



# CLEAN WATER FACTORY UPDATE

May 21, 2019

Presented by:  
Kevin Stewart, PE, Director of Water Reclamation

# SBMWD ORGANIZATION

Ratepayers



Mayor & City Council



Water Board  
GM  
Staff





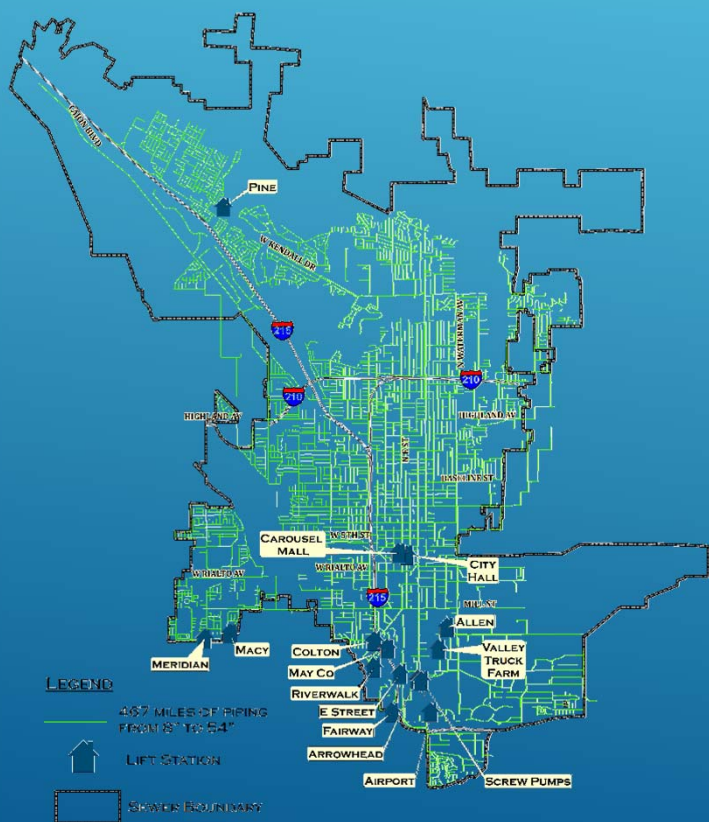
# Water Utility



- 100% from Bunker Hill Basin
- Approx. 80% of City and County pockets
- 56 square mile service area
- 44,000+ services
- 750+ miles of water mains
- 51 active wells
- 38 active reservoirs
- 23 pump stations



# Sanitary Sewer Collections System

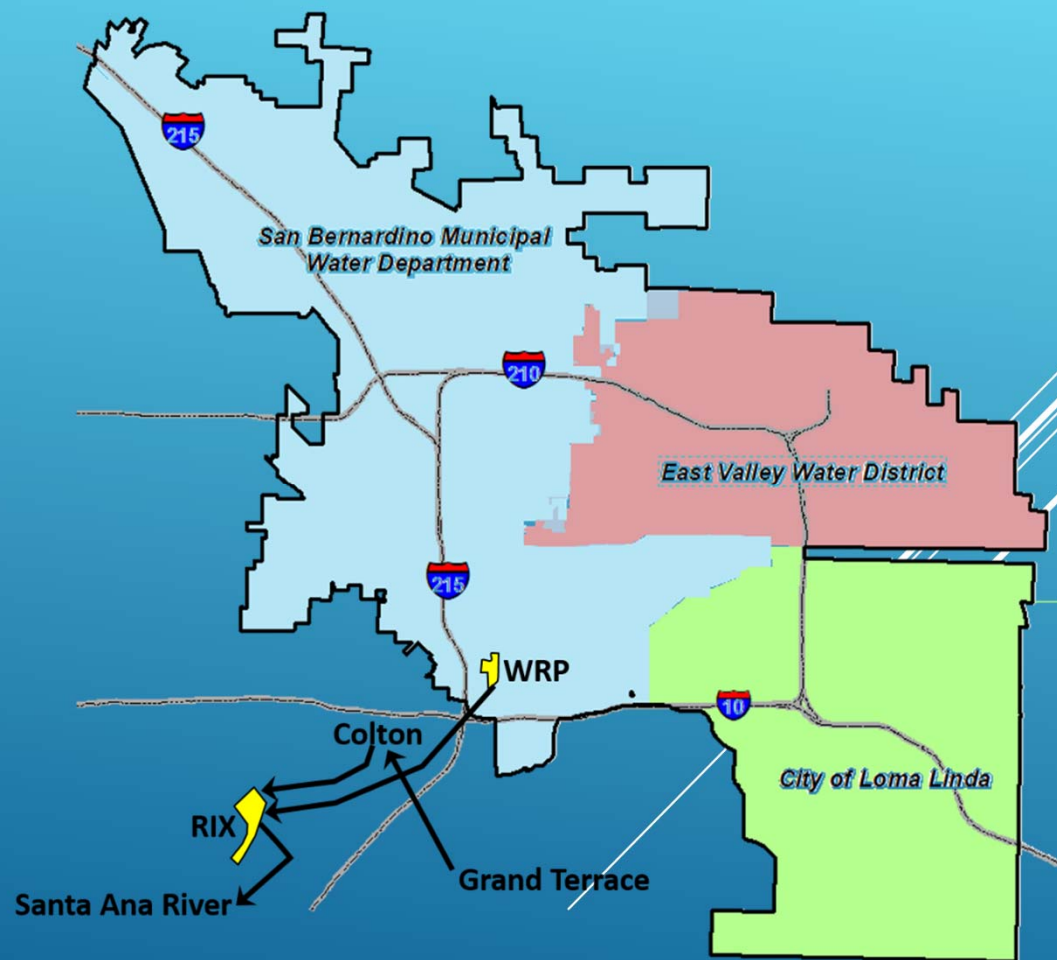


- 467 miles of Collections piping (8" – 54")
- 12 small lift stations (< 1 MGD)
- 3 large lift stations (3-12 MGD)



# Wastewater Treatment

- SBMWD WRP currently serves:
  - San Bernardino (80%)
  - East Valley Water District
  - City of Loma Linda
  - Approx. 22 MGD
- RIX serves:
  - WRP
  - Cities of Colton & Grand Terrace
  - Approx. 27 MGD



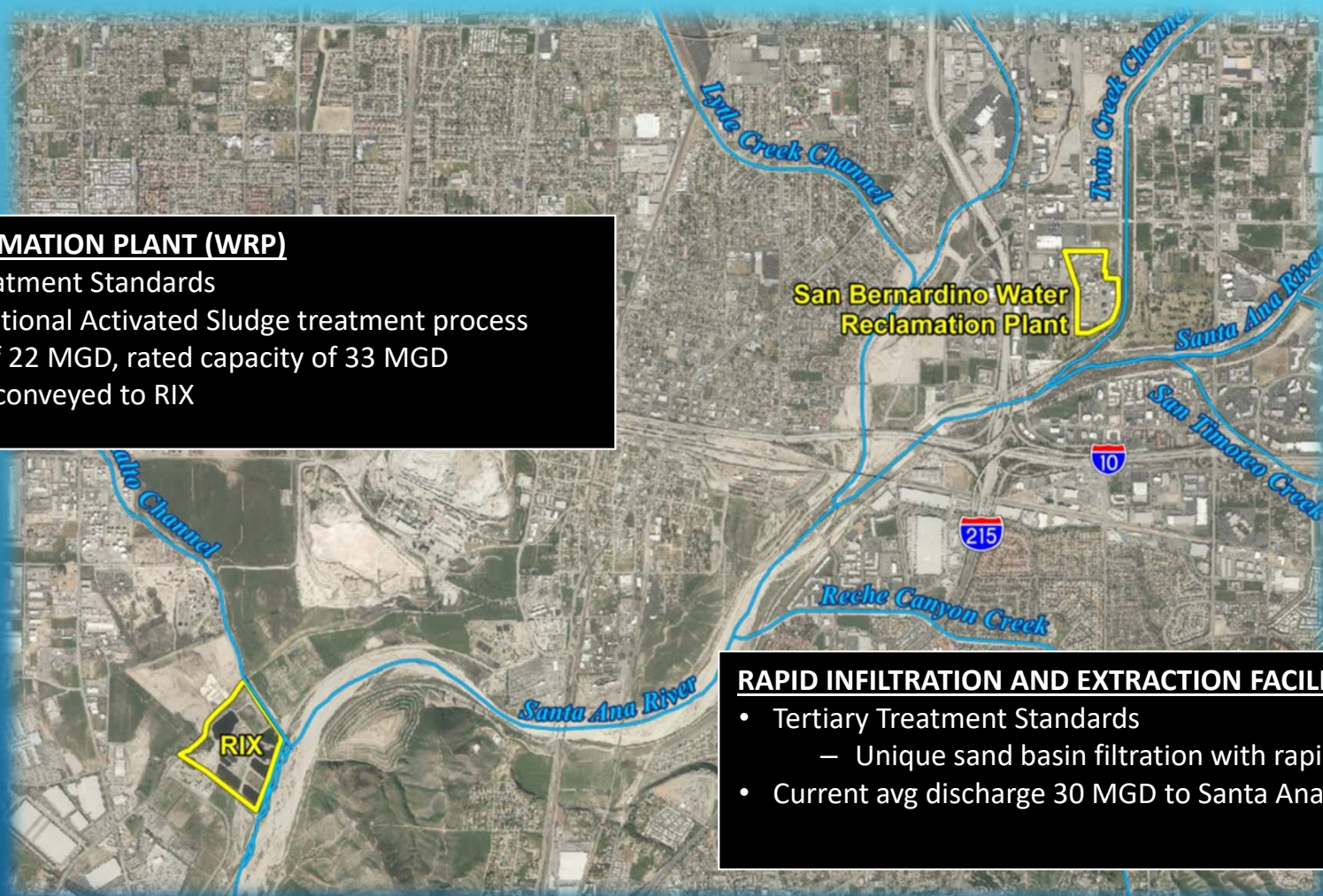




# Wastewater Treatment

## SB WATER RECLAMATION PLANT (WRP)

- Secondary Treatment Standards
  - Conventional Activated Sludge treatment process
- Current ADF of 22 MGD, rated capacity of 33 MGD
- Effluent flows conveyed to RIX



## RAPID INFILTRATION AND EXTRACTION FACILITY (RIX)

- Tertiary Treatment Standards
  - Unique sand basin filtration with rapid extraction
- Current avg discharge 30 MGD to Santa Ana River



# Water Supply Sustainability

- Conservation
  - State regulations
  - Rebate programs
  - Public outreach
- **Recycled water**
  - **Clean Water Factory**
- Storm water capture
  - Devil Canyon Creek diversion
- State Water Project water
- Regional partnerships
  - Groundwater Council
  - Regional recycled water system







# CLEAN WATER FACTORY



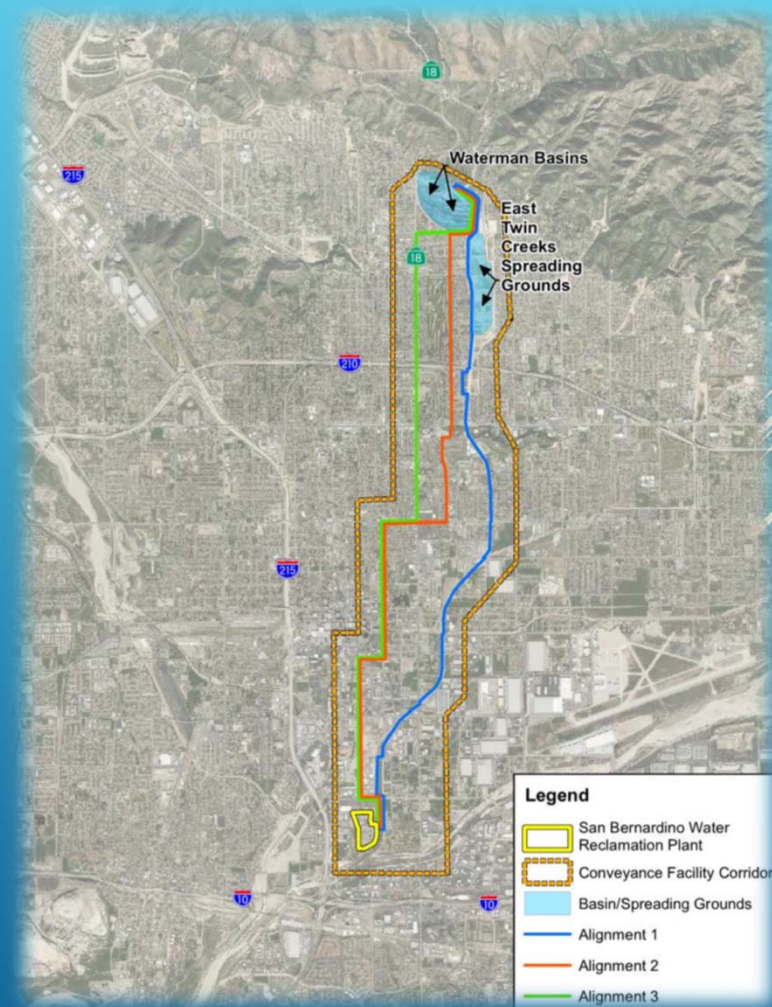




# Original Clean Water Factory

- Bunker Hill Basin Recharge
- Tertiary and advanced treatment at SBWRP
- Phased reduction of RIX discharge
- RW Yield = **21,700 AFY**
- Capital Cost = **\$255M**

Discharge Scenarios	RIX Discharge (MGD)	CWF RW Yield (AFY)	Capital Cost (\$M)
Baseline (2012)	34.3	0	-
Phase 1	29.0	4,900	80
Phase 2	24.8	8,900	45
Phase 3	20.8	12,700	40
Phase 4	17.0	16,100	40
Phase 5	13.4	21,700	50





# Current Clean Water Factory

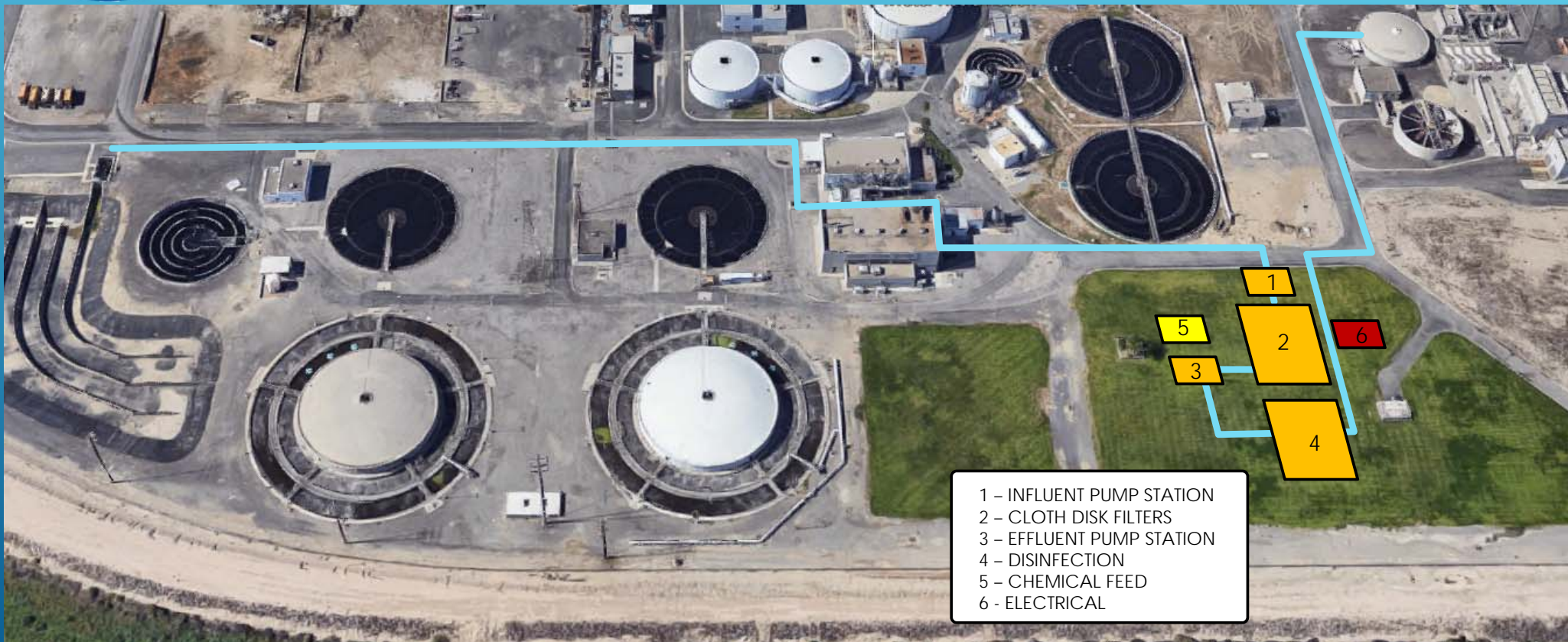
- Direct NPR and Bunker Hill Basin Recharge
- Tertiary treatment at SBWRP
- Maintain 18 MGD discharge @ RIX
- RW Yield = **10,000 AFY**
- Capital Cost = **\$40M**

Discharge Scenarios	RIX Discharge (MGD)	CWF RW Yield (AFY)	Capital Cost (\$M)
Baseline (HCP)	28.0	0	-
Phase 1 (2021)	18.0*	5,600	20
Phase 2 (2035)	18.0	7,800	10
Phase 3 (2040)	18.0	10,000	10

\*factors in EVWD 6 MGD



# Clean Water Factory







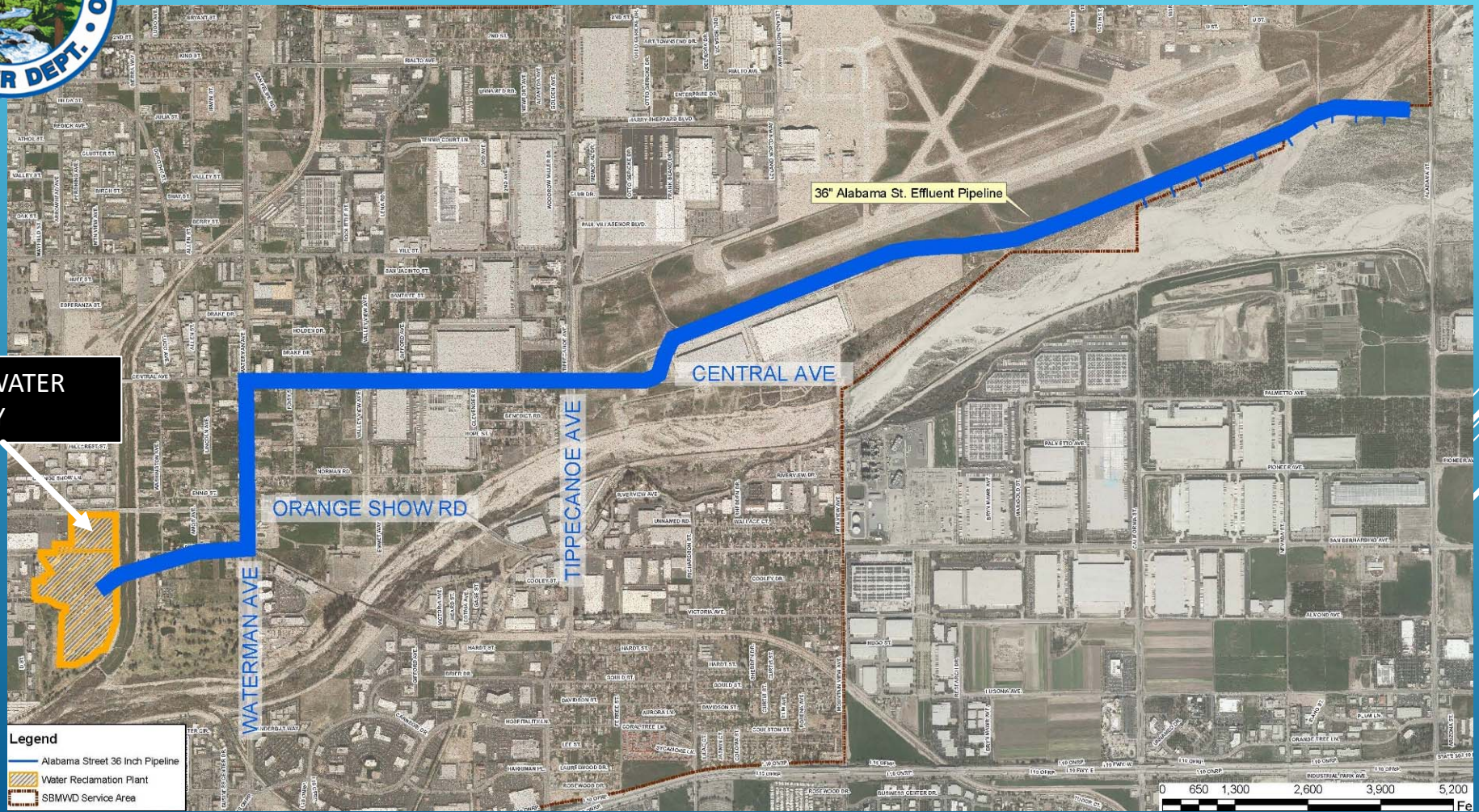
# Clean Water Factory – DESIGN DETAILS

- DESIGN FLOW: 5.0 MGD
- USES:
  - 1.2 MGD DIRECT NON-POTABLE REUSE
  - 3.8 MGD AVAILABLE FOR BASIN RECHARGE
- AVERAGE INFLUENT TURBIDITY: 2.5 NTU SECONDARY EFFLUENT
- MAX HYDRAULIC LOADING RATE: 3.3 GPM/SF (AVG FLOW, ALL IN SERVICE)
- INFLUENT PUMP STATION: 3 EA 25HP HORIZONTAL SPLIT CASE PACKAGE LIFT STATION
- CLOTH DISK FILTERS: 2 TRAINS (TANKS), OUTSIDE-IN TECHNOLOGY, ABOVE-GRADE, 5  $\mu$  FILTER
- FILTER CANOPY: 52 FT x 40 FT
- EFFLUENT PUMP STATION: 3 EA 20HP HORIZONTAL SPLIT CASE PACKAGE LIFT STATION
- DISINFECTION: ULTRAVIOLET (LIKELY)
- STORAGE: REHABILITATED EXISTING RESERVOIR
- CHEMICAL FEEDS: ALUM (COAGULATION)
- REQUIRED EFFLUENT TURBIDITY: < 2 NTU





# Clean Water Factory







# Regional Recycled Water

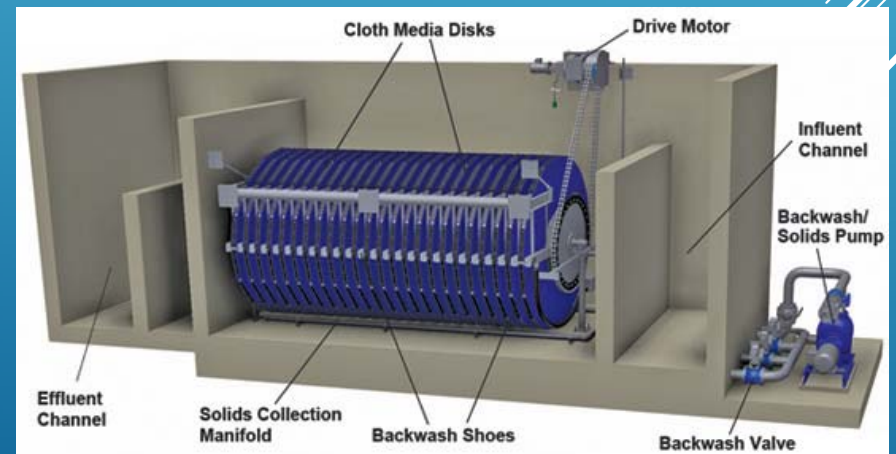






# CWF Status

- Preliminary Planning
- Environmental
- *Engineering Design*
  - Completion early 2020
- Construction
  - Begin Construction mid 2020
- Operation
  - Begin Operation late 2021





**THANK YOU**