



CANAL DREDGING MASTER PLAN

Department of Public Works - City of Fort Lauderdale

NOVEMBER 17, 2015

CURRENT CITY CANAL SYSTEM

- **Navigable Canals**
- **Navigation Restricted**
- **Drainage Canals**
- **Natural Rivers Excluded**
- **Intracoastal Excluded**

PRESENTATION AGENDA

- **Why is canal dredging important?**
- **Background**
- **Current challenges**
- **Comprehensive canal assessment**
- **Dredging master plan costs**
- **Funding options**
- **Q & A**

WHY IS CANAL DREDGING IMPORTANT?

**Allows Safe Navigation of
Vessels Through Canal
System**



Luna Canal at Las Olas Isles

**Maintains Proper Depth of
Canals at Stormwater
Outfalls**



North Fork New River –Progresso

WHY IS CANAL DREDGING IMPORTANT?

**Supports a Thriving
Marine and Recreation
Industry**



Harbor Isles



**Fosters
Unpolluted
Waterway
Environments**



Canal estuary – Progresso

BACKGROUND

CANALS INVENTORY

OWNER	CANAL MILES
CITY	65
STATE (FDEP)	35
BROWARD COUNTY	1
SOUTH FLORIDA WATER MANAGEMENT DISTRICT (SFWMD)	5
FDOT	1
PRIVATE (Property Owners/HOA's)	8
TOTAL	115

BACKGROUND

CITY CANALS

CLASSIFICATION	CANAL MILES
OPEN ACCESS ¹	43
RESTRICTED ²	12
DRAINAGE ³	10
TOTAL	65

Notes:

1. Open Access = Navigable Canals with Intracoastal Access
2. Restricted = Navigation restricted by Low Fixed Bridges (< 6 feet)
3. Drainage = Canals or Culverts used for drainage only

BACKGROUND RELATED ORDINANCE

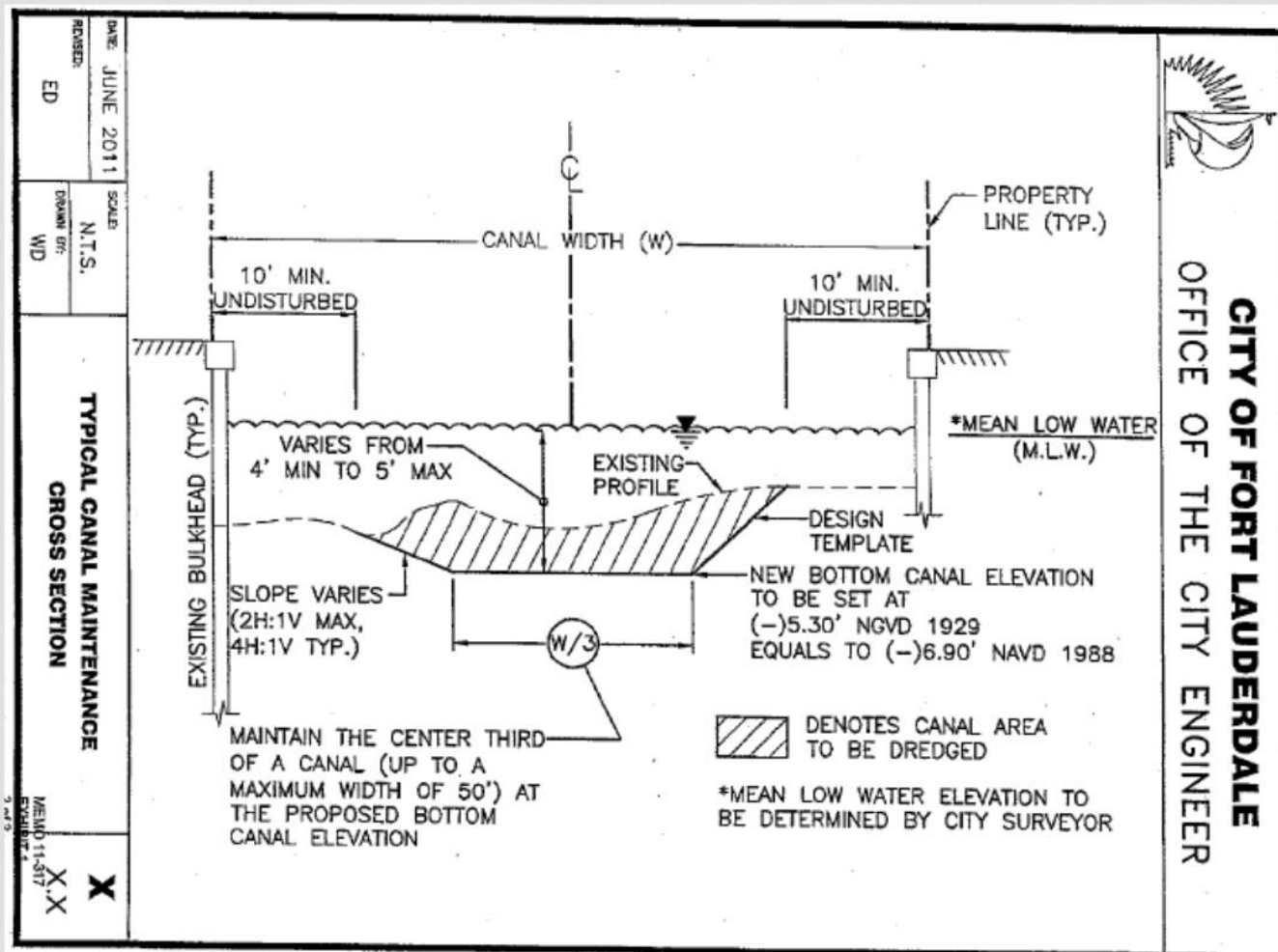
- Chapter 8, Article II, Section 8-34 states:

*“The Marine Advisory Board (MAB) may consider any subject matter it considers appropriate; and in addition, it’s specifically directed to consider and make recommendations on the **conditions of waterways and needed corrections**, including a study of the **most feasible and economical method of maintaining the depths of waterways within the city.**”*

BACKGROUND

CANAL DREDGING CRITERIA

- 2011 MAB Accepted Canal Dredging Criteria (CAR 11-1705):



BACKGROUND

WHAT OTHER COMMUNITIES ARE DOING

ITEM	FORT LAUDERDALE	FORT PIERCE	POMPANO	LIGHT HOUSE POINT	MIAMI BEACH, DEERFIELD, NORTH MIAMI, BOCA
SIMILAR DREDGING CRITERIA	X	X	X	X	X
USE GENERAL FUND	X	X	X	X	X
DREDGE APPROACH ON A CASE BY CASE BASIS	X	X	X	X	X

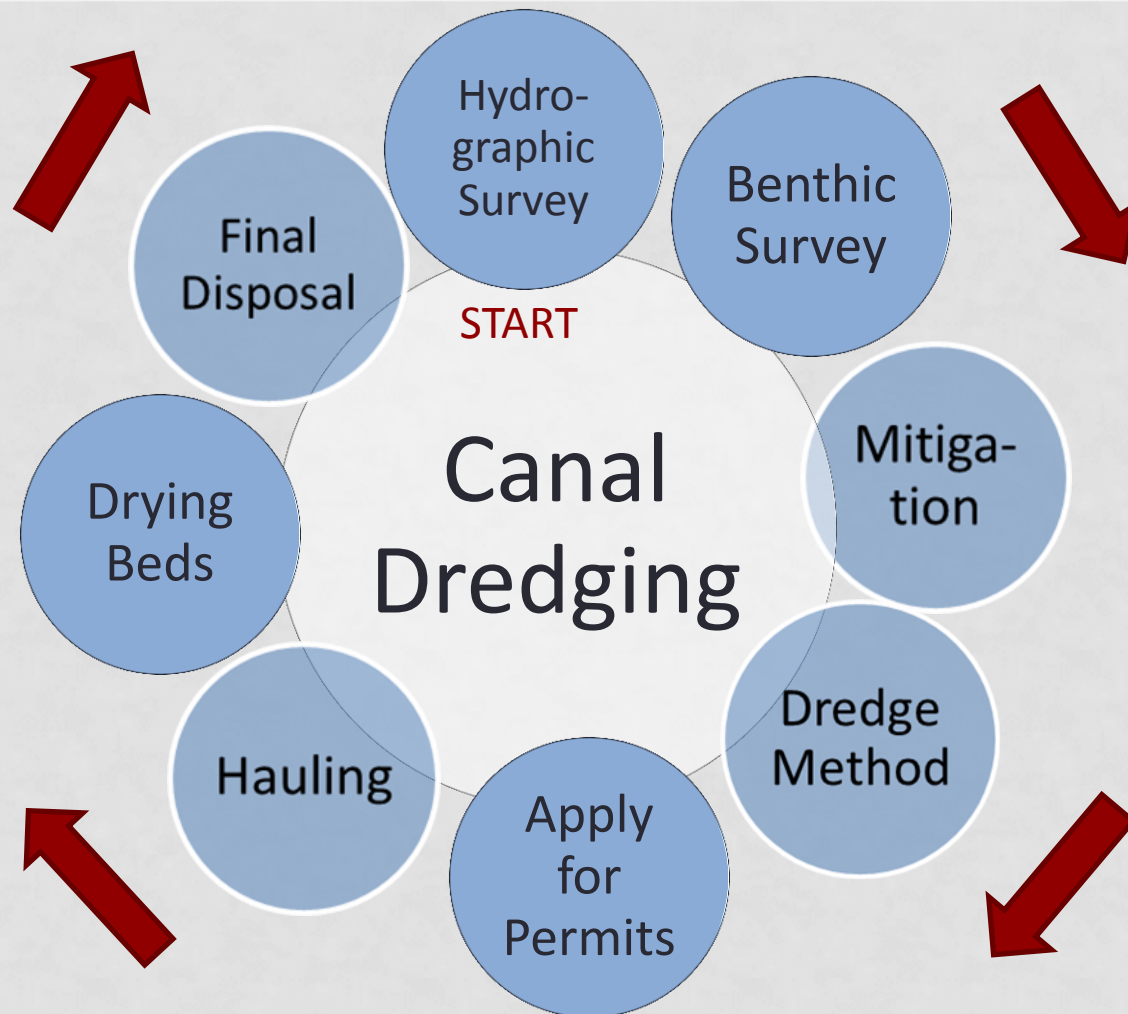
BACKGROUND

WHAT OTHER COMMUNITIES ARE DOING

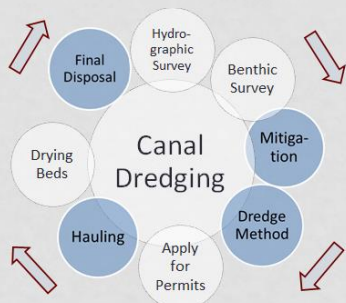
ITEM	JACKSON -VILLE	NAPLES	ST. PETERS- BURG	TAMPA	PUNTA GORDA	PUNTA GORDA SEAWALL/DR EDGING
SPECIAL ASSESSMENTS	X	X	X		X	X
TAXING DREDGING DISTRICTS	X	X			X	
FUNDING ASSISTANCE THROUGH WATER DISTRICT				X		

CHALLENGES

COMPLICATED DREDGING LIFE CYCLE



CHALLENGES: COMPLICATED DREDGING LIFE CYCLE HYDROGRAPHIC SURVEY



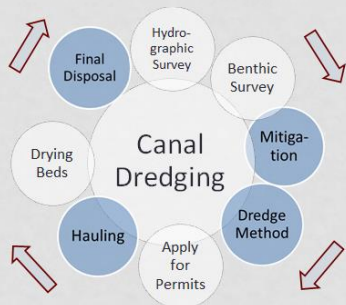
Multiple Surveys Needed:

Planning, Design, Pre-construction, Post-construction, Mitigation

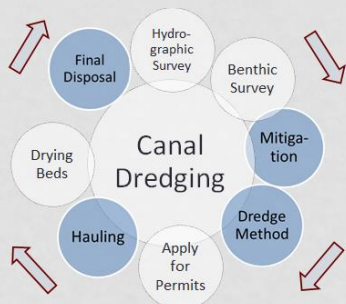
CHALLENGES: COMPLICATED DREDGING LIFE CYCLE BENTHIC SURVEY



**Benthic Surveys are only accepted between
April 1 – August 30**



CHALLENGES: COMPLICATED DREDGING LIFE CYCLE MITIGATION



CHALLENGES: COMPLICATED DREDGING LIFE CYCLE

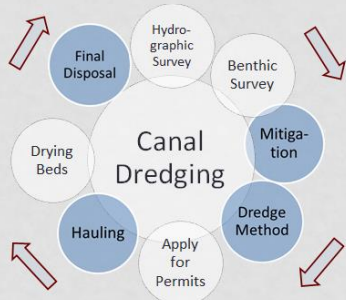
DREDGING METHOD



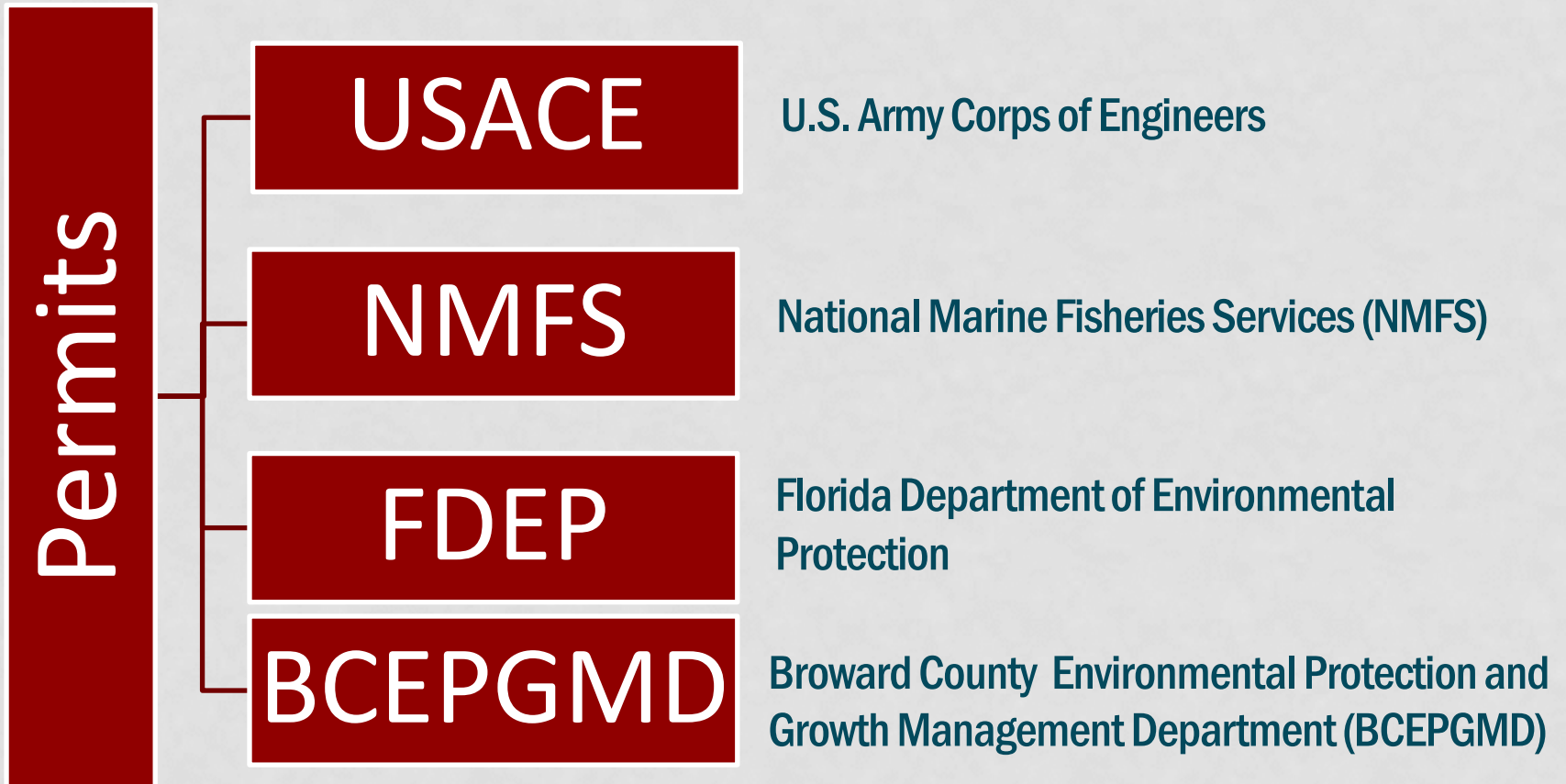
**Hydraulic
Dredging**



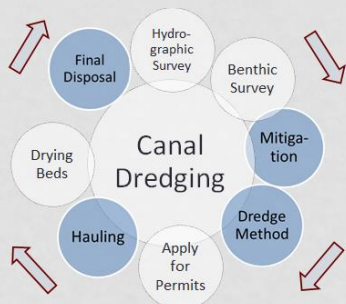
**Mechanical
Dredging**



CHALLENGES: COMPLICATED DREDGING LIFE CYCLE ENVIRONMENTAL PERMITTING

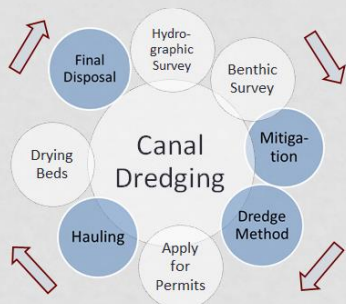


CHALLENGES: COMPLICATED DREDGING LIFE CYCLE HAULING

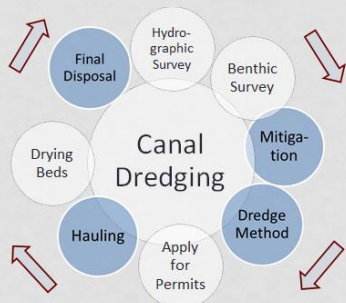


CHALLENGES: COMPLICATED DREDGING LIFE CYCLE

DRYING BEDS



CHALLENGES: COMPLICATED DREDGING LIFE CYCLE FINAL DISPOSAL



PRESS PLAY FORT LAUDERDALE

STRATEGIC PLAN 2018

COMPREHENSIVE CANAL ASSESSMENT

Infrastructure Goal # 2

Be a sustainable and resilient community

Objective # 1

Proactively maintain our water, wastewater, road and bridge infrastructure

Strategic Initiative

Conduct an analysis of canal dredging needs and examine funding scenarios

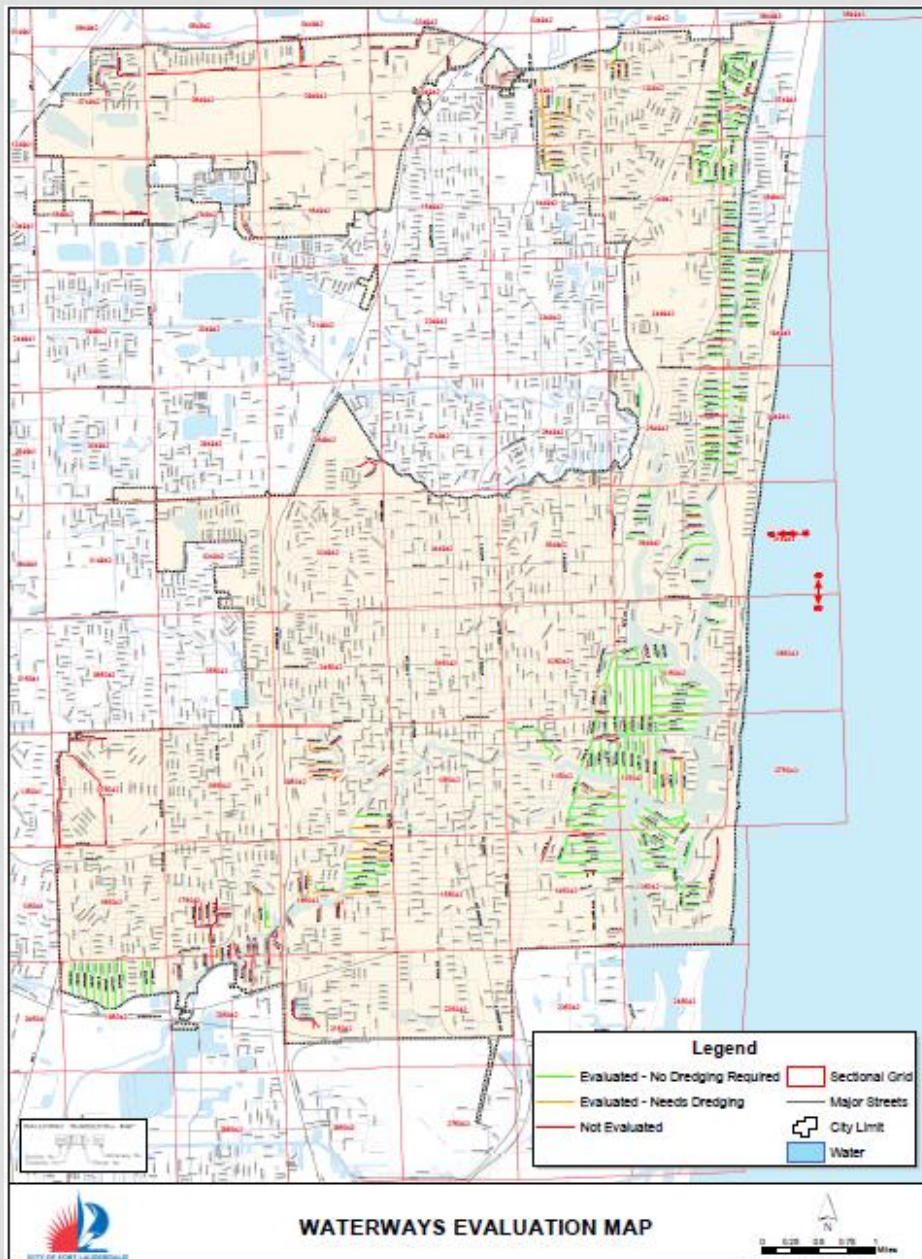
CAAP High Priority

Comprehensive Canal Dredging Master Plan

COMPREHENSIVE CANAL ASSESSMENT

DELIVERABLES:

1. New GIS Waterways Database
2. Canal Maps
3. Comprehensive Engineering Report



COMPREHENSIVE CANAL ASSESSMENT SNAP SHOT

Unknown dredge needs:

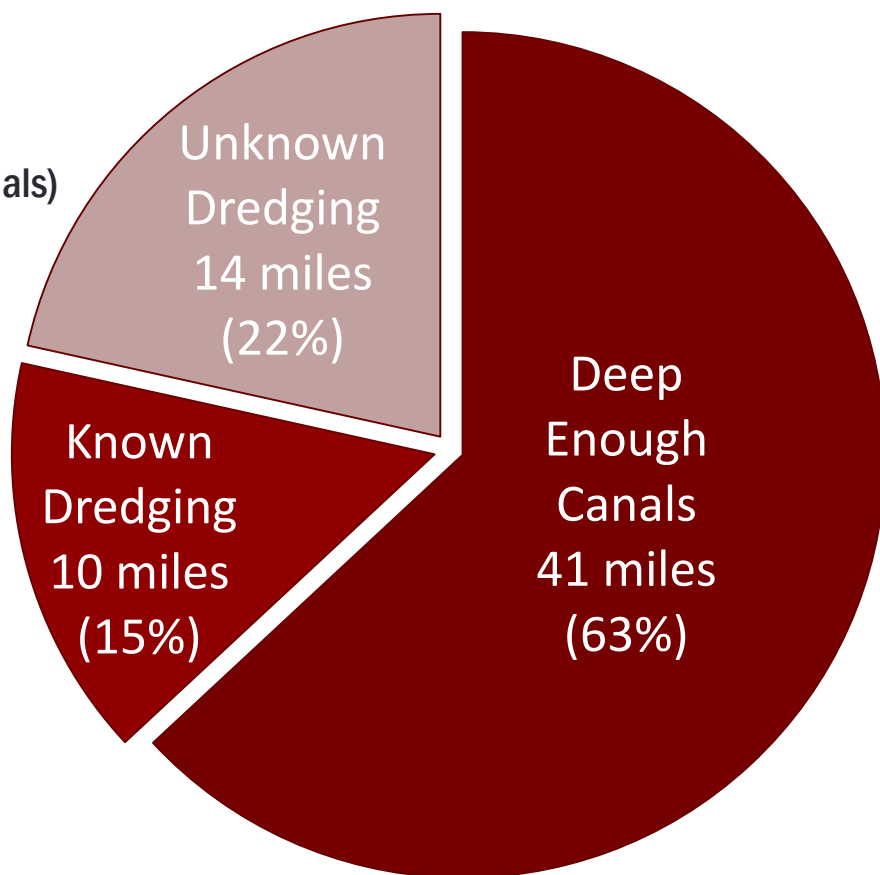
- 8 miles (navigable)
- + 6 miles (drainage)
- = 14 miles (of un-surveyed canals)

Unknown dredge forecast:

- 40% (5.6 miles) will need dredging
- Survey Cost: \$0.50 M
- Design & permit: \$0.50 M
- Const. Cost: \$2.24 M
- \$3.24 M**

Known dredging needs:

- 10 miles (navigable)
- Design & Permit: \$1.01 M
- Const. Cost: \$3.73 M
- \$4.74 M**

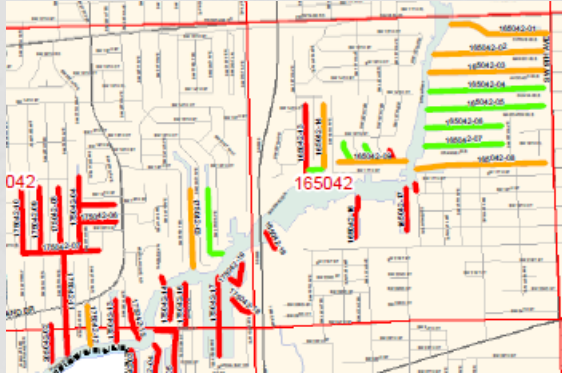


■ No Dredging
Required
Cost =\$0

Total cost of master plan (forecast of unknown + known dredge needs) = \$3.24 M + \$4.74 = \$8.0 M (Rounded)

COMPREHENSIVE CANAL ASSESSMENT

NEIGHBORHOODS WITH DREDGING NEEDS (10 MILES)



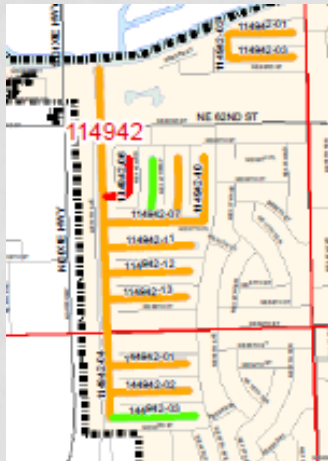
River Oaks, Shady Banks,
Riverland Neighborhoods (2.5 miles)



Riverside Park,
Tarpon River Neighborhoods (1.75 miles)



Rio Vista, Las Olas Isles
Neighborhoods (1.90 miles)

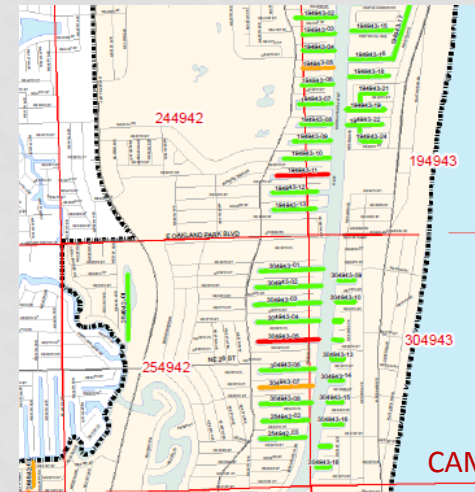


Coral Ridge Isles
(2.72 miles)

**YELLOW
CANALS
DENOTE
DREDGING
NEEDS.**



Imperial Point & Adjacent Neighborhoods (1.53 miles)



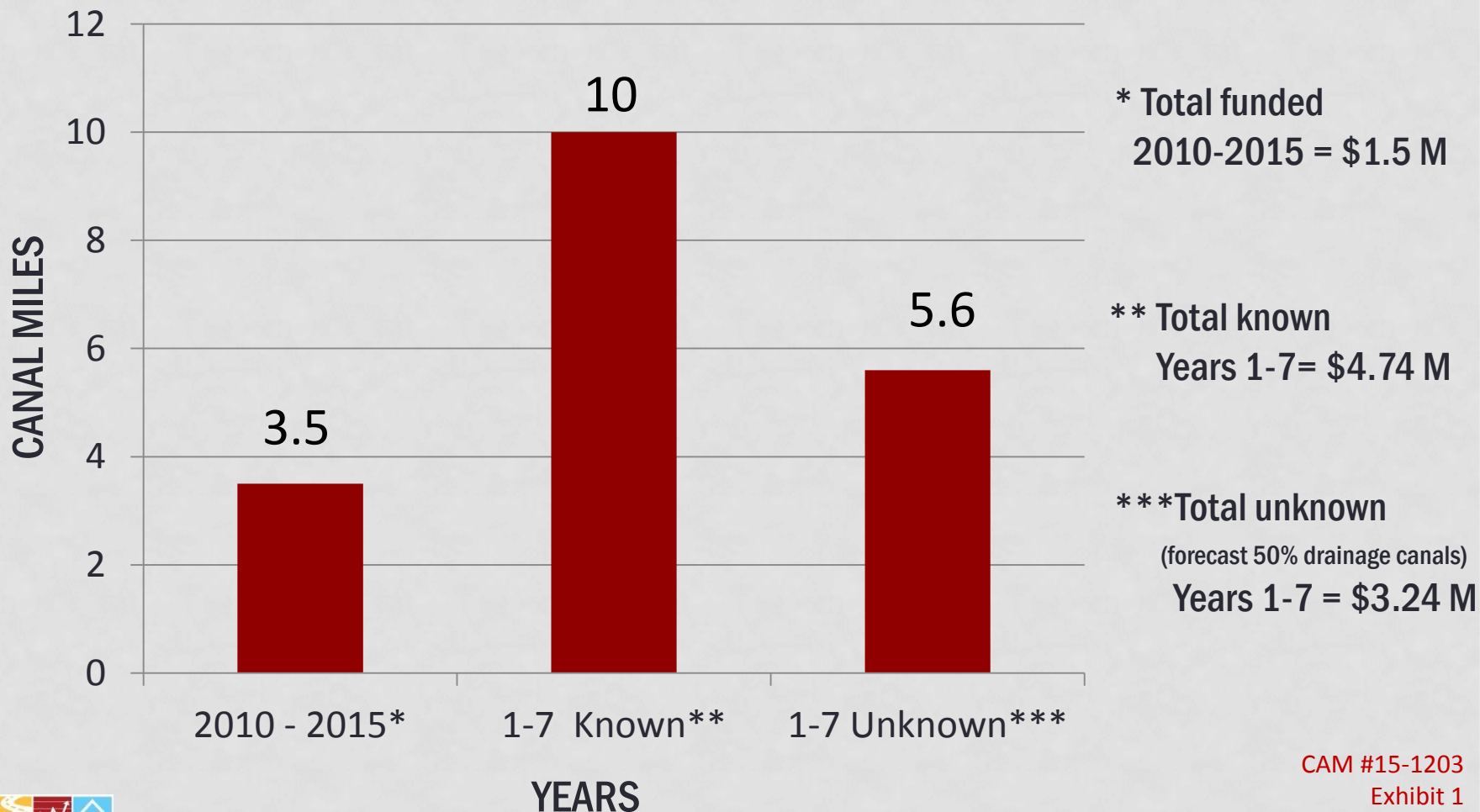
CANAL DREDGING MASTER PLAN: FINANCIAL SUMMARY

Year	Description	Cost
1	Survey canals of <u>unknown</u> dredge needs	\$0.50 M
1	Design & permit of <u>known</u> dredge needs	\$1.01 M
2	Design & permit <u>unknown</u> needs	\$0.50 M
3 - 7	Construction: known (\$3.72 M) & unknown (\$2.24 M)	\$5.96 M
	TOTAL 7-YEAR MASTER PLAN	\$8.0 M* (Rounded)

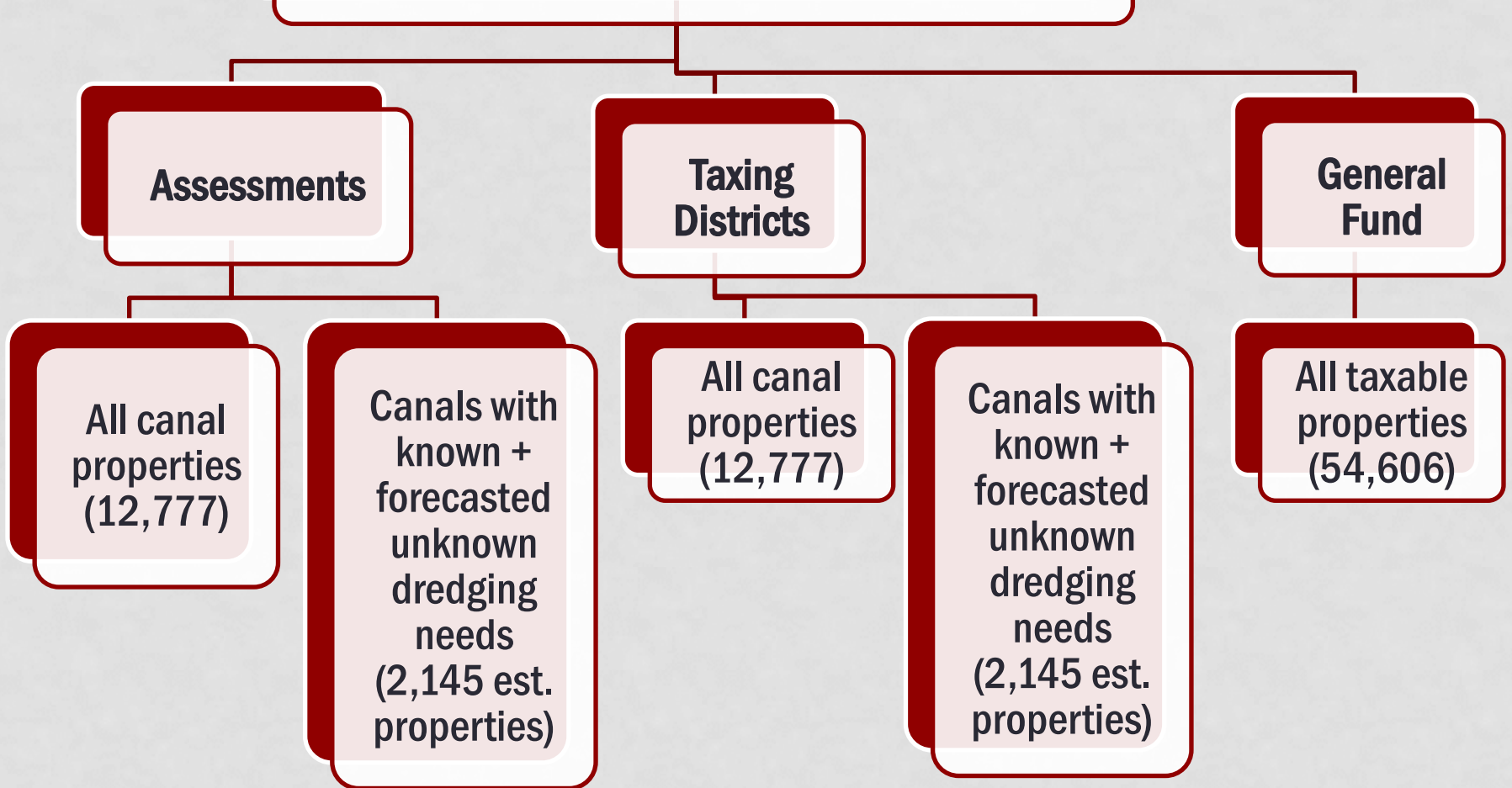
Footnote:

- **7-Year Master Plan Yearly cost = \$1.142 M.**

CANAL DREDGING MASTER PLAN: PAST WORK & FUTURE DREDGING NEEDS



Canal Dredging Funding Options



ASSESSMENTS

PROS:

- Tailored to a specific group
- Benefited parties are easy to identify
- May assess government and other non-taxable properties

CONS:

- Higher cost per property than General Fund option
- Applies to cost of known work only
- A direct benefit must be demonstrated
- Collection method more complicated; includes property liens to violators
- Financial consultant defines appropriations methodology
- Lengthy process
- Public hearings/ mailing required by Florida Statute

TAXING DISTRICTS

PROS:

- A direct benefit does not need to be demonstrated
- Can be tailored to specific neighborhoods or areas
- It can be used for repetitive dredging needs
- Canal sanitation costs can be included
- Simplification of collection of fees

CONS:

- Higher cost per property when compared to General Fund option

FUNDING OPTIONS

Assess/tax all canal properties in City limits:

- 12,777 properties
- 607,200 feet of total property canal frontage
- 7-Year master plan total cost = \$8.0 M (\$1.142 M/Yr)
- Annual assessment per linear feet = \$1.88/Ft

AVERAGE COST PER HOME

CANAL FRONTAGE	ANNUAL COST/FOOT	ASSESSEMENT
50	1.88	94
60	1.88	113
75	1.88	141
80	1.88	150
100	1.88	188
150	1.88	282

NEXT STEPS

1. Determine funding source
2. Task financial consultant with assessment rate study
3. Implement methodology to initiate fund
4. Collect revenue
5. Initiate 7-year master plan

