



"Ecological resilience is the amount of disturbance that a system can absorb before it changes state."

-Gunderson, Holling, Pritchard and Peterson, "Resilience"

"Ecological change is not continuous and gradual...Rather it is episodic with slow accumulation...punctuated by sudden releases and reorganization...as the result of internal or external natural processes or of man-made catastrophes. Rare events, such as hurricanes or the arrival of invading species, can unpredictably shape structure at critical times or at locations of increased vulnerability. The results of these rare events can persist for long periods."

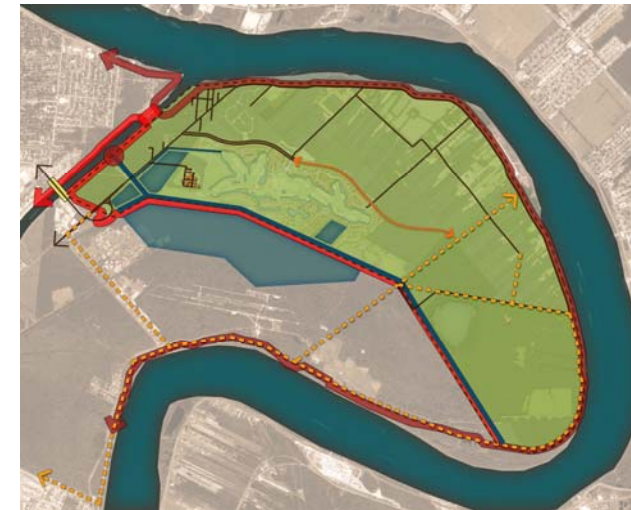
-Holling, "Engineering Resilience versus Ecological Resilience"

CHAPTER 5: Recovery Scenario

What Defines the Recovery Scenario?



RE Pair Scenario



RE Hab Scenario



RE Vision Scenario

During the Unified New Orleans Plan (UNOP) process, Citywide and District Teams worked together to assess the status of New Orleans' recovery, one year after Katrina's catastrophic landfall. Citywide and District Project Teams looked at the status of repairs and restoration, examined damage assessment reports, reviewed existing plans and documents, and conducted field work and research, as well as interviews and analysis, in order to depict the physical conditions of recovery. This assessment was organized across a series of sectors: economy, hurricane and flood protection, housing, infrastructure and utilities, transportation, community services and historic preservation/urban design. The Recovery Assessment provides benchmarks by which progress can be measured going forward at both the District- and Citywide-levels. Also identified are the opportunities and constraints that are affecting the City's pace of recovery. This also serves as the "scientific basis" for scenario development and plan development. Both the Citywide and District Teams worked with three (3) scenarios, each reasonable, but structurally different, possible futures for the City and

its Districts and neighborhoods. Scenarios are different from "visioning" which asks "what do you want to happen" or "what would like to see?" Instead, scenarios look at desires but also recognize external influences, uncertainties, strategic opportunities, conflicts, and challenges. Since the UNOP process is chiefly about recovery planning, all 3 scenarios are focused on timeframes and try to understand the possibilities, both good and bad, of how the District and City might look in the future. All three scenarios have at their core the same fundamental vision that City leaders have maintained throughout the first year of recovery: **that every citizen, regardless of current residence, has the right to return to or the right to stay in New Orleans.**

UNOP also advocates that all citizens, businesses and investors of the District and New Orleans have an essential right to a **Safer, Smarter and Stronger City that provides a higher quality of life.** Building upon UNOP's core vision and the assessment results, the Teams identified major variables that distinguish the scenarios and their possible outcomes: funding, flood

control, population growth, policy/approach and implementation time frame. The three original scenarios defined by the District Project Team are: **RE Pair, RE Hab and RE Vision.**

In the **RE Pair** scenario, the funding assumes no windfall in federal or state funding but the Road Home Program is implemented. The flood protection is not substantially improved beyond current repaired conditions. The population growth is stable at existing levels. The policy/approach is laissez faire; in other words, there is no concerted effort at the District level. No managing time frame is implemented.

In the **RE Hab** scenario, the funding assumes moderate federal and state funds becomes available. Additional flood protection is realized from individual and business resettlement decisions. The population resumes approximately Pre-Katrina levels. The policy/approach is proactive planning with strategic public infrastructure reinvestment. The implementation time frame is approximately 10 years.

The three scenarios were presented at the second Public Meeting. The general consensus was incorporating elements from all three scenarios. Each scenario builds upon the other, incrementally focusing on flood protection, evacuation routes, District specific emergency services, the future wish for smart growth in keeping with the existing ecological assets present. This hybrid scenario is referred to as **RE Hab +**, one defined by the District Project team through the concept of **Ecological Resilience.**



Hybrid **RE** Hab + Scenario

Ecological Resilience focuses not only on **infrastructure repair and public improvements**, but also creating a place that is safer from disasters and **improves the quality of life** for all residents. In addition, resilience has the capacity to adjust to threats and to mitigate or avoid harm.

Resilience is about taking a proactive step to protect oneself while living with risk; it is the capacity to adjust to threats or to avoid harm.

In District 13, resilience is two-fold: that of the residents' protection and that of the environment's protection.

The Recovery Scenario focuses not only on **infrastructure repair and improvements**, but also in a manner that is **safer from disasters** and **improves the quality of life** for all residents. It operates within and intends to build upon the **unique ecological assets** which already exist, assets that have potential for **hurricane and flood mitigation and retention**.

District 13 is like no other District in New Orleans. It is essentially a **natural environment** which must be **preserved and restored**, a rarity within an urban city limit.

As stated earlier in the report, **District 13 did not flood**. However, it is **extremely vulnerable** for multiple reasons:

- storm surge events from a hurricane if a storm surge approaches from the southwest (Katrina was east of District 13)
- It is circumscribed by man-made flood control structures that hold back the water of the Mississippi River, Intracostal Canal and Donner Canal.
- The status of the "back levee" adjacent to the Donner Canal in Plaquemines Parish is uncertain and perhaps suspect.
- Portions of the District are below sea level.

A key component of the notion of **ecological resilience** is how the District can withstand either a future catastrophic alteration, such as a hurricane, alterations to its precious habitat by man, or the resistance to invasive habitats, and not radically change its existing structure.

The ecological and rural assets of District are at threat. Massive coastal wetland erosion of Louisiana in addition to the uncertainty of hurricane and flood protections leaves District 13 in a precarious and fragile situation. The bottomland hardwood forests, otherwise known as wetlands, naturally act as a mitigating buffer to storm surge. However, this last remaining stand of type of forest in New Orleans Parish is at threat because of the coastal erosion and introduction of invasive species.

An additional threat to District 13 is that of potential development inhospitable to the existing setting and habitat. If development is to occur, it must be in keeping with the ecology and also must be

resilient to future disasters. As the bottomland hardwood forests are in low topography it makes sense that any potential future development not occur in these areas and leave the natural land for restoration and mitigation purposes. If these areas are preserved and potentially restored after an ecological study, a continuous interconnected loop of wetlands can be made. This would allow a more thorough network for both mitigation and a more conducive network for sustaining wildlife and species.

In addition to the key issues of preserving ecology and the threat of inhospitable development, the Scenario targets enhancing the levee protection, repairing and repaving of streets, correcting drainage issues, and addressing the issues of emergency egress and services.

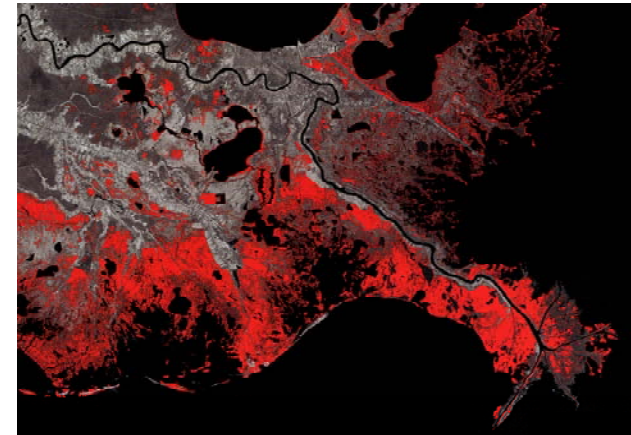
District 13's recovery scenario focuses on the issue of vulnerability with the following main components:

- Provide Category 5 hurricane and flood protection.
- Conduct an Independent Third Party Study of Flood Risk within the District.
- Conduct a detailed ecological study with primary focus on existing wetlands and bottomland hardwood forest as a flood mitigation strategy.
- Clean out all drainage ditches which now can impede flood mitigation.
- Harden utility service and street infrastructure through coordinated program.
- Provide emergency service options within or near District 13.
- Provide options for alternate modes of emergency exiting capabilities and ensure the existing evacuation routes are within a connected street network and can withstand flood inundation. Currently there is only one public entry and exit point to and from the District, the bridge over the Intracoastal Canal which connects to District 12. In other words, District 13 can become essentially a dead-end for the residents.

In addition to these priority projects are other proposals including:

- Develop and implement a voluntary rain-garden program
- Develop and implement a voluntary incentive-based hurricane and flood mitigation program
- Develop and implement a voluntary incentive-based energy efficiency and sustainable materials program.
- Create a new public park along Highway 406.
- Create a Master Plan for the District.

It must be made known that there are extreme differences of opinions amongst the District residents and at this point there is not much consensus on many of the projects except for Category 5 hurricane and flood protection, cleaning out of drainage ditches and repairing street infrastructure. In order for the notion of ecological resilience to take root in the District, it is imperative the community can agree on principals in which to move forward.



•Providing Category 5 protection as soon as possible. This initiative has received unanimous support from the District residents. The Plan advocates for a holistic approach to flood protection including regional and coastal wetland restoration; raising and armoring of all levees; improvements to pumping capacity; and any other actions as a result of further study. This enhanced level of protection will take many years to achieve along with issues to be resolved such as congressional support, public funding, feasibility analysis and design.

•Conducting an Independent Third Party Study as to the Flood Risk within the District. At the point of this report, the flood maps by FEMA and US Army Corps of Engineers are being resolved. The definition of what constitutes a high, moderate and low risk zone is uncertain. It is critical this study works with insurance companies, the Corps, FEMA, Universities and the City to develop such a program, in turn supplying definite information for citizens to make informed decisions.



•Conducting a **Detailed Ecological Study** that will delineate and map the ecologically sensitive areas within the District, paying particular attention to the identification and boundary definition of wetlands and bottomland forest areas in relationship to existing private property; locating areas of high-quality habitats for bird and wildlife; and defining the role of these natural resources in hurricane and flood protection. It is recommended that this study includes the adjacent portion of Plaquemines Parish and all of Drainage Basin 5 in relation to the Barrataria-Terrebonne National Estuary in that the ecosystem knows no man-made boundaries.



•Reinstating **District-wide Basic Infrastructure and Public Works Service**. The primary focus, which has stemmed from overwhelming support by the District residents, is the cleaning out of all drainage ditches in the District. All remaining fallen trees from Katrina should also be removed in addition to replacing all missing and broken street signage.



•Hardening **Utility Service and Street Infrastructure**. Construct a safe house at the Intracoastal Canal pumping station. Bury power lines below grade and repair and repave existing streets prioritizing evacuation routes first.



•Studying potential locations for **coordinated emergency services and a safe haven evacuation center** to ensure the safety and evacuation of all residents in times of emergency. The evacuation center should include a staging area, a boat launch and potentially a helicopter pad.



•Studying and confirming the height Highway 406. This key section of may need to be elevated in the low-lying portion between English Turn Parkway and the Plaquemines Parish line. Currently, this highway is the primary if not sole evacuation route from the District. The study should be coordinated with the proposed ramp reconfiguration at the bridge over the Intracoastal Canal.



•Extend English Turn Parkway from Stanton Road to Delacroix Road to create a street network that facilitates emergency egress.



•Opening the private Audubon Nature Institute and Coast Guard Entrance in times of emergency to provide an alternate mode of egress from the District. Operated by the Coast Guard, this egress route would be opened only for specific emergencies. However, this proposal has not received much support, not because it accesses private property, but because the route leads south (or towards a potential hurricane).



•Developing and implementing a voluntary rain-garden program to facilitate the creation of a variety of types and scales of storm/flood water retention and mitigation areas. Study the potential for existing and new public and private open spaces to be used as water retention and mitigation spaces and strategies. The program will cover the entirety of the District; however, additional higher incentives need to be provided in high and moderate risk zones.



•Developing and implementing a voluntary incentive-based hurricane and flood building program wherein every owner would be paid a set amount above the fixed cost for utilizing sustainable building methods and materials that are flood resilient, along with building to the latest hurricane hurricane-resistant building standards and techniques. Also included in this program is the notion of “passive survivability” best practices which allows residents to occupy a structure with alternate energy sources in case of main power grid failure.



•Developing and implementing a voluntary incentive-based energy efficiency and sustainable materials program which would encourage the city and state government to adopt sustainable building standards (LEED) and “green” building materials and support the creation of locally owned businesses to provide the needed services and products.



•Creating a new public park in the low topographic zone along Highway 406. As per the proposed City Land Use Plan which designates this area as recreation space. The park is in low-lying topography and should become a park for District-wide communal use. The park will also double as flood mitigation.



•Creating a Master Plan for the District which would build upon the ecological study, respect the existing character and natural environment with conservation planning, consider the location of a “village center” along the Mississippi River on high ground incorporating small-scale retail, a community meeting place, and potential emergency services and emergency boat launch, consider District-wide public sewerage, and conduct a transportation study.

Recovery Scenario

- 01 Provide Category 5 Levee Protection
- 02 Complete an Independent Third Party Study of Flood Risk
- 03 Conduct a Detailed Ecological Study
- 04 Reinstate & Repair District-Wide Basic Infrastructure & Public Works Services
- 05 Hardening of Utility Service & Street Infrastructure Program
- 06 Study Potential Locations for Coordinated Emergency Services and a Safe Haven Emergency Center
- 07 Conduct a Study to Elevate Highway 406 in Low Topographic Zone
- 08 Extend English Turn Parkway from Stanton Road to Delacroix Road
- 09 Open Private Audubon Institute & Coast Guard Entrance in Times of Emergency
- 10 Develop & Implement a Voluntary Rain Garden Program
- 11 Develop & Implement a Voluntary Incentive-Based Hurricane & Flood Building Program
- 12 Develop & Implement a Voluntary Incentive-Based Energy Efficiency & Sustainable & Materials Program
- 13 Create a New Public Park in Low Topographic Zone Along Highway 406
- 14 Create a Master Plan for the District

