



# MARTIN COUNTY UTILITIES & SOLID WASTE DEPARTMENT

WATER TREATMENT CAPACITY EVALUATION  
BOCC MEETING MAY 3, 2022

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MARTIN COUNTY  
UTILITIES & SOLID WASTE DEPARTMENT

# RULES AND REGULATIONS FOR WTP CAPACITY

## ▶ Florida Department of Environmental Protection (62-555.348(3)(a) F.A.C.)

- Submit capacity analysis report (CAR) at **75%** of system design rated capacity

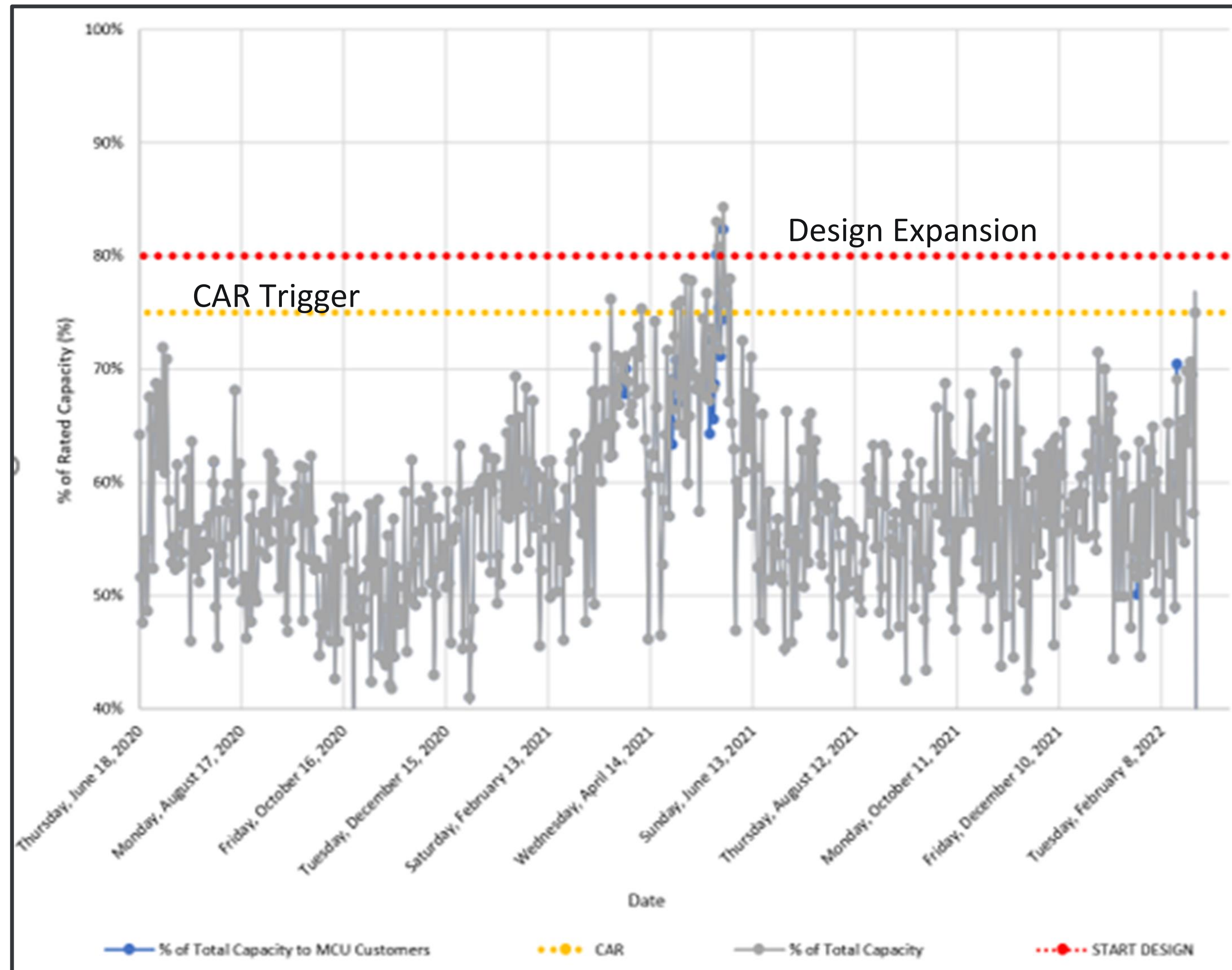
✓ CAR submitted October 2021

## ▶ Martin County Comprehensive Plan (Chapter 11 Section 5 Policy 11.1B.8.)

- Begin design improvements at **80 %** of total system rated capacity
- Begin construction at **90 %** of system total rated capacity
- No additional reservations at 100 percent of rated capacity unless construction of improvements is underway

# MARTIN COUNTY WATER SYSTEM CAPACITY AND FLOWS

## JUNE 2020-FEBRUARY 2022







# CAPACITIES AND FLOWS

## ► Consolidated Water Treatment System Capacity

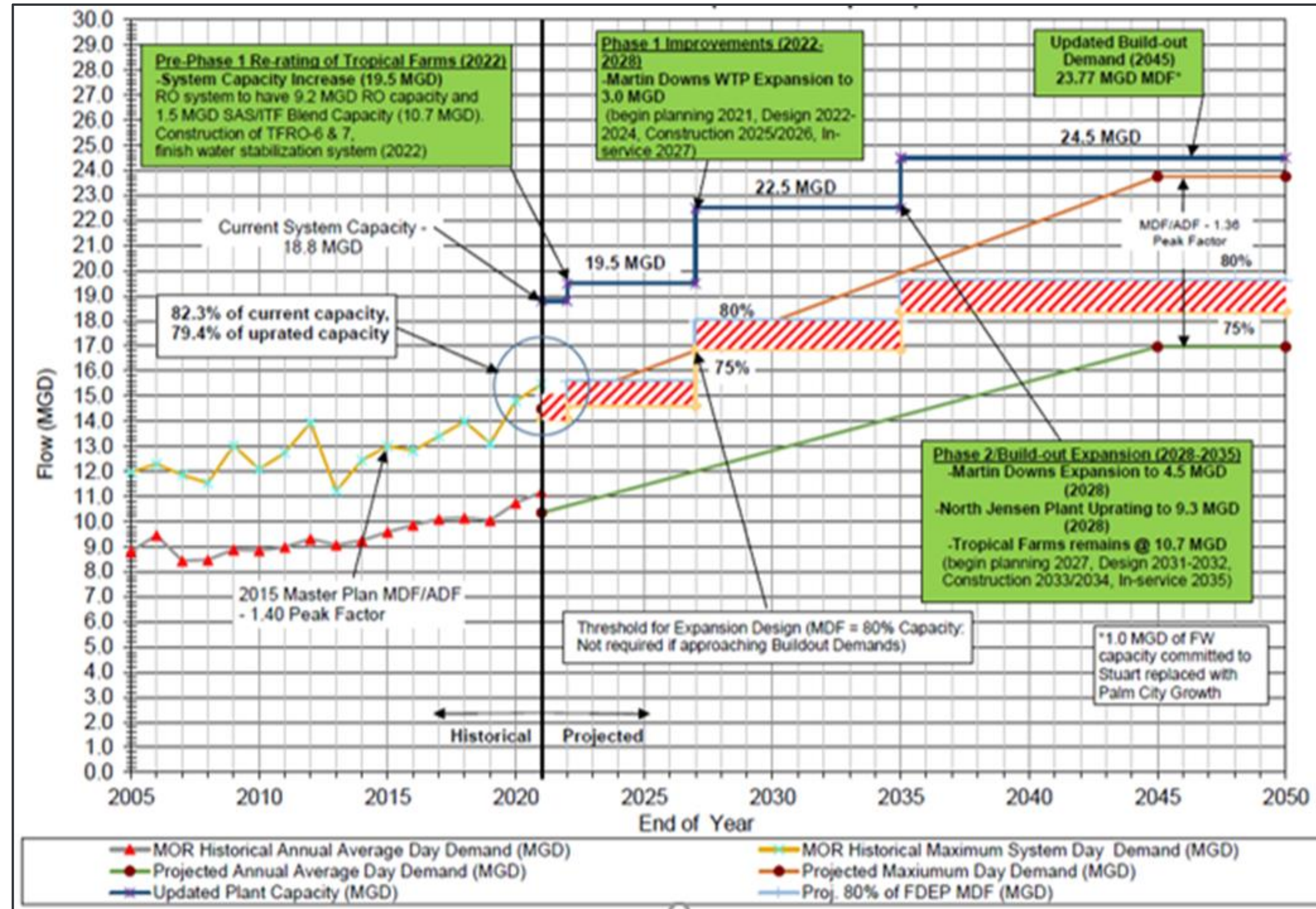
Current	18.8 MGD
Pre-Phase 1 (Tropical Farms Re-Rating)	19.5 MGD (+0 .7 MGD)
Phase 1 (Martin Downs WTP Improvements)	22.5 MGD (+ 3 MGD)
Phase 2 / Build out	24.5 MGD (+ 2 MGD)
➤ Build out assumes no additional service area proposed	

## ► Flows

Annual Average Daily Water Demand	11.164 MGD
Maximum Daily Flow (Past 12 Months)	15.475 MGD (82%)
Population Served (February 2022)	98,379
➤ Large system designation at 100,000	



# PAST TOTAL WATER PRODUCTION AND PROJECTED TOTAL WATER DEMAND

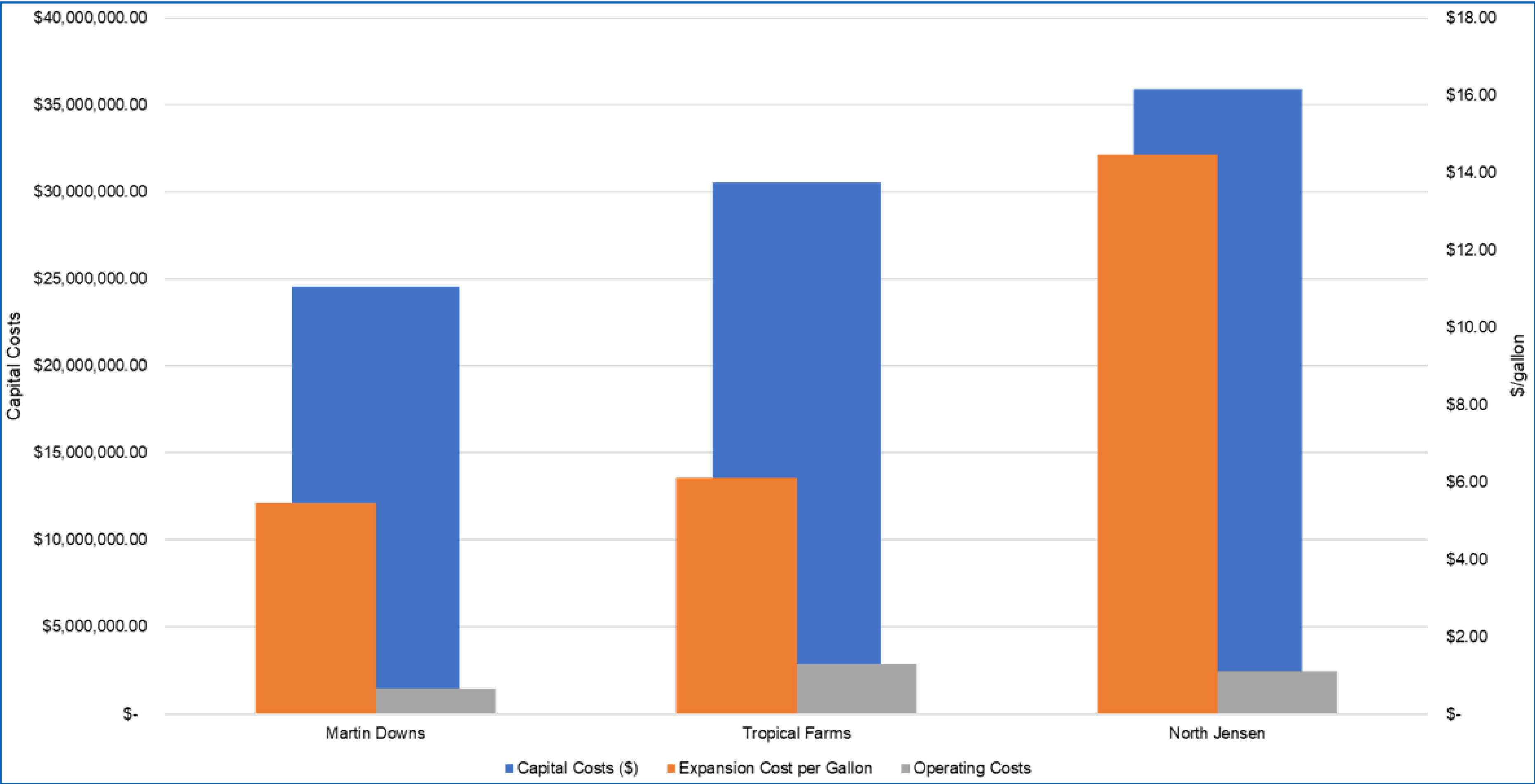




# WTP CAPACITY EXPANSION EVALUATION

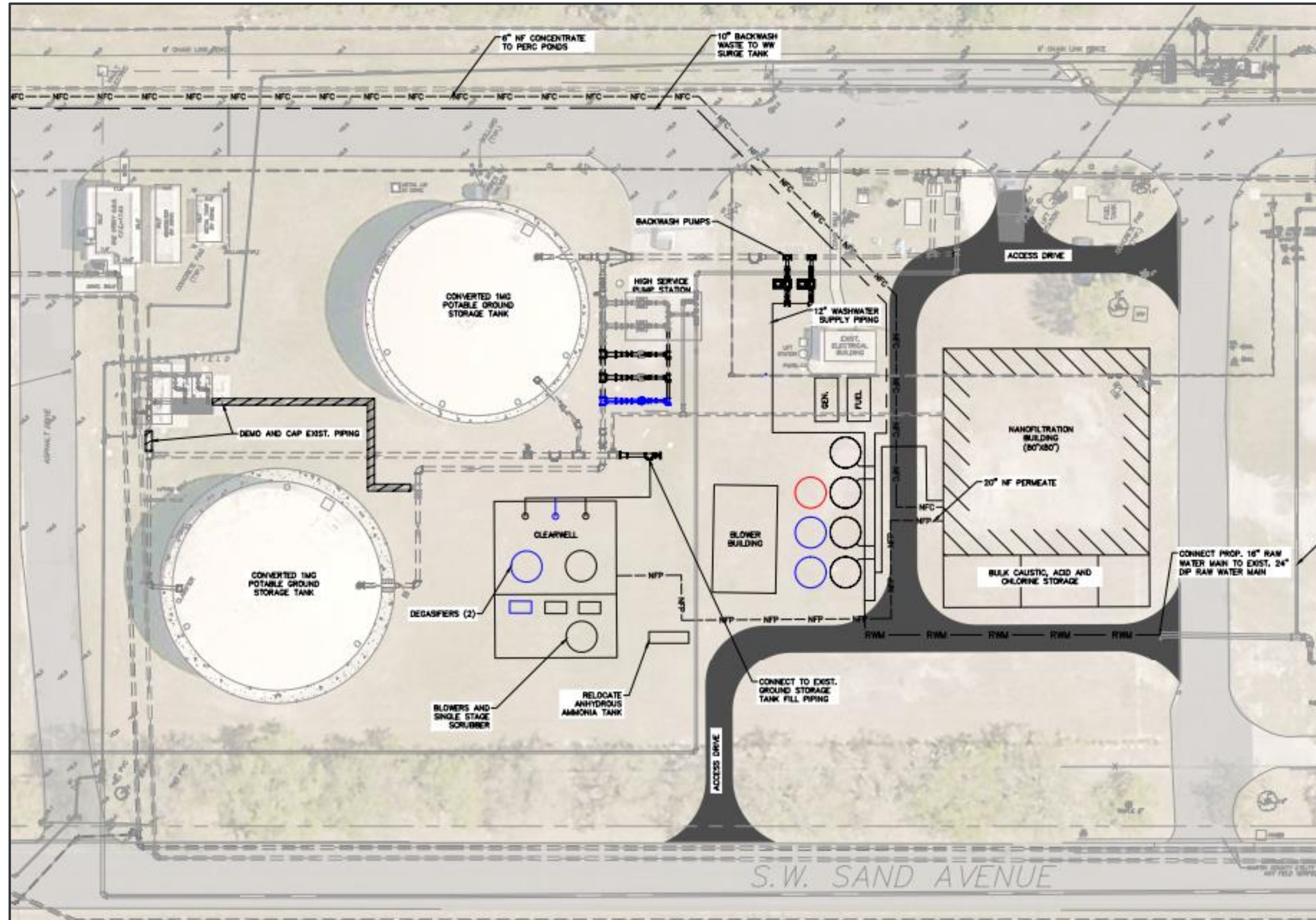
Site	North Jensen	Tropical Farms	Martin Downs
Existing Capacity	8.8 MGD	10 MGD (10.7 MGD)	N/A
Expandable to	9.3 MGD	13.5 MGD	4.5 MGD
Expansion Cost	\$14.48 per Gallon	\$6.11 per Gallon	\$5.46 per Gallon
Operating Costs	\$8.5/kgal	\$6/kgal	\$4.5/kgal
Infrastructure in place			
Future Expandability		✓	✓
MCU Owned Site	✓	✓	✓
Site Space Available		✓	✓
Adequately Staffed	✓	✓	
Existing Wellfield Capacity			✓
Water Use Allocation Available			✓
Potable Reuse Application		✓	✓
Concentrate Disposal		✓	✓
Available Storage			✓
Benefits Western Expansion			✓

# 2022 COST ESTIMATES





# MARTIN DOWNS WTP CONCEPTUAL DESIGN





# PREFERRED ALTERNATIVE: MARTIN DOWNS

## ▶ WHAT ALREADY EXISTS

- Optimal Location to Serve Existing System And Western Corridor
- Site Large Enough For 4.5 MGD Treatment
- 4 Surficial Wells with 2 MGD Water Use Allocation
- Ground Storage Tank
- Reuse Infrastructure
- Percolation Ponds (Limited Concentrate Disposal)
- High Service Pump Station Slated For FY23

## ▶ OTHER BENEFITS

- Provides Most Economical Option
- Improved Fire Flow Capability
- Improves Low Flow Issues
- Wellfield Expansion Possible (Both Surficial And Floridan Sources)
- High Potential for Indirect Potable Reuse

## ▶ FUTURE NEEDS

- Additional staffing required
- Concentrate disposal well for Floridan/RO option





# TROPICAL FARMS ALTERNATIVE

## ► PROS

- No Additional Staff Required
- Wellfield Exists to Support The RO System Expansion
- Site Set Up for Expansion

## ► CONS

- Surficial Aquifer Capacity in Tropical Farms Area is Limited
- Higher Capital Costs than Martin Downs
- Highest Operating Costs of All Expansion Options
- Does NOT Resolve Low Pressure Issues in Western Palm City





# NORTH JENSEN ALTERNATIVE

## ► PROS

- SAS Allocation Already Exists

## ► CONS

- Concentrate Disposal Limited by Current Injection Well Sizing (2nd DIW Most Likely Required)
- Existing Electrical System is Limited
- Expansion Limited to Site Constraints
- Clearwell Capacity Limited
- Minimal Capacity Gained Through Feasible Expansion (< 0.5 MGD)





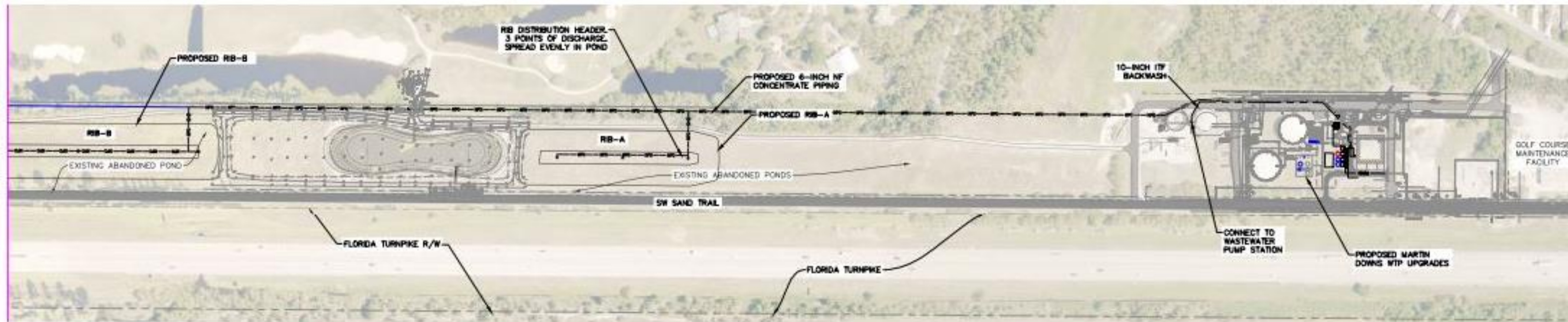
# RECOMMENDATIONS

- ▶ BEGIN DESIGN MARTIN DOWNS WTP FY23 (OCTOBER 2022)
  - Per CIP
- ▶ UPDATE MASTER PLAN FY23
  - Most Recent Master Plan Completed In 2015
  - Need Updated Growth/Population Projections
  - Include >100,000 Customer Services
- ▶ SPOTLIGHT ON WATER CONSERVATION
  - 2 Day/Week Year-Round Irrigation Ordinance Effective June 2022
  - Reduce High Potable Water Use for Irrigation
    - Public Outreach & Education
    - Add More Stringent High Use Tier to Water Rate Structure





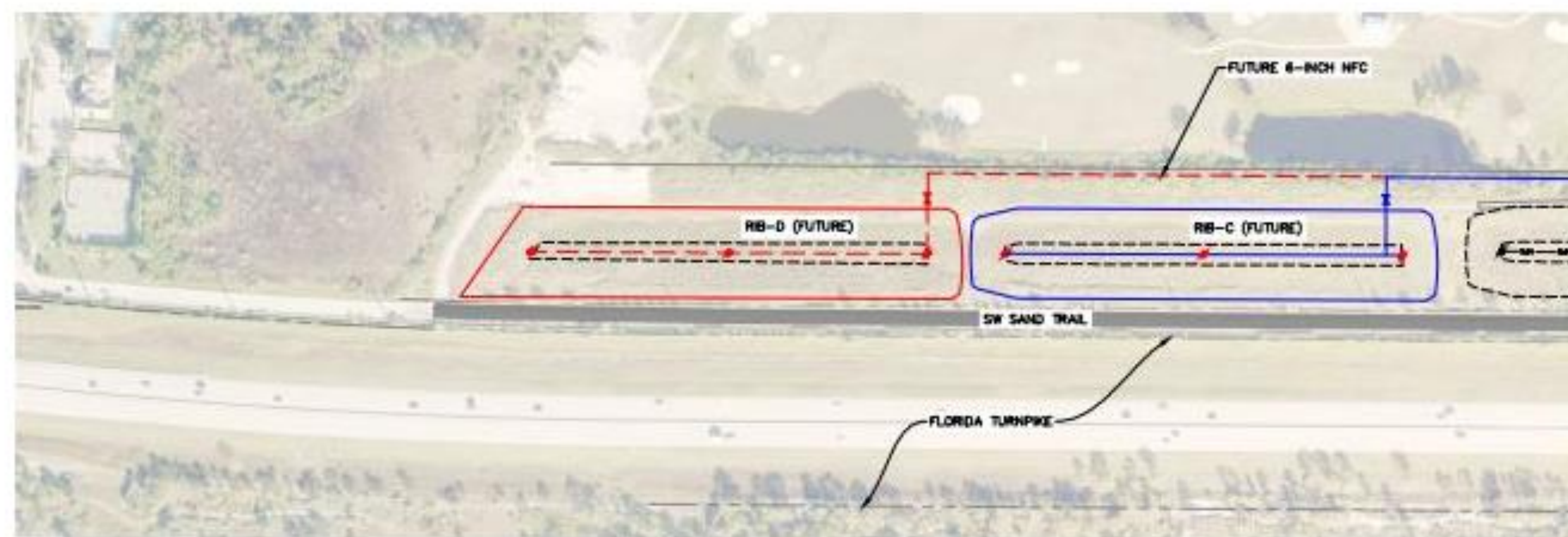
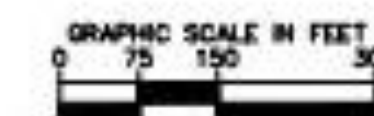
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# QUESTIONS?

## LEGEND

- PHASE 1: 2 MGD
- PHASE 2: 3 MGD
- PHASE 3: 4.5 MGD
- NAHOFILTRATION CONCENTRATE
- NAHOFILTRATION PERMEATE
- PIPE TO BE DEMOLISHED



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