



Agenda

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





The logo of the City of Arcata is centered on a large, blue, wavy background. The logo is oval-shaped with a gold border. Inside the border, the words "City of" are written in green at the top and "ARCATA" in green at the bottom. The center of the logo features a small illustration of a landscape with a building and trees.

Project Goals

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



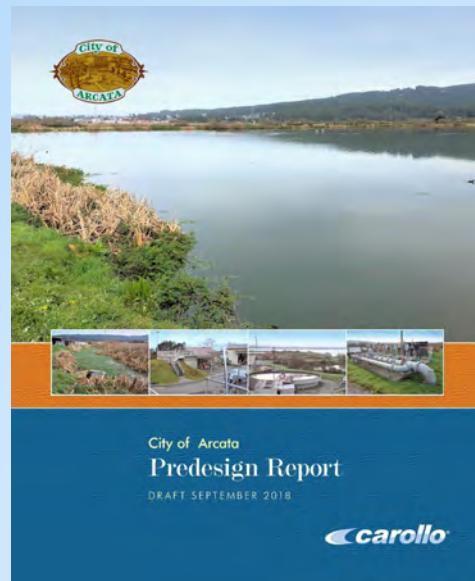
Meet City's goals for sustainability as much as possible

- 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

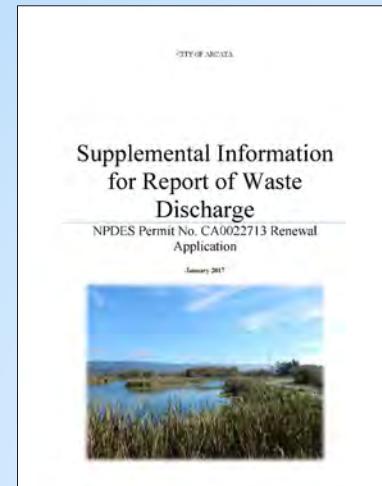


Permit Status Update

RWQCB Discharge Permit Status



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



Filename: rpt010

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

Filename: rpt010

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)

File name: p011

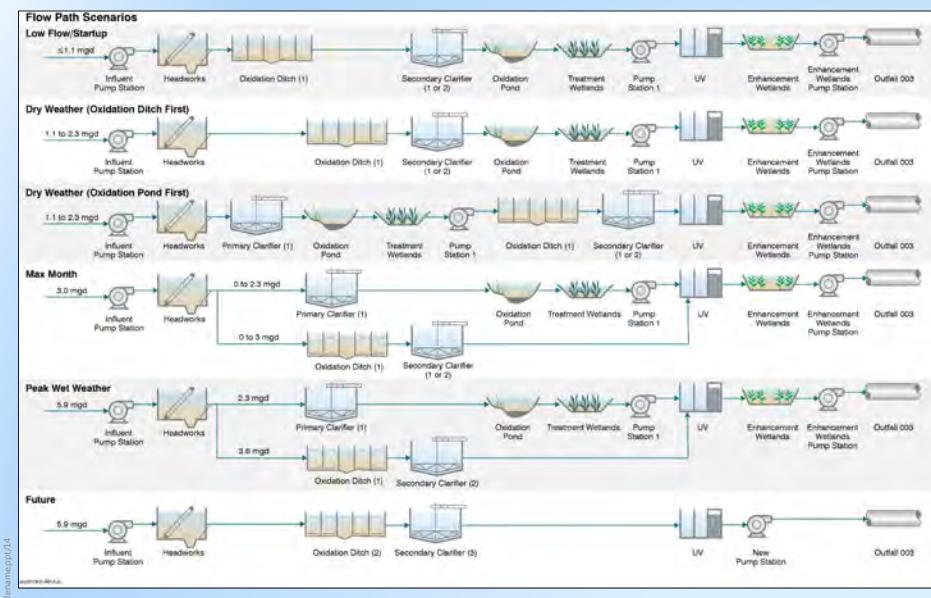


Progress since the 2017 Facility Plan Completed Predesign including:

- 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

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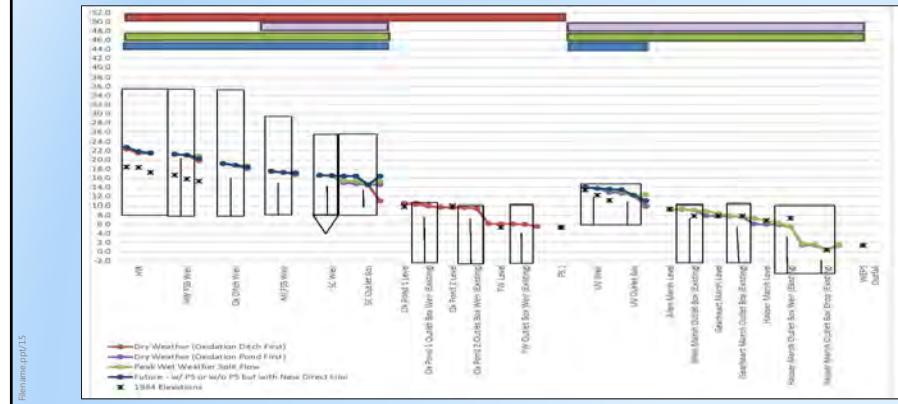
Developed process model for 7 scenarios



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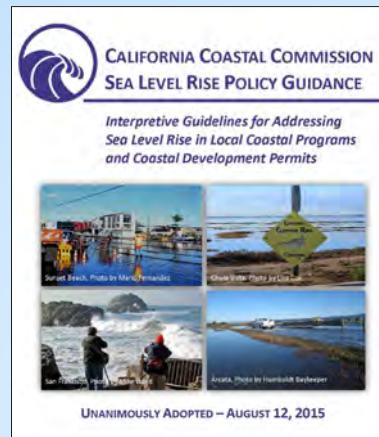
Hydraulic model

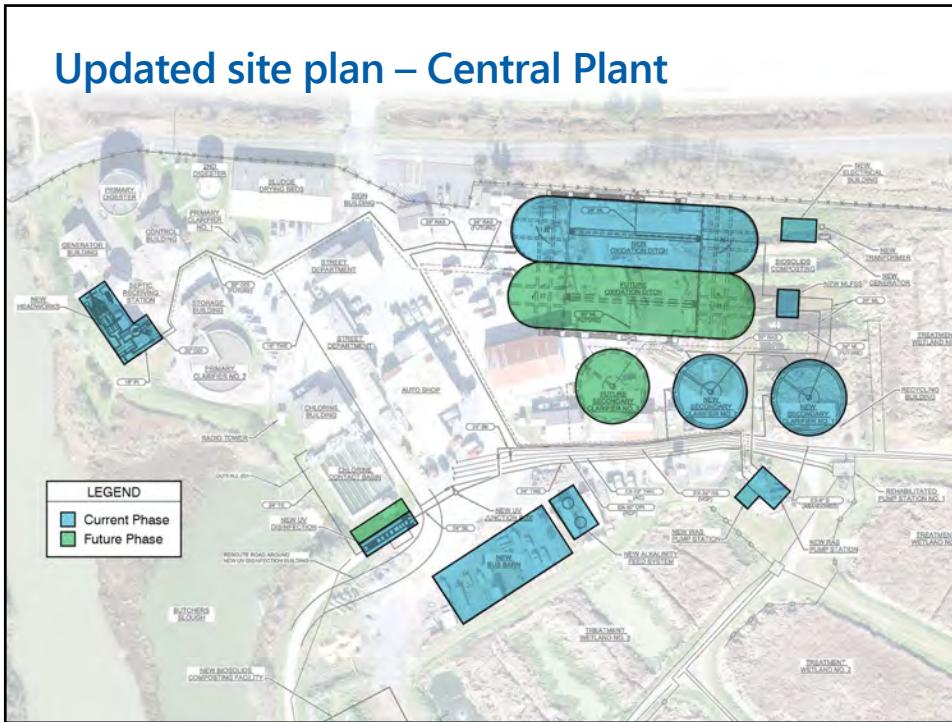
- Developed model for 4 flow scenarios and completed 6 iterations to fine tune sizing and reduce costs
- Address sea level rise (SLR) for new facilities and new discharge location (Brackish Marsh)



Sea level rise planning

- New facilities: design above flood elevation plus projected sea level rise (2050)
- Existing mechanical facilities: modified to accommodate flood elevation & sea level rise
- Plant levee improvements - address under a separate FEMA project
- Coastal Commission permit will require a resiliency plan





New Electrical Facilities

- Replacement of existing outdated electrical equipment
- System capacity increase for the new equipment
- Upgraded control system to automate process and allow staff to virtually see the entire plant





Cost Update Basis

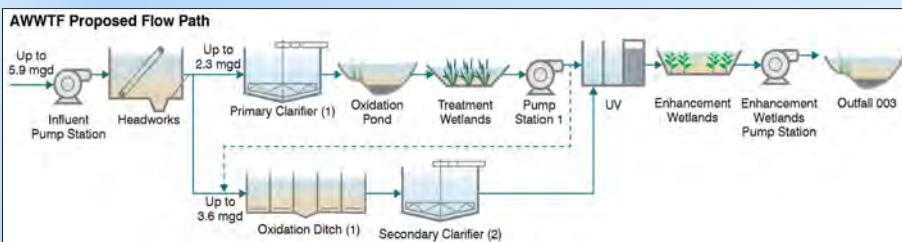
- Process and hydraulic model used to develop new cost estimate:
 - Developed quantities of site work, piping, pumps, valves, structures, and equipment quotations from suppliers
- Escalated to construction mid-point, increased cost over 8% from today's cost
- Geotechnical recommendations for foundations,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

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
TOTAL CONSTRUCTION COSTS	\$44,020,000	\$32,200,000	
TOTAL PROJECT COSTS (35%)	\$59,430,000		

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

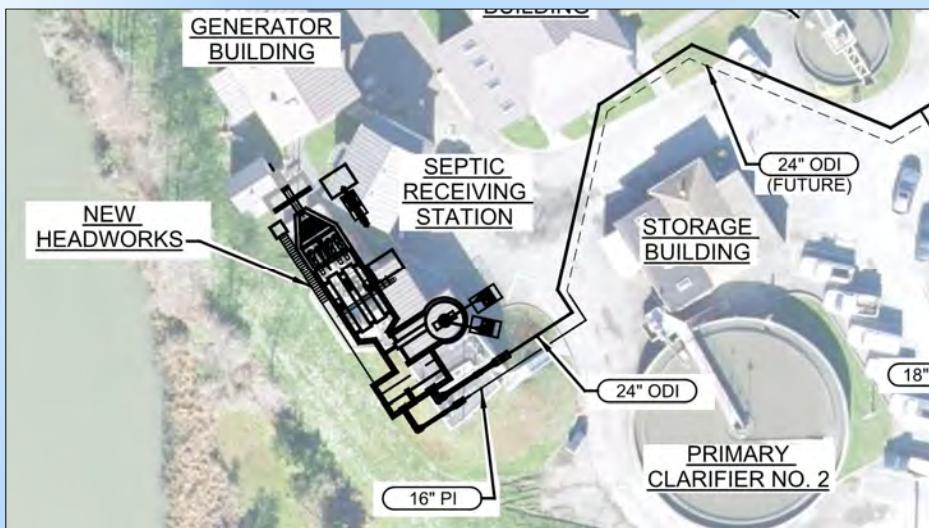
- New influent pumps and equipment replacement in place, at higher elevation for SLR
 - Added cost for temporary bypass pumping

- Primary Clarifier

- Primary clarifier rehabilitation reduced cost versus replacement

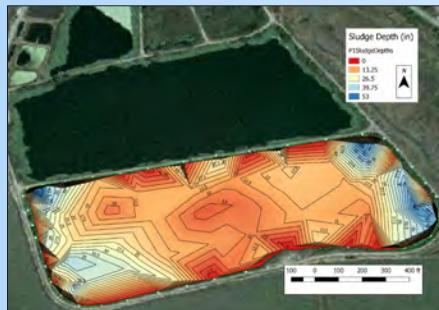


Cost Updates - Headworks Site Plan



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



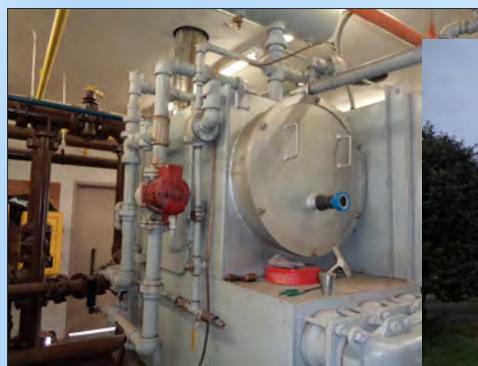
Cost Update – Wet Weather Disinfection

- 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



Filename:pt021

Filename:pt022

Cost Updates - Corporation Yard modifications

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



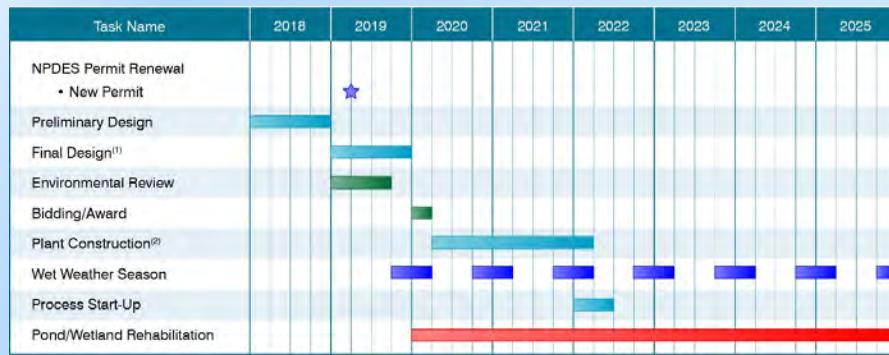
Cost Update –Demolition/Relocation

- Demolish old septage receiving
- Relocate maintenance shop





Implementation Schedule



File name: rpt026

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

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



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

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



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

