Draft Environmental Assessment

City of New Orleans Drainage Pump Station 01

Watershed Drainage Upgrades and Green Infrastructure Project for Broadmoor, Central City, Garden District, Lower Garden District, Irish Channel, St. Thomas Development, Touro, East Riverside, and Milan

FEMA-1603-DR-LA
New Orleans, Orleans Parish, Louisiana
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U.S. Department of Homeland Security
Federal Emergency Management Agency, Region VI
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LIST OF ACRONYMS AND ABBREVIATONS

ac.	Acre(s)
ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-Containing Materials
ACRES	Assessment, Cleanup and Redevelopment Exchange System
a.k.a.	Also known as
Ave.	Avenue
BFE	Base Flood Elevation
Blvd.	Boulevard
BMP	Best Management Practice
C&D	Construction & Demolition
CAA	Clean Air Act
CAP	Corrective Action Plan
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resource System
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CF	Cubic Feet
CFS	Cubic Feet Per Second
CFR	Code of Federal Regulations
CH^4	Methane
CMD	Coastal Management Division
CNO	City of New Orleans
CO	Carbon Monoxide
CO^2	Carbon Dioxide
COC	Constituents of Concern
CO^2e	Carbon Dioxide Equivalent
CPRA	Coastal Protection and Restoration Authority
CUP	Coastal Use Permit
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dBA	Decibels on A-Weighted Scale
DFIRM	Digital Flood Insurance Rate Map
DHS	Department of Homeland Security
DNL	Day-Night Average Sound Level
DPS 01	Drainage Pump Station 01
DPW	City of New Orleans Department of Public Works
EA	Environmental Assessment
EDMS	Electronic Document Management System (LDEQ)
EIS	Environmental Impact Statement
E.O.	Executive Order
ESA	Endangered Species Act/Environmental Site Assessment
ESTO	Eastern Shawnee Tribe of Oklahoma
FEMA	Federal Emergency Management Agency
FEMA-EHP	Federal Emergency Management Agency Environmental Historic Preservation

FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FR	Federal Register
Ft.	Foot/feet
GHG	Greenhouse Gases
GI	Green infrastructure
GNO	Greater New Orleans
GNO, Inc.	Greater New Orleans, Inc.
GOHSEP	Louisiana Governor's Office of Homeland Security and Emergency Preparedness
GSRC	Gulf South Research Corporation
H&H	Hydrologic and Hydraulic
HDPE	High-Density Polyethylene
HMGP	Hazard Mitigation Grant Program
HMTA	Hazardous Materials Transportation Act
HSDRRS	Hurricane Storm Damage Risk Reduction System
HUD	Department of Housing and Urban Development
ICIS-AIR	Integrated Compliance Information system for Air
in.	Inch(es)
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
JIRR	Joint Infrastructure Recovery Program
LA	Louisiana
LAC	Louisiana Administrative Code
LADOTD	Louisiana Department of Transportation and Development
LBP	Lead-Based Paint
LCRP	Louisiana Coastal Resources Program
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LDWF	Louisiana Department of Wildlife and Fisheries
LF	Linear foot/feet
LONO	Letter of No Objection
LPDES	Louisiana Pollutant Discharge Elimination System
LUST	Leaking Underground Storage Tank
mi.	mile(s)
MS4	Municipal Separate Storm Sewer System
NAAQS	National Ambient Air Quality Standards
NAVD88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act of 1969
NFA	No Further Action
NFIP	National Flood Insurance Program
NGVD29	National Geodetic Vertical Datum of 1929
NHPA	National Historic Preservation Act of 1966
NMFS	National Marine Fisheries Service
NOMTCB	New Orleans Mosquito, Termite, and Rodent Control Board
NPDES	National Pollutant Discharge Elimination System
NPL	Superfund
NPS	National Park Service
NO^2	Nitrogen Dioxide
N^2O	Nitrous Oxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory

O^3	Ozone
OCM	Office of Coastal Management
OPA	Otherwise Protected Area
OSHA	Occupational Safety and Health Administration
PA	Public Assistance
Pb	Lead
PCB	Polychlorinated Biphenyls
PEA	Programmatic Environmental Assessment
PL	Public Land
$PM_{2.5}$	Particulate Matter < 2.5 microns
PM_{10}	Particulate Matter > 2.5 microns and < 10 microns
ppm	Parts Per Million
RCP	Reinforced Concrete Pipe
RCPA	Reinforced Concrete Pipe Arch
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Consideration/Recognized Environmental Conditions
RECAP	Risk Evaluation/Corrective Action Program
RHA	Rivers and Harbors Act
ROI	Region of Influence
ROW	Right-of-way
SARA	Superfund Amendments and Reauthorization Act
SF	Square Foot
SFHA	Special Flood Hazard Area
SLFPA-E	Southeast Louisiana Flood Protection Authority Board – East
SNO	Seminole Nation of Oklahoma
SO^2	Sulfur Dioxide
Soil SSni	Screening Standard for non-industrial land use
SOV	Solicitation of Views
SOW	Scope of work
Sq. mi.	Square mile(s)
SRIA	Sandy Recovery Improvement Act
SSA	Sole Source Aquifer
St.	Street
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
SWBNO	Sewerage and Water Board of New Orleans
TSCA	Toxic Substances Control Act
Ub	Urban lands
USACE	U.S. Army Corps of Engineers
U.S.C	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VRP	Voluntary Remediation Program
WOTUS	Waters of the U.S.
WQA	Water Quality Act of 1987
Yr	Year(s)

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 (LA), Mississippi, and Alabama Gulf Coasts on August 29, 2005. Maximum sustained winds at landfall were estimated at 140 miles per hour. President George W. Bush declared Hurricane Katrina a major disaster for the State of LA and signed a disaster declaration (Federal Emergency Management Agency [FEMA]-1603-DR-LA) on August 29, 2005, authorizing the Department of Homeland Security's (DHS) FEMA to provide Federal assistance in designated areas of LA. FEMA is administering this disaster assistance pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Public Land (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.

The City of New Orleans (CNO) (City), the sub-recipient, through the State of Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) (Applicant), applied for funding under FEMA's HMGP for a stormwater mitigation project within the watershed of Drainage Pump Station 01 (DPS 01).

This draft Environmental Assessment (EA) is being prepared in accordance with FEMA Instruction 108-1-1 and DHS Instruction 023-01-001-01, pursuant to Section 102 of the National Environmental Policy Act of 1969 (NEPA), as implemented by Title 40 of the Code of Federal Regulations [CFR], Parts 1500-1508 (40 CFR 1500-1508), promulgated by the President's Council on Environmental Quality (CEQ). The purpose of this draft EA is to evaluate the potential impacts of the proposed action on the physical and human environment. FEMA is also using the EA to document compliance with other applicable federal laws, regulations, and Executive Orders (E.O.), including the Clean Water Act (CWA), the Clean Air Act (CAA), the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), E.O. 11988 (Floodplain Management), E.O. 11990 (Wetland Protection), and E.O. 12898 (Environmental Justice). The results of this EA will be used to decide whether to initiate preparation of an Environmental Impact Statement (EIS) or to prepare a Finding of No Significant Impact (FONSI).

1.2 Project Location

The CNO is in Orleans Parish, in southeast LA. Orleans Parish covers an area of approximately 350 square miles (sq. mi.), of which approximately 180 sq. mi. (approximately 51.5 percent (%)) is land; the remaining 170 sq. mi. (approximately 48.5%) is open water. Orleans Parish is bordered by St. Tammany Parish to the north, St. Bernard Parish to the east, Plaquemines Parish to the south, and Jefferson Parish to the west (Figure 1). Orleans Parish had approximately 376,738 residents in 2015, according to estimates by the U.S. Census (U.S. Census Bureau 2010).

The CNO is located approximately 70 miles (mi.) from Baton Rouge and approximately 105 mi. upriver from the Gulf of Mexico; zip codes include 70113, 70115, 70125, and 70130. The DPS 01 Watershed Drainage Upgrades and Green Infrastructure Project Study Area (Study Area) covers approximately 1,546 acres (ac.) in the CNO (Figure 2).

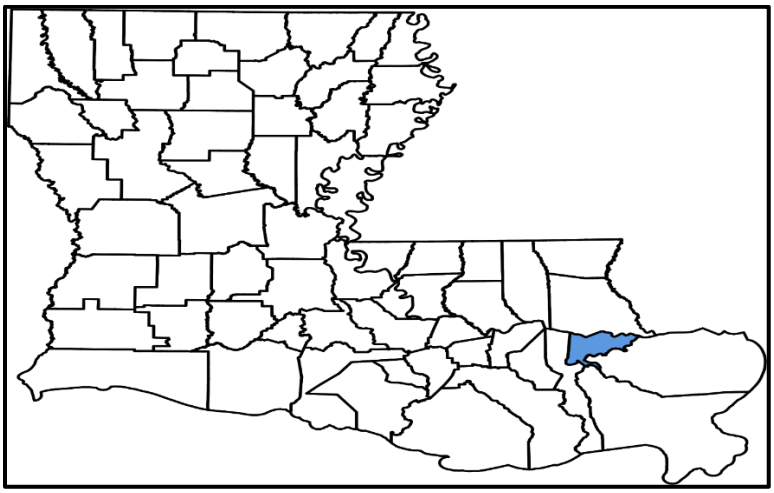

Figure 1. Location of Orleans Parish, LA

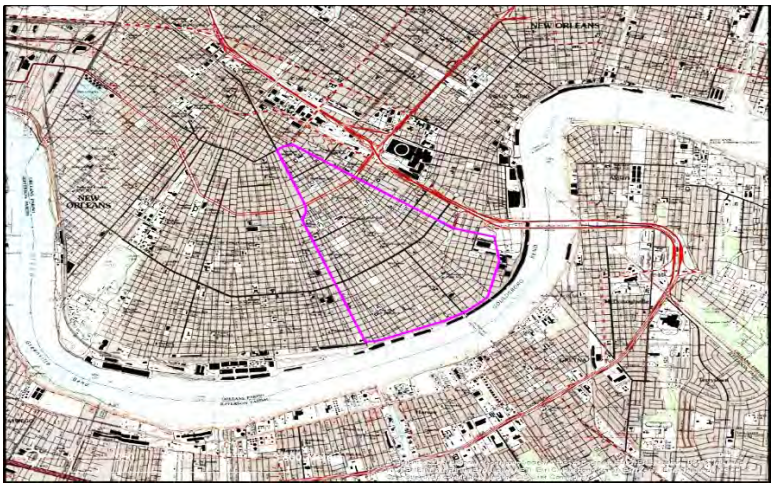

Figure 2. Location of the DPS 01 Project Study Area

The Study Area is generally bounded by Martin Luther King, Jr. Boulevard (Blvd.) and Melpomene Street (St.) to the northeast, South Broad St. to the northwest, Louisiana Avenue (Ave.) and Toledano St. to the southwest, and Tchoupitoulas St. to the southeast along the Mississippi River. Neighborhoods in the Study Area include Broadmoor, Central City, Garden District, Lower Garden District, Irish Channel, St. Thomas Development, Touro, East Riverside, and Milan.

The Study Area includes single- and multi-family residential properties, commercial property along the major thoroughfares, and some light industrial property along the north side of Tchoupitoulas St. There are a number of historic homes in the Study Area.

1.3 Background

The average annual rainfall in New Orleans is 63.5 inches (in.) (U.S. Climate Data 2018). In addition to hurricanes and tropical storms, heavy rain events are common, and portions of the Study Area are subject to flooding during these heavy rainfall events. When residents refer to the City as shaped like a bowl, the Study Area is considered to be the bottom of that bowl. Stormwater makes its way over land and through the subsurface drainage system to the Study Area before being pumped from DPS 01 via a canal to Lake Pontchartrain. DPS 01 is operated by the Sewerage and Water Board of New Orleans (SWBNO).

Residents and business owners in the Study Area are susceptible to repetitive flooding that causes damage to properties. For example, water consistently pools in the area along Third St. adjacent to Taylor Park and

undermines the sidewalk. The storm drainage system, which collects water from approximately five (5) sq. mi. in SWBNO's uptown drainage basin, regularly becomes overwhelmed by stormwater runoff that originates on higher land near the Mississippi River. During heavy downpours, when the system is overwhelmed and cannot accept stormwater runoff at the rate at which it is entering the system, the water pools in the streets, impacting travel on local and major streets and inundating homes and businesses.

The system becomes overwhelmed largely as the result of two (2) issues: 1) the subsurface drainage below the local smaller streets has been shown through modeling to be undersized for the amount of stormwater that drains to DPS 01 on Broad St. (CNO 2014); and 2) there is a tremendous amount of stormwater that originates upstream on land sloping downwards from the Mississippi River. The result is long lead times between when the water hits the streets in the Study Area and when it can drain into the system, which causes water to accumulate in the streets and properties.

Several reports and a Federal consent decree have led to a commitment to new approaches for urban water management. In 2010, the State of Louisiana's Office of Community Development, Disaster Recovery Unit, funded Greater New Orleans, Inc. (GNO, Inc.) to develop a comprehensive, integrated, and sustainable water management strategy for St. Bernard Parish and the east bank areas of Orleans and Jefferson Parishes using Federal Community Development Block Grant Disaster Recovery funds from the Department of Housing and Urban Development (HUD). The study was developed over the course of two (2) years by Waggonner & Ball Architects and a team of local and international, including Dutch, water management experts (Waggonner & Ball Architects 2013). The outcome was the *Greater New Orleans Urban Water Plan*, a vision for long term urban water management in the 21st century. The Urban Water Plan provides a roadmap for better management of flood and subsidence threats, while creating economic value and enhancing quality of life.

This plan seeks to work in tandem and create multiple lines of defense with the region's levee system and LA's 2012 Coastal Master Plan. The Urban Water Plan describes numerous opportunities for water storage in New Orleans and its environs. Space for both small-scale distributed interventions, like stormwater best management practices (BMPs), and larger-scale water storage solutions necessary to address the severe flooding problem can be found at least in the following spaces:

- Vacant and blighted properties
- Existing parks
- Streets and neutral grounds (medians)
- Rights-of-way (ROW) along major infrastructure
- Brownfields (polluted industrial properties that have been abandoned)

The vision of the Urban Water Plan is not a single solution. It is a long-term strategy that identifies short-term and long-term projects that can be repeated and incrementally distributed throughout the region. Some solutions can be implemented immediately and produce immediate benefits, and others can be rolled out over time.

In 2014, as a requirement in response to a consent decree with the U.S. Environmental Protection Agency (USEPA), SWBNO developed and published a *Green Infrastructure Plan*, committing to add new green infrastructure (GI) components to the existing stormwater drainage system, which consists of 24 pump stations and over 90 mi. of open canals. GI plans and policies focus on the use of BMPs to delay, retain, and reuse stormwater, while mitigating flooding, lessening the burden on the drainage system, and improving water quality (SWBNO 2014).

In addition to and building on the Urban Water Plan and the SWBNO's *Green Infrastructure Plan*, the *Orleans Parish, LA, 2015 Hazard Mitigation Plan Update*, an update of the 2010 plan, included updated goals and an updated Mitigation Action Plan. Goal No. 1 is "Reduce Risk and Vulnerability to the Human Environment including cultural resources, homeowners, renters, visitors, and transient populations." Two (2) of the mitigation action items under Goal No. 1, included in both the 2010 Hazard Mitigation Plan and the 2015 Plan Update include the following:

- Action No. 1 – Plan to install rain gardens, stormwater runoff filtration, and water retention systems along streets to reduce subsidence and flooding. Develop and advocate the necessary site design and landscape standards for streets, neighborhoods, and building sites.
- Action No. 11 – Plan to improve drainage infrastructure through measures in high flood risk areas including, but not limited to, the upgrade and improvement of culvert design and construction, retention and detention areas.

2.0 PURPOSE AND NEED

FEMA's HMGP provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.

The flood problems experienced in the Study Area are well-documented. In some cases, the drainage infrastructure servicing the Study Area is over 100 years old. It was designed for less development-significantly different infrastructure conditions. The level of development that has occurred in the Study Area has overstressed the storage and conveyance capacity of the existing stormwater infrastructure.

The stormwater infrastructure consists of an underground piping network that was originally designed for a 2-year (yr) frequency flood event, and degradation of the pipe collection system has further reduced the system's capacity to protect to the 2-yr level. Depending on the storm event, both localized street flooding and property damage were recurring neighborhood problems prior to the hurricanes of 2005. Since Hurricanes Katrina and Rita, flooding issues have received even higher scrutiny as neighborhood redevelopment is being encouraged. Small recurring flood problems are now seen in a much different context.

The Study Area has been subject to repetitive, significant flood events causing damage to residential and commercial properties. The purpose of the proposed project is to protect residential and commercial properties in the Study Area through improved stormwater management. The need is to reduce the risk of future flooding within the area and reduce the FEMA flood damage claims experienced during and after events. CNO is proposing to upgrade infrastructure to mitigate a 10-yr stormwater event.

3.0 ALTERNATIVES

The NEPA process consists of an evaluation of the environmental effects of a federal undertaking, including alternatives. The DPS 01 Watershed Drainage Upgrades and Green Infrastructure Project incorporates the following elements for managing stormwater:

- Stormwater parks and lots
- Street basins
- Pervious intersections, parking, and sidewalks
- Stormwater drainage upgrades
- Road reconfigurations with bioswales

Additional information on the elements to be used to manage stormwater is included in Section 4.0, Stormwater Management Elements to be Constructed. Three (3) alternatives are proposed for the Study Area: 1) the Full Build-Out Alternative, 2) the Limited Build-Out Alternative (Proposed Action), and 3) the No Action Alternative.

The Full Build-Out Alternative and the Limited Build-Out Alternative differ only in the total number of construction activities and not in the types of construction activities. The No Action Alternative is presented as required by CEQ regulations and forms the baseline against which the other alternatives are compared.

3.1 Full Build-Out Alternative

This alternative was developed based on recommendations from the Broadmoor Drainage Upgrades and Green Infrastructure Project draft reports developed by CDM Smith in January 2016 (CDM Smith 2016a) and August 2016 (CDM Smith 2016b).

The project would be located within a "slice" along New Orleans' Mississippi River crescent and includes the neighborhoods of Central City, Broadmoor, the Garden District and Lower Garden District, St. Thomas Development, Touro, East Riverside, and Milan.

The project area covers approximately 1,546 ac. within the City. It is generally bounded by South Broad St. and Toledano St. to the northwest, at Latitude and Longitude: (29.950844, -90.100684), Martin Luther King, Jr. Blvd. and South Broad St. to the northeast (29.951754, -90.098218), Melpomene St. and Tchoupitoulas St. to the southeast (29.936197, -90.066650) and Toledano St. and Tchoupitoulas St. to the southwest (29.918524, -90.085360), along the Mississippi River (see Figures 2 and 3).

The Full Build-Out Alternative would improve stormwater drainage, increase floodplain storage capacity, and mitigate hazards and damages from local flooding of homes and businesses. The Full Build-Out Alternative is a comprehensive approach to managing stormwater runoff in the Study Area by implementing drainage upgrades and using GI, where possible, to collect, store, treat, infiltrate, and reduce runoff. The elements to be included in the Full Build-Out Alternative would include the following:

- Seven (7) stormwater parks
- 145 stormwater lots
- 165 street basins
- 45 pervious intersections, parking, and sidewalks
- 36 stormwater drainage upgrades
- 11 road reconfigurations with bioswales

These elements are connected hydraulically and/or hydrologically to effectively reduce the risk of damage to public and private property resulting from high-intensity rain events that frequently occur in the city. This system of GI elements distributed across the Study Area tied to and combined with selected upgrades to the existing stormwater drainage system would work collectively to reduce the risk of local flooding. Together, these elements would temporarily collect and store stormwater runoff, allowing water to infiltrate into the soil below or drain into the stormwater collection system, reducing the flooding within the Study Area. An added benefit from some of the proposed elements is the reduced level of pollutants in the stormwater runoff that is discharged to Lake Pontchartrain. When these alternatives were modeled by the CNO, it was realized that they could be disruptive and invasive to soils underlying local homes and businesses and were not needed to meet the purpose and need for the Proposed Action. They were thereby eliminated from further consideration. The Plans and Specifications of the eliminated full build out can be sent upon request.

3.2 Limited Build-Out Alternative (Proposed Action)

This alternative was developed based on recommendations from the DPS 01 Watershed Drainage Upgrades and Green Infrastructure Project Phase I Preliminary Design Report prepared by CDM Smith, dated November 15, 2017 (CDM Smith 2017) (Appendix B). All elements listed in Section 3.1 and described in detail in Section 4.0 apply to the Proposed Action; however, the Proposed Action includes fewer projects than the Full Build-Out Alternative. The Final Proposed Action is based on the 100% design final plans from CNO, dated June 2019, and revised February 2020, and the DPS 01 Watershed (old Broadmoor HMGP) Drainage Upgrades and Green Infrastructure Project – Scope of Work (SOW) (Phase II Revisions and Memorandum) by CDM Smith, dated March 10, 2020, and updated October 11, 2022 (CDM Smith 2020) (Appendix B).

The Proposed Action covers the same geographic area and is an abbreviated version of the Full Build-Out Alternative described in Section 3.1 above. CNO's current Proposed Action is now entitled DPS 01 Watershed Drainage Upgrades and Green Infrastructure. The specific elements included in the Proposed Action include the following:

- Six (6) stormwater parks
- Two (2) stormwater lots
- Eight (8) stormwater drainage (pipe) upgrades associated with stormwater parks
- Eight (8) green intersections with street basins and eight (8) pervious crosswalks
- Pervious pavement along three (3) blocks of Annunciation St.

- Road reconfigurations with bioswales

The DPS 01 Watershed Drainage Upgrades and Green Infrastructure Project is a two-phased implementation approach to reduce flooding, particularly in the Broadmoor and Central City Neighborhoods, and to implement GI features in the stormwater drainage system to reduce runoff and create and enhance public landscape and park amenities. This would be accomplished by upgrading the City's stormwater drainage infrastructure with green storage, infiltration, and filtration landscape features along with pipe and street upgrades. Storage would be added throughout the system to create a cascading effect that stores and detains runoff. The Project also includes water and sewer improvements that are impacted by the stormwater improvements. CNO is working closely with the SWBNO on the planning and implementation of this Proposed Action.

The CNO has divided this project into two phases of construction. Rather than Phase 1 being Design and Phase 2, Construction, as FEMA/GOHSEP identifies these, the project's phases are described as follows:

- Phase 1 is the construction of mainly parks and stormwater lots. There would be some street work, but not the focus of the work, and
- Phase 2 is the construction of mainly streets and corner street basins. There would also be a park and a square, but not the focus of the work.

The Proposed Action is also linked along the boundary of other projects underway by the City of New Orleans Department of Public Works (DPW), for their Roadway and Joint Infrastructure Recovery Program (JIRR) under the Sandy Recovery Improvement Act (SRIA) and Phase III Recovery Roads Project (see Figure 3). FEMA-EHP issued a FONSI signed on June 16, 2016, for the Programmatic EA (PEA) entitled "The City of New Orleans Sewerage and Water Board of New Orleans JIRR Project". Over 200 Records of Environmental Consideration (REC) have been issued for JIRR work in the CNO, nearly 10 for the Broadmoor area, in Groups A-E were reviewed and cleared under the PEA. Additional JIRR projects are forthcoming in ongoing plans to improve CNO streets and drainage systems. The purpose of these JIRR projects is to repair damages sustained due to Hurricane Katrina to roads, minor drainage lines, water lines, and sewer lines, and other incidentals associated with and for the proper implementation of the planned infrastructure repairs in accordance with the DPW and SWBNO standards, within the incorporated limits of the City and restore this infrastructure to its pre-storm function and condition.

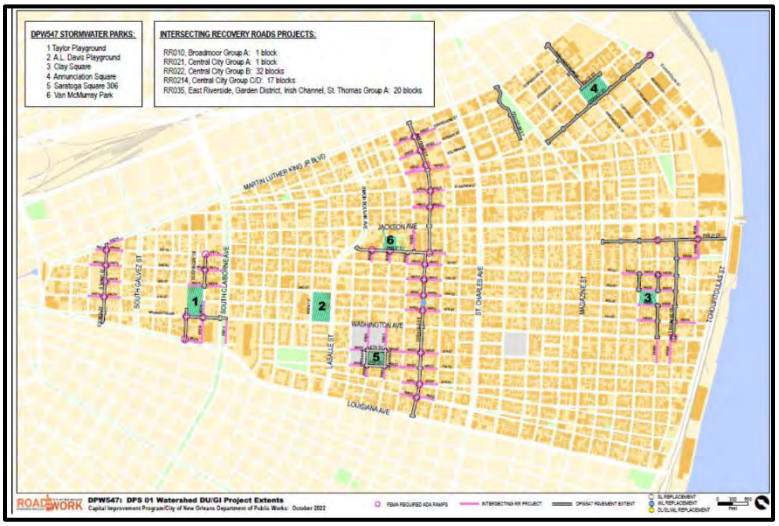

Figure 3. Illustration of the Scope of Work for DPS 01 Watershed adjacent to the Scope of Work for the FEMA PA Joint Infrastructure Recovery Roads (JIRR)

At the locations shown, the scope under the FEMA Public Assistance (PA) program would be constructed under the Broadmoor HMGP project with PA funds. Locations for patch, mill and overlay are shown in the map in blue, and locations for reconstruction are shown in green. Locations with concrete panel replacement are shown in red.

In areas where the HMGP improvements intersect with the FEMA PA street repairs, there are two scopes in the same geographic location. For example, the Complete Streets scope shown in Figure 3is co-located with the PA scope under JIRR project RR035. The PA scope includes patching, milling, and overlay, whereas the HMGP scope requires complete reconstruction. It would not be desirable to patch, mill, and overlay the intersection of 2nd St. and St. Thomas under the PA scope, and then reconstruct the intersection under the HMGP scope. The proposed approach would construct the HMGP scope as shown in Figure 3 and identify on the plans those construction quantities that are equal to the PA scope. HMGP funds would be used to reimburse the City for the full HMGP Complete Streets scope, minus the PA scope and quantities.

3.2.1 Stormwater Parks and Lots

As part of this project, several playgrounds and other City owned properties would be redeveloped with subsurface GI utilities following FEMA's HMGP guidelines. This work involves the excavation and disposal of soil from each of the playgrounds/properties. Several of these playgrounds have been previously investigated and mitigated for lead contamination in near-surface soil, as needed based on the HUD guidelines. See Section 5.15 Hazardous and Toxic Materials for additional discussion of soil testing and remediation.

Stormwater parks and lots included in the Proposed Action are shown on Tables 1 and 2, respectively, and Figures 4 through 9. Parks and lots would be used to detain stormwater and allow it to slowly infiltrate into the soil to recharge groundwater or be slowly released into the City's drainage system. After the stormwater storage areas are constructed, lots would be replanted, and park area features would be reconstructed and planted so the parks would return to similar or improved conditions. Photograph 1 shows a completed example stormwater lot.

Table 1: Proposed Action Stormwater Parks Summary

Stormwater Park	Footprint Area (Square Feet)	Storage Volume (Cubic Feet)
Taylor Playground	93,950	301,985
A.L. Davis Playground	61,825	248,040
Clay Square (Burke Playground)	22,265	103,805
Annunciation Square	52,940	253,780
Van McMurray	75,400	142,000
Saratoga Square	78,400	121, 415
Total	**384,780**	**1,171,025**

Source: CDM Smith 2017 and March 2020 Memorandum

Table 2: Proposed Action Stormwater Lots Summary

Stormwater Lots	Footprint Area (Square Feet)	Storage Volume (Cubic Feet)
Lot 2: 3621 3rd St. & 3623 3rd St. (combined)	7,050	12,170
Lot 6: 3200 Jackson Ave.	8,250	26,805
Total	**15,300**	**38,975**

Each park and what they would encompass is further detailed below.

3.2.1.1 Taylor Playground

Taylor Playground is bounded by Washington Ave., South Roman St., Third St., and South Derbigny St. See Figure 4 location map below.

Figure 4. Taylor Playground Stormwater Park Location Map

Regarding Subsurface Tank Design, the Taylor Playground would be a Stormwater Park with a total provided capacity of 288,800 cubic feet (CF). The existing field would see improvements through added subsurface storage that would detain stormwater. Below the park's playing surface, an underground system of double layer of modular tanks would hold stormwater until it is either redirected back into the drainage system or infiltrates into the ground. See Figure 5 below. The Stormwater Park section is a profile which includes:

- Minimum of eight (8) in. of bioretention media (30% void space)
- Four (4) in. of double washed No. 8 stone (40% void space)
- Minimum of 12 in. of double washed No. 57 stone (40% void space)
- Double layer of 18-in. modular tanks (95% void space)
- Six (6) in. of No. 57 stone base course
- Six (6) in. of river sand subbase leveling course

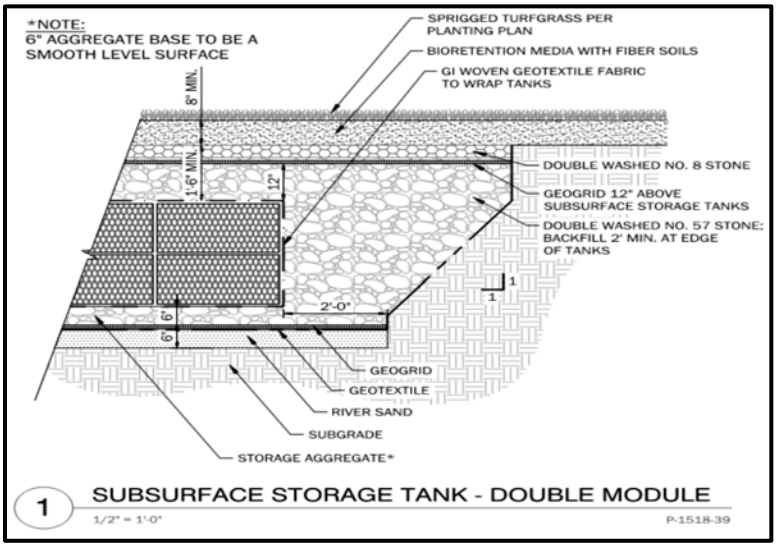

Figure 5. Typical Cross Section of Proposed Subsurface Storage Tank at Taylor Park

The site would be improved by raising the sidewalk six (6) in. and replaced with standard concrete sidewalk since it is currently the lowest point between the street and the existing park. The site would also see improvements through the addition of 460 square feet (SF) of permeable pavers and subsurface storage aggregate adjacent to the curb to allow for more storage and possible infiltration. The subsurface storage beneath the sidewalk would hold 9,345 CF of stormwater runoff. See Figure 6 below for a typical cross section of the proposed improvements.

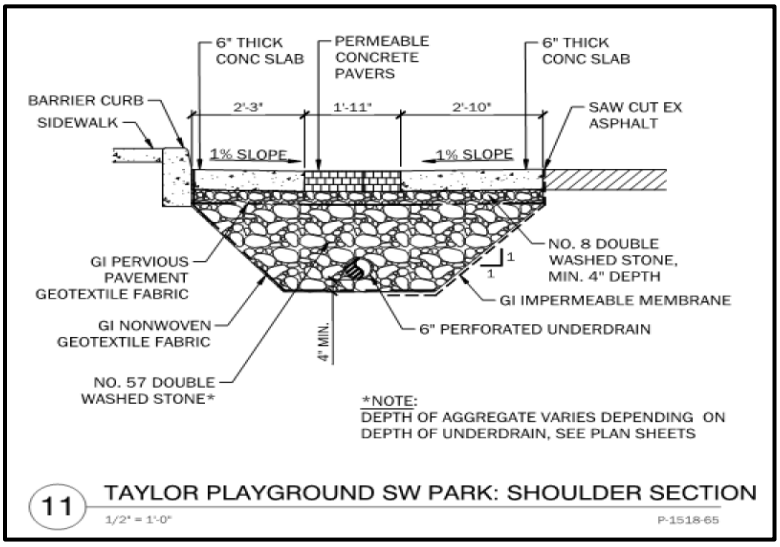

Figure 6. Typical Cross Section of Proposed Shoulder Section at Taylor Park

Taylor Park would have two (2) inlets directing stormwater into its subsurface storage tanks. The first inlet is located along Washington Ave. Flow from Washington's upgraded 30-in. reinforced concrete pipe (RCP) would enter a baffle box which prevents sediment and trash from entering the subsurface storage area. From there, a 30-in. high-density polyethylene (HDPE) pipe with check valve would guide flow into a 7-feet (ft.) 3-in. by 100-ft. enhanced section of three (3) layers of storage modules to allow for pipe attachment and the distribution of water through the subsurface storage aggregate. Stormwater enters the park through the Washington inlet at a peak flow of approximately 68 cubic feet per second (CFS) during a 10-yr design storm.

The second inlet is located near the corner of S. Derbigny St. And Third St. A new manhole added into S. Derbigny' s upgraded 30-in. RCP would direct stormwater into an 8 ft. by 14 ft. baffle box that flows into a 30-in. HDPE pipe accompanied by a check valve conducting flow into the park. A 7.3 ft. by 87-ft. enhanced section of three (3) layers of storage modules would be built at the inlet to allow for pipe attachment and the distribution of water through the subsurface storage aggregate. Stormwater enters the park through the S. Derbigny inlet at a peak flow of approximately 66 CFS during a 10-yr design storm.

The outlet pipe is located along S. Roman St. A 15-in. HDPE pipe carries the flow from the park's storage area to a new manhole with orifice and weir structure to limit flow out of the storage area within the park's boundary. From there, a 15-in. RCP carries the stormwater flows into another manhole added to S. Roman's upgraded 42-in. arch pipe to re-enter the drainage system. Stormwater exits the park through the S. Roman outlet at a peak flow of approximately 12 CFS during a 10-yr design storm.

The field would be planted with Celebration Bermuda turf grass, a drought-tolerant species that would create a highly durable playing surface with a sandy soil profile to reduce standing water from the surface. The playground's existing backstop and bleachers would also be relocated to optimize space.

3.2.1.2 A.L. Davis Playground

The A.L. Davis Playground is located on the corner of LaSalle St. and Washington Ave. See location map in Figure 7.

Figure 7. A.L. Davis Playground Stormwater Park Location Map

The A.L. Davis would be a Stormwater Park with a total provided capacity of 250,105 CF. The existing play area would be upgraded to a high-performance field with a subsurface tank design for detaining stormwater runoff in the subsurface of the field. Below the surface, an underground system with three (3) layers of modular tanks would detain stormwater until it is either directed into the drainage system or infiltrates.

The Stormwater Park section is a profile which includes:

- Minimum of eight (8) in. of bioretention media (30% void space)
- Four (4) in. of double washed No. 8 stone (40% void space)
- Minimum of 12 in. of double washed No. 57 stone (40% void space)
- Three (3) layers of 18-in. modular tanks (95% void space)
- Six (6) in. of No. 57 stone base course
- Six (6) in. of river sand subbase leveling course

An internal baffle would be created with a low permeability synthetic membrane liner (geomembrane) so that stormwater would not short-circuit through the storage system. This baffle would increase the time of concentration in the modular tank section of the storage system by increasing the length of travel from 15 ft. to 600 ft.

Stormwater runoff would enter and exit the park through connections to the existing 9.6 ft. by 18.7-ft. drainage box culvert on Third St. Entering the park area from the drainage culvert, a 36-in. RCP directs flow into an 8-ft. by 14-ft. concrete baffle box which prevents sediment and trash from entering the subsurface storage area. From there, 36-in. HDPE pipes would guide flow into section of three (3) layers of storage modules and the distribution of water through the subsurface storage aggregate. Stormwater enters the park through the Third St. inlet at a peak flow of approximately 99 CFS during a 10-yr design storm.

The outlet pipe is an 18-in. HDPE pipe that exits into a manhole with orifice weir structure to limit flow out of the storage area near the park's perimeter on Third St. From the new manhole, an 18-in. RCP connects to the drainage box and reintroduces the stormwater back into the system. Stormwater exits the park through the Third St. outlet at a peak flow of approximately 27 CFS during a 10-yr design storm.

The field would be planted with Celebration Bermuda turf grass, a drought-tolerant species that would create a highly durable playing surface with a sandy soil profile to reduce standing water from the surface. The field would also see improvements from the demolition of unused concrete pads.

3.2.1.3 Clay Square (a.k.a. Burke Playground)

Clay Square, also referred to as Burke Playground, is bounded by Second St., Chippewa St., Third St., and Annunciation St. See Figure 8 location map below.

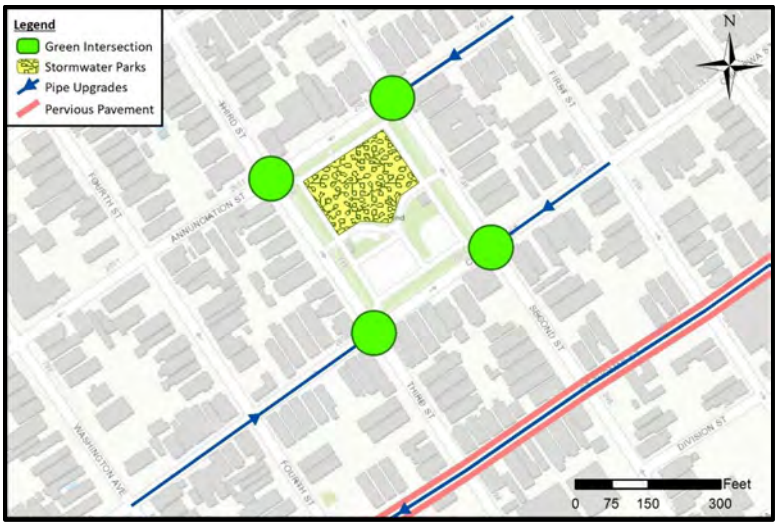

Figure 8. Clay Square Stormwater Park Location Map

Clay Square would be a Stormwater Park with a total provided capacity of 108,310 CF of stormwater detention volume. The existing field would be improved with subsurface storage for stormwater runoff. Below the surface, an underground system of three (3) layers of modular tanks which would hold stormwater until it either is directed into the drainage system or infiltrates into the ground. The Stormwater Park section is a profile which includes:

- Minimum of eight (8) in. of bioretention media (30% void space)
- Four (4) in. of double washed No. 8 stone (40% void space)
- Minimum of 12 in. of double washed No. 57 stone (40% void space)
- Three (3) layers of 18-in. modular tanks (95% void space)
- Six (6) in. of No. 57 stone base course
- Six (6) in. of river sand subbase leveling course

Manholes would be added to the two (2) existing 18-in. drainage pipes on Second St. near the intersection of Annunciation. The new manholes would include an orifice device to direct stormwater flow into the park. A new pipe would be added along Annunciation and Second to direct water flowing down First St. toward the stormwater park. The inlet pipe is a 30-in. RCP that exits the manhole on the park side of Second St. and into a 5-ft. by 10-ft. concrete baffle box which prevents sediment and trash from entering the subsurface storage area. From there, a 30-in. HDPE pipe would convey flow into the three (3) layers of storage modules. Stormwater enters the park through the Second St. inlet at a peak flow of approximately 68 CFS during a 10-yr design storm. The outlet pipe is a 12-in. HDPE pipe that exits the storage tank along Annunciation St.

A new manhole with orifice weir structure to limit flow out of the storage area near the park border before a 12-in. HDPE continues to a new manhole on Annunciation at the existing 10-in. drainage pipe. Approximately 115 ft. of the existing pipe would be replaced with a 15-in. RCP to the intersection with Third St. Stormwater exits the park through the Annunciation St. outlet at a peak flow of approximately 8 CFS during a 10-yr design storm.

The field would be planted with Celebration Bermuda turfgrass, a drought-tolerant species that would create a highly durable playing surface with a sandy soil profile to reduce standing water from the surface.

3.2.1.4 Annunciation Square

Next, Annunciation Square is bounded by Race St., Chippewa St., Orange St., and Annunciation St. Annunciation Square would be a Stormwater Park with a total provided capacity of 230,000 CF. With improvements to the existing playing field, the new detention area would hold stormwater runoff subsurface. See Figure 9 location map.

Figure 9. Annunciation Square Stormwater Park Location Map

Below the surface of Annunciation Square is an underground system comprised of three (3) layers of modular tanks, detain stormwater until it either is directed into the drainage system or infiltrates into the ground. The Stormwater Park section is a profile which includes:

- Minimum of eight (8) in. of bioretention media (30% void space)
- Four (4) in. of double washed No. 8 stone (40% void space)
- Minimum of 12 in. of double washed No. 57 stone (40% void space)
- Three (3) layers of 18-in. modular tanks (95% void space)
- Six (6) in. of No. 57 stone base course
- Six (6) in. of river sand subbase leveling course

Stormwater would enter the park from two (2) locations. The first inlet is located along Race St. A new manhole added to the upgraded 36-in. RCP on Race would lead into an 8-ft. by 14-ft. concrete baffle box which prevents sediment and trash from entering the subsurface storage area. From the box, a 36-in. HDPE pipe with a check valve would convey stormwater into the subsurface storage tank area. Stormwater enters the park through the Annunciation St. inlet at a peak flow of approximately 67 CFS during a 10-yr design storm.

The second inlet is located along Orange St. Near the intersection with Chippewa St. and is designed similarly to the other inlet and connecting into Orange St.'s upgraded equivalent 36-in. reinforced concrete pipe arch (RCPA). The manholes along Orange St. include an orifice/weir structure to divert water from the drainage system into the stormwater park. Stormwater enters the park through the Orange St. inlet at a peak flow of approximately 76 CFS during a 10-yr design storm.

The park's outlet is also along Orange St., downstream of the inlet. Stormwater would exit through a 15-in. HDPE pipe with a check valve into a new manhole with orifice weir structure to limit flow out of the storage area before continuing to Orange St.'s upgraded drainage lines by a 15-in. RCP. Stormwater exits the park through the Orange St. outlet at a peak flow of approximately 22 CFS during a 10-yr design storm.

The field would be planted with Celebration Bermuda turfgrass, a drought-tolerant species that would create a highly durable playing surface with a sandy soil profile to reduce standing water from the surface. Other improvements to the field include the demolition and reconstruction of existing perimeter sidewalks.

3.2.1.5 Van McMurray Playground

Next, Van McMurray Playground is located along Philip St. at the South Saratoga St. intersection and proposed to be converted to a Stormwater Park with a total provided underground storage capacity of 121,415 CF. The total site has a footprint of 78,400 SF, while the underground storage system covers 24,627 SF. See Figure 10 location map.

Figure 10. Van McMurray Playground Stormwater Park Location Map

The existing playground would see improvements through added subsurface storage that would detain stormwater. Below the park's playing surface, an underground system of a triple-layer of modular tanks would hold stormwater until it is either redirected back into the drainage system or infiltrates into the ground.

The Van McMurray Stormwater Park would include:

- Minimum of eight (8) in. of bioretention media (30% void space)
- Four (4) in. of double washed No. 8 stone (40% void space)
- Minimum of 12 in. of double washed No. 57 stone (40% void space)
- Three (3) layers of 18-in. modular tanks (95% void space)
- Six (6) in. of No. 57 stone base course
- Six (6) in. of river sand subbase leveling course

Van McMurray Park would have two (2) inlets directing stormwater into its subsurface storage tanks. The first inlet is located along Philip St. Flow from the Philip St. upgraded 36-in. RCP though a new manhole would enter a 6-ft. by 12-ft. concrete baffle box which prevents sediment and trash from entering the subsurface storage area. From there, a 30-in. HDPE pipe and check valve would guide flow into an 98,223 CF section of three (3) layers of storage modules to allow for pipe attachment and the distribution of water through the subsurface storage aggregate. Stormwater enters the park through the Philip St. inlet at a peak flow of approximately 42 CFS during a 10-yr 24-hour (hr) design storm.

The second inlet is located along Jackson Ave. A newly replaced manhole connected to the existing drainage along Jackson would direct stormwater into a 6-ft. by 12-ft. baffle box that flows into a 24-in. HDPE pipe accompanied by a check valve conducting flow into the park. The section of three (3) layers of storage modules would be connected to the inlet to allow for pipe attachment and the distribution of water through the subsurface storage aggregate. Stormwater enters the park through the Jackson Ave. inlet at a peak flow of approximately 35 CFS during a 10-yr 24-hr design storm.

The outlet pipe is located along Philip St. A 24-in. HDPE pipe carries the flow from the park's storage area to a new manhole with orifice weir structure to limit flow out of the storage area within the park's boundary. From there, a 24-in. RCP conveys the stormwater flows into a new manhole to re-enter the drainage system. Stormwater exits the park through the Philip St. outlet at a peak flow of approximately 20 CFS during a 10-yr 24-hr design storm. See Figure 11 for a cross section drainage and storage tank proposed for Van McMurray

Park.

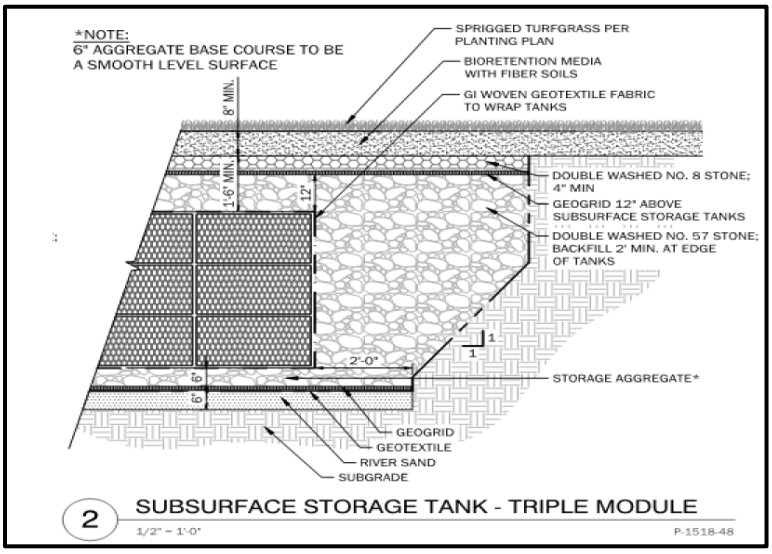

Figure 11. Van McMurray Park Proposed Cross Section Drainage and Storage Tank

The field would be planted with Celebration Bermuda turfgrass, a drought-tolerant species that would create a highly durable playing surface with a sandy soil profile to reduce standing water from the surface. The playground would also see most concrete sidewalks and surface removed and replaced with porous concrete sidewalks, a porous concrete basketball court, and permeable paver sidewalks.

3.2.1.6 Saratoga Square

Saratoga Square is an existing undeveloped block bounded by Loyola Ave., Sixth St., S. Saratoga St., and Seventh St. See Figure 12 for a location map.

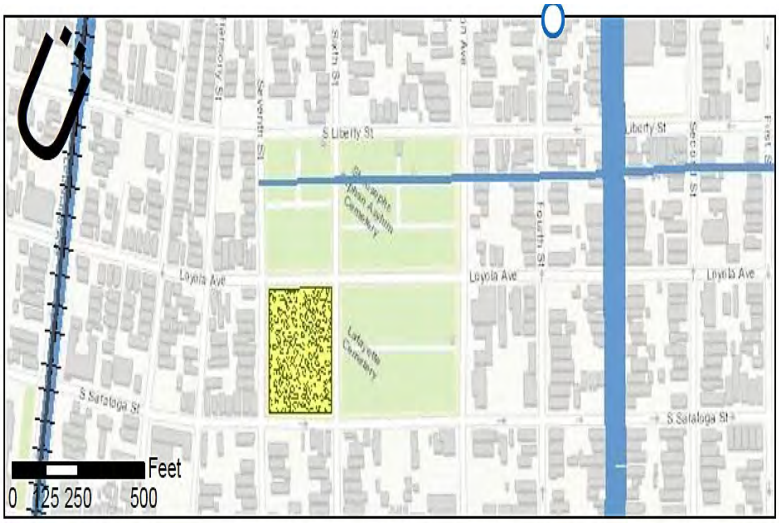

Figure 12. Saratoga Square Location Map (CDM 2020)

Saratoga Square would be a Stormwater Park with a total provided storage capacity of 142,000 CF with a footprint of 75,400 SF. Most of the storage is provided as surface detention. The site would be graded to create various detention areas intertwined with a walking pathway as shown in Figure 13. Grading would be at a 4:1 (H:V) maximum slope.

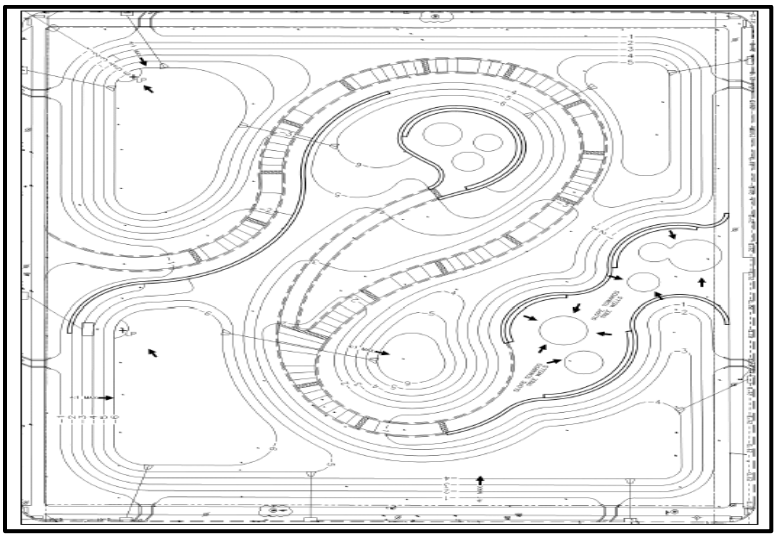

Figure 13. Saratoga Square Proposed Stormwater Park Grading Plan

Two (2) 34 SF installations of subsurface storage tanks are also included as part of the outlet section. Figure 14 shows a proposed profile of the Saratoga Square outlet section which includes:

- Eight (8) in. of bioretention media
- 12-in. layer of storage aggregate
- One (1) layer of 17-in. modular tanks
- Minimum three (3)-in. base course

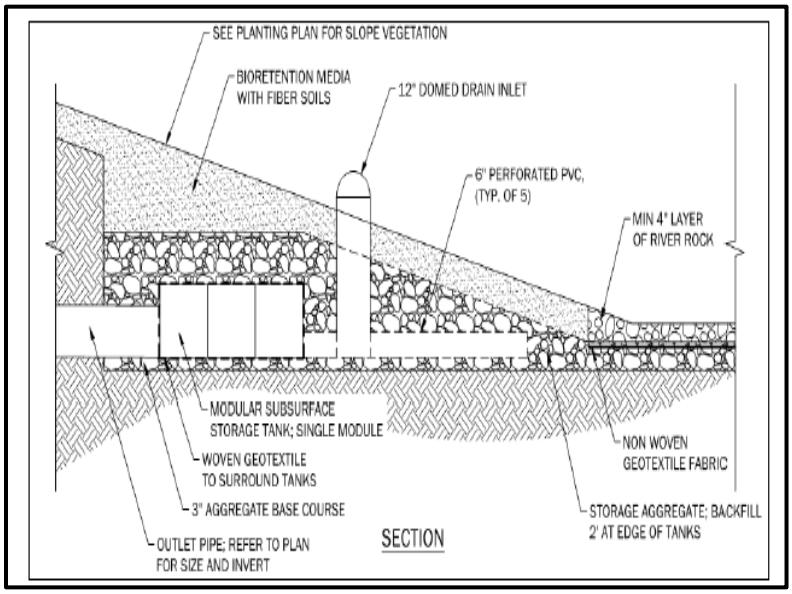

Figure 14. Saratoga Square Proposed Profile of the Outlet Section

Stormwater would enter the park through connections to existing drainage in one (1) location along Loyola Ave., two (2) locations along Sixth St., three (3) along S. Saratoga St., and one (1) along Seventh St. Each inlet brings flow from existing drainage through newly replaced catch basins. From the catch basins, a HDPE pipe leading to a HDPE flared end section carries the stormwater into detention basins within the park.

Stormwater would exit the park through connections to existing drainage at the corner of Seventh St. and Loyola Ave. and along Seventh St. Flow from within the detention areas would percolate through two (2) areas of exposed double washed river rock into two (2) separate modular tank areas. The tanks would empty into two (2)

15-in. HDPE pipes connected to newly replaced catch basins. The catch basins exit through an existing 21-in. drain line along Seventh St.

As water collects in the park, it can also enter two (2) 12-in. domed drain inlets once the max depth exceeds 2 ft. Once the max depth in the park reaches 5 ft., water in the park would equalize through runnels with flood depths in the surrounding area. A summary of the expected maximum inflows and outflows during a 10-yr, 24-hr storm are presented in Table 3.

Table 3: Saratoga Square 10-year / 24-hour Flow Summary

Path	Pipe Location	Pipe	Flow (CFS)
Inflow to Park	Loyola Ave.	1	11
Inflow to Park	Sixth St.	1	9.1
Inflow to Park	Sixth St.	2	7.8
Inflow to Park	South Saratoga St.	1	7.8
Inflow to Park	South Saratoga St.	2	8.4
Inflow to Park	South Saratoga St.	3	34.4
Inflow to Park	Seventh St.	1	11
Inflow to Park	-	-	**89.5 total**
Outflow from Park	Seventh St.	1	5.9
Outflow from Park	Seventh St.	2	5.9
Outflow from Park	-	-	**11.8 total**

The Saratoga Square field would be planted with Celebration Bermuda turfgrass, a drought-tolerant species that would create a highly durable playing surface with a sandy soil profile to reduce standing water from the surface. Tree species would include Swamp Red Maple, White Oak, and Bald Cypress. Shrub species would include Fortnight Lily, African Iris, Spider Lily, Pink Muhly Grass, and Dwarf Palmetto.

3.2.1.7 Stormwater Lots 2 and 6

Separately, two (2) Stormwater Lots that would act as open dry detention are planned for this project. The above ground storage is designed to have a 4:1 (H:V) slope. Stormwater would enter the lots via rainfall and an inlet pipe connected to the existing drainage system. Stormwater stored in the lot would eventually exit through infiltration or the designated outlet into the existing drainage system. Stormwater lots are located at:

- 3621 3rd St. and 3623 3rd St. parcels would be combined into a single Stormwater Lot with a total area of 7,050 SF. The combined area would have the capacity to detain 12,170 CF of stormwater (these are entitled Lot 2 from CNO 2017)
- 3200 Jackson Ave. is a Stormwater Lot with an area of 8,250 SF with a capacity of 26,805 CF to detain stormwater on the surface (entitled Lot 6 from CNO 2017)

Please see Figures 3-5 of Appendix A showing the locations of the stormwater lots planned in the Proposed Action, whereas Photograph 1 below depicts an example of a completed stormwater lot, like those proposed.

Photograph 1. An example of a completed stormwater lot

Stormwater lots would be individual residential lots designed to collect and detain stormwater runoff, thus reducing potential flooding of adjacent and downslope properties. They are designed to slow surface water flows during and immediately after a storm event. Stormwater lots may be composed of aggregated adjacent lots and CNO-owned properties that create larger areas to provide both stormwater detention functions and neighborhood park and recreation opportunities.

These stormwater management elements are described in further detail in Section 4.0.

3.2.2 Green Intersections

Green intersections include combinations of street basins and pervious crosswalks. The five (5) green intersections included in the Proposed Action and are shown in Figure 3. A total of 16 street basins and 16 pervious crosswalks, and five (5) subsurface storage tanks are included in the Proposed Action. Second and Third Streets would also have pervious crosswalks across Annunciation St. to add the ancillary benefit of heightening awareness of pedestrian traffic at the park through the use of colored pavers (CDM Smith 2022).

Per CDM Smith 2022 Phase I and II, there are two (2) intersections along Annunciation St. to be retrofitted with a combination of street basins, permeable paver crosswalks, and modular tank storage:

- Annunciation and Second: Four (4) corner street basins, four (4) crosswalks, subsurface storage with tanks (7,325 CF of storage)
- Annunciation and Third: Four (4) corner street basins, four (4) crosswalks, subsurface storage with tanks (8,785 CF of storage)

All the selected streets are one-way, and the four (4) street basins would be placed on the side of the intersection from which traffic would flow across the intersection. An ancillary benefit of the crosswalks is the heightened awareness of pedestrian traffic at the park using colored pavers.

There is one (1) intersection along St. Thomas St. to be retrofitted with Pervious Crosswalks:

- St. Thomas and Orange: Four (4) crosswalks and subsurface storage with tanks (6,215 CF of storage)

There are two (2) intersections along Chippewa St. to be retrofitted with a combination of street basins and pervious crosswalks:

- Chippewa and Second: Four (4) corner street basins, four (4) crosswalks, subsurface storage with tanks (5,420 CF of storage)
- Chippewa and Third: Four (4) corner street basins, four (4) crosswalks, subsurface storage with tanks (6,770 CF of storage)

All the selected streets are one-way, and the four (4) street basins would be placed on the side of the intersection from which traffic would flow across the intersection. An ancillary benefit of the crosswalks is the heightened

awareness of pedestrian traffic at the park using colored pavers.

Each of the corner street basins would detain an estimated 390 CF of stormwater. The street basins are comprised of six (6) in. of surface storage, eight (8) in. of bioretention media (at 30% void ratio), and 28 in. of storage aggregate. The subsurface storage is connected to the drainage system via multiple perforated pipes, which distribute stormwater during higher flow events and slowly release the stormwater back into the City's drainage system once the hydraulic grade of the system has decreased.

Each Pervious Crosswalk will detain an estimated 200 CF of stormwater. The Crosswalks are comprised of six (6) in. of pavers and 24 in. of storage aggregate. The subsurface storage is connected to the drainage system via single rows of 10-in. modular tanks, which distribute stormwater during higher flow events and slowly release the stormwater back into the City's drainage system once the hydraulic grade of the system has decreased.

Evaluation of the turning radius for a fire truck at typical intersections was conducted and found acceptable (Figure 15).

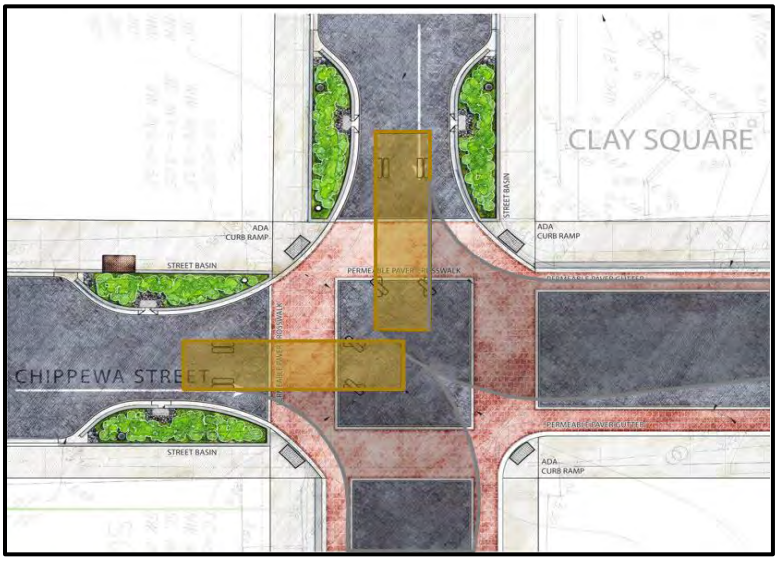

Figure 15. Typical Intersection

3.2.3 Pervious Pavement

The Proposed Action would include pervious pavers and subsurface storage along Annunciation St. from Race St. to Melpomene St. Thirty-six-in.-wide pervious pavers would be placed along the gutter, and subsurface storage would be added along the entire width of the river side of the divided boulevard along the 3-block section of Annunciation St. The subsurface storage is also connected to the drainage system via perforated pipes, which distribute stormwater during higher flow events and slowly release the stormwater back into the City's drainage system once the hydraulic grade of the system has decreased.

The subsurface storage would retain water that flows into the gutter along Annunciation St. An internal baffle would be created with a low permeability synthetic membrane liner (geomembrane) so that stormwater would not short-circuit through the storage system. This baffle would increase the time of concentration in the modular tank section of the storage system by increasing the length of travel from 50 ft. to 350 ft.

See Figure 16 for a representative cross-section of the subsurface storage along Annunciation St. near Race St. The section includes approximately 33.6 SF/LF of storage which generates 34,530 CF of storage along Annunciation St. It is recommended that the street be striped to include a drive lane, a bike lane, and a parking lane as shown in Figure 16.

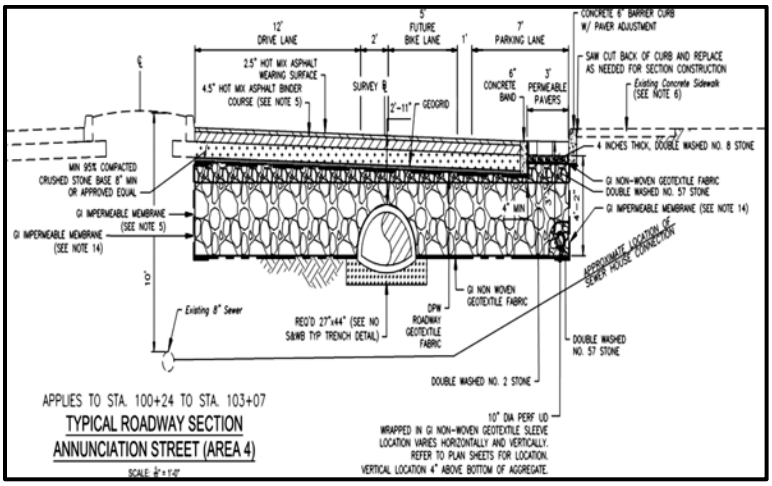

Figure 16. Annunciation Street at Race Street Cross-Section with Subsurface Storage

3.2.4 Stormwater Drainage Pipe Upgrades

All stormwater drainage pipe upgrades included in the Proposed Action are associated with the stormwater parks (Table 4 and Figure 17).

Table 4: Proposed Action Pipe Upgrades

Park	Street	From/To	Pipe Size & Material	Pipe Length (Feet)
Taylor Playground Stormwater Park	S. Roman	Toledano to Washington	42" RCPA with existing 18" RCP to remain	624
Taylor Playground Stormwater Park	Washington	S. Roman to S. Claiborne	Single 36" RCP	755
Taylor Playground Stormwater Park	S. Derbigny	West of Third to First Streets	Single 30" RCP	674
Clay/Burke Stormwater Park	Annunciation	Second to First Streets	Single 24" RCP	300
Annunciation Square Stormwater Park	Race	Annunciation to Chippewa	Single 36" RCP with existing 21" RCP to remain	396
Annunciation Square Stormwater Park	Orange	Camp to Chippewa	Single 36" RCPA with existing 18"/27" RCP to	5,423
Total	**-**	**-**	-	**10,283**

Source: CDM Smith 2022

Per the CDM Smith 2020 plans, the pipes included in Phase 1 Construction are focused on directing stormwater to and from the Stormwater Parks and includes the following segments:

- Annunciation Square: Race St at Annunciation to Chippewa – Single 36-in. RCP with existing 21-in. RCP to remain and Orange St at Camp to Chippewa – Single 36-in. RCPA with existing 18-in./27-in. RCP to remain.
- Clay/Burke Park: Annunciation St at Second St to First St – Single 24-in. RCP
- Taylor Playground: S. Roman at Toledano to Washington Single 42-in. RCPA with existing 18-in. RCP to remain; Washington St at S. Roman to S. Claiborne – Single 36-in. RCPA; and on S. Derbigny West of Third to First – Single 30-in. RCP

The pipe upgrades included in Phase II of the CDM Smith 2022 plans are focused on adding pathway redundancy and equalizing drainage between the major stormwater boxes and includes the segments summarized in Table 5. An analysis of the inlet capacity at intersections with pipe upgrades or complete street improvements is provided in Appendix B.

Table 5: Pipe Upgrades Summary

Street	From/To	Pipe Size & Material	Pipe Length (Feet)
Chippewa	Third to Washington	Single 24" RCP	636
Chippewa	First to Second	Single 24" RCP	323
Dryades	Louisiana to Third	Single 36" RCPA	2,403
Dryades	Philip to Third	Single 42" RCPA	844
Philip	Simon Bolivar to Baronne	Single 36" RCP	1,366
S. Tonti	Toledano to MLK	Single 42" RCP	1,521
Total	**-**	-	**7,093**

3.2.5 Road Reconfigurations and complete streets with Bioswales

Per the CDM Smith 2022 plans for Phase II, complete reconstruction of four (4) streets utilizes a selection of storage, permeable pavements, and urban bioswale to demonstrate the effectiveness of the combination of green and grey infrastructure. A complete street summary is shown on Table 6.

Table 6: Complete Streets Summary

Complete Street	From/To	Length of Street (LF)	Total Storage (CF)	Storage per Linear Foot
Baronne	Philip to MLK	2,750	179,480	65.3
St. Thomas	Washington to Philip	2,314	46,680	16.4
Philip (Upper)	Constance to Tchoupitoulas	2,415	120,600	49.9
Coliseum	Race to Melpomene	1,165	28,410	24.4
Total	**-**	**-**	**375,170**	**-**

Coliseum St., St. Thomas St., Philip St., and Baronne St. each have typical sections including pervious pavers (36-in. width along gutter), and subsurface storage across the width of the street. Subsurface storage would accept overland flow that flows though the gutters. The subsurface storage is also connected to the drainage system via perforated pipes, which distribute stormwater during higher flow events and slowly release the stormwater back into the CNO's drainage system once the hydraulic grade of the system has decreased. The Baronne St. typical section also includes urban bioswale and a pervious asphalt bike path. See Figure 17 for a typical example cross-sections of the proposed complete streets design.

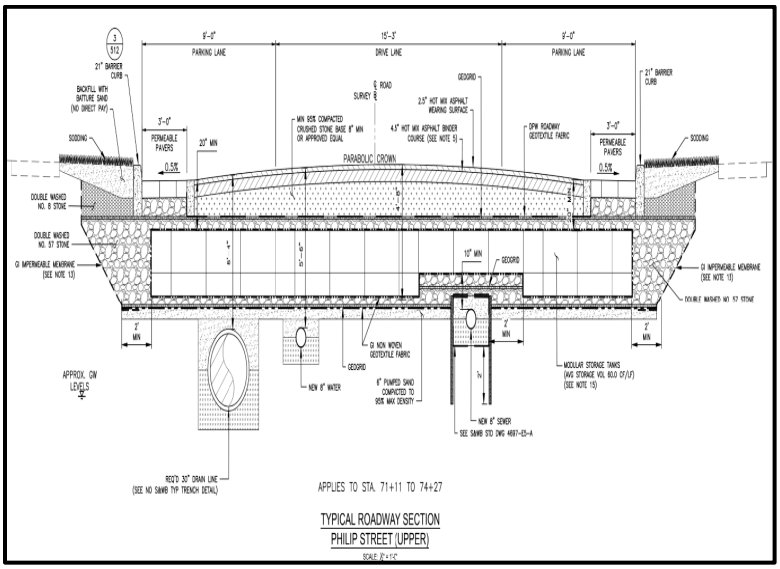

Figure 17. Typical Example Cross-Section of the Proposed Complete Streets Design

3.3 No Action Alternative

Under the No Action Alternative, no stormwater drainage improvements would be implemented, so there would be no effects differing from the baseline condition. The area would continue to flood every time there is a storm greater than a 2-yr frequency flood event, resulting in hazardous or damaging conditions for residents and businesses located within the Study Area. In addition, the investments made into the neighborhoods by public and private agencies and individuals would be compromised.

Implementation of the No Action Alternative would entail no hazard mitigation measures for the Study Area. Under this alternative, flood damage would likely continue to occur, and both insured and uninsured losses would be experienced at their current frequency. This alternative would perpetuate the "damage-repair-damage" cycle, thus requiring additional funding to be drawn from the National Flood Insurance Program (NFIP), as well as depleting local and national disaster funds. This alternative does not meet the purpose and need but would continue to be evaluated throughout this EA and serve as a baseline for comparison.

4.0 STORMWATER MANAGEMENT ELEMENTS TO BE CONSTRUCTED

This section provides a more detailed description of the elements that would be included as part of the action alternatives considered in the impact analysis.

Details of the designs for each park and stormwater lot are included in the DPS 01 Watershed Drainage Upgrades and Green Infrastructure Project, Phase 1 Preliminary Design Report by CDM Smith, dated November 15, 2017 (CDM Smith 2017) and DPS 01 Watershed (old Broadmoor HMGP) Drainage Upgrades and Green Infrastructure Project – SOW (Phase II Revisions) by CDM Smith, dated March 10, 2020 (CDM Smith 2020). The DPS 01 Watershed Drainage Upgrades and Green Infrastructure Project, Phases I and II, incorporate the following features for managing stormwater:

- Stormwater parks and lots
- Street basins
- Pervious pavement
- Stormwater drainage upgrades
- Road reconfigurations with bioswales

The structural features incorporated into these elements are described in the following sections.

4.1 Stormwater Parks and Lots

Stormwater parks and lots would be designed to collect and hold stormwater until it infiltrates into the ground or is discharged into the drainage system. The stormwater parks and lots would be connected to the street system via cuts in the existing curbs called runnels. These runnels allow for water flowing down the street to be captured and collected in the stormwater parks and lots. The stormwater parks and lots would be connected to the existing stormwater drainage system and act as a relief system.

Four (4) existing parks would be used (see Section 4) to provide subsurface storage that would detain stormwater. The designs would involve excavation of each park to a depth of approximately 6.5 ft. The subsurface area would consist of one (1) to three (3) modular storage tanks, each of which would measure18 in. deep (Figure 18). The Taylor Playground Stormwater Park would have one modular tank, the A.L. Davis Playground would have two (2) modular storage tanks, and the Clay Square (Burke Playground) and Annunciation Square Parks would have three (3) modular storage tanks. The modular storage tanks would be surrounded by storage aggregate, which would be covered by a bioretention media and replanted.

Because additional excavation would take place during the Construction Phase II, remediation work would not fill excavation areas. As a result, remediation would likely be done as close in time as possible to Project Construction. The goal is to minimize costs by avoiding the expense of adding fill material to the excavated areas to have them excavated soon after during construction.

Each park would have inlet systems added to direct stormwater into the subsurface storage tanks. These intake areas would include systems to prevent sediment and trash from entering and clogging the subsurface storage and to guide stormwater into the subsurface storage aggregate. The parks would also include outlet pipe systems that would direct the flow of stormwater from the storage area into the existing stormwater drainage system.

Park area features would be reconstructed so the parks would return to similar or improved conditions. The parks would be replanted with drought-tolerant turf grasses selected to create a highly durable playing surface with a sandy soil profile to reduce standing water from the surface.

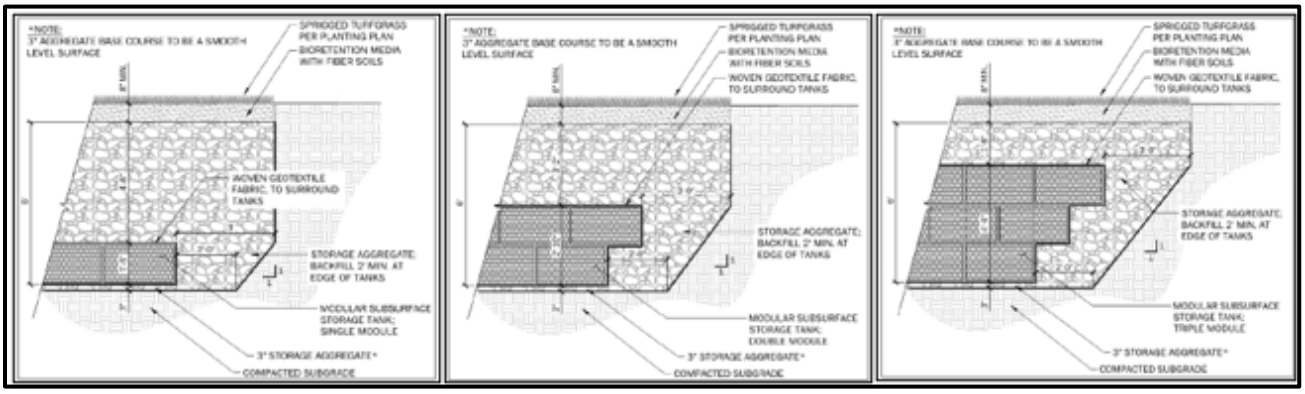

Figure 18. Stormwater Park Section Profiles One (1), Two (2), & Three (3) Storage Tanks

Two (2) stormwater lots are planned in the Proposed Action, which would be above ground, open, dry detention areas with a 4:1 (H:V) slope (Figure 19). The current design includes a modular subsurface storage system with aggregate on top that would provide storage, filling up and draining quickly as shown in Figure 20. This design allows the park facilities to be used again quickly after a rain event. The depth of the adjacent drainage system determines the available design options (number of modular tanks stacked) for the subsurface storage. Stormwater would enter the lots via direct rainfall and inlet pipes connected to the existing drainage system. Stormwater stored in the lot would eventually infiltrate into the groundwater or exit though an outlet into the existing drainage system.

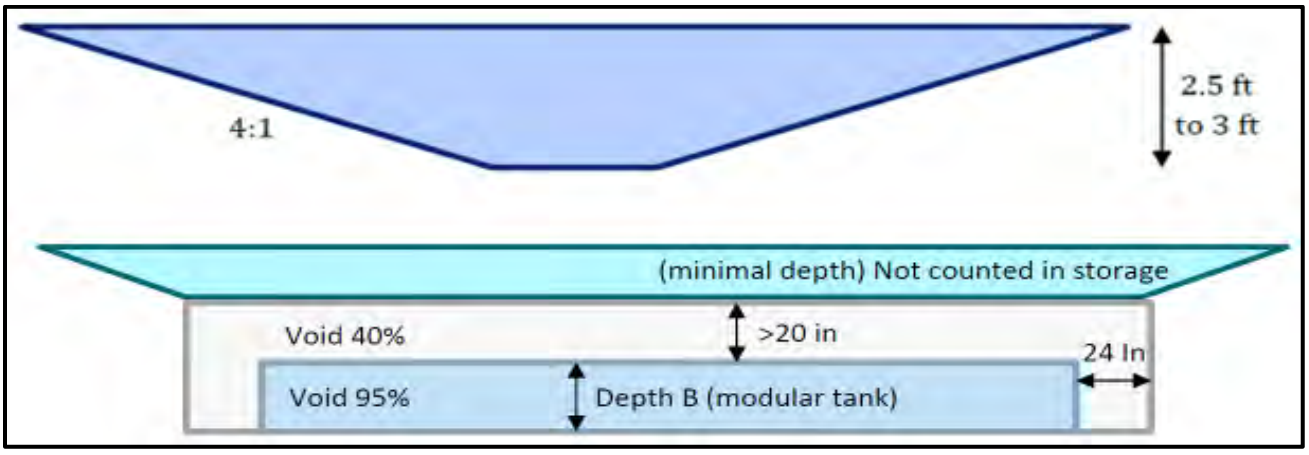

Figure 19. Stormwater Park Cross-Section Diagram

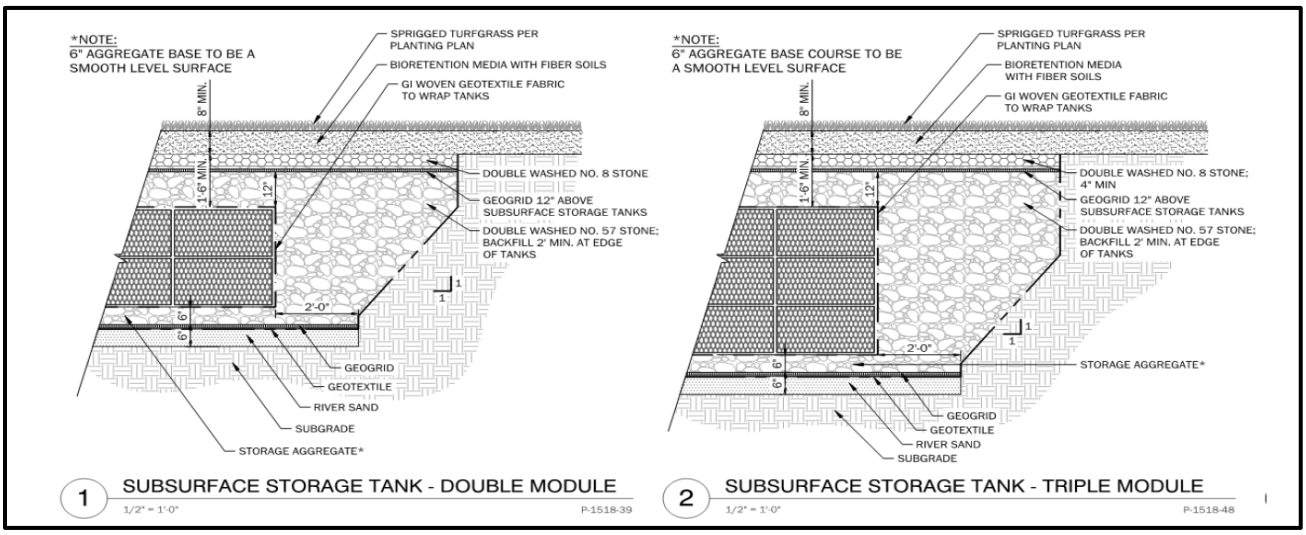

Figure 20. Typical Cross Sections of Stormwater Lot with 4:1 (H:V) Slope Design

4.2 Street Basins

Street basins are another design feature that would be used to collect and detain stormwater and promote infiltration into the soil to recharge groundwater. Street basins are created by extending the curb out toward the center of the street to form planted areas that receive stormwater runoff flowing along the street curb and gutters. They are designed to fit along intersection corners in the space where it is illegal to park, thereby maintaining the same number of parking spaces available in dense neighborhoods.

The Proposed Action includes 16 corner street basins. Each corner street basin would include six (6) in. of surface storage, eight (8) in. of bioretention media (at 30% void ratio), and 28 in. of subsurface storage aggregate. The subsurface storage would be connected to the drainage system via multiple perforated pipes, which distribute stormwater during higher flow events and slowly release the stormwater back into the City's drainage system once the hydraulic grade of the system has decreased (CDM Smith 2017). Under the Proposed Action, each of the 16 corner street basins would be designed to detain approximately 390 CF of stormwater.

Street basins would include a limited planting pallet for ease of maintenance. Each street basin would be planted with a single plant species. Attention to species height would be considered in order to avoid blocking lines of sight for vehicles.

Street basins would be used in conjunction with pervious pavement crosswalks to create green intersections that would collect and detain stormwater. Information on the green intersections included in the Proposed Action is included in Section 3.2.2.

4.3 Pervious Pavement

Pervious pavement systems use a range of materials and techniques to allow the movement of stormwater through the surface, where it can slowly percolate into the ground or be directed into a collection system. Pervious intersections, parking, sidewalks, and crosswalks would provide storage areas for surface level runoff through the storage capacity of the storage media below the pavement. Pervious installations would be designed with an under-drain system that would be connected to the existing storm sewer system.

Under the Full Build-Out Alternative, pervious intersections, parking, and sidewalks would be used in locations throughout the Study Area. Many streets with existing parking lanes are recommended to have pervious pavement installed in the parking lane. Interlocking pervious, concrete pavers that are rated to withstand heavy vehicular traffic would be used in the parking lanes to prevent twisting from torque created by turning vehicles. The pervious pavement would provide additional storage for stormwater runoff at the surface level.

Under the Proposed Action, pervious crosswalks would be used in conjunction with street basins to create green intersections at 16 intersections within the Study Area (see Section 3.2.3 and Figure 3). The crosswalks would be comprised of six (6) in. of pervious pavers and 24 in. of subsurface storage aggregate. The subsurface storage would be connected to the drainage system via single rows of 10-in. modular tanks, which would distribute stormwater during rain events and slowly release stormwater back into CNO's drainage system as the hydraulic grade of the system decreases. Each pervious crosswalk would detain an estimated 200 CF of stormwater (CDM Smith 2017).

In addition, pervious pavers and subsurface storage would be added along a three (3) block section of Annunciation St. from Race St. (at Annunciation Square) to Melpomene St. (Figure 21) (see Section 3.2.3). Thirty-six in. wide pervious pavers would be installed on Annunciation St. along the gutter, with subsurface storage installed under the entire east side of the divided boulevard to collect stormwater flowing into the gutter. The subsurface storage would be connected to the drainage system via perforated pipes, which would distribute stormwater during rain events and slowly release the stormwater back into the CNO's drainage system once the hydraulic grade of the system had decreased (CDM Smith 2017).

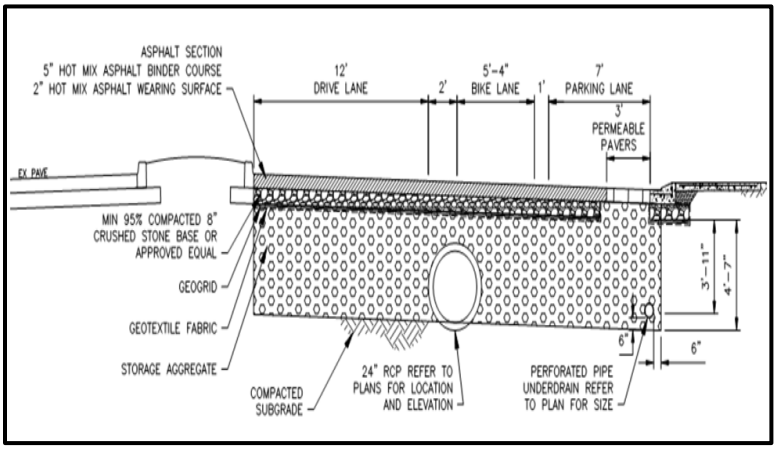

Figure 21. Cross-Section of Pervious Pavement with Subsurface Storage

4.4 Pipe Upgrades

Upgrades to the existing stormwater drainage system for the Full Build-Out Alternative were designed to 1) provide for greater connectivity between the major culverts flowing through the system through the installation of drain lines where none currently exist; 2) relieve hydraulic bottlenecks within the system; and 3) convey stormwater runoff to the proposed stormwater parks for detention.

The Proposed Action also includes stormwater pipe upgrades designed to move stormwater into and out of the four (4) stormwater parks. These differ from the JIRR pipe drainage work and from the full build out described above.

Where pipe upgrades occur, street segments would be pre-paved from curb to curb (CNO 2017). Information on stormwater pipe upgrades is from the CDM Smith report, dated November 15, 2017, on page 2-13 (CDM Smith 2017); however, other information in the sections on street basins, pervious crosswalks, and pervious pavement, as well as additional details on stormwater parks are also shown on the 100% drawings in Appendix B.

4.5 Road Reconfigurations with Bioswales

Road reconfigurations are the repurposing of large, paved space within the street ROW. The Proposed Action Road reconfigurations would reduce the width of travel lanes where they are found to be excessive for traffic volumes and repurpose that space for GI interventions, including urban bioswales, pervious paving, pervious intersections, and corner street basins, to manage stormwater runoff before it enters the City's drainage system. Urban bioswales are narrow linear swales that are installed between the street curb and the sidewalk, similar to corner street basins in that they detain and convey water that would otherwise be flowing along the roadway edge and quickly entering the storm drain. The urban bioswales would connect into the corner street basins at the designed locations.

Road reconfigurations would use pervious paving or pavers in parking lanes and at intersections. These pervious parking lanes and intersections would have subsurface storage to increase infiltration into the groundwater.

Road reconfiguration designs for each street would be based on the current traffic conditions, existing tree canopy, and current city street projects, with the appropriate GI interventions selected for each street.

The combination of pervious pavement and street basins work together and reduce the quantity of stormwater runoff that must be conveyed by the existing system. The vegetation in the street basins and the urban bioswales work together to reduce the pollutant load discharged into Lake Pontchartrain. See Figure 3, and Appendix B for detailed drawings.

5.0 AFFECTED ENVIRONMENT AND ALTERNATIVES ANALYSIS

5.1 Introduction

This section of the EA describes the natural and human environments that exist within the project area and region of influence (ROI), and the potential impacts of the Proposed Action Alternative and No Action Alternative outlined in Section 3.0 of this document. The ROI for this project is Orleans Parish. Only those resources with the potential to be affected by the Proposed Action are described, per CEQ regulation (40 CFR 1501.7 [3]). The impact analysis presented in this EA is based upon existing regulatory standards, scientific and environmental knowledge, and best professional opinions.

FEMA has coordinated with multiple agencies regarding the Proposed Action through the submittal of Solicitations of Views (SOVs). The SOVs requested that each agency review the Proposed Action and determine if and what requirements of any formal consultations, regulatory permits, determinations, or authorizations would be needed by the different agencies. The SOVs were submitted to the U.S. Army Corps of Engineers (USACE) New Orleans District, USEPA Region 6, Louisiana Department of Wildlife and Fisheries (LDWF), U.S. Fish and Wildlife Service (USFWS), Louisiana Department of Environmental Quality (LDEQ), Louisiana Department of Transportation and Development (LADOTD) and the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS). Responses to the SOV letters were received from the USACE, USFWS, LDEQ, LDWF, LADOTD, and NRCS. Agency responses to the SOV letters are included in Appendix C.

Impacts (consequence or effect) can be either beneficial or adverse and can be either directly related to the action or indirectly caused by the action. Direct impacts are those effects that are caused by the action and occur at the same time and place (40 CFR 1508.8[a]). Indirect impacts are those effects that are caused by the action and are later in time or further removed in distance but are still reasonably foreseeable (40 CFR 1508.8[b]).

As discussed in this section, the alternatives evaluated may result in temporary (lasting the duration of construction), short-term (up to 3 years), long-term (greater than 3 years), or permanent impacts or effects.

Impacts on each resource can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis, the intensity of impacts would be classified as negligible, minor, moderate, or major.

The intensity thresholds are defined as follows:

- Negligible: A resource would not be affected, or the effects would be at or below the level of detection, and changes would not result in any measurable or perceptible consequences.
- Minor: Effects on a resource would be detectable, although the effects would be localized, small, and of little consequence to the sustainability of the resource. Mitigation measures, if needed to offset adverse effects, would be simple and achievable.
- Moderate: Effects on a resource would be readily detectable, long-term, localized, and measurable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely achievable.
- Major: Effects on a resource would be obvious and long-term and would have substantial consequences on a regional scale. Extensive mitigation measures to offset the adverse effects would be required, and success of the mitigation measures would not be guaranteed.

5.2 Land Use

This section describes the existing generalized land use setting in the Study Area, as well as any potential impacts that would occur with the Full Build-Out Alternative, the Proposed Action, and the No Action Alternative.

5.2.1 Existing Conditions

Per CDM Smith 2017 and 2020 the Study Area covers approximately 1,546 ac. within the City. It is generally bounded by Martin Luther King, Jr. Blvd. and Melpomene St. to the northeast, South Broad St. to the northwest, Louisiana Ave. and Toledano St. to the southwest, and Tchoupitoulas St. to the southeast, along the Mississippi River (see Figure 2). The area includes districts zoned as historic urban neighborhood two-family residential, historic urban neighborhood multi-family residential, historic urban neighborhood mixed-use, neighborhood open space, historic urban neighborhood business, medium intensity mixed-use, and auto-oriented commercial (along U.S. Highway 90/Claiborne Ave.). There are parks scattered throughout the Study Area. There are also many vacant lots due to the demolition of homes following damages resulting from flooding after Hurricane Katrina.

5.2.2 Environmental Consequences

5.2.2.1 Full Build-Out Alternative

Implementation of the Full Build-Out Alternative would result in temporary, negligible adverse changes to land use. There would be visual and structural improvements within the Study Area based on the proposed construction activities listed in Section 3.2. Improvements would include utilizing empty, abandoned lots as stormwater parks that could also serve for recreational use and the addition of bicycle lanes as part of road reconfigurations. Any localized disruption to land use during construction activities would be temporary in nature. Construction schedules would be solidified with input from local citizens and parks associations to limit disruptions to community events and existing park activities to the extent possible. There would be more localized disruption in the Full Build-Out Alternative during construction activities than in the Proposed Action due to the increased SOW.

There would be long term impacts on the land use, as the "new" use of the vacant residential lots would be two-fold: as stormwater retention during storm events, and the parks would retain their existing function as open space available for community recreation during dry conditions. Because the vacant lots would now serve a double function of recreational parks and water storage, construction schedules would have to be solidified with input from local citizens and parks associations to limit disruptions to community events and existing park activities to the greatest extent possible. In addition, the potential for bike lanes in road reconfiguration work

would be considered. Implementation of the Full Build-Out Alternative would result in no significant adverse impacts on land use.

5.2.2.2 Partial Build-Out Alternative (Proposed Action)

Implementation of the Proposed Action Alternative would result in temporary, negligible adverse changes to land use. There would be visual and structural improvements to the Study Area based on the proposed construction activities listed in Section 3.2. Improvements would include improvements in stormwater parks and lots for recreational use and the addition of bicycle lanes as part of road reconfigurations. Any localized disruption to land use during construction activities would be temporary in nature. Construction schedules would be solidified with input from local citizens and parks associations to limit disruptions to community events and existing park activities to the extent possible.

5.2.2.3 No Action Alternative

Under the No Action Alternative, no stormwater drainage improvements would be implemented, so there would be no effects differing from the baseline condition. Abandoned lots would continue to serve no role in mitigating stormwater.

5.3 Air Quality

5.3.1 Regulatory Setting

The CAA of 1963, as amended, provides for Federal protection of air quality by regulating air pollutant sources and setting emissions standards for certain air pollutants. Under the CAA, states adopt ambient air quality standards in order to protect the public from potentially harmful amounts of pollutants.

The USEPA establishes primary and secondary air quality standards. Primary air quality standards protect the public health, including the health of "sensitive populations, such as people with asthma, children, and older adults." Secondary air quality standards protect the public welfare by promoting ecosystems health and preventing decreased visibility and damage to crops and buildings. The USEPA has set National Ambient Air Quality Standards (NAAQS) for the following six (6) criteria pollutants: ozone (O^3), particulate matter (PM2.5, PM10), nitrogen dioxide (NO^2), carbon monoxide (CO), sulfur dioxide (SO^2), and lead (Pb).

The USEPA has designated specific areas as NAAQS attainment or non-attainment areas. Non-attainment areas are any areas that do not meet the quality standard for a pollutant, while attainment areas do meet ambient air quality standards. The General Conformity Rule currently applies to all Federal actions that are taken in designated non- attainment or maintenance areas, with the following exceptions: (1) actions covered by the transportation conformity rule; (2) actions with associated emissions clearly at or below specified *de minimis* levels; (3) actions listed as exempt in the rule; or (4) actions covered by a Presumed-to-Conform approved list (40 CFR § 93.153[c]). When the total direct and indirect emissions from the project or action are clearly below the *de minimis* levels, the project or action would not be subject to a conformity determination and may proceed (40 CFR §93.153[b] and [c]). If, on the other hand, emissions are equal to or exceed 40 CFR §93.153 or Louisiana Administrative Code (LAC) 33:III.1405.B *de minimis* levels, a general conformity determination must be made by the Federal agency involved. The LDEQ requests a "general conformity applicability determination" in order to demonstrate that a formal general conformity determination is not required. Project-associated emissions are quantified using (1) direct emissions, and (2) indirect emissions within the scope of the Federal agency's authority. See 40 CFR § 93.158(a).

5.3.2 Existing Conditions

According to the USEPA Green Book Nonattainment Areas for Criteria Pollutants, Orleans Parish is currently an attainment area (USEPA 2017b). Orleans Parish has no general conformity determination obligations.

5.3.3 Environmental Consequences

5.3.3.1 Full Build-Out Alternative

Implementation of the Full Build-Out Alternative would result in temporary, short-term, negligible-to-minor

adverse changes to air quality. Under the Full Build-Out Alternative it is intended that air quality could improve since green urban areas such as bioswales and stormwater lots and parks with vegetation and trees can improve air quality (USEPA 2017c). Short-term impacts to air quality would occur during construction from fuel combustion equipment and vehicles involved in construction.

5.3.3.2 Partial Build-Out Alternative (Proposed Action)

Implementation of the Proposed Action would result in temporary, negligible-to-minor, short-term adverse changes to air quality. Under the Partial Build-Out Alternative, impacts on air quality are anticipated to be minimal and temporary in the Study Area. Minor short- term impacts to air quality would occur during construction and would likely be shorter in duration and certainly in area affected than those of the Full Build-Out Alternative. Internal combustion equipment and vehicles involved in construction would primarily impact air quality. To reduce the emission of pollutants from these sources, fuel-burning equipment times would be kept to a minimum and engines would be properly maintained. Dust minimization measures, such as covering and/or wetting, would be implemented during construction, as well.

5.3.3.3 No Action Alternative

Under the No Action Alternative, no stormwater drainage improvements would be implemented, so there would be no effects differing from the baseline condition and air quality would remain the same or worsen. The area would continue to flood every time there is a storm greater than a 2-yr frequency flood event, resulting in hazardous or damaging conditions for residents and businesses located within the Study Area. The potential for airborne contaminants could increase, including molds and mildews dangerous to health. In addition, the investments made into the neighborhoods by public and private agencies and individuals would be compromised.

5.4 Environmental Justice and Protection of Children

5.4.1 Regulatory Setting

E.O. 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," was signed on February 11, 1994 (U.S. President 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 their programs, policies, and activities on minority and/or low-income populations. This environmental justice analysis was prepared in accordance with the FEMA guidance on environmental justice (FEMA 2015).

EO 13045 requires each Federal agency "to identify and assess environmental health risks and safety risks that may disproportionately affect children" and "ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." This EO was prompted by the recognition that children, still undergoing physiological growth and development, are more sensitive to adverse environmental health and safety risks than adults. The potential for impacts on the health and safety of children is greater where projects are located near residential areas.

5.4.2 Existing Conditions Including Socioeconomics

The ROI for socioeconomics is Orleans Parish. There are 20 census tracts within the Study Area.

Population data from the U.S. Census Bureau show that the population of Orleans Parish increased at an average annual growth rate of 1.9% from 2015 to 2020, compared to an increase of 0.7% for the State of LA and 4.51% for the Nation (Table 7). The stronger growth rate in Orleans Parish is evidence of the Hurricane Katrina-related rebuilding efforts that continue in the region.

Table 7: Population

Geographic Area	2015	2020	Average Annual Growth Rate 2015 to 2020
Orleans Parish	376,738	383,997	1.89%
State of Louisiana	4,625,253	4,657,757	0.70%
United States	316,515,021	331,449,281	4.51%
Census Tract 77	2,356	2,481	5.04%
Census Tract 78	1,220	1,113	-9.61%
Census Tract 82	1,535	1,546	0.71%
Census Tract 83	1,201	1,062	-13.09%
Census Tract 84	1,136	1,145	0.79%
Census Tract 85	1,332	1,198	-11.19%
Census Tract 86	891	1,137	21.64%
Census Tract 88	1,832	1,534	-19.43%
Census Tract 90	1,884	1,877	-0.37%
Census Tract 91	1,956	1,933	-1.19%
Census Tract 92	1,429	1,267	-12.79%
Census Tract 94	1,200	1,481	18.97%
Census Tract 96	1,551	1,321	-17.41%
Census Tract 99	3,084	2,859	-7.87%
Census Tract 100	1,747	1,625	-7.51%
Census Tract 139	1,591	1,647	3.40%
Census Tract 140	1,649	2,122	22.29%
Census Tract 141	1,946	1,487	-30.87%
Census Tract 142	1,719	1,570	-9.49%
Census Tract 143	1,797	2,147	16.30%

Sources: U.S. Census Bureau 2015 and 2020

Race and ethnicity data are presented in Table 8. The population of Orleans Parish is estimated to be 69% minority, compared to 42 percent for the State of LA and 38% minority for the U.S.

Table 8: Race and Ethnicity (Percent)

Geographic Area	Total Minority	White, Not Hispanic	Black or African American	Asian	Hispanic
Orleans Parish	69	31.2	59.5	3.0	5.7
State of Louisiana	42	57.1	33.4	1.9	6.9

United States	38	59.3	13.6	6.1	18.9

Source: U.S. Census Bureau 2021

The median household income of $43,258 for Orleans Parish (Table 9) is well below the median household income for the State of LA ($50,800) and the U.S. ($64,994). The median household income in Orleans Parish is only 21% of the national average median household income (Table 9).

Table 9: Median Household Income, 2015

Geographic Area	Median Household Income	Percent of U.S.
Orleans Parish	$43,258	21.1%
State of Louisiana	$50,800	17.8%
United States	$64,994	11.4%

Source: U.S. Census Bureau 2020

Poverty data (Table 10) show that the poverty rate in Orleans Parish (23.0%) is well above the poverty rate for LA (18.6%) and the U.S. poverty rate (12.8%).

Table 10: Poverty

Geographical Area	Poverty All Ages (Percent)	Poverty Under Age 18 (Percent)	Poverty 18 to 64 Years (Percent)	Poverty 65 Years and Over (Percent)
Orleans Parish	23.0	33.5	20.8	18.3
State of Louisiana	18.6	26.3	17.4	11.9
United States	12.8	17.5	12.1	9.3

Source: U.S. Census Bureau 2020

Minority and poverty data for the 20 census tracts located within or partially within the Study Area, Orleans Parish, LA, and the U.S. are presented in Table 11.

Table 11: Minority and Poverty for Study Area Census Tracts, 2020

Census Tracts	Minority Population (Percent)	Persons of All Ages Below Poverty Level
Orleans Parish	69	23
State of Louisiana	41	18.6
United States	38	12.8
Census Tract 77	35	9.8
Census Tract 78	27	17.3
Census Tract 82	34	14.3
Census Tract 83	27	8.8
Census Tract 84	59	20.2

Census Tracts	Minority Population (Percent)	Persons of All Ages Below Poverty Level
Census Tract 85	97	49.5
Census Tract 86	96	54.9
Census Tract 88	31	14.9
Census Tract 90	8	9.6
Census Tract 91	58	36.0
Census Tract 92	98	50.5
Census Tract 94	97	59.4
Census Tract 96	43	11.0
Census Tract 99	27	16.0
Census Tract 100	80	41.4
Census Tract 139	58	17.9
Census Tract 140	100	68.5
Census Tract 141	61	32.8
Census Tract 142	39	14.2
Census Tract 143	96	58.9

Sources: U.S. Census Bureau 2016a and 2016b

Eleven of the 20 census tracts in the Study Area have minority populations greater than 50%, and nine (9) of those 11 census tracts have poverty rates that are greater than Orleans Parish. The 11 high-minority census tracts account for approximately 50% of the population of the census tracts within or partially within the Study Area. There are approximately 18 schools, 55 churches, eight (8) child day care centers, one (1) adult residential facility, and three (3) residential facilities for children within the Study Area.

5.4.3 Environmental Consequences

Impacts of concern for environmental justice include noise and traffic during construction and lead in soils that could be released by construction activities.

In compliance with E.O. 12898, the following key questions were addressed with regard to potential Environmental Justice concerns:

- Are there low-income or minority populations in the study area?
- Is there an impact caused by the Proposed Action?
- Is the impact adverse?
- Is the impact disproportionate?
- Has an action been undertaken without considerable input by the affected low-income and/or minority community?

Public meetings were held on May 9, 2017, at the Harmony Oaks Community Center and on May 16, 2017, at the Lyons Recreational Center to present information on the Proposed/Preferred Alternative to the public and listen to their concerns (see Section 8.0: Public Involvement). These meetings, sponsored by the CNO, were publicized in the newspaper and with yard signs in the neighborhood, and were well attended. Two (2) major topics of concern were voiced by attendees: 1) lack of maintenance of existing storm drains, 2) traffic disruptions and road closures, 3) park closures, and 4) loss of functions of the use of the area during the pipe upgrade phase of proposed construction.

5.4.3.1 Full Build-Out Alternative

Under the Full Build-Out Alternative, there would be short-term, minor adverse impacts on populations living within the Study Area during construction of the project components. Impacts would include increased noise levels and traffic disruptions, park closures and temporary loss of the use of the area, and safety concerns during the pipe upgrade phase of proposed construction associated with the stormwater mitigation construction activities. Noise is discussed in Section 5.5.

Table 12: Schools in the Vicinity of Proposed Stormwater Parks

Stormwater Park	School	Approximate Distance from Park (Ft.)	Partial Build-Out	Full Build-Out
A.L. Davis Playground	Kipp Central City Academy at Carter G. Woodson	100	Yes	Yes
Annunciation Playground	St. Michael Special School	100	Yes	Yes
Coliseum Square	International School of Louisiana Uptown Campus	75		Yes
Taylor Playground	Hoffman Early Learning Center (New Orleans College Prep)	400	Yes	Yes
Burke Playground	None		Yes	Yes
Soraparu Playspot	None			Yes
Van McMurray Playground	James Singleton Charter School	400		Yes

In addition, there are churches scattered throughout the Study Area. With construction limited to daylight hours on weekdays, no noise or traffic impacts would be expected to disturb Sunday or weeknight church services or activities.

Adverse impacts on traffic would be minor to moderate, but they would be temporary, lasting for a period of a few weeks for the installation of street basins or pervious intersections, parking, and sidewalks, to several months in the areas where road reconfigurations or stormwater drainage upgrades occur. Traffic disruptions would occur during construction in the areas near the construction activities.

Larger disruptions, including the possibility of temporary lane or road closures, would occur in the areas around the road reconfigurations and stormwater drainage upgrades. Mitigation measures to minimize traffic disruptions are described in Section 5.13. After construction is complete, traffic would return to normal.

There would be no long-term, adverse impacts on area residents caused by the Full Build-Out Alternative. BMPs/measures to mitigate impacts would be put in place to control/prevent the release of lead in soils that potentially could be disturbed in the process of installing project components (see Section 5.15). These BMPs/measures would be put in place to ensure that there would be no lead exposure to area residents, students at nearby schools, or to construction workers. With BMPs/mitigation measures in place, lead exposure would be minimized.

Permanent impacts resulting from the Full Build-Out Alternative would be beneficial. After construction is completed, area residents would experience beneficial impacts in the form of reduced flooding of residential and commercial areas within the Study Area. In addition, there would be permanent, beneficial impacts in the form of new sidewalks in project construction locations, new street pavement in the areas that receive road

reconfigurations or stormwater drainage upgrades, new playground and sports-related facilities and equipment in the stormwater parks, and enhanced landscaping associated with stormwater parks, street basins, and bioswales.

There would be no disproportionately high adverse human health, economic, or social effects on minority or low-income populations, as specified in E.O. 12898, as a result of the Full Build-Out Alternative. There are low-income populations in the Study Area, as 11 of the 20 census tracts within or partially within the Study Area are low-income census tracts. With BMPs/mitigation measures in place, all adverse impacts as a result of the Full Build-Out Alternative would be short-term and most would be minor, although there could be moderate adverse impacts in a few cases if temporary road closures are required. There would be long-term beneficial impacts in the form of reduced street, home, and business flooding and improved sidewalks, roads, and landscaping in the project construction locations. Public meetings have been held in the Study Area to inform residents and business owners about the project and listen to their concerns.

Excavation of the proposed stormwater parks has the potential to release lead that has previously been covered with clean soil to mitigate for high lead levels. However, with BMPs/mitigation measures in place to prevent the release of any residual lead in the soils during construction, and with the applicant working with the LDEQ to fully and successfully remediate the site of contaminants, adverse impacts would be negligible and lessen potential adverse impacts on children.

5.4.3.2 Partial Build-Out Alternative (Proposed Action)

Permanent impacts resulting from the Partial Build-Out Alternative would be similar to the Full Build-Out Alternative only smaller since fewer projects would be included in the Partial Build-Out Alternative and could be considered beneficial. After construction is completed, area residents would experience beneficial impacts in the form of reduced flooding of residential and commercial areas within the Study Area. In addition, there would be permanent, beneficial impacts in the form of new sidewalks in project construction locations, new street pavement in the areas that receive road reconfigurations or stormwater drainage upgrades, new playground and sports-related facilities and equipment in the stormwater parks, and enhanced landscaping associated with stormwater parks, street basins, and bioswales. Finally, the remediation of contaminated soils would remove a hazardous condition in the area. These benefits would improve the quality of life for all residents in the area, including low-income and minority populations.

5.4.3.3 No Action Alternative

Because the proposed projects would not be implemented, the No Action Alternative would have no effects differing from the baseline conditions on the environmental justice and protection of children in the Broadmoor Study Area and Orleans Parish.

5.5 Noise

5.5.1 Regulatory Setting

Sound and noise in populated areas is federally regulated by the Noise Control Act of 1972, which charges the EPA with preparing guidelines for acceptable ambient noise levels. EPA guidelines, and those of many other federal agencies, state that outdoor sound levels more than 55 A-weighted decibels (dBA) are "normally unacceptable" for noise-sensitive land uses including residences, schools, or hospitals (U.S. Environmental Protection Agency, 1974).

Noise is generally described as unwanted sound, which can be based either on objective effects (i.e., hearing loss, damage to structures) or subjective judgments (e.g., community annoyance). Noise is measured in terms of air pressure, sound intensity spans several orders of magnitude. Average acceptable day-night sound levels fall in a range between 50 dBA in quiet suburban areas to 70 dBA in noisier urban areas (U.S. Environmental Protection Agency, 1974). The day-night sound level is a cumulative metric that accounts for the total sound energy occurring over a 24-hr period, with nighttime noise (occurring from 10 pm to 7 am) more heavily weighted to reflect community sensitivity during nighttime hours. A sound level of 75 dBA is generally considered unacceptable in urban areas, with 85 dBA being unacceptable in industrial areas (United States

Department of Housing and Urban Development [HUD], 2018).

Within Orleans Parish, the noise control program is administered through the combined efforts of the Department of Health and the Police Department. Orleans Parish has regulations concerning noise in the Code of Ordinances, Chapter 66, Article IV, 66-136. Installation and maintenance of public and private utilities, as well as construction activities for which a permit has been issued, are limited to work between the hours of 7:00 a.m. and 6:00 p.m. in areas that are zoned as residential. During those hours, none of the noise produced by machinery less than 5 horsepower shall exceed 75 dBA, and machinery over 5 horsepower shall not exceed 82 dBA.

The City Noise Ordinance (Section 66) places restrictions on any source of sound exceeding the maximum permissible sound level based on the time of day and the zoning district within which the sound is emitted. A number of exemptions exist for certain types of activities. In accordance with the City's Noise Ordinance Section 66-138, noises "from construction and demolition activities for which a building permit has been issued by the department of safety and permits are exempt from" maximum permissible sound level restrictions "between the hours of 7:00 a.m. and 11:00 p.m., except in those areas zoned as RS [Single-Family], RD [Two-Family], or RM [Multi-Family] residential districts. Construction and/or demolition activities shall not begin before 7:00 a.m. or continue after 6:00 p.m. in areas zoned as RS, RD, or RM residential districts, or within 300 ft. of such residential districts. Mufflers on construction equipment shall be maintained" (City of New Orleans, 2018).

Noise Attenuation

As a general rule, noise generated by a stationary noise source, or "point source," will decrease by approximately 6 dBA over hard surfaces and 9 dBA over soft surfaces for each doubling of the distance.

For example, if a noise source produces a noise level of 85 dBA at a reference distance of 50 ft. over a hard surface, then the noise level would be 79 dBA at a distance of 100 ft. from the noise source, 73 dBA at a distance of 200 ft., and so on. To estimate the attenuation of the noise over a given distance, the following relationship is utilized:

> Equation 1: $dBA_2 = dBA_1 - 20 \log^{(d2/d1)}$
> *Where: dBA_2 = dBA at distance 2 from source (predicted), dBA_1 = dBA at distance 1 from source (measured), d_2 = Distance to location 2 from the source, and d_1 = Distance to location 1 from the source*

Source: California Department of Transportation (Caltrans) 1998

5.5.2 Existing Conditions

Noise in the Study Area is generally present, primarily generated by vehicle traffic, residential and commercial activities, and some light industrial activities.

5.5.3 Environmental Consequences

5.5.3.1 Full Build-Out Alternative

Implementation of the Full Build-Out Alternative would result in temporary, negligible-to-minor adverse changes in noise levels. Under the Full Build-Out Alternative, increased noise levels associated with the stormwater mitigation construction activities would depend on the quantity and type of improvements and construction proposed for the Study Area. Increased noise levels would only occur temporarily during heavy construction activities, if applicable. The construction activities associated with these activities would require the use of common construction equipment. Table 13 provides noise emission levels for construction equipment that range from 79 dBA to 85 dBA at a distance of 50 ft. (Federal Highway Administration [FHWA] 2016).

Table 13: dBA Sound Levels of Construction Equipment and Modeled Attenuation at Various Distances[1]

Noise Source	50 ft.	100 ft.	200 ft.	500 ft.	1,000 ft.
Bulldozer	85	79	73	65	59

Noise Source	50 ft.	100 ft.	200 ft.	500 ft.	1,000 ft.
Dump truck	84	78	72	64	58
Water Pump	76	70	64	56	50
Concrete Mixer Truck	79	73	67	59	53
Roller	80	74	68	60	54
Grader	85	79	73	65	59
Crane	81	75	69	61	55
Excavator	81	75	69	61	55
Front-end loader	79	73	67	59	53

Source: FHWA 2016

[1.] *The dBA at 50 ft. is a measured noise emission. The 100- to 1,000-foot results are GSRC modeled estimates.*

5.5.3.2 Partial Build-Out Alternative (Proposed Action)

Implementation of the Proposed Alternative would result in temporary, negligible-to-minor adverse changes in noise levels. Under the Proposed Action, increased noise levels associated with the flood mitigation construction activities would be the same as the Full Build-Out Alternative, only in fewer locations throughout the Study Area due to a decreased SOW.

Assuming the worst case scenario of 85 dBA for general construction equipment, the noise model predicts that noise emissions would have to travel 482 ft. to attenuate to 65 dBA, which is the criterion for residential receptors. There are a number of homes, businesses, or other sensitive noise receptors located immediately adjacent to the proposed construction activities and within the 65 dBA noise contour. Noise generated by the construction activities would be intermittent and temporary, lasting from a few hours up to a few days or weeks, after which noise levels would return to ambient levels. Noise emissions associated with construction projects would have a short-term, minor, adverse effect on the noise environment. Mitigation of increased noise levels would include limiting construction time periods to daylight hours on weekdays, proper maintenance of construction equipment, and the selection of noise-dampening construction techniques. The contractor must comply with all local noise ordinances.

5.5.3.3 No Action Alternative

Under the No Action Alternative, no stormwater drainage improvements would be implemented, so there would be no effects differing from the baseline condition. The area would continue to flood every time there is a storm greater than a 2-yr frequency flood event, resulting in hazardous or damaging conditions for residents and businesses located within the Study Area. In addition, the investments made into the neighborhoods by public and private agencies and individuals would be compromised.

5.6 Geology and Soils

5.6.1 Regulatory Setting

The Farmland Protection Policy Act (FPPA) (PL 97-98, Sections 1539-1549; 7 USC Section 4201, et seq.) was enacted in 1981 and is intended to minimize the impact federal actions have toward the unnecessary and irreversible conversion of farmland to non-agricultural uses. This law assures that, to the extent possible, federal programs and policies are administered in a way that is 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 (2) years. The FPPA does not authorize the federal government to regulate the use of private or non-federal land or, in any way, affect the property rights of owners.

The project area is a highly developed and urbanized area; therefore, the FPPA is not applicable.

5.6.2 Existing Conditions

5.6.2.1 Geology

New Orleans and its immediate suburbs lie wholly within the Holocene deltaic plain of the Mississippi River. All sediments are unconsolidated, with no lithified or consistently cemented materials present (Kolb and Saucier 1982). The Mississippi River levees form the high ground, underlain by sands. The old cypress swamps, and grassy marshlands (shown in brown), occupied the low lying areas.

The Mid-town area between the Mississippi River and Metairie Ridge was an enclosed depression known as a "levee flank depression" (Russell 1967). The much older Pleistocene age Prairie formation lies north of Lake Pontchartrain. This unit dips down beneath the City and is generally encountered at depths greater than 40 ft. below ground level. There are no active oil or gas wells in the Study Area.

5.6.2.2 Soils

The proposed project is "land already in or committed to urban development" within the meaning of 7 CFR 658.2(a); therefore, soils are not farmland for purposes of the FPPA. The Study Area lies within the inter-distributary basins of the delta plain, the low-lying land between the higher-elevation natural levee deposits of the distributaries, consisting of clay, organic-rich soils, and sediments. The NRCS describes three (3) soil series for the Study Area, the Cancienne Series, the Harahan Series, and the Schriever Series (Table 14).

Each soil unit comprises several minor soil components, and soil units are named for the dominant soil within the unit. All of these soil types are poorly drained with slow permeability. The Schriever is generally the equivalent of natural levee sediments and the Harahan is generally the equivalent of the swamp sediments. These sediments typically consist of soft to very soft gray clays with thin layers of silt and silty-sand. Beds of black peat and thin layers of organic debris are interlayered within these clay deposits. The deposits underlying the inter-distributary basins consist primarily of fine-grained sediment, which was washed in by floodwaters.

Table 14: Soil Units within the Study Area

Map Unit	Map Unit Name	Description
Cm	Cancienne silty clay loam, 0 to 1 percent slopes	The Cancienne series consists of very deep, level to gently undulating, somewhat poorly drained mineral soils that are moderately slowly permeable. These soils formed in loamy and clayey alluvium. They are on high and intermediate positions on natural levees and deltaic fans of the Mississippi River and its tributaries. They are not Prime Farmland soils.
Ha	Harahan clay, 0 to 1 percent slopes	The Harahan series consists of very deep, poorly drained, very slowly permeable soils. They formed in moderately thick firm clayey alluvium overlying fluid clayey sediments. These soils are on broad backswamp positions on the lower Mississippi River floodplain. These soils are protected from flooding by levees and are artificially drained by pumps. They are not Prime Farmland soils.
Sk	Schriever clay, 0 to 1 percent slopes	The Schriever series consists of very deep, poorly drained, very slowly permeable soils that formed in clayey alluvium. These soils are on the lower parts of natural levees and in backswamp positions on the lower Mississippi River alluvial plain. These are not Prime Farmland Soils.

Source: USDA NRCS 1989

Organic matter found in these deposits was produced in place by the marsh vegetation and preserved by the waterlogged nature of the inter-distributary basins. Urban lands (Ub) are areas where soils are not readily mappable due to urban development.

5.6.3 Environmental Consequences

5.6.3.1 Full Build-Out Alternative

Implementation of the Full Build-Out Alternative stormwater mitigation construction activities would result in no changes or negligible changes to the existing geology in the Study Area. Surface geological formations are soft sediments and are easily excavated by traditional construction equipment. No significant geology impacts would occur at those sites.

With the implementation of the Full Build-Out Alternative, there would be no impact on prime and unique farmland. The NRCS response to the FEMA's SOV letter states that "The project map and narrative submitted with your request indicates that the proposed construction area is in an urban area and therefore is exempt from the rules and regulations of the FPPA – Subtitle I of Title XV, Section 1539-1549. Furthermore, we do not predict impacts to NRCS work in the vicinity."

Temporary surface soil disturbances are anticipated during construction activities. BMPs such as installing silt fences and re-vegetating bare soils with native vegetation would minimize runoff and erosion. If fill dirt is stored on-site as part of unit installation or removal, the contractor would be required to appropriately cover it.

Elevated soil lead levels have been identified in a number of parks in the Study Area, and testing for lead in soils to be disturbed during construction prior to the start of construction should be a part of BMPs. A CAP plan would be approved by the LDEQ prior to the finalization of the EA.

5.6.3.2 Partial Build-Out Alternative (Proposed Action)

Implementation of the Proposed Action stormwater mitigation construction activities would result in no changes or negligible changes to the existing geology in the Study Area. As with the Full Build-Out Alternative, construction activities related to stormwater projects would not affect the deeper underlying geology of the Study Area, and no significant impacts on the local geology would occur.

With the implementation of the Proposed Action, there would be no impact on prime and unique farmland. Temporary surface soil disturbances are anticipated during construction activities. BMP's such as installing silt fences and re- vegetating bare soils with native vegetation would minimize runoff and erosion. If fill is stored on-site as part of unit installation or removal, the contractor would be required to appropriately cover it.

Testing for lead in soils to be disturbed during construction is a part of BMPs. CNO's planning process led to the discovery of the presence of contaminated soils in the proposed project areas, and elevated soil lead levels have been identified in a number of parks in the Study Area. As a result, during the CNO's planning process, additional excavation at parks including Van McMurray and Saratoga were added to the SOW. See Section 5.15 Hazardous Materials for further discussion on soil disturbance related to contaminated soils.

5.6.3.3 No Action Alternative

Under the No Action Alternative, no stormwater drainage improvements would be implemented, so there would be no effects differing from the baseline condition of soils and contamination would remain. The area would continue to flood every time there is a storm greater than a 2-yr frequency flood event, resulting in hazardous or damaging conditions for residents and businesses located within the Study Area, including the spread of contaminants. In addition, the investments made into the neighborhoods by public and private agencies and individuals would be compromised.

5.7 Wetlands and Waters of the U.S.

5.7.1 Regulatory Setting

5.7.1.1 Section 401 of the Clean Water Act

Section 401 of the CWA requires state certification of all Federal licenses and permits in which there is a "discharge of fill material into navigable waters." The certification process is used to determine whether an activity, as described in the Federal license or permit, would impact established site-specific water quality standards. A water quality certification from the issuing state, the LDEQ in this case, is required prior to the issuance of the relevant Federal license or permit. The most common Federal license or permit requiring

certification is the USACE CWA Section 404 permit.

5.7.1.2 Section 402 of the Clean Water Act

The National Pollutant Discharge Elimination System (NPDES) was created by Section 402 of the CWA. This program authorizes the USEPA to issue permits for the point-source discharge of pollutants into waters of the U.S. (WOTUS). Through a 2004 Memorandum of Agreement, the USEPA delegated its permit program for the State of LA to the LDEQ. The ensuing Louisiana Pollutant Discharge Elimination System (LPDES) program authorizes individual permits, general permits, stormwater permits, and pretreatment activities that result in discharges to jurisdictional waters of the state.

5.7.1.3 Section 404 of the Clean Water Act

The USACE, through its permit program, regulates the discharge of dredged or fill material into WOTUS, including wetlands, pursuant to Section 404 of the CWA. In addition, the USEPA has regulatory oversight of the USACE permit program, allowing the agency under Section 404c to veto USACE–issued permits where there are unacceptable environmental impacts.

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR Section 328.3[b]) (Regulatory Programs of the Corps of Engineers 1986).

5.7.1.4 Section 10 of the Rivers and Harbors Act of 1899

Section 10 of the Rivers and Harbors Act of 1899 (RHA) regulates structures or work in or affecting navigable waters. Navigable waters under this statute are defined as "those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce" (33 CFR Section 329.4) (Regulatory Programs of the Corps of Engineers 1986). The USACE implements a permit program to evaluate impacts on navigable waters and their navigable capacity under Section 10 (jointly with Section 404 of the CWA when a discharge of fill material is also involved). Regulated structures include such objects as buoys, piers, docks, bulkheads, and jetties, while work includes dredging or filling activities.

5.7.1.5 Executive Order 11990 – Protection of Wetlands

E.O. 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 (U.S. President 1977a). FEMA regulations for complying with E.O. 11990 are found at 44 CFR Part 9, Protection of Wetlands (1977a).

5.7.2 Existing Conditions

The Mississippi River is located approximately 300 ft. from the southern border of the Study Area. As of June 9, 2017, the USFWS National Wetlands Inventory (NWI) Wetlands Mapper lists two (2) types of wetlands within 0.5 mi. of the Study Area (Figure 22), the Mississippi River, which is classified as riverine (Classification Code R2UBH), and freshwater forested/shrub wetlands (PFO1A) adjacent to the river (USFWS 2017).

As of July 14, 2020, the USFWS NWI depicts there are no designated wetlands within the Study Area (see Figure 22).

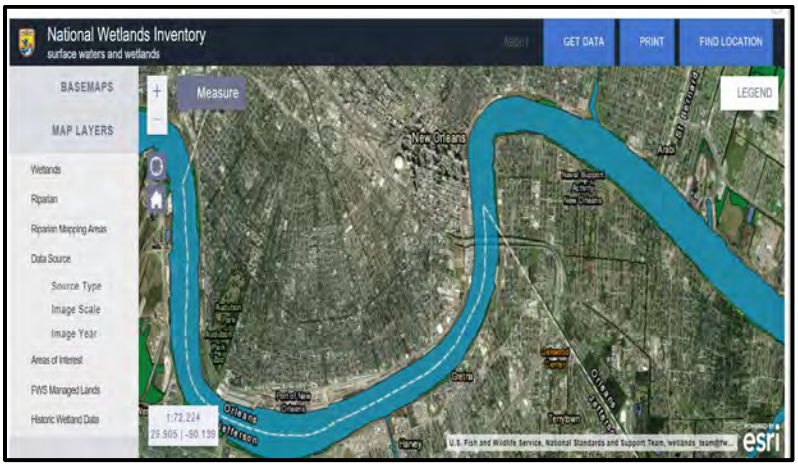

Figure 22. USFWS National Wetlands Inventory Map Of Broadmoor Project Area

5.7.3 Environmental Consequences

5.7.3.1 Full Build-Out Alternative

Implementation of the Full Build-Out Alternative is not anticipated to have long-term adverse effects on any waters near the Study Area. The response to FEMA's SOV letter from the USACE stated that the USACE "does not anticipate any adverse impacts to any Corps of Engineer projects" and that "a Department of the Army permit under Section 404 of the CWA will not be required." The response noted that activities off site, such as "borrow, disposals, haul- and detour-roads and work mobilization site developments may be subject to Department of the Army regulatory requirements." The response from the LDEQ did not note any impacts on wetlands or waters in the Study Area.

CNO's planning process would need a CAP and coordination with the LDEQ. For example, only soil with sample results below the Risk Evaluation CAP Screening Standards for non-industrial use may be taken to a Construction & Demolition (C&D) Waste landfill, for use as cover material. If any additional contaminated soil was discovered during excavation, the SOW may be altered, to fully remediate the areas in the proposal. After all excavation for the project was complete, CNO's planning process would need to coordinate with the LDEQ for a final clearance letter, and a copy would need to be provided to FEMA.

Based on the proposed flood mitigation alternatives, stormwater runoff from construction activities would have a short-term adverse impact on waters near the proposed Study Area during the construction period if specific mitigation measures are not followed by the contractor. According to the designs, the proposed project would create wetlands within the Study Area. Creating these wetlands would not only provide a natural space to hold stormwater runoff, but the wetlands would provide a natural purifier, removing pollutants from the water column, and would add aesthetic value to the area.

5.7.3.2 Proposed Action

Under the Proposed Action, no WOTUS, including wetlands, are expected to be affected under the Proposed Action. Since the projects included in the Proposed Action are a subset of the Full-Build-Out Alternative, the above responses to the SOV letter from the USACE and the LDEQ also pertain to the Proposed Action. Under the Proposed Action, stormwater runoff from construction activities would have a minor, short-term adverse impact on Lake Pontchartrain waters during the construction period if specific mitigation measures are not followed by the contractor.

The USACE emailed a Letter of No Objection (LONO) to CNO on March 12, 2020, for permission to improve drainage capabilities by installing storm water parks, pervious pavement, bioswales, and street basins at Central City, Garden District, Irish Channel, St. Thomas, and Lower Garden District Neighborhoods, approximately 30-1500 ft. landward of the left descending Mississippi River Floodwall, vicinity of second order levee station 339+22, at New Orleans, LA.

Permission was granted for the CNO's Proposed Action, provided:

- The work is accomplished in accordance with the above referenced email and accompanying drawings.
- All excavations and sub-surface work within 300 ft. of the floodwall shall be performed, completed, and backfilled during Mississippi River stages below +11.0 ft. on the Carrollton Gage. No waiver will be granted due to the proximity to the flood protection. Information concerning current river stages may be obtained on our website at www.mvn.usace.army.mil <http://www.mvn.usace.army.mil.
- All excavations and sub-surface work from 300 ft. to 1500 ft. of the floodwall shall be performed, completed, and backfill during Mississippi River stages below +15.0 ft. on the Carrollton Gage.
- Excavations within 300 ft. shall be backfilled with clay material or native material (not sand). Permeable materials can only be used as bedding material.
- The applicant must provide written notification to this office of the construction timeline to include the proposed start and end dates. Additionally, the applicant must notify this office prior to commencement and upon completion of the work permitted herein.

The Southeast Louisiana Flood Protection Authority Board – East (SLFPA-E), Permitting Officer operates for the Mississippi River Levee Wall, on behalf of the Orleans Levee District. The Officer signed and granted permission on April 21, 2020 (Permit# OL2019-00026, Appendix F) for the CNO to improve drainage capabilities by installing storm water parks, pervious pavement, bioswales, and street basins at Central City, Garden District, Irish Channel, St. Thomas, and Lower Garden District Neighborhoods, approximately 30-1500 ft. landward of the left descending Mississippi River Floodwall, in the vicinity of second order levee station 339+22, at New Orleans, LA, in Orleans Parish. The Officer specified that "No waiver will be granted due to the proximity to the flood protection. All excavations and sub-surface work within 300 ft. of the floodwall shall be performed, completed, and backfilled during Mississippi River stages below +11.0 ft. on the Carrollton Gage".

In addition, contamination of soils can adversely affect groundwater. During the CNO's planning process, additional excavation at parks including Van McMurray and Saratoga Square were added to the SOW. CNO's planning process led to the discovery of the presence of contaminated soils in these proposed project areas.

CNO's consultants Leaaf Environmental, LLC then prepared a Corrective Action Plan (CAP) for remediation of the contaminated soils, dated March of 2019. Leaaf then sent an email, dated July 9, 2019, to the LDEQ describing the CAP and requesting the LDEQ approval for excavation plans. The Leaaf correspondence stated they are working with the CNO's Capital Projects Administration on the Broadmoor Drainage Upgrades and Green Infrastructure Project throughout New Orleans. As part of this project, several playgrounds and other City owned properties would be redeveloped with subsurface GI utilities following FEMA's HMGP guidelines. This work involves the excavation and disposal of soil from each of the playgrounds/properties. Several of these playgrounds have been previously investigated and mitigated for lead contamination in near-surface soil, as needed based on HUD guidelines.

The LDEQ sent a letter, dated October 3, 2019 approving the CAP, with no objection to the plan with the following condition:

> • Only soil with sample results below the Risk Evaluation CAP Screening Standards for non-industrial use may be taken to a C&D Waste landfill, for use as cover material.

If any additional contaminated soil is discovered during excavation, this SOW may be altered, to fully remediate the areas in this proposal. After all excavation for the project is complete, Leaaf will coordinate with the LDEQ for a final clearance letter, and a copy will be provided to FEMA.

5.7.3.3 No Action Alternative

No impacts are anticipated on waters or wetlands of the U.S. under the No Action Alternative. Because the proposed projects would not be implemented, the No Action Alternative would have no effects differing from the baseline conditions on wetlands or WOTUS except contaminants and flooding in the area would not be addressed as fully.

5.8 Groundwater

5.8.1 Regulatory Setting

The Sole Source Aquifer (SSA) Program is authorized by Section 1424I of the Safe Drinking Water Act of 1974. Designation of an aquifer as a SSA provides USEPA with the authority to review Federally funded projects planned for the area to determine their potential for contaminating the aquifer. The USEPA defines a SSA as an underground water source that supplies at least 50% of the drinking water consumed in the area overlying the aquifer. These areas have no alternative drinking water source(s) that could physically, legally, or economically supply all who depend upon the aquifer for drinking water.

5.8.2 Existing Conditions

The southern border of the Southern Hills Regional Aquifer System under Lake Pontchartrain is approximately 15 mi. north of the Study Area. The Study Area is not located within the Southern Hills Regional Aquifer System watershed area (USEPA 2008 and CDM 2017). The primary groundwater resources in Orleans Parish include shallow aquifers, the Mississippi River point bar deposits, the Gonzales-New Orleans aquifer, the Gramercy and Norco aquifers, and the "1,200-foot" sand of the New Orleans Area (Prakken et al. 2014). This system of aquifers supplies freshwater along the Mississippi River corridor for industrial and public use and varies in depths. The shallow aquifers are found no more than 200 ft. below sea level and are discontinuous and local.

Aquifers near the Lake Pontchartrain shoreline do not contain freshwater. Approximately 300 ft. below sea level at the Industrial Canal is the Norco Aquifer. This aquifer is approximately 50 ft. thick and is separated from the Gonzales-New Orleans Aquifer by a 200-ft. clay bed. The Gonzales-New Orleans Aquifer is found approximately 400 ft. below sea level and is 250 ft. deep. Its base is underlain by saltwater. It supplies freshwater to the greater New Orleans area, beginning at Lake Pontchartrain and extending southward toward the Industrial Canal.

5.8.3 Environmental Consequences

5.8.3.1 Full Build-Out Alternative

With the implementation of the Full Build-Out Alternative, there are no anticipated impacts on a SSA aquifer. The construction of bioswales, detention ponds, infiltration basins, wetlands, bio-retention cells, and pervious pavement would require the removal of soil to varying depths of, on average, 4 to 5 ft. below grade for temporary storage and transport of stormwater. Site-specific seasonal high-groundwater levels will need to be taken into account during the design of infiltration BMPs in order to accurately determine the effective volume of water storage, as well as mitigation of the unintentional creation of intermittent retaining ponds that hold groundwater from the shallower aquifers. The contractor should observe all precautions to protect the groundwater of the region.

5.8.3.2 Partial Build-Out Alternative (Proposed Action)

With the implementation of the Proposed Action, there would be no anticipated impacts on an SSA. However, similar impacts on the local groundwater, as described above, would be anticipated under this alternative. The contractor should observe all precautions to protect the groundwater of the region, including continued coordination with the LDEQ regarding the potential for soil contamination leachate as a point source until fully remediated.

5.8.3.3 No Action Alternative

Because the proposed projects would not be implemented, the No Action Alternative would have no effects differing from the baseline conditions on the water resources in the Broadmoor Study Area and Orleans Parish, other than the contaminated soils may leach into waters, and floods continue to pose a serious hazard.

5.9 Floodplains and Hydrology

5.9.1 Regulatory Authority

E.O. 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., the 100-yr floodplain) whenever there is a practicable alternative (for *Critical Actions*, within the 0.2% annual chance SFHA, i.e., the 500-yr floodplain). FEMA's regulations for complying with E.O. 11988 are found at 44 CFR Part 9, Floodplain Management and Protection of Wetlands (1980).

5.9.2 Existing Conditions

In July of 2005, FEMA initiated a series of flood insurance studies for many of the LA coastal parishes as part of the Flood Map Modernization effort through FEMA's National Flood Insurance Fund. These studies were necessary because the flood hazard and risk information shown on many Flood Insurance Rate Maps (FIRMs) was developed during the 1970s, and the physical terrain had changed significantly, including major loss of wetland areas. After Hurricanes Katrina and Rita, FEMA expanded the SOW to include all of coastal LA. The magnitude of the impacts of Hurricanes Katrina and Rita reinforced the urgency to obtain additional flood recovery data for the coastal zones of LA. 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, and a final approach was published in 2013 (FEMA 2013).

Updated preliminary flood hazard maps from an intensive 5-yr mapping project guided by FEMA were provided to all LA coastal parishes. These maps released in early 2008, known as preliminary Digital Flood Insurance Rate Maps (DFIRMs), were based on the most technically advanced flood insurance studies ever performed for LA, followed by 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, and are accessible at FEMA's Preliminary Flood Hazard Data webpage.

The USACE has completed work on a Hurricane Storm Damage Risk Reduction System (HSDRRS) for the Greater New Orleans (GNO) area (USACE 2017). This 350-mi. system of levees, floodwalls, surge barriers, and pump stations will reduce the flood risk associated with a storm event. In September of 2011, the USACE provided FEMA with assurances that the HSDRRS is capable of defending against a storm surge with a 1% annual chance of occurring in any given year (USACE 2017). The areas protected include portions of St. Bernard, Jefferson, Orleans, and Plaquemines Parishes. In November 2012, FEMA revised the 2008 preliminary DFIRMS within the HSDRRS to incorporate the reduced flood risk associated with the system improvements. The preliminary DFIRMs were subsequently revised in 2013 and 2014. On September 30, 2016, the 2014 Revised DFIRMs for Orleans Parish became effective. The 2016 Effective DFIRMs are considered best available flood risk data for Orleans Parish.

Per Effective DFIRM Panel Numbers 22071C0228F, 22071C0229F, and 22071C0237F, dated September 30, 2016, the Study Area is located within zones X-reduced flood risk due to levee, AE EL -2, AE EL -1, AE EL 0, AE EL 1, and Zone AE EL 3. All AE zones are SFHAs within the 100-yr floodplain (Figure 23). Zone AE EL -2 has a Base Flood Elevation (BFE) of -2 ft. and a ground elevation (GE) of -3.8 ft. North American Vertical Datum 1988 (NAVD88). Zone AE EL -1 has a BFE of -1 ft. and a GE of -4.2 ft. (NAVD88). Zone AE EL 0 has a BFE of 0 ft. and a GE of -1.3 ft. (NAVD88). Zone AE EL 1 has a BFE of 1 ft. and a GE of 0.5 ft. (NAVD88). Zone AE EL 3 has a BFE of 3 ft. and a GE of 2 ft. (NAVD88). See Figure 23 for the Louisiana State University (LSU) Ag Map of the Proposed Action area, showing the area as AE, EL -1 per DFIRM Panel 22071C0228F, Effective date September 30, 2016.

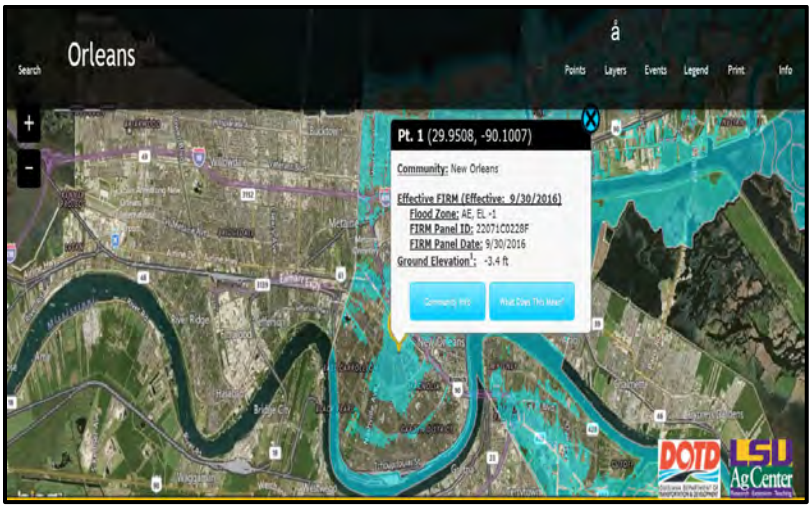

Figure 23. LSU Ag Map of the Proposed Action Area

BCG Engineering and Consulting, Inc (BCG) was hired by the SWBNO to conduct an existing conditions and preliminary engineering study. As a result, BCG issued the SWBNO Engineering Investigation of Broadmoor Basin Drainage System report, dated July 2015. In this report, BCG studied the Broadmoor watershed which is bounded by I-610 to the north, Jefferson Parish line/17th Canal to the west, I-10 to the east, and the Mississippi River to the south. The topography is primarily sloping away from the Mississippi River to a low point at the junction of S. Broad and Napoleon Ave. between Constance St. and S. Broad. Several large canals drain the area where storm water is then pumped by DPW 01 and 06 into Lake Pontchartrain. Per this study, major flooding is experienced on the south side of St. Charles Ave. and the south side of S. Claiborne Ave. due to the two avenues acting as levees as the street elevations are higher than the adjacent land. Maximum elevations can be found along the natural alluvial ridges of the Mississippi River (ranging from +5 to +10 ft. National Geodetic Vertical Datum 1929); the lowest elevations found in the Broadmoor Neighborhood of less than +1 ft. NGVD29.

This study of existing conditions during a storm event was presented as comparative water surface profiles and ground line surveys for four streets within the Study Area: South Miro, Derbigny, Baronne, & Constance. Each profile shows water surface elevations for the 2-yr, 5-yr, 10-yr, and 100-yr events. Each street experiences anywhere from a few in. to a few ft. of water, depending on the road elevation at a particular area and the storm event. See Figures 24 through 28 below.

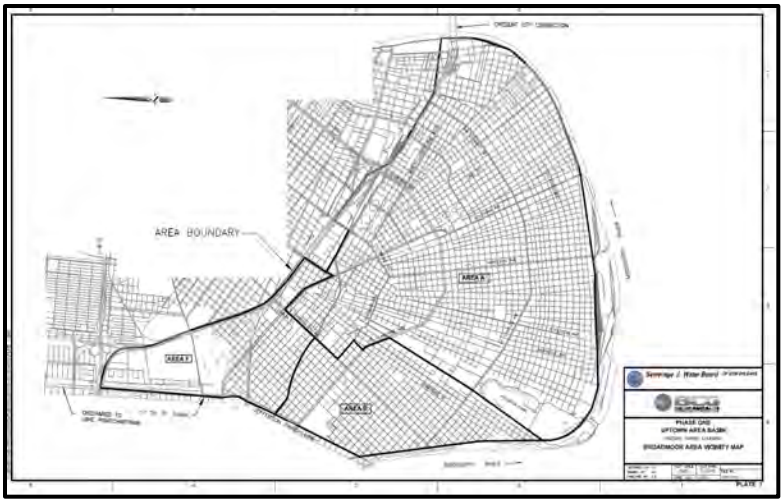

Figure 24. Broadmoor Area Watershed, BCG Engineering and Consulting LLC, July 2015

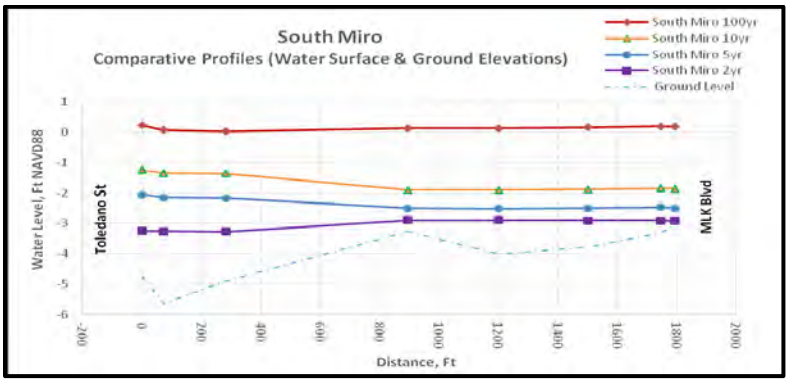

Figure 25. Water Surface Elevations at Various Storm Events and Ground Elevations along South Miro Street, BCG Engineering and Consulting LLC, July 2015

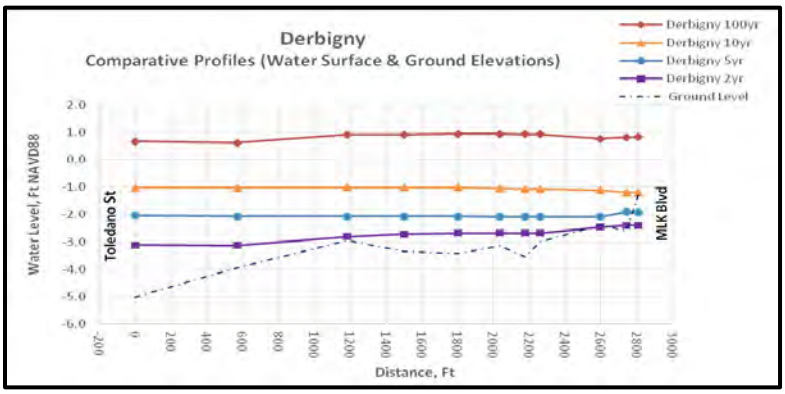

Figure 26. Water Surface Elevations at Various Storm Events and Ground Elevations along Derbigny Street, BCG Engineering and Consulting LLC, July 2015

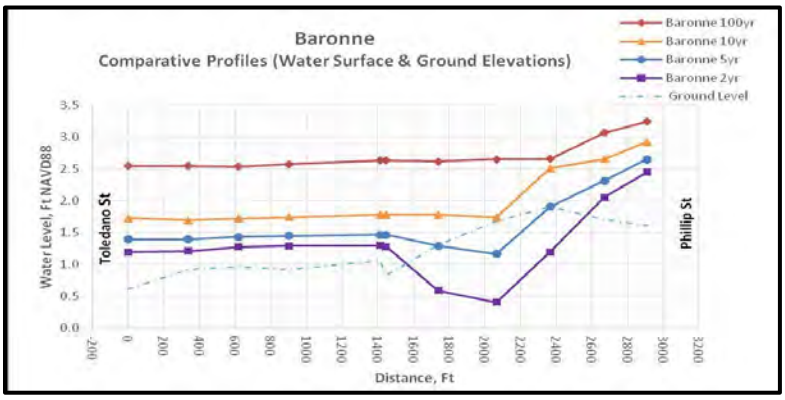

Figure 27. Water Surface Elevations at Various Storm Events and Ground Elevations along Baronne Street, BCG Engineering and Consulting LLC, July 2015

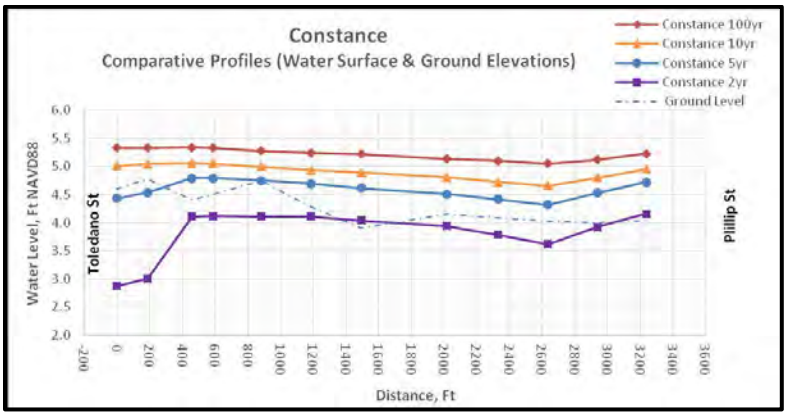

Figure 28. Water Surface Elevations at Various Storm Events and Ground Elevations along Constance Street, BCG Engineering and Consulting LLC, July 2015

5.9.3 Environmental Impacts

5.9.3.1 Full Build-Out Alternative

Implementation of the Full Build-Out Alternative was reviewed for possible impacts associated with occupancy or modification of a floodplain; in compliance with E.O. 11988, the eight-step process would be included in Appendix E. Impacts on the nature of the floodplain itself have been determined to be negligible, since the purpose of the Full Build-Out Alternative is to lower the impacts from regular and frequent flooding events by improving upstream storage, including the use of GI interventions. The Full Build-Out Alternative would effectively lower the floodplain elevation and allow the floodplain to function more efficiently.

The Full Build-Out Alternative would reduce the risk of future flooding within the Study Area and reduce the FEMA flood damage claims experienced during and after major events by increasing the effectiveness of the existing drainage system and restoring floodplain values by creating water storage and recharging areas. Much of the work would be underground and, therefore, would not affect the floodplain. Stormwater drains in the Study Area must be kept cleared so as not to interfere with floodplain functions.

5.9.3.2 Partial Build-Out Alternative (Proposed Action)

Implementation of the Proposed Action would reduce flooding in areas adjacent to the actual projects and restore floodplain values by creating water storage and recharging areas. Under the Proposed Action, some beneficial effects to the floodplain may be experienced, including reduced flood damages and reduced contaminants. In 2019, CDM Smith was hired to conduct a study area of the 90% design drawings which focus on improvements within the DPS 01 service area as part of this Partial Build-Out Alternative. The watershed of DPS 01 is generally bounded by South Carrolton Ave. to the north, Pontchartrain Expressway to the East, the Mississippi River to the South, and Audubon Park/Audubon Blvd to the West. DPS 01 is located at the north end of the project. See Figure 29 for exact boundaries.

DPS 01 pumps into the canal along Washington Ave. and Palmetto St. before joining with the canal running along Monticello Ave. The combined flow is then pumped by DPS 06 into the 17th St. Canal and continues to flow to the 17th St. Canal Pump Station where it is pumped into Lake Pontchartrain The project area is located within a slice of the DPS 01 watershed. The limiting factor for flood mitigation in the DPS 01 watershed is the maximum capacity of the downstream Palmetto Canal (5,700 CFS), which is less than the DPS 01 capacity of 7,200 CFS.

Figure 29. DPS 01 Location, Watershed, Project Area. 90% Design H&H Summary, CDM Smith, February 2019

Per the 90% Design Hydrologic and Hydraulic (H&H) Summary by CDM Smith, dated February 2019, the project results show that there are no projected project impacts either upstream or downstream of the DPS 01 watershed. There are no upstream areas draining into the DPS 01 watershed as the watershed is bounded by the Mississippi River to the upstream side, and the only outfall of the watershed is the pump station which is constrained by the downstream Palmetto Canal. Downstream of the project area show minor reductions in the WSE within the Palmetto Canal during the storm events, therefore there are no downstream impacts anticipated with this project.

The goal of this project is to retain and store stormwater to reduce the burden of the canal systems and pumping stations. Per the inundation maps found in the 90% Design H&H Summary by CDM Smith, dated February 2019, the DPS 01 watershed experiences between 1 to 12 in. of decreased flooding during the 2-yr and 5-yr storm events, and 1 to 6 in. of decreased flooding during the 10-yr storm event. While projects only occur within the specified project area, beneficial impacts can be seen in the wider DPS 01 watershed. This is because the water that is collected, and detained/retained in the proposed project infrastructure, particularly in the upper watershed, frees up capacity in the collection system existing infrastructure and allows improved drainage downstream.

In compliance with E.O. 11988, the eight-step process is included in Appendix E. Impacts on the nature of the floodplain itself have been determined to be negligible, since the purpose is to lower the impacts from regular and frequent flooding events by improving upstream storage, including the use of GI interventions. This Alternative would effectively lower the floodplain elevation and allow the floodplain to function more efficiently and would reduce hazardous flooding and contaminants in the floodplain.

The Proposed Action Alternative would reduce the risk of future flooding within the Study Area and reduce the FEMA flood damage claims experienced during and after major events by increasing the effectiveness of the existing drainage system and restoring floodplain values by creating water storage and recharging areas. Much of the work would be underground and, therefore, would not affect the floodplain. Stormwater drains in the Study Area must be kept cleared so as not to interfere with floodplain functions.

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.

Floodplain permits have been obtained and submitted to FEMA and FEMA-Environmental Historic Preservation (FEMA-EHP) for inclusion in the project files. Should the site plans (including drainage design) change the applicant must submit changes to FEMA-EHP for review and approval prior to the start of construction.

5.9.3.3 No Action Alternative

Because the proposed projects would not be implemented, the No Action Alternative would have no effects differing from the baseline conditions on the floodplain in the Broadmoor Study Area and Orleans Parish.

5.10 Coastal Resources

5.10.1 Regulatory Setting

The Coastal Zone Management Act (CZMA) of 1972 (16 USC 1451, et seq.) is administered by the Department of Commerce's Office of Ocean and Coastal Resource Management within the National Oceanic and Atmospheric Administration (NOAA). It applies to all coastal states and to all states that border the Great Lakes.

The Coastal Barrier Resources Act (CBRA) of 1982 (16 USC 3501 et seq.), administered by the USFWS, was enacted to protect sensitive and vulnerable barrier islands found along the U.S. Atlantic, Gulf, and Great Lakes coastlines.

The CBRA established the Coastal Barrier Resources System (CBRS), which is composed of undeveloped coastal barrier islands, including those in the Great Lakes. With limited exceptions, areas contained within a CBRS are ineligible for direct or indirect federal funds that might support or promote coastal development, thereby discouraging development in coastal areas.

Otherwise Protected Areas (OPAs) are a category of coastal barriers within the CBRS. OPAs are undeveloped coastal areas established under Federal, State, or local law or held by a qualified organization, primarily for wildlife refuge, sanctuary, recreational, or natural resource conservation purposes. Flood insurance is restricted in OPAs, though OPAs may receive other forms of Federal Assistance.

5.10.2 Existing Conditions

All of Orleans Parish, which includes the Study Area, is within the regulated coastal zone of LA. It is located entirely within fast lands, which are defined by the Louisiana State Legislature as "lands surrounded by publicly owned, maintained, or otherwise validly existing levees, or natural formations, as of the effective date of this Act or as may be lawfully constructed in the future, which levees or natural formations would normally prevent activities, not to include the pumping of water for drainage purposes, within the surrounded area from having direct and significant impacts on coastal waters" (State of Louisiana, 2006). The project area is not located in, or connected to, a CBRS Unit or OPA.

5.10.3 Environmental Impacts

5.10.3.1 Full Build-Out Alternative

No impacts on coastal waters are anticipated under the implementation of the Full Build-Out Alternative; however, coastal use permitting may be required. The proposed project may require a coastal use permit (CUP) from the Louisiana Department of Natural Resources (LDNR). The applicant is required to complete a CUP application and submit the packet to LDNR in order to make this determination. The submission should include locality maps, construction plats and plans with cross-section views, etc., along with the appropriate application fee. The applicant will comply with all conditions of the required permit.

All coordination pertaining to these activities and applicant compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files.

5.10.2.2 Partial Build-Out Alternative (Proposed Action)

The Proposed Action is anticipated to help alleviate flooding and this would result in less disaster related contaminants entering local wetlands, waterways and drinking water. In addition, detention attenuated flows would reduce erosive forces, all of which would be considered beneficial to the CZM area. The area is located within the Louisiana Coastal Management Zone (LCMZ) and may require a CUP application, which is the responsibility of the CNO.

5.10.2.3 No Action Alternative

Because the proposed projects would not be implemented, the No Action Alternative would have no effects differing from the baseline conditions on the coastal waters in the Broadmoor Study Area and Orleans Parish, other than contaminants could continue to spread. Conditions would continue as is and hazardous flooding would be more destructive to waterways such as the adjacent Mississippi River, that flow into the Gulf of Mexico.

5.11 Biological Resources

5.11.1 Regulatory Authority

ESA of 1973 (16 U.S.C. 1531-1543) prohibits the taking of listed, threatened, and endangered species unless specifically authorized by permit from the USFWS or National Marine Fisheries Service (NMFS). "Take" is defined in 16 U.S.C. 1532 (19) as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering (50 CFR Section 17.3) (Endangered and Threatened Wildlife and Plants 1975).

An "endangered species" is defined as in danger of extinction throughout all or a significant portion of its range. A "threatened species" is defined as likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. "Candidate species" are those species for which the USFWS has sufficient information on the species' biological vulnerability and threats to support issuance of a proposed rule to list the species under the ESA.

"Species of concern" refers to species for which a listing of threatened or endangered may be appropriate, but the USFWS has insufficient information to support their listing.

Section 7(a) (2) of the ESA requires the lead Federal agency to consult with either the USFWS or NMFS, depending upon which agency has jurisdiction over the Federally listed species in question, when a Federally funded project either may have the potential to adversely affect a Federally listed species, or a Federal action occurs within or may have the potential to impact designated critical habitat. The lead agency must consult with the USFWS, NMFS, or both (Agencies) as appropriate and would determine if a biological assessment is necessary to identify potentially adverse effects to Federally listed species, their critical habitat, or both. If a biological assessment is required, it would be followed by a biological opinion from the USFWS, or both depending on the jurisdiction of the Federally listed species identified in the biological assessment.

If the impacts of a proposed Federal project are considered negligible to Federally listed species, the lead agency may instead prepare a letter to the Agencies with a "May Affect, but Not Likely to Adversely Affect" determination requesting the relevant agency's concurrence. This EA serves to identify potential impacts and meet the ESA Section 7 requirement by ascertaining the risks of the Proposed Action and alternatives to known Federally listed species and their critical habitat, as well as providing a means for consultation with the Agencies.

Unless otherwise permitted by regulation, the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712) prohibits pursuing; hunting; taking; capturing; killing; attempting to take, capture, or kill; possessing; offering for sale; selling; offering to purchase; purchasing; delivering for shipment; shipping; causing to be shipped; delivering for transportation; transporting; causing to be transported; carrying or causing to be carried by any means whatever; receiving for shipment, transportation, or carriage; or exporting; at any time or in any manner, any migratory bird or any part, nest, or egg of any such bird, that is included on the list of protected bird species. The USFWS is responsible for enforcing the provisions of this Act.

5.11.2 Existing Conditions

There are currently five (5) Federally listed species under the ESA, which are managed by the USFWS, found within Orleans Parish (Table 15) (USFWS 2016).

Table 15: Federally Protected Species of Orleans Parish

Group	Common Name	Scientific Name	Status
Birds	Brown pelican	*Pelecanus occidentalis*	Recovery
Fishes	Atlantic sturgeon (Gulf subspecies)	*Acipenser oxyrinchus desotoi*	Threatened
Fishes	Pallid sturgeon	*Scaphirhynchus albus*	Endangered
Mammals	Louisiana black bear	*Ursus americanus luteolus*	Recovery
Mammals	West Indian Manatee	*Trichechus manatus*	Endangered

Source: USFWS 2016

The project study area is currently urbanized and consists primarily of single and multi-family residences with a component of commercial and industrial businesses. The site has grasses, and small shrubs commonly found and maintained in the adjacent urban areas. The vegetation species and animal species present in the area typically can adapt to an urban/developed environment.

These species include raccoon (*Procyon lotor*), eastern gray squirrel (S*ciurus carolinensis*), rabbits (*Sylvilagus sp.*), rodents (*Mus sp.* and *Rattus sp.*), and various species of birds, snakes, turtles, and amphibians. The sites are terrestrial and have been previously disturbed. No state or federal parks, wildlife refuges, scenic streams, or wildlife management areas are located within the bounds of the project area.

According to the USFWS SOV response, dated May 25, 2017, the Proposed Action will have no effect on resources (Appendix C Agency Correspondence). A check on the website and an official species list provided by the USFWS Information for Planning and Consultation (IPaC) website accessed on June 9, 2019, multiple species listed on the Federal Endangered Species List occur or potentially occur in Orleans Parish. Most of these species are aquatic and are thus not expected to be present. Two (2) endangered bird species, the Piping Plover and the Red Knot, are also known to occur or potentially occur within Orleans Parish, however, not normally within the CNO city limits.

5.11.3 Environmental Impacts

5.11.3.1 Full Build-Out Alternative

With the implementation of the Full Build-Out Alternative, stormwater construction activities would have to send an SOV to the resource agencies to ensure no effects to species in the Study Area.

5.11.3.2 Partial Build-Out Alternative (Proposed Action)

GSRC submitted a SOV letter to the USFWS on May 3, 2017. Per the USFWS ESA response form, dated May 25, 2017, the proposed project activities are not anticipated to adversely affect any Federally protected, threatened, or endangered species. No further ESA coordination with the USFWS is necessary for the Full Build-Out Alternative unless there are changes in the scope or location of the proposed project or the project has not been initiated one (1) yr from the date of this letter.

To provide the most biologically diverse and supportive habitat for urban biological resources, any new vegetation plantings should be native to the area and non-invasive. Any created habitat would be a net positive effect on the urban environment. In particular, the planned GI (e.g., bioswales) should also provide habitat for local species.

Improved drainage systems would reduce breeding ground for vector species such as mosquitoes and rodents. An integrated mosquito management approach is used by the City of New Orleans Mosquito, Termite and Rodent Control Board (NOMTCB). This involves vector population surveillance, public education, larval mosquito habitat reduction, and chemical control of larval and adult mosquitoes. Larval source reduction (i.e. the physical elimination of larval breeding sites) involves the inspection and removal of man-made containers

(including tires), clutter and trash around residences. For sites that cannot be removed or drained, biorational larvicides are used to target developmental stages. Adult mosquitoes can be treated on a yard, block or residential level using a variety of equipment; backpack or hand-held sprayers, trucks and airplanes.

If the scope or location of the proposed project is changed, coordination should occur as soon as such changes are made.

5.11.3.3 No Action Alternative

Because the proposed projects would not be implemented, the No Action Alternative would have no effects differing from the baseline conditions on the biological resources in the Study Area and Orleans Parish.

5.12 Cultural Resources

5.12.1 Regulatory Setting

The consideration of impacts to historic and cultural resources is mandated under Section 101(b) 4 of NEPA as implemented by 40 CFR Part 1501-1508. Section 106 of the NHPA requires federal agencies to consider their effects of a federally funded or assisted project ("an undertaking") on historic properties and allows the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. Additionally, federal agencies are required to consult with Indian Tribal Governments on a government-to-government basis as required in E.O. 13175. The 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, the FEMA has initiated consultation on this project in accordance with the LA Programmatic Agreement Among the FEMA, the LA State Historic Preservation Officer, the GOHSEP, and Participating Tribes executed on December 21, 2016 (LA Statewide PA). The LA Statewide PA was created to streamline the Section 106 review process.

The Section 106 process requires the identification of historic properties that may be affected by the Preferred Action or alternatives within the project's Area of Potential Effects (APE). Historic properties, defined in Section 101(a)(1)(A) of the 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.

5.12.2 Existing Conditions

Cultural resources in the project area were identified by the FEMA-EHP conducting reviews of the NRHP Database, the Louisiana Cultural Resource Map and associated files, internal FEMA Section 106 documents, historic maps, and conducting site visits. The APE contains a total of four (4) NRHP listed properties. Additionally, this project will directly affect four parks that are aged 50 years or older.

Historic landscape features in the NRHP districts that may be directly affected may include: brick or stone pavers (including driveways, driveway aprons, and crosswalks), brick or stone sidewalks (including footlaps), brick or stone parking boundaries, brick or stone curbs, distinctive concrete curbs, timber curbs, brick or stone open gutters, brick or stone gutter bottoms, steel curb guards, inlaid decoration in sidewalks, footlaps, driveways, and driveway aprons, construction company stamped impressions in sidewalks, utility covers, catch basins and grates, street name ceramic tiles, house number ceramic tiles, streetlights, streetcar catenary standards (including light mechanism), relic streetcar tracks and pavers, traffic bollards, hitching posts, signage (e.g. wayfinding, historical markers), mounting blocks or steps (a.k.a. carriage steps, footbridges over open gutters), horse troughs, boundary markers and land monuments, sculpture/statuary, commemorative monuments, fences/walls/gates, two-track driveways, retainer gardens, and abandoned fire hydrants.

A total of 79 archaeological sites have been previously recorded within the overall project boundary. Of those 79 sites, 10 are recorded with site boundaries immediately adjacent to areas that would see direct effects within the APE. Of those 10 sites, seven are of undetermined eligibility and three have been previously determined eligible for listing in the NRHP. Site 16OR221, with deposits that include both contact and pre-contact

components and more than 60 archaeological features, is considered eligible for listing in the NRHP. Site 16OR291, with deposits consisting of historic residential and commercial artifacts, as well as personal items, and features including sheet midden deposits and a brick privy, was determined eligible for listing in the NRHP. Adverse effects to this site from a previous project were mitigated through a Section 106 Memorandum of Agreement among HUD, State Historic Preservation Office (SHPO), and the ACHP. Site 16OR355, with deposits consisting of historic artifacts, some dating to the 18th century, is considered eligible for listing in the NRHP. The standing structure on the site may have been associated with an early 18th century Jesuit Plantation.

FEMA conducted Phase I archaeological investigations at four parks and one stormwater lot as part of this proposed undertaking. Archaeological deposits, dating from the 19th and 20th centuries, were recovered from four of the locations, resulting in the recordation of four new archaeological sites. FEMA determined, and SHPO concurred (November 9, 2018), that none of these new sites are eligible for listing in the NRHP. FEMA was unable to include the second stormwater lot in the Phase I investigations because it is completely covered in concrete. Phase II investigations were conducted at previously recorded site 16OR215. FEMA determined, and SHPO concurred (August 8, 2018), that these archaeological deposits are not eligible for listing in the NRHP.

One block, proposed for rain garden construction, is adjacent to multiple historic cemeteries. Research shows the block as developed with residential and commercial structures from at least the late 19th century into the early 20th century. In the twentieth century, the block includes some municipal developments, including several underground features. Although the block was developed historically, its location off the Mississippi River natural ridge, north of St. Charles Ave., suggests the block has low potential for the presence of colonial, contact period, and pre-contact material. After a review of historic maps, archival data, and the Environmental Phase I/II testing of the block, FEMA met with SHPO and the CNO archaeologist (via phone call on January 17, 2020 and subsequent follow up discussions) to discuss the property. FEMA, SHPO, and the CNO archaeologist determined that Phase I/II archaeological survey of the block would not be required due to the high degree of disturbance resulting from the multiple development episodes and previous environmental activities on the site. The CNO archaeologist completed monitoring of environmental testing within the block.

FEMA has determined Site 16OR752 to have a potential for both archaeological deposits and human remains. The site is immediately adjacent to Site 16OR707, the former Gates of Mercy (Shanarai Chasset) Cemetery. Proposed work on the site and on the adjacent street will likely occur within or adjacent to the former boundaries of the cemetery. Previous construction projects in the vicinity have shown that some human remains are still present. Although the cemetery boundaries and designation have been legally removed and most of the human remains were removed when the cemetery was decommissioned in the late 1950s, the potential for uncovering human remains still exists.

CNO's archaeological contractor conducted a Phase I/II archaeological survey of a portion of Site 16OR752. The Phase I/II identified features and deposits from the 19th to 20th centuries; however, the draft report submitted to FEMA on June 14, 2022, did not attempt to provide a temporal affiliation for most of the features and most of the temporally diagnostic artifacts recovered were from disturbed contexts. FEMA determined, and SHPO concurred (June 21, 2022), that the archaeological deposits at this site are not eligible for listing in the NRHP. FEMA sent copies of the report to consulting parties on July 20, 2022 and received one concurrence from the Eastern Shawnee Tribe of Oklahoma (ESTO) on September 15, 2022. No other responses were received.

Based on the identification and evaluation described, FEMA has determined that there are at least eight historic properties, as defined in 36 CFR §800.16(l), within the APE: Irish Channel District, Lower Garden District, Central City District, the Magnolia St. Housing Project, two historic parks, and two archaeological sites.

5.12.2.1 Full Build-Out Alternative

FEMA received the first phase of design for this project in January 2016, which consisted of the Full Build-Out Alternative SOW. FEMA identified multiple historic properties within the APE, as outlined in the Existing Conditions above. In addition, the Full Build-Out Alternative had the potential to affect the Garden District and St. Charles Streetcar National Historic Landmarks. Other portions of the Full Build-Out Alternative would directly affect areas known to contain human remains. Based on the potential to affect NHLs and human remains, this Alternative was deemed to be infeasible due to the effects on historic properties. During the design

development process, FEMA, in accordance with Stipulation II.C.5(b) of the LA Statewide PA, requested the sub-recipient modify the scope to avoid or minimize effects to historic properties. The Proposed Action Alternative reflects the consideration of historic properties throughout the design process compared to the Full Build-Out Alternative.

5.12.2.2 Partial Build-Out Alternative (Proposed Action)

The Sub-recipient submitted the first phase of design for this project in January 2016. Since then, the proposed project has undergone significant changes, namely a reduction in scope. On February 9, 2017, FEMA notified SHPO and interested parties by email of its intent to fund the DPS-01 Drainage Upgrades and Green Infrastructure Program. On the same date, FEMA notified federally recognized Tribes with an interest in the project area (Tribes) including the Alabama Coushatta Tribe of Texas, the Choctaw Nation of Oklahoma, the Coushatta Tribe of Louisiana, the Chitimacha Tribe of Louisiana, the ESTO, the Jena Band of Choctaw Indians, the Kialegee Tribal Town, the Mississippi Band of Choctaw Indians, the Muscogee Creek Nation, the Seminole Nation of Oklahoma (SNO), the Seminole Tribe of Florida, and the Tunica-Biloxi Tribe of Louisiana. FEMA also notified the National Park Service (NPS) because the Undertaking had the potential to affect the Garden District and St. Charles Streetcar National Historic Landmarks. NPS did not respond. On April 26, 2017, FEMA notified the same parties of its intent to prepare an EA to meet the requirements of the NEPA. The email notification described the scoping process, listed two public meeting dates, and solicited input and comments by email, phone, fax, or mail. On June 5, 2017, FEMA invited SHPO to a design review meeting hosted by the CNO to discuss historic streetscape concerns. The Historic District Landmark Commission (HDLC) was also invited and commented on the proposed project during the meeting.

In addition, FEMA has consulted with SHPO and Tribes on identification and evaluation efforts. On July 5, 2018 and August 8, 2018, FEMA consulted with SHPO and Tribes, respectively, regarding the evaluation of A.L. Davis Park for the National Register of Historic Places. SHPO responded on August 8, 2018 and the Choctaw Nation of Oklahoma deferred to other parties on September 11, 2018. On October 18-19, 2018, FEMA consulted with SHPO and Tribes on archaeological investigations at three parks and one stormwater lot. SHPO concurred with FEMA's findings on November 9, 2018, and the Choctaw Nation of Oklahoma concurred on November 19, 2018.

FEMA identified and evaluated effects of the project on historic properties in accordance with Section 106 of the NHPA. As a result, the FEMA has determined that there are at least eight historic properties, as defined in 36 CFR §800.16(l), within the APE: Irish Channel District, Lower Garden District, Central City District, the Magnolia St. Housing Project, two historic parks, and two archaeological sites. Of the eight historic properties identified within the APE, FEMA has determined that the Irish Channel, Lower Garden, and Central City Historic Districts will be directly affected by work within their boundaries. The removal or alteration of character defining streetscape elements will diminish these districts' integrity of materials and workmanship. The introduction of incompatible materials (pervious pavements and gutters) and other elements within this project such as vegetated street basins, bioswales, bike lanes and the Saratoga Square Stormwater Park will introduce visual intrusions that may alter the setting of these districts.

In a letter dated October 23, 2019, FEMA notified parties of their determination that the project may have Adverse Effects to Historic Properties and recommended using the Abbreviated Consultation Process (ACP) to resolve those effects. SHPO agreed in a response dated November 25, 2019. The Seminole Nation of Oklahoma, GOHSEP, and the HDLC provided favorable responses dated October 26, October 28, and December 4, 2019 respectively.

The first Section 106 consultation meeting was held on December 16, 2019. FEMA published a Public Notice using the CRT website (http://www.crt.state.la.us/dataprojects/culturalassets/fema106/), from January 30 to February 14, 2020 and sent copies to participating consulting parties. No comments were received. On February 5, 2020, FEMA notified the ACHP of the Adverse Effects determination and intent to utilize the ACP and invited the ACHP to participate in the consultation process. The ACHP requested notification of the proposed treatment measures after consultations are concluded in a response letter dated April 20, 2020. Subsequent consultation meetings were held on June 2, 2020, September 15, 2022 and September 19, 2022. FEMA provided the final

ACP to consulting parties on December 9, 2022 for review and comment. SHPO responded via email on December 1, 2022 with no additional comments. No other responses were received. FEMA notified the ACHP and provided a copy of the final ACP on January 27, 2023. The Proposed Action Alternative must comply with the conditions and mitigation measures outlined within the final ACP document.

During the design development process, FEMA, in accordance with Stipulation II.C.5(b) of the LA Statewide PA, requested the sub-recipient modify the scope to avoid or minimize effects to historic properties. The sub-recipient has taken steps to avoid and minimize effects to historic properties by avoiding NHL districts, relic streetcar tracks, and areas where substantial character defining features (CDFs) are found within the districts.

FEMA recognizes that it is likely that additional character defining features will not be identified during construction and may not be repaired or replaced in-kind. It is also likely that it may be technically infeasible to repair identified character defining features or replace them in-kind.

The CNO will include conditions to avoid or minimize adverse effects to the identified character defining features in the built environment, in particular, streetscape features typically found in the National Register Historic Districts (NRHDs) of New Orleans. These conditions will be included the special specification of each project within a listed NRHD. The CNO will record the following CDFs, if scheduled for removal because repair or replace in-kind is technically infeasible: brick or stone street pavers (including driveways and driveway aprons); brick or stone parking boundaries; brick or stone crosswalks; brick or stone curbs; brick or stone open gutters; brick or stone gutter bottoms; inlaid decoration in sidewalks, footlaps, driveways, or driveway aprons; streetcar tracks or pavers; mounting blocks or steps (a.k.a. carriage steps, footbridges over open gutters); and abandoned fire hydrants.

Recordation of CDFs, where required, must be documented with high quality digital photos, and these photos must include geolocation information. Photos should be at least 300 pixels per inch, high enough quality to be included in publication materials, and the features must be cleared of debris prior to being photographed.

In addition, the CNO historic preservation specialists will review the final bid documents and provide any comments/markups to the CNO Project Manager and will inform any construction contractor staff of conditions and best practices during the preconstruction meeting(s).

While most work will occur within existing and previously disturbed ROW and existing streets, deposits from both the NRHP eligible archaeological sites may be directly affected by proposed construction activities. Measures to avoid archaeological deposits have been considered by CNO and some sensitive sites have been avoided during design development. Avoidance of all archaeological sites, however, is difficult due to the nature of the proposed undertaking that occurs within hard paved areas, the lack of greenspace for underground water storage, and the subsurface nature of the utility work. Based upon available evidence, recorded and unrecorded archaeological deposits associated with pre-contact, contact, and colonial eras in New Orleans may be affected as these sites may not conform to the city's current street grid. As these sites likely lie below the street surface, it is often not feasible for them to be identified prior to construction. Even where there are records of an archaeological site, the location may not be accurate. To minimize or avoid effects to both unrecorded and recorded sites that are undetermined or eligible for listing in the NRHP, FEMA has determined in consultation to require the CNO to have an archaeologist meeting the Secretary of Interior (SOI) Professional Standard for Archaeology (SOI archaeologist) monitor work at locations identified by previous investigations, archival maps, and consulting parties as having a high potential for yielding data or having the potential for the presence of human remains in close proximity to the proposed undertaking.

CNO's SOI qualified archaeologist or contractor will submit draft and final monitoring reports, to include all monitored locations, following SHPO standards. FEMA will coordinate with CNO to submit the reports to GOHSEP, SHPO, and interested federally recognized Tribes for their review and comment.

Per Stipulation II.C.6(a) of the LA Statewide PA, FEMA recommends the adverse effects of the Undertaking will be adequately mitigated through the ACP and the implementation of Treatment Measures outlined in Appendix C: III. Public Interpretation, IV. Context Statements, and VI. Historic Property Inventory. These Treatment Measures are generally meant to expand and supplement the previously agreed upon JIRR Treatment

Measures.

Public Interpretation (III.) – CNO will ensure that information and data resulting from the fieldwork and cultural resource context statement will be incorporated, if feasible, into the public outreach materials currently under development as outlined in the JIRR ACP Treatment Measures.

Public Outreach: CNO will provide a plan for incorporating data into the JIRR public outreach component. CNO will submit a draft of the materials to FEMA for review. CNO will coordinate with FEMA to provide SHPO, GOHSEP, and Tribes with the draft materials for comment. CNO will incorporate the comments, if any, into the final product. CNO will also provide a digital copy of the final materials to FEMA and will coordinate with FEMA to provide the final digital copy of materials to all consulting parties and Tribes. These materials will be submitted in conjunction with JIRR ACP deliverables.

Context Statements (IV.)

Cultural Resource Context Statement: CNO will produce a plan for incorporating the archaeological data into the JIRR Cultural Resource Context Statement and Map. CNO will ensure that a draft of the Cultural Resource Context Statement and Map for this Undertaking will be produced and will provide SHPO, FEMA, GOHSEP, and Tribes with the draft materials for comment. CNO will incorporate the comments, if any, into the final materials. CNO will provide a digital copy of the final draft materials to FEMA and will coordinate with FEMA to provide the final digital copy of materials to all consulting parties and Tribes. These materials will be submitted in conjunction with JIRR ACP deliverables.

Historic Context Statement: CNO will produce a plan for incorporating information about the NRHD affected by this Undertaking: Irish Channel, Lower Garden, and Central City Districts into the historic context focused on the streetscape of NRHP Historic Districts, outlined in the JIRR ACP. CNO will ensure that a draft of the Historic Context Statement for this Undertaking will be produced and will provide SHPO, FEMA, GOHSEP, and Tribes with the draft materials for comment. CNO will incorporate the comments, if any, into the final materials. CNO will provide a digital copy of the final materials to FEMA and will coordinate with FEMA to provide the final digital copy of materials to all consulting parties and Tribes. These materials will be submitted in conjunction with JIRR ACP deliverables.

Historic Property Inventory of CDFs (VI.): CNO will be responsible for conducting the research and field (sampling) survey of character defining streetscape features indicative of each NRHP listed or eligible historic district located within the APEs. The inventory will follow the guidelines set forth in the JIRR ACP. Concurrent research, field (sampling) survey and data collected for the JIRR ACP Treatment Measures on the NRHD affected by this Undertaking shall satisfy the requirements for the purpose of the Historic Property Inventory of CDFs. This inventory will not provide a count of every feature but will provide a thorough sampling which will inform the content of and provide a basis for analysis and synthetization in the historic context statement.

CNO will produce a draft of all data, images, and reports associated with the recordation of CDFs, the historic property inventory, and historic context statement for this Undertaking, and provide SHPO, FEMA, GOHSEP, and Tribes with the draft materials for comment. CNO will incorporate the comments, if any, into the final materials. CNO will provide a digital copy of the final materials to FEMA and will coordinate with FEMA to provide the final digital copy of materials to all consulting parties and Tribes. These materials will be submitted in conjunction with JIRR ACP deliverables.

CNO will provide consulting parties a semi-annual report on the progress of the Treatment Measures on or around March 15 and September 15 of each year until they are complete. FEMA will provide written notice to GOHSEP, CNO, SHPO, participating Tribes, and other consulting parties, as appropriate, within sixty (60) days of the completion of the Treatment Measures as required by Stipulation II.C.6 (a) iii of the LA Statewide PA. FEMA shall include information pertaining to the progress of and completion of all Treatment Measures in the annual report pursuant to Stipulation I.B.1 (d), FEMA Roles and Responsibilities in the LA Statewide PA, as amended. The semi-annual report should include any updates on archaeological monitoring, discoveries, notifications, and minimization efforts as well any unforeseen affects.

CNO will hold pre-construction meetings with the construction contractor's and subcontractor's staff prior to beginning fieldwork. The pre-construction meetings will include information on recognizing archaeological deposits during construction, the role of the archaeological monitor, and on discoveries and unexpected effects procedures. The handout will be provided at the meeting for distribution to the construction field crew. The CNO archaeologist and historic preservation specialist will attend and provide professional support at the pre-construction training sessions as appropriate. The CNO archaeologist and historic preservation specialist will discuss the HP and Archaeology conditions on the project which may include but is not limited to handouts, slides or videos to inform the contractor(s) of best practices.

If evidence of archaeological deposits is discovered or if unexpected effects occur during construction and/or monitoring, CNO will require that construction immediately cease within 100 ft. of the location of the discovery and take all reasonable measures to avoid or minimize harm to the finds. The archaeological monitor, the Project Manager, Construction Manager, and Inspectors will be empowered to immediately stop work if unanticipated discoveries and/or unexpected effects occur during construction. This stipulation will be explicitly stated in the project requirements. Construction may continue outside the defined discovery location. The stop work order will allow sufficient time for the archaeologist to assess the discovery and/or unexpected effect(s) and take any necessary steps. As part of this response he or she will be responsible for identifying and evaluating the discovery or unexpected effect including assessing the NRHP eligibility in consultation with FEMA, SHPO, Tribes, and GOHSEP; developing a response or mitigation strategy in consultation with FEMA, SHPO, Tribes, and GOHSEP; when appropriate, undertaking the agreed-upon response or mitigation effort; and preparing a written report on the discovery or unexpected effect and the actions taken. This report will be provided to FEMA, SHPO, Tribes, GOHSEP, and other parties, as appropriate.

If the discovery appears to be human remains, the CNO archaeologist will determine the course of action following the protocols in the LA Unmarked Human Burial Sites Preservation Act (Revised Statue [RS] 8:671, et seq.). If the discovery appears to be pre-contact, contact or colonial era archaeological deposits, the archaeologist will assess the NRHP eligibility of the discovery in consultation with FEMA, SHPO, Tribes, and GOHSEP; develop a response or mitigation strategy in consultation with FEMA, SHPO, Tribes, and GOHSEP; when appropriate; undertake the agreed-upon response or mitigation effort; and prepare a written report on the discovery and the actions taken. This report will be provided to FEMA, SHPO, Tribes, GOHSEP, and other parties, as appropriate. The archaeologist will record any post-colonial era discovery but is not required by this agreement to take further action to minimize or mitigate effects to such discoveries since these potential effects have been addressed through the Treatment Measures described above. Any discoveries or unexpected effects will also be included in the semi-annual report described above.

5.12.2.3 No Action Alternative

Because the proposed projects would not be implemented, the No Action Alternative would have no effects on Cultural Resources.

5.13 Transportation and Traffic

5.13.1 Regulatory Setting

Streets inside the Study Area are under the authority of the CNO DPW or the LADOTD. The following permits are required by the DPW: construction zone permit, driveway/curb cut permit, street/sidewalk (utility/service) cut permit, and a sidewalk repair/installation permit (CDM Smith 2017).

5.13.2 Existing Conditions

The general boundaries of the Study Area are Martin Luther King, Jr. Blvd. and Melpomene St. to the northeast, South Broad St. to the northwest, Louisiana Ave. to the southwest, and Tchoupitoulas St. to the southeast, along the river. Neighborhoods in the Study Area include Broadmoor, Central City, Garden District, Lower Garden District, Irish Channel, St. Thomas Development, Touro, East Riverside, and Milan. Streets in the Study Area range from narrow alleys to divided boulevards.

5.13.2.1 Full Build-Out Alternative

Under the Full Build-Out Alternative, temporary, short-term impacts on ingress and egress would be minor to moderate (see section 4.1.3). GSRC submitted SOVs to LADOTD on May 3, 2017. As per their e-mail response, LADOTD requested that they be contacted in advance of any drainage improvements that require the use of state highway ROW (see Appendix C). Temporary lane or road closure during road reconfigurations and pipe upgrades would result in disruption of traffic flow patterns, on-street parking, and driveway accessibility during construction. A short-term increase in construction traffic on roadways in the study area would result in slower traffic flow during construction activities. Short-term traffic impacts would be mitigated through controlling construction times to minimize construction activities during the morning and evening high traffic periods. Additionally, the construction contractor(s) would be required to provide appropriate signage and placement of barriers, in accordance with the Manual of Uniform Traffic Control Devices, to alert pedestrians and motorists of ongoing activities.

5.13.2.2 Partial Build-Out Alternative (Proposed Action)

Under the Partial Build-Out Alternative, the impacts on ingress and egress would be the same as the Full Build-Out Alternative, except in fewer construction locations. Short-term impacts on ingress and egress would be minor to moderate (see section 4.1.3). GSRC submitted SOVs to LADOTD on May 3, 2017. As per their e-mail response, LADOTD requested that they be contacted in advance of any drainage improvements that require the use of state highway ROW (see Appendix C). Temporary lane or road closure during road reconfigurations and pipe upgrades would result in disruption of traffic flow patterns, on-street parking, and driveway accessibility during construction. A short-term increase in construction traffic on roadways in the study area would result in slower traffic flow during construction activities. Short-term traffic impacts would be mitigated through controlling construction times to minimize construction activities during the morning and evening high traffic periods. Additionally, the construction contractor(s) would be required to provide appropriate signage and placement of barriers, in accordance with the Manual of Uniform Traffic Control Devices, to alert pedestrians and motorists of ongoing activities.

5.13.2.3 No Action Alternative

Because the proposed projects would not be implemented, the No Action Alternative would have no effects differing from the baseline conditions on the transportation and traffic in the Broadmoor Study area and Orleans Parish.

5.14 Public Services and Utilities

5.14.1 Existing Conditions

Public utility services within the Study Area are provided by several agencies. Electricity and natural gas services are provided by Entergy New Orleans, Incorporated. Water, Sewer, and major drainage services are provided by the SWBNO. SWBNO is responsible for the collection and conveyance of stormwater to the system. Telecommunications services are provided by a variety of private agencies, but the infrastructure is owned and maintained by a combination of Cox Communications and AT&T.

5.14.2 Consequences

5.14.2.1 Full Build-Out Alternative

Under the Full Build-Out Alternative, flooding within the Study Area would be reduced significantly and stormwater detention would occur in locations where there is currently potential for impact on existing utilities. Under the Full Build-out Alternative, there would be a temporary impact on some existing utilities as the ROW would be excavated to complete the upgrades. Coordination with utility companies will be performed between the 60% and 90% completion of the design project.

5.14.2.2 Partial Build-Out Alternative (Proposed Action)

Under the Proposed Action, the temporary construction activities would have the same affects as the Full Build-Out Alternative, just in fewer construction locations. Under the Proposed Action, flooding within the Study Area would be reduced significantly and stormwater detention would occur in locations where there is currently

potential for impact on existing utilities, except in fewer areas compared to the Full Build-Out Alternative. As for the Full Build-Out Alternative, coordination with the utility companies will be performed between the 60% and 90% completion of the design project.

5.14.2.3 No Action Alternative

Because the proposed projects would not be implemented, the No Action Alternative would have no effects differing from the baseline conditions on the public services and utilities in the Broadmoor Study Area and Orleans Parish.

5.15 Hazardous and Toxic Materials

Hazardous materials are those that cause human physical or health hazards (29 CFR 1910.1200). Substances that are physically hazardous include combustible and flammable substances, compressed gases, and oxidizers. Health hazards are associated with toxic substances that cause acute or chronic reactions, including toxic agents, carcinogens, and irritants. Hazardous materials are regulated in LA by a combination of mandated laws promulgated by the LDEQ and USEPA.

5.15.1 Regulatory Setting

The management of hazardous materials is regulated under various federal and state environmental and transportation laws and regulations, including but not limited to the Resource Conservation and Recovery Act (RCRA); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the Toxic Substances Control Act (TSCA); the Emergency Planning and Community Right-to-Know provisions of the Superfund Amendment and Reauthorization Act (SARA); the Hazardous Materials Transportation Act; and the Louisiana Voluntary Investigation and Remedial Action statute. The purpose of the regulatory requirements set forth under these laws is to ensure the protection of human health and the environment through proper management (identification, use, storage, treatment, transport, and disposal) of these materials. Some of the laws provide for the investigation and cleanup of sites already contaminated by releases of hazardous materials, wastes, or substances.

TSCA (codified at 15 USC 53), authorizes the EPA to protect the public from "unreasonable risk of injury to health or the environment" by regulating the introduction, manufacture, importation, sale, use, and disposal of specific new or already existing chemicals. Existing chemicals include any chemical currently listed under Section 8(b), including polychlorinated biphenyls (PCBs), asbestos, radon, lead-based paint, (LBP) chlorofluorocarbons, dioxin, and hexavalent chromium.

TSCA Subchapter I, "Control of Toxic Substances" (Sections 2601-2629), regulates the disposal of PCB-containing products, sets limits for PCB levels present within the environment, and authorizes the remediation of sites contaminated with PCBs. Subchapter II, "Asbestos Hazard Emergency Response" (Sections 2641-2656), authorizes the EPA to impose requirements for asbestos abatement in schools and requires accreditation of those who inspect asbestos-containing materials (ACM). Subchapter IV, "Lead Exposure Reduction" (Sections 2681-2692), requires EPA to identify sources of lead contamination in the environment, to regulate the amounts of lead allowed in products, and to establish state programs that monitor and reduce lead exposure.

The management of hazardous materials is regulated under the Emergency Planning and Community Right-to-Know provisions of the Superfund Amendments and Reauthorization Act (SARA); Hazardous Materials Transportation Act (HMTA); and the Louisiana Voluntary Investigation and Remedial Action statute. The purpose of the regulatory requirements set forth under these laws is to ensure the protection of human health and the environment through proper management (identification, use, storage, treatment, transport, and disposal) of these materials. Some of the laws provide for the investigation and cleanup of sites already contaminated by releases of hazardous materials, wastes, or substances.

The TSCA (codified at 15 U.S.C., Ch. 53), authorizes the USEPA to protect the public from "unreasonable risk of injury to health or the environment" by regulating the introduction, manufacture, importation, sale, use, and disposal of specific new or already existing chemicals. "New Chemicals" are defined as "any chemical substance which is not included in the chemical substance list compiled and published under [TSCA] § 8(b)." Existing

chemicals include any chemical currently listed under §8(b), including PCBs, asbestos, radon, LBP, chlorofluorocarbons, dioxin, and hexavalent chromium.

TSCA Subchapter I, "Control of Toxic Substances" (§§ 2601-2629), regulates the disposal of PCB-containing products, sets limits for PCB levels present within the environment, and authorizes the remediation of sites contaminated with PCBs. Subchapter II, "Asbestos Hazard Emergency Response" (§§ 2641-2656), authorizes the USEPA to impose requirements for asbestos abatement in schools and requires accreditation of those who inspect ACM. Subchapter IV, "Lead Exposure Reduction" (§§ 2681-2692), requires the USEPA to identify sources of lead contamination in the environment, to regulate the amounts of lead allowed in products, and to establish state programs that monitor and reduce lead exposure.

During the CNO's planning process, additional excavation of parks including Van McMurray and Saratoga were added to the SOW. CNO's planning and survey process led to the discovery additional contaminated soils in the proposed project areas.

CNO's consultants Leaaf Environmental, LLC then prepared a CAP for remediation of the contaminated soils, dated March of 2019 (See Appendix D). Leaaf then sent an email dated July 9, 2019 to the LDEQ describing the CAP and requesting the LDEQ approval for excavation plans. The Leaaf correspondence stated they are working with the CNO's Capital Projects Administration on the Broadmoor Drainage Upgrades and Green Infrastructure Project throughout New Orleans. As part of this project, several playgrounds and other City owned properties would be redeveloped with subsurface GI utilities following FEMA's HMGP guidelines. This work involves the excavation and disposal of soil from each of the playgrounds/properties. Several of these playgrounds have been previously investigated and mitigated for lead contamination in near-surface soil, as needed based on HUD guidelines.

The LDEQ sent a letter, dated October 3, 2019, approving the CAP, with no objection to the plan with the following condition (See Appendix D):

- Only soil with sample results below the Risk Evaluation CAP Screening Standards for non-industrial use may be taken to a C&D Waste landfill, for use as cover material.

If any additional contaminated soil is discovered during excavation, this SOW may be altered, to fully remediate the areas in this proposal. After all excavation for the project is complete, Leaaf will coordinate with the LDEQ for a final clearance letter, and a copy will be provided to FEMA.

5.15.2 Existing Conditions

The EPA action level for lead in soils is 400 parts per million (ppm). Although a naturally occurring element, lead is often deposited in surface soils of yards and playgrounds. These deposits are predominantly from pre-1985 engine exhausts when gasoline often contained lead as an anti-knock ingredient. The other major source of soil lead deposits is from LBPs, which were banned in 1978. Flaking of paint from older buildings or other structures (iron fences or light poles) can directly deposit lead into adjacent soils. Sanding of nearby buildings during renovation or re-painting often allows microscopic particles of LBP to become airborne and drift onto playgrounds. Lead in soil can be ingested as a result of hand-to-mouth activity, which is common for young children.

In a map developed by Dr. Howard W. Mielke, Tulane/Xavier Center for Bioenvironmental Research, approximate soil lead levels in the City have been identified at a number of playgrounds in the Study Area that exceed the 400 ppm level (Mielke 2013). That map has been distributed by the Louisiana Department of Health and Hospitals and is included with the CAP for this Proposed Action and the LDEQ Correspondence in Appendix D.

Elevated lead levels in soils have been identified in a number of parks in the Study Area and testing for lead in soils to be disturbed during construction would be a part of BMPs, with appropriate handling and disposal of contaminated soils. Parks that have documented elevated soil lead levels include:

- Annunciation Center/Playground

- Burke Park (Clay Square)
- Saratoga Square
- Taylor Playground
- Van McMurray Park

Early in the planning process for the Proposed Action, in response to FEMA's SOV request, the LDEQ's Remediation Division provided a list of sites that may be within the project area (Appendix C). The LDEQ further states that if the project will involve the excavation of any soils which may exceed the Non-Industrial (Residential) or Soil Protective of Groundwater Screening Option Standards established by the LDEQ Risk Evaluation/Corrective Action Program (RECAP) Regulation, these materials may be considered a waste and disposed of at a permitted facility, or might be managed as part of a Solid Waste Beneficial Use or Soil Reuse in accordance with LAC 33:VII.Chapter 11. Alternately, a site-specific RECAP Evaluation might be conducted.

As part of this project, several playgrounds and other City owned properties would be redeveloped with subsurface GI utilities following FEMA's HMGP guidelines. This work involves the excavation and disposal of soil from each of the playgrounds/ properties. There are six sites identified with possible environmental concerns for the Drainage Upgrades & Green Infrastructure Project, based on the ASTM E1528-14 Transaction Screening Report, dated December 2017. Several of these playgrounds have been previously investigated and mitigated for lead contamination in near-surface soil, as needed based on HUD guidelines. An outline with more details for each park and their respective Phase I/II results from the contaminated soils studies done by Leaaf follows.

In addition to Leaaf's efforts, the Materials Management Group, Underground Storage Tank and Remediation Division (MMG), as contracted by CNO, provided a status report to the LDEQ in a letter dated July 2015 regarding 12 New Orleans Playgrounds Mitigated for Lead in March and April of 2011 (Appendix C). The MMG letter stated: "On behalf of the City, MMG submits the attached site summaries and mitigation maps for the 12 City of New Orleans Playgrounds that were treated with interim controls to address lead in soil hazards in March and April of 2011, as requested by the LDEQ in a meeting conducted March 16, 2015. The 12 sites and their LDEQ Agency Interest Numbers are listed below. The properties in bold are located within the Study Area for this EA.

1. Evans Playground (178006) - 5100 LaSalle St., New Orleans, LA 70115
2. **Van McMurray Playground (178007) - 2000 Philip St., New Orleans, LA 70113**
3. **Burke Playground (178008) - 2524 Annunciation St., New Orleans, LA 70130**
4. Danneel Playspot (178009) - 5501 St. Charles Ave., New Orleans, LA 70115
5. Treme Center Playground (178010) - 900 N. Villere St., New Orleans, LA 70116
6. Mickey Markey Playground (178011) - 707 Piety St., New Orleans, LA 70117
7. Hunter's Field Playground (178012) -1600 N. Claiborne Ave., New Orleans, LA 70116
8. Easton Playground (178013) - 3141 Toulouse St., New Orleans, LA 70119
9. **Annunciation Playground (178014) - 800 Race St., New Orleans, LA 70130**
10. Lemann II Playground (132883) - 2022 Lafitte St., New Orleans, LA 70112
11. Comiskey Playground (140744) - 600 S. Jefferson Davis Parkway, New Orleans, LA 70119
12. **Taylor Playground (140760) - 2600 S. Roman St., New Orleans, LA 70125**
13. **A.L. Davis Playground – (236348 [From No Objection Letter]) – 2600 LaSalle St., New Orleans, LA 70113**

Below is a brief summary for each site that includes the previous lead soil investigations as well as the interim controls utilized to mitigate the lead in soil hazards, where applicable. A map showing the areas where interim controls were utilized to eliminate the direct exposure pathway to underlying lead in soil contamination is also included for each site.

A.L. Davis Playground

Leaaf Environmental, LLC (Leaaf) was engaged by the City of New Orleans Project Delivery Unit (Client) to perform a Limited Phase II Environmental Site Assessment (Phase II ESA) at A.L. Davis Playground, 2600 LaSalle St., New Orleans, LA 70113 (See the Property/Site/Vicinity Map in Section 3 and Appendix D). The site is one of six sites identified with possible environmental concerns for the Broadmoor Drainage Upgrades &

Green Infrastructure Project. Based on the ASTM E1528-14 Transaction Screening Report, dated December 2017 and knowledge obtained during Leaaf's additional research (June 2019), the site is currently a public park with field, playground, basketball and tennis courts, and swimming pool. The property is potentially contaminated with fill material observed during remediation at an adjoining property.

Additionally, former gas stations historically located on the south adjoining property may have impacted the property. The objective of this Phase II ESA was to evaluate the possible impact of the Recognized Environmental Conditions (RECs) identified in Leaaf's additional research (June 2019): suspect fill material and two historic adjoining gas stations. Leaaf conducted soil and groundwater sampling at the site to evaluate whether identified Constituents of Concern (COCs) were present at a concentration that may pose a risk to human health or environment. Results of the Phase II ESA will be used in preparation of the soil excavation and disposal specifications in connection with the property drainage and GI improvements. Figure 30 shows the soil boring locations and results of the soil samples.

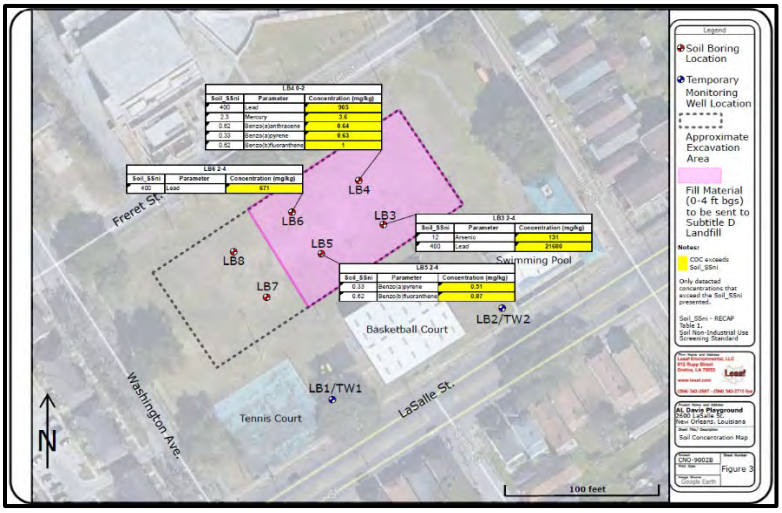

Figure 30. A.L. Davis Park Leaaf Environmental, LLC Soil Borings and Results. Pink area is the excavation area which COC exceeds standards and must be disposed of at a Subtitle D Landfill

On October 3, 2019 Leaaf received a letter from the LDEQ stating that any soil with concentrations of COCs below the RECAP Screening Standard for non-industrial land use (Soil SSni) can be transported to a C&D Waste Landfill. Soils with concentrations of COCs greater than the RECAP Screening Standard for non-industrial use will be transported to a Subtitle D Landfill for disposal. In a letter dated October 9, 2019, Leaaf received the results of the soil sampling from Pace Analytical and would use the data to adhere to the standards and conditions set forth by the LDEQ. Final RECAP clearances would be obtained during construction and submitted to FEMA for the project files.

Annunciation Square

MMG conducted a lead soil investigation at the Site on March 3, 2011, which entailed the collection and analysis of 34 surface soil samples. Upon evaluating the lead in soil concentrations, five surface soil samples collected at the site were found to have lead in soil concentrations that exceeded the residential screening standard for direct exposure, which is 400 mg/kg. These areas included approximately 2,000 ft of bare soil by the swing set on the north side of the site's child play area, designated as Mitigation Area 1, and approximately 1,000 sq ft of bare soil by the gym set on the south side of the Site's child play area, designated as Mitigation Area 2.

In March and April of 2011, MMG eliminated the direct exposure pathway to the site's elevated lead soil concentrations by using interim controls. The interim controls utilized to create a barrier to the underlying soil contamination included the installation of geotextile fabric, clean soil and gravel, and sod grass over the approximate 2,000 sq ft area of bare soil by the swing set on the north side of the site's child play area, Mitigation Area 1, and the installation of geotextile fabric, three to six in. of clean soil, and sod grass over the approximate 1,000 sq ft area of bare soil by the gym set on the south side of the site's child play area, Mitigation Area 2. The

interim controls used at the Annunciation site also included geotextile fabric cover with gravel and soil. Figure 31 below shows the Annunciation Park MMG Soil Remediation Map of the areas at the site where interim controls were utilized to eliminate the direct exposure pathway to underlying lead in soil contamination.

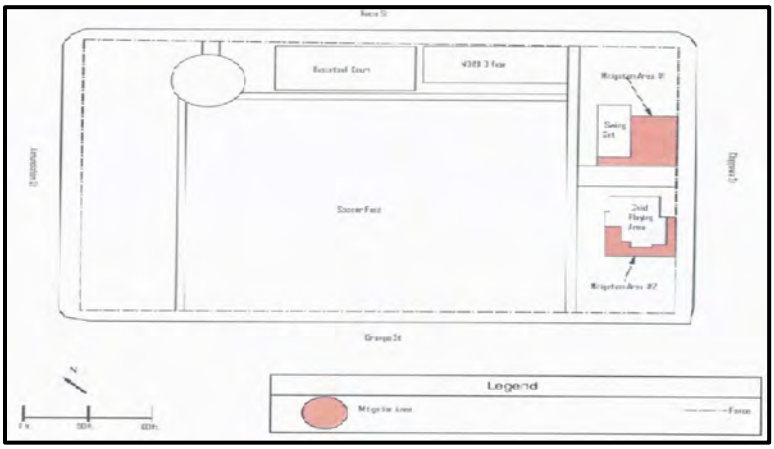

Figure 31. Annunciation Park MMG Soil Interim Measures Areas Map

Leaaf performed a Limited Phase II Environmental Site Assessment (Phase II ESA) at Annunciation Square, 800 Race St., New Orleans, LA 70130 (Report dated October 31, 2019). Based on the ASTM E1528-14 Transaction Screening Report, dated December 2017, and knowledge obtained during Leaaf's additional research (June 2019); the site is currently a public park with a field, playground, and basketball court. Surface soils analyzed using the HUD protocol indicated the presence of lead in the top-soil which has been mitigated.

The property is potentially contaminated with suspect fill material based on an adjoining soil remediation of fill material. The objective of this Phase II ESA was to evaluate the possible impact of the RECs identified in Leaaf's additional research (June 2019): suspect fill material. Results of the Phase II ESA will be used in preparation of the soil excavation and disposal specifications in connection with the property drainage and GI improvements.

Leaaf received the LDEQ LONO, dated October 3, 2019, which stated any soil with concentrations of COCs below the RECAP Soil SSni can be transported to a C&D Waste Landfill. Soils with concentrations of COCs greater than the RECAP Screening Standard for non-industrial use will be transported to a Subtitle D Landfill for disposal. In a letter dated October 8, 2019, Leaaf received the results of the soil sampling from Pace Analytical and would use the data to adhere to the standards. Final RECAP clearances would be obtained during construction and submitted to FEMA for the project files. Figure 32 depicts the soil boring locations and the LDEQ-approved areas to be excavated at Annunciation Playground.

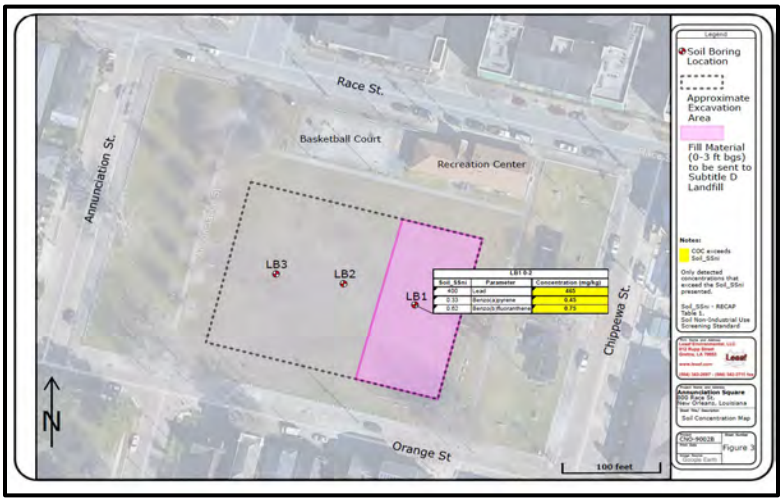

Figure 32. Annunciation Playground Leaaf Environmental, LLC Soil Borings and Results. Pink area is the

excavation area which COC exceeds standards and must be disposed of at a Subtitle D Landfill.

Burke Park (Clay Square)

In a letter dated July 2015, the MMG Underground Storage Tank and Remediation Division, as contracted by CNO, provided a status report to the LDEQ involving the Burke/Clay New Orleans Playground Mitigated for Lead in March and April of 2011 (refer to Appendix C). The letter outlined that MMG conducted a lead soil investigation at the Site on March 1, 2011, which entailed the collection and analysis of 45 surface soil samples.

Upon evaluating the lead in soil concentrations, one surface soil sample collected at the Site was found to have a lead in soil concentration that exceeded the residential screening standard for direct exposure which is 400 mg/kg. This area was limited to an approximate 1500 ft area of bare soil by the oak trees along Chippewa St. In April 2011 MMG eliminated the direct exposure pathway to the Site's elevated lead soil concentration by using interim controls. The interim controls utilized to create a barrier to the Site's underlying soil contamination included covering the bare soil with gravel and mulch in the approximate 500 ft2 area where elevated lead was detected, which was by the oak trees along Chippewa St. Figure 33 below shows the Burke Park (Clay Square) MMG Soil Remediation Map of the area at the site where interim controls were utilized to eliminate the direct exposure pathway to underlying lead in soil contamination.

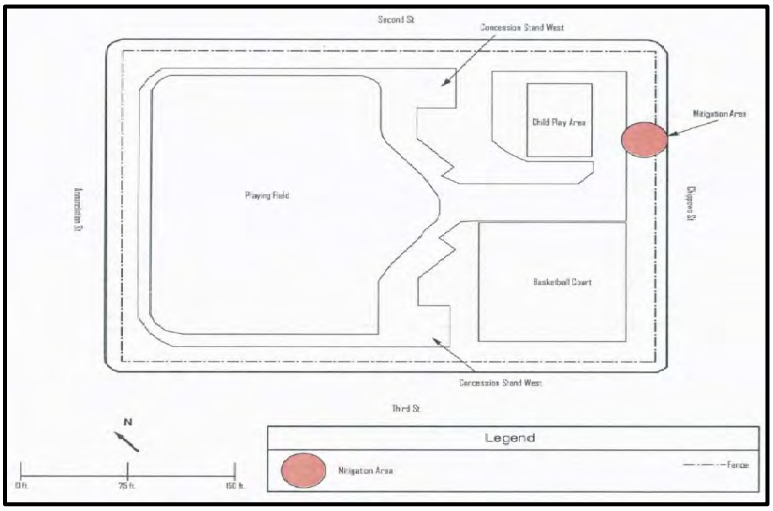

Figure 33. Burke/Clay Park MMG Soil Interim Measures Area Map

Based on review of the LDEQ EDMS records, a Limited Phase II Environmental Site Assessment (Phase II ESA) at Burke Park (Clay Square) has not been performed. The site is currently a public park with a child play area, playing field, and basketball court. Surface soils previously analyzed using the HUD protocol indicated the presence of lead in the topsoil which has been mitigated with interim measures, based on review of periodic LDEQ physical inspections. During the most recent LDEQ inspection, dated May 7, 2014, the LDEQ observed that the interim measures appeared intact and that there was little foot traffic.

Leaaf received a LDEQ LONO, dated October 3, 2019, which stated any soil with concentrations of COCs below the RECAP Soil SSni can be transported to a C&D Waste Landfill. Soils with concentrations of COCs greater than the RECAP Screening Standard for non-industrial use will be transported to a Subtitle D Landfill for disposal. In a letter dated October 8, 2019, Leaaf received the results of the soil sampling from Pace Analytical and would use the data to adhere to the standards. Final RECAP clearances would be obtained during construction and submitted to FEMA for the project files.

Saratoga Park

CNO's consultants Leaaf Environmental, LLC prepared a CAP for remediation of the contaminated soils for Saratoga Park, dated March of 2019. Leaaf then sent an email, dated July 9, 2019, to the LDEQ describing the CAP and requesting the LDEQ approval for excavation plans. The Leaaf correspondence stated they are working with the CNO's Capital Projects Administration on the Broadmoor Drainage Upgrades and Green Infrastructure

Project throughout New Orleans.

On October 25, 2019, the Mayor and council members of New Orleans received a public comment the Tulane Environmental Law Clinic on behalf of residents living near the empty lot located at Saratoga St. and Loyola St., regarding the CAP. While the residents appreciate that a park would be constructed on the site, they feel that the CAP is "dangerously insufficient" to clean up the site. The residents believe that a "more complete remediation of the area" is needed, and requested that the CNO reconsider the adequacy of the CAP.

CNO planned to remediate contaminated soils prior to proposed drainage construction activities within the park (Figure 34). According to the Corrective Action Report for the Former Saratoga St. Incinerator, remediation activities took place between November 30, 2020 through December 4, 2020. After excavation was completed, confirmatory samples were collected at the side walls of each excavation. See Figure 35 for a map of the areas that were excavated and sampling locations.

In addition to the excavated soil, four (4) drums were removed and disposed of from the site. Two of these drums contained soil from an August 2018 soil investigation, the other two contained liquid from an unknown source. The contents of the liquid containing drums were sampled and tested for Toxicity Characteristic Leaching Procedure (TCLP) and Reactivity, Corrosivity, and Ignitability (RCI) by Race Analytical in St. Rose, LA. The liquid was characterized as non-hazardous. Due to the deteriorated condition of the liquid drums, they were placed in overpack containers and sent to Waste Management-Woodside in Walker, LA for solidification and disposal.

After collection of eight (8) composite samples and testing for TCLP and RCI, the excavated soil and soil from two remaining drums was characterized as non-hazardous for disposal. A waste profile was completed for disposal of the soil at River Birch Subtitle D Landfill in Avondale, LA. A total of 597.08 tons of soil was hauled to River Birch Landfill between December 1, 2020 and December 4, 2020.

Based on the results of these confirmatory samples, LEAAF made the recommendation of "No Further Action" (NFA). After completing the proposed remediation excavation detailed in the LDEQ-approved CAP, on May 16, 2022, the CNO sent a request for issuance of an NFA letter to the LDEQ for the Saratoga Park site. On July 19, 2022, the LDEQ responded to this request and requested that CNO perform additional soil excavation and confirmation sampling prior to issuing the NFA.

Figure 34. Current aerial photograph of the proposed Saratoga Stormwater Park (City Square 306) with areas to be remediated in red. Other colors are excerpts of building footprints from various Sanborn Fire Insurance maps.

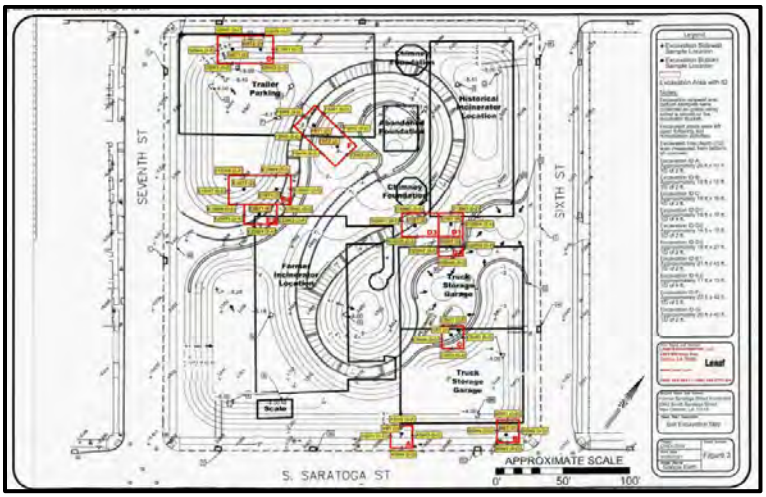

Figure 35. Map of Saratoga Park areas of soil excavation and soil boring locations

If any additional contaminated soil is discovered during excavation, this SOW may be altered, to fully remediate the areas in this proposal. After all excavation for the project is complete, Leaaf would coordinate with the LDEQ for a final clearance letter, and a copy will be provided to FEMA. FEMA received correspondence, dated September 14, 2023, from the LDEQ stating NFA is needed for the Saratoga site (Appendix D).

Taylor Playground

In a letter dated July 2015 the MMG Underground Storage Tank and Remediation Division, as contracted by CNO, provided a status report to the LDEQ involving the Taylor New Orleans Playground Soil Lead Investigation dated March 2011 (Appendix D). The letter outlined that MMG conducted a lead soil investigation at the Site on March 21, 2011, which entailed the collection and analysis of 37 painted surfaces using an X-Ray Fluorescence (XRF) analyzer and 30 surface soil samples. No LBP painted surfaces were identified.

Upon evaluating the lead in soil concentrations, 21 of 30 surface soil samples collected at the Site were found to have a lead in soil concentrations that exceeded the residential screening standard for direct exposure, which is 400 mg/kg. These areas were limited to a total of approximately 10,500 sq ft area of bare soil in five separate areas. Figure 36 below shows the Taylor Playground MMG Soil Remediation Map of the areas at the site where interim controls were utilized to eliminate the direct exposure pathway to underlying lead in soil contamination.

MMG recommended that mitigation of these areas be made remove lead hazards that pose a risk to young children. Interim recommendations included covering bared along the perimeter of the play area, pool, office, and basketball court (approximately 5,000 SF) with geotextile fabric over bare soil, covered by 3 to 6 in. of low lead soil, and sodding of the lead. For the remaining four areas, (totaling 5,500 SF), MMG recommended covering the remaining areas with low lead soil or gravel or mulch.

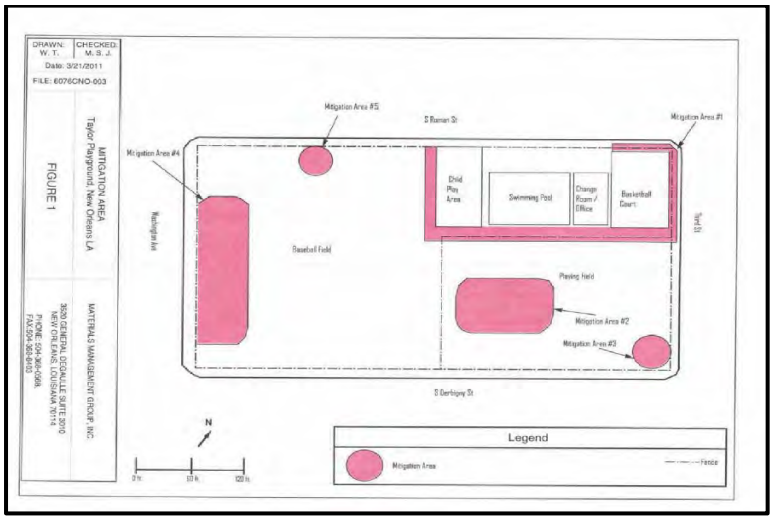

Figure 36. Taylor Playground MMG Soil Interim Measures Areas Map

Leaaf performed a Limited Phase II Environmental Site Assessment (Phase II ESA) at Taylor Playground, 2600 S. Roman St., New Orleans, LA 70113 (Report dated October 31, 2019). Based on the ASTM E1528-14 Transaction Screening Report, dated December 2017 and knowledge obtained during Leaaf's additional research (June 2019); the site is currently a public park with a field, playground, basketball court, and swimming pool. Surface soils analyzed using the HUD protocol indicated the presence of lead in the top-soil which has been mitigated.

The property is potentially contaminated with suspect fill material based on an adjoining soil remediation of fill material, and the adjoining auto repair/painting shop, and the adjoining S&WB repair facility. The objective of this Phase II ESA was to evaluate the possible impact of the RECs identified in Leaaf's additional research (June 2019): suspect fill material. Results of the Phase II ESA will be used in preparation of the soil excavation and disposal specifications in connection with the property drainage and GI improvements.

Leaaf received a LDEQ LONO, dated October 3, 2019, which stated any soil with concentrations of COCs below the RECAP Soil SSni can be transported to a C&D Waste Landfill. Soils with concentrations of COCs greater than the RECAP Screening Standard for non-industrial use will be transported to a Subtitle D Landfill for disposal. Leaaf received the results of the soil sampling from Pace Analytical and would use the data to adhere to the standards. Final RECAP clearances would be obtained during construction and submitted to FEMA for the project files. Figure 37 depicts the soil boring locations and the LDEQ-approved areas to be excavated at Taylor Playground.

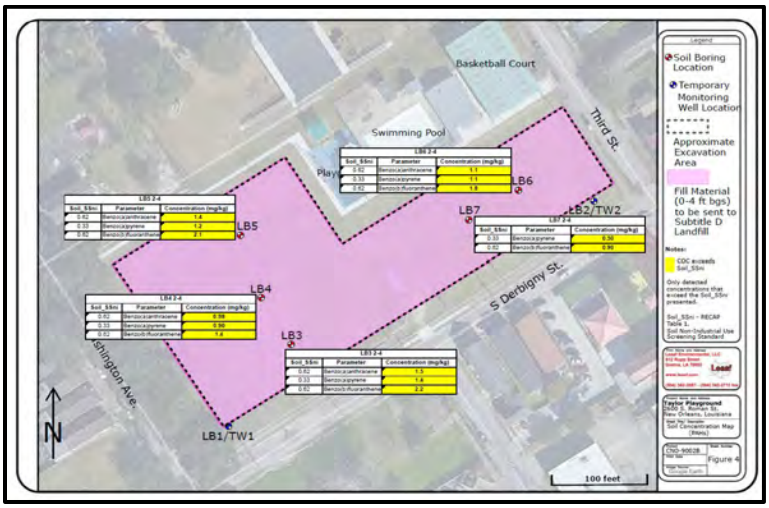

Figure 37. Taylor Playground Leaaf Environmental, LLC Soil Borings and Results. Pink area is the excavation area which COC exceeds standards and must be disposed of at a Subtitle D Landfill.

Van McMurray Playground

In March 2011, MMG prepared a report entitled "Lead Soil Investigation Report Van McMurray Playground", which entailed the collection and analysis of 16 painted surfaces using an XRF analyzer and 42 surface soil samples. One painted surface tested positive for lead-based paint: the steel beams on the pavilion toward St. Philip St. The paint on this surface is in poor condition and could present a lead hazard if disturbed. Thirteen of the 42 soil samples were found to have lead in soil concentrations that exceeded the residential screening standard for direct exposure, which is 400 mg/kg. Bare soil on the north and south sides of the football field were found to have elevated levels of lead. These areas included approximately 2,000 ft of bare soil on the north side of the football field, designated as Mitigation Area 1, and approximately 4,000 sq ft of bare soil on the South side of the football field, designated as Mitigation Area 2.

Interim mitigation measures recommended included covering the bared soil areas with low lead soil and sodding the areas. Based on review of an LDEQ physical inspection report, dated May 7, 2014, these interim measures were performed at the Van McMurray Playground. At the time of inspection, the grass appeared stressed; however, there is no record of a follow up inspection. Figure 38 below shows the Van McMurray MMG Soil Remediation Map of the areas at the site where interim controls were utilized to eliminate the direct exposure pathway to underlying lead in soil contamination.

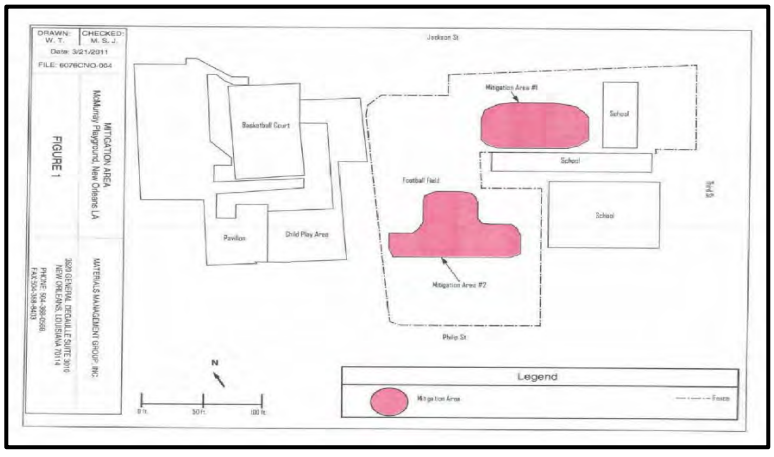

Figure 38. Van McMurray Playground MMG Soil Interim Measures Areas Map

Leaaf performed a Limited Phase II Environmental Site Assessment (Phase II ESA) at Van McMurray Playground, 2000 Phillip St., New Orleans, LA 70113 (Report dated October 31, 2019). Based on the ASTM

E1528-14 Transaction Screening Report, dated December 2017 and knowledge obtained during Leaaf's additional research (June 2019); the site is currently a public park with a field, playground, and basketball court. The property contains lead contaminated surface soil, which was mitigated in 2011, (the type of mitigation performed is not stated in the report). A berm is located on the park; however, the origin of the fill material used to construct the berm is unknown.

The property is potentially contaminated with suspect fill material and lead contaminated soil. The objective of this Phase II ESA was to evaluate the possible impact of the RECs identified in Leaaf's additional research (June 2019): suspect fill material and lead contaminated soil. Results of the Phase II ESA will be used in preparation of the soil excavation and disposal specifications in connection with the property drainage and GI improvements.

The following compounds were detected at levels exceeding the Soil_SSni: RCRA metals barium and lead, and polyaromatic hydrocarbons (PAHs) benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene. All other detections in the fill material were below the Soil_SSni. RCRA Metals and PAHs were also detected at levels exceeding the Soil_SSni in the berm fill and native soil. Leaaf recommended that fill material (0-4 ft. below grade surface) encountered central and southeast portions of the excavation be disposed of at a RCRA Subtitle D Landfill. See Figures 39 and 40 depicting Van McMurray Playground Soil Borings and Results for RCRA Metals and PAHs, respectively, below.

Leaaf received the LDEQ LONO, dated October 3, 2019, which stated any soil with concentrations of COCs below the RECAP Soil SSni can be transported to a C&D Waste Landfill. Soils with concentrations of COCs greater than the RECAP Screening Standard for non-industrial use will be transported to a Subtitle D Landfill for disposal. Leaaf received the results of the soil sampling from Pace Analytical and would use the data to adhere to the standards. Final RECAP clearances would be obtained during construction and submitted to FEMA for the project files. Figures 39 and 40 depict the LDEQ-approved areas to be excavated at Van McMurray Playground.

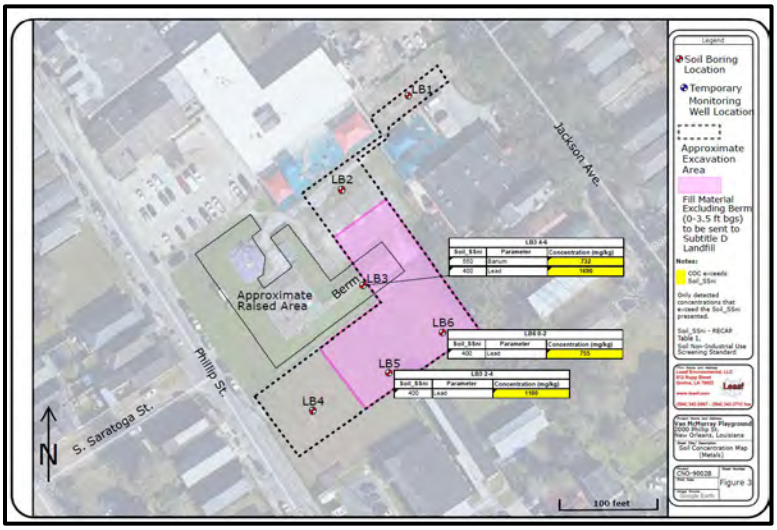

Figure 39. Van McMurray Leaaf Environmental, LLC Soil Borings and Results for RCRA Metals. Pink area is the excavation area which COC exceeds standards and must be disposed of at a Subtitle D Landfill

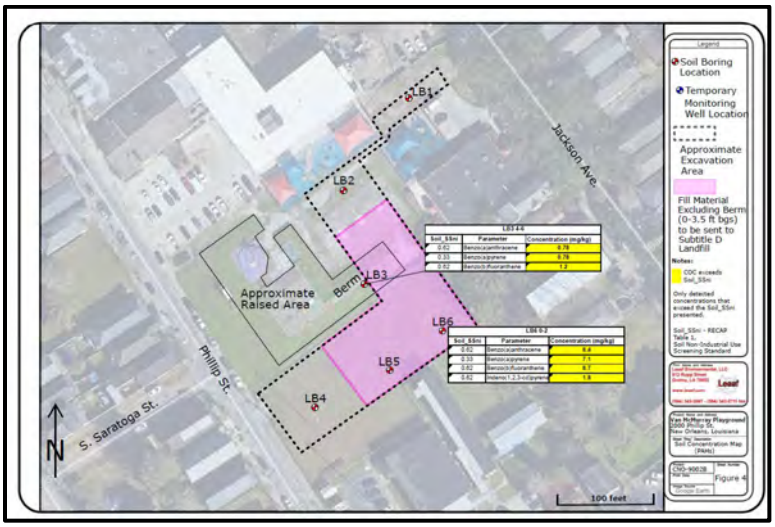

Figure 40. Van McMurray Leaaf Environmental, LLC Soil Borings and Results for PAHs. Pink area is the excavation area which COC exceeds standards and must be disposed of at a Subtitle D Landfill

Additionally, the LDEQ has been monitoring the soil lead levels at these playgrounds. Interim remediation measures for contaminated soils at Annunciation Square, Burke Park, Taylor Playground, and Van McMurray Playground have been conducted to reduce the potential for human exposure. Remediation of contaminated soils was completed at the Saratoga Park site in December 2020, with a recommendation of NFA. In July 2022, the LDEQ requested that CNO perform additional soil excavation and confirmation sampling prior to issuing an NFA for the Saratoga Park site. The LDEQ files are included in Appendix D.

Data searches in the Study Area of USEPA's NEPAssist and the LDEQ's Electronic Document Management System (EDMS) from January 10 to 28, 2017 and September 12 to 15, 2022, revealed a number of permitted or identified environmental sites that could potentially affect individual projects.

Table 16 identifies the state-listed and Federally listed environmental sites, along with locations, that were found inside the Study Area. Detailed information on each site is included in Appendix D. Proposed construction activities at these sites warranted Phase I and II Environmental Site Assessments, and the subsequent Project Site Hazardous and Toxic Substances Reports, which are detailed with the LDEQ Correspondence can be found in Appendix D.

Table 16: Identified Environmental Sites

Type of Site	Name of Site	Site ID	Address of Site	Comments
ACRES (brownfields)	2100 Seventh St.	13915	2100 Seventh St.	Vacant block; some slab foundations remain; previously a rain garden but has been discarded due to hazardous materials
ACRES (brownfields)	Central City / Saratoga	10862	2943 Saratoga St.	Same location as 2100 Seventh St. (above)
NPDES (water discharge)	Archer Western Contractors	LAR10H273	Loyola Ave.	Inactive; permit expired September 30, 2014

Type of Site	Name of Site	Site ID	Address of Site	Comments
NPDES (water discharge)	New Orleans Cypress Works	LAU003490	3105 Magazine St.	Active; custom wood milling and design
NPDES (water discharge)	Mystic Café	LAU009364	3244 Magazine St.	Active; pizza restaurant
NPDES (water discharge)	HANO CJ Peete Development	LDEQ AI 162567	Bounded by LaSalle St., S. Willow St., Louisiana St., and Washington St.	LPDES Permit terminated April 15, 2011
NPDES (water discharge)	TLC Car Wash	LAG751001	1900 Louisiana Ave.	Active; multi-bay car wash
ICIS-AIR (air pollution)	Ebony Delux Cleaners	110001274861	2039 Washington St.	Permanently closed; dry cleaners
ICIS-AIR (air pollution)	Peter Judlin, Inc	110001269975	1901 Tchoupitoulas St.	Permanently closed; heavy construction contractor; new Walmart location
RCRA (hazardous waste)	Automotive Brake & Clutch	LAD092093517	3938 Third St.	Closed; automotive repair shop
RCRA (hazardous waste)	Bohn Ford, Inc.	N/A	2700 S. Broad St.	Closed; auto dealership
RCRA (hazardous waste)	Airport Rhodes Trans	LAD985174572	2509 Terpsichore St.	Inactive
RCRA (hazardous waste)	blighted property	LAR00090589	3210 First St.	Vacant lot; formerly a 2-story rental
RCRA (hazardous waste)	EXXON Co. USA	LAD985194265	1801 S. Claiborne Ave.	no EXXON at this address; nearby Shell & Valero stations

Type of Site	Name of Site	Site ID	Address of Site	Comments
RCRA (hazardous waste)	Ford Car Care Center	LAR00004127	3016 First St.	Closed
RCRA (hazardous waste)	Johnson Quality Automotive	LA0000130484	2135 Derbigny St.	Active; auto repair shop
RCRA (hazardous waste)	LA Auto Collision	LAD981901879	3031 Jackson Ave.	Inactive; auto repair shop
RCRA (hazardous waste)	Louis Auto Electric	LAD981597140	2935 Jackson Ave.	Inactive; possibly moved to 2710 S. Miro St.
RCRA (hazardous waste)	Ace Cleaners Marrero	LAR000026616	1607 Prytania St.	Active
RCRA (hazardous waste)	Benson Mtr Co	LAD055016026	2001 St. Charles Ave.	Not at this location; possibly moved to 4321 Hessmer Ave., Metairie
RCRA (hazardous waste)	Diesel Tractor & Equipment	LAD985201250	1400 Annunciation St.	Not at this location; possibly moved to 830 Brooklyn St.
RCRA (hazardous waste)	Dixie Web Graphics	LAD008210635	1403 Annunciation St.	Active; dba “Uptown Graphics”
RCRA (hazardous waste)	Newman E. Smith, Inc.	LAR000055798	1321 Magazine St.	Active w/ possible ownership change

Type of Site	Name of Site	Site ID	Address of Site	Comments
RCRA (hazardous waste)	Property One, Inc.	LAR000015412	2026 St. Charles Ave.	New Orleans Convention and Visitors Center HQ
RCRA (hazardous waste)	Sherwin Williams Co	LAD070673678	1743 St. Charles Ave.	Active; retail paint store
RCRA (hazardous waste)	Speedee Oil Change	LAD985218387	1735 St. Charles Ave.	Active; oil change & brake repair shop
RCRA (hazardous waste)	St. Charles Surgical Hospital	LAR000079350	1717 St. Charles Ave.	Active; out-patient surgical facility
RCRA (hazardous waste)	Toys Dry Cleaners	LAD08765810	2010 St. Charles Ave.	Active; dry cleaners
RCRA (hazardous waste)	Dooleys Auto RPR	LAD985201466	3501 Toledano St.	Appears inactive; auto repair shop
RCRA (hazardous waste)	Macks Auto	LAD985220961	3412 Washington St.	Inactive; vacant lot
RCRA (hazardous waste)	New Orleans Limousine Service, Inc	LAD057256059	3119 Jackson Ave.	Not at this location
RCRA (hazardous waste)	Power Steering Products Co.	Lad981593379	3001 Jackson Ave.	Appears inactive

Type of Site	Name of Site	Site ID	Address of Site	Comments
RCRA (hazardous waste)	Advance Auto Parts	LAR000058644	2631 S. Claiborne Ave.	Active
RCRA (hazardous waste)	Kern Chiropractic	LA0000102988	2700 S. Claiborne Ave.	Moved to 2475 Canal St.
RCRA (hazardous waste)	Star Enterprise	LAD985196914	2727 S. Claiborne Ave.	Active; doing business as Super Discount gas station
RCRA (hazardous waste)	Save-a-Lot	LAR000088518	2841 S. Claiborne Ave.	Active; grocery store
RCRA (hazardous waste)	Western Auto	LAD981588999	2851 S. Claiborne Ave.	Inactive; location is now a Dollar General Store
RCRA (hazardous waste)	Michael's Store 1182	LAR000087817	2900 S. Claiborne Ave. Ste. 200	Active; strip center access off Toledano St.
RCRA (hazardous waste)	EXXON Co USA 51203	LAD985194273	3300 S. Claiborne Ave.	Active
RCRA (hazardous waste)	Winsor S. Dennis MD	LAD981913247	2700 LaSalle St.	Appears inactive
RCRA (hazardous waste)	Sewerage & Water Board of New Orleans	LAD981511835	2300 Philip St.	Appears to be incorrect site name or location

Type of Site	Name of Site	Site ID	Address of Site	Comments
RCRA (hazardous waste)	KSE Architectural Antiques	LAR000003574	1824 Felicity St.	Appears active; dba as "The Bank Architectural Antiques"
RCRA (hazardous waste)	John M Walton Inc	LAD981145378	1605 Carondelet St.	Active
RCRA (hazardous waste)	Whitmire Inc	LAD034451609	1617 Felicity St.	Inactive; formerly an auto repair shop - now Houston's Restaurant
RCRA (hazardous waste)	Walgreens Drug Store 5040	LAR000081422	1801 St. Charles Ave.	Active
RCRA (hazardous waste)	Westvaco Corporation	LAD008161218	1400 Annunciation St.	Inactive; now occupied by 3-story condos
RCRA (hazardous waste)	1512 Constance St	LAR000085548	1542 Constance St.	Razing an old elementary school with LBP contamination; replaced with new school
RCRA (hazardous waste)	Second Line Stages (Movie Production)	LAR000072900	800 Richard St.	Active
RCRA (hazardous waste)	Government Issue – Movie Prod	LAR000085662	1645 Tchoupitoulas St.	Active
RCRA (hazardous waste)	Wal-Mart Supercenter #5022	LAR000055418	1901 Tchoupitoulas St.	Active

Type of Site	Name of Site	Site ID	Address of Site	Comments
RCRA (hazardous waste)	Cooper T Smith	LAD985188754	421 Josephine St.	Appears active; warehouse belongs to Cooper T. Smith Stevedore Company
RCRA (hazardous waste)	RC Rebuilders	LAR000055145	515 Orange St.	Appears inactive and closed
RCRA (hazardous waste)	Seafarers Welfare Plan New Orleans Med	LAR985187681	630 Jackson Ave.	Active
RCRA (hazardous waste)	New Orleans General Hospital	LAD051706778	635 Jackson Ave.	Inactive and closed
RCRA (hazardous waste)	Jackson Avenue One Hour Cleaners	LAR000035287 LDEQ AI 39431	739 Jackson Ave.	Inactive; facility closed April 1, 2005, LDEQ issued NFA January 18, 2006
RCRA (hazardous waste)	G & K Svc Co	LAD985195445	524 Fourth St.	Active; commercial laundry
RCRA (hazardous waste)	Diesel Tractor	LAD985206762	2841 Tchoupitoulas St.	Active; now “Park Place Tire & Auto”
RCRA (hazardous waste)	Dupres Auto & Truck Svc	LAD985206820	2861 Tchoupitoulas St.	Active; now “The Shop – Auto Body & Repair”
RCRA (hazardous waste)	Uptown Imports	LAD985204171	2923 Tchoupitoulas St.	Active

Type of Site	Name of Site	Site ID	Address of Site	Comments
RCRA (hazardous waste)	Rollins Leasing Corp	LAD981903156	3101 Tchoupitoulas St.	Appears inactive
RCRA (hazardous waste)	Archaic Smile	LAR000000927	3157 Tchoupitoulas St.	Appears inactive
RCRA (hazardous waste)	Chambliss Auto Body Repair	LAR000073569	3141 Tchoupitoulas St.	Active
RCRA (hazardous waste)	Dixie Industrial Hyd Supplies Inc	LAD050943497	626 Pleasant St.	Appears inactive; building now occupied by "FX Motorsports"
RCRA (hazardous waste)	Mat Dillons Lift Truck Repair	LAD981513575 LDEQ AI 5776	625 Pleasant St.	Appears inactive. Last LDEQ inspection was December 7, 2020. LDEQ correspondence mailed in 2021 and 2022 was returned undelivered.
RCRA (hazardous waste)	Maginnis Properties	LAR000076927	3130 – 3132 Chippewa St.	Inactive; residential properties
RCRA (hazardous waste)	Walgreens 2640	LAR000088757	3227 Magazine St.	Active
RCRA (hazardous waste)	Orleans Colour Separation	LAD102428380	3009 Magazine St.	Inactive; building now occupied by the "Golden Dragon Restaurant"
RCRA (hazardous waste)	A Vargas Body Shop Inc	LAR000071746	3317 Magazine St.	Active

Type of Site	Name of Site	Site ID	Address of Site	Comments
RCRA (hazardous waste)	L & L Oil Co Inc	LAD985171867	Harmony St / Miss St.	Residential neighborhood, wrong location; Mississippi St. is in Westwego
RCRA (hazardous waste)	Floor & Décor 128	LAR000091272	2801 Magazine St.	Active as a Benjamin Moore paint store
RCRA (hazardous waste)	Comsource American Inc	LAD092609071 8 LDEQ AI 153	1125 Fourth St.	Incorrect location – this is in Gretna, LA; now Intertek Testing Services - Caleb Brett
RCRA (hazardous waste)	Louise S McGehee School	LAR000070870	2343 Prytania St.	Active
RCRA (hazardous waste)	Trinity Episcopal School	LAR000077255	1315 Jackson Ave.	Active
RCRA (hazardous waste)	The DarkroomLLC	LAR000053330	127 Sophie Wright Pl.	Active; community print shop & darkroom
RCRA (hazardous waste)	Gulf Beltin & Gasket Co Inc	LAD008176752	1010 St. Mary St.	Active; dba Atlas Hose & Gasket Company
RCRA (hazardous waste)	Fuji Imports	LA0000881110	1021 Felicity St.	Appears active; also operates a martial arts studio at the same location
RCRA (hazardous waste)	Radiology Associates of New Orleans	LAD981604531 LDEQ AI 20459	2331 Louisiana Ave.	Inactive since November 17, 1997

Type of Site	Name of Site	Site ID	Address of Site	Comments
LUST	Five Star Auto Spa, LLC	69128	1820 S. Claiborne Ave.	All pumps removed; currently used as an automotive detailing shop
Inactive & Abandoned Sites	Release Site	LDEQ AI 204748	2200 Oretha Castle Haley Blvd.	LDEQ Issue No Further Interest Letter June 28, 2010
Inactive & Abandoned Sites	Entergy New Orleans Market Street Substation	LDEQ AI 83201	1664 Tchoupitoulas St.	LDEQ site inspection in 2001 deemed the facility "consistent with NFA-AII requirements"; however, an NFA was not issued. There were several small releases at this site in 2002 and 2003; however, there were no releases to the environment. Site is inactive and no longer generating hazardous waste as of August 17, 2022.
UST	Former Service Station UST Remediation, Unknown	LDEQ AI 177786	1735 Washington Ave.	UST system was closed in 2011. During Phase II work, soil borings and sampling revealed benzene above RECAP, and gasoline related constituents. LDEQ closed the incident August 12, 2019 and an NFA was issued on September 16, 2019. Site is now a parking lot.
UST	New Zion Baptist Church	LDEQ AI 79170	2319 Third St.	Most recent LDEQ record is a UST Permit Exp. June 30, 2006.
VRP	Jericho Road Brownfield Development	LDEQ AI 44056	2943 S. Saratoga St.	Site was withdrawn and closed July 10, 2009. This is the same property the Saratoga Park site.
VRP	Gasper Schiro Property	LDEQ AI 85660	1476 Magazine St.	Site was withdrawn and closed September 12, 2019.
VRP	CJ Peete Project	LDEQ AI 155767	Washington Ave. & LaSalle St. (proximity)	Certificate of Completion with Restricted Use, Closed October 13, 2011

The examination of the LDEQ Leaking Underground Storage Tank (LUST) Facility List shows one (1) facility within the Study Area. That facility is located at 1820 South Claiborne Ave., has an assigned AI number of 69128, and is owned by Five Star Auto Spa, LLC. All gasoline pumps have been removed from the site, and it is currently being used as an automotive detailing shop. An examination of USEPA Brownfields Properties list on January 10, 2017, identified two (2) brownfields properties, and three (3) VRP sites within the Study Area. There are no recorded oil or gas wells in the Study Area. There are no recorded public water supply wells located inside the Study Area. There are no Superfund (NPL) sites in the Study Area.

5.15.3 Environmental Consequences

5.15.3.1 Full Build-Out Alternative

Under the Full Build-Out Alternative, there could be short-term minor to moderate effects in the Study Area on hazardous and toxic materials. If BMPs are developed and followed, and the applicant works closely with the LDEQ to effectively avoid and remediate contaminants, it is possible permanent effects on the resources could be avoided.

5.15.3.2 Partial Build-Out Alternative (Proposed Action)

During the CNO's planning process of the Proposed Action, contaminated soils and excavation at parks including Van McMurray and Saratoga Square were added to the SOW. CNO's planning process led to the discovery of the presence of additional contaminated soils in these proposed project areas. CNO's consultant's Leaaf Environmental, LLC then prepared a CAP for remediation of the contaminated soils, dated March of 2019. Leaaf then sent an email dated July 9, 2019 to the LDEQ describing the CAP and requesting the LDEQ approval for excavation plans. The Leaaf correspondence stated they are working with the CNO's Capital Projects Administration on the Broadmoor Drainage Upgrades and Green Infrastructure Project throughout New Orleans. As part of this project, several playgrounds and other City owned properties would be redeveloped with subsurface GI utilities following FEMA's HMGP guidelines. This work involves the excavation and disposal of soil from each of the playgrounds/properties. Several of these playgrounds have been previously investigated and mitigated for lead contamination in near-surface soil, as needed based on HUD guidelines.

The LDEQ sent "No Objection" letters, dated October 3, 2019 approving the CAPs for the following sites:

1. Van McMurray Playground (178007) - 2000 Philip St., New Orleans, LA 70113
2. Burke Playground (178008) - 2524 Annunciation St., New Orleans, LA 70130
3. Annunciation Playground (178014) - 800 Race St., New Orleans, LA 70130
4. Taylor Playground (140760) - 2600 S. Roman St., New Orleans, LA 70125
5. Saratoga Park (44056) - 2943 S. Saratoga St., New Orleans, LA 70115

The LDEQ had no objection to any of the plans with the following condition:

- Only soil with sample results below the Risk Evaluation CAP Screening Standards for non-industrial use may be taken to a C&D Waste landfill, for use as cover material.

Interim remediation measures for contaminated soils at Annunciation Square, Burke Park, Taylor Playground, and Van McMurray Playground have been conducted to reduce the potential for human exposure. Remediation of contaminated soils was completed at the Saratoga Park site in December 2020, with a recommendation of NFA. In July 2022, the LDEQ requested that CNO perform additional soil excavation and confirmation sampling prior to issuing an NFA for the Saratoga Park site.

The LDEQ sent an update response on September 14, 2023 regarding the Saratoga site.

If any additional contaminated soil is discovered during excavation, this SOW may be altered, to fully remediate the areas in this proposal. After all excavation for the project is complete, Leaaf will coordinate with the LDEQ for a final clearance letter, and a copy will be provided to FEMA.

If hazardous materials are unexpectedly encountered in the Study Area during the proposed construction operations, appropriate measures for the proper assessment, remediation, management and disposal of the

contamination would be initiated in accordance with applicable Federal, state, and local regulations. The contractor would be required to take appropriate measures to prevent, minimize, and control the release of hazardous materials in the construction area.

Elevated soil lead levels have been identified in a number of parks in the Study Area. Additional soil lead testing would be conducted on lots and parks before construction activities involving soil disturbance commence. BMPs would be developed for addressing the soil lead contamination at the parks scheduled for development with underground stormwater containment before construction begins. BMPs include, but are not limited to, removal and containment of the surface layer or covered layers of contaminated soils and watering construction areas to prevent fugitive dust from leaving the site. Any contaminated soils removed would be properly disposed of at an appropriate landfill. Any other alternatives may be subjected for resubmission for 106 purposes, and corrective action activities will be addressed at that time.

5.15.3.3 No Action Alternative

Because the proposed projects would not be implemented, the No Action Alternative would have no effects differing from the baseline conditions of the hazardous and toxic chemicals in the Broadmoor Study Area and Orleans Parish.

6.0 CUMULATIVE IMPACTS

CEQ regulations state that the cumulative impact of a project represents 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 CFR § 1508.7).

In its comprehensive guidance on cumulative impacts analysis under NEPA, CEQ notes that "the 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 2005). The term, "similar actions," may be defined as "reasonably foreseeable or proposed agency actions [having] similarities that provide a basis for evaluating the environmental consequences together, such as common timing or geography" (40 CFR § 1508.25[a][3]).

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 (CEQ 2007) provides a list of several basic questions to be considered, including (1) Is the proposed action part 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 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?

It is normally insufficient when conducting a cumulative effects analysis to merely analyze effects within the immediate area of the proposed action. 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, that is, 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 (CEQ 2007).

In accordance with NEPA, and to the extent reasonable and practical, this EA considered the combined effects of the Proposed Action Alternative and other actions undertaken by FEMA, as well as actions by other public and private entities, that affect the environmental resources the Proposed Action also would affect, and occur

within the considered geographic area and temporal frame(s).

Specifically, a range of past, present, and reasonably foreseeable future actions undertaken by FEMA within the designated geographic boundary area were reviewed (1) for similarities such as SOW, 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. As part of the cumulative effects analysis, FEMA also reviewed known past, present, and reasonably foreseeable future projects of Federal agencies and other parties identified within the designated geographic boundary. These reviews were performed in order to assess the effects of proposed, completed, and ongoing activities and to determine whether the incremental impact of the current Proposed Action, when combined with the effects of other past, present, and reasonably foreseeable future projects, are cumulatively considerable or significant.

In Orleans Parish, over 8,000 FEMA program-funded emergency protective measures, repair projects and hazard mitigation projects that have occurred, are occurring, or are reasonably foreseen to occur to buildings, recreational and educational facilities, public utilities, and waterways from August 2005 through June 2017. Tables 17 and 18 describe 159 FEMA-funded undertakings that fall within the study area, representing an obligated amount of over $115 million for three (3) FEMA disasters. Nearly all projects in the study area were PA grants, with the exception of one (1) 404 Hazard Mitigation project, Touro Water Pumping Equipment/Flood Tube Barriers (HMGP 1786-0012). Eighty-three percent (83%) of these projects were completed prior to 2015. The remaining PA projects estimated to be completed between 2015 and 2017 were distributed across the three (3) disasters.

Table 17: FEMA-funded Project Sites in Study Area by Disaster and Project Type

Program Type	Total	Percent	DR-1603	DR-1786	DR-4080
Hazard Mitigation (404)	$133,240		-	$133,240	-
HM - Flood Control	1	n/a	0	1	0
HM Totals	*1*	n/a	*0*	*1*	*0*
Public Assistance	$115,817,224		$110,836,682	$395,877	$4,584,665
PA - B - Protective Measures	35	22%	10	9	16
PA - D - Water Control Facilities	1	1%	1	0	0
PA - E - Public Buildings	118	75%	97	1	20
PA - G - Recreational or Other	4	3%	4	0	0
PA Totals	*158*		*112*	*10*	*36*
Total - All Programs	***159***		***112***	***11***	***36***

Source: FEMA 2017

Table 18: FEMA-funded Project Sites in Study Area by Disaster and PA Estimated Project Completion Date

PA Completion Year	Number of	Percent	DR-1603	DR-1786	DR-4080
2006	4	3%	4	0	0

2007	18	11%	18	0	0
2009	13	8%	12	1	0
2010	1	1%	1	0	0
2011	2	1%	2	0	0
2012	20	13%	18	2	0
2013	47	30%	33	0	14
2014	30	19%	14	0	16
2015	12	8%	5	7	0
2016	8	5%	2	0	6
2017	3	2%	3	0	0
All Years	*158*	*-*	*112*	*10*	*36*

Source: FEMA 2017

A number of public works projects have been planned by the New Orleans DPW and published on their website (New Orleans DPW 2017). The complete listing of these projects is provided in Appendix C, and those with budgets greater than $500,000 are shown in Table 19.

Table 19: Department of Public Works Projects

Project ID	Project Name	Funding Source	Current Budget	Scope of Work
DPW313	Broad St. and Lafitte St. Streetscape	CDBG	$713,315	Sidewalk or other pedestrian walkway improvements
DPW178	Claiborne at Toledano	CDBG	$2,166,996	Enhancement project including a new memorial commemorating the contributions of nine (9) New Orleans Civil Rights Leaders
DPW442	Jackson Ave.	CDBG	$3,750,000	2” mill and street overlay, ADA-compliant curb ramps, striping
DPW090	Jackson Ave.	City Funded	$3,842,008	Reconstruction of existing roadway, including replacement of affected utilities
DPW140	Oretha Castle Haley Blvd.	CDBG	$965,000	Median removal, pedestrian crossings at intersections, ADA-compliant ramp curbs, sidewalk repair, parking lanes, bicycle lanes
PWF118	Recovery Program – Touro	FEMA – Phase II	$741,804	Repair Hurricane Katrina-related infrastructure damage

Two (2) PA project sites in the study area were cleared with EAs, and many RECs have cleared under the JIRR PEA. All EAs were for Hurricane Katrina (DR-1603) projects. FEMA-funded actions are subjected to various levels of environmental review as a requirement for the receipt of federal funding. A Subgrantee's failure to comply with any required environmental permitting or other condition is a grant violation, which can result in the loss of federal assistance, including funding. Table 20 provides an overview of potential impacts on each of the analyzed environmental components by type of stormwater construction activity.

Table 20: Potential Impact by Type of Stormwater Construction Activity

Valued Environmental Component	Stormwater Lots and Parks	Street Basins	Pervious Intersections, Parking, and Sidewalks	Road Reconfigurations with Bioswales	Stormwater Drainage Upgrades
Land Use	Visual and structural improvements	Visual and structural improvements	Improved	Visual and structural improvements	No change
Air Quality	Minor, temporary, long-term improvement	Negligible, temporary	Negligible, temporary	Negligible, temporary	Negligible, temporary
Climate Change	Negligible	Negligible	Negligible	Negligible	Negligible
Noise	Minor, temporary	Minor, temporary	Minor, temporary	Minor, temporary	Minor, temporary
Geology	Negligible, temporary	No change	No change	No change	No change
Soils	Negligible, temporary	No change	No change	No change	No change
Wetlands and WOTUS	No change	No change	No change	No change	No change
Groundwater	No change	No change	No change	No change	No change
Floodplains	Improved	Improved	Improved	Improved	Improved
Coastal Resources	No change	No change	No change	No change	No change
Biological Resources	No change	No change	No change	No change	No change
Cultural Resources	-	-	-	-	-
Transportation and Traffic	Minor, temporary	Negligible, temporary	Negligible, temporary	Negligible, temporary	Minor, temporary
Public Services and Utilities	No change	No change	No Change	No change	No change

Valued Environmental Component	Stormwater Lots and Parks	Street Basins	Pervious Intersections, Parking, and Sidewalks	Road Reconfigurations with Bioswales	Stormwater Drainage Upgrades
Hazardous and Toxic Substances	-	-	-	-	-
Socioeconomics	Minor, temporary	Negligible, temporary	Negligible, temporary	Negligible, temporary	Minor, temporary
Utilities	No change	No change	No change	No change	Negligible, temporary
Hazardous and Toxic Substances	No change	No change	No change	No change	No change

7.0 CONDITIONS AND MITIGATION MEASURES

Construction of the Proposed Action was analyzed based on the studies, consultations, and reviews undertaken as reported in this EA. The findings of this EA conclude that no significant adverse impacts on human or biologic resources are anticipated from the Proposed Action.

During project construction, short-term impacts on air quality and noise are anticipated and conditions have been incorporated to mitigate and minimize these effects. Project short-term adverse impacts would be mitigated using BMPs, such as proper vehicle and equipment maintenance and appropriate signage. No long-term adverse impacts are anticipated from the proposed project. Therefore, FEMA presently finds the Proposed Action meets the requirements for a FONSI under NEPA and the preparation of an EIS will not be required (Appendix G). If new information is received that indicates there may be significant adverse effects, then FEMA would revise these findings and issue a second public notice for additional comments; however, if there are no changes, this draft EA will become the final EA.

Based upon the studies, reviews, and consultations undertaken in this draft EA, several conditions must be met and mitigation measures must be taken by CNO prior to and during project implementation:

- CNO, as the sub-recipient, must follow all applicable local, state, and Federal laws, regulations, requirements and obtain and comply with all required permits and approvals prior to initiating work.
- If human bones or unmarked grave(s) are present within the Study Area, compliance with the Louisiana Unmarked Human Burial Sites Preservations Act (La.R.S. 8:671 et seq.) is required. CNO shall notify the law enforcement agency of the jurisdiction where the remains are located within 24 hours of the discovery. CNO shall also notify FEMA and the Louisiana Division of Archaeology at 225-342-8170 within 72 hours of the discovery.
- If during the course of work, archaeological artifacts (prehistoric or historic) are discovered, CNO shall stop work in the vicinity of the discovery and take all reasonable measures to avoid or minimize harm to the finds. CNO shall inform its HMGP contacts at FEMA, who will in turn contact FEMA HP staff. CNO will not proceed with work until FEMA HP completes consultation with the SHPO and others, as appropriate. Archaeological monitoring will be performed by in-house CNO archaeologists or contract support.
- LDNR requires that a complete CUP Application package along with the appropriate application fee, be submitted to their office prior to construction. CNO is responsible for coordinating with and obtaining any required CUP or other authorizations from the LDNR OCM's (Office of Coastal Management) Permits and Mitigation Division prior to initiating work. CNO must comply with all conditions of the required permits. All documentation pertaining to these activities and CNO compliance with any conditions should be forwarded to the state and FEMA for inclusion in the permanent project files.

- CNO must 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/or stormwater from the site.
- A LPDES permit is required in accordance with the CWA and the Louisiana Clean Water Code. CNO shall require its contractor to prepare, certify, and implement a construction storm water pollution prevention plan approved by LDEQ to prevent sediment and construction material transport from the project site. All documentation pertaining to these activities and CNO's compliance with any conditions must be forwarded to LA GOHSEP and FEMA for inclusion in the permanent project files.
- Per LDEQ letter dated October 3, 2019 approving the CAP, with no objection to the plan with the following condition:
    - Only soil with sample results below the Risk Evaluation CAP Screening Standards for non-industrial use may be taken to a C&D Waste landfill, for use as cover material.
- Per the USACE LONO to CNO dated March 12, 2020, for permission to improve drainage capabilities by installing storm water parks, pervious pavement, bioswales, and street basins at Central City, Garden District, Irish Channel, St. Thomas, and Lower Garden District Neighborhoods, approximately 30-1500 ft. landward of the left descending Mississippi River Floodwall, vicinity of second order levee station 339+22, at New Orleans, Louisiana. Permission was granted for the CNO's Proposed Action, provided:
    - The work is accomplished in accordance with the above referenced email and accompanying drawings.
    - All excavations and sub-surface work within 300 ft. of the floodwall shall be performed, completed, and backfilled during Mississippi River stages below +11.0 ft. on the Carrollton Gage. No waiver will be granted due to the proximity to the flood protection. Information concerning current river stages may be obtained on the USACE website at www.mvn.usace.army.mil.
    - All excavations and sub-surface work from 300 ft. to 1500 ft. of the floodwall shall be performed, completed, and backfill during Mississippi River stages below +15.0 ft. on the Carrollton Gage.
    - Excavations within 300 ft. shall be backfilled with clay material or native material (not sand). Permeable materials can only be used as bedding material.
    - The applicant must provide written notification to this office of the construction timeline to include the proposed start and end dates. Additionally, the applicant must notify this office prior to commencement and upon completion of the work permitted herein.
- Project construction would involve the use of potentially hazardous materials (e.g., petroleum products, including, but not limited to, gasoline, diesel, brake and hydraulic fluid, cement, caustics, acids, and solvents) and may result in the generation of small volumes of hazardous wastes. Appropriate measures to prevent, minimize, and control spills of hazardous materials must be taken and generated hazardous or non-hazardous wastes are required to be disposed in accordance with applicable Federal, state, and local regulations.
- Unusable equipment, debris, and material must be disposed of in an approved manner and location. CNO shall handle, manage, and dispose of petroleum products, hazardous materials, and/or toxic waste in accordance with all Federal, state, and local agency requirements. All coordination pertaining to these activities should be documented and copies should be forwarded to the state and FEMA as part of the permanent project files.
- Contractor and/or sub-contractors must properly handle, package, transport, and dispose of hazardous materials and/or waste in accordance with all Federal, state, and local regulations, laws, and ordinances, including all Occupational Safety and Health Administration (OSHA) worker exposure regulations covered within 29 CFR § 1910 and 1926. CNO is responsible for ensuring that renovation or demolition work is coordinated with the LDEQ for abatement activities.
- All waste is to be transported by an entity maintaining a current "waste hauler permit" specifically for the waste being transported, as required by LADOTD and other regulations.
- BMPs should be developed to minimize the disbursement of lead-contaminated soils during construction activities.

- If the improvements require the use of state highway ROW, CNO should contact Ms. Darlene Lamarca in LADOTD District 02 Office in Bridge City to apply for the appropriate permits. She can be reached by phone at (504) 437-3130 or by mail at P.O. Box 9180, Bridge City, LA 70096-9180. Additional information may be obtained by contacting (225) 242-4502.
- The Southeast Louisiana Flood Protection Authority-East (SLFPA-E), on behalf of the Orleans Levee District, does hereby grant permission to CDM Smith on behalf of City of New Orleans Public Works Department ("Permittee") to improve drainage capabilities by installing storm water parks, pervious pavement, bioswales, and street basins at Central City, Garden District, Irish Channel, St. Thomas, and Lower Garden District Neighborhoods, approximately 30-1500 ft. landward of the left descending Mississippi River Floodwall, vicinity of second order levee station 339+22, at New Orleans, LA, in Orleans Parish. ***No waiver will be granted due to the proximity to the flood protection. All excavations and sub-surface work within 300 ft. of the floodwall shall be performed, completed, and backfilled during Mississippi River stages below +11.0 ft. on the Carrollton Gage.***
    - A copy of this Levee Safety Permit, along with a set of approved plans shall be kept on the job site for the duration of the Work and made readily available for any inspector to determine that the Work taking place has been permitted by the SLFPA-E and is being conducted in accordance with approved plans. Failure to do so may result in the revocation of the Levee Safety Permit ("the Permit) or construction delays. The Levee District has the option to reserve its rights to inspect area prior to construction.
    - All work is performed in strict accordance with the provisions set forth in the CPRA's (Coastal Protection and Restoration Authority) LONO #17715, dated May 9, 2019 and the USACE LONO #19-0291, dated March 12, 2020 attached and made a part hereof.
    - No work or related activity shall be conducted within the levee district right-of-way.
    - Should changes in the location or section of the existing levee and/or river, or in the generally prevailing conditions in the vicinity, be required in the future in the public interest, the applicant shall make changes in the project concerned or in the arrangement thereof, as may be necessary to satisfactorily meet the situation and shall bear the cost thereof.
    - This Permit does NOT obviate the Permittee and Contractor from obtaining permits required from any federal, state, and local authorities, or the USACE, the State Land Office, the LADOTD, and/or the LDNR-CMD. Permittee and Contractors are responsible for obtaining all such permits and adhering to their provisions. The SLFPA-E is not responsible for ensuring that the Permittee or its Contractor complies with rules, regulations or laws imposed by other governmental entities/agencies in regard to requirements for permitted activities, and does not enforce permits or regulations required by any of those entities. The Permittee is to provide copies of all city, state and federal permits to the SLFPA-E prior to commencing work.
    - The SLFPA-E will not interpret or provide comments on any local laws, zoning or ordinances concerning property rights, operations, or any other activities governed by any Permit that is not a SLFPA-E Permit.
    - The permission granted under this Permit is being granted to the Permittee and is not transferable to any other person, company, or agency.
    - This Permit does not constitute an approval of the engineering design or any opinion as to the feasibility of the Work.
    - The Work shall be constructed in accordance with the submitted details set forth in the Levee Safety Permit Application dated February 18, 2019 by the Permittee, the drawings and specifications accompanying the application, and all other provisions contained herein. This Permit shall automatically expire if construction of the permitted facility has not started within six (6) months of the date of the Permit.
    - Any changes to the limits or scope of the proposed Work must be submitted to SLFPA-E for additional review prior to commencement of work covered by the proposed changes.
    - Construction activities shall be completed within one (1) year of the Permitting Officer's dated signature of this Levee Safety Permit.

- The Permittee agrees to hold harmless, indemnify, and defend the SLFPA-E and its levee districts, its staff, Commissioners, and agents against any and all damages which arise from the activities of the Permittee, or the Permittee's contractors, tenants and or lessees. Additionally, the Permittee, and all contractors and subcontractors employed to complete the Work must provide a completed SLFPA-E hold harmless agreement (attached with application) signed by a legally authorized representative of each contractor and subcontractor. The hold harmless agreement must be signed, sealed and dated by a Notary Public. An original copy of the signed and authorized hold harmless agreement must be delivered to SLFPA-E at the below address. An original proof of authority to sign the hold harmless agreement (such as a copy of a corporate resolution) must also be provided. Contractors and subcontractors that do not comply with this requirement shall not be allowed access to the levee right-of-way.
- In addition to any other provisions provided herein, Permittee specifically assumes any and all responsibility for property damage to the SLFPA-E or any of its levee districts' property, and to personal injury to the any of its officers, agents, servants or employees caused by, resulting from, arising out of or connected with the use of the Premises and/or any buildings and improvements thereon or caused by the activities of Permittee and/or its invitees and/or licensees on the subject property.
- All contractors and subcontractors employed to complete work in the Right of Way shall provide certificates of insurance as proof of compliance with the SLFPA-E Levee Safety Permit Insurance Requirements, attached and made a part hereof. Contractors that do not comply with this requirement shall not be allowed access to the levee right-of-way. The following shall be named as certificate holders and the additional insured on general liability, automobile liability, aviation liability and marine insurance: Southeast Louisiana Flood Protection Authority – East 6920 Franklin Ave., New Orleans, LA 70122. Failure to provide the appropriate certificates of insurance may result in a revocation of the Permit and/or construction delays.
- The SLFPA-E permit office shall be given notice in writing at least 3 days (excluding weekends and holidays) prior to commencement of any work, and at the end of activities so that appropriate inspections can be made. The Permittee, contractor, or an authorized representative may send notification via email. However, the entity providing notification is responsible for verifying receipt of notification.
- The Permittee shall provide the SLFPA-E with photographs of the completed work, which must show the relationship of the work and its relative location to the flood control structure making this Permit necessary.
- The proposed Work shall not restrict the Levee District's maintenance operations, or any potential flood fighting activities along the levee, nor shall it obstruct or impede drainage, or create areas of standing water on the levee, along the levee toe, or in the levee batture.
- No equipment, vehicles or materials of any kind may be parked or stored on the levee or its slopes without prior approval from the Levee District.
- An "after-the-fact" Permit request will be reviewed as though no work had been initiated and any work found not to be acceptable for permitting shall be removed at the Permittee's expense. The Permittee is responsible for maintaining the existing level of flood protection at all times and shall employ and maintain at the project site suitable erosion protection measures to the satisfaction of the Levee District.
- The contractor shall preserve and protect all levee monuments and shall install a sleeve and cap at each monument locations to allow access to the monument through the asphalt pavement.
- Any structural facilities constructed at the flood side of the levee and/or floodwall will be anchored sufficiently to resist flotation, collapse, or lateral movement in the event of flooding or inundation. Alternatively, in lieu of the above-referenced anchorage of installations and facilities they must be capable of immediate removal from the floodway upon request of the USACE or the SLFPA-E.
- All materials associated with the proposed Work must be removed from the area upon completion of the project and the area must be returned to its original state of existence or better.

- Any damage done to the levee, floodwall or other flood control structure, revetment, or surrounding project area, resulting from the proposed Work shall be repaired or replaced by Permittee at the Permittee's expense and to the satisfaction of the Levee District.
- The Permittee shall provide a set of As-Built Plans to the SLFPA-E upon completion of the Work.
- If for any reason the Permittee ceases to maintain operations, the APPLICANT/OWNER must obtain a modification of this Permit, which may require that any or all structures and materials in the area of operation be removed at the Permittee's expense.
- The SLFPA-E may revoke this Levee Safety Permit if it determines that the provisions contained in this permit are not being met, or if the permitted activity damages the levee system infrastructure.
- It is further hereby expressly agreed that the obligations of the Permittee under this Permit shall survive the expiration and/or termination of this Permit.
- FOR CAMPS - Permittee understands that the SLFPA-E, the COE and/or their contractors may need access to the area to perform maintenance. Permittee also understands that because of the maintenance it may not have direct access to the site and may have to temporarily use an alternative route to access its property.

8.0 PUBLIC INVOLVEMENT

FEMA invites public participation in this proposed Federal action as part of the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. All agencies, organizations, and members of the public having a potential interest in the Proposed Action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in the decision-making process.

To date, FEMA has coordinated with multiple agencies regarding the Proposed Action through the submittal of SOVs. The SOVs request that each agency review the Proposed Action and determine if and what requirements of any formal consultations, regulatory permits, determinations, or authorizations would be needed by the different agencies. The SOVs were submitted to the USACE New Orleans District, USEPA (Region 6), LDWF, USFWS, LADOTD, and LDEQ on May 3, 2017.

Public meetings were held on May 9, 2017, at the Harmony Oaks Community Center and on May 16, 2017, at the Lyons Recreational Center to present information on the Proposed Action/Preferred Alternative to the public and listen to their concerns. These meetings, sponsored by the City of New Orleans, were publicized in the newspaper and with yard signs in the neighborhood, and were well-attended. Two (2) major topics of concern were voiced by attendees: 1) lack of maintenance of existing storm drains, and 2) traffic disruptions and road closures during the pipe upgrade phase of proposed construction.

The public is invited to comment on the Proposed Action. The public notice has been published in The Advocate-New Orleans Edition, for three (3) days on Wednesday, December 6, 2023, Tuesday, December 12, 2023, and Saturday, December 16, 2023; and in The Times Picayune for five (5) days on Sunday, December 10, 2023, Thursday, December 14, 2023, Monday, December 18, 2023, Thursday, December 21, 2023, and Wednesday, December 27, 2023. Additionally, the draft EA is available for review at the following locations: City of New Orleans City Hall, at 1300 Perdido St., New Orleans, LA – Mondays through Fridays 8:00am to 5:00pm; and the Rosa F. Keller Library and Community Center, at 4300 S. Broad St., New Orleans, LA – Mondays through Thursdays 10:00am to 7:00pm; and Fridays and Saturdays 10:00am to 5:00pm. The document can also be downloaded from FEMA's website at https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa-repository, or accessed from the City of New Orleans website at https://nola.gov/next/home/, or the City of New Orleans Procurement Office LinkedIn website at https://www.linkedin.com/showcase/the-city-of-new-orleans-procurement-office/. There was a 30-day comment period beginning on December 6, 2023, and concluding on January 8, 2024 at 4:00pm. A copy of the Public Notice is attached in Appendix G.

9.0 CONCLUSION

The findings of this EA conclude that the Proposed Action at the proposed project sites would result in no significant adverse impacts to the natural and human environment, including geology, groundwater, floodplains, public health and safety, hazardous materials, socioeconomic and biological resources, environmental justice, or cultural resources.

During project construction, short-term impacts to soils, surface water, transportation, air quality, and noise are anticipated and conditions have been incorporated to mitigate and minimize the effects (see Section 7.0). No long-term adverse impacts are anticipated from the proposed project. Therefore, FEMA finds the Proposed Action meets the requirements for a FONSI under NEPA and the preparation of an EIS will not be required.

10.0 AGENCY COORDINATION

- Orleans Parish
- Louisiana Department of Environmental Quality
- Louisiana Department of Natural Resources
- Louisiana Department of Transportation and Development
- Louisiana Department of Wildlife and Fisheries
- Louisiana Division of Historic Preservation
- Louisiana State Historic Preservation Office
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- U.S. Department of Agriculture
- U.S. Fish and Wildlife Service
- Advisory Council on Historic Preservation
- Alabama Coushatta Tribe of Texas
- Choctaw Nation of Oklahoma
- Coushatta Tribe of Louisiana
- Chitimacha Tribe of Louisiana
- Eastern Shawnee Tribe of Oklahoma
- Jena Band of Choctaw Indians
- Kialegee Tribal Town Muscogee Creek Nation
- Mississippi Band of Choctaw Indians
- Muscogee Creek Nation
- Seminole Nation of Oklahoma
- Tunica-Biloxi Tribe of Louisiana

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