3-2013

Stormwater Management at The University of New Orleans

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Stormwater Management Plan

@ The University of New Orleans

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What is Stormwater Management?

Stormwater is rain and snowmelt that runs off surfaces and picks up pollution from oil, pesticides, soil, trash, animal waste etc. The unabsorbed polluted water may run into the water bodies without an appropriate stormwater management plan.

Unmanaged stormwater may cause:

- Downstream flooding
- Stream bank erosion
- Habitat destruction
- Infrastructure damage
- Increased turbidity from erosion
- Contamination of stream, river and coastal water

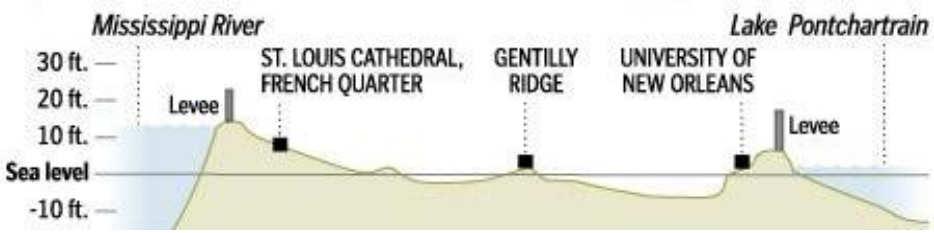
Benefits of a Stormwater Management Plan

Source: Housatonic Valley regional plan of conservation and development

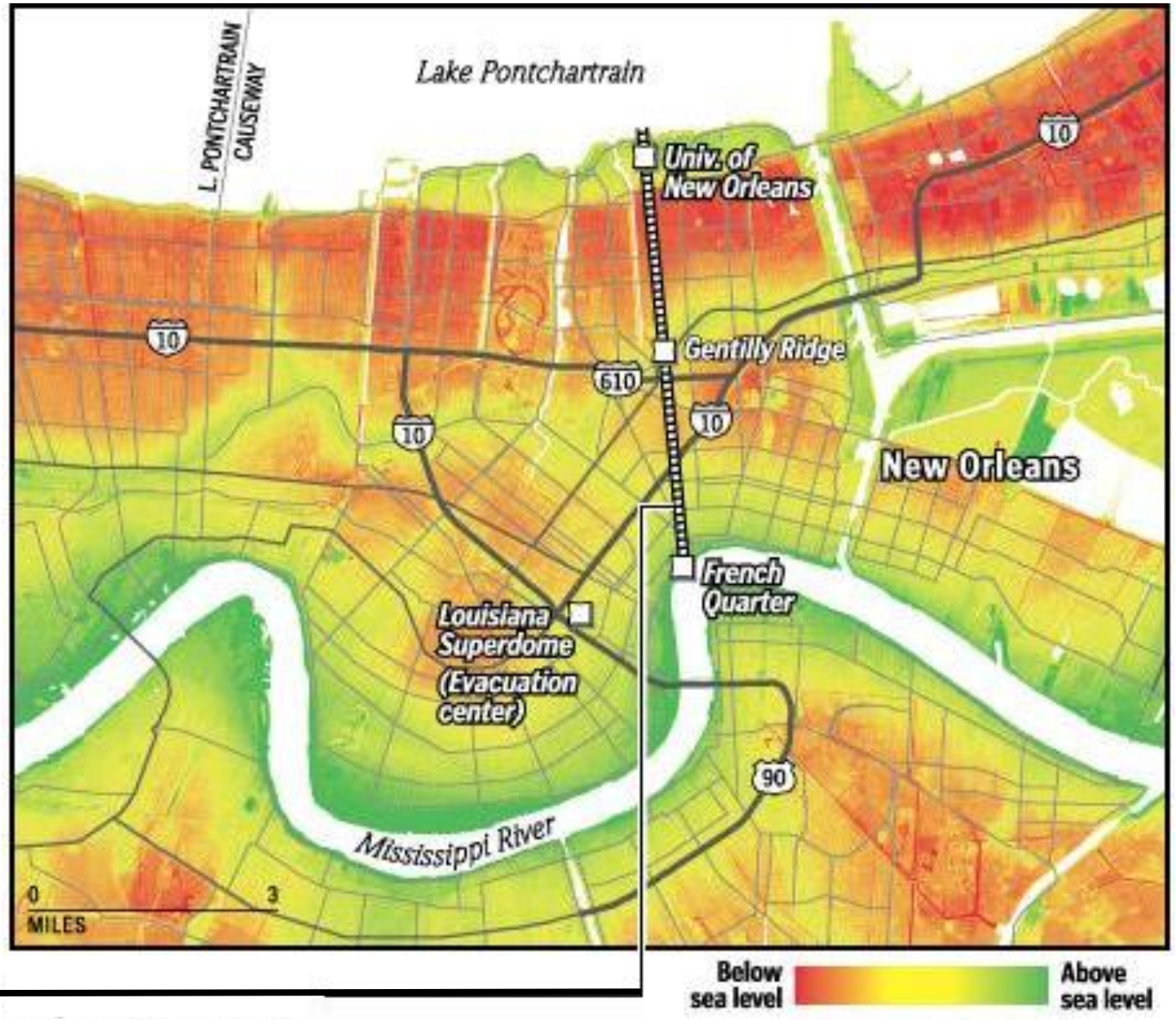
- Minimizes stormwater runoff pollution
- Reduces environmental impacts on watershed, lakes and rivers
- Limits downstream flooding
- Offers an educational component
- Promotes aesthetic and recreational values

New Orleans: Elevation and Drainage

- Shaped like a saucer, surrounded by levees.
- Rainfall is retained within the city.
- Drainage network includes 90 miles of open canals and 90 miles of subsurface canals.
- 22 Drainage Pumping Stations
- 13 Underpass Stations
- Most rainwater is pumped into Lake Pontchartrain



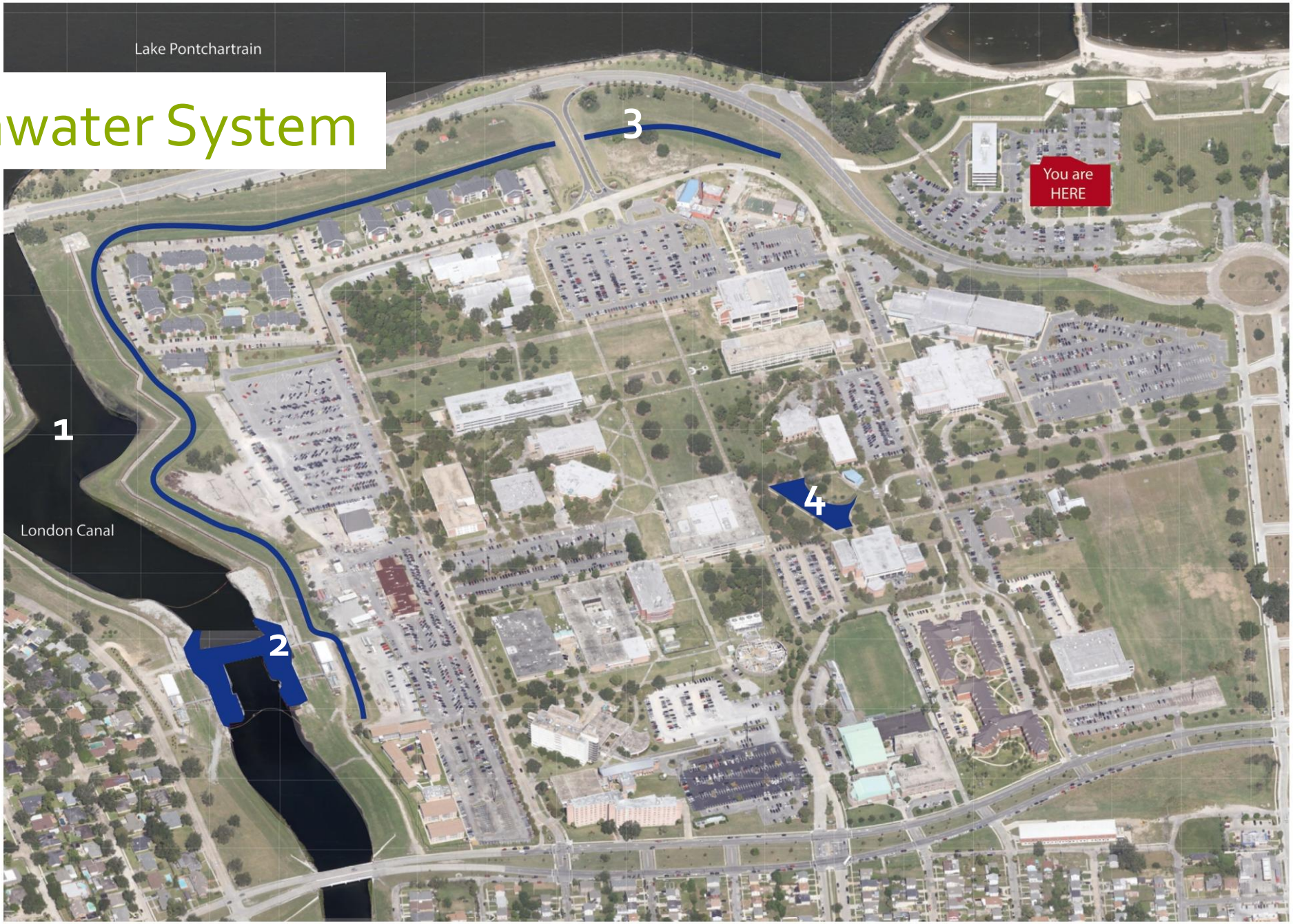
City Cross Section



The University of New Orleans: A Model Institution

- Influences the economy of the city
  - 2,500 faculty and staff (19th largest employer in LA)
  - Over $100 million in research grants
- Flagship school of the city
- Total enrollment: 11,000
  - Diverse student body representing 50 states and 90 countries.
- Flagship programs include Naval Architecture
+ Marine Engineering, Film, and Jazz
  - UNO has the only accredited Urban and Regional Planning program in Louisiana.

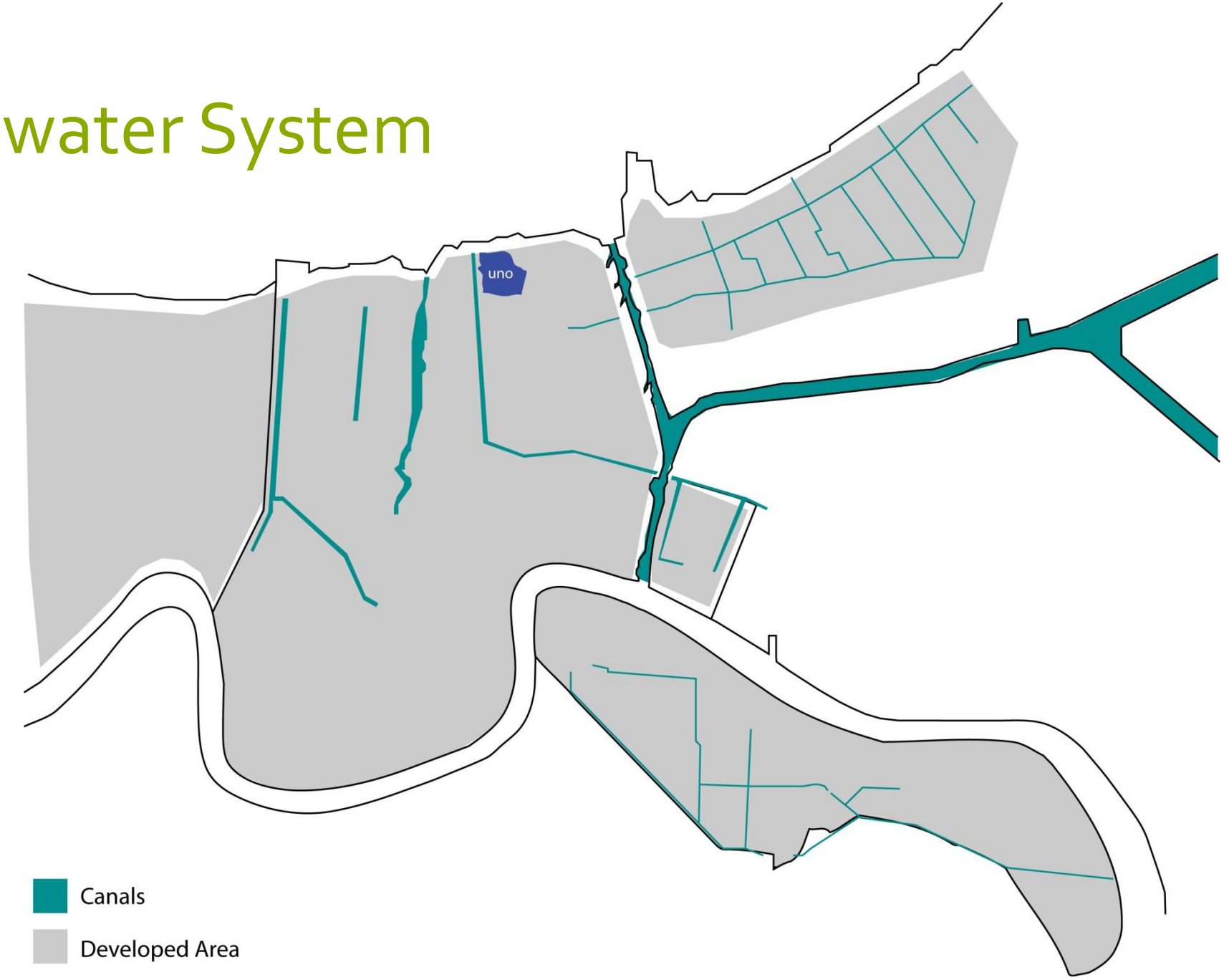
Existing Stormwater System



1 London Avenue Canal
2 Pump Station
3 Grassed Swale
4 Biodiversity Park

Existing Stormwater System

1) London Ave. Canal



Existing Stormwater System

2) Pumping Station

Photo courtesy of Gresham Smith and Partners

Existing Stormwater System

3) Grassed Swale

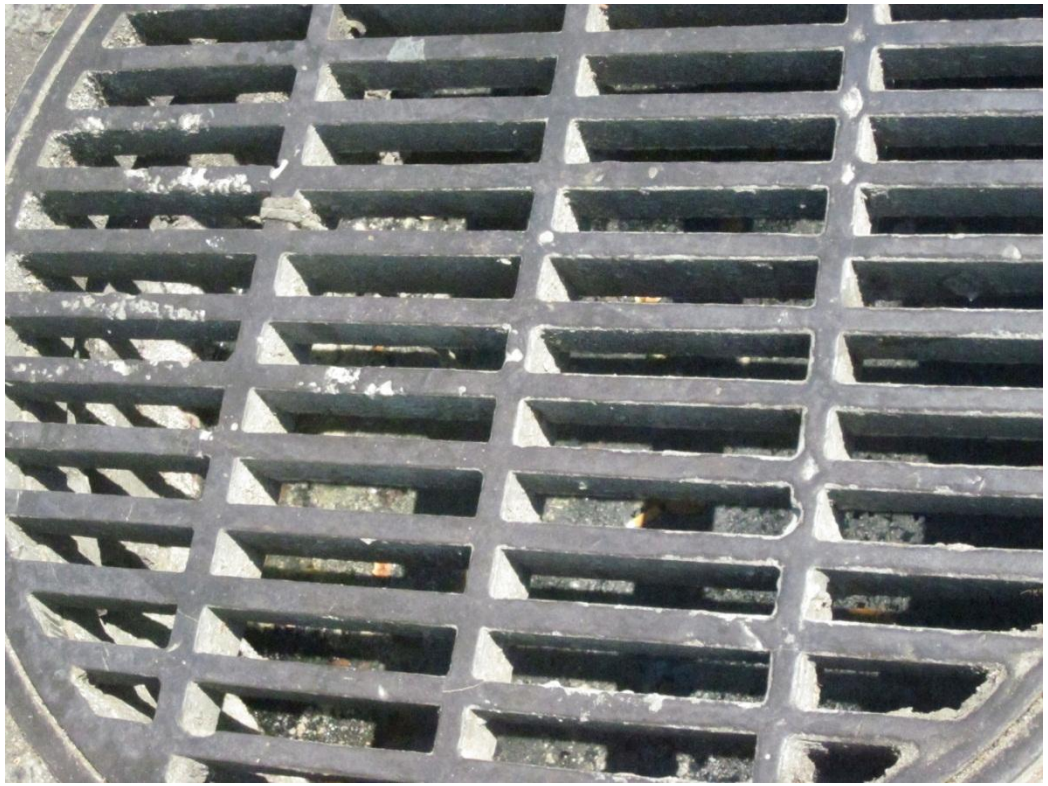
Existing Stormwater System

4) Biodiversity Park

Present Condition | Drainage

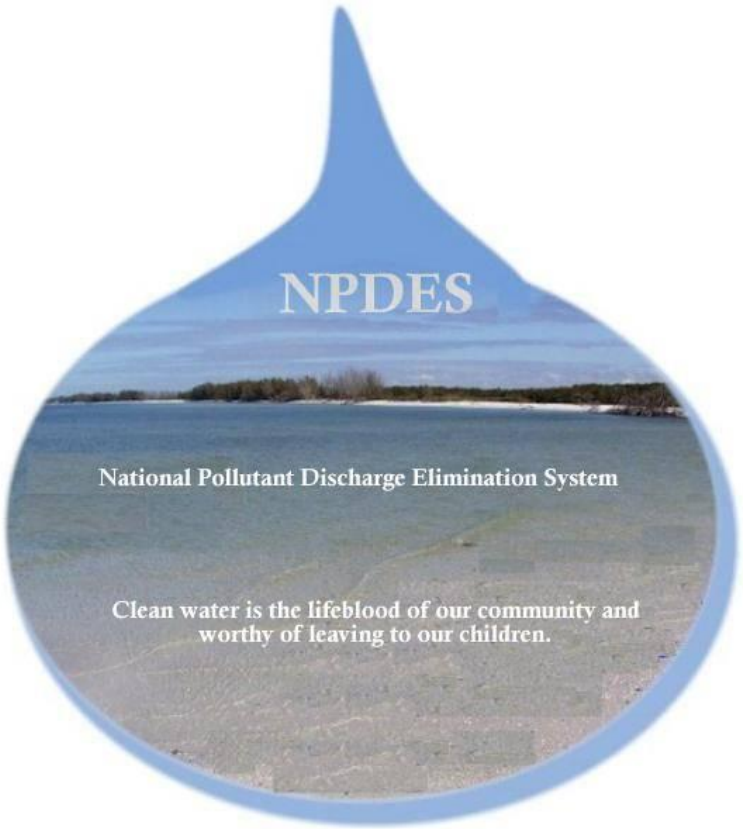
- No natural drainage ways to collect and carry away surface water.
- Drainage is dependent on underground storm drains.
- One main drainage feed connecting UNO to the city's system.
- Stormwater inlets are clogged with debris.

Example of a Clogged Drain. Source: http://www.msdgc.org



UNO Stormwater Inlet

EPA Best Management Practice: Permits

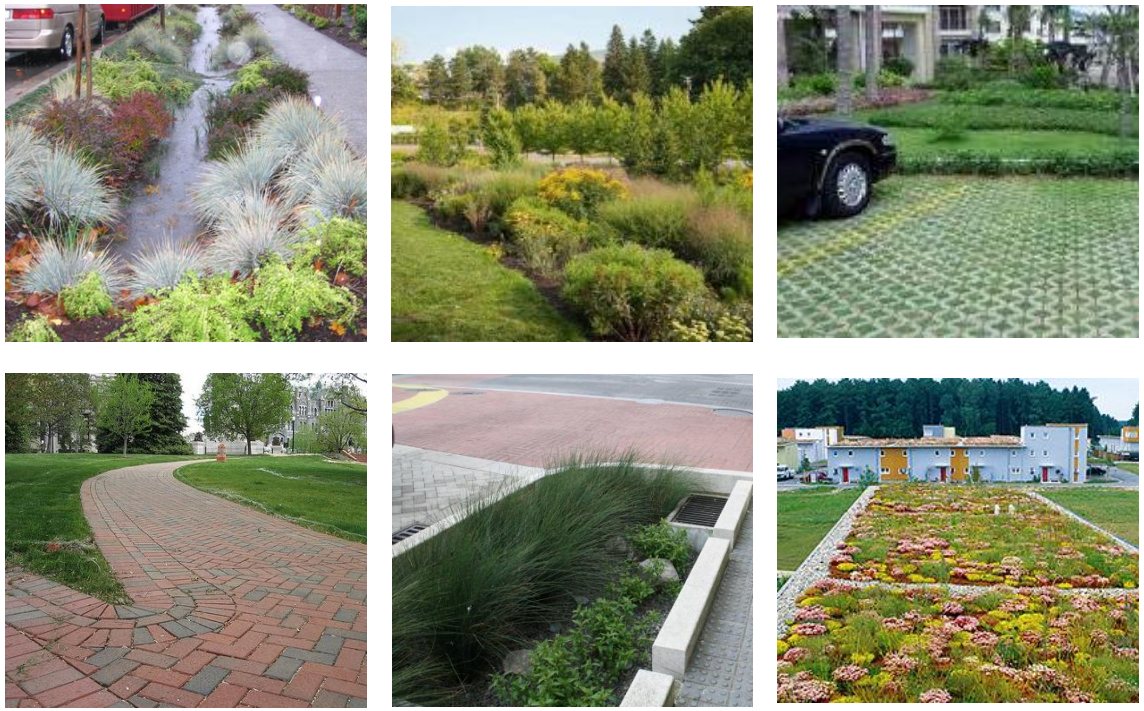


- In conjunction with LDEQ, set parameters for stormwater quality
- Stormwater general permit for construction activity [in lines with NPDES permits]
- Floodplain regulations

EPA Best Management Practice: Inventory and Reporting

- Historical data in GIS layers.
- Supervise and report any violation of stormwater management caused due to construction activity.
- Administer monthly stock: Label chemicals in various lab.
- Monitoring and managing stormwater site system.

EPA Best Management Practice: Structural



- Bio-retention cells
- Grassed swales
- Green parking design
- Permeable pavers
- Stormwater planters
- Vegetated roofs

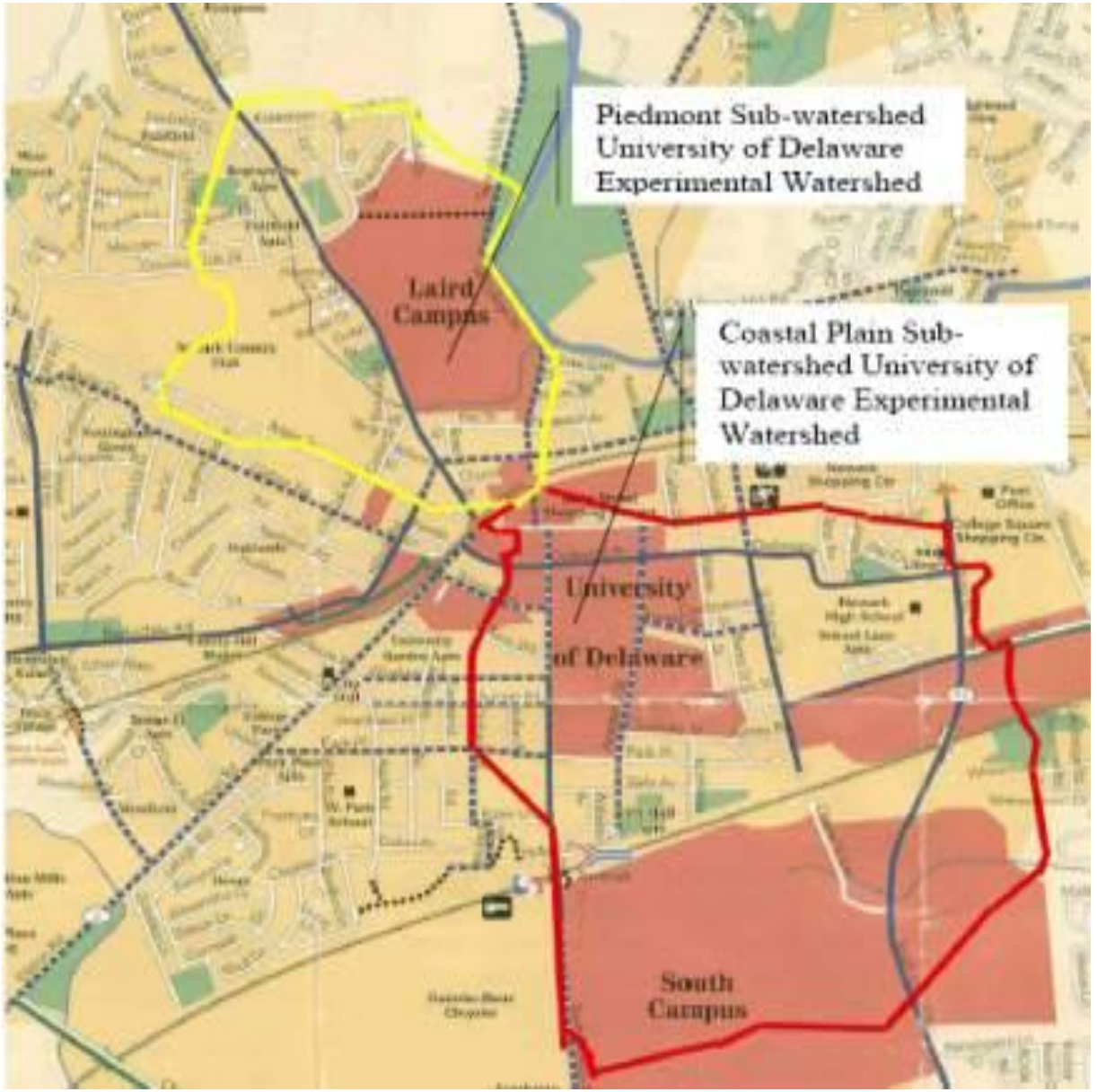
Low-Impact Design (LID)

- Techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source through small, cost-effective landscape features located at the lot level.
- Urban environment that can serve as landscape features are: open space, rooftops, streetscapes, parking lots, sidewalks, and medians.
- This ecosystem-based approach allows for greater development potential with less environmental impacts

Case Study 1
University of Delaware

Feature:

- Unique geologic setting
- Two major watersheds (White clay and Cristina river)
- Develop improved stormwater management system
- Connection of the north and south campus :"Green Corridor"



Current Stormwater Management Practices: learning from precedents

- Safety and security policy

  To assure that the university practices comply with EPA administered permit program : NPDES

- Illicit Discharge detection

- Control runoff during and post construction.

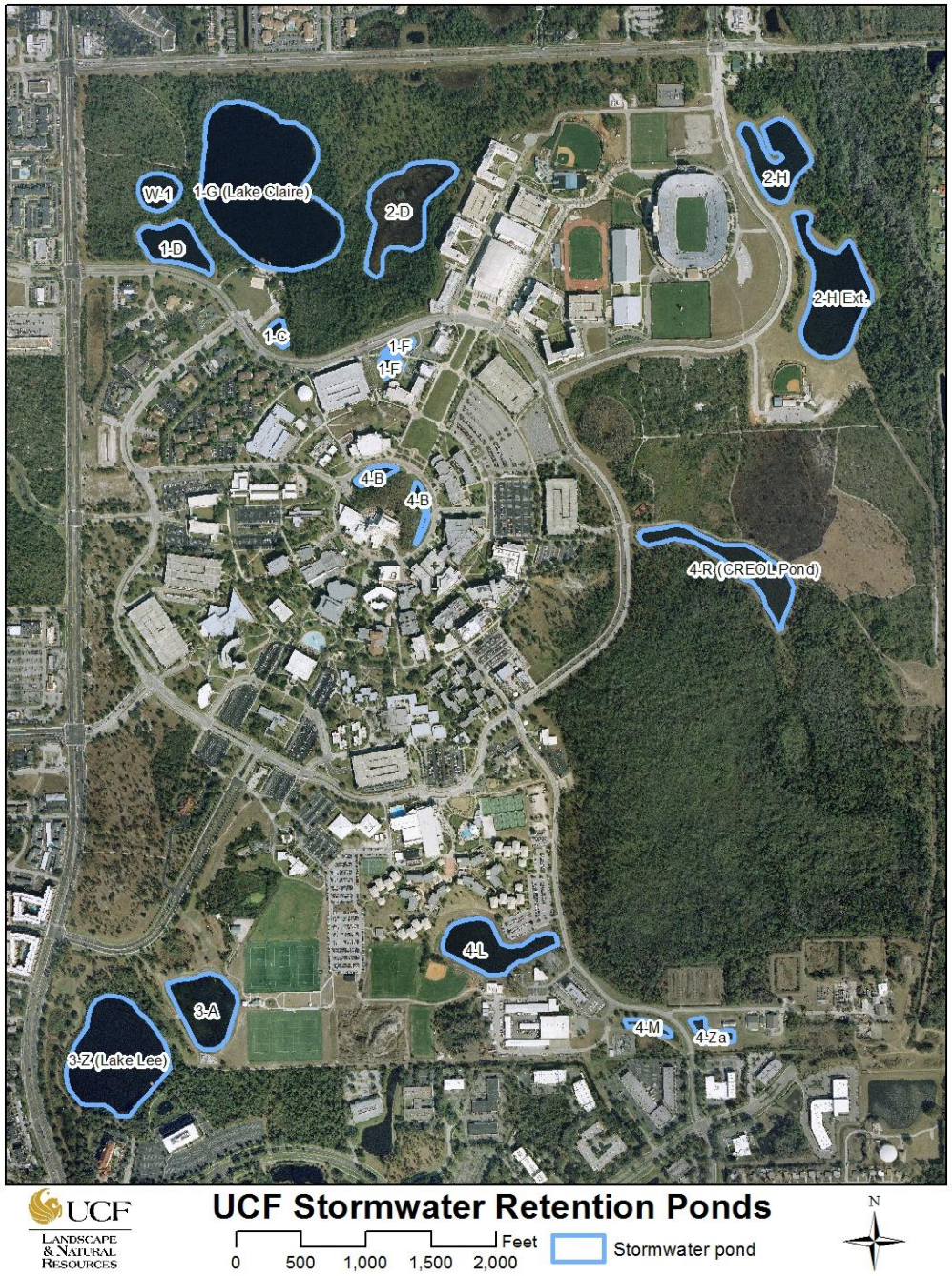
- Public education and outreach
  - Incorporating stormwater management in university curriculum
  - Employee training

Case Study 2
University of Central Florida

- Water shed with more than 10 pond systems.
- Stormwater that enters drainage is released in Little Econlockhatchee River (north).
- BMP: Natural Pollution Removal.
  - Retention ponds serve as a natural filtration system.

Also:

- Encourages recreation activities through trails and canoe rentals.



Current Stormwater Management Practices: learning from precedents

- UCF Master Plan and Regulatory Permits.
- Education and Outreach.
  - Monitored and maintained by the UCF Landscape & Natural Resources as well as student volunteers through "Adopt-a-Pond" program.
  - Stormwater System is integrated to local stormwater management plan
  - UCF Stormwater system is part of the St. John's River basin.
  - Regulated by St. Johns River Water Management District.

Recommendations

Develop a stormwater management plan for the university.

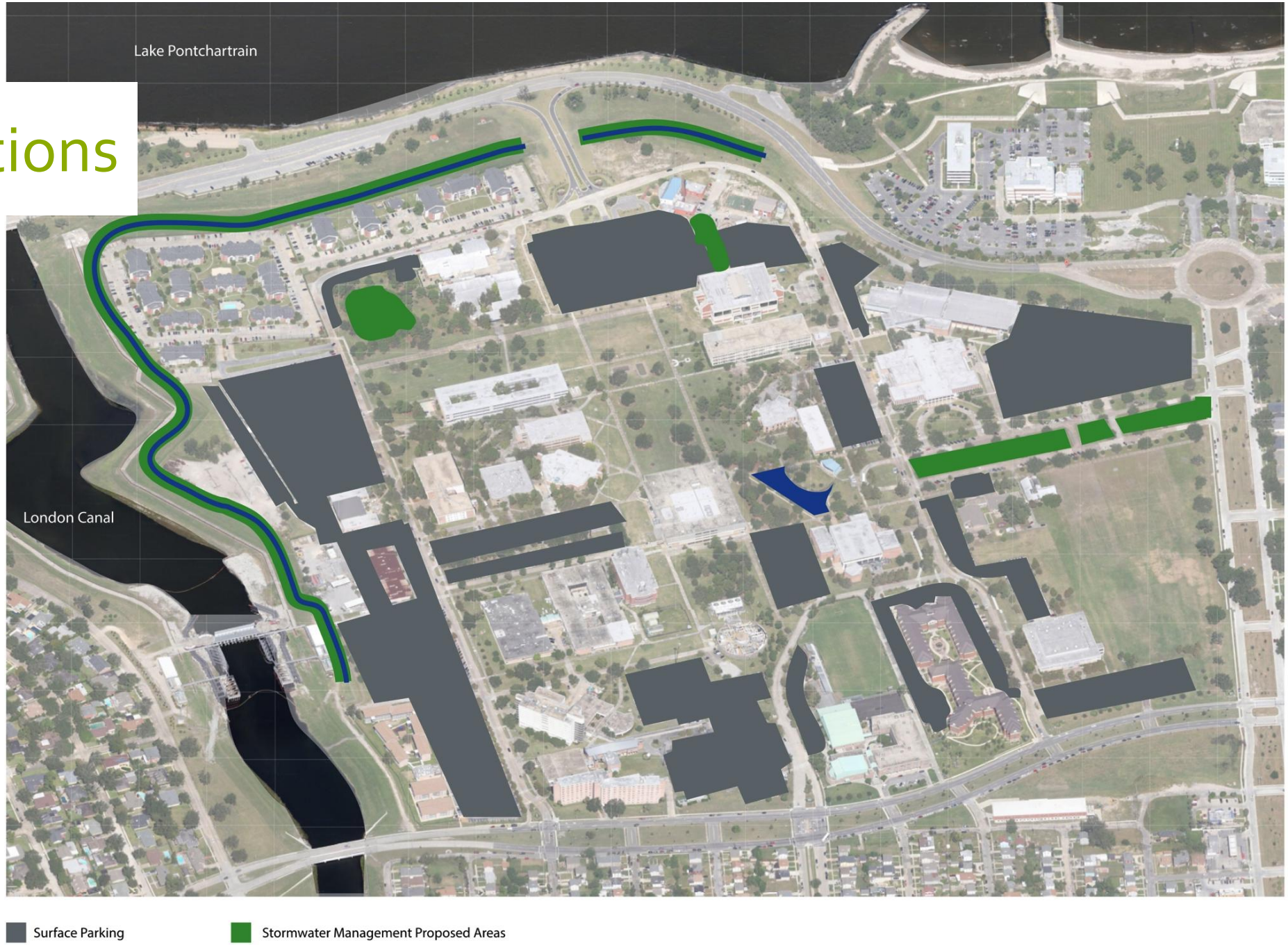
- Consolidate and integrate local stormwater management efforts.

- Educational intent: "Sustainability Component" across curriculums.
  - Necessitate, collaborative inter disciplinary teamwork by engaging staff, students, faculty and design/planning professionals.

- Maximize Green Space
  - Vegetated swales
  - Stormwater planters

- Safety and security policy

Recommendations



Funding sources of the Project

- Stormwater (service) fees
- System Development Charges (SDCs)
- Environmental Education Grants
- Water Pollution Control Program Grants
- Fed FUNDS (FEMA, EPA, HUD)
  - U.S. EPA Drinking Water State Revolving Fund
  - Clean Water State Revolving Fund
  - Flood Mitigation Assistance (FMA) program
  - EPA | RainWorks Challenge (for students, college research)

Thank you