

St. John the Baptist Parish



Conceptual Engineering of Mississippi River Water Source for LaPlace

March 26, 2015





Major Water System Components Conceptualized

- Laplace Water System
 - New Water Intake Pump Station
 - New Raw Water Transmission Main
 - New Pretreatment to Reverse Osmosis Units
 - Additional Reverse Osmosis Units

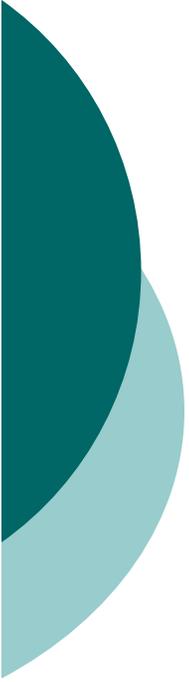
- Reserve Water System
 - Improvements to Lions Water Treatment Plant at 3 MGD
 - Improvements to Lions Water Treatment Plant at 6 MGD

- Ruddock Well System
 - Maintain as Backup versus Decommission



Recommendations

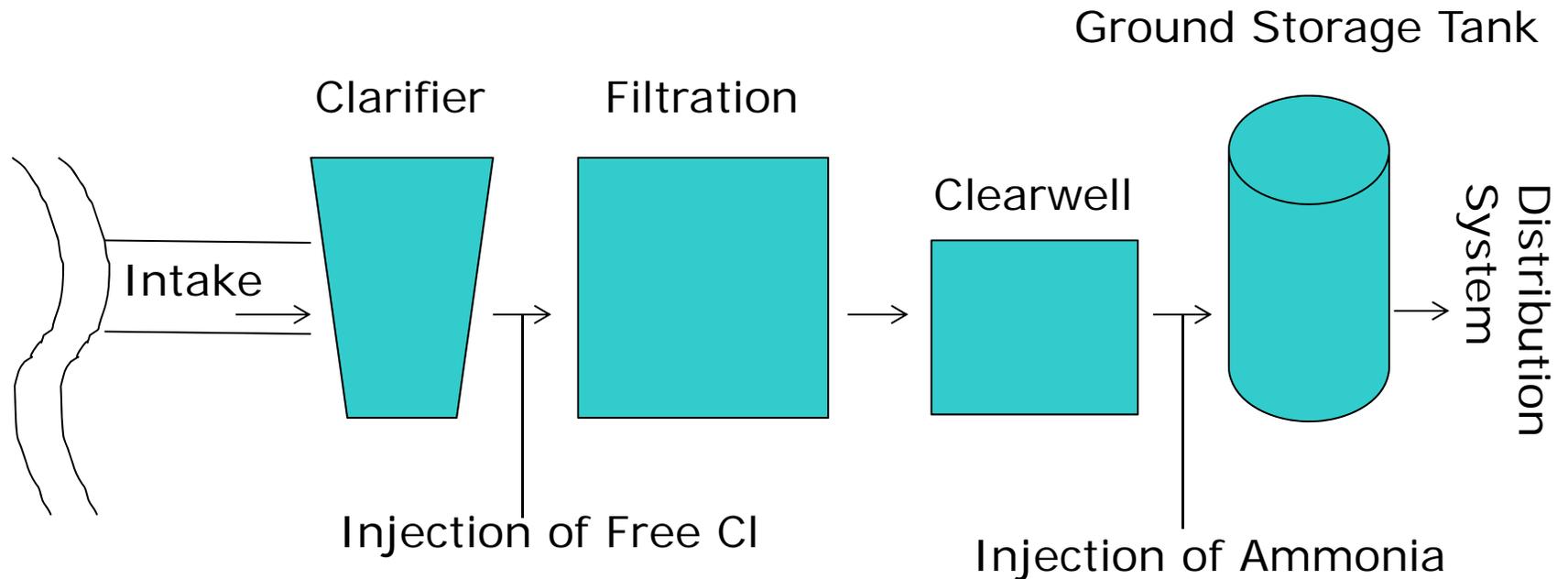
- Immediate Action Recommendations
 - Begin design of Two Filters at Lions WTP
 - Fix hydraulic short circuiting between GSTs at Lions WTP
 - Reconfigure Clarifiers at Lions WTP to operate simultaneously with control valves
 - Install UV Disinfection at Lions WTP
 - Begin piloting at Lions WTP for Reverse Osmosis
 - Begin piloting at Woodland Drive for Ultrafiltration/Reverse Osmosis
 - Begin Land Acquisition for Laplace Water Source and Lions WTP Reverse Osmosis
- Longer Term Recommendations
 - Identify funding for MS River Laplace Water Source and Reverse Osmosis at Lions Plant
 - Design and Construct MS River Laplace Water Source
 - Design and Construct Reverse Osmosis at Lions WTP



Reserve Water System – Lions Water Treatment Plant Issues

- 3 MGD Production Rate
 - During certain times has difficulty meeting TOC reduction and THM requirements
 - Needs redundant filtration for 3 MGD production rate
 - Needs UV disinfection system
 - Existing clarifiers cannot operate simultaneously without modification
 - Hydraulic short circuiting in ground storage tanks
 - 11 minute chlorine contact time

Reserve Water System – Lions Water Treatment Plant Schematic



Existing Process Units:

2 Clarifiers: 3 MGD and 2.5 MGD

2 Filters: 1 MGD Each

2 Clearwells: 15,000 gal each

3 Ground Storage Tanks: 500,000 gal, 2-250,000 gal

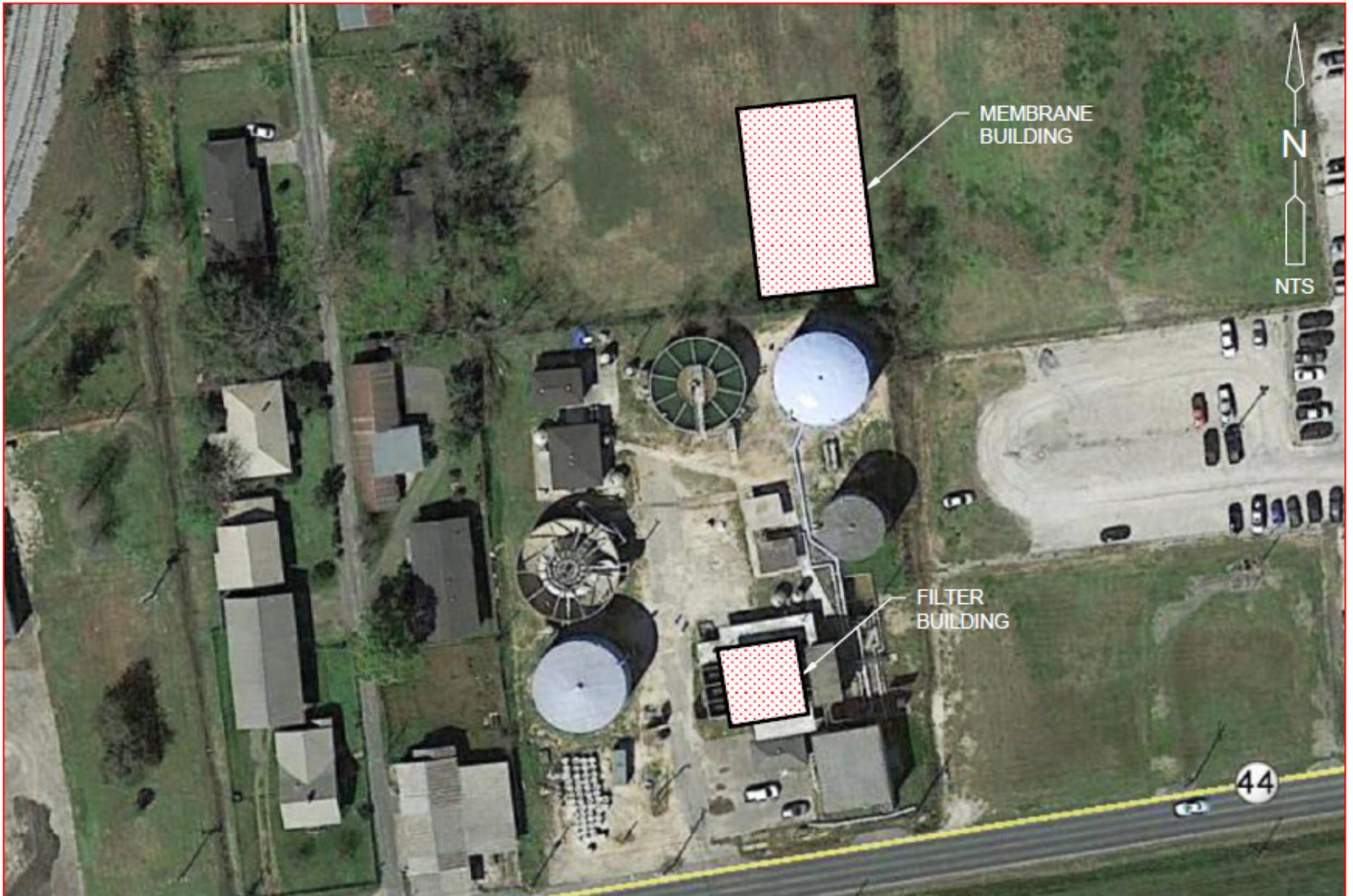
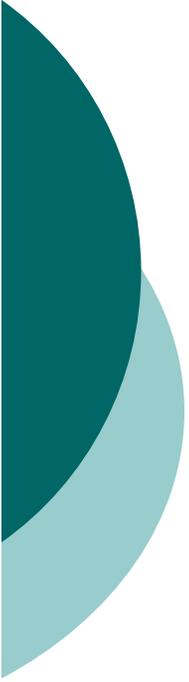


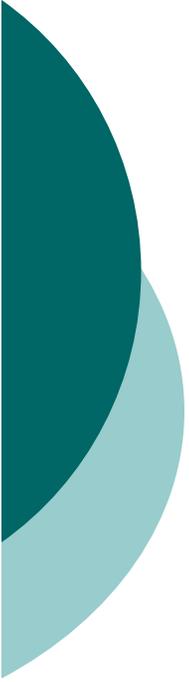
IMAGE OBTAINED FROM GOOGLE EARTH PRO DECEMBER 2014



Conceptual Cost Estimate Reverse Osmosis (3 MGD)

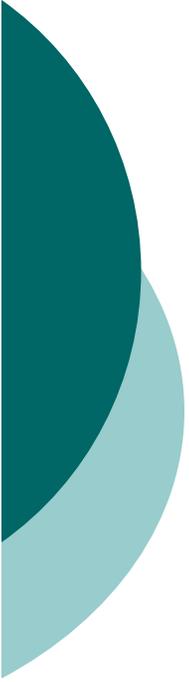
Construction Cost	\$10,130,000
Professional Services (Piloting, Geotechnical, Surveying, Abstract, Design and Resident Inspection)	\$970,000
Total Project Cost	\$11,100,000

- Estimate Includes the following:
 - New filters,
 - New clearwell,
 - Reverse osmosis membranes,
 - New piping for ground storage tanks
 - Control valves for the clarifiers at the Lions Water Treatment Plant



Reserve Water System – Lions Water Treatment Plant Issues

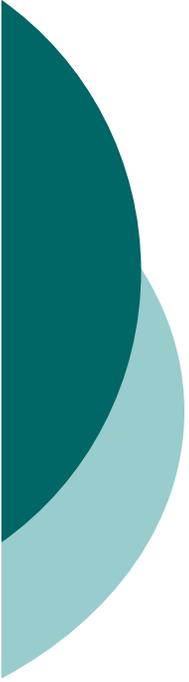
- 6 MGD Production Rate – Potential Future Capacity
 - Need a redundant clarifier
 - Need 4 additional filters above 2 currently in operation
 - Need additional clear well to increase chlorine contact time
 - Need additional 3 MGD in UV disinfection
 - Need reverse osmosis units with 6 MGD capacity



Conceptual Cost Estimate Reverse Osmosis (6 MGD)

Construction Cost	\$23,580,000
Professional Services (Piloting, Geotechnical, Surveying, Abstract, Design and Resident Inspection)	\$2,020,000
Total Project Cost	\$25,600,000

- Estimate Includes the following:
 - Redundant clarifier,
 - Four additional filters
 - New clearwell,
 - Additional UV Disinfection
 - Reverse osmosis membranes,
 - New piping for ground storage tanks
 - Control valves for the clarifiers at the Lions Water Treatment Plant



Reserve Water System – New Distribution Pump Station

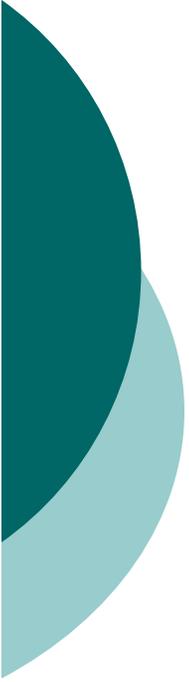
- Options Considered
 - Expanding Existing Pump Station
 - New Pump Station

- Recommended Option – New Pump Station
 - Adding Pump to Existing Station would not be able to supply water to Reserve and Laplace
 - No room on site to expand existing building for additional pumps
 - New pump station will be dedicated to sending water to Laplace

- Pump Station Capacity
 - Will supply up to 3 MGD (2,100 gallons per minute)



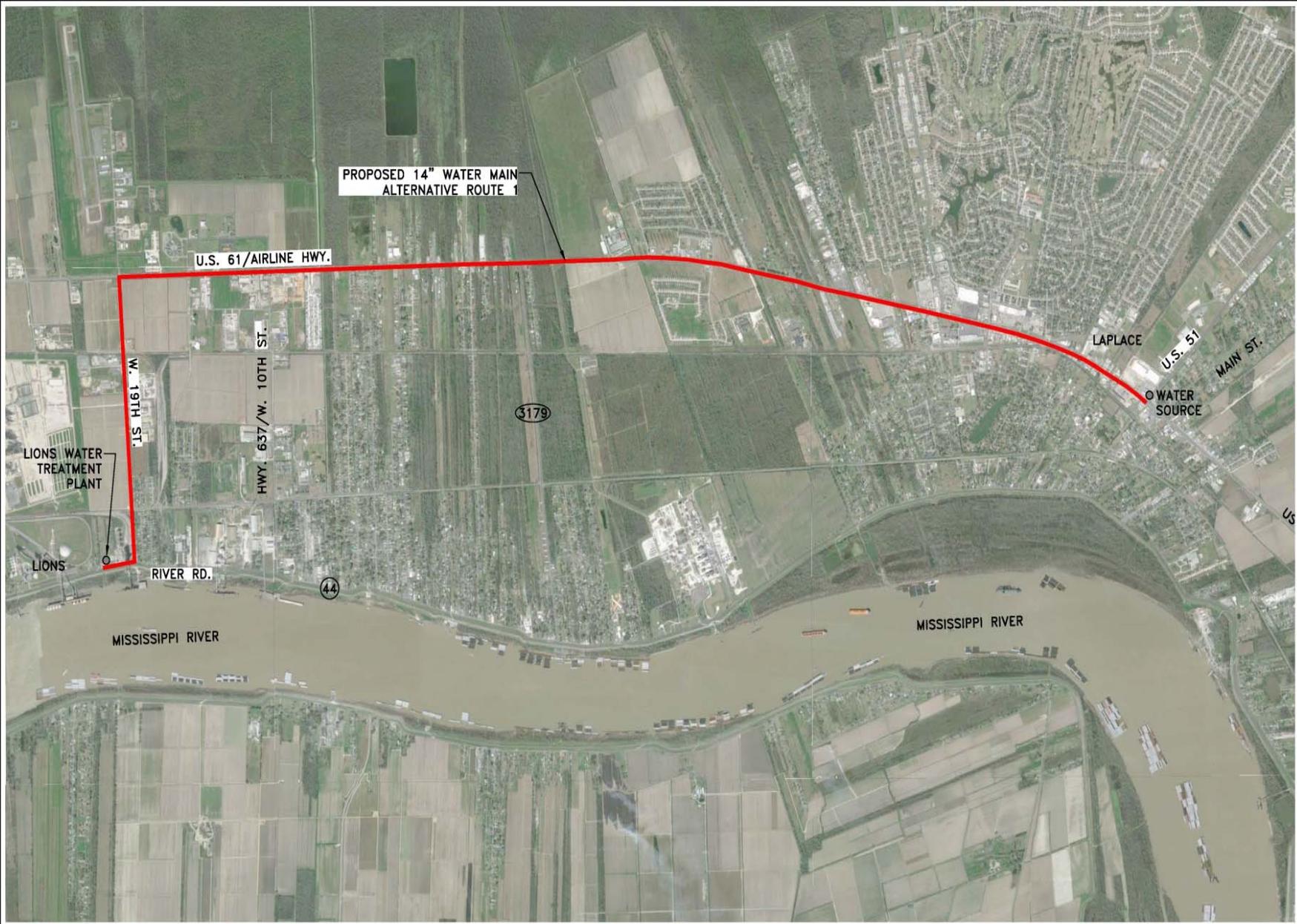
PROPOSED DISTRIBUTION PUMP STATION LOCATION



Reserve Water System – New Transmission Water Main

- New Transmission Water Main from Lions WTP to LaPlace
 - Water main 14-inches in diameter
 - Three transmission main routes investigated

- Factors to Determine Most Feasible Route
 - Conflicts with existing utilities
 - Existing Land Owners/Infrastructure – Required Right of Way
 - Constructability
 - Distance of route to Laplace



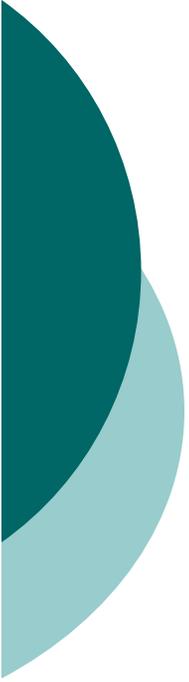
ALTERNATE ROUTE 1
 APPROX. 39,800 L.F.

LEGEND
 PROPOSED 14" WATER MAIN TRANSMISSION ROUTE

DWG: P:\DWG\10466\10466.dwg (User: Noreen.Archambault, 1/27/14) 11:00:00 AM 1/27/14
 PLOT DATE: Thursday, December 11, 2014 @ 2:18pm

ALTERNATIVES FOR NEW WATERLINE
 ST. JOHN THE BAPTIST PARISH, LA
 FIGURE 5.4
 SCALE: 1" = 2500'

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 627 W. ESPLANADE AVE. STE. 200 - KENNER, LA 70065 - PH. (504) 466-4129



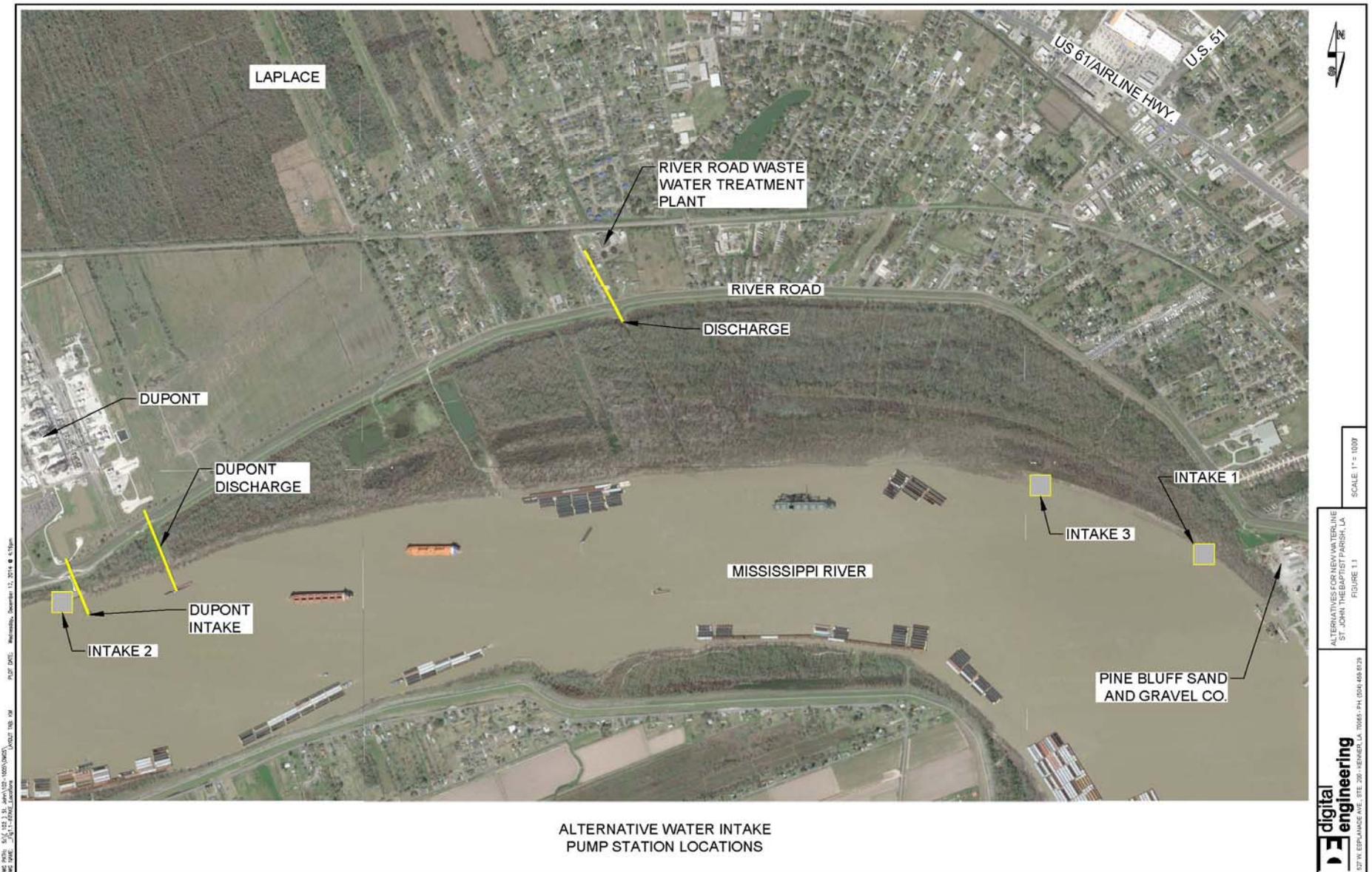
Conceptual Cost Estimate of Pump Station and Recommended Route

Pump Station Construction Cost	\$578,000
Pump Station Professional Services (Geotechnical, Surveying, Abstract, Design and Resident Inspection)	\$123,700
Pump Station Total Project Cost	\$701,700
Recommended Route Construction Cost	\$10,196,500
Recommended Route Professional Services (Geotechnical, Surveying, Abstract, Design and Resident Inspection)	\$1,203,700
Recommended Route Total Project Cost	\$11,400,200
Pump Station and Recommended Route Total Project Cost	\$12,101,900

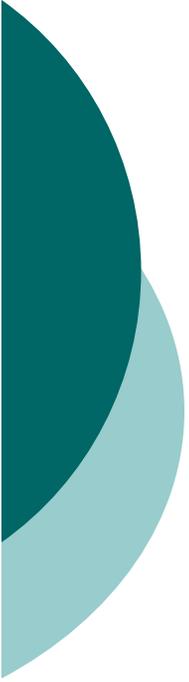


LaPlace Water System – New Intake Pump Station

- New Intake Pump Station
 - Three Potential Sites
- Factors to Determine Most Feasible Site
 - Constructability
 - Marine Traffic in MS River at location
 - Accessibility
 - Distance from Municipal/Industrial Point Source Discharge
- Pump Station Capacity
 - Will supply up to 8.64 MGD (6,000 gallons per minute)



ALTERNATIVE WATER INTAKE
PUMP STATION LOCATIONS



LaPlace Water System – New Transmission Water Main

- New Transmission Water Main from MS River to Reverse Osmosis Unit Site on Woodland Drive
 - Water main 24-inches in diameter
 - Multiple transmission main routes investigated – 3 per intake site

- Factors to Determine Most Feasible Route
 - Conflicts with existing utilities
 - Existing Land Owners/Infrastructure – Required Right of Way
 - Constructability
 - Distance of route to Woodland Drive

Conceptual Cost Estimate for Intake Pump Station, Recommended Transmission Main Route, Clarifiers and Sludge Return

Intake Pump Station Construction Cost	\$2,713,200
Intake Pump Station Professional Services (Geotechnical, Surveying, Abstract, Design and Resident Inspection)	\$394,300
Intake Pump Station Total Project Cost	\$3,107,500
Recommended Route, Clarifiers and Sludge Return Construction Cost	\$14,860,700
Recommended Route Professional Services (Geotechnical, Surveying, Abstract, Design and Resident Inspection)	\$1,656,800
Recommended Route, Clarifiers and Sludge Return Total Project Cost	\$16,517,500
Pump Stations, Transmission Mains and Sludge Return Total Project Cost	\$19,625,000



LaPlace Water System – Pre-Treatment and Expansion

- Pre-Treatment Required Includes the Following
 - pH adjustment and coagulant feed
 - Lamella Inclined Plate Settler
 - Intermediate Storage Tank
 - Ultrafiltration Membrane System
- Expanded Reverse Osmosis Treatment
 - Two new RO skids rated at 1,200 gpm (1.7 MGD) each
 - Overall treatment capacity for LaPlace will be 6.9 MGD

DATE PLOT: 5/1/2024, 3:30 PM (VIG: 1000, 1000)
DATE NAME: JACQUELYNE_SITL_PLOT
LAYOUT: 100 - 1-1
PLOT DATE: Thursday, March 28, 2024 @ 3:10pm



CONCEPTUAL SITE PLAN

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ALTERNATIVES FOR NEW WATERLINE
ST. JOHN THE BAPTIST PARISH, LA
FIGURE 3.2
CONCEPTUAL SITE PLAN

SCALE: N.T.S.

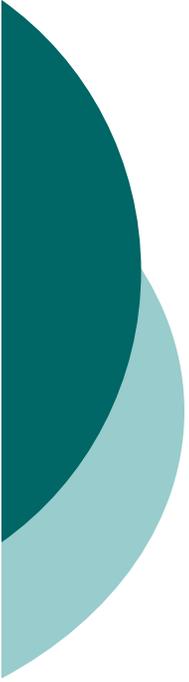


Conceptual Cost Estimate for Water Pre-Treatment and Treatment at Reverse Osmosis Unit Site

Construction Cost	\$13,310,000
Professional Services (Piloting, Geotechnical, Surveying, Abstract, Design and Resident Inspection)	\$1,086,100
Total Project Cost	\$14,396,100

- Estimate Includes the following:
 - Ultrafiltration
 - Reverse Osmosis Membranes
 - New Treatment Building

TASK DESCRIPTION	CONSTRUCTION COST	TOTAL COST	SCHEDULE (DAYS)
Reserve Water System			
Modifications to Lions WTP	\$10,130,000	\$11,100,000	Piloting - 180
			Design - 270
			Bidding - 90
			Construction - 365
Reserve Water System 6 MGD			
Modifications to Lions WTP (6 MGD)	\$23,580,000	\$25,600,000	Piloting - 180
			Design - 270
			Bidding - 90
			Construction - 365
Distribution Pump Station for Lions Treatment Plant to LaPlace	\$578,000	\$701,700	Design - 180
			Bidding - 90
			Construction - 180
Transmission Water Main from Lions Plant to LaPlace	\$10,196,500	\$11,400,200	Design - 180
			Bidding - 90
			Construction - 270
Reserve Water System 6 MGD Total Cost	\$34,354,500	\$37,701,900	
Laplace Water System			
Water Pre-Treatment at Reverse Osmosis Unit Site on Woodland Drive	\$13,310,000	\$14,550,000	Piloting - 180
			Design - 270
			Bidding - 90
			Construction - 365
Transmission Water Main from MS River to Woodland Dr., Clarifiers and Sludge Return	\$14,860,700	\$16,517,500	Design - 180
			Bidding - 90
			Construction - 270
Water Intake Pump Station on Mississippi River in Laplace	\$2,713,200	\$3,107,500	Design - 180
			Bidding - 90
			Construction - 270
Laplace Water System Total Cost	\$30,883,900	\$34,021,100	



Potential Funding Opportunities

- CDBG National Resilience Competition
 - \$1B Community Development Block Grant Competition
 - Grant focus in on creating resiliency in communities
- PILOT Program
 - Payment in lieu of taxes from Industry
- Louisiana Department of Health and Hospitals Drinking Water Revolving Loan Fund Program
 - 3.45% Interest Rate for 20 years
- Water Infrastructure Finance and Innovation Authority (WIFIA)
 - Loans at market interest rate for project over \$20M
 - Used as match up to 49% of LDHH loan