
ST. PETE BEACH

SEA LEVEL RISE ADAPTATION PLAN FOR DON CESAR NEIGHBORHOOD

BRIEFING PRESENTATION

SEPTEMBER 15, 2020



INTRODUCTIONS



PHILLIP KEYES, PE
PUBLIC INFRASTRUCTURE EXPERT



GUILLERMO SIMON, PE, CFM
COASTAL ENGINEER – SEA LEVEL RISE
VULNERABILITY



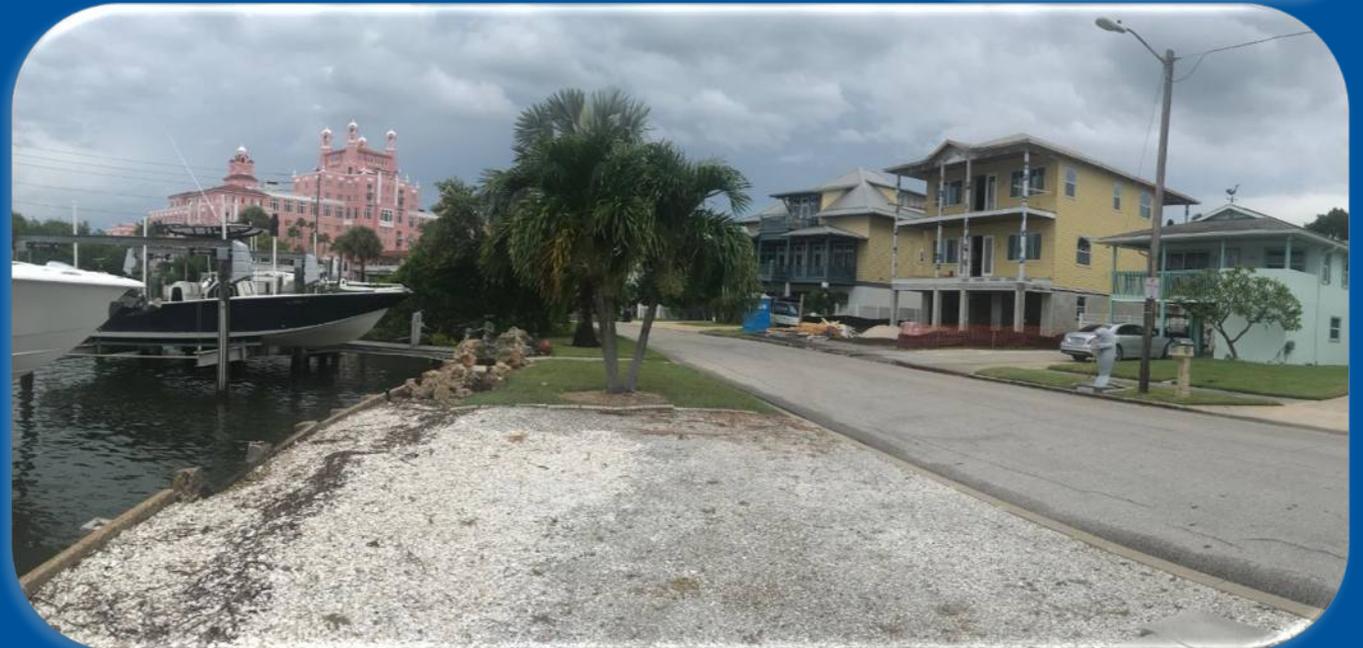
KIMBERLY MILLER, AICP
RESILIENCE PLANNER



TIM MAY, PLA
LANDSCAPE ARCHITECT

PRESENTATION OVERVIEW

1. Purpose and Goals of Don CeSar Neighborhood Study
2. SLR & Drainage Analysis
3. Interim Improvements
4. Adaptation Alternatives
5. Cost Implications
6. Discussion and What's Next?



GOALS FOR DESIGN

- Reduce nuisance/ tidal flooding
- Meet LOS for 5' NAVD 88
- Minimize need for repairs to roads or other infrastructure
- Use natural techniques to preserve aesthetics
- Improve stormwater management
- Enhance community safety



NEIGHBORHOOD CONDITIONS

OPPORTUNITIES

- Vacant land between sea wall and road
- Wide roads
- Park at center of neighborhood

CONSTRAINTS

- Rapidly increasing sea level
- High water table
- Minimal drainage network
- Street ends open to the water
- Low lying roads
- Private property ownership
- Existing boat docks



SEA LEVEL RISE & DRAINAGE ANALYSIS



SEA LEVEL CHANGE

SEA LEVEL TRENDS —

TB Climate Science Advisory Panel

Year	NOAA2017	NOAA2017	NOAA2017
	Low	Intermediate	High
2020	0.0	0.0	0.0
2030	0.2	0.3	0.5
2040	0.3	0.6	1.1
2050	0.5	1.0	1.8
2060	0.6	1.4	2.8
2070	0.8	1.8	3.8
2080	0.9	2.3	5.0
2090	1.0	2.9	6.3
2100	1.1	3.4	7.8

Mean High High Water flooding

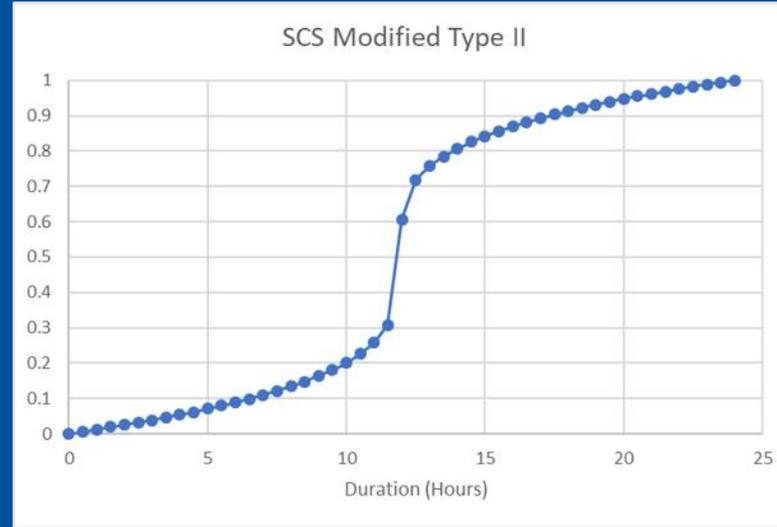


EXCESS PRECIPITATION

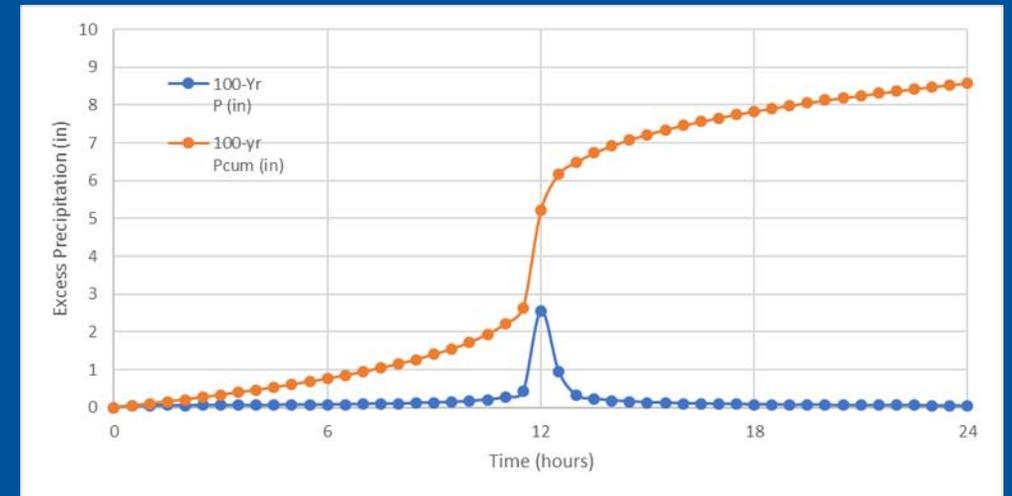
Volume Estimation

- SWFWMD Design Guidelines
- TR-55 Curve Number Method

$P = 11.1''$
 $P_e = 8.6''$



SWFWMD design hydrograph



PROVIDING DETENTION

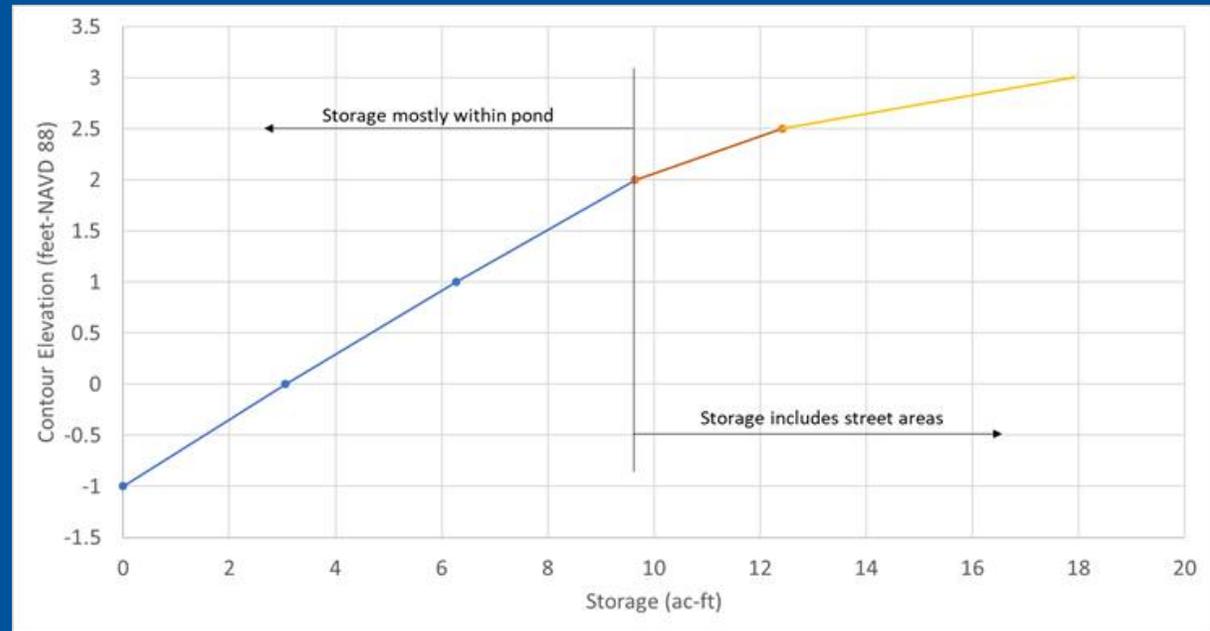
Storage pond
4:1 slope



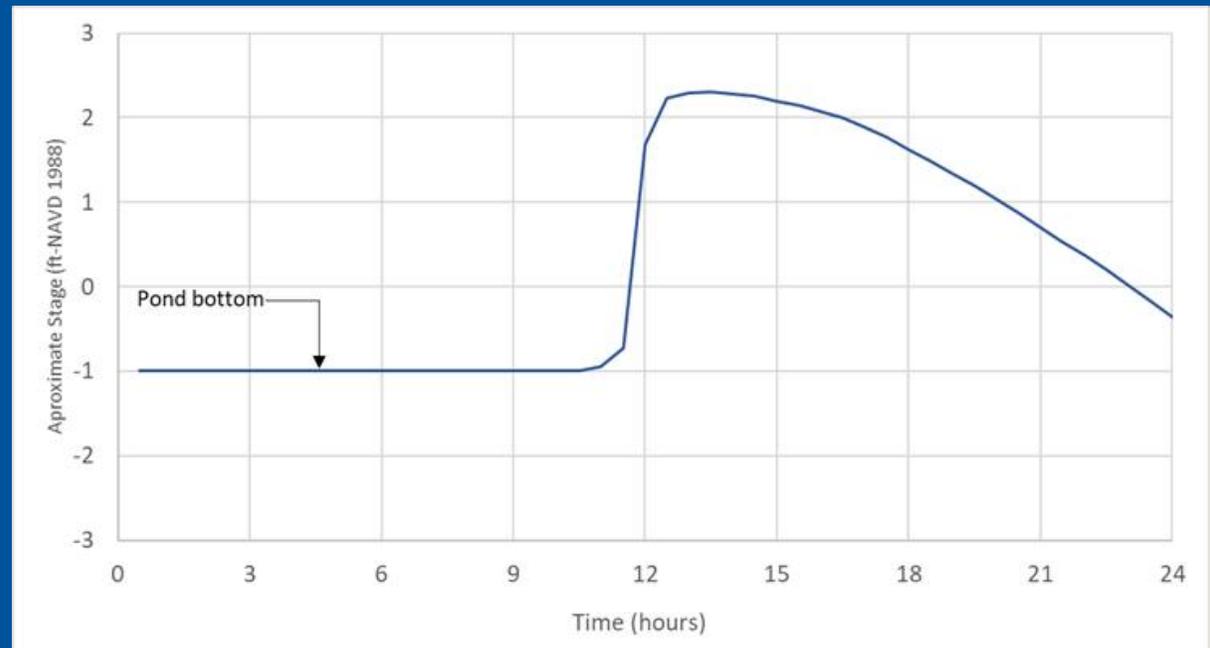
Pond design criteria
(Rainfall, pumping standards, spillway)



Stormwater Routing



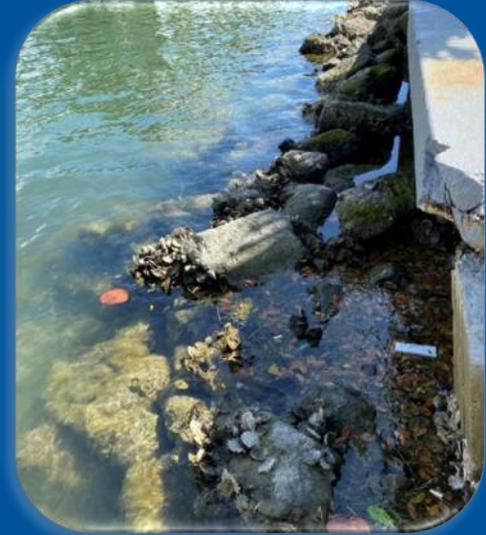
Pumping rate of 8,000 GPM



ADAPTING TO CHANGING CONDITIONS

PROPOSED IMPROVEMENTS:

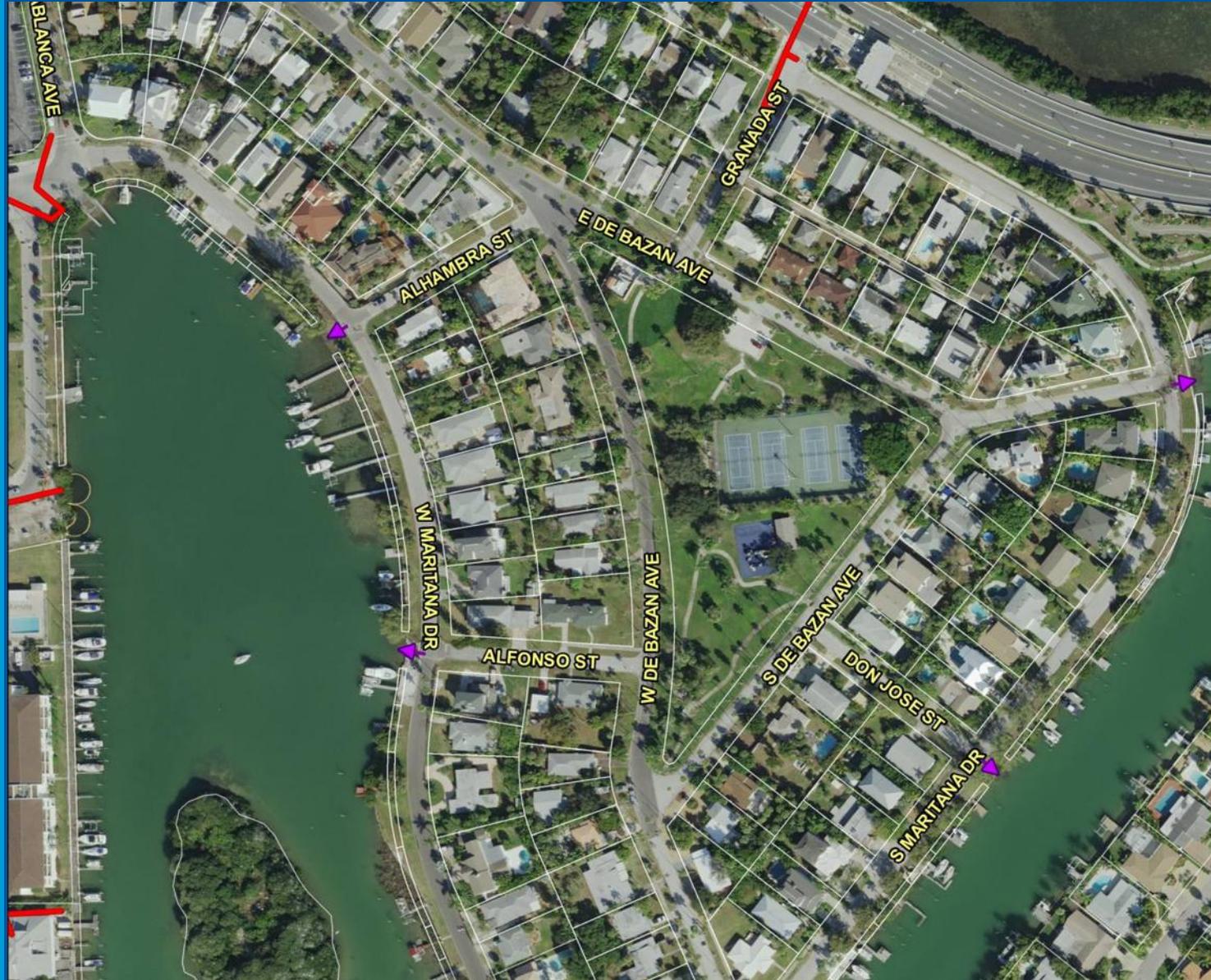
- Interim Solution
- Raising the Perimeter
- Replacing the Streets
- Providing Detention
- Restoring Amenities



INTERIM SOLUTION

Minimize Nuisance Flooding

- Street ends serve as drainage
- Frequent inundation of salt water into the streets
- “Buttoning up” open street ends
- Replacing with larger drainage pipes and backflow preventers



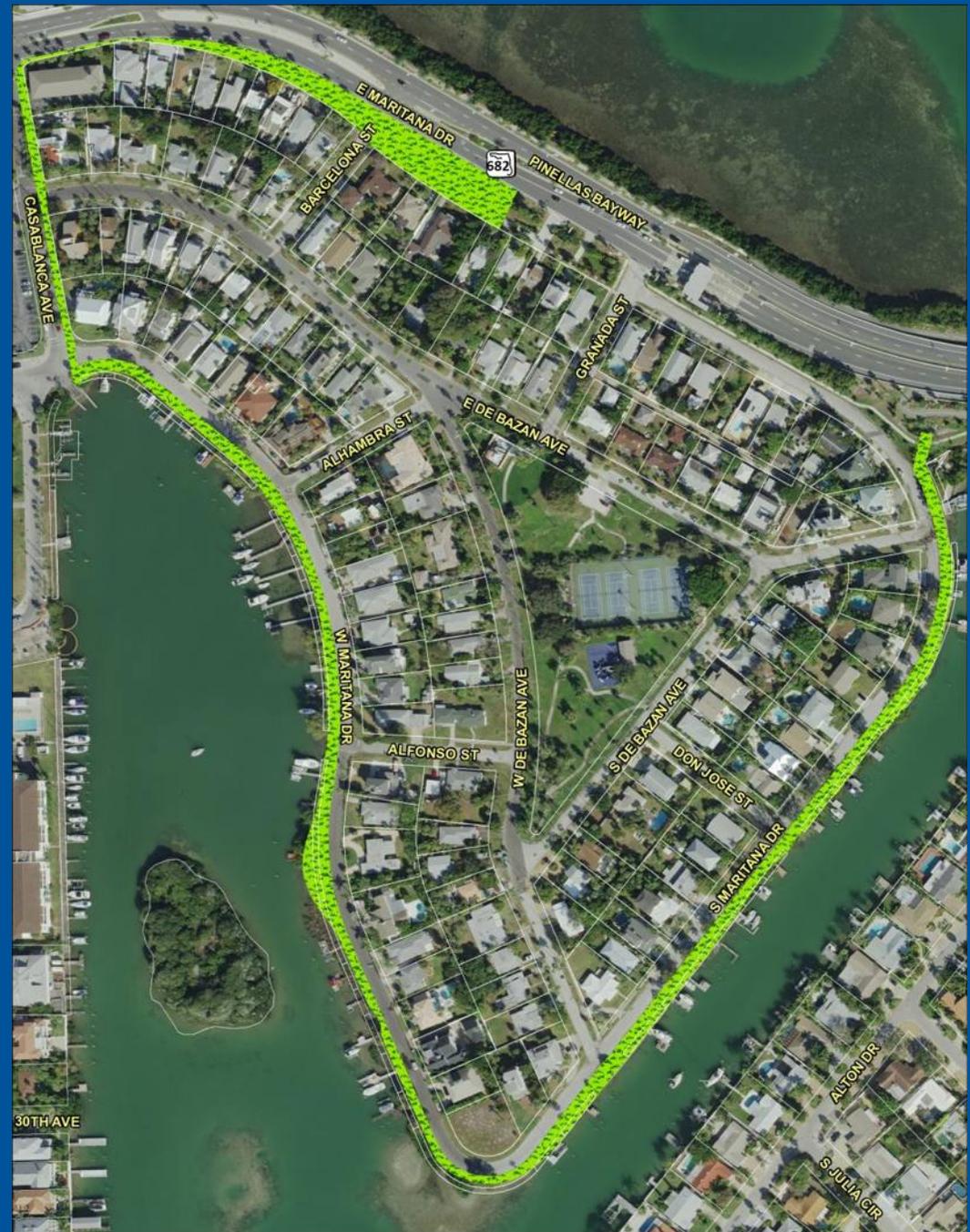
ADAPTATION OPPORTUNITIES

- Raising the Perimeter
- Replacing the Streets
- Providing Detention
- Restoring Amenities



RAISING THE PERIMETER

- Raising perimeter barrier to 5' LOS NAVD 88
- Waterfront perimeter is private property
- Maintaining waterfront access



REPLACING THE STREETS

- Grading Streets
- Piping Network
- Inlets/ Outfalls
- Lower Road for conveyance
- Interior Storage



PROVIDING DETENTION

- Grading Streets
- 4:1 Slope
- Pump Stations
- Spillway



Stormwater Routing



RESTORING AMENITIES

RECLAIMING LAZARILLO PARK

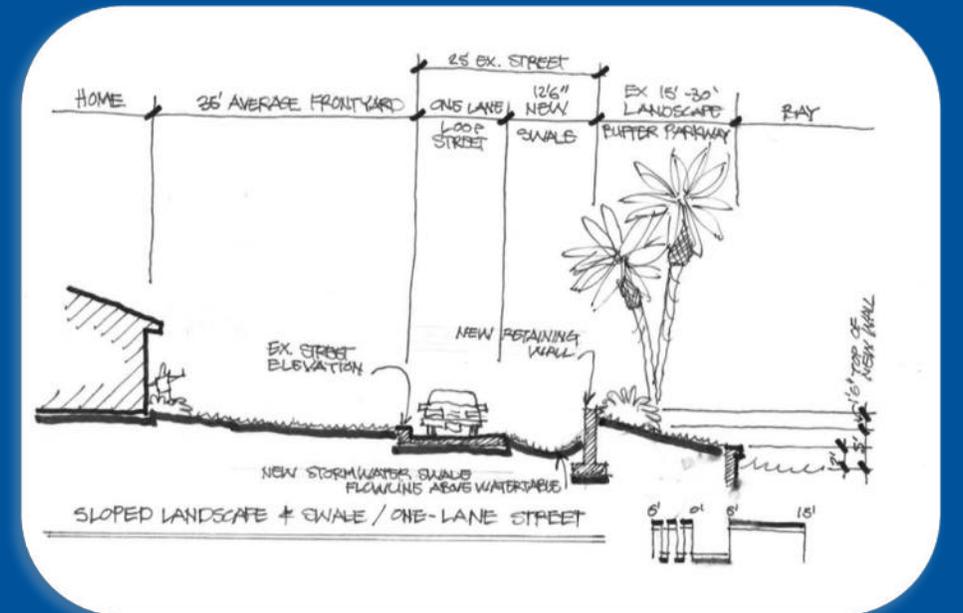
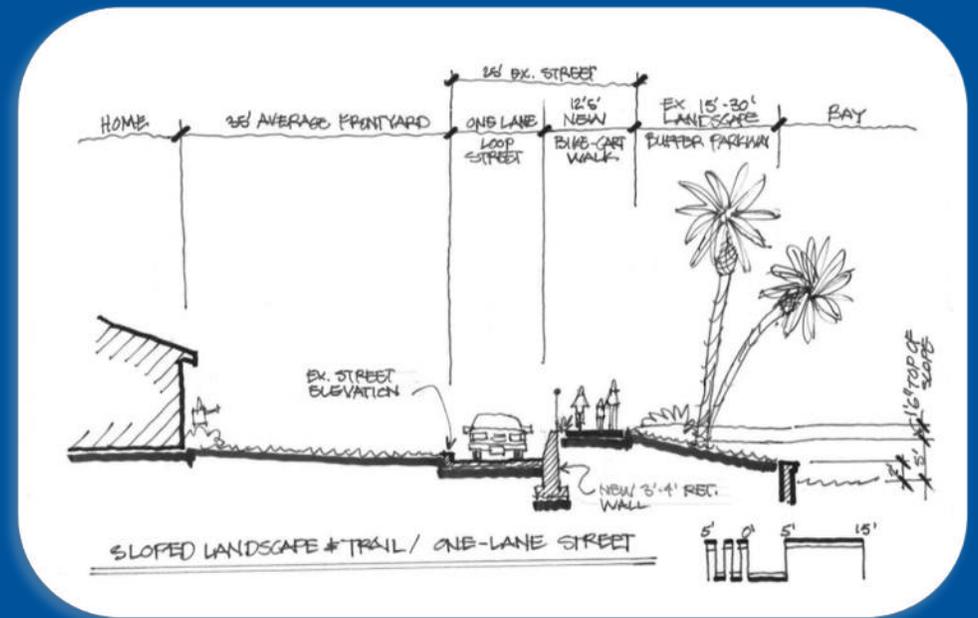
- Minimizing grade change
- Pedestrian & ADA access
- Reconfiguring the tennis court
- Restoring the playground
- Edge treatments



RESTORING AMENITIES

Amenitize the Defense

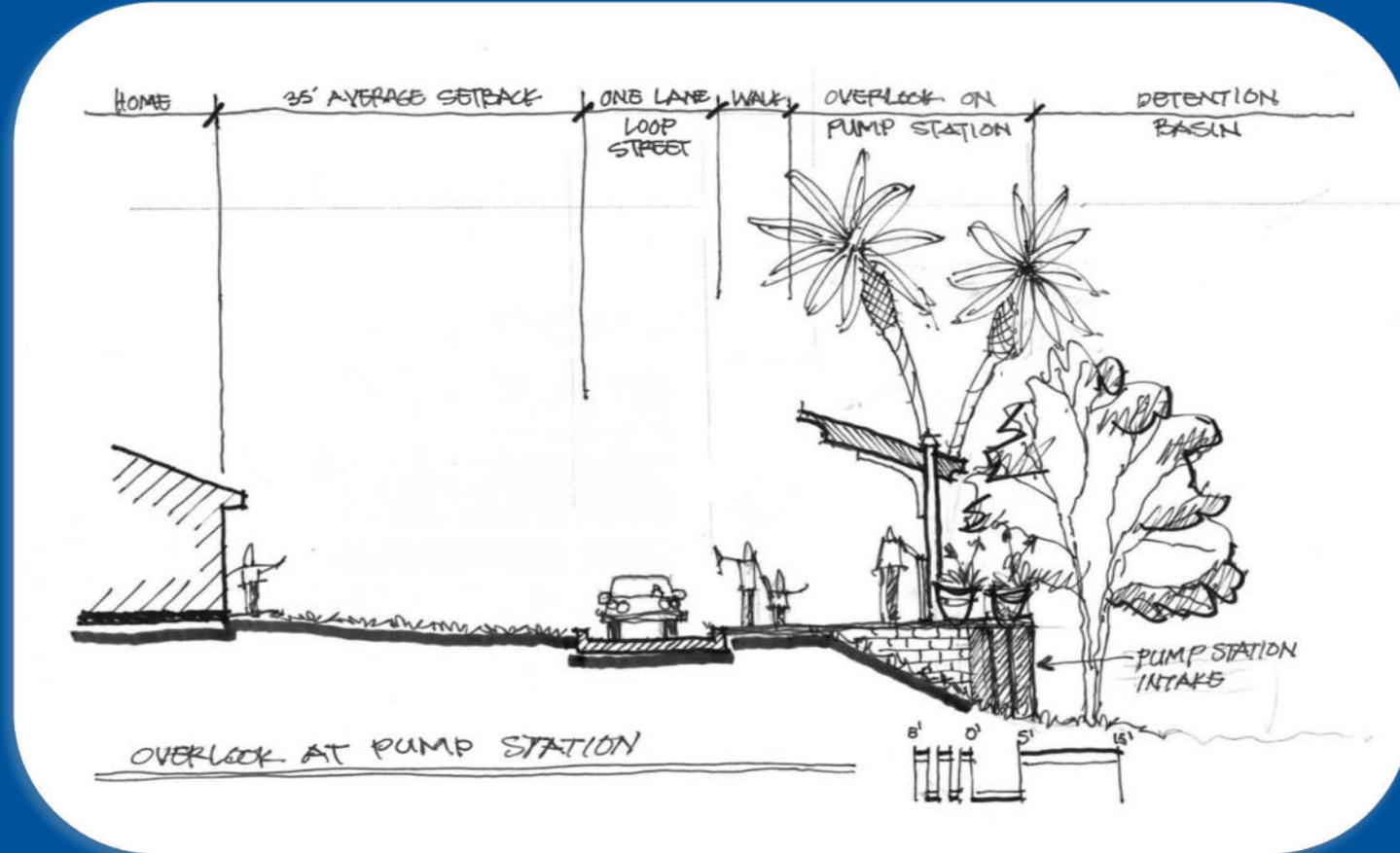
- Reduce roadway from 2-lane to 1-lane
- Outside lane removed
- Swale and/or retaining wall to create a house-side berm
- 5 - 6 above water elevation
- Pedestrian connection to waterfront
- Attractive landscaping



RESTORING AMENITIES

DETENTION POND PERIMETER

- Creating a pedestrian experience
- Improving the streetscape
- Landscape screening
- Disguising the pump stations
- Enhancing views & shade protection



COST ASSUMPTIONS

- Construction of a perimeter barrier system, including seawall reconstruction and cut and fill activities
 - Amenities included
- Reconstruction of local streets
 - Installation of stormwater drainage pipes
- Construction of Detention Area
 - Installation of stormwater pumping infrastructure
 - Landscape improvements

The OPCC includes a 30% contingency to account for unknown costs, but does not specifically include the following services:

- Topographic survey
- Geotechnical investigations
- Real estate acquisitions
- Direct connections to private docks
- Engineering services



QUESTIONS?

CONTACT:

Phillip Keyes/ Kimberly Miller

pkeyes@halff.com

kmiller@halff.com

