MONDAY, MARCH 26, 2018
CITY COUNCIL

WASTEWATER TOUR, 5:30 PM
34485 East Columbia Avenue

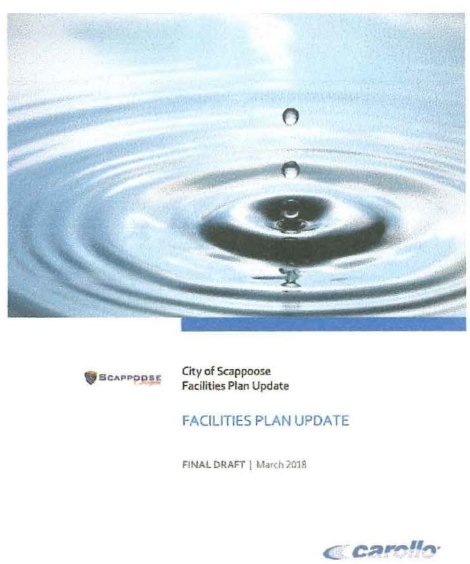
Present: Mayor Scott Burge, Council President Mark Reed, Councilor Patrick Kessi, Councilor Megan Greisen, Councilor Natalie Sanders, Councilor Josh Poling, City Manager Michael Sykes, Treatment Plant Supervisor Kevin Turner, City Recorder Susan Reeves, and Carollo Consultant Bhargavi Ambadkar.

WASTEWATER WORK SESSION, 6:30 PM
Scappoose Council Chambers
33568 East Columbia Avenue

Mayor Burge called the Work Session to order at 6:30 p.m.

Present: Mayor Scott Burge, Council President Mark Reed, Councilor Patrick Kessi, Councilor Megan Greisen, Councilor Natalie Sanders, Councilor Joel Haugen, Councilor Josh Poling, City Manager Michael Sykes, Treatment Plant Supervisor Kevin Turner, City Recorder Susan Reeves, Carollo Consultant Bhargavi Ambadkar, City Planner Laurie Oliver, Legal Counsel Peter Watts, Chief Norm Miller, and Courtney Vaughn with the Spotlight.

Treatment Plant Supervisor Kevin Turner thanked everyone for coming down for a tour. He explained they are to the point where the facility plan is near completion. He gave an overview of the facility plan process. He went over the handout.



EXECUTIVE SUMMARY

ES.1 Project Objectives

The Master Plan Update was prepared to identify a logical path forward for the Scappoose Wastewater Treatment Plant (WWTP) for the next twenty years. Treatment facility improvements needed to accommodate projected growth in the wastewater service area, maintain assets, and accommodate anticipated future regulatory requirements were identified and scheduled through a 20-year Capital Improvement Program (CIP). A financial plan was developed to establish rates and system development charges to implement the CIP. Key elements addressed in the Master Plan Update include:

- Wastewater flow and load projections from current conditions through the planning period,
- Flow monitoring data review of the collection system and flow projections through the planning period,
- A plan for treatment facility projects that addresses current operational issues, improves plant aesthetics, accommodates growth, and provides flexibility to adapt to a variety of potential regulatory scenarios, including changes to the current permit requirements that pertain to nitrification, and nutrient limits, and
- Financial plan to implement the treatment facility projects throughout the 20 year CIP.

The objectives for this project are:

- Provide the City with an amended planning document that identifies and details necessary WWTP capital improvements over the 20-year planning period,
- Provide the City with a state-approvable Facilities Plan that satisfies all requirements for the City applying for State Revolving Fund financing for near-term improvements, and
- Provide a predesign of the capital improvements that the City needs to complete in the near-term (first five years).

ES.2 Basis of Planning

The City manages the sewer collection system and maintains sanitary sewer lines, ranging from 4-inch to 21-inch in diameter, and five lift stations. The City's study area is illustrated in Figure ES.1.

The City operates the WWTP located on 34485 E Columbia Ave. The planning area for the current and future service area is 2,845 acres, or approximately 4.4 square miles, and is consistent with the City's Comprehensive Plan. For this Master Plan Update, it is assumed that the City will increase its density and annex within the urban growth boundary (UGB) when required to accommodate growth.

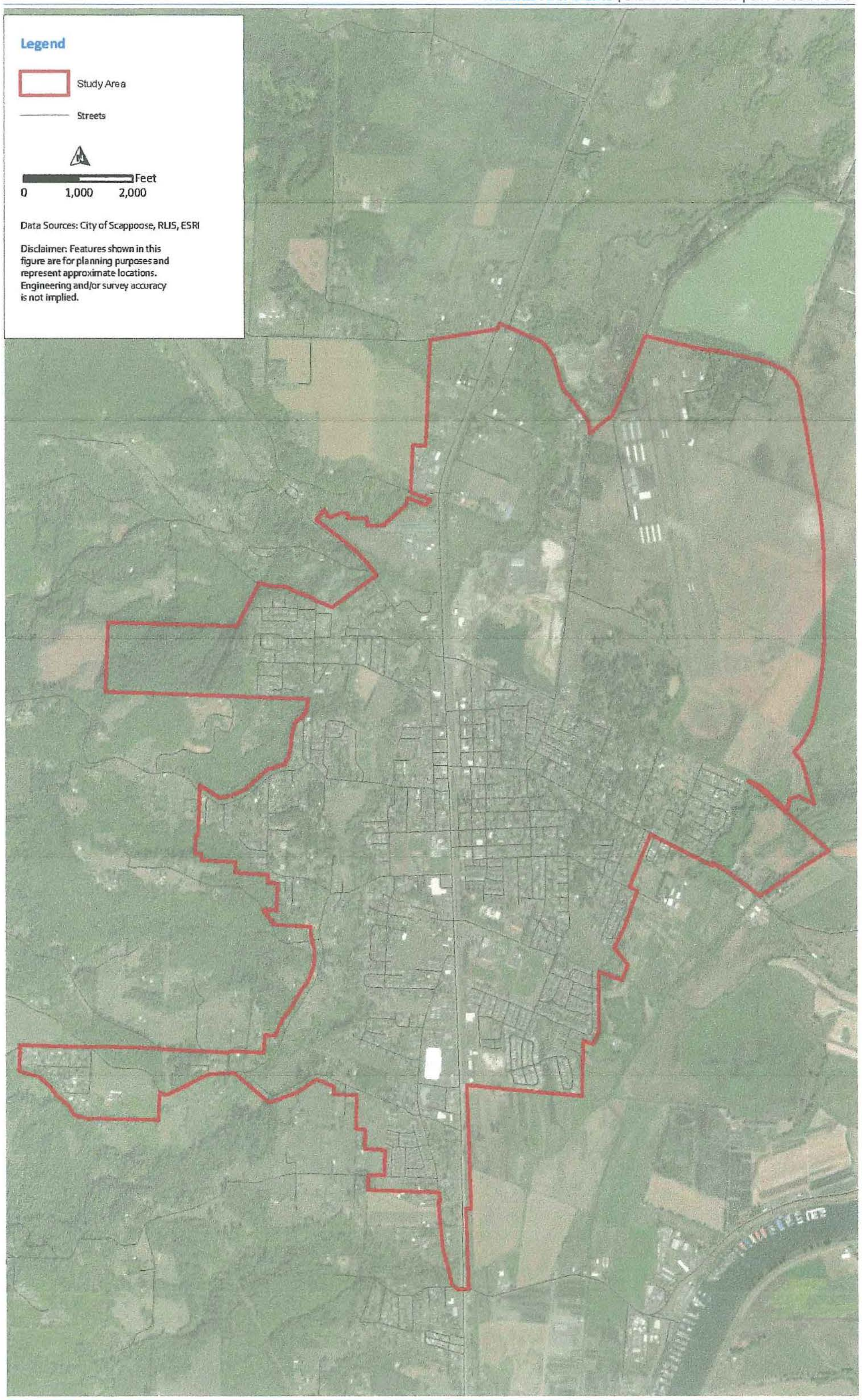


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Figure ES.1 WWTP Study Area

ES.2.1.1 Population, Flow, and Load Projections

The current certified population estimates for the City of Scappoose were prepared by Portland State University (PSU) Population Research Center (PRC) based on 2010 census data. For this report, future population served by WWTP was projected based on the growth rates developed as part of that study. Figure ES.2 presents the current and projected population through year 2035 based on this approach. A summary of the current and projected flows and loads based on the projected growth is provided in Table ES.1.

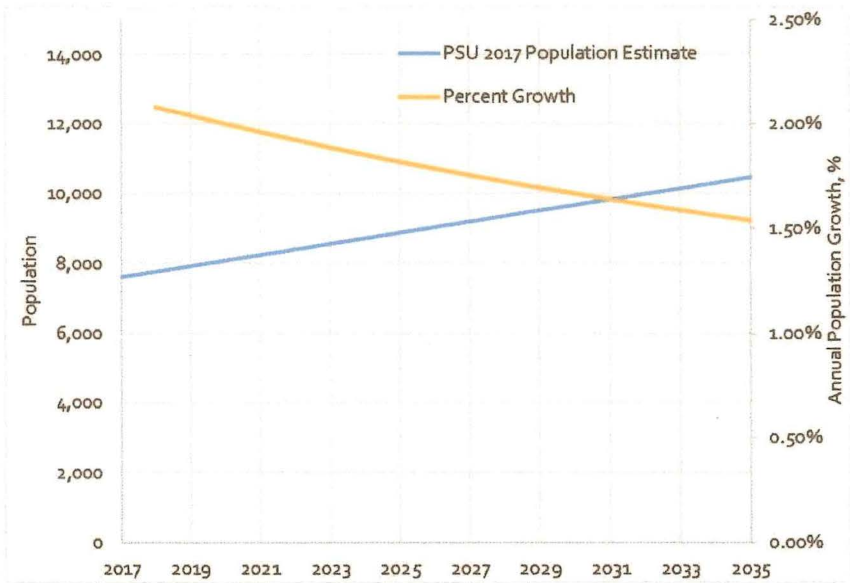

Figure ES.2 Projected Population Growth for Scappoose UGB

Table ES.1 Wastewater Flow and Load Projections

Parameter	Current	2035
Population	7,610	10,461
Flow Summary		
BWF, mgd	0.607	0.899
ADWF, mgd	0.646	0.956
AWWF, mgd	0.878	1.30
MMDWF, mgd	0.871	1.22
MMWWF, mgd	1.20	1.68
PDF, mgd	2.77	3.88
PIF, mgd	3.96	5.56

Table ES.1 Wastewater Flow and Load Projections (Continued)

Parameter	Current	2035
Load Summary		
BOD_5		
Average Annual Load, ppd	1,430	1,990
Maximum Month Load, ppd	2,180	3,030
TSS		
Average Annual Load, ppd	1,670	2,330
Maximum Month Load, ppd	2,540	3,510
Ammonia		
Average Annual Load, ppd	264	366
Maximum Month Load, ppd	450	637

ES.2.1.2 Regulatory Considerations

Water quality standards and regulations continue to evolve and there are a number of new regulatory initiatives being discussed and/or implemented at the state and federal levels. The WWTP currently discharges treated effluent into the Multnomah Channel, which is a side channel of the Lower Willamette River. The City's current National Pollutant Discharge Permit (NPDES) was last issued in 2009 and expired in October of 2014. However, it remains in effect as allowed by OAR 340-045-0040. To anticipate permit limits in the new NPDES permit, a Reasonable Potential Analysis (RPA) was completed to determine limits that would be protective of current water quality standards, including established beneficial uses and water quality criteria developed in rulemaking to protect those beneficial uses. Based on a review of the potential regulatory issues, Table ES.2 presents the anticipated future NPDES limits.

Table ES.2 Anticipated NPDES Permit Limits

Parameter	Average Monthly	Average Weekly	Maximum Daily
BOD_5 [(1)] (May 1 – October 31)	10 mg/L 125 ppd[(21)] 85% removal	15 mg/L 190 ppd	225 ppd
TSS[(3)] (May 1 – October 1)	10 mg/L 125 ppd 85% removal	15 mg/L 190 ppd	225 ppd
BOD_5 (November 1 – April 30)	25 mg/L 315 ppd 85% removal	37 mg/L 475 ppd	630 ppd
TSS (November 1 – April 30)	25 mg/L 315 ppd 85% removal	37 mg/L 475 ppd	630 ppd
Ph	Daily minimum and maximum between 6.0 and 9.0		
E.coli Bacteria	126/100 mL		
Total Phosphorus	No limit	No limit	No limit
Ammonia	< 5.0 mg/L (Summer)		

Notes:
(1) BOD5 = 5-day Biochemical Oxygen Demand.
(2) Ppd = pounds per day.
(3) TSS = total suspended solids.

ES.3 Collection System Flow Monitoring Data Review

Collection System flow monitoring was conducted by Keller Associates in January and February 2016. Figure ES.3 shows the locations of the five flow monitoring locations. Flow metrics such as flow versus time with rainfall, scattergraphs, and rainfall data were used to perform detailed analysis to determine suitability of five flow meters. Table ES.3 summarizes the results and explains the different data quality types.

Table ES.3 Meter Data Review Results Summary

Meter ID	Suitability	Comments
Meter 1	Unsuitable	Sign of overflow caused by blockage in the sewer line Very limited flow response to rainfall during the metering period.
Meter 2	Unsuitable	Potential velocity sensor drifting or potential influence from Smith Rd LS
Meter 3	Partially	Scattergraph looks good. Very limited flow response to rainfall, potentially not sufficient for calibration.
Meter 4	Partially	Scattergraph looks good. Very limited flow response to rainfall, potentially not sufficient for calibration.
Meter 5	Partially	Scattergraph looks reasonable. Only one rainfall events showed system flow response, when at least three events are recommended for wet weather calibration.

Based on the detailed analysis of flow monitoring data, it was concluded that there is not enough suitable data and significant flow response to rainfall to perform a good and accurate model calibration. It is recommended that the City deploy at least three flow monitors during the next rainy season to allow for wet weather model calibration. Level information is critical during model calibration as this is the metric triggering capacity deficiencies and ultimately the timing and extent of recommended improvements. The collection system CIP will be completed following the wet weather model calibration which is anticipated to occur in winter 2018.

ES.4 Existing Wastewater Treatment Facility

Figure ES.4 summarizes the current operation of the WWTP. This Master Plan Update presents the hydraulic and process capacities at the WWTP, as detailed in Chapter 3. The condition assessment completed as part of Draft Facilities Plan Update (Keller Associates, December 2016) and is attached as Appendix C to this Master Plan Update. Both these documents were used to provide a baseline for identifying improvements at the plant to address current capacity and operational issues, as well as future improvements required to meet potential changes in regulations and increases in flows and loads due to growth.

A summary of hydraulic capacity of each process area is presented in Table ES.4.

The plant secondary process was analyzed using BioWin Version 5.1. Based on the calibrated model, the existing secondary process has sufficient capacity to meet existing and anticipated NPDES permit scenarios. However, adequate redundancy and reliability is not provided through the planning period. Only one aerated lagoon is in operation. The secondary clarifiers do not have adequate capacity to pass peak flows. Additionally, with one secondary clarifier out of service, the remaining clarifier does not have capacity to pass the current and future summer peak hour flows.

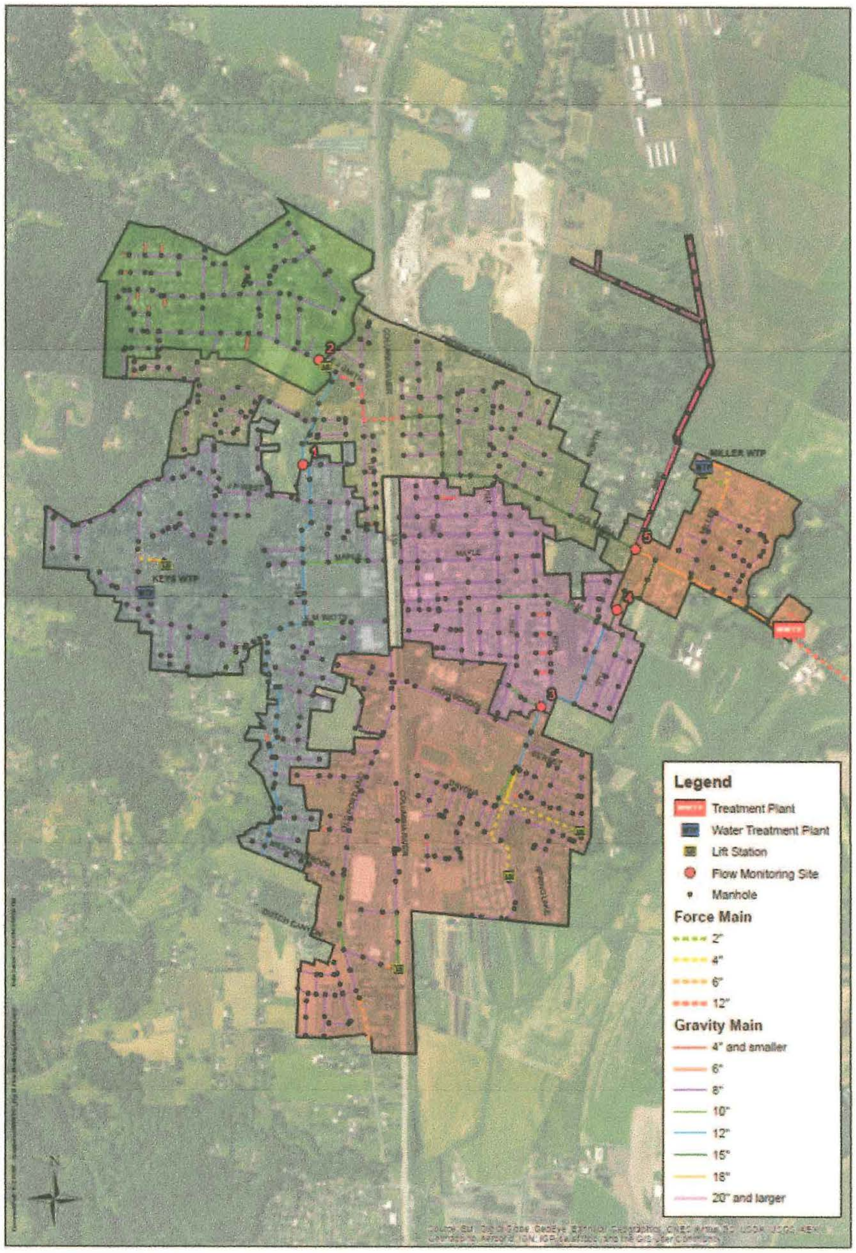

Figure ES.3 Flow Monitoring Locations

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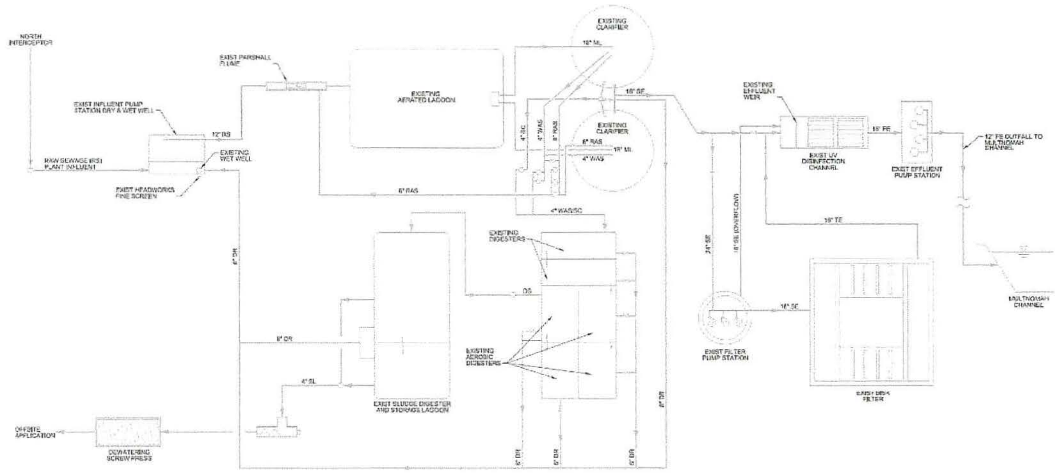

Figure ES.4 Current Plant Process Flow Diagram

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Table ES.4 Hydraulic Capacity of Existing Processes

Process Area	Existing Hydraulic Capacity, mgd	Required Hydraulic Capacity, mgd[1]
Influent Screening	4.0 mgd	5.6 mgd
Influent Pumping Station	4.3 mgd	5.6 mgd
Aeration Basin	7.0 mgd[2]	5.6 mgd
Secondary Clarifiers	4.7 mgd	5.6 mgd
Tertiary Filtration System - Intermediate Pumping Station - Filtration	4 mgd 2.4 mgd	3.4 mgd[4] 2.4 mgd[5]
UV Disinfection	5.6 mgd[3]	5.6 mgd
Effluent Pump Station	4.4 mgd	5.6 mgd
Outfall	4.3 mgd	5.6 mgd

Notes:
Through planning period (year 2035)
With upstream and downstream restrictions removed.
At this flow, the V-notch weir is completely submerged and exceeds UV bank submergence limits. This limits the accurate flow measurement over the weir.
Year 2035 Summer Peak Instantaneous Flow
Year 2035 Summer Peak Day Flow

On the solids processing, the City generally stabilizes biosolids adequately with long retention time in the aeration basin, aerobic digester, and in the storage lagoon. However the existing aerobic digesters are pretty close to their capacity with existing loading conditions.

ES.5 Recommended WWTP Improvements

Improvements required to address current operational issues, accommodate growth, and provide flexibility to adapt to potential regulatory scenarios were identified through evaluation of unit process alternatives and integration of overall plant facilities. The identified projects were costed and reviewed with City staff to capture WWTP requirements for growth, redundancy, reliability, condition, and current operational issues.

The cost estimates are for general planning purposes and for guidance in project evaluation and implementation. Costs were estimated by developing preliminary layouts and quantity takeoffs, and using quotes from equipment manufacturers. The costs are based on an Engineering News Record Construction Cost Index (ENR CCI) 20-City Average of 10,842 (August 2017). Construction costs do not include contingencies. Electrical/instrumentation /controls costs were estimated by applying a factor to the base construction cost. Factors for mobilization/demobilization and contractor's overhead and profit were applied to the sum of the base construction costs and costs for electrical/instrumentation/controls. The total estimated construction costs include the work items described, plus mark-up costs for electrical/instrumentation controls, mobilization/demobilization, and contractor's overhead and profit. Contingencies were estimated by multiplying the sum of the estimated construction costs by a mark-up factor. The total project costs were calculated by multiplying the sum of the estimated construction cost and contingencies by a factor to account for engineering, legal and administrative costs. These mark-ups are shown in Table ES.5.

Table ES.5 Mark up Factors Used in Developing Cost Estimates for Alternatives

Item	Markup
Mobilization/Demobilization	10%
Contractor Overhead and Profit	15%
Contingencies	30%
Engineering, Legal and Administrative	25%

ES.5.1 Capital Improvement Plan (CIP)

Recommended unit process improvements were reviewed with City staff and grouped into a program of four capital improvement phases. The recommended capital improvements at the WWTP are identified on Table ES.6 and shown on Figure ES.5.

The first phase of capital improvement projects address deficiencies at the Spring Lake Lift Station in the collection system, and UV bank replacement, hydraulic improvements, a new secondary clarifier along with RAS/WAS upgrades, and aerobic digester life safety improvements at the WWTP. These improvements address immediate failing process/equipment and provide redundancy/reliability to the secondary process.

The second phase of capital improvement projects address condition, hydraulic deficiencies and accommodate growth in a headworks facility. The projects include a new headworks, influent pumping station, and operational improvements.

The third phase of capital improvement projects include upgrades and expansion to alleviate hydraulic issues and provide redundancy to critical processes. The projects include the addition of a second UV disinfection channel, upgrades to effluent pump station and a new parallel outfall.

The fourth phase addresses capacity and accommodates growth on the solids treatment with a new aerobic digester.

Table ES.6 Implementation Program and Phasing Schedule

Item Description	Description	Construction Year				Total
		Phase 1 2018 – 2021	Phase 2 2021 - 2023	Phase 3 2023 - 2026	Phase 4 2026 - 2028	
Phase 1 Improvements						
Spring Lake Lift Station	Replacement of pumps and corroded piping; addition of valve vault to measure flow.	$271, 600				$6,430,600
UV Disinfection	Replacement of existing UV banks with newer technology UV system (Trojan 3000Plus).	$616,600				
Hydraulic Improvements	Rebuilding secondary splitter structure.	$519,700				
Secondary Clarifier and RAS/WAS Pumping Upgrades	Addition of third 50-foot secondary clarifier, update existing clarifier wiring, and expand RAS/WAS pumping.	$4,590,100				
Aerobic Digester Life Safety Improvements	Replace damaged coarse bubble diffusers, replace two blowers, sludge pump, sludge flow meter, fix hand rails.	$432,600				
Phase 2 Improvements						
Headworks and Influent Pump Station	New two fine screens with passive bypass channel and submersible influent pump station.		$5,504,400			$7,204,400
Operational Improvements	SCADA integration and new lab.		$1,700,000			
Phase 3 Improvements						
UV Disinfection	Addition of second channel and equipment.			$1,685,900		$4,393,200
Effluent Pump Station	Replacement of pumps, modification of skylights, addition of flow meter, electrical improvements.			$536,600		
Outfall	New parallel 15-inch outfall.			$2,170,700		
Phase 4 Improvements						
Aerobic Digester	New aerobic digester to achieve Class B biosolids.				$2,486,900	$2,486,900
TOTAL WWTP CIP						**$20,515,000**

Figure ES.5 Recommended Site Layout

Chapter 6

PREDESIGN REPORT

6.1 Introduction

This chapter presents detailed description of proposed CIP Improvements (as outlined in Chapter 5) for the City of Scappoose WWTP. The following information regarding near-term projects is provided in this report:

- Proposed flow and process schematics,
- Design criteria and capacities,
- Preliminary electrical and instrumentation and control improvements required, and
- Overall site plan.

6.2 Phase 1 Improvements

Three projects were included in the immediate improvements:

- Spring Lake lift station improvements
- UV Disinfection equipment replacement,
- Hydraulic Improvements,
- Secondary clarifier and RAS/WAS pumping upgrades, and
- Life safety and condition improvements at the aerobic digester.

6.2.1 Spring Lake Lift Station Improvements

The Spring Lake Lift Station is located near the intersection of Westlake Drive and SE 6th Street. The lift station is a prefabricated package style unit and consists of a wet well with four float switches, two 3-hp pumps mounted on top of the wet well, and a control panel.

The station is fed by three gravity sewers. Two of the three gravity lines are private lines. The pumps are controlled by the float switches using a lead/lag operational strategy. Mission Controls sends alarms and operating data to the operator. The station is powered by single phase electrical supply and has a manual power transfer switch with receptacle. In the event of a power failure, a portable generator is used for backup power.

Each pump at the station has a capacity of 140 gpm. There have been no known issues with the lift station overflowing or with pumps running continuously for an extended period of time. The lift station overflow discharges directly into Spring Lake.

The lift station regularly alarms due to insufficient priming issues with the pumps. Additionally, City staff noted that the force main has a high point prior to discharging to the gravity collection system.

The following is recommended for immediate improvements:

- Perform engineering analysis to determine the correct size of the pump and suction piping,

- Replace pumps and associated valves,
- Replace corroded piping within the wet well,
- Perform electrical system review and provide 3-phase service, and
- Provide SCADA upgrades.

The total estimated cost for Spring Lake lift station improvements is estimated at $272,000.

6.2.2 UV Disinfection Equipment Replacement

The existing UV system is a Trojan UV3000 model that utilizes low-pressure, low-output UV lamps and installed in 1993. The system does not have sufficient redundancy required to meet projected flows through the planning period as presented in Chapter 3. In addition, in recent years, the City had delays acquiring some key replacement parts since Trojan Technologies is no longer supporting this system. This along with the service life of the installed system, is the basis of recommended alternative which is to initiate replacement with a new UV system with a more current technology. The selected replacement UV system must balance capital cost with reliable, energy efficient operation and meet the following UV equipment replacement project objectives:

- Utilize existing infrastructure,
- Optimize performance and efficiency, and
- Design for long-term operation and maintenance (O&M) value.

The existing channels have the hydraulic capacity to meet the build-out flows. Reusing existing channels by carefully orchestrating project sequencing saves money as the cost of a UV system is largely driven by two factors: the number of lamps in the system, and the structural/mechanical modifications needed to complete the installation.

Based on channel dimensions, the most cost-effective approach is to replace the existing system with an open-channel horizontal lamp reactor that will fit within the existing channel. Preliminary selection discussions with UV vendors suggests that Trojan UV3000Plus offers the best fit with no channel modifications. Replacement with a newer Trojan product also offers the City with significant reduction in the number of lamps which will reduce capital and O&M costs.

The process design criteria for the new UV equipment is presented in Table 6.1.

Table 6.1 UV Process Design Criteria

Parameter	DEQ Design Criteria	UV Channel Capacity
Total peak flow through the disinfection system	Provide minimum of two units that will provide required dose at peak instantaneous flow with all units in service. Required Flow for Design Year 2035 is 5.6 mgd.	5.6 mgd
Design Dose	Minimum 30 mJ/cm2; or per collimated beam testing.	30 mJ/cm2
Design UVT	Based on historical data.	68%
Sleeve Fouling Factor(1)	N/A	0.80
Lamp Aging Factor(2)	N/A	0.80

Notes:
(1) Sleeve fouling is a measure of relative sleeve transmittance over time. Fouling can decrease the delivered UV dose over time and can be mitigated through cleaning practices
(2) The output from UV lamps degrade over time, resulting in a decrease in the UV output required for disinfection. Therefore, this degradation must be taken into account during the design process

6.2.3 Hydraulic Improvements

Based on the hydraulic modeling completed, the effluent structure from the aeration basin conveying flows to the secondary clarifiers will be flooded under design flow condition. This will be replaced to accommodate sufficient weir length to capture even flow splitting between the existing secondary clarifiers and provisions for adding two additional secondary clarifiers in future.

6.2.4 Secondary Clarifier and RAS/WAS Pumping Upgrades

6.2.4.1 Secondary Clarifier

The existing secondary system (aeration basin and (2) 50-foot secondary clarifiers) have sufficient capacity to meet current flows and loads. However, the secondary clarifiers do not have sufficient capacity for future flows within the planning period. As identified in Chapter 3, the state point analysis results show that the surface overflow rate is higher than the core design criteria identified for the facility. Additionally, with once clarifier out of service during summer time, the second clarifier cannot pass peak summer flows. Therefore, to provide adequate peak wet weather capacity and sufficient redundancy to take one clarifier out of service during summer months, a new secondary clarifier is needed. The analysis assumes that the third secondary clarifier will be of similar size as existing (50-foot diameter).

6.2.4.2 RAS/WAS Pumping Upgrade

The Sludge Pumping Building holds three (3) 7.5 hp vertical centrifugal RAS pumps and two (2) 2 hp vertical centrifugal WAS pumps. The RAS pumps are each designed to pump 700 gpm at 17 ft. TDH, with one of the RAS pumps as a standby. The RAS pumps were last rebuilt in 2010-2011. The WAS pumps have a combined capacity of approximately 265 gpm at 20 ft. TDH and a firm capacity (with one pump operating) of approximately 135 gpm.

With the addition of a new secondary clarifier, RAS and WAS pumping capacity needs to be increased. However the Sludge Pumping Building does not have space for any additional pumps. This upgrade would include increasing building size and adding additional capacity for RAS and WAS pumping, upgrading existing WAS pumps, and upgrading HVAC system.

6.2.5 Life Safety and Condition Improvements at the Aerobic Digester

Based on the condition assessment and discussions with the City staff, the following is needed to fix condition and improve life safety at the aerobic digesters:

- **Replace plugged coarse bubble diffusers and broken Swingfuser:**
  Coarse bubble diffusers in the bottom of the digester cells distribute the air from the blowers. However, some of the diffusers are plugged and it is difficult to take down a cell to clean and still meet Class B requirements. Additionally one of the "swingfusers" is broken, which doesn't allow air to reach the cell. The basin is not being adequately mixed, which is reducing the volatile solids destruction.

- **Review location of blowers for code compliance and replace as needed:**
  Two (2) 25 hp blowers are located on the main floor in the Headworks building and are used to provide air to the digester. The blowers draw air in from the building through their inlet filters. A review of the electrical system should be a part of any upgrade to

ensure compliance with the Standard for Fire Protection in Wastewater Treatment and Collection Facilities (NFPA 820).

- **Add a redundant sludge pump and replace sludge flow meter:**
  A suction line in the bottom of the last cell is connected to a 5 hp Wemco Model EVM sludge transfer pump located in the Headworks. There is no redundancy for this pump. In the event of failure, the plant cannot transfer digested sludge to the Biosolids Storage Lagoons. In addition, the 6-inch electromagnetic flow meter is normally used to measure the sludge flow to the lagoons is currently malfunctioning and needs replacement.

- **Fix broken railing and complete other life safety fixes to comply with OSHA standards:**
  Some of the safety railing near the basin is corroded or missing. This along with other access area issues should be addressed.

6.3 Phase 2 Improvements

Phase 2 includes the following improvements:

- Headworks and influent pumping, and
- Operational improvements.

6.3.1 Headworks and Influent Pumping

The existing headworks and influent pumping station (IPS) has both capacity and condition issues as outlined in Chapter 3. The influent wet well is undersized and the existing headworks does not accommodate expansion of the screens to add redundancy. Therefore a new headworks (new screening and influent pumps) with ability to add grit removal system is recommended. Figure 6.1 presents the process flow schematic for the proposed improvement.

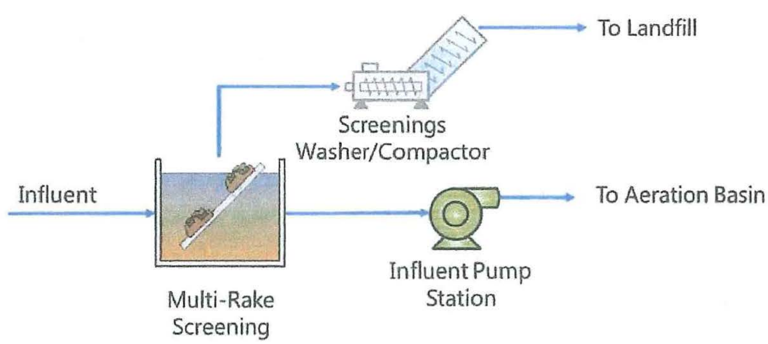

Figure 6.1 Headworks Process Flow Schematic

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Councilor Kessi asked if there would possibly be grants available for this work, if we had the class A in mind? He explained if we said our goal was to get to class A would a grant be able to fund some of this work?

Bhargavi Ambadkar replied not that she knows of. She explained the class A solids is really market driven.

City Manager Sykes explained staff has looked extensively for Community Development Block Grants, but we don't qualify because we are not a low-income community.

Mayor Burge asked about looking for space for the Public Works shops, or do we just plan on leaving them there?

Bhargavi Ambadkar replied we talked about that during the planning process. She explained the shop, she thinks, would stay there as is, the new offices coupled with other departments are all going to be in a new building.

Treatment Plant Supervisor Kevin Turner explained there would be a new facility with a lab, and then offices on top.

Bhargavi Ambadkar replied to Councilor Kessi that we could do an assessment and see what the payback is and you can decide after that if you want to do that.

Treatment Plant Supervisor Kevin Turner explained staff did do a study in 2007 or 2008 that he could share with Council. He explained it would show the different options and the cost back then. He explained there were solar drying furnace composting costs shown, and we did do that several years ago, but it was expensive.

Councilor Kessi replied it might be something to look into, a cost benefit analysis.

Mayor Burge stated if there is a grant that helps get you that front side capital cost, it makes more sense.

Treatment Plant Supervisor Kevin Turner explained by going to class A we have a lot of acreage at Public Works that we wouldn't need for land application if we could sell that product, and we could make some more park space.

Treatment Plant Supervisor Kevin Turner explained timing wise of the phase one improvements is kind of critical. He explained we already missed the window for our UV replacement, that would ideally happen in the summer. He explained this will give us more time to do loan applications and design work, and get everything ready to move ahead this time next year.

Councilor Kessi asked if this were tied to the Urban Renewal District does that open up funding for these phases?

City Manager Sykes replied it probably could if it is identified in the plan as an item that is part of the Urban Renewal Plan.

Councilor Kessi said maybe we when are looking at the funding we should look into that.

City Manager Sykes replied there will be a work session soon to talk about an Urban Renewal District.

Legal Counsel Peter Watts explained one thing to know about Urban Renewal Districts is it varies from community to community, but often the money isn't front loaded, if anything it is kind of backloaded.

City Manager Sykes explained he thinks it will be insightful to see the preliminary numbers that are being proposed.

Councilor Poling asked what is the life span for the UV system?

Bhargavi Ambadkar replied typically the life span is twenty years. She explained over time the companies phase out their old technology and don't support any of the parts, bulbs, and all those things.

Treatment Plant Supervisor Kevin Turner explained they will have the full document with DEQ approval hopefully in four to five weeks.

Council thanked Bhargavi and Kevin.

Mayor Burge adjourned the Work Session at 6:58 p.m.

Scott Burge

Mayor Scott Burge

Attest:

Susan M. Reeves

City Recorder Susan M. Reeves, MMC