Doing Things!

Pinellas County Stormwater Manual

February 21, 2017

Overview

- Purpose of the Pinellas County Stormwater Manual
- Public Involvement
- Outline of the Manual
- Performance Standards
- Catalog of Stormwater Best Management Practices (BMPs)
- Case Studies
- Next steps and schedule

Purpose of Manual

- Centralized Location - What are the requirements and how to meet them
- More tools and flexibility
- Protecting and restoring our surface waters
- Incentivize redevelopment & promote urban regeneration
- Compatibility with other code sections
- Resiliency to current and future conditions
- Consistent with other agencies

Public Involvement

- Stakeholder Group
  - Composition: 50% Development Community & 50% Public Sector
  - Meeting Dates:
    - January 30, 2014
    - May 26, 2016
  - Comment submittal period:
    - January 2014 to July 2016
- Local Planning Agency (LPA):
  - July 9, 2015
  - January 12, 2017
- **http://www.pinellascounty.org/plan/stormwater_manual.htm**

Primary Areas of Change

- Pollutant load based approach for water quality treatment
- More tools and flexibility to meet requirements
- Waivers for challenging sites
- Exemptions consistent with other agencies
- Minimum Tailwater Conditions – consideration of future conditions
- Easements and maintenance rights

Outline of Manual

- Part A
  - Chapter 1: Introduction
  - Chapter 2: Evaluating and Master Planning a Site
- Part B
  - Chapter 3: County stormwater requirements and criteria
  - Chapter 4: Stormwater Quantity / Flood Control requirements
  - Chapter 5: Stormwater Quality Permitting requirements

Outline of Manual

- Part C
  - Chapter 6: Catalogue of Stormwater BMPs
- Appendices
  - Methodologies – Design Aids
  - Rainfall Distributions
  - Stormwater Retrofits
  - BMP Efficiencies
  - Closed basins and TMDL status
- Case Studies – Separate Document

Performance Standards

- Quantity and Flood Control
  - Open Basin: 25 year rate control
  - Closed Basin: 100 year volume control
  - Tidal discharge: no rate/volume control
- Quality
  - Pollutant Load based
  - Reduce post development annual average TN by 55% (min) and TP by 80% (min)-volume of pollutants
  - Net Improvement- Ensure that post-development TN and TP loads are reduced by at least 10% compared to current loadings

Best Management Practices

- Overview of BMPs – BMP Tool Box
  - Site Planning BMPs

Table 2.1. Stormwater BMP Tool Box

Site Planning BMPs	Conceptual Site Planning	Manual Section	Explicit Load Reduction Credit
SP1	Inventory Site Assets: Hydrology	2.7	
SP2	Inventory Site Assets: Topography	2.7	
SP3	Inventory Site Assets: Soils	2.7	
SP4	Inventory Site Assets: Vegetation	2.7	
SP5	Preserve Open Space	2.7	
SP6	Natural Area Conservation - Retain Tree Canopy and Native Landscapes	2.7	√
SP7	Cluster Design	2.7	
SP8	Fill Material	2.7	
SP9	Minimize Building Footprint	2.7	
SP10	Minimize Total Impervious Area	2.7	√
SP11	Minimize Directly-Connected Impervious Area	2.7	√
SP12	Curb Elimination and Curb Cuts	2.7	

Best Management Practices

- Overview of BMPs – BMP Tool Box
  - Source Control BMPs

Source Control BMPs	Source Control Techniques	Manual Section	Explicit Load Reduction Credit
SC1	Protect Surface Waters and Wetlands	2.8	
SC2	Use Selective Site Clearing and Grading	2.8	
SC3	Retain Natural Landscape Depressions	2.8	
SC4	Minimize Clearing and Grading	2.8	
SC5	Minimize Soil Disturbance and Compaction	2.8	
SC6	Build with Landscape Slope	2.8	
SC7	Retain Native Landscapes at the Lot Level	2.8	
SC8	Florida-friendly Landscapes and Fertilizers	2.8	√
SC9	Install Efficient Irrigation Systems	2.8	
SC10	Use Non-potable Water Supply for Irrigation	2.8	
SC11	Community and Home Owner Education	2.8	

Best Management Practices

- Overview of BMPs – BMP Tool Box
  - Structural BMPs

Structural BMPs	Structural Stormwater BMPs	Manual Section	Explicit Load Reduction Credit
SW1	Retention Basin	6.1	√
SW2	Exfiltration Trench	6.2	√
SW3	Underground Storage and Retention	6.3	√
SW4	Treatment Swales	6.4	√
SW5	Vegetate Natural Buffers	6.5	√
SW6	Pervious Pavements	6.6	√
SW7	Green Roofs with Cisterns	6.7	√
SW8	Wet Detention Systems	6.8	√
SW9	Stormwater Harvesting/ Horizontal Wells	6.9	√
SW10	Up-Flow Filter Systems	6.10	√
SW11	Managed Aquatic Plant Systems	6.11	√
SW12	Biofiltration Systems/Tree Box Filters	6.12	√
SW13	Rain gardens	6.13	√
SW14	Rainwater Harvesting/Cisterns	6.14	√
SC15	Rainfall Interceptor Trees	6.15	√

Case Studies

1. **Small Commercial Lot:** comprehensive redevelopment project (less than 1.0 acres).
2. **Large Commercial Shopping Center:** comprehensive redevelopment project (between 2-5 acres).
3. **Single-Family Detached Infill Subdivision:** small infill subdivision on a greenfield parcel.
4. **Industrial/Employment District(s):** existing built-out industrial/employment district. (regional stormwater management)
5. **Multi-use Redevelopment with Regional Ponds:** Gateway Area; regional treatment options

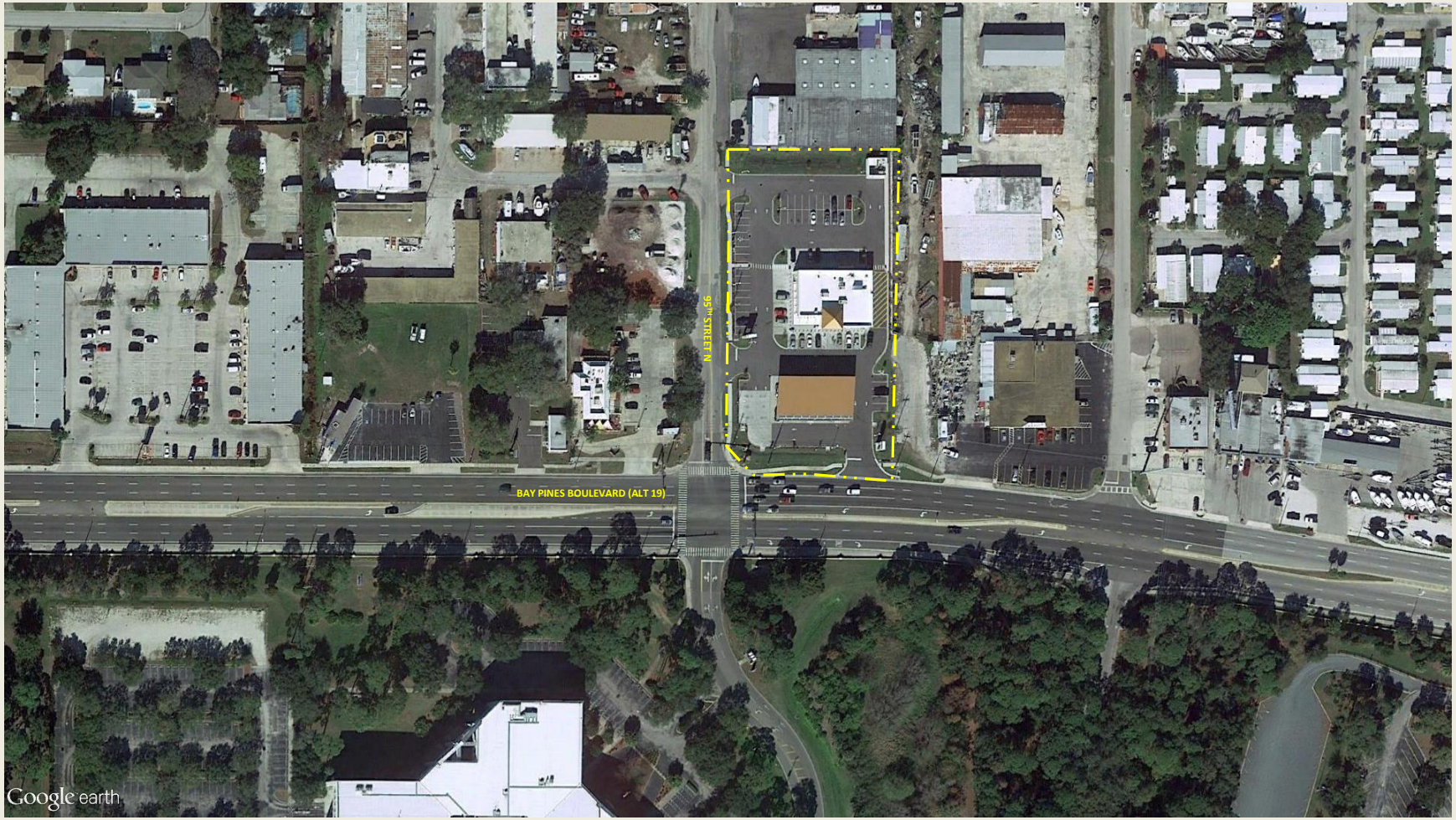
Case Studies

- **Case Study Approach** - Explore redevelopment options/alternatives that:
  - Incorporates the new zoning code requirements
  - Applies a selection of BMPs to meet the proposed County stormwater quality and quantity criteria
  - Compares the site characteristics to current development standards
  - Compares the financial impacts of implementing the new standards

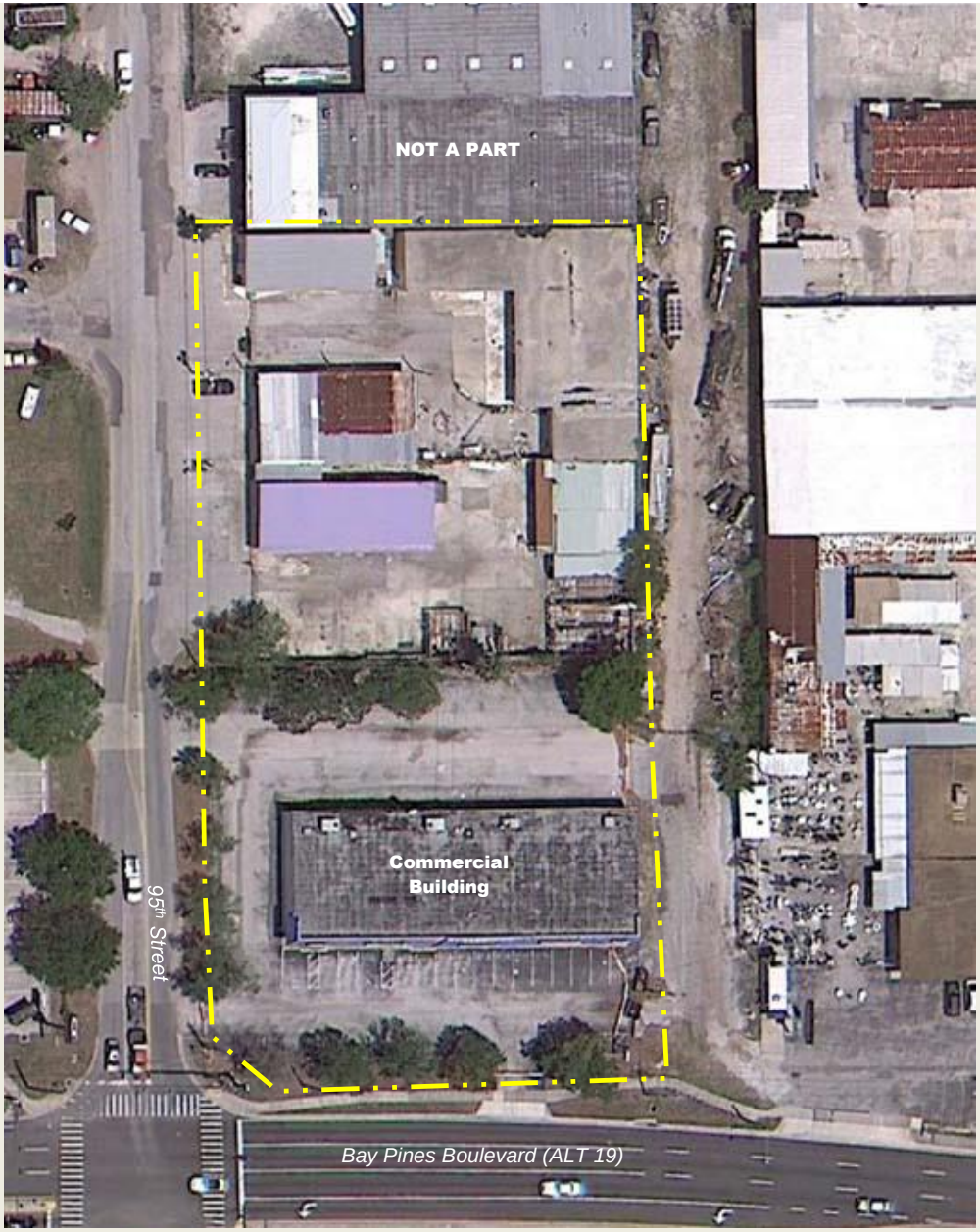
Project Type: Small Commercial Lot

Name: WaWa – Bay Pines

Location: 9501 Bay Pines Blvd. – NE corner of Bay Pines & 95th Street

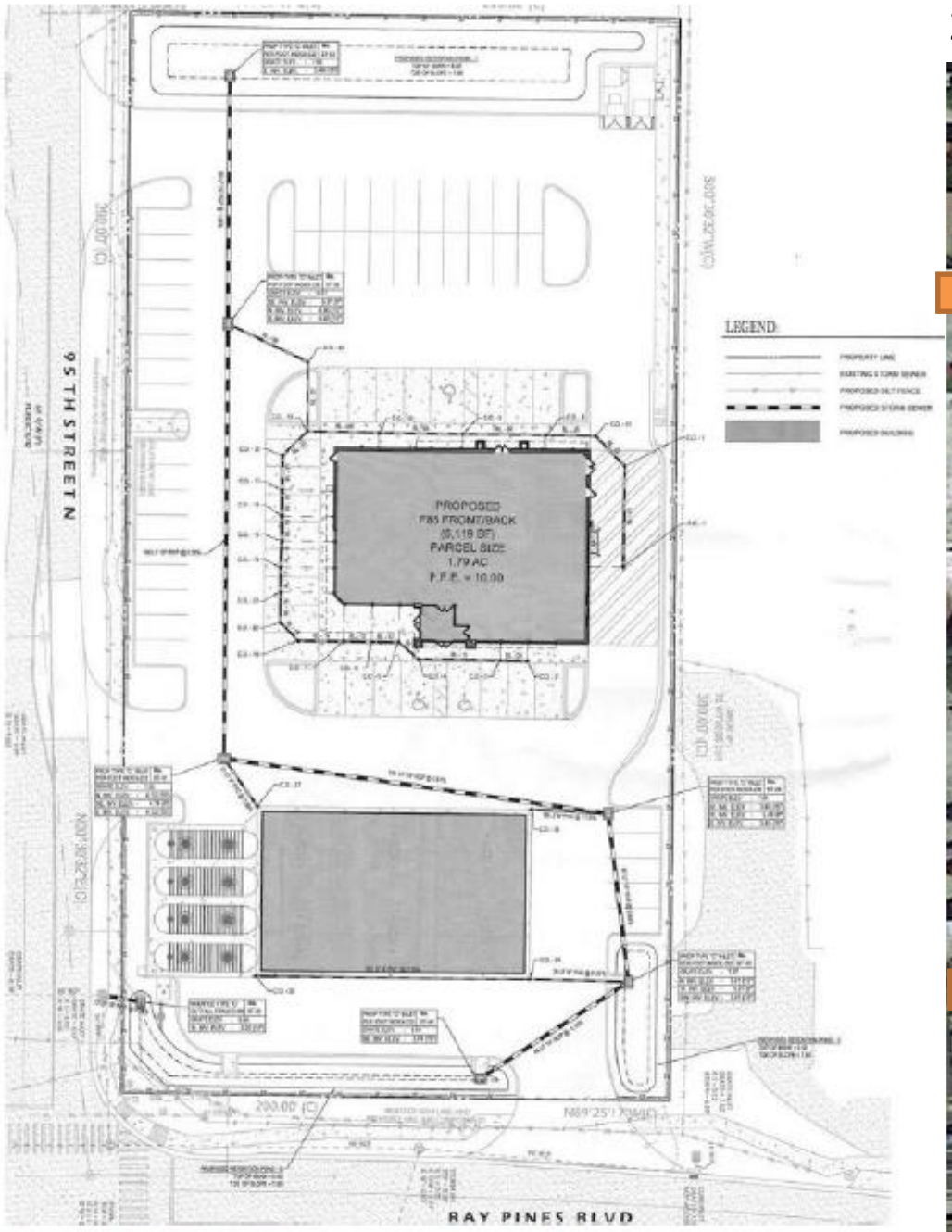


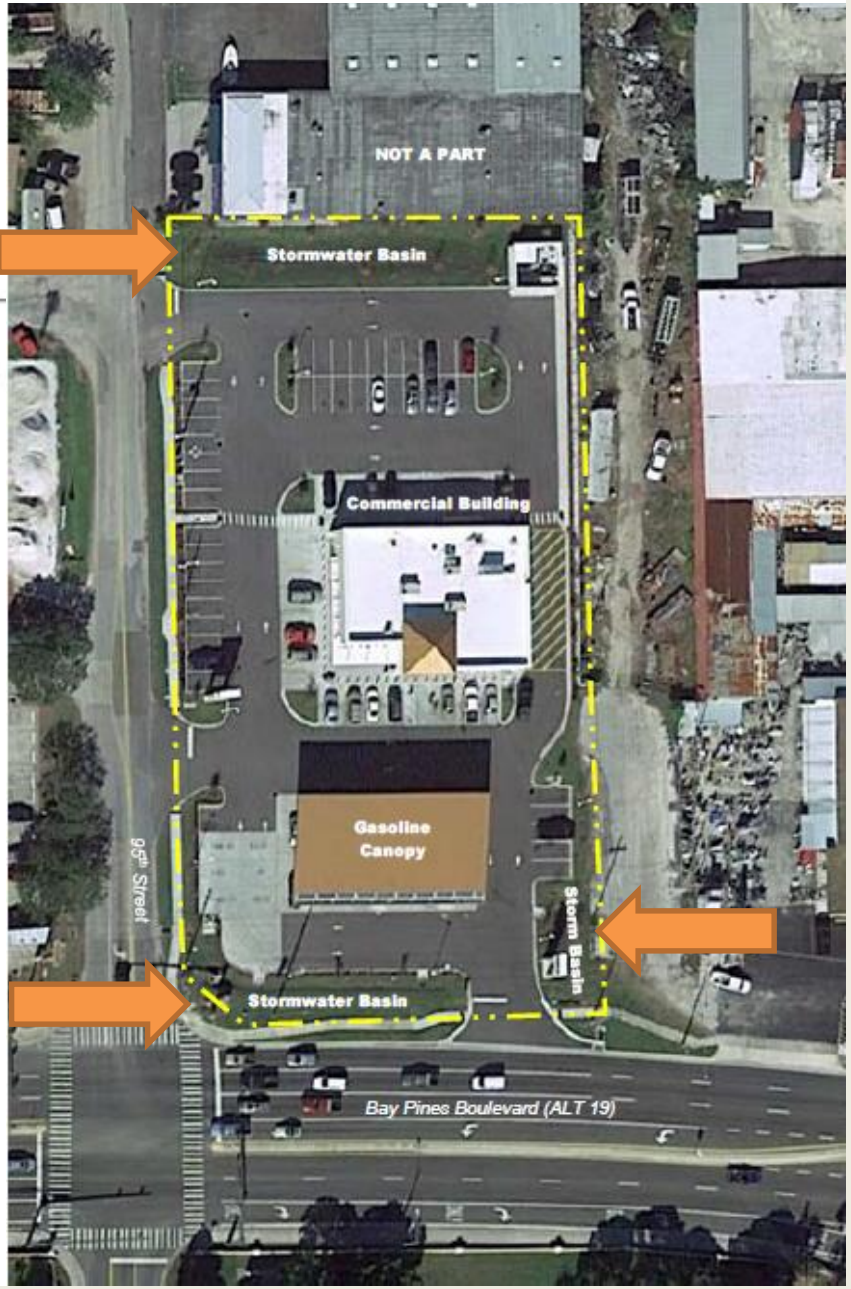
Pre-2013 Redevelopment



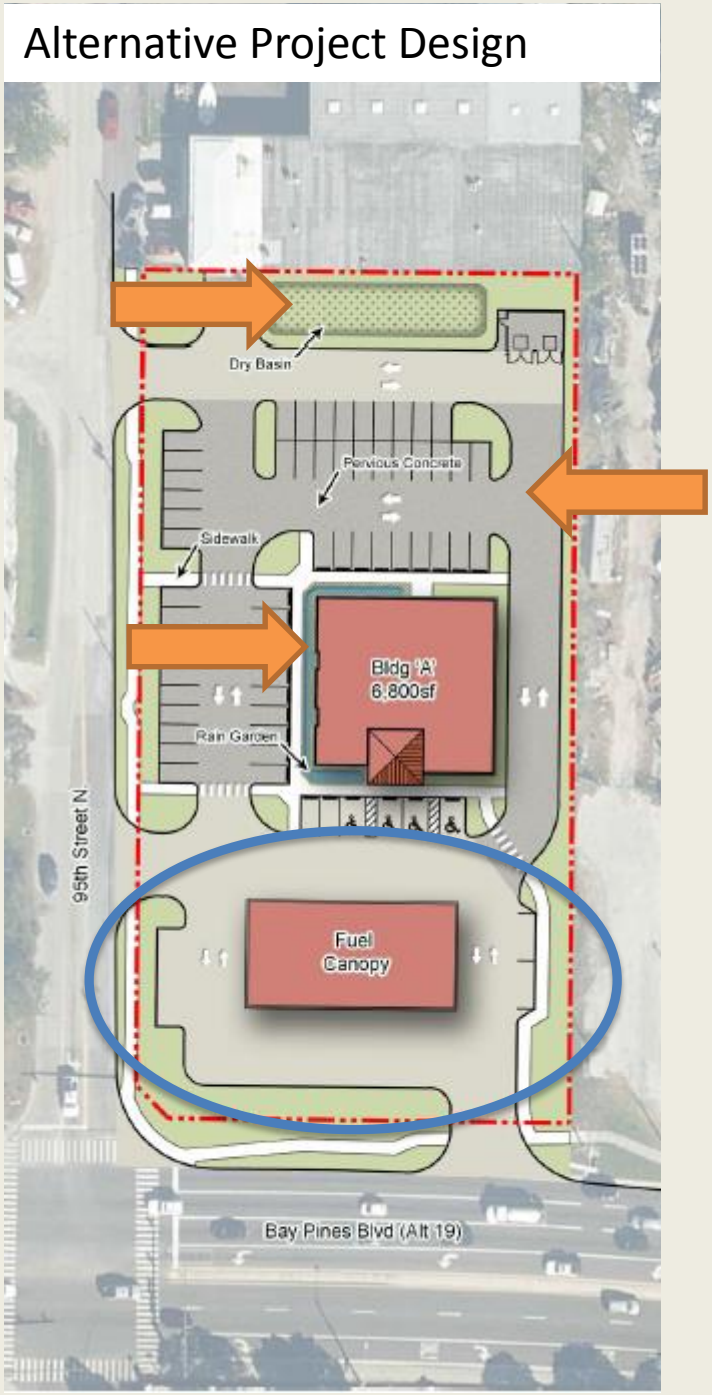
2013 Redevelopment Project

2013 Redevelopment Project





Alternative Project Design



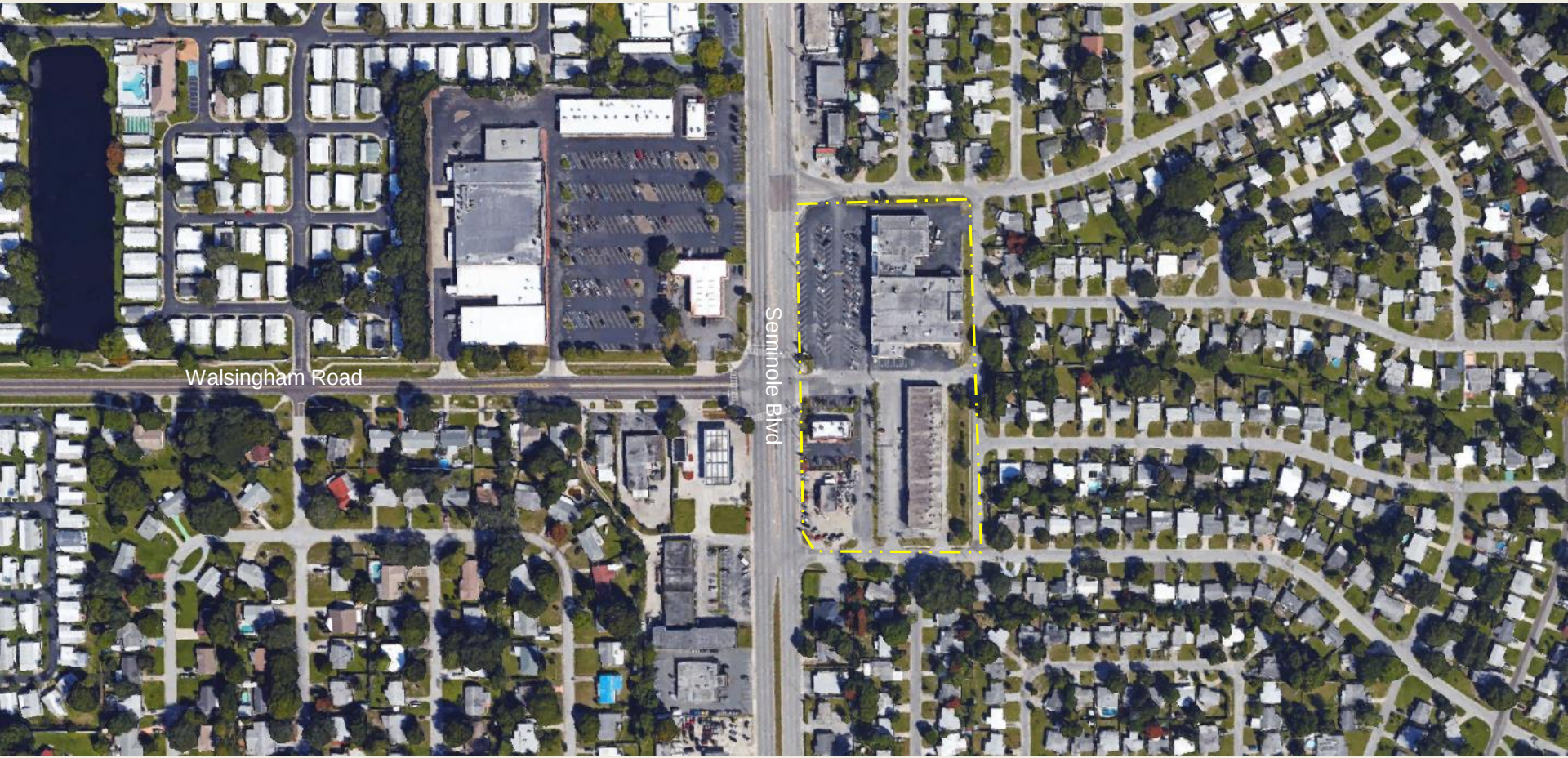
- BMPs Utilized:
  - Dry Basin
  - Pervious Pavement
  - Rain Gardens
- Other BMP options:
  - Interceptor Trees
  - Florida Friendly Landscaping
- Other benefits:
  - More Development Potential
  - Less Stormwater Basins
  - Landscaping can double as stormwater treatment

	Unit	
Pre-SWM Cost	$	87,171
SWM Cost	$	111,666
Pre-SWM Dev. Intensity	SF	6,117
SWM Dev. Intensity	SF	6,800
Pre-SWM Unit Cost	$/SF	14.25
SWM Unit Cost	$/SF	16.42

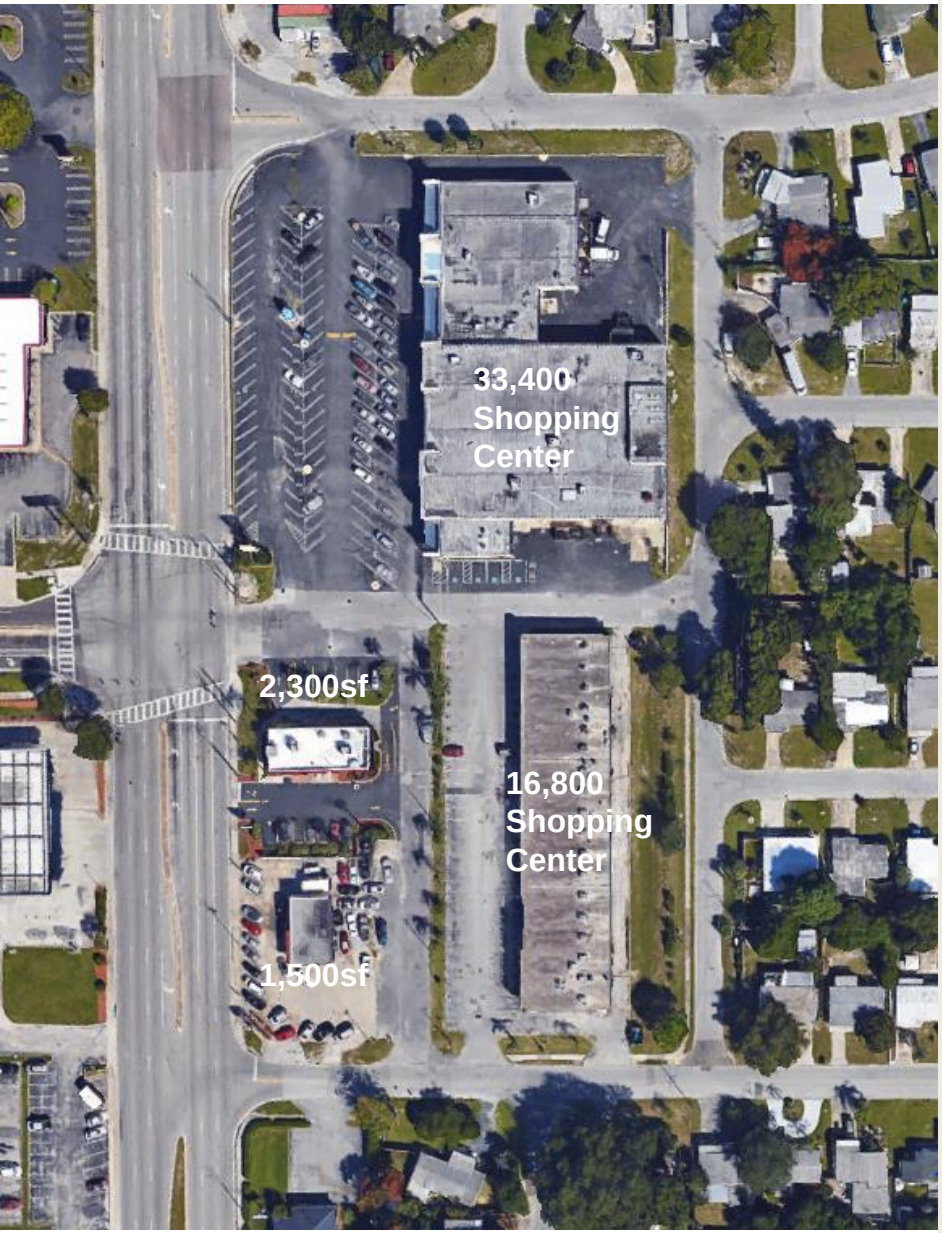
Project Type: Large Commercial Shopping Area

Name: Seminole Center

Location: Seminole Blvd and Walsingham Road



Current Development

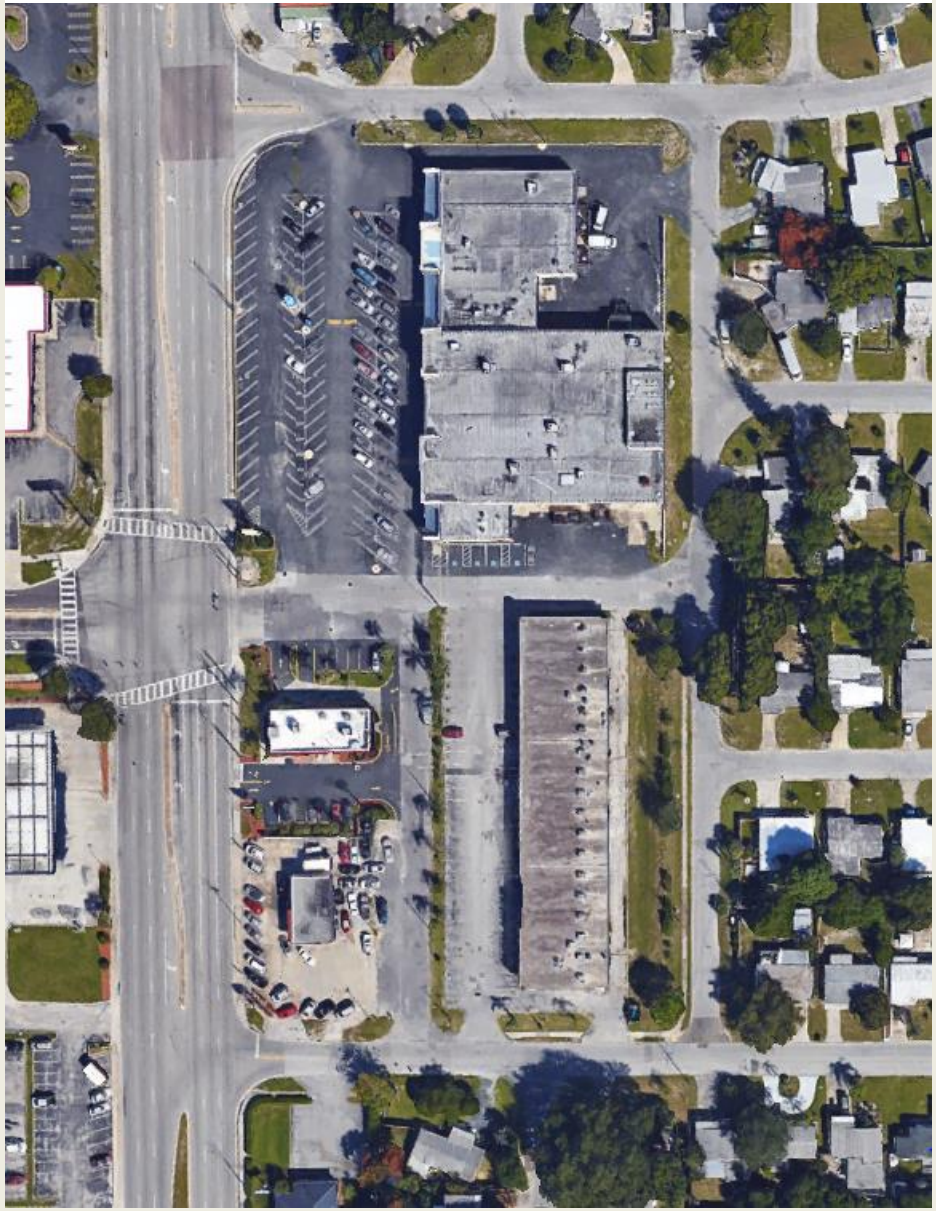


54,000-sf – Non-Residential Uses

Redevelopment Scenarios

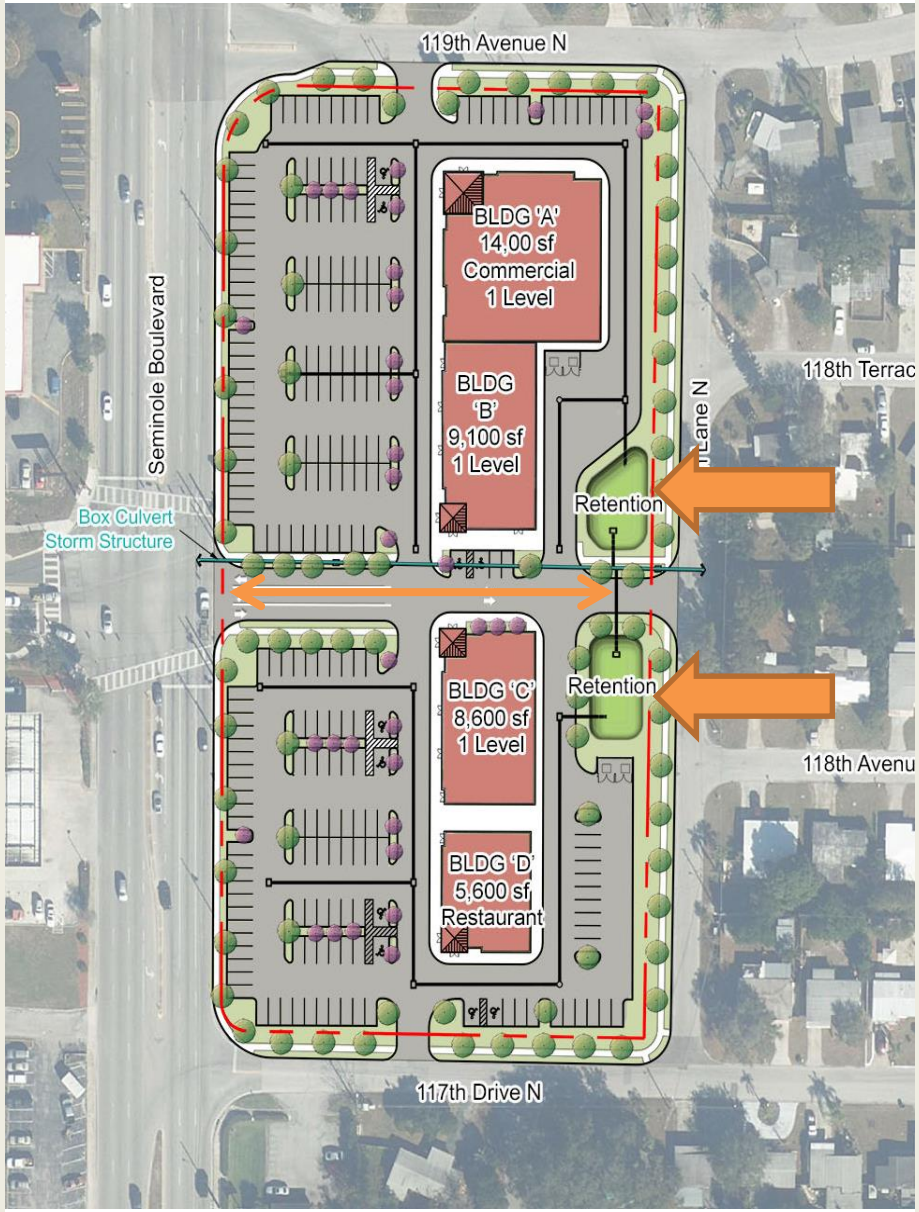
- Scenario ‘A’
  - What would it look like today?
  - Current Zoning Standards
  - Current Stormwater Standards
- Scenario ‘B’
  - What would it look like under the SWM?
  - Mixed-Use Zoning (proposed)
  - Stormwater Manual (proposed)

Current Development



54,000-sf – Non-Residential Uses

Redevelopment Scenarios – Scenario ‘A’

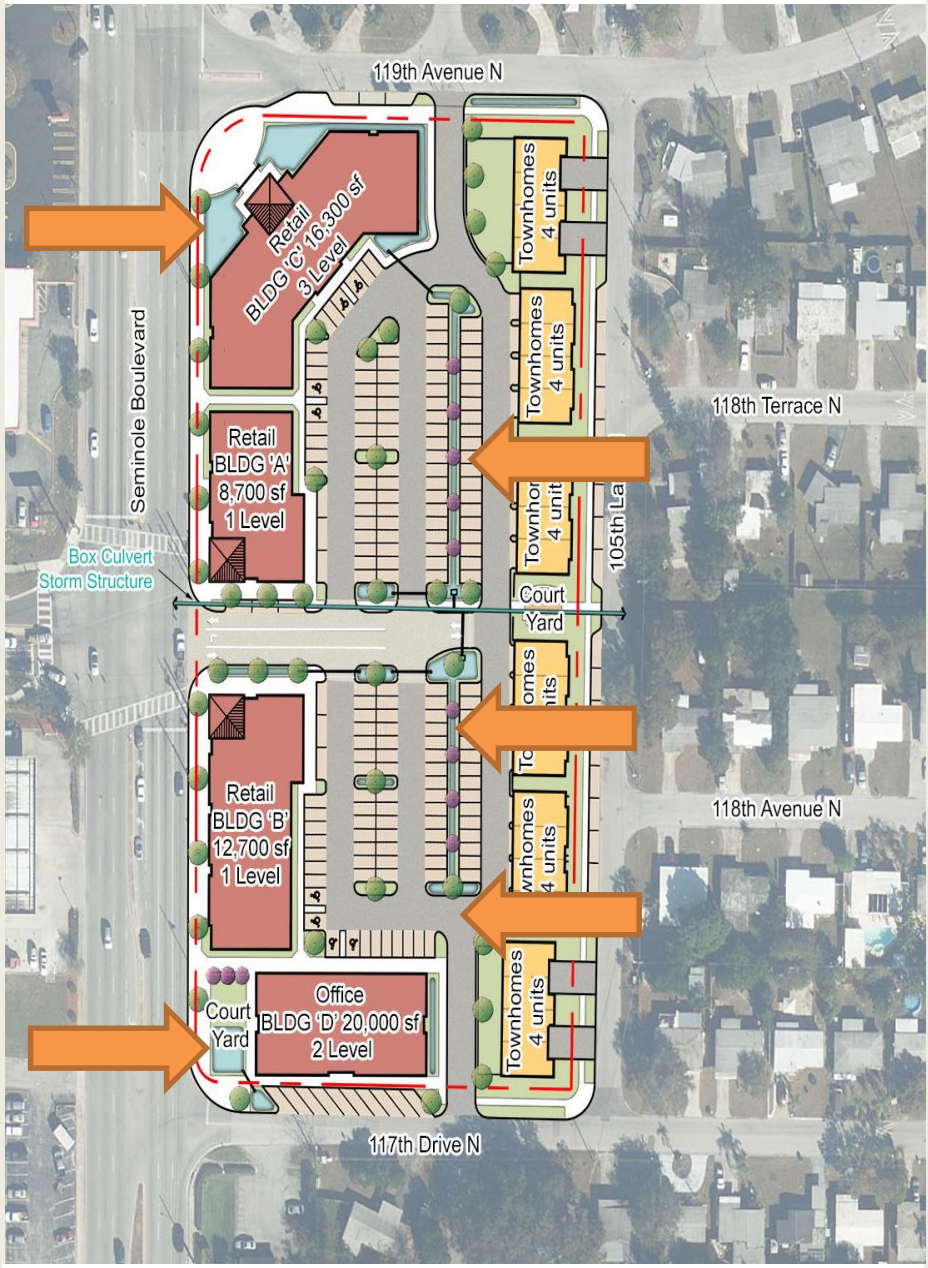


37,300-sf – Non-Residential Uses

Current Development

54,000-sf – Non-Residential Uses

Redevelopment Scenarios – Scenario ‘B’

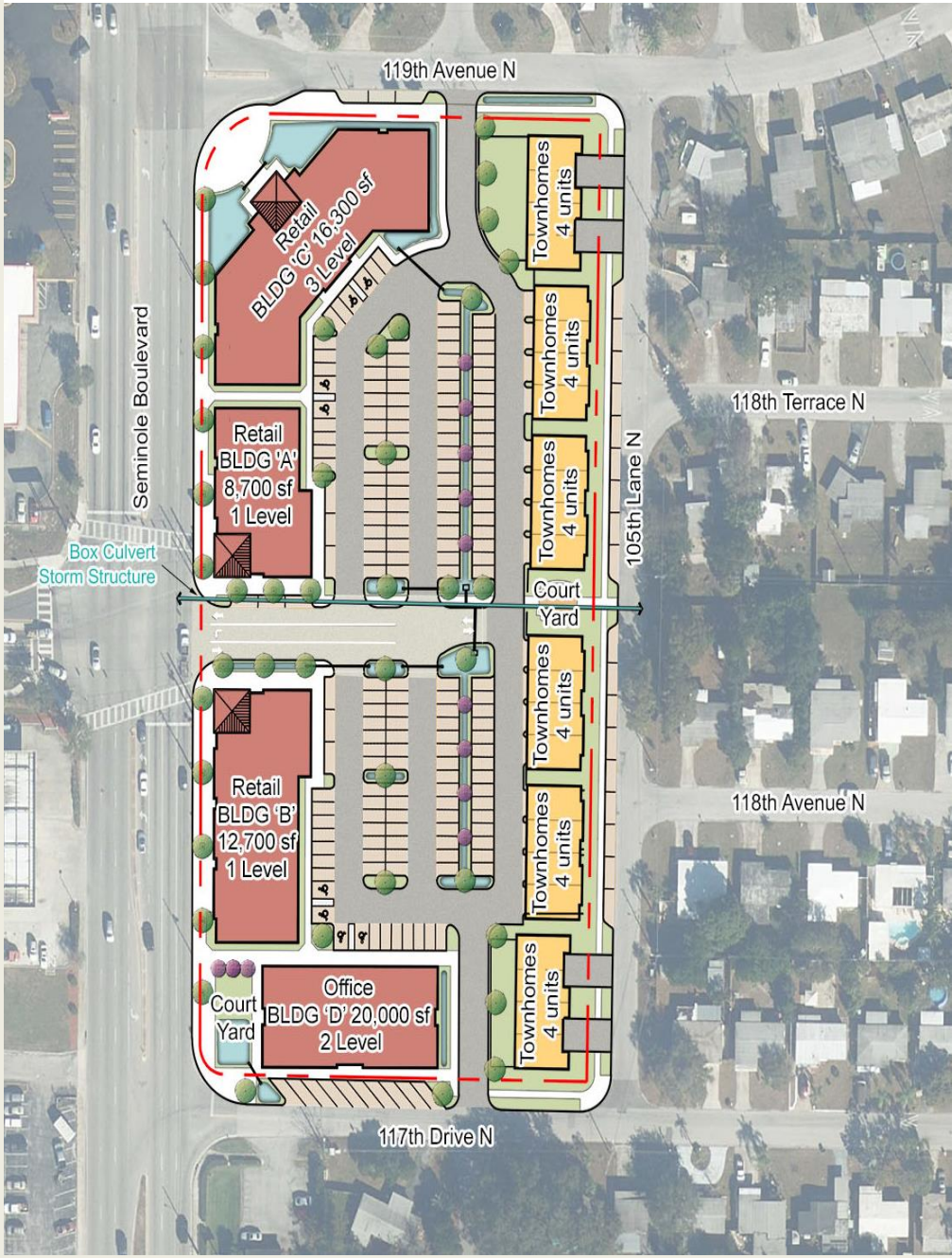


57,700-sf – Non-Residential PLUS 24 Dwelling Units

- BMPs Utilized:
  - Pervious Pavement
  - Pervious Concrete
  - Rain Gardens
  - Interceptor Trees
  - Florida Friendly Landscaping
- Other benefits:
  - More intense development potential
  - Landscaping & Paving doubles as stormwater treatment
  - Zoning/Stormwater Complement

Large Commercial Site		
	Unit	
Pre-SWM Cost (A)	$	180,404
SWM Cost (B)	$	582,436
Pre-SWM Dev. Intensity (A)	SF	37,300
SWM Dev. Intensity (B)	SF	104,700
Pre-SWM Unit Cost (A)	$/SF	4.84
SWM Unit Cost (B)	$/SF	5.56

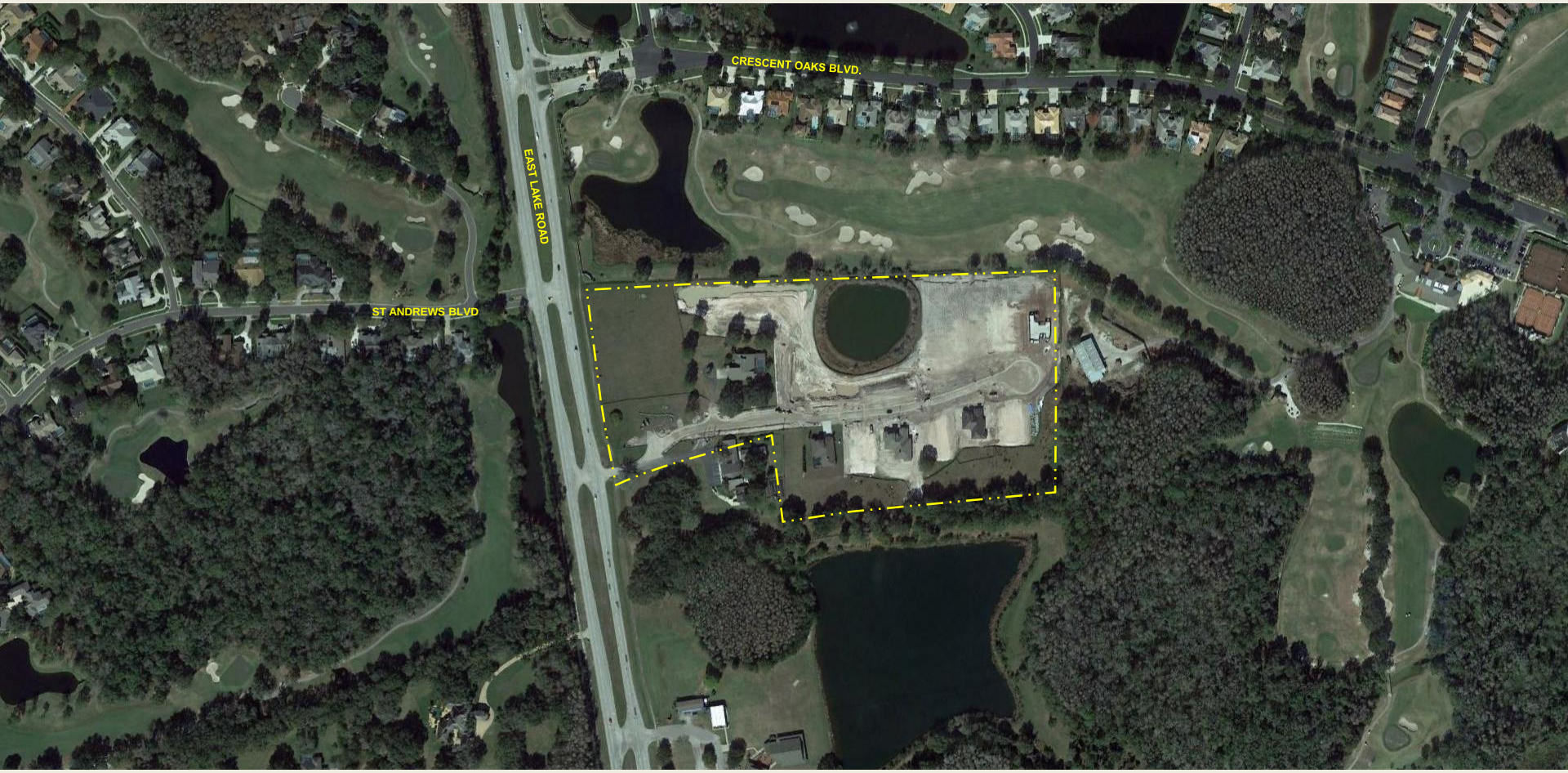
Redevelopment Scenarios – Scenario 'B'



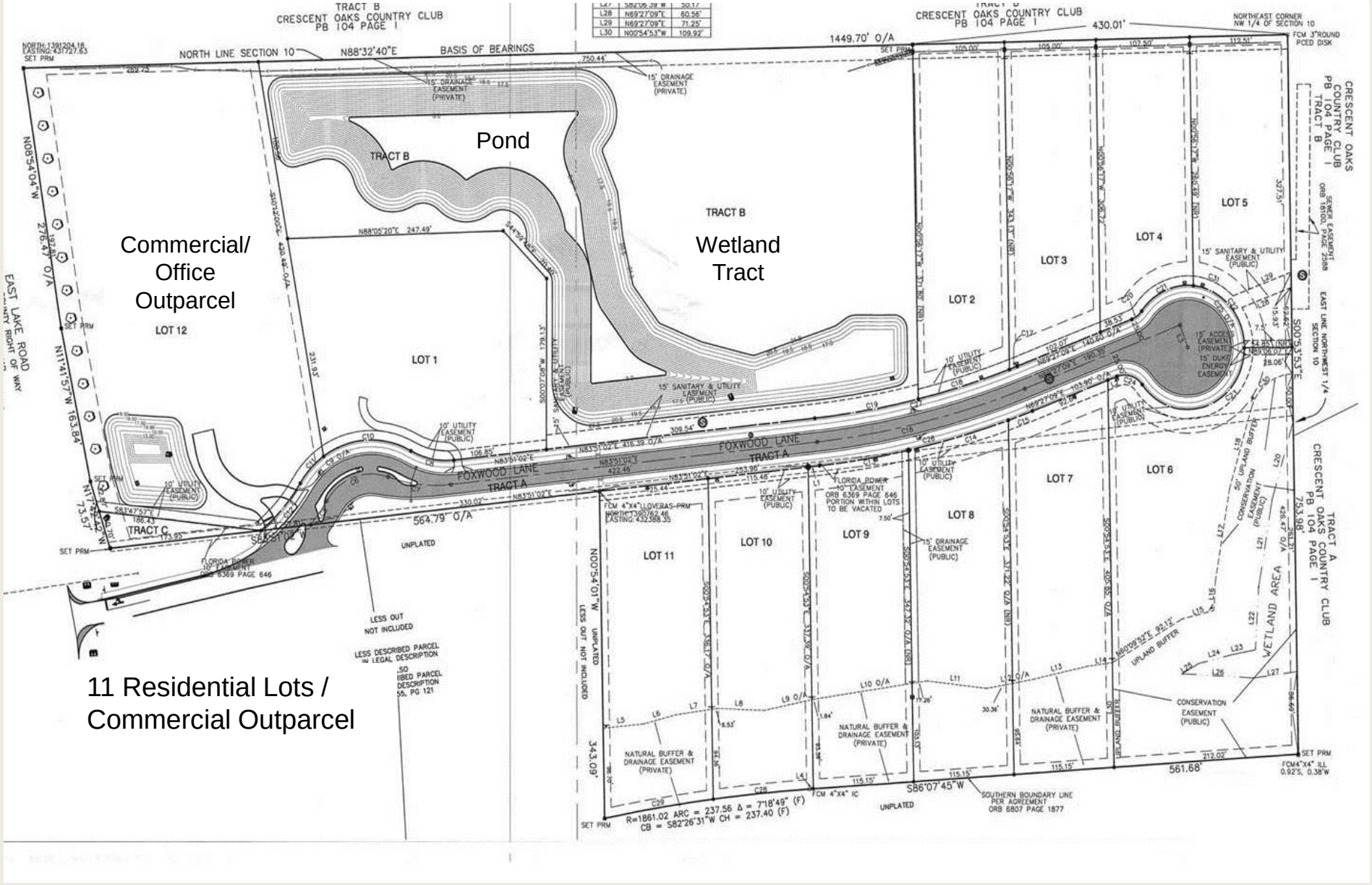
Project Type: Single-Family Detached Subdivision

Name: Foxwood Estates

Location: 833 East Lake – east side of East Lake Road north of Keystone Rd



2014 Development Project



Alternative Project Design

11 Residential Lots /
Commercial Outparcel

Same Intensity

- BMPs Utilized:
  - Wet Stormwater Pond
  - Stormwater Harvesting
- Other BMP options:
  - Interceptor Trees
  - Florida Friendly Landscaping
  - Vegetative Natural Buffer
- Other benefits:
  - Reduced irrigation costs
  - Slightly Smaller Stormwater Pond

Alternative Project Design

Residential Subdivision		
	Unit	
Pre-SWM Cost	$	614,875
SWM Cost	$	544,446

Project Type: Regional Stormwater Pond to serve existing Industrial/Employment District

Name: Lealman Industrial Area

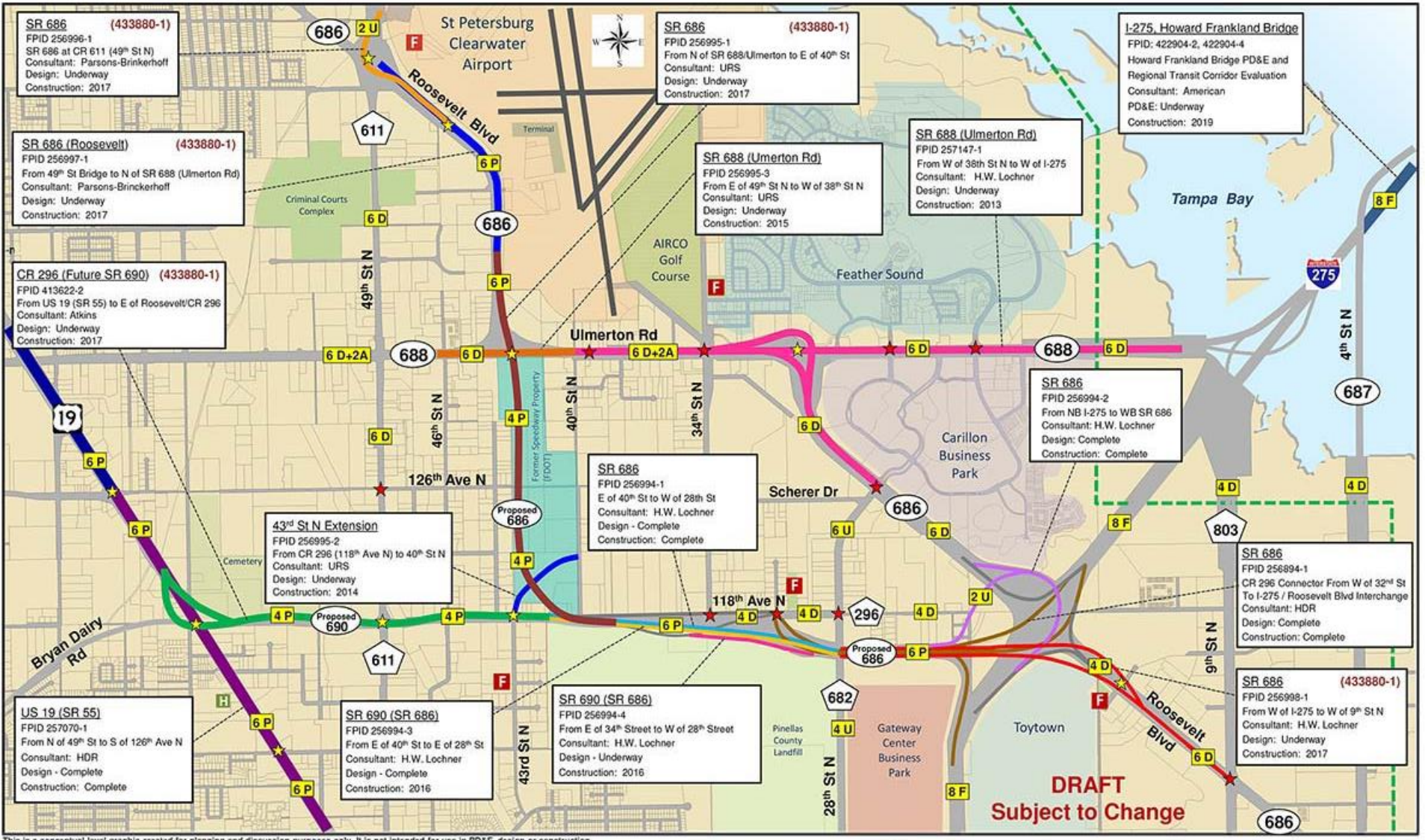
Location: US Hwy 19 and 44th Avenue N. (older industrial area, east side of Us 19)


NOT TO SCALE
28th Street N.
44th Ave N.
42nd Ave N.
RESIDENTIAL NOT A PART
AREA II
25 acres industrial area treated with pervious pavement, rain gardens and tree wells in landscaping areas.
AREA IV
29 acre industrial area with 3 acres of low intensity commercial (eating places) treated with previous pavement, and tree wells and rain gardens in landscaping areas.
31st Street
EXISTING CANAL
31st Street
AREA I
19 acres industrial area treated with tree wells in landscaped areas and pervious pavement.
AREA III
32 acres industrial area treated with pervious pavement, wet detention with littoral zone and stormwater harvesting.
RESIDENTIAL NOT A PART
N
34TH STREET N. (HWY 19)

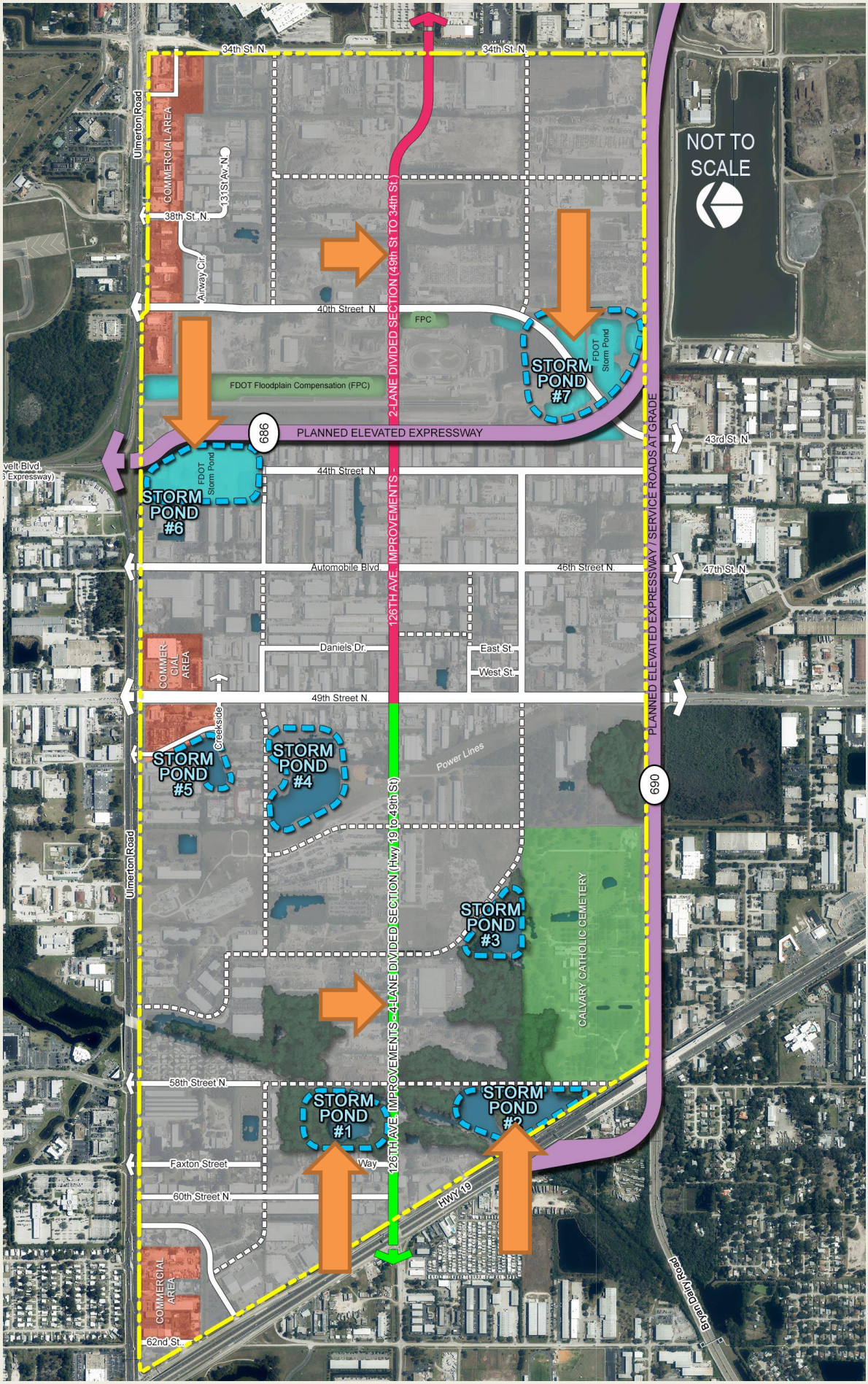
Project Type: Regional Stormwater Pond to serve existing Industrial/Employment District

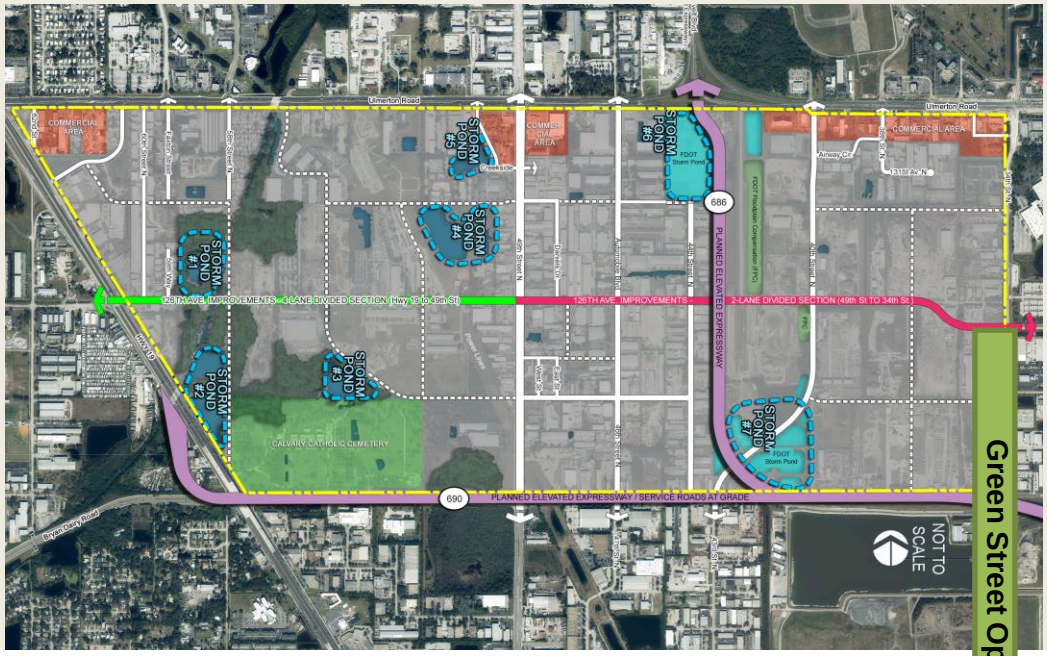
Name: Gateway Expressway Employment Vicinity

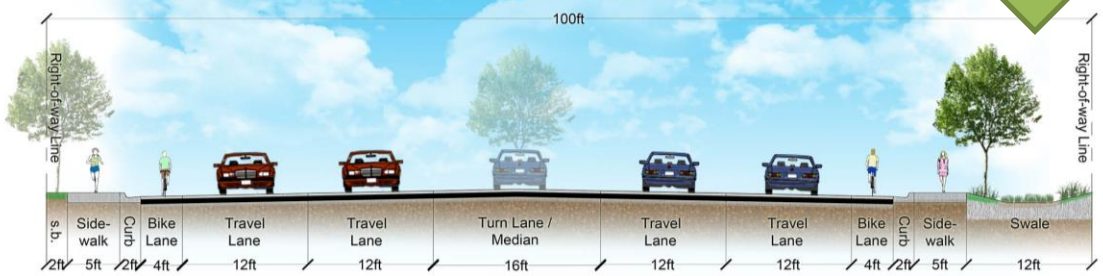
Location: East of US Hwy 19, south of Ulmerton Road, North of 118th Avenue, West of 28th Street



Plot Date: February 2014


NOT TO SCALE
34th St. N.
34th St. N.
Ulmerton Road
COMMERCIAL AREA
131st Av. N.
38th St. N.
Airway Cir.
40th Street N.
FPC
FDOT Storm Pond
STORM POND #7
FDOT Floodplain Compensation (FPC)
2-LANE DIVIDED SECTION (49th St TO 34th St.)
686
PLANNED ELEVATED EXPRESSWAY
43rd St. N.
PLANNED ELEVATED EXPRESSWAY / SERVICE ROADS AT GRADE
FDOT Storm Pond
STORM POND #6
44th Street N.
126TH AVE. IMPROVEMENTS -
Automobile Blvd.
46th Street N.
47th St. N.
COMMER-CIAL AREA
Daniels Dr.
East St.
West St.
49th Street N.
Creekside
STORM POND #5
STORM POND #4
Power Lines
690
Ulmerton Road
126TH AVE. IMPROVEMENTS - 4-LANE DIVIDED SECTION (Hwy 19 to 49th St)
STORM POND #3
CALVARY CATHOLIC CEMETERY
58th Street N.
STORM POND #1
STORM POND #2
Faxton Street
Way
126TH AVE. IMPROVEMENTS
60th Street N.
HWY 19
COMMERCIAL AREA
62nd St.
Bryan Dairy Road





COLLECTOR - 4 LANE DIVIDED SECTION

126th Avenue – Green Street Option

Next Steps and Schedule

- Request to advertise – February 21, 2017
- Adopt SWM – March 21, 2017

- SWM Effective Date – April 1, 2017

- Training Sessions – February, March, April

Questions