1-2010

Community Infrastructure: a transformation of the New Orleans industrial canal

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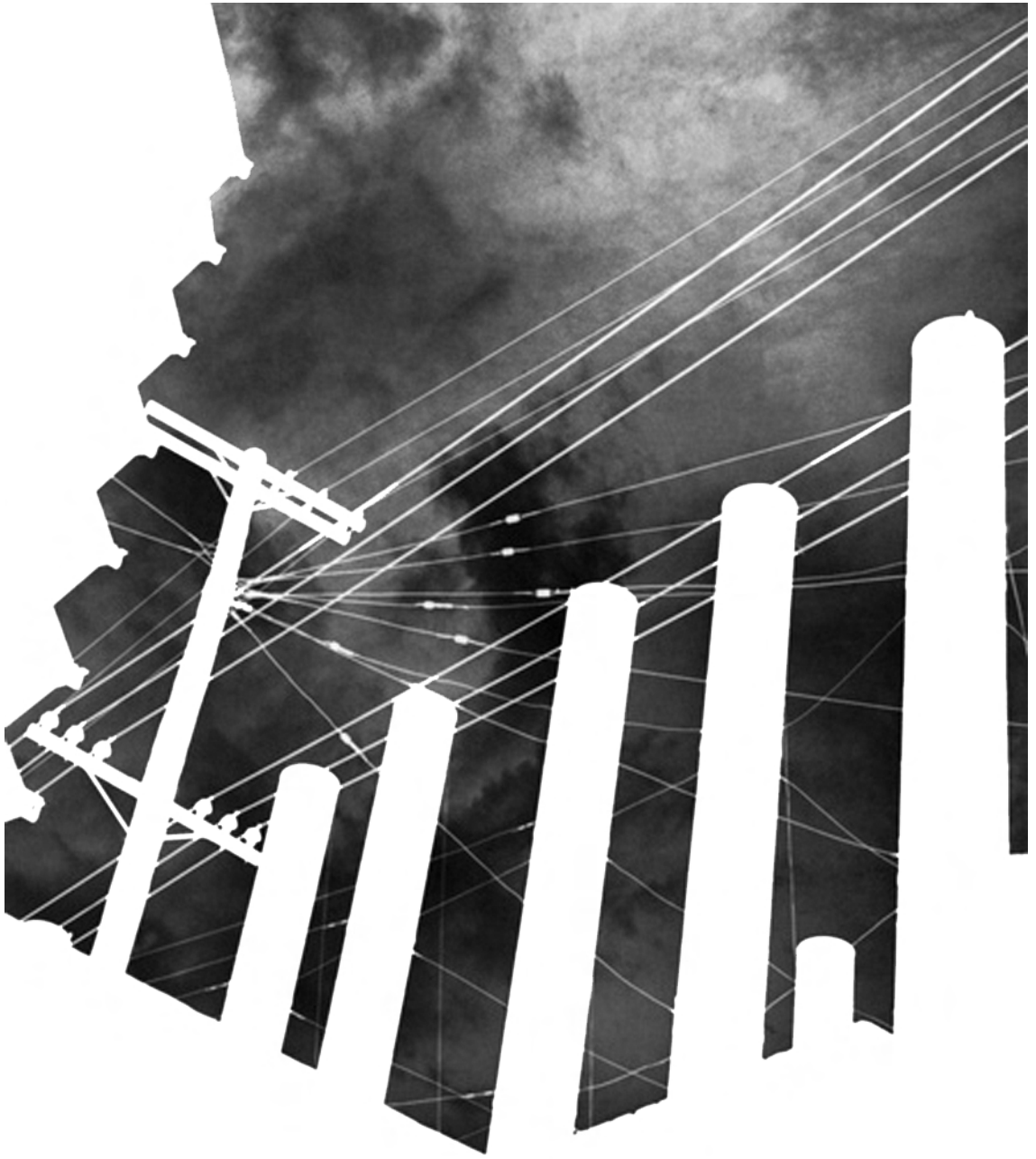

COMMUNITY INFRASTRUCTURE

A TRANSFORMATION OF THE NEW ORLEANS INDUSTRIAL CANAL

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A TRANSFORMATION OF THE NEW ORLEANS INDUSTRIAL CANAL

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Thesis Poject Document
Professor Andrew Cohen
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PROBLEM STATEMENT

The world is facing a crisis in the foreseeable future that will affect much of its population. Clean, pure, usable water is becoming the Earth's most precious resource because so much of it is polluted, misused and taken for granted. Water is predicted to be the cause of conflict globally. The demand for water, coupled with population growth, is far outreaching its supply. It is being piped from fresh sources far faster than it can be replenished by nature. Everywhere is running out. Countries downstream that rely on a river source must deal with the treatment of the river by countries upstream. Approximately 3.5 million people die per year from water related disease. The problem at hand is not just prevalent in poor developing countries, but also at home, in the United States. Communities hit by recent hurricanes have experienced massive water contamination. The Midwest, specifically California is experiencing a three year drought, causing its water supply to suffer. Las Vegas's reservoir water source is predicted to run dry within ten years. The United States is not exempt from the rest of the world, this is not a global problem that we must exercise our strength to solve for others, the United States is in as dangerous position as much of the global community.

"As finite water sources are depleted, we must look at new ways to address the serious water problems that confront us. We must innovate our way to clean, and create affordable water independence"

-Yoram Cohen, Head of WaTeR Center

PROBLEM STATEMENT

Historically, industrial buildings, plants and factories were built with the intention of being solid, durable and economical. During the late eighteenth and early nineteenth centuries the industrial revolution in the United States transformed towns into dense urban developments. Masonry structures littered the built urban landscape stimulating production and symbolizing the new countries independence upon itself. Today technologies have changed but the industrial vernacular has been vastly frozen in time. Simple economic minded construction, rectilinear programmatically ideal planning, and little to no aesthetic. If state or government run, these buildings serve the people of the surrounding community. The public works industrial building model must be updated.

PROJECT STATEMENT

Imagine living in a place that has been hit by 5 massive floods in the past 100 years. The next natural disaster is inevitable and its only a matter of when. The rebuilding of New Orleans has been controversial, yet its cultural importance and deep roots cannot be abandoned. Homes are rebuilt only to be torn apart and rebuilt again. The city must armor itself. The city must put its citizens in the best possible situation for the next occurrence. Currently the levee system is being modified for the better and the city is rebuilding what it can. These citizens need hope. They need something that they can be proud of. The city must take action to build a better model for below water level living. New construction must be smart. Homes must be elevated. Buildings must be designed with worst case scenario concepts in mind. The 21st century New Orleans must adapt and transform itself, otherwise future destruction is imminent.

"The demand for fresh water in our world over the next 30 years is far outstripping the supply. Not that the water isn't somewhere on the planet still -- but we have polluted it, diverted it, allowed it to get poisoned by seawater. One way or another, we have taken accessible clean water ... and we have rendered it unusable. We take massive amounts [of water] and we irrigate the desert, where it evaporates. We're pumping groundwater all over the world far faster that it can be replenished by nature. We are actually running out of fresh, clean water everywhere in the world, including here in North America. We have to give up this myth of abundance. We have come to the limits of the planet."

-Maude Barlow,
"Blue Covenant: The Global Water Crisis"

PROJECT STATEMENT

The city of New Orleans is in need of a symbol of stability and hope. The design proposal is for a New Orleans Water Treatment Facility that focuses on purification, reclamation and desalination processes. The facility will create a pure water supply that will be distributed into public circulation as well as be made readily available during natural disasters. A public works building such as this is important to the growth of the ever rebuilding city. In 2005, New Orleans was hit by Hurricane Katrina causing flooding and destruction to a great majority of the city. Once the hurricane subsided the excess flood waters, full of pollutants and sewage, were pumped into Lake Pontcharain, adjacent to the city, contaminating this water resource and killing much of its wildlife. The city needs a feeling of security for the future; its residents need a feeling of comfort while rebuilding.

Industry can be beautiful.

The New Orleans Waterworks will be a product of the contemporary city.

"The architecture cannot be subject to any law of hisorical continuity, it must be as new as our frame of mind is new"

- Antonio Sant'Elia

ARCHITECTURAL INTENTIONS

Design a Building along the Canal that can archiutecturally be a symbol to the community.

Use levee walls within the design, a representation of strength.

Materiality must represent the future of technology and rebuilding, yet should also respond to the existing infrastructural context of the canal.

The process of water treatment must architecturally be expressed within the scheme.

The Project must be designed for a long term agenda. It must be monumental and built to last, expressing the ultimate goal of sustainability.

The design must be memorable, it must create great work envirments, great visitor interaction and function well programatically.

Architecture should be a disipline that provokes thought wihin its users, through the use of both artistic and functional elements.

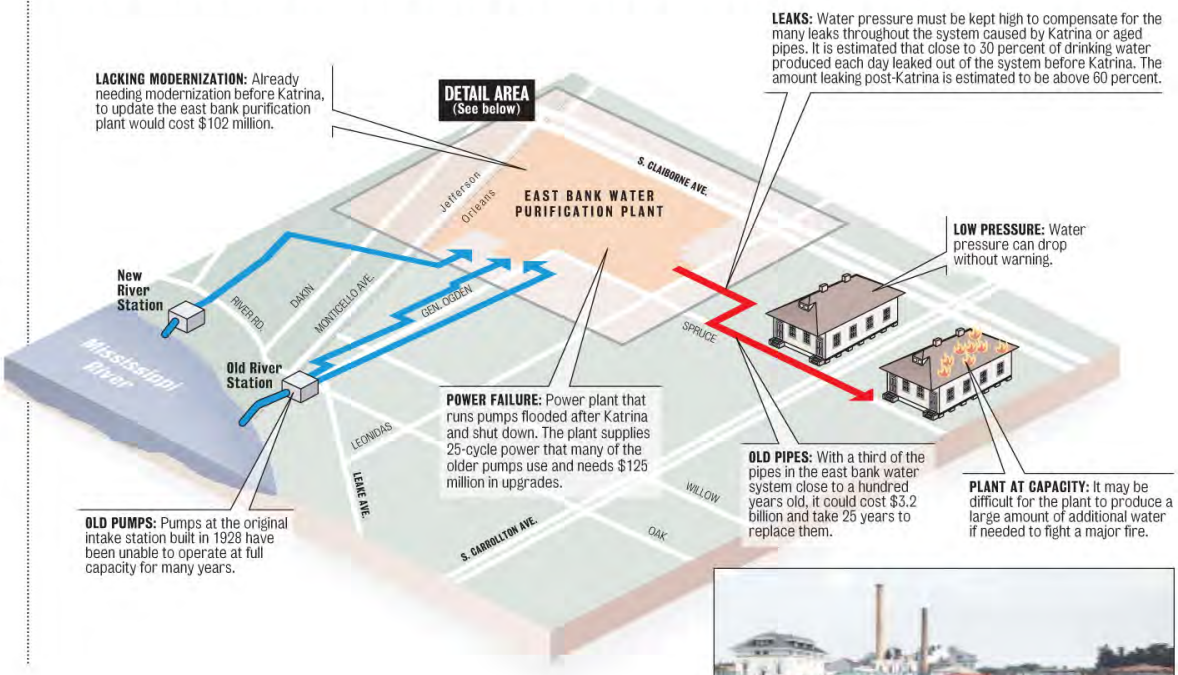
Water must be used as a theme throughout. Water within the canal is uncontrolled, while the project has the opportunity, behind the levee and within the building, to control the water.

Industrial buildlings must break the historic mold and become something that is publicly driven. It must become interactive.

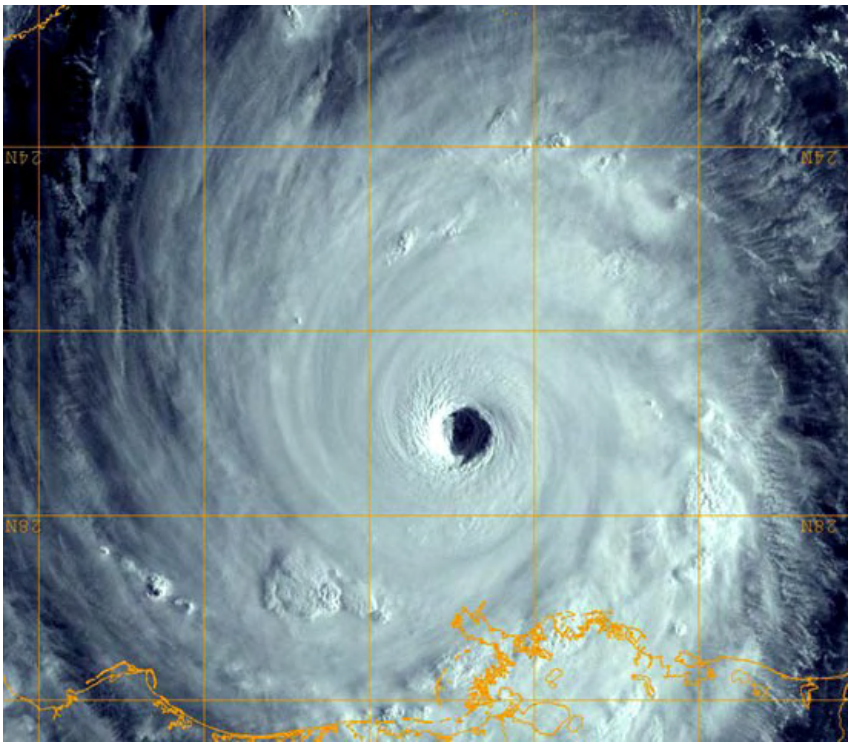
KATRINA WORSENS WATER WOES

The restoration of drinking water to every corner of New Orleans' east bank after Hurricane Katrina was a crucial point along the city's path to recovery but local and federal officials say the water system remains near its breaking point.

AN AGING SYSTEM: A look at the east bank's water troubles

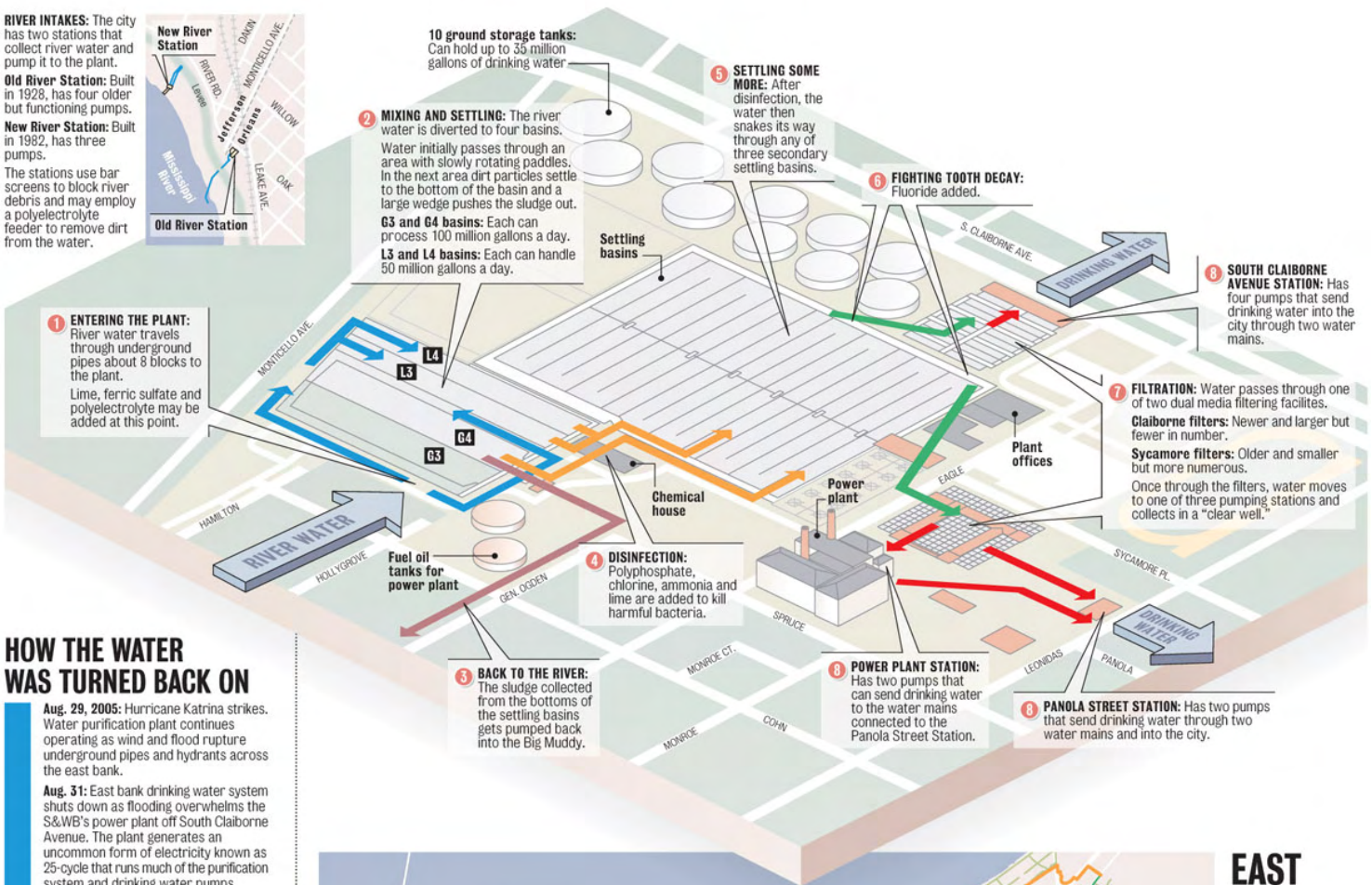


PLANT MAINTENANCE: Down time for scheduled maintenance to the plant's infrastructure has not always been possible since Katrina. The G3 mixing and settling basin (right) has been off-line and has seen weeds take root and grow in the fertile Mississippi River sludge. The G4 basin (left) is in use.



THE PURIFICATION PROCESS

It takes about 12-15 hours to turn muddy Mississippi River water into drinking water at the Sewerage & Water Board's Uptown plant located on South Claiborne Avenue at the Jefferson Parish line



HOW THE WATER WAS TURNED BACK ON

2005

Aug. 29, 2005: Hurricane Katrina strikes. Water purification plant continues operating as wind and flood rupture underground pipes and hydrants across the east bank.

Aug. 31: East bank drinking water system shuts down as flooding overwhelms the S&WB's power plant off South Claiborne Avenue. The plant generates an uncommon form of electricity known as 25-cycle that runs much of the purification system and drinking water pumps.

Week of Sept. 5: By running commercial electricity through a patched-together Entergy grid, water board crews restart three intake pumps that siphon water from the Mississippi River. Bypassing the stalled purification equipment, untreated water flows to giant boilers that produce steam to run the power plant and thus restart purification.

Sept. 11: Chemical feeds restored to meet minimum purification standards, but city remains under a boil-water advisory because of contamination of distribution lines.

Oct. 5: State certifies water as safe to drink west of the Industrial Canal after crews flush the system, restore pressure to lines and complete testing for bacteria.

Dec. 8: State certifies water as safe to drink east of the Industrial Canal, except in the Lower 9th Ward.

2006

May 15, 2006: State certifies water as safe to drink in the southern section of the Lower 9th Ward. Potable water still not available in the area bounded by North Derbigny Street, Florida Avenue, the Industrial Canal and the St. Bernard Parish line.

Oct. 9: Water certified safe to drink in the rest of the Lower 9th Ward.

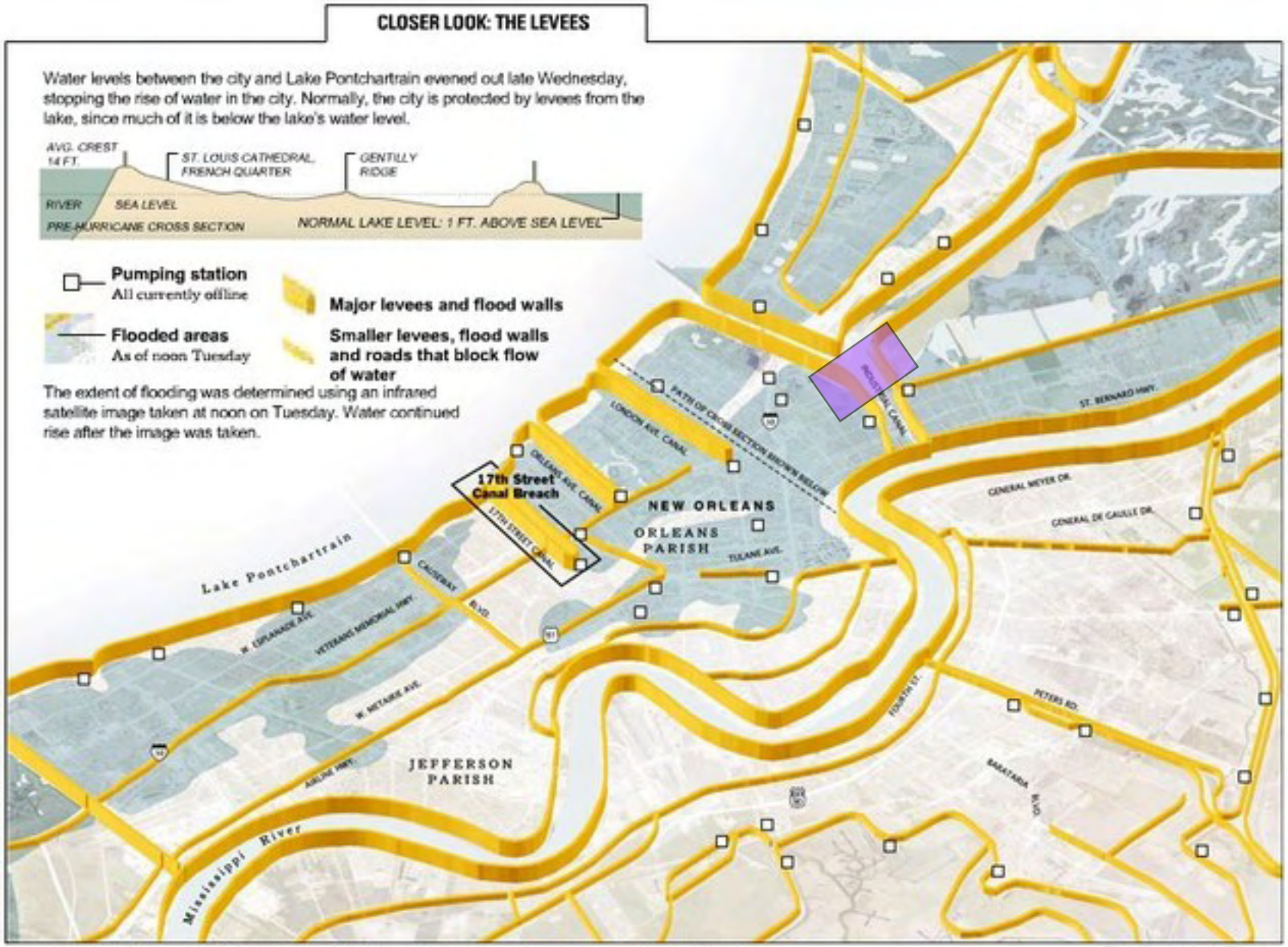
EAST BANK'S MAJOR WATER MAINS

Water is drawn from the Mississippi River, purified in the Uptown plant and then pumped into 1,600 miles of pipes to most of the city. In the two years since Katrina, 50,000 leaks have been repaired but many leaks remain.

Note: The West Bank of Orleans Parish has a separate plant to serve Algiers that did not have any significant damage from Katrina and has remained in operation.

Source: Sewerage & Water Board of New Orleans, staff research

STAFF GRAPHIC AND PHOTO BY EMMETT MAYER III

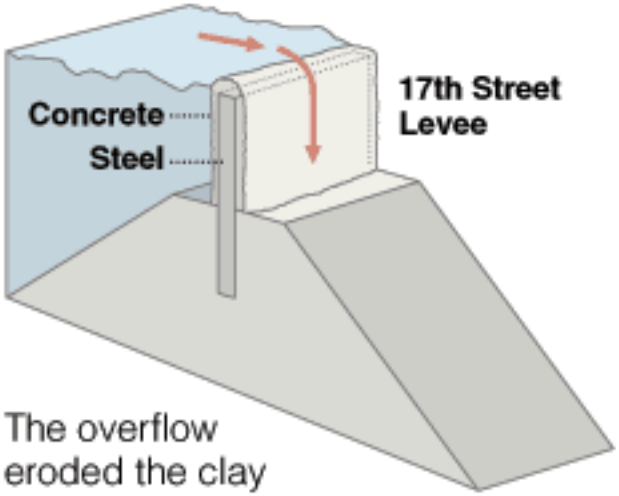


Sources: Center for Southeastern Tropical Advanced Remote Sensing, University of Miami; U.S. Army Corps of Engineers; New Orleans Times-Picayune; Associated Press

The New York Times

Breaching the Levee

Flood waters put pressure on the wall, causing it to buckle outwards.



The overflow eroded the clay base on the other side.

AP / Vincent Laforet

On August 29, 2005, flood walls and levees catastrophically failed throughout the New Orleans metro area. Some – the extent of which is disputed – collapsed well below design thresholds (17th Street and London Canals). Others collapsed after a brief period of overtopping (Industrial Canal) caused "scouring" or erosion of the earthen levee walls – a design flaw. In April 2007, the American Society of Civil Engineers called the flooding of New Orleans "the worst engineering catastrophe in US History." Three major breaches occurred on the Industrial Canal; one on the northeast side near the junction with Gulf Intracoastal Waterway and two on the southeast side along the Lower Ninth Ward, between Florida Avenue and Claiborne Avenue. Along the Industrial Canal, levees were topped by floodwaters first, then breached or eroded. Many New Orleans levee and flood wall failures in the wake of Hurricane Katrina occurred at weak-link junctions where different levee or wall sections joined together.

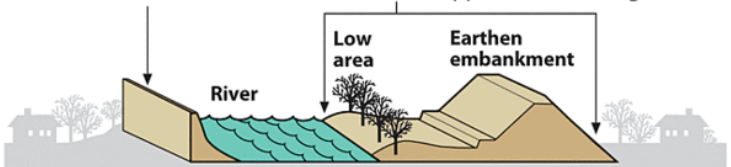
-http://eng.auburn.edu/admin/marketing/seminars/2007/l-roth.html

Methods of flood control

The two most common ways to try to contain flooding rivers:

FLOOD WALL
Barrier built along river-banks – made of concrete, stone or brick

LEVEE
Wide embankment built along river-banks – made from clay, sand, or soil; sometimes topped with sandbags



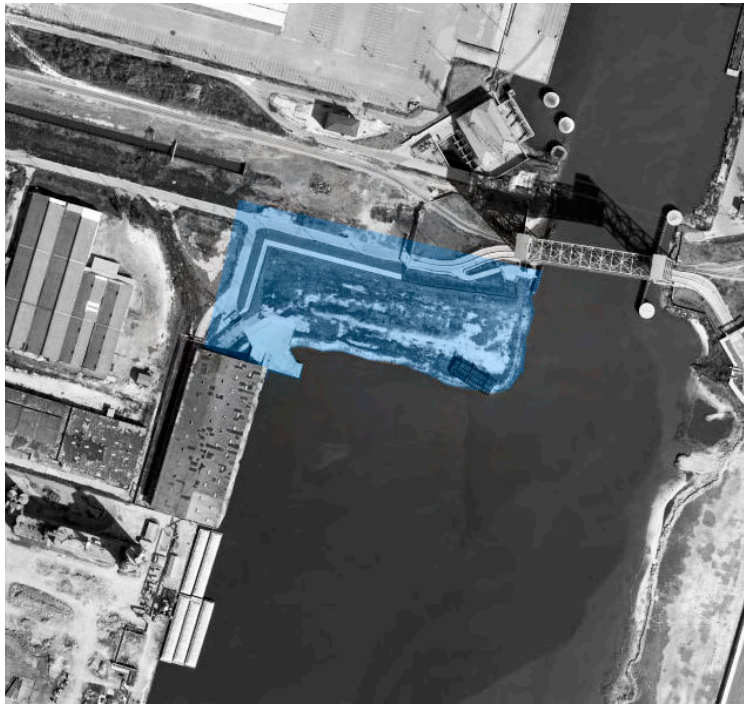
LEVEES ALONG THE MISSISSIPPI RIVER

More than 2,000 miles of levees have been built	**Height:** 15 ft. to 30 ft.	**Width:** 8 ft. on top	More than 100 ft. at the base

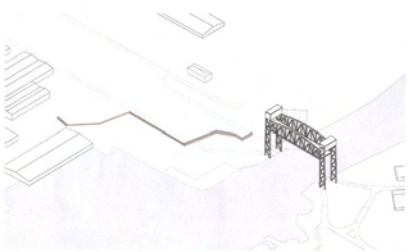
SITE

New Orleans was founded in 1718 by the Spanish, who ruled until 1801 when it was taken by the French. In 1803, New Orleans was part of the Louisiana Purchase. Much of the cities French Quarter dates from the period of Spanish control in the 18th century. The city grew with its people culturally diverse including white citizens, African Americans, and creole french. New Orleans was a major hub of the slave trade during the early to mid 1800's. New Orleans was booming during the mid 19th century. Between 1830 and 1840 the cities population grew 121%. The cities population peaked in the 1950's yet has slowly declined since due to other more progressive southern cities growth.

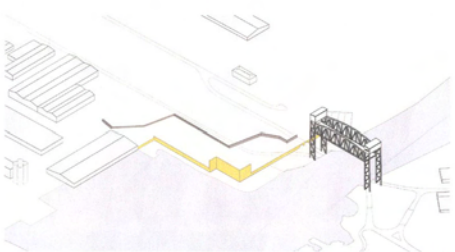
New Orleans Industrial Canal connects Lake Pontchartrain to the Mississippi River. The canal is 5.5 miles long and is the industrial center of New Orleans. It separates the Lower Ninth Ward neighborhood on the downriver side and the Bywater neighborhood of the Upper Ninth Ward on the upriver side of the canal. Built in 1914, the Industrial Canal's purpose was to create a shipping channel between the lake and river. It spans up to 300 feet wide and more than 30 feet deep. The edge of the canal is home to industrial buildings, factories and holding facilities to provide and distribute to the shipping industry and is spanned by 8 bridges along its 5.5-mile length. In 2005 during natural disaster Hurricane Katrina, levees along the Industrial Canal suffered major breaches, specifically occurring along the Florida Avenue Bridge area, the location of my site.



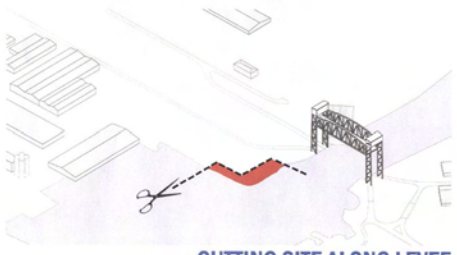
SITE



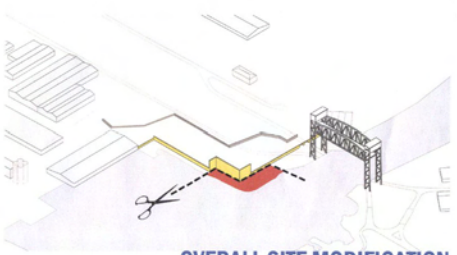
EXISTING LEVEE WALL



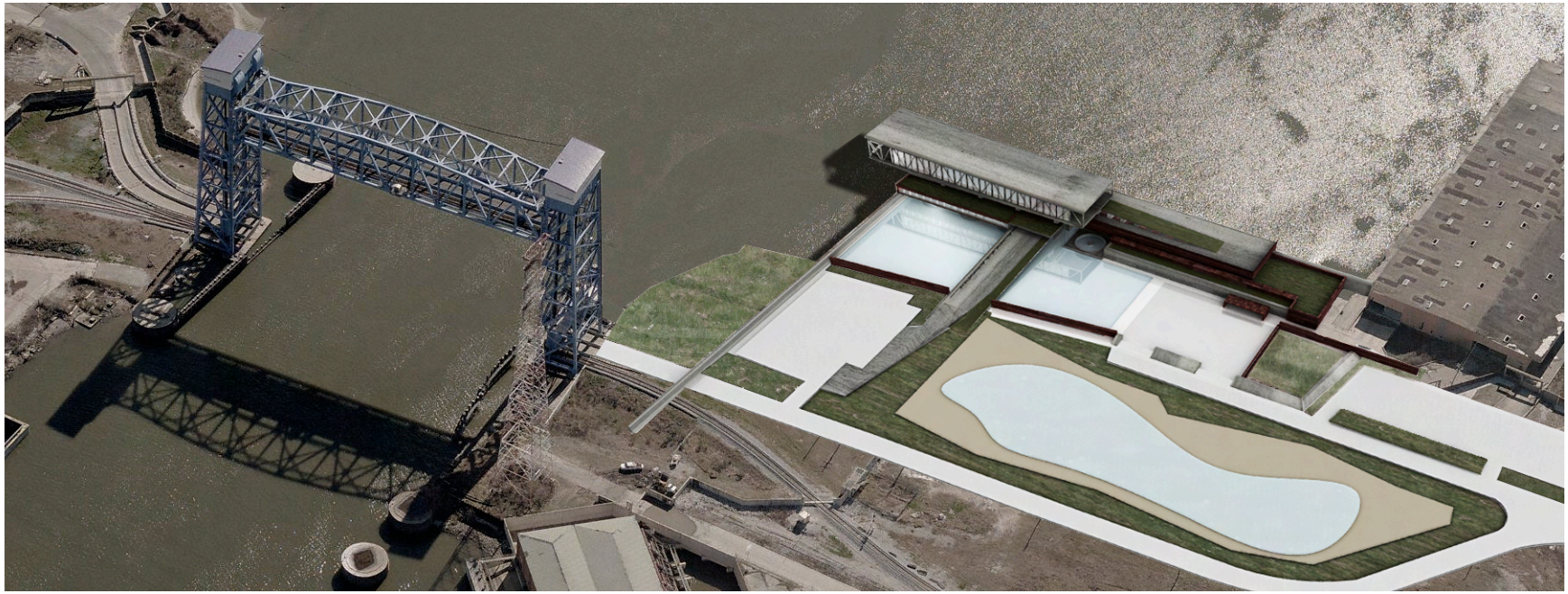
RELOCATION OF LEVEE WALL

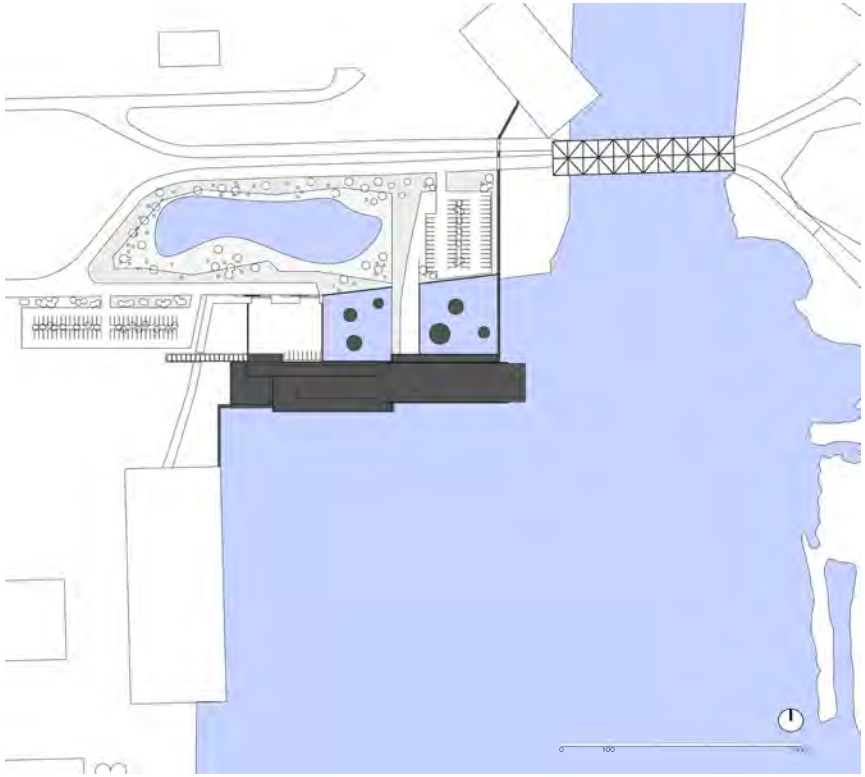


CUTTING SITE ALONG LEVEE



OVERALL SITE MODIFICATION

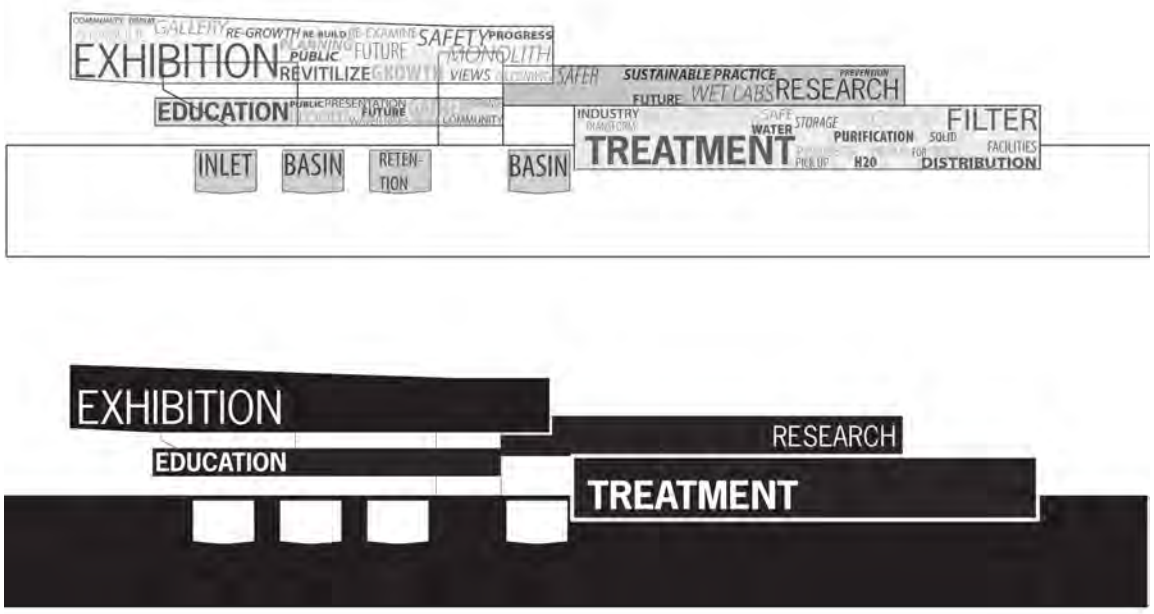




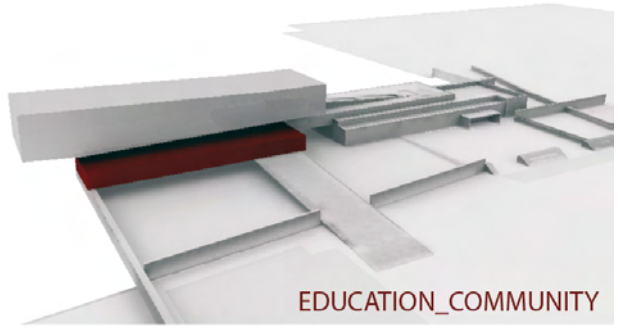
The New Orleans Water Purification Facility is located ‘on’ the Industrial Canal. The site currently is a plot of land that is vacant and approximately 330,000 sq ft located adjacent to the Florida Avenue bridge. The site neighbors a hand full of abandoned warehouses that were heavily damaged during the flooding of Hurricane Katrina, being left in their derelict state. Additionally, the site is designed adding an area of wetlands that will provide growth for natural plants of the area. The diagram to the left shows the relocation of the levee wall that currently is located on the site. The New Orleans Water Purification Facility scheme moves the levee wall against the waters edge, allowing the building to be built on top of and apart of the structural wall. This site strategy allows the building to be:

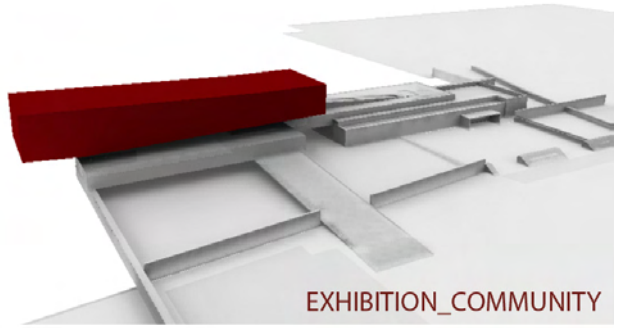
OF THE WATER, ON THE WATER, ABOVE THE WATER

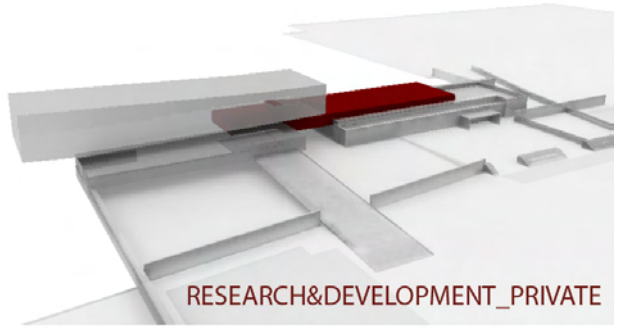
PROGRAM OUTLINE

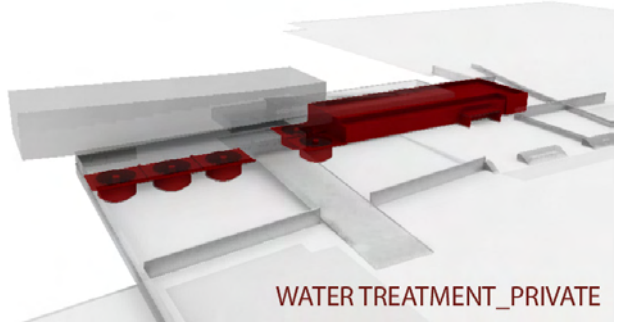


The program is broken down into four separate areas, industry, education, research and exhibition. The purification plant and research/laboratory space is private and diagrammatically separate from the public community spaces that make up the educational and exhibition spaces. Even though the treatment facility is separate and private, aspects of the design represent this program element throughout the rest of the building. Upon entrance to the building, an industrial water garden displays water storage tanks that visually display the water that is displayed to the community. Likewise, the education and exhibition spaces are raised above the ground 9 feet allowing for water retention and inlet basins to be located below these spaces, providing views of the process from above.







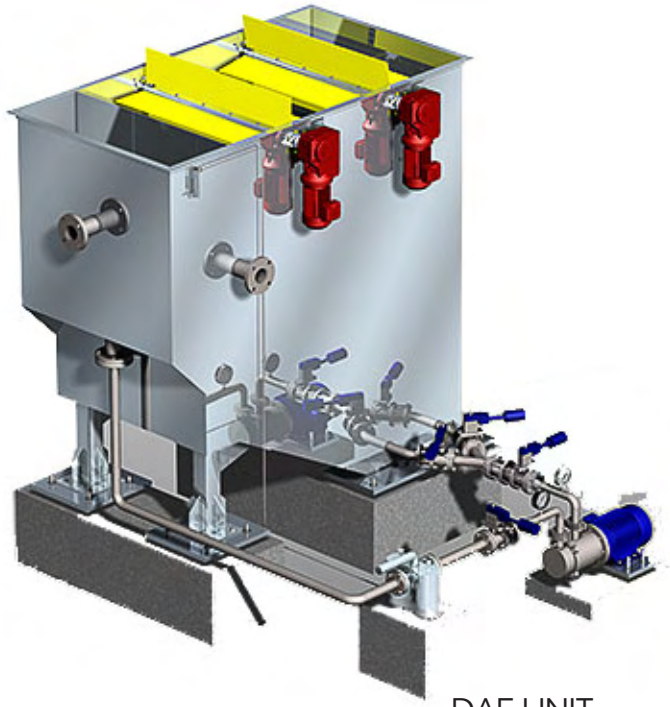


WATER TREATMENT		
Pipe Gallery	(2)	1575 sqft
GAC Unit Space	(6)	280 sqft
Pilot Plant		2960 sqft
Residual Storage	(2)	620 sqft
Chemical Storage	(4)	780 sqft
DAF Unit Storage	(6)	400 sqft
Inlet Basin		850 sqft
Ozone Contact Basin	(3)	360 sqft
Flocculatoion Basin	(4)	750 sqft
Offices		375 sqft
Mechanical		2000 sqft
RESEARCH & DEVELOPMENT		
Wet Labs		7195 sqft
Offices/Small Labs		4400 sqft
Mechanical		800 sqft
EDUCATION/COMMUNITY	(3)	
Classrooms		675 sqft
Lecture/Meeting Rooms		2600 sqft
Exhibition Space		17500 sqft
Mechanical		800 sqft
Restrooms		2425 sqft
Service Loading Dock		950 sqft
Net Square Footage		57330 sqft
Gross Square Footage		71662 sqft

PROGRAM OUTLINE

Water purification is the process of removing undesirable chemicals, materials, and biological contaminants from raw water. The goal is to produce water fit for a specific purpose. Most water is purified for human consumption (drinking water) but water purification may also be designed for a variety of other purposes, including meeting the requirements of medical, pharmacology, chemical and industrial applications. In general the methods used include physical process such as filtration and sedimentation, biological processes such as slow sand filters or activated sludge, chemical process such as flocculation and chlorination and the use of electromagnetic radiation such as ultraviolet light.

The purification process of water may reduce the concentration of particulate matter including suspended particles, parasites, bacteria, algae, viruses, fungi; and a range of dissolved and particulate material derived from the surfaces that water may have made contact with after falling as rain.



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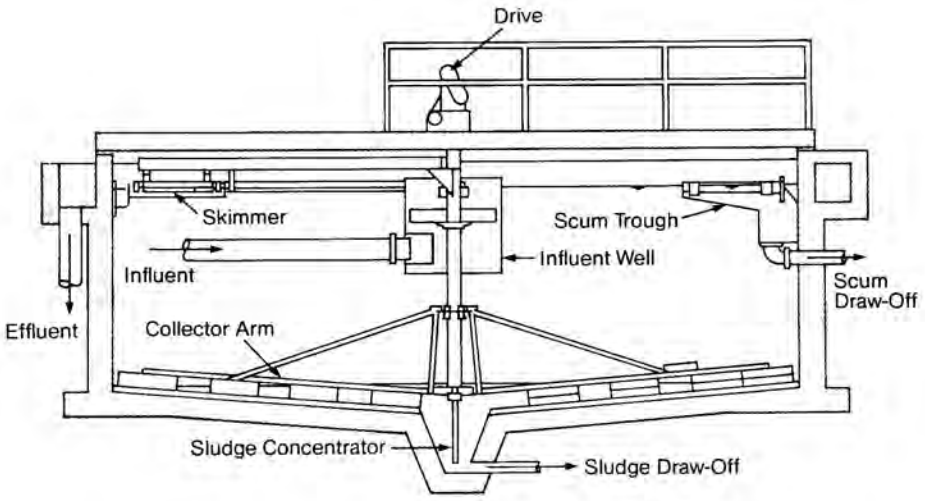
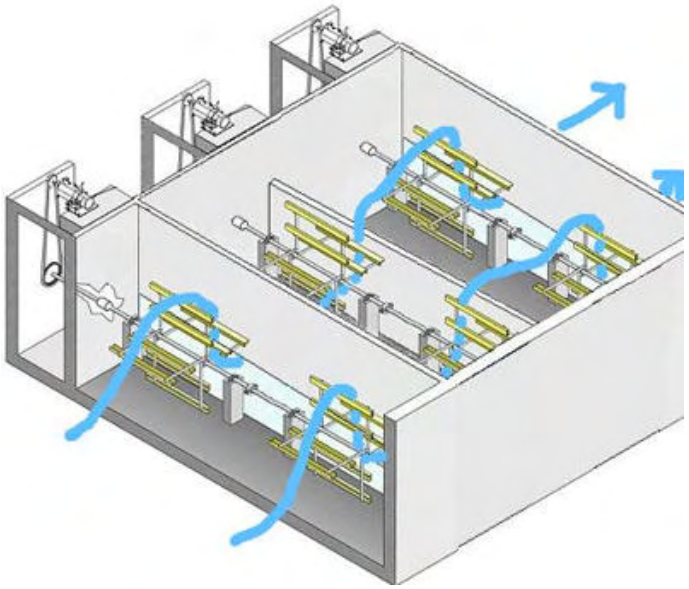
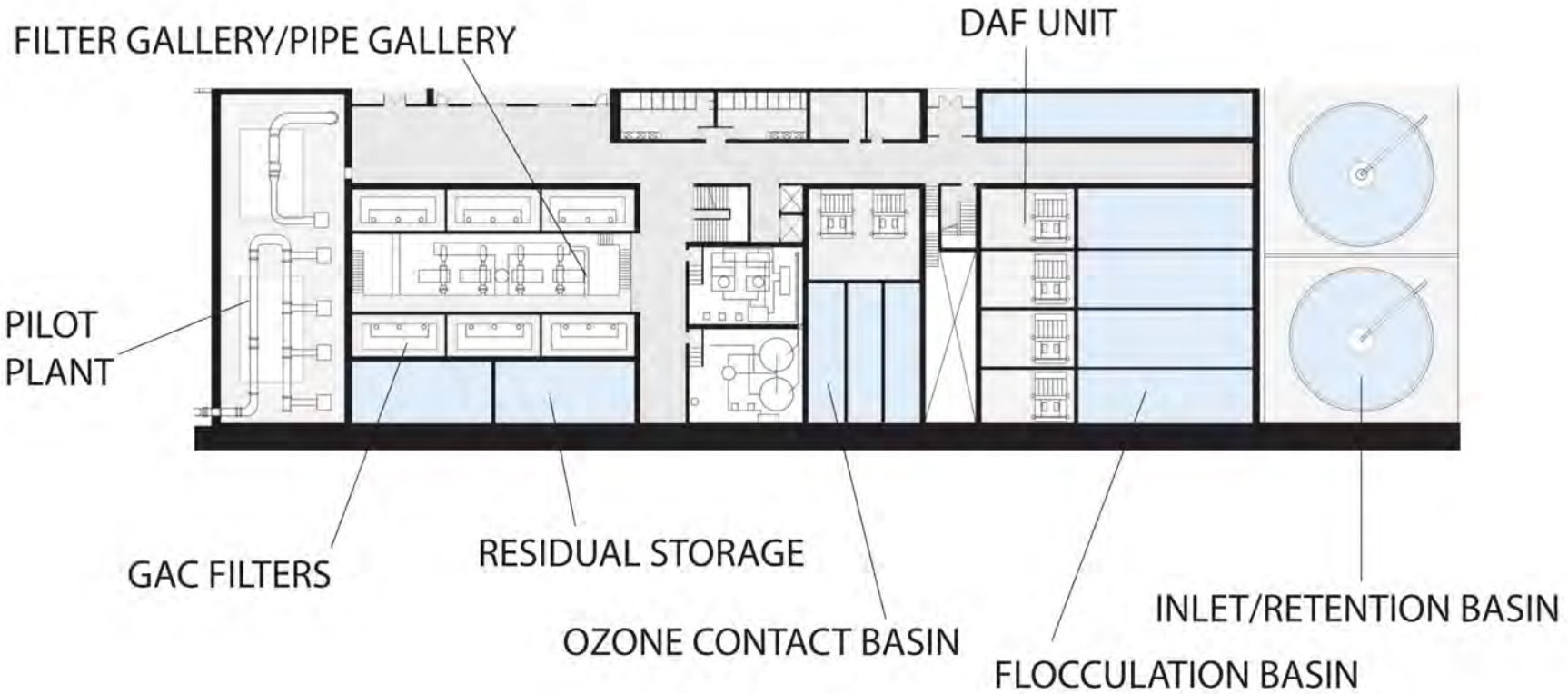


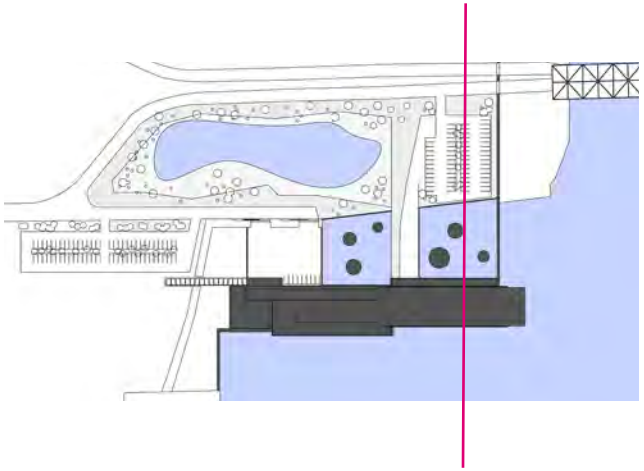
INLET/RETENTION BASIN

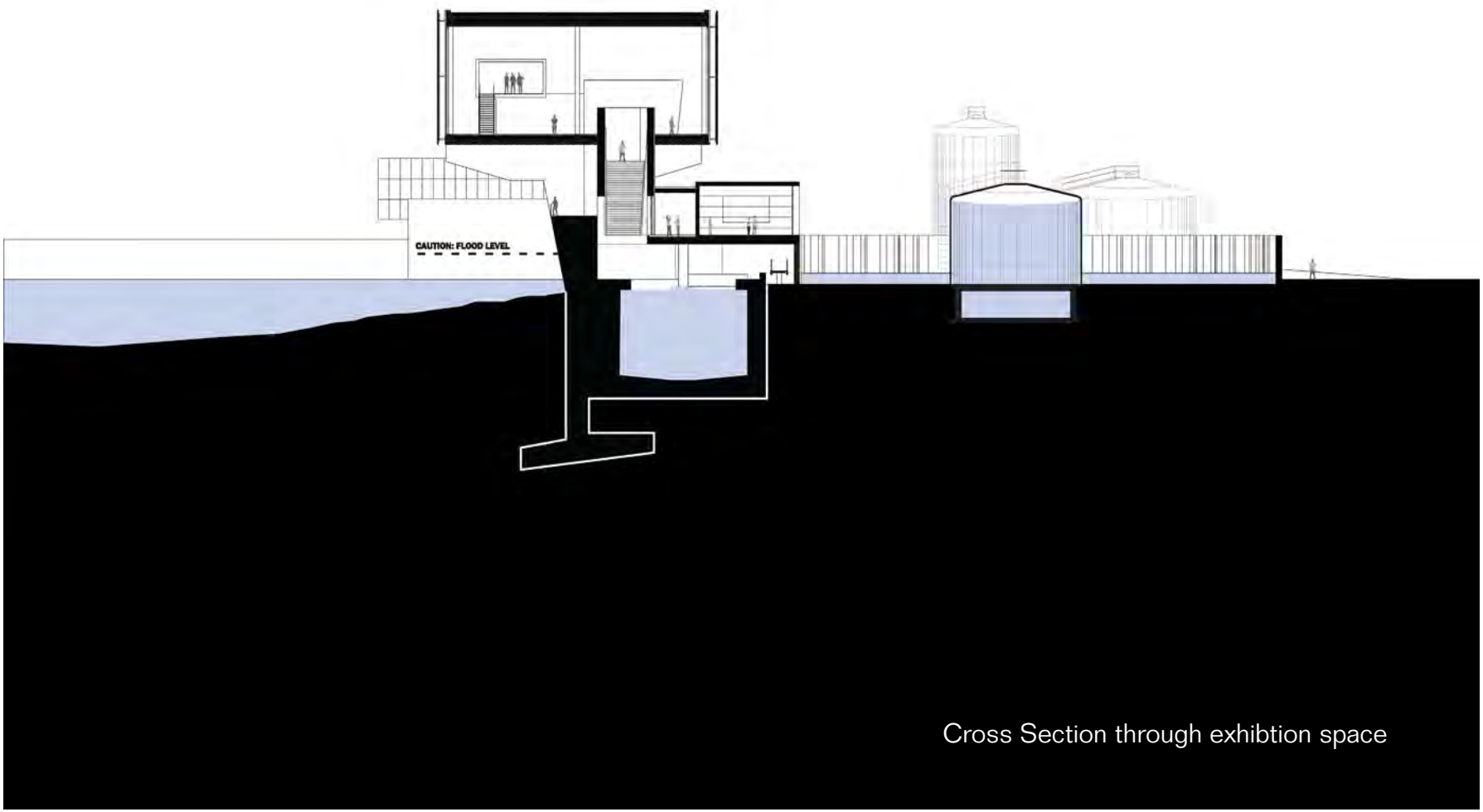


FLOCCULATION BASINS

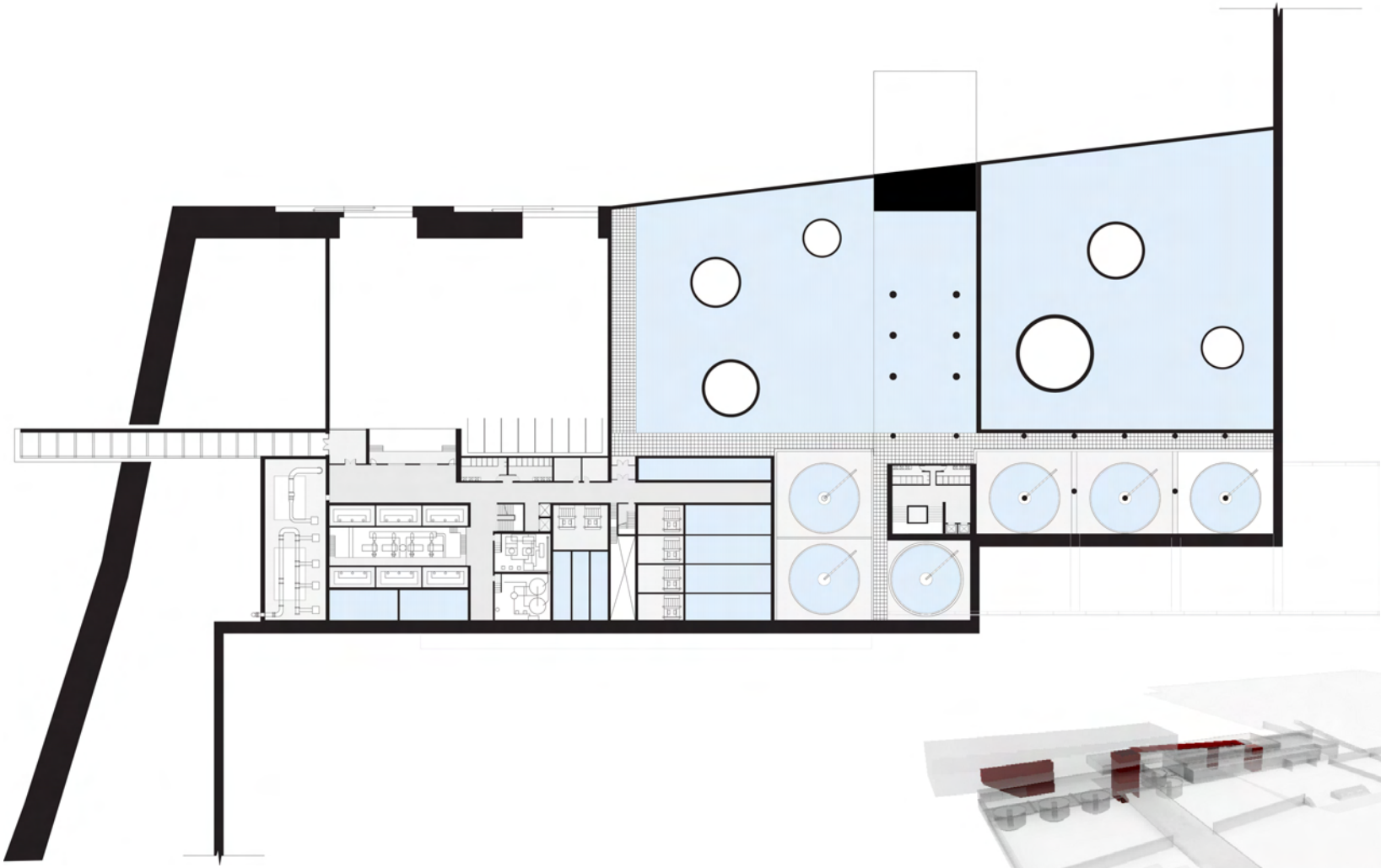
COAGULATION	Prepairing water for treatment
FLOCCULATION	Initial removal of turbidity or color
CLAIRIFICATION	Sedimentation process, particle settling
FILTRATION	Removal of remaining suspended particles
DISINFECTION	Ensuring safety of product
DISTRIBUTION	Providing to the public

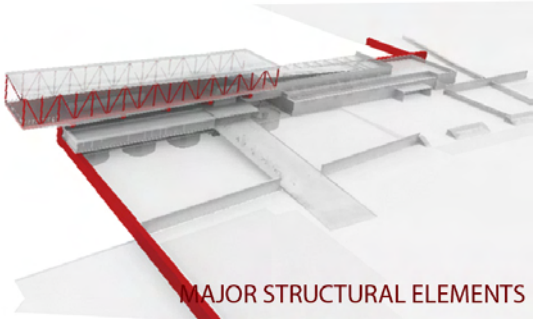




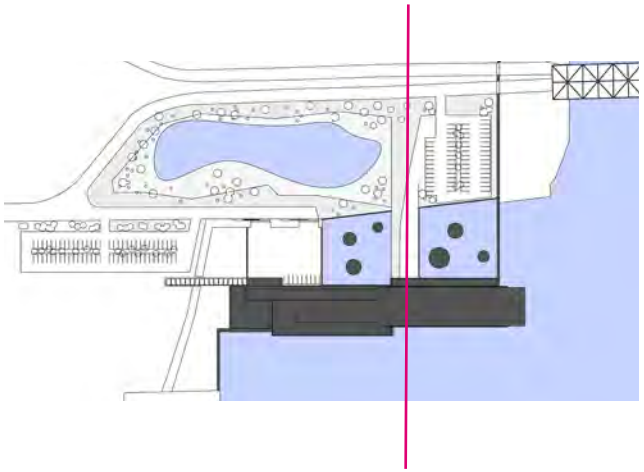


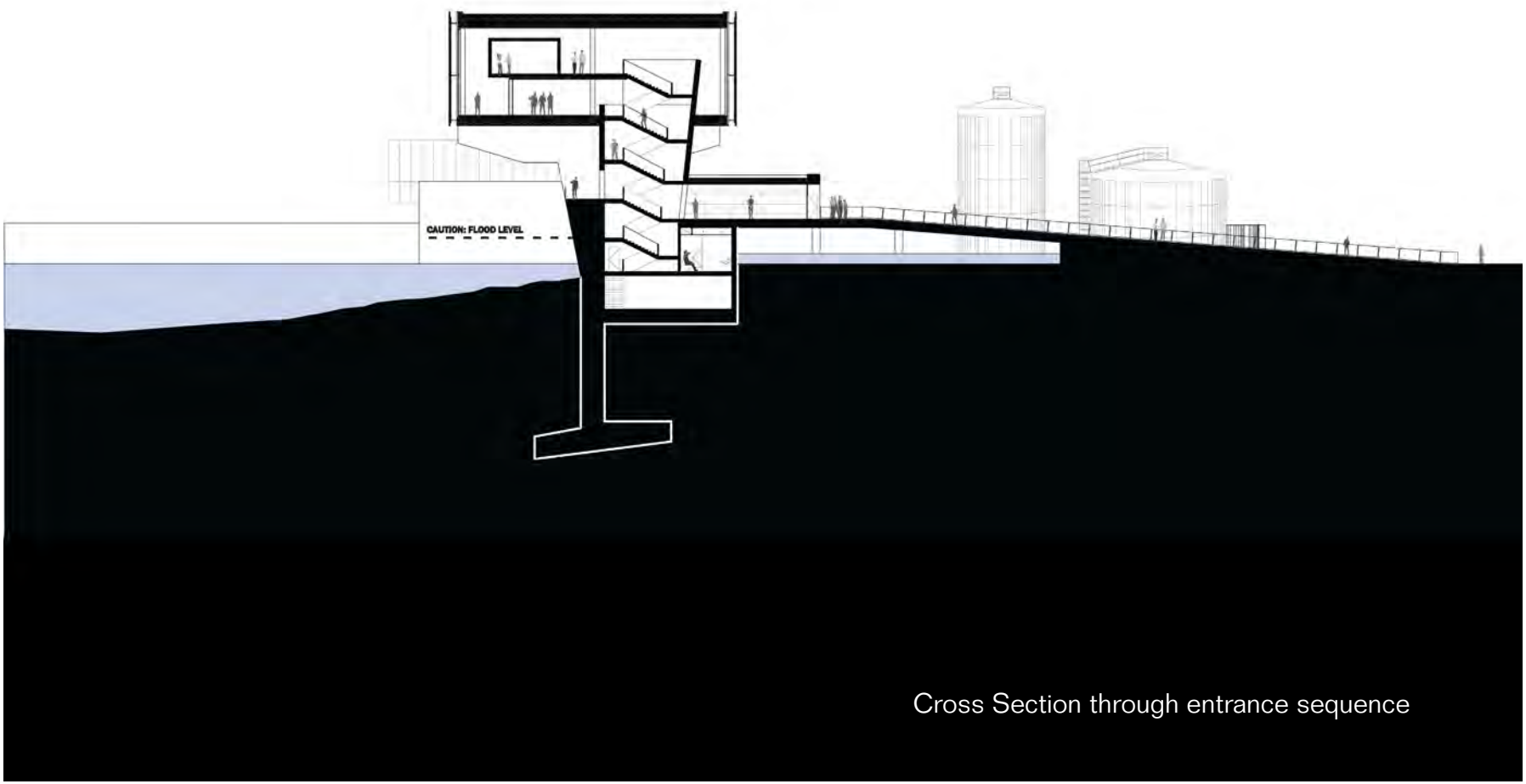
Cross Section through exhibtion space



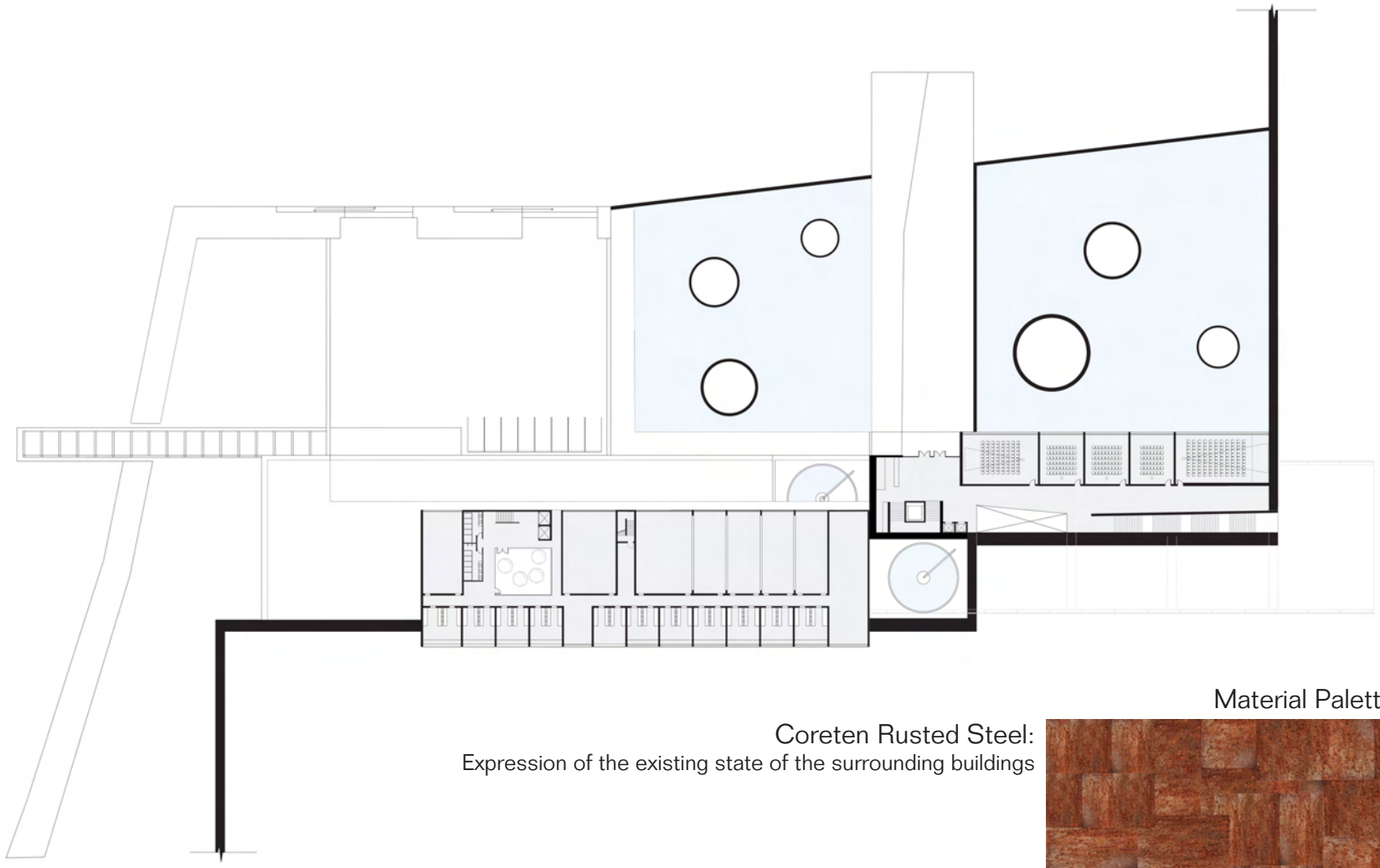


The ground floor is purely industrial. This is the location of the water purification facility from circular inlet basins, processing areas, and distribution storage tanks. The ground floor is also area provided for the service entrance and employee entrance.





Cross Section through entrance sequence



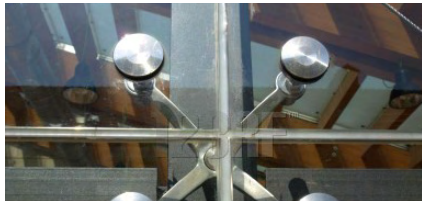
The second level provides program for the research and development labs and offices as well as exhibition and community spaces. This floor is also the location of the public entrance, raised for flood safety and accessed by a ramp connecting the building, landscape and parking.

Material Palette

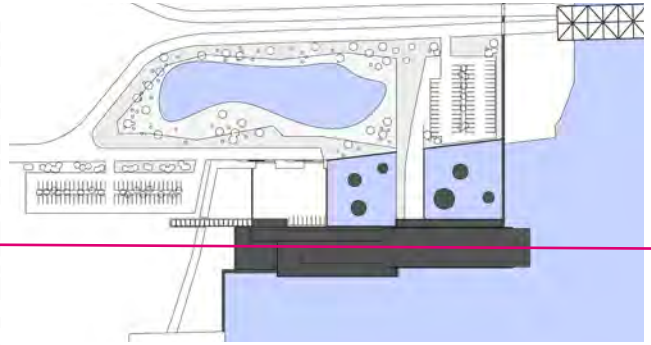
Coreten Rusted Steel:
Expression of the existing state of the surrounding buildings

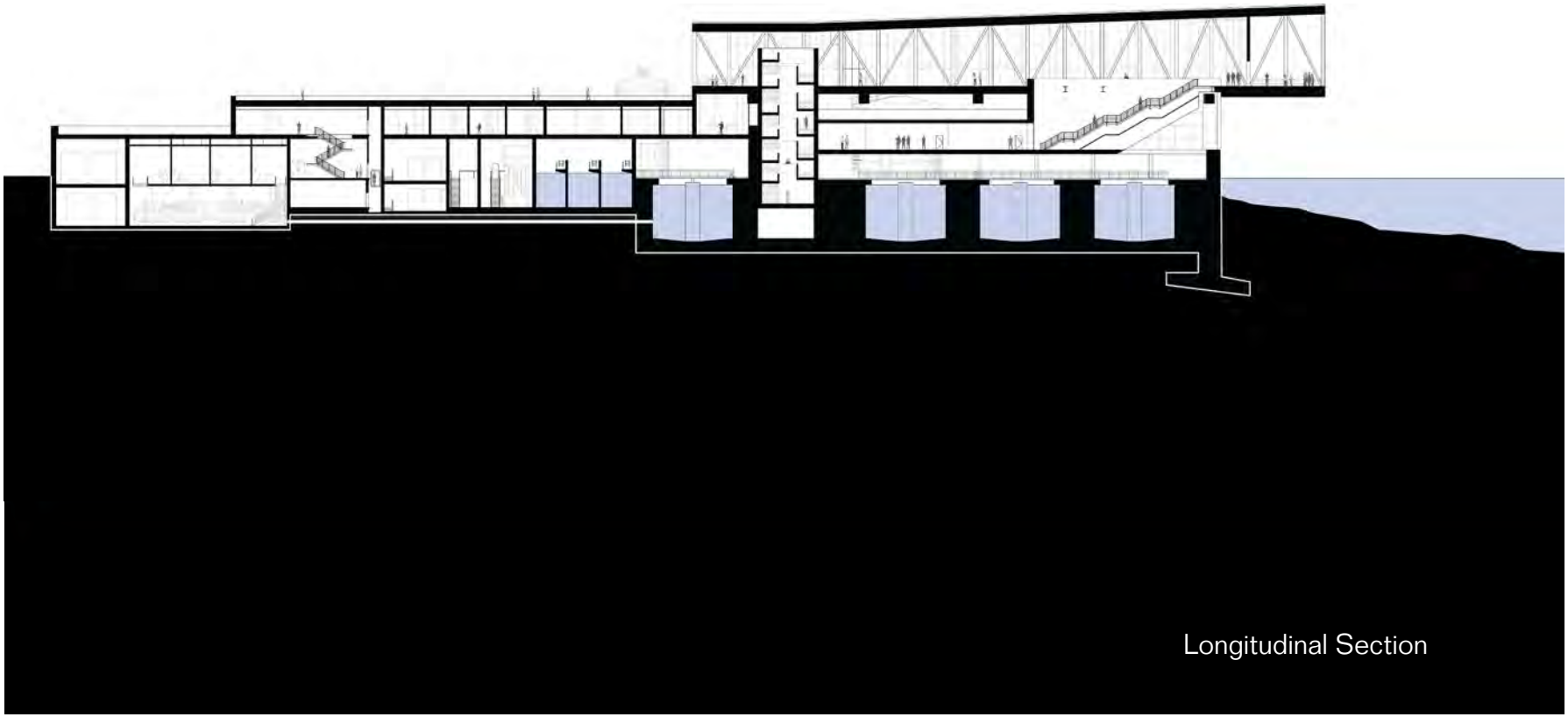
Concrete:
Expression of Strength and Stability

Glass:
Expression of Lightness,
Reflection,
Contemporary Technology

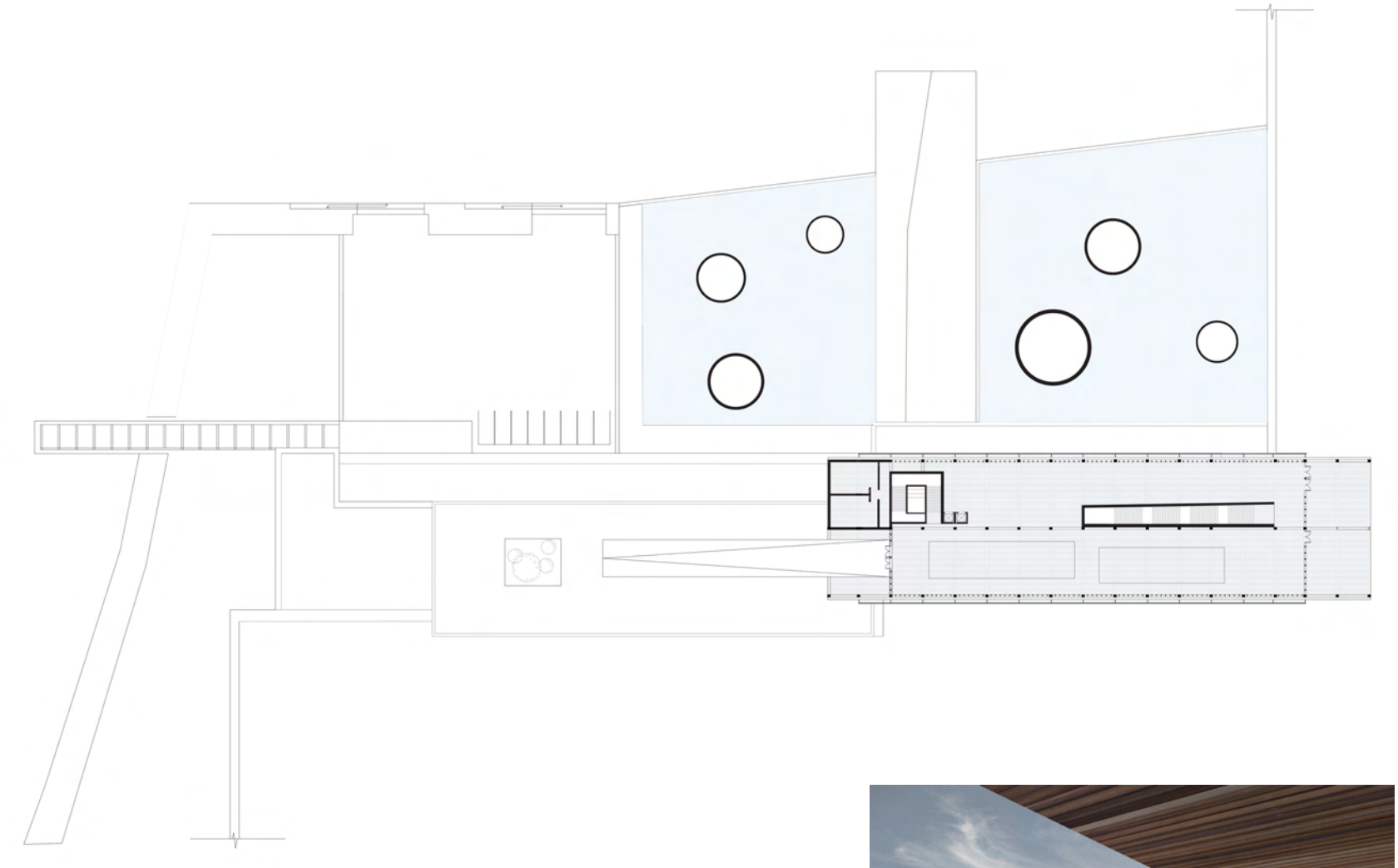


INDEPENDENT PROJECT IMAGES



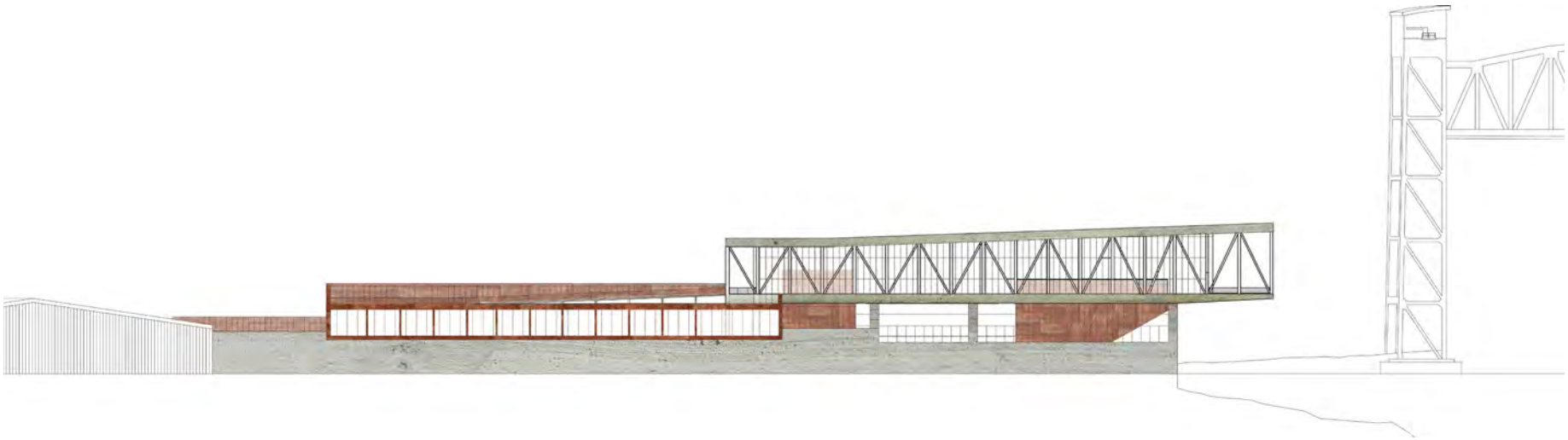


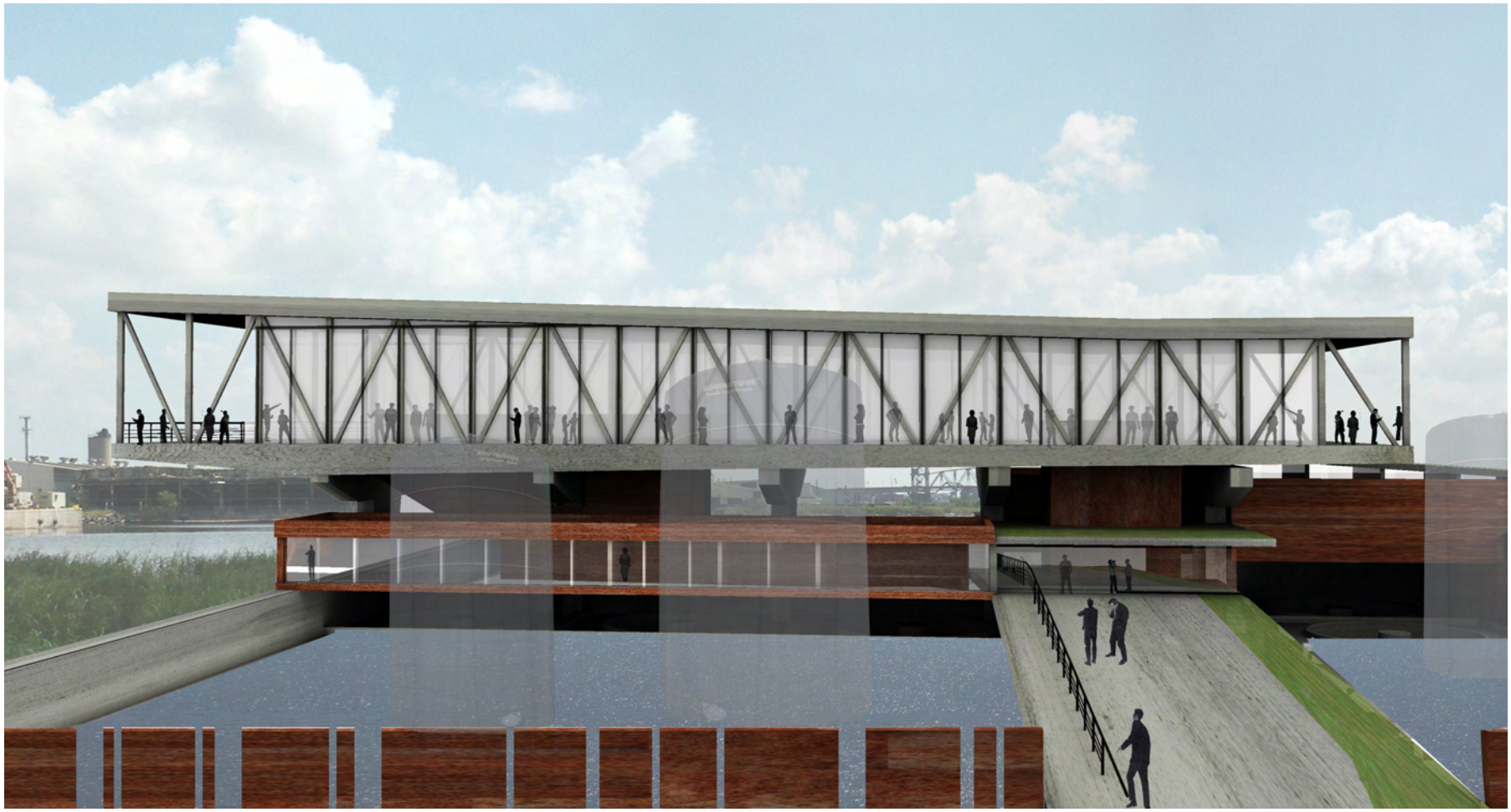
Longitudinal Section



The exhibition space cantilevers over the water, being structurally held by industrial concrete piers. This space is large and out of scale of the rest of the building as a statement of importance along the canal. The exhibition space is to provide the public a place to view the future of New Orleans, not only with the views that it provides of the city but with what it displays as well. The 30ft tall gallery is structured by a concrete truss running the length of the space mimicking the Florida Avenue Bridge. Being encased in glass will create a beacon along the canal, providing a beacon and symbol for the future of NOLA.

INDEPENDENT PROJECT IMAGES





Perspective of entrance sequence and enhabited exhibition space

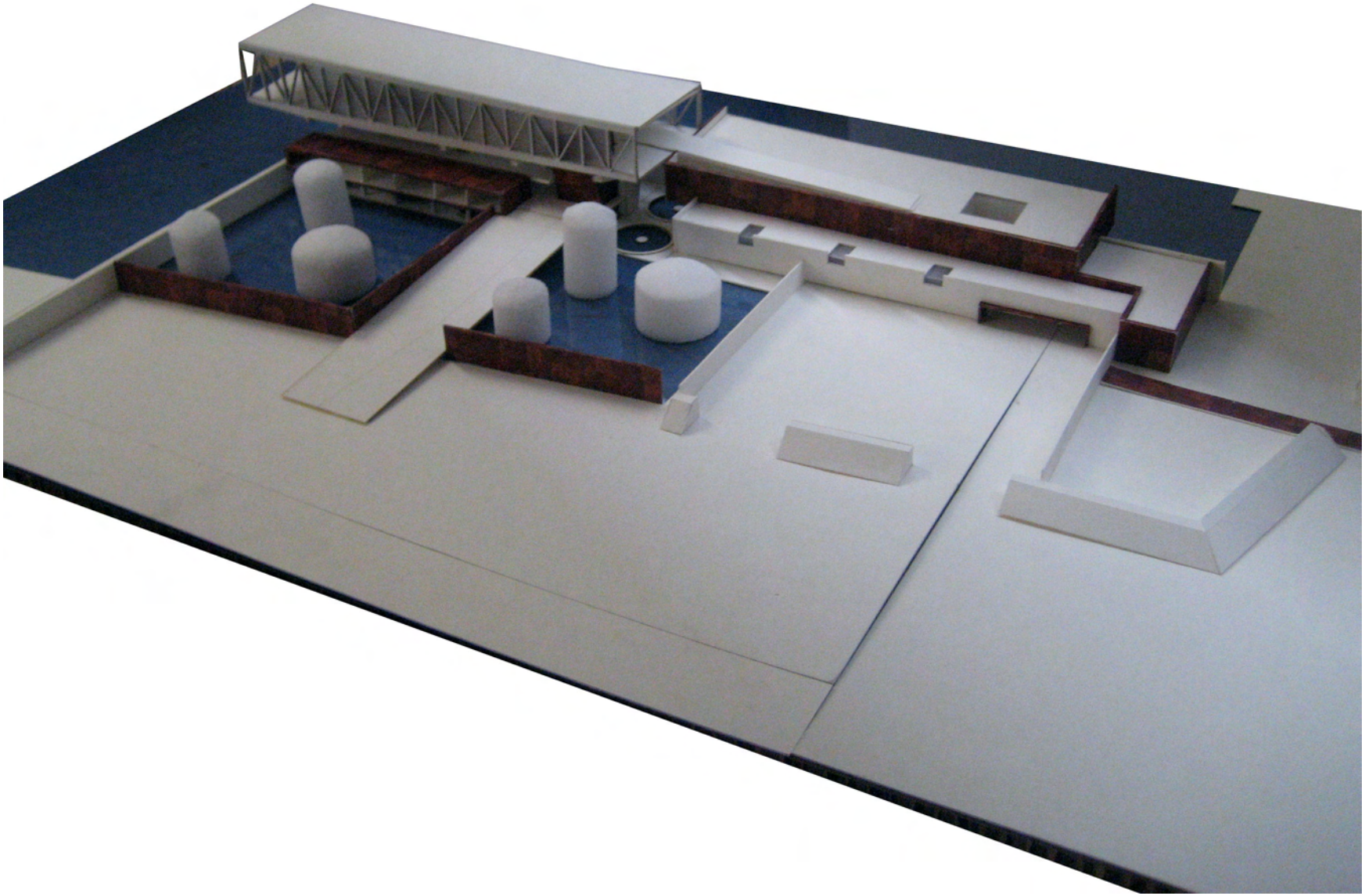
INDEPENDENT PROJECT IMAGES

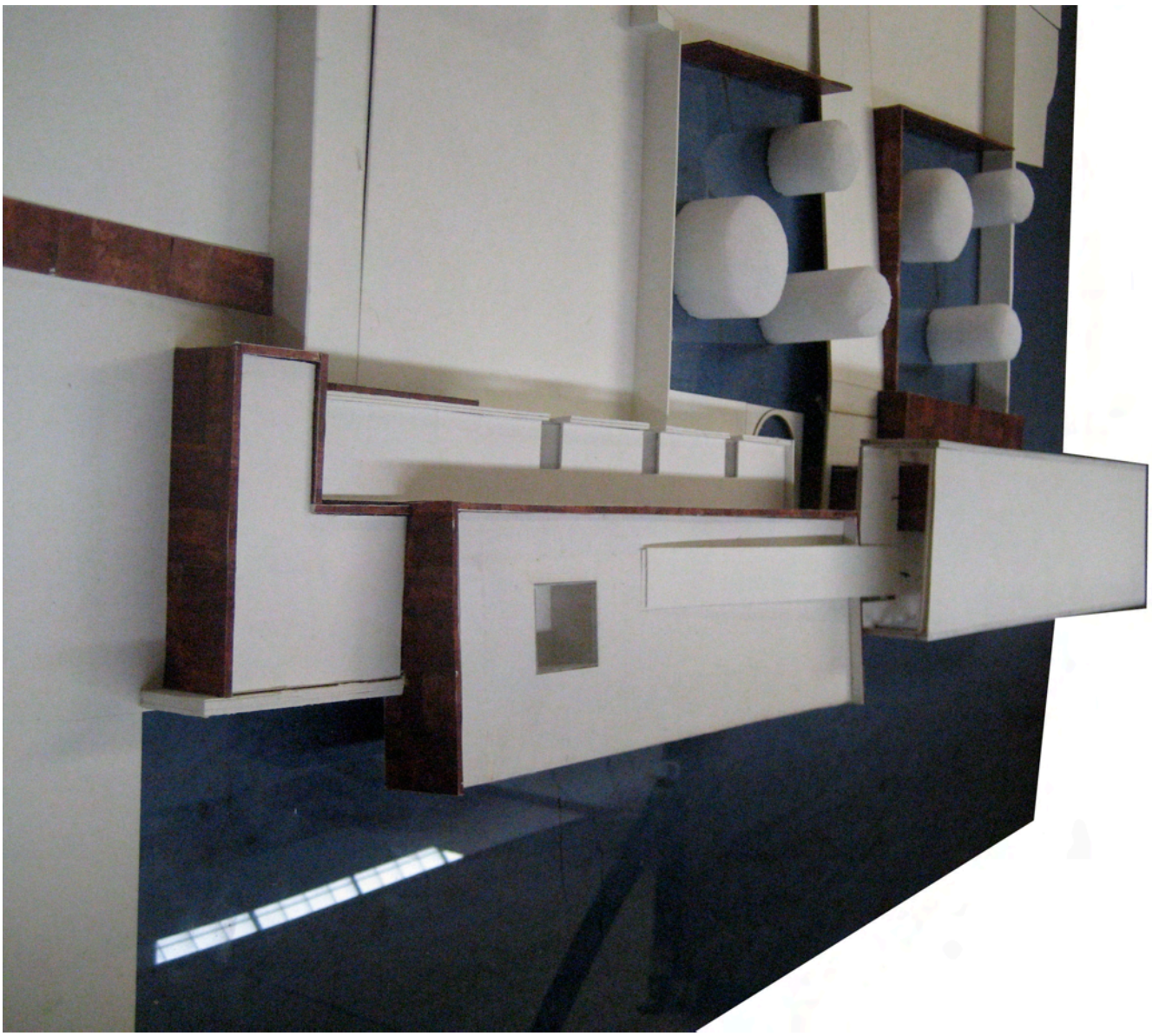
Exterior Perspective

Exterior Night Perspective

INDEPENDENT PROJECT IMAGES

Structural Axon





INDEPENDENT PROJECT IMAGES

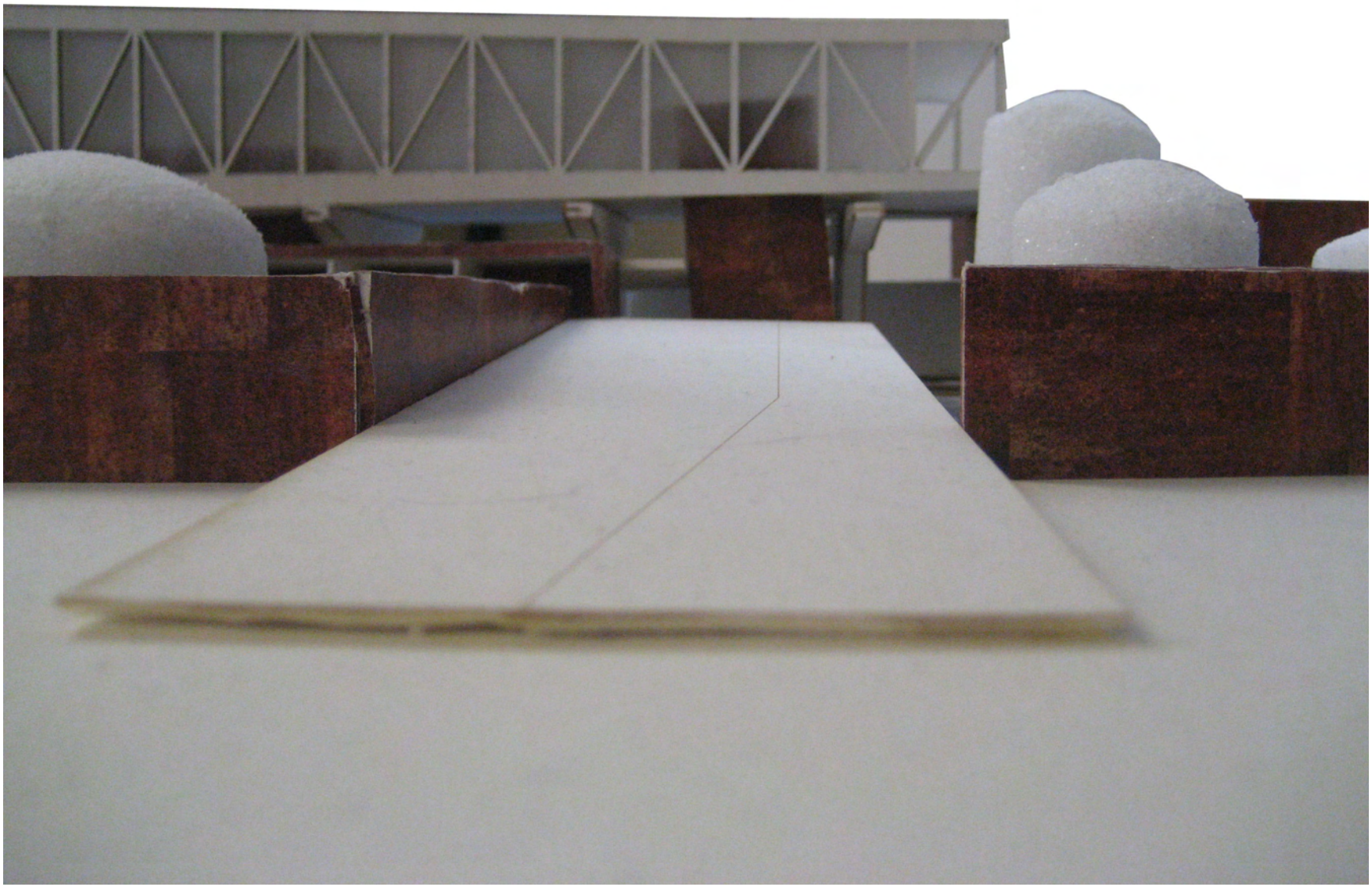


PLATE ONE

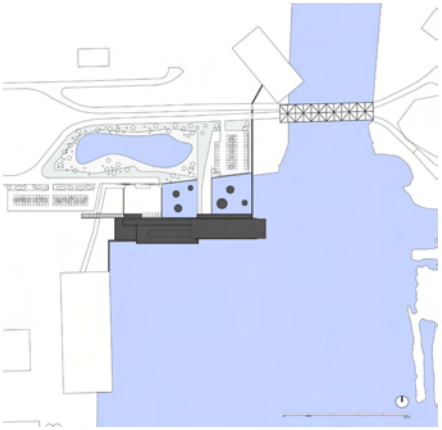
COMMUNITY INFRASTRUCTURE: NEW ORLEANS WATER PURIFICATION FACILITY AND CENTER FOR PROGRESS

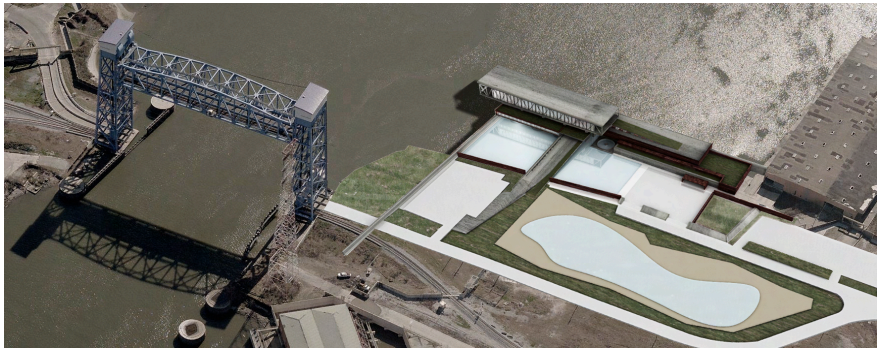
INDUSTRIAL CANAL, NEW ORLEANS, LOUISIANNA

Imagine living in a place that has been hit by 5 massive floods in the past 100 years. The next natural disaster is inevitable and its only a matter of when. The rebuilding of New Orleans has been controversial, yet its cultural importance and deep roots cannot be abandoned. Homes are rebuilt only to be torn apart and rebuilt again. The city must armor itself. The city must put its citizens in the best possible situation for the next occurrence. Currently the levee system is being modified for the better and the city is rebuilding what it can. These citizens need hope. They need something that they can be proud of. The city must take action to build a better model for below water level living. New construction must be smart. Homes must be elevated. Build-ings must be designed with worst case scenario concepts in mind. The 21st century New Orleans must adapt and transform itself, otherwise future destruction is eminent.

Historically, industrial buildings, plants and factories were built with the intention of being solid, du-rable and economical. During the late eighteenth and early nineteenth centuries the industrial revolution in the United States transformed towns into dense urban developments. Masonry structures littered the built urban landscape stimulating production and symbolizing the new countries independence upon itself. Today technologies have changed but the industrial vernacular has been vastly frozen in time. Simple eco¬nomic minded construction, rectilinear programmatically ideal planning, and little to no aesthetic. If state or government run, these buildings serve the people of the surrounding community. The public works indus¬trial building model must be updated.

Industry can be beautiful. The New Orleans Purification Facility will be a product of the contemporary city.





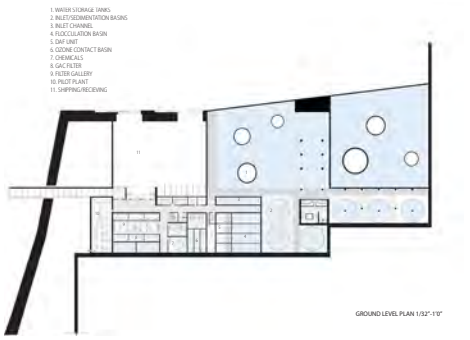
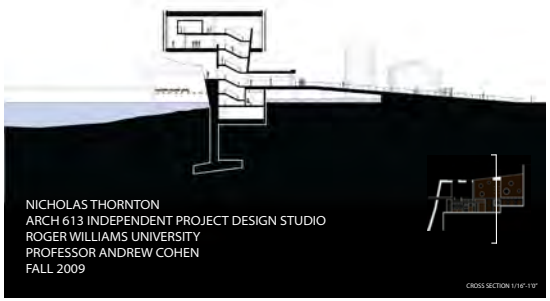
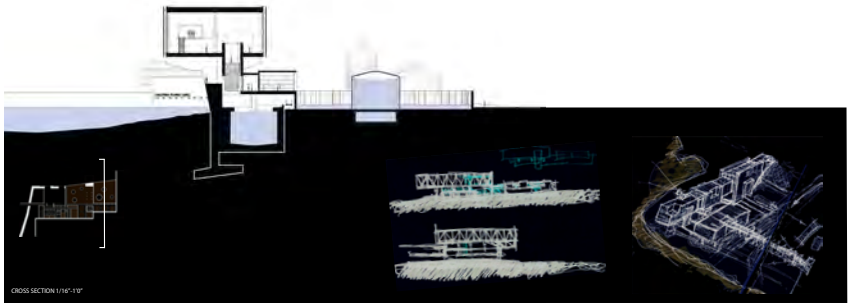


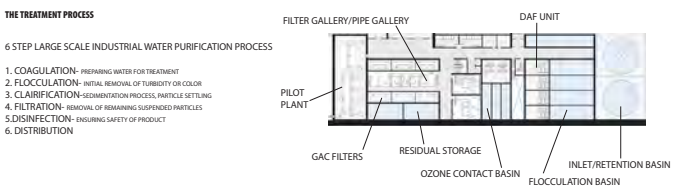
PLATE TWO

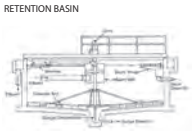


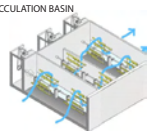


INDEPENDENT PROJECT FINAL PLATES

PLATE THREE







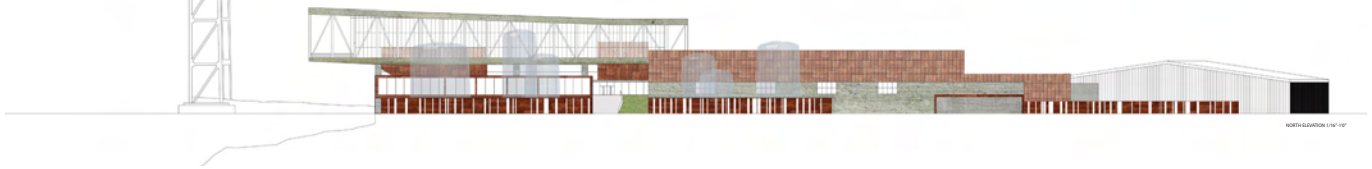
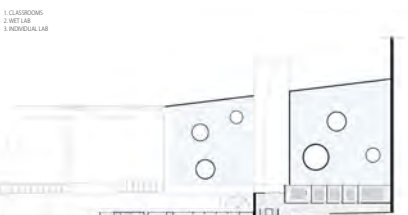
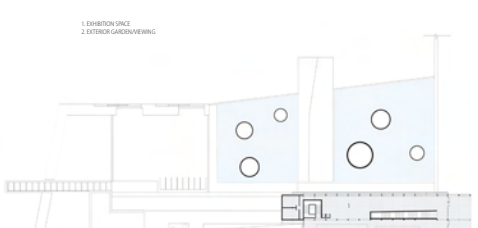
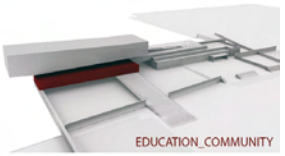
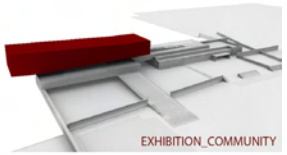


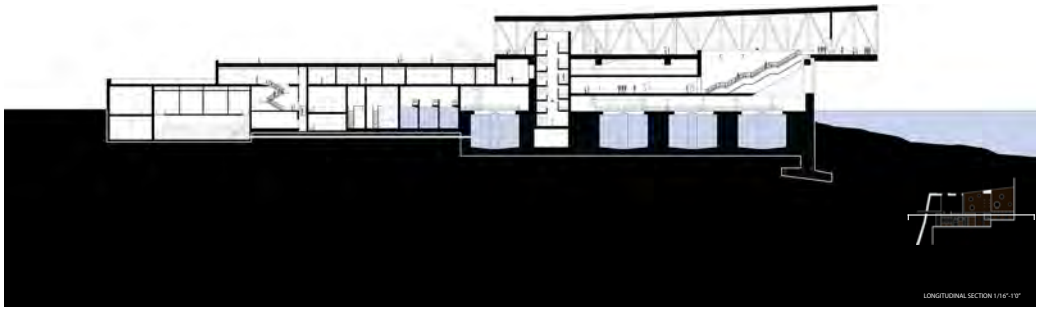
PLATE FOUR

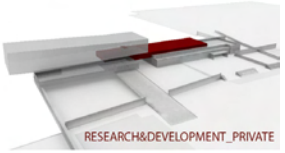












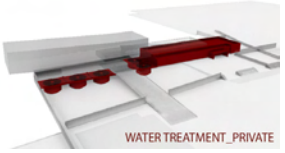
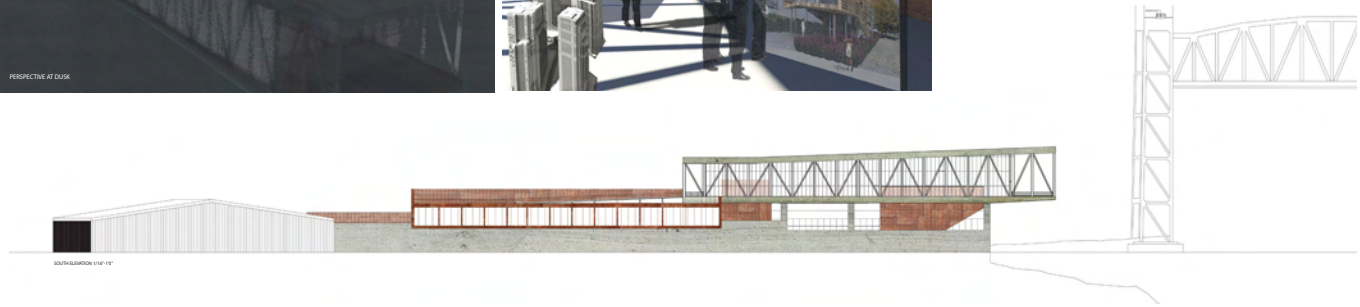
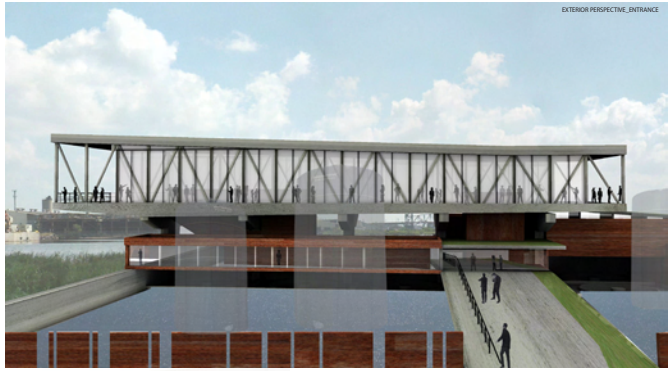


PLATE FIVE





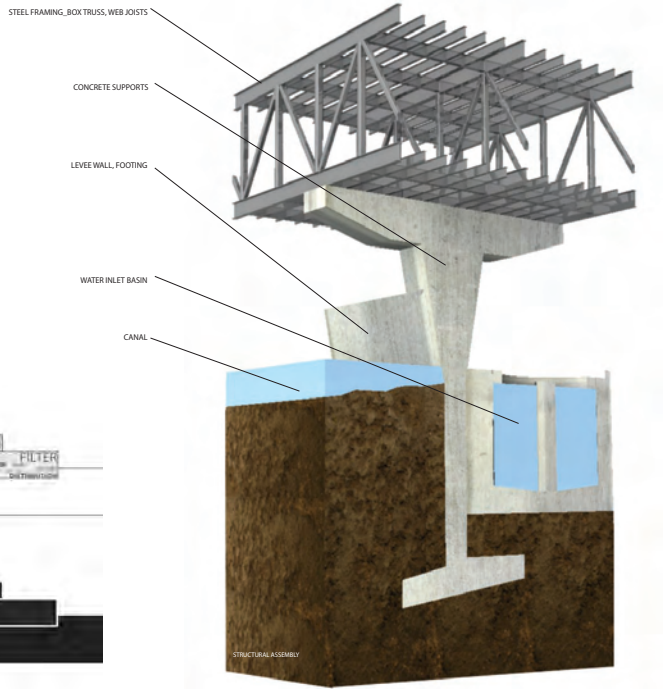
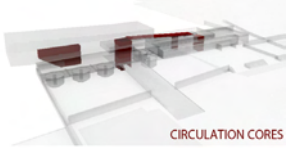
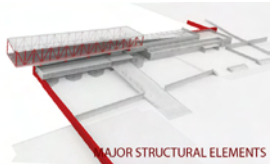


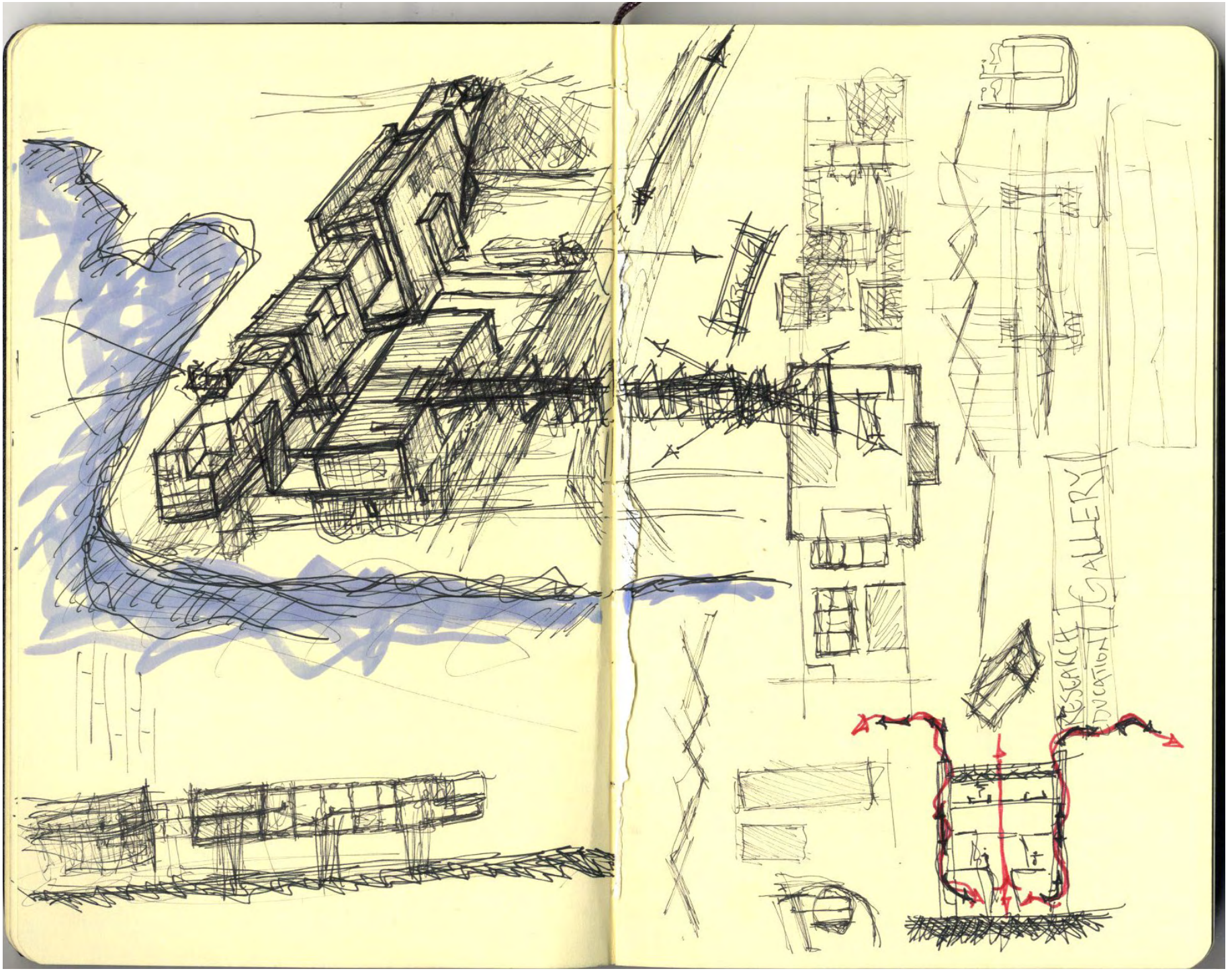
PLATE SIX

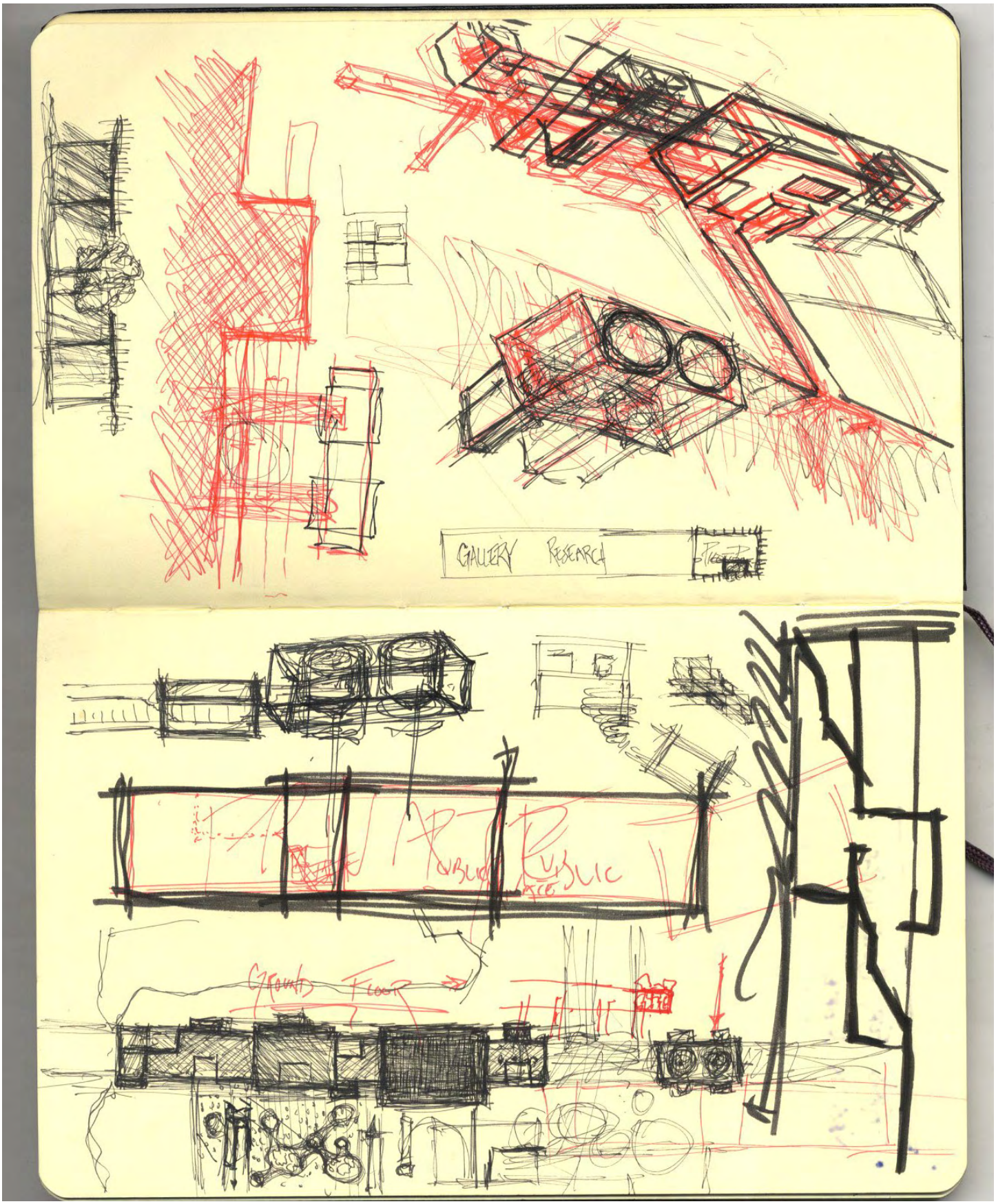




PROCESS

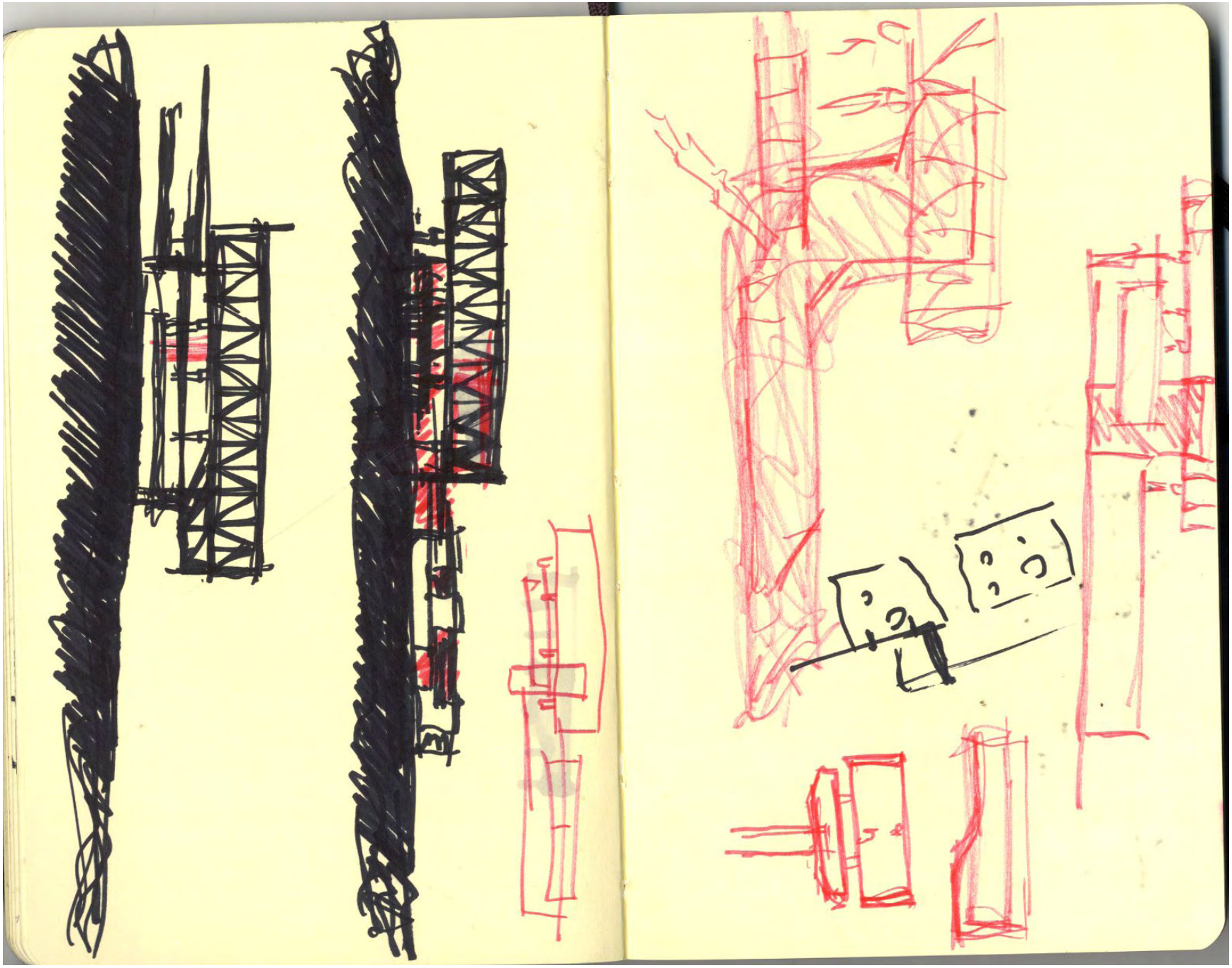
PROCESS_ PRELIMINARY SKETCHES

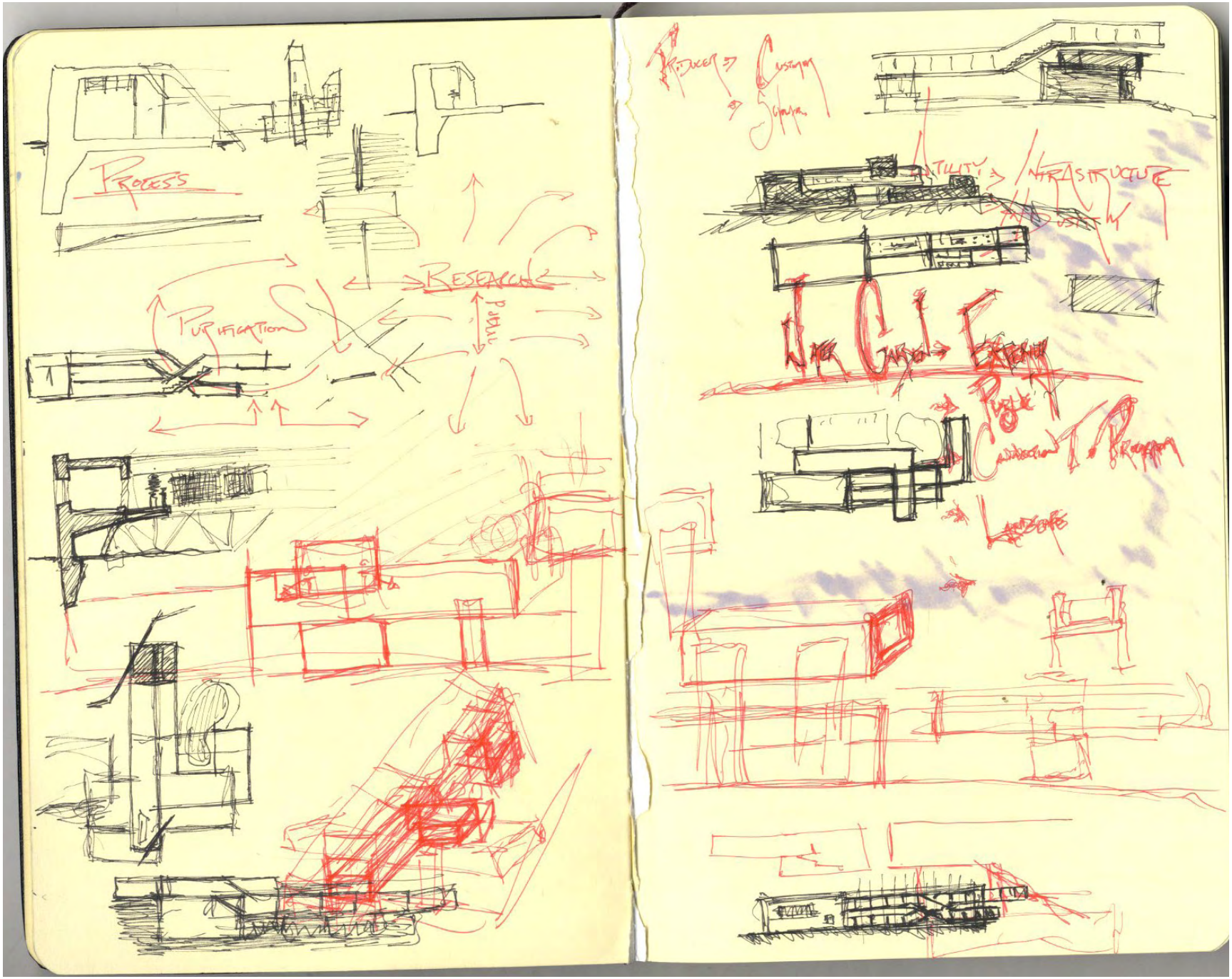


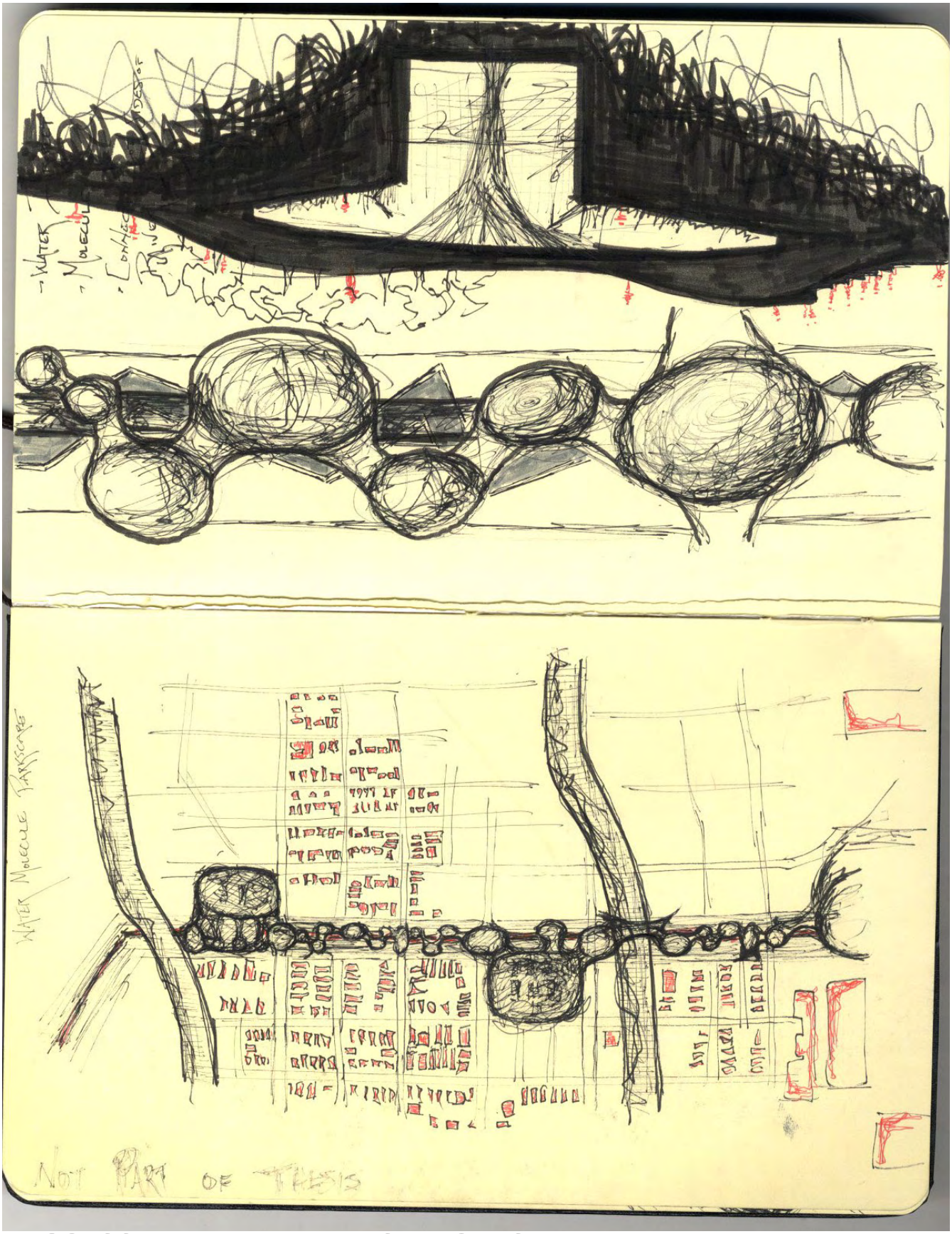


PROCESS_PRELIMINARY SKETCHES

PROCESS_ PRELIMINARY SKETCHES




PROCESS
RESEARCH
PURIFICATION
PRODUCT
UTILITY
INFRASTRUCTURE
WATER SUPPLY
LANDSCAPE



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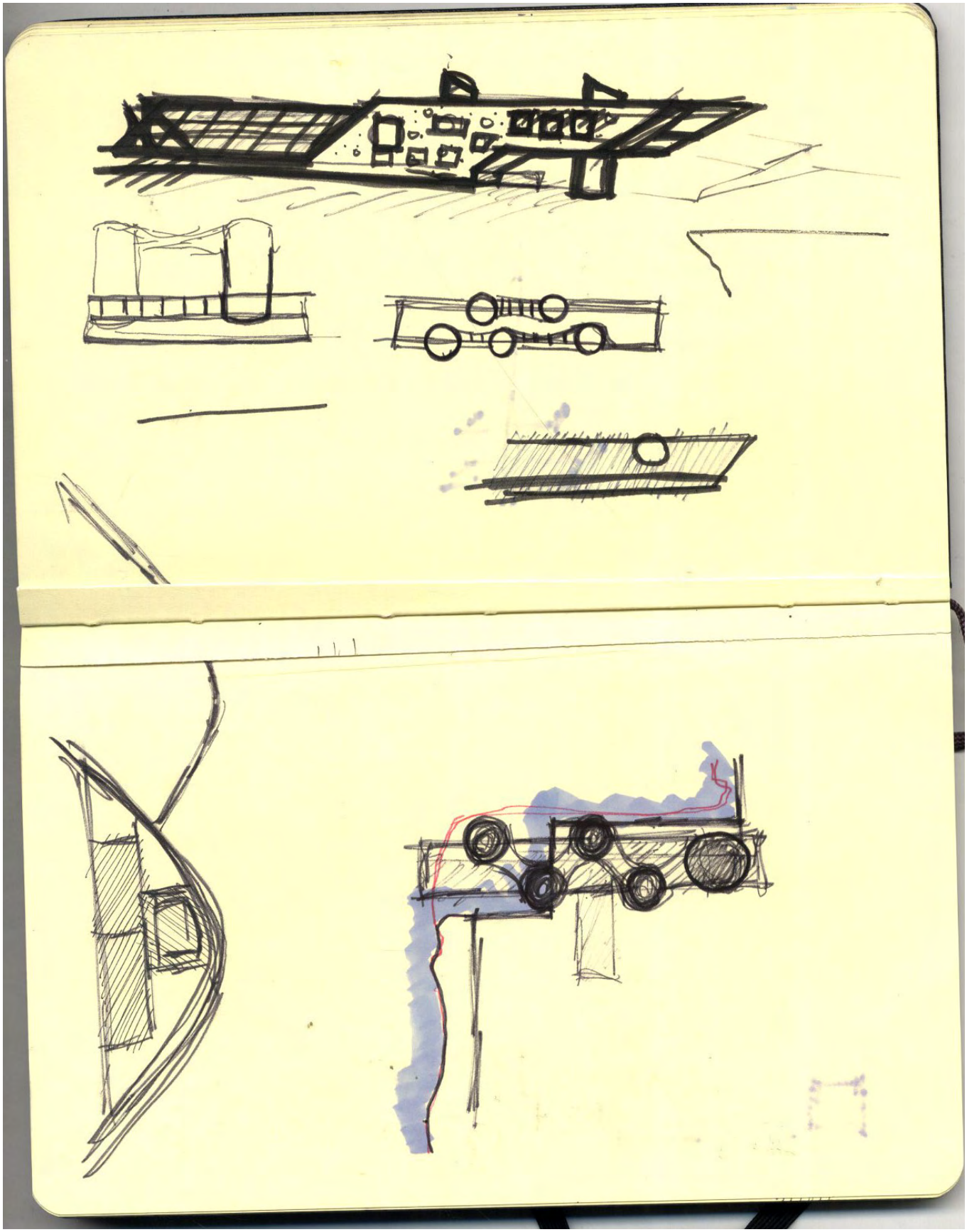
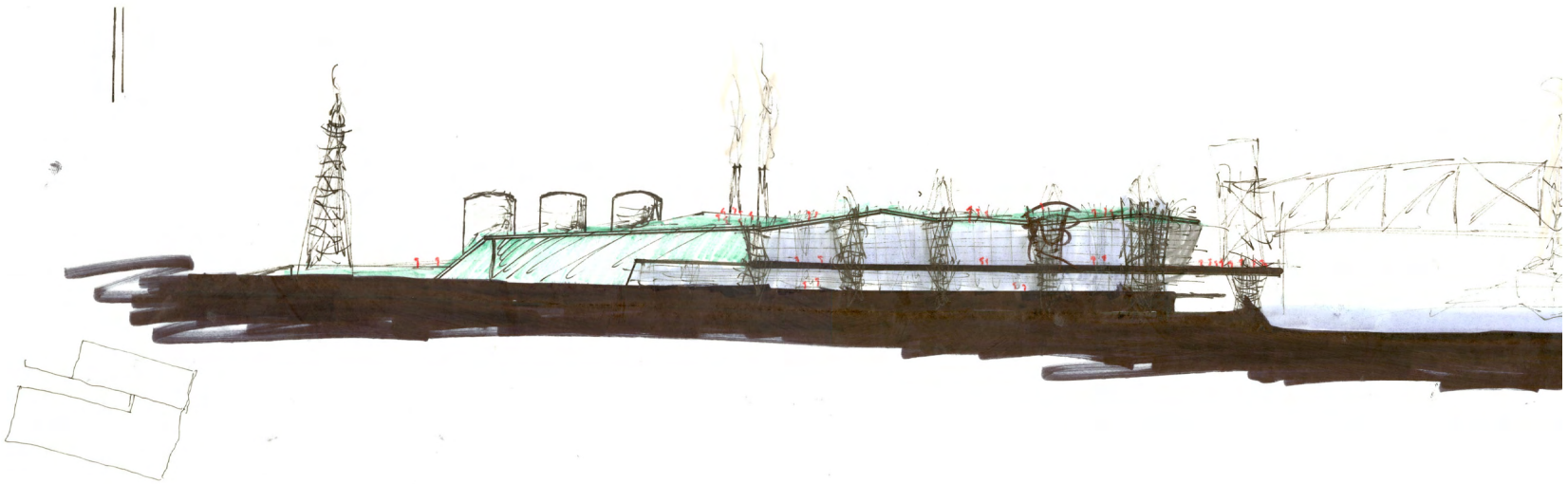
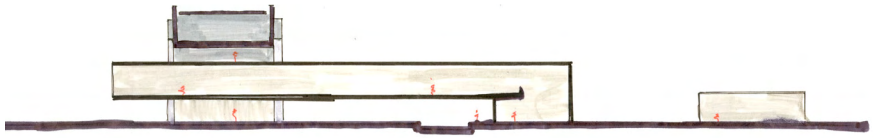
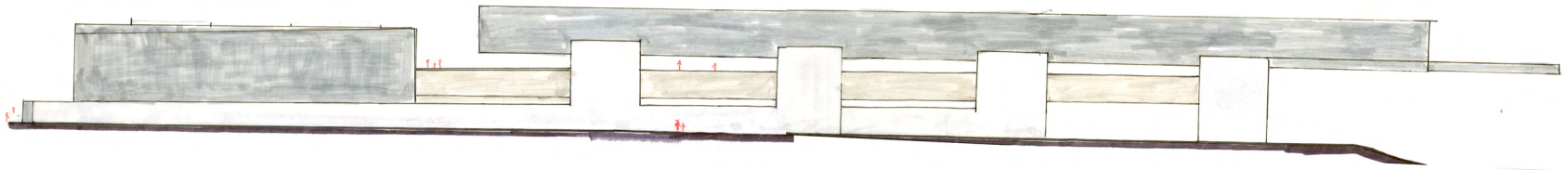


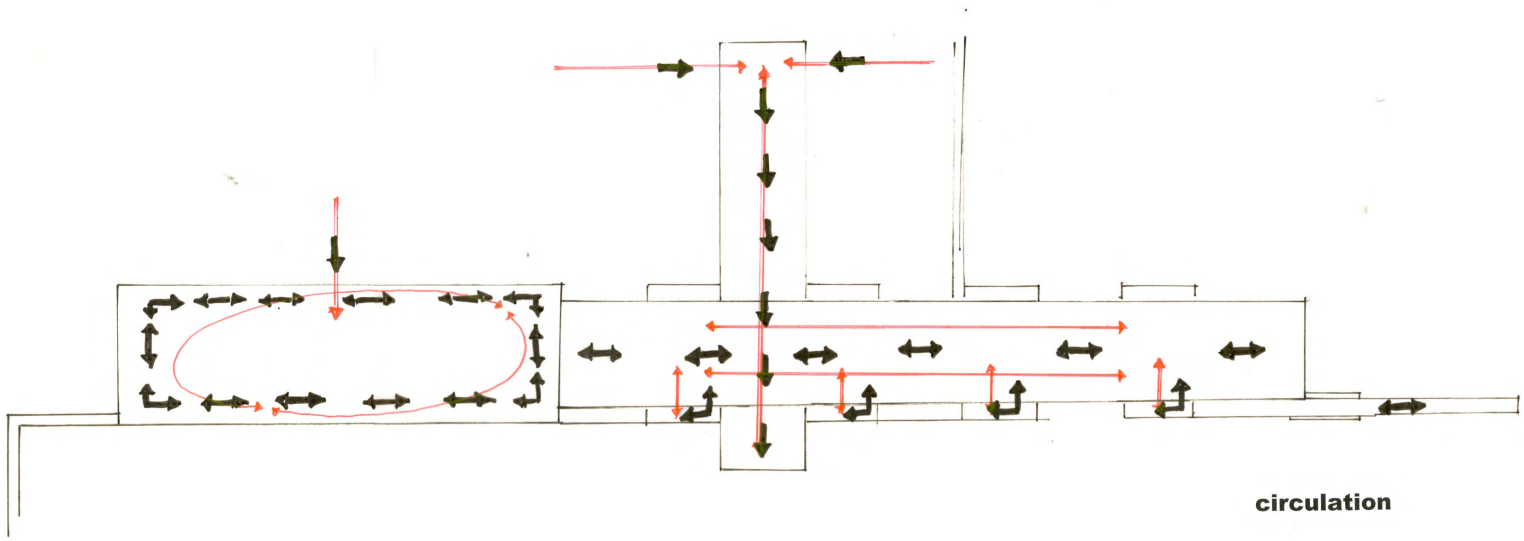
PROCESS_PRELIMINARY SKETCHES

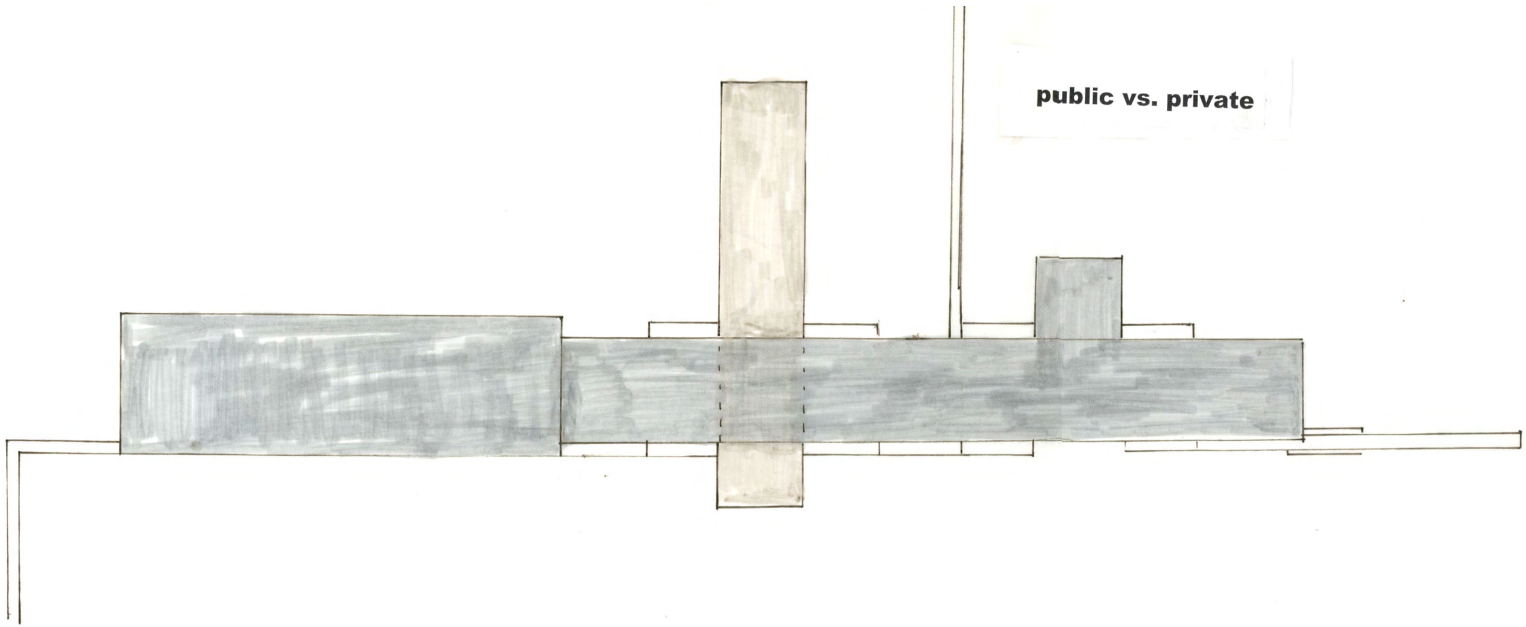
PROCESS_PRELIMINARY SKETCHES

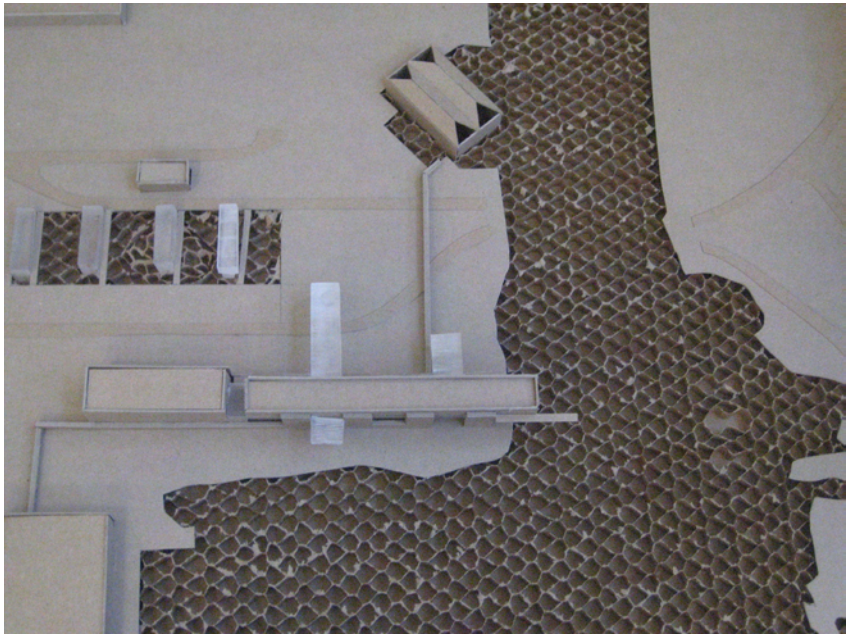


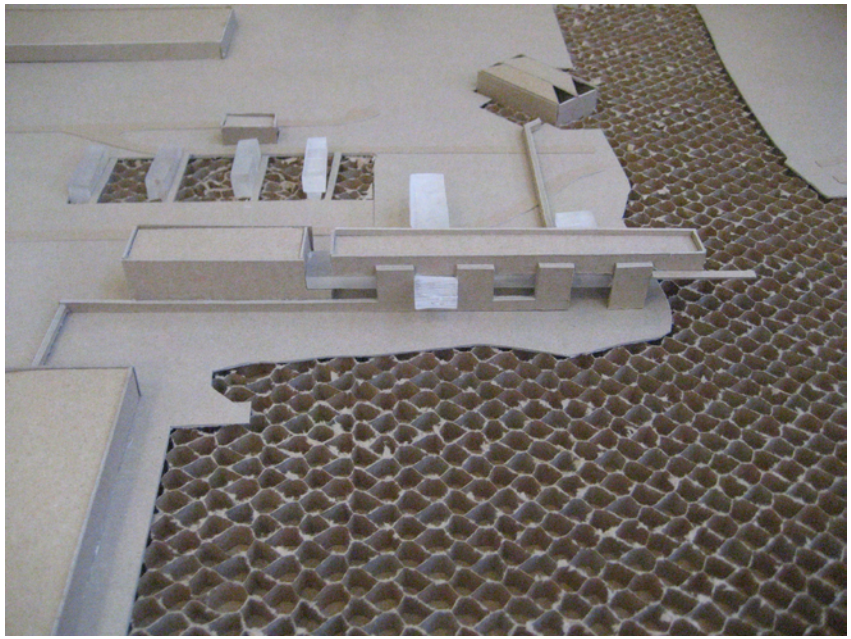


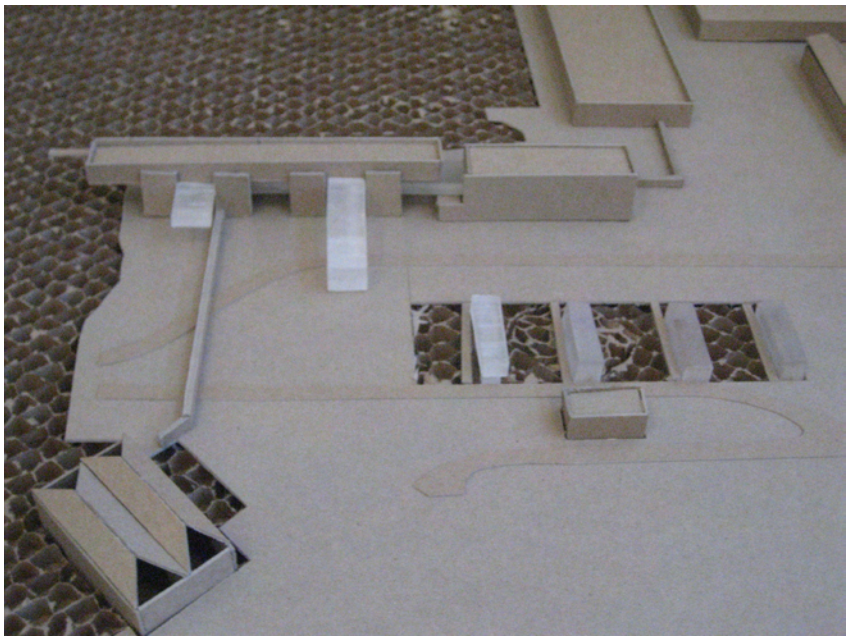


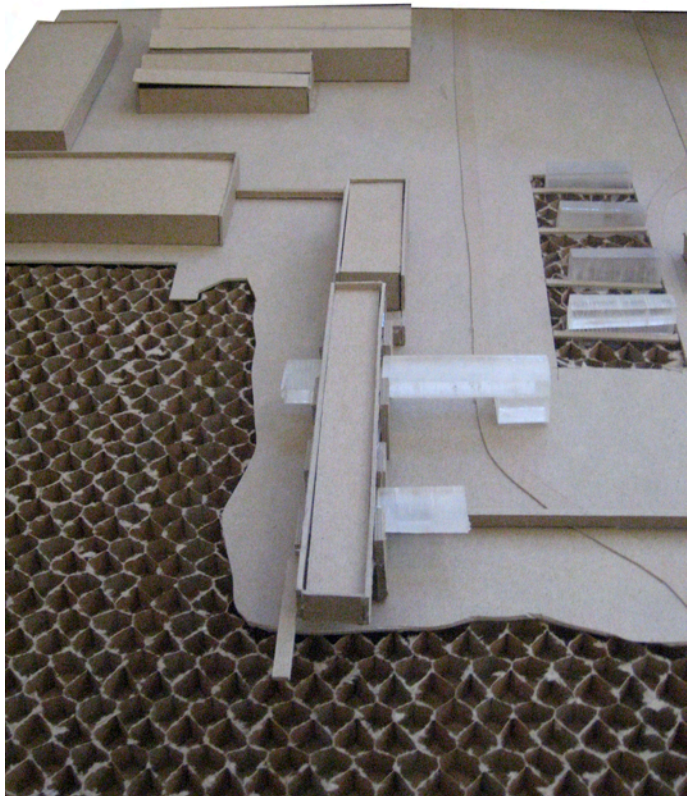

circulation


public vs. private

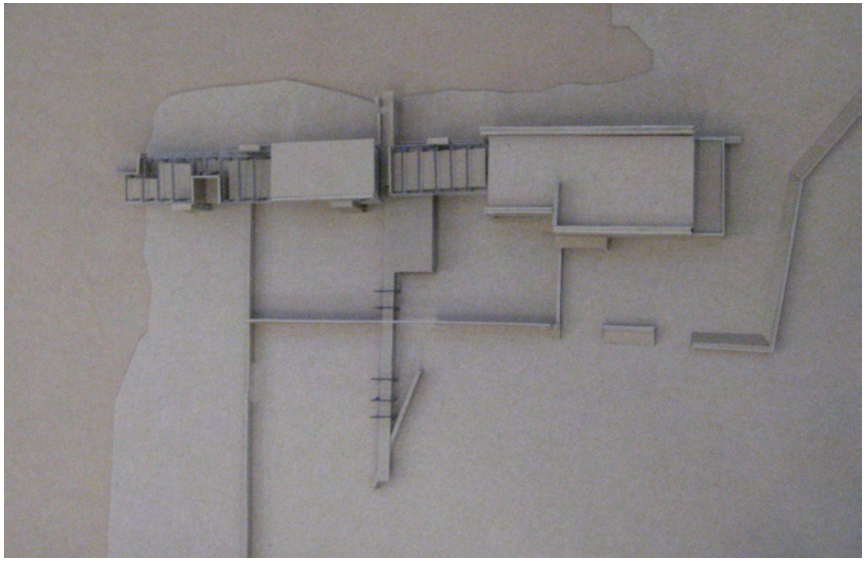


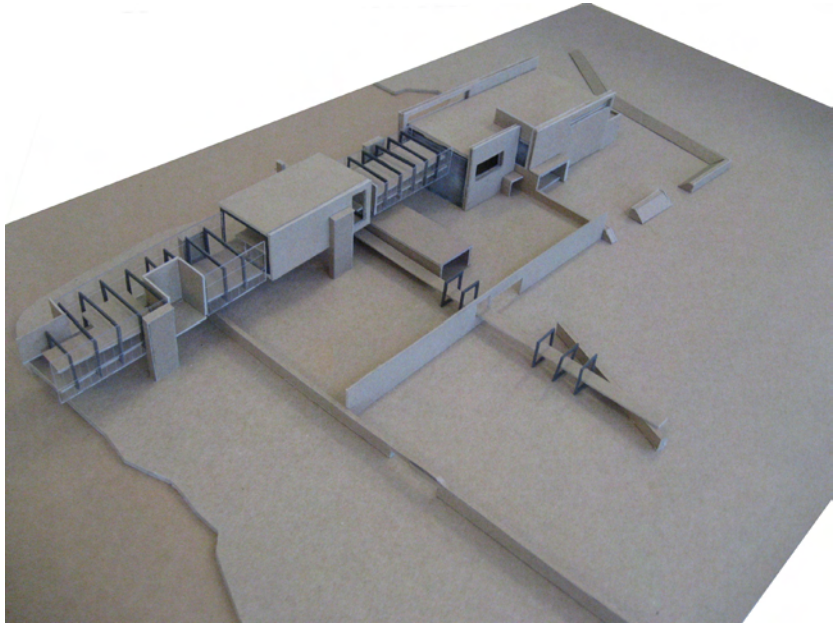


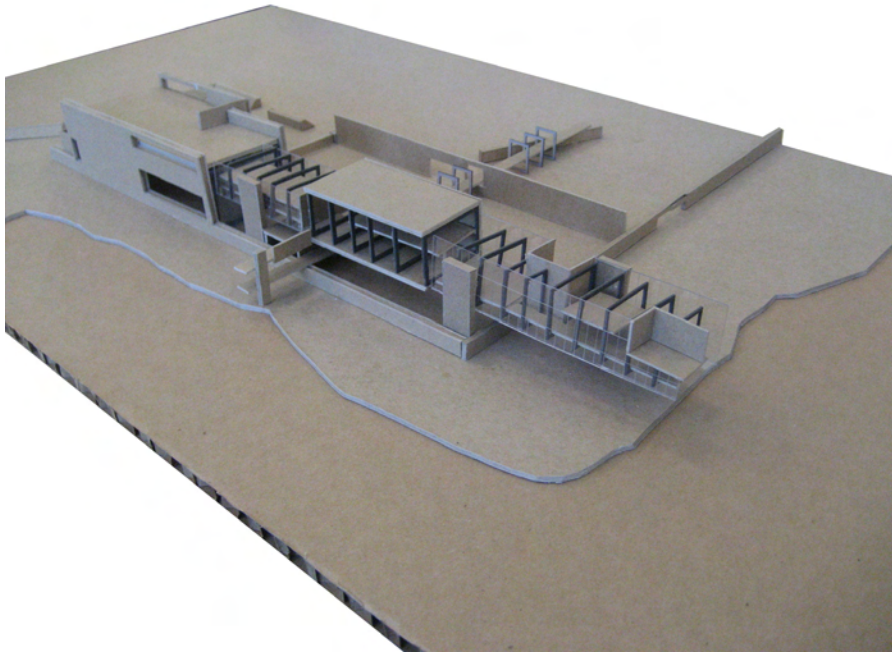


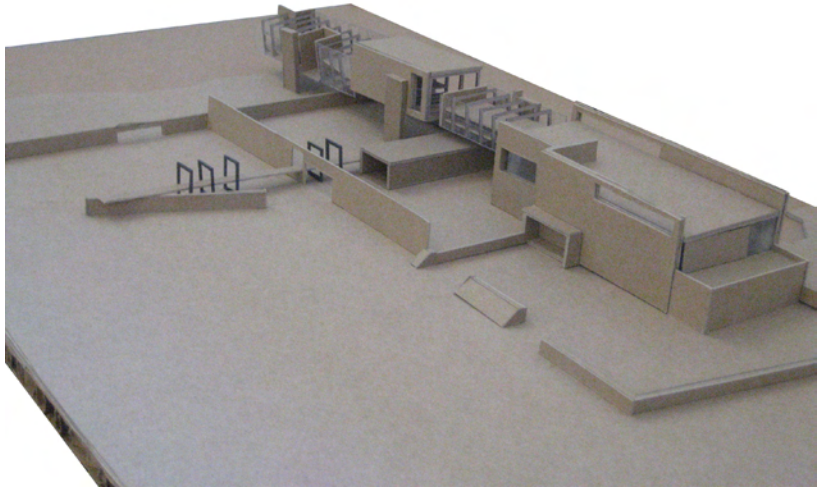


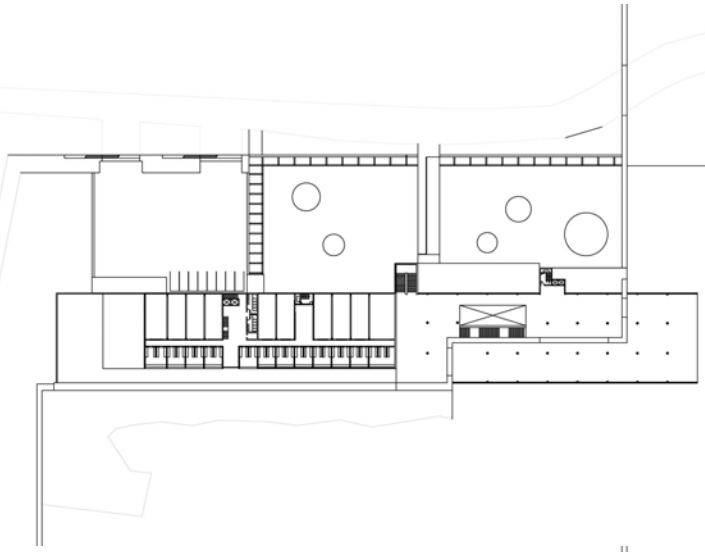
PROCESS_MIDCRIT PHYSICAL MODEL

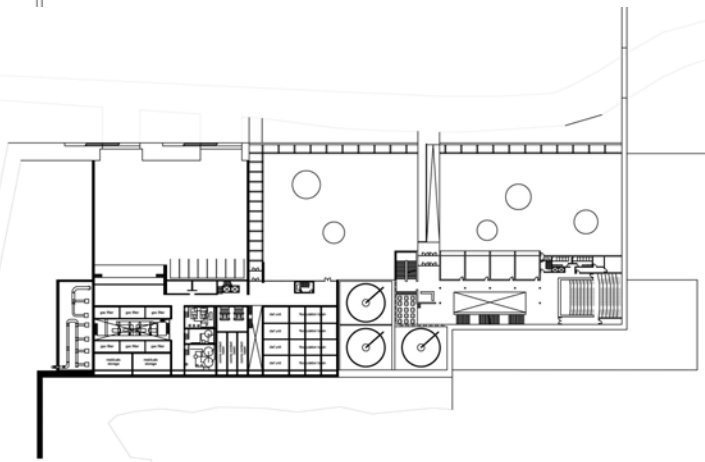


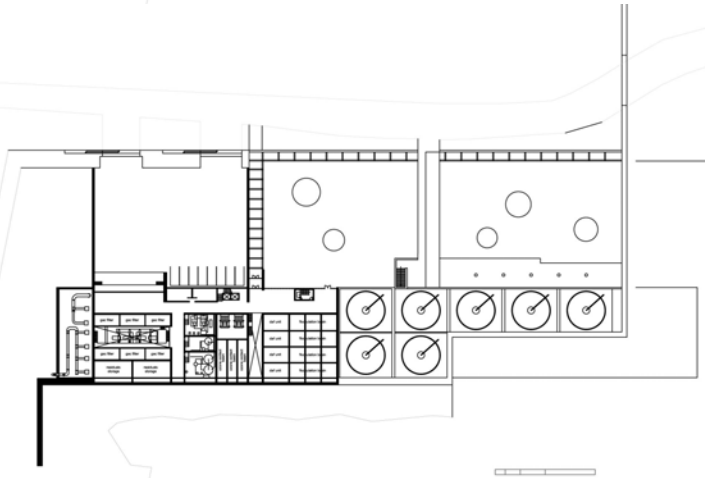




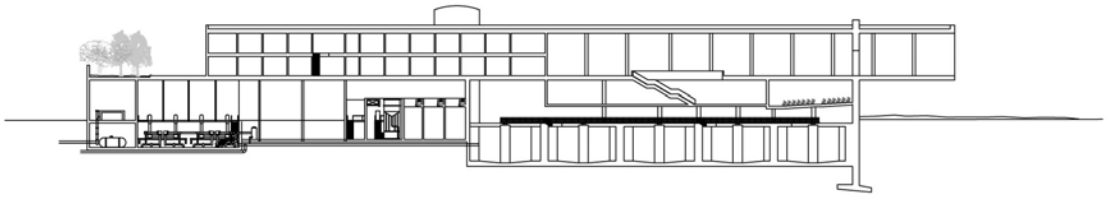




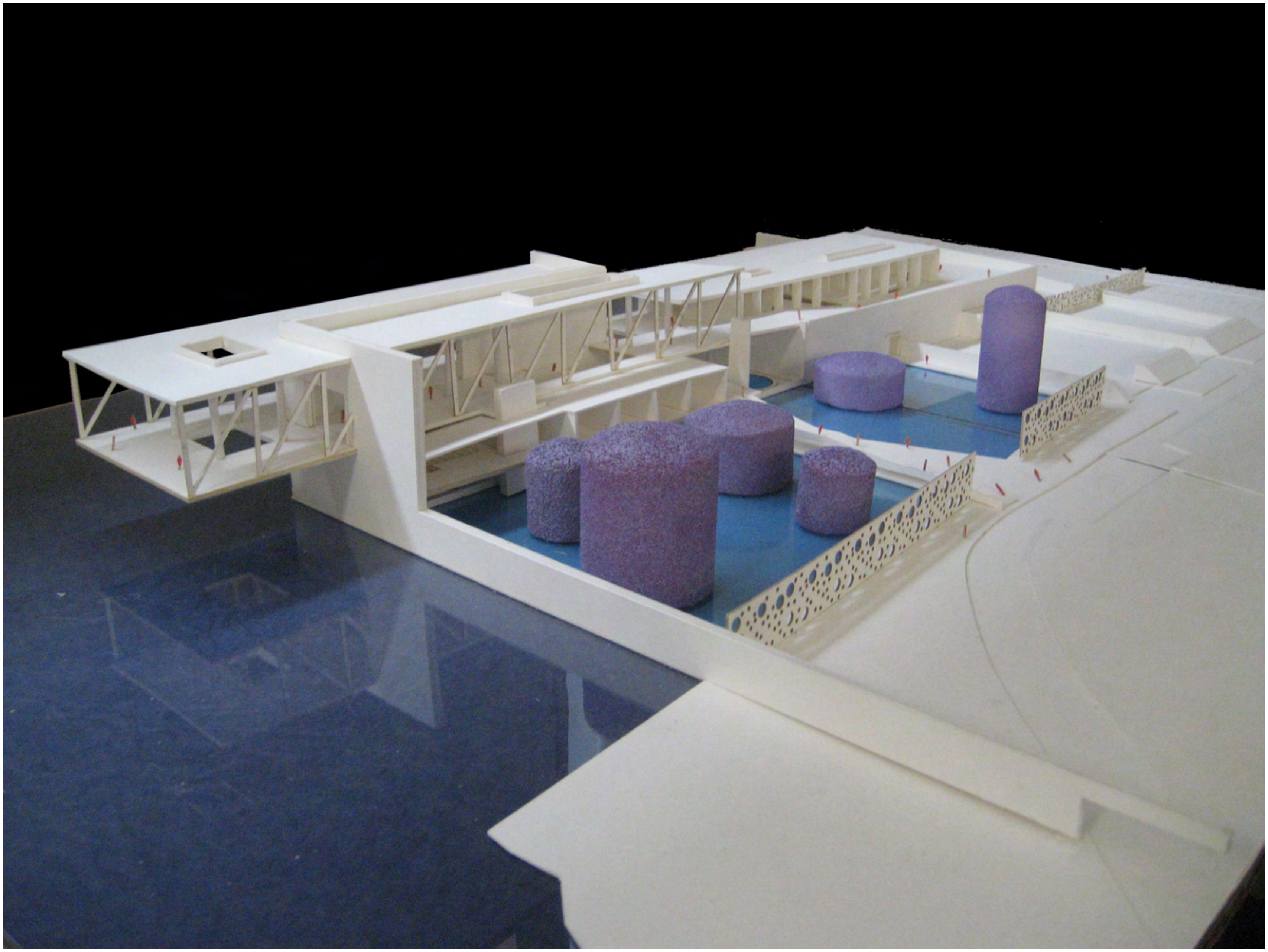




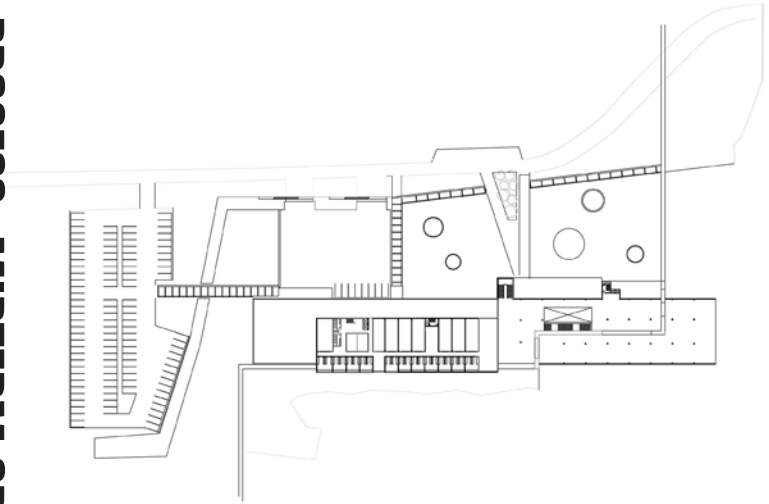
This scheme was important to organize the program, location on the site and architectural concepts. A clear organization of industry, community and exhibition was necessary. An early concept that was continued throughout the design process was the importance of the building being a statement along the Canal. This concept was achieved by cantilevering the exhibition space over the water. The building must also be resistant to rising water in the event of another hurricane. To achieve this, this scheme utilized the levee wall on both the exterior and interior of the design. The levee serves as a structural wall composing the waters edge of the Purification Plant. The levee then rises to serve as both structure and interior walls within the exhibition space, serving as a visual and literal expression of strength.

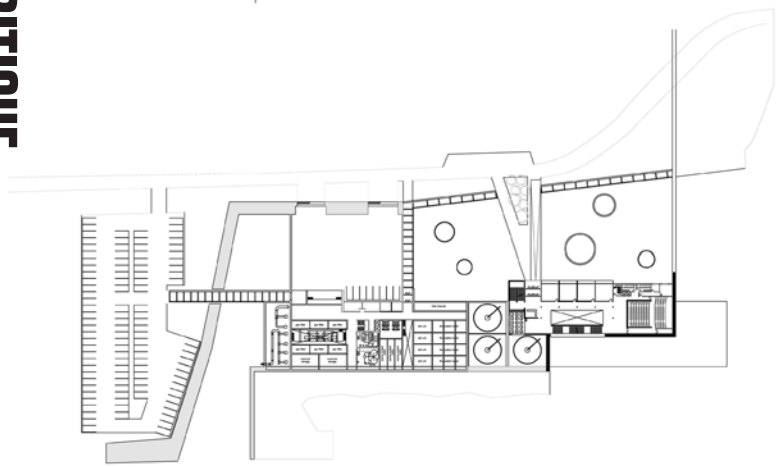


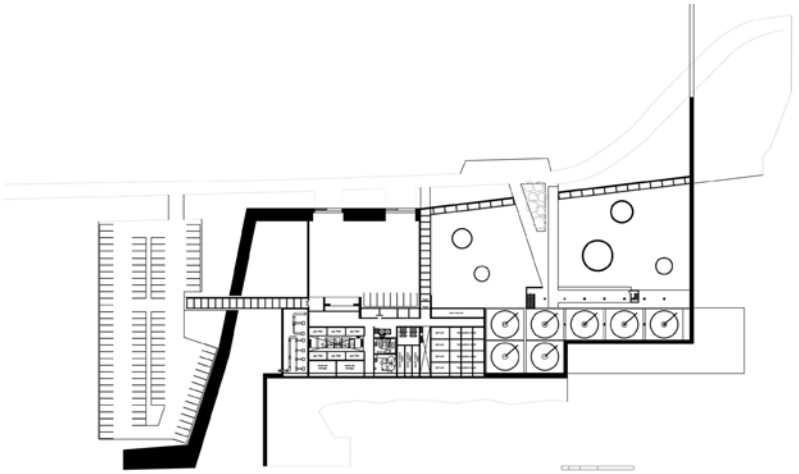
PROCESS_GATE REVIEW MODEL

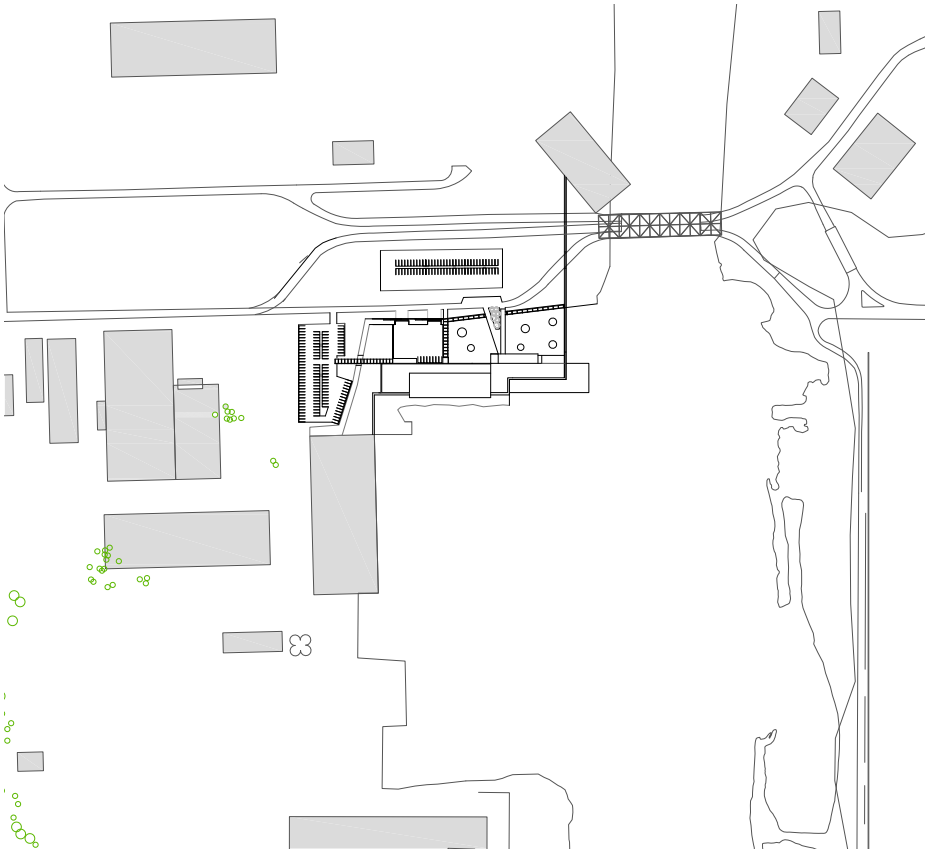


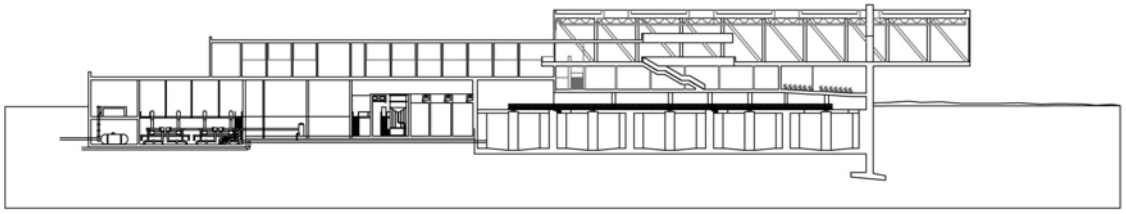
PROCESS_MIDTERM CRITIQUE



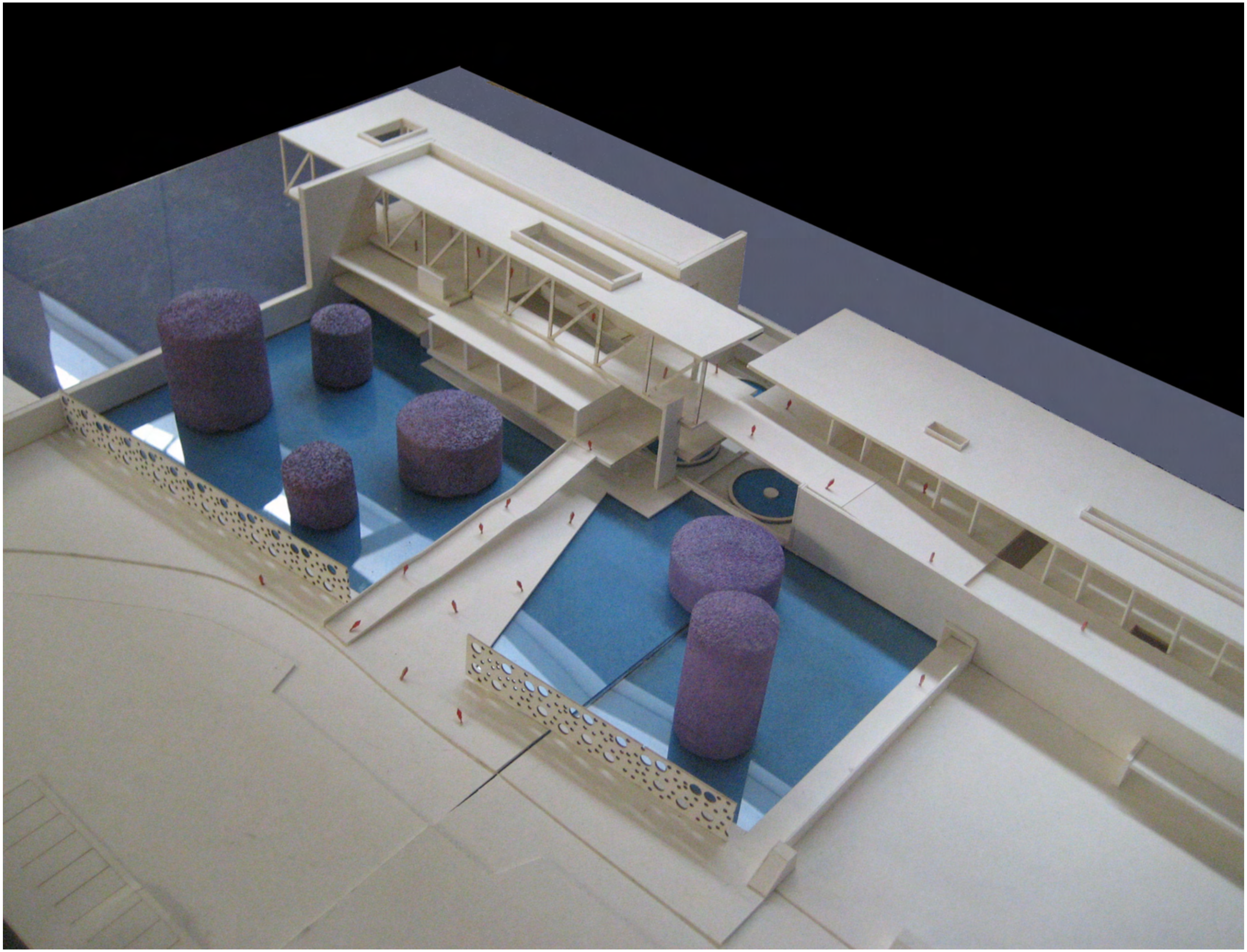


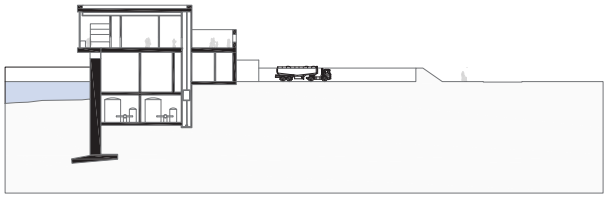


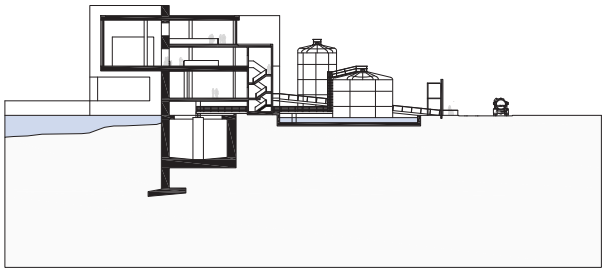


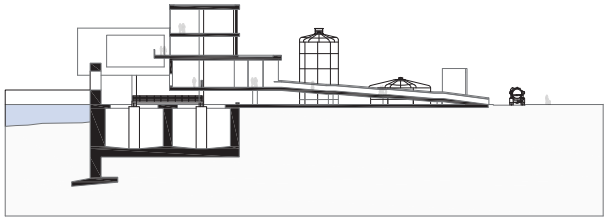


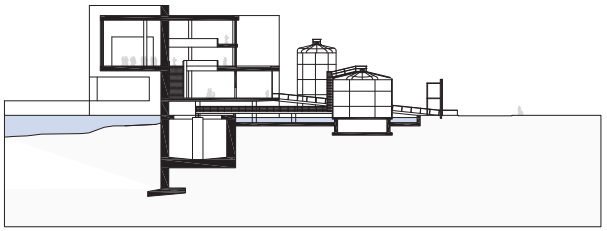
PROCESS_GATE REVIEW MODEL

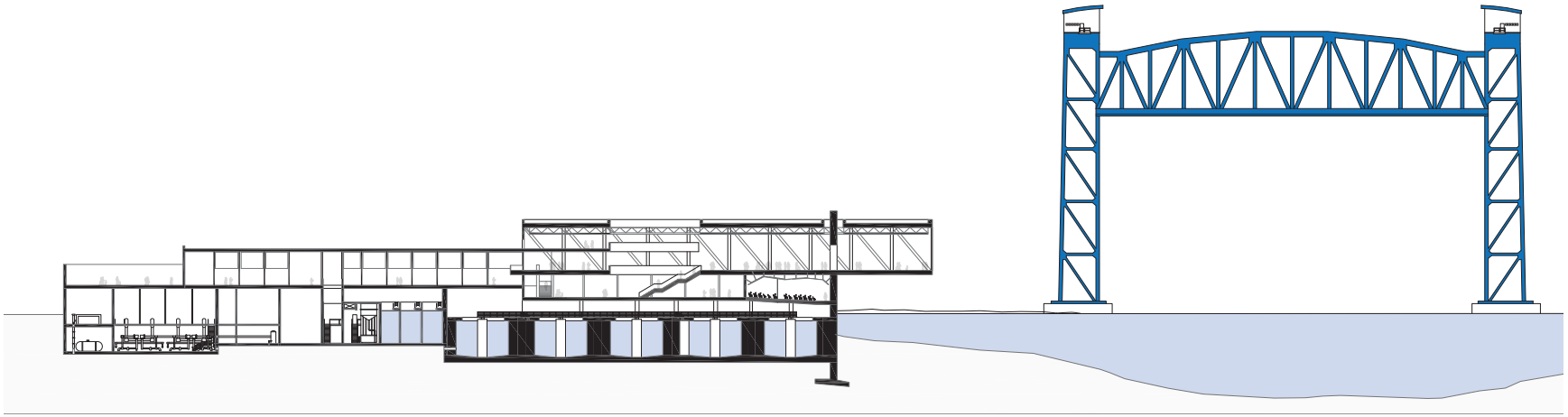


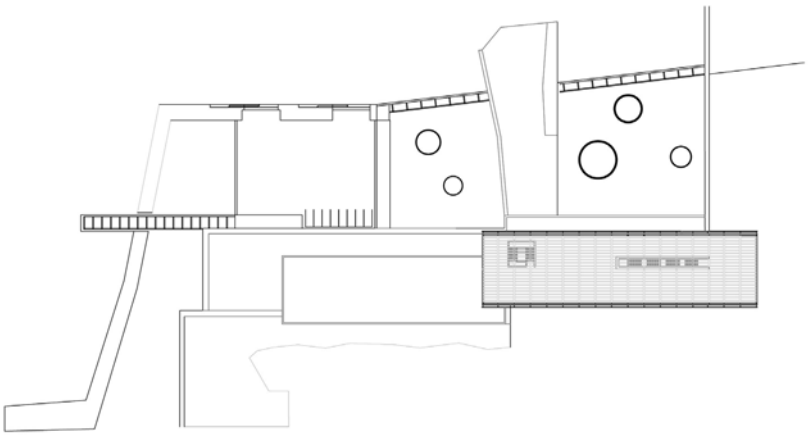


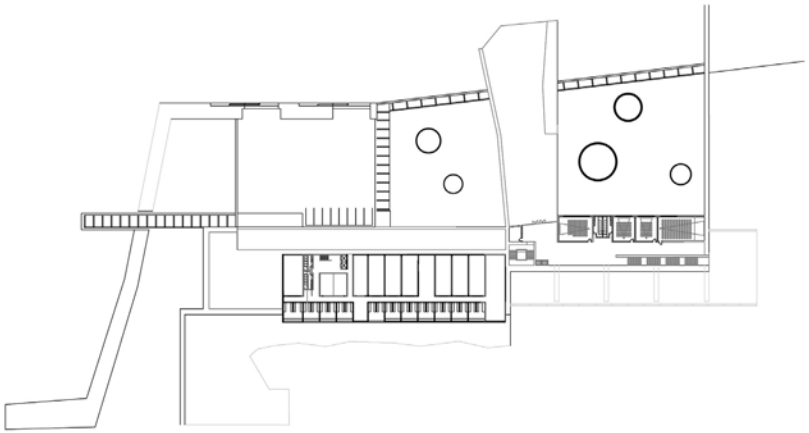


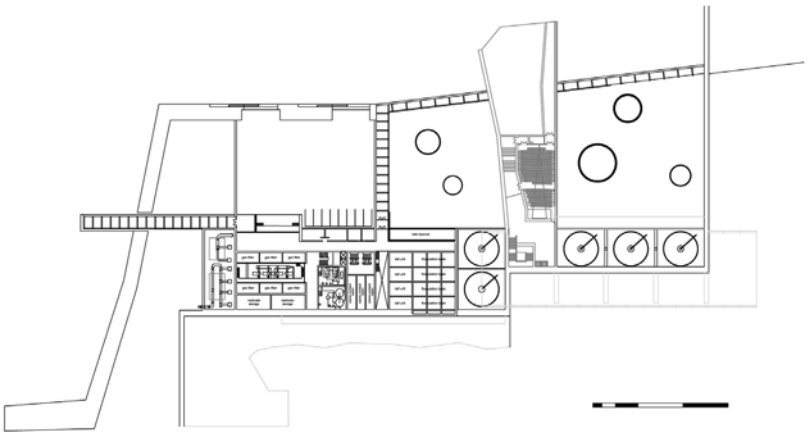


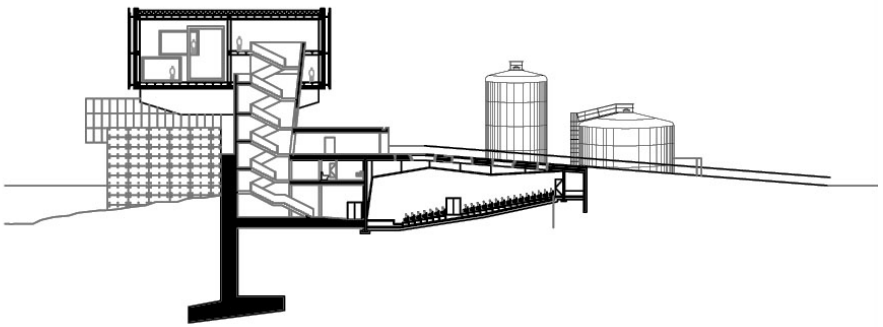






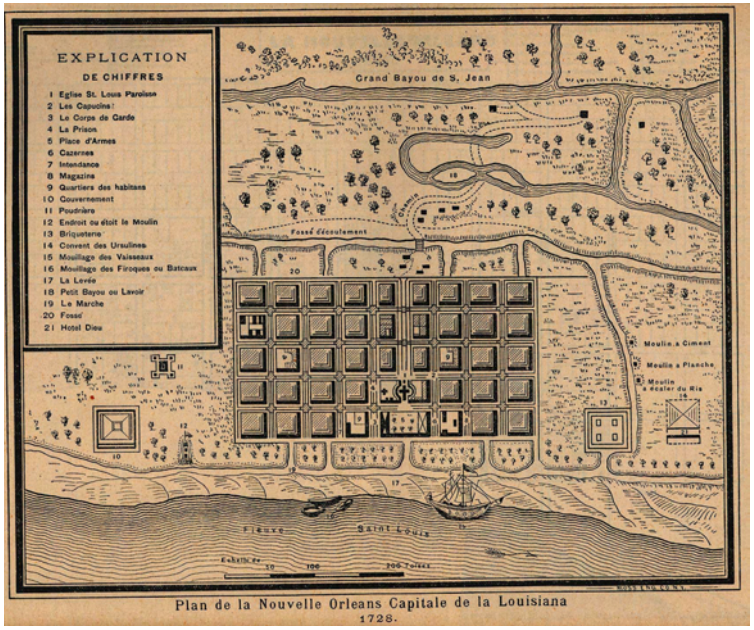






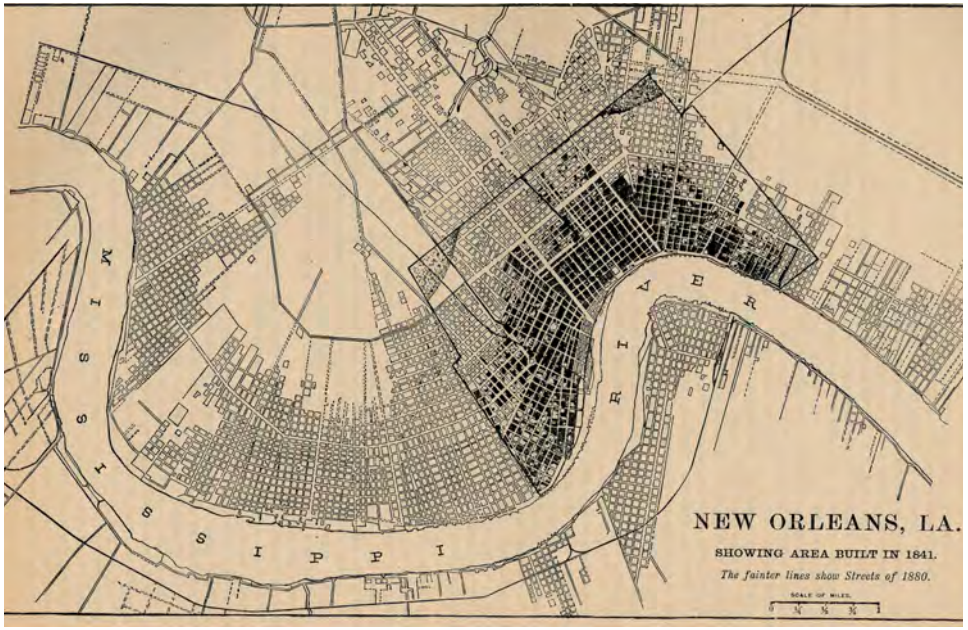
RESEARCH

SITE_ HISTORIC NEW ORLEANS



Plan de la Nouvelle Orleans Capitale de la Louisiana
1728.

1728



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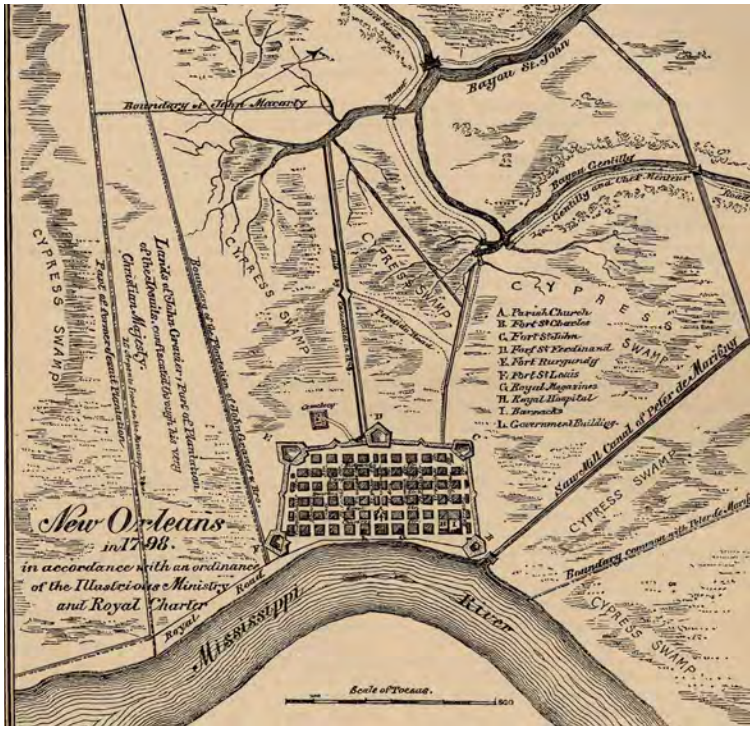

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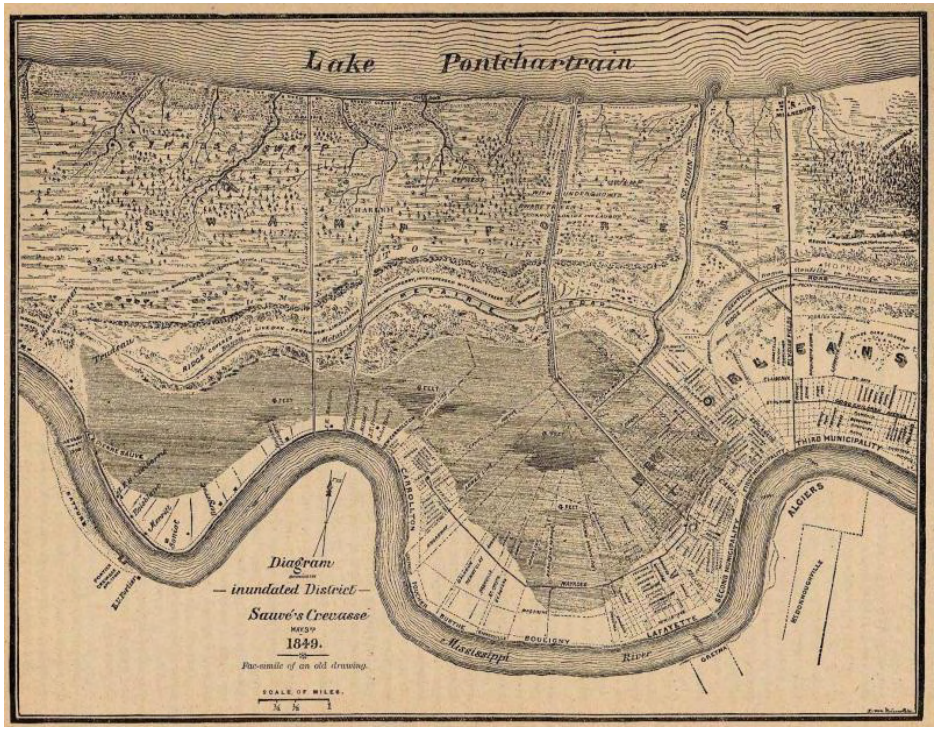


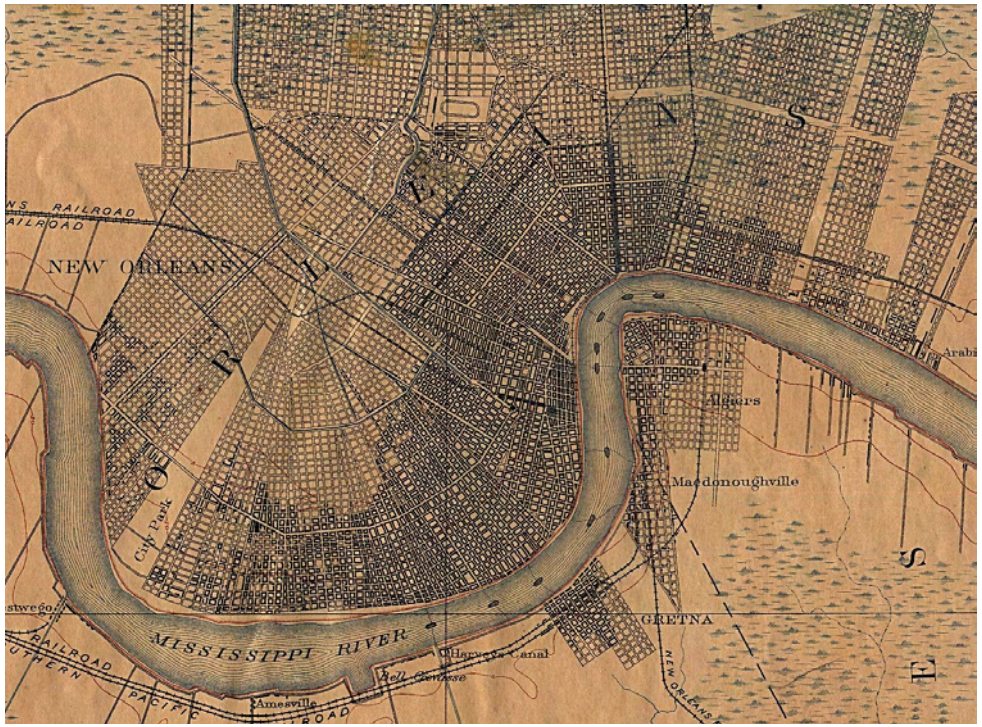
1849

CENSUS POPULATION ESTIMATES 2000-2008 FOR NEW ORLEANS MSA

Total population estimates by parish (2000-2008)

Year	Jefferson	Orleans	Plaque-mines	St. Bernard	St. Charles	St. John	St. Tammany
Census 2000	455,466	484,674	26,757	67,229	48,072	43,044	191,268
July 1, 2001	451,981	477,835	26,853	66,540	48,410	43,567	195,693
July 1, 2002	451,213	472,556	27,123	66,255	48,959	43,940	200,833
July 1, 2003	451,144	467,515	27,652	65,684	49,037	44,435	205,833
July 1, 2004	452,116	461,600	28,615	65,376	49,522	45,025	211,488
July 1, 2005	450,848	455,046	28,565	64,890	50,116	45,568	217,367
July 1, 2006	422,222	210,768	21,610	13,924	51,868	47,647	223,863
July 1, 2007	440,339	288,113	21,597	33,439	51,982	47,678	226,263
July 1, 2008	444,655	336,644	21,276	37,722	51,547	46,994	228,456

Source Citation: U.S. Census Bureau, Population Division. *County total population and estimated components of population change: April 1, 2000 to July 1, 2008.* From a compilation by the GNO Community Data Center. <http://www.gnocdc.org>



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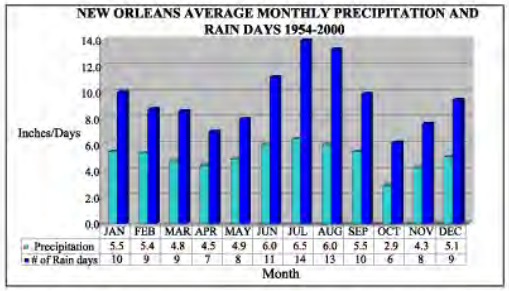


Figure 3: Average monthly precipitation and number of rain days for the New Orleans area for the years 1954-2000.

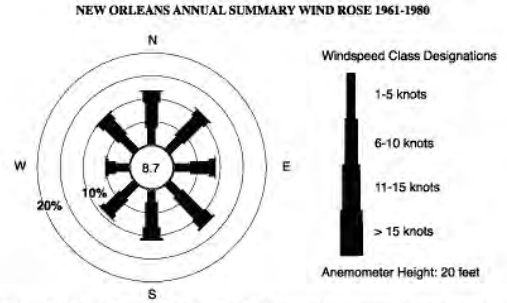
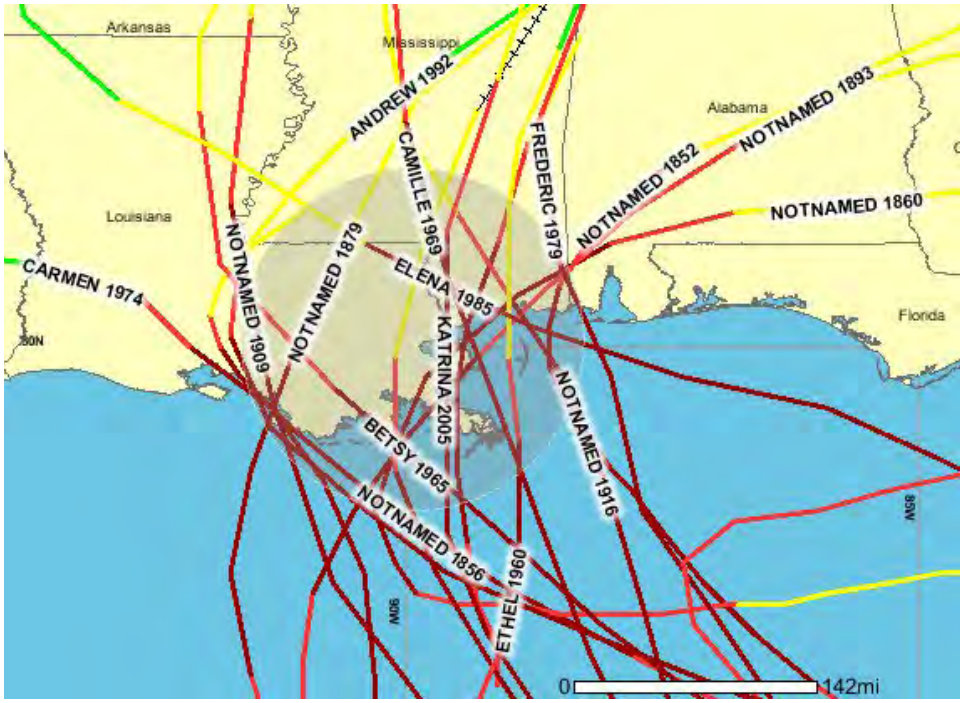
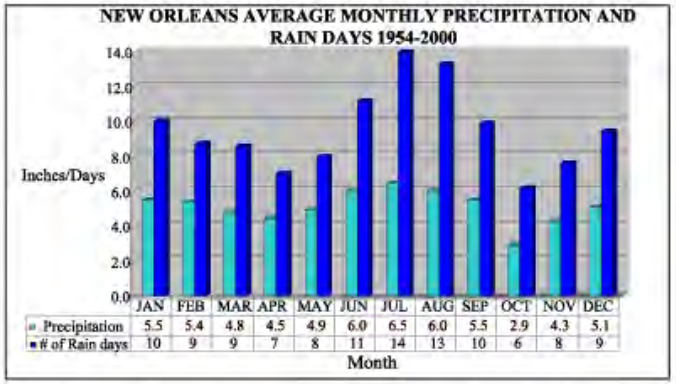


Figure 4: Rose diagram for the New Orleans area for the years 1961-1980. Vectors on a wind rose indicate the frequency of occurrence with wind coming from a given direction. The length of a vector reflects total percentage of hours with winds from a certain direction. Center circle represents the frequency of a "calm" wind. Concentric circles extending outward from center represent a five-percent increase.



Category 3+ Hurricanes that have passed within 100 miles of New Orleans



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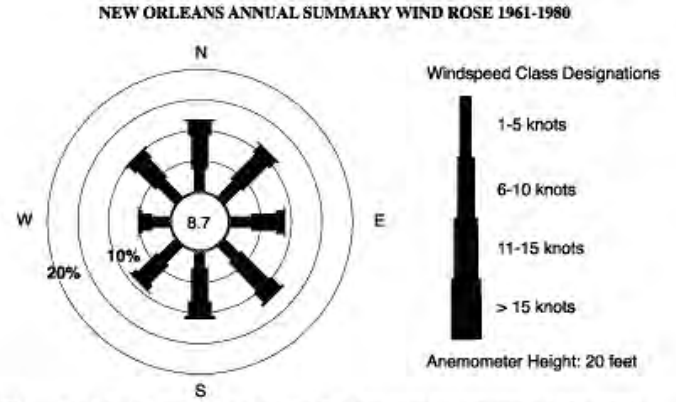

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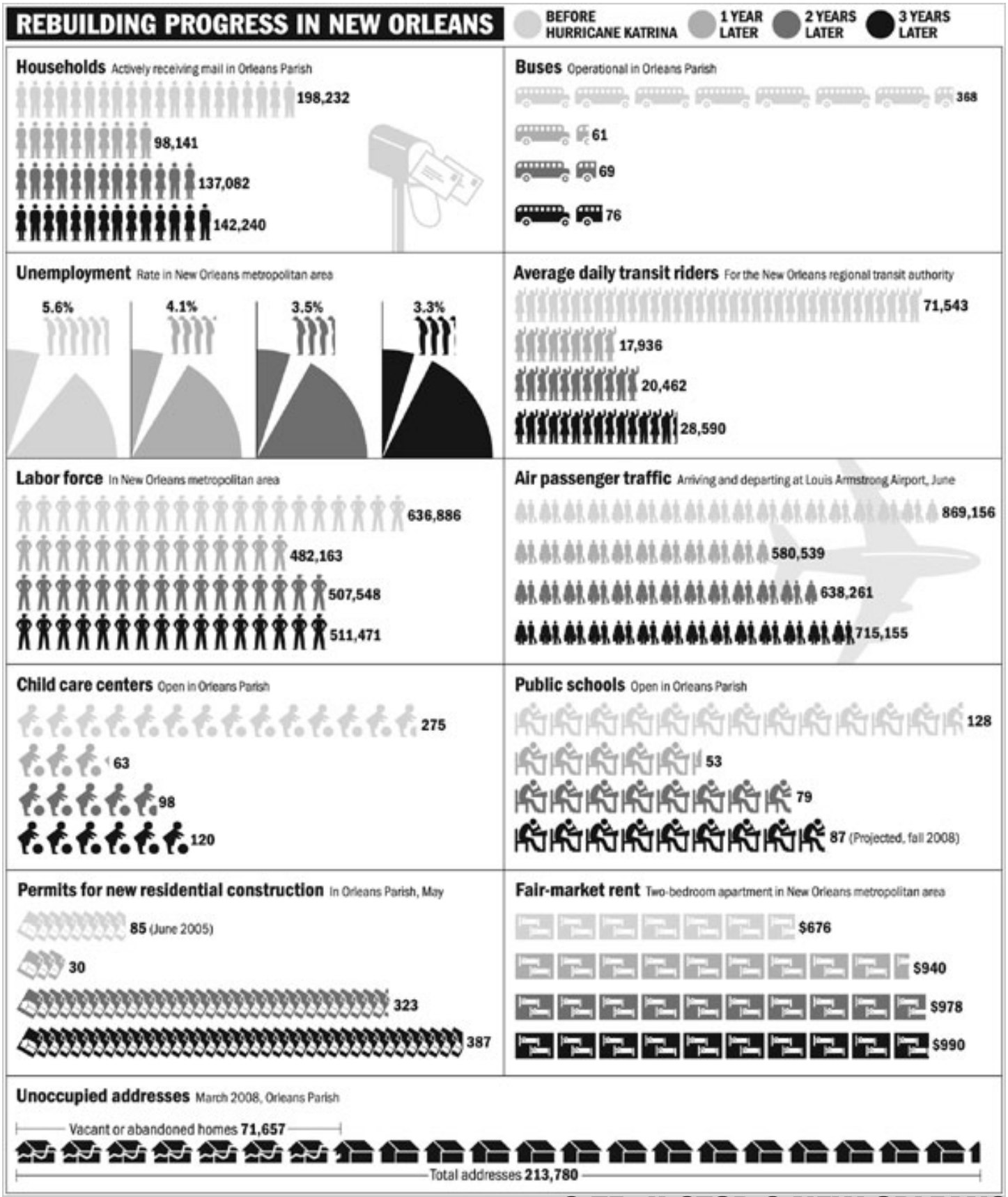
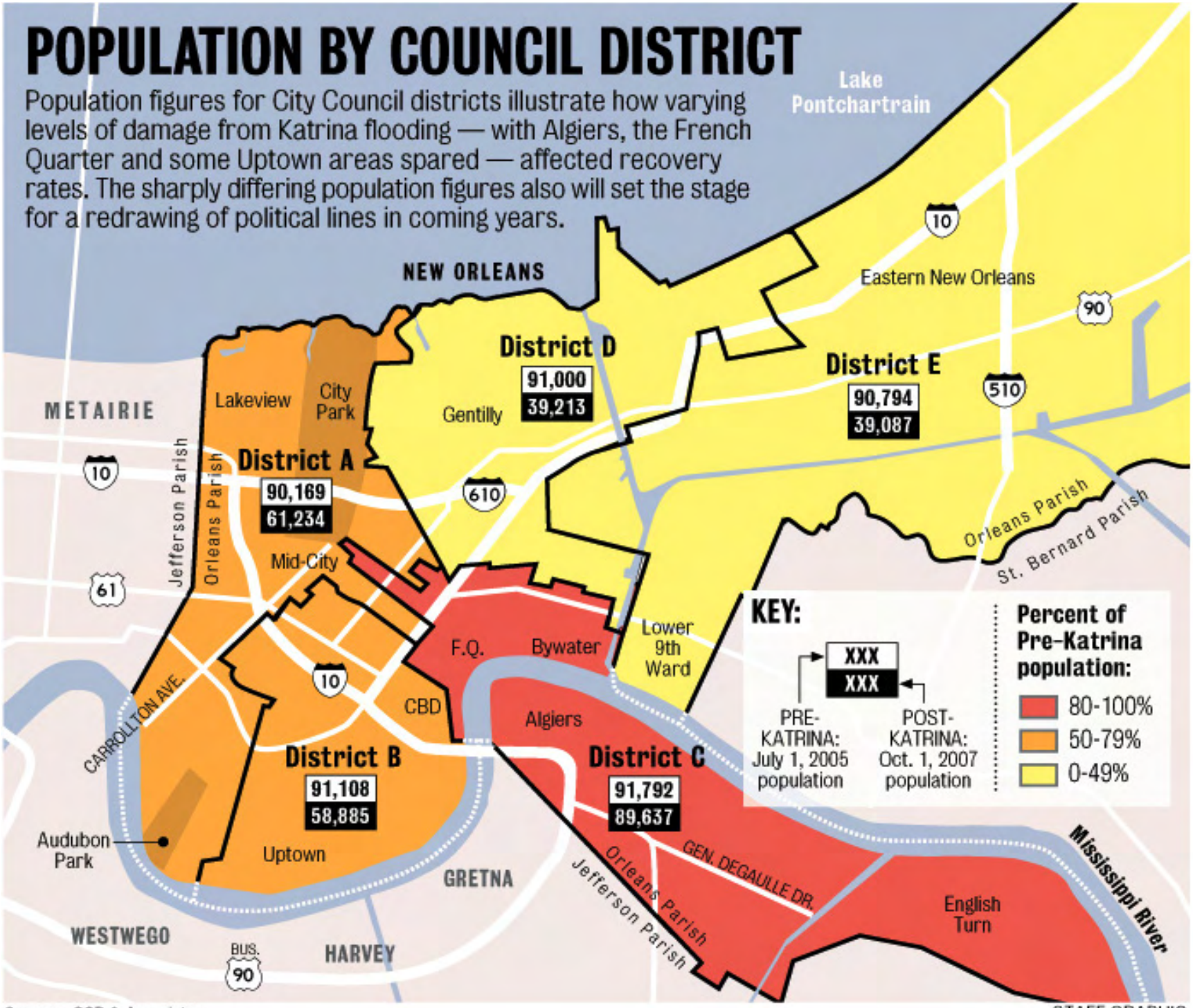
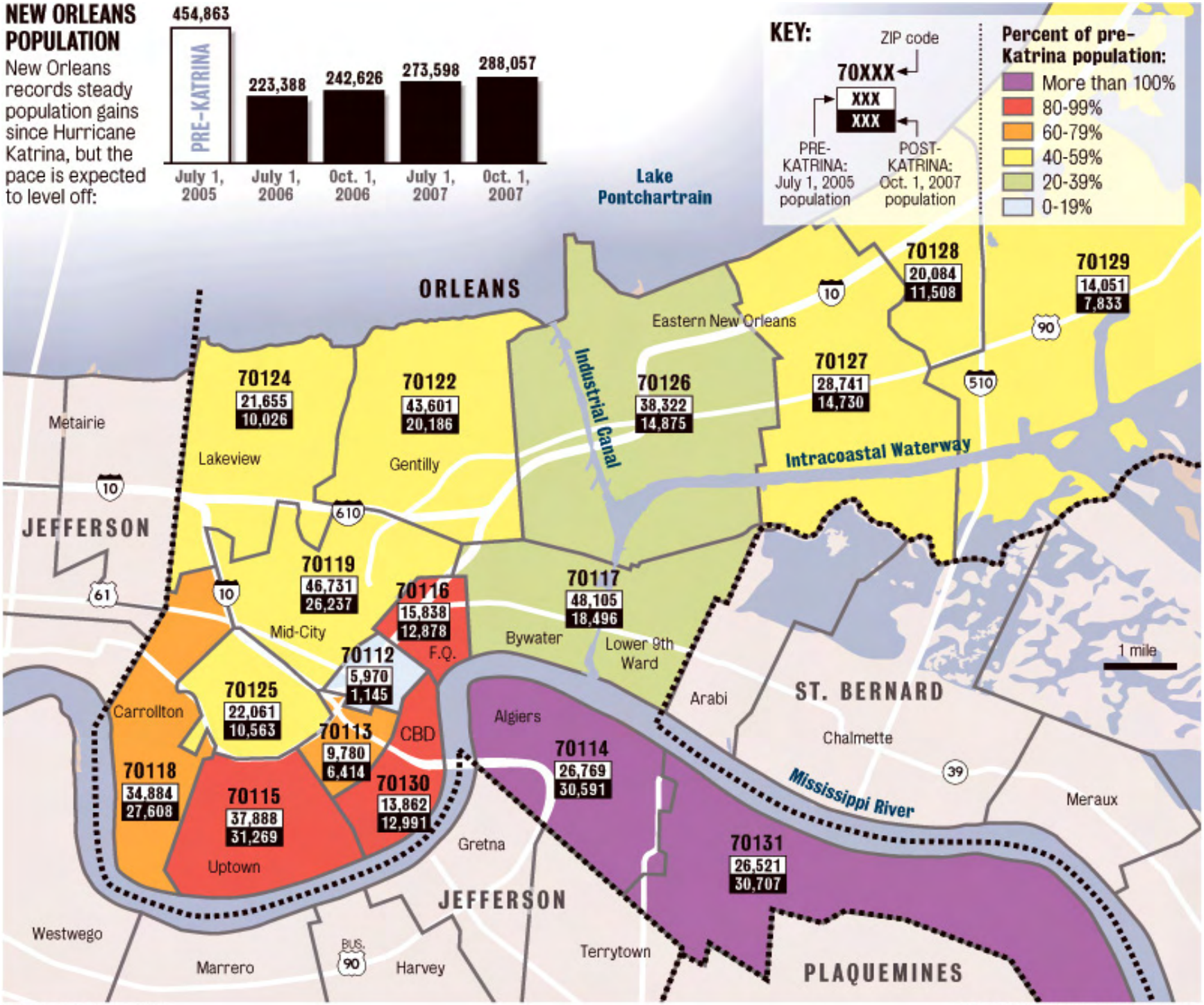
Weather data for New Orleans [hide]													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average high °F (°C)	62 (17)	65 (18)	72 (22)	78 (26)	85 (29)	89 (32)	91 (33)	91 (33)	87 (31)	80 (27)	71 (22)	65 (18)	78 (26)
Average low °F (°C)	43 (6)	46 (8)	53 (12)	58 (14)	66 (19)	72 (22)	74 (23)	74 (23)	71 (22)	60 (16)	52 (11)	46 (8)	59 (15)
Precipitation inches (mm)	5.1 (129.5)	5.5 (139.7)	5.3 (134.6)	4.8 (121.9)	4.9 (124.5)	5.6 (142.2)	6.6 (167.6)	5.9 (149.9)	5.4 (137.2)	2.8 (71.1)	4.5 (114.3)	5.3 (134.6)	61.6 (1,564.6)
Source: [44] September 19, 2008													


REBUILDING PROGRESS IN NEW ORLEANS
BEFORE HURRICANE KATRINA
1 YEAR LATER
2 YEARS LATER
3 YEARS LATER
Households Actively receiving mail in Orleans Parish
198,232
98,141
137,082
142,240
Buses Operational in Orleans Parish
368
61
69
76
Unemployment Rate in New Orleans metropolitan area
5.6%
4.1%
3.5%
3.3%
Average daily transit riders For the New Orleans regional transit authority
71,543
17,936
20,462
28,590
Labor force In New Orleans metropolitan area
636,886
482,163
507,548
511,471
Air passenger traffic Arriving and departing at Louis Armstrong Airport, June
869,156
580,539
638,261
715,155
Child care centers Open in Orleans Parish
275
63
98
120
Public schools Open in Orleans Parish
128
53
79
87 (Projected, fall 2008)
Permits for new residential construction In Orleans Parish, May
85 (June 2005)
30
323
387
Fair-market rent Two-bedroom apartment in New Orleans metropolitan area
$676
$940
$978
$990
Unoccupied addresses March 2008, Orleans Parish
Vacant or abandoned homes 71,657
Total addresses 213,780



Sources: GCR & Associates

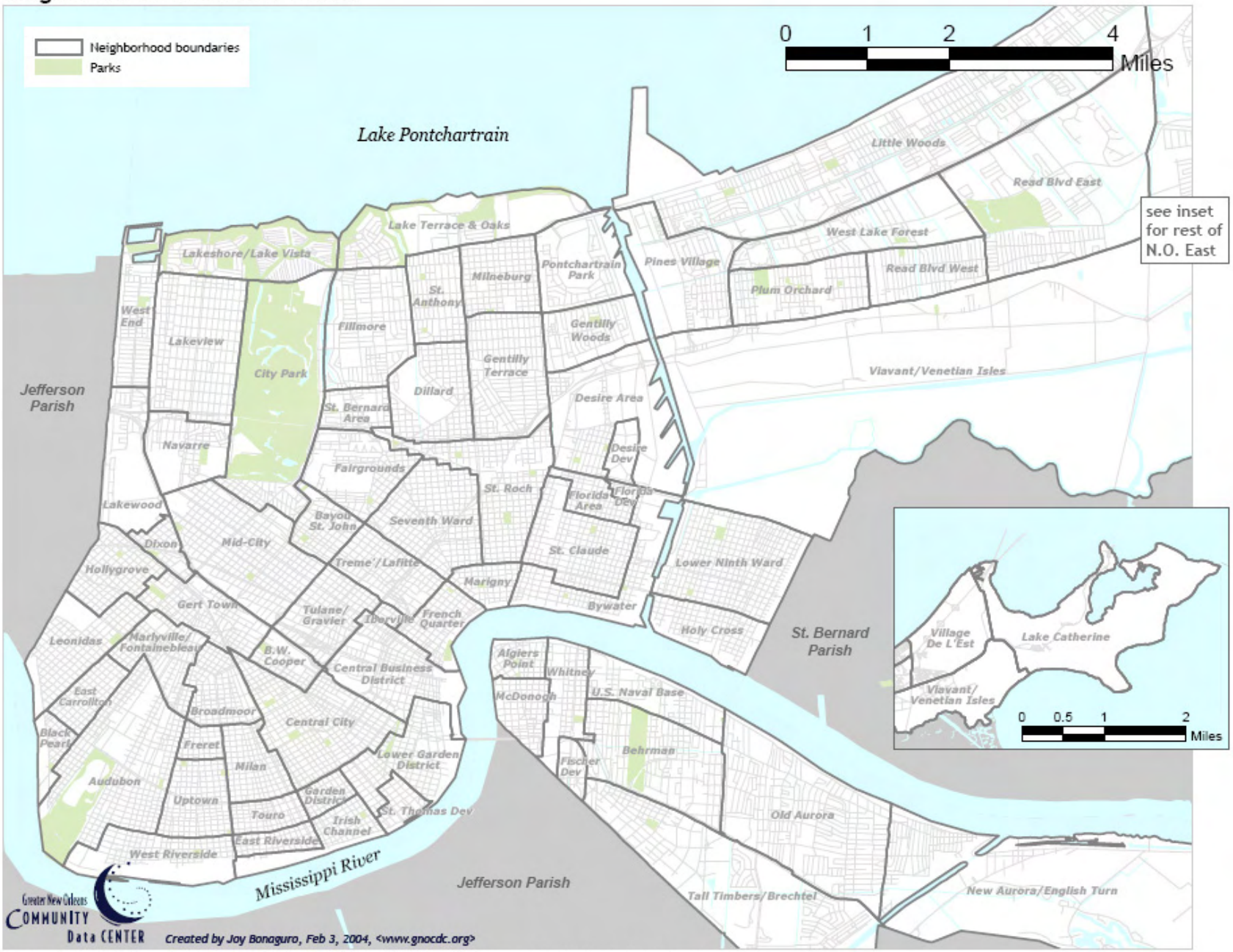
STAFF GRAPHIC



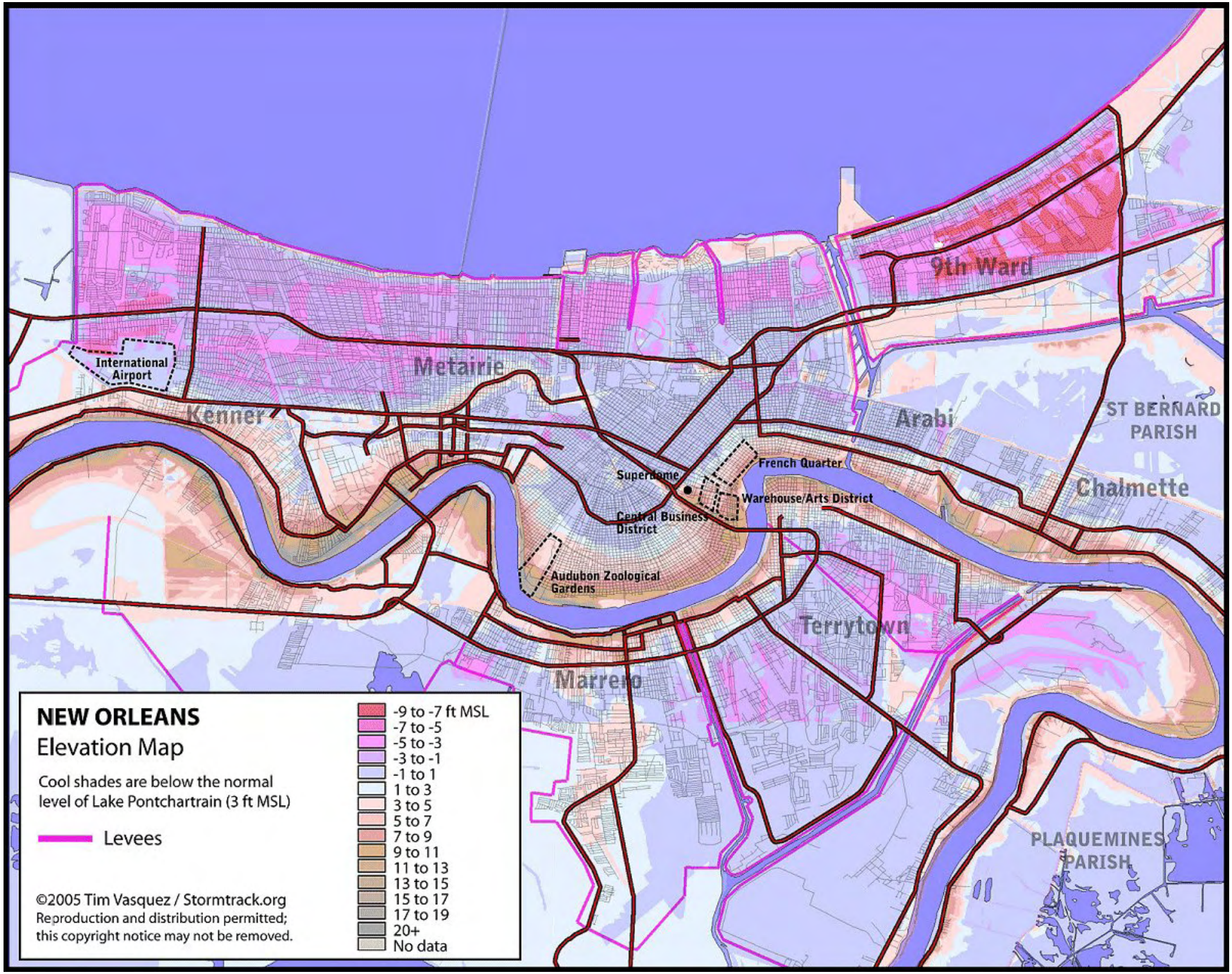
Sources: GCR & Associates

STAFF GRAPHIC BY DAN SWENSON

Neighborhoods in Orleans Parish

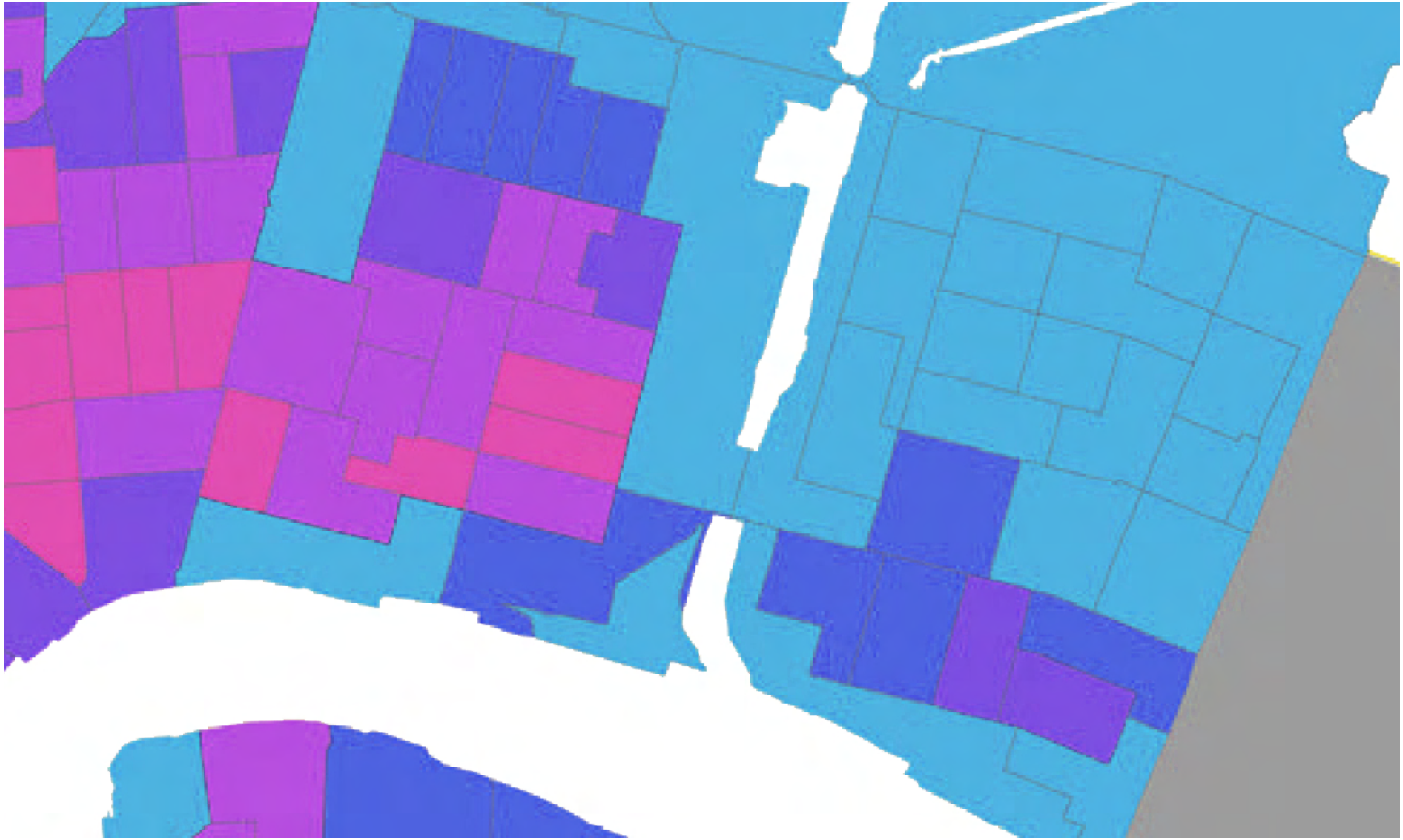


Data sources: Water & parish boundaries (Census Tiger files), parks (ESRI StreetMap 2003), neighborhood boundaries (City Planning Commission of New Orleans)


NEW ORLEANS
Elevation Map
Cool shades are below the normal level of Lake Pontchartrain (3 ft MSL)
Levees
©2005 Tim Vasquez / Stormtrack.org
Reproduction and distribution permitted; this copyright notice may not be removed.
-9 to -7 ft MSL
-7 to -5
-5 to -3
-3 to -1
-1 to 1
1 to 3
3 to 5
5 to 7
7 to 9
9 to 11
11 to 13
13 to 15
15 to 17
17 to 19
20+
No data
International Airport
Metairie
Kenner
9th Ward
Arabi
ST BERNARD PARISH
Chalmette
Superdome
French Quarter
Warehouse/Arts District
Central Business District
Audubon Zoological Gardens
Terrytown
Marrero
PLAQUEMINES PARISH

SITE_POPULATION DENSITY

SITE_POPULATION DENSITY



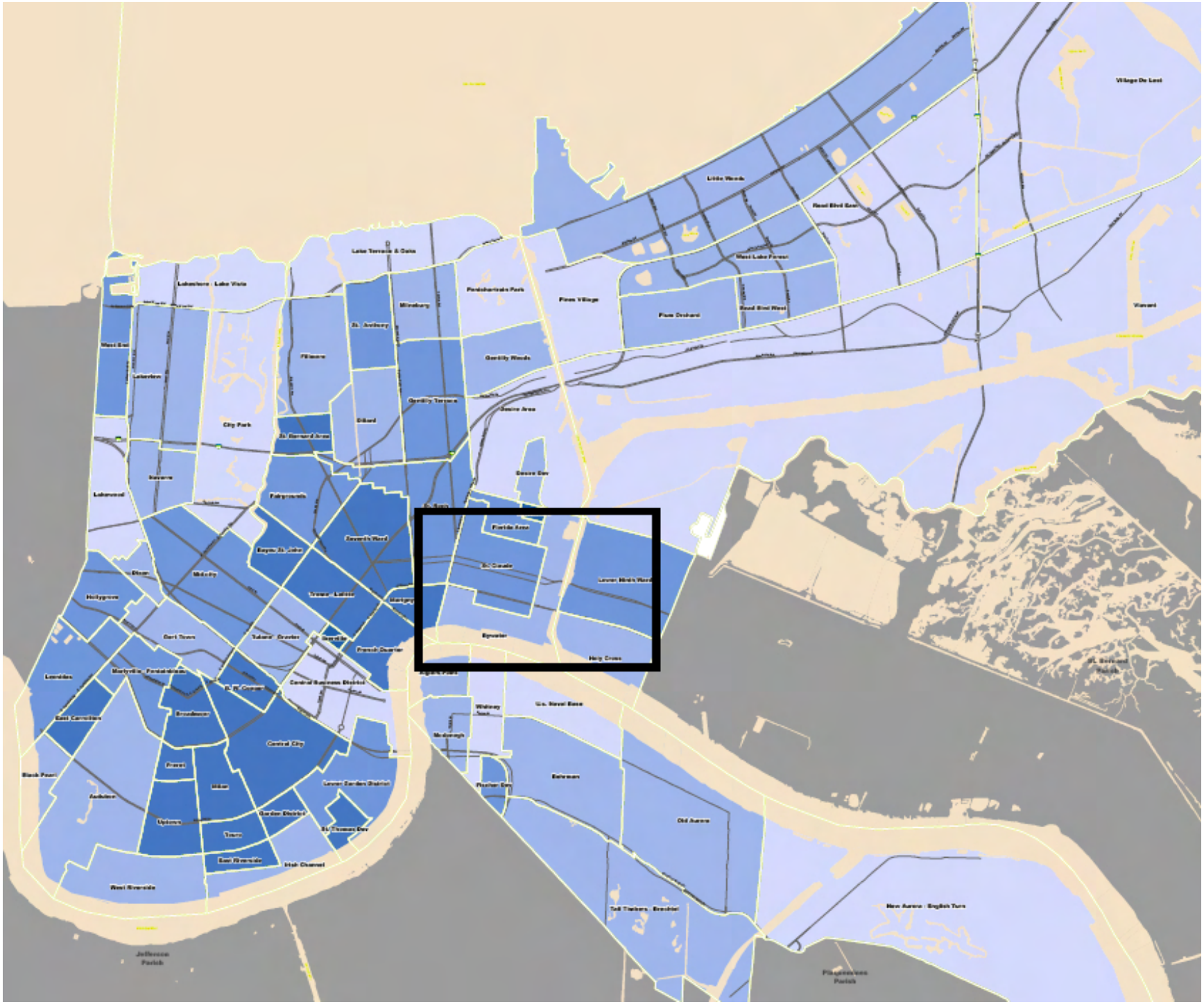
Legend

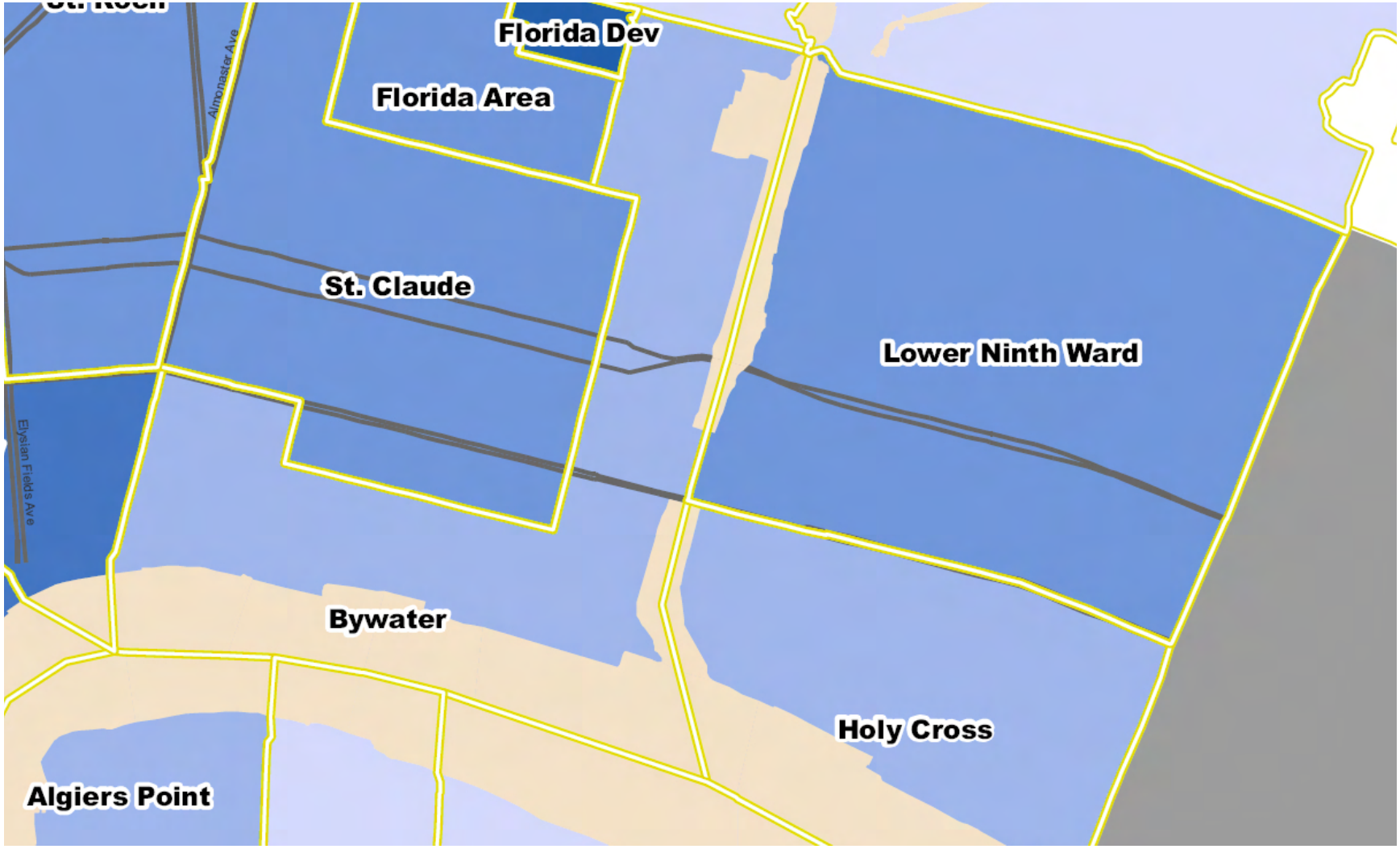
Population Density May 2008

- 0-4 persons per acre
- 4-7 persons per acre
- 7-10 persons per acre
- 10-16 persons per acre
- 16+ persons per acre

Due to the destruction of the Lower Ninth Ward, the borough saw massive drops in population density. This trend is seen in the diagram depicting only zero to four residents per acre in the Lower Ninth Ward and along the Industrial Canal.

SITE_ HOUSING UNITS PER ACRE





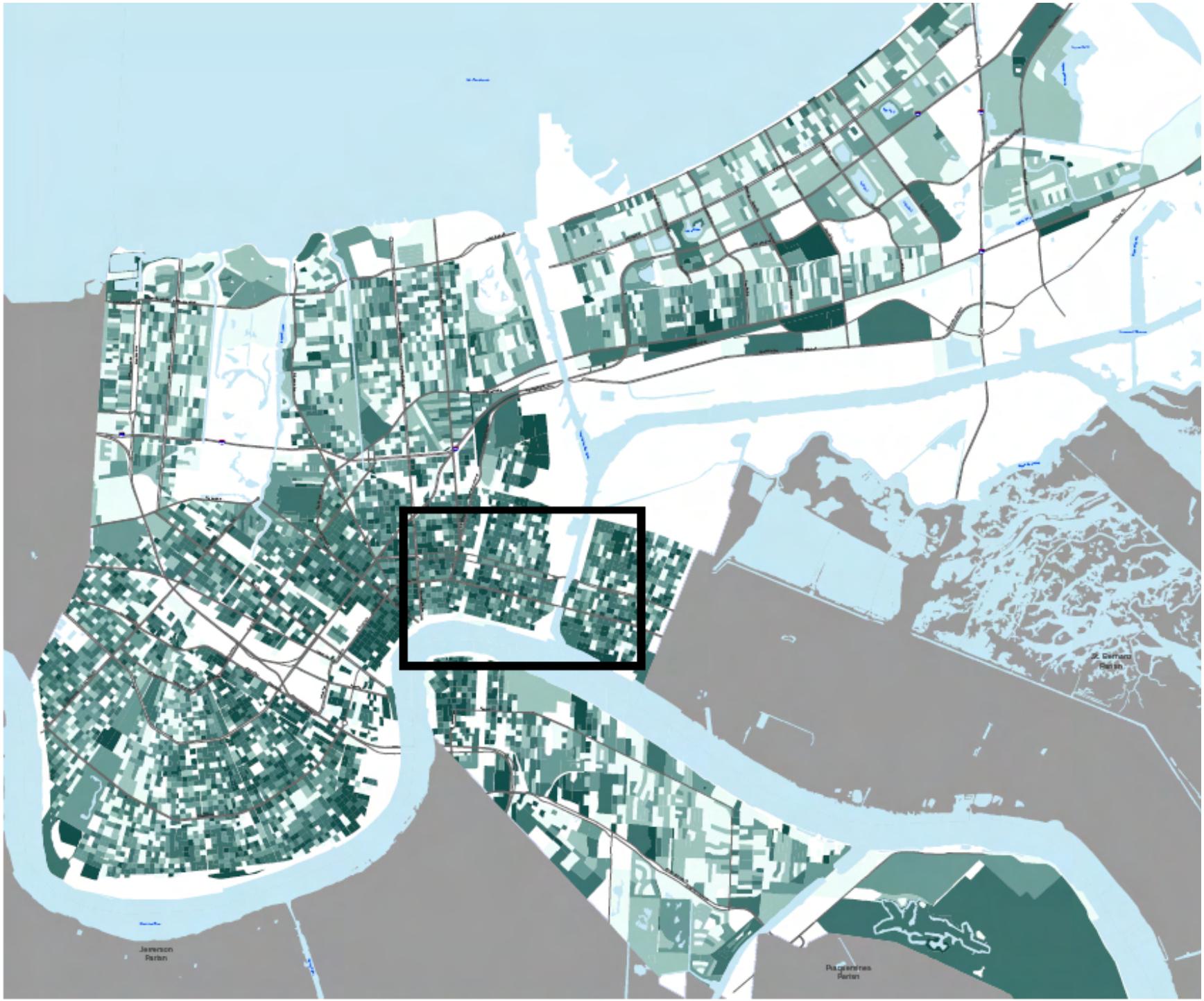
SITE_HOUSING UNITS PER ACRE

Neighborhoods

Housing Units per Acre (Census 2000)

- 0 - 2
- 3 - 5
- 6 - 8
- 9 - 11
- 12 - 23

SITE_VACANT HOUSING UNITS



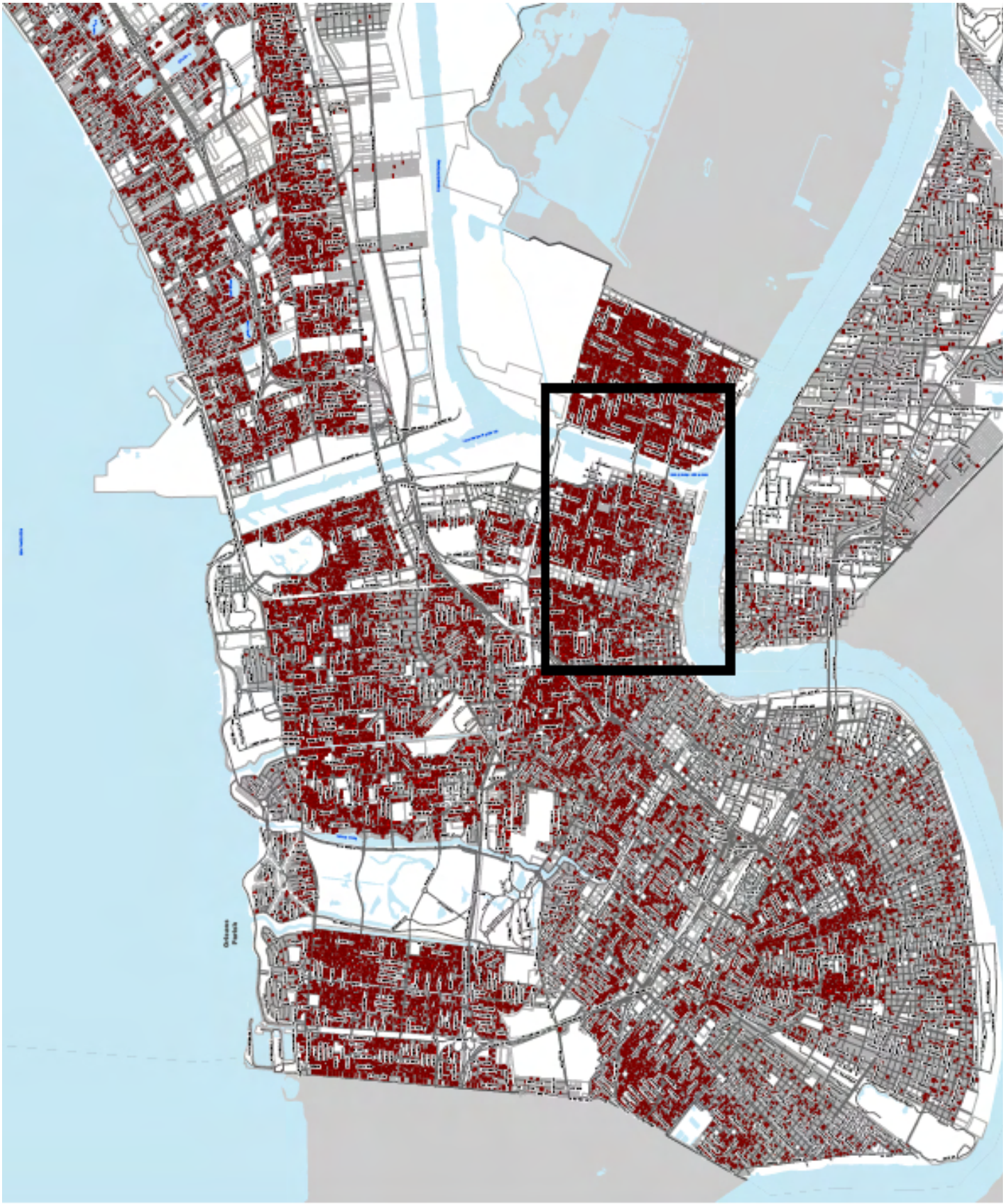
SITE_VACANT HOUSING UNITS

Legend

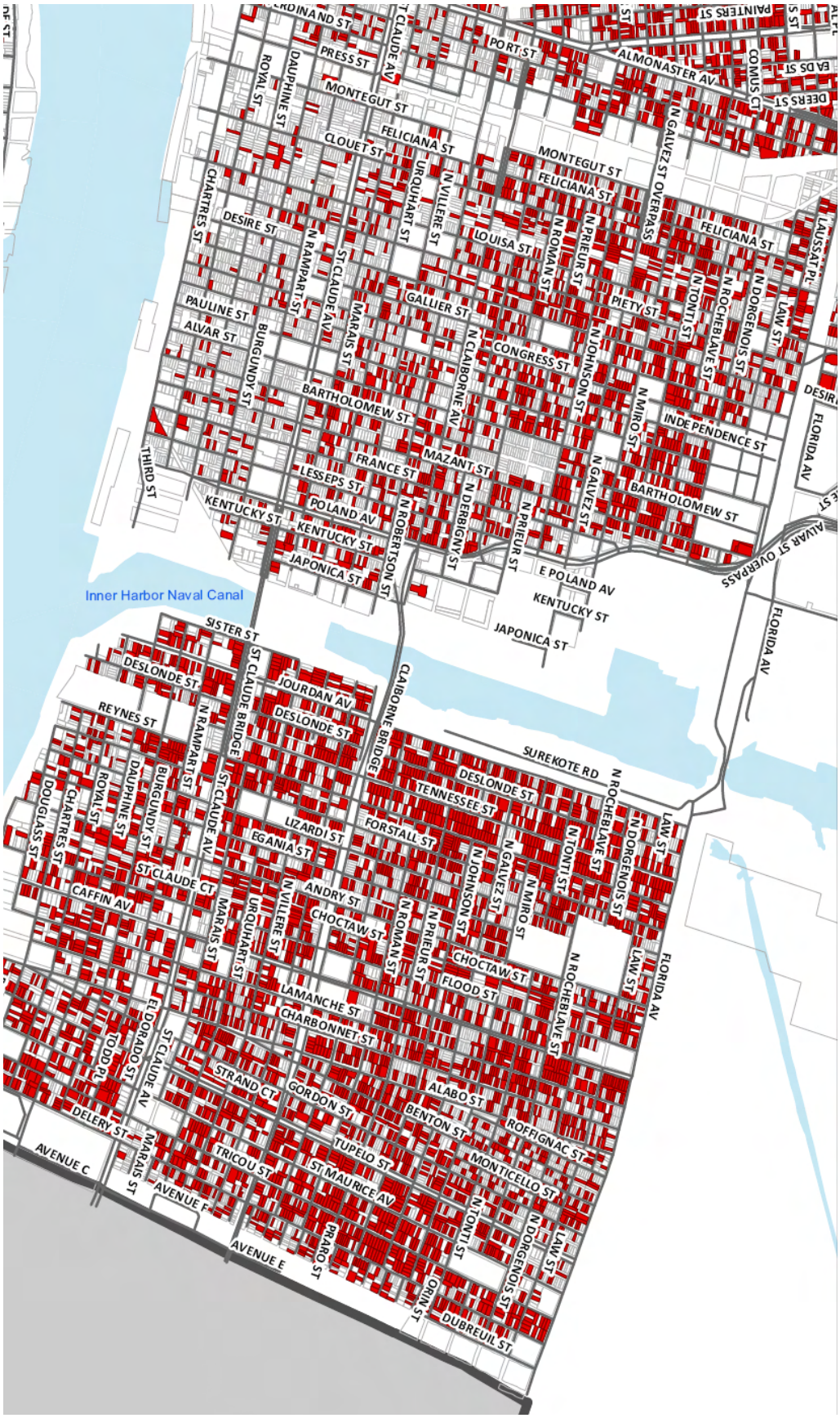
Census Blocks

Percent of Vacant Housing Units

- 0
- 0.1% - 5%
- 5.1% - 10%
- 10.1% - 25%
- 25.1% - 100%

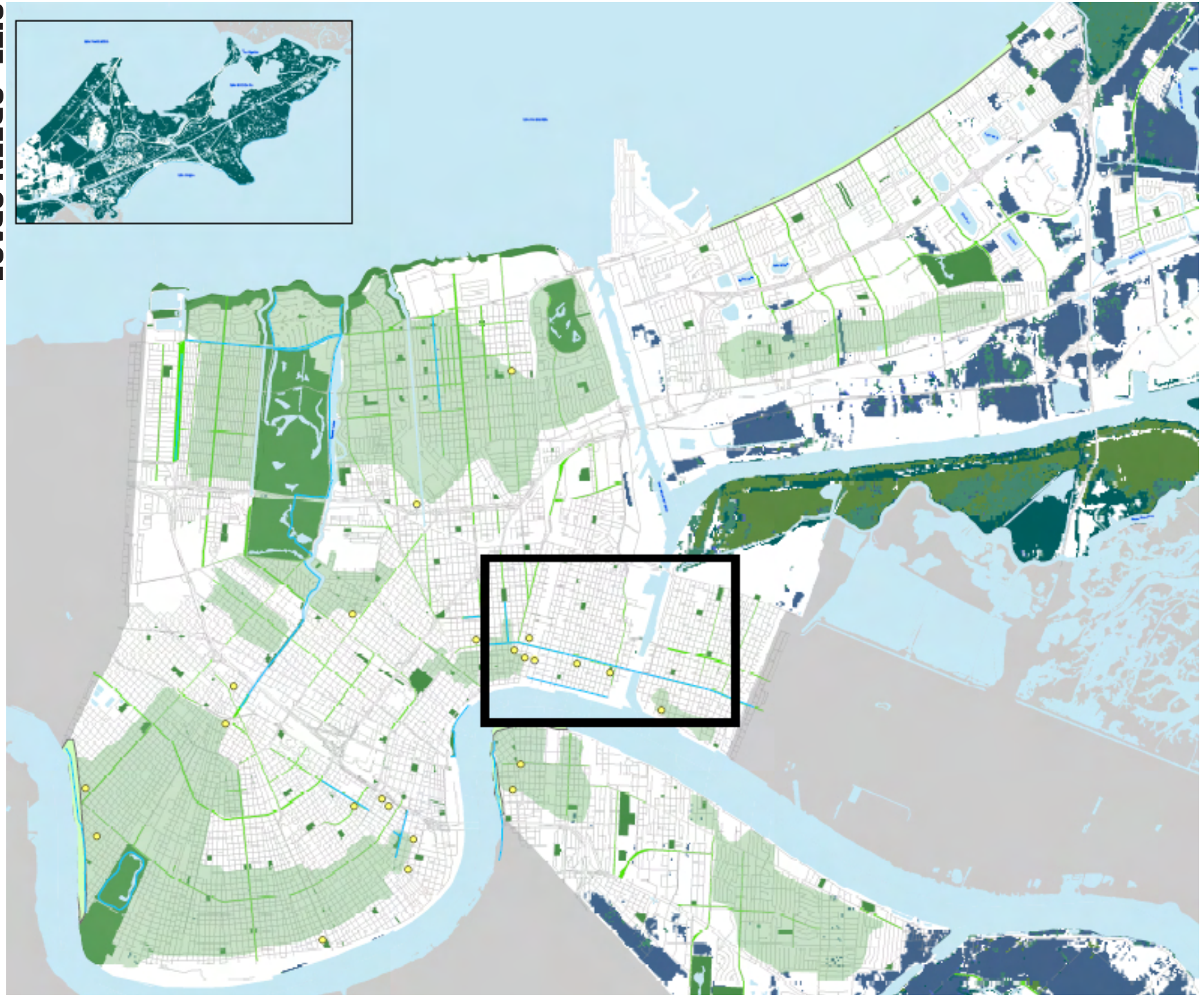


SITE_VACANT RESIDENTIAL LOTS



SITE_VACANT RESIDENTIAL LOTS

SITE_ GREEN SPACE

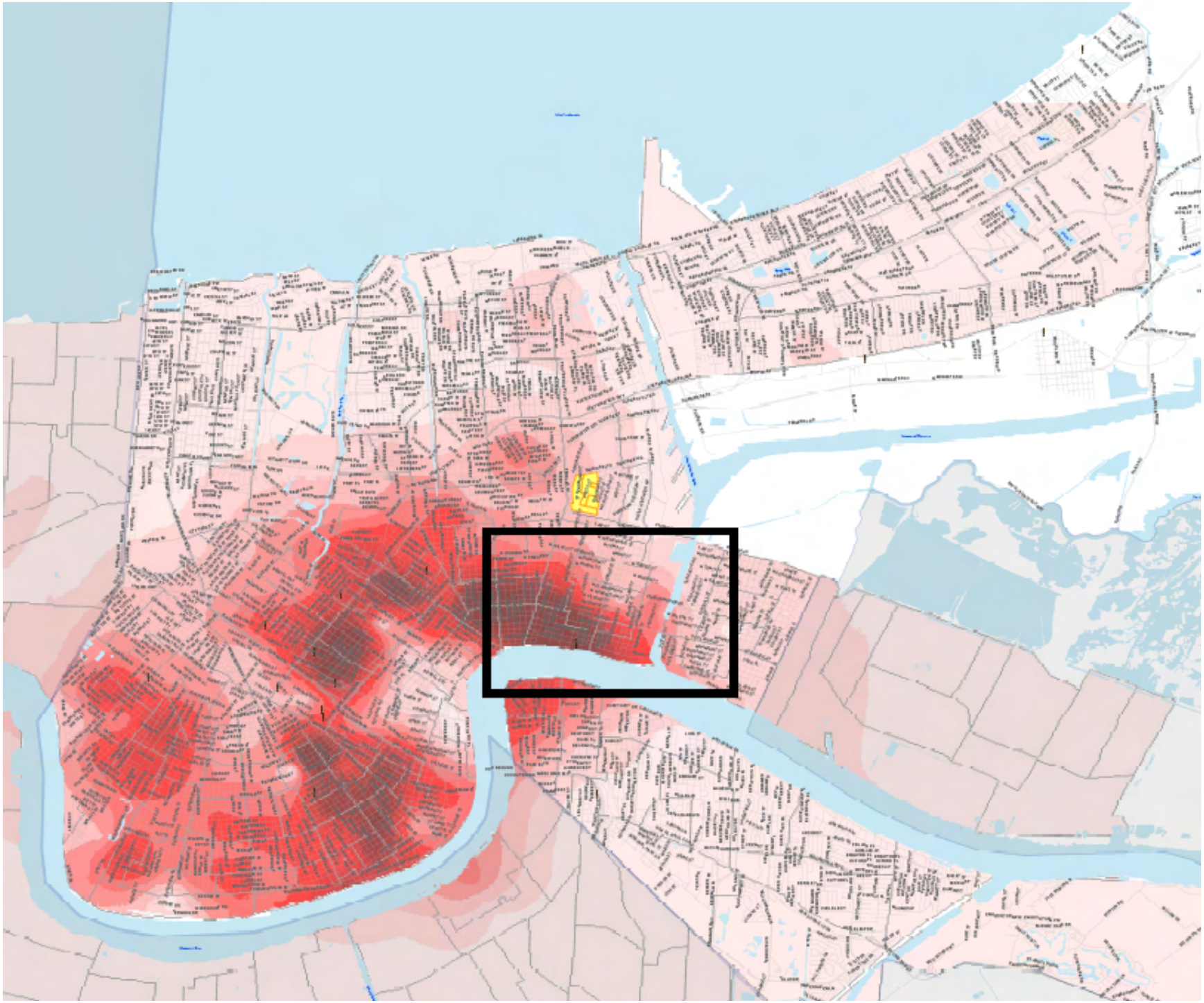


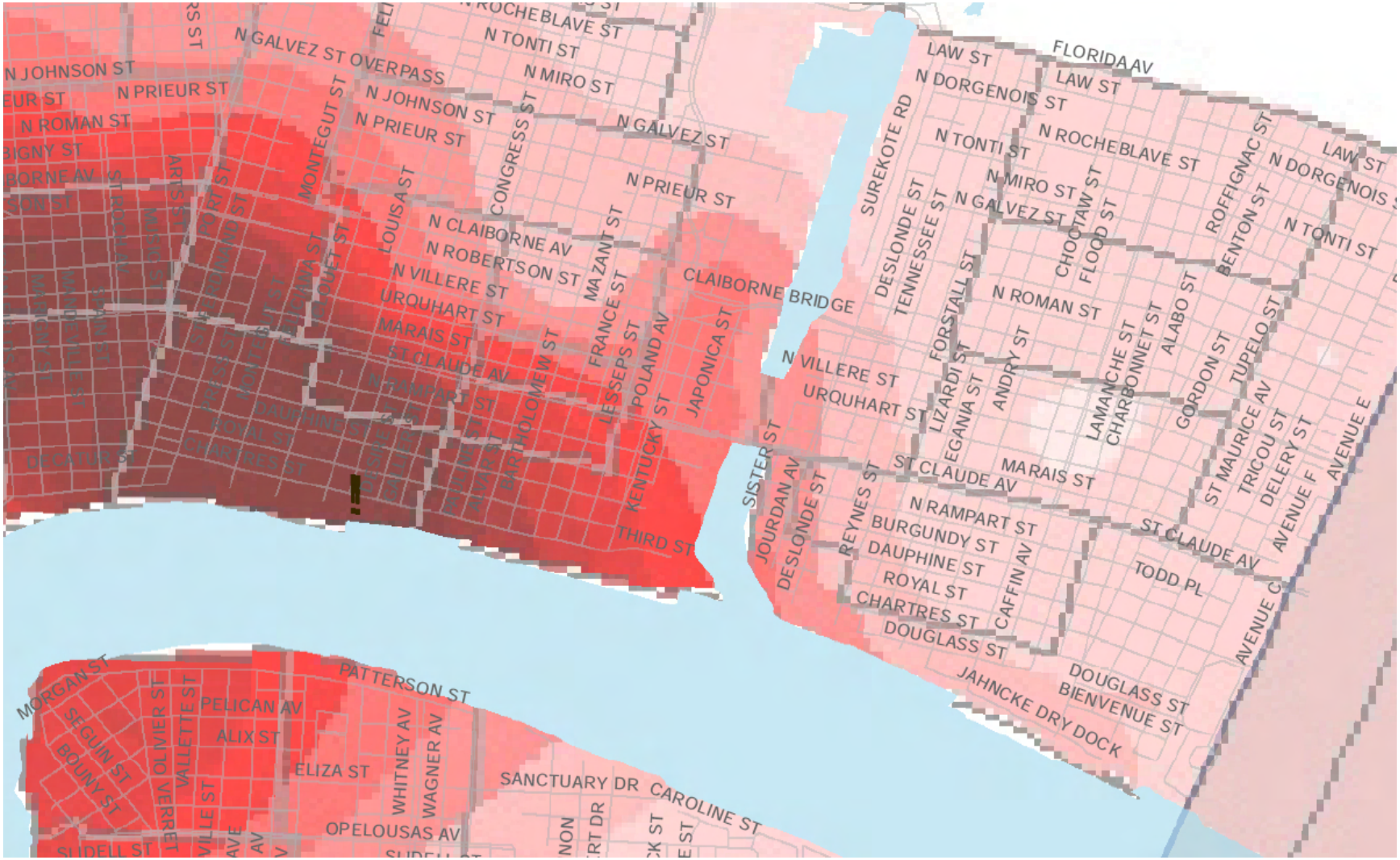
SITE_GREEN SPACE

- Community Gardens
- Walking and Bike Paths
- Open Levees
- Generalized Areas of Contiguous Tree Canopy
- Large Neutral Grounds
- Parks and Recreation Facilities

Due to the vast building density in the Bywater area and Lower Ninth Ward, there are few green spaces in this area. These landscape elements, along with the buildings surrounding them, felt the extreme effects of hurricane katrina. Because of the size of my site and the empty lots that surround it, an exterior park space could become an asset to the area.

SITE_SOIL CONDITIONS

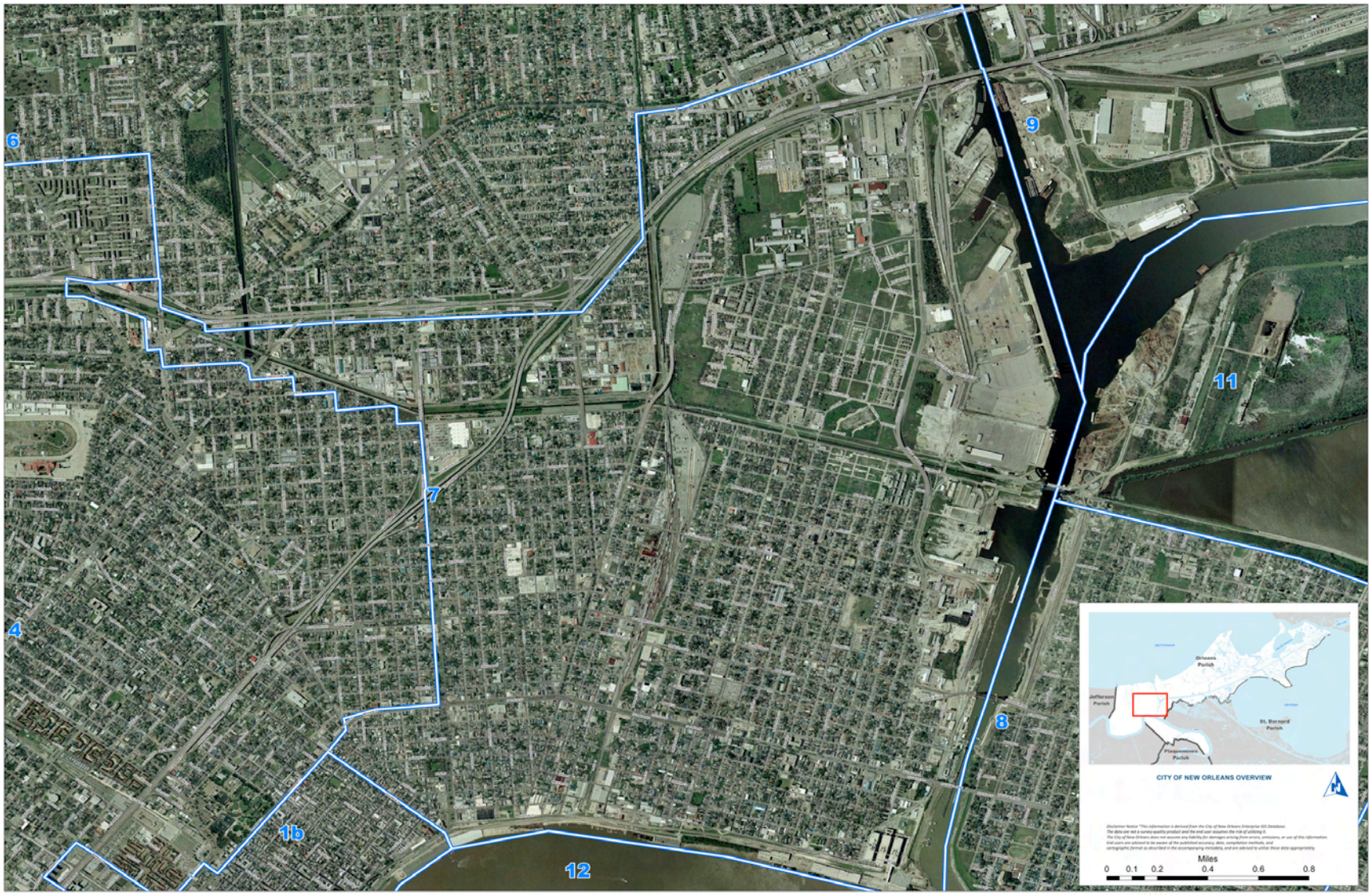




Median Soil Pb (mg/kg)

- 2 - 99
- 100 - 199
- 200 - 299
- 300 - 399
- 400 - 499
- 500 - 599
- 600 - 699
- 700 - 799
- 800 - 899
- 900 - 999
- 1000 - 1777

Hurricane Katrina caused massive soil pollution, which is illustrated in these maps diagramming where the site was impacted most.



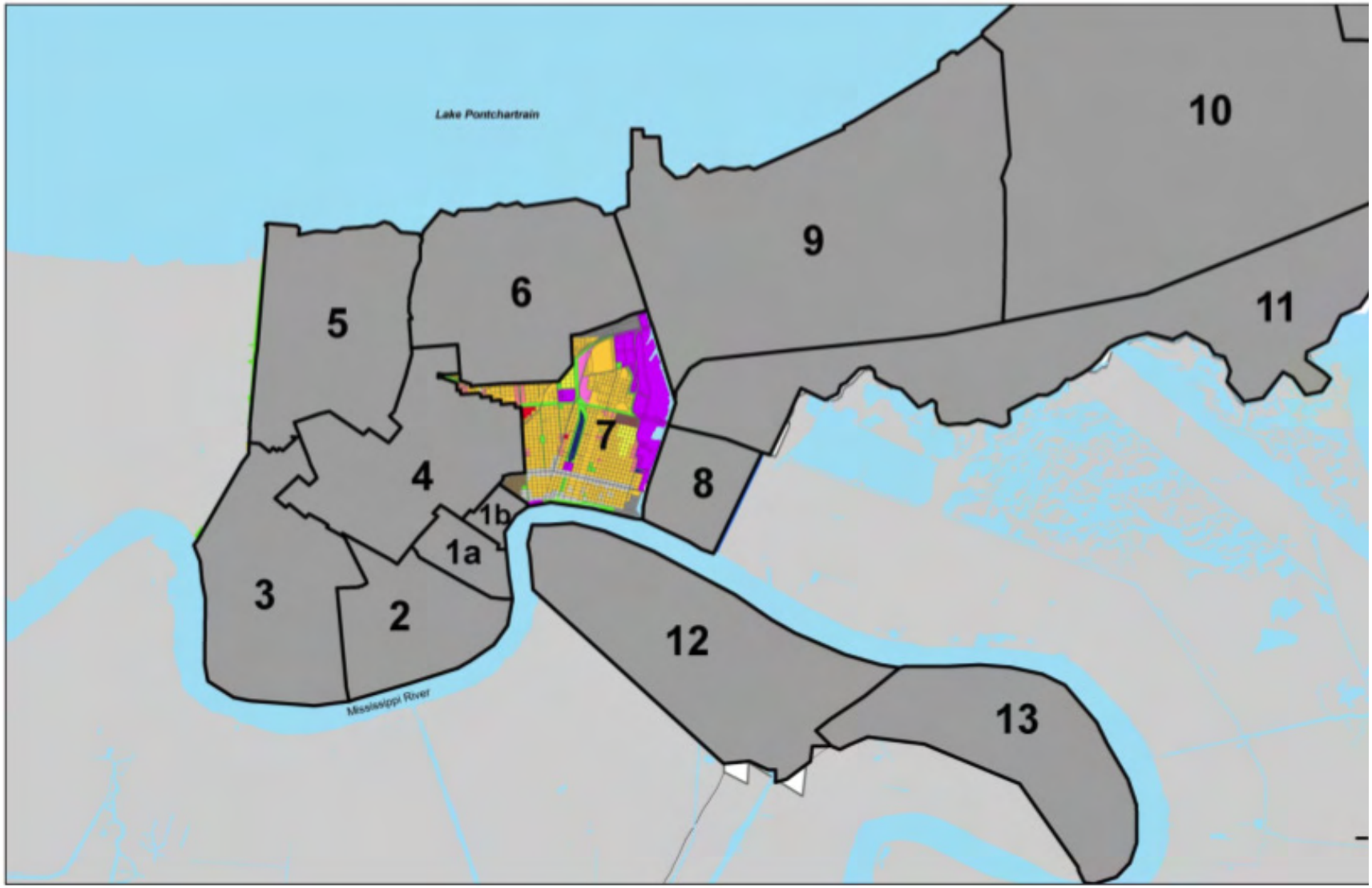
THE CITY'S OFFICIAL MASTER PLAN: *CREATING NEW ORLEANS' FUTURE TOGETHER*

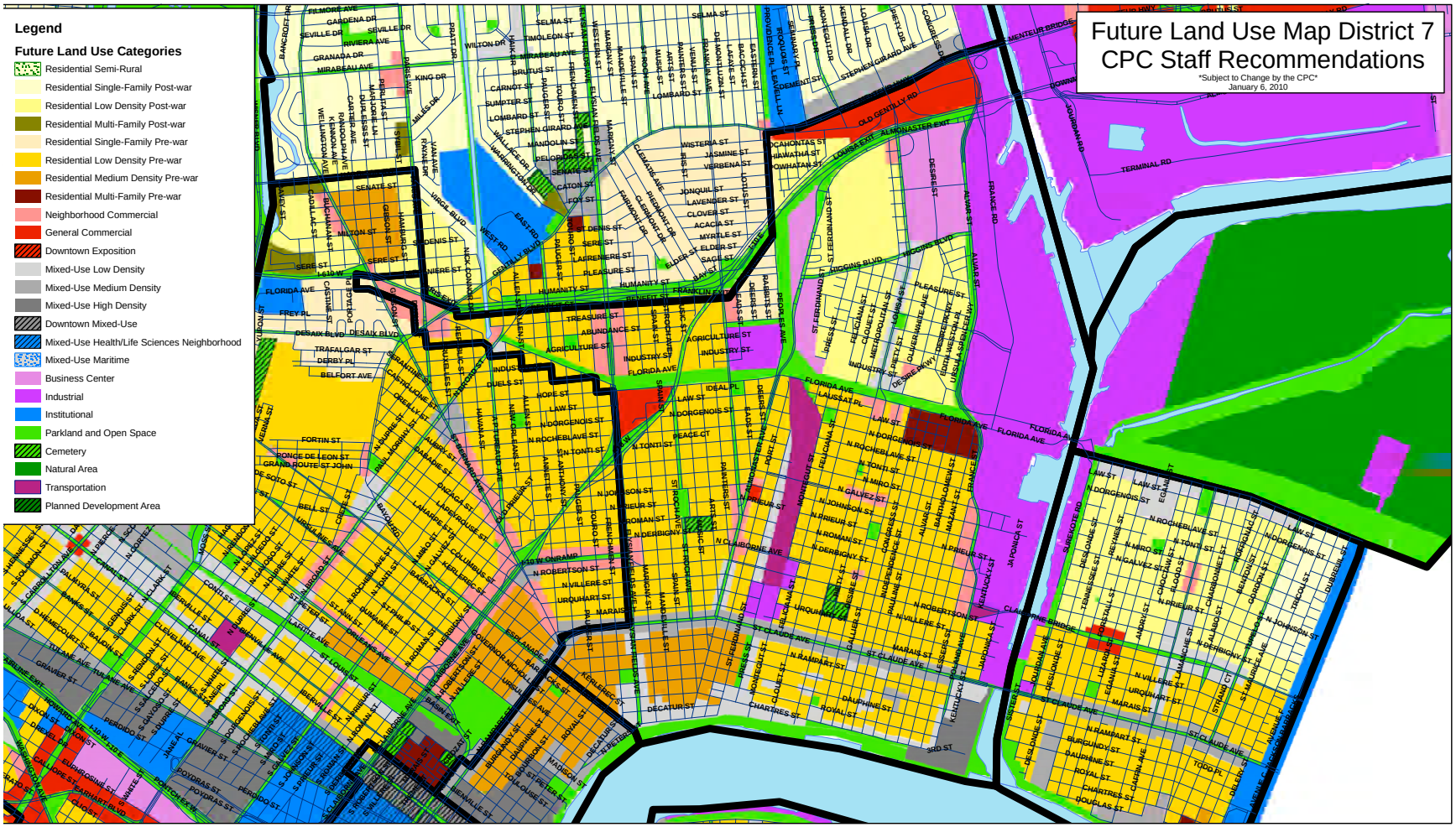
Planning District 7

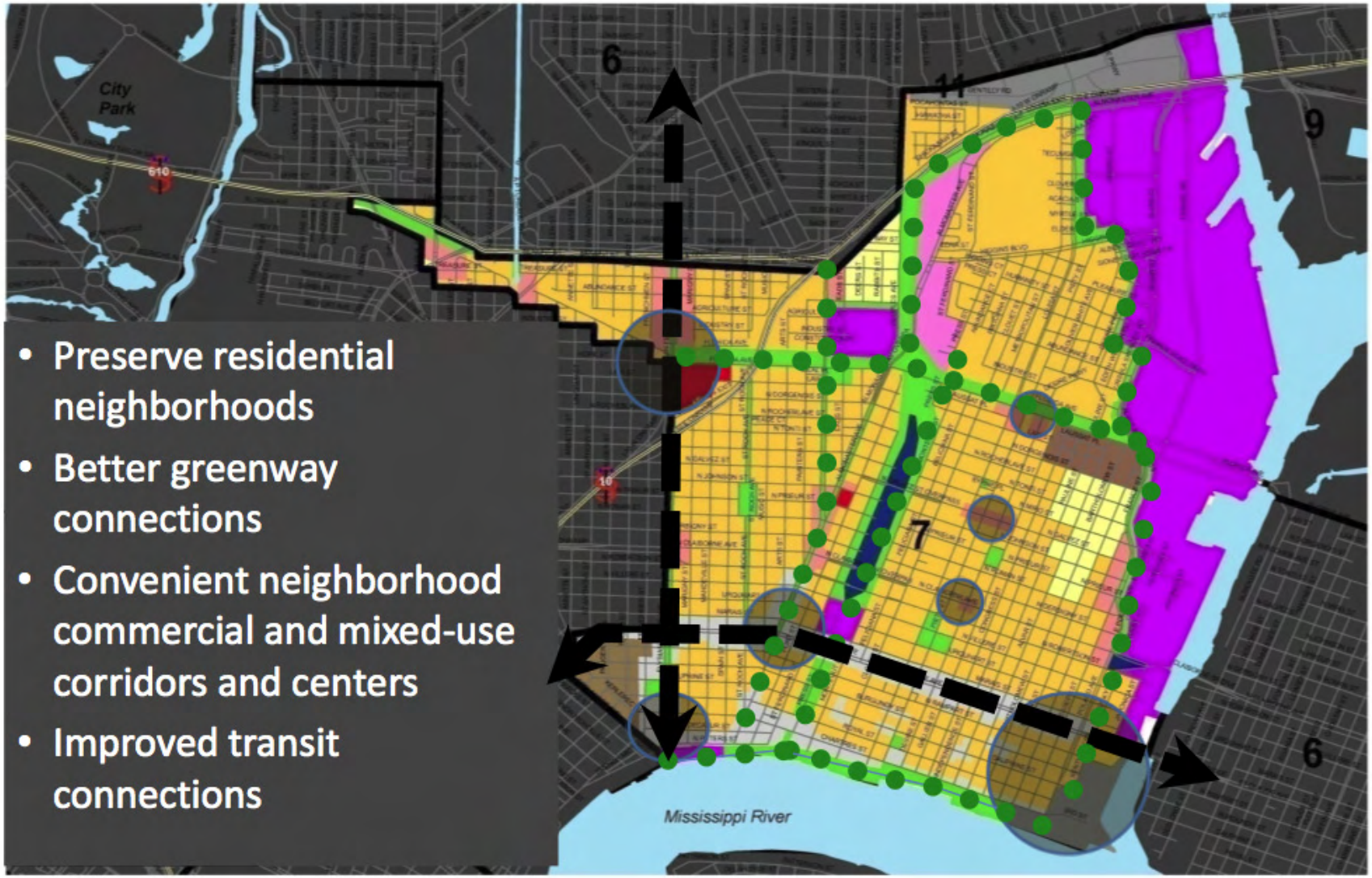
GOODY CLANCY | CAMIROS | GCR | MANNING ARCHITECTS

new orleans
MASTER PLAN AND COMPREHENSIVE ZONING ORDINANCE

REGULATORY_ZONE 7




Legend
Future Land Use Categories
Residential Semi-Rural
Residential Single-Family Post-war
Residential Low Density Post-war
Residential Multi-Family Post-war
Residential Single-Family Pre-war
Residential Low Density Pre-war
Residential Medium Density Pre-war
Residential Multi-Family Pre-war
Neighborhood Commercial
General Commercial
Downtown Exposition
Mixed-Use Low Density
Mixed-Use Medium Density
Mixed-Use High Density
Downtown Mixed-Use
Mixed-Use Health/Life Sciences Neighborhood
Mixed-Use Maritime
Business Center
Industrial
Institutional
Parkland and Open Space
Cemetery
Natural Area
Transportation
Planned Development Area
Future Land Use Map District 7
CPC Staff Recommendations
Subject to Change by the CPC
January 6, 2010


City Park
610
6
11
9
10
7
6
Mississippi River
• Preserve residential neighborhoods
• Better greenway connections
• Convenient neighborhood commercial and mixed-use corridors and centers
• Improved transit connections


• Neighborhood Parks
• Waterfront Park
• Greenways
  • Neutral grounds
  • Florida Canal
• Buffers between neighborhoods and industrial

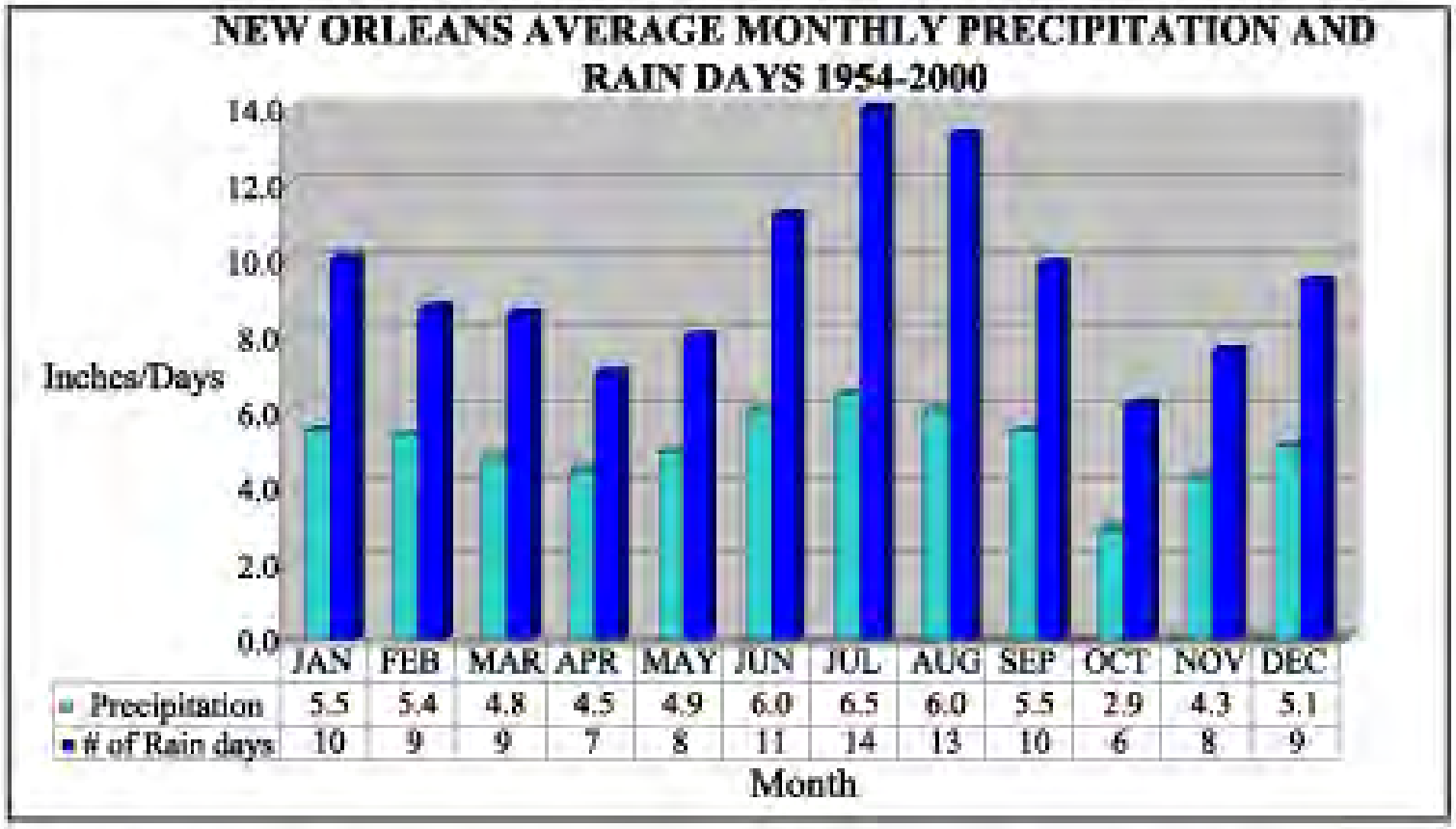
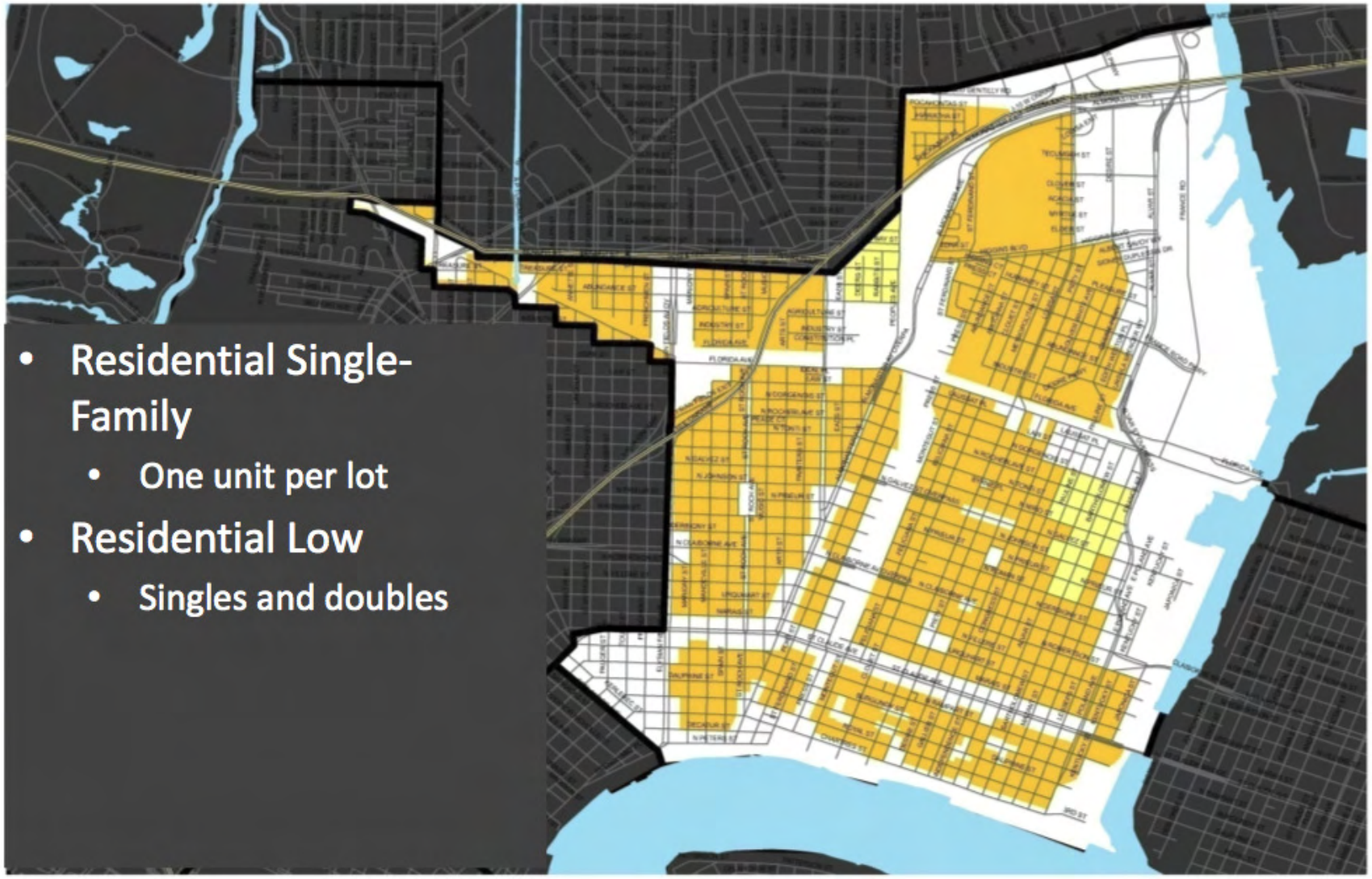
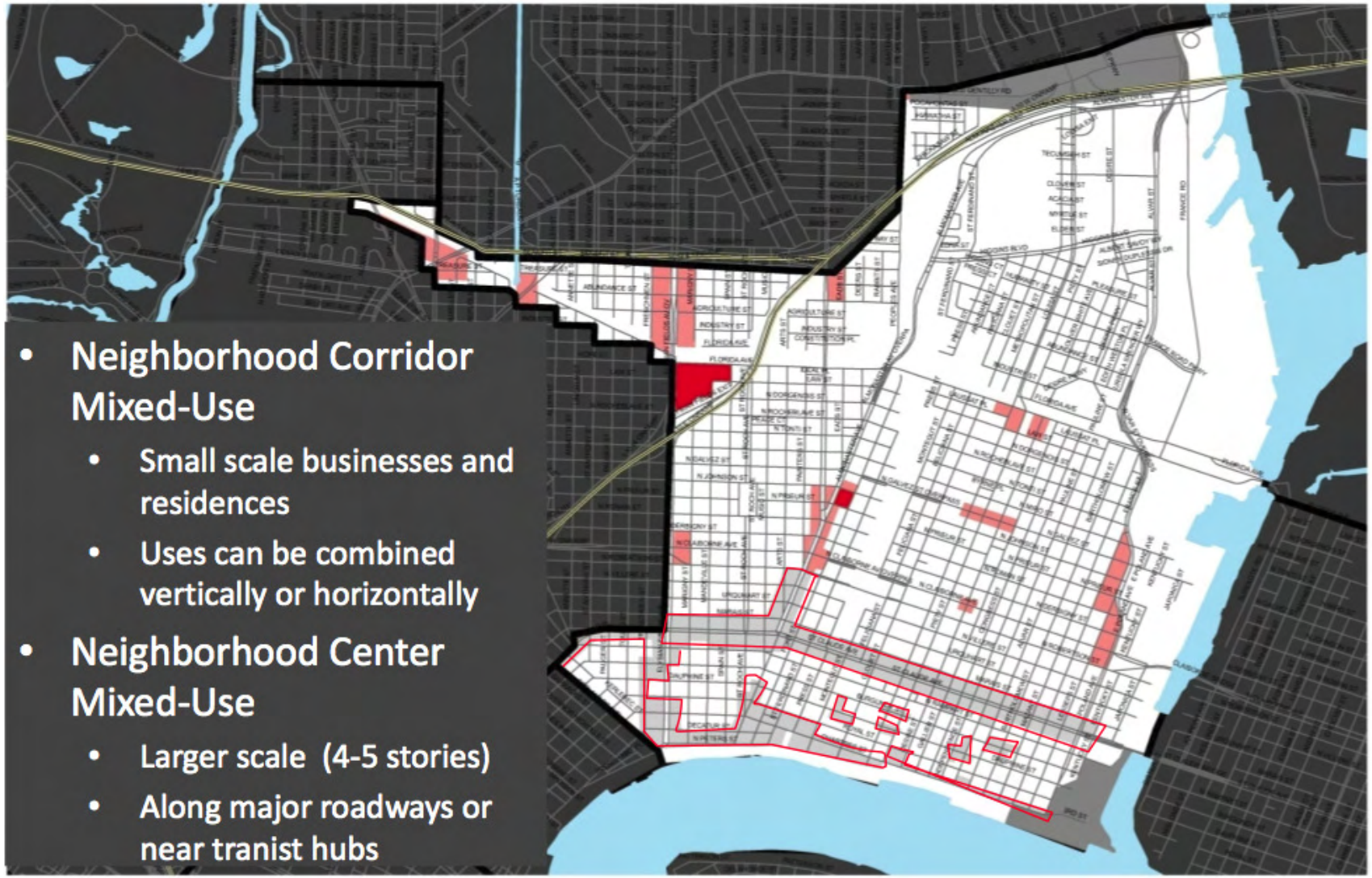


Figure 3: Average monthly precipitation and number of rain days for the New Orleans area for the years 1954-2000.


• Residential Single-Family
• One unit per lot
• Residential Low
• Singles and doubles


• Neighborhood Corridor Mixed-Use
• Small scale businesses and residences
• Uses can be combined vertically or horizontally
• Neighborhood Center Mixed-Use
• Larger scale (4-5 stories)
• Along major roadways or near tranist hubs


11
7
8
12
St. Bernard Parish
Orleans Parish
Jefferson Parish
Plaquemines Parish
St. Bernard Parish
CITY OF NEW ORLEANS OVERVIEW
Miles
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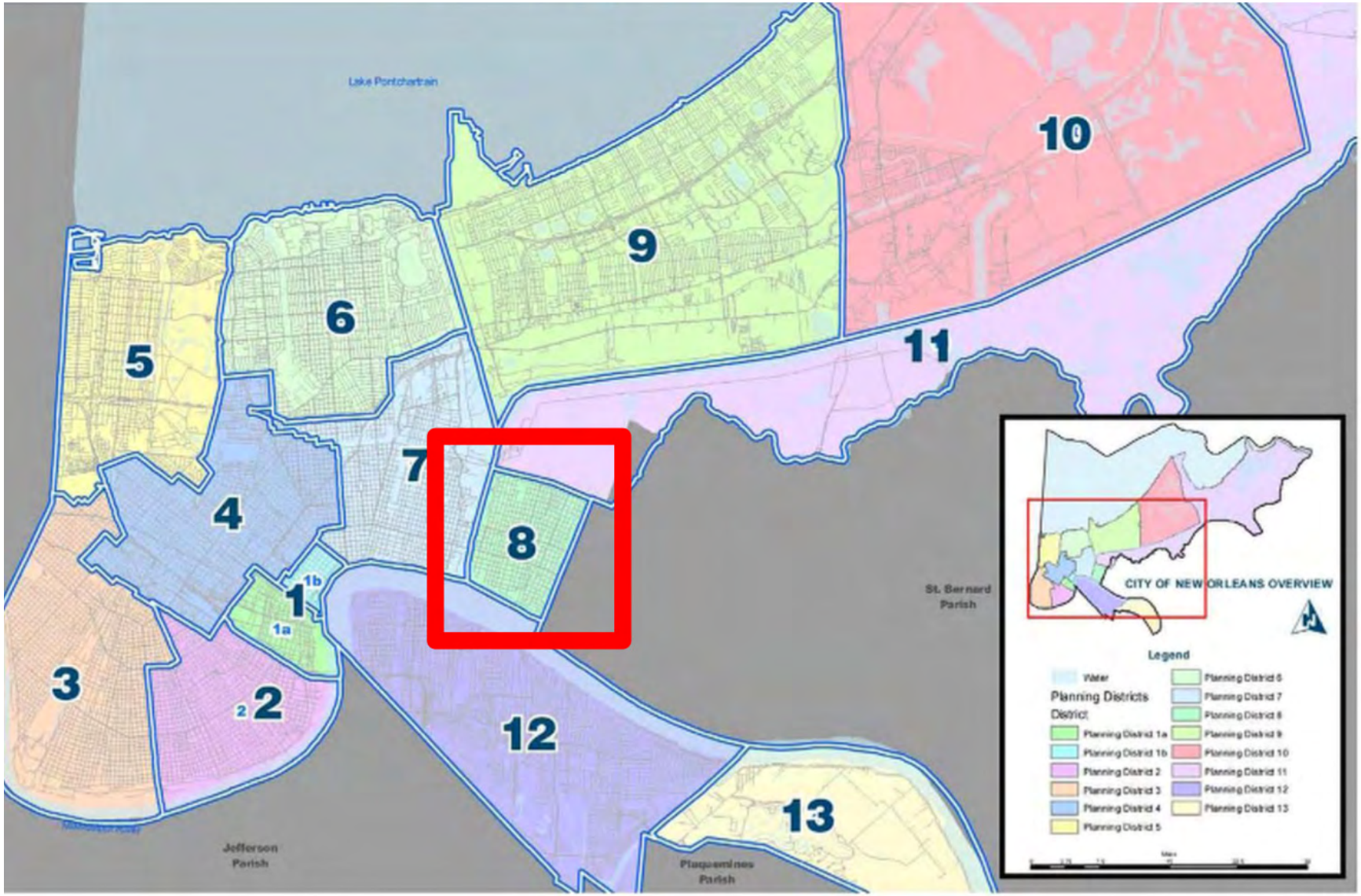
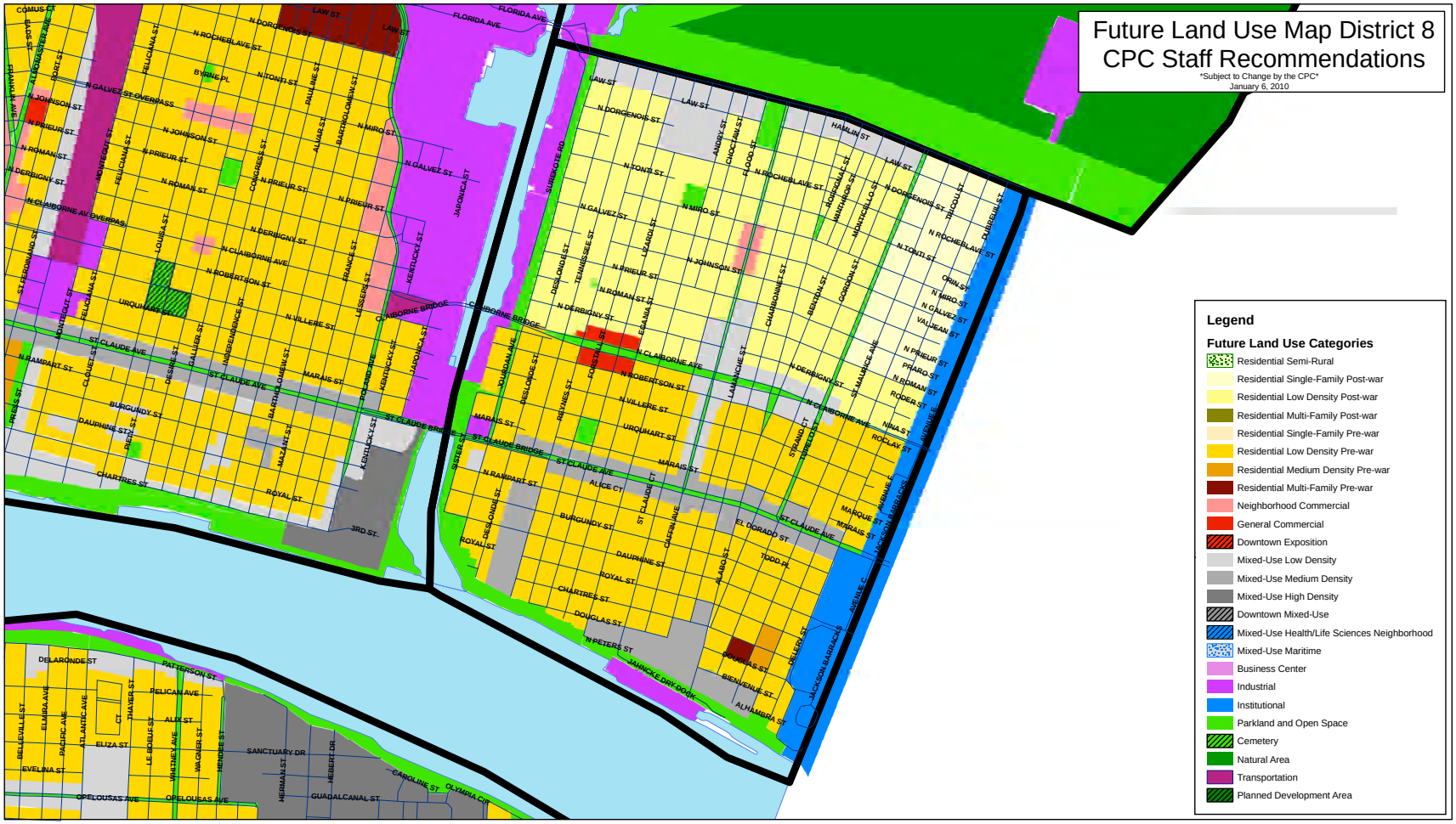
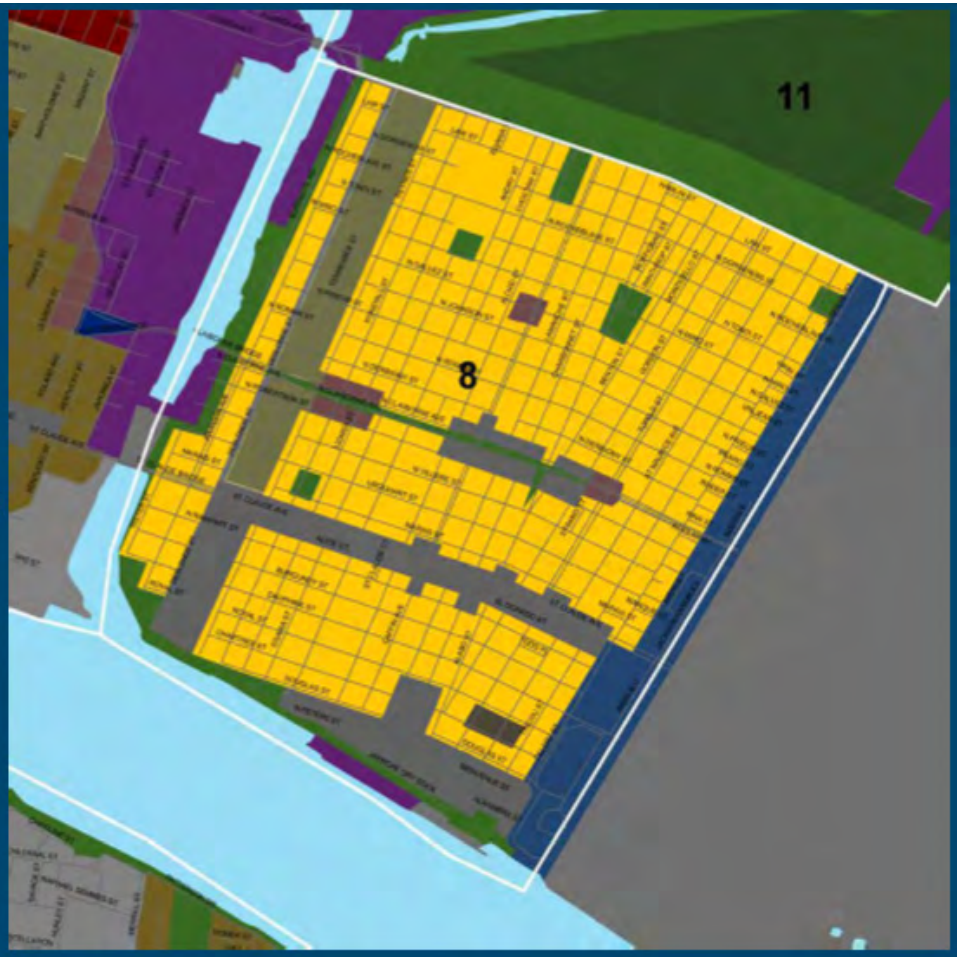

Lake Pontchartrain
10
9
6
5
11
7
4
8
1b
1
1a
3
2
2
12
13
St. Bernard Parish
Jefferson Parish
Plaquemines Parish
CITY OF NEW ORLEANS OVERVIEW
Legend
Water
Planning Districts
District
Planning District 1a
Planning District 1b
Planning District 2
Planning District 3
Planning District 4
Planning District 5
Planning District 6
Planning District 7
Planning District 8
Planning District 9
Planning District 10
Planning District 11
Planning District 12
Planning District 13


Future Land Use Map District 8
CPC Staff Recommendations
Subject to Change by the CPC
January 6, 2010
Legend
Future Land Use Categories
Residential Semi-Rural
Residential Single-Family Post-war
Residential Low Density Post-war
Residential Multi-Family Post-war
Residential Single-Family Pre-war
Residential Low Density Pre-war
Residential Medium Density Pre-war
Residential Multi-Family Pre-war
Neighborhood Commercial
General Commercial
Downtown Exposition
Mixed-Use Low Density
Mixed-Use Medium Density
Mixed-Use High Density
Downtown Mixed-Use
Mixed-Use Health/Life Sciences Neighborhood
Mixed-Use Maritime
Business Center
Industrial
Institutional
Parkland and Open Space
Cemetery
Natural Area
Transportation
Planned Development Area

- Re-establish and preserve historic neighborhoods
- 1 or 2 units permitted on all lots
- 3-4 units allowed only on larger lots
- Schools, places of worship, and other community facilities also permitted within zoning guidelines
- Potential zoning guidelines:
  - Height
  - Minimum yard size
  - Design elements, e.g. porches



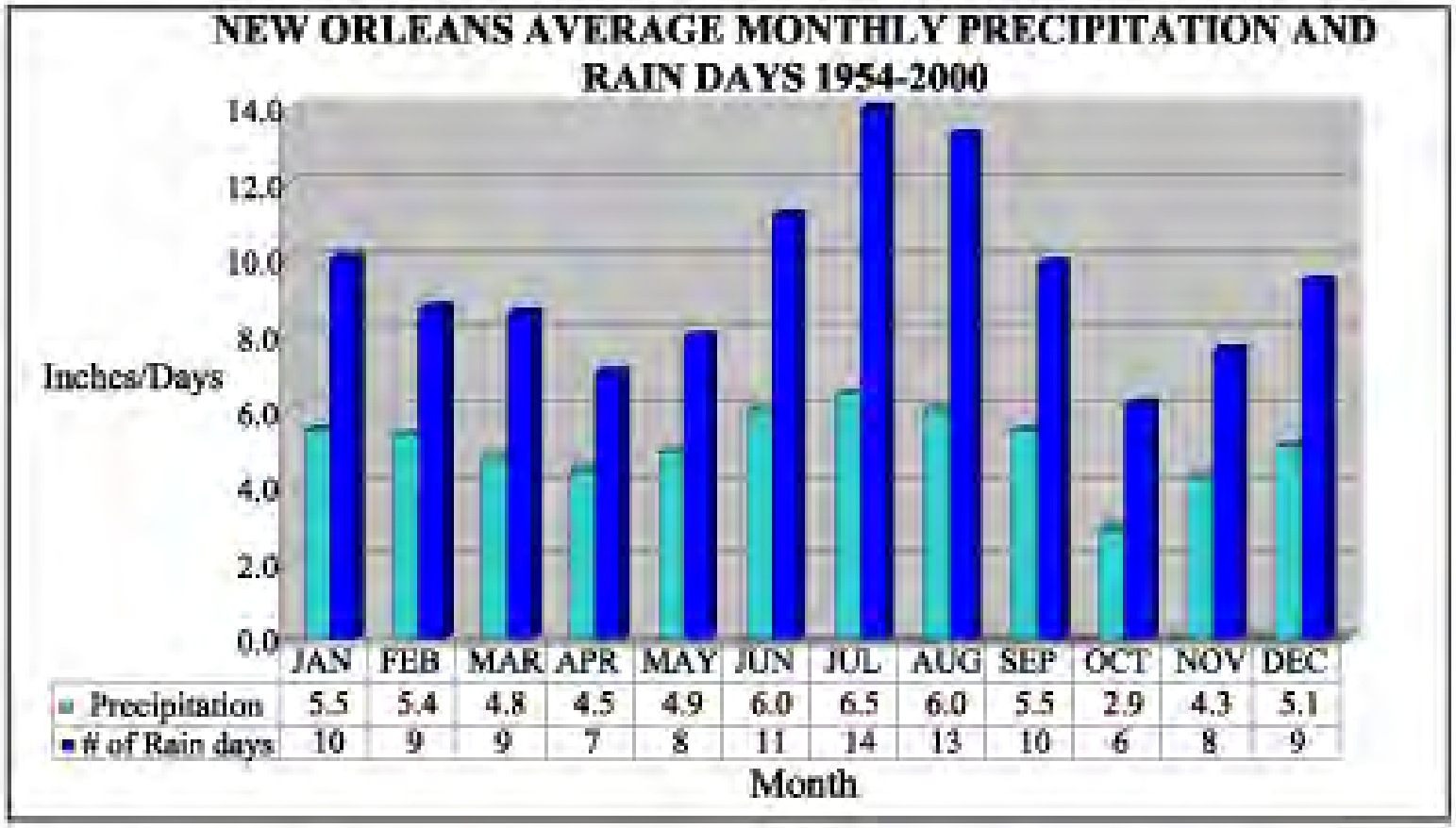
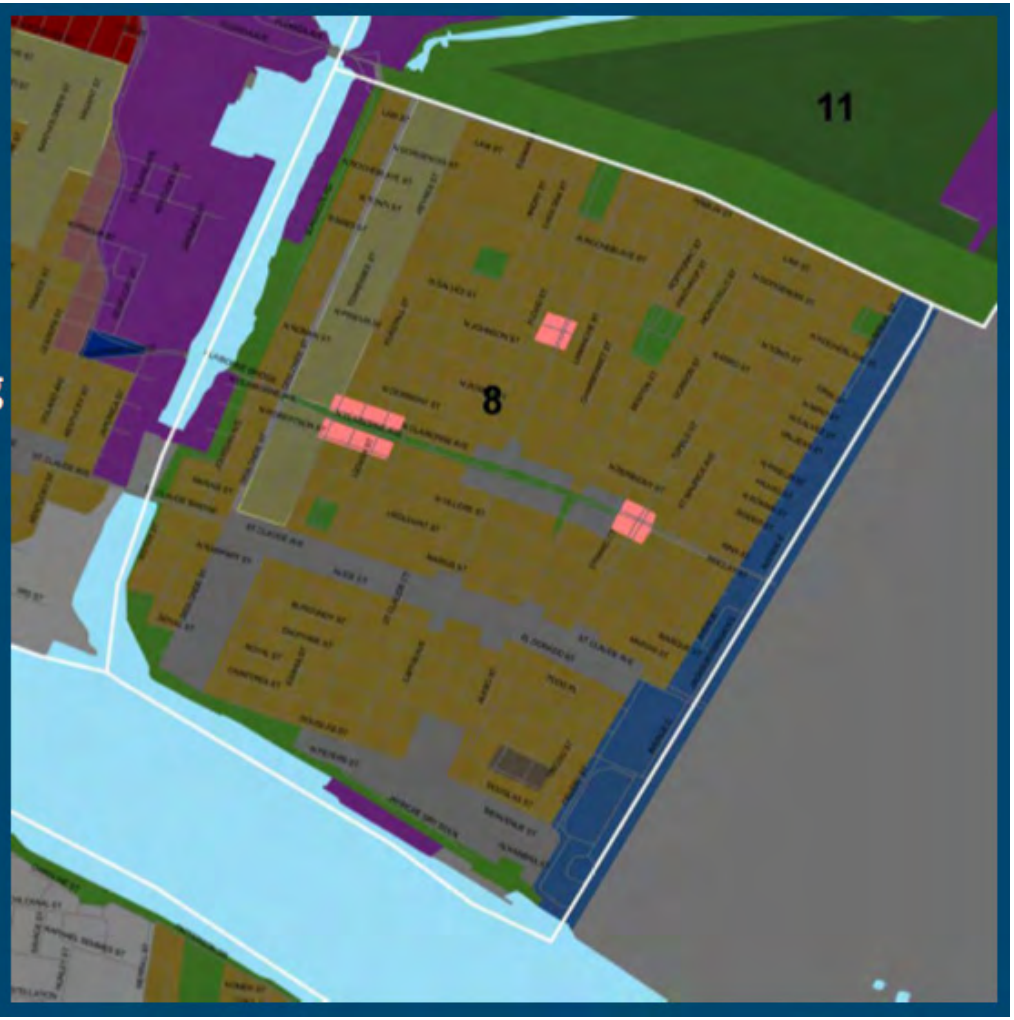
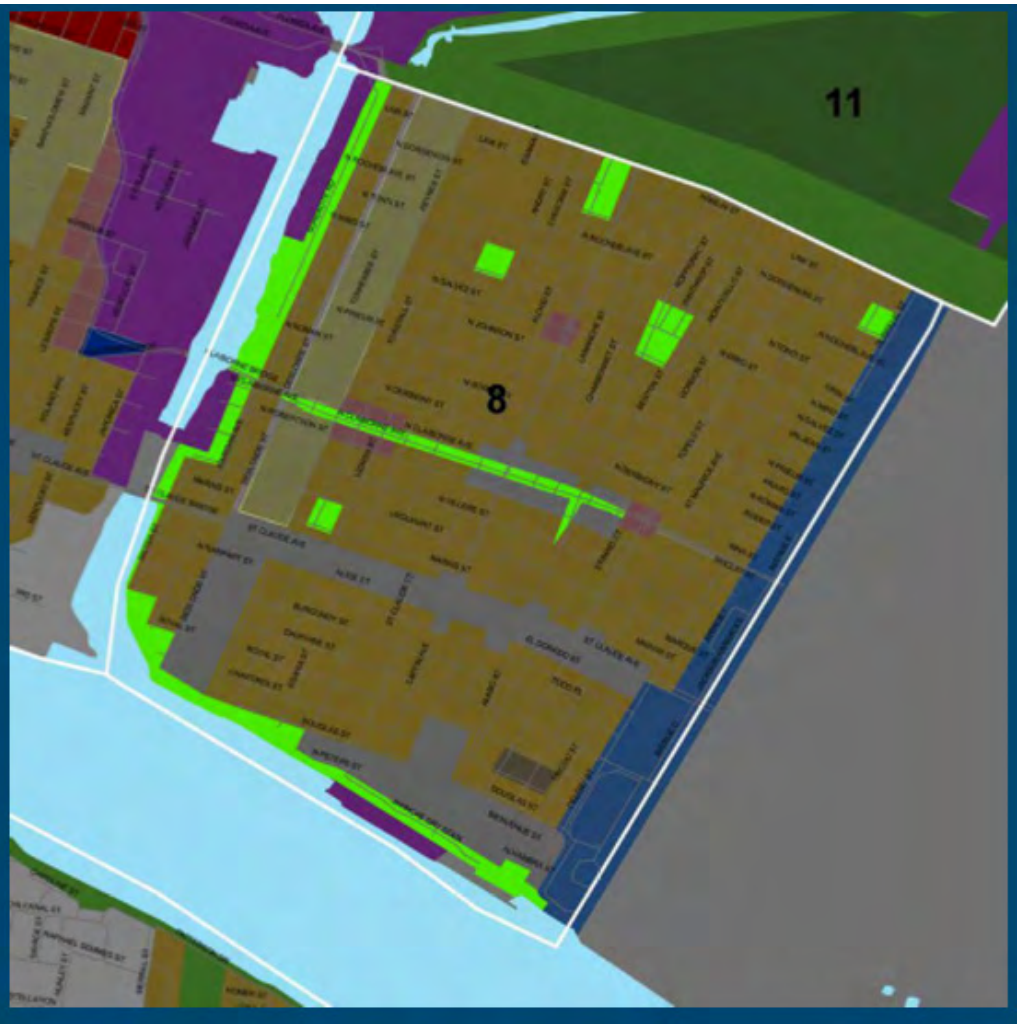


Figure 3: Average monthly precipitation and number of rain days for the New

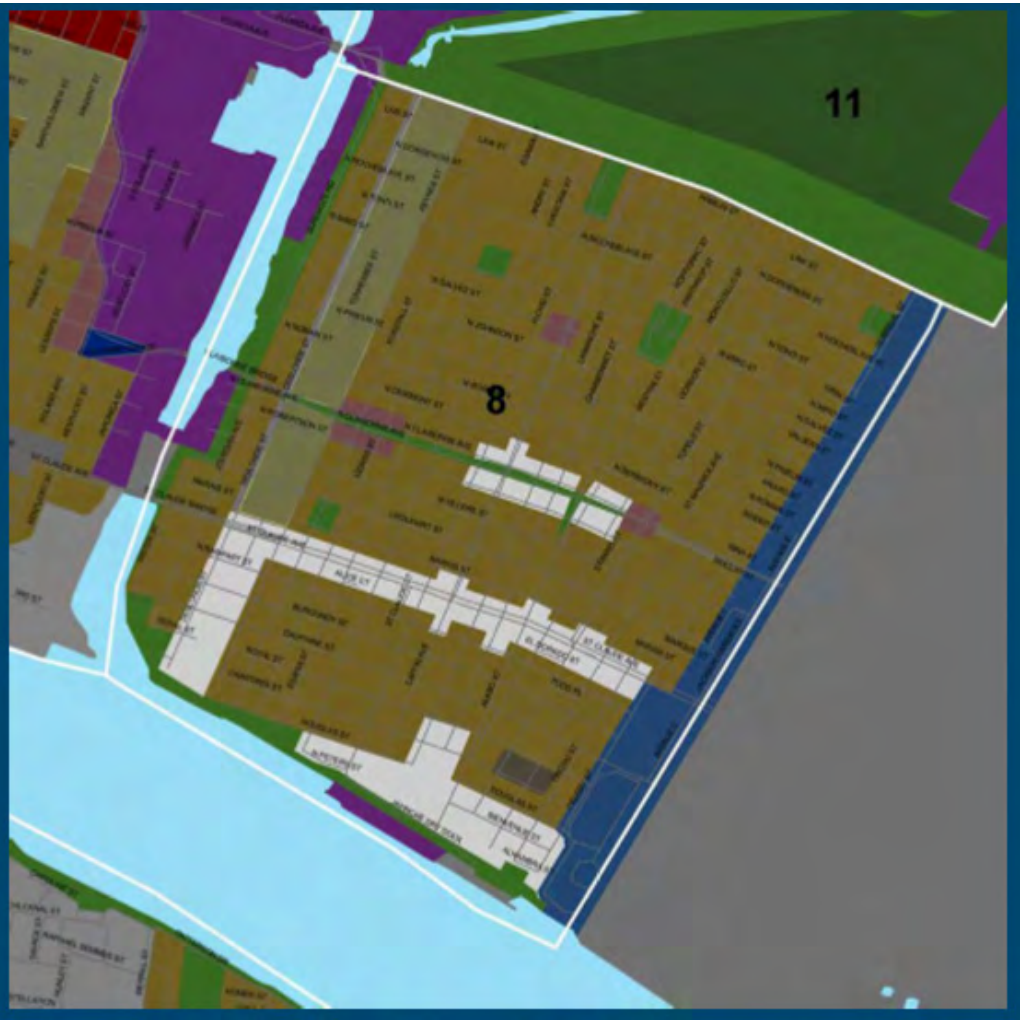
- Provide neighborhood-serving retail and amenities within easy access of residents
- Small-scale, neighborhood-oriented retail, e.g. small groceries, restaurants, clothing boutiques, banks, pharmacies, small offices.
- Max 2 stories
- Potential zoning guidelines:
  - Design, e.g. signage, storefronts
  - Types of businesses allowed
  - Hours of operation



- Preserve access to parks and open space
- Parks, playgrounds, neutral grounds, permanent urban agriculture

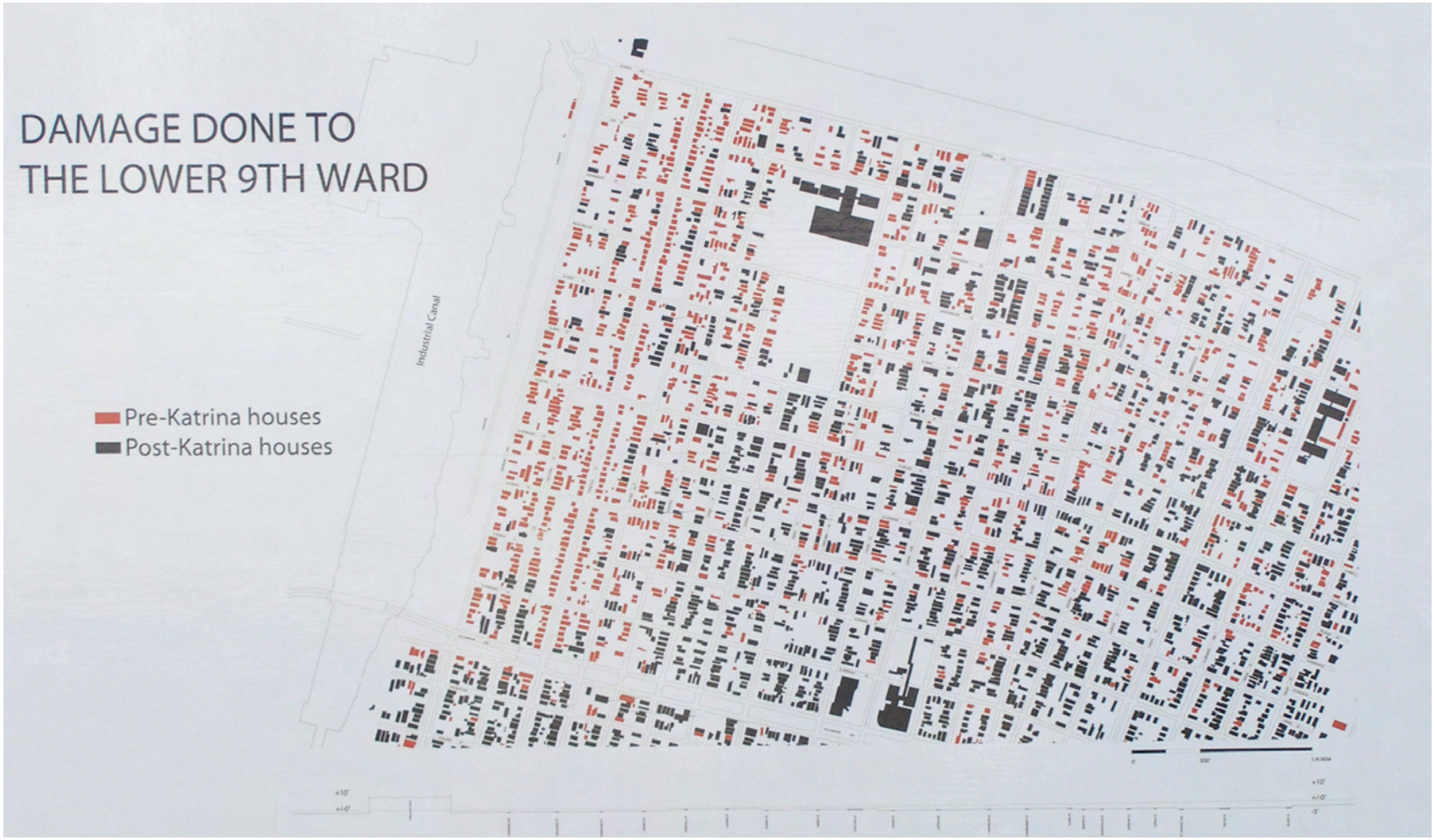


- Improve existing commercial corridors
- Small-scale businesses and residences allowed
- May require ground-floor retail in some areas
- Uses can be combined vertically or horizontally
- Potential zoning guidelines:
  - Specific mix of uses in specific areas
  - Types of businesses
  - Hours of operation
  - Parking requirements



SITE VISIT PHOTOS

During my visit to New Orleans, I spent extensive time visiting the Lower Ninth Ward, the neighborhood across the river from my project site. This area saw the greatest damage during Hurricane Katrina. Street blocks are empty, no people, no houses. Overgrown foundations, stoops leading to nothing and debris still litter the site of a once proud neighborhood. The Lower Ninth Ward is also a place where rebuilding is being focused. Aproximatly 10 houses of a proposed 150 being donated by Brad Pitt's 'Make It Right" foundation. These houses are each deisgned by seperate international architects such as Morphosis, Frank Gehry and MVRDV and are designed to last, raised on stilts with solid, Hurricane ready frames. These homes currently sit akwardly by themselves, surrounded by 5 years of destruction debris and land that has been given up on.



SITE VISIT PHOTOS

SITE VISIT PHOTOS

Existing Home in the Lower 9th

SITE VISIT PHOTOS

SITE VISIT PHOTOS

Section 7.4. - Hi Heavy Industrial District.

7.4.1. *Purpose of the District.*

The purpose of this district is to provide for industrial operations of all types except that certain potentially hazardous industries are permitted only after public hearing and review to assure protection of the public interest and surrounding property and persons. New residential development is excluded except for certain specified uses deemed appropriate adjuncts to industrial operations.

7.4.2. *Uses Authorized in the District.*

Only those uses of land listed under permitted use, accessory use or conditional use provisions of this section are authorized within this zoning district. Supplementary use standards, which are set forth in Article 11, apply to any permitted, accessory or conditional use designated with an asterisk (*) in the use lists appearing in this section.

7.4.8. Height, Area and Bulk Requirements.

Minimum requirements for lot area, yards, and maximum height and Floor Area Ratio for the HI Heavy Industrial District are contained in Table 7.D. These standards apply to all permitted and accessory uses, unless a variance is granted by the Board of Zoning Adjustments under Section 14.6, and to all conditional uses unless modified by the City Council in conjunction with approval of a conditional use permit under Section 16.6.

Table 7.D

Area Regulations for the HI Heavy Industrial District

Requirements	Standards
Maximum height	none[1]
Minimum depth of front yard	none
Minimum yard on a side street	none
Minimum interior side yard	none
Minimum interior side yard abutting a residential district	5 ft.
Minimum yard on a side street when rear yard abuts a residential district	10 ft.
Minimum side or rear yard if any is provided	3 ft.
Minimum rear yard abutting a residential district	20 ft.
Maximum Floor Area Ratio	1.5

Table 7.D Notes:

1 The height of a building which adjoins a residential district shall not exceed fifty (50) feet unless set back one (1) foot from all required yards for each foot of additional height above fifty (50) feet.

Section 7.5. - Performance Standards.

All uses subject to this section shall be so operated as to comply with standards of performance or their equivalent which have been or which may be adopted or amended from time to time by the Air Control Commission of the State of Louisiana pursuant to Section 2204 et seq. of Title 40 of the Revised Statutes of Louisiana.

All uses subject to this section shall be so operated as to comply with the performance standards described in this section below, and, in addition to the performance standards hereinafter specified, all uses shall be so constructed, maintained, and operated as not to be injurious to the use and occupation of the adjacent premises by reason of the emission or creation of noise, vibration, radiation, fire, and explosive hazard or glare.

Nothing in this section shall be construed to alter, change, modify or abrogate any authority granted exclusively to any State commission.

7.5.1. Smoke, Dust, Particulate Matter, Toxic or Noxious Waste Materials.

All uses subject to this section shall be so operated as to comply with standards of performance or their equivalent which have been or which may be adopted or amended from time to time by the Air Control Commission of Louisiana or by the Stream Control Commission of Louisiana.

7.5.2. Radiation Hazards.

All uses subject to this section shall be so operated as to comply with standards of performance or their equivalent which have been or which may be adopted or amended from time to time by the Division of Radiation Control, Louisiana Board of Nuclear Energy.

7.5.3. Vibrations.

No use subject to this section shall be operated so as to produce ground vibration, noticeable without instruments, at the lot line of the premises on which the use is located.

7.5.4. Electromagnetic Interference.

No use, activity, or process subject to this section shall be conducted which produces electromagnetic interference with normal radio or television reception in any residential or commercial district.

SECTION 116
ZONING RESTRICTIONS

The provisions of the Comprehensive Zoning Ordinance of the City of New Orleans shall not be deemed to be modified by any provision of this code. The provisions of the Comprehensive Zoning Ordinance shall be controlling, except that whenever this code imposes greater restrictions by reason of the type of construction used, the provisions of this Code shall control.

Sec. 78-139. Coastal high-hazard areas.

Located within the areas of special flood hazard established in section 78-41 are areas designated as coastal high-hazard areas (zones V1-30, VE and/or V). These areas have special flood hazards associated with high-velocity waters from tidal surges and hurricane wave wash; therefore, in addition to meeting all provisions outlined in this article, the following provisions must also apply:

(1) Obtain the elevation (in relation to mean sea level) of the bottom of the lowest structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures, and whether or not such structures contain a basement. The director shall maintain a record of all such information.

(2) All new construction shall be located landward of the reach of mean high tide.

(3) All new construction and substantial improvements shall be elevated on pilings and columns so that:

a. The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level;

b. The pile or column foundation and structure attached thereto is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components; wind and water loading values shall each have a one percent chance of being equaled or exceeded in any given year 100-year mean recurrence interval;

c. A registered professional engineer shall develop or review the structural design, specifications and plans for the construction and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions of this subsection (3).

(4) All new construction and substantial improvements shall have the space below the lowest floor either free of obstruction or constructed with nonsupporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system.

a. For the purpose of this section, a breakaway wall shall have a design safe loading resistance of not less than ten nor more than 20 pounds per square foot.

b. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local or state codes) may be permitted only if a registered professional engineer certifies that the designs proposed meet the following conditions:

1. Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and

2. The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and nonstructural). Maximum wind and water loading values to be used in this determination shall each have not more than one percent chance of being equaled or exceeded in any given year (100-year means recurrence interval).

(5) If breakaway walls are utilized, such enclosed space shall be usable solely for the parking of vehicles, building access or storage. Such space shall not be used for human habitation.

(6) Prohibit the use of fill for the structural support of buildings.

(7) Prohibit manmade alteration of sand dunes and mangrove stands which would increase potential flood damage.

(Code 1956, § 32-35)

Sec. 78-131. General standards.

In all areas of special flood hazards the following provisions are required for all new construction and substantial improvements:

(1) All new construction or substantial improvements shall be designed or modified and adequately anchored to prevent the flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

(2) All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;

(3) All new construction or substantial improvements shall be constructed with materials resistant to flood damage;

(4) All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;

(5) All new and replacement water supply systems shall be designed to minimize or eliminate the infiltration of floodwaters into the system;

(6) New and replacement sanitary sewerage systems shall be designed to minimize or eliminate the infiltration of floodwaters into the system and discharge from the system into floodwaters; and

(7) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(Code 1956, § 32-27)

Sec. 78-132. Specific standards.

In all areas of special flood hazards where base flood elevation data has been provided as set forth in section 78-43, section 78-51(b), or section 78-137(c), the following provisions are required:

(1) *Residential construction.* New construction and substantial improvement of any residential structure shall have the lowest floor (including basement), elevated to or above the base flood elevation. A registered professional engineer, architect, or land surveyor shall submit a certification to the director that the standard of this subsection, as proposed in section 78-77(a)(1), is satisfied.

(2) *Nonresidential construction.* New construction and substantial improvements of any commercial, industrial or other nonresidential structure shall either have the lowest floor (including basement) elevated to or above the base flood level or, together with attendant utility and sanitary facilities, be designed so that below the base floor level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall develop and/or review structural design, specifications and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this subsection. A record of such certification which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained by the director.

(3) *Enclosure.* New construction and substantial improvements with fully enclosed areas below the lowest floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:

a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.

b. The bottom of all openings shall be no higher than one foot above grade.

c. Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

(Code 1956, § 32-28)

SECTION 106
CONSTRUCTION DOCUMENTS

106.1 Submittal Documents. Construction documents, shall be prepared by or under the direct supervision of a Louisiana Registered Architect or a Louisiana Registered Civil Engineer, within the purview of the State of Louisiana licensing law provisions, and said construction documents shall be imprinted with his seal designating, him as the professional of record. Construction documents involving mechanical, gas and electrical installations except as follows, shall be prepared by or under the direct supervision of a Louisiana Registered Mechanical or Electrical Engineer, as applicable, within the purview of the State of Louisiana licensing law provisions, and said drawings and specifications shall be imprinted with his seal designating, him as the professional of record and further, said drawings are to be submitted at the time of application for building permits. Where special conditions exits, the Director is authorized to require additional construction documents to be prepared by a registered design professional. The Director may waive the requirements of construction documents, if he finds that the nature of the work applied for is such that construction documents are not necessary to obtain compliance with the adopted codes.

Exceptions:

1. The submission of construction documents involving mechanical, gas and electrical installations is not necessary when the electrical work does not exceed $15,000 and/or when the mechanical work does not exceed $15,000, in the opinion of the Director.

2. The submission of construction documents and involving mechanical, gas and electrical installations is not necessary for the construction and or the repair work for one and two family dwellings.

The Director may also waive the submission of construction documents if he finds that the nature of work applied for is such that reviewing of construction is not necessary to obtain compliance with this Code documents. Where there are unusual conditions because of type of occupancy or type of construction, the Director may depart from the limitations set forth above and require submission of construction documents.

106.1.1 Information on Construction Documents. Construction documents shall be dimensioned and drawn upon suitable material. Electronic media documents are permitted to be submitted when approved by the Director. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the Director.

106.1.1.1 Fire Protection System Shop Drawings. Shop drawings for the fire protection system(s) shall be submitted to indicate conformance with this code and the construction documents and shall be approved prior to the start of system installation. Shop drawings shall contain all information as required by the referenced installation Standards in Chapter 9.

106.1.2 Means of Egress. The construction documents shall show in sufficient detail the location, construction, size and character of all portions of the means of egress in compliance with the provisions of this code. In other than occupancies in Groups R-2, and R-3 and I-1, the construction documents shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces.

106.1.3 Exterior Wall Envelope. Construction documents for all buildings shall describe the exterior wall envelope in sufficient detail to determine compliance with this code. The construction documents shall provide details of the exterior wall envelope as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves, or parapets, means of drainage, water-resistive membrane, and details around openings.

The construction documents shall include manufacturing installation instructions that provide supporting documentation that the proposed penetration and opening details described in the construction documents maintain the weather resistance of the exterior wall envelope. The supporting documentation shall fully describe the exterior wall system which was tested, where applicable, as well as the test procedure used.

106.2 Site Plan. The construction documents submitted with the application for permit shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades and the proposed finished grades; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The Director is authorized to waive or modify the requirement for a site plan when the application for permit is for alteration or repair or when otherwise warranted.

106.3 Examination of Documents. The Director shall examine or cause to be examined the accompanying construction documents and shall ascertain by such examinations whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances.

106.3.1 Approval of Construction Documents. When the Director issues a permit, the construction documents when submitted shall be approved, in writing or by stamp, as "Reviewed for Code Compliance." One set of construction documents so reviewed shall be retained by the Director. The other set shall be returned to the applicant, shall be kept at the site of work and shall be open to inspection by the Director or his authorized representative.

106.3.2 Previous Approvals. This code shall not require changes in the construction documents, construction or designated occupancy of a structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.

106.3.3 Phased Approval. The Director is authorized to issue a permit for the construction of foundations or any other part of a building or structure before the construction documents for the whole building or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of this code. The holder of such permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure will be granted.

106.3.4 Revision of Approved Construction Documents. It shall be unlawful to erase, materially alter or modify any lines, figures, letters, words or coloring contained in the construction documents stamped by the Director. If during the progress of the execution of such work it is desired to deviate in any manner affecting the construction or other essentials of the building from the terms of the applications plans, or specifications or statement of cost of work, notice of such intention to alter or deviate shall be given in writing to the Director, and his written assent shall be obtained before such alterations or deviations may be made. If such change or deviation affects structural design, exit arrangement, occupancy change etc., then new construction documents thereof shall be submitted to the Director for approval, and, if necessary, an additional permit shall be secured.

106.3.5 Design Professional in Responsible Charge.

106.3.5.1 General. When it is required that documents be prepared by a registered design professional, the Director shall be authorized to require the owner to engage and designate on the building permit application a registered design professional who shall act as the registered design professional in responsible charge. If the circumstances require, the owner shall designate a substitute registered design professional in responsible charge who shall perform the duties required of the original registered design professional in responsible charge. The Director shall be notified in writing by the owner if the registered design professional in responsible charge is changed or is unable to continue to perform the duties.

The registered design professional in responsible charge shall be responsible for reviewing and coordinating submittal documents prepared by others, including phased and deferred submittal items, for compatibility with the design of the building.

106.3.5.2 Deferred submittals. For the purpose of this section, deferred submittals are defined as those portions of the design that are not submitted at the time of the application and that are to be submitted to the Director within a specified period. Deferral of any submittal items shall have the prior approval of the Director. The registered design professional in responsible charge shall list the deferred submittals on the construction documents for review by the Director.

Submittal documents for deferred submittal items shall be submitted to the registered design professional in responsible charge who shall review them and forward them to the Director with a notation indicating that the deferred submittal documents have been reviewed and that they have been found to be in general conformance with the design of the building. The deferred submittal items shall not be installed until their design and submittal documents have been approved by the Director.

Sec. 26-180. Grading and drainage.

Yards, courts and other areas must be drained to prevent the accumulation of water. Grading shall not permit water to drain to adjacent properties. The fill on a lot must be maintained and replaced when erosion or subsidence occurs.

(M.C.S., Ord. No. 21228, § 2, 9-4-03)

Sec. 26-189. Structural members.

Structural members shall be maintained structurally sound, free from deterioration, and must be capable of supporting the imposed dead and live loads.

(M.C.S., Ord. No. 21228, § 2, 9-4-03)

Sec. 26-190. Foundation walls.

Foundation walls must be maintained plumb and free from open cracks and breaks and must be kept in such condition so as to prevent the entry of rodents and other pests.

(M.C.S., Ord. No. 21228, § 2, 9-4-03)

Sec. 26-191. Exterior walls.

Exterior walls must be free from holes, breaks, and loose or rotting materials; and maintained weatherproof and properly surfaced coated where required to prevent deterioration.

(M.C.S., Ord. No. 21228, § 2, 9-4-03)

Sec. 26-192. Roofs and drainage.

The roof and flashing must be sound, tight and not have defects that admit rain. Roof drainage must be adequate to prevent dampness or deterioration in the walls or interior portion of the structure. Roof drains, gutters and downspouts must be maintained in good repair and free from obstructions. Roof water shall not be discharged in a manner that drains onto adjacent property.

(M.C.S., Ord. No. 21228, § 2, 9-4-03)

Sec. 26-213. Minimum room width.

A habitable room, other than a kitchen, shall not be less than seven feet in any horizontal dimension.

(M.C.S., Ord. No. 21228, § 2, 9-4-03)

Sec. 26-214. Minimum ceiling height.

Habitable spaces, hallways, corridors, laundry areas, bathrooms and toilet rooms shall have a minimum ceiling height of seven feet. The required height is measured from the finished floor to the lowest projection from the ceiling.

(M.C.S., Ord. No. 21228, § 2, 9-4-03)

Sec. 26-215. Minimum floor area.

A dwelling unit shall contain a minimum floor area of 150 square feet for the first occupant, and 100 square feet for each additional occupant. The floor area calculation is based on the total area of all habitable rooms.

(M.C.S., Ord. No. 21228, § 2, 9-4-03)

Sec. 26-484. Lighting and maintenance.

(a) If any parking lot located in the central business district is operated on a daily basis after 7:00 p.m., adequate lighting shall be provided. The lighting shall be arranged to eliminate glare on residential property by location of light fixtures or use of fixtures designed to eliminate direct view of luminaries in fixtures from residential property.

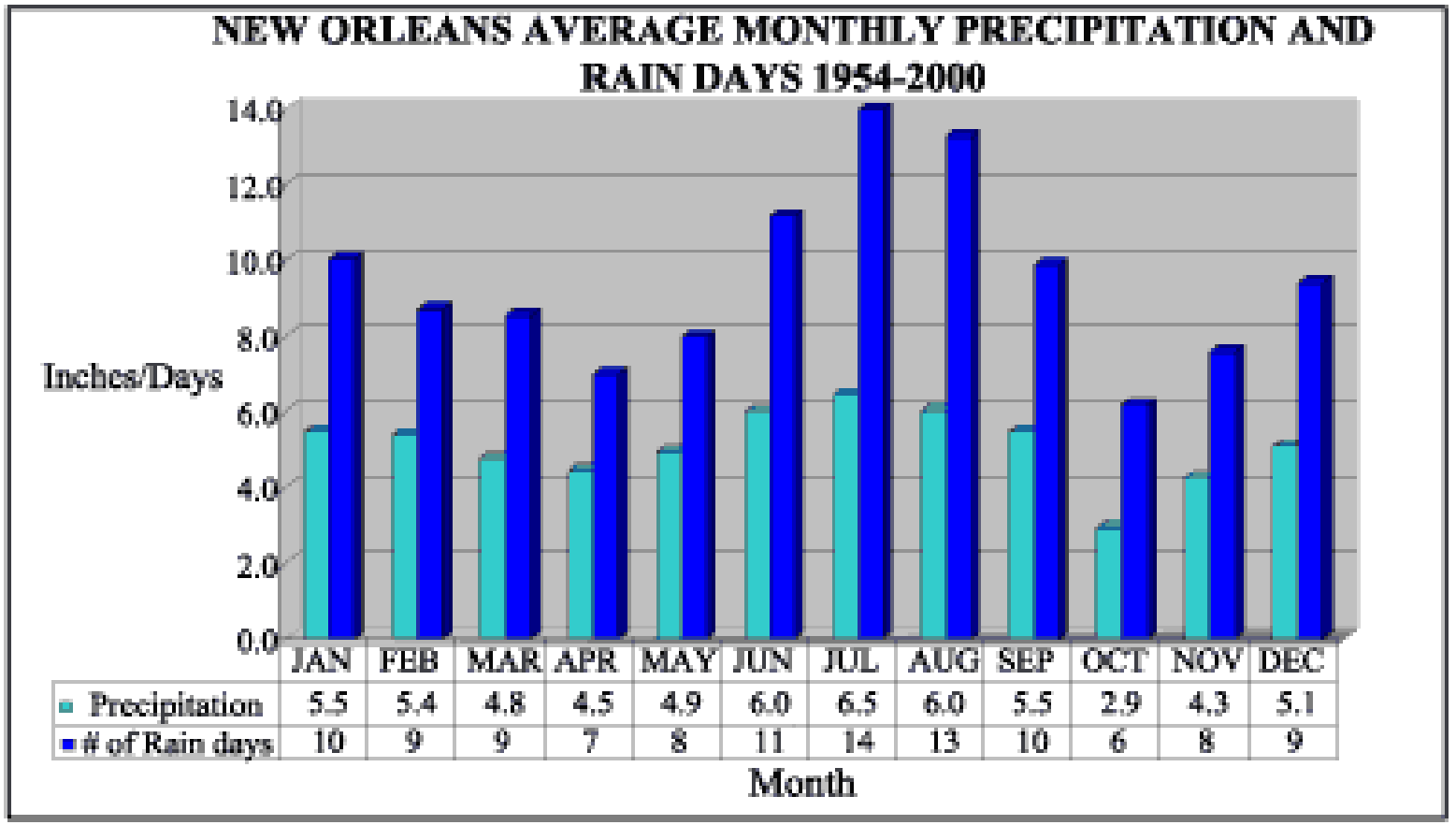
(b) All parking lots shall be maintained in a clean and orderly condition at the expense of the owner, lessee, tenant or operator and not used for the sale, repair or dismantling of any vehicle.

(Code 1956, § 11-43)

Sec. 26-485. Additional requirements of zoning ordinance.

All off-street parking spaces shall also comply with "off-street parking regulations" of the comprehensive zoning ordinance, M.C.S., Ordinance Number 4,264, as amended.

(Code 1956, § 11-43.1)



ARTICLE VII. MINIMUM REQUIREMENTS FOR PARKING LOTS*

*Cross references: Stopping, standing, parking, § 154-651 et seq.

Sec. 26-481. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Central business district is defined as the areas generally known as the downtown development district dictated by the boundaries contained in R.S. 33:2740.3, which provides that the point of beginning shall be at the intersection of the east bank of the Mississippi River and the Mississippi River bridge approaches and Pontchartrain Expressway: thence continuing in a northwesterly direction along the upper line of the Pontchartrain Expressway right-of-way, less and except ramp areas, to the lakeside right-of-way line of South Claiborne Avenue; thence proceed northeasterly along the lake side of said right-of-way line of South Claiborne Avenue, continuing across Canal Street along North Claiborne Avenue to the northeast right-of-way line of Iberville Street; thence along the said northeast right-of-way line of Iberville Street to the east bank of the Mississippi River; thence continuing along the east bank of said river to the right-of-way line of the Mississippi River Bridge approaches and Pontchartrain Expressway, being the point of beginning.

Parking lot means all areas which are used for the parking [of] motorized vehicles, for which the owner, lessee, tenant or operator thereof receives consideration of any compensation and/or the use of such area for the purpose of parking motorized vehicles thereon.

(Code 1956, § 11-40; M.C.S., Ord. No. 23783, § 1, 11-5-09)

Cross references: Definitions generally, § 1-2.

Sec. 26-482. Paving of surface of parking lots in central business district.

All parking lots operated in the central business district (CBD) shall be paved or surfaced with an erosion-resistant material in accordance with applicable city specifications. The subject parking lots shall be paved or surfaced in such a manner to eliminate standing water and prevent damage to abutting property and/or public streets and alleys.

(Code 1956, § 11-41)

Sec. 26-483. Entrances and exits of parking lots.

Each parking lot will have at least one entrance and/or exit. All entrances and/or exits must be approved by the department of streets (traffic engineering) for location and the department of safety and permits for construction. All parking lots shall be separated from walkways, sidewalks, streets, or alleys by a wall, fence, curbing wheel stops or other device approved by the department of streets so as to prevent all vehicles parked thereon from protruding over publicly owned areas. Each parking lot will provide landscaping, curbing or other approved barriers along lot boundaries to control entrance and exit of vehicles and pedestrians.

(Code 1956, § 11-42)

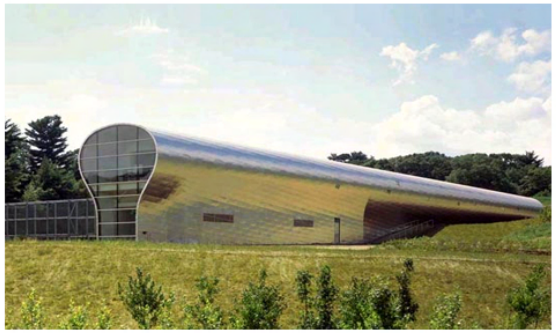
Sec. 106-67. Designation of types of plants, etc., for parks, etc.

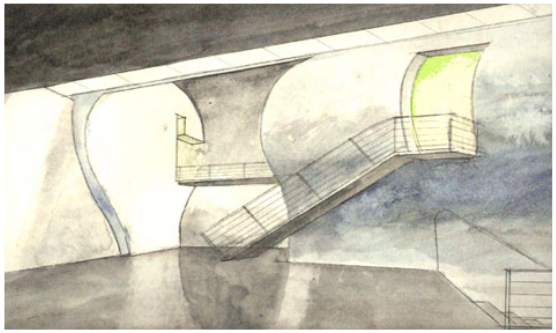
The department of parks and parkways shall designate the type of tree, shrub or plant for all parkways, parks, highways, public squares or public places under its jurisdiction.

(Code 1956, § 43-10)

State law references: Park Commission approval of the kind and character of trees to be planted in a street improvement project, R.S. 33:3494.

PRECEDENTS_WHITNEY WATER TREATMENT FACILITY





Whitney Water Purification Facility and Park

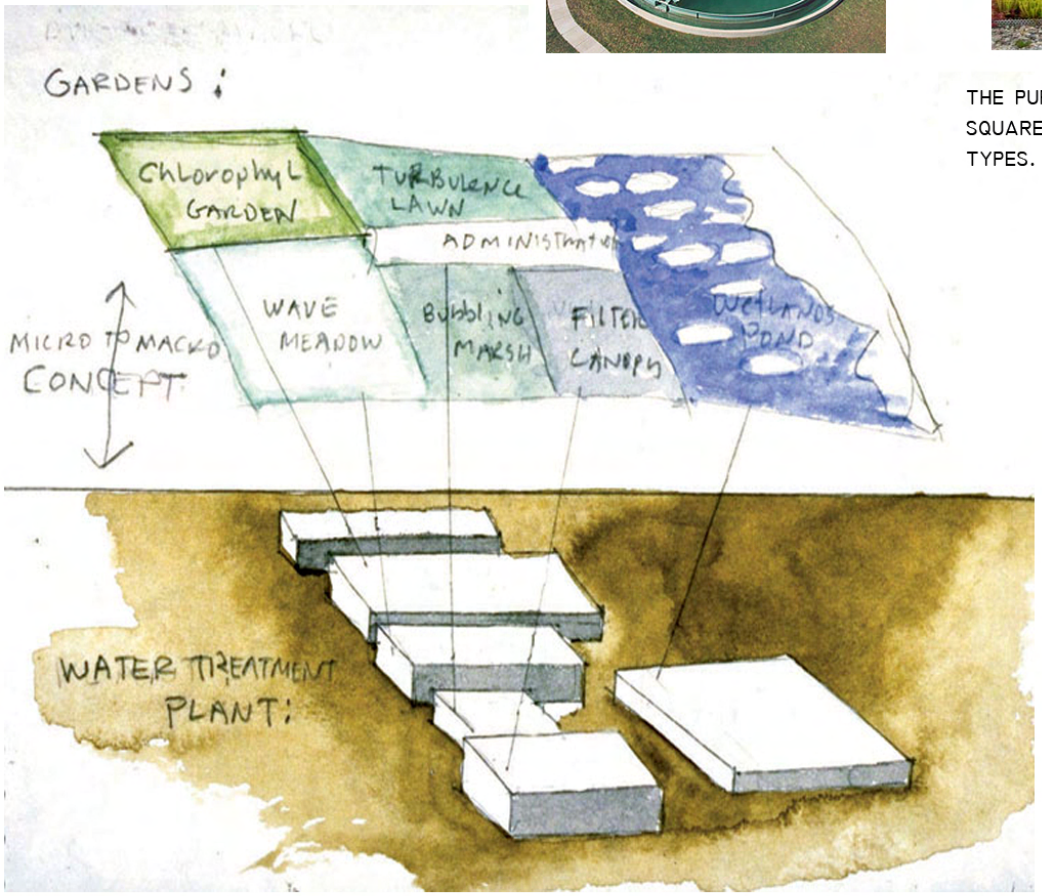
Steven Holl Architects
Hamden, CT
Client: South Central Water Authority of CT

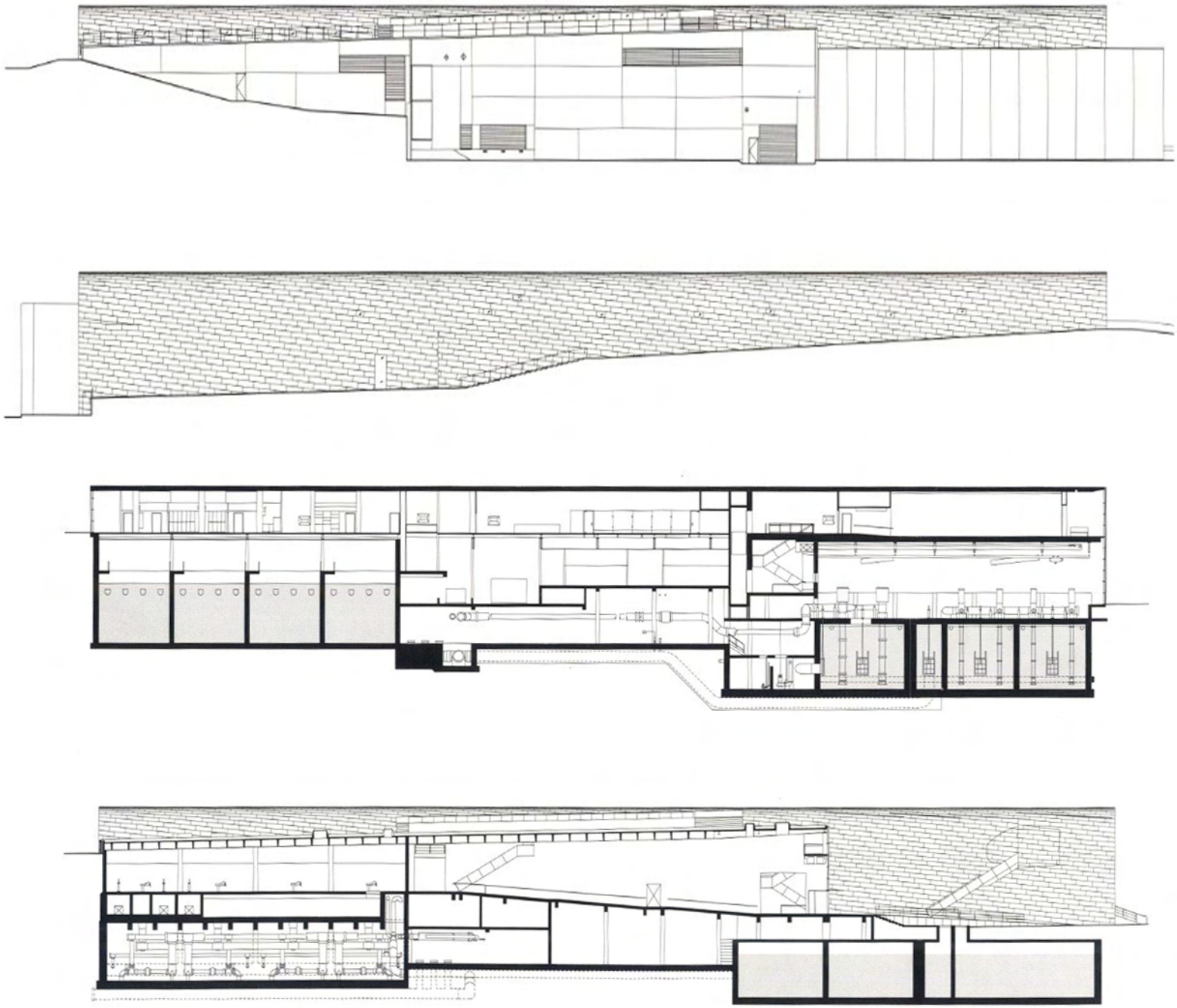
The Whitney Water Purification Facility and Park was completed in 2005 and provides an abundant water supply to south central Connecticut, creates a vibrant watershed ecosystem, and includes a public park while providing a diverse habitat and sanctuary for migrating species of birds. The facility features the largest green roof in Connecticut (30,000 square feet), zero off-site storm water discharge, expanded wetlands for biodiversity, and is heated and cooled by eighty-eight geothermal wells. The design fuses architecture with landscape. Water purification facilities are located beneath the park, while the operational programs rise up in a 360-foot-long stainless steel sliver that expresses the workings of the plant below and forms a reflective horizon line in the landscape.
[steven holl architects]

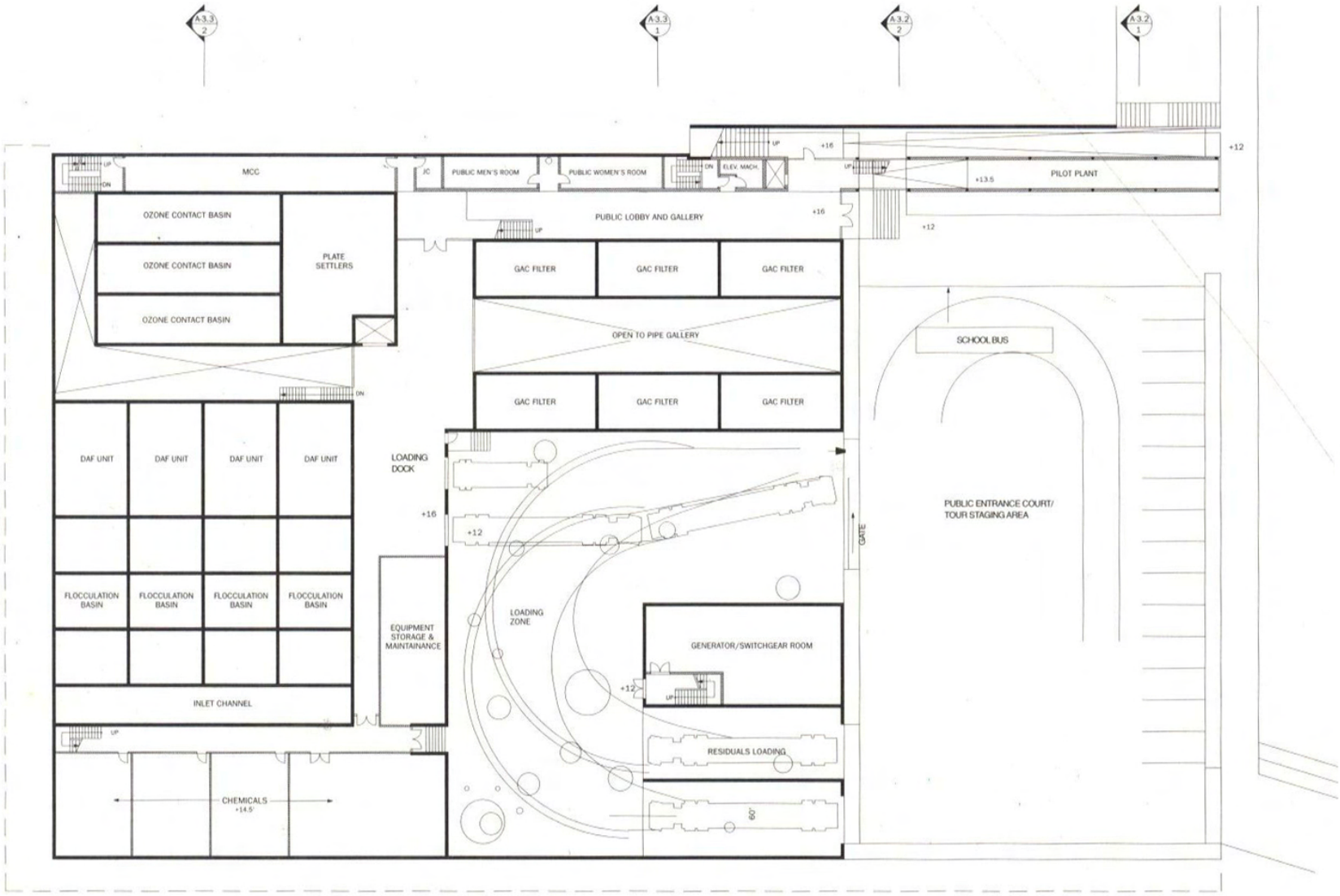
The facility is an example of how a utilitarian and infrastructural building can be architecturally significant and contemporary.

PRECEDENTS_WHITNEY WATER TREATMENT FACILITY

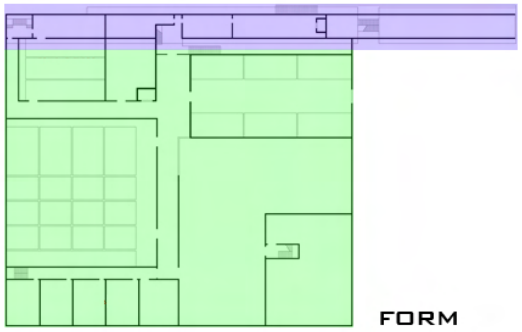
THE PURIFICATION AREA IS COVERED BY A 30,000 SQUARE FOOT GREEN ROOF HOME TO 6 ECOSYSTEM TYPES.



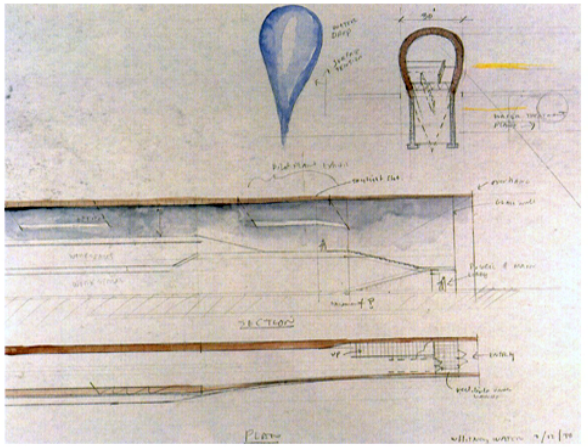


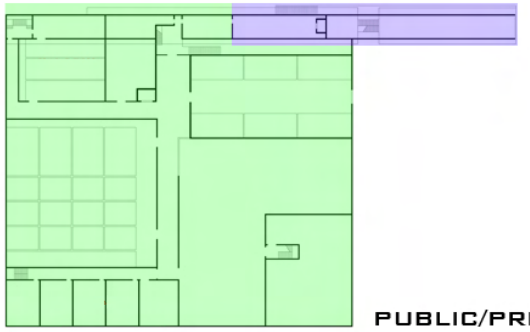


Planta nivel +16.0 / +16.0 level plan



FORM





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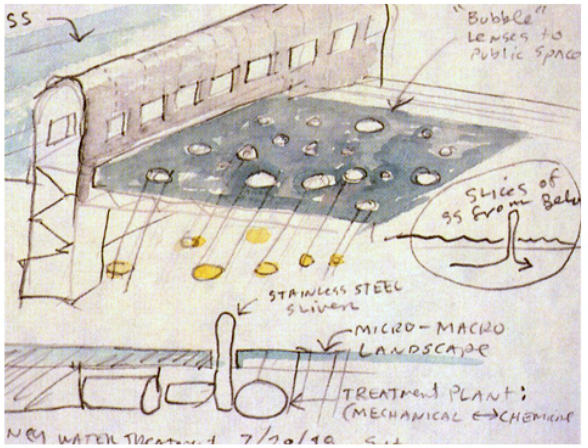

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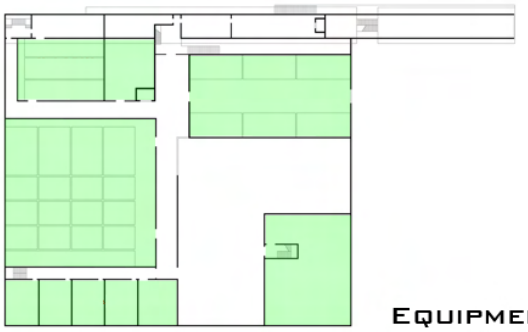
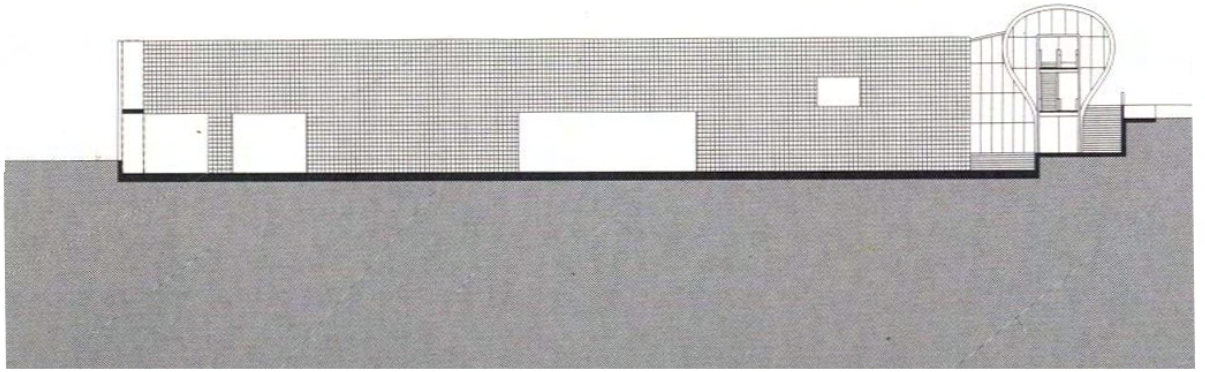
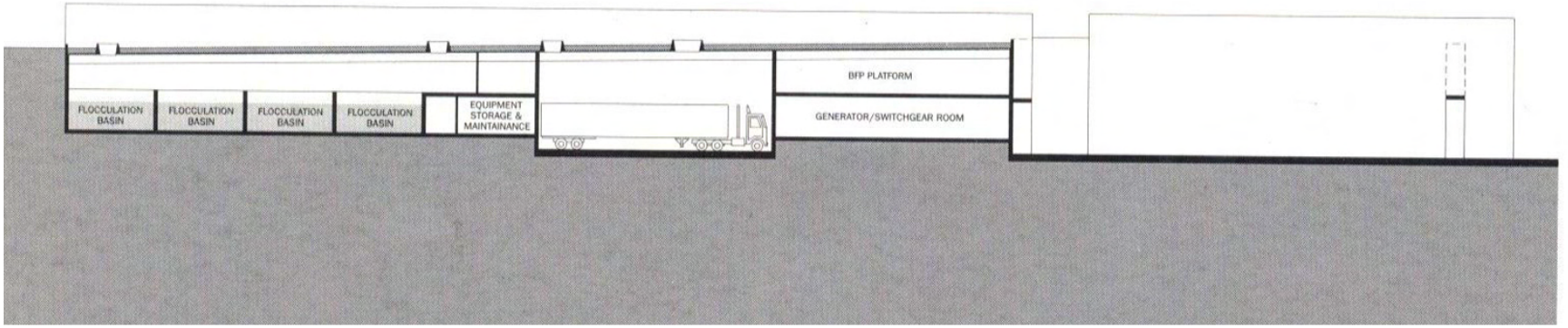
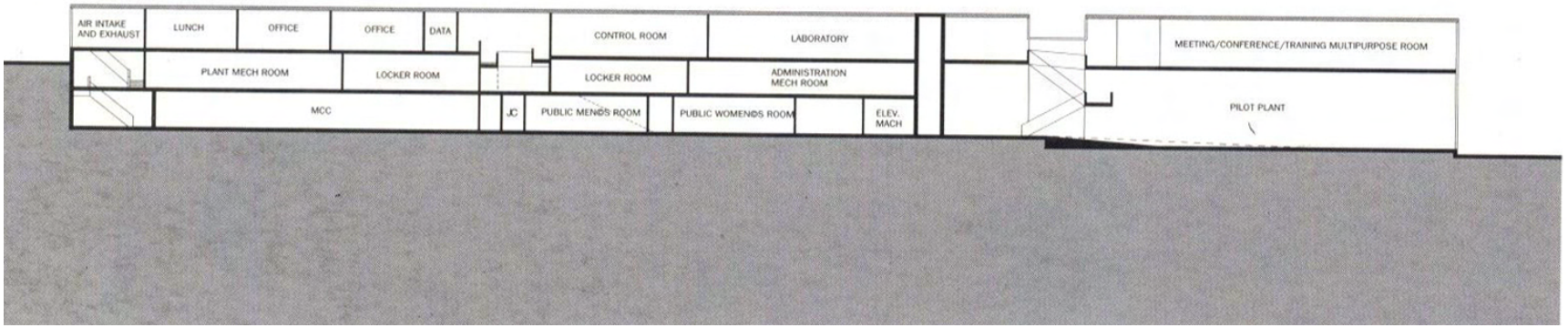
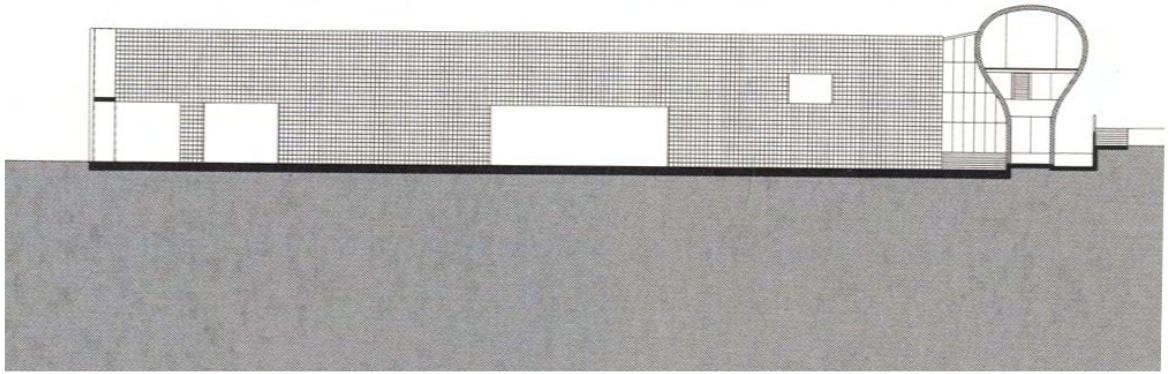


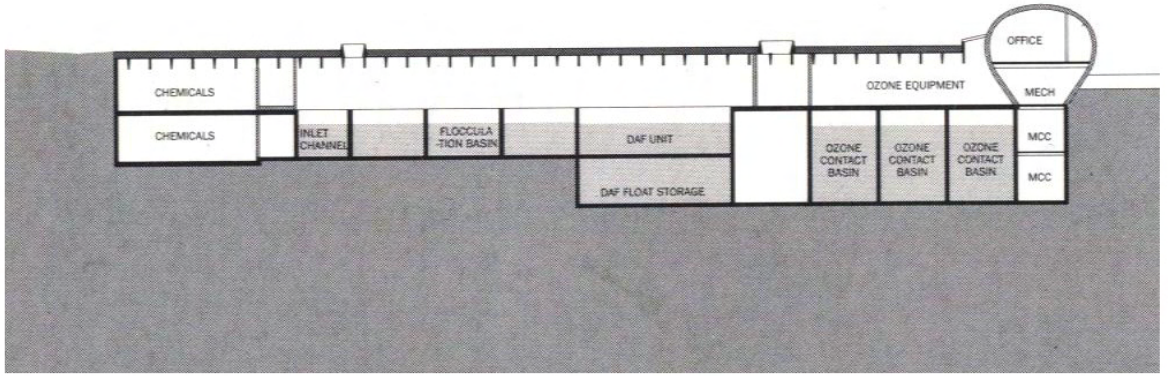
EQUIPMENT SPACES

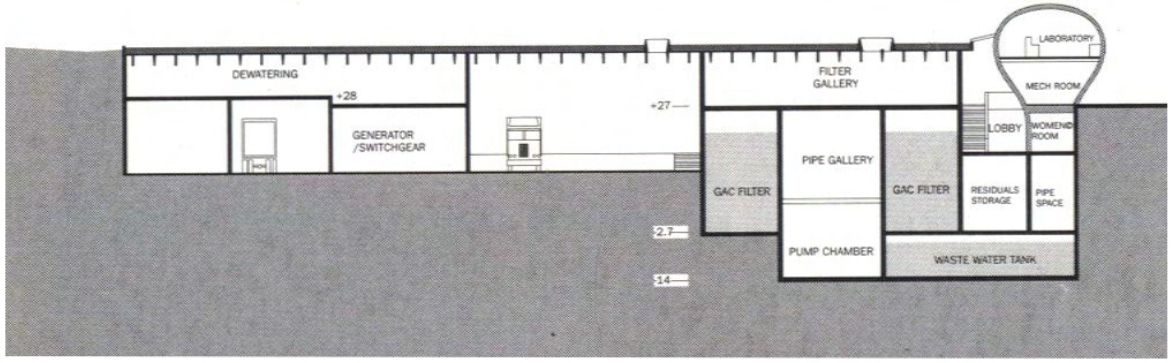



FLOCCULATION BASIN
FLOCCULATION BASIN
FLOCCULATION BASIN
FLOCCULATION BASIN
EQUIPMENT STORAGE & MAINTAINANCE
BFP PLATFORM
GENERATOR/SWITCHGEAR ROOM


AIR INTAKE AND EXHAUST
LUNCH
OFFICE
OFFICE
DATA
CONTROL ROOM
LABORATORY
MEETING/CONFERENCE/TRAINING MULTIPURPOSE ROOM
PLANT MECH ROOM
LOCKER ROOM
LOCKER ROOM
ADMINISTRATION MECH ROOM
MCC
JC
PUBLIC MENS ROOM
PUBLIC WOMENS ROOM
ELEV. MACH
PILOT PLANT




CHEMICALS
CHEMICALS
INLET CHANNEL
FLOCCULA -TION BASIN
DAF UNIT
DAF FLOAT STORAGE
OZONE EQUIPMENT
OFFICE
MECH
OZONE CONTACT BASIN
OZONE CONTACT BASIN
OZONE CONTACT BASIN
MCC
MCC

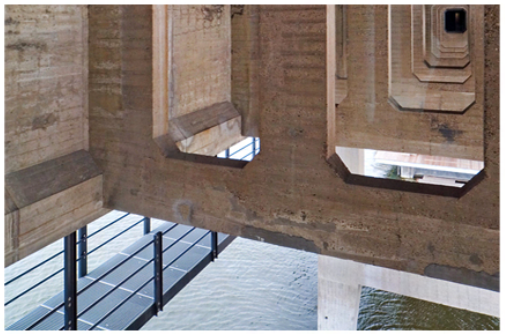

DEWATERING
+28
GENERATOR /SWITCHGEAR
+27
FILTER GALLERY
LABORATORY
MECH ROOM
LOBBY
WOMEN'S ROOM
PIPE GALLERY
GAC FILTER
GAC FILTER
RESIDUALS STORAGE
PIPE SPACE
2.7
PUMP CHAMBER
WASTE WATER TANK
14

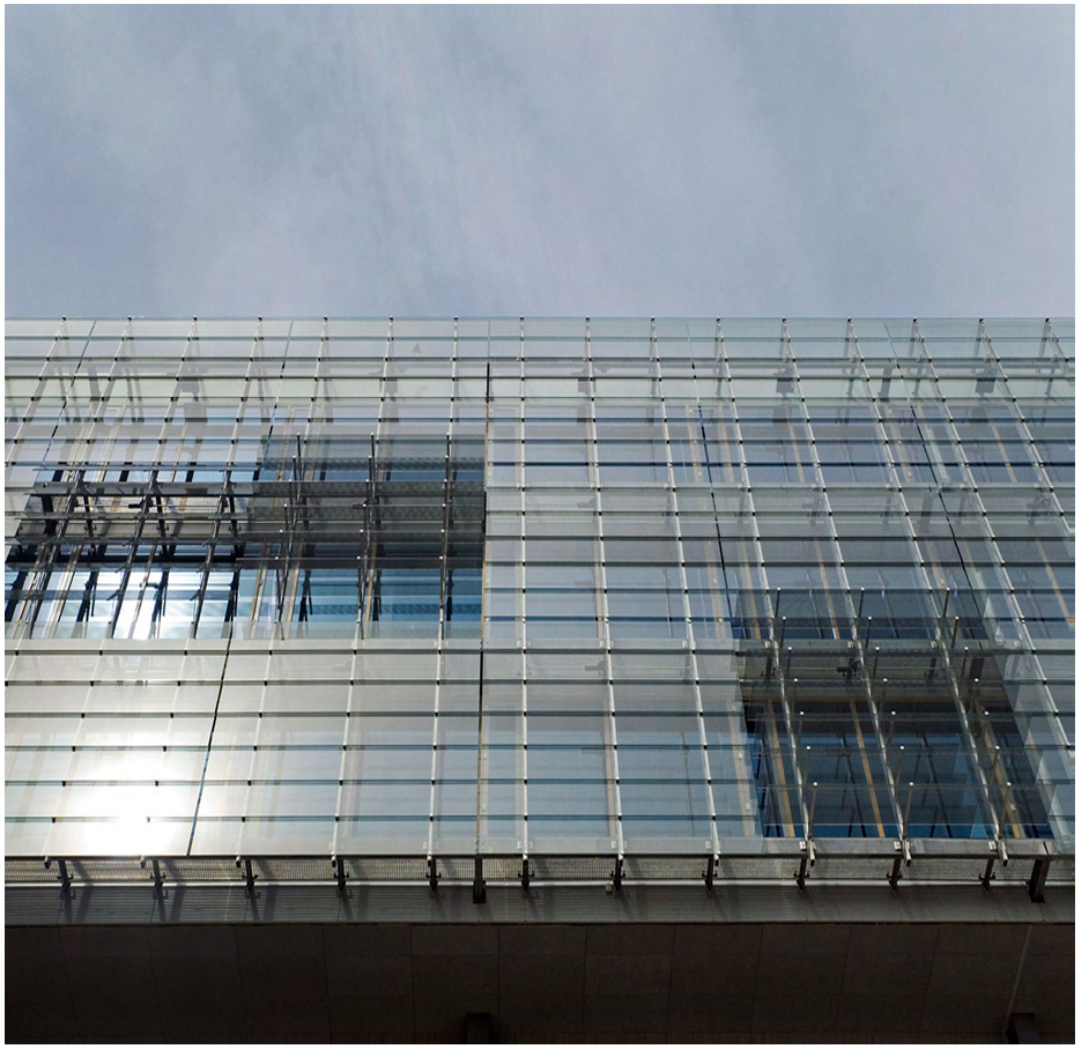
Kraanspoor

Amsterdam

OTH

2007





Kraanspoor (translated as craneway) is a light-weight transparent office building of three floors built on top of a concrete craneway on the grounds of the former NDSM (Nederlandsche Dok en Scheepsbouw Maatschappij) shipyard, a relic of Amsterdam's shipping industry. This industrial monument, built in 1952, has a length of 270 meters, a height of 13,5 meters and a width of 8,7 meters. A street length and width. The new construction on top is the same 270 meters long, with a width of 13,8 meters, accentuates the length of Kraanspoor and the phenomenal expansive view of the river IJ. Fully respecting its foundation, the building is lifted by slender steel columns 3 meters above the crane way, appearing to float above the impressive concrete colossus.

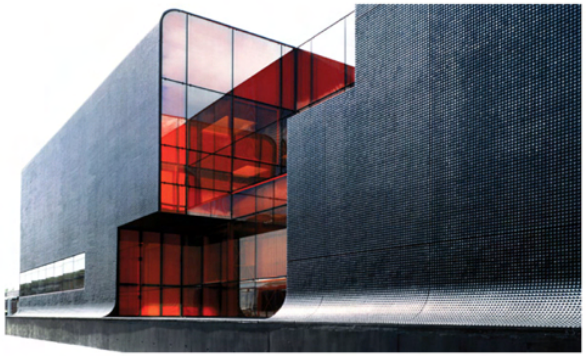
The challenge of the design for OTH was to utilize the maximum allowable load of the existing craneway. The concrete craneway functions as a foundation, and carries the maximum possible weight of a three storey building, with an asymmetrical overhang on the water-side; this is due to the heavier load barring function for the former revolving cranes that cantilevered to this side. The light-weight building of steel construction made the light-weight floors necessary. By using a hollow Infra+ floor system, the piping and wiring are tucked away in the floor allowing for a maximum clear height.

RATP Bus Center

Thiais, France

Emmanuel Combarel Dominique Marrec Architects

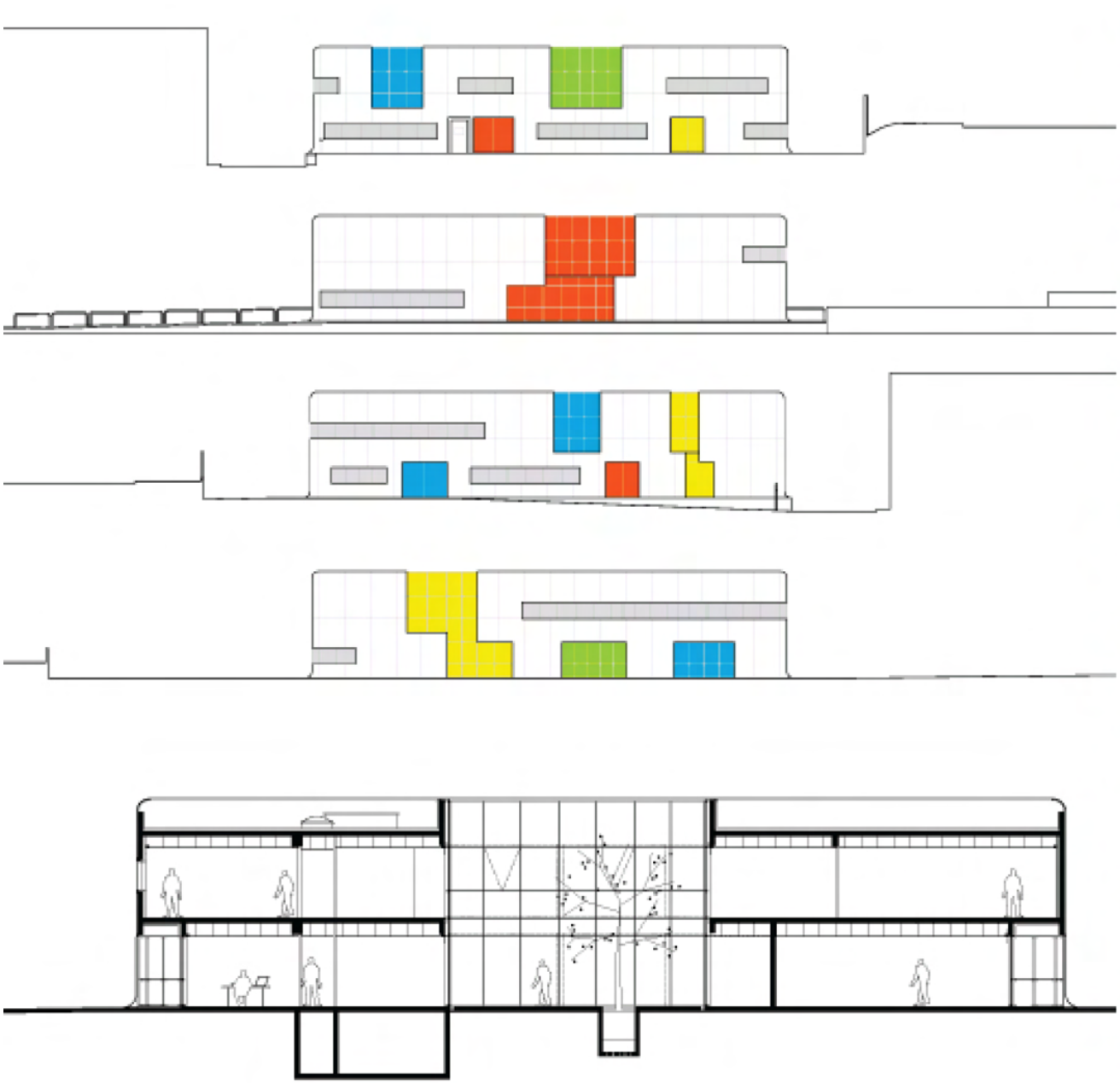
2007

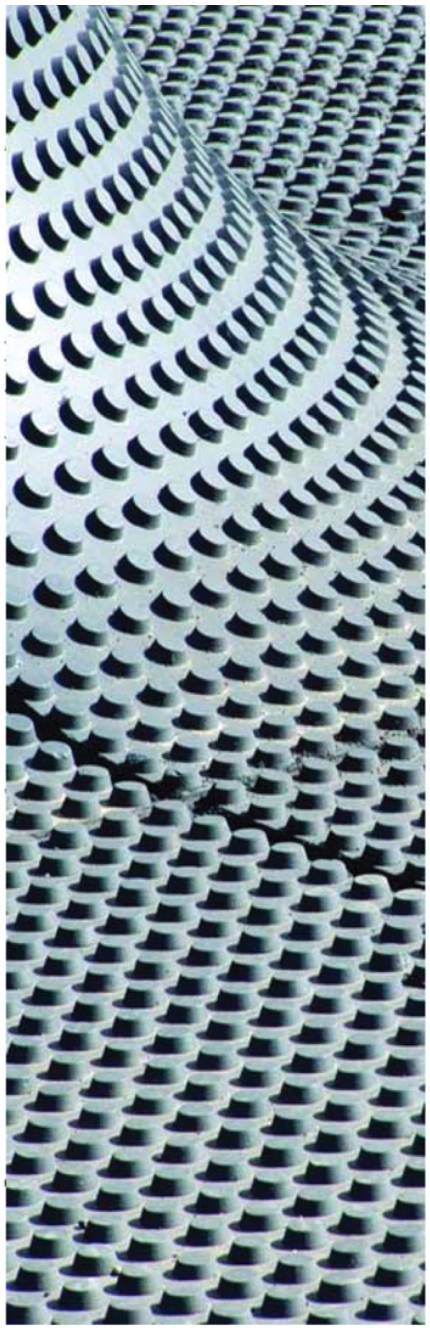


It ís an industrial context, characterised by a succession of boxes, at best basic. In this chaotic landscape, there is not much to say. Solely can we point out one federating element : the mineral ground ñ a mix of asphalt and concrete.

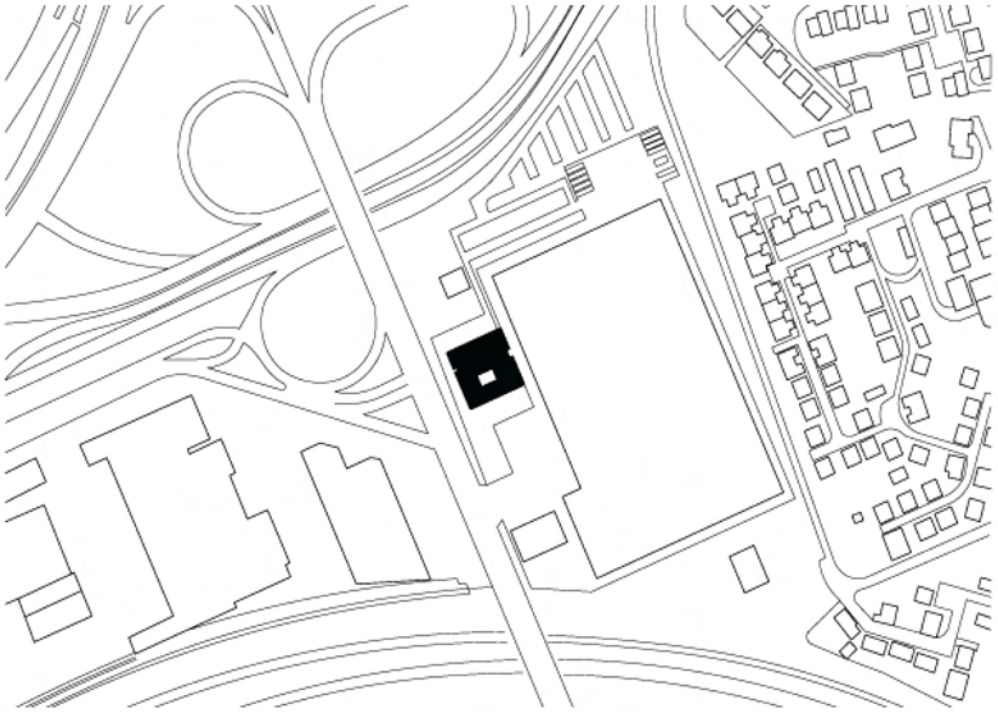
We reduced the site to a bus park, a vast monolithic concrete slab, uniformed territory composed of one sole material. The building starts with the deformation of the ground, the distortion of the existing concrete slab, and continues it with an apparently similar material Ductal, still concrete but a dazzling sheet of concrete, which responds to very sophisticated demands: informality of the structure, constant evolution of the plans, dematerialization, precision, density, homogeneity of aspect according to the mould designed. It ensures a continuity of the ground from the road, to the skin of the facades, the suspended ceilings and the terrace rooftop without any rupture.

PRECEDENTS_ RAPT BUS CENTER





PRECEDENTS_ RAPT BUS CENTER



Glass bottling Plant Cristalchile

Guillermo Hevia

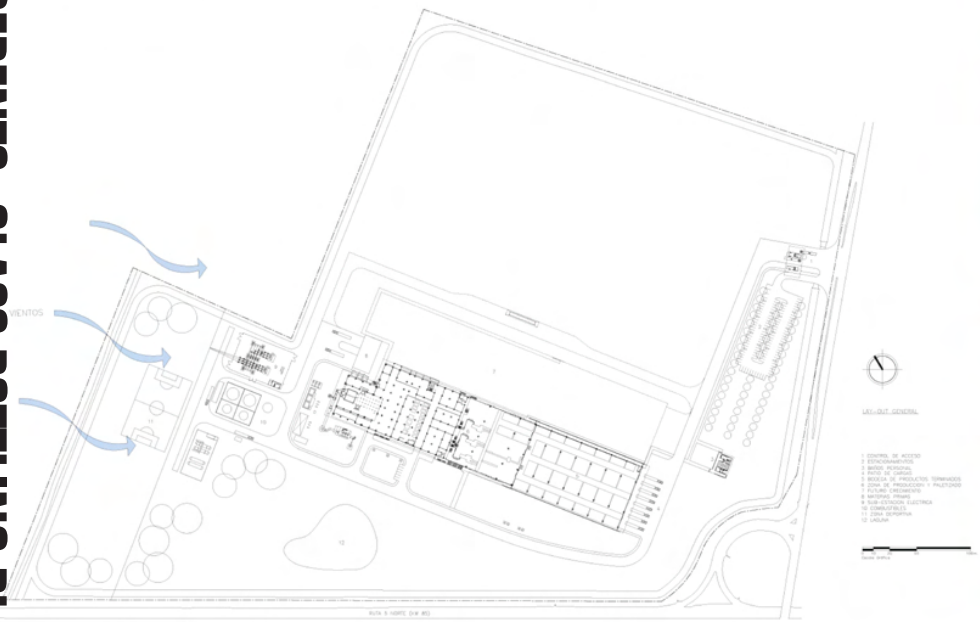
Llay-Llay , Chile

2006

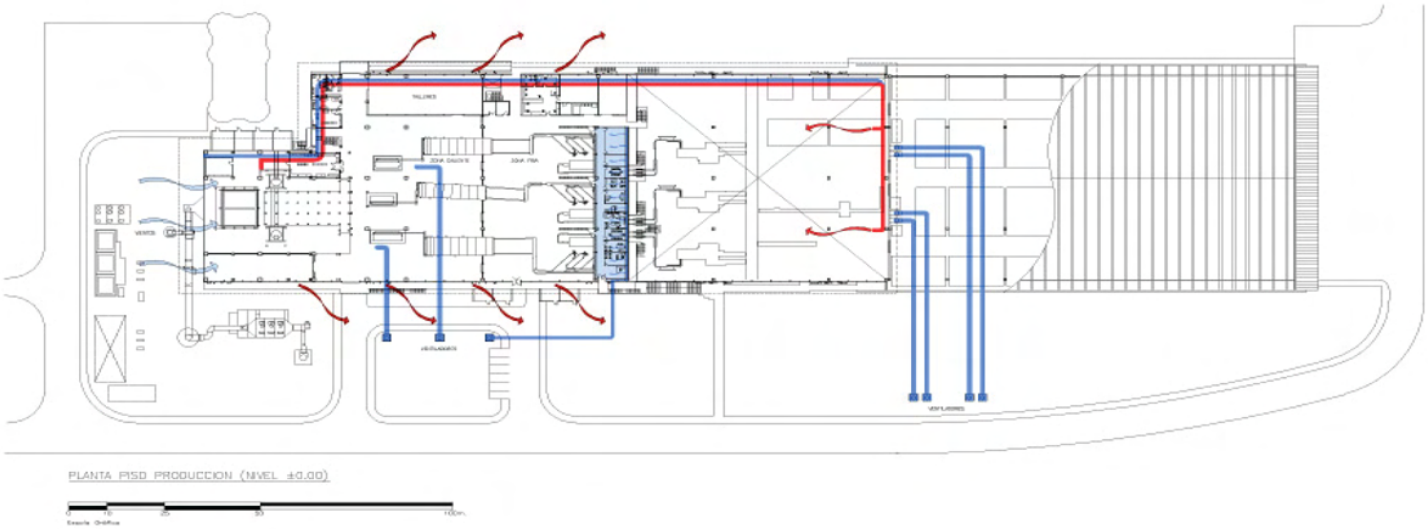
Concepts; Tradition, Efficiency, Technology, Maintainability, Design and Vanguard

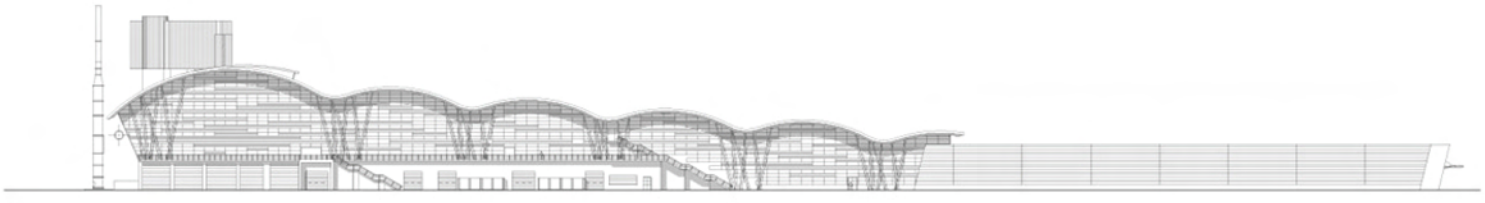
It is important to point out this is an industry with production processes, but most important of all, with people working. Our aim, through architecture, is to dignify these two facts using simple materials and natural resources in design but also trying to contribute with a message to society. Architecture plays the main role to achieve this purpose. Both, day and night, the undulating shapes of a big ascending roof are the image of a mantle moved by the winds of the area ; the transparencies of the glass façade that makes the production process transparent are an architectonic speech of easy and categorical understanding, emphasizing the handling of light and shadows, shows the huge scale and gains meaning when faced to the immediate area surroundings and geography.

PRECEDENTS_GLASS BOTTLING PLANT CRISTALCHILE

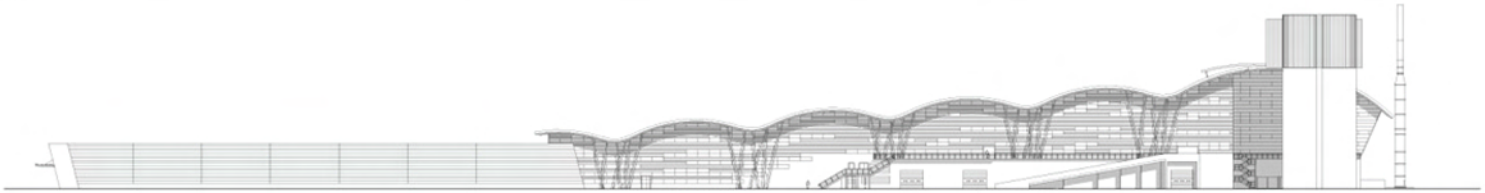


Site Plan showing winds

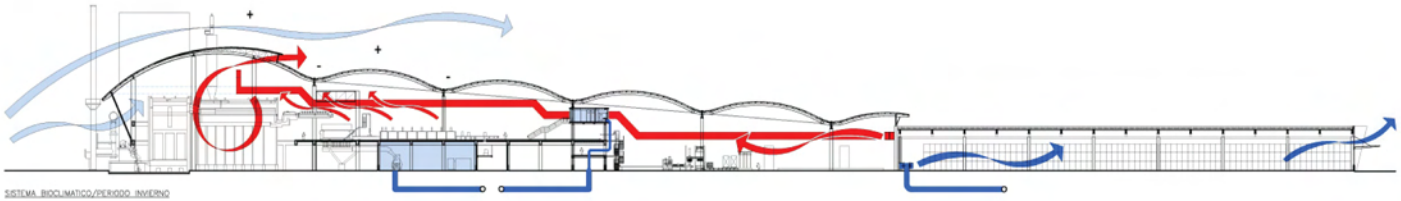




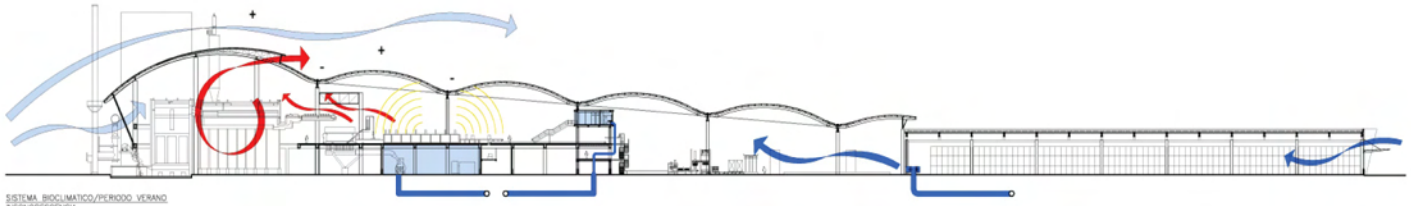
ELEVACION SURPONIENTE



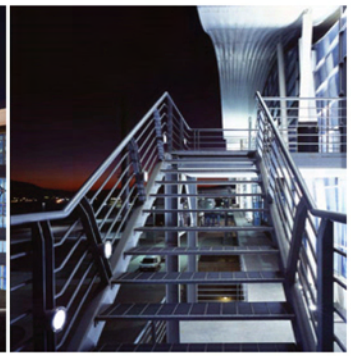
ELEVACION NORORIENTE



SISTEMA BIOCLIMATICO/PERIODO INVIERNO



SISTEMA BIOCLIMATICO/PERIODO VERANO
INSONORESCENCIA

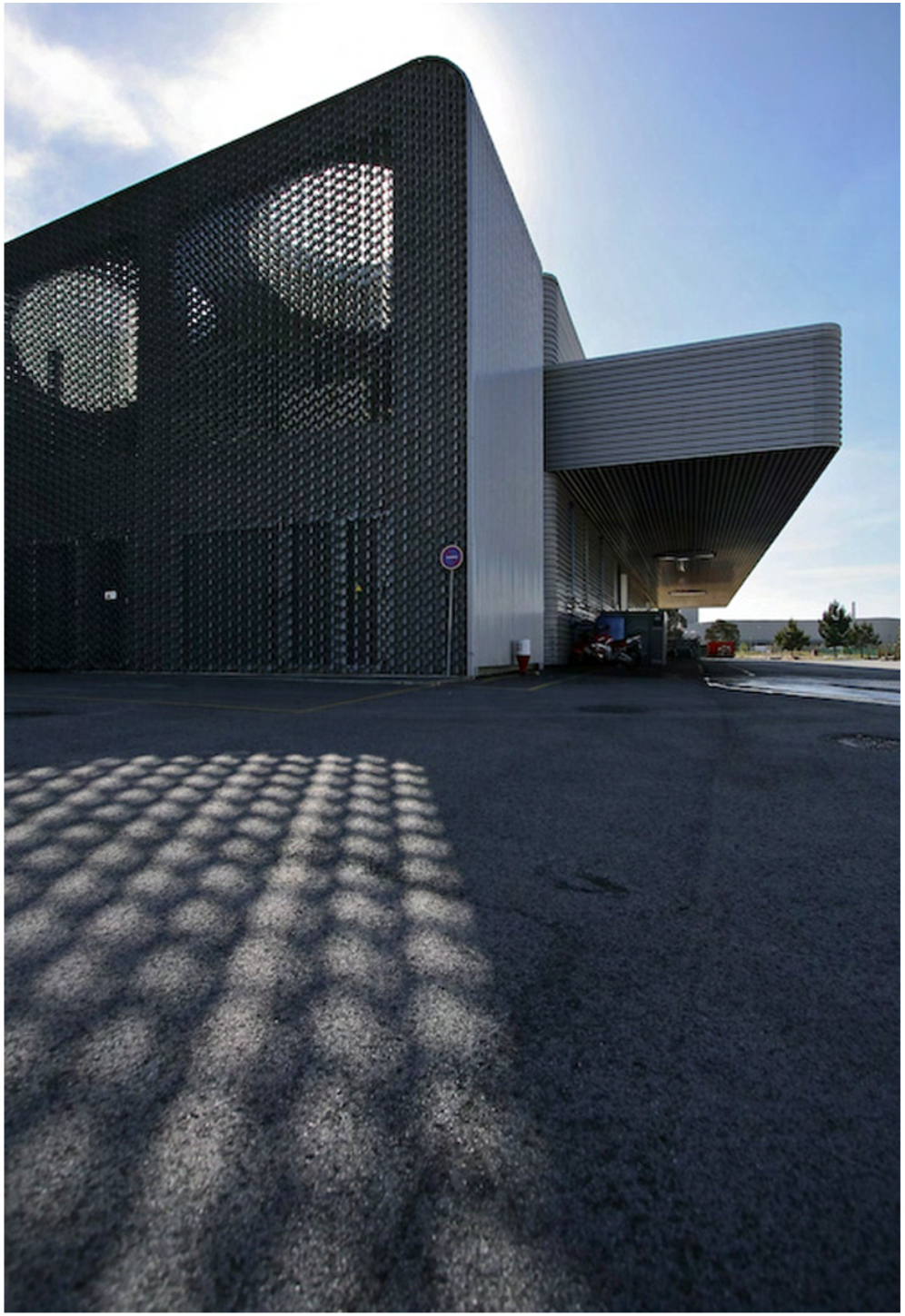


The use of natural ventilation (Venturi effect) making use of the existing winds and roof's ventilation; hot air from production area is taken out and temperature is dissipated through holes in the glass facades (Inner temperature is always higher tan outer). Through geothermic, air at a steady 20° T is incorporated into working areas; such air is naturally treated in underground pipes (3 m deep) using just 7 mechanical fans (37 HP total consumption). During the day, the building only uses natural zenithal lighting.

INPAL METAL INDUSTRIAL UNIT

MENOS E MAIS

PALMELA 2006



PRECEDENTS_IMPAL METAL INDUSTRIAL UNIT

The Inapal Metal Industrial unit is dedicated to the production of metal components for the automobile industry and is composed of two apparently autonomous volumes. One volume consists of two wings and a huge cantilever that combine raw material storage and different sections of production and delivery: while the other consists of two floors where the technical and social areas of the program are arranged. The metal-sheet skin allows the construction of curvilinear shapes which appeal to an aerodynamically iconography of the automobile industry.

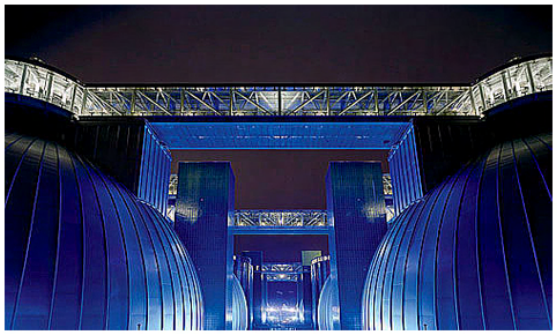
Newtown Creek Water Pollution Control Plant

Polshek Partnership Architects

New York, New York

client: New York City Department of Environmental Protection

Final Completion Date 2014



The recently completed tanks, which are egg-shaped digesters, or "ESDs," are just one piece of an expansion and upgrade of the Newtown Creek Water Pollution Control Plant. The facility serves a 25-square-mile area in three New York City boroughs, treating 310 million gallons of wastewater each day. The still-under-way $4.5 billion project will bring the 42-year-old plant into compliance with federal standards and provide relief to nearby neighborhoods from odors that emanate from its aeration and thickening tanks. The scope also includes community amenities, such as a waterfront nature walk designed by installation artist George Trakas, and a visitors center with an indoor-outdoor fountain by Vito Acconci.

The shape of the digesters was predetermined by engineering efficiency, but Polshek Partnership Architects (PPA), New York City, designed their skin and the bridgelike maintenance walkways. And they designed the containers that house the many other necessary steps in the wastewater treatment process. The architects also performed another, arguably more important role, helping devise a logic for the 53-acre development.

Paykar Bonyan Panel Factory

ARAD

Tehran, Iran

2006

The project: is a factory that contains a prefabricated building system production plant plus an office & ancillary building.

The Client Goal: is to change the traditional construction system to an industrial building system which can fulfill the enormous demand of construction in Iran. The client, therefore, wanted the factory to be indicative of this goal in terms of architectural quality in industrial building system with no resemblance to traditional factories in Iran.

The program: is a 3700 sqm production plant with a 350 sqm mezzanine for settlement of technical management team and 500 sqm for technical office and showrooms and mechanical room that must be close to and with a good access to the production plant. There is also a 500 sqm management building with a VIP suit and receptions that is connected to the main bldg with a bridge.

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