AGENDA

CITY COUNCIL WORK SESSION
November 21, 2016
5:30 p.m.

CITY HALL COUNCIL CHAMBER
313 COURT STREET
THE DALLES, OREGON

1. CALL TO ORDER

2. ROLL CALL OF COUNCIL

3. APPROVAL OF AGENDA

4. DISCUSSION

   A. Update on the Wastewater Treatment Plant Upgrade

5. ADJOURNMENT

This meeting conducted in a handicap accessible room.

Prepared by/
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City Clerk

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AGENDA STAFF REPORT

AGENDA LOCATION: City Council Work Session

MEETING DATE: November 21, 2016

TO: Honorable Mayor and City Council

FROM: Dave Anderson, Public Works Director

ISSUE: Update on Wastewater Treatment Plant Upgrade design-build project; introduction to Phase 2 scope of work

BACKGROUND: Work under the progressive design-build contract with the team of Mortenson Construction/Kennedy Jenks Consultants has progressed to the 80% design level. This is the point at which we will be seeking authorization from Council to proceed Phase 2 which involves completion of the design and construction of the project; that issue is currently scheduled for consideration at the December 12th City Council meeting. In advance of that meeting, this work session will allow the project team to bring the Council up to date on the status of the project and summarize the challenges and recommended solutions that have been identified this far. This report will provide some background information to support discussions at the work session.

New Issues

As mentioned to Council at its September 12, 2016 meeting, one of the challenges with upgrading an existing facility versus new construction is that unanticipated issues are more likely to arise as the design for a project progresses and new unanticipated and unknown existing conditions are encountered. The example discussed in September was related to the unanticipated need to replace an existing force main. Several other design challenges have arisen as the design has progressed:

- there is a need to construct a new structure to house the headworks (screens and grit removal system) because there was not enough room for the proposed primary filters in the area of the existing headworks (recall the primary filters were added in support of the Co-Gen upgrades approved by Council);
- in addition to replacing the influent force main from the IPS to the Headworks there is additional piping work needed inside the IPS as well as to relocate the influent flow meter to an accessible location;
- due to the size of the influent pumps, some additional structural modifications are

required to provide for access to the lower level of the headworks;
- the existing backup emergency generator has been determined to be smaller than needed to handle the electrical loads of the upgraded plant so a second generator has been proposed for inclusion in the project; and
- A new electrical room has been included in the design to avoid the potential for a major electrical upgrade of existing electrical equipment to bring the facilities up to current code.

All of these additional needs have added to the cost of the project, but the design team has worked diligently throughout the design to keep costs down. Information will be presented at the work session outlining areas where significant cost savings have been realized as well.

Best Value Design

One of the original tenets of this design-build project was to use "best-value" methods when making selections among various alternatives. Attached are a series of spreadsheets summarizing the 20-year life cycle costs projected for the various types of equipment that were considered. Also included is one example of the detailed analysis that was done for each piece of equipment considered; the example included is for one of the Screen systems – the Huber Rakemax. By using life cycle costs, the team was able to consider not only the initial purchase price of various pieces of equipment but also the costs anticipated to occur over the next 20 years to operate and maintain it; in all cases, the equipment with the lowest 20-year life cycle cost was selected (highlighted on the spreadsheets). By using these methods, the project was about $250,000 under budget for originally-anticipated equipment purchases.

Outside Funding for Co-Gen

As the concept of Co-Gen was being considered, it was estimated that about $750,000 might be available from outside funding sources for that portion of the project. A lot has been learned about the available funding as the programs have been changing since that time. One source that is available could provide up to $500,000 in funding through a principal-forgiveness loan. This option would require that the City apply for and be awarded a loan through the State's Clean Water Revolving Loan Fund for some portion of the project. The interest rates are about 1.6% for 20 years and there is no penalty for early repayment. This source of funding would also "federalize" the entire project thereby requiring additional environmental reviews, the payment of federal prevailing wage rates, and the application of certain Buy American requirements. The team is evaluating the additional costs of this option compared to the potential funding that could be received.

A second potential source of funding is from the Oregon Department of Energy. This source of funding does not federalize the project and may provide around $650,000 for the project. The catch with this source is that the "funding" is provided after the Co-Gen improvements have been constructed and are on-line generating electricity, and the deadline for completion of the Co-Gen piece is December 31, 2017; the program expires after that date. This funding comes in the form of state tax credits. Since the City does not pay taxes, these credits would need to be sold to a commercial partner that has a significant tax liability. Other utilities have been selling these credits for $0.80 to $0.90

per dollar of credit.

Lastly, evaluations are also underway to see if there is a chance to get some money, $50,000-$100,000, from BPA's Energy Smart Industrial program for the Co-Gen portion of the project. The project team is working hard to determine the best combination of these potential funding sources specific to our project.

We currently believe the potential for outside funding available for the project could be in excess of the original $750,000 provided to Council, which would help cover the additional project costs noted above.

The project team will provide more detailed information to the Council at the work session summarizing the status of the project, the challenges and opportunities identified, recommended solutions, and project budget.

Screens

Make	Huber: Rakemax	Duperon	Kuster (Band Screen)	Kuster (Rake Bar Screen)	JWC (Band Screen)	JWC (Chain Rake)
Capital Cost	$263,375	$468,000	$338,050	$380,500	$449,232	$415,510
Annual O&M Costs[(a)]	$3,664	$3,332	$3,609	$3,553	$3,443	$3,443
20 Year O&M Costs[(b)]	$98,451	$89,531	$96,964	$98,340	$98,229	$98,229
Total Net Present Value	$361,826	$557,531	$435,014	$478,840	$547,461	$513,739

Notes:

(a) 2016 dollars

(b) Assumed discount rate of 3%

Maintenance Cost	1500	$/year
Discount Rate	3%	@1080 gpm

Huber: Rakemax

# of units	2	
Capital Cost ($)	**$ 263,375**	

# of units in operation	1	Bar Screen
	1	HP
Efficiency	95%	
Runtime per year	365	days/year
Runtime per day	12.0	runtime (hrs/day)
Energy Usage per year	3458	kWhr/year

# of units in operation	1	Screen Wash Press
	5	HP
Efficiency	95%	
Runtime per year	365	days/year
Runtime per day	12.0	runtime (hrs/day)
Energy Usage per year	17289	kWhr/year

Energy Cost (Year 1)	**$**	**664**	**$/year**
Maintenance Cost	**$**	**3,000**	**$/year**

Conversions

160.18	mg/L to 1 lb/ccf
1.341	BHP to kw
3412	kWhr to BTU
525949	min per year
8765.8	hr per year
748	gal per ccf
99976	BTU in a therm
0.75	0.75 KW/hp
2000	lb to ton
0.032	Electrical Costs ($/kWh)

Grit

Make	Smith and Loveless	WesTech	Hydro International
Capital Cost	$150,000	$174,000	$351,300
Annual O&M Costs[(a)]	$3,020	$2,381	$2,456
20 Year O&M Costs[(b)]	$81,157	$63,986	$66,003
Total Net Present Value	$231,157	$237,986	$417,303

Notes:

(a) 2016 dollars

(b) Assumed discount rate of 3%

Primary Filter

Make	Salsnes - closed	Salsnes - open	AquaAerobics[c]	Blue Water [c]
Capital Cost	$284,800	$157,300	$475,300	$425,000
Annual O&M Costs[a]	$3,430	$3,430	$6,050	$5,946
20 Year O&M Costs[b]	$92,165	$92,165	$162,566	$165,929
Total Net Present Value	$376,965	$249,465	$637,866	$590,929

Notes:

(a) 2016 dollars

(b) Assumed discount rate of 3%

(c) Values provided by vendor

Primary Solids Pump

Make	Moyno	Seepex
Capital Cost	$5,265	$5,265
Annual O&M Costs[(a)]	$2,026	$1,675
20 Year O&M Costs[(b)]	$54,429	$45,013
Total Net Present Value	$59,694	$50,278

Notes:

(a) 2016 dollars

(b) Assumed discount rate of 3%

Digester Mixing Pump

Make	Vaughan	Hayward Gordon	Weir	VO: LM Mi:	Waste Gas Mixer
Capital Cost	$18,765	$15,400	$19,037	$158,000	$91,467
Annual O&M Costs[(a)]	$3,411	$4,003	$4,934	$3,800	$500
20 Year O&M Costs[(b)]	$91,662	$107,558	$132,576	$131,442	$128,142
Total Net Present Value	$110,427	$122,958	$151,613	$289,442	$219,609

Notes:

(a) 2016 dollars

(b) Assumed discount rate of 3%

Recirculation Pumps

Make	Moyno	Seepex
Capital Cost	$27,450	$27,450
Annual O&M Costs[(a)]	$4,402	$5,453
20 Year O&M Costs[(b)]	$118,273	$146,519
Total Net Present Value	$145,723	$173,969

Notes:

(a) 2016 dollars

(b) Assumed discount rate of 3%

Heat Exchanger

Make	Elanco	Gooch
Capital Cost	$26,820	$48,000
Annual O&M Costs[(a)]	$500	$500
20 Year O&M Costs[(b)]	$13,435	$13,435
Total Net Present Value	$40,255	$61,435

Notes:

(a) 2016 dollars

(b) Assumed discount rate of 3%

Cogeneration

Make	Unison	Biospark
Capital Cost	$490,220	$411,450
Annual O&M Costs[(a)]	$20,010	$20,010
20 Year O&M Costs[(b)]	$537,687	$537,687
Total Net Present Value	$1,027,907	$949,137

Notes:

(a) 2016 dollars

(b) Assumed discount rate of 3%