Sewerage & Water Board of New Orleans

Status of Post Hurricane Katrina Repairs
Tulane Engineering Forum

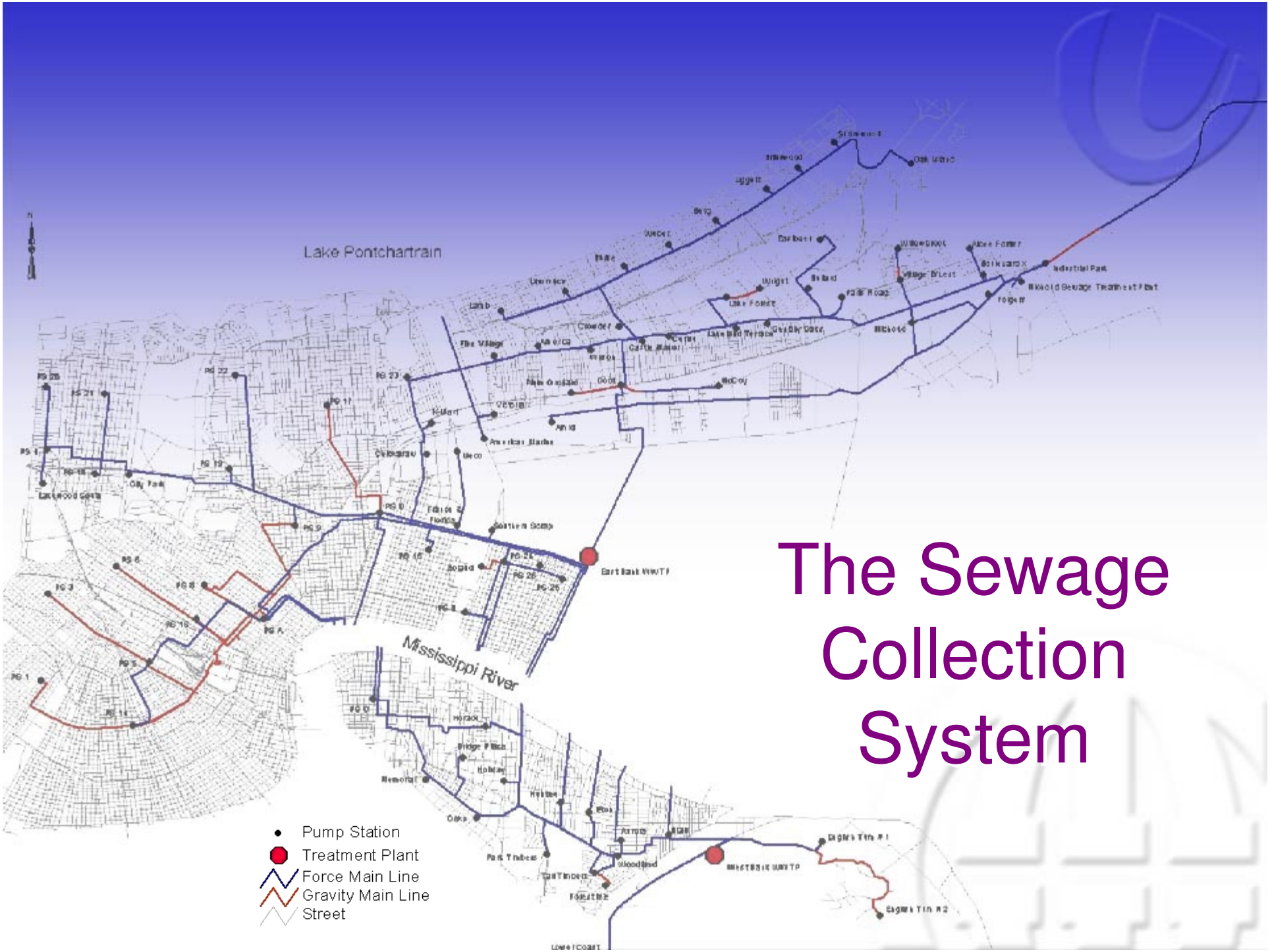
April 17, 2010

Sewerage and Water Board of New Orleans

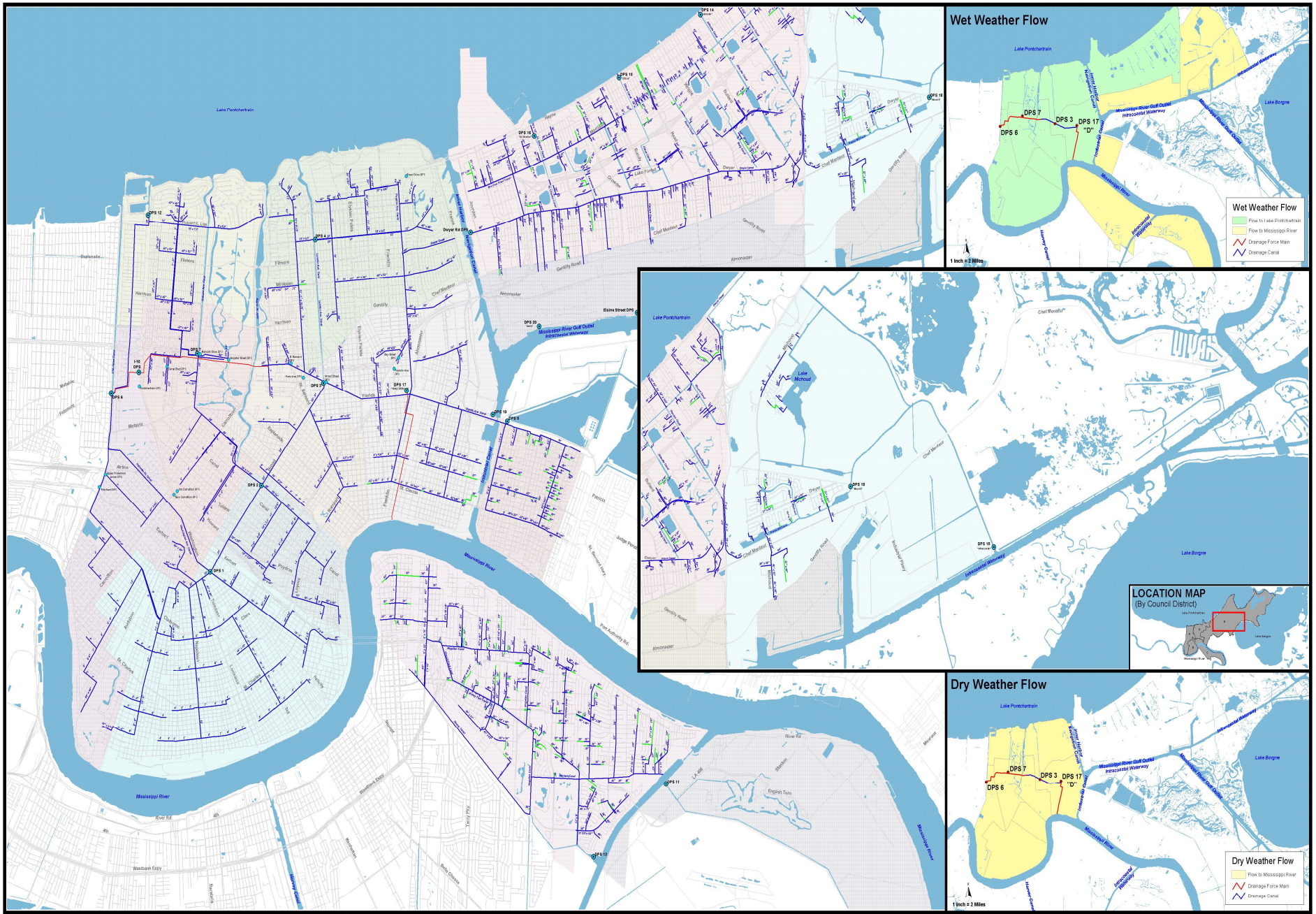
- Water Purification
- Potable Water Distribution
- Wastewater Collection
- Wastewater Treatment
- Storm Water Removal
- Power Generation

Facts About the Water System:

- **Two Purification Plants**
- **272 MGD Designed Maximum Production Capacity**
- **145 MGD Current Average Daily Production**
- **143,000 Service Connections (Pre-K)**
- **17,000 Fire Hydrants**
- **1,610 Miles of Mains 4” through 54”**
- **On-site Water Quality Lab**



The Sewage Collection System



LEGEND

- Drainage Pumping Station - Major
- Drainage Pumping Station - Minor
- Drainage System (S&WB)
- Drainage System (DPW)
- Drainage Force Main
- Parish Boundary
- Streets
- Water Body

N

1 Inch = 2000 Feet

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM

Systemwide Drainage System (30" & Larger)

MAP PRODUCTION DATE - December 2003

LOCATION MAP
(By Council District)

REBUILDING THE CITY'S WATER SYSTEMS FOR THE 21st CENTURY

Sewerage & Water Board OF NEW ORLEANS

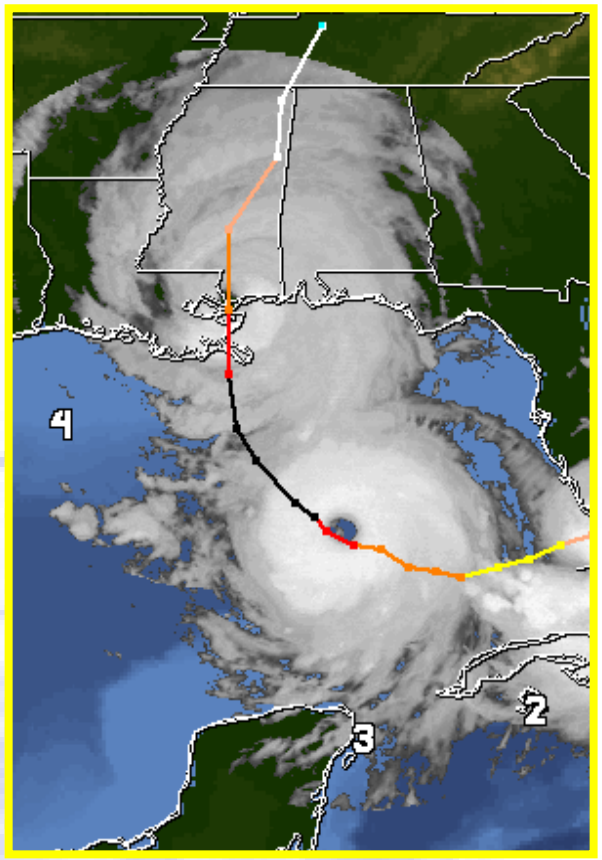
MWH

Power System

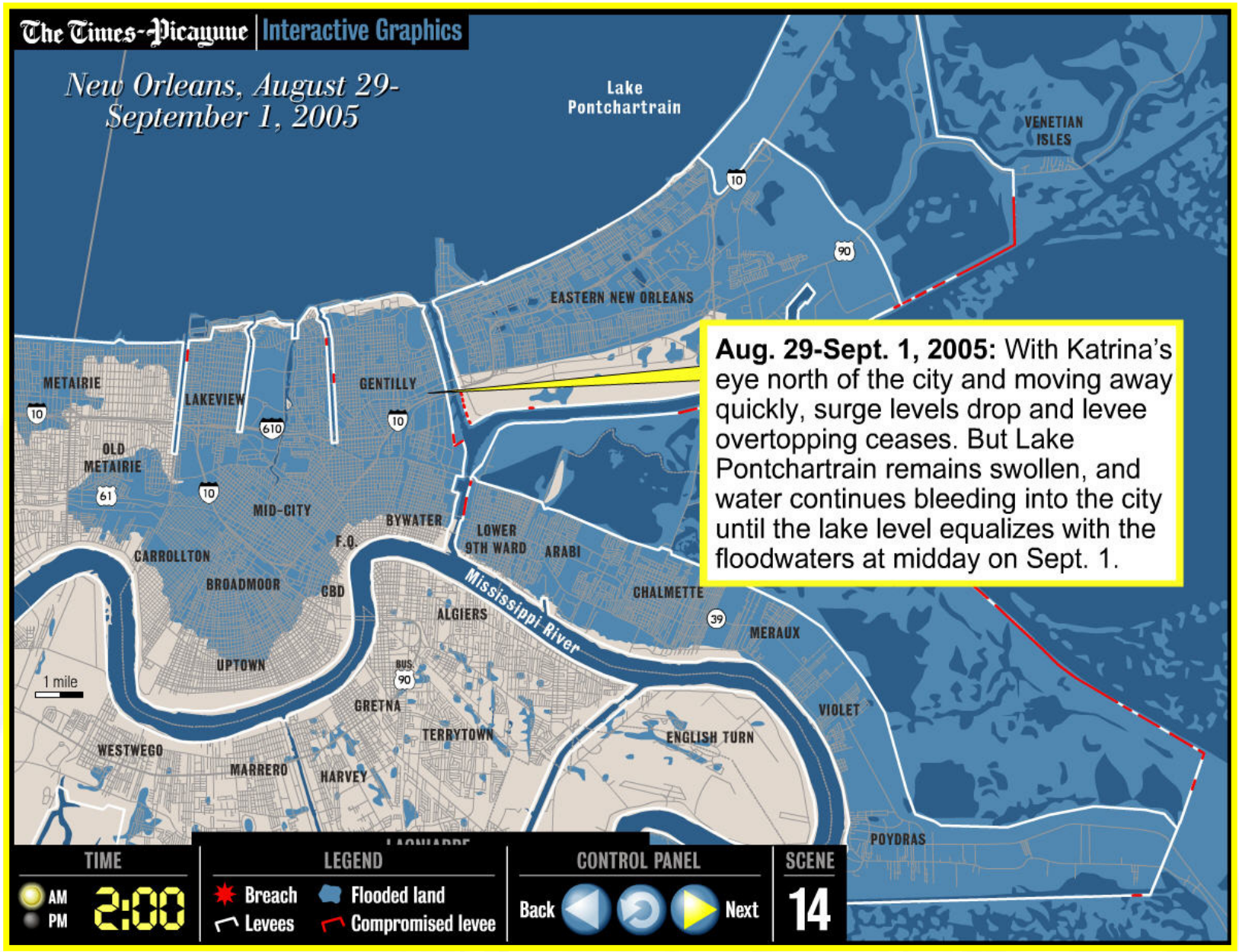
- Need for stable reliable power recognized by Board Leaders at the turn of last century
- 25 Hertz power systems were more suited to run the large pumps that operated at slow speeds.
- System was moved to Carrollton Power Plant location in early 1900's
- Power Plant functioned without interruption until the flood waters from the levee breeches inundated the plant. (August 31, 2005)

August 28-29, 2005

- Katrina hits the Louisiana/Mississippi Coast.
- One of the most massive utility and recovery projects ever undertaken begins.



Hurricane Katrina


The Times-Picayune | Interactive Graphics
New Orleans, August 29-September 1, 2005
Lake Pontchartrain
VENETIAN ISLES
EASTERN NEW ORLEANS
METAIRIE
LAKEVIEW
GENTILLY
OLD METAIRIE
MID-CITY
BYWATER
F.Q.
LOWER 9TH WARD
ARABI
CARROLLTON
BROADMOOR
CBD
ALGIERS
CHALMETTE
MERAUX
Mississippi River
UPTOWN
GRETNA
TERRYTOWN
ENGLISH TURN
VIOLET
WESTWEGO
MARRERO
HARVEY
POYDRAS
1 mile
Aug. 29-Sept. 1, 2005: With Katrina's eye north of the city and moving away quickly, surge levels drop and levee overtopping ceases. But Lake Pontchartrain remains swollen, and water continues bleeding into the city until the lake level equalizes with the floodwaters at midday on Sept. 1.
TIME
AM
PM
2:00
LEGEND
Breach
Levees
Flooded land
Compromised levee
CONTROL PANEL
Back
Next
SCENE
14

FEMA Aid

- Federal Emergency Management Agency
  - FEMA PW's – Defined scope of work for specific dollar amount for each project. PW versions need to be written for any scope expansion.
  - Over 40 million has spent to rehabilitate the EB & WB plants.
  - FEMA, obligated amount is currently 49.1 million, with another 22 million in projects currently deemed not eligible, which are in the FEMA appeal process.

Loss of Power Plant

- Due to flooding of the power house, and boiler room, the Board lost the ability to generate 25 Hertz power at the Carrollton Plant.
  - The was the first time in the Board's history that the ability to produce power was lost.

Drainage Systems Affected

- Virtually all pump motors, DC field equipment, rheostats, starting reactors, motor generator sets, water booster pumps, distribution transformers and vacuum pumps were damaged by flood waters
- All components were removed, steam cleaned, baked dry of moisture and reinstalled

Drainage System

USACOE has spent $46 million so far

SEWERAGE & WATER BOARD OF NEW ORLEANS	STATION SUMMARY										1/4/2008
STATION	PUMPING UNITS										
1	550	550	1000	1000	1000	1100	1100	225	225	60	15
	12' A	12' B	14' C	14' D	14' E	11' F*	11' G*	6' #1 Vert.	6' #2 Vert.	3' CD #1	2' CD #2
2	550	550	1000	1000	25	25					
	12' A	12' B	11' C	11' D	42" CD #2	42" CD #3					
3	550	550	1000	1000	1000	40	40	40	40	80	
	12' A	12' B	14' C	14' D	14' E	3' CD 1-L	3' CD 1-R	3' CD 2-L	3' CD 2-R	60 Hz GEN	
4	320	320	1000	1000	1000	80					
	8' #1*	8' #2*	14' C	14' D	14' E	3' CD					
5	550	550	1000	40	40	40	40				
	12' A	12' B	14' D	3' CD 1-L	3' CD 1-R	3' CD 2-L	3' CD 2-R				
6	550	550	1000	1000	1000	1100	1000	90	90		
	12' A	12' B	14' C	14' D	14' E	14' F	14' G	3' CD #1	3' CD #2		
	1100	1100	250	250	250	250	3750	3750			
	10' H*	10' I*	6' #1V*	6' #2V*	6' #3V*	6' #4V*	60 Hz GEN 1	60 Hz GEN 2			
7	550	1000	1000	70	70						
	12' A^	14' C	14' D*	3' CD #1	3' CD #2						
10 "Citrus"	250	250	250	250							
	6' #1*	6' #2*	6' #3*	6' #4*							
11	250	250	30	570	570	500	1,450				
	8' A	8' B	30" CD #1	12' D*	12' E*	25 Hz GEN	60 Hz GEN				
12	1000										
	14' D										
13	250	250	50	1000	1000	1050	1050	230	230		
	6' #1*	6' #2*	3' CD #3*	10' #4	10' #5	10' #6	10' #7	60 Hz GEN	60 Hz GEN		
14 "Jahncke"	300	300	300	300	2,665						
	6' #1*	6' #2*	6' #3*	6' #4*	60 Hz GEN						
15 "Int Coast"	250	250	250	45							
	5' #1*	5' #2-D/E	5' #3-D/E	Gen							
16 "St Charles"	290	290	290	290	2,665						
	63" #1*	63" #2*	63" #3*	63" #4*	60 Hz GEN						
17 "D"	150	150	150	150	25	FC 3	FC 4				
	3' A*	3' B*	3' C*	3' D*	3' E*	6000 KW	6000 KW				
19	310	310	1100	1100	1100	2500	2500				
	6' #V1*	6' #V2*	10' #H1*	10' #H2*	10' #H3*	60 Hz GEN 1	60 Hz GEN 2				
20 "AMID"	250	250	1500								
	6' #1*	6' #2*	60 Hz GEN								
I-10	250	250	250	100	2350	2350					
	60" #1*	60" #2*	60" #3*	40" CD #1*	60 Hz GEN 1	60 Hz GEN 2					
Pritchard	125	125	3	1285							
	48" #1*	48" #2*	6" CD #1*	60 Hz GEN							
18 "Maxent"	62	62									
	3' #1*	3' #2*									
Dwyer	UNDER CONSTRUCTION (COE)										
	6' #1	6' #2	6' #3	6' #4							
Elaine	45	45									
	30" #1*	30" #2*									
Grant	8	8	8	8	70	70					
	14" #1*	14" #2*	14" #3*	14" #4*	#5*	#6*					
Oleander	33	33	33								
	30" #1*	30" #2*	30" #3*								

Sewer System

- **East Bank (66 Facilities)**
  - 31 Operating on their own
  - 16 Operating on portable diesel pumps
  - 19 operating on portable electric pumps
- **West Bank (17 Facilities)**
  - 15 Operating on their own
  - 1 Operating on portable diesel pump
  - 1 Operating on portable electric pump

WATER JOB TOTAL

- 9,800 Water Main Leaks
- 42,000 Service Leaks
- 5,000 Hydrant Leaks
- 2,500 Valve Jobs
- 23,000 Meter Related Jobs

SEWER REPAIRS

- Sewer Repairs consist of sewer mains broken and sewer house connections broken.
- There were 5,500 repairs completed.

Cleaning and Removal of Storm Related Debris from Open Drainage Canals

- **Emergency Contract awarded June 2006**
- **Total Contract Amount of $326,000.00**
- **Affected Canals: Morrison, Lamb, Lawrence, Benson, Citrus, Farrar, Berg, Jahncke, Gannon, St. Charles, Vincent, Florida Ave and Magellan**
- **Removed approximately 14,000 CY (800 Dump Trucks) of debris, 4 cars and 1 large portable building**
- **Contract completed December 2006**
- **Project approved by FEMA**

Additional Canal Cleaning - Natural Resources Conservation Service (NRCS)

- Dwyer Canal - Bullard Ave to St. Charles Canal
- Berg Canal – Morrison Canal to Dwyer Canal
- Farrar Canal/Lateral Reach – Morrison Canal to Dwyer Canal
- St. Charles Canal – Interstate10 to Dwyer Canal
- Jahncke Canal - Morrison Canal to Dwyer Canal
- Morrison Canal – Gannon Rd to Paris Road
- Citrus Canal - Morrison Canal to Dwyer Canal
- Benson Canal - Morrison Canal to Dwyer Canal
- Lawrence Canal - Morrison Canal to Dwyer Canal

Cypress Restoration of Bayou Bienvenue Central Wetland Unit

FEMA Recovery Work To Date

SWB Estimated Project Costs	$385,844,865.89
Currently Obligated by FEMA	294,289,590.18
Total Paid by State to SWB	178,655,354.33

Katrina Recovery Sewer Program

- 24 of 83 SPS currently operating at design capacity

- Between November 2009 and March 2010 15 contracts to repair 61 sewage pumping and lift stations have been let

- One more contract for three more stations will be let in June

Repairs to 66 SPS - Valued at over $20 million

Katrina Recovery Water Program

- Structural Repairs to Buildings at Central Yard
  Garage #1, Garage #2, Annex Building, Generator Room, Administration Building, Machine and Mill Shop,Shed #6, Tire shop, Body Shop
- EBWWTP Administration Building Replacement
- Structural Repairs to Buildings at Carrollton Plant
  - Meter Shop, Water Intake #1, Water Gallery, Welding and Fabrication Building, Old Filter Building, Boiler Room, High and Low Lift, Frequency Changer
- Carrollton Power Plant Repair

Katrina Recovery Drainage

- Repairs to 11 Underpass Drainage Stations
- Repairs to Drainage Pumping Stations 19, 4, 13 and D

SELA

- Florida Ave Canal Phase I bid for $49.2 million
  - -1300 feet of 50x15 u box plus major utility relocations
- General DeGaulle Crossings bid for $20.2 million
  - -Expansion of drainage under six vehicular bridges
- Napoleon Ave Canal Phase 1 to bid July 2010
  - -4300 linear feet of box culvert Claiborne to Carondelet
- Claiborne Canal Phase 1 to bid July 2010
  - -New box culvert from Monticello to Leonidas
- Jefferson Ave canal Phase 1 to bid January 2011
  - -New box culvert from Claiborne to Dryades

Storm Proofing of Drainage Facilities

Ten Projects to bid in 2009-2010

- 15 MW Generator at Carrollton Plant
  - *$31.2 million*
- 60 Hz underground electrical feeder
- Carrollton Plant Perimeter
- River Intakes Structural Hardening
- DPS 5 Pumps, Generator and Hardening
- DPS 20 and DPS 6 Structural Hardening
- DPS 13 Generator and Structural Hardening
- DPS 7 Generator and Structural Hardening
- DPS 1, 2, 4, 12, 19 and I-10 Structural Hardening
- DPS 11, 14 and 16 Structural Hardening

$204,000,000 in storm proofing projects

SSERP

- Program to remediate sanitary sewer defects
- Modified Consent Decree signed March of 2010
- Repair work will resume in 5 EB SSERP basins
- Completion deadlines anticipated for July of 2015

Other Contracts

- Scattered sites repair contracts
  sewer replacement, point repair and lining, paving, leak detection, water point repair, force accounts
- Drinking Water Revolving Loan Contracts
  Sludge Line, Sodium Hypochlorite Facility, Filter Rehab, Backwash recycle pumps
- Wastewater Treatment Plants
  Berm at East Bank, containment levee at West Bank, generator and building at East Bank
- Carrollton Plant
  High pressure gas line
- Drainage Pump Stations
  DPS 15 switchgear, DPS 13

Lakefront Gate Stations

•Corps of Engineers is moving forward with their Option 1 to build Lakefront Gate Stations for the 17th, Orleans and London Avenue Canals to replace failed federal levees.

•Option 1 includes replacement of current interim gate structures
•Option 2 includes drainage stations at the lakefront, decommissioning of existing drainage stations and degrading levees
•Option 2A includes all of Option 2 and Pump to the River in Hoey's Cut Basin of Jefferson Parish

•Corps has estimated Option 1 at $800 million
•Corps has estimated Option 2 at $3.4 billion
•Corps has estimated Option 2A at $3.6 billion

Sewerage & Water Board of New Orleans

Re-Building the City's Water Systems for the 21st Century