STORMWATER MANAGEMENT IN THE CITY OF VERO BEACH

AN OVERVIEW OF THE PAST, PRESENT, AND FUTURE STATE OF STORMWATER MANAGEMENT GOALS FOR THE CITY AND THE INDIAN RIVER LAGOON

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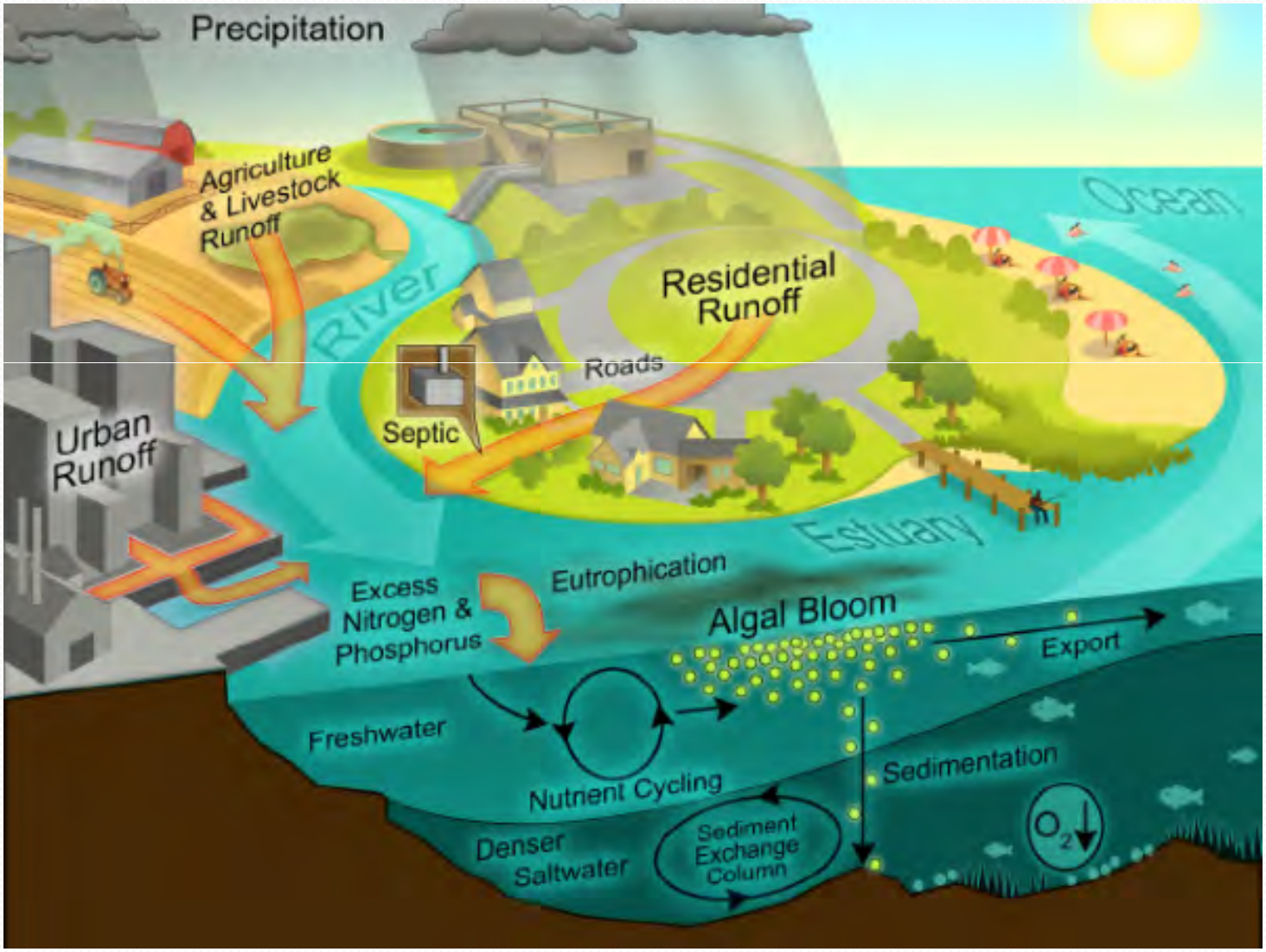
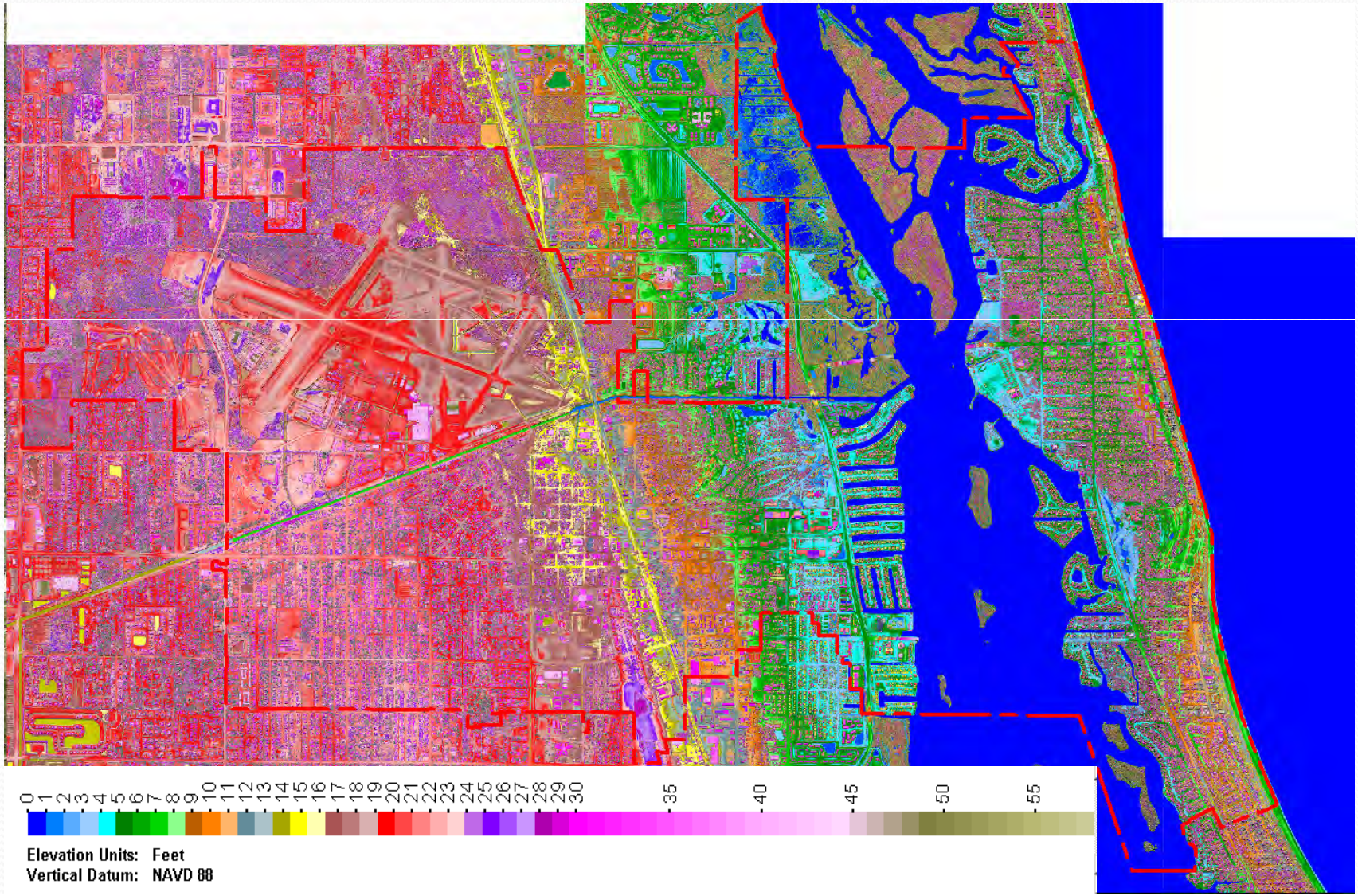
Stormwater Basics – A Watershed



City of Vero Beach - The Present

Digital Elevation Model



1943-1945: ROYAL PALM, MIRACLE MILE, AND VERO ISLES

1951: ROYAL PALM, MIRACLE MILE, AND VERO ISLES

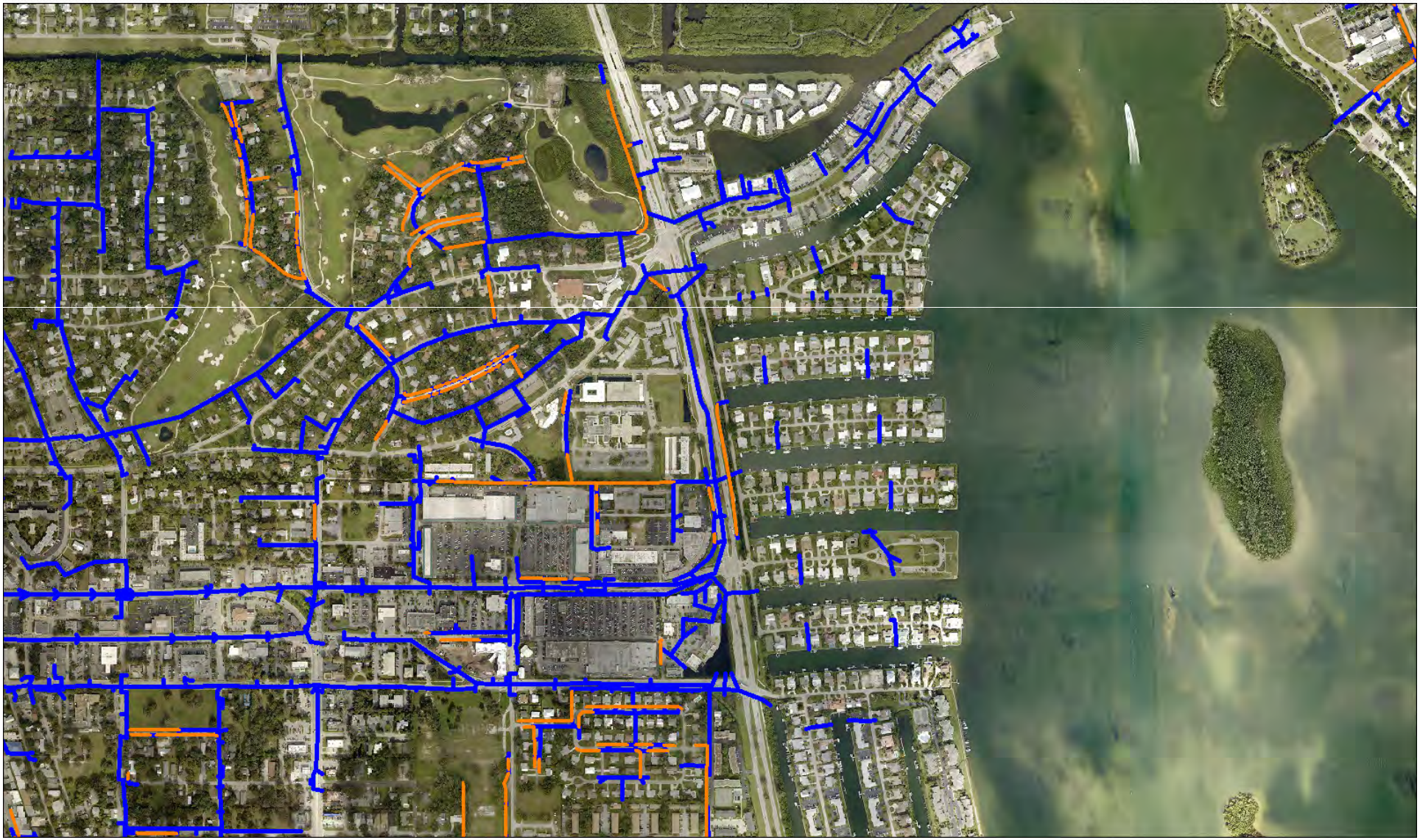
1957: ROYAL PALM, MIRACLE MILE, AND VERO ISLES

1967: ROYAL PALM, MIRACLE MILE, AND VERO ISLES

1974: ROYAL PALM, MIRACLE MILE, AND VERO ISLES

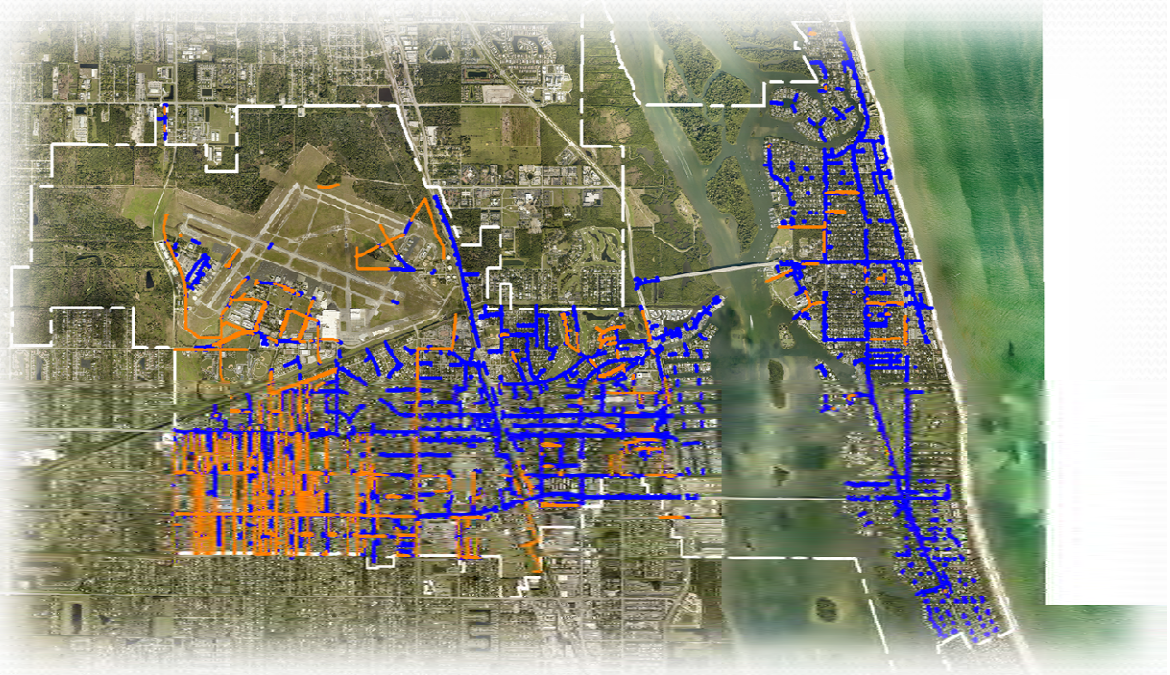
1991: ROYAL PALM, MIRACLE MILE, AND VERO ISLES

2015: ROYAL PALM, MIRACLE MILE, AND VERO ISLES



Stormwater Infrastructure – Flood Protection

- Core Infrastructure Elements:
  - 77 miles of Pipe
  - 43 miles of Ditches
  - 6000 Drainage Structures



- Infrastructure Replacement Cost (Repair and Replacement or R&R):
  - $25 Million total
  - **$500,000 per year budget for a 50 year design life**

- These existing core elements are used to MOVE stormwater for flood protection. These costs do not include TREATMENT of runoff.

Stormwater Mission Timeline

INDIAN RIVER FARMS WATER CONTROL DISTRICT CREATED
1919

CITY OF VERO BEACH INCORPORATED
1925

CLEAN WATER ACT AND STATE DRAINAGE DISTRICTS CREATED
1972

CITY STORMWATER RULES
1988

TMDL ISSUED
2009

UPDATED CITY CODES
2010

SUPERBLOOM EVENT
2011

BMAP CYCLE 1
2013

BMAP CYCLE 2
2018

1919 | 1929 | 1939 | 1949 | 1959 | 1969 | 1979 | 1989 | 1999 | 2009 | 2018

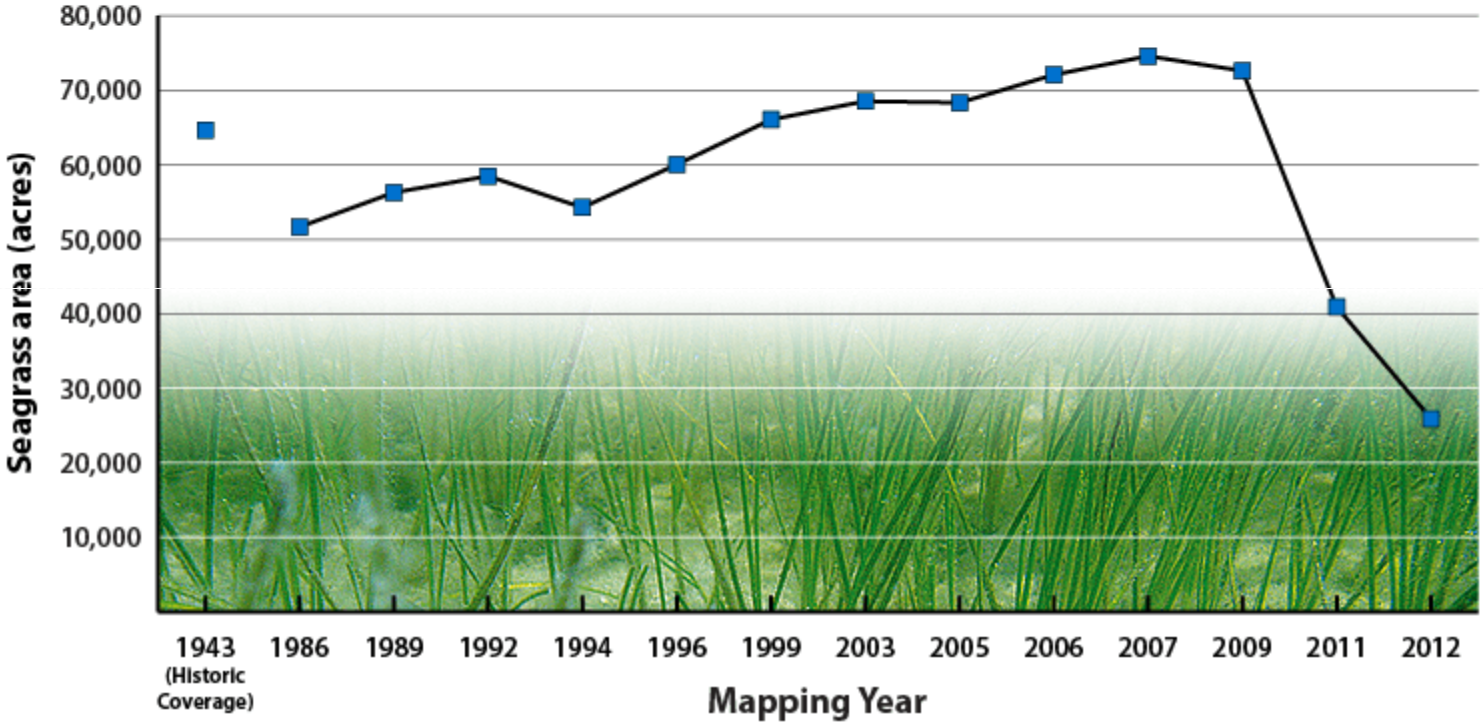
Today

MOVING STORMWATER

TREATING STORMWATER

Indian River Lagoon Seagrass Coverage

(within SJRWMD to Fort Pierce Inlet)



- Aerial photographs of lagoon seagrass are taken every two years and new seagrass maps are produced from this photography. Scientists monitor seagrass transects and collect water quality samples monthly.
- Scientists recorded a 60 percent loss of seagrass in the lagoon between 2009 and 2012.

Treating AND Moving Stormwater -

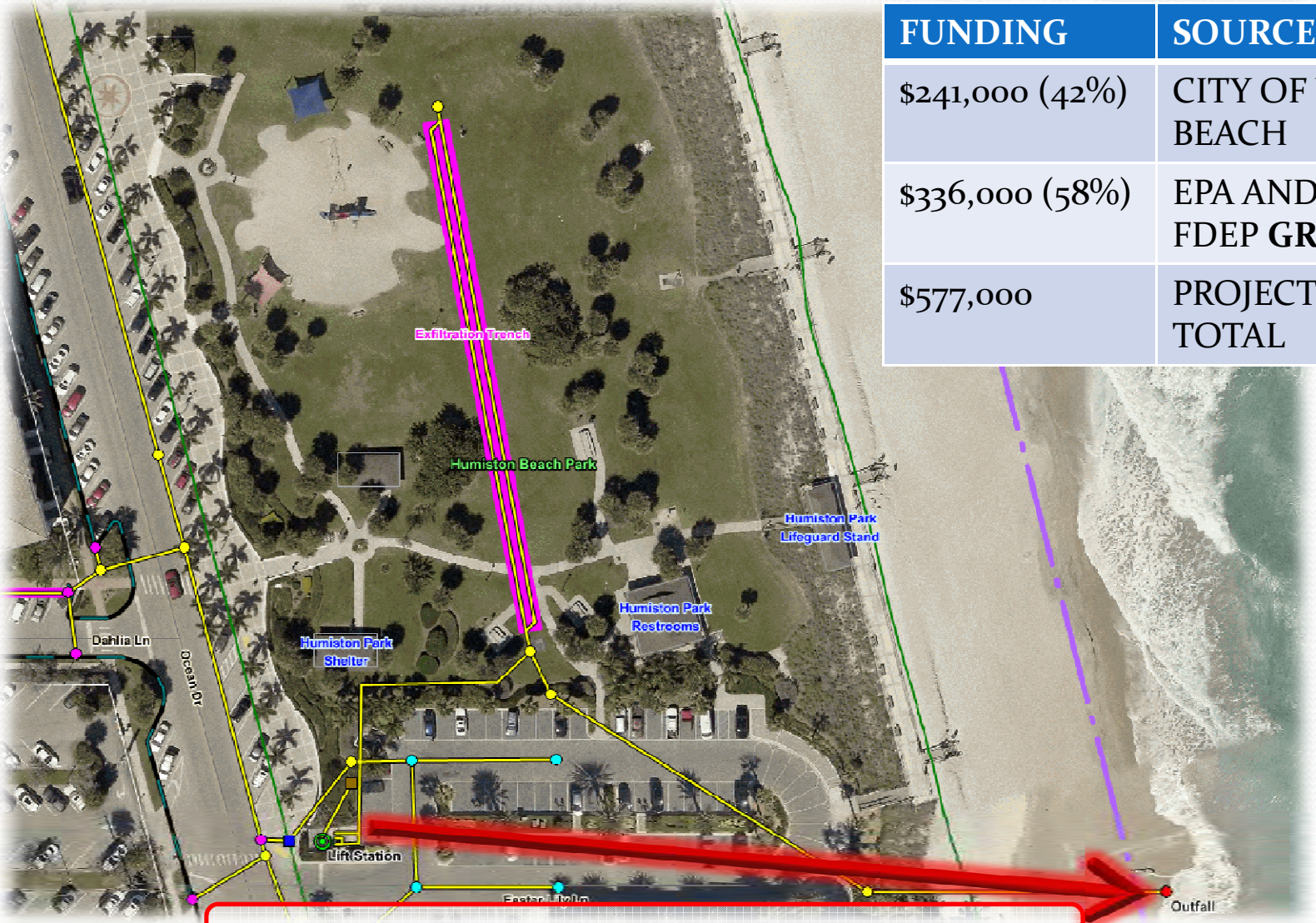
2010 Humiston Park Project – A Success Story

- **Before** Project (Moving Water)
  - 2 Relatively Small Pumps used to Drain Ocean Drive
  - **21 Recorded Beach Closures** due to excessive E. Coli Bacteria from 2001-2009

Location	Date	Enterococcus Code (Calc)	Advisory
HUMISTON BEACH OUTFLOW	11/10/2008	Good	No
HUMISTON BEACH OUTFLOW	11/4/2008	Good	No
HUMISTON BEACH OUTFLOW	10/27/2008	Good	No
HUMISTON BEACH OUTFLOW	10/20/2008	Good	No
HUMISTON BEACH OUTFLOW	10/13/2008	Good	No
HUMISTON BEACH OUTFLOW	10/8/2008	Poor	Yes
HUMISTON BEACH OUTFLOW	10/8/2008	Good	No
HUMISTON BEACH OUTFLOW	10/6/2008	Poor	Yes

- **After** Project (Moving and Treating Water)
  - New High Capacity Pump
  - **No Beach Closures**
  - 90% Reduction in Discharge to Ocean

Humiston Park Stormwater



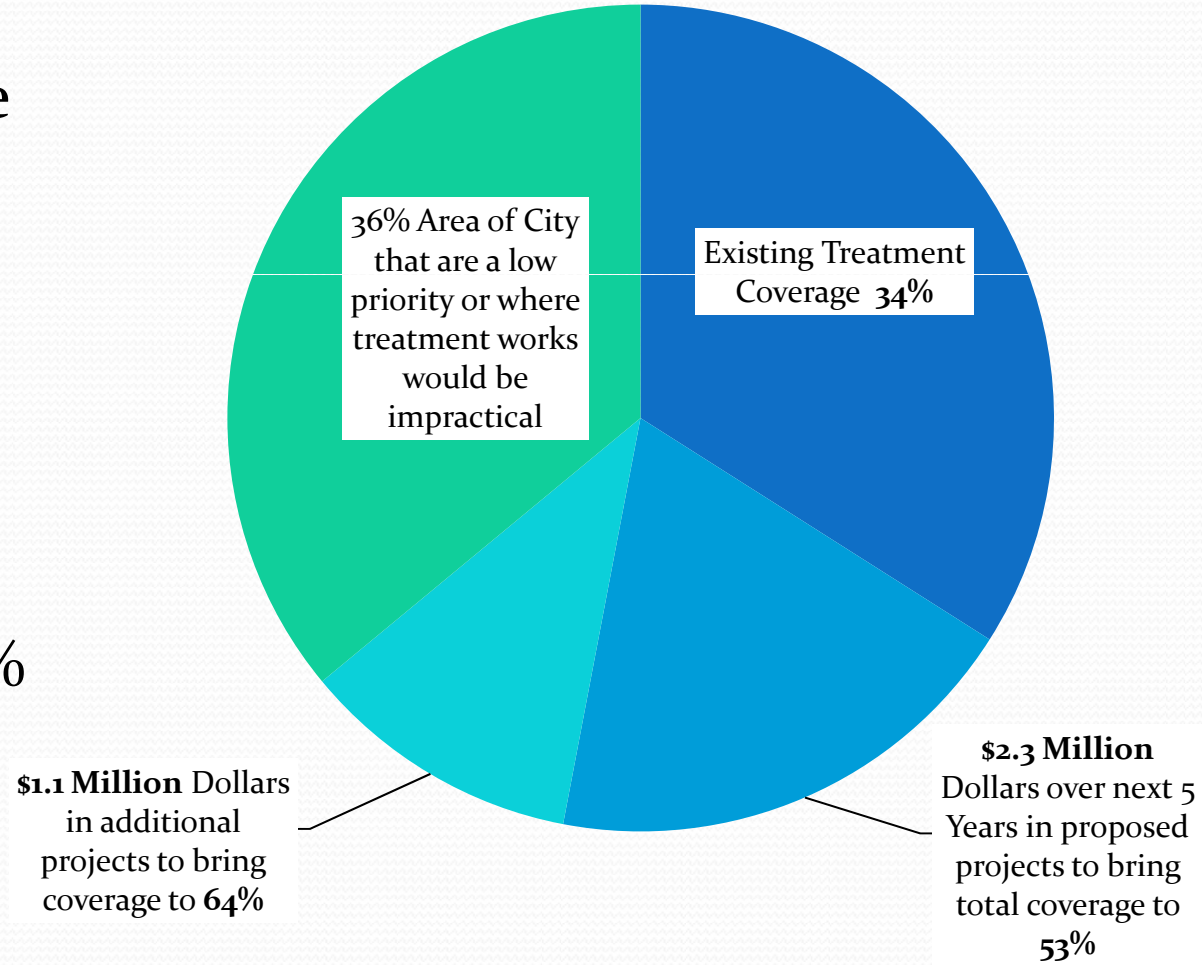
FUNDING	SOURCE
$241,000 (42%)	CITY OF VERO BEACH
$336,000 (58%)	EPA AND FDEP **GRANTS**
$577,000	PROJECT TOTAL

STORMWATER PATH BEFORE 2010 PROJECT

Stormwater Infrastructure –Treatment

- 34% of the City's Urban Area has some form of Stormwater Treatment
- $2.3 Million Dollars over next 5 years will bring City up to 53%
- Another $1.1 Million will bring City to 64%

Stormwater Treatment Coverage in the City



Historical Spending

304 Capital Fund - Last 5 Years

Fiscal Year	R&R ($)	R & R (%)	Treatment ($)	Treatment (%)	Total ($)
2011	$430,000	56%	$342,000	44%	$772,000
2012	$472,000	64%	$270,000	36%	$742,000
2013	$72,000	60%	$49,000	40%	$121,000
2014	$265,000	79%	$71,000	21%	$336,000
2015	$378,000	64%	$217,000	36%	$595,000
TOTAL	**$1,617,000**	**63%**	**$949,000**	**37%**	**$2,566,000**
Average	**$323,400**	**63%**	**$189,800**	**37%**	**$513,200**

Funding Goals Summary

Category	Current Spending	Current Revenue Sources	Proposed Spending	Possible Revenue Sources
Repair and Restoration (Flood Protection)	$325,000	Sales Tax Revenue	$500,000	Sales Tax Revenue, General Fund Tax Revenue, or Stormwater Utility
Stormwater Treatment (TMDL, Improving Lagoon)	$190,000	Sales Tax Revenue, Grants	$500,000	Sales Tax Revenue, General Fund Tax Revenue, Grants, or Stormwater Utility
Manpower and Equipment for Maintenance of System	$700,000	General Fund Tax Revenue	$700,000	General Fund Tax Revenue