General Manager
Kevin Hanway
150 E. Main Street
Hillsboro, OR 97123
503-615-6585

Board of Commissioners

City of Hillsboro
John Godsey
John Rosenberger
David Judah

City of Forest Grove
Rod Fuiten
Carl Heisler
Victoria Lowe

City of Beaverton
Denny Doyle
Marc San Soucie
Mark Fagin

Tualatin Valley Water District
Dick Schmidt
Jim Doane
Mark Knudson

HILLSBORO/FOREST GROVE/BEAVERTON/
TUALATIN VALLEY WATER DISTRICT
JOINT WATER COMMISSION (JWC)
PRELIMINARY AGENDA

City of Hillsboro — **January 13, 2017**
Civic Center — **12:30 p.m.**
150 East Main St., **Room 113B** — Regular Meeting

****

Assistive Listening Devices (ALD) and sign language interpreters are available, at no cost, and can be scheduled for this meeting. Please provide at least 72 hours notice prior to the meeting. To obtain these services, call (503) 681-6100 or TTY (503) 681-6284.

****

ALL TESTIMONY IS ELECTRONICALLY RECORDED.

The Commission lunches at 12:00 p.m.

CALL TO ORDER

Introductions.

1. **CONSENT AGENDA** (The entire Consent Agenda is normally considered in a single motion. Any Commissioner may request that an item be removed for separate consideration.)

   A. Approve regular meeting minutes from Friday, October 14, 2016.

   B. Receipt of FY 2016 Audit Report.

2. **COMMUNICATIONS AND NON-AGENDA ITEMS**

   A. None scheduled.

3. **UNFINISHED BUSINESS**

   A. None scheduled.

4. **NEW BUSINESS**

   A. Election of Chair and appointment of Vice Chairs and Alternates. *Staff Report – Kevin Hanway*

   B. Designation of Managing Agency. *Staff Report – Kevin Hanway*

C. Consider approval of lease for WTP capacity. *Staff Report – Kevin Hanway*

D. Consider approval of Guaranteed Maximum Price contract for Package 1 – WTP 85 MGD Expansion project. *Staff Report – Erika Murphy*

E. Consider approval of Resolution 129-J, adopting the JWC Curtailment Plan. *Staff Report – Tacy Steele*

F. Consider approval of Resolution 130-J, adopting JWC WTP Facility Plan. *Staff Report – Kevin Hanway*

G. Consider approval of contract amendment to Carollo Engineers for construction phase services on Backup Power Project. *Staff Report – Erika Murphy*

5. <u>DISCUSSION ITEMS</u> (These items may result in action by the Commission.)

A. YTD Financial status. *Staff Report – Mellisa Franklin*

B. Stored water status. *Staff Report – Kristel Fesler*

C. Update on Scoggins Dam alternatives evaluation. *Staff Report – Kevin Hanway, David Winship and Tom VanderPlaat*

D. General Manager's Report. *Staff Report – Kevin Hanway*

6. <u>ADVICE/INFORMATION ITEMS</u>

A. The next JWC and BRJOC meetings are scheduled on Friday, April 14, 2017 at the Civic Center in Room 113B. The BRJOC meeting will be held at 12:30 p.m. with the JWC meeting following.

HILLSBORO/FOREST GROVE/BEAVERTON
TUALATIN VALLEY WATER DISTRICT
JOINT WATER COMMISSION (JWC)

MINUTES

City of Hillsboro October 14, 2016
Civic Center Room 113B 12:30 p.m.
150 East Main St. Regular Meeting
****

Commissioners Present:

Hillsboro:	John Godsey, John Rosenberger and Dave Judah
Forest Grove:	Victoria Lowe, Carl Heisler
Beaverton:	Marc San Soucie and Denny Doyle
Tualatin Valley Water District:	Jim Doane, Dick Schmidt and Mark Knudson

Staff Present:

Hillsboro:	Kevin Hanway, Rob Dixon, Niki Iverson, Tyler Wubbena, Chris Wilson, Sophia Hobet, Tacy Steele, Erika Murphy, Kristel Fesler, Mellisa Franklin and Carrie Dale
Beaverton:	David Winship
Forest Grove:	Rob Foster and Derek Robbins
TVWD:	Pete Boone
Clean Water Services:	Mac Martin

Others:	Brad Phelps - CH2M
	Tommy Brooks and Nikki Swift - Cable Huston
	Clark Balfour- Attorney

****

The Commission lunches at 12:00 p.m. Call to order at 12:36 p.m.

CALL TO ORDER

Introductions.

1. EXECUTIVE SESSION

A. Consider convening into Executive Session under:

i. ORS 192.660(2)(h) for consultation with counsel concerning legal rights and duties regarding current litigation; and ORS 192.660(2)(e) to conduct deliberations with persons designated by the governing body to conduct real property transactions; and ORS192.660(2)(f) to consider information or records that are exempt by law from public inspection.

Motion by San Soucie, seconded by Godsey, to convene into Executive Session ORS 192.660(2)(h) for consultation with counsel concerning legal rights and duties regarding current litigation; and ORS

192.660(2)(e) to conduct deliberations with persons designated by the governing body to conduct real property transactions; and ORS192.660(2)(f) to consider information or records that are exempt by law from public inspection. Motion carried unanimously with Commissioners Godsey, Rosenberger, Judah, Heisler, Lowe, San Soucie, Doyle, Doane, Schmidt and Knudson all voting in favor.

B. Take action(s) related to Executive Session, if needed.

2. CONSENT AGENDA (The entire Consent Agenda is normally considered in a single motion. Any Commissioner may request that an item be removed for separate consideration.)

A. Approve regular meeting minutes from Friday, July 8, 2016.

B. Approve Executive Committee meeting minutes from Monday, September 12, 2016.

Motion by Rosenberger, seconded by Doyle, to approve the Consent Agenda, as presented. Motion carried unanimously with Commissioners Godsey, Rosenberger, Judah, Heisler, Lowe, San Soucie, Doyle, Doane, Schmidt and Knudson all voting in favor.

3. COMMUNICATIONS AND NON-AGENDA ITEMS

A. None scheduled.

4. UNFINISHED BUSINESS

A. None scheduled.

5. NEW BUSINESS

A. Consider authorizing Executive Committee to meet and to consider potential contract amendment to design services contract on Standby Power Project. *Staff Report – Kevin Hanway*

Hanway reported Carollo's fees for design and services during construction on the Standby Power Project exceeded the amended contract amount by $131,000.00. He said the majority of the overage was for review of submittal drawings and requests for information. In a no-cost change order, Carollo agreed to continue providing their services for 14 months; to be billed after the project, and waived $35,000 in fees. Hanway stated Carollo is working closely with staff to consider all challenges involved, and to come to a settlement which is fair to all parties. A resolution is projected to take 4 to 6 weeks, at which time it could be presented to the Executive Committee for action. If no authorization is granted, a resolution will be presented to the Commission in January.

Heisler asked for clarification on the $9,400.00 line item. Hanway replied it is to cover Carollo's services at the end of the one year warranty period next March.

Doane asked for confirmation that the $131,000.00 is in addition to the $743,000.00. Hanway confirmed that is correct.

Motion by Godsey, seconded by Schmidt to authorize the Executive Committee to act, on recommendation of the staff. Lowe stated while she prefer the issue come back to the Commission, she will accede to the group's vote. Motion carried unanimously with Commissioners Godsey, Rosenberger, Judah, Heisler, Lowe, San Soucie, Doyle, Doane, Schmidt and Knudson all voting in favor.

6. **DISCUSSION ITEMS** (These items may result in action by the Commission.)

A. Curtailment plan update. *Staff Report – Tacy Steele*

Steel reported revisions were made to the draft curtailment plan update, based on the Commission's discussion and feedback on the draft presented in July. The revision process is ongoing and feedback and ideas are encouraged.

Steele provided an overview of four key goals of the curtailment plan which are:

- The curtailment plan will provide a framework for decision making.
- The plan will better state the JWC's curtailment authority without impeding the partner's system authority.
- The plan will define components of JWC system and explain how curtailment actions will differ if applied. Backup power supply is also under discussion.
- The plan will be connected to the future operations plan and allow operational decisions to influence curtailment decisions.

Steele stated the Operations Plan is also in progress and expected to be completed in 18 months and any contradictions or needed additions to the updated curtailment plan will be made before submittal of the 2020 Water Management and Conservation Plan (WMCP).

Hanway said the revised Curtailment Plan update draft will be presented to the Management Committee on December 16. The Plan will then be sent to the Commissioners the week before Christmas to allow time for Commissioners to review and discuss it with partner staff before the JWC meeting on January 13th.

Judah stated the importance of keeping disaster recovery in mind while developing this plan, as curtailment is often a factor in emergency management. Steele agreed, and stated staff will ensure those plans work in harmony.

San Soucie said the plan should explicitly state any partner requirements and responsibilities.

B. WTP Facility Plan and Expansion project update. *Staff Report – Brad Phelps, CH2M*

Phelps presented the Water Treatment Plant Facility Plan Update. This facility plan maps the expansion plan over the next 40 years and identifies the cost, project elements, reliability and sequence of construction.

Phelps stated the plan addresses three categories of implementation:

- 10 MG Increased Capacity. Current 75 mgd capacity will be improved before being expanded to 85 mgd. The cost estimate for the 75 to 85 mgd capacity expansion is $31,200,000 and also includes the CIMP and phase one of the seismic upgrades.
- Seismic resiliency Upgrades are projected to begin around 2026. These will include replacement of most of the existing stations, pipelines, facilities and systems which were not designed to withstand a large seismic event. The cost estimate is $42,800,000.00.
- Ultimate buildout to 105 MGD. This capacity is based on the JWC's current water rights. This step will revise the plant's layout to improve operator convenience and safety and will allow for modularity of future projects and space for future treatment processes. It also includes plans for single flocculation and sedimentation configuration.

Phelps completed his presentation with a review of the project's next steps. Hanway reminded the Commission the evaluation for the 2015 CIP study showed all but one or two plant structures were expected to fail during a large seismic event. It determined reinforcement of the existing structures is either not possible or so cost prohibitive it would be best to replace them.

Schmidt stated the site is subject to liquefaction, and asked if it made sense to invest in re-building there. Phelps replied that studies show most of Washington County is highly liquefiable and it was doubtful another site would provide any more stability.

Doane asked why the graph shows no indication of a reduction in demand after the 70 mgd WWSP is online in 2026. Iverson replied that JWC capacity was met in 2015, necessitating the expansion which might meet partner demands until 2022. She said TVWD and Hillsboro will likely be leasing water from Forest Grove or Beaverton in the interim, shifting that leased capacity on to the Willamette source when it is available.

Doane asked what the capacity is for the reservoirs refilling if the plant is treating 85 mgd or at least the average summer daily demand. Hanway replied staff will provide that information to him.

Doane asked how plans for capacity grew to 105 mgd, and stated he is concerned that he has not been kept informed about the expense of the plans or of changes to the plan. San Soucie stated he believes both the second phase of the seismic resiliency improvements and the 105 mgd capacity are still in the planning stage. Hanway confirmed that; and said any expansion beyond the approved 85 mgd will still have to be approved by the Commission. Hanway acknowledged the costs listed in the 2015 CIP contained some errors resulting in a low estimate. Hanway offered to meet with Doane and TVWD before the next meeting to go into greater detail on the project. Doane agreed, saying he would provide a list of his question at that time.

Lowe requested that questions and answers posed offline, be shared with the Commission.

C. Financial report update. *Staff Report – Mellisa Franklin*

This item was removed from the agenda.

D. Water supply status and WTP production report. *Staff Report – Kristel Fesler*

Fesler stated JWC partners stopped releasing from Scoggins reservoir on Wednesday, leaving it 37 percent full and officially ending the release season. No extreme conditions are being forecasted for this winter so far. Fesler shared the release season summary comparing 2016 to 2015, and reviewed treatment plant production.

E. WPGE energy management programs. *Staff Report – Chris Wilson*

Wilson discussed EnerNOC, a third party power system run by PGE. During times of high demand, PGE may request the treatment plant reduce power usage. If the plant is able to comply with their request, JWC will be paid 12.5 cents for each kilowatt reduced. This is double the amount paid by the JWC for the use of kilowatts. This program allows PGE to provide more power without increasing their infrastructure. Wilson explained there is no penalty if JWC chooses not to participate in any single event; participation is completely voluntary each time. This year, JWC participated in three one-hour events and declined one.

Wilson explained Dispatchable Power Generation uses the backup power generators to put power back into the grid. PGE paid $1.3 million towards the backup power generators and will provide maintenance and fuel for 10 years. PGE runs monthly generator tests putting power back into the system; PGE has not had to pull any more power than that.

Doane asked if the earnings show up as income items in the budget, or as a decrease in expenditures. Hanway replied he will get that information for the Commission.

Lowe asked at what level, or in what type of situation, PGE can override the JWC's refusal to participate in an EnerNOC event. Brooks replied there are tariffs which determine this, they are filed with and managed by the Public Utility Commission (PUC). Hanway added if decisions were made by the PUC about JWC's power consumption, it would be done outside of this contract.

Hanway stated the Commission can expect a memo before the January meeting addressing circumstances and authority necessary for a curtailment of power and how it relates to the water curtailment plan.

F. General Manager's Report. *Staff Report – Kevin Hanway*

Hanway stated there is nothing to report at this time.

7. ADVICE/INFORMATION ITEMS

A. The next JWC and BRJOC meetings are scheduled on Friday, January 13, 2017 at the Civic Center in Room 113B. The BRJOC meeting will be held at 12:30 p.m. with the JWC meeting following.

There being no further business to come before the Commission, the meeting adjourned at 2:36 p.m.

Chairman _____
Hillsboro/Forest Grove/ Beaverton/

TVWD Joint Water Commission

ATTEST:_____
Secretary

To: Joint Water Commission

From: Jon Grover, Accounting Manager

Date: January 3, 2017

Re: Financial Statements for the year ended June 30, 2016, and Required Communications Under SAS 114

Presented for your review are the financial statements for the Joint Water Commission for the year ended June 30, 2016, and required communications (prescribed by auditing standards) from the auditors. The audit was performed by Talbot, Korvola and Warwick, LLP. The financial statements received an unqualified or "clean" opinion with no reportable findings. There are no surprises in the communication piece from the auditors.

Please feel free to contact me at 503-681-5361 or jon.grover@hillsboro-oregon.gov should you have any questions or would like more hard copies of the financial statements.

Joint Water Commission

– Financial Statements for the Year Ended June 30, 2016 –

– Hillsboro – Forest Grove – Beaverton – Tualatin Valley Water District –

HILLSBORO-FOREST GROVE-BEAVERTON-
TUALATIN VALLEY WATER DISTRICT
JOINT WATER COMMISSION
Hillsboro, Oregon

Basic Financial Statements
and Supplemental Information

Year Ended June 30, 2016

HILLSBORO-FOREST GROVE-BEAVERTON-
TUALATIN VALLEY WATER DISTRICT
JOINT WATER COMMISSION
Hillsboro, Oregon

JUNE 30, 2016

BOARD OF COMMISSIONERS

Commissioner:	**Representing:**
Marc San Soucie, Chair	City of Beaverton
John Godsey, Vice Chair	City of Hillsboro
Jim Doane, Vice Chair	Tualatin Valley Water District
Denny Doyle, Vice Chair	City of Beaverton
Rod Fuiten, Vice Chair	City of Forest Grove
Mark Fagin	City of Beaverton
David Judah	City of Hillsboro
John Rosenberger	City of Hillsboro
Victoria Lowe	City of Forest Grove
Carl Heisler	City of Forest Grove
Mark Knudson	Tualatin Valley Water District
Dick Schmidt	Tualatin Valley Water District

Commission Address

City of Hillsboro
150 E. Main Street
Hillsboro, Oregon 97123

HILLSBORO-FOREST GROVE-BEAVERTON-
TUALATIN VALLEY WATER DISTRICT
JOINT WATER COMMISSION
Hillsboro, Oregon

CONTENTS

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INDEPENDENT AUDITOR'S REPORT

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Talbot, Korvola
& Warwick, LLP

Certified Public Accountants
& Consultants

ACHIEVE MORE

4800 Meadows Road, Suite 200
Lake Oswego, Oregon 97035-4293

P 503.274.2849
F 503.274.2853

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INDEPENDENT AUDITOR'S REPORT

Board of Commissioners
Hillsboro-Forest Grove-Beaverton-
Tualatin Valley Water District
Joint Water Commission
Hillsboro, Oregon

REPORT ON THE FINANCIAL STATEMENTS

We have audited the accompanying financial statements of the Hillsboro-Forest Grove-Beaverton-Tualatin Valley Water District Joint Water Commission, Hillsboro, Oregon (the Commission), as of and for the year ended June 30, 2016, and the related notes to the financial statements, which collectively comprise the Commission's basic financial statements as listed in the Table of Contents.

MANAGEMENT'S RESPONSIBILITY FOR THE FINANCIAL STATEMENTS

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

AUDITOR'S RESPONSIBILITY

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

OPINION

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Commission as of June 30, 2016, and the changes in financial position, and cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America.

OTHER MATTERS

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that Management's Discussion and Analysis as listed in the Table of Contents be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the Commission's basic financial statements. The other schedules, listed in the Table of Contents as Supplemental Information, are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The Supplemental Information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Supplemental Information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

OTHER REPORTING REQUIRED BY *OREGON MINIMUM STANDARDS*

In accordance with *Minimum Standards for Audits of Oregon Municipal Corporations*, we have also issued our report dated December 5, 2016, on our consideration of the Commission's compliance with certain provisions of laws and regulations, including the provisions of Oregon Revised Statutes as specified in Oregon Administrative Rules. The purpose of that report is to describe the scope of our testing of compliance and the results of that testing and not to provide an opinion on compliance.

By: Timothy R Gillette
Timothy R. Gillette, Partner

Lake Oswego, Oregon
December 5, 2016

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MANAGEMENT'S DISCUSSION AND ANALYSIS

HILLSBORO-FOREST GROVE-BEAVERTON-
TUALATIN VALLEY WATER DISTRICT
JOINT WATER COMMISSION

MANAGEMENT'S DISCUSSION AND ANALYSIS

YEAR ENDED JUNE 30, 2016

As management of the Hillsboro-Forest Grove-Beaverton-Tualatin Valley Water District Joint Water Commission (the Commission), a joint venture between the Cities of Hillsboro, Forest Grove, and Beaverton, and the Tualatin Valley Water District, we offer readers of the Commission's financial statements this narrative overview and analysis of the financial activities for the fiscal year ended June 30, 2016.

Financial Highlights

- The Commission's assets totaled approximately $104.9 million at June 30, 2016 and consisted of approximately $194,000 in deposits and investments held by the City of Hillsboro, approximately $1.4 million in accounts receivable and capital assets of approximately $103.3 million.

- Net position (assets minus liabilities) was approximately $103.3 million at June 30, 2016.

- As of June 30, 2016, the Commission had no outstanding long term debt.

- Net position increased by approximately $2 million from June 30, 2015, due to investment in the form of contributions from joint venture partners towards various capital projects outpacing expenses, specifically depreciation which is unfunded by the partners.

Report Layout

The individual components of the report layout include the following:

- **Management's Discussion and Analysis.** This section of the report provides an overview of financial highlights and economic factors affecting the Commission.

- **Basic Financial Statements.** Includes the Statement of Net Position, Statement of Revenues, Expenses and Changes in Net Position; Statement of Cash Flows, and the Notes to Basic Financial Statements. The Statement of Net Position and Statement of Revenues, Expenses and Changes in Net Position focus on an entity-wide presentation using the accrual basis of accounting. They are designed to resemble more closely private-sector financial statements in that all activities are consolidated into a total for the Commission.

    - The Statement of Net Position focuses on resources available for future operations. This statement presents a snap-shot view of the assets of the Commission, the liabilities it owes and the net difference.

    - The Statement of Revenues, Expenses and Changes in Net Position focuses on the current year's operating results and the change in Net Position as a result of the current year's operations.

    - The Statement of Cash Flows focuses on how the Commission obtained and expended its available deposits and investments held by the City of Hillsboro.

    - The Notes to Basic Financial Statements provide additional disclosures to provide information to assist the reader in understanding the Commission's financial condition.

Report Layout (Continued)

- **Supplemental Information.** Components within this section include:
  - Budgetary Comparison. This schedule includes a comparison of actual revenues and expenditures to the original and final budget.
  - Reconciliation of Change in Fund Balance to Change in Net Position.
- **Independent Auditor's Report Required by Oregon State Regulations.** Consists of supplemental information on the Commission's compliance and internal control as required by Oregon Revised Statutes.

Statement of Net Position

The Commission's assets exceeded liabilities by approximately $103.3 million at June 30, 2016. The largest portion of its assets were capital assets. A condensed version as of June 30 is as follows:

	2016	2015
Current and other assets	$ 1,632,906	$ 1,261,415
Capital assets, net	103,304,490	101,309,975
Total assets	104,937,396	102,571,390
Accounts payable	1,497,217	661,505
Due to the City of Hillsboro	135,689	599,910
Total liabilities	1,632,906	1,261,415
Net position	$ 103,304,490	$ 101,309,975

Capital assets increased by approximately $2 million due to the investment by joint venture partners in the form of contributions towards various capital projects, outpacing depreciation expense. Project reimbursements from joint venture partners comprise the receivable balance at year-end and payments owed to vendors makes up the majority of the accounts payable balance at year-end. Vendor payments are made in advance of seeking reimbursement from the partners.

Statement of Revenues, Expenses and Changes in Net Position

A condensed version of the Commission's Statement of Revenues, Expenses and Changes in Net Position for the fiscal years ended June 30 as follows:

	2016	2015
Operating Revenues		
Sale of water	$ 7,007,439	$ 6,109,699
Other	79,177	25,756
	7,086,616	6,135,455
Operating Expenses		
Contracted payroll and fringe benefits	2,233,641	2,190,701
Utilities	1,992,126	1,754,796
Other expenses	2,446,469	1,985,719
Depreciation	2,853,745	2,964,497
	9,525,981	8,895,713
Operating Loss	(2,439,365)	(2,760,258)
Non Operating Income (Expense)		
Interest income	12,380	10,032
Interest expense	(9,530)	(6,439)
Loss on disposal of capital assets	(444,777)	-
Total Nonoperating Income (Expense)	(441,927)	3,593
Loss before contributions	(2,881,292)	(2,756,665)
Contributions	4,875,807	4,197,271
Change in Net Position	1,994,515	1,440,606
Net Position, beginning of year	101,309,975	99,869,369
Net Position, end of year	$ 103,304,490	$ 101,309,975

Statement of Revenues, Expenses and Changes in Net Position (Continued)

The cost of the Commission's activities totaled approximately $9.5 million for the year ended June 30, 2016. As shown in the Statement of Revenues, Expenses and Changes in Net Position, the expenses, excluding depreciation, paid by operating revenues were approximately $6.6 million for 2016. However, operating expenses exceeded operating revenues by approximately $2.4 million for 2016. The operating loss is due to the joint venturers not being charged for depreciation expense of approximately $2.9 million. At this time, the Commission's Board has elected not to fund depreciation. All operating costs, excluding depreciation costs, are charged to the joint venture partners on a monthly basis.

An increase in project activity, subsequent contributions from partners, contributions from others, and the election to not fund annual depreciation resulted in Net Position increasing by approximately $2 million for the year ended June 30, 2016.

Capital Assets

The Commission had invested approximately $103.3 million in capital assets, net of depreciation, at June 30, 2016, as reflected in the following table, which represents a net increase of approximately $2 million from 2015. This is due to investment, primarily in construction in progress related to the on-site power generation project, outpacing depreciation expense.

	2016	2015
Land	$ 3,263,077	$ 3,263,077
Construction in progress	8,640,912	4,978,251
Machinery and equipment	3,124,930	2,874,431
Treatment facilities	46,354,384	45,956,175
Transmission lines	71,926,141	71,389,250
Reservoir	23,769,761	23,769,761
Less accumulated depreciation	(53,774,715)	(50,920,970)
Total capital assets, net	$ 103,304,490	$ 101,309,975

Additional information on the Commission's capital assets may be found in Notes 1 and 3 in the Notes to Basic Financial Statements.

Budgetary Highlights

There was a supplemental budget to recognize additional lease capacity at the water treatment plant of approximately $353,000, and additional water sales of $110,000, offset by increased requirements of materials and services of $100,000 and special payments of approximately $363,000 for corresponding partner reimbursements.

Debt Administration

As of year-end June 30, 2016 the Commission had no outstanding debt.

Economic Factors

All personnel are employees of the City of Hillsboro, the managing agency for the Commission. Personnel costs continue to rise with increasing medical and retirement costs. Due to the Commission's funding structure, costs are shared by several entities in an effort to keep costs down. Personnel costs and other overhead costs are charged to all of the joint venturers; therefore, any increasing costs are spread out to all the entities lessening the impact of rising costs on the Commission.

Financial Contact

The Commission's financial statements are designed to present users including taxpayers, citizens, customers, investors and creditors with a general overview of the Commission's finances and overall accountability. If you have questions about the contents of this report or need additional financial information, please contact the City of Hillsboro's Finance Director at 150 East Main St., Hillsboro, OR 97123.

BASIC FINANCIAL STATEMENTS

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HILLSBORO-FOREST GROVE-BEAVERTON-
TUALATIN VALLEY WATER DISTRICT
JOINT WATER COMMISSION
Hillsboro, Oregon

STATEMENT OF NET POSITION

JUNE 30, 2016

ASSETS:	
Deposits and investments held by the City of Hillsboro	$ 194,282
Accounts receivable	1,438,624
Capital assets, net	103,304,490
TOTAL ASSETS	104,937,396
LIABILITIES:	
Accounts payable	1,497,217
Due to City of Hillsboro	135,689
TOTAL LIABILITIES	1,632,906
NET POSITION	
Net investment in capital assets	103,304,490
TOTAL NET POSITION	$ 103,304,490

See notes to basic financial statements.

HILLSBORO-FOREST GROVE-BEAVERTON-
TUALATIN VALLEY WATER DISTRICT
JOINT WATER COMMISSION
Hillsboro, Oregon

STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET POSITION

YEAR ENDED JUNE 30, 2016

OPERATING REVENUES:	
Sale of water	$ 7,007,439
Other	79,177
TOTAL OPERATING REVENUES	7,086,616
OPERATING EXPENSES:	
Contractually paid salaries and fringe benefits	2,233,641
Utilities	1,992,126
Operating supplies	1,302,354
Support services	329,528
Contractual services	110,846
Repairs and maintenance	119,072
Insurance	178,177
Fees and assessments	406,492
Depreciation	2,853,745
TOTAL OPERATING EXPENSES	9,525,981
OPERATING LOSS	(2,439,365)
NONOPERATING INCOME (EXPENSES):	
Interest income	12,380
Interest expense	(9,530)
Loss on disposal of capital assets	(444,777)
TOTAL NONOPERATING INCOME (EXPENSES)	(441,927)
LOSS BEFORE CONTRIBUTIONS	(2,881,292)
CONTRIBUTIONS	
Contributions from venturers	3,991,957
Contributions from others	883,850
TOTAL CONTRIBUTIONS	4,875,807
CHANGE IN NET POSITION	1,994,515
NET POSITION, BEGINNING	101,309,975
NET POSITION, ENDING	$ 103,304,490

See notes to basic financial statements.

HILLSBORO-FOREST GROVE-BEAVERTON-
TUALATIN VALLEY WATER DISTRICT
JOINT WATER COMMISSION
Hillsboro, Oregon

STATEMENT OF CASH FLOWS

YEAR ENDED JUNE 30, 2016

CASH FLOWS FROM OPERATING ACTIVITIES:		
Received from customers	$	6,830,230
Paid to suppliers for goods and supplies		(4,061,031)
Paid to related entities for goods and services		(3,027,390)
Other operating revenues		79,177
NET CASH FROM OPERATING ACTIVITIES		(179,014)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:		
Acquisition and construction of capital assets, net of related accounts payable		(4,505,361)
Contributions from joint venturers		3,991,957
Contributions from others		883,850
Interest income		12,380
Interest expense		(9,530)
NET CASH FROM CAPITAL AND RELATED FINANCING ACTIVITIES		373,296
NET CHANGE IN DEPOSITS AND INVESTMENTS HELD BY THE CITY OF HILLSBORO		194,282
DEPOSITS AND INVESTMENTS HELD BY THE CITY OF HILLSBORO, BEGINNING		-
DEPOSITS AND INVESTMENTS HELD BY THE CITY OF HILLSBORO, ENDING	$	194,282
RECONCILIATION OF OPERATING LOSS TO NET CASH FROM OPERATING ACTIVITIES:		
Operating loss	$	(2,439,365)
Adjustments to reconcile operating loss to net cash from operating activities:		
Depreciation		2,853,745
Change in assets and liabilities:		
Increase in accounts receivable		(177,209)
Increase in accounts payable, net of capital related accounts payable		48,036
Decrease in due to City of Hillsboro		(464,221)
NET CASH FROM OPERATING ACTIVITIES	$	(179,014)
NON-CASH CAPITAL AND RELATED FINANCING ACTIVITIES:		
Loss on disposal of capital assets	$	(444,777)

See notes to basic financial statements.

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NOTES TO BASIC FINANCIAL STATEMENTS

HILLSBORO-FOREST GROVE-BEAVERTON-
TUALATIN VALLEY WATER DISTRICT
JOINT WATER COMMISSION
Hillsboro, Oregon

NOTES TO BASIC FINANCIAL STATEMENTS

YEAR ENDED JUNE 30, 2016

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Organization

The Hillsboro-Forest Grove-Beaverton-Tualatin Valley Water District Joint Water Commission (the Commission) was organized under Oregon Revised Statute (ORS) 190 and was established by an agreement between the cities of Hillsboro, Forest Grove, and Beaverton, and the Tualatin Valley Water District (TVWD). The Commission is governed by three members from each venturer. The purpose of the Commission is to operate raw water intake facilities, the water treatment plant, and storage and transmission facilities to the venturers.

The Commission is managed by the City of Hillsboro.

Operation and maintenance expense is determined on a unit basis by the Commission and each joint venturer is charged based on the number of units of water diverted into its separate system. All net income or loss is allocated to the respective joint venturers by the following percentages:

City of Hillsboro	45 %
City of Forest Grove	13 1/3 %
City of Beaverton	25 %
Tualatin Valley Water District	16 2/3 %

Basis of Presentation and Accounting

For financial reporting purposes, the Commission reports its operations on an enterprise fund basis. Enterprise funds (a proprietary fund type) are accounted for on a flow of economic resources measurement focus. With this measurement focus, all assets, liabilities and net position associated with the operations are included on the Statement of Net Position. The Statement of Revenues, Expenses and Changes in Net Position presents increases (revenues) and decreases (expenses) in net position.

The accrual basis of accounting is utilized for financial reporting. Under the accrual basis of accounting, revenues are recorded when earned and expenses are recorded at the time liabilities are incurred.

Use of Estimates

The preparation of basic financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of certain assets, liabilities, revenues, expenses and other disclosures. Accordingly, actual results may differ from those estimates.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)

Deposits and Investments Held by the City of Hillsboro

All deposits and investments are held by the City of Hillsboro on behalf of the Commission. The Commission considers these items as a demand deposit account, whereby funds may be deposited or withdrawn without prior notice or penalty. Interest earnings are allocated from the City based on the proportion of the Commission's funds to the total of the City of Hillsboro funds.

Accounts Receivable

Accounts receivable are recorded as earned and no allowance for doubtful accounts is required as all receivables are due from the joint venturers.

Capital Assets

Capital assets are recorded at cost or estimated cost if actual cost is not known. Donated capital assets are recorded at their estimated fair value at the date of donation. Major outlays for capital assets and improvements are capitalized. All costs associated with the acquisition or construction of capital assets, including any interest costs, are contributed by the joint venturers.

The Commission defines capital assets as assets with an initial cost of more than $15,000 and an estimated life of one year or more. The costs of normal repairs and maintenance that do not add to the value of the assets or materially extend their lives are not capitalized.

Depreciation on capital assets placed in service is computed on the straight-line method over the following estimated useful lives:

	Years
Machinery and equipment	5
Treatment facilities	25 to 50
Transmission lines	50
Reservoir	50

Net Position

In the Commission-wide statement of net position, equity is referred to as net position and is segregated into the following components: 1) net investment in capital assets and 2) unrestricted. It is the Commission's policy to deplete, when available, restricted net position first before unrestricted net position is depleted.

Revenues

Operating revenues result from providing services to the joint venturers. All revenues not meeting this definition are reported as nonoperating revenues.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)

Pension Plan

Commission employees are employees of the City of Hillsboro; therefore, no pension liabilities are attributable to the Commission.

Budgets

Under ORS 294.316, municipal public utilities operating under separate commissions authorized under ORS 225 and city charters, and which have no ad valorem tax support, are not required to separately prepare and adopt a budget. Rather, such entities' budgets may be included in the city with primary managerial responsibility. Accordingly, a budget is prepared and legally adopted for the Commission as part of the total budget for the City of Hillsboro. The budget is prepared as a separate fund on the modified accrual basis of accounting.

2. CAPITAL ASSETS

Capital assets are comprised of:

	Balance June 30, 2015	Increases	Decreases	Transfers	Balance June 30, 2016
Capital assets not being depreciated:					
Land	$ 3,263,077	$ -	$ -	$ -	$ 3,263,077
Construction in progress	4,978,251	5,167,451	(444,777)	(1,060,013)	8,640,912
	8,241,328	5,167,451	(444,777)	(1,060,013)	11,903,989
Capital assets being depreciated:					
Machinery and equipment	2,874,431	125,586	-	124,913	3,124,930
Treatment facilities	45,956,175	-	-	398,209	46,354,384
Transmission lines	71,389,250	-	-	536,891	71,926,141
Reservoir	23,769,761	-	-	-	23,769,761
Total capital assets being depreciated	143,989,617	125,586	-	1,060,013	145,175,216
Less accumulated depreciation for:					
Machinery and equipment	(2,636,807)	(143,241)	-	-	(2,780,048)
Treatment facilities	(22,698,014)	(818,378)	-	-	(23,516,392)
Transmission lines	(20,250,366)	(1,416,729)	-	-	(21,667,095)
Reservoir	(5,335,783)	(475,397)	-	-	(5,811,180)
Total accumulated depreciation	(50,920,970)	(2,853,745)	-	-	(53,774,715)
Total capital assets being depreciated, net	93,068,647	(2,728,159)	-	1,060,013	91,400,501
Total capital assets, net	$ 101,309,975	$ 2,439,292	$ (444,777)	$ -	$ 103,304,490

3. NET POSITION BY JOINT VENTURER

Changes in net position for the year are as follows:

	Balance June 30, 2015	Loss Before Contributions	Reallocation of Previous Contributions From Others	Reallocation of Vault Asset Ownership	Contributions From Others	Venturers Contributions	Balance, June 30, 2016
City of Hillsboro	$ 48,170,136	$ (1,296,582)	$ 113,100	$ 200,150	$ 597,660	$ 2,521,950	$ 50,306,414
City of Forest Grove	5,772,987	(384,076)	(50,100)	59,289	29,255	211,991	5,639,346
City of Beaverton	15,219,614	(720,323)	(63,000)	(333,583)	109,597	568,908	14,781,213
Tualatin Valley Water District	32,147,238	(480,311)	-	74,144	147,338	689,108	32,577,517
Total	$101,309,975	$ (2,881,292)	$ -	$ -	$ 883,850	$ 3,991,957	$103,304,490

In the previous year, a contribution from a third party was allocated to the joint venturers by their ownership in the joint venture. This contribution was related to a specific project for emergency backup power which was funded by the joint venturers in a different allocation than the ownership percentages. Therefore, the reallocation of previous contribution aligns the valuation of the contribution based on the same percentages as the emergency backup power project.

In the previous year, expenses for work on a vault owned by the City of Beaverton were capitalized by the Commission. Payments from the City of Beaverton were classified as contributions, which overstated their investment in the partnership. $444,777 is shown on the Statement of Revenues, Expenses and Changes in Net Position as a loss on disposal of capital asset. Since the Loss before Contribution is allocated based on partner ownership, a reallocation was necessary to redistribute the initial City of Beaverton contribution at the same rate as the ownership percentages.

4. RELATED PARTY TRANSACTIONS

The Commission's expense to the City of Hillsboro was $2,419,097 for salary and benefits for services performed by the City's employees on behalf of the Commission (including capitalized personnel services of $185,455), and $329,528 for support services. The Commission owes the City $135,689 for these services at June 30, 2016.

5. COMMITMENTS AND CONTINGENCIES

As of June 30, 2016, the Commission has outstanding construction and services commitments amounting to approximately $5.7 million.

6. RISK MANAGEMENT

The Commission is exposed to various risks of loss related to torts; theft or damage to and destruction of assets; errors and omissions; and natural disasters for which the Commission carries commercial insurance. The Commission does not engage in risk financing activities where the risk is retained (self-insurance). In the past three years insurance coverage has been sufficient to cover any losses.

SUPPLEMENTAL INFORMATION

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HILLSBORO-FOREST GROVE-BEAVERTON-
TUALATIN VALLEY WATER DISTRICT
JOINT WATER COMMISSION
Hillsboro, Oregon

SCHEDULE OF REVENUES, EXPENDITURES
AND CHANGES IN FUND BALANCE - BUDGET AND ACTUAL

YEAR ENDED JUNE 30, 2016

	Budget			Variance with Final Budget Positive
	Original	Final	Actual	(Negative)
REVENUES:				
Sale of water	$ 6,737,269	$ 7,200,093	$ 7,007,439	$ (192,654)
Contributions in aid of construction	6,035,150	6,035,150	3,991,957	(2,043,193)
Grants and donations	862,850	862,850	906,429	43,579
Interest	-	-	12,380	12,380
Other	500,000	500,000	56,598	(443,402)
TOTAL REVENUES	14,135,269	14,598,093	11,974,803	(2,623,290)
EXPENDITURES:				
Personnel services	2,466,692	2,466,692	2,419,097	47,595
Materials and services	3,534,773	3,634,773	3,495,963	138,810
Capital outlay	7,079,500	7,079,500	5,215,787	1,863,713
Special expenditures	554,304	917,128	843,956	73,172
Contingency	500,000	500,000	-	500,000
TOTAL EXPENDITURES	14,135,269	14,598,093	11,974,803	2,623,290
EXCESS OF REVENUES OVER EXPENDITURES	-	-	-	-
FUND BALANCE - BEGINNING	-	-	-	-
FUND BALANCE - ENDING	$ -	$ -	$ -	$ -

RECONCILIATION OF CHANGE IN FUND BALANCE
TO CHANGE IN NET POSITION

CHANGE IN FUND BALANCE	$ -
Add (deduct) items to reconcile to change in net position:	
Depreciation	(2,853,745)
Capital asset additions	5,293,037
Disposal of capital assets	(444,777)
CHANGE IN NET POSITION	$ 1,994,515

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INDEPENDENT AUDITOR'S REPORT
REQUIRED BY OREGON STATE REGULATIONS

Talbot, Korvola
& Warwick, LLP

Certified Public Accountants
& Consultants

ACHIEVE MORE

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INDEPENDENT AUDITOR'S REPORT
REQUIRED BY OREGON STATE REGULATIONS

Board of Commissioners
Hillsboro-Forest Grove-Beaverton-
Tualatin Valley Water District
Joint Water Commission
Hillsboro Oregon

We have audited, in accordance with auditing standards generally accepted in the United States of America, the basic financial statements of the Hillsboro-Forest Grove-Beaverton-Tualatin Valley Water District Joint Water Commission, Hillsboro, Oregon (the Commission) as of and for the year ended June 30, 2016, and have issued our report thereon dated December 5, 2016.

COMPLIANCE

As part of obtaining reasonable assurance about whether the Commission's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grants, including the provisions of Oregon Revised Statutes as specified in Oregon Administrative Rules 162-10-000 through 162-10-320 of the *Minimum Standards for Audits of Oregon Municipal Corporations*, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion.

We performed procedures to the extent we considered necessary to address the required comments and disclosures which included, but were not limited to the following:

- Deposit of public funds with financial institutions (ORS Chapter 295).
- Indebtedness limitations, restrictions and repayment.
- Insurance and fidelity bonds in force or required by law.
- Authorized investment of surplus funds (ORS Chapter 294).
- Public contracts and purchasing (ORS Chapters 279A, 279B, 279C).

In connection with our testing, nothing came to our attention that caused us to believe the Commission was not in substantial compliance with certain provisions of laws, regulations, contracts, and grants, including the provisions of Oregon Revised Statutes as specified in Oregon Administrative Rules 162-10-000 through 162-10-320 of the *Minimum Standards for Audits of Oregon Municipal Corporations.*

OAR 162-10-0230 INTERNAL CONTROL

In planning and performing our audit of the financial statements, we considered the Commission's internal control over financial reporting to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Commission's internal control. Accordingly, we do not express an opinion on the effectiveness of the Commission's internal control.

RESTRICTIONS ON USE

This report is intended solely for the information and use of the Board of Commissioners, management, and the Oregon Secretary of State Audits Division and is not intended to be and should not be used by anyone other than these specified parties.

Talbot, Korvola & Warwick LLP

Lake Oswego, Oregon
December 5, 2016

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STAFF REPORT

To: Joint Water Commission

From: Kevin Hanway, General Manager

Date: January 13, 2017

Re: Agenda Item 4A & 4B – JWC 2017 Elections and Designation of Managing Agency

---

The Joint Water Commission IGA provides that each January the partners appoint a Chair, Vice-Chairs and Alternates.

Traditionally the position of Chair has rotated on an annual basis among the partners; under that rotation system, it is Forest Grove's turn to serve as Chair.

Each of the other partners is required to designate a Vice Chair and all four partners are required to appoint an alternate. The Chair and Vice Chairs serve as the Executive Committee of JWC; the Executive Committee has certain limited authorities to meet and act between commission meetings.

This table displays the appointments that need to be made by each partner for 2017 positions:

Agency	Chair	Vice-Chair	Alternate
Beaverton		✓	✓
Forest Grove	✓		✓
Hillsboro		✓	✓
TVWD		✓	✓

Please be prepared to announce your agency's appointments at the Commission meeting as indicated in the above table.

Finally, the IGA requires that each year the Commission designate the Managing Agency, which manages the operations of the Joint Water Commission. The City of Hillsboro has served as the Commission's managing agency since its inception.

STAFF REPORT

To: Joint Water Commission

From: Mellisa Franklin, Management Analyst

Date: December 21, 2016

Re: Agenda Item 4C – Consider approval of lease for water treatment plant capacity

---

Staff Recommendation:
Approve the lease of 2 million gallons per day (mgd) of water treatment plant capacity to TVWD for the lease year ending February 28, 2018.

Background:
Pursuant to Article VII of the JWC Intergovernmental Agreement, Tualatin Valley Water District (TVWD) has requested a standard one-year lease of 2 mgd of excess Water Treatment Plant (WTP) capacity from the other partners. Other partners made available a total of 4.5 mgd of capacity to be leased (2 mgd offered by Beaverton, 2.5 mgd by Forest Grove). As provided by the IGA, each partner's offer is reduced to its proportionate share of the amount to be leased, and the lease revenue is distributed among those partners in the same percentages.

The lease will increase the WTP capacity available to TVWD from 12.5 mgd to 14.5 mgd beginning March 1, 2017, through February 28, 2018. The WTP capacity available to Beaverton and Forest Grove will be decreased by their shares of the leased amount through the same period.

If the lease request is approved by the Commission, the Lease Agreement will be distributed for signature by the parties. The full lease value amount will be invoiced immediately. The lease valuation of WTP capacity was updated recently to $51,025 per mgd, resulting in a total lease cost of $102,050 for 2 mgd.

The table below displays how the capacity and revenue will be distributed among the partners.

	Beaverton	Forest Grove	Total
Offered (mgd)	2	2.5	4.5
% of Offered	44.44%	55.56%	100.00%
Lease Value Allocation	$45,356	$56,694	$102,050
Capacity Allocation (mgd)	.89	1.11	2.0

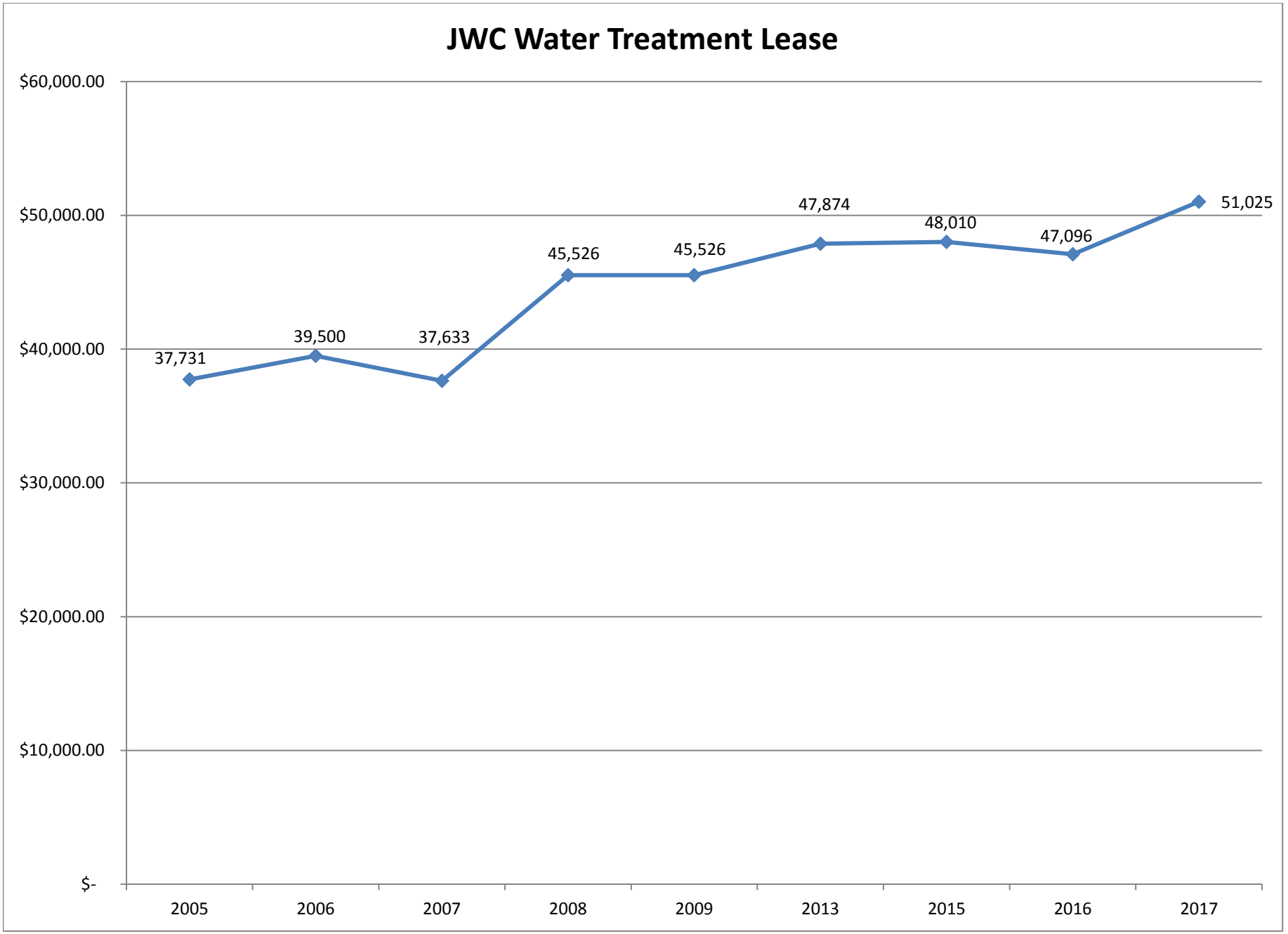
Attachments:
1. FY 2017-18 Lease payments worksheet
2. JWC Water Treatment Plant Lease History

Treatment

ASSUMPTIONS:	1976 Expansion	Fern Hill Reservoir	1985 Expansion	1999 Expansion	2006 WTP Improvements Asset #10280	Fern Hill Reservoir II Asset #10284	Lab/Lunchroom Improvements #10695 & 10278	JWC Stairwell Enclosure Asset #10751	Lighting Equip Asset #10843	Lighting Upgrade to JWTP #10910	Quonset Hut Recond & Security #10914	Electrical Assesstment #10523	WTP Electrical Panel Upgrade #10684	Filter 9-14 Valve Replacement #10709	Pump Station #1 Ball Valve #10707	Pump 4 & 5 Replacement #10714	VFD Repair/Replace #10715	Re-Roof of WTP Ops Building #10828	WTP CIP Seismic Planning Vulnerability Study #10913	Totals
Year of appraisal/construction	*1993*	*1993*	*1993*	*1999*	*2008*	*2008*	*2010*	*2011*	*2012*	*2014*	*2014*	*2014*	*2014*	*2014*	*2014*	*2014*	*2014*	*2016*	*2016*	
Year of Construction	1976	1982	1985	1999	2006	2008	2010	2011	2012	2014	2014	2014	2014	2014	2014	2014	2014	2016	2016	
Cost of Construction	$ 13,774,254	$ 3,508,000	$ 2,406,812	$ 19,673,706	$ 6,145,985	$ 18,934,093	$ 302,004	$ 30,135	$ 18,537	$ 32,576	$ 75,348	$ 54,635	$ 1,197,827	$ 108,550	$ 298,149	$ 221,765	$ 45,710	$ 236,712	$ 161,496	$ 67,226,294
Storage Capacity (mgd)	n/a	20	n/a	n/a	n/a	20	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	40
Capacity (mgd)	20	n/a	20	20	10	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	70
Useful Life	50	50	50	50	40	50	30	30	30	30	30	50	50	50	50	50	50	30	30	
Month and Year Lease Entered Into	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	*2017* Mar-17	
Municipal Bond Index - *Year of lease*	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	
Engineering News Record Index - *Month / Year Construction Complete*	5,336.00	5,336.00	5,336.00	6,931.66	8,625.08	8,625.08	8,660.08	8,938.00	9,059.77	10,140.15	10,140.15	10,140.15	10,140.15	10,140.15	10,140.15	10,140.15	10,140.15	10,571.41	10,571.41	
Engineering News Record Index - *Dec prior to Mo / Year of Lease*	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	10,622.73	
LEASE CALCULATION:	**1976 Expansion**	**Fern Hill Reservoir**	**1985 Expansion**	**1999 Expansion**	**2006 WTP Improvements**	**Fern Hill Reservoir II**	**Lab/Lunchroom Improvements**	**JWC Stairwell Enclosure**	**Lighting Equip**	**Lighting Upgrade**	**Quonset Hut**	**Electrical Assessment**	**Electrical Panel Upgrade**	**Filter 9-14 Valve Replacement**	**Pump Station #1 Ball Valve**	**Pump 4 & 5 Replacement**	**VFD Repair/Replace**	**Re-Roof of WTP Ops Building**	**WTP CIP Seismic Planning Vulnerability Study**	**Totals**
Replacement Cost	$ 27,421,323	$ 6,983,609	4,791,401	30,149,844	7,569,453	23,319,408	370,447	35,815	21,735	34,127	78,934	57,235	1,254,833	113,716	312,338	232,319	47,886	237,861	162,280	103,194,563
Accumulated Depreciation	(13,162,235)	(3,352,132)	(2,299,872)	(10,853,944)	(1,703,127)	(4,197,493)	(86,438)	(7,163)	(3,622)	(3,413)	(7,893)	(3,434)	(75,290)	(6,823)	(18,740)	(13,939)	(2,873)	(7,929)	(5,409)	(35,811,771)
Depreciated Replacement Cost	14,259,088	3,631,477	2,491,528	19,295,900	5,866,326	19,121,914	284,010	28,652	18,112	30,714	71,040	53,801	1,179,543	106,893	293,598	218,380	45,013	229,933	156,871	67,382,792
Lease Payment	848,949	216,209	148,339	1,018,577	315,115	892,310	18,274	1,794	1,105	1,787	4,134	2,370	51,957	4,708	12,932	9,619	1,983	12,827	8,751	3,571,739
ANNUAL COST																				**51,025**

Previous lease charged in 2016 *$ 47,096*

Updated: 12/21/2016


JWC Water Treatment Lease
$60,000.00
$50,000.00
$40,000.00
$30,000.00
$20,000.00
$10,000.00
$-
37,731
39,500
37,633
45,526
45,526
47,874
48,010
47,096
51,025
2005
2006
2007
2008
2009
2013
2015
2016
2017

FY 2017-2018
LEASE PAYMENTS

TVWD						
Asset Leased	**Own**	**Qty requested**	**Quantity leased**	**Unit of measure**	**Price per unit**	**Extended**
WTP Capacity	12.50	2.00	2.00	MGD	51,025	102,050
Total					TVWD Expense	**102,050**

Total Payments 102,050

LEASE RECEIPTS

BEAVERTON						
Asset Leased	**Own**	**Avail Lease**	**Qty Leased**	**Unit of measure**	**Price per unit**	**Extended**
WTP Capacity	18.75	2.00	0.89	MGD	51,025	45,355
Total						**45,355**

FOREST GROVE						
Asset Leased	**Own**	**Avail Lease**	**Qty Leased**	**Unit of measure**	**Price per unit**	**Extended**
WTP Capacity	10.00	2.50	1.11	MGD	51,025	56,694
Total						**56,694**

STAFF REPORT

To: Joint Water Commission

From: Erika Murphy, Project Manager

Date: December 22, 2016

Subject: Agenda Item 4D – Consider award of Guaranteed Maximum Price (GMP) for Package 1 Improvements for JWC WTP Expansion to 85 MGD Project

---

Staff Recommendation:
Award Guaranteed Maximum Price (GMP) for Package 1 Improvements for JWC Water Treatment Plant (WTP) Expansion to 85 MGD Project in the amount of $4,869,882.

Background:
JWC's FY 2015-16 capital projects budget includes the commencement of a water treatment plant project to complete capacity upgrades, expansion, and seismic improvements at the water treatment plant, along with a facility plan for future replacement of most of the existing WTP facilities to address seismic resilience needs. The project is scheduled for completion in 2019.

The top priority for the JWC partners on this project is to prevent extended interruptions of treatment plant operations throughout the construction phase while maintaining the planned construction completion schedule. Utilizing a Construction Manager/General Contractor (CM/GC) delivery approach will greatly improve JWC's ability to achieve this priority. The Commission has approved a CM/GC delivery approach, and has awarded the contract to Slayden Constructors.

The project has been broken into two bid packages, primarily for scheduling purposes, so that the full project can achieve completion as scheduled in 2019. Each bid package includes work related to both 75 MGD capacity upgrade and 85 MGD capacity expansion. Package 1 includes construction and procurement work that can begin immediately. Package 2 includes improvements for which construction cannot begin until later this year after land use approvals have been obtained.

This report includes one action item and two information items:

1. Information: Advising the Commission of execution of an Early Work Amendment to the CM/GC contract.
2. Action Item: Requesting approval of Guaranteed Maximum Price (GMP) for Bid Package 1.
3. Information: Advising the Commission on the status of design and estimated cost of Bid Package 2.

1. Information Item 1 – Early Work Amendment:

Eliminating the hydraulic restriction in the rapid mix was identified as a critical component of Package 1 improvements. Removing the baffle wall in the rapid mix and installing new chemical piping and larger chemical pumps will achieve 75 MGD+ capacity. The Operations Committee set a priority of completing these improvements by June 2017, so that the additional WTP production capacity would be available to meet partner demands during the 2017 peak season.

Construction of the rapid mix improvements is part of Bid Package 1. To avoid interference with the WTP's ability to meet JWC member demands during the peak season, construction of the rapid mix improvements must occur outside of the WTP peak production season. Building permits have already been obtained for the rapid mix work. Working with the vendor and manufacturer for procurement of the rapid mix pumps requires a long lead-time. Beginning that procurement process after award of the Package 1 GMP involves significant risk that the pumps would not be delivered in time to complete the improvements prior to the 2017 peak season.

In order to expedite the submittal review and delivery of the rapid mix pumps, chemical feed pumps and filter media, the JWC General Manager executed an Early Work Amendment (EWA), as permitted by JWC purchasing rules. Early work amendment No. 1 includes:

Rapid mix pump procurement	$119,962
Chemical Metering Pump Submittals	$0
Filter Media Submittal	$5,000
Slayden management	$7,154
Overhead and Profit (4.0%)	$5,285
Bonds/Insurance (0.6%)	$1,648
Early Work Total	$139,049

The EWA allowed Slayden to initiate the submittal process with their suppliers, giving the team over four additional weeks to complete construction of the rapid mix improvements prior to next high demand season (assumed June 1, 2017). Issuing the EWA does not obligate the JWC to award any additional work to Slayden. Under Oregon contracting rules, the EWA marked the commencement of the construction contract for this project, and fixed the BOLI wage levels at the 2016 levels for the duration of the project.

2. Action Item – Guaranteed Maximum Price (GMP) for Package 1 Improvements:

During the pre-construction phases of both Package 1 and Package 2 over the last six months, Slayden Constructors has provided services that include, but are not limited to: weekly meetings with the JWC staff and CH2M, design and constructability reviews at 30%, 60% and 90% design, value engineering, cost estimating, project scheduling, and assistance in development of procurement strategies and sub-contractor selection.

Package 1 is now at 100% complete. Slayden provided costs estimates for 60%, 90% and 100% design of Package 1. Having realistic construction cost estimates during the design phase has allowed the

team to modify the scope and design to reduce project costs while still achieving the project objectives.

Slayden's initial construction estimates for the Package 1 improvements– based on 60% design –were received in November and came in at $8.10 million. Slayden estimated this cost based on their anticipated self-performed work and on preliminary material quotes received from local suppliers.

Upon receipt of the 90% design, Slayden updated its cost estimate. To establish procurement costs of materials and sub-contractor work, Slayden competitively bid seven packages, including:

- Electrical sub-contractor
- Painting sub-contractor
- Rapid mix pumps
- Chemical metering pumps
- Filter media (sand and anthracite)
- Plate settlers
- Vertical turbine pumps

With the receipt of these sub-contractor and material quotes, the construction estimate for 90% design came in at $6.67 million, which was significantly reduced from initial estimates although the scope remained essentially the same. The bid results for all bid packages are included in the GMP submittal.

The bid prices demonstrated additional value from the selection of Slayden as the CM/GC contractor. The Operations Committee had initially planned to procure several items on a sole source basis, in particular plate settlers and vertical turbine pumps. The advantage of sole sourcing is to ensure that new equipment is the same that is already on site, for ease of maintenance and supplying spare parts. The alternative to sole source designation of a specific equipment manufacturer is a competitive bid process in which bidders must provide equipment that meets certain specifications but can be provided by any manufacturer. However, Slayden demonstrated to the Operations Committee that alternate brands could perform as well as the brands currently in use at the WTP, and encouraged them to consider open bidding to minimize costs from suppliers. The Operations Committee followed Slayden's recommendation and saw significant soft savings in the bid results, especially on plate settlers; the low bid was the brand that is currently in use at the WTP but came in more than $900,000 below the original estimate.

The GMP that is proposed for award is $4,869,882. Cost share allocations by partner and a cost summary detail of the GMP are provided in attached Exhibits 1 and 2.

The decreased Package 1 costs between the 90% estimate and 100% GMP can be attributed to several factors. During a Value Engineering session on December 13th, the Operations Committee elected to defer select maintenance projects until Package 2 or later, depending on overall project costs as Package 2 design continues to develop. Specific changes that were made to the Package 1 GMP between 90% and 100% are as follows:

- Procurement of finished water pumps 1, 2 and 6 was deferred until Package 2 (or later, budget depending).
- Chemical containment upgrades were deferred until Package 2.
- Air compressor upgrades were removed from the scope. (JWC WTP staff to perform work.)
- Procurement of replacement plate settler in Basin G was removed from scope. (This existing plate settler is functioning normally, despite spot corrosion at connection points.) Procurement of plate settlers for Basins D-F is a long lead-time item and remains in the Package 1 GMP, with installation to be performed in Package 2.
- Reduced overhead costs for Slayden by moving personnel off-site from June 1-September 15, 2017, during high demand season, when no construction activity is planned.
- Removal of Slayden's 3% contingency for plan changes between 90% and 100% design.

3. Information – Package 2 Improvements Status of Design and Cost Estimates

Package 2 has completed 15% and 30% design stages. Design and permitting processes are scheduled to continue through the summer. A proposed GMP for Package 2 is scheduled for presentation to the Commission in October 2017.

During the Facility Plan process CH2M provided an early estimate for total project cost of approximately $31 million. This early estimate was based on 0% design and did not include any contingency nor did it account for price escalation over the multiple-year duration of the project.

Slayden provided a 15% design construction estimate for Package 2 in November. The estimate was $17.66 million, which also did not include any contingency. Based on this estimate, total project cost would be approximately $32 million (when combined with its Package 1 estimate, CH2M's design fee– $5.3 million, Slayden's pre-construction services–$185,000 and JWC staff time – estimated $700,000).

Upon CH2M's completion of 30% design plans, Slayden updated its construction cost estimate to $28.98 million. Using this value would produce a total project cost of approximately $41.7 million.

This significant increase from the 15% estimate was due to several factors:

- Slayden added 10% contingency for Package 2 work, for a total of $2.5 million.
- About $4 million of the additional cost can be attributed to specification in the 30% design of ground improvements (auger cast piles) under the new settled water pipe and filter yard piping. This approach to ground improvements would create a very conservative seismic-resilient system to protect the yard piping from displacement during an earthquake due to liquefiable soils. No ground improvements under yard piping were identified in the 15% design, nor were they identified in the 2015 CIP update.
- The electrical scope of work has not been detailed out and was estimated at an allowance of 10% of the total work ($2.5 million). For the Package 2 GMP, the electrical work will be competitively bid.

It can be expected at the 30% design phase for project budgets to be very different than preliminary engineer's estimates. The design development process typically provides for value engineering efforts to begin at this stage.

On December 13th, the Operations Committee began Value Engineering (VE) discussions to reduce overall project costs. The discussion focused around:

- Clarification and prioritization of project objectives
- potential scope reduction and cost savings
- weighing advantages and risks of deferring or deleting work from the project scope
- project schedule and the possibility of delaying some elements of package 1 work
- permitting and procurement consequences of delaying construction work
- options for achieving seismic resiliency consistent with target levels of service

As a result of the VE session, the Operations Committee identified options to reduce project cost while still achieving the project objectives of life safety improvements, sustainable 75 MGD capacity, and an expansion to 85 MGD.

One option for reducing project cost is to defer several maintenance projects (such as replacement of aging finished water pumps) until after project completion (2020 or later). The deferral of maintenance projects comes with increased risk that the equipment could fail before it is replaced.

Another potential cost-saving option identified is to move the new filters and surge basin structures east. The advantage of this option is a significant reduction in length of new yard piping and associated ground improvements for seismic resiliency. However, the move would place the filters in an existing wetland. The permitting risks of that move are still being investigated but could be quite significant, including the potential to delay the project by at least one year, and subjecting the project to additional environmental reviews and the risk of additional approval conditions that could offset the potential cost savings.

The likely scenario is an option which defers some maintenance projects and does not encroach on the existing wetland, with total project costs roughly mid-way between the 15% and 30% cost estimates. These costs will continue to develop as design progresses.

The Operations Committee will conduct a VE session in late January 2017 to discuss alternate design options to achieve seismic resiliency and reduce project costs. CH2M, under the direction of the Operations Committee, will continue to look for alternatives to decrease costs such as:

- Consolidate pipe corridor to reduce ground improvement costs.
- A foundation design which would include reduced depth of ground improvement.
- Reduced depth of ground improvements under yard piping, coupled with flexible valve couplings to address the probable increased pipe movement in a seismic event.
- Modify from auger cast piles to alternative method for ground improvements.
- Decrease pipe sizes to match capacity of filters as of the completion of the 85 MGD expansion. This will add cost to the future facilities and may require replacement of some of this pipe, or laying additional parallel pipe, to supply additional expanded capacity in the next WTP upgrade.

- Deferring capital improvement and maintenance project (CIMP) items. Note that this work would still need to be done in the future. Deferral of these projects also results in increased risk of loss of capacity if the equipment fails prior to replacement.

Attachments:

1. GMP Amendment Contract
2. GMP Submittal dated December 16, 2016 (Available online at http://jwcwater.org/what-we-do/current-projects/)
3. JWC partner cost share allocations

EXHIBIT D – GMP AMENDMENT

CONSTRUCTION MANAGER/GENERAL CONTRACTOR CONTRACT
Contract No. 80054200-7040-10571
Between JOINT WATER COMMISSION

and

SLAYDEN CONSTRUCTORS, INC.

AMENDMENT No. 2

for the following PROJECT:
JWC WTP Expansion to 85 MGD
Joint Water Commission Water Treatment Plant
4475 SW Fern Hill Road
Forest Grove, OR 97116

Joint Water Commission
c/o City of Hillsboro
150 E. Main Street
Hillsboro, OR 97123

THE CM/GC:
Slayden Constructors, Inc.
PO Box 247
Stayton, OR 97383

EXHIBIT D.1
D.1.1 Guaranteed Maximum Price
Pursuant to Article 6. of the Contract, the Joint Water Commission and CM/GC hereby amend the Contract to establish a Guaranteed Maximum Price. As agreed by the Joint Water Commission and CM/GC, the Guaranteed Maximum Price is an amount that the Contract Sum shall not exceed.

D.1.1.1 The Contract Sum is guaranteed by the CM/GC not to exceed four million, eight hundred sixty-nine thousand, eight hundred eighty two dollars ($4,869,882), subject to additions and deductions as provided in the Contract Documents.

D.1.1.2 Itemized Statement of the Guaranteed Maximum Price. Provided below is an itemized statement of the Guaranteed Maximum Price organized by trade categories, allowances, contingencies, alternates, the CM/GC's Fee, and other items that comprise the Guaranteed Maximum Price.

Attachment 1: JWC Package 1 – 100% GMP Submittal dated December 16, 2016

D.1.1.3 The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Joint Water Commission:

No alternatives

D.1.1.4 Allowances included in the Guaranteed Maximum Price, if any:

Allowances listed on page 99 of Attachment 1: JWC Package 1 – 100% GMP Submittal dated 12/16/16

Item	**Price ($0.00)**
1. Instrumentation & Control Panels	($150,000.00)
2. Water Manager's Office	($35,000.00)

D.1.1.5 Assumptions, if any, on which the Guaranteed Maximum Price is based:

Assumptions listed on pages 96 and 97 of Attachment 1: JWC Package 1 – 100% GMP Submittal dated 12/16/16

D.1.1.6 The Guaranteed Maximum Price is based upon the following Supplementary and other Conditions of the Contract:

Document	**Title**	**Date**	**Pages**
N/A	N/A	N/A	N/A

D.1.1.7 The Guaranteed Maximum Price is based upon the following Specifications:

Section	**Title**	**Date**	**Pages**
Complete Document	Package 1 – Specs – 100 percent_Signed	December 2016	1 - 762

§ D.1.1.8 The Guaranteed Maximum Price is based upon the following Drawings:

Number	**Title**	**Date**
Complete Document, Pages 1 - 77	Package 1 - Drawings - 100 percent_Signed	December 2016

D.1.1.9 The Guaranteed Maximum Price is based upon the following other documents and information:

N/A

ARTICLE D.2

D.2.1 In accordance with paragraph 5.b of the Contract, the anticipated date of Substantial Completion established by this Amendment is:

November 30, 2017

If this date is different than the date established in paragraph 5.b of the Contract, the date in this GMP Amendment will control.

ARTICLE D.3

D.3.1 As permitted by paragraph 6.d. of the Contract, the CM/GC will continue providing the following pre-construction services after execution of this GMP Amendment and Joint Water Commission will compensate CM/GC for such continued pre-construction services as follows:

Pre-construction Services for Package 2 as described in Exhibit B – RFP for CM/GC Services and authorized in Contract dated July 14, 2016.

For the JWC

Joint Water Commission *(Signature)* *(Date)*

Kevin Hanway, JWC General Manager

(Printed name and title)

For the CM/GC

Slayden Constructors *(Signature)* *(Date)*

(Printed name and title)

JWC WTP Expansion to 85MGD GMP Package 1 Received 12/16/16			JWC Partner Shares 75MGD/CIMP/Life Safety				COH/TVWD Shares 85MGD	
			Hillsboro 45%	TVWD 16.67%	Beaverton 25%	Forest Grove 13.33%	Hillsboro 80%	TVWD 20%
Cost of Work - Package 1	$	4,406,718	$ 1,051,111	$ 389,378	$ 583,951	$ 311,363	$ 1,656,732	$ 414,183
Construction Contingency (5.0%)	$	220,336	$ 52,556	$ 19,469	$ 29,198	$ 15,568	$ 82,837	$ 20,709
Overhead & Profit (4.0%)	$	185,082	$ 44,147	$ 16,354	$ 24,526	$ 13,077	$ 69,583	$ 17,396
Bonds (0.6%)	$	28,873	$ 6,887	$ 2,551	$ 3,826	$ 2,040	$ 10,855	$ 2,714
Insurance (0.6%)	$	28,873	$ 6,887	$ 2,551	$ 3,826	$ 2,040	$ 10,855	$ 2,714
Total GMP Value	**$**	**4,869,882**	$ 1,161,587	$ 430,304	$ 645,326	$ 344,088	$ 1,830,862	$ 457,715

Total Partner Shares for Package 1 GMP		
Hillsboro	$	2,992,449
TVWD	$	888,019
Beaverton	$	645,326
Forest Grove	$	344,088
Total Package 1 GMP	**$**	**4,869,882**

JWC Water Treatment Plant Expansion to 85MGD Project
100% GMP Cost Summary - Received 12/16/2016

Bid Item	Description	Detailed Total	Facility Total	Funding Source Total: 75MGD, CIMP, Life Safety 85MGD	Facility Costs with Indirect Costs Spread Proportionately	Funding Source with Indirect Costs Spread Proportionately	JWC Partner Shares 75MGD, CIMP, Life Safety				Hillsboro & TVWD Partner Shares 85MGD	
							Hillsboro 45%	TVWD 16.67%	Beaverton 25%	Forest Grove 13.33%	Hillsboro 80%	TVWD 20%
9000	Indirect Costs			$ 782,929								
90000	GC Site Labor	$ 47,055										
92000	Management	$ 453,022										
93000	General Services	$ 32,172										
94000	SCI Facilities	$ 36,695										
96000	General Equipment	$ 166,347										
97000	Staging Area and Storage	$ 47,638										
100000	75 MGD			$ 164,817		$ 200,426.14	$ 90,191.77	$ 33,411.04	$ 50,106.54	$ 26,716.81		
115000	Rapid Mix Facility		$ 164,817		$ 200,426		$ 90,192	$ 33,411	$ 50,107	$ 26,717		
115100	Remove Fiberglass Baffle Wall	$ 2,886										
115200	Relocate Jet Injectors	$ 161,931										
200000	85 MGD			$ 1,702,982		$ 2,070,915.72					$ 1,656,732.58	$ 414,183.14
210000	Raw Water Pump Station		$ 457,655		$ 556,533						$ 445,226	$ 111,307
215000	Rapid Mix Facility		$ 233,946		$ 284,490						$ 227,592	$ 56,898
215100	Install Coagulated Water Flow Meters	$ 85,989										
215110	New Vault for New Flow Meters	$ 59,090										
215400	Upgrade Rapid Mix Pumps	$ 22,453										
219900	Electrical and I&C	$ 66,413										
220000	Floc-Sed Basins		$ 1,011,381		$ 1,229,893						$ 983,914	$ 245,979
300000	CIMP			$ 1,523,983		$ 1,853,243.52	$ 833,959.58	$ 308,935.69	$ 463,310.88	$ 247,037.36		
340000	Filters		$ 1,025,113		$ 1,246,591		$ 560,966	$ 207,807	$ 311,648	$ 166,171		
340100	Paint Gallery Piping and Clearwell Extension	$ 188,695										
340200	Replace Media	$ 836,418										
360000	Finish Water Pump Station 1		$ 125,946		$ 153,157		$ 68,921	$ 25,531	$ 38,289	$ 20,416		
360100	FW Water Vertical Turbine Pumps	$ -										
360200	BW Vertical Turbine Pumps	$ 125,946										
380000	Chemical Facilities		$ 337,925		$ 410,934		$ 184,920	$ 68,503	$ 102,734	$ 54,778		
380101	Chemical System Demo	$ 17,881										
380110	Alum Pump Upgrades	$ 18,443										
380120	Caustic Pump Upgrades	$ 39,394										
380150	Alum Piping	$ 43,842										
380160	Caustic Piping	$ 42,896										
380200	Chlorine Feed Line Replacement	$ -										
380300	Chem Containment Pump and Piping Improvement	$ -										
380330	New Drain Pump	$ -										
380340	New Mechanical	$ -										
380900	Electrical and I&C	$ 175,469										
385000	Operations Building		$ 35,000		$ 42,562		$ 19,153	$ 7,095	$ 10,640	$ 5,673		
385100	Water Managers Office	$ 35,000										
390000	General Site and Yard Piping		$ -		$ -							
391000	Air Piping	$ -										
392000	Air Compressor	$ -										
400000	Life Safety			$ 232,007		$ 282,132.42	$ 126,959.59	$ 47,031.47	$ 70,533.10	$ 37,608.25		
410000	Raw Water Pump Station		$ 8,008		$ 9,738		$ 4,382	$ 1,623	$ 2,434	$ 1,298		
415000	Rapid Mix Facility		$ 6,129		$ 7,453		$ 3,354	$ 1,242	$ 1,863	$ 993		
440000	Filters		$ 5,680		$ 6,907		$ 3,108	$ 1,151	$ 1,727	$ 921		
460000	Finish Water Pump Station 1		$ 41,248		$ 50,159		$ 22,572	$ 8,362	$ 12,540	$ 6,686		
462000	Finish Water Pump Station 2		$ 44,897		$ 54,597		$ 24,569	$ 9,101	$ 13,649	$ 7,278		
485000	Operations Building		$ 93,885		$ 114,169		$ 51,376	$ 19,032	$ 28,542	$ 15,219		
495000	MCC/Generator Building		$ 27,612		$ 33,578		$ 15,110	$ 5,597	$ 8,394	$ 4,476		
499000	Field Verifications		$ 4,549		$ 5,532		$ 2,489	$ 922	$ 1,383	$ 737		
	Total Direct Cost at 100%			$ 4,406,718	$ 4,406,718	$ 4,406,718	$ 1,051,111	$ 389,378	$ 583,951	$ 311,363	$ 1,656,732	$ 414,183

STAFF REPORT

To: Joint Water Commission

From: Tacy Steele, Water Programs Manager

Date: January 13, 2017

Subject: Agenda Item 4E - JWC 2017 Updated Curtailment Plan

Staff Recommendation:

Approve Resolution 129-J adopting the updated JWC Curtailment Plan and accompanying Decision Tree.

Background:

In 1998, the Joint Water Commission submitted its first Water Management and Conservation Plan (WMCP) to the State, in accordance with Oregon Administrative Rules, Chapter 690, Division 86. The 1998 plan included a conservation plan that had been written as a condition of approval for the Barney Reservoir Expansion Project, for the purpose of addressing the role of conservation in the resource management and planning process. The conservation plan had previously been adopted separately by the JWC in 1993, and only contained a limited curtailment section identifying causes and trigger levels. The 1998 plan proposed that an expanded curtailment section be completed for the 2010 WMCP plan.

The Curtailment section of the 2010 WMCP was expanded, and had some "lessons learned" experience to draw on after the 2001 drought. This update focused primarily on drought and peak season issues. Individual partner curtailment plans were also required by the Oregon Water Resources Department (OWRD), since customer curtailment would actually be delegated to, and implemented by, the individual member agencies.

The first draft of a proposed updated Curtailment Plan was brought before the Commission on July 8, 2016. The Commission discussed the document and provided input as to priorities to be addressed in the Plan, prior to approval. JWC staff worked closely with the JWC Operations Committee to further revise the Plan and to determine placement of components and directives between the Curtailment Plan, the JWC Operations Plan and the JWC Emergency Management Plan. A Curtailment Plan update was provided to the Commission at the October 14, 2016 Board meeting, and additional comment was again received. The Commission was informed that staff planned to return to the JWC Board meeting on January 13, 2017, with the Curtailment Plan and Resolution ready for adoption.

Current Status:

The revised final draft Curtailment Plan is attached. Also attached is the draft Curtailment Plan that was presented to the Commission in June 2016. The document has undergone extensive revisions since June, so that review of a "redlined" version showing all changes would be very difficult. To assist Commissioners with their review, key revisions are noted below so that the two Curtailment Plan drafts can be compared. Key NEW components that have been added to the updated plan include:

- Updated summaries of past incidents that required curtailment considerations for the Joint Water Commission. *(pgs. 4-1 – 4-4 of original draft and 1-4 of final draft)*
- Updated list of reliability improvements to JWC system and plants for future improvements. *(pg. 4-4 of original draft and pgs. 4-5 of final draft)*
- Direction by Board to clearly define decisions to be made based on scenarios and which protocols should be followed based on those decisions was handled through the creation of a Curtailment Decision Tree as an accompanying document that will be attached as an appendix to the Plan. *(Curtailment Decision Tree document)*
- When WTP capacity is limited, the partners will respond first by collaborating to seek a resolution that does not trigger across-the-board curtailment measures. The partners have a history of collaborating in this manner; the updated plan will put into writing what is already a common practice. Collaboration to avoid curtailment occurred in the 2001 drought and the 2015 flood, and partners have collaborated on other events as well. *(pg. 4-5 original draft, pg. 6 of final draft – references to collaborative approach occur throughout document.)*
- If the collaborative approach doesn't resolve the situation, the available WTP capacity will be allocated to individual partners based on their WTP ownership shares of affected JWC system component. *(pg. 8 of final draft only)*
- Provision to petition Governor for curtailment exemption in an all-state drought declaration, if staff can demonstrate that JWC water supplies are adequate. *(pg. 4-6 of original draft and pg. 7 of final draft)*

- Provision that if JWC transmission line failure causes need for curtailment by affected partner(s), but curtailment by other partners does not improve situation, other partners do not need to curtail. (*pg. 10 of final draft only*)
- Better defined role of JWC Operations Committee in situations that may result in curtailment scenarios. *(pg. 4-10 of original draft and pgs. 9 & 13 of final draft)*
- Updated procedures for coordination with outside agencies (e.g. Washington County Office of Consolidated Emergency Management) in large-scale emergencies. *(pg. 4-9 of original plan and pg. 12 of final draft)*
- Acknowledgement that any curtailment will be based on available stored water, water treatment plant facilities, and transmission capacities, and may not always apply to all partners simultaneously. *(pgs. 4-1 & 4-7 of original plan and pgs. 1 & 7 of final draft)*
- Acknowledgement that a partner volunteering to shift supplies in order to help another partner avoid curtailment could result in increased costs to the assisting agency(ies). Compensation for these costs may be negotiated between the agencies. This is an existing practice of the JWC partners, but now has been formally defined in the Curtailment Plan. *(pg. 4-8 of original plan and pgs. 10 11 of final draft)*
- References the JWC Operations Plan, Emergency Response Plan, and JWC Intergovernmental Agreement for direction in specific curtailment activities related to capital infrastructure. *(pgs. 6,12, & 13 of final draft only)*
- References the curtailment requirement in JWC Limited License agreement for Aquifer Storage and Recover (ASR) wells, with caveat that Limited License requirement does not apply to individual agency-owned Aquifer Storage and Recovery (ASR) wells. (*pgs. 12-13 of final draft only)*
- Curtailment actions due to limited water availability in Barney Reservoir and/or Scoggins Reservoir are still contained in the Curtailment Plan, with reference to the Barney Reservoir Joint Ownership Commission (BRJOC) for issues related to Barney Reservoir. Any source curtailment activities at the Barney Reservoir will be coordinated with the BRJOC partners. Any source curtailment activities at Scoggins Reservoir will be coordinated through Tualatin Valley Irrigation District and/or the Bureau of Reclamation. *(pg. 10 of final draft only)*
- Direction by Board to exercise Curtailment plan. *(pg. 9 of final draft only)*

Process and Application to Other JWC Plans

Questions and concerns raised by the Board and member agencies at the last Commission meeting were extensively discussed in several Operations Committee meetings until an approach was agreed upon. The Operations Committee also recommended additional condition assessments be completed

of existing infrastructure through the current Facility Plan and through the JWC's Asset Management program, emergency response triggers be included in the next update to the Operations Plan, and any updates or lessons learned be included in upcoming versions of the Curtailment Plan. The Operations Plan will need to be updated to include these recommendations and any operational changes that may result from the WTP expansion project. Detailed infrastructure assessments and emergency response actions will be kept in those plans and programs and referenced as needed in the Curtailment Plan.

Next Steps:

The updated Curtailment Plan will be reviewed again in future years for any recommended updates; the Curtailment Plan is required to be included in the 2020 WMCP that will be submitted for OWRD approval. Each member agency will also be required to include their individual curtailment plans in the 2020 WMCP. JWC Staff will be working closely with member agency staff on WMCP requirements and schedule. Adoption of the JWC Curtailment Plan by the Commission will provide additional legal support to the curtailment plans adopted by the individual partners.

Attachements:

1. Resolution 129-J
2. Curtailment Decision Tree
3. Curtailment Plan – Final Draft in pdf format
4. Curtailment Plan – June 2016 Draft in pdf format

Resolution NO. 129-J

A RESOLUTION OF THE JOINT WATER COMMISSION ADOPTING THE RECOMMENDATIONS AND FINDINGS OF THE REVISED AND UPDATED JWC CURTAILMENT PLAN

WHEREAS, the Joint Water Commission is authorized by Intergovernmental Agreement to manage the JWC water source and delivery system; and

WHEREAS, in 1998, the Joint Water Commission (JWC) submitted a Water Management and Conservation Plan (WMCP) to the Oregon Water Resources Department (OWRD), which included Section 4 – Water Curtailment Plan, and the Water Curtailment Plan was one of the sections approved in a letter from OWRD on February 8, 1999.

WHEREAS, in 2010, the Curtailment section of the WMCP was expanded due to the 2001 drought, and the additions focused primarily on drought and peak season issues; and

WHEREAS, in 2015, a non-peak season flood event occurred that created the need to expand the Curtailment Plan to include non-peak season scenarios; and

WHEREAS, the Curtailment Plan addresses previous extreme weather incidents; notification processes for source water availability, working collaboratively to address water availability issues, curtailment event triggers, and scenario protocols; and

WHEREAS, the Curtailment Plan provides a basis for recommended curtailment response; and

WHEREAS, Staff presented an overview of a revised Curtailment Plan at the July 2016 Commission meeting and followed that with a question and answer session at the October 2016 Commission meeting; and

WHEREAS, the Joint Water Commission has reviewed the revised Curtailment Plan, including the addition of a Curtailment Plan Decision Tree, and upon advice from Staff finds that adoption of the revised Curtailment Plan is in the best interests of the JWC and will help guide the Commission and Staff in the face of potential or certain water shortage crises;

NOW THEREFORE, THE JOINT WATER COMMISSION RESOLVES AS FOLLOWS:

Section 1: The Joint Water Commission adopts the 2016 JWC Curtailment Plan as presented by Staff.

Section 2: This Resolution takes effect immediately upon adoption by the Joint Water Commission.

THIS RESOLUTION WAS DULY ADOPTED BY the Joint Water Commission at its regular meeting on January 13, 2017.

JOINT WATER COMMISSION

By: _____
Chair

ATTEST:

By: _____
Secretary

Curtailment Decision Tree

The Joint Water Commission (JWC) water system is producing water, but cannot meet full water demands, either due to supply disruption or lack of capacity in water infrastructure.

Are any partners exceeding their rightful available capacities? (Yes/No)

Yes – Exceeding partner(s) must take action to address deficiency. Options include using an alternative source if one is available, negotiating for a lease (water supply or infrastructure capacity) or another acceptable arrangement with a JWC partner, or go into some form of customer curtailment. Actions related to "Supply Disruption and Capacity Limitations" of the Protocol section in the Curtailment Plan are triggered for impacted partner(s) only.

No – All partners must reduce their JWC demand to a sustainable amount through crisis. Curtailment plan is triggered for protocol section regarding "Supply Disruption and Capacity Limitations" for all partners.

Are alternative supplies available to one or more JWC partner(s) that will allow them make additional water/infrastructure capacity available to another partner? (Yes / No)

Yes – Partners without alternative supplies may be able to negotiate with JWC partners that have alternative supplies for additional water or infrastructure capacity in the JWC system. Negotiations will likely include financial compensation for use of asset.

No – All partners must reduce JWC demand to a sustainable amount and customer curtailment must be considered by partner(s) with no alternative method to meet demand. Curtailment plan is activated for all partners under protocol section titled, "Supply Disruption and Capacity Limitations."

The JWC water system has been incapacitated in some way and the ability to serve water to a part or all of the JWC service population has been severed.

Is it possible to serve the system from an alternative source through an interconnection with another water system?

Yes – Partners will work together to get water into the system as quickly and efficiently as possible, using whatever means at their disposal. Negotiations for financial compensation will be handled as quickly as possible, but the emergency need of the community takes precedence. The Curtailment Plan is activated, and mandatory actions under "Extreme Supply Disruption" are enacted. Other actions will be considered and implemented if necessary.

No – JWC can dispatch its emergency water distribution system to the area without water service, or to a designated area which is accessible by the majority affected population. JWC will also call and request additional water supplies from ORWARN, if warranted by the situation. The Curtailment Plan is activated using protocols under "Extreme Supply Disruption."

Curtailment Decision Tree

Either one or both of JWC's summer supplemental sources (Barney Reservoir and Hagg Lake) do not fill, resulting in a reduction of JWC's water supply capacity. Or, weather conditions cause transfer to supplemental sources at an early date.

Looking at historical demand scenarios, how likely is it that JWC does not have enough water to meet summer season demands?

Likely - Historic demand records indicate that summer source water will run out before an average release season would end. Curtailment Plan is triggered and protocol for mandatory actions under "Source Water Scarcity Protocol" are activated.

Not Likely - Historic demand records indicate that summer source water is adequate for an average release season length. If demands escalate changing the supply forecast, staff alerts General Manager who can decide if Curtailment Plan should be triggered.

Joint Water Commission (JWC) Curtailment Plan

Introduction

Curtailment planning is the development of proactive measures to reduce demand during water supply shortages. Shortages may be due to prolonged drought or natural disasters (e.g. flooding, landslides, earthquakes, and contamination); or mechanical or electrical equipment failure including power outages; or events not under control of the JWC (e.g. intentional malevolent acts). Curtailment needs to be considered when demands exceed supplies, and no alternative supplies are available through the JWC or its partners that will meet demands for the duration of the shortage.

The JWC's current curtailment plan was updated in 2010. However, due to rising water production demands from the partners, the JWC recognizes that an expanded curtailment plan is needed to address demand reductions when water treatment plant (WTP) capacity is limited. Depending upon the situation, resolution of capacity limitation issues may be handled individually or jointly by agreement between the partners. Limitations to the WTP's capacity does not automatically require curtailment measures, but begins a discussion among the JWC partner agencies: cities of Hillsboro, Forest Grove, Beaverton, and Tualatin Valley Water District (TVWD) to determine the availability of alternate supplies for the duration of the shortage.

The General Manager may need to impose mandatory reductions in water availability to JWC partners in an emergency situation. JWC does not have direct authority to regulate member agencies' actions within their own systems. Ultimately, on-the-ground curtailment implementation will be delegated to and implemented by the individual member agencies. Triggers and responses by individual partners will vary due to differing conditions and additional water sources available to JWC partners that may negate or reduce the need for individual partners to curtail. Each JWC agency may be required to initiate and implement the progressive stages of their individual curtailment plans based on the status of supply, projected demands, and alternative sources of available supply for their systems. These actions should be communicated with the other JWC partners to facilitate coordinated messaging between partners and limit community confusion.

Past JWC Supply / Capacity Issues

Even though the JWC WTP has been rated at 75 mgd for peak day capacity, recent studies and operational experience have proven that the JWC WTP cannot currently sustain this production level for three days in a dependable manner without facility and equipment upgrades. The current three-day peak capacity is estimated to be approximately 65 to 70 mgd. The WTP's production capacity is lower during the winter season due to impacts of colder temperatures on treatment process, and capacity can further decrease during the winter season due to water quality events. Production capacity can be impacted at any time due to equipment failures.

1990's Incidents

During the 1990's, the Water Treatment Plant (WTP) experienced incidents that impacted supply/capacity, including: loss of power due to a car hitting a power pole near the WTP, loss of power due to a windstorm, severe raw water quality impacts due to a flood, and disruption of deliveries to partners due to a transmission line leak on the WTP site. The incidents all reduced the ability of the JWC to supply water. At that time, there was only one reservoir on Fern Hill with 20 mg available storage, less stored water for emergency backup supply than is available today.

These power supply disruptions led to new JWC response agreements with PGE, and construction of a second finished water pumping station with a supporting power transformer station. In March 2016, a backup power generator was brought online at the WTP. The generator is capable of running the WTP at about half of current WTP peak capacity, but that capacity would be able to fully serve the partners for a large portion of the year, based on 2016 demands.

Summary of 2001 Drought **(presented in detail in the JWC's 2010 WMCP)**

The JWC experienced its first source water shortage in the summer of 2001. JWC is generally regulated off its natural flow water rights on the Tualatin River beginning in late May to early June until mid-October (described in more detail in the 2010 WMCP: Section 2, Water Rights). JWC relies primarily on stored water releases from Hagg Lake and Barney Reservoir during this period.

For the first time since construction of Scoggins Dam was completed in 1977, Hagg Lake did not fill in 2001, reaching only 54 percent of its storage capacity. Several JWC member agencies (Hillsboro, Beaverton, and Forest Grove) hold contracts with the Bureau of Reclamation (BOR) for the use of stored water in Hagg Lake that also specify curtailment measures. All of the BOR contracts state that 2,500 acre-feet of water will be reserved for natural or minimum flow during water shortage events. All BOR contracts also specify that the quantity of water to be furnished for irrigation (Tualatin Valley Irrigation District) and water quality control (Clean Water Services) shall be reduced first as necessary but not by greater than 15 percent. Beyond that point, reductions shall be shared among all of the entities receiving a water supply from the project in the proportion that the entity's water entitlement under the BOR contract bears to the total quantity of the project water under contract.

Based on these contract conditions, the JWC partner cities of Hillsboro, Beaverton, and Forest Grove received only about 76 percent of their normal water allocations from Hagg Lake in 2001. Clean Water Services (CWS) and Tualatin Valley Irrigation District received only 27 percent and 47 percent, respectively, of their normal water allocations. Discharge changes at Scoggins Dam were made twice a day, seven days a week to closely match the timing of water orders, avoid waste, and maintain natural flow in the Tualatin River.

In the same year, Barney Reservoir only reached 55 percent of its storage capacity. The Joint Water Ownership Agreement for the Barney Reservoir Project specifies that amount of stored raw water available to each agency is determined as a percentage (based on ownership) of the total stored raw water available to the Parties. As part of the 1994 Barney Reservoir Environmental Impact Statement (EIS), 15% of stored raw water is allocated to the Oregon Department of Fish and Wildlife (ODFW) for flow to the Trask River that benefits fish and wildlife. The Barney Reservoir Joint Ownership Commission (Hillsboro, Forest Grove, Beaverton, TVWD, and CWS) decided to

hold 4,000 acre feet of Barney Reservoir water in reserve in case dry conditions continued into 2002.

Staff met with Oregon Department of Fish and Wildlife (ODFW) to set the allotment for 2001, a meeting that happens every year by March 15th. ODFW allowed the releases from Barney Reservoir for downstream flow to be shut down for a portion of the impoundment period after it was determined that the reservoir wouldn't fill. ODFW's allotment in 2001 was about 1500 acre-feet instead of their usual 3000 acre-feet allotment from a full reservoir. They took that water over a 120-day period.

After accounting for dead pool storage and releases for fish flows to the Trask River (15 percent of the available storage), the Barney Reservoir member agencies were allotted only 54 percent of normal full pool allocations.

The JWC and BRJOC partners used a combination of leasing, alternative source options and agreements, and voluntary curtailment to meet summer 2001 demands on the JWC water system. Portland Water Bureau (PWB) had full supplies in both Bull Run and the Columbia River Wellfield. They offered assistance with coordination of regional supply, and provided an alternate source for Tualatin Valley Water District and City of Beaverton, which helped with summer supplies. TVWD allowed Clean Water Services to use some of its allocated water in the Barney Reservoir to meet streamflow demands, and CWS paid TVWD the difference between the cost of JWC water and the more expensive PWB water in exchange. It also helped that the summer weather of 2001 was cooler and wetter than usual. No mandatory curtailment was necessary.

2015 Extreme Weather Incidents

In 2015, two weather events, a summer drought and a winter flood, caused supply concerns for the JWC. Neither event resulted in mandatory curtailment, but each required actions by the partners to ensure that all water demands of the JWC partners could be met.

Summer Supply Issue:

An abnormal onset of early summer weather, with a record number of days exceeding 90 degrees, caused customer demands to skyrocket. In anticipation of possible shortages for Hillsboro and Tualatin Valley Water District (TVWD), Joint Water Commissioners approved leases of stored water and treatment plant capacity at their July 2015 meeting (Appendix A). The summer continued hot and dry, and demands on the WTP were often near its maximum capacity, but all agencies were able to supply their customers without needing curtailment measures.

Winter Supply Issue:

Western Oregon received a record amount of rain the week of December 7 – 11, 2015. The heavy rain flooded the Tualatin River, and in the some places, the flooding was worse than the flood of 1996. This flooding raised water turbidity and changed the chemistry of the raw water entering the WTP, creating significant challenges for treating the water to safe drinking water standards. The more intense treatment required a slower WTP process; production declined to under 20 million gallons per day (MGD).

During this time, demands on the WTP were over 20 MGD. Based on the decreased WTP production capacity, the demands of some partners exceeded their ownership percentage of the available capacity. Throughout the week, as the WTP continued to experience treatment

challenges, and Fern Hill Reservoirs and Hillsboro's in-town storage continued to deplete, it became unclear if Hillsboro would be able to meet continued demands without some measure of mandatory curtailment. City of Beaverton voluntarily turned on one of their Aquifer and Storage and Recovery (ASR) wells the first day of the event to reduce demands on the WTP and provide more water to the partners, especially Hillsboro. As the event continued, it appeared that Hillsboro might need to curtail their own customers' water usage. On the third day, Beaverton and TVWD voluntarily switched to their alternative supplies to assist Hillsboro in meeting their demands, since Hillsboro does not currently have any alternate supply sources. TVWD switched more demand onto to its Portland Water Bureau supplies to reduce their demands on JWC. On the third day of the event, Beaverton agreed to turn on a second ASR well, to further lessen their JWC system demand.

TVWD and Beaverton were meeting their customer demands with these alternate sources, and Forest Grove was still able to meet its customer demands with its share of the reduced JWC WTP capacity that was available. As raw water quality improved the WTP increased production levels, and by the fourth day of the event, the WTP was again producing enough water to begin refilling the storage reservoirs. Hillsboro did not need to curtail. The event was over by the beginning of the following week, with normal WTP production capacity restored and all partners returning to their normal demand levels at the WTP.

40 Years of Continuing Reliability Improvements

Since its beginning in 1976, the JWC has continued to plan and budget for improvements to increase capacity and reliability of the JWC water system. Past improvements that now benefit the JWC system include: Barney Reservoir Expansion project, multiple WTP expansions, an additional 20 MG tank on Fern Hill, and other capital projects to improve WTP performance and reliability, including the addition of sedimentation basin plate settlers, a powdered activated carbon (PAC) feeder and back-up power generator.

JWC partners have taken individual actions to improve reliability and increase emergency preparedness as well. TVWD and Beaverton have added Aquifer Storage and Recovery (ASR) wells; Hillsboro has increased in-town storage with the addition of Crandall Reservoir, has seismically reinforced the 24th Street Reservoir, and has increased storage time by adding chlorine feeders to all of its in-town reservoirs. Forest Grove has made improvements to its water treatment plant as well.

Plans for Future Improvements

Additional Plant Capacity

JWC staff has begun design (as of spring 2016) for WTP upgrades and an expansion of the WTP to increase peak day capacity. The scope of the project includes four elements:

- Creating a facility plan identifying phased improvements for ultimate capacity
- Design and construction services for seismic life safety modifications and for capital improvement maintenance projects
- Design and construction services for improvements to increase firm capacity

- Design and construction services for plant expansion and eventual elimination of production bottlenecks.

Upon project completion, owner capacity percentages in the WTP will be adjusted, and curtailment triggers will be based on the new numbers. TVWD is funding an additional 2 million gallons per day (MGD) capacity and Hillsboro is funding an additional 8 MGD.

Additional Source Water

Tualatin Valley Water District, City of Hillsboro, and possibly City of Beaverton are also partnering on the development of the Willamette Water Supply Project, which will be capable of delivering over 60 MGD from the mid-Willamette River at Wilsonville by 2026. This redundant source of supply will provide an alternative source and will reduce curtailment risk significantly once the supply is online and available for use.

Additional Emergency Connections

Planning is also underway for emergency interties at the following locations:

- Emergency Intertie between TVWD and JWC North Transmission Line (NTL) at Cornelius Pass and Highway 26
- Emergency Intertie between the Willamette Water Supply (WWS) and JWC NTL at Cornelius Pass and Highway 26
- Intertie between the WWS Line and JWC South Transmission Line at Cornelius Pass and Tualatin Valley Highway.

Notifications of Source Water Availability

Before Release Season

The JWC notifies its member agencies of the status of storage in Barney Reservoir and Hagg Lake periodically throughout the year. JWC provides its member agencies storage curves for both reservoirs at the semi-monthly JWC Operations Committee meetings and the quarterly JWC Board meetings, and also makes the reports accessible to partners on the web.

The Bureau of Reclamation announces the official storage available to contract holders by April 1st. If applicable, the JWC will contact the Bureau of Reclamation to confirm the levels of water supply and the reduction schedules for each JWC member agency with contracted water in Scoggins Dam (Hagg Lake).

The General Manager informs the Operations Committee and the Management Committee by April 15 if the potential for a water shortage has been identified. (If the potential shortage is not known until a later date, the GM then makes immediate notification to the committees.)

The Operations Committee is notified when the Watermaster determines the regulation of several JWC-related natural flow water rights that impact the start and end dates of the release season.

If a potential shortage is identified after April 15th (after the Bureau of Reclamation issues its announcement of water storage availability), the JWC Managing agency requests each JWC agency

to provide a seasonal forecast of amount of JWC water needed during release season. (This is the starting point, if discussion of curtailment scenarios and potential solutions needs to begin.)

At the start of release season, JWC provides the storage allocations to each member agency that is allocated storage in Barney Reservoir, has a contract with the Bureau of Reclamation in Hagg Lake, or has a lease agreement with another JWC member agency.

During Release Season

During the release season, each JWC agency is required to forecast the amount of water that they will need (commonly referred to as a "call for releases") in accordance with notification requirements outlined in the JWC Operations Manual.

JWC provides weekly release reports to the member agencies that include the previous week's daily releases, the allotments of those release volumes charged to each member agency, status of remaining storage, and efficiency of capture of stored water. The frequent distribution of the release reports has made them a valuable resource for storage and release tracking and has helped increase the efficiency of stored water releases in relation to customer demands.

The JWC issues notices of potential shortages in each member agency's allotment during the release season when supplies are reduced or demands are unusually high.

JWC partner agencies are responsible for issuing notice to the JWC Managing Agency of potential shortages due to reduced supplies or high demands.

Curtailment Event Triggers

Limitations to the WTP's capacity or reductions in supply do not automatically trigger imposition of curtailment measures, but begin a discussion among the JWC partner agencies to determine if partners would be willing to voluntarily reduce their demand by switching to alternate water supply sources. The JWC Managing Agency, through the JWC Operations Committee, is planning to update the Operations Plan to include a condition assessment and tiered curtailment triggers based on available JWC WTP capacity, levels of storage in Fern Hill, and estimated duration of the specific emergency event. The Operations Plan will work in harmony with the Curtailment Plan, and strive for equitable solutions for all partners. Staff will make sure that the plans reference each other as needed. Changes may be made to the Curtailment Plan prior to including it in the 2020 Water Management and Conservation Plan, if additions or modifications are found to be needed after the Operations Plan is reviewed.

Examples of events that would cause the JWC Curtailment Plan to be activated include, but would not be limited to, the following:

Supply Disruption and Capacity Limitations – Short-Term

Mechanical or electrical malfunction of critical pumping facilities at the JWC's intake or water treatment plant.

Interruption of local utility electrical service for an unknown or extended period of time.

Transmission line break resulting in supply disruption to one or more partners

Unplanned water quality, or other treatment issue, that slows JWC WTP production below partner demands in which the timeline for recovery from the condition is uncertain and the risk of total reservoir depletions, at projected rates of production and demand, is high.

Short-term increase in total partners' demand beyond JWC WTP production capabilities, due to an unforeseen circumstances such as extreme hot weather conditions, fire, or loss of a secondary supply. (This condition would be for short-term shortages, and not long-term shortages, such as one caused by drought.)

Drought Conditions and/or Source Water Scarcity - Peak Season

Abnormal weather conditions during the storage season, or other conditions, make it unlikely that Barney Reservoir and/or Hagg Lake will fill to their full capacities preceding the summer release season.

High demands result in drawdown of reservoir supplies at a rate indicative that supplies will not last the duration of release season.

Loss by any partner agency of an alternate supply source for an entire peak season.

Declaration of a drought in Washington County by the governor, pursuant to ORS 536.720.

Declaration of a statewide drought by the Governor, instead of by individual county.

> Note: In this circumstance, JWC can petition for a State exemption from implementing its Curtailment Plan if it can demonstrate to the State (using historic and current data) that the JWC is not experiencing a water shortage that impacts the ability of its partner agencies to meet the demands of their customers (e.g. JWC has adequate stored water supply at Barney Reservoir and Hagg Lake, or partners are able to tap additional supply availability from ASR or from other sources).

Extreme Supply Disruption – Long-Term

Catastrophic natural disaster, such as an earthquake, watershed fire, landslide, or volcanic eruption.

Terrorist act that damages individual critical facilities and/or extensive portions of the JWC's transmission system, and/or lifelines such as electrical power and chemical deliveries.

Curtailment Response

It is important to note that curtailment response includes a range of options. It does not necessarily mean that reductions in demand on the JWC system will be required for all partners. Utilizing available JWC assets or other alternative water supply sources are the agreed-upon first choice for managing source and peak capacity issues. A coordinated curtailment response that provides sufficient water to all JWC partners may be achievable without the need for individual partner agencies to impose voluntary or mandatory restrictions on their customers. Measures that impact

customers will only need to be implemented if JWC partners cannot meet one or more partners' needs through negotiation and sharing of resources.

Objectives

JWC will do the following to ensure a coordinated response in a curtailment trigger situation:

Present member agencies with information about the status of WTP capacity limitations, individual agency ownership percentages, and agencies' current demands on capacity.

Present member agencies with information about the status of source water availability and releases from stored water.

Provide a forum for negotiation of alternative or shared supply sources between JWC members.

Require each JWC member agency to develop and adopt a customer curtailment plan and submit it to the JWC for inclusion in the JWC Water Management and Curtailment Plan (WMCP), in accordance with ORS 690-086.

Coordinate unified public messaging related to curtailment and conservation measures and requirements. If curtailment is only needed by some of the partners, messages will still be coordinated to minimize confusion and/or impacts to customers of the JWC partners not implementing curtailment.

Meet State requirements for curtailment when the Governor issues a drought declaration and orders curtailment plan implementation in accordance with ORS 536.720.

JWC System Components

There are a variety of emergency situations that could cause the need for curtailment, and the method for determining curtailment percentage for each JWC partner will be based on the system component affected. It is important to remember that JWC partners have agreed to always try and avoid curtailment through partner negotiation of assets, but formal curtailment methodology will be helpful in determining how much additional water one partner may need to negotiate with other partners.

- Source Water Curtailment (Curtailment caused by lack of source water):
    - As previously described in *Summary of 2001 Drought* section, curtailment due to lack of supply in Barney Reservoir is based on operational percentages. Supply reductions in Hagg Lake are stipulated in BOR contracts, with non-municipal users curtailed first. If further curtailment is needed, then all users are curtailed based upon the proportion of their contracted water. If driven by a spill or wintertime issue that causes the WTP to limit or cease taking water, curtailment would be based on WTP ownership percentages.
- Water Treatment Plant Curtailment (Curtailment caused by decrease in treatment capacity severe enough to be less than demands on the system for a prolonged period that Fern Hill Reservoirs and in-town storage facilities may not be able to cover.
    - Curtailment will be based on ownership percentage in the Water Treatment Plant

- Electrical Power Failure Curtailment (Curtailment due to power failure for a prolonged duration that Fern Hill Reservoirs and in-town storage facilities may not be able to cover
    - If curtailment is necessary to meet partner water demands, it will be based on percentage ownership of the back-up power generator
- Transmission Line Failure (Service from one or more transmission line is disrupted, and any remaining transmission line(s) still in service are unable to meet partner demands.)
    - Curtailment percentage will be based on percentage of ownership in the remaining transmission line(s) in operation.

Protocols

The JWC Operations Committee will be convened as soon as possible when dealing with a potential curtailment situation. They will meet in-person if there is time to organize a meeting, or can also meet virtually via conference call, if more timely or convenient. The Operations Committee will consult the *Curtailment Decision Tree* (Appendix A), and will make operational recommendations to the JWC General Manager, who will then convene the JWC Management Committee (either by meeting or conference call) for a formal decision. As long as decisions are based on JWC-approved plans (Curtailment, Operations, or Emergency Response), JWC Board approval is not needed to approve decision. If proposed decision is in conflict with JWC-approved plans, the JWC Executive Board will be convened to approve decision.

If decision must be made immediately, JWC General Manager (GM) will consult the *Curtailment Decision Tree* (Appendix A), and make any protocol decision as Incident Commander. The GM will then follow up with committees and protocols listed above as soon as feasible. Changes can be made as agreed upon, but disagreements on curtailment actions that cannot be settled through collaborative effort will be settled as outlined by the JWC Inter-governmental Agreement (IGA).

The Operations Committee will exercise the Curtailment Plan as part of their exercises for the JWC Emergency Response Plan.

Supply Disruption and Capacity Limitations – Short-Term

1) The JWC Managing agency will notify the member agencies of the expected duration of the event and available finished water in storage, as soon as that information is known. The JWC will also notify wholesale customers if they are affected by the event.

2) The JWC Managing agency will request projected water demands from each member agency for the projected duration of the event.

3) JWC staff will optimize available JWC assets and utilize Fern Hill storage to the extent practical.

4) The JWC Managing agency may request JWC member agencies to voluntarily reduce or shift their demands to other supplies. If these actions result in costs to those agencies, compensation for those costs may be negotiated between the agencies.

5) The JWC Managing agency may order mandatory curtailment from all partners if voluntary efforts do not solve JWC supply or capacity issues. The JWC General Manager may declare an emergency if all partners and wholesale customers are affected. The JWC can require individual member agencies and/or wholesale customers to reduce demand on the JWC system if those members are exceeding their percentage of supply/capacity availability.

6) Member agencies shall keep the other JWC agencies apprised of activities and messaging for their individual agency curtailment efforts. Affected agencies may request assistance and coordination for public messaging and outreach efforts from the JWC Events and Education Committee (EEC).

7) Communication efforts will be coordinated by the JWC Public Information Officer (PIO) if mandatory curtailment is required of all JWC partners.

8) If disruption is caused by transmission line break, and the break does not affect all partners, and if curtailment by other partners does not improve the situation for the partner that is affected by the line break, partners do not have to curtail to assist the affected partner since curtailment will not help the affected partner with its water supply issue anyway. However, if the affected partner requests assistance, the Managing agency will assist affected partner(s) with alternate supply and/or curtailment efforts, and will also make the emergency water distribution system available to affected partner(s), upon request.

Drought Conditions and/or Source Water Scarcity – Peak Season

1) Source water scarcity issues that affect Barney Reservoir will be coordinated through the Barney Reservoir Joint Ownership Commission (BRJOC), which includes all the JWC partners and Clean Water Services (CWS). Any decisions regarding curtailment of Barney Reservoir source water must include all BRJOC partners. Although CWS is not normally part of the JWC EEC, if curtailment is necessary due to Barney source scarcity, a CWS representative will be invited to participate with the EEC in any coordinated messaging and outreach efforts. Any outside coordination and possible curtailment negotiation with Oregon Department of Fish and Wildlife will also be handled by the JWC Managing Agency.

2) Source water scarcity issues that affect Hagg Lake will be primarily coordinated through the Joint Water Commission, although secondary coordination with the Tualatin Valley Irrigation District (TVID), and the Federal Bureau of Reclamation may be required.

   a. *(Curtailment due to Scoggins' Dam future remediation or seismic improvements will be coordinated through Clean Water Services and a working group partnership, and may be done as a separate agreement from what is outlined in this curtailment plan – assuming such curtailment is pre-organized as part of the improvement project.*

3) JWC staff will continue to participate in, and coordinate through, the Tualatin River Flow Management Committee. This committee discusses operations that could impact flows, flow monitoring, and share information to proactively manage storage, instream flows, and diversions. Its members include the Oregon Water Resources Department's local Watermaster, JWC, CWS, TVOD, Lake Oswego Corporation, Washington County Parks and Recreation, and Washington County Emergency Management.

4) The JWC Managing agency will notify the member agencies of the expected duration of the event and available stored water supplies and available finished water in storage.

5) The JWC Managing agency will request projected water demands from each member agency for the projected duration of the event.

6) The JWC Managing agency will develop stored water use scenarios based on various estimated peak season demand levels.

7) JWC staff will optimize available JWC assets and utilize Fern Hill storage capacity to the extent practical.

8) The JWC Managing agency may request JWC member agencies to voluntarily reduce or shift their demands to alternate sources. If these actions result in costs to those agencies, compensation for those costs may be negotiated between the agencies.

9) Partners that have available excess stored water and/or capacity may receive requests from partners needing water to lease excess stored water and/or additional capacity to other partners in need. Leasing protocols are found in the JWC Water Service Agreement.

10) The JWC may order mandatory curtailment from all partners if voluntary efforts do not solve JWC supply or capacity issues. The JWC General Manager may declare an emergency if all partners and wholesale customers are affected. The JWC may request individual member agencies and wholesale customers to reduce demand on the JWC system if those members are exceeding their percentage of supply/capacity availability. Curtailment amounts are based on percentage of ownership in the JWC component that is causing the scarcity issue.

11) Member agencies shall keep the other JWC agencies apprised of activities and messaging for their individual agency curtailment efforts. Affected agencies may request assistance and coordination for public messaging and outreach efforts from the JWC Events and Education Committee (EEC).

12) Communication efforts will be coordinated by the JWC Public Information Officer (PIO) if mandatory curtailment is required of all JWC partners. The JWC EEC will provide a summary and schedule of any proposed cooperative public outreach campaign and schedule to the Operations and Management Committees for review and approval. JWC maintains an emergency communications budget that covers short-term communication efforts, but each agency may be requested to provide additional funds for a longer-term, peak-season public outreach campaign, depending on the elements of the proposed campaign.

13) If curtailment is required due to Governor Order and declaration of drought, all partners will conserve or curtail in accordance with Governor implementation requirements, as pursuant to ORS 536.720.

Extreme Supply Disruption

After an extreme event such as a severe natural disaster (earthquake, flooding, landslides, etc.) or terrorist act, JWC will take the following actions:

1) The JWC Managing agency will invoke its Emergency Response Plan, and procedures in that plan supersede procedures in this plan if they are in conflict.
2) JWC will follow procedures 4-12 listed above under the "Drought Conditions" section.
3) JWC will initiate activation of the JWC Department Operations Center (DOC), and of the Hillsboro Emergency Operations Center (EOC) if it has not already been activated, within the Incident Command System. (The General Manager may declare a State of Emergency at this point as well.)
4) JWC will notify the member agencies of the expected duration of the event (if known) and the status of supply.
5) JWC will complete a damage assessment as soon as possible and provide critical information on facility damage and treatment capacity to member agencies and Hillsboro EOC. Resources will be requested through the Hillsboro EOC.
6) JWC will coordinate with the Washington County Office of Consolidated Emergency Management for regional support in extreme events, and implement any needed support from the Oregon Water/Wastewater Agency Response Network mutual aid agreements, and seeking federal aid from the Federal Emergency Management Agency and the National Guard.
7) Communication efforts between JWC member agencies, wholesale customers, basin partners, regional partners (RWPC members), and Washington County emergency communicators (including a Joint Information Center, if one is set up by the county) will be coordinated by the JWC Public Information Officer (PIO).
8) Recovery from an extreme event will be directed by the JWC Disaster Recovery Plan, outlined in the JWC Emergency Response Plan.

Aquifer Storage and Recovery (ASR) Wells

For ASR wells operating under the JWC Limited License, the following curtailment language that was included in the Agreement regarding ASR Management will apply:

> *"The Parties agree that the production of potable water, storage and transmission by the JWC System, as defined in the Water Services Agreement, is primarily for the direct and immediate needs of all members of the JWC and will have priority over production storage and transmission of water for ASR purposes. If the JWC System experiences an emergency, construction, or maintenance event where by water production by the JWC System is interrupted, reduced or otherwise curtailed, then the JWC*

Managing Agency may suspend provision of water for the ASR Program until the circumstances are resolved."

ASR wells not licensed through the JWC Limited License Agreement and instead licensed by individual JWC partners with the State, will operate at the complete discretion of the owner. The JWC Managing Agency will coordinate with individual ASR owners, as needed, on potential impacts of injection if curtailment is a consideration during non-peak (injection) season, but does not have authority to require individual partner action regarding such ASRs.

Authority

The JWC's Water Service Agreement gives the JWC General Manager the authority to impose mandatory reductions in treated water supply from the JWC WTP to partner agencies and wholesale customers in an emergency situation that affects one or all partners.

Actions of this plan that are handled by system optimization and agreements between the member agencies can be taken under direction of the JWC General Manager.

Emergency response will be coordinated by the JWC General Manager and the Senior Program Manager in charge of JWC treatment processes at the Water Treatment Plant.

Enforcement of the Curtailment Plan, along with remedies and penalties for overuse are addressed in the JWC Intergovernmental Agreement, which is being updated to include crisis curtailment enforcement and agreement on the use and ownership of the back-up power generator.

The JWC General Manager will coordinate with the JWC Executive and Operations Committees when requesting that JWC partners switch to alternative source supplies or take other measures to reduce demands on JWC.

Voluntary curtailment messaging can be coordinated and/or implemented by the JWC EEC, or by individual agencies, depending on agreed upon preference. JWC partners should notify other member agencies prior to implementation of curtailment actions.

After a declaration of emergency by the JWC General Manager, and approval by the JWC Management Committee, all partner agencies will be informed of any mandatory curtailment action required by the JWC, along with a timeline to achieve such reduction. Individual partner agencies are responsible for decisions and implementation of mandatory curtailment for their customers.

Mandatory curtailment actions will remain in effect until the emergency declaration is ended by the JWC General Manager. The JWC General Manager is responsible for execution of the plan provisions once an emergency has been declared.

Joint Water Commission (JWC) Curtailment Plan

Introduction

Curtailment planning is the development of proactive measures to reduce demand during water supply shortages. Shortages may be due to prolonged drought or natural disasters (e.g. flooding, landslides, earthquakes, and contamination); or mechanical or electrical equipment failure including power outages; or events not under control of the JWC (e.g. intentional malevolent acts). Curtailment needs to be considered when demands exceed supplies, and no alternative supplies are available through the JWC or its partners that will meet demands for the duration of the shortage.

The JWC's current curtailment plan was updated in 2010. However, due to rising water production demands from the partners, the JWC recognizes that an expanded curtailment plan is needed to address demand reductions when water treatment plant (WTP) capacity is limited. Depending upon the situation, resolution of capacity limitation issues may be handled individually or jointly by agreement between the partners. Limitations to the WTP's capacity does not automatically require curtailment measures, but begins a discussion among the JWC partner agencies: cities of Hillsboro, Forest Grove, Beaverton, and Tualatin Valley Water District (TVWD) to determine the availability of alternate supplies for the duration of the shortage.

The JWC's Water Service Agreement gives the General Manager the authority to impose mandatory reductions in demands by partners on the JWC in an emergency situation that affects one or all partners. JWC does not have direct authority to regulate member agencies' actions within their own systems. Ultimately, on-the-ground curtailment implementation will be delegated to and implemented by the individual member agencies. Triggers and responses by individual partners will vary due to differing conditions and additional water sources available to JWC partners that may negate or reduce the need for individual partners to curtail. Each JWC agency may be required to initiate and implement the progressive stages of their individual curtailment plans based on the status of supply, projected demands, and alternative sources of available supply for their systems. These actions should be communicated with the other JWC partners to facilitate coordinated messaging between partners and limit community confusion.

Past JWC Supply / Capacity Issues

Even though the JWC WTP has been rated at 75 mgd for peak day capacity, recent studies and operational experience have proven that the JWC WTP cannot currently sustain this production level for three days in a dependable manner without facility and equipment upgrades. The current three-day peak capacity is estimated to be approximately 65 to 70 mgd. The WTP's production capacity is lower during the winter season due to impacts of colder temperatures on treatment process, and capacity can further decrease during the winter season due to water quality events. Production capacity can be impacted at any time due to equipment failures.

1990's Incidents

During the 1990's, the Water Treatment Plant (WTP) experienced incidents that impacted supply/capacity, including: loss of power due to a car hitting a power pole near the WTP, loss of power due to a windstorm, severe raw water quality impacts due to a flood, and disruption of deliveries to partners due to a transmission line leak on the WTP site. The incidents all reduced the ability of the JWC to supply water. At that time, there was only one reservoir on Fern Hill with 20 mg available storage, so less stored water was available for emergency back-up supply.

The power supply disruptions led to new JWC response agreements with PGE, construction of a second finished water pumping station, and a transformer station on-site to provide power to the second pumping station. In March 2016, a backup power generator was brought online at the WTP. The generator is capable of running the WTP at about half of current WTP peak capacity, but that capacity would be able to fully serve the partners for a large portion of the year, based on 2016 demands. Curtailment due to power outage issues would be necessary only for extended outages in which demands exceed the production capacity levels of generated power, and storage at Fern Hill is drawn down below half capacity without a known date/time for recovery.

Recap of Summary of 2001 Drought **(presented in detail in the 2010 WMCP)**

The JWC experienced its first source water shortage in the summer of 2001. JWC is generally regulated off its natural flow rights on the Tualatin River beginning in late May to early June until mid-October (described in more detail in the 2010 WMCP: Section 2, Water Rights). JWC relies primarily on stored water releases from Hagg Lake and Barney Reservoir during this period.

For the first time since construction of Scoggins Dam was completed in 1977, Hagg Lake did not fill in 2001, reaching only 54 percent of its storage capacity. Several JWC member agencies (Hillsboro, Beaverton, and Forest Grove) hold contracts with the Bureau of Reclamation (BOR) for the use of stored water in Hagg Lake that also specify curtailment measures. All of the BOR contracts state that 2,500 acre-feet of water will be reserved for natural or minimum flow during water shortage events. All BOR contracts also specify that the quantity of water to be furnished for irrigation (Tualatin Valley Irrigation District) and water quality control (Clean Water Services) shall be reduced first as necessary but not by greater than 15 percent. Beyond that point, reductions shall be shared among all of the entities receiving a water supply from the project in the proportion that the entity's water entitlement under the BOR contract bears to the total quantity of the project water under contract.

Based on these contract conditions, the JWC partner cities of Hillsboro, Beaverton, and Forest Grove received only about 76 percent of their normal water allocations from Hagg Lake in 2001. Clean Water Services (CWS) and Tualatin Valley Irrigation District received only 27 percent and 47 percent, respectively, of their normal water allocations. Discharge changes at Scoggins Dam were made twice a day, seven days a week to closely match the timing of water orders, avoid waste, and maintain natural flow in the Tualatin River.

In the same year, Barney Reservoir only reached 55 percent of its storage capacity. The Barney Reservoir Joint Ownership Commission (Hillsboro, Forest Grove, Beaverton, TVWD, and CWS)

decided to hold 4,000 acre feet of Barney Reservoir water in reserve in case dry conditions continued into 2002.

Staff met with Oregon Department of Fish and Wildlife (ODFW) to set the allotment for 2001, a meeting that happens every year by March 15th. ODFW allowed the releases from Barney Reservoir for downstream flow to be shut down for a portion of the impoundment period after it was determined that the reservoir wouldn't fill. ODFW's allotment in 2001 was about 1500 acre-feet instead of their usual 3000 acre-feet allotment from a full reservoir. They asked to take that water over a 120-day period.

After accounting for dead pool storage and releases for fish flows to the Trask River (15 percent of the available storage), the Barney Reservoir member agencies were allotted only 54 percent of normal full pool allocations.

The JWC and BRJOC partners used a combination of leasing, alternative source options and agreements, and voluntary curtailment to meet summer 2001 demands on the JWC water system. Portland Water Bureau (PWB) had full supplies in both Bull Run and the Columbia River Wellfield. They offered assistance with coordination of regional supply, and provided an alternate source for Tualatin Valley Water District and City of Beaverton, which helped with summer supplies. TVWD allowed Clean Water Services to use some of its allocated water in the Barney Reservoir to meet streamflow demands, and CWS paid TVWD the difference between the cost of JWC water and the more expensive PWB water in exchange. It also helped that the summer weather of 2001 was cooler and wetter than usual. No mandatory curtailment was necessary.

2015 Extreme Weather Incidents

In 2015, two weather events, a summer drought and a winter flood, caused supply concerns for the JWC. Neither event resulted in mandatory curtailment, but each required actions by the partners to ensure that all water demands of the JWC partners could be met.

Summer Supply Issue:

An abnormal onset of early summer weather, with a record number of days exceeding 90 degrees, caused customer demands to skyrocket. In anticipation of possible shortages for Hillsboro and Tualatin Valley Water District (TVWD), Joint Water Commissioners approved leases of stored water and treatment plant capacity at their July 2015 meeting (Appendix A). The summer continued hot and dry, and demands on the WTP were often near its maximum capacity, but all agencies were able to supply their customers without needing curtailment measures.

Winter Supply Issue:

Western Oregon received a record amount of rain the week of December 7 – 11, 2015. The heavy rain flooded the Tualatin River, and in the some places, the flooding was worse than the flood of 1996. This flooding raised water turbidity and changed the chemistry of the raw water entering the WTP, creating significant challenges for treating the water to safe drinking water standards. The more intense treatment that was required slowed the WTP process down so that production declined to under 20 million gallons per day (MGD).

During this time, demands on the WTP were over 20 MGD. Based on the decreased WTP production capacity, the demands of some partners exceeded their ownership percentage of the available capacity. Throughout the week, as the WTP continued to experience treatment

challenges, and Fern Hill Reservoirs and Hillsboro's in-town storage continued to deplete, it became unclear if Hillsboro would be able to meet continued demands without some measure of mandatory curtailment. As the event continues, it appeared that Hillsboro might need to curtail their own customers' water usage. As this event continued into its third day, Beaverton and TVWD voluntarily switched to their alternative supplies to assist Hillsboro in meeting their demands, since Hillsboro does not currently have any alternate supply sources. TVWD switched more demand onto to its Portland Water Bureau supplies to reduce their demands on JWC. City of Beaverton had turned on one of their Aquifer and Storage and Recovery (ASR) wells the first day of the event. On the third day of the event, Beaverton agreed to turn on a second ASR well, to further lessen their JWC system demand.

TVWD and Beaverton were meeting their customer demands with these alternate sources, and Forest Grove was still able to meet its customer demands with its share of the reduced JWC WTP capacity that was available. As water quality improved the WTP increased production levels, and by the fourth day of the event, the WTP was again producing enough water to begin refilling the storage reservoirs. Hillsboro did not need to curtail. The event was over by the beginning of the following week, with normal WTP production capacity restored and all partners returning to their normal demand levels at the WTP.

Long-Term Solutions

Additional Plant Capacity

JWC staff has begun design (as of spring 2016) for WTP upgrades and an expansion of the WTP to peak day capacity of 85 mgd. The scope of the project includes four elements:

- Creating a facility plan identifying phased improvements for ultimate capacity
- Design and construction services for seismic life safety modifications and for capital improvement maintenance projects
- Design and construction services for improvements to achieve firm 75 mgd capacity
- Design and construction services for plant expansion to 85 mgd capacity

The expansion project is scheduled to be completed by 2019. At that time, owner capacity percentages in the WTP will be adjusted, and curtailment triggers will be based on the new numbers.

Additional Source Water

Tualatin Valley Water District and City of Hillsboro are also partnering on the development of the Willamette Water Supply Project, which will be capable of delivering over 60 MGD from the mid-Willamette River at Wilsonville by 2026. This redundant source of supply will provide an alternative source and will reduce curtailment risk significantly once the supply is online and available for use.

Notifications of Source Water Availability

Before Release Season

- The JWC notifies its member agencies of the status of storage in Barney Reservoir and Hagg Lake periodically throughout the year. JWC provides its member agencies storage curves for both reservoirs at the semi-monthly JWC Operations Committee meetings and the quarterly JWC Board meetings, and also makes the reports accessible to partners on the web.

- The Bureau of Reclamation announces the official storage available to contract holders by April 1. If applicable, the JWC will contact the Bureau of Reclamation to determine the levels of water supply and confirm the reduction schedules for each JWC member agency with contracted water in Scoggins Dam (Hagg Lake).

- The General Manager will inform the Operations Committee and the Management Committee by April 15 if the potential for a water shortage has been identified. (If the potential shortage is not known until a later date, the GM will then make immediate notification to the committees.)

- The Operations Committee will be notified when the Watermaster determines the regulation of several JWC-related natural flow water rights that impact the start and end dates of the release season.

- At the start of release season, JWC provides the storage allocations to each member agency that owns storage in Barney Reservoir, has a contract with the Bureau of Reclamation in Hagg Lake, or has a lease agreement with another JWC member agency.

During Release Season

- During the release season, each JWC agency is required to forecast the amount of water that they will need (commonly referred to as a "call for releases") in accordance with notification requirements outlined in the JWC Operations Manual.

- JWC provides weekly release reports to the member agencies that include the previous week's daily releases, the allotments of those release volumes charged to each member agency, status of remaining storage, and efficiency of capture of stored water. The frequent distribution of the release reports has made them a valuable resource for storage and release tracking and has helped increase the efficiency of stored water releases in relation to customer demands.

- The JWC will issue notices of potential shortages in each member agency's allotment during the release season when supplies are reduced or demands are unusually high.

Curtailment Event Triggers

Limitations to the WTP's capacity or reductions in supply do not automatically trigger imposition of curtailment measures, but begin a discussion among the JWC partner agencies to determine if partners would be willing to voluntarily reduce their demand by switching to alternate water supply sources. As a complementary document to this Curtailment Plan, the JWC Managing

Agency will develop a Scenario Plan that includes a condition assessment and outlines more detailed tiered curtailment triggers based on available JWC WTP capacity, levels of storage in Fern Hill, and estimated duration of the specific emergency event.

Examples of events that would cause the JWC Curtailment Plan to be activated include, but would not be limited to, the following:

Supply Disruption and Capacity Limitations – Short-Term

- Mechanical or electrical malfunction of critical pumping facilities at the JWC's intake or water treatment plant.
- Interruption of local utility electrical service for an unknown or extended period of time.
- Unplanned water quality, or other treatment issue, that slows JWC WTP production below partner demands in which the timeline for recovery from the condition is uncertain and the risk of total reservoir depletions, at projected rates of production and demand, is high.
- Short-term increase in total partners' demand beyond JWC WTP production capabilities, due to hot weather conditions, or loss of a secondary supply. (This condition would be for short-term shortages, and not long-term shortages, such as one caused by drought.)

Drought Conditions and/or Source Water Scarcity - Peak Season

- Abnormal weather conditions during the storage season, or other conditions, make it unlikely that Barney Reservoir and/or Hagg Lake will fill to their full capacities preceding the summer release season.
- High demands result in drawdown of reservoir supplies at a rate indicative that supplies will not last the duration of release season.
- Loss by any partner agency of an alternate supply source for an entire peak season.
- Declaration of a drought in Washington County by the governor, pursuant to ORS 536.720.
- Declaration of a statewide drought by the Governor, instead of by individual county.
    - Note: In this circumstance, JWC can petition for a State exemption from implementing its Curtailment Plan if it can demonstrate to the State (using historic and current data) that the JWC is not experiencing a water shortage that impacts the ability of its partner agencies to meet the demands of their customers (e.g. JWC has adequate stored water supply at Barney Reservoir and Hagg Lake, or partners are able to tap additional supply availability from ASR or from other sources).

Extreme Supply Disruption – Long-Term

- Catastrophic natural disaster, such as an earthquake, or
- Terrorist act that damages individual critical facilities and/or extensive portions of the JWC's transmission system, and/or lifelines such as electrical power and chemical deliveries.

Curtailment Response

It is important to note that curtailment response includes a range of options. It does not necessarily mean that reductions in demand on the JWC system will be required for all partners. Utilizing available JWC assets or other alternative water supply sources the agreed-upon first choice for managing source and peak capacity issues. A coordinated curtailment response that provides sufficient water to all JWC partners may be achievable without the need for individual partner agencies to impose voluntary or mandatory restrictions on their customers. Measures that impact customers will only need to be implemented if JWC partners cannot meet one or more partners' needs through negotiation and sharing of resources.

Objectives

JWC will do the following to ensure a coordinated response in a curtailment trigger situation:

- Present member agencies with information about the status of WTP capacity limitations, individual agency ownership percentages, and agencies' current demands on capacity.
- Present member agencies with information about the status of source water availability and releases from stored water.
- Provide a forum for negotiation of alternative or shared supply sources between JWC members.
- Require each JWC member agency to develop and adopt a customer curtailment plan and submit it to the JWC for inclusion in the JWC Water Management and Curtailment Plan (WMCP), in accordance with ORS 690-086.
- Coordinate unified public messaging related to curtailment and conservation measures and requirements. If curtailment is only needed by some of the partners, messages will still be coordinated to minimize confusion and/or impacts to customers of the JWC partners not implementing curtailment.
- Meet State requirements for curtailment when the Governor issues a drought declaration and orders curtailment plan implementation in accordance with ORS 536.720.

Protocols

Supply Disruption and Capacity Limitations – Short-Term

1) The JWC will notify the member agencies of the expected duration of the event and available finished water in storage.

2) The JWC will request projected water demands from each member agency for the projected duration of the event.

3) The JWC will optimize available JWC assets and utilize Fern Hill storage to the extent practical.

4) The JWC may request JWC member agencies to voluntarily reduce or shift their demands to other supplies. If these actions result in significant direct costs to those agencies, compensation for those costs may be negotiated between the agencies.

5) The JWC may move forward with mandatory curtailment for one or all partners if voluntary efforts do not solve JWC supply or capacity issues. The JWC General Manager may declare an emergency if all partners and wholesale customers are affected, or may require individual member agencies and wholesale customers to reduce demand on the JWC system if those members are exceeding their percentage of supply/capacity availability.

6) Member agencies shall keep the other JWC agencies apprised of activities and messaging for their individual agency curtailment efforts. Affected agencies may request assistance and coordination for public messaging and outreach efforts from the JWC Events and Education Committee (EEC).

7) Communication efforts will be coordinated by the JWC Public Information Officer (PIO) if mandatory curtailment is required of all JWC partners.

Drought Conditions and/or Source Water Scarcity – Peak Season

1) The JWC will notify the member agencies of the expected duration of the event and available stored water supplies and available finished water in storage.

2) The JWC will request projected water demands from each member agency for the projected duration of the event.

3) The JWC will develop stored water use scenarios based on various estimated peak season demand levels.

4) The JWC will optimize available JWC assets and utilize Fern Hill storage capacity to the extent practical.

5) The JWC may request JWC member agencies to voluntarily reduce or shift their demands to alternate sources. If these actions are intended to provide increased capacity to another JWC member, compensation for direct costs from implementing the actions may be negotiated between the agencies.

6) Partners that have available excess stored water and/or capacity will be requested to lease excess stored water and/or additional capacity to other partners in need. Leasing protocols are found in the JWC Water Service Agreement.

7) The JWC may move forward with mandatory curtailment for one or all partners if voluntary efforts do not solve supply or capacity issues. The JWC General Manager may declare an emergency if all partners are affected, or may require individual member agencies to reduce demand on the JWC system if members are exceeding their percentage of supply/capacity availability.

8) Member agencies shall keep the other JWC agencies apprised of activities and messaging for their individual agency curtailment efforts. Affected agencies may

request assistance and coordination for public messaging and outreach efforts from the JWC Events and Education Committee (EEC).

9) Communication efforts will be coordinated by the JWC Public Information Officer (PIO) if mandatory curtailment is required of all JWC partners. The JWC EEC will provide a summary and schedule of any proposed cooperative public outreach campaign and schedule to the Operations and Management Committees for review and approval. JWC maintains an emergency communications budget that covers short-term communication efforts, but each agency may be requested to provide additional funds for a longer-term, peak-season public outreach campaign, depending on the elements of the proposed campaign.

10) If curtailment is required due to Governor order and declaration of drought, all partners will conserve or curtail in accordance with Governor implementation requirements, as pursuant to ORS 536.720.

11) In a declared emergency event, the JWC will coordinate with other basin stakeholders (i.e. Clean Water Services and Tualatin Valley Irrigation District) to determine additional conservation measures, flow monitoring, and other supply options.

Extreme Supply Disruption

After an extreme event such as a severe natural disaster (earthquake, flooding, landslides, etc.) or terrorist act, JWC will take the following actions:

1) JWC will follow procedures 1-8 listed above under the "Drought Conditions" section.

2) JWC will initiate activation of the JWC Department Operations Center (DOC), and of the Hillsboro Emergency Operations Center (EOC) if it has not already been activated, within the Incident Command System. (The General Manager may declare a State of Emergency at this point as well.)

3) JWC will notify the member agencies of the expected duration of the event (if known) and the status of supply.

4) JWC will complete a damage assessment as soon as possible and provide critical information on facility damage and treatment capacity to member agencies and Hillsboro EOC. Resources will be requested through the Hillsboro EOC.

5) JWC will coordinate with the Washington County Office of Consolidated Emergency Management for regional support in extreme events, and implement any needed support from the Oregon Water/Wastewater Agency Response Network mutual aid agreements, and seeking federal aid from the Federal Emergency Management Agency and the National Guard.

6) Communication efforts between JWC member agencies, wholesale customers, basin partners, regional partners (RWPC members), and Washington County emergency communicators (including a Joint Information Center, if one is set up by the county) will be coordinated by the JWC Public Information Officer (PIO).

Authority

- Actions of this plan that are handled by system optimization and agreements between the member agencies can be taken under direction of the JWC General Manager.

- Emergency response will be coordinated by the JWC General Manager and the Senior Program Manager in charge of JWC Treatment.

- The General Manager will coordinate with the JWC Executive and Operations Committees when requesting that JWC partners switch to alternative source supplies or take other measures to reduce demands on JWC.

- Voluntary curtailment messaging can be coordinated and/or implemented by the JWC EEC, or by individual agencies, depending on agreed upon preference. JWC partners should notify other member agencies prior to implementation of curtailment actions.

- After a declaration of emergency by the General Manager of the JWC, and approval by the JWC Management Committee, all partner agencies will be informed of any mandatory curtailment action required by the JWC, along with a timeline to achieve such reduction. Individual partner agencies are responsible for decisions and implementation of mandatory curtailment for their customers.

- Mandatory curtailment actions will remain in effect until the emergency is declared ended by the General Manager. The General Manager is responsible for execution of the plan provisions once an emergency has been declared.

STAFF REPORT

To: Joint Water Commission

From: Erika Murphy, Project Manager

Date: December 22, 2016

Subject: Agenda Item 4F – Consider adoption of Resolution 130-J, adopting the JWC Water Treatment Plant Facility Plan

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Staff Recommendation:
Adopt Resolution 130-J, adopting the JWC WTP Facility Plan

Background:
Attached is the draft final Facility Plan. The Draft Water Treatment Plant (WTP) Facility Plan (October 2016 Draft) was presented to the Commission for review at the October Commission meeting, and an overview presentation was made at that meeting. This plan has been updated and revised per comments received from JWC staff and Commissioner review. All revisions have been made in "track changes" form to allow quicker review of modifications.

The Commission has approved design and construction of WTP upgrades and expansion that will increase WTP peak production capacity to 85 million gallons per day (mgd) to meet projected capacity needs of the partners for the near term (prior to the completion of the Willamette Water Supply project). The current upgrade and expansion project will include construction of new structures, in particular two filters and a surge basin. The JWC partners recognized that these new structures should be designed and located with the future WTP structure and facility replacement project in mind, in order to minimize investing in new facilities that could then need to be replaced a second time to fit with future WTP upgrades.

The Facility Plan has developed preliminary assumptions about build-out capacity, WTP processes, and WTP layout for a future WTP replacement program. The Facility Plan assumptions are guiding the design and location of the structures and facilities for the near-term Upgrade and Expansion project.

In the future, the Commission will be responsible for making decisions on an updated Capital Improvements Plan (CIP) that identifies the water treatment plant facilities that should be built and when they should be built, including decisions on priorities and phasing. The current understanding is that the JWC member agencies will develop that updated CIP through the next master plan update. It is currently anticipated that the next master plan work will not begin earlier than FY 2020, after

completion of the current WTP expansion project. However, the Commission will decide the timing of the master plan update project, which could begin at an earlier or later date.

Also attached is a proposed resolution 130-J to adopt the Facility Plan. The resolution confirms that the Facility Plan is consistent with Resolution 124-J, in which the Commission acknowledged that the WTP is subject to seismic risks, and deferred construction of replacement WTP facilities. The proposed resolution also directs, as part of implementing Resolution 124-J, that the design and construction of the current upgrade and expansion project be guided by the Facility Plan.

Attachments:

1. Revised WTP Facility Plan (Available online at http://jwcwater.org/what-we-do/current-projects/)
2. Proposed Resolution 130-J
3. Resolution 124-J

RESOLUTION # 130-J

A RESOLUTION OF THE JOINT WATER COMMISSION ADOPTING THE RECOMMENDATIONS AND FINDINGS OF THE WATER TREATMENT PLANT FACILITY PLAN

RECITALS:

WHEREAS, the Joint Water Commission (JWC) is authorized as an intergovernmental entity to manage JWC water sources and provide treatment, storage and transmission of potable drinking water for JWC Members and wholesale customers; and

WHEREAS, one ongoing task of the JWC is to plan for facility improvements necessary to supply the projected water demands of the Members through coordinated expansion, and

WHEREAS, the Water Treatment Plant (WTP) Facility Plan was prepared to achieve multiple objectives, including establishing guidance for design of improvements to the existing WTP to achieve sustainable 75 million gallons per day (MGD) capacity for expansion of the WTP to 85 MGD capacity; and

WHEREAS, in furtherance of those objectives, the WTP Facility Plan included development of a potential site layout for further expansion to ultimate build-out capacity, so that current WTP improvements could be designed and built in a way that avoids stranded investments by contemplating improvements likely to be made during future facility replacement and expansion projects; and

WHEREAS, Staff and the project consultant presented an overview of the WTP Facility Plan, along with a project tracking report to Commissioners at the October 14th Board meeting; and

WHEREAS, the Joint Water Commission has reviewed the Draft WTP Facility Plan, and was provided with opportunity for Board questions and feedback to be incorporated into the Revised Final Draft WTP Facility Plan; and

WHEREAS, the WTP Facility Plan does not approve any future construction for expansion beyond 85 MGD, but instead is a projection for potential future expansion needs, for which the scope and schedule will be addressed through a future JWC Master Plan, and which Master Plan and future buildout must be approved separately by a future JWC Board.

NOW THEREFORE, THE JOINT WATER COMMISSION RESOLVES AS FOLLOWS:

SECTION 1: The JWC WTP Facility Plan (Revised Final Draft) attached hereto as Exhibit 1 and incorporated by reference is hereby approved and adopted, subject to future modification as needed.

SECTION 2: The Resolution takes effect immediately upon adoption by the Joint Water Commission based on the Recitals above incorporated herein.

SECTION 3: Staff is directed to rely on the adopted WTP Facility Plan for guidance in designing and constructing improvements to the existing WTP to achieve 75 MGD sustainable capacity

and to expand the WTP to 85 MGD capacity, including design and construction of life safety improvements and of capital improvement and maintenance projects.

THIS RESOLUTION WAS DULY ADOPTED BY the Joint Water Commission at its regular meeting on January 13, 2017.

By: _____
Chair

ATTEST:

By: _____
Secretary

RESOLUTION # 124-J

A RESOLUTION TO APPROVE THE CAPITAL IMPROVEMENT PLAN INCLUDING CONSIDERATION OF REPLACEMENT WATER TREATMENT PLANT FACILITIES TO ADDRESS POTENTIAL RISKS FROM SEISMIC EVENTS

RECITALS:

The Joint Water Commission (JWC) is an intergovernmental entity that provides treatment, storage and transmission of potable drinking water for distribution to water users served by the JWC Members; and,

One ongoing task of the JWC is to periodically plan for improvements necessary to supply the projected water demands of the Members through creation of a Capital Improvement Program that, among other things:

- prioritizes the timing and scope of projected improvements consistent with prudent utility practices, and

- takes appropriate measures to prepare for and mitigate potential risks, including risk of interruption in Water Treatment Plant production, damages or losses from seismic events; and,

JWC caused a seismic study to be conducted by Carollo Engineers entitled Water Treatment Plant Seismic Evaluation – Final Report (October 2008) (Carollo Study) that:

- identified probable structural damage, interruption of production capabilities, and life safety risks at the Water Treatment Plant due to potential design earthquake events;
- identified level of service standards to be met by Water Treatment Plant improvements, including the need for peak production capacity to be available for a period of three consecutive days;
- concluded that current Water Treatment Plant production capacity was limited by several factors that restrict availability of peak production capacity to one day or less; and,
- recommended addressing those risks and capacity limitations through construction of certain improvements to eliminate life safety risks, and through construction of a new parallel treatment process train to expand production capacity and to replace production capability that would be damaged during earthquake; and,

The Carollo Study recommendation was predicated on the then-current Capital Improvement Plan to design and construct improvements to expand the Water Treatment Plant from the current peak capacity of 75 million gallons per day (mgd) to 150-165 mgd by 2016, all as part of the Tualatin Basin Water Supply Program; and

The Tualatin Basin Water Supply Program was a comprehensive plan to double the storage capacity of Henry Hagg Lake by constructing improvements to Scoggins Dam, owned by the Bureau of Reclamation (BOR). Subsequent to the issuance of the Carollo Study, the BOR issued report that Scoggins Dam is subject to total failure if the 475-year (Cascadia Subduction Zone) earthquake occurs; and

While the BOR remains engaged in studies to evaluate options for upgrading or replacing Scoggins Dam to mitigate the seismic risks, there is no firm timeline for decision by BOR among selected alternatives, design and construction of improvements, and funding thereof; and,

The BOR report and evaluation process prompted study and consideration by the JWC Members of all potential alternatives for expanding long term water supply capacity, which led to:

- selection of the mid-Willamette River as the preferred source for the next major expansion increment of long term water supply, and

- modification of the Tualatin Basin Water Supply Program to eliminate expansion of Scoggins Dam for municipal water supply storage and to elimination of plans for construction at the JWC Water Treatment Plant of a new parallel process train; and

Tualatin Valley Water District (TVWD) and the City of Hillsboro (Hillsboro), and potentially other local government partners, are working jointly to develop Willamette Water Supply Program to develop the mid-Willamette source, with construction of Phase 1 to be complete by 2026; and,

Based upon these changed circumstances, the JWC conducted an update to the 2008 Carollo Study:

- to evaluate long term supply needs to be met by the JWC Water Treatment Plant, and
- to evaluate the improvements that need to be made to the existing Water Treatment Plant to address seismic risks, reflecting the change that TBWSP expansion will not be built, and
- to prepare a proposed Capital Improvement Plan to address those needs; and

The proposed Capital Improvement Plan was developed to meet the criteria for a Capital Improvement Program as generally described above, including the timing of seismic improvements; and,

The updated Carollo Study, entitled Technical Memorandum No. 1: Capital Improvement Program Update, (March 2015) , attached hereto as Exhibit 1 and incorporated by reference as though fully set forth, reached several key conclusions:

- Water Treatment Plant peak capacity needs to be upgraded and expanded by 2020 to meet projected increases in partner demands; and,
- Multiple water treatment plant facilities that would fail during a 475-year earthquake were identified that would require at least 12 months for construction of new facilities to restore production capacity; and,
- The potential for constructing mitigation improvements to those facilities was evaluated, leading to the conclusion that it is either not physically feasible to construct such improvements or that the cost of constructing a new facility would be substantially less than the cost of improving the existing facility; and,
- Construction of the "near-term capacity expansion" (2020) could include all of the identified life safety improvements and several facility improvements that could result in 10 mgd production capacity being available following those earthquake events within specified design parameters while construction of new replacement facilities would be occurring; and,
- The Study also identified major maintenance projects, designated as CIMP projects, and included updated cost estimates and cost allocations among the Members; and,

Further, the Commission has reviewed a separate report prepared by JWC staff which states, among other things:

- All JWC Members and wholesale customers, except Hillsboro, currently have access to alternate sources of supply;

- Hillsboro is preparing to develop new backup sources that would partially meet its demands and be available by 2026;
- TVWD and Hillsboro will complete the Willamette Water Supply Program by 2026, providing large a new redundant source of supply for most JWC demands;
- JWC Members, and JWC and Hillsboro wholesale customers, that are served by JWC, but which will not be served by WWSP, have or are developing access to other water supply sources;
- Accelerating construction of replacement Water Treatment Plant facilities would shorten the risk period by as little as 3 years prior to 2026;, and
- Accelerating construction of replacement Water Treatment Plant facilities would significantly increase costs to JWC Members at a time when all JWC Members will be raising rates to meet needs of their individual distribution systems and for the cost of the 2020 Water Treatment Plant near-term capacity and seismic improvements;
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and being fully advised,

NOW, THEREFORE, BE IT RESOLVED BY THE JOINT WATER COMMISSION

SECTION 1: The Capital Improvement Plan attached hereto as Exhibit 1 and incorporated by reference is hereby approved and adopted, subject to future modification as needed.

SECTION 2: The Commission concludes, that it is reasonable and prudent to defer construction of new replacement Water Treatment Plant facilities in the Capital Improvement Plan based on the Recitals above incorporated herein and consideration of the factors below namely:

- The uncertainty of the timing of 475-year seismic event and its potential risk for interrupting production capabilities of the Water Treatment Plant for an extended period;
- The certainty of the immediate need to invest in other JWC and local system water improvements, including the Water Treatment Plant expansion by 2020 to meet projected near term increases in partner demands, development of new separate, redundant water supply sources, and necessary improvements and maintenance of the JWC system and the JWC Members' local systems;
- The availability of alternate supplies to JWC Members in the event that occurrence of an earthquake before construction of new replacement Water Treatment Plan facilities resulted in damage that substantially reduced the production capacity of the Water Treatment Plant; and,
- That accelerating construction for seismic events would unduly burden and adversely impact each JWC Member's customers due to the requirement to further increase water rates above the substantial level of rate increases currently planned by all members

Approved this 10th day of April, 2015

Chair

ATTEST:

By: _____

Secretary

STAFF REPORT

To: Joint Water Commission

From: Erika Murphy, Project Manager

Date: December 22, 2016

Subject: Agenda Item 4G – Consider approval of contract amendment to Carollo Engineers for construction phase services on Backup Power Project

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Staff Recommendation:
Approve a contract amendment with Carollo Engineers on the Backup Power Project in the amount of $101,290.00.

Background:
JWC originally contracted with Carollo Engineers to provide design services for the Backup Power Facility project. The contract was subsequently amended to expand the scope of work to include bidding phase service, construction phase services and permitting assistance services. The total contract amount is $743,479.

JWC staff met with Carollo in June 2015 to discuss design communication issues and expectations, and to advise Carollo that it objected to some of the fees that had been invoiced. The dispute over fees was not resolved at that time. The JWC and Carollo entered into a no-cost contract amendment under which the parties agreed to defer resolution of the disputed fees until completion of the project, and that Carollo would continue to perform its services on the project but would not submit additional payment requests until the project was completed.

The project was completed late in the 2015-16 fiscal year, and Carollo submitted its final invoice for all services provided. Of the final invoice amount, JWC has paid $147,012, which is not disputed as services provided within the contract scope. After that payment, the remaining budget under the existing contract is $9,383, which is expected to be sufficient to cover Carollo services at the end of the one-year construction warranty period.

Carollo has waived the fee for additional effort expended to move the fuel tank. After the contract was executed with the general contractor, JWC directed Carollo to change the design of the facility to move the diesel fuel tank away from the building; the move created sufficient maneuvering space to remove the complete generator and engine if replacement or full-scale repair were ever necessary. Carollo accepted responsibility for insufficient coordination during the design phase which contributed

to the design change during the construction phase, and waived its charges for that work in the amount of $30,275.

Carollo has also requested payment of $136,960, the total amount that remained in dispute pending completion of the project. Both parties agree that Carollo spent extra effort on the project, and that most of the additional request is justified. However, JWC staff believes that there were inefficiencies in parts of the construction administration that led to unnecessary additional effort on tasks related to processing of Requests for Clarifications (RFC) from the general contractor. JWC acknowledges that it bears some of the responsibility for these inefficiencies, and Carollo has also acknowledged that it shares some responsibility as well. The JWC proposed a compromise with Carollo to evenly split the costs of the Request for Clarifications (RFC) task item, which exceeded the original contract task item amount by $71,340. Carollo Engineers has accepted the JWC's approach to reconciling additional effort expended on the contract, resulting in a reduction of $35,670.

The total and final amount for the proposed contract amendment to Carollo Engineers is $101,290. This still leaves remaining contract budget of $9,383 for warranty work, as described above.

A summary of the final project costs:

Final Backup Power Project Costs	
Total JWC project expenditures to date including: 2KG construction contract, Carollo's design services and JWC staff time	$ 7,185,982
Final proposed Carollo Engineers contract amendment	$ 101,290
Total Project expenditures including proposed contract amendment	**$ 7,287,272**
Total approved JWC project budget	$ 6,000,000
Additional funds from PGE including the Dispatchable Standby Generation (DSG) contributions and overtime reimbursement	$ 1,518,507

Attachments:

1. Monthly Project Tracking Report
2. Amendment 6

AMENDMENT 6 TO PROFESSIONAL SERVICES CONTRACT #1101
PHASE 2 of the BACKUP POWER FACILITY

This Amendment 6 between the Joint Water Commission ("JWC"), a collective water supply agency formed under ORS 190 agreement between the Cities of Hillsboro, Forest Grove, Beaverton, and the Tualatin Valley Water District, and Carollo Engineers, changes certain contract provision of the above named contract, during the contract term.

1. JWC and Contractor previously entered into a Contract for professional services for Phase 2 of the Backup Power Facility, which includes professional engineering services to complete 60% design and perform final design work dated January 14, 2013.
2. The parties agreed to Amendment 1 to the Contract to add professional services to prepare Architectural Design Guidelines that will provide a uniform campus architectural language between the Backup Power Facility, planned future Water Treatment Plant (WTP) facilities, and existing facilities.
3. The parties agreed to Amendment 2 to add Bidding Phase Services to help the JWC receive competitive bids by attending a pre-bid conference, responding to bidder's questions, and preparing addenda to clarify design intent.
4. The parties agreed to Amendment 3 to add Construction Phase Services to assist the JWC and the Contractor in construction management services, reviewing submittals, RFI's and change orders, assisting with commissioning and start-up, and providing record drawings.
5. The parties agreed to Amendment 4 to add Permitting Assistance Services to assist the JWC secure permits for the project from Washington County.
6. The parties agreed to a no-cost Amendment 5 to provide for design services to change the location of the generator fuel storage tank and other issues.
7. This Amendment 6 provides compensation for Construction Services performed out of scope from June 2015 to December 2016. This is the final amendment to the contract.

The Parties agree as follows:

I. Fee for Professional Services Agreement.

This contract amendment increases the total contract value. The contract total is increased by $101,290.00, resulting in a new total contract value of $844,769.00.

II. Amended Termination Date.

This contract amendment changes the contract termination date to June 30, 2017 under this amendment.

III. Tasks, Terms and/or Conditions.

Contractor and Owner have agreed to the terms listed in this amendment as services rendered.

IV. Release and Reservation of Rights

I certify that I have the authority to sign and enter into this contract amendment on behalf of the party I represent and agree to be bound by its terms.

CAROLLO ENGINEERS, INC.	**JOINT WATER COMMISSION**
_____ Signature	_____ Signature
_____ Contractor Printed Name and Title	_____ Printed Name and Title
_____ Date	_____ Date

MONTHLY PROJECT TRACKING REPORT

December ***2016***

Project Name WTP Backup Power Facility

Project # 80054200-7040-10414

Project Manager Erika Murphy

Project Description *The Project consists of a cast in place building with masonry siding and metal roof, installation of two 2,500 kW generators procured by JWC and assigned to the Contractor, diesel storage tank, associated electrical equipment, auger cast pile foundation system and related site work.*

Total Project Budget	$ 6,000,000			**Total Remaining Budget**	$ 231,235
Total Expenditures to Date	$ 7,287,272	(including final Carollo change order of $101,290)			
Total PGE Contribution	$ 1,383,850	**Total Received**	$ 1,383,850		
PGE Reimbursement CO#1	$ 200,000	**Total Received**	$ 134,657		
Scheduled Completion Date	3/9/2016				

CRITICAL MILESTONES		
Task	*Estimated Completion Date*	*Actual Completion Date*
Design	Aug-14	Aug-14
Bidding	Oct-14	Oct-14
Permitting	Jan-15	Mar-15
Construction	Jan-16	Apr-16

PROJECT HIGHLIGHTS

The project was deemed substantially complete on March 14, 2016. Walk-throughs were performed by Carollo and WTP staff. Several incomplete items were identified and 2KG was issued a punchlist. All unresolved items were addressed, permits at Washington County were closed out, and final geotechnical reports and inspection reports were submitted. Carollo and JWC performed a final walk-through to verify that the punchlist was complete. The project was given final completion on July 8, 2016 (documented in change order #7). Final payment was issued to 2KG on July 8, 2016. Final payment to Carollo in the amount of $101,290 is pending approval of the JWC Commission on January 13, 2017.

PERSONNEL SERVICES	*Month Paid*	*YTD Paid*	*Project Total*
Staff Cost		$ 47,135	$ 154,958
Misc. Construction Expenses		$ 22,994	$ 22,994

CONTRACTS					
Awarded to	*Contract #*	*Month Paid*	*Total Paid*	*Contract Amt*	*Change Orders*
Carollo Engineers	1101	$ -	$ 734,096	$ 743,479	$ 101,290
2KG Contractors, Inc	1439	$ -	$ 6,191,740	$ 5,710,194	$ 481,546
Carlson Testing	1521	$ -	$ 29,285	$ 25,634	$ 3,651
R&W Engineering, Inc.	1570	$ -	$ 43,385	$ 35,000	$ 15,000
Taurus Power & Controls	1735	$ -	$ 9,525	$ 20,000	$ -
		$ -	$ -	$ -	$ -
		$ -	$ -	$ -	$ -
		$ -	$ -	$ -	$ -
TOTALS		**$ -**	**$ 7,008,030**	**$ 6,534,307**	**$ 601,487**

JWC YTD FINANCIAL STATUS

Date a/o 11/30/2016

JWC RESOURCES	BUDGET 16/17	YTD 16/17	ENCUMBRANCE	YTD TOTAL	AVAIL REMAIN 16/17	% USED
BEGINNING WORKING CAPITAL	-	-	-	-	-	
WATER SALES						
HILLSBORO - WATER PURCH	3,729,991	1,264,783	-	1,264,783	2,465,208	34%
FOREST GROVE - WATER PURCH	312,436	88,417	-	88,417	224,019	28%
BEAVERTON - WATER PURCH	1,512,746	293,187	-	293,187	1,219,559	19%
TVWD - WATER PURCH	1,464,783	427,065	-	427,065	1,037,718	29%
NORTH PLAINS - WATER PURCH	115,000	82,473	-	82,473	32,527	72%
NORTH PLAINS SDC	50,000	177,815	-	177,815	(127,815)	356%
TOTAL WATER SALES:	**7,184,956**	**2,333,739**	**-**	**2,333,739**	**4,851,217**	**32%**
CONTRIBUTIONS IN AID						
HILLSBORO - CAPITAL OUTLAY	2,984,320	468,921	-	468,921	2,515,399	16%
FOREST GROVE - CAPITAL OUTLAY	531,178	25,551	-	25,551	505,627	5%
BEAVERTON - CAPITAL OUTLAY	1,003,000	27,163	-	27,163	975,837	3%
TVWD - CAPITAL OUTLAY	971,502	129,441		129,441	842,061	13%
CWS - CAPITAL OUTLAY	-	92	-	92	(92)	0%
TOTAL CONTRIBUTIONS IN AID:	**5,490,000**	**651,169**	**-**	**651,169**	**4,838,831**	**12%**
OTHER						
GRANTS AND DONATIONS	13,000	-	-	-	13,000	0%
WESTERN LUTHERAN SCHOOL	-	507	-	507	(507)	0%
INTEREST EARNED	-	6,932	-	6,932	(6,932)	0%
MISCELLANEOUS INCOME	-	880	-	880	(880)	0%
LEASE REVENUE	321,900	-	-	-	321,900	0%
TOTAL OTHER:	**334,900**	**8,319**	**-**	**8,319**	**326,581**	**2%**
CONTINGENCY						
HILLSBORO-CONTINGENCY	225,000	-	-	-	225,000	0%
FOREST GROVE - CONTINGENCY	66,650	-	-	-	66,650	0%
BEAVERTON - CONTINGENCY	125,000	-	-	-	125,000	0%
TVWD - CONTINGENCY	83,350	-	-	-	83,350	0%
TOTAL CONTINGENCY:	**500,000**	**-**	**-**	-	**500,000**	**0%**
TOTAL RESOURCES:	**13,509,856**	**2,993,227**	**-**	**2,993,227**	**10,516,629**	**22%**

JWC REQUIREMENTS	BUDGET 16/17	YTD 16/17	ENCUMBRANCE	YTD TOTAL	AVAIL REMAIN 16/17	% USED
PERSONAL SERVICES	2,592,620	1,031,035	-	1,031,035	1,561,585	40%
MATERIALS AND SERVICES	3,851,550	1,253,951	1,175,562	2,429,513	1,422,037	63%
CAPITAL OUTLAY	5,666,000	582,447	5,140,963	5,723,410	(57,410)	101%
SPECIAL PAYMENTS	899,686	333,683	-	333,683	566,003	37%
CONTINGENCY	500,000	-	-	-	500,000	0%
TOTAL REQUIREMENTS:	**13,509,856**	**3,201,116**	**6,316,524**	**9,517,641**	**3,992,215**	**70%**

TOTAL RESOURCES AND REQUIREMENTS

	BUDGET 16/17	YTD 16/17	ENCUMBRANCE	YTD TOTAL	AVAIL REMAIN 16/17	% USED
TOTAL RESOURCES	**13,509,856**	**2,993,227**	**-**	**2,993,227**	**10,516,629**	**22%**
TOTAL REQUIREMENTS	**13,509,856**	**3,201,116**	**6,316,524**	**9,517,641**	**3,992,215**	**70%**
NET INCOME (LOSS)	**-**	**(207,890)**	**(6,316,524)**	**(6,524,414)**	**6,524,414**	
BEGINNING WORKING CAPITAL	**-**	**-**	**-**	**-**	**-**	
ENDING WORKING CAPITAL	**-**	**(207,890)**	**(6,316,524)**	**(6,524,414)**	**-**	

Notes:

(a) JWC A/R about 45 days out

(b) December billings will be prepared/posted by January 25th, 2017

JWC CAPITAL PROJECT REPORT

Date a/o 11/30/2016

Project #	YTD 16/17 Short Description	FY 16-17 Total Budget	YTD ACTUAL FY 16-17 as of 11/30/16
10414	**ON-SITE POWER GENERATION TOTAL COSTS**	$ 100,000	$ 150,434
	Personnel Services Expenditures		$ 3,422
	Contractor Expenditures		$ 147,012
10470	**BROOKWOOD (SHUTE)/HELVETIA INTERCHANGE TOTAL COSTS**	$ 30,000	$ -
	Personnel Services Expenditures		$ -
	Contractor Expenditures		$ -
11013	**JWC INSTALL FLOW METERS TOTAL COSTS**	$ 200,000	$ 191,979
	Personnel Services Expenditures		$ 9,968
	Contractor Expenditures		$ 182,011
11011	**PRELIMINARY DESIGN FACILITY PLAN TOTAL COSTS**	$ 1,810,000	$ 114,495
	Personnel Services Expenditures		$ 22,967
	Contractor Expenditures		$ 91,528
10571	**WATER TREATMENT PLANT EXPANSION 75 TO 85MGD TOTAL COST**	$ 1,400,000	$ 140,863
	Personnel Services Expenditures		$ 19,362
	Contractor Expenditures		$ 121,501
10829	**PUMP REPLACEMENT TOTAL COSTS**	$ -	$ 2,414
	Personnel Services Expenditures		$ 2,414
	Contractor Expenditures		$ -
11077	**RECYCLE PUMP STATION TOTAL COSTS**	$ -	$ 160
	Personnel Services Expenditures		$ 160
	Contractor Expenditures		$ -
11135	**FAIRWAY FUND LITIGATION TOTAL COSTS**	$ -	$ 16,768
	Personnel Services Expenditures		$ -
	Contractor Expenditures		$ 16,768
	JWC EMERGENCY EQUIP REPLACEMENT TOTAL COSTS	$ 2,000,000	$ -
	TOTAL PROJECT CAPITAL OUTLAY	$ 5,540,000	$ 617,113
	NON-PROJECT CAPITAL OUTLAY:		
	AUTOMOTIVE & EQUIPMENT	$ 15,000	$ 13,100
	COMPUTER HARDWARE/SOFTWARE	$ 20,000	$ 3,784
	FACILITIES EQUIPMENT	$ 91,000	$ 6,743
	TOTAL NON-PROJECT CAPITAL OUTLAY	$ 126,000	$ 23,627
	TOTAL CAPITAL OUTLAY	$ 5,666,000	$ 640,740