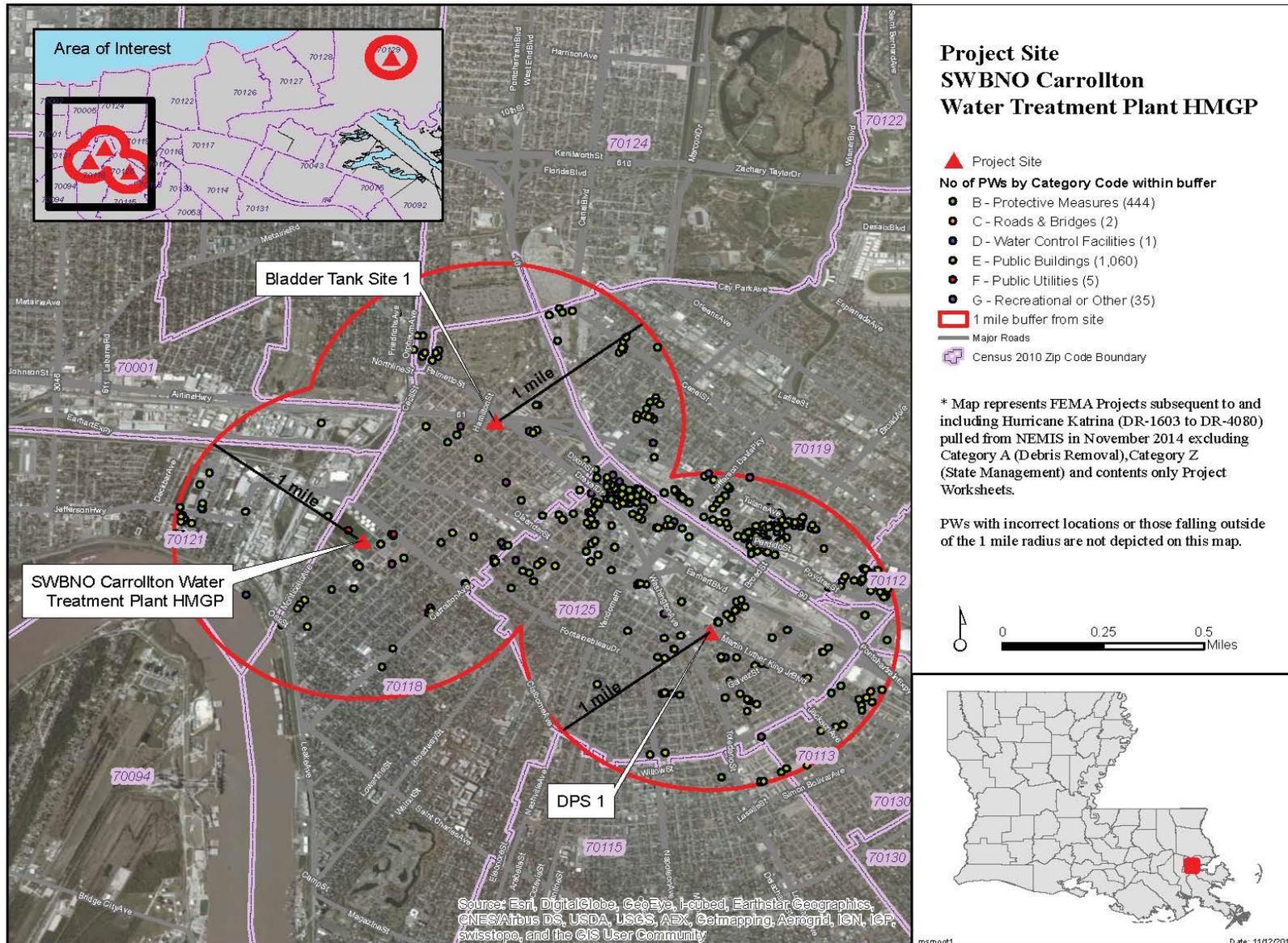
Specifically, a range of past, present and reasonably foreseeable actions undertaken by FEMA within the designated geographic boundary area were reviewed: (1) for similarities such as scope of work, common timing and geography; (2) to determine environmental effects similar to those of the proposed action, if any; and (3) to identify the potential for cumulative impacts.

FEMA also reviewed past, present and reasonably foreseeable projects of federal resource agencies and other parties within the designated geographic boundary. These reviews were performed in order to assess the proposed actions and effects of completed and ongoing actions, and to determine whether the incremental impact of the instant proposed action, when combined with the effects of other past, present, and reasonably foreseeable future projects, are cumulatively considerable or significant.

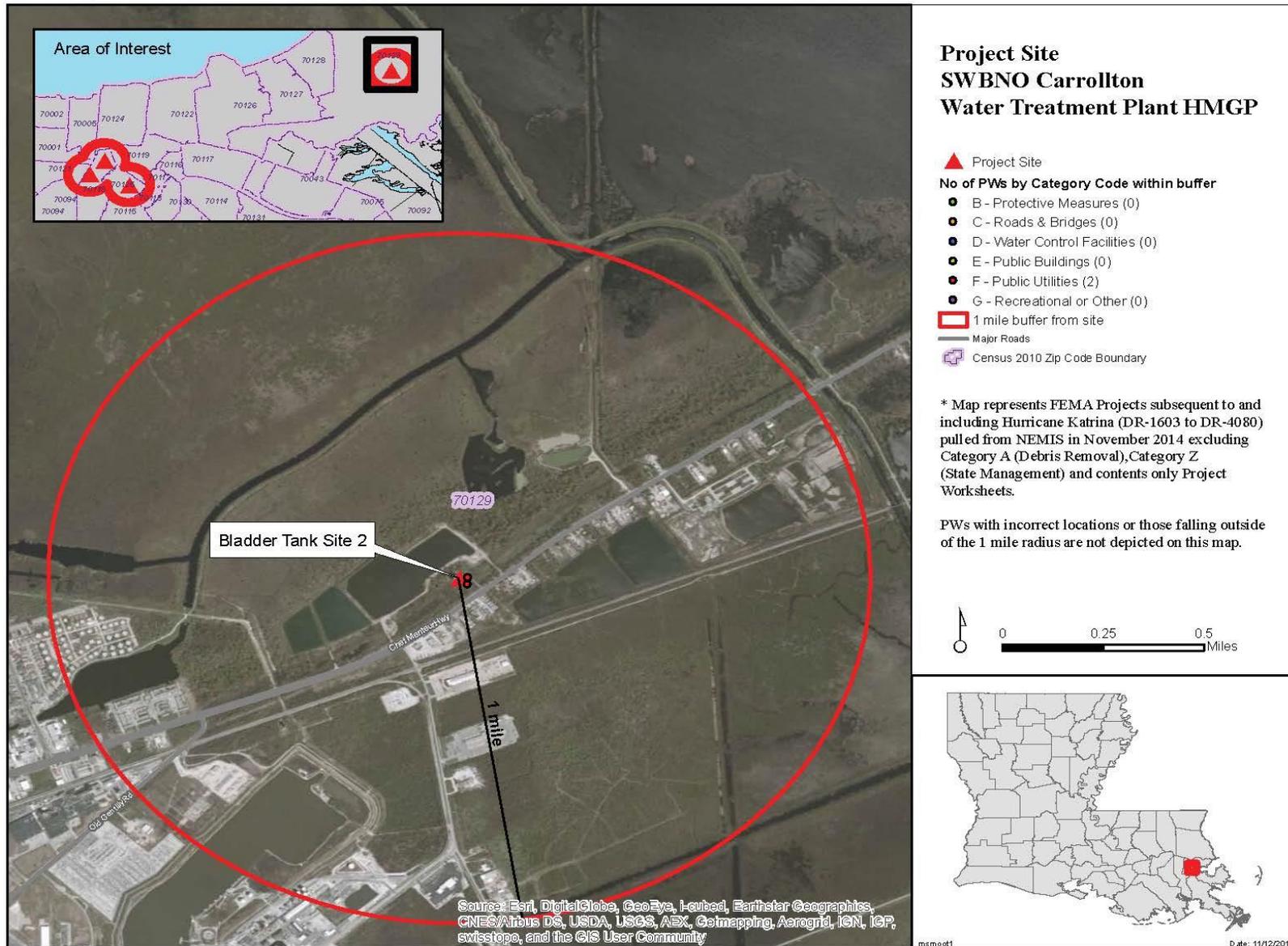
From August 2005 continuing through September 2014, approximately 1,549 FEMA PA program funded, and numerous non-FEMA funded, debris removal, protective measures, and repair projects have occurred, are occurring, or are reasonably foreseen to occur (are developed with enough specificity to provide useful information to a decision maker and the interested public) within the geographic area encompassing the one-mile radius of the proposed project site - to buildings, roads and bridges, recreational and educational facilities, public utilities, waterways, levees, and more.

The majority (68%) of the 1,549 FEMA PA program funded projects occurring within the specified geographic and temporal boundaries were for the repair or replacement of public buildings, and or their contents and systems, heavy equipment and vehicles. Of these 1,549 present, past or reasonably foreseeable FEMA PA funded infrastructure and recovery improvements projects, only the instant project and one (1) other project possessed a potential for impact to environmental resources requiring an EA under NEPA.

All FEMA funded actions are subjected to various levels of environmental review as a requirement for the receipt of federal funding. An applicant's failure to comply with any required environmental permitting or other condition is a serious violation which can result in the loss of federal assistance, including funding.



**Figure 28. FEMA Funded Projects within 1 Mile of the Carrollton WTP, DPS 1, Bladder Tank Site 1, and the New River and Oak Street Intake Pump Stations**



**Figure 29. FEMA Funded Projects Within 1-Mile of Bladder Tank Site 2**

#### ***USACE HSDRRS Projects and EA #474***

A major non-FEMA source of federally-funded infrastructure projects within southeastern Louisiana and the greater New Orleans area has been the USACE. “After the devastation of the 2005 hurricane season, the U.S. embarked on one of the largest civil works projects ever undertaken, at an estimated cost of \$14 billion, with restoration, accelerated construction, improvements, and enhancements of various risk reduction projects within southeastern Louisiana, including the Lake Pontchartrain and Vicinity (LPV), Louisiana Project and the West Bank and Vicinity(WBV), Louisiana Project, jointly referred to as the Greater New Orleans HSDRRS. With the completion of the levees, floodwalls, gates, and pumps that together form the HSDRRS, 100-year level of hurricane and storm damage risk reduction will be brought to the areas within LPV and WBV. The agency tasked with the planning, design, and construction of these civil works projects is the USACE, Mississippi Valley Division, New Orleans District (CEMVN)” (USACE, May 2013, p. ES-1).

“The HSDRRS is a complex undertaking with a large number of awarded construction contracts” (USACE, May 2013, p. ES-3). In compliance with NEPA, through Emergency Alternative Arrangements approved by the CEQ, USACE conducted separate environmental evaluations of the numerous smaller construction projects required to complete the HSDRRS project, and prepared Individual Environmental Reports (IERs) of their project evaluations. Supplemental IERs were completed to reflect design and construction changes, and proposed additional HSDRRS risk reduction work. IERs are classified according to one of three project types. IERs addressing the actual risk reduction structures (*e.g.*, levees, floodwalls, closure structures, and pump station structures), are risk reduction IERs. IERs addressing materials and resources used to construct the HSDRRS (*e.g.*, borrow material, concrete and steel, and other commodities), are referred to as borrow IERs. IERs addressing HSDRRS mitigation measures (*i.e.*, measures to lessen or reduce a project’s impact on a particular resource or group of resources), are referred to as mitigation IERs. *See generally* USACE, NOLA Environmental Compliance Data Bank.

In May 2013, the USACE released Phase I of a Final Comprehensive Environmental Document (CED) analyzing the cumulative impacts of the HSDRRS. The CED “summarizes the HSDRRS impacts and determines the cumulative impacts on the human and ‘built’ environment from those HSDRRS components described by NEPA documents completed by November 15, 2010, and other Federal and non-Federal hurricane and storm damage risk reduction systems and regional projects within southeastern Louisiana” (USACE, May 2013, p. ES-7). These other regional projects (ORPs) (storm damage reconstruction, redevelopment, coastal and wetlands restoration, flood risk reduction projects, transportation), include analyses of the New Orleans to Venice (NOV), Plaquemines Parish Non-Federal Levee, Grand Isle and Vicinity Hurricane Protection, Morganza to the Gulf Risk Reduction, Mississippi River Gulf Outlet Deep-Draft De-authorization, Southeast Louisiana (SELA), and Pump Station Stormproofing projects, and their associated EAs, EIS’, supplements, and other Records of Decision (ROD).

The USACE CED Phase I cumulative impact study represents an analysis of fourteen (14) Risk Reduction LPV (east bank) IERs, six (6) Risk Reduction WBV (west bank) IERs, eleven (11) Borrow IERs, and their supplements, completed as of November 15, 2010; construction contracts completed by July 2011; and other regional projects EIS, EAs, supplements and other decision records. CEMVN mitigation measures and impacts from construction of the LPV and WPV HSDRRS are described in IERs 1-11, 18, 19, 22, 23, 25-32, 35, 36, and their associated Supplemental IERs. IERs completed after November 15, 2010 and HSDRRS features constructed after July 2011 will be described in a future phase of the CED.

The CED concludes that HSDRRS and regional project construction have resulted in cumulative short and long term beneficial impacts to socioeconomic resources; short term cumulative adverse impacts to transportation, noise, air quality and aesthetics; both beneficial and adverse impacts on known and

unknown cultural resources; and long term permanent impacts regionally to soils, including prime farmland soils, habitat supporting wildlife (HSW), wetlands and non-jurisdictional bottomland hardwood (BLH) resources. “Compensatory mitigation will reduce the impacts on biological resources from these regional projects, but impacts on soils are permanent and these impacts cannot be reduced through mitigation” (USACE, May 2013, p. ES-52 to 59).

In 2009, the USACE performed an Environmental Assessment of a stormproofing project for 22 Orleans Parish pump stations, the Carrollton Frequency Changer Building, the Old River Intake Station, the New River Intake Station, and the Carrollton Water Plant and Power Complex. The purpose of the proposed project was somewhat similar to that of the instant proposed hazard mitigation project, in that its purpose was “to provide flood, hurricane, and storm damage risk reduction by helping to ensure pump station operation for the east and west bank of urbanized areas of Orleans Parish during, and immediately following, large tropical storm events, and to provide safe refuge for Orleans Parish employees responsible for the operation and maintenance of the forced drainage systems” (USACE, EA #474, Orleans Parish Pump Station Storm Proofing Activities, FONSI, June 16, 2009).

In EA #474, USACE, as part of its cumulative impacts discussion for the Orleans Parish Pump Station Storm Proofing project, USACE finding was that: *“[t]he implementation of the Proposed Action would have no cumulative adverse impacts because all of the construction activities at the facilities would occur in previously disturbed and developed areas, along existing canal banks. No change in normal pump station operations or canal and pump station maintenance would occur. However, the Proposed Action would have cumulative beneficial impacts on the social, economic, housing and infrastructure resources of Orleans Parish as the stormproofed facilities, generators, pumps, and all other DPS [Drainage Pump System] equipment would ensure that the drainage pump system is operational during and immediately following severe tropical storm events. Improved hurricane, storm, and flood damage reduction benefits all residents, regardless of income, race or age, and allows for development and redevelopment of existing urban areas”* (USACE, EA #474, Orleans Parish Pump Station Storm Proofing Project, p. 60, *emphasis supplied*).

Table 6 below lists and briefly describes present, past, and reasonably foreseeable individual or groups of infrastructure and recovery improvement projects in the determined geographic area (1-mile radius of the proposed project sites) that are known to FEMA, and for which an EA, EIS, IER or other substantial environmental review were performed (including the aforementioned FEMA projects and the USACE project that was the subject of EA #474), and or that may have the potential for cumulative impacts when combined with the effects of the present proposed action. Table 6 also identifies the potential for cumulative impacts, and the rationale for that assessment.

<b>Project Name / Status</b>	<b>Lead Agency</b>	<b>Location</b>	<b>Description</b>	<b>Cumulative Impacts</b>	<b>Rationale</b>
<b>AI 889 – Housing Authority of New Orleans (HANO), General Ogden Housing Project / FONSI</b>	FEMA	Scattered sites at Chef Menteur Highway, Old Gentilly Road, and America Street in New Orleans, LA	Demolition of seven (7) buildings at 1400, 1408, 1416, 1424, 1432, 1433 and 1440 General Ogden and the new construction of twenty-two (22) 2, 3 and 4-bedroom units (mixed public housing and Section 8) designed to be compatible with neighborhood; remove contaminated soil and asbestos.	Less than significant.	FONSI June 2010; anticipated long-term beneficial cumulative effects to socioeconomic and cultural resources; short term impacts to soils, air quality and noise during ground disturbing activities; all short term impacts conditioned to minimize and mitigate impacts to project site and surrounding areas; permit requirements are a condition for FEMA funding.
<b>CED Phase I Study / Completed May 2013</b>	USACE	217 miles of post-Katrina HSDRRS work located within the Greater New Orleans Metropolitan Area; the area within LPV and WBV.	Evaluates the cumulative impacts associated with the implementation of the HSDRRS; describes cumulative impacts of HSDRRS construction completed by July 2011 and incorporates information from individual IERs and supplemental IERs completed by November 15, 2010.	Less than significant.	Adversely affected resources (regional soils, habitat supporting wildlife, wetlands and jurisdictional bottomland hardwood resources), are significantly different from those in the proposed action, and overall, including through mitigation and compensation measures, expected to be beneficial investment to resources. Effects to similar resources would be temporary and minimal, or would be beneficial.
<b>Mitigation LPV IER 36 / Final Programmatic IER, Final Decision Record, Pier 36 LPV HSDRRS Mitigation 11/22/2013</b>	USACE	Lake Pontchartrain Basin, between I-12 and the Mississippi River	Evaluates the alternatives to compensate for unavoidable habitat resulting from construction of the LPV HSDRRS; identifies Tentatively Selected Mitigation Plan Alternative (TSMPA) for mitigating impacts to four habitat categories: wet and dry bottomland hardwood forests, swamps, and marshlands.	No impacts.	Final Decisional Record, 11/22/2013; Impacts to resources are significantly different from those expected to be affected by the proposed action.

<b>Project Name / Status</b>	<b>Lead Agency</b>	<b>Location</b>	<b>Description</b>	<b>Cumulative Impacts</b>	<b>Rationale</b>
<b>EA # 433 - Hurricanes Katrina &amp; Rita After-the-Fact / FONSI 07/24/2006</b>	USACE	Orleans, St. Bernard, Jefferson, Plaquemines, St. Mary's, Terrebone, and LaFourche Parishes	Emergency action to unwater New Orleans Metropolitan Area; rehabilitate federally authorized levees, and restore non-federal levees and pump stations (Orleans, St. Bernard, Jefferson and Plaquemines Parishes); flood flight operations (St. Mary's, Terrebone, and LaFourche Parishes).	No impacts.	FONSI 07/24/2006; Adverse impacts to resources (wetlands) are significantly different from those expected to be affected by the proposed action and required compensatory mitigation. No significant impacts identified for any significant similar resources expected to be affected by the proposed action.
<b>EA # 474 - Orleans Parish Pump Station Stormproofing Activities / FONSI 06/16/2009</b>	USACE	22 Orleans Parish pump stations, Carrollton frequency Changer Building, Old River Intake Station, New River Intake Station, and Carrollton Water Plant and Power Complex	Stormproofing activities for described locations, to include building hardening, elevated control rooms, modified roof structures, enhanced water intrusion and protection, protecting and enhancing electrical power production equipment, backup generators, underground ductbank for electrical lines, perimeter wall barriers, elevated generator buildings, pump replacement, installation of water wells, other mechanical, electrical and miscellaneous protection features.	No impacts.	FONSI 06/16/2009; No significant adverse impacts identified for any significant resources; no impacts identified that would require compensatory mitigation. Effects to similar resources would be temporary and minimal.

**Table 6. List of Past, Present, or Reasonably Foreseeable Projects with Potential Cumulative Impacts**

FEMA has determined that the incremental effects of the other infrastructure recovery and improvement actions are likely to be similar to the impacts and effects described in this PEA for the present proposed action, in that the effects to socioeconomic resources are expected to be beneficial, and effects to other similar resources expected to be either non-existent, or minimal and temporary. FEMA has further determined that the incremental impact of the present proposed project, when combined with the effects of other past, present, and reasonably foreseeable future projects, are neither cumulatively considerable nor significant.

These infrastructure actions, some of which have already occurred, and many of which will occur concurrent with and or subsequent to the proposed action, are necessary as a result of the unprecedented devastation caused by the 2005 hurricanes, in order to restore pre-disaster conditions and mitigate against damage from future significant storm events. In reviewing impacts, socioeconomic resources were identified as having the most potential to experience cumulative effects. As was the case with USACE

Project #474, the instant proposed water treatment plant mitigation project is expected to result in cumulative beneficial impacts to social, economic, and infrastructure resources in Orleans Parish.

Although devastating, the 2005 storms created an opportunity for FEMA to ensure the ability of the Carrollton WTP and associated pump stations to maintain reliable operations during and immediately following significant storm events, by ensuring an efficient, sustainable, and independent power/energy source or sources; thus sustaining the Parish's delivery of potable water supply and transport and treatment of storm water and raw sewage; and thereby better serving residents. Considered in relation to past, present, and reasonably foreseeable future actions, the cumulative impact of the proposed action to the built and natural environment would be minimal, would be beneficial rather than detrimental, and is not expected to contribute to any adverse effects or to otherwise significantly affect the human environment.

## **6.0 CONDITIONS AND MITIGATION MEASURES**

Based upon the studies, reviews and consultations undertaken in this environmental assessment, several conditions and mitigation measures must be taken by the Applicant prior to and during proposed project implementation.

- The Applicant must follow all applicable local, state, and federal laws, regulations, and requirements and obtain and comply with all required permits and approvals prior to initiating work.
- Applicant shall comply with all local, state, and federal requirements related to sediment control, disposal of solid waste, control and containment of spills, and discharge of surface runoff and stormwater from the site.
- If the project results in a discharge to waters of the State, a LPDES permit may be required in accordance with the CWA and the Louisiana Clean Water Code. If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater. In order to minimize indirect impacts (erosion, sedimentation, dust and other construction-related disturbances) to the nearby waters of the United States and well defined drainage areas surrounding the contractor should ensure compliance with all local, state, and federal requirements related to sediment control, disposal of solid waste, control and containment of spills, and discharge of surface runoff and stormwater from the site. All documentation pertaining to these activities and Applicant compliance with any conditions should be forwarded to the State and FEMA for inclusion in the permanent project files.
- The project has been found by the LDNR to be inside the Louisiana Coastal Zone. LDNR, therefore requires that a complete CUP Application package (Joint Application Form, locality maps, project illustration plats with plan and cross section views, etc.) along with the appropriate application fee, be submitted to their office prior to construction. The Applicant is responsible for coordinating with and obtaining any required CUP or other authorizations from the LDNR Office of Coastal Management's Permits and Mitigation Division prior to initiating work. The Applicant must comply with all conditions of the required permits. All documentation pertaining to these activities and Applicant compliance with any conditions should be forwarded to the State and FEMA for inclusion in the permanent project files.
- Per 44 CFR 9.11(d)(3), there shall be no new construction or substantial improvement of structures unless the lowest floor of the structures (including basement) is at or above the level of the base flood. Furthermore, per 44 CFR 9.11(d)(6), no project should be built to a floodplain management standard that is less protective than what the community has adopted in local ordinances through their participation in

the NFIP. The Applicant is required to coordinate with the local floodplain administrator regarding floodplain permit(s) prior to the start of any activities. All documentation pertaining to these activities and Applicant compliance with any conditions should be forwarded to the LA GOHSEP and FEMA for inclusion in the permanent project files. Per 44 CFR 9.11(d)(9), for the replacement of building contents, materials and equipment, where possible, disaster-proofing of the building and/or elimination of such future losses should occur by relocation of those building contents, materials and equipment outside or above the base floodplain.

- Equipment and machinery utilized on the project site must meet all local, state, and federal noise regulations.
- All activities must be conducted in a safe manner in accordance with OSHA work zone traffic safety requirements.
- If human bone or unmarked grave(s) are present with the project area, compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 et seq.) is required. The Applicant shall notify the law enforcement agency of the jurisdiction where the remains are located within twenty-four hours of the discovery. The Applicant shall also notify FEMA and the Louisiana Division of Archaeology at 225-342-8170 within seventy-two hours of the discovery.
- If during the course of work, archaeological artifacts (prehistoric or historic) are discovered, the Applicant shall stop work in the vicinity of the discovery and take all reasonable measures to avoid or minimize harm to the finds. The Applicant shall inform their Public Assistance (PA) contacts at FEMA, who will in turn contact FEMA Historic Preservation (HP) staff. The Applicant will not proceed with work until FEMA HP completes consultation with the SHPO, and others as appropriate.
- Any changes or modifications to the proposed project would require a revised USACE determination. Off-site locations of activities such as borrow, disposals, haul-and detour-roads and work mobilization site developments may be subject to the USACE regulatory requirements.
- Hazardous materials associated with construction equipment should be handled according to local, state, and federal regulations in order to minimize the risk of spills and leaks and subsequent impacts to surface and groundwater resources.
- Unusable equipment, debris and material shall be disposed of in an approved manner and location. The Applicant shall handle, manage, and dispose of petroleum products, hazardous materials and/or toxic waste in accordance with all local, state, and federal agency requirements. All documentation pertaining to these activities should be forwarded to the State and FEMA as part of the permanent project files.
- The Applicant is responsible for complying with the TSCA Section 402(c) requirements. All documentation pertaining to these activities should be forwarded to the State and FEMA as part of the permanent project files.
- If any asbestos containing materials and/or other hazardous materials are found during remediation or repair activities, the Applicant shall comply with all federal, state and local abatement and disposal requirements under the NESHAP and LAC 33:III 5151. Demolition activities related to Possible Asbestos-Containing Materials (PACM) must be inspected for ACM/PACM where it is safe to do so. Should asbestos containing materials (ACM) be present, the Applicant is responsible for ensuring proper disposal in accordance with the previously referenced Administrative Orders. Demolition activity notification must be sent to the LDEQ before work begins. All documentation pertaining to these activities should be forwarded to the State and FEMA as part of the permanent project files.

- All demolition and renovation activities must be coordinated with the LDEQ prior to initiating work. All documentation pertaining to these activities and Applicant compliance with any conditions should be forwarded to the State and FEMA for inclusion in the permanent project files.

## **7.0 PUBLIC INVOLVEMENT AND AGENCY COORDINATION**

FEMA is the lead federal agency for conducting the NEPA compliance process for this Environmental Assessment and FEMA Public Assistance grant funded project. It is the responsibility of the lead agency to conduct the preparation and review of NEPA documents in a way that is responsive to the needs of the parish communities while meeting the spirit and intent of NEPA and complying with mandated provisions. As part of the development of early interagency coordination related to the proposed action, state, and federal resource protection agencies were contacted and FEMA distributed an informal scoping notification through a Solicitation of Views.

These agencies include the State Historical Preservation Officer, U. S. Fish and Wildlife Service, Louisiana Department of Wildlife and Fisheries, the Governor's Office of Homeland Security and Emergency Preparedness, Louisiana Department of Environmental Quality, U. S. Environmental Protection Agency, Louisiana Department of Natural Resources, and U. S. Army Corps of Engineers. FEMA has received no objections to the project as proposed subsequent to these notifications, and comments and conditions received have been incorporated.

In accordance with applicable local, state, and federal regulations, the Applicant would be responsible for acquiring any necessary permits prior to commencing construction at the proposed project site. FEMA has invited the public to comment on the proposed action during a fifteen (15) day comment period. A public notice will be published for five (5) days in the local newspaper, The Times-Picayune, announcing the availability of this draft PEA for review at the Orleans Parish Main Library at 219 Loyola Avenue, New Orleans, LA, 70112. A copy of the Public Notice is attached in Appendix D.

## **8.0 LIST OF PREPARERS**

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