CITY COUNCIL
TUESDAY, FEBRUARY 21, 2017
WORK SESSION ~ FACILITY PLAN UPDATE & PRELIMINARY DESIGN

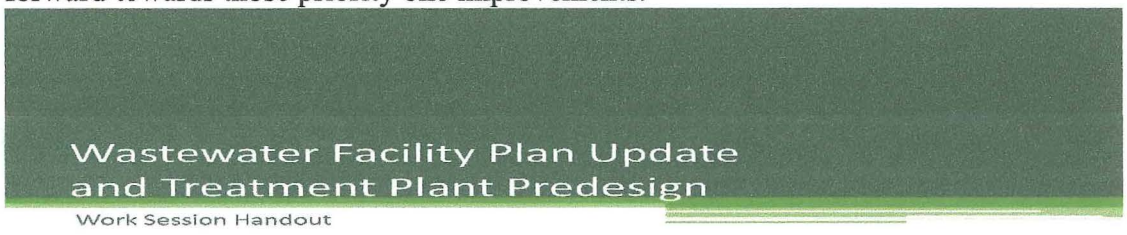
Mayor Burge called the work session to order at 6:30 p.m.

Present: Mayor Scott Burge, Council President Mark Reed, Councilor Barb Hayden, Councilor Rich Riffle, Councilor Megan Greisen, Councilor Natalie Sanders, City Manager Michael Sykes, Legal Counsel Shelby Rihala, Police Chief Norm Miller, City Recorder Susan Reeves, Treatment Plant Supervisor Kevin Turner, City Engineer Chris Negelspach, and Ben Tolles AmeriCorps RARE Member.

Excused: Councilor Patrick Kessi

City Manager Sykes explained as you may know staff has been working on our Wastewater Master Plan Update and that has led us to identify some immediate improvements that we are going to need to really consider laying the ground work for. He explained tonight is a presentation about some of those improvements and some of the work that we would like to ask the Council for support to move forward on in the Council meeting.

Treatment Plant Supervisor Kevin Turner went over his handout. He explained last year in February staff kicked off the facility plan with the flow testing. He explained staff put some monitoring devices inside some manholes around the City to collect the data and follow that up in the summer with smoke testing to look for illegal connections, which they found some, which lead into Keller's first draft. He explained originally Keller had not included the Urban Growth Boundary, and staff had them go back and look at that. He explained they had all the information reviewed by Carollo Engineering and they had some different ideas. He explained Carollo's flow population numbers were drastically different. Carollo thinks the population of flow will be closer to what Portland State has predicted with their moderate growth. It is on the hand out referenced PSU vs draft. He explained if we go with Carollo to update these figures it is going to push a lot of those improvements beyond the 20 year outlook and save the budget millions of dollars. He explained in the handout he has included their draft 20 year CIP and you can see all the different things. He went over the priority items. He explained with Carollo's proposal they want to model the plant also, which Keller did not do. He explained by doing that it would give us a better look at how the process works. He explained basically this all comes down to Kellers projection of 7.2 million gallons versus the estimate numbers from Carollo which would be closer to 3.9 million gallons per day over those 20 years. He explained their proposal to finish it would be about $99,000 but it would also include predesign to move us forward towards those priority one improvements.



Introduction

- The current ***draft*** facility plan identifies an estimated $43 million in capital improvement projects over the next 20 years.
- Moving forward with Carollo Engineering, Inc. proposed review, update, and predesign will save millions in capital improvements over the next 20 years
- Predesign will layout critical improvements needed to serve the current and short term population and flows.

Current Design

- 1.5 Million Gallons per Day (MGD)
  - With everything working correctly and normal concentration the plant should handle this flow
- Peak Design Flow 3.2 MGD
  - Maximum capacity of current pumps and piping

Draft Facility Plan Projected Population and Flow

	2015 Design Flow (MGD)	Projected Unit Flow (gpcd)	Projected Flows [Domestic and Industrial] (MGD)			
Year	2015	2015	2020	2025	2030	2035
Population	6,745	6,745	9,943	10,924	12,003	13,188
AADF	**0.768**	114	1.176	1.777	2.166	2.390
ADWF	**0.660**	98	1.015	1.563	1.916	2.114
AWWF	**0.860**	127	1.315	1.960	2.382	2.628
$MMDWF_{10}$	**0.855**	127	1.308	1.952	2.372	2.616
$MMWWF_5$	**1.212**	180	1.845	2.663	3.207	3.537
PWkF	**1.397**	207	2.124	3.032	3.640	4.013
$PDAF_5$	**1.850**	274	2.805	3.935	4.700	5.181
PIF_5	**2.640**	391	3.995	5.510	6.549	7.218

PSU vs. Draft

	Design Flow (MGD)	Projected Unit Flow (gpcd)	Projected Domestic Flows (MGD) (PSU Moderate Growth Rate Pop. Projections)				City Projected Flows (MGD) (City Estimated Pop. Projections)	
Year	2015	2015	2020	2025	2030	2035	2035 Domestic	2035 Domestic and Industrial
Population	6,745	6,745	7,520	8,262	9,078	9,974	13,188	13,188
AADF	**0.768**	114	0.856	0.940	1.033	1.135	1.501	2.390
ADWF	**0.660**	98	0.736	0.809	0.889	0.977	1.291	2.114
AWWF	**0.860**	128	0.959	1.053	1.157	1.271	1.681	2.628
$MMDWF_{10}$	**0.855**	127	0.954	1.048	1.151	1.265	1.672	2.616
$MMWWF_5$	**1.212**	180	1.352	1.485	1.631	1.792	2.370	3.537
PWkF	**1.397**	207	1.558	1.711	1.880	2.066	2.732	4.013
$PDAF_5$	**1.850**	274	2.063	2.266	2.490	2.736	3.617	5.181
PIF_5	**2.640**	391	2.943	3.234	3.553	3.904	5.162	7.218

Draft Plant Capacity Summary

Component	Capacity[1] (MGD)	2015 Cap'y Needed (MGD)	2035 Cap'y Needed (MGD)	Comments
Influent Screen	4.1 (PIF_5)	2.6	7.2	No redundancy
Influent Pumps	3.5 (PIF_5)	2.6	7.2	3 pumps in service (4th is redundant)
Influent Pipe	4.0 (PIF_5)	2.6	7.2	--
Influent Measurement	5.7 (PIF_5)	2.6	7.2	--
Aeration Basin	1.9 ($MMWWF_5$)	1.2	3.5	Basin integrity (no redundancy)
Aeration Basin Aerators	1.1 ($MMWWF_5$)	1.2	3.5	One aerator is redundant
Secondary Clarifiers	1.0 ($MMWWF_5$)	1.2	3.5	No Redundancy with Solids Loading
RAS Pumps	2.0	1.3	2.6	2 pumps in service (3rd is redundant)
RAS Pipe	1.0	1.3	2.6	--
WAS Pumps	0.2	0.04	0.08	Open/close valves for redundancy
WAS Pipe	0.2	0.04	0.08	--
Tertiary Pump Station	2.0 (PIF_5)	2.6	7.2	Second pump is redundant
Tertiary Pipe	9.2 (PIF_5)	2.6	7.2	--
Tertiary Filters	1.2 ($MMWWF_5$)	1.2	3.5	Second filter is redundant
UV Disinfection	3.1 (PIF_5)	2.6	7.2	One module redundant
Effluent Measurement	3.3 (PIF_5)	2.6	7.2	--
Effluent Pumps	3.3 (PIF_5)	2.6	7.2	3 pumps in service (4th is redundant)
Effluent Pipe	4.0 (PIF_5)	2.6	7.2	--

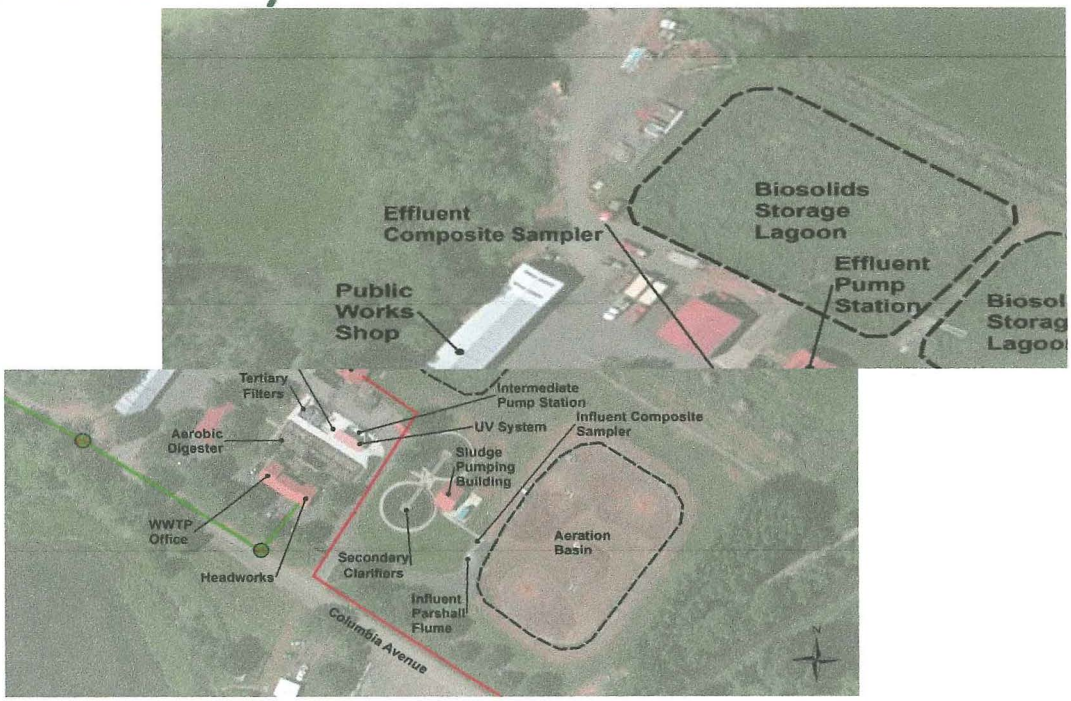
20 Year Draft CIP

ID#	Item	WWTP Flow Trigger	Additional EDUs to Meet Flow Trigger	Total Estimated Cost (2016)	SDC Growth Portion		City's Estimated Portion
					%	Cost	
Priority 1 Improvements							
Wastewater Collection System							
1A.1	New, Relief Trunk Line	--	--	$ 1,720,000	30%	$ 516,000	$ 1,204,000
1A.2	E Columbia Ave Trunk Line	--	--	$ 1,290,000	59%	$ 761,000	$ 529,000
1A.3	SE Tyler St and SE Tussing Wy Trunk Line	--	--	$ 630,000	49%	$ 309,000	$ 321,000
1A.4	SW Em Watts Rd Trunk Line	--	--	$ 270,000	35%	$ 95,000	$ 175,000
1B	NW Smith Road Trunk Line	--	--	$ 160,000	6%	$ 10,000	$ 150,000
1C	Lift Station Improvements	--	--	$ 410,000	0%	$ -	$ 410,000
Wastewater Treatment							
1a	Interim Biosolids Plan	Beyond Capacity	--	$ 2,530,000	33%	$ 843,000	$ 1,687,000
1b	Rehabilitate UV System	--	--	$ 373,000	15%	$ 55,000	$ 318,000
1c.1	Add 3rd pump to Inter. Pump Station	Beyond Capacity	--	$ 35,000	70%	$ 25,000	$ 10,000
1c.2	Add disks to existing Tertiary Filters	At Capacity	--	$ 97,000	100%	$ 97,000	$ -
1d	SCADA System	--	--	$ 297,000	63%	$ 188,000	$ 109,000
1e.1	Aeration for Aeration Basin	Beyond Capacity	--	$ 341,000	33%	$ 114,000	$ 227,000
1e.2	Sec. Clarifier and Sludge Bldg. Exp.	Beyond Capacity	--	$ 2,190,000	100%	$ 2,190,000	$ -
Total Priority 1 Improvements (rounded)				**$ 10,340,000**		**$ 5,200,000**	**$ 5,140,000**
Rate Impact (20 yr, 1.6%)				**$ 18.77**			**$ 9.33**
Priority 2 Improvements							
Wastewater Collection System							
2A	SE 6th St Trunk Line	--	--	$ 610,000	100%	$ 610,000	$ -
2B	NE Laurel St and NE 3rd St Trunk Line	--	--	$ 370,000	100%	$ 370,000	$ -
2C	Lift Station Improvements	--	--	$ 240,000	26%	$ 62,000	$ 178,000
Wastewater Treatment							
2a.1	New Aeration Basins	1.9 MGD $MMWWF_5$	1,530	$ 7,750,000	54%	$ 4,173,000	$ 3,577,000
2a.2	New Aerobic Digester	1.8 MGD $MMWWF_5$	1,310	$ 2,020,000	48%	$ 966,000	$ 1,054,000
2b.1	Expand Headworks	4.1 MGD PIF_5	1,500	$ 3,410,000	63%	$ 2,163,000	$ 1,247,000
2b.2	Upgrade Influent Pumps	3.5 MGD PIF_5	880	$ 928,000	63%	$ 589,000	$ 339,000
2c.1	Upgrade Effluent Pumps	3.3 MGD PIF_5	675	$ 833,000	63%	$ 528,000	$ 305,000
2c.2	Increase Effluent Pipe	4.0 MGD PIF_5	1,400	$ 2,100,000	63%	$ 1,332,000	$ 768,000
2d.1	Upgrade Intermediate Pump Station	4.0 MGD PIF_5	1,400	$ 455,000	100%	$ 455,000	$ -
2d.2	Additional Tertiary Filter Unit	1.8 MGD $MMWWF_5$	1,310	$ 877,000	100%	$ 877,000	$ -
2e	Upgrade UV System	3.1 MGD PIF_5	480	$ 1,117,000	63%	$ 709,000	$ 408,000
Total Priority 2 Improvements (rounded)				**$ 20,710,000**		**$12,830,000**	**$ 7,880,000**

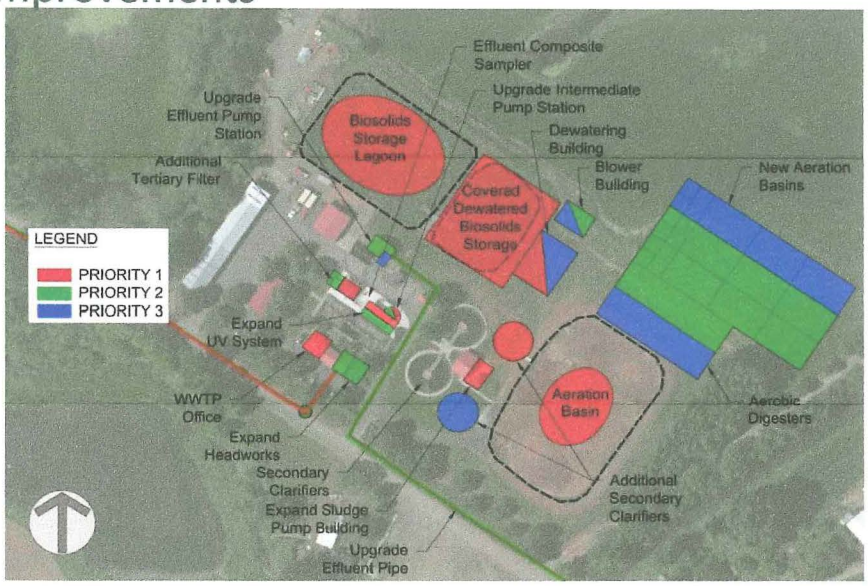
20 Year Draft CIP cont.

ID#	Item	WWTP Flow Trigger	Additional EDUs to Meet Flow Trigger	Total Estimated Cost (2016)	SDC Growth Portion %	SDC Growth Portion Cost	City's Estimated Portion
Priority 3 Improvements							
Wastewater Collection System							
3A	SW Old Portland Rd Trunk Line	--	--	$ 280,000	100%	$ 280,000	$ -
3B	SE Tussing Wy Trunk Line	--	--	$ 50,000	40%	$ 20,000	$ 30,000
Wastewater Treatment							
3a.1	Additional Aeration Basin	2.6 MGD MMWWF$_5$	3,090	$ 3,220,000	100%	$ 3,220,000	$ -
3a.2	Additional Secondary Clarifier	3.4 MGD MMWWF$_5$	4,870	$ 1,320,000	100%	$ 1,320,000	$ -
3b.1	Additional Aerobic Digester	2.3 MGD MMWWF$_5$	2,420	$ 1,830,000	100%	$ 1,830,000	$ -
3b.2	Additional Screw Presses	2.3 MGD MMWWF$_5$	2,420	$ 1,684,000	100%	$ 1,684,000	$ -
3c	Plant Water System	--	--	$ 208,000	63%	$ 132,000	$ 76,000
Total Priority 3 Improvements (rounded)				**$ 8,590,000**		**$ 8,490,000**	**$ 110,000**
Priority 4 Improvements							
Wastewater Collection System							
4A	P.LS 1, Force Main and Gravity Line	--		$ 660,000	100%	$ 660,000	$ -
4B	P.LS 2, Force Main and Gravity Line	--		$ 1,160,000	100%	$ 1,160,000	$ -
4C	P.LS 3 and Force Main	--		$ 750,000	100%	$ 750,000	$ -
4D	P.LS 4, Force Main and Gravity Line	--		$ 1,210,000	100%	$ 1,210,000	$ -
Total Priority 4 Improvements (rounded)				**$ 3,780,000**		**$ 3,780,000**	**$ -**
TOTAL WASTEWATER IMPROVEMENTS COSTS (rounded)				**$ 43,420,000**		**$30,300,000**	**$ 13,130,000**

Current Layout



Draft Improvements



Update Scope

City of Scappoose Wastewater Facilities Plan Update and Treatment Plant Predesign
Carollo Engineers, Inc. will provide the following services related to the city's wastewater treatment plant with the goals of

1) providing the city with an amended planning document that identifies and details necessary WWTP capital improvements over the 20-year planning period,
2) providing 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
3) providing a predesign of the capital improvements that the City needs to complete in the near-term (first five years).

Project Schedule: The scope of work The Final Facility Plan Update and Treatment Plant Predesign is scheduled to be completed within 4 months following the Notice to Proceed.

Project Fee: The total fee for the scope of work presented is a lump sum cost not to exceed $99,466.

Recent Flows

- November 2016
  - Max daily flow 2.632 MGD, 25th
  - Peak instantaneous flow 3.2 MGD (2222 gallons per minute)
- January 2017
  - Average daily flow – 1.168 MG
  - Max daily flow 2.191 MG
  - Peak instantaneous flow – 2.8 MG (1944 gallons per minute)
- February 2017 – past two weeks
  - Average daily flow – 1.478 MG
  - Max daily flow – 1.950 MG
  - Peak instantaneous flow – 2.7 MG (1875 gallons per minute)

Treatment Plant Supervisor Kevin Turner explained staff wanted to bring this to Council in a work session in case there were some questions.

City Manager Sykes stated he thinks it is important to note that the Wastewater Master Plan is dated 1998, and basically we have to update that to get any grants or loans from DEQ. He explained the amount proposed by Keller just didn't seem like a reasonable number so staff decided that it was really important to get somebody in here who has a good reputation in the industry and so they ended up picking Carollo.

Councilor Hayden stated there is such a difference in the population estimates going forward, it is incredible.

Mayor Burge stated he thinks part of this is they are supposed to use the PSU numbers.

City Manager Sykes explained it is important to make sure we have our System Development Charges inline so when new development comes in we can charge proportionally and can capitalize on that opportunity.

Council thanked Kevin.

Adjournment ~ Mayor Burge adjourned the Work Session at 6:55 p.m.

Scott Burge

Scott Burge, Mayor

Attest: Susan M. Reeves

Susan M. Reeves, MMC, City Recorder