



## **Clackamas Regional Water Supply Commission**

### **Board of Directors**

#### **Regular Meeting**

Monday, June 5, 2017 4:00 p.m.

#### **Clackamas River Water**

16770 SE 82<sup>nd</sup> Drive

Clackamas, OR 97015

### **AGENDA**

#### **Call to Order @ 4 p.m.**

Call to Order, Pledge, and Roll Call – Hugh Kalani, Chair

**Public Comment** - Comments limited to 3 minutes per person

#### **General Business**

- 1. History of Formation of CRWSC**
- 2. Draft Planning Document**
- 3. Draft Capital Improvement Plan**
- 4. General Manager(s)' Update (verbal)**
- 5. Directors' Reports (verbal)**

#### **Adjourn**

*Next Meeting: Monday, September 11, 2017, 4:00 p.m. at Sunrise Water Authority*



# CLACKAMAS REGIONAL WATER SUPPLY COMMISSION

June 5, 2017

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## Agenda Item 1

Subject: History of Formation of CRWSC

Principal Staff: Wade Hathhorn, SWA

Attachments: Draft Structure to the CRW/SWA 190  
FAQs (Formation Public Announcement)

Background: Recent changes in Board representation has created a “gap” in the historical perspective and background to the CRWSC. The Board asked staff for a brief introduction to the history of the CRWSC and its purpose.

Analysis: Discussion began more than a decade ago about the long-term future of CRW and Sunrise. The “parties” recognized the “trends” facing each agency and looked to strengthen each organization, while maximizing available resources. At their basic core, the two organizations are similar “single purpose special districts who provide essentially identical services located adjacent to one another.” Hence, the obvious opportunity was at least to “share” or “consolidate” resources and functions to maximize net benefit to the public. For example, share large equipment, emergency resources or special labor and services – taking advantage of economies of scale.

Moreover, CRW was looking for a strategy to deal with “annexation” of its territory and assets, as the surrounding cities carried out their own “growth plans.” The main issue here focused on the legal item that allows a city to force withdrawal of a special district while also acquiring the assets within those areas without cost. For CRW, this issue posed serious problems related to long-term capital planning, renewal and replacement of assets and preservation of customer base (funding resources) – all of which could simply be taken by an adjoining city virtually at will.

Sunrise on the other hand needed water in the future – the city of Damascus had formed and was making plans to add 60,000 new residents. Those numbers, along with those of the city of Happy Valley, meant Sunrise was going to need a lot of water in the future (more than 60 MGD at peak).

So, you had two special districts located side by side, each providing identical services. One (CRW) needing some way to “protect” its assets from annexation and the other (Sunrise) needing a lot of future water. This basic “formula” became the “model” in the formation of the CRWSC.

CRW’s long-term projection for water demand did not exceed its source capacity – it had water and the need to find wholesale customers to protect its resources. Sunrise, in turn, needed the water and was by organizational structure a “water authority.” And unlike CRW (which is a special district by formation), Sunrise (as an authority) was “immune to annexation” by law. The original formation of Sunrise involved a consolidation of the Mt. Scott and Damascus Water Districts, but it also required a city (Happy Valley) to join in lieu of providing their own water service.

So, the two organizations looked for ways to meet each other’s long-term needs. One option was to “merge” CRW into Sunrise – this would extend the boundaries of Sunrise across those of CRW and potentially extend the area under which the adjoining cities could not annex. Sunrise, in turn, would get access to the water it needed (provided appropriate financial remuneration could be agreed to by the parties). However, a “merger” would also “radically change” each organization.

Another option would be to create a separate organization between the two (under Oregon statute) that would allow for sharing of resources and possible “consolidation of operating functions” where practical (see attached Draft Structure to the CRW/SWA 190). Hence, the parties agreed to form the Clackamas Regional Water Supply Commission (CRWSC) for this purpose. Legal counsel had also presented the concept the parties might “test” the extent to which the new organization (ORS 190) would acquire some level of protection inherently assigned to Sunrise (i.e. boundary protection).

Also attached is a series of Frequently Asked Questions that was produced as a public information item regarding the formation of the CRWSC.

The formation of the CRWSC was done in late 2014 and immediately led to a “legal dispute” initiated by City of Oregon City regarding its “primacy” to carry out its “comprehensive land use plan” (which included annexation of portions of CRW) without interruption by the CRWSC. CRW (through the CRWSC) agreed to meet with City of Oregon City to discuss the relevant issues – those meetings led to a formal agreement between CRW and Oregon City to identify future areas of service and an approved plan for annexation of CRW assets (based

on repayment of the remaining life of assets. The latter settlement item represented an “important” process for the parties to find a “fair means” for dealing with future annexations by the city.

Once formed, CRW and Sunrise began to “share labor and equipment” where it made sense and set out to establish the CRWSC as a means for allowing greater utilization of resources between the two organizations. To date, the parties have shared nearly \$500,000 in labor and equipment (most of this being borrowed by Sunrise). And now plans have been created to begin planning and sharing key infrastructure assets.

Options: NA

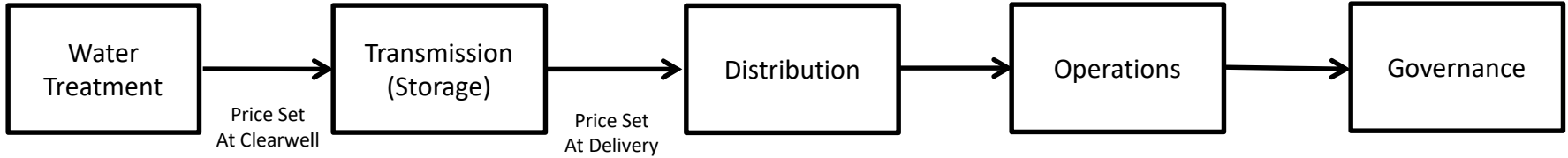
Draft Motion: None required. Open discussion with the Board regarding history of CRWSC.



# Draft Structure to the CRW/SWA 190

Board: 3-3 (favored)  
 Management:  
 Approve Managing Agency (GM assigned) for period of 3 years  
 Allow for initial development period (3 years) to accommodate Co-Management

Distribution: Maintained Separately  
 Renewal & Replacement  
 New Facilities  
 Separate Financing



Existing Capacity/Facilities  
 Facility Ownership Retained Separately  
 Annualized Cost Set at Delivery Point  
 Sale/Lease Ownership

New Capacity/Facilities  
 Construction Costs (%Ownership)

Annualized Cost = Fixed + Variable  
 Fixed Cost = Depreciation + Labor (%Assigned)  
 Depreciation: Replacement Cost\*%Remaining Useful Life  
 Variable Cost = Chemicals + Electricity + Other  
 Based on Usage

Administration (Overhead)  
 Budgeted Labor + M&S  
 Allocated by %Total No. Connections

Customer Service  
 Maintain separate CSRs

Billing/Meter Reading  
 Share Billing/Accounting System  
 Coordinate Meter Reading

Engineering  
 Coordinated Labor/Expertise  
 Coordinated Mapping/Drawing Systems  
 Coordinated Capital Planning  
 Coordinate Design Standards





# Clackamas River Water / Sunrise Water Authority

## Cooperative Agreement

### FREQUENTLY ASKED QUESTIONS

#### **Why have the two water utilities created a new cooperative agreement?**

The two agencies border one another and provide similar services. There are a number of opportunities for the two agencies to cooperate, reducing their individual costs and enhance operations.

#### **What is the source of CRW's water? Is there surplus water available?**

Both utilities use the Clackamas River as their main source of water supply. CRW has ample water rights on the Clackamas River and its treatment plant can produce up to 24 million gallons per day (mgd). With a current peak demand of only 9 mgd to serve CRW customers, this leaves surplus capacity to help meet the needs of surrounding communities.

#### **Who would use the water?**

Under this agreement, CRW would make up to 10 mgd of surplus capacity available for purchase by participating members. Sunrise would begin using 25% of that capacity today, while paying full costs for treatment and delivery. And Sunrise would use more of that surplus capacity in the future as demand grows.

#### **How does CRW benefit, along with its customers?**

CRW's plant is underutilized and the fixed cost associated with that unused portion of the plant, including staffing and depreciation, are paid totally by CRW's ratepayers. This agreement establishes a long-term arrangement with Sunrise and other potential members of cooperative agency for expanded use of CRW's plant, thus reducing the overall financial burden on CRW ratepayers over time. Moreover,

various resources and services would be shared, making more cost effective use of those resources and reducing costs to participating members.

#### **Do Sunrise and its customers benefit, too?**

Sunrise needs more water in the future and it can build its own facilities to compete with CRW and other suppliers or simply make good use of available supplies. The answer here is simple – the use of existing supplies will be more cost effective for all parties, including Sunrise. Similarly, the use of shared resources and services within the combined agency provide opportunities for reducing the costs to all parties.

#### **What services do the two utilities already share?**

CRW and Sunrise have already begun sharing labor, equipment, and services at cost, including water quality testing, engineering, facilities mapping, and planning. They also share a pipeline that connects the CRW treatment plant with neighboring facilities owned and operated by the South Fork Water Board and North Clackamas County Water Commission.

#### **Does the cooperative agreement change the utilities' service boundaries?**

No. Both agencies would continue to serve their own customers and maintain their own service boundaries. CRW, however, is currently subject to future boundary changes through the process of municipal annexation; Sunrise is not. Accordingly, there has been some confusion as to what areas are actually served by the two agencies. This agreement looks to clear up those boundary issues and prioritize the creation of service arrangements with all

adjacent municipalities by developing a coordinated intergovernmental plan for future water service.

### **Are any new facilities needed?**

No, at least not initially. The existing facilities of both agencies are sufficient to allow for the anticipated delivery of water. But as demand grows, especially for Sunrise, there will have to be additional pipelines built to convey the water, all at the cost of Sunrise. The agreement creates a water pricing model that recovers the full cost of service provided by CRW for both treatment and delivery.

### **How will this agreement impact the Clackamas River?**

The Clackamas River will not be impacted. The agreement will utilize CRW's existing water rights which have been fully permitted by the Oregon Water Resource Department. No additional water rights from the Clackamas River will be required.

### **How will customers' water rates be affected?**

The cooperative agreement will yield long-term savings for CRW and Sunrise customers. The goal is to make maximum use of existing resources and facilities, while avoiding the unnecessary and costly option of building additional capacity. Any future upgrades to the water treatment plant and delivery system will also be shared proportionate to use.

### **Will the agreement create another agency?**

Yes, a separate agency will be formed similar to South Fork Water Board or the Joint Water Commission. However, no additional staff or facilities will be needed to implement this new agency. Its main purpose is to oversee the sale of water and optimize operations among participating members.

### **How will this new agency be governed? Who is in charge?**

The agreement will be governed by equal representation from the two utilities' elected Boards of Commissioners. The full Boards will, in turn, remain in charge of their separate utilities. Decision making will require a majority vote, meaning at least one member from each representative Board must agree on every issue at hand.

### **Will the two water utilities be merged?**

This is not a merger. The two utilities will continue to operate as independent entities, serving their respective customers under the direction of their own Boards of Commissioners.

### **Who makes the decision to affirm the new agreement? Is it subject to voter approval?**

CRW and Sunrise Boards of Commissioners will make the decision to approve the agreement. Implementation is subject to the terms and conditions of the Agreement. Under Oregon statute, this decision is not subject to voter approval. But both agencies will allow for sufficient period of public input and comment.

### **When does the cooperative agreement take effect?**

The agreement would take effect only after approval of resolution by both Boards.

### **To learn more...**

#### **Clackamas River Water**

Lee Moore  
General Manager  
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#### **Sunrise Water Authority**

Wade Hathorn, P.E.  
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# CLACKAMAS REGIONAL WATER SUPPLY COMMISSION

June 5, 2017

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## Agenda Item 2

Subject: Draft Planning Document

Presenter(s): Wade Hathhorn, General Manager  
Todd Heidgerken, General Manager

Attachments: Draft Planning Document

Background: The formation agreement (CRWSC) calls for the General Manager(s) to prepare a "Planning Document" intended to layout the short and long-term needs for water among the parties and address a basic approach for key water supply planning issues, including curtailment strategies.

Analysis: A draft of the Planning Document has been prepared. It shows the projected water demands for CRW and Sunrise over the next 20-years (and through buildout). The key findings of the document are:

1. Sunrise is about to "bump up" against its access to peak day (demand) supplies both through the NCCWC (9.6 MGD) and CRW (2.5 MGD). The latter is also through the NCCWC and assigned to Sunrise internally. Sunrise has access to several wells that will allow it some latitude in meeting short term peak demand but will need additional peak supply in the next couple of years.
2. By the end of the 20-year period, supplies from CRW and the NCCWC will be exhausted and the parties will have to find a source of additional water. The focus will be on upgrading and expanding the CRW treatment plant (unless other feasible options are made available).

Options: Amend the document following Board review and input.

Staff Recommendation: Ask Board to either approve or formally acknowledge receipt of the Planning Document as required under the CRWSC Agreement.

Draft Motion: None.





**DRAFT**

CLACKAMAS REGIONAL  
WATER SUPPLY COMMISSION  
(CRWSC)  
Planning Document

May 2017

## Section 1 – Purpose

This Planning Document is intended to outline the present and future water demands for the principal parties of the CRWSC, along with a summary of relevant source capacity and water availability. The primary components of this Plan include:

- Summary of member demands
- Review of source options and availability
- Listing of existing obligations under other agreements
- Summary of noted deficiencies in total system capacity

Information from this Plan may in turn be used to guide future water sales (wholesale) agreements and other water supply planning functions under the CRWSC.

Once adopted, this Plan should be reviewed annually (or as needed) and updated at least every five years.

## Section 2 – Service Area and System Description

### Clackamas River Water

Clackamas River Water's (CRW) overall system provides water to approximately 12,000 service connections, covering an area spanning more than 41.6 square miles. The principal customer base is comprised of residential, commercial, and industrial connections, along with public facilities such as schools, churches, irrigators, and wholesale customers.

CRW's service territory is marked by three main delivery areas. Area 1 is the most densely populated, covering approximately 11 square miles in the unincorporated area located north of the river near the I-205/Milwaukie Expressway Interchange. Serving an estimated population of 30,000 (2016), Area 1 includes the commercial and industrial customers along Highway 212, Clackamas Promenade and Clackamas Town Center Mall. Areas 2 and 3 are located south of the river and are rural and more sparsely populated. Portions of Areas 2 and 3 are also located within Oregon City's urban growth boundary. Area 2 is approximately 27.6 square miles while Area 3 is approximately 3 square miles. Areas 2 and 3 have a combined service population of approximately 15,450 (2016).

A schematic of the three main sub-areas and related water sources is shown in **Exhibit 2-1** below.

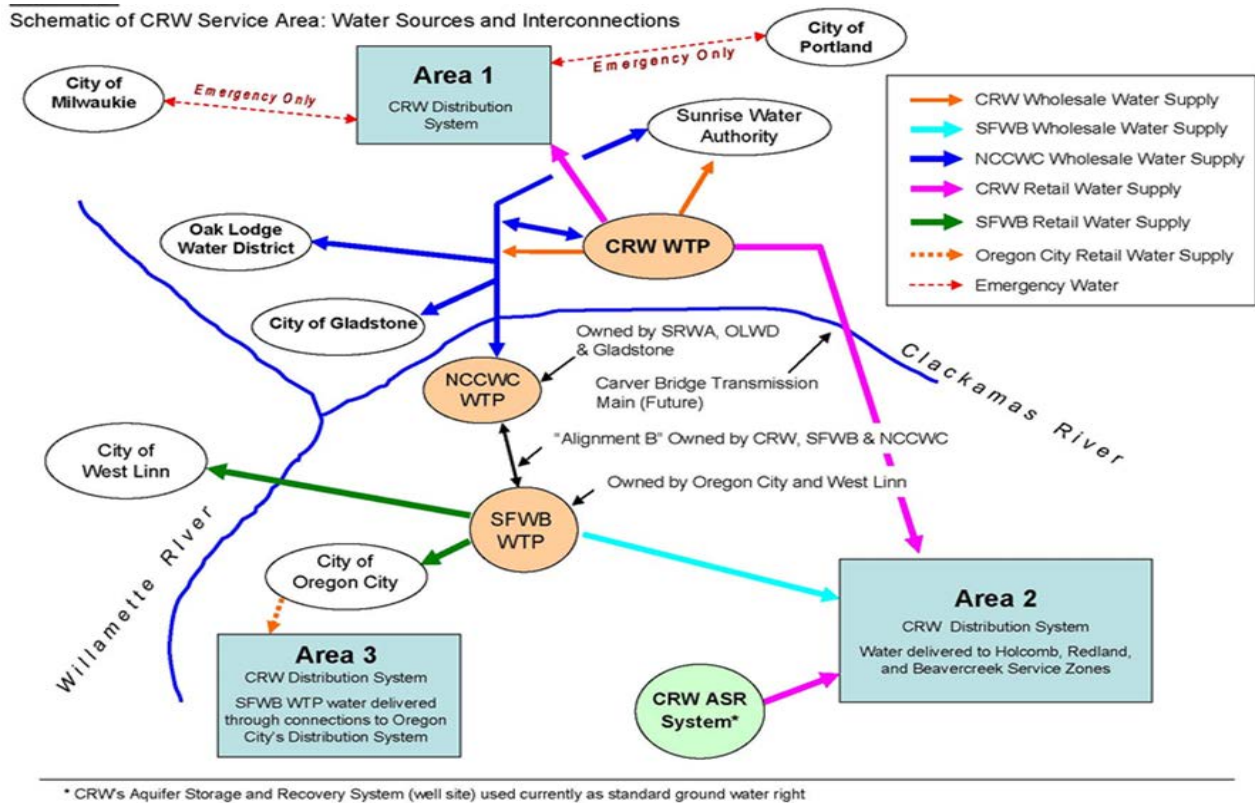


Exhibit 2-1

CRW’s distribution system has approximately 257 miles of pipeline, 14 reservoirs, and 11 pump stations. Plans are also underway to construct a “backbone project” comprised of series of new pipes, pump stations and storage reservoirs that will enhance provision of fire flows, system pumping efficiencies, and water quality; and will connect the CRW treatment plant and northern distribution system to our south service area customers. Completion of Phase 1 of the Backbone Project is anticipated in 2020.

### Sunrise Water Authority

Sunrise’s system serves about 15,000 service connections comprised mainly of residential, light commercial and multifamily customers. Like CRW, the Sunrise system has essentially two primary service areas. The first is centered in and around the city of Happy Valley and the second located across portions of the former city of Damascus and surrounding parts of unincorporated Clackamas County. The combined service territory covers an area of about 22 square miles.

The Sunrise distribution system includes about 230 miles of pipe, 14 reservoirs, and 17 pump stations. Two additional reservoirs are expected to be added in the next couple of years,

including a new 3 MG reservoir in the city of Happy Valley and a 2 MG share in CRW’s 6 MG reservoir off SE 152<sup>nd</sup> Avenue.

## Section 3 – Demands

### Clackamas River Water

CRW’s present average day demand is about 5.5 MGD with a peak (maximum day) of 11.7 MGD. Future growth is based on a steady 1.5% increase in annual demand. By 2035, the average day demand is expected to increase to 7.3 MGD with, a peak (maximum day) of 15.6 MGD. Table 1 and Table 2 (below) outline the projected growth in demand for the Northern and Southern service areas. Buildout is assumed at 2054.

**Table 1**

*20 Year Prediction of Demand CRW Northern Area (in million gallons per day)\**

	<b>Present</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>Buildout</b>
<b>Average Day</b>	4.0	4.2	4.6	4.9	5.3	7.0
<b>Peak Day</b>	7.6	8.0	8.7	9.4	10.1	13.3

\*Based on ‘1.5 percent’ growth forecast and peak equal to 1.9 times average day

**Table 2**

*20 Year Prediction of Demand CRW Southern Area (in million gallons per day)\**

	<b>Present</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>Buildout</b>
<b>Average Day</b>	1.5	1.6	1.7	1.8	2.0	2.7
<b>Peak day</b>	4.1	4.4	4.8	5.1	5.5	7.5

\*Based on ‘1.5 percent’ growth forecast and peak equal to 2.8 times average day

### Sunrise Water Authority

The 20-year projection has Sunrise growing by about 10,000-12,000 new connections through 2035 (even with the dis-incorporation of the city of Damascus). Recent growth has produced more than 550 new connection in one year. This similar pattern is expected to continue, on average, over the next 20 years. The growth is being driven by the demand for new homes and commerce, along with several new apartment complexes and townhome communities. The majority of this growth is to occur along the SE Sunnyside Road corridor east of SE 152<sup>nd</sup> Avenue and north along SE 172<sup>nd</sup> Avenue all the way to the county line.

Moreover, with the recent disincorporation of the city of Damascus, infrastructure development east of SE 190<sup>th</sup> Avenue becomes restricted by the topography marked by the Rock Creek basin. Here, gravity sewer is potentially available only west of this line, which serves as a “natural” barrier to dense housing development to the east. At “full capacity” (or “build out”), the growth is expected to climb to about 36,000 ERUs (or a peak day demand of 26 MGD).



The 20-year forecast for future demand is shown in Table 3 below.

**Table 3**  
*20 Year Prediction of Demand (in million gallons per day)\**

	<b>Present</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>Buildout</b>
<b>Average Day</b>	5.3	6.2	7.0	7.9	8.8	11.5
<b>Peak Day</b>	11.8	14.0	15.8	17.8	19.8	25.9

\*Based on 'medium' growth forecast and peak equal to 2.25 times average day

Note, these numbers can change dramatically over time but represent the 'most reasonable' case with the evidence of today.

## Section 4 – Sources of Supply

### Clackamas River Water

CRW owns and operates its own water treatment plant located along Mangan Drive (north of the river). Originally constructed in 1964, the plant has undergone two major expansions (1972 and 1991), bringing its total treatment capacity to 30 MGD (with an intake rated at 40 MGD). Treatment includes addition of chemical agents to promote coagulation, filtration, and disinfection. The finished water high service pump station has a firm capacity of approximately 22 MGD.

Water from the plant is currently used to supply demand to CRW's Northern area (Area 1), while wholesale supplies from the South Fork Water Board (SFWB) are used to serve demand in the Southern areas (Areas 2 and 3). Plans, however, are currently underway to construct a series of "backbone projects" that will allow the Southern areas to also be served by CRW's own plant, thus allowing water to be supplied to both the Northern and Southern areas.

CRW also has one Aquifer Storage and Recovery Well (No. 1) with a capacity of about 1.2 MGD that can provide supplement source to Area 2. However, this well is used sparingly due to aesthetic water quality issues (i.e. taste).

### Sunrise Water Authority

Sunrise serves its customers through two primary wholesale supply sources: CRW and NCCWC. CRW currently supplies 2.5 MGD (1.2 million units per year), primarily at a connection near SE 152<sup>nd</sup> Avenue. Sunrise has also entered into agreement with CRW (under the Clackamas Regional Water Supply Commission) to take up to an additional 7.5 MGD (or a total of 10 MGD) as future demands continue to increase.

Sunrise, in turn, owns a 48% interest in the 20 MGD NCCWC (slow sand/membrane) plant. This past year, Sunrise purchased about 1.4 million units from the NCCWC and plans to continue to expand its use of that plant in the future.

Sunrise's wells have a peak capacity of about 3.5 MGD and are typically used in the summer time to augment peak demands (east of SE 172<sup>nd</sup> Avenue). In addition, Sunrise has an Aquifer Storage and Recovery license to store up to 600 MG in 5 wells (peak delivery capacity of 8 MGD). Currently, only one of the five ASR wells has been constructed with a storage capacity of 70 MG (delivering 1.5 MGD). Sunrise intends to expand its ASR system over the next 5-10 years, adding at least three additional wells. Sunrise also owns another, smaller well (near New Seasons in Happy Valley) that serves non-potable water to a "purple pipe" system in and around the area off SE 162 Avenue.

#### Other Sources

- **Clackamas River Water**
  - City of Portland: Interconnect with the City of Portland through a gravity 18-inch main from the City's Mt. Tabor pressure zone to CRW's Otty pressure zone. This connection supplies approximately 4 MGD. CRW is discussing an emergency water supply agreement with the City of Portland.
  - City of Milwaukie: Emergency intertie near SE Harmony Road and SE 71<sup>st</sup> Avenue.
  - Oregon City: Interconnect with City at the following sites:
    - Hunter Heights Pump Station (Holcomb and Hunter Heights pressure zones)
    - S Maple Lane Court (Henrici pressure zone) – Emergency
    - Oregon City Golf Course (Henrici pressure zone) – Emergency
    - Forsythe Road with 4-inch meter (Holcomb pressure zone)
- **Sunrise Water Authority**
  - SFWB: Sunrise has third-party access to a water supply contract between the NCCWC and South Fork Water Board, authorizing the use of 'surplus' supplies (max. 10-12 MGD in winter). Water from this source is delivered via 'pipeline B' and routed through the NCCWC.

## Major Interties Between CRW and Sunrise (and NCCWC)

CRW's drinking water system is interconnected with SWA's system to allow water to be delivered at three different locations.

- *Mather Road*: up to 4,500 gallons per minute (contracted amount); 3,000 gallons per minute available capacity; located near Mather Reservoir (Mather Pump Station) at SE 97<sup>nd</sup> Avenue and SE Mather Road (on reservoir site owned by CRW).
- *Otty Road*: Emergency use only (per contract); 1100 gallons per minute available capacity; located near SE 92<sup>nd</sup> Avenue and SE Otty Road. (SWA Pump Station #4 on the Otty Road Reservoir site owned by CRW).
- *152<sup>nd</sup> Avenue*: up to 2,000 gallons per minute (contracted amount); 4,000 gallons per minute available capacity; located at SE Pinegrove Loop near SE 152<sup>nd</sup> Avenue; also site of new CRW/SWA 6 MG reservoir.

An additional intertie consists of the *Oak Lodge pump station*: up to 7,500 gallons per minute; located at the CRW plant site which can be used to provide water to SWA through the North Clackamas County Water Commission (NCCWC) system.

## Interconnections with Other Systems

- **Clackamas River Water**

CRW benefits from interconnections with surrounding water systems which allow the exchange of water between systems during emergency or shortage events. CRW's interconnections are summarized in **Table 4** (next page) and illustrated in Exhibit 2-1.

- **Sunrise Water Authority**

The NCCWC is in the process of securing an abandoned raw water pipeline from Lake Oswego/Tigard. The pipeline crosses underneath the Willamette River and could be used to serve 6-8 MGD from Lake Oswego (or Portland). This connection also requires use of a portion of the city of Gladstone assets in order to connect with the NCCWC.

TABLE4  
CRW Interconnections

<b>North Service Area</b>			
<b>Location</b>	<b>Water Supply</b>	<b>Customer</b>	<b>Description</b>
SE 97th & Glenwood	Portland/CRW	Portland/CRW	Master Meter (emergency use)
Otty Rd Reservoirs Property	CRW	Portland	Pump Station at Otty Rd Reservoirs for emergency use (owned by Portland)
Flavel Dr & Alberta	Portland	Oak Lodge Water District/CRW	Shared 24-inch waterline connected to 16-inch from Portland
Lawnfield Rd (Base of Hill)	CRW	SWA	Closed Valve
Harmony Rd West of 71st SE	CRW / Milwaukie	CRW / Milwaukie	Bi Directional Pump Station (emergency use)
Clackamas River Water - Treatment Plant	CRW	Gladstone	Master Meter (normally closed)
Morning Way @ 14801 SE	CRW	SWA	Pump Station (owned by SWA)
<b>South Service Area</b>			
<b>Location</b>	<b>Water Supply</b>	<b>Customer</b>	<b>Description</b>
Forsythe	Oregon City	CRW	4-inch Master Meter
Barlow Crest Pump Station	Oregon City	CRW	8-inch Master Meter
Anchor Way & Redland Road	SFWB	CRW	8-inch Master Meter
Glen Oak Pump Station	Oregon City/CRW	CRW	Normally Closed Valve
Meyer/Leland	Oregon City	CRW	Master Meter
Impala/Southend Rd	Oregon City	CRW	Master Meter
Maple Lane Court/Beavercreek Rd	Oregon City/CRW	CRW	Normally Closed Valve
Alignment B	CRW/SFWB/NCCWC	CRW	24-inch Transmission Main Between the NCCWC and SFWB Water Treatment Plants (Metered @ SFWB WTP)

## Section 5 – Water Availability

### Present Day

Currently, the parties generally have sufficient sources of supplies. CRW’s plant is currently rated to produce 23.4 MGD. This production capacity can be increased upon the completion and approval by the Oregon Health Authority (OHA) of an updated “tracer” study. CRW has allocated 10 MGD for wholesale use under the CRWSC. CRW’s peak day demand of 11.7 MGD remains well below the available capacity.

The more immediate issue is that Sunrise is already approaching its peak source availability at a present maximum day demand of 11.8 MGD. Sunrise has access to 12.3 MGD from the NCCWC (2.5 MGD comes from CRW through a wholesale contract with NCCWC), along with its access to various wells (up to 3.5 MGD). Hence, Sunrise will need additional peak day capacity in the next couple of years. This demand could be met through the CRWSC (or possibly SFWB).

### 20-Year Projection

CRW projects a 20-year maximum day demand of 15.6 MGD and Sunrise a similar demand of 19.8 MGD. Between the parties, there is about 33.2 MGD of total supply capacity. The total 20-year demand will exceed today’s available capacity.

Hence, by 2035, available capacity will be nearly exhausted and additional source(s) required to meet any future demand. CRW’s plant will also be 70 years old at that point and will require significant upgrading and improvement. Sunrise may also increase its source availability from the NCCWC – through new membranes and associated added capacity.

### Buildout

Beyond 2035, the parties will need access to nearly 50 MGD. The most feasible option would be to expand the CRW plant by 10 MGD, bringing its total capacity to 40 MGD. Sunrise would continue to have about 10 MGD available from the NCCWC. This expansion could be supported by the primary water right held by the NCCWC that has a dual point of diversion allowed at the CRW intake. This expansion would likely require significant improvements to CRW’s plant and its intake (which might be triggered prior to 2035).

### Curtailement

Information regarding curtailment triggers, conservation measures, and public messaging is usually contained in the members’ water management and conservation plan. CRW and Sunrise have different water management and conservation plans.

The CRWSC planning document requires the development of a process and formula for allocating the limited quantities of water for use under the CRWSC. The formula for

determining the allocation of limited water supplies is that the shortage will be allocated to the participating member proportionately. Any curtailment of the CRW source would require equal (percentage) curtailment for members supplied under the CRWSC.

# CLACKAMAS REGIONAL WATER SUPPLY COMMISSION

June 5, 2017

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## Agenda Item 3

Subject:	Draft Capital Improvement Plan
Presenter(s):	Wade Hathhorn, SWA Todd Heidgerken, CRW
Attachments:	Draft Capital Improvement Plan
Background:	Under the CRWSC, the parties share mutual interest in key infrastructure projects. The Commission creates a “vehicle” for such assets to be planned, constructed and maintain in a “shared” and “consolidated” manner.
Analysis:	Both CRW and Sunrise expect to deliver more water to their customers in the future. The parties share interest in moving a lot more water (for operational purposes) to storage and pumping facilities located off SE 152 <sup>nd</sup> Avenue. The parties have shared interest in: <ol style="list-style-type: none"><li>1. Additional storage and a new 6 MG reservoir</li><li>2. Expanded transmission capacity and a new 24-36 inch main</li></ol> <p>A summary of those projects and shared capital improvement plans among the parties is outline in the attached report. Also discussed is the long-term need for possibly upgrading and improving the CRW treatment plant.</p>
Options:	Amend the document following Board review and input.
Staff Recommendation:	Staff asks the Board to either approve or formally acknowledge receipt of the Capital Improvement Plan as required under the CRWSC Agreement.
Draft Motion:	None







**DRAFT**

CLACKAMAS REGIONAL  
WATER SUPPLY COMMISSION  
(CRWSC)  
Capital Improvement Plan

May 2017

## Section 1 – Background

The document provides a general introduction to several key infrastructure projects that may be of shared interest between Clackamas River Water (CRW) and Sunrise Water Authority. These projects may be planned, constructed and owned (in part or whole) under the Clackamas Regional Water Supply Commission (Commission). The participating members may choose to plan and construct their own facilities or share assets under the CRWSC. Ownership (and related maintenance) of any shared assets is established on an agreed percentage for each party.

## Section 2 – Summary of Future Demands

### Clackamas River Water

CRW’s present average day demand is about 5.5 MGD with a peak (maximum day) of 11.7 MGD. Future growth is based on a steady 1.5% increase in annual demand. By 2035, the average day demand is expected to increase to 7.3 MGD with, a peak (maximum day) of 15.6 MGD. Table 1 and Table 2 (below) outline the projected growth in demand for the Northern and Southern service areas. Buildout is assumed at 2054.

**Table 1**

*20 Year Prediction of Demand CRW Northern Area (in million gallons per day)\**

	<b>Present</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>Buildout</b>
<b>Average Day</b>	4.0	4.2	4.6	4.9	5.3	7.0
<b>Peak Day</b>	7.6	8.0	8.7	9.4	10.1	13.3

\*Based on ‘1.5 percent’ growth forecast and peak equal to 1.9 times average day

**Table 2**

*20 Year Prediction of Demand CRW Southern Area (in million gallons per day)\**

	<b>Present</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>Buildout</b>
<b>Average Day</b>	1.5	1.6	1.7	1.8	2.0	2.7
<b>Peak Day</b>	4.1	4.4	4.8	5.1	5.5	7.5

\*Based on ‘1.5 percent’ growth forecast and peak equal to 2.8 times average day

### Sunrise Water Authority

The 20-year projection has Sunrise growing by about 10,000-12,000 new connections through 2035 (even with the dis-incorporation of the city of Damascus). The growth is being driven by the demand for new homes and commerce, primarily along the SE Sunnyside Road corridor east of SE 152<sup>nd</sup> Avenue and north along SE 172<sup>nd</sup> Avenue all the way to the county line. At “full capacity” (or “build out”), the growth is expected to climb to about 36,000 ERUs (or a peak day demand of 26 MGD).

The 20-year forecast for future demand is shown in Table 3 below.

**Table 3**

*20 Year Prediction of Demand (in million gallons per day)\**

	<b>Present</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>Buildout</b>
<b>Average Day</b>	5.3	6.2	7.0	7.9	8.8	11.5
<b>Peak Day</b>	11.8	14.0	15.8	17.8	19.8	25.9

\*Based on 'medium' growth forecast and peak equal to 2.25 times average day

Note, these numbers can change dramatically over time but represent the 'most reasonable' case with the evidence of today.

### Section 3 – Future Capital Projects

The CRWSC created the opportunity for the participating members to plan and construct (or transfer) key assets of shared interest. By doing so, the parties can take advantage of “economies of scale” and maximize the use of combined resources.

The growing demand for water by both CRW and Sunrise will create several such shared opportunities over the next 20 years. Sunrise has always relied directly on CRW for wholesale water deliveries. Now, under the CRWSC, CRW has offered up to 10 MGD of capacity from its own treatment plant for wholesale purchase by the parties. Sunrise currently uses 2.5 MGD of that source and is anticipating the need for the remaining 7.5 MGD over the next 20 years. CRW’s demand will also grow and by 2035 the existing treatment capacity between CRW and Sunrise (i.e. NCCWC) may be exhausted.

CRW also intends to construct (on its own) sufficient infrastructure (i.e. pipelines, pumping and storage) to serve its “Southern” service territory with supplies from its own plant.

The two parties, however, share common interest in water delivery north of the river. CRW currently serves Sunrise primarily through a connection near SE 152 Avenue (near Highway 212/224), while maintaining separate connections at SE Mather Road (where both parties have significant existing infrastructure) and SE Otty Road. Sunrise’s ability to take water from CRW at SE Mather Road is limited by its own delivery of water from the NCCWC (Sunrise’s transmission capacity is designed to make maximum use of the NCCWC source at this location). Moreover, the connection at SE Otty Road is currently only used during emergencies and would need significant improvement to expand withdrawal at this location.

Both parties plan to move a lot more water to the SE 152<sup>nd</sup> connection in the future. CRW will be using this location to operate its “backbone system” which will serve its “Southern” territory with water from its own treatment plant. Likewise, this location will become an important part of Sunrise’s need to fill future demand along SE Sunnyside Road and SE 172<sup>nd</sup> Avenue.

Both plans are requiring additional pipeline capacity, storage and pumping. Looking beyond the next 20-years, the treatment capacity held among the parties will become exhausted and expansion of CRW's will be a priority. A summary of the key infrastructure required in the future is shown in the attached **Exhibit**, with brief descriptions and projected timing outlined below.

**Period 0-5 Years (2015-2020)**

CRW is planning to design and construct a new 6 MG reservoir near SE 152<sup>nd</sup> Avenue. The facility will add operational capacity for CRW customers along Highway 212 and serve primary delivery to its "backbone system." Sunrise has agreed to buy a one-third (1/3) interest in this facility (2 MG) that will be used to expanded deliveries into its primary (610-foot) service area that serves all the new growth along the SE 172<sup>nd</sup> Avenue corridor.

*Project: SE 152<sup>nd</sup> Avenue Reservoir*

*Size: 6 million gallons*

*Estimated Costs: \$15 million (includes pre-design, design and construction)*

*CRW Owns: 2/3 interest (66.7%)*

*Sunrise Owns: 1/3 interest (33.3%)*

**Period 6-10 Years (2021-2025)**

The existing pipeline from the CRW plant to the SE 152<sup>nd</sup> Avenue Reservoir is undersized for its desired capacity. These improvements include more than 3 miles of added 24 to 30-inch transmission main extending all the way back to CRW's treatment plant, allowing up to 10-12 MGD of additional delivery to Sunrise's east side. This pipeline will be constructed in two phases, the first phase in this period and the remainder in the following period.

*Project: Transmission Pipeline from the intersection of 122<sup>nd</sup> Avenue and Hwy 224 to SE 152<sup>nd</sup> Avenue (Phase 1)*

*Size/Length: 8,500 feet of 24 to 30-inch main*

*Estimated Costs: \$3,400,000 (including design and construction)*

*CRW Owns: TBD*

*Sunrise Owns: TBD*

**Period 11- 15 Years (2026-2030)**

This would be the second phase of a new 24 to 30-inch transmission main extending from CRW’s treatment plant to SE 152<sup>nd</sup> Avenue.

*Project: Transmission Pipeline from CRW Plant to the intersection of 122<sup>nd</sup> Avenue and Hwy 224 (Phase 2)*

*Size/Length: 9,000 feet of 24 to 30-inch main*

*Estimated Costs: \$3,600,000 (including design and construction)*

*CRW Owns: TBD*

*Sunrise Owns: TBD*

**Period 16 - 20 Years (2031-2035)**

Nearing the end of this period, the treatment capacity held among CRW and Sunrise (NCCWC) will be exhausted and new capacity will have to be added. The CRW plant will also be approaching 70 years in service and will need significant upgrade and improvement.

*Project: Upgrade CRW Water Treatment Plant*

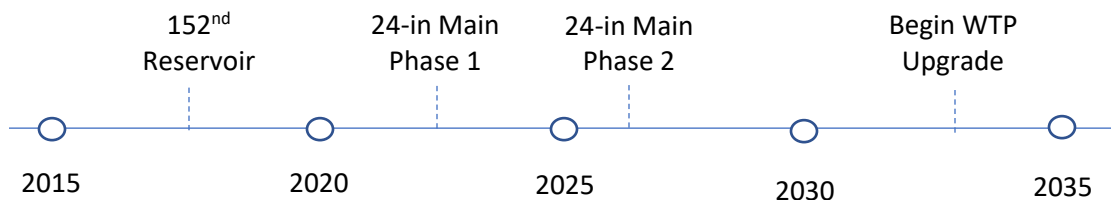
*Size/Length: Add 10 MGD capacity (bringing total capacity to 40 MGD)*

*Estimated Costs: Unknown (a lot ???)*

*CRW Owns: TBD*

*Sunrise Owns: TBD*

Basic timeline showing major CRWSC project events over next 20 years.



Summary of 20-Year Capital Improvement Plan