

Airport Water Reclamation Facility

- 1- Expansion – Phase 1
- 2- Sundog Wastewater Treatment Plant Improvements
- 3- City Wastewater Pretreatment Program
- 4- Single Plant Treatment Concept



Airport WRF Phase 1 Expansion Project Topics

- Airport WRF Phase 1 Expansion 3.75 MGD
 - 30% Design Status
 - Milestones
 - Key Challenges/Issues
 - Construction Manager at Risk Coordination
- Sundog WWTP Nitrification DeNitrification Improvements
- Pre-Treatment Program
- Centralized Treatment

Airport WRF Phase 1 Expansion

30% Design Status

- Based on Master Plan concept
- 30% Design completed and comments provided by City staff
- Effluent recharge basins evaluated
 - Capacity adequate for ultimate condition with minor expansion
 - Hydro-geologic conditions confirmed through ultimate capacity
- ADEQ/ADWR Permit Revision submittals in progress

Airport WRF Phase 1 Expansion 30% Design Status (cont'd)

- Design sensitive to energy efficient concepts
 - Eliminated need for an influent pump station
 - 1000 ft set back will avoid odor control scrubbers and eliminate power and chemical use
 - Automation/controls used to optimize air demand and chlorine use

30% Design Footprint



Airport WRF Phase 1 Expansion Milestones

- Planned Schedule

60% Design Submittal	Jan 30, 2012
ADEQ Submittal	Feb, 2012
90% Design Submittal	Spring 2012
Final Design/ADEQ Permit	Summer 2012
Construction Notice to Proceed	Fall 2012
Construction Duration 20 months	Summer 2014

Airport WRF Phase 1 Expansion

Key Challenges/Issues

- Noise and Odor Easement Acquisition
- Permitting
 - ADEQ Aquifer Protection Permit (APP)
 - ADWR Underground Storage Facility Permit (USF)
 - COP Building Permit
- Utility Coordination
 - Gas, electric, communication (3rd party utilities extension costs not included in the cost model)
- Supervisory Control and Data Acquisition (SCADA) Planning/Communication

Airport WRF Phase 1 Expansion Construction Manager at Risk (CMAR) Coordination

- 30% Cost Model
 - CMAR (PCL/FANN Environmental) hired during 30% design phase
 - Provided 30% Cost Model
 - Reviewed by City Staff, Design Engineer, and Third Party Reviewer
 - Current Cost Model \$32,939,000
 - Cost Model will be updated based on 60%, 90% and Final Design submittals
 - Guaranteed Maximum Price (GMP) to be submitted at Final Design

Airport WRF Phase 1 Expansion Construction Manager at Risk (CMAR) Coordination

- CMAR involvement in the design
 - Participated in design workshops
 - Provided costing for various alternates / value engineering
 - Provided constructability reviews
 - Conducted site investigations
 - Determined material and equipment availability and lead time

Sundog WWTP Improvements

- Two projects underway
 - Nitrification DeNitrification Upgrades
 - Filter System Reconstruction
- Nitrification DeNitrification
 - Design completed
 - Engineer's Cost Estimate - \$975,000
 - Contract award Spring 2012
 - Construction Duration – 6 months

Sundog WWTP Improvements

- Filter System Reconstruction
 - Project will be bid as a Design/Build
 - Projected Cost Estimate \$868,000
 - Contract award Summer 2012
 - Construction Duration – 3 months

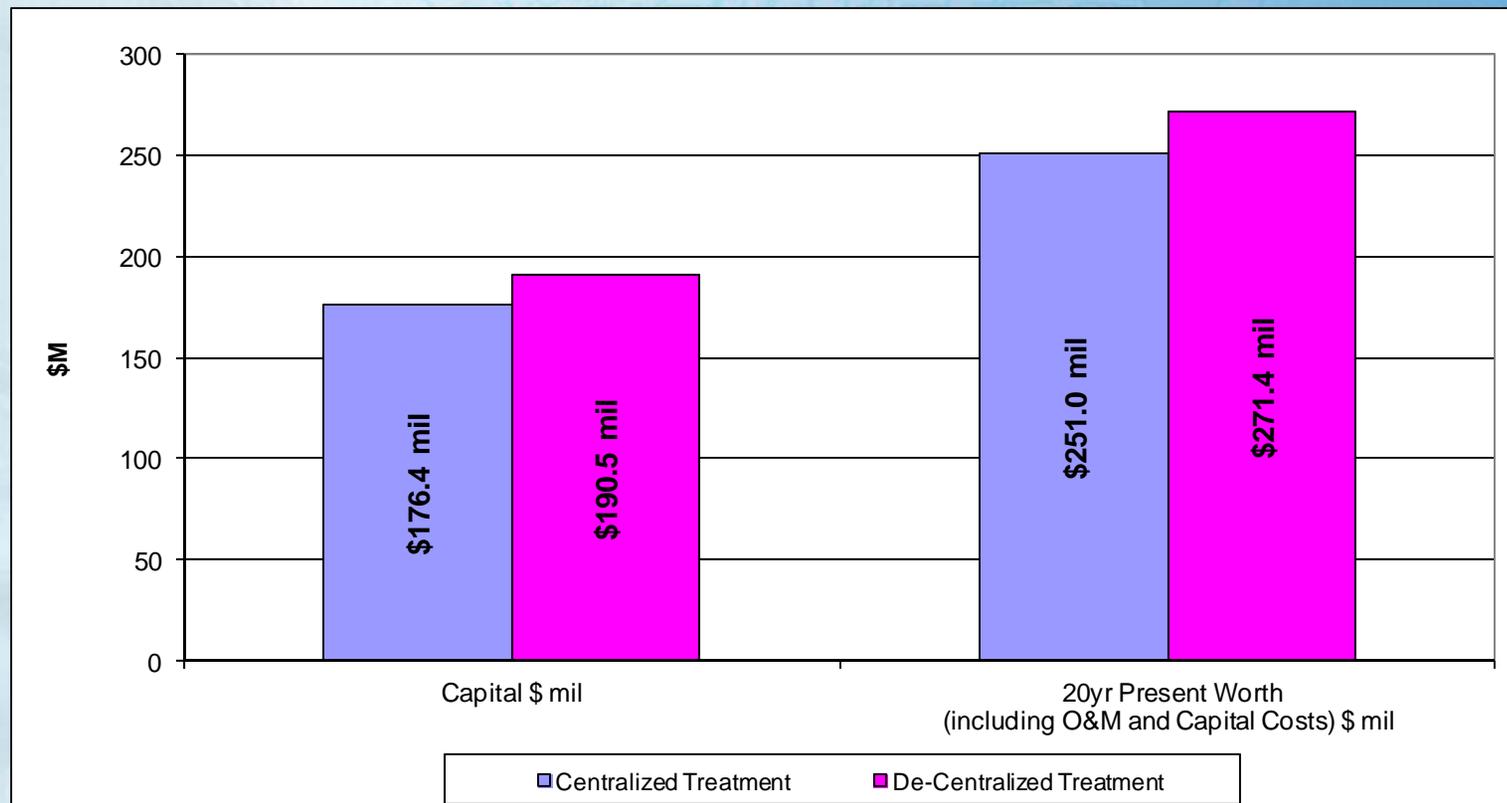
City Wastewater Pre-Treatment Program

- Federal and State Mandated Programs date back to 1989
- Master Plan Study Set Local Limits
- Program will protect current and future rate payer wastewater investments
- City is implementing final steps of Pre-Treatment water quality program
 - Includes constituents in wastewater streams such as metals, organics, fluoride and others

Centralized Treatment Single Plant

- Concept builds on Master Plan recommendations
- Centralized Treatment will result in more efficient and economic treatment
 - Cost Benefit Analysis – Capital/O&M
 - 15 MGD Flows at Buildout

Life Cycle Cost Comparison Centralized vs. Current (2 Plants) Treatment



- ◆ Potential economic advantage for centralized treatment (10%)
- ◆ City should keep options open for either alternative

Centralized Treatment

- Centralization Aspects
 - Gradual transition from current system to centralized system
 - More effective management of high wet weather flows, including reduction of susceptibility to permit violation
 - Identify interim risk areas at Sundog
 - Provide additional wastewater capacities for treatment & collections

Centralized Treatment

- Centralized Treatment Approach
 - Maximize use of existing facilities
 - Take advantage of projects already planned in CIP
 - Evaluate options based on capital cost, O&M and best value
 - Implement options that offer flexibility of centralization versus two plants

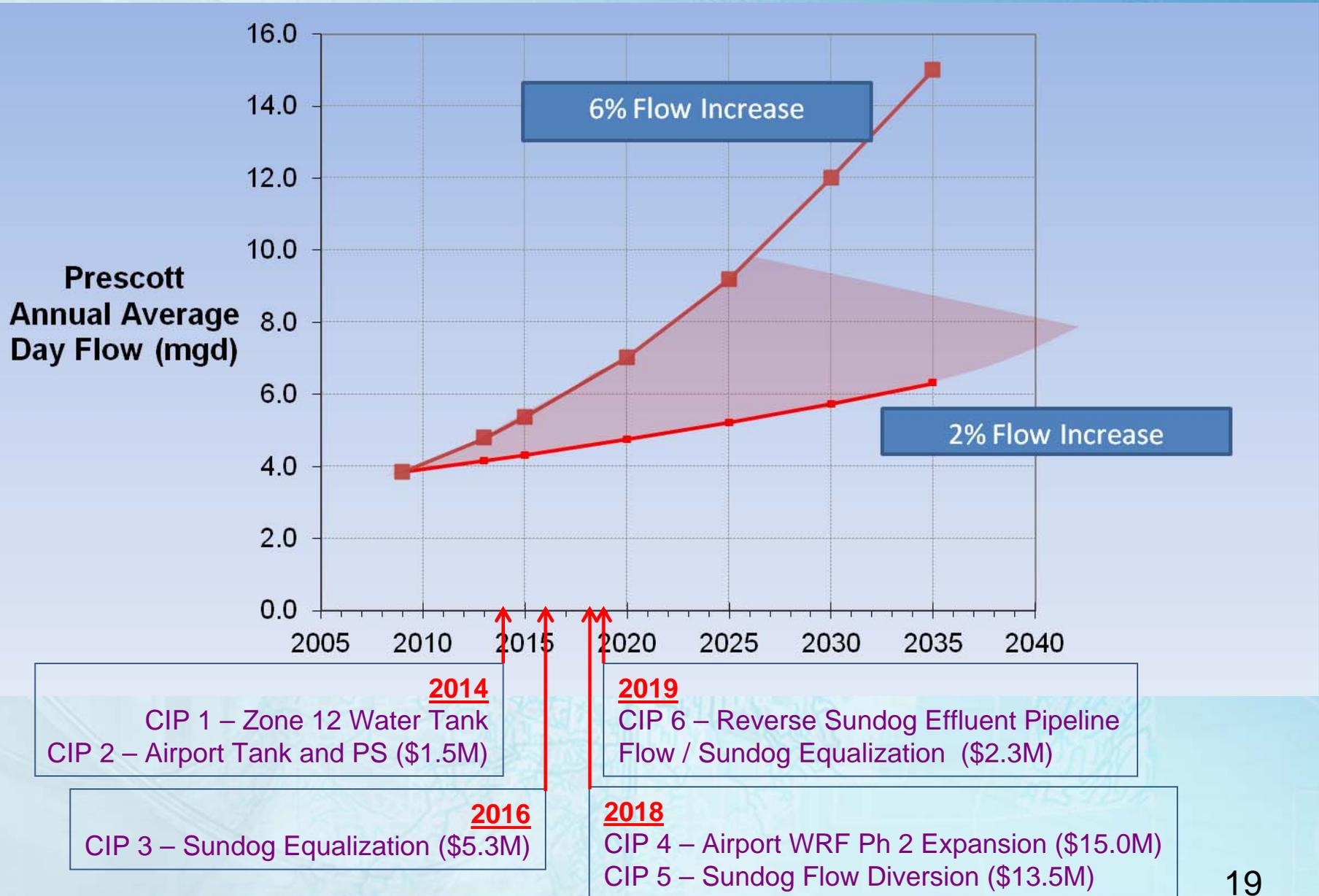
Centralized Treatment Projects

- CIP 1 – New Zone 12 Tank (water)
- CIP 2 – Convert Airport Water Tank and Booster Station for Effluent Storage and Delivery
- CIP 3 – Sundog Equalization
- CIP 4 – Airport WRF Phase 2 Expansion
- CIP 5 – Sundog Flow Diversion
- CIP 6 – Reverse Sundog Effluent Pipeline Flow
Convert Sundog to Additional Equalization

Centralized Treatment Priority Chart

CIP Projects (Needed for Centralization)	Needed for AWRF Phase 1	Will it commit City to Centralization?
CIP 1 – New Zone 12 Tank	Yes	No
CIP 2 – Convert Existing Airport Water Tank and Booster Station to Effluent Storage and Delivery	Yes	No
CIP 3 – Sundog Equalization	No	No
CIP 4 – Airport WRF Phase 2 Expansion	No	No
CIP 5 – Sundog Flow Diversion	No	Yes
CIP 6 – Reverse Sundog Effluent Pipeline Flow / Sundog Equalization	No	Yes

Centralized Treatment



Sundog WWTP - Costs (20 yrs) If Plant Remains in Operation

Process Areas	Equipment Costs (\$M)	Structures Costs (\$M)
Headworks	0.5	0.5
Primary Sedimentation	0.5	0.2
Oxidation Ditches	1	1
Secondary Clarifiers	0.5	0.3
Blower Facility	1	-
Filtration	1.5	1.5
Disinfection (UV / Chlorine)	0.5	0.5
Solids Treatment	1	2
Digester Rehab	1	2
Odor Control	5	2
Misc. Process Systems	1	0.5
Misc. Auxiliary Systems	1	0.5
Repair/Replacement Sub-Total	14.5	11.0
Sundog Expansion – Phase 1 (3.6MGD)		
	\$59.6M	

Centralized Treatment

CIP Project – Preliminary Costs	Capital Cost (\$M)
CIP 1 – New Zone 12 Tank	\$3.1 Water funds
CIP 2 – Convert Existing Airport Water Tank and Booster Station to Effluent Storage and Delivery	\$1.5
CIP 3 – Sundog Equalization	\$5.3
CIP 4 – Airport WRF Phase 2 Expansion	\$15.0
CIP 5 – Sundog Flow Diversion	\$13.5
CIP 6 – Reverse Sundog Effluent Pipeline Flow / Sundog Equalization	\$2.3

Airport WRF Phase 1 Expansion Centralized Treatment

PRELIMINARY SCHEDULE

PROJECT	2013	2014	2015	2016	2017	2018	2019	2020
New Zone 12 Tank								
Airport Water Tank and Booster Station Conv.								
Sundog Equalization								
Airport WRF Phase II Expansion								
Sundog Flow Diversion								
Reverse Flow of Sundog Effluent Main								

Airport WRF Phase 1

QUESTIONS