

Design with Nature: Master Planning Living Shorelines

City of Punta Gorda: An Urban Planning Approach

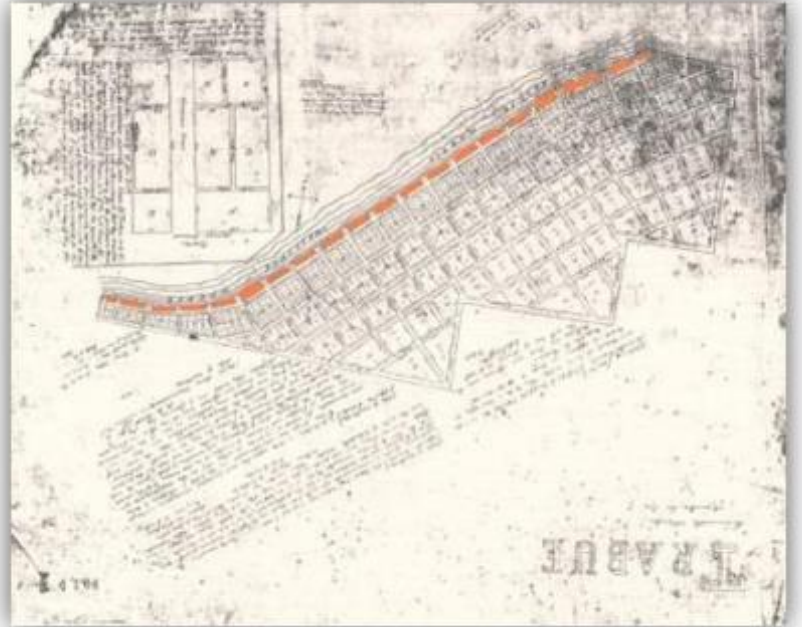
April 4, 2019
Joan LeBeau, AICP
ISA Certified Arborist,
Urban Design Manager



Punta Gorda

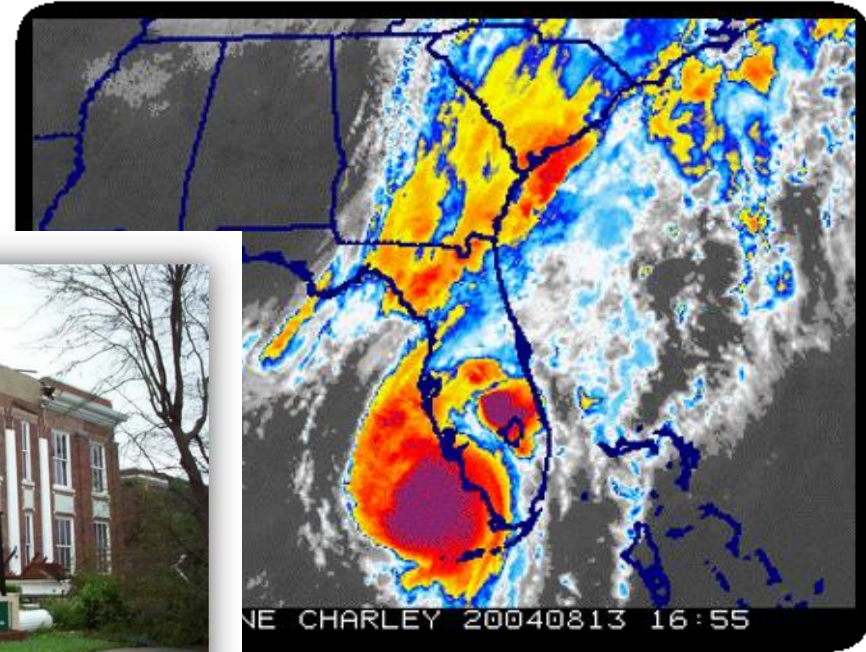
Punta Gorda

- Colonel Isaac Trabue Plat 1884
 - Platted all waterfront parks as City parks
 - Legacy remains today parks connected by 2.5 mi harborwalk



Tropical Cyclone Visit

- 2004 Hurricane Charley



Planning for the Future

- Comprehensive Plan
 - Conservation & Coastal Management Element
 - Under Hazard Mitigation Goal
 - Partnered w/ University of Florida Law Clinic students
 - Preservation of greenspace is a cornerstone of land use management
- City pro-actively continues to acquire & preserve greenspace



Objective 2.4.2: Address the impact of sea level rise, and seek strategies to combat its effects on the shoreline of the City.

Policy 2.4.2.1: The City will work with the Southwest Florida Regional Planning Council to determine the potential sea level rise impacts on the Coastal Planning Area.

Measurement: Completion and implementation of developed coastal studies or development of model scenarios.

Supplemental Studies

- Punta Gorda Climate Adaptation
 - Identified series of adaptation strategies
 - Fish & wildlife habitat degradation
 - Inadequate H2O supply
 - Flooding
 - Unchecked & Managed growth
 - H2O quality degradation
 - Education, economy & lack of funding
 - Fire
 - Insurance availability



General consensus to address one of the vulnerabilities.

City of Punta Gorda Adaptation Plan



Southwest Florida Regional Planning Council
Charlotte Harbor National Estuary Program
Technical Report 09-4
11/18/2009

er III, Whitney Gray, Daniel Trescott, Dan Cobb, Jason Utley, David Hutchinson,
John Gibbons, Tim Walker, Mop Abimbola: SWFRPC
And Lisa B. Beaver, Judy Ott: CHNEP

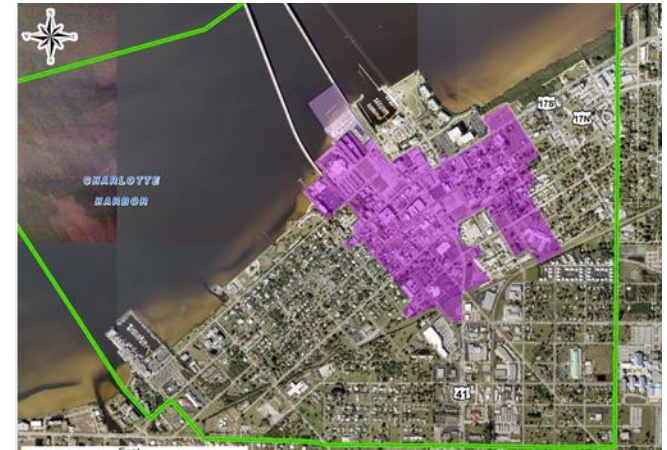


1926 Victoria Avenue
Fort Myers FL 33901
(239) 338-2550

www.SWFRPC.org and www.CHNEP.org

More Planning

- 2040 Comp Plan changes
 - Pursue additional land acquisitions
 - Update plans
 - Transportation Plan
 - Climate Adaptation Plan
 - Living Shoreline Element
- Seek Grant Funding
 - Exotic species removal
 - Stormwater improvements
 - Coastal native species restoration
- Develop Partnerships



CITY OF PUNTA GORDA
COMPREHENSIVE PLAN 2040



Taking Planning Into Action

Every living shoreline design should result from careful consideration of the project site & strategic placement of natural components along the shoreline profile.

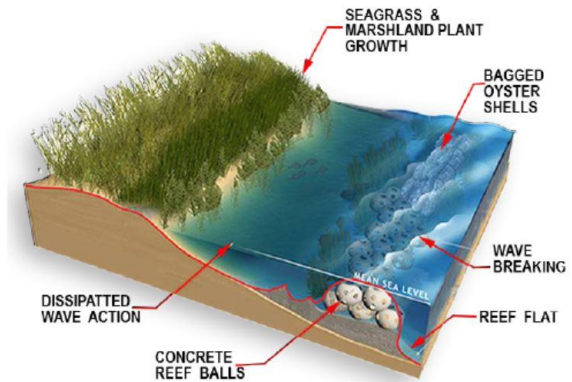
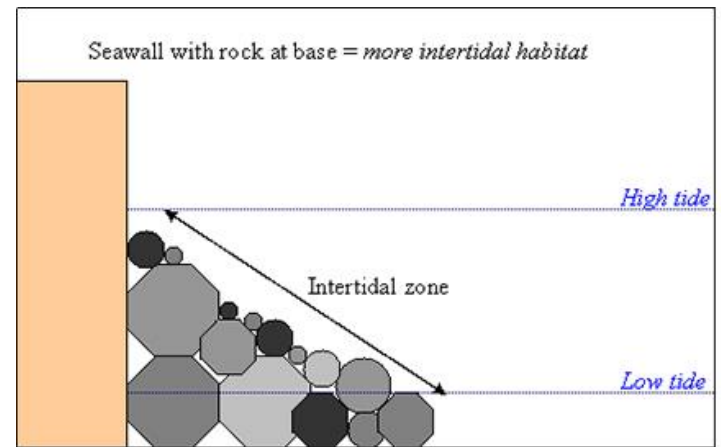


Figure C1.1 Combined Structural and Nonstructural Living Shoreline Installation, Pre-Storm Condition
(graphic by EWN/ERDC)



Site Evaluation & Design Criteria



- Shoreline type
- Degree of energy
 - Waves
 - Currents
- Potential sediment transport characteristics
- Types & location of ecological resources
- Nature of adjacent land uses
- Reach
- Fetch
- Topographical Conditions
- Tidal Range
- Storm Surge
- Wave Energy
- Currents
- Water Quality & Salinity
- Sediment Transport

Benefits of Living Shoreline

- Bio Ecological Benefits
 - Provides erosion control/traps sediments
 - Maintains coastal processes
 - Reduces wave energy & storm impacts
 - Improves water clarity
 - Filters pollutants
 - Provides important fish & wildlife habitats
- Built Benefits
 - Provides recreational opportunities
 - Preserves coastal resiliency
 - Protection of surrounding environment
- Economic Benefit
 - Reduces property loss





Existing Natural Living Shorelines in Punta Gorda

“Volunteer” Mangrove Living Shoreline

occurring along existing hard structures

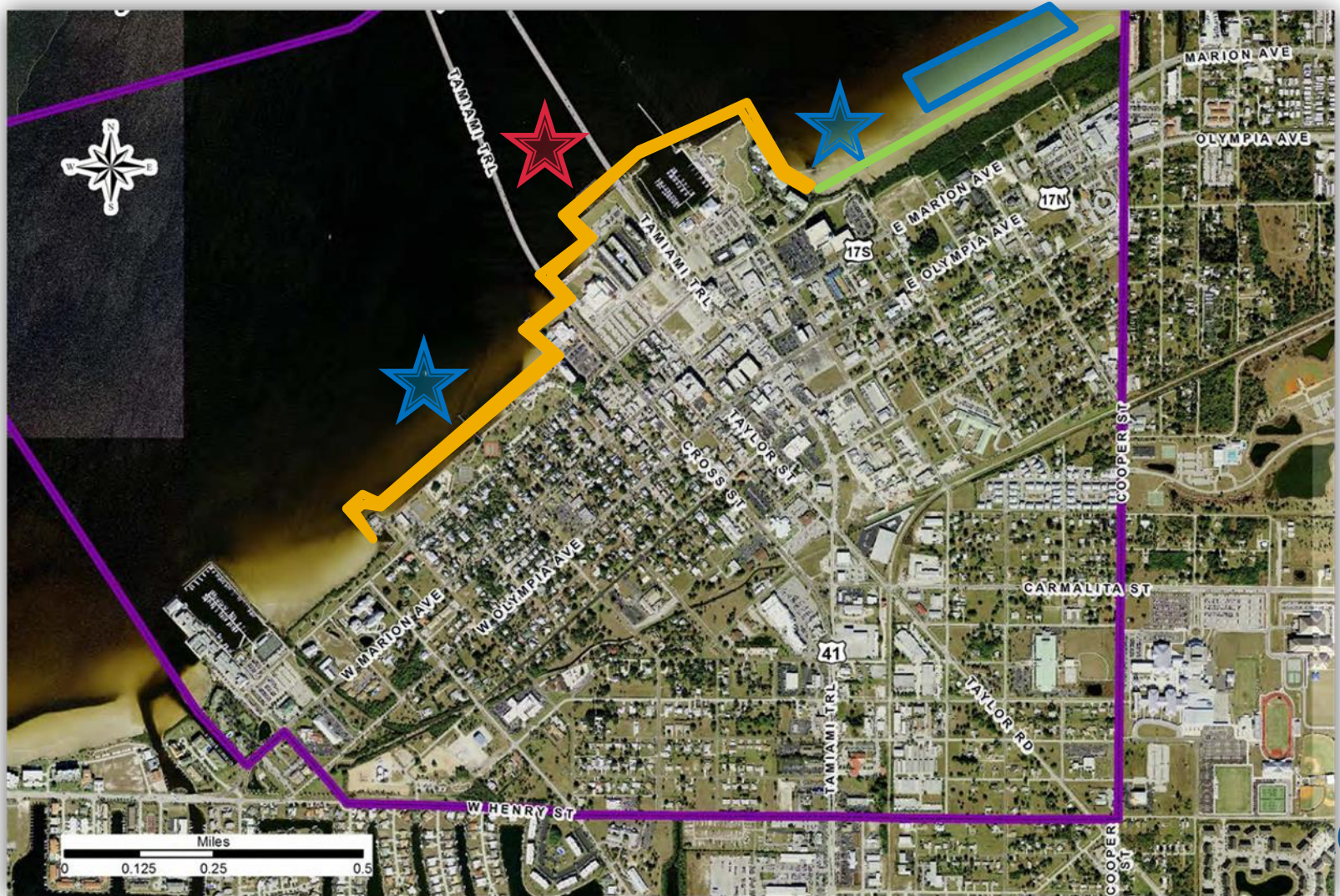


Oyster Reef Restoration

- Pilot Project
 - Partnerships
 - The Nature Conservancy
 - Mosaic Company
 - Community volunteers
 - Florida DEP
 - CHNEP
 - Aquatic Preserves
 - Benefits
 - Habitat
 - Water quality
 - Shoreline stabilization

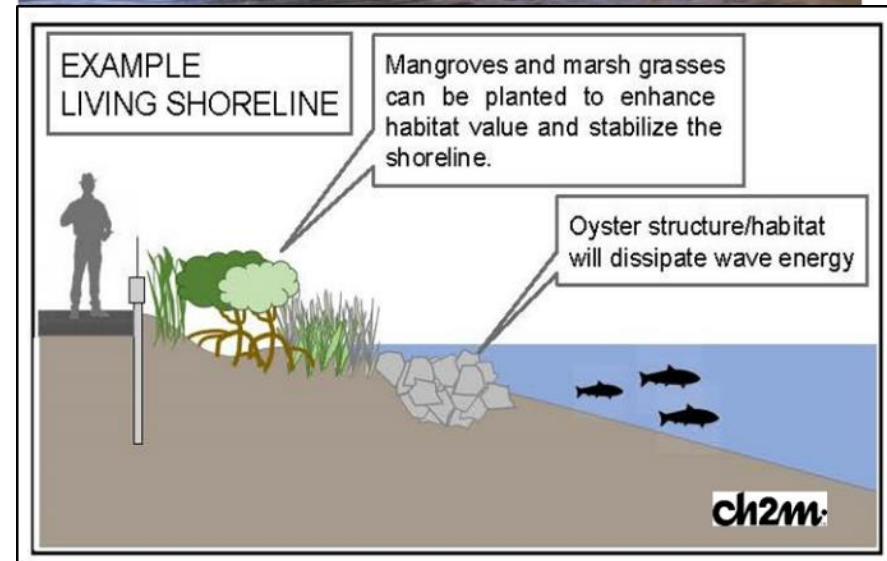


Expand Oyster Reef Restoration



Next Steps: Coastal Infrastructure Resilience

- Design another project
 - along hotel's seawall & public walkway
 - increase estuarine habitat quality
 - enhancing attractiveness of the waterway
- Develop partnership
 - Local Business
 - The Nature Conservancy
 - Engineering Company
 - Florida Department of Environmental Protection
 - CHNEP
 - Aquatic Preserves



Lessons Learned

- Comprehensive Plan
 - Develop flexible policies
- Adaptation Plan
 - Partner whenever possible
 - Use local data
- Project Implementation
 - Utilize pilot projects
 - Understand the end game

