

# **Town of Palm Beach Water Supply Feasibility Study**

Meeting  
December 2022

# Overview

- City of West Palm Beach – As Is, Current Water Treatment Process Remains
- City of West Palm Beach – Membrane Upgrade, Plant to have 32 MGD Nanofiltration and 16 MGD of Brackish Water Reverse Osmosis
- City of Lake Worth Beach – Plant to have 4.5 MGD Nanofiltration and 15 MGD Brackish Water Reverse Osmosis
- Town Owned Phipps Park Desalination Plant – Process building and ground storage tank located on the west side of A1A.

# Cost Analysis – City of West Palm Beach – As-Is Treatment Process Does Not Change

Item	Item of Work	Subtotal
1	Current Franchise Agreement Pipeline Improvements	\$13M
2	Current Critical Pipeline Improvements per Masterplan	\$15M
<b>Subtotal Pipeline Capital Improvements:</b>		<b>\$29M</b>
Engineering/Administration (20%)		\$6M
<b>Subtotal Capital, Engineering and Administration:</b>		<b>\$35M</b>
Contingency (35%)		\$12M
<b>Subtotal Capital, Engineering and Administration, and Contingency:</b>		<b>\$47M</b>
<b>Level 5 Engineers Opinion of Probable Cost (0% +- 50%):</b>		<b>\$47M - \$70M</b>

# Cost Analysis – City of West Palm Beach – 48 MGD Membrane Upgrade

Item	Item of Work	Subtotal
1	16 MGD BWRO and 32 MGD NF Treatment	\$354M
2	Wells Including Allowance for Raw Watermains	\$110M
3	Current Franchise Agreement Pipeline Improvements	\$10M
4	Current Critical Pipeline Improvements per Masterplan	\$3M
<b>Subtotal Capital Improvements:</b>		<b>\$477M</b>
Engineering/Administration (20%)		\$95M
<b>Subtotal Capital, Engineering and Administration:</b>		<b>\$572M</b>
Contingency (35%)		\$201M
<b>Subtotal Capital, Engineering and Administration, and Contingency:</b>		<b>\$773M</b>
<b>Level 5 Engineers Opinion of Probable Cost (0% +- 50%):</b>		<b>\$773M - \$1.16B</b>

# Cost Analysis – City of Lake Worth Beach

Item	Item of Work	Subtotal
1	10.5 MGD RO Treatment Addition 4.5 MGD NF Treatment Treatment Building Addition	\$110M
2	Lake Worth Beach Pipeline Interconnection 1 – C-51 Connection	\$17M
3	Lake Worth Beach Pipeline Interconnection 2 – Lake Worth Road	\$11M
4	Town Pipeline Distribution Improvements	\$40M
5	Current Franchise Agreement Pipeline Replacements	\$10M
6	Critical Pipeline Improvements Per Masterplan	\$3M
<b>Subtotal Capital Improvements:</b>		<b>\$191M</b>
Engineering/Administration (20%)		\$38M
<b>Subtotal Capital, Engineering and Administration:</b>		<b>\$229M</b>
Contingency (35%)		\$80M
<b>Subtotal Capital, Engineering and Administration, and Contingency:</b>		<b>\$310M</b>
<b>Level 5 Engineers Opinion of Probable Cost (0% +- 50%):</b>		<b>\$310M - \$465M</b>

# Cost Analysis Summary

Alternative Description	Cost	Included in Cost
City of West Palm Beach – As Is	\$47M - \$70M	Pipeline Infrastructure
City of West Palm Beach – 48 MGD Membrane Upgrade	\$773M - \$1.16B (20% of capacity represents \$154M - \$232M)	Pipeline and Treatment Infrastructure
City of Lake Worth Beach	\$310M - \$465M	Pipeline and Treatment Infrastructure

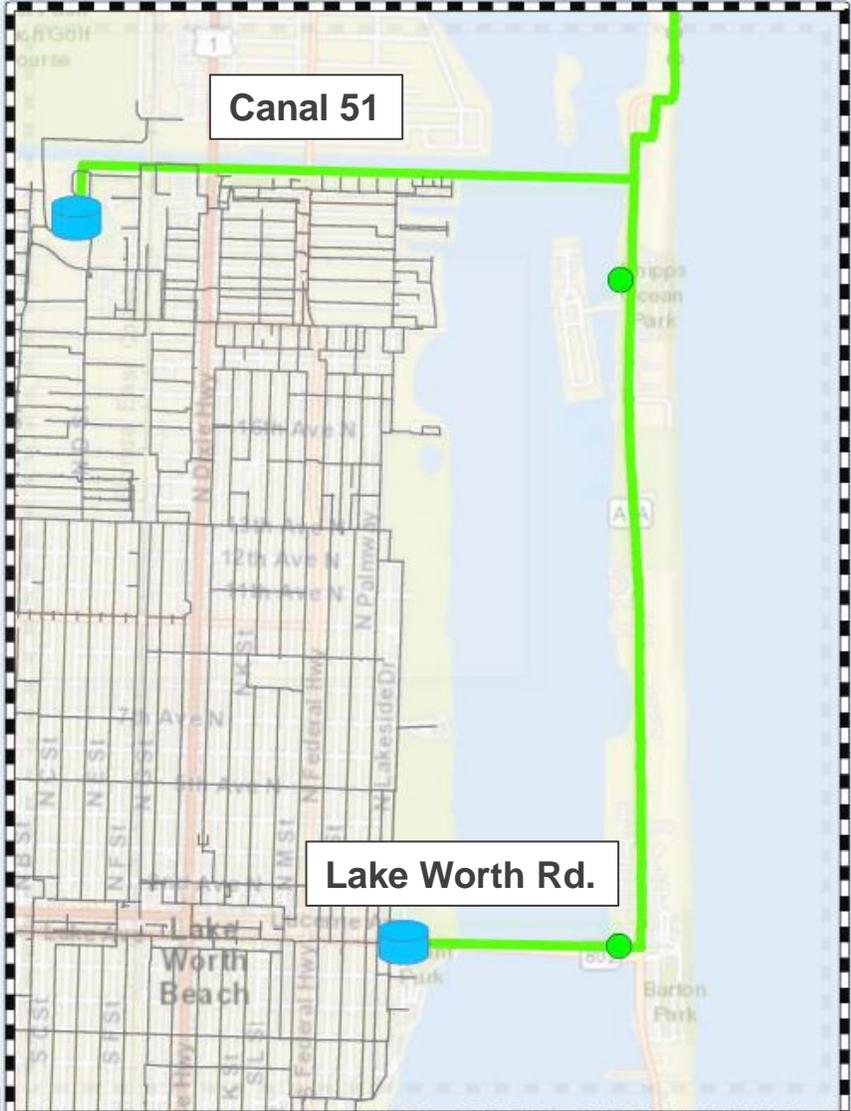
**Town required capacity is 10 MGD which is 20% of 48 MGD planned capacity**

# Timeline and Complexity

Alternative Description	Cost	Town Developed Utility Required	Water Supply Security	Water Supply Permitting Complexity	Construction Complexity	Operational Complexity and System Reliability	Land Acquisition	Program Permitting Complexity	Stakeholder Coordination
City of West Palm Beach – As Is	\$47M - \$70M	No	Moderate	None – Already Permitted	Low	Low / High	None	Low	Low
City of West Palm Beach – 48 MGD Membrane Upgrade	\$773M - \$1.16B (\$154M - \$232M)	No	High	Moderate	High	High / High	High	High	High
City of Lake Worth Beach	\$310M - \$465M	Retail – No	High	Moderate	High	Low / Moderate	Low	High	High



# City of Lake Worth Beach – Proposed Pipeline Improvements



**Legend**

- PROPOSED PIPE IMPROVEMENTS
- WATERMAIN AGE**
- 1940'S OR OLDER
- 1950'S
- 1960'S OR NEWER

# City of Lake Worth Beach – Proposed Pipeline Improvements



## South Portion of Town

**Legend**

- PROPOSED PIPE IMPROVEMENTS
- WATERMAIN AGE**
- 1940'S OR OLDER
- 1950'S
- 1960'S OR NEWER

# City of Lake Worth Beach – Proposed Pipeline Improvements



## South Middle Portion of Town

### Legend

- PROPOSED PIPE IMPROVEMENTS
- WATERMAIN AGE**
- 1940'S OR OLDER
- 1950'S
- 1960'S OR NEWER

# City of Lake Worth Beach – Proposed Pipeline Improvements



## North Middle Portion of Town

### Legend

- PROPOSED PIPE IMPROVEMENTS
- WATERMAIN AGE**
- 1940'S OR OLDER
- 1950'S
- 1960'S OR NEWER

# City of Lake Worth Beach – Proposed Pipeline Improvements

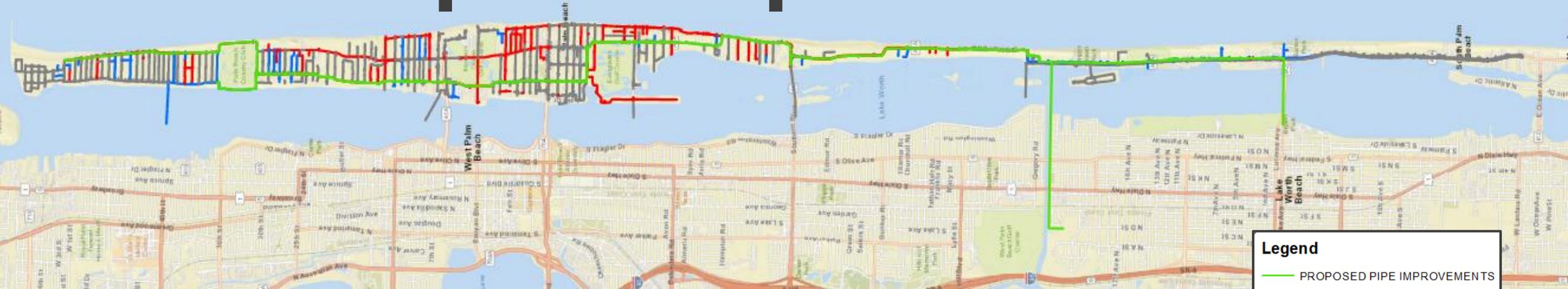


## North Portion of Town

### Legend

- PROPOSED PIPE IMPROVEMENTS
- WATERMAIN AGE**
- 1940'S OR OLDER
- 1950'S
- 1960'S OR NEWER

# City of Lake Worth Beach – Proposed Pipeline Improvements



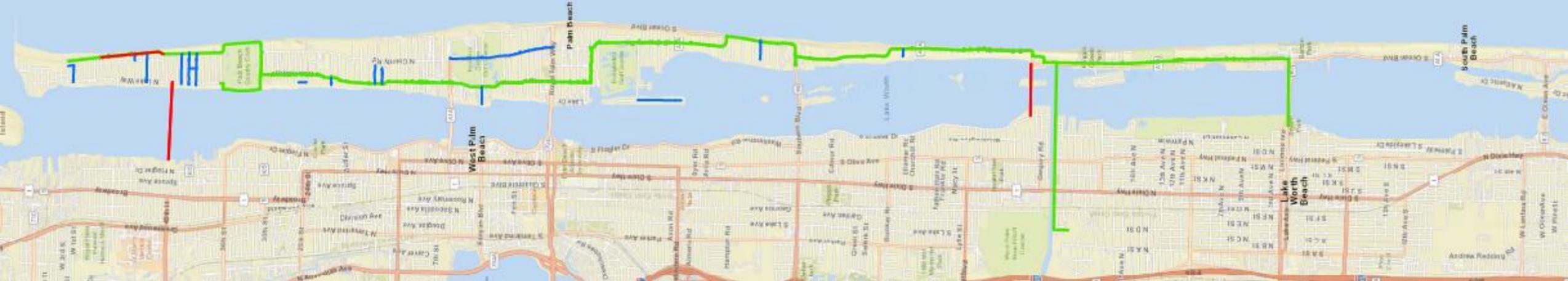
**Legend**

- PROPOSED PIPE IMPROVEMENTS
- WATERMAIN AGE**
- 1940'S OR OLDER
- 1950'S
- 1960'S OR NEWER

## Summary of Pipes Replaced by the Upgraded Transmission Main Required for the LWB Alternative

Age	Length (LF)	% of Improvements
1940's or Older	20,126	33%
1950's	11,257	19%
1960's or Newer	28,805	48%
<b>Total Pipe Improvements</b>	<b>60,187</b>	

# City of Lake Worth Beach – Proposed Pipeline Improvements



**2,785 LF of Critical Watermain Replaced**

## Legend

- CRITICAL WATERMAIN
- REMAINING FRANCHISE AGREEMENT
- PROPOSED PIPE IMPROVEMENTS

# Phipps Park Desalination Water Treatment Plant



GRAPHIC SCALE IN FEET  
0 30 60 120

- PROPERTY BOUNDARY
- SETBACK DISTANCE
- PROP. WELL PIPING
- PROP. INJECTION WELL PIPING
- PROP. SUPPLY WELL

CONCENTRATE INJECTION WELL

COASTAL CONSTRUCTION CONTROL LINE

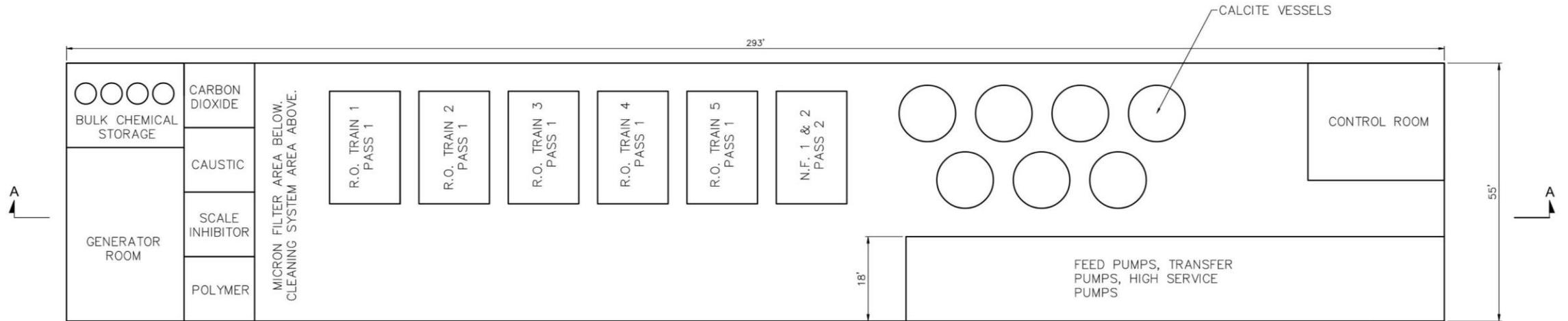
TREATMENT PLANT BUILDING

S OCEAN BLVD

4.0 MG TANK  
(513'x55'x20')

CONCENTRATE INJECTION WELL

# Phipps Park Desalination Water Treatment Plant



**FLOOR PLAN**  
AS NOTED



**SECTION A - CEILING HEIGHT PROFILE**  
AS NOTED



# Cost Analysis – Phipps Park Desalination Water Treatment Plant

Item	Item of Work	Subtotal
1	10 MGD RO Treatment Plant	\$144M
2	Wells Including Raw Watermains	\$15M
3	Pipeline Improvements	\$59M
4	Current Franchise Agreement Pipeline Improvements	\$10M
5	Current Critical Pipeline Improvements per Masterplan	\$3M
<b>Subtotal Capital Improvements:</b>		<b>\$231M</b>
Engineering/Administration (20%)		\$46M
<b>Subtotal Capital, Engineering and Administration:</b>		<b>\$277M</b>
Contingency (35%)		\$98M
<b>Subtotal Capital, Engineering and Administration, and Contingency:</b>		<b>\$375M</b>
<b>Level 5 Engineers Opinion of Probable Cost (0% +- 50%):</b>		<b>\$375M - \$562M</b>