MARTIN COUNTY'S STORMWATER PROGRAM

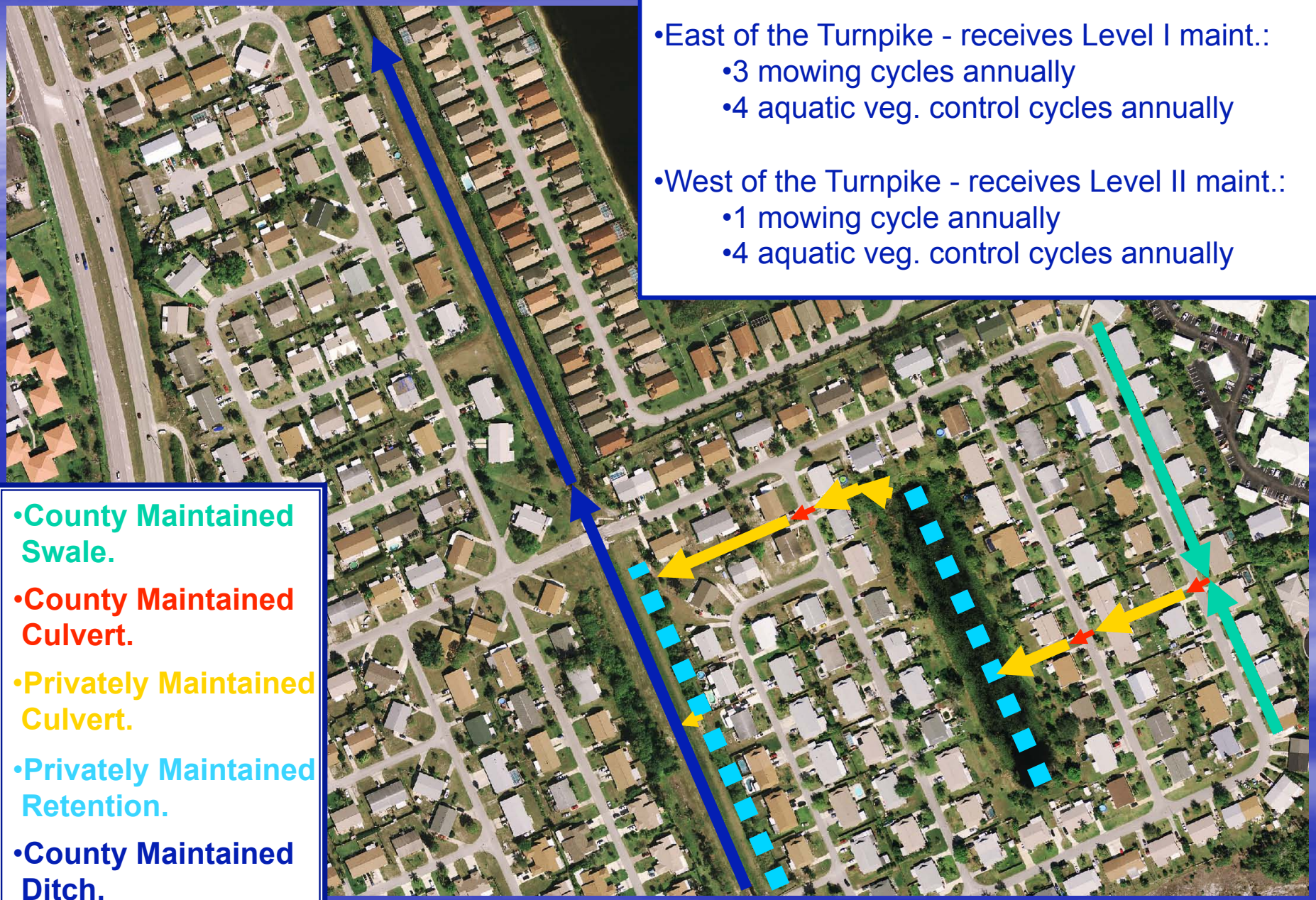
STORMWATER COMPONENTS

- **Public and Private Facilities:**
  - Above ground conveyance
  - Below ground conveyance
  - Miscellaneous features
  - Storage and treatment facilities
  - Natural features

OVERVIEW OF A STORMWATER CONVEYANCE SYSTEM THROUGH A TYPICAL NEIGHBORHOOD.

County Maintained Ditches:

- East of the Turnpike - receives Level I maint.:
  - 3 mowing cycles annually
  - 4 aquatic veg. control cycles annually
- West of the Turnpike - receives Level II maint.:
  - 1 mowing cycle annually
  - 4 aquatic veg. control cycles annually

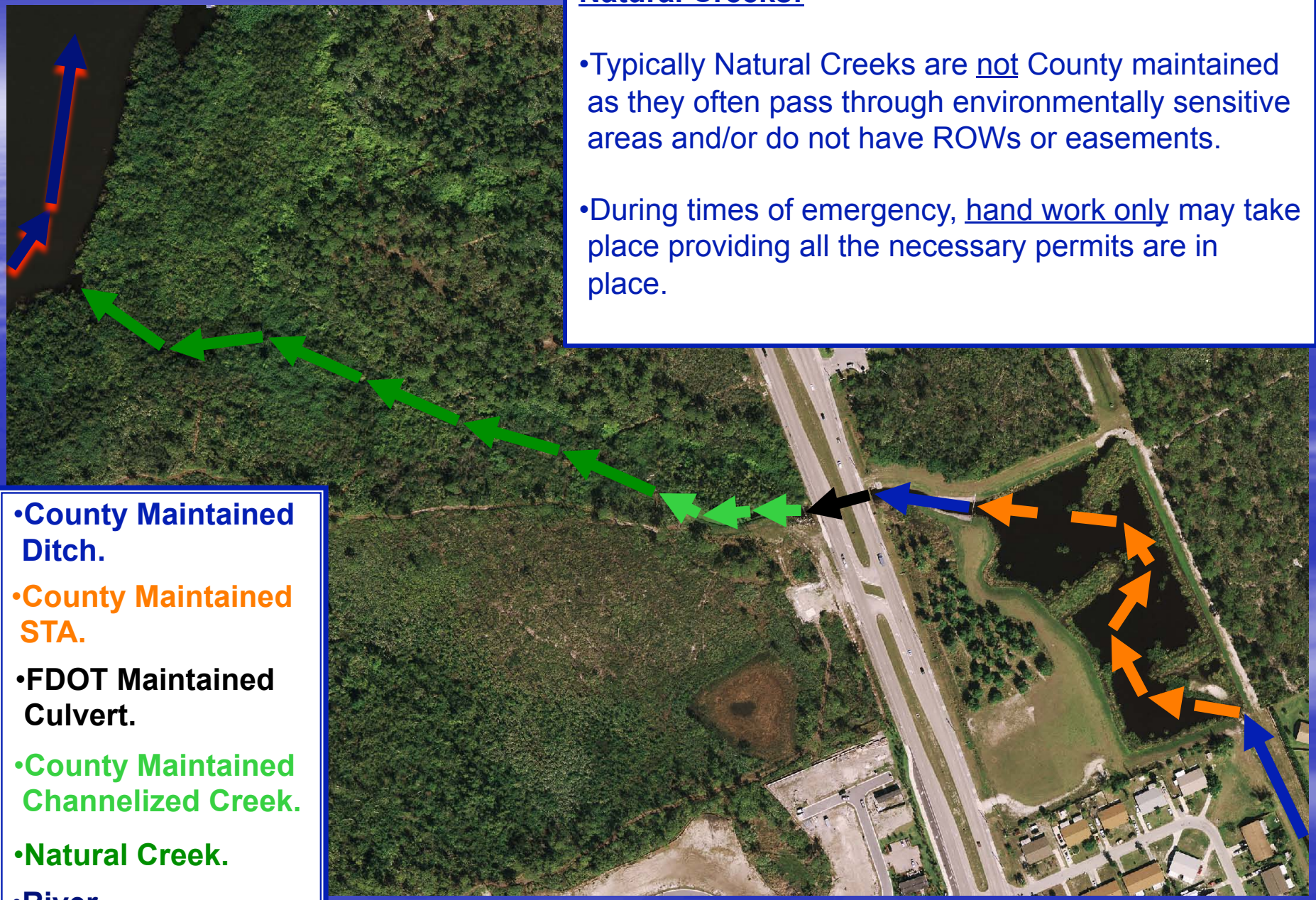


- **County Maintained Swale.**
- **County Maintained Culvert.**
- **Privately Maintained Culvert.**
- **Privately Maintained Retention.**
- **County Maintained Ditch.**

Natural Creeks:

- Typically Natural Creeks are not County maintained as they often pass through environmentally sensitive areas and/or do not have ROWs or easements.

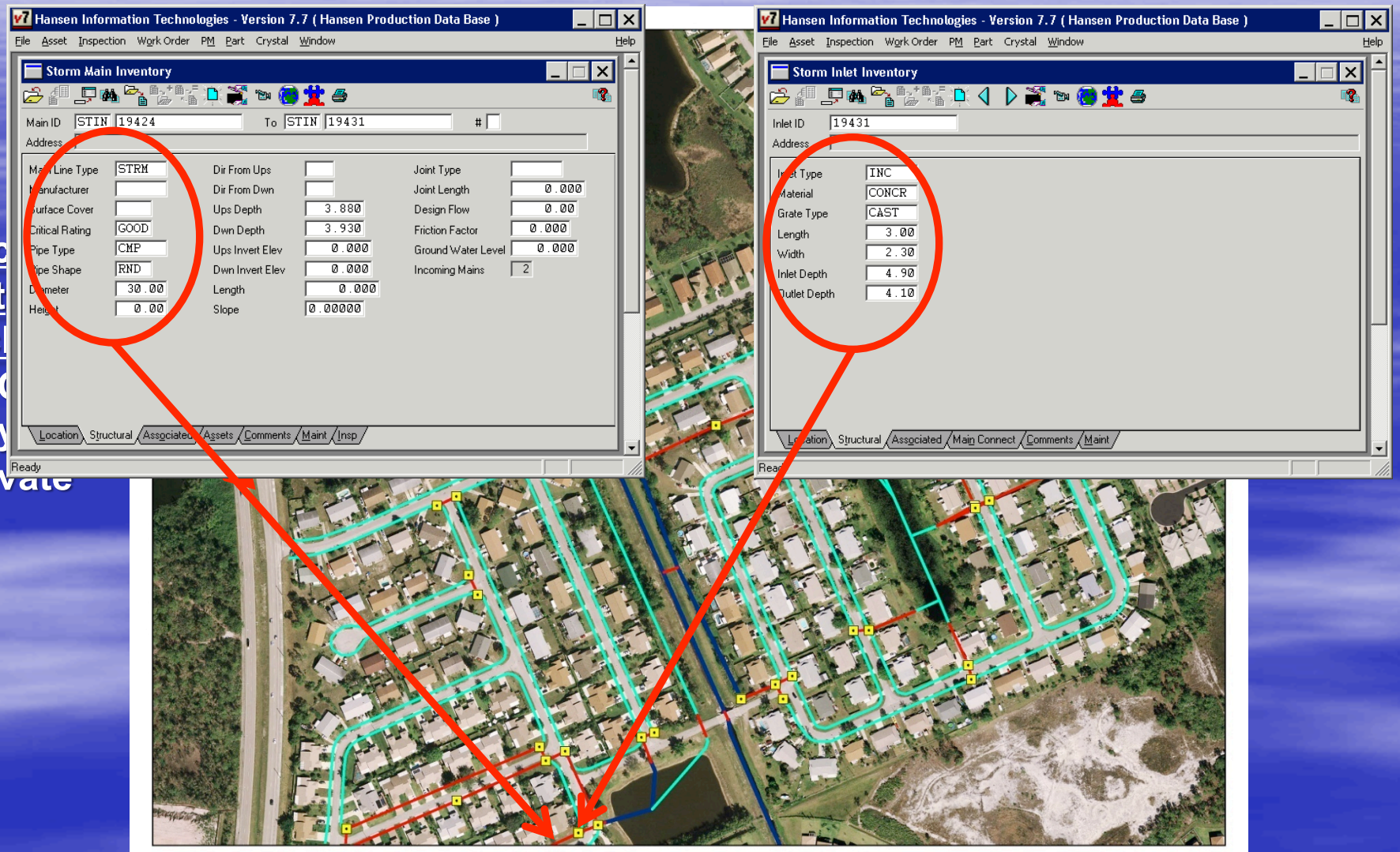
- During times of emergency, hand work only may take place providing all the necessary permits are in place.



- **County Maintained Ditch.**
- **County Maintained STA.**
- **FDOT Maintained Culvert.**
- **County Maintained Channelized Creek.**
- **Natural Creek.**
- **River.**

GIS MAP OF INVENTORY

Fac
not
incl
FDC
City
Private



STORMWATER INFRASTRUCTURE VALUE

- Installed value of County maintained stormwater system: $132,218,951
- Installation cost of stormwater assets only.

STORMWATER ASSET SUMMARY

ASSET	TOTAL	UNIT	VALUE
Structures	4,597	EA	$16,788,779
Culverts	104	Miles	$38,488,033
Conveyances	653	Miles	$43,842,922
Weirs	61	EA	$846,000
End Treatments	1,833	EA	$4,196,924
Retention/Detention	378	EA	$2,195,424
STA's	15	EA	$28,056,293

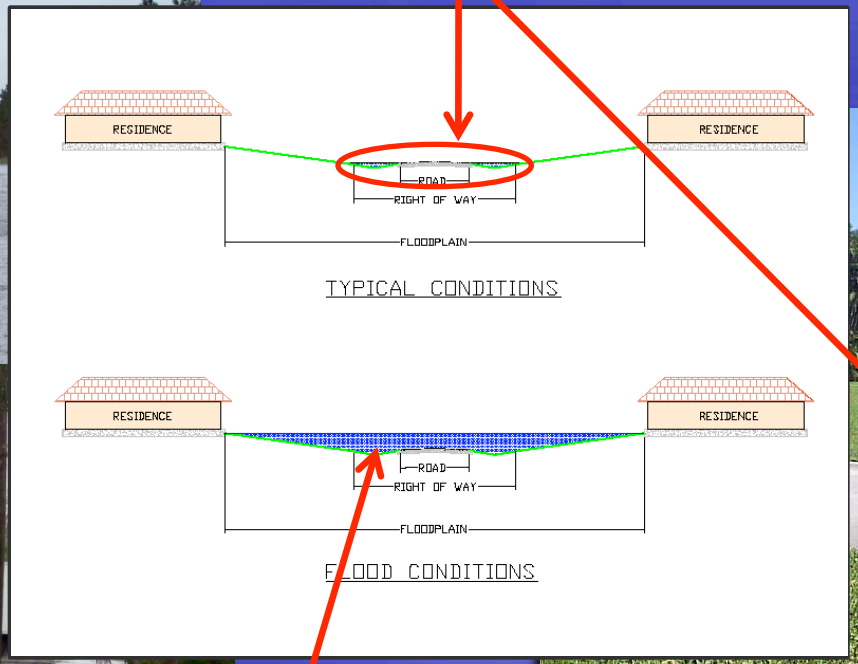
STORMWATER INFRASTRUCTURE REPLACEMENT COST

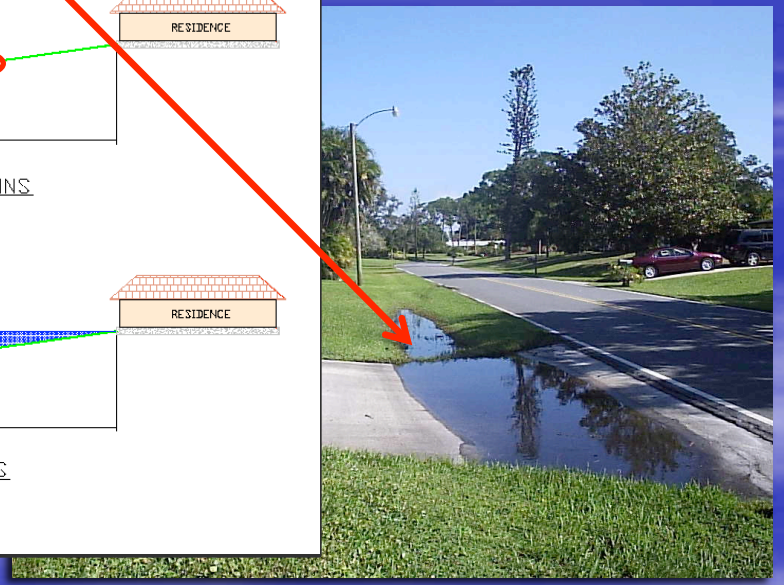
- Replacement Cost of County Maintained Stormwater System:

  $337,158,325 (Infrastructure Value: $132,218,951)

- Includes: ancillary items such as asphalt open cuts, sidewalk repairs, driveway replacements, enhanced landscape replacement, etc. (Does not include engineering functions)

STORMWATER DESIGN VERSUS FUNCTION

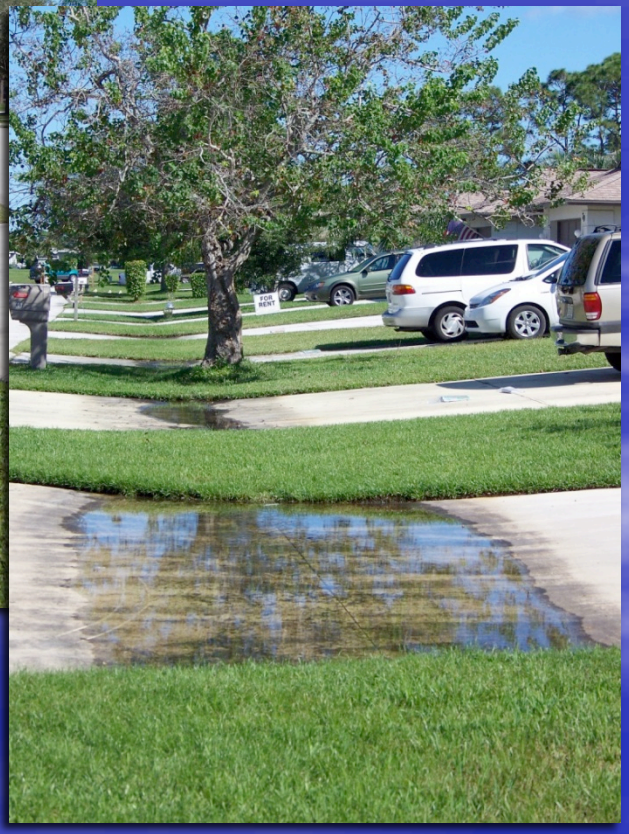




- Typical standing water conditions.

- Most roads are designed to provide additional storage and conveyance during major rains events.

ROADSIDE DRAINAGE



- Swales are the most common type of roadside drainage and provide the first level of protection against flooding.
- As swales age, buildup causes standing water.
- During rainy season, standing water may be present for several weeks or months.
- Standing water is the most common complaint regarding stormwater maintenance.

FLOODING PROJECTS

- Street flooding.
- On project list since mid 1990s.
- Regrade project completed 2007

- Post project following heavy rain fall.

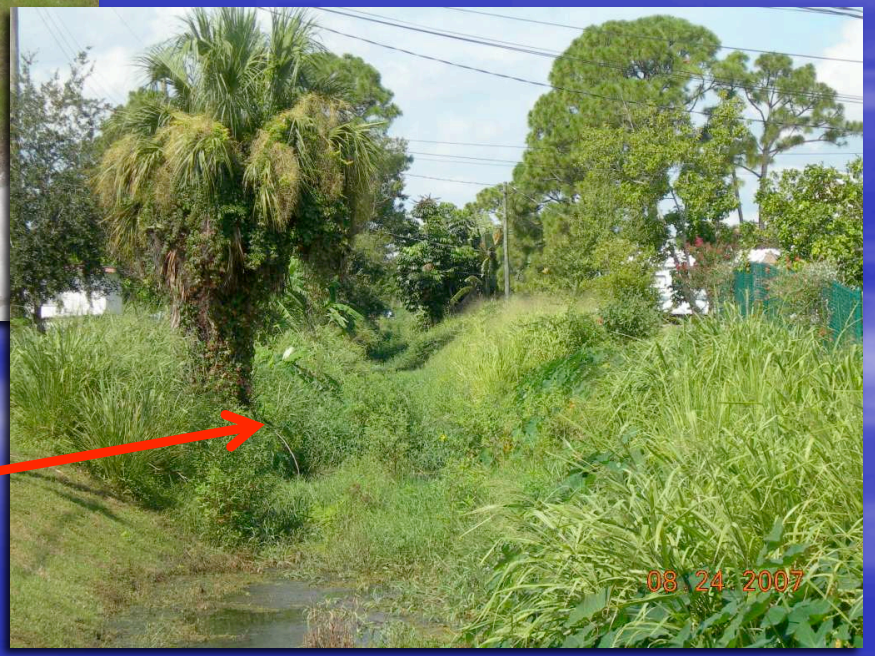
- Documented structure flooding.
- Notified summer 2007.
- Swale reconstructed fall 2007.

FLOODING PROJECTS

- Overgrown FDOT Lateral Ditch.
- Vegetation contributed to upstream flooding.
- Joint restoration project with FDOT in 2001.
- Ongoing maintenance performed by MC.
- No upstream flooding since improvements.

DITCH MAINTENANCE

•Coral Gardens Ditch approximately 1 month after completing mow cycle.



•All American Ditch in Palm City approximately 3 months after mowing.

STA NEIGHBORHOOD INTERFACE

- STAs provide enhanced stormwater quality and improved flood protection during "designed" rain events.

- Flooding and standing water still remains;
- illustrating the need for additional improvements or;
- acceptance that periodic standing water is unavoidable to maintain water quality.

STA MAINTENANCE

- **Maintenance Consists Of:**
  - Drainage Structures
  - Aquatic Zones
  - Turf Areas
  - Wetland Preserves
  - Upland Preserves

- STA ecologies are sensitive to changing weather conditions.
- Exotic plants can dominate a site within a month or less.
- Approximately 2 weeks of growth.

INFRASTRUCTURE FAILURES

- Culvert failures under pavement require immediate emergency repairs.
- Permanent repairs are scheduled as necessary.

INFRASTRUCTURE FAILURES

- Evidence of previous repair.
- Collapsed culvert 90%+- blocked by sedimentation.
- Creates possible flooding conditions upstream.

INFRASTRUCTURE FAILURES

- This culvert exceeded it's useful life span and required replacement.

- County staff replacing a failed storm sewer system with material of a greater "design life span".

FLOODING CONDITIONS

CAUSES:

- Blocked drainage structures.
- Collapsed drainage structures.
- Lack of conveyance.
- Lack of maintenance.
- New drainage facilities holding storm water at higher levels.

INFRASTRUCTURE LIFE SPAN

Underground Storm Water System	Total Length (LF)	Average Years of Design Life Span	Required Replacement Per Year	Current Program Replacement Rate Per Year	Yearly Program Replacement Deficiency
CMP	152,485	30	5,083	*	*
EXFILL MAINT.	7,011	8	876	*	*
HDPE	95,508	50	1,910	*	*
OTHER	2,720	50	54	*	*
PVC	4,325	50	86	*	*
RCP	283,466	100	2,835	*	*
TOTAL:	545,515	56	9,741	6,150	3,591

Above Ground Storm Water System	Total Length (MILES)	Average Life Span	Required Regrade Miles Per Year	Current Program Regrade Rate	Yearly Program Regrade Deficiency
Ditches / Canals	243	40	6	0.25	5.83
Swales	410	25	16	2	14.40

- QUESTIONS ??