



## Agenda

- Project goals
- Project status
- Permit status
- Project update
- Project cost update
- Implementation plan
- Next steps





## Project Goals



Provide reliable service to community now and in future (envisioned by the City General Plan 2020).

- Replace aging infrastructure



Meet permit/regulatory requirements that protect public health and the environment

- Convert from chlorine to ultraviolet light disinfection
- Add secondary system with ammonia removal
- Improve the natural treatment system



Meet City's goals for sustainability as much as possible

- Provide a resilient system for future sea level rise
- Reduce energy requirement



## Project Status

- Predesign started in January 2018
- Administrative draft Predesign Report completed in September 2018
- Final draft completed in November which incorporated City staff comments



## Project Status

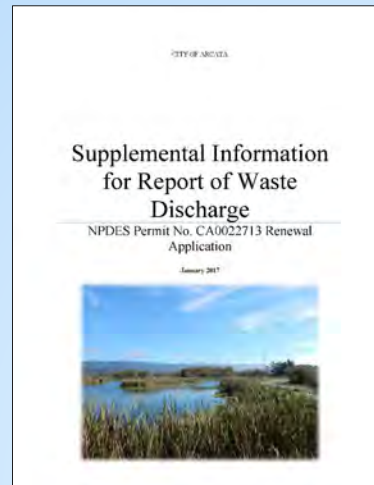
- Site topographic survey and mapping completed in May 2018
- Geotechnical field and lab work completed, draft report is under review



## RWQCB Discharge Permit Status



- Existing NPDES permit expired in July 31, 2017
- City filed required Report of Waste Discharge in January 2017



Revisions 1/1/17

## Permit Uncertainty



- City has been in discussion with RWQCB staff regarding:
  - New Ammonia limits - progress has been made with RWQCB staff
  - UV disinfection system design requirements
  - Compliance schedule
  - Use of enhancement wetlands, Marsh and Wildlife Sanctuary, to meet enhancement requirements

Revisions 1/1/17

## Likely Permit Requirements

- Time schedule order to meet previous and new permit requirements
  - Address non-compliance - UV / Flow reconfiguration / new discharge
- Ammonia removal limits
  - Originally projected at 4 mg/l average and 10 mg/l maximum based on Eureka permit
  - New floating limit method proposed by RWQCB based on receiving water quality
  - New limit will be based on receiving water conditions
  - Driver for early completion of new discharge (003)

Rebecca ppt/11

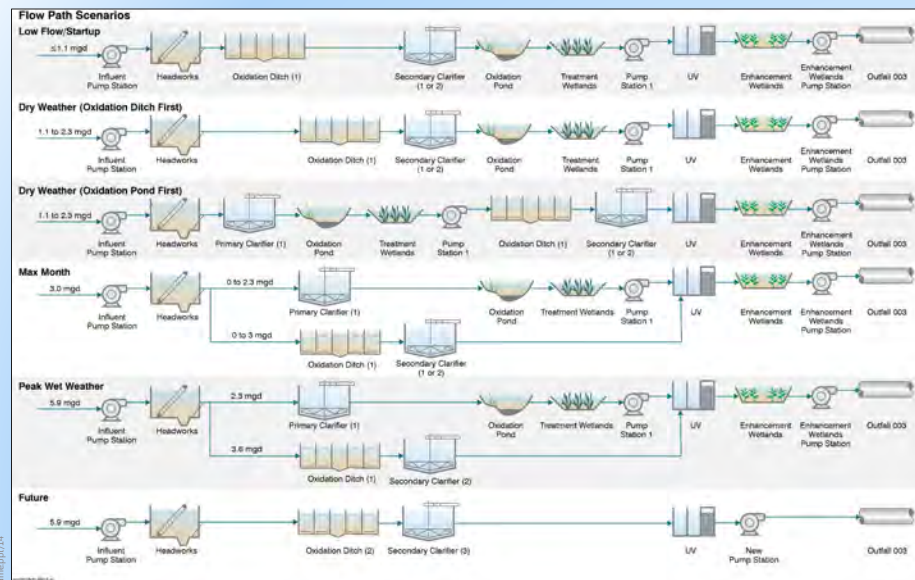


## Progress since the 2017 Facility Plan Completed Predesign including:

- Modeled with 7 scenarios to finalize design criteria and size process facilities
- Hydraulic modeling to size pump station upgrades and pipelines
- Site plan challenges addressed including relocation of: Bus Barn, Maintenance Shop, and Sludge Drying Beds
- Assessment of new electrical facilities and develop of an electrical / control system for reliability and energy efficiency
- Updated cost estimate based on likely permit requirements and predesign facility sizing

Revised ppt 1/13

## Developed process model for 7 scenarios













### Cost Update Basis

- Process and hydraulic model used to develop new cost estimate:
  - Developed quantities of site work, piping, pumps, valves, structures, and equipment quotations from suppliers
- Escalated to construction mid-point, increased cost over 8% from today's cost
- Geotechnical recommendations for foundations, increased foundation costs due to poor soils
- Assessment of electrical facilities increased costs based on need to replace existing facilities

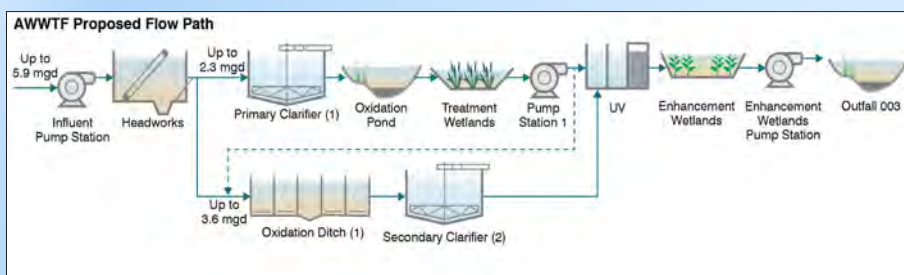
Revised 11/1/20

## Project Cost Update

Description	Construction Cost Estimate	Facility Plan Cost Estimate	Project Need
Flow Reconfiguration / Site work	\$5,540,000	\$3,200,000	Permit Requirements
Headworks / Primary Clarifier Rehabilitation	\$6,500,000	\$8,650,000	Rehabilitation
Ponds and Wetland	\$6,370,000	\$5,860,000	Rehabilitation/deferred maintenance
Secondary Treatment	\$12,800,000	\$7,380,000	Permit Requirements
Disinfection – UV and Wet Weather System	\$2,840,000	\$4,510,000	Permit Requirements
Digesters/Solids	\$3,180,000	\$2,140,000	Rehabilitation
Corporation Yard Modifications	\$2,710,000	\$400,000	Modifications
Electrical, Controls, SCADA and Utilities	\$4,080,000	Included in above costs	Rehabilitation and permit
<b>TOTAL CONSTRUCTION COSTS</b>	<b>\$44,020,000</b>	<b>\$32,200,000</b>	
<b>TOTAL PROJECT COSTS (35%)</b>	<b>\$59,430,000</b>		

## Cost Updates – Flow Reconfiguration/Site Work

- Flow Reconfiguration - added piping for flexibility and to handle wet weather flows
- Site work - more extensive

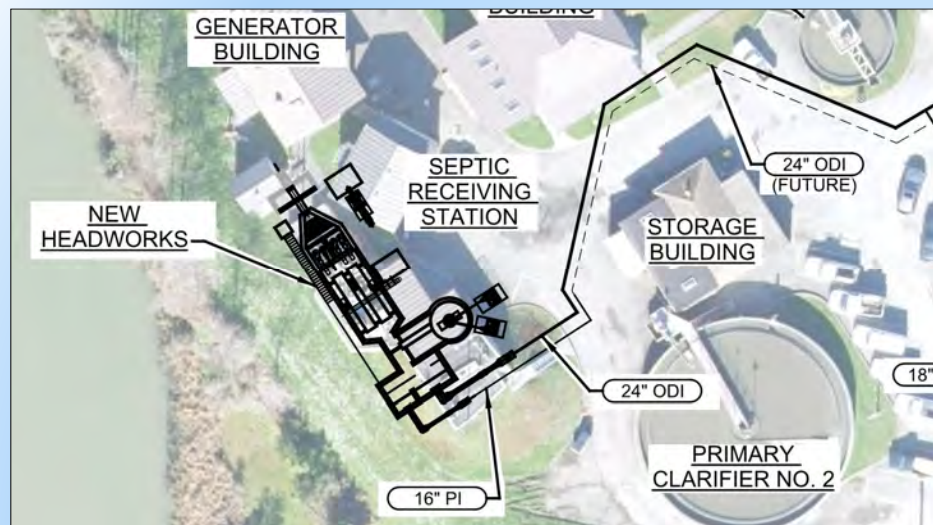


## Cost Updates – Headworks and Primary Clarifier

- Headworks
  - New influent pumps and equipment replacement in place, at higher elevation for SLR
  - Added cost for temporary bypass pumping
- Primary Clarifier
  - Primary clarifier rehabilitation reduced cost versus replacement



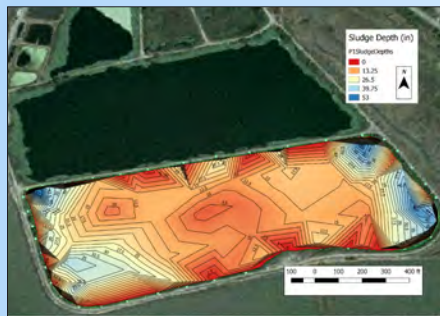
## Cost Updates - Headworks Site Plan





## Cost Updates - Ponds

- Pond solids removal has been deleted
- More extensive pond and wetland improvements for optimization
- Aerator improvements costs increased



## Cost Updates - Wetlands

- Treatment wetlands improvements to be performed as separate City maintenance projects
- Wetland and wetland pump stations
  - Increased capacity for wet weather flexibility
  - Higher efficiency pumps and motors



## Cost Updates - Oxidation Ditch

- New secondary treatment additions
  - Upsized to 3.6 mgd to meet low ammonia limit
  - Secondary clarifiers upsized for peak flows
  - Need for new alkalinity addition chemical facilities TBD



## Cost Updates – UV Disinfection

- Reduced cost based on current technology
- Reduced operations costs based on increased efficiency
- Award Block grant for UV disinfection system



## Cost Update – Wet Weather Disinfection

- Wet weather disinfection using liquid chlorine (bleach) instead of gaseous chlorine
- Exploring UV option for wet weather in final design, demolish old chlorine contact basin.



## Cost Update - Digesters

- Boiler replacement added
- Added upgrades to heating and pumping system
- Valve replacement added





## Cost Updates – Solids Treatment

- More extensive digester rehabilitation including new boiler
- Confirmed rotary drum thickener selection



*Courtesy of Parkson*

## Cost Updates - Electrical and Controls

- Existing electrical equipment replacement
- New service will be required
- Control system upgrade to modernize and reduce labor cost
- Additional standby generator





## Cost Updates - Corporation Yard modifications

- Multi-use needs for corporation yard addressed
- Replacement bus barn
- Replace material storage



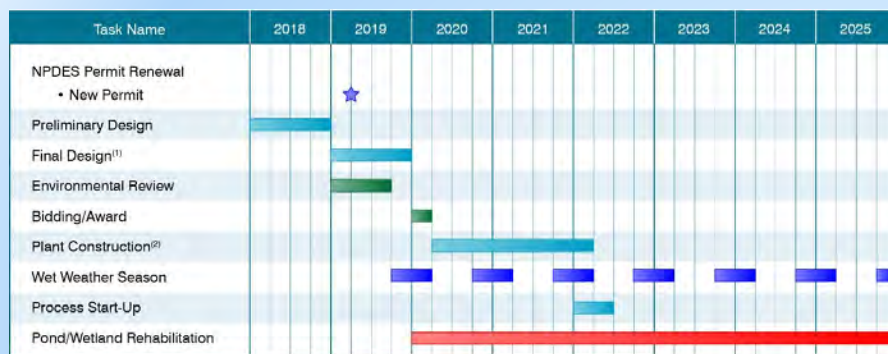
## Cost Update –Demolition/Relocation

- Demolish old septage receiving
- Relocate maintenance shop





## Implementation Schedule



## Implementation plan still in development

- Single project
- Single project with phased milestones
- Single design project with multiple construction packages
- Separate City project for phased pond and wetland upgrades
- Early deliverable for new discharge and flow reconfiguration



Plan will be driven by City needs and funding constraints

Revised ppt/17

## Constraints & drivers for implementation plan

- Permit time schedule order for compliance
  - UV / flow reconfiguration / new discharge
  - New secondary treatment facilities to address ammonia removal
- Block grant schedule for new UV disinfection system
- State Revolving Loan Fund / Grant approval
- Environmental permitting: CEQA and resource agency permits approvals

Revised ppt/18



## Next Steps

- Finalize design completion
- Review operations costs and staffing needs
- Finalize permit negotiation
- Complete environmental review
- Rate study
  - Capital cost
  - Operating costs
- Finalize State Revolving Loan fund application

Revised 11/14/18



## Operation costs and staffing needs

- WWTP classification will require Grade 3 operator for Chief Plant Operator (CPO).
- Need to complete a preliminary staffing study
- Need to develop updated operations costs for recommended project



Presentation 11/11

## Finalize UV disinfection system

- Review pros and cons of alternative supplier
- Finalize procurement options
- Review potential for use of UV for wet weather flows
- Get RWQCB feedback on dose and finalize disinfection criteria

Presentation 11/12

