JEFFERSON PARISH

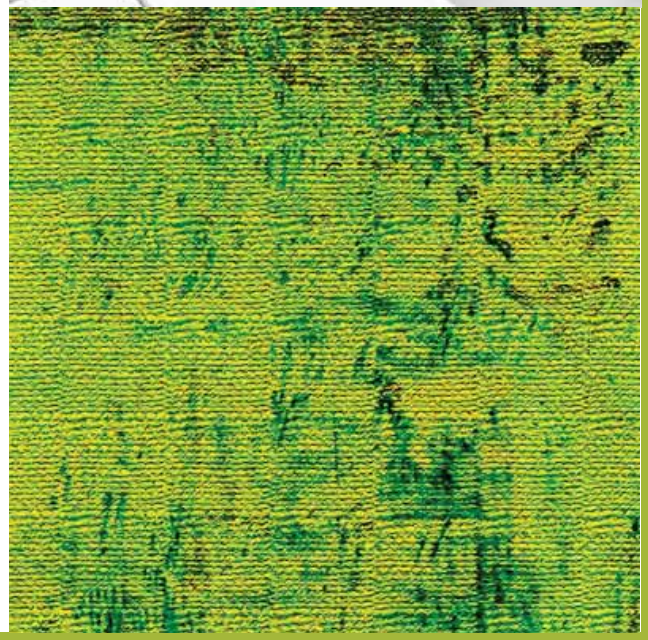
DRAFT

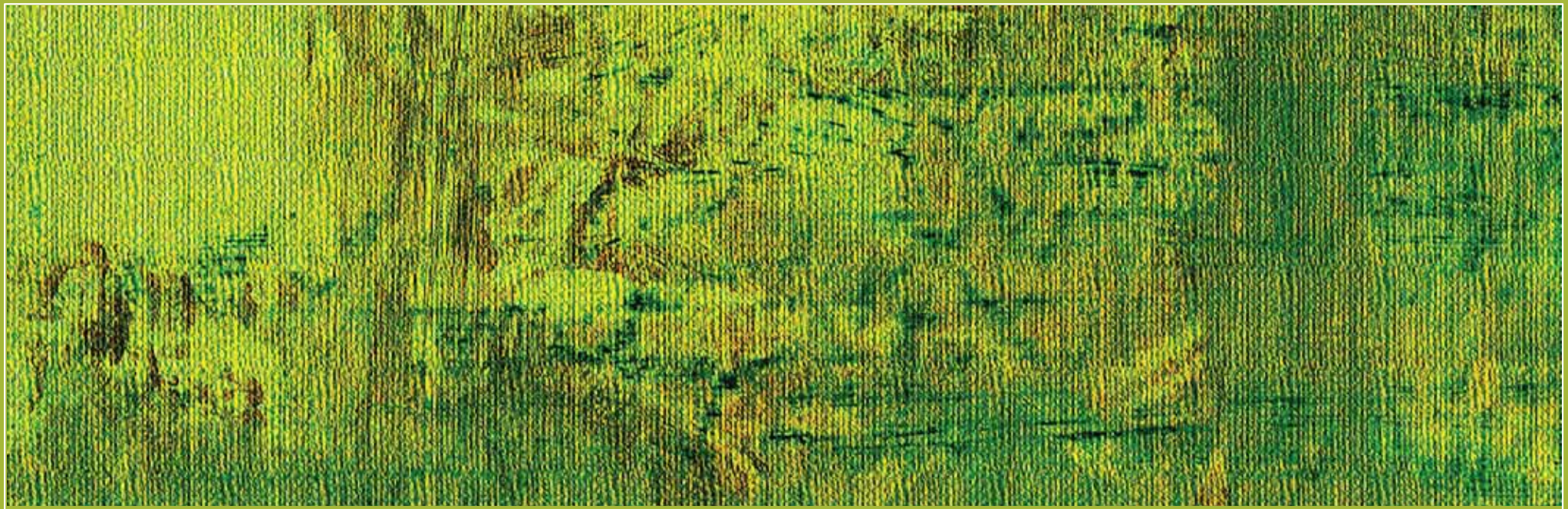
INTEGRATED GREEN INFRASTRUCTURE (IGI) STRATEGY

Public Meeting
December 2021

Agenda

- Context
- Approach
- Impact
- Vision
- Findings and Recommendations
- Immediate Next Steps
- Discussion

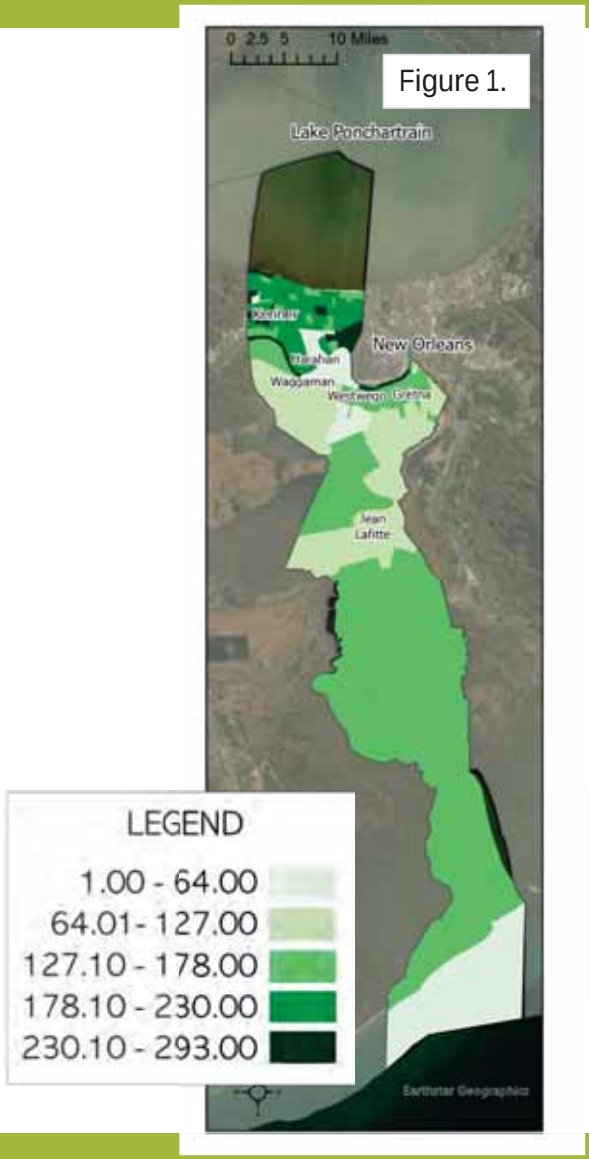


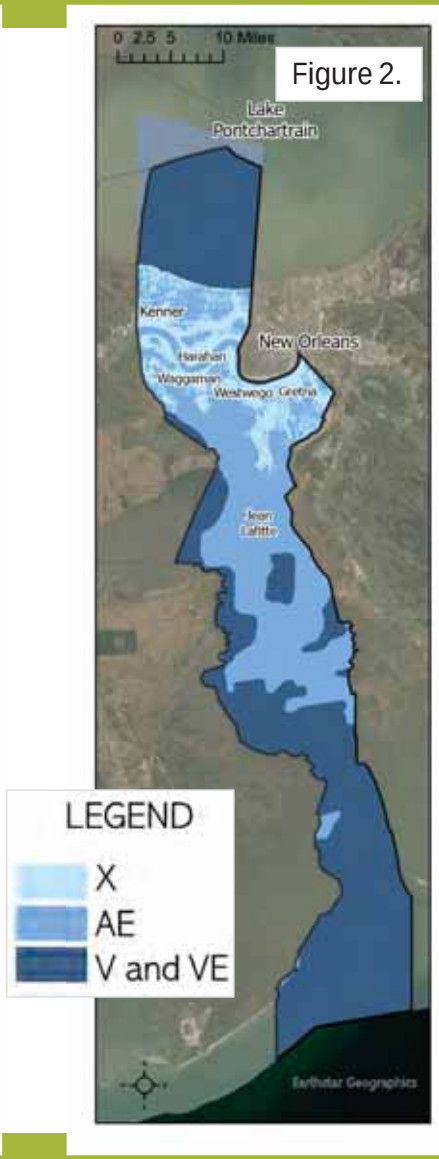


CONTEXT

Flood Risk

- **Figure 1: FEMA Repetitive Loss** shows the individual FEMA flood insurance property-level claims made within each census district.
- **Figure 2: FEMA Flood Zones** shows those areas located in a FEMA special flood hazard area. Areas in light blue are least flood prone, but are highly encouraged to purchase flood insurance.
- **Heightened flood losses and risk** have required parish leaders to attain mastery of flood control planning and infrastructure investments to sufficiently protect residents and take full advantage of traditional flood risk mitigation opportunities such as home elevations and retrofitting structures.





Big Picture

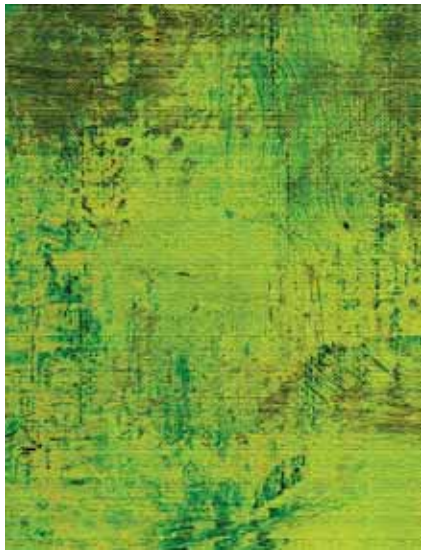
1. **Problem:** Increased rate of flooding from intense rainfall events, negative effects stormwater runoff has on waterbodies, and the debilitating effect subsidence on our traditional infrastructure.
2. **Strategic Action** is needed to reduce flooding impacts, better prolong and protect the integrity of drainage system and stabilize our natural environments.
3. **Focus on balanced methods** re: traditional pump and pipe and using the land, soil, and vegetation to hold and filter water is more effective in terms of managing both water quality and flood risk.
4. **Best practices:** Many communities are now looking to combine gray and green infrastructure approaches to manage stormwater to achieve multiple community goals.

The subsidence rate in Jefferson Parish is one of the highest in the world due to the lack of water in the ground.

Big Picture

1. Green infrastructure elements help make neighborhood streets and greenways pleasant and safe for walking and biking and **reinforce a sense of place.**
2. **Cost:** Green infrastructure can effectively manage the “first flush” of stormwater while producing significant cost savings for local governments and in some cases implementing green infrastructure has saved local governments billions of dollars.
3. Due to **a lack of available space**, the parish must look to more creative, location-based, data-driven solutions that strategically prioritize resources based on a common set of criteria, such as heightened flood risk, social vulnerability and maximizing the effectiveness of existing public spaces.

approach



A project-focused stormwater management plan that:

- Uses green infrastructure on both a **lot and municipal scale (infrastructure scale)** to deliver better drainage and water quality.
- Focuses on **better site planning and design techniques**, low impact development practices, and planning “greenspace” or “greenways.”
- Recommends **36 actions** to rehabilitate urban and suburban environments to help prevent increases in post-construction stormwater runoff rates, volumes and pollutant loads.

1. Vision and Goals
2. Introduction to Green Infrastructure
3. Community Assessment
4. Best Management Practices (BMPs) or Stormwater Control Measures
5. Local Data, Assets, and Opportunities
6. Parish Code of Ordinances
7. Existing Parish Design Manual
8. Recommendations and Next Steps

8 plan elements


impact

What does the IGI do?

Recommends over 36 actions, categorized broadly as:

1. **Day-to-Day Operations**: *Policies or programs helping to change current processes and systems parishwide.*
2. **Regulatory Framework**: *Specific text amendments to the Code of Ordinances to affect development processes and outcomes.*
3. **Map Development:** *Specific projects or project programs to demonstrate effectiveness and build awareness of green infrastructure benefits parishwide.*
4. **Funding and Next Steps:** *Supporting improved project planning, the creation of sustainable funding sources, and enable more competitive IGI project designs.*

Vision Statement

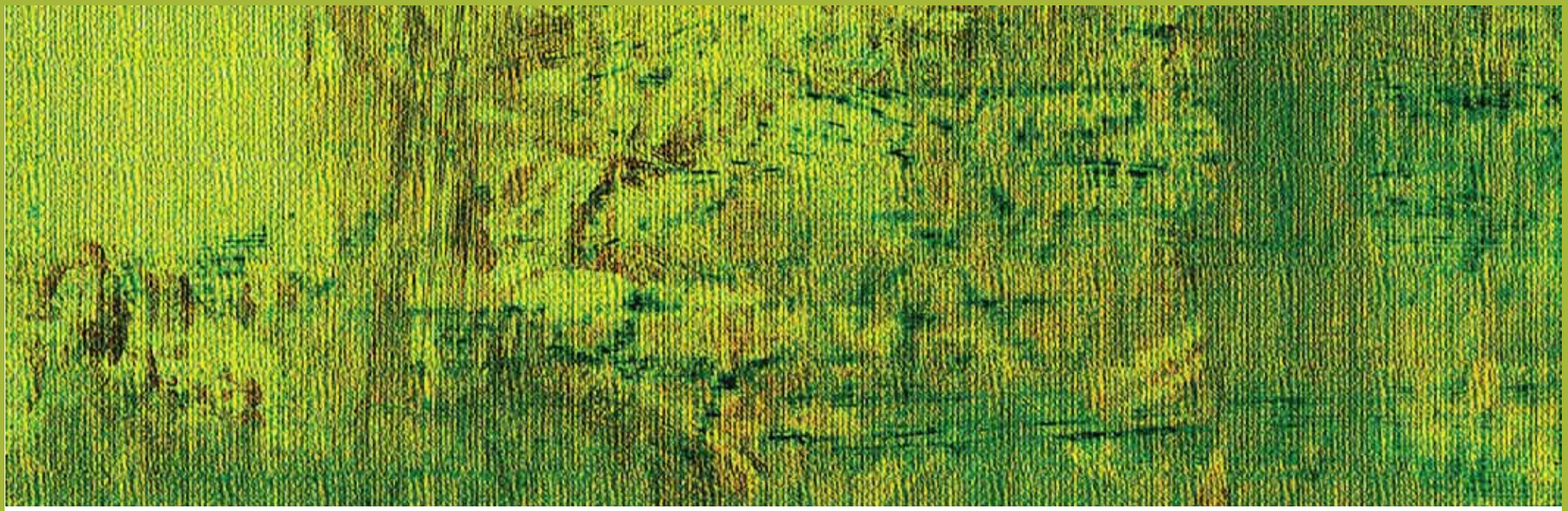
Jefferson Parish residents are served by an exceptional state-of-the art drainage system that uses pipes and pumps

AND

works with nature to protect their property during flood events,

advancing

a more sustainable approach to more effectively reduce risk to people and property overtime.

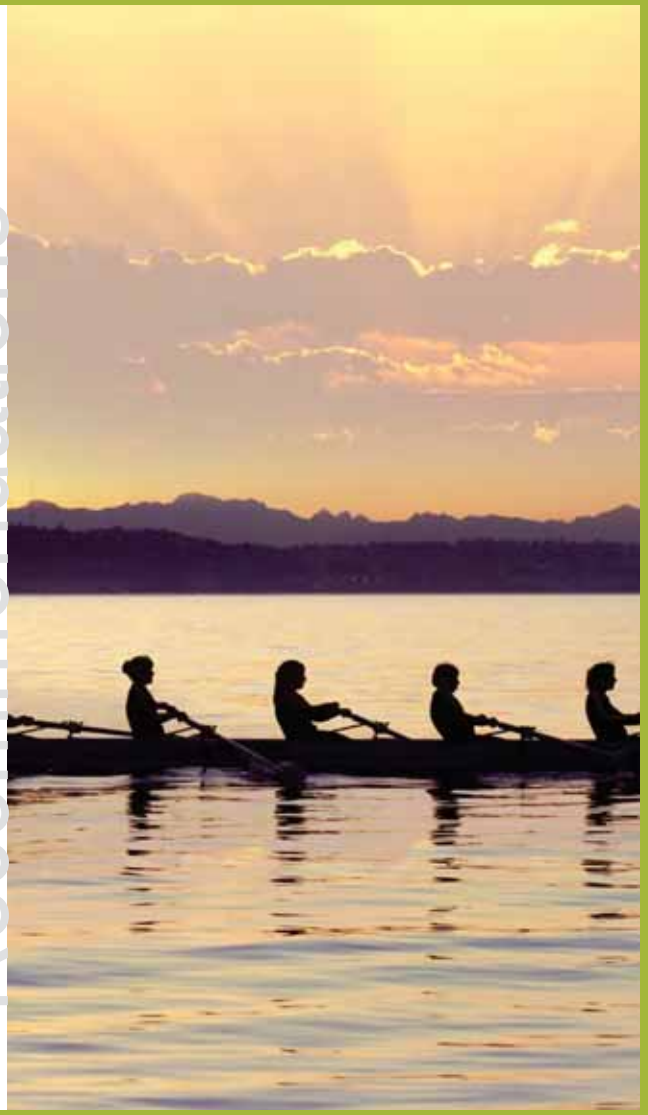


FINDINGS AND RECOMMENDATIONS

Day-to-Day Operations and Long-term Planning

1. Develop Technical Design Guidance Manuals for private sites and public spaces
2. Review and integrate GI into public projects
3. Create a Construction Inspection Program to ensure appropriate design and construction
4. Create an Inspections and Maintenance Program to ensure long-term performance as designed
5. Select, train and consistently utilize software or tools to assess site specific cost reasonableness
6. Clear tracking, evaluation, and reporting
7. Outreach, education and training

Recommendations



RECOMMENDED NEXT STEPS: CODE AMENDMENTS

Code of Ordinances

1. Continue to remove barriers
2. Reflect the science of green infrastructure
3. Reduce the development of significant impermeable pavement (i.e., hard surfaces)
4. Require permeable pavement in select circumstances, including regular maintenance and inspections

Changes Under Consideration

1. Enhance the existing flood damage prevention ordinance and portions of the Code of Ordinances relevant to drainage to implement a comprehensive drainage and flood risk mitigation system.
2. Amend Chapter 33 to implement standards that support natural drainage functions and allow flexibility for development to drain effectively.
3. Reorganize and consolidate stormwater regulations.
4. Set minimum required lot permeability open space requirements in accordance with LID best practices.
5. Consolidate parking requirements.
6. Reduce parking lot runoff through LID incentives.
7. Reduce imperviousness of parking areas.
8. In general, reduce parking ratios – off street parking requirements.
9. Allow more flexibility for off-site parking
10. Clarify related off-site shared parking provisions apply parish-wide.
11. Support parking alternatives like bicycle parking and structured or covered parking.

PROPOSED SHORT-TERM NEXT STEPS MAP DEVELOPMENT

Step 1: Data-Based Project Criteria

Feedback requested today will support the development of potential project criteria with the intent to narrow project alternatives and frame appropriate next steps for the Parish and/or its departments to advance the implementation of IGI recommendations in the built environment.

Data reviewed (but not limited to):

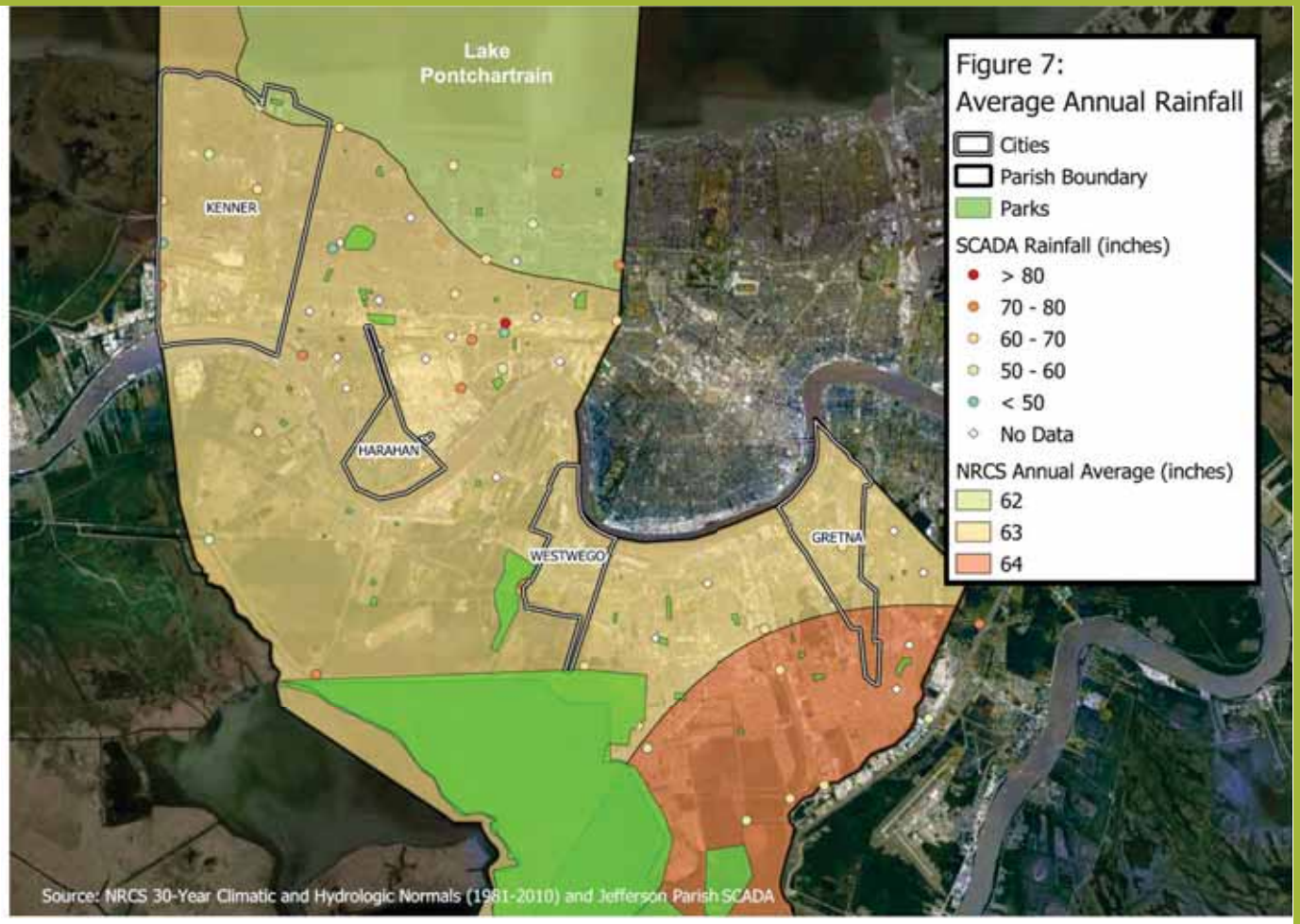
1. Local topography
2. Calculated flood depths
3. Current impervious surfaces and parking data throughout the parish
4. Historic rain volumes
5. Current conditions and specifications of the drainage system
6. Depth to water table
7. Social vulnerability
8. FEMA NFIP flood claim history
9. FEMA flood insurance rate maps
10. Parish Smart Growth Subarea Plans
11. Current Parish-Owned Property
12. Opportunities for outdoor public education
13. Current Road Classifications, Zoning and Future Land Use Classifications
14. Parish Critical Facilities
15. 50-yr Projected Coastal Inundation Maps

Project Criteria Development Process

1. Review and Map Data
2. Identify Site Constraints
3. Identify Site Opportunities
4. Elevate areas where overlapping conditions and opportunities support project development

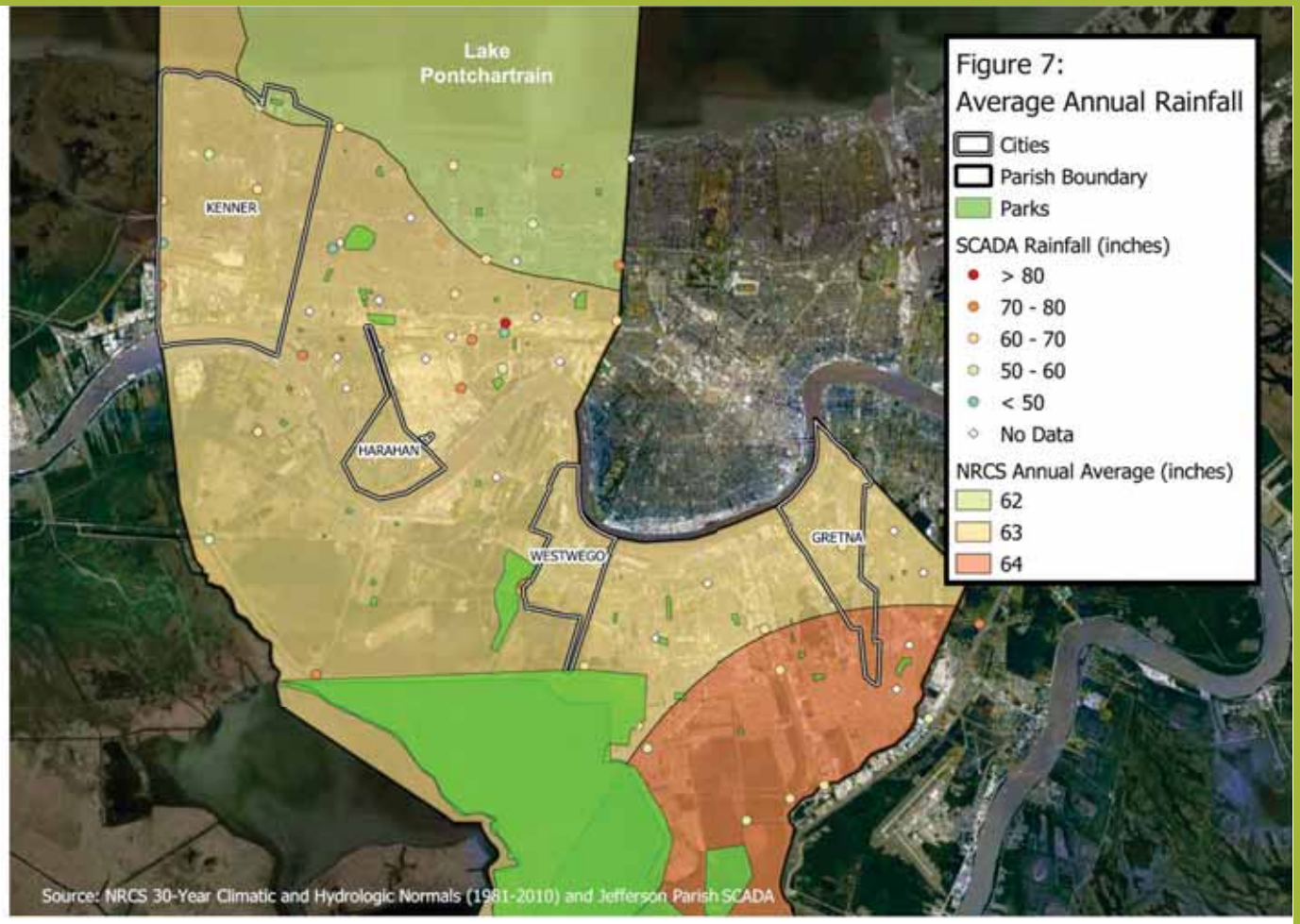
Rainfall

- Highest rainfall rates in the state and the country on average.



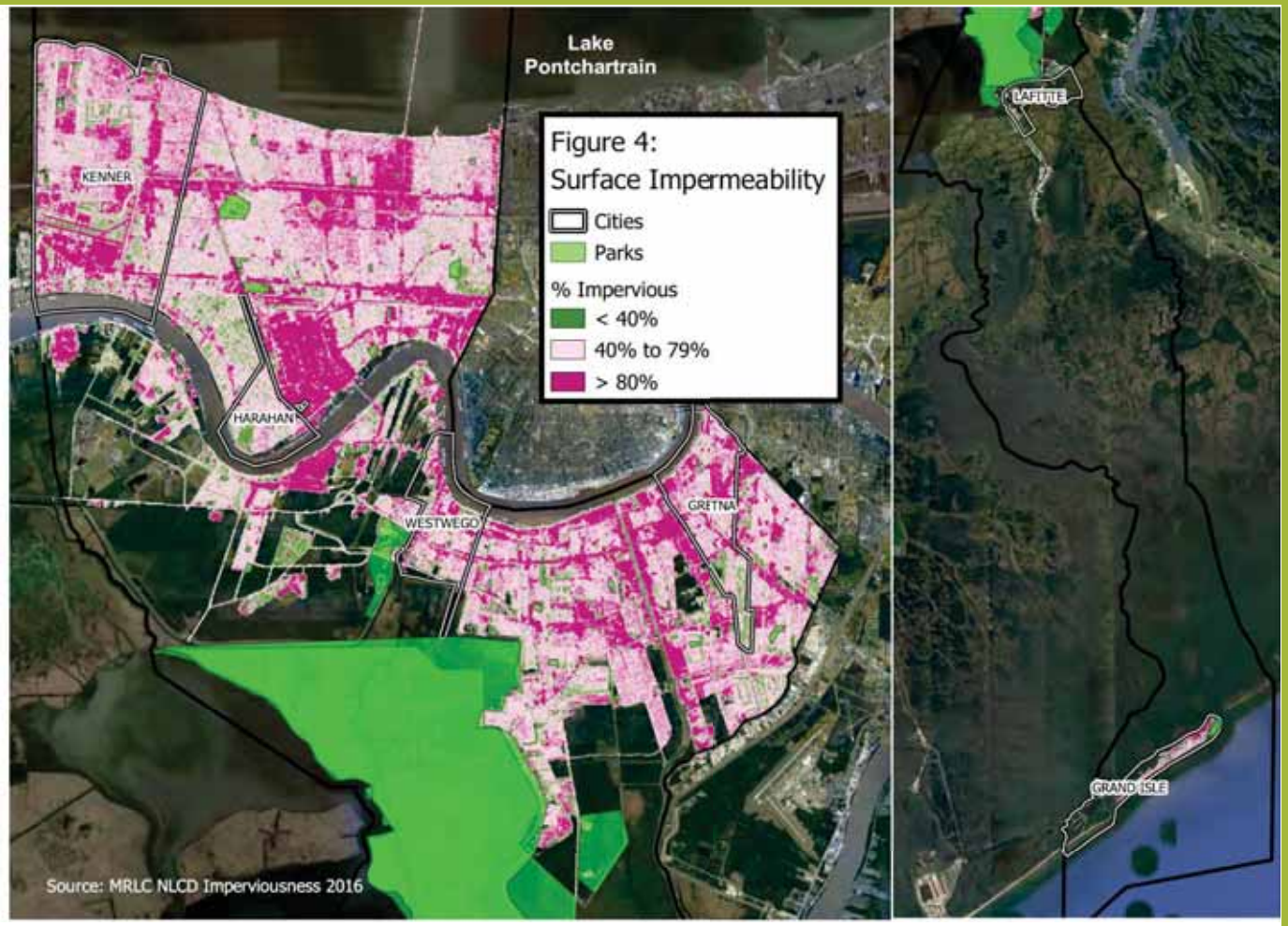
Rainfall

- Highest rainfall rates in the state and the country on average
- Addressing the 'first flush' of stormwater will help to prepare communities for more intense and frequent rainfall events—keeping businesses open and fostering long-term resilience.
- Storing floodwaters from more frequent storms can also reduce the effects of subsidence by replenishing local soils with water and keeping them stabilized.



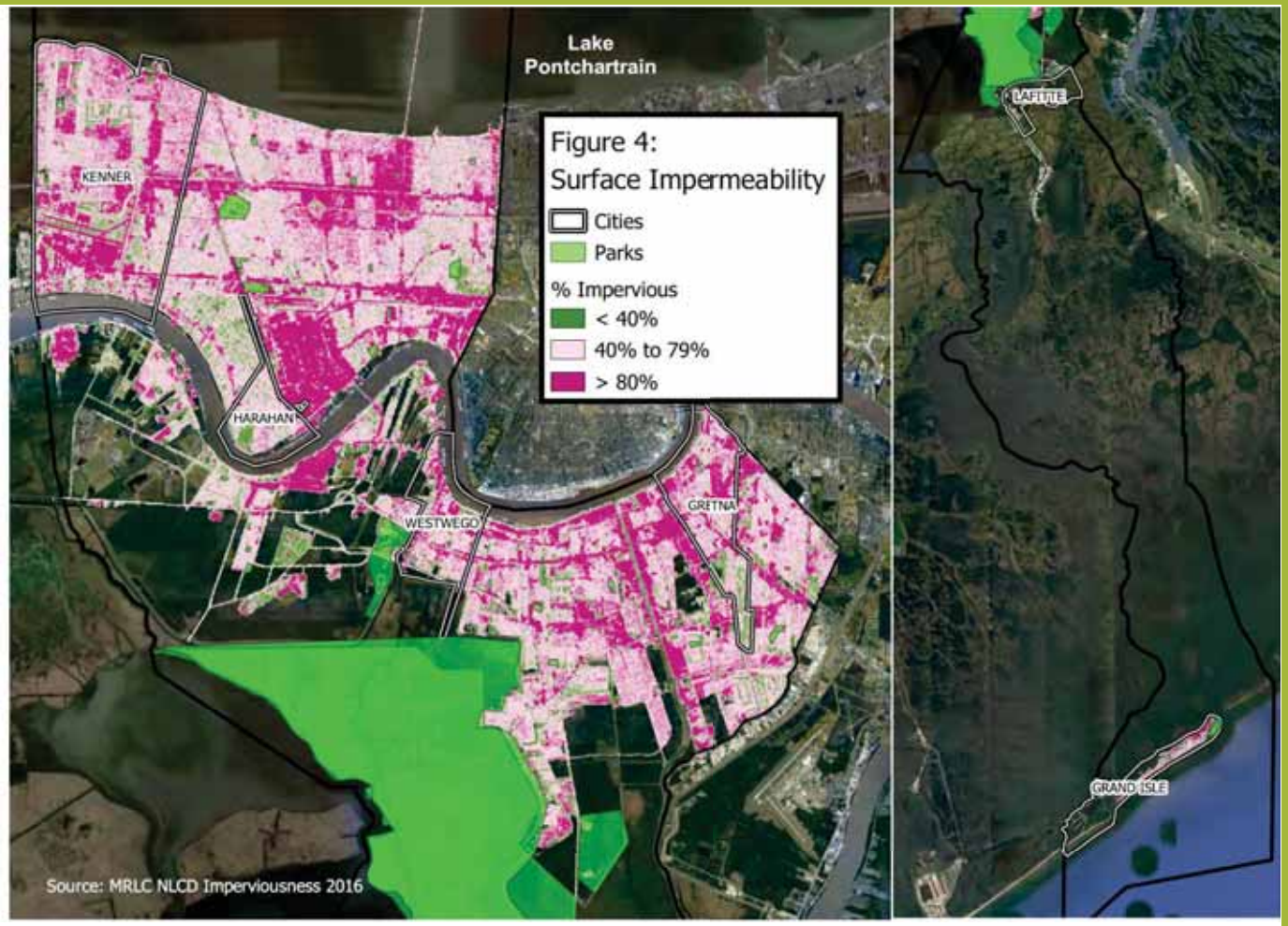
Impervious Surfaces

- Residential land areas generally have medium surface impermeability, are more widespread.
- Major commercial, industrial and/warehousing areas generally have a high surface impermeability, 0 to 1.9 calculated flood depths, over 200 repetitive loss claims.



Impervious Surfaces

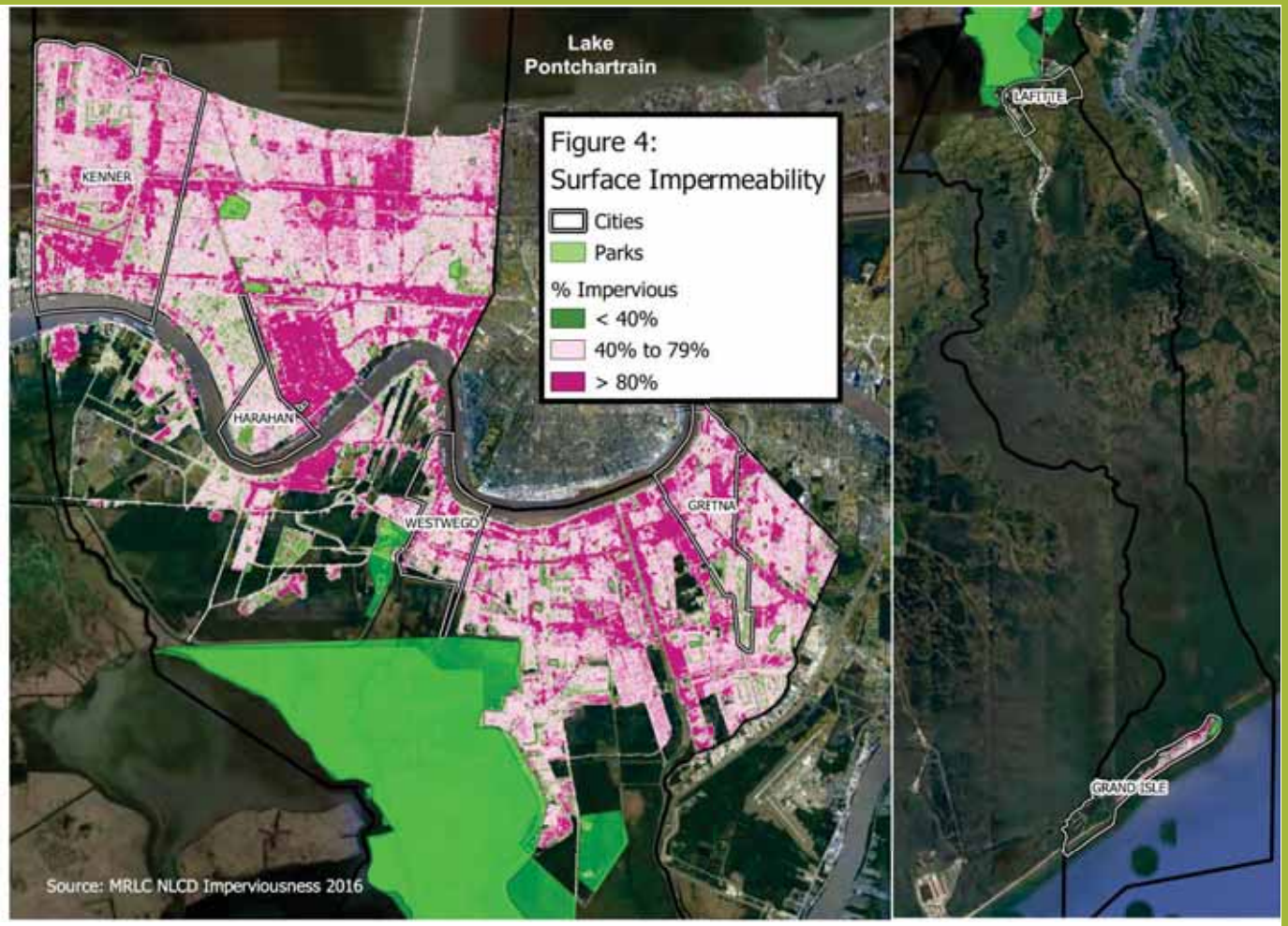
- Residential land areas generally have medium surface impermeability, are more widespread.
- Major commercial, industrial and/warehousing areas generally have a high surface impermeability, 0 to 1.9 calculated flood depths, over 200 repetitive loss claims.
- **Available space** is the most significant challenge to implementing GI practices.



2. Identify Site Constraints

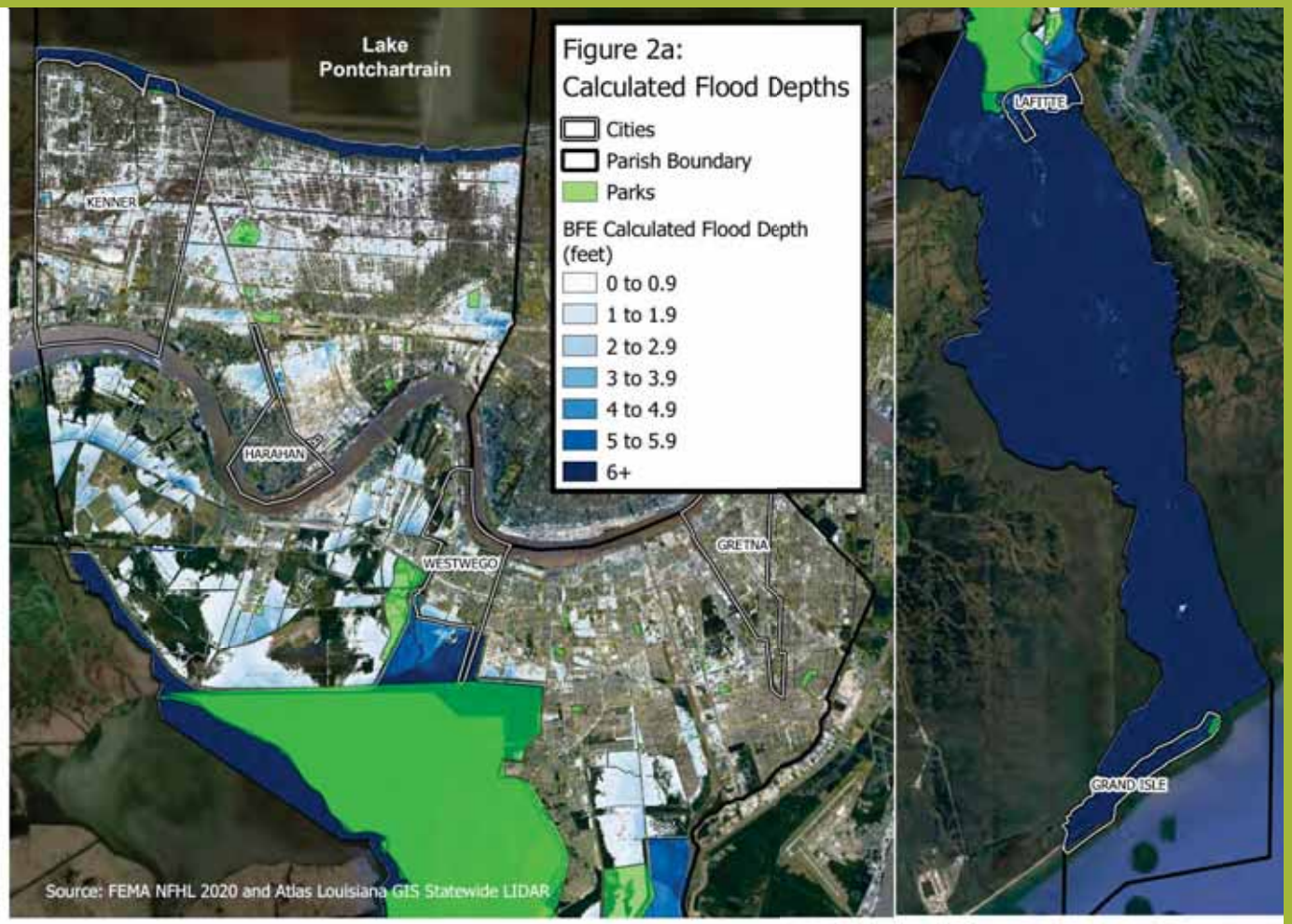
Impervious Surfaces

- **Residential** land areas generally have medium surface impermeability, are more widespread. **Programs having an economy of scale could be effective.**
- **Major commercial, industrial and/warehousing** areas generally have a high surface impermeability, 0 to 1.9 calculated flood depths, over 200 repetitive loss claims. **Policies that peel back pavement in these areas could provide needed support to the existing drainage system to sustain long-term performance.**
- Available space is the most significant challenge to implementing GI practices.



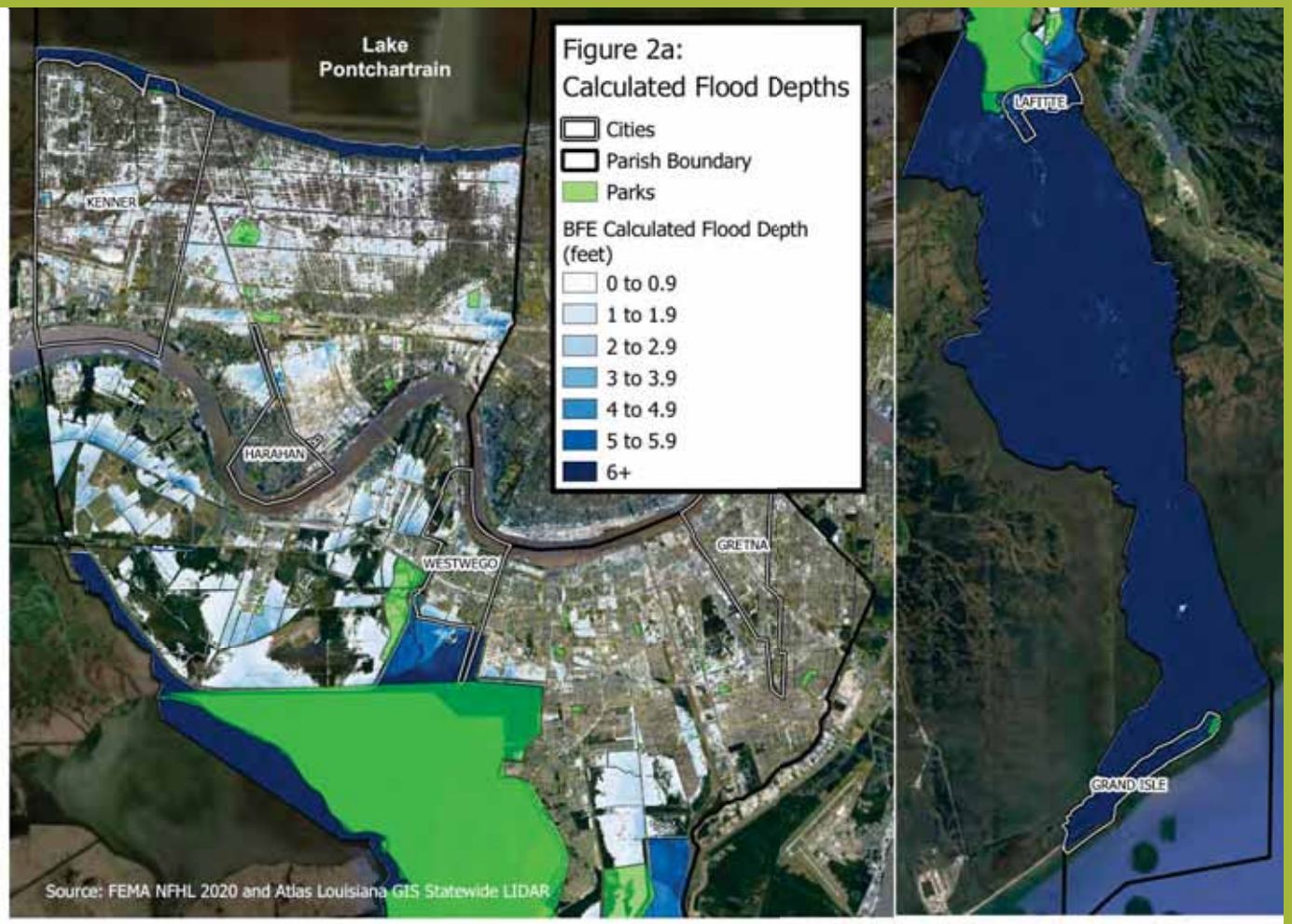
Calculated Flood Depths

- Areas with projected flood water depths between 0 to 1.9 feet are widespread across the parish.



Calculated Flood Depths

- Areas with projected flood water depths between 0 to 1.9 feet are widespread across the parish.
- Areas having projected flood water depths of 0 to 1.9 feet could see significant improvement in nuisance flooding should green infrastructure measures be employed consistently on-site and/or within public spaces.
- Those areas with anticipated flood depths of 2 to 6+ feet, given the depth of flood waters, would benefit from combined solutions (grey and green) or larger site (25 acres+) green infrastructure BMPs designed to retain and absorb floodwaters across a larger area of land.

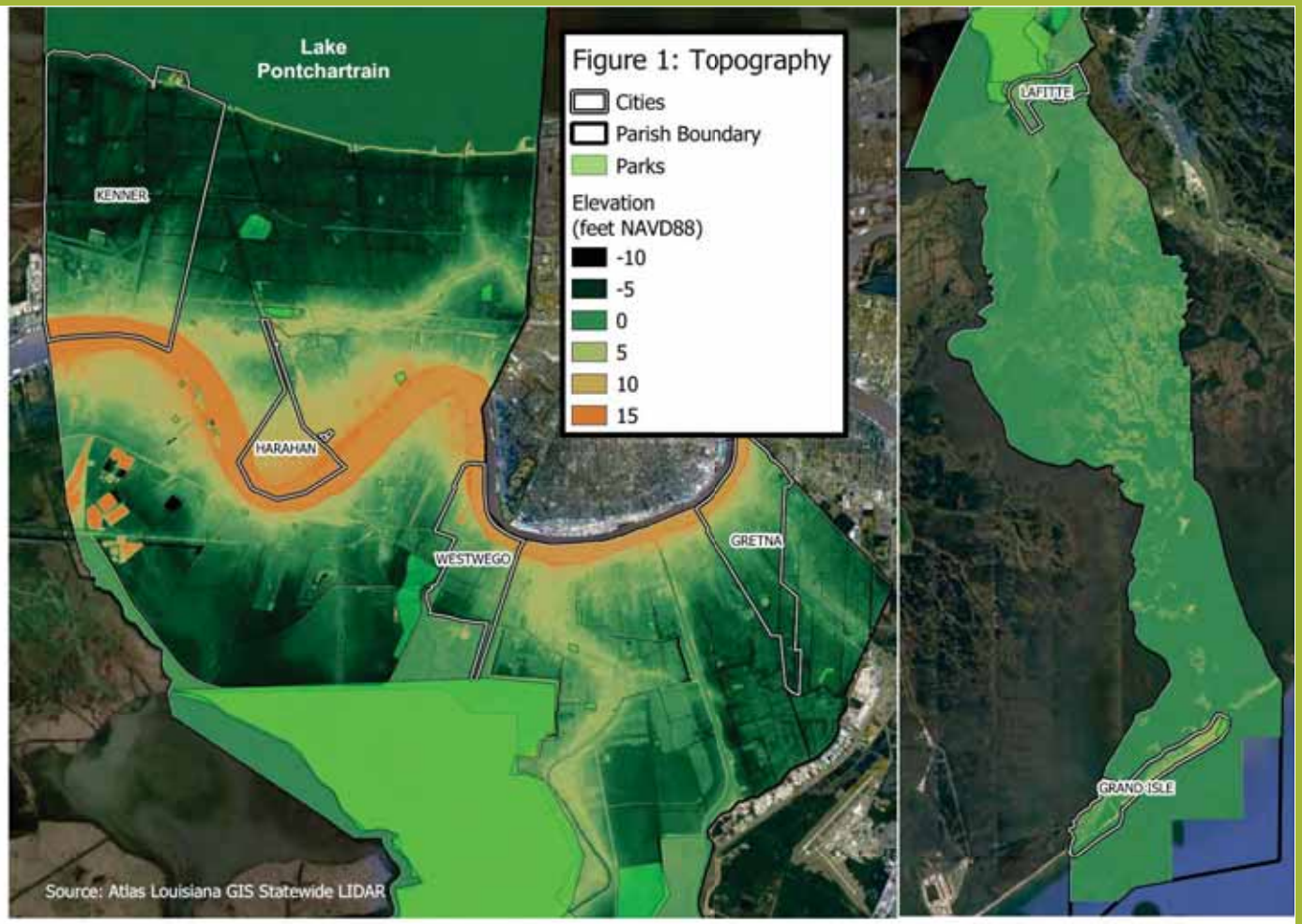


2. Identify Site Constraints

3. **Identify Site Opportunities**

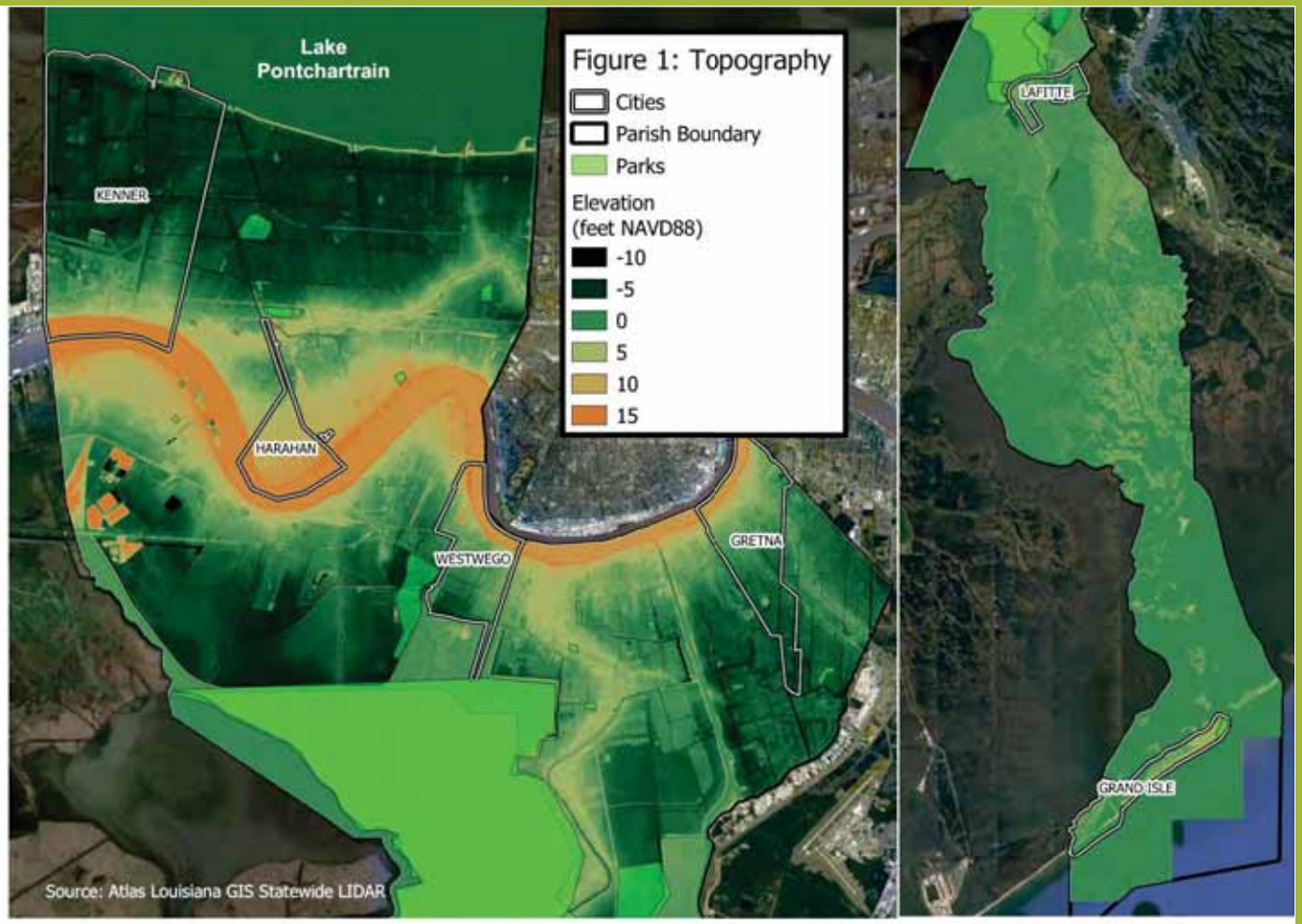
Topography

- The highest (i.e., 10-15 ft) land area in the parish is less prone to flooding, located along natural ridges, has low soil permeability rates, and is where infiltrative practices may not be practical due to the slower absorption rates.



Topography

- The highest (i.e. 10-15 ft) land area in the parish is less prone to flooding, located along natural ridges, has low soil permeability rates, and is where infiltrative practices may not be practical due to the slower absorption rates.
- In these cases, alternative green infrastructure measures should be considered that do not rely on infiltration, such as **green roofs, rain barrels, and cisterns.**
- Given the larger depth to the water table in these areas (next slide), **buried storage tanks** could similarly provide an alternative solution.
- Alternatively, **soil restoration** on large vacant lots could help to reduce compaction, improve soil permeability, and provide for development of stormwater lots where there is a significant need for increased flood risk reduction measures.



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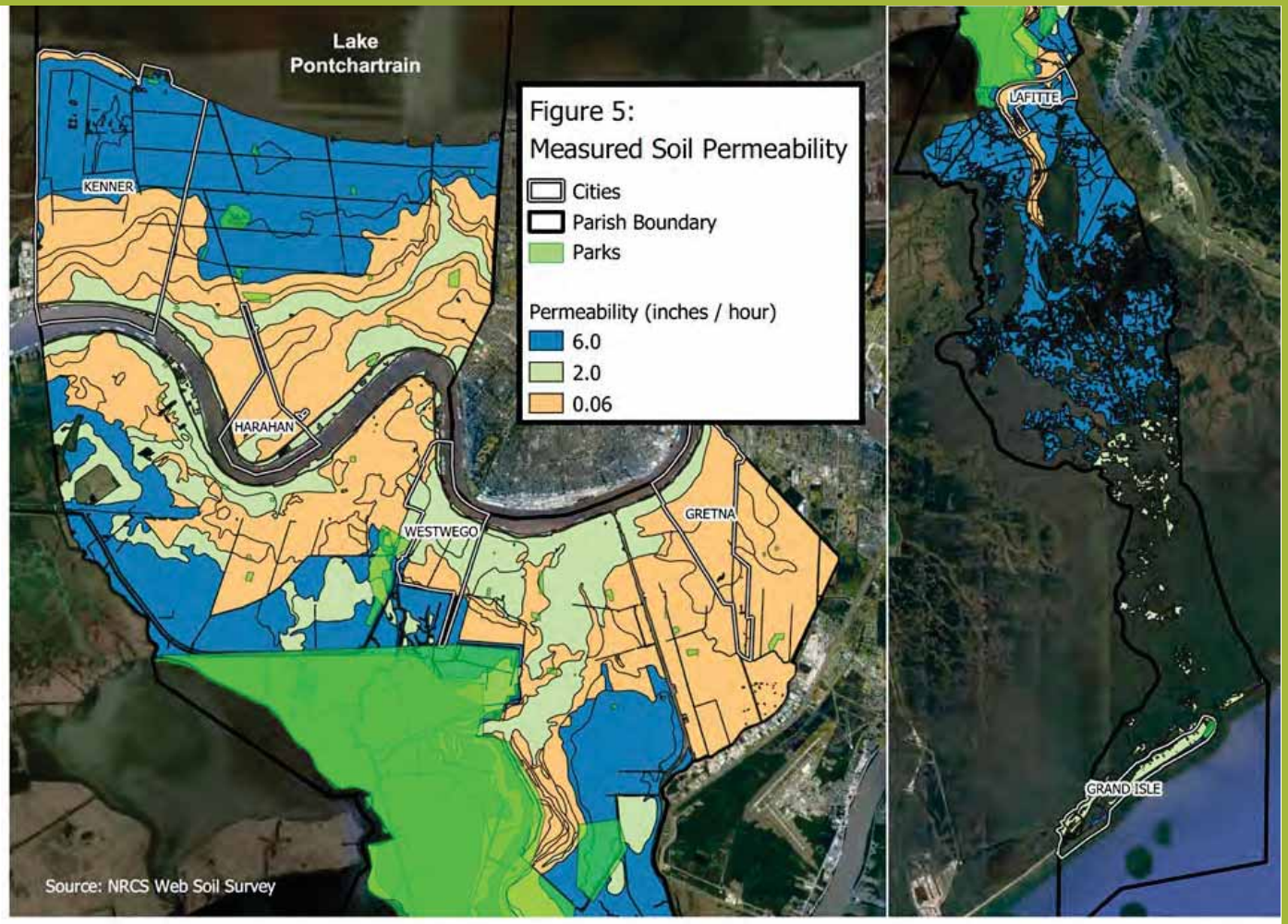
Soil Permeability

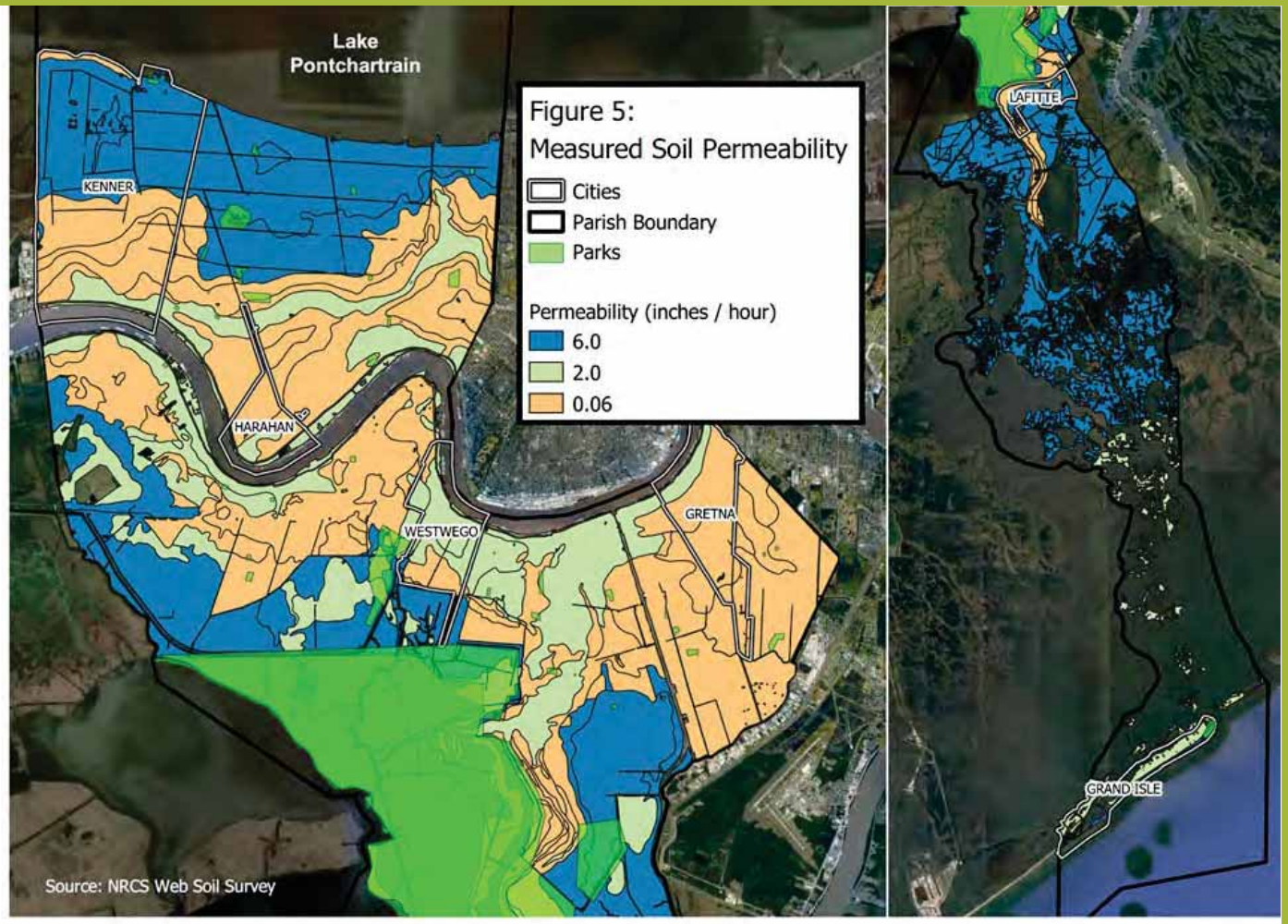
- Lower elevations (dark blue) are more prone to flooding, have higher soil permeability rates, and are constrained by limited depth to water table ratios and available space.



1. Review and Map Data

Soil Permeability

- Lower elevations (dark blue) are more prone to flooding, have higher soil permeability rates, and are constrained by limited depth to water table ratios and available space.
- Green infrastructure designs in these areas should look to site, neighborhood and corridor projects, focus on opportunities to retain and stabilize soils to reduce flood risk, improve water quality and prevent further subsidence.
- Projects in these areas could include:
  - Open swales and grass channels in canals
  - Treatment trains in public spaces
  - Front yard regrading/open swale incentive program
  - Use of rainwater harvesting
  - Small stormwater wetlands (i.e., pocket wetlands) or wet swales
  - Simple downspout disconnections to spread rooftop runoff from individual downspouts across lawns and other pervious areas.



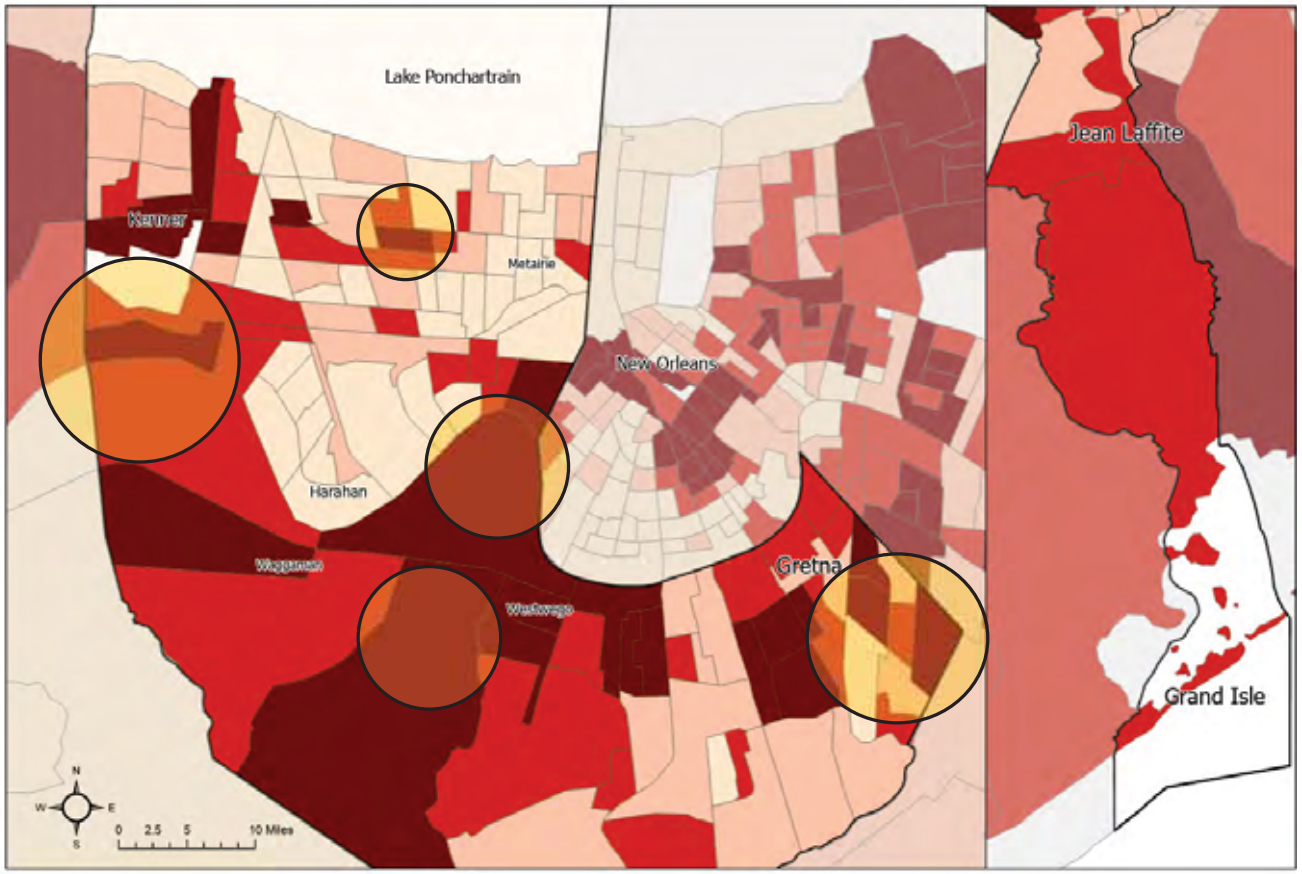
2. Identify Site Constraints

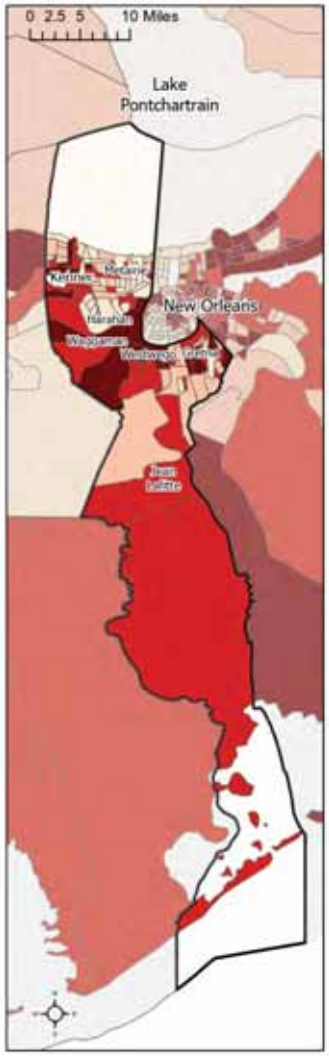
3. **Identify Site Opportunities**

EXERCISE IN DEVELOPMENT

Social Vulnerability

- Low
- Medium Low
- Medium
- Medium High
- High

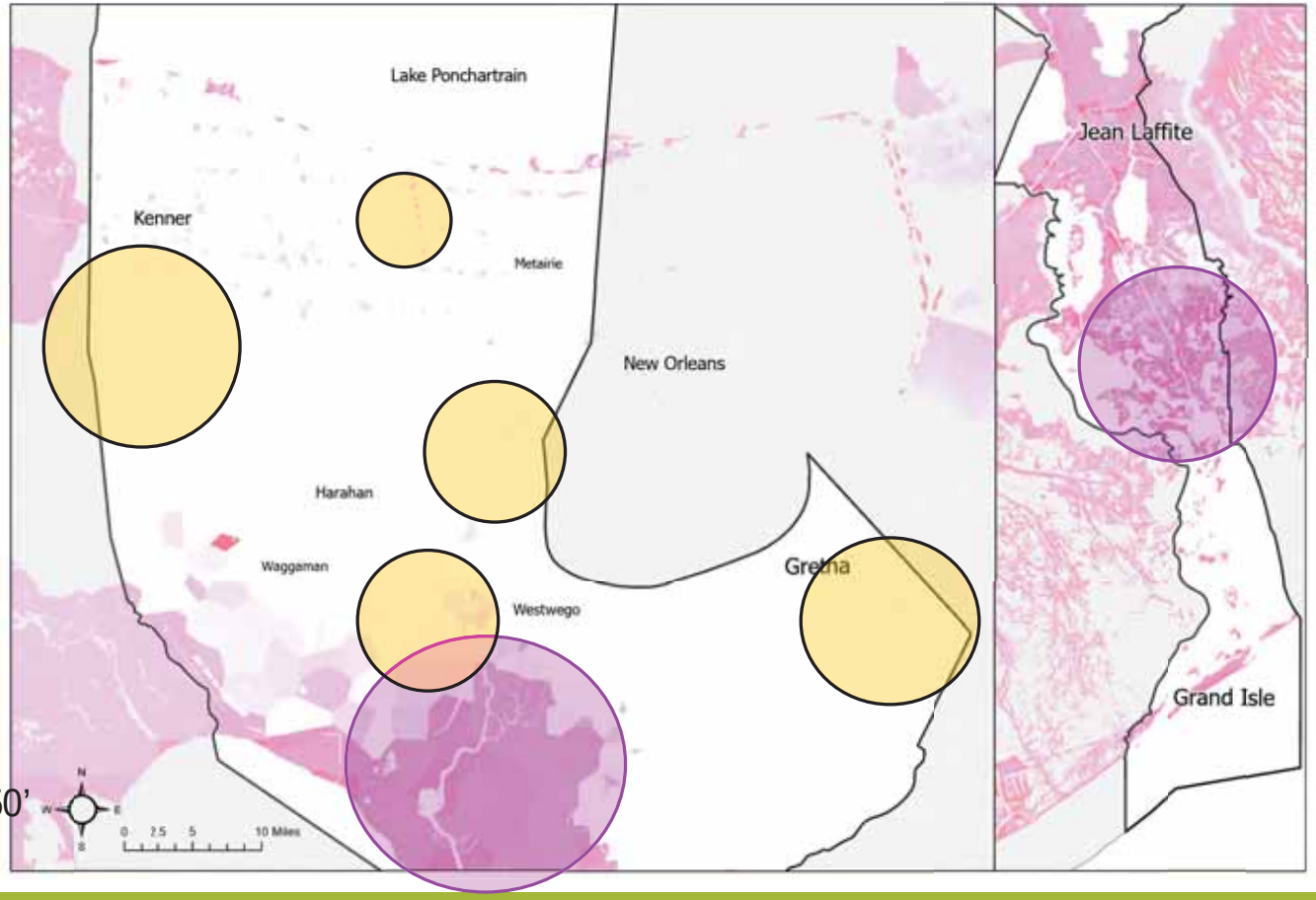


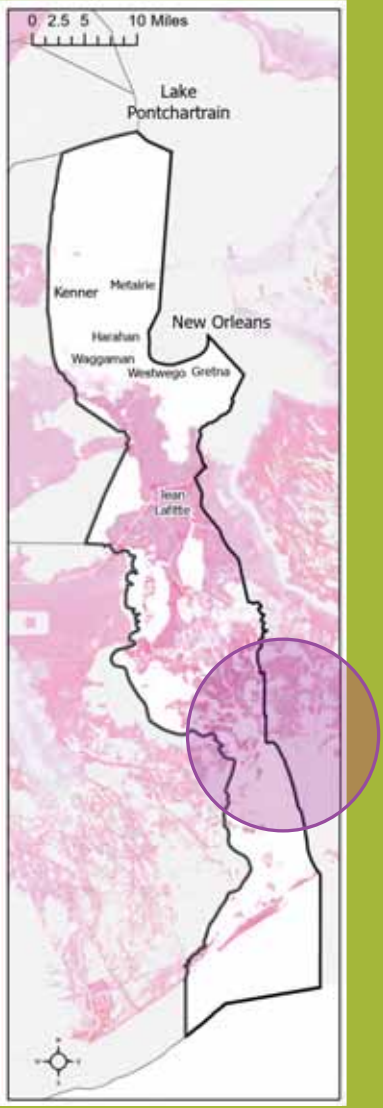


Coastal Inundation Map

Note: with 2017 Master Plan Implementation, 50 years Medium Scenario

Project Types:
- Coastal wetlands
- Dunes
- Living shorelines
- Oyster reefs





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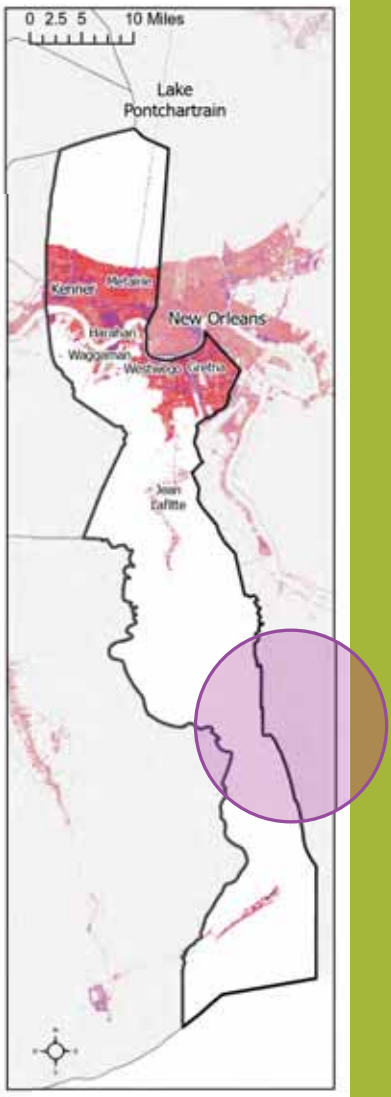
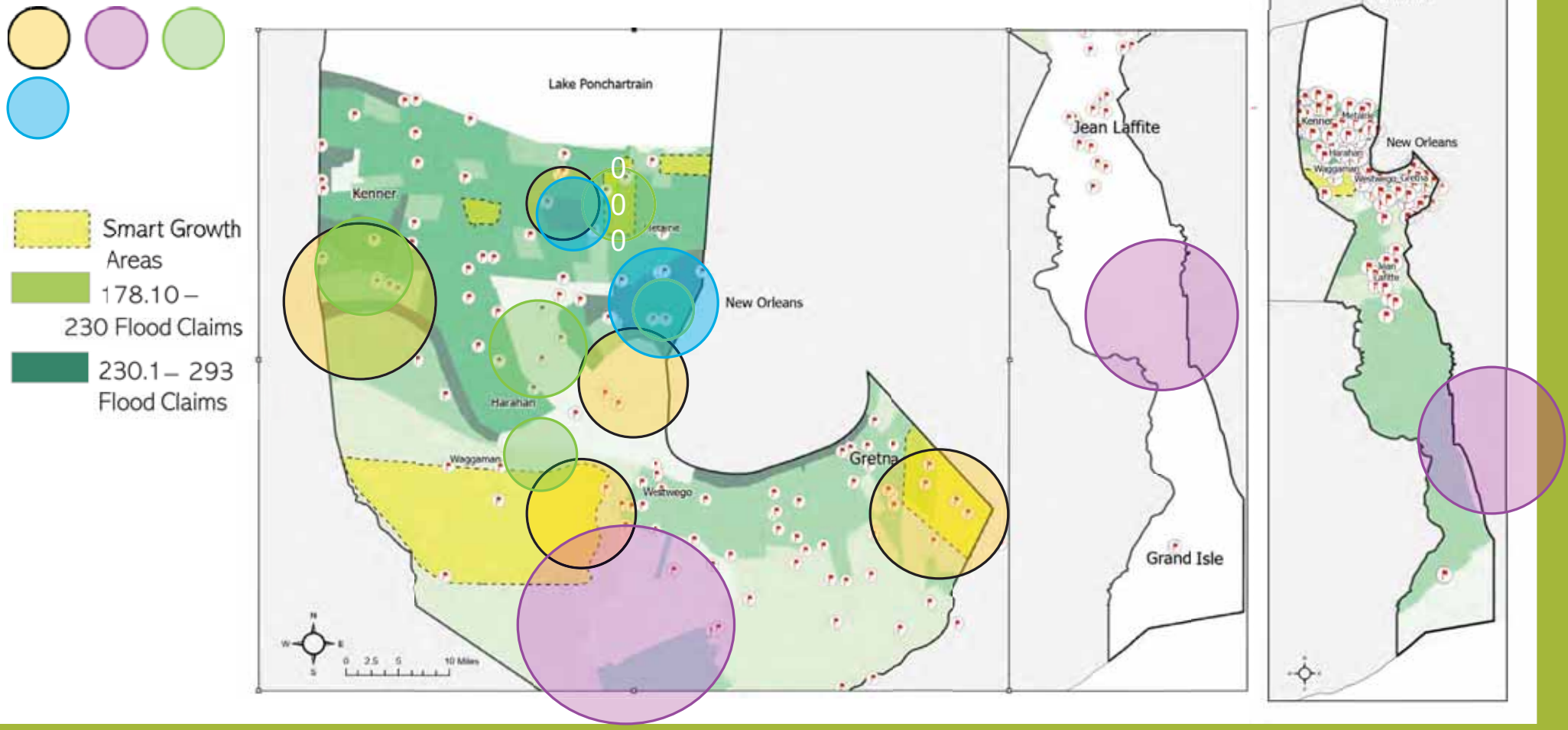
Impervious Surfaces

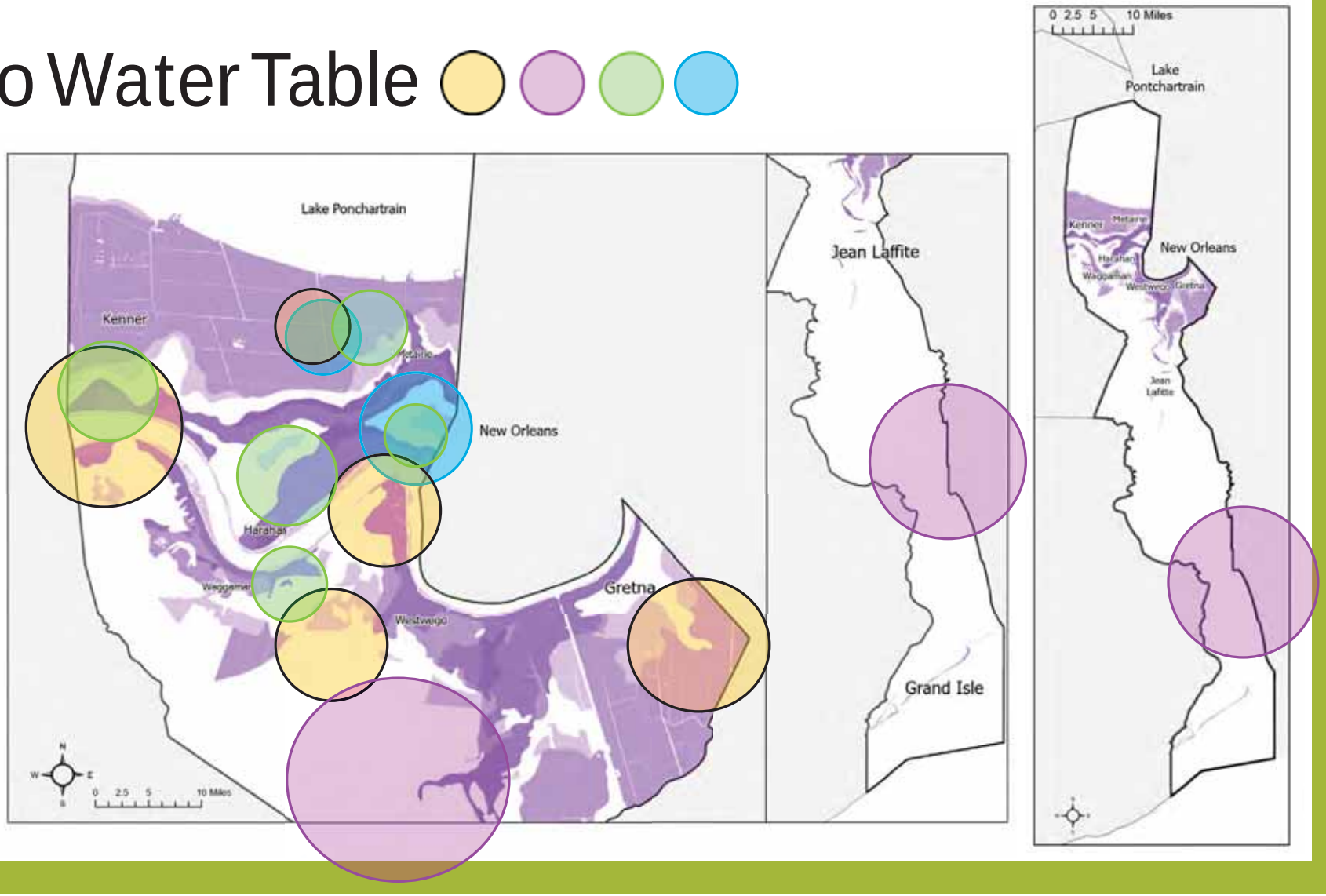


Flood Claims and Smart Growth Areas



Depth to Water Table

0
1
2
3
4



Public Outreach

Parade Routes

Discussion

Feedback on data and conditions assessed

Is there other criteria, data or local conditions we should elevate when considering projects or programs for development?

Project Map Development Process

Recommended Next Steps:

1. Conduct Neighborhood Engagement
2. Rank Assets, Opportunities and Approaches
3. Recommend Opportunities to Implement Next Steps via Project Maps

QUESTIONS

THANK YOU